Welcome!

This is an archive of older posts from the HP forum.

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#### Isn't shopping on eBay fun?

Message #1 Posted by Frank Wales on 13 May 2003, 9:00 p.m.

Especially when you get most of what you bid on: <u>http://cgi3.ebay.com/aw-cgi/eBayISAPI.dll?</u> <u>MfcISAPICommand=ViewBidItems&userid=therwil&completed=1&all=1&rows=200</u>

**Re: Isn't shopping on eBay fun?** *Message #2 Posted by <u>Ellis Easley</u> on 13 May 2003, 11:04 p.m., in response to message #1 by Frank Wales* 

It took me 15 years to collect that many 71B's - but I have to admit, all but one I found on Ebay in the past few years! All of mine had something wrong with them, several have one key that no longer sticks out as much as the others, although the keys still function without clicking.

**Re: Isn't shopping on eBay fun?** *Message #3 Posted by Garry on 14 May 2003, 9:16 a.m., in response to message #2 by Ellis Easley* 

I deeclare, y'all must be millonaires like me !!!

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### Data logger for 48GX

Message #1 Posted by Wayne on 13 May 2003, 4:53 p.m.

I am looking for a data logger that is compatible with a HP 48GX. I am mostly interested in collecting analog signals over a range of 0 to 1 volt dc and 0 to 5 volt dc. It would be quite handy if the data logger could, also, record temperature, either from a built in sensor or, better yet, from an external sensor, i.e. thermocouple, thermistor, or RTD. I have read literature about the Portable DataLab for the 48G+/48GX and 49G that is manufactured by Firmware Systems, Inc. I am curious if anybody has used this data logger from Firmware Systems and what they thought about it. Also, Does anybody know of any other data loggers that are compatible with the HP 48GX?

### **Re: Data logger for 48GX**

Message #2 Posted by <u>Raymond Del Tondo (Germany)</u> on 13 May 2003, 6:54 p.m., in response to message #1 by Wayne

As far as I can tell, the PDL from FSI (http://www.firmwaresystems.com/) works very well. I worked through the examples in the different books, and it was fun.

AFAIK a remote controlled version of the PDL is used to control kind of water selling machines in shopping malls.

Regards,

Raymond

# **Re: Data logger for 48GX**

Message #3 Posted by <u>Christoph Klug</u> on 14 May 2003, 3:22 a.m., in response to message #2 by Raymond Del Tondo (Germany)

Dear Wayne,

please contact Tony Duell from HPCC. He developed a nice hardware interface system platform for HP48. This converts the RS232 interface of the HP48 to I2C bus. Applications for digital I/O and analogue I/O exist. Tonys design is modular, it is possible to enlarge it for your own application...

For HP41 exist the I/O-Board and the IL2000 system for hardware interfacing, measurement and data logger applications. Furthermore special audio measurement hardware exist for this systems : For example a computer controlled sine wave oscillator and a rms-voltmeter with 12bit ADC. Including HP41 software for frequency response measurement. Detailled information you get by reading the 300page I/O-board manual and the 150page IL2000 manual...

Best wishes from Germany - Christoph Klug

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**HP 41 battery/Port unit - synthetic Barcode instructions** *Message #1 Posted by Frank Winter on 13 May 2003, 2:56 p.m.* 

A couple of weeks ago I dived a little bit deeper in on of my seldom-used drawers and found - my old HP-41 stuff (I wish I hadn't open the drawer). I didn't need to tell you what's going on since then, for example:

- Rebuilding battery packs, - Bring back my 41CV to live by slaughtering my 41C, - Bring back to mind the "secrets" of synthetic programming (why using 0 STO c is not too good) - Purchasing the Museum DVD (giving David the wrong country on the address [Thanks again for your detective work] and after I received the DVD - to much print-ing, to much reading) - Surfing ours and ours the Internet and especially this forum (great stuff here) - Spending much too much money on eBay etc). - And so on

Okay, now my to questions (for this time).

a) Do the battery/Port unit of the 41C and 41CV have a identical layout (the battery con-tacts on the CV are severe corroded and b) Is there a way of generating synthetic instructions (RCL d for example) as two-byte paper keyboard?

Thanks Frank

# Re: HP 41 battery/port connector

Message #2 Posted by <u>Randy Sloyer</u> on 13 May 2003, 4:19 p.m., in response to message #1 by Frank Winter

I can answer the first part. AFAIK the battery/port connectors are the same on all 41 series. I have an early steep key C to a half nut CX and everything in between and have seen only version of the part.

If the corrosion is on the battery ends only and it has not reached the PC board connector or ports, you can repair it with copper foil. I use 1/2" 3M copper shielding tape and low temp solder to connect electrically. Not as pretty as the gold, but works fine and is a whole lot

cheaper.

David Smith detailed this method some time ago with photos. I'll see if I can find the thread and re-post later today.

# **Re: HP 41 battery/port connector**

Message #3 Posted by <u>Frank Winter</u> on 13 May 2003, 4:39 p.m., in response to message #2 by Randy Sloyer

Thanks for your info. I've read the article from David Smith too, and have previously put a little solder on the battery ends on the 41 CV. But as you mentioned, not a very pretty solution.

I've already started cannibalizing my 41 C - and here are the contacts okay. So I will use this part in the CV.

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### Re: One small math remark...

Message #1 Posted by glynn on 13 May 2003, 12:40 p.m.

Absolutely clear... up to the appearance of Taylor. :-D

It's not your skills, Luiz; I never had a brain wired for math. It goes in, but what comes out is hopelessly mangled.

You do derive the ArcCos, ArcSin, ArcTan from the above relationships?

I was trying to see from Gene's explanation but dunno how one takes one from another-- you have to turn some things to rads or degrees and then the whole adds up to 180 deg... or what?

Y'all, please be gentle. This is what drove me to calculators with built-in functions in the first place.

Your post was based on a deleted one...

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 12:52 p.m., in response to message #1 by glynn

That's why it is here and not in the original thread itself. My fault!

I saw my math remark was not clear and I deleted it at the very moment you were replying it. Sorry.

Anyway, your question was about another subject, and Gene's answer is better suited. I will check ArcSin and related inverses and return them to you. Unless someone else has it ready...

Best regards.

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Inconsistent Results #2 and #3: 12c vs. 12c Platinum

Message #1 Posted by Gene on 13 May 2003, 10:28 a.m.

#2: Find the PV of 63 payments of \$1,000,000 at the interest rate of 0.00000161% (small, but it isn't ZERO).

12c: -62,999,967.54

12c Platinum: -62,999,967.52

#3: Find the remaining balance after making 360 payments of \$1,125.75 on a loan of \$100,000 at an interest rate of 13.25%, compounded monthly.

Enter:

360 N 13.25 g 12/ (use the 12 divide blue shifted-function of the i key) 100000 CHS PV 1125.75 PMT FV

12c: 108.8761800

12c Platinum: 108.8761785

My guess here is that the Platinum is more accurate.

Still, the 2 versions should not give different results!

Gene

# Have you tried the HP19BII?

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 11:55 a.m., in response to message #1 by Gene

Hi, Gene;

I tried the three problems in both HP19BII and the TVM SOLVER in the HP48G.

#1 - both gave -1,237,786.93443

#2 - both gave -62,999,967.5424

#3 - both gave 108.87472648

About #1: shouldn't the sequence

1.15 [ENTER] 26 [1/x] [y<sup>x</sup>] 1 [-] 100 [×] [i]

be rounding actual interest rate value? Final magnitude gives a .54 % change from expected result and given result. It's somewhat big, if we consider the amount of money...

My US\$ 0.02 contribution.

Luiz C. Vieira - Brazil

#### and 18c results

Message #3 Posted by <u>Gene</u> on 13 May 2003, 12:04 p.m., in response to message #2 by Vieira, Luiz C. (Brazil)

Correct about the process to enter the interest rate, but that's how the results were produced in the PPC Journal article on improving the PPC ROM FI program (FIN program). I didn't want to change it.

18c gives the same answer to #1 and #2 as the 19BII

However, it gives a different answer to #3

18c: 108.874741020

### Re: Inconsistent Results #2 and #3: 12c vs. 12c Platinum

Message #4 Posted by <u>Patrick</u> on 13 May 2003, 6:58 p.m., in response to message #1 by Gene

If the Platinum is more accurate then I disagree with you: the two versions *should* give different results.

HP should not be bound to reproduce erroneous results only to please the gods of consistency. They have to be allowed to make corrections when errors have been discovered.

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#### Inconsistent results #1: 12c vs. 12c Platinum

Message #1 Posted by Gene on 13 May 2003, 10:20 a.m.

Ok gang. Found an inconsistent result. I was solving the first accuracy problem presented in the FIN (FI Improved) article from PPC Journal Jan/Feb 1983 Page 22f.

Here it is:

40 ENTER 26 x n 1.15 ENTER 26 1/x y^x 1 - 100 x i 0 PV 650 ENTER 26 / PMT FV

Both calculators return the same result (which is inaccurate, by the way) of -1,237,786.903 ("correct" answer is -1,244,458.491). The original 12c finishes about 1 second faster than the 12c platinum.

(And, another by the way...the 12c platinum switches to showing "running" in the display when it solves the Y<sup>X</sup>...somehow, I think that makes it seem slower than simply "blanking" the display would be).

Now the example suggests resolving for the interest rate. With the FV in the display, I pressed STO i, which placed the FV into the i register. (Why? Who cares!).

When I press i again, it should solve for the interest rate.

The original 12c does this in a few seconds.

The 12c platinum shows ERROR 5 in the display.

This should not happen.

# holy cow! More accuracy!! How dumb!

Message #2 Posted by <u>glynn</u> on 13 May 2003, 11:24 a.m., in response to message #1 by Gene

I would not have believed they would do this...

The only way you do this is to update the firmware of the old 12c, so the one you sell NOW is the same result as the more accurate 12cP.

Then you explain it away by saying that all calculators have been getting more accurate through the years-- and the consumer shouldn't be sticking with an old calculator... or buying used ones off eBay...

Gene, how old is your 12c "regular" model? Anyone got a brand new chinese thingy? Someone want to check old 12c with new 12c?

my original 12c S/N: 2620A - 1986

Message #3 Posted by <u>gene</u> on 13 May 2003, 11:32 a.m., in response to message #2 by glynn

Good old one.

I have a chinese one, but look at my previous post Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 11:58 a.m., in response to message #3 by gene

Hi, guys;

I tried the three problems in other calculators (19BII and 48G TVM SOLVER) so we have other "opinions". Check them out, please.

Luiz C. Vieira - Brazil

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**Trigonometrics with the HP16c (no inverses so far)** Message #1 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 1:51 a.m.

Hi, folks (mostly HP16C fans);

After all of these HP12C's related messages, posts and the like, I took the excellent Viktor Toth's Trig program listing and took a large look at it. I must tell that there are other excellent programs, like Valentin's "Tricky Trigonometric" for the HP12C. At the time I first saw Viktor's version, I wondered what sort of algorithm did he use, since neither  $y^x$  nor **n**! is used there. I decided to go further and the results are in this article:

HP-16C Trigonometric Functions (no inverses so far)

If any of you could have a look at it, also try it in your HP16C, I'd gladly accept any suggestions, comments, adds, etc. Mostly if there is anything wrongly written (I like learning).

Thank you.

Luiz C. Vieira - Brazil

**Re: Trigonometrics with the HP16c (no inverses so far)** *Message #2 Posted by* <u>*Gene*</u> *on 13 May 2003, 9:36 a.m., in response to message #1 by Vieira, Luiz C. (Brazil)* 

Small suggestion?

How about trying to get it re-written where you can do a GSB 1 to get SIN, GSB 2 to get COS, and GSB 3 to get TAN?

I know that it generates all three, but if they acted more like separate routines, it might be nice to call them with a GSB X from the keyboard.

### One small remark...

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 9:51 a.m., in response to message #2 by Gene

Hello, Gene;

thank you for the suggestion; it will be no headache to accomplish.

What bothers me is the fact that at least sine or cosine must be first computed, and it means the complete series must be evaluated till error = 0 for at least one of them: SIN or COS. It would only take a lot of time, almost the same amount for each of them, because computing cosine or tangent given sine is neglectible in this case.

Despite of the time spent, the rest is somewhat easy. I'll post it later at this very thread.

I'm still trying to find the time to "delve into" inverses...

Thank you for the feedback.

Luiz C. Vieira - Brazil

### Re: One small remark...

Message #4 Posted by <u>glynn</u> on 13 May 2003, 12:11 p.m., in response to message #3 by Vieira, Luiz C. (Brazil)

Am I stupid in thinking that \*(yes, quite likely I am)\* the inverse is simply 1/function, as in "1/sin is arcsine", etc.?

#### Nope, not the same

Message #5 Posted by <u>Gene</u> on 13 May 2003, 12:16 p.m., in response to message #4 by glynn

Sine is the ratio of the opposite over the hypotenuse ( which of course also defines the angle).

Inverse takes the ratio and gives you the angle it came from.

Example triangle, adjancent = 3 units long, opposite = 4 units long, hypotenuse = 5 units long.

Sine = 4/5 or 0.8 Arcsine of 0.8 = 53.13 degree angle.

I have never forgotten this since HS. Chief SOH CAH TOA!

Sine = Opposite / Hypotenuse Cosine = Adjacent / Hypotenuse Tangent = Opposite / Adjacent

**Re:** Nope, not the same

Message #6 Posted by <u>glynn</u> on 13 May 2003, 12:24 p.m., in response to message #5 by Gene

I needed to go to your High School.

Well, actually, attending mine would have helped, too.

;-)

Re: One small math remark...

Message #7 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 12:34 p.m., in response to message #4 by glynn

Hi;

after Taylor's polynomial development, we have:

 $sin(X) = (X^1)/1! - (X^3)/3! + (X^5)/5! - (X^7)/7! + \dots$ 

and:

 $\cos(X) = -(X^2)/2! + (X^4)/4! - (X^6)/6! + (X^8)/8! + \dots$ 

Each new term is a lot smaller than the previous one, and in the calculator's predefined accuracy, when a new term no longer changes the final result, the other ones will not change too, so it's time to stop. The relation between sine and cosine is known as:

 $(\sin(X))^2 + (\cos(X))^2 = 1$  (Pythagorean)

Also, the tangent relation is:

sin(X)/cos(X) = tan(X)

The key is finding either sin(X) or cos(X) and apply final two identities to compute tan(X) and the remaining cos(X) if sin(X) is found or vice-versa.

Please, if I miss(pelled) something or committed a math crime in here, I plied guilty and ask for mercy... I beg to the jury to consider that I wrote it by heart, do not have my notes or books in hands.

Otherwise, is that easy to get?

My US\$ 0.02 contribution.

<b>Re: One small math remark</b> Message #8 Posted by <u>Valentin Albillo</u> on 13 May 2003, 12:42 p.m.,
in response to message #7 by Vieira, Luiz C. (Brazil)
Just one small correction:
Luiz wrote:
$ \cos(X) = -(X^2)/2! + (X^4)/4! - (X^6)/6! + (X^8)/8! + \dots $
Actually, it should be:
$"\cos(X) = 1 - (X^2)/2! + (X^4)/4! - (X^6)/6! + (X^8)/8! + \dots"$

with the extra "1" at the beginning. Best regards.

### YES!

Message #9 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 12:47 p.m., in response to message #8 by Valentin Albillo

Hi, Valentin;

It's the

 $(X)^{0}/0!$ 

term that I forgot (I always do that since high school..)

Thank you very much!

Luiz C. Vieira - Brazil

# Re: One small math remark...

Message #10 Posted by <u>Trent Moseley</u> on 13 May 2003, 2:03 p.m., in response to message #7 by Vieira, Luiz C. (Brazil)

I love Luis' US\$ 0.02 worth. What happened to the old cent sign (a "c" with a slash through it)?

tm

Message #11 Posted by <u>Dan M</u> on 13 May 2003, 2:32 p.m., in response to message #10 by Trent Moseley

I had thought that the old cent sign went away when keyboards started needing a "1" (number one) and couldn't substitute an "l" (lower-case L). But upon looking, it's not even in ASCII anywhere. Google pointed towards a better believable explanation than I could come up with.

http://www.charlieanderson.com/centsign.htm

gone also from keyboards and ASCII are 1/4, 1/2, 3/4.

I miss the old cent sign, and deplore its misuse in modern times on store signs and such: 0.25c which really means 25c.

Oh well, such is progress and standardization.

#### Re: One small math remark...

Message #12 Posted by <u>Dan Thanks</u> on 13 May 2003, 3:09 p.m., in response to message #11 by Dan M

Dan,

Thanks!

tm

#### Cent and other non-ASCII characters

Message #13 Posted by <u>Michael F. Coyle</u> on 13 May 2003, 5:50 p.m., in response to message #11 by Dan M

HTML has special encodings for lots of odd but useful symbols. There are two formats:

¢ ¢

No matter how hard I try, though, the symbol doesn't come out in the message here; either Dave's software or my Web Browser does

something to prevent it.

Unicode also defines the cent as character 162.

My 2¢.

- Michael

# Luiz I Apologize

Message #14 Posted by Trent Moseley on 14 May 2003, 12:02 a.m., in response to message #10 by Trent Moseley

Liuz,

I must apologize for mispelling your name.

tm

**Re: Luiz I Apologize** Message #15 Posted by Vieira, Luiz C. (Brazil) on 14 May 2003, 12:11 a. *m*., in response to message #14 by Trent Moseley Hi, Trent; I did not even notice that; don't worry, it's somewhat hard from people that come from different cultures to keep track with correct spelling, mostly when proper names are the issue. You see, you wrote Liuz instead of Luiz in your apologetic post... Don't bother yourself; there is no special "hard" meanning with these changes. Thanks for your care. Luiz C. Vieira - Brazil (have you found the ¢

symbol?)

Message #16 Posted by <u>Dave Shaffer</u> on 13 May 2003, 5:26 p.m., in response to message #7 by Vieira, Luiz C. (Brazil)

Luiz,

I think you are right about the Taylor series expansion - you can quit when the next term is too small.

But: something like this is what got HP into trouble on the original HP35 algorithms. Remember the famous ln(exp(2.02)) (or reverse?) which gave "2" for the answer? At some point, in whatever expansion HP used to evaluate the offending function, the terms temporarily looked like they had converged, but there were larger terms farther out in the expansion. I think the programmers did some comparison on the order of

if(abs(iteration\_n - iteration\_n-1)) < tolerance

to decide if it was OK to quit adding terms.

#### Re: One small math remark...

Message #17 Posted by <u>Patrick</u> on 13 May 2003, 7:03 p.m., in response to message #16 by Dave Shaffer

In a convergent alternating series (i.e., each term has a different sign), the total error you make in truncating the series is less than or equal to the first omitted term (in absolute value).

I'm an ex-mathematician, so don't ask me to translate that into English... ;-)

Message #18 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 May 2003, 12:00 a. m.,

in response to message #17 by Patrick

Hi, guys;

I think the trick in here is that Viktor Toth used a program sequence where two terms are added each time the loop runs, what means two terms with opposite signs are added before tolerance (error) is tested. I think of it as a partial (perhaps complete) solution for testing convergent alternating series. Then, the worst case (and last one) is when both terms are added and there is no change in final accumulated value not because they have the same magnitude, but because their magnitude is below final value range.

I also take

```
if(abs(iteration_n - iteration_n-1)) < tolerance
```

more as a concern for number of computed terms and consequently time to compute than for least-significant digit accuracy. One question: in the HP35, with how many digits does the system deal internally?

If you take terms too closed to zero or to maximum/minimum you'll have division by zero and Error 0. But if they are not too close, like  $sin(1 \times 10^{-4})$ , non-asymptotic (faster) convergence occurs because terms are too far from each other. And there is the issue that internal algorithms will be dealing with more digits than any user program, right?

Man, I love discussions on these subjects! Makes me feel my brain cells are alive... after 41 years straight activity.

Wow!

By popular demand: my 2¢ contribution (my secret ¢ symbol...)

Message #19 Posted by <u>Trent Moseley</u> on 14 May 2003, 12:10 a.m., in response to message #18 by Vieira, Luiz C. (Brazil)

Luiz,

Now you've done it! How did you print the cent sign?!!

tm

### Secret ¢ symbol... not anymore.

Message #20 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 May 2003, 12:16 a.m., in response to message #18 by Vieira, Luiz C. (Brazil)

Hi, Trent;

I'm running Windows and I opened Character Map and searched for  $\phi$  in both Times New Roman and Courier New. It was there in both fonts. IN my keyboard configuration I get it with a shortcut:

[Shift]+[Ctrl]+[Alt]+[C]

It worked for me: ¢

And with preformated font, it looks even better:

[pre] ¢ [/pre]

Best regards.

#### **Re: Secret ¢ symbol... not anymore.**

Message #21 Posted by <u>Trent Moseley</u> on 14 May 2003, 12:37 a. m.,

in response to message #20 by Vieira, Luiz C. (Brazil)

Luiz,

The cent sign discussion has been fun. I'm so pleased that through this forum I have been able to have my HP-67 card reader repaired after being out of service for so many years. Not that it is my prime calculator any more, but it's like an old friend that still works!

Best regards,

tm

#### I have my own happy stories...

Message #22 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 May 2003, 1:59 a.m., in response to message #21 by Trent Moseley

Hello, Trent;

I, as I believe many others, have my own happy "friendship" stories. In 1982 (or 1981?) I bought my first HP calcualtor: an HP41C with one memory module. It was kept spread around inside a shoes box for about eight years and I could rebuilt it after talking to a few guys in here. Good fellow that one. It is again in a box (not a shoes box, not spread around} because I had to use it's battery holder to power an HP41CX up. But it is still working alright.

I like knowing about these good, happy stories like yours.

Thanks.

#### **Re: Secret ¢ symbol... not anymore.**

Message #23 Posted by <u>Ellis Easley</u> on 14 May 2003, 10:06 a.m., in response to message #20 by Vieira, Luiz C. (Brazil)

You can get (any?) character code in Windows by holding down ALT and then typing a 1 to 3 digit number on the numeric keypad. I don't know if all versions of Windows do this or do it the same, but I get the US cent sign with 155, the UK pound sign with 156, and the Japanese Yen with 157 (the last two must be on nationalized keyboards). Also I get "1/2" with 171 and what looks like "1/4" with 172. NUM LOCK has to be on. Without NUM LOCK, 155 gives the cent sign, but 156, 157 and 17 (alone) makes my browser load my home page!

¢ cent sign £ pound ¥ Yen ½ one half ¼ one quarter?

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#### **12c Platinum pictures**

Message #1 Posted by Gene on 12 May 2003, 10:28 p.m.

Three pictures:

HP-12c Platinum Front

HP-12c Platinum Back

HP-12c Platinum Inside

#### **Re: 12c Platinum pictures: Thanks Gene**

Message #2 Posted by <u>dano</u> on 12 May 2003, 11:04 p.m., in response to message #1 by Gene

Thanks Gene, Very informative. I was also interested to see how hp allowed you to go from RPN to algebraic. I see they put an "RPN" flag in the display - seems they think most people will proabaly put the unit in ALG mode - what a shame.

# **Re: 12c Platinum pictures: Thanks Gene**

Message #3 Posted by <u>Ernie Malaga</u> on 12 May 2003, 11:15 p.m., in response to message #2 by dano

What I'd like to know is whether it's necessary to press [g] before the [ENTER} key in order to execute an [=] while in algebraic mode... or whether it's enough to press [ENTER].

Also, does the 12CP ("Platinum") respect the natural hierarchy of algebraic operations? It would seem that it doesn't, since there are no parenthesis keys either.

-Ernie

#### **Re: 12c Platinum pictures: Thanks Gene**

Message #4 Posted by <u>Gene</u> on 13 May 2003, 7:24 a.m., in response to message #3 by Ernie Malaga

If you're in ALG mode, you just press the ENTER / = key and it works.

### **RPN vs ALG**

Message #5 Posted by <u>Michael F. Coyle</u> on 13 May 2003, 12:33 a.m., in response to message #2 by dano

But on the back plate it says, "All examples are performed in RPN mode." So if the cheat sheet on back is to be of any use, the calc (and owner) had better be in RPN mode, right?

(Also, what about the manual? Predominately RPN or ALG?)

I suspect most 12C customers who are upgrading to the 12cP will stick to what they know. It's just the brand new customers who are in danger of being led down the seductive path toward ruin :)

- Michael

# **Re: RPN vs ALG**

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 3:50 a.m., in response to message #5 by Michael F. Coyle

Hi;

if it is the same PDF that's been downloaded from the HP website, then it's almost the original RPN-driven "HP12C User's Guide and Problem Solving" with add-ons. Have you already seen it, Michael? At almost each **Keystroke** you read (**RPN mode**). At least at Programming, all examples (essentialy the same ones available at teh HP12C's manual with minor changes) are in RPN.

I would like to know about ALGebraic mode while programming and running a program. Not that I want to program in this mode, I want to know how does it behave if a program is ran while the calculator is in algebraic mode. It makes me think of the HP15C's USER mode while accessing matrices elements. There are different [RCL] and [STO] codes for normal and USER mode when matix discriminators are used. I guess the HP12CP will not go too deep, but I still wonder how does it behave when running a program while in algebraic mode.

Forgive-me, Gene, you were not chosen to be the one to answer, you are the ONLY one that can answer so far. Maybe you are not daring to confess, but I guess you do not feel so sad if having to "play" with the 12cP just to answer us... do you? Oh, yes, it switches to OFF everytime it finds a [GTO] 000 or a [R/S] code, right? Man, in a few years it will be a collectible... Oops! I think I should not mention it...

Bye...

Luiz C. Vieira - Brazil

# **Re: RPN vs ALG**

Message #7 Posted by <u>Gene</u> on 13 May 2003, 7:32 a.m., in response to message #6 by Vieira, Luiz C. (Brazil)

RPN mode:

Program: 25 ENTER 3 / GOTO 000 (Yes, that means my machine turns off :-)

Answer is 8.33

Switch to ALG mode and run the program as it exists in memory.

Answer: 3

It has executed the last 3 / and is waiting for the denominator. If I press 5 = after I turn the machine back on, I get 0.6 in the display.

The 25 is in a second algebraic "stack" register and can be swapped in ALG with the 0.6 by pressing X<>Y. I think this is similar to the HP-19B style "stack" that can show several results.

Of course, the ALG stack on the 12c plat can only show one number, so it's not as helpful as the 19B style.

Any other questions? I'll be glad to try them out.

**Re: RPN vs ALG** 

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 8:05 a.m., in response to message #7 by Gene

Hi, Gene.

That's swell! You create one program and you may run it in two different modes, having two different results. One of them, of course, is wrong. Chances are you can create a set of programs that will run in both ALG or RPN modes and give the same results. I can see the brave conquerors in here teasing themselves (me included) to accomplish such task...

Well, let's put the feet back on earth. I see another, different site in here: two possible program libraries, ALGebraic and RPN, for the same calculator. Have you tested financial, time management and cash flow resources in both operating modes? If their results are unchanged (and it's most likely to be) then we have two calculators in one. And that's quite unusual. There will former HP12C users using and programming the 12cP in RPN mode as-is and newcomers using it and programming it in algebraic mode. Is that what HP wanted to do, in fact? Allow AOS-addicted users to get access to the HP12C resources? I know people that use only HP12C's single keystroke oprations and never, never used ENTER because they don't understand RPN. "If it only had an equals key..." I heard a lot of times. Some of them I rescued back after successfuly explaining RPN.

That's weird!
### **Re: 12c Platinum pictures**

Message #9 Posted by Gordon Dyer on 13 May 2003, 3:01 a.m., in response to message #1 by Gene

Thanks Gene, it's good to see it close up before I consider buying. I know it is difficult to judge from the pictures, but is the overall finish lower quality than old 12C's? and is that HP logo a cheap, thin stick on which isn't flat? The f and g keys look like colours from a Mattel toy...

My impression of the quality from the photo is not good!

### **Re: 12c Platinum pictures**

Message #10 Posted by <u>Raymond Del Tondo</u> on 13 May 2003, 4:45 a.m., in response to message #9 by Gordon Dyer

Hi,

the logo is like the other newer HP logos on printers and other consumer devices, which has a certain angle on it's surface, as cut out from a ball.

Regards,

Raymond

# **Coyote ugly**

Message #11 Posted by <u>Patrick</u> on 13 May 2003, 3:05 a.m., in response to message #1 by Gene

Is it just me, or is that one ugly beast? Such a cacaophony of incompatible colours. Ich.

Just my opinion...

#### **Re: Coyote ugly**

Message #12 Posted by <u>Wayne Brown</u> on 13 May 2003, 7:09 a.m., in response to message #11 by Patrick

It's not just you. That thing looks like a piece of sheet metal with fingernail-polish lettering. I don't think HP has \*anyone\* left who knows the meaning of the word "tasteful."

### Re: Coyote ugly & design flaw

Message #13 Posted by <u>Raymond Del Tondo</u> on 13 May 2003, 7:47 a.m., in response to message #12 by Wayne Brown

I wouldn't say that all earlier HP calcs were 'pretty', but they were developed to the end (in most cases), and their key legends were easily readable.

For the 12CPt: At least one big design flaw could be erased for the production models:

Who the hell had the dumb idea to put yellow letters on aluminium background?

Not too ergonomic, IMHO

Maybe it were the same people who decided over 49G and the other ACO's calcs colors (Remember: blue and red legends on blue metallic background;-)

It wouldn't be a surprise...

BTW: Design-wise, my favourites are the Pioneers, Voyagers, Series 30, and of course the HP-41 series.

#### **Remember the ergonomics of the 49G!**

Message #14 Posted by <u>Gene</u> on 13 May 2003, 9:32 a.m., in response to message #13 by Raymond Del Tondo

It was hardly easy to read.

I just wonder whether some of the HP designers are in fact paid by TI. Maybe they do this on purpose? :-)

#### Coyote ugly, business vs. engineers

Message #15 Posted by <u>Norm</u> on 13 May 2003, 1:23 p.m., in response to message #13 by Raymond Del Tondo

Maybe Carly is on our side after all.

They released the business major's latest calculator with yellow lettering on yellow metal ?? WELL, maybe they want to cause the business majors to make plenty of mistakes while they are calculating their option strike prices and the takeover target price and the puts and calls and the return on equity.

Then when they screw it all up, they go broke instead of ransacking another \$20 Billion from Ma & Pa Buick out of their 401K. So U see, that latest 'platinum' 12C calculator design is the best friend of decent Americans and the engineering dep't, who are in high need of seeing all these business crooks go broke for a change, and management like Mr. Hewlett and Mr. Packard re-instated. A "rigged" 12C that makes mistakes will help get the job done.

### **Re:** Coyote ugly

Message #16 Posted by <u>Ernie Malaga</u> on 13 May 2003, 7:58 a.m., in response to message #11 by Patrick

Gene:

>Is it just me, or is that one ugly beast? Such a cacaophony of incompatible colours. Ich.

It's not you. Putting gold/orange lettering on a silver background is downright stupid and \_ugly\_. The whole idea of using a light color for background is ergonomically unsound: it draws the eyes to the background instead of the display, which is where it ought to be directed.

HP has fallen prey to the "color me hip" and "be with it" trend. It's bad enough that cellular phones have buttons in weird places and have interchangeable, tasteless background shells. Do we really need this kitsch in calculators too? How about automobiles?

Just as a side issue, I noticed that while the HP-12C uses Helvetica in the key legends, the 12CP uses Futura (or something very close to it). I just wonder what prompted HP to stop using Helvetica. It's a minor point, but it makes this new calculator even less "HP-like."

-Ernie

#### **The shift keys** Message #17 Posted by <u>Gene</u> on 13 May 2003, 8:07 a.m., in response to message #16 by Ernie Malaga

The colored shift keys are really odd too. It's as if the colors were ready and someone forgot to "pour the cream" into them to give them the original 12c colors.

I'm disappointed with it and the reaction among FINANCIAL types I work with has been fairly consistent..."What is THAT thing?"

I'm fairly sure it really won't be a big seller. Good thing the original 12c will continue to be sold.

Remember, HP has tried to kill off the original 12c several times by raising the price, etc. and each time, sales have gone UP.

I hope they are prepared to see sales of the original 12c go up yet again. :-)

I just dont' see the extra programming steps as being worth much without extra programming features!

This thing needs:

Labels! Absolute addressing is a real pain! Subroutines! Extra comparisons! X=Y? and X>0?

At least. Gene

# **Re:** Coyote ugly

Message #18 Posted by <u>Richard Garner</u> on 13 May 2003, 9:28 a.m., in response to message #16 by Ernie Malaga

If you look at the font catalog for most printers these days, you will see that they no longer have Helvetica as an options. It has been replaced with Arial.

### **Re: Coyote ugly**

Message #19 Posted by <u>Ernie Malaga</u> on 13 May 2003, 11:37 a.m., in response to message #18 by Richard Garner

>If you look at the font catalog for most printers these days, you will see that they no longer have Helvetica as an options. It has been replaced with Arial.

Printer fonts are irrelevant; it's the fonts in the computer per se that matter. Helvetica is one of the "classic" fonts (the other being Times). Whether it's ugly or pretty is not the issue -- the issue is that it's difficult to omit Helvetica because it's so widely used.

Arial, by the way, is not identical to Helvetica. The shape of the letters is different, and (although I haven't tested it) the metrics are likely to be different too. Take a 100-page document in Helvetica, change fonts to Arial, and you're likely to end up with a different number of pages!

-Ernie

#### **Re:** Coyote ugly

Message #20 Posted by <u>Richard Garner</u> on 13 May 2003, 12:36 p.m., in response to message #19 by Ernie Malaga

All I am going on is experience with networking computers and printers. When we changed from an HP III to a HP IVsi and added other printers such as the HP 2100TN, DeskJets 1120c & 882c and Epson 570+, that none of these had Helvetica in there firmware. All the documents that used Hevetica was changed by the printers to Arial. Hevetica was no longer listed as a font you could choose. I had to download a Helvetica TrueType for the documents to be printed in Helvetica. So things change and so do the standards we use.

# **Re: Coyote ugly**

Message #21 Posted by <u>Hans Brueggemann [GER]</u> on 13 May 2003, 8:23 a.m., in response to message #11 by Patrick

anyway, eyes of windows xp users won't be hurt too much.

cheers, hans

**Re: Coyote ugly** *Message #22 Posted by* <u>Jürgen (CH)</u> on 13 May 2003, 9:38 a.m., *in response to message #21 by Hans Brueggemann [GER]* 

> anyway, eyes of windows xp users won't be hurt too much.

But they will miss the round corners. We should point this out to HP ;-)

# **Re: Coyote ugly?**

Message #23 Posted by <u>Paul Brogger</u> on 13 May 2003, 2:12 p.m., in response to message #11 by Patrick

Well, I'm not quite so dispirited as the some of you sound -- The yellow-on-platinum is a bad idea -- reverse the yellow and blue (or some dark, compatible color) on the front of the keys and faceplate, respectively, and it'd be a lot better.

Yeah, it's a bummer that it hasn't got all the extra programming features. But one could look at its programming capabilities as useful for extending the calculator's feature set, while maybe not so helpful for ad-hoc coding. So, the 400 steps for addition of trig functions, etc. need only be entered once (hopefully), and you've got a decent, multi-purpose RPN calculator in the classic voyager layout. Sure, that first time is not as convenient as it should be, but overall it'll still be useful. (Assuming, that is, it doesn't turn itself off at the end of each program!)

And, from a marketing standpoint, re-issuing their best-selling financial "gold" in a "platinum" edition is a natural. Hopefully it's a real success and bolsters the entire calculator operation. Success there will help ensure the availability of *several* RPN models. Each of them will have its flaws, and none will likely achieve the level of quality and engineering excellence of which the former company was capable.

I don't want to be an apologist for The New H-P, but the bottom line for me (given recent history) is: it appears they're still making RPN calculators of reasonable value. I hope they continue to do so.

#### **Re:** Coyote ugly

Message #24 Posted by <u>Christof</u> on 13 May 2003, 8:13 p.m., in response to message #11 by Patrick

hey there- I ain't ugly. at least, not ugly like that:)

# **Re: Coyote ugly**

Message #25 Posted by <u>db(martinez,california)</u> on 13 May 2003, 10:40 p.m., in response to message #24 by Christof

of course you're not cristof! ben aflek, sean connery and bono are all clamoring for your beauty secrets. as a matter of fact dori was asking about you just last weekend. she said "how is that hansome man in davis? the one who is almost as good looking as your 16C". i said that you are fine.

you don't think she was asking about glen, do you?

# **OT: Raccoon Ugly**

Message #26 Posted by <u>Paul Brogger</u> on 14 May 2003, 9:28 a.m., in response to message #24 by Christof

I heard a joke that goes something like:

Y'know about raccoons, right? If they get caught in a snare or leg trap, they'll chew off their own leg to escape?

Well, "Raccoon Ugly" is when you wake up with someone else sleeping on your arm, and you chew it off rather than disturb her so you can make your getaway.

And "*Tragically* Raccoon Ugly" is when you wake up, and someone's chewed-off arm is underneath your neck . . .

# 12c Platinum pictures: peanut CPU?

Message #27 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 8:16 a.m., in response to message #1 by Gene

Hi;

as stated in previous threads, the original Voyagers' CPU was a nut-type, based on previous HP41 coconut, fullnut and halfnut series.

After seeing internal HP12C Platinum picture, I saw a small bubble-type chip. Small enough we can call the smalles nut version: the peanut.

So, from now on, I suggest calling the HP12C the peanut. As a local nickname, of course. God nows what the heck we have inside the bubble...

Cheers!

Luiz C. Vieira - Brazil

# Re: 12c Platinum pictures: peanut CPU?

Message #28 Posted by <u>glynn</u> on 13 May 2003, 11:57 a.m., in response to message #27 by Vieira, Luiz C. (Brazil)

The glob you see there in the center is epoxy. It indicates that underneath, you will find a "die"-- a piece of silicon, the chip without a lead-frame (for "pins") or casing. Usually there will be tiny wires leading from pads on the die to pads on the board. Sometimes though, it has pads on the bottom and just gets glued (not soldered) to the board. Then the glob gets put over it, to protect it.

This is a standard means of construction. Intel was one of the first companies to do this on a commercial product, on the "Wildcard '88" (a pc-board the size of a business card, 2 inches x 3-1/2 inches; it showed off a lot of new tech at the time, 1990 or so). It was subsequently picked up for use by others. It has some requirements: pick-n-place automation, clean-room standards, all the rest of the board pre-soldered.

It saves you money, IF you are equipped to do it. Chipmakers sell the dies cheaper than full chips. You connect 'em up, it's the same as the step which the chipmaker would have used to connect the die to legs. Once the epoxy is on it and hard, it will NEVER rust or be attacked by anything. It gets rid of heat a little less well than a ceramic chip carrier, but with something that uses power as frugally as this, I would not expect heat to be a problem.

All in all, they were doing right by making it this way-- but it doesn't LOOK as cool as a nice big chip with legs. It can never be "replaced". When this thing goes, you'll just throw the device away.

It is interesting, and thank you, Gene, so much for the pix. They really are useful to us all.

### Re: 12c Platinum pictures: peanut CPU?

Message #29 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 12:06 p.m., in response to message #28 by glynn

Hi, Glynn;

OK for the HW constructive techniques, thanks.

I wonder about which chip in under the glob... in fact, your/our first concerns, remember? Now that we know we'll never "see" what the heck in inside there (no codes, no pins, just the "glob"), God knows... :(

Get the "picture"?;)

Luiz C. Vieira - Brazil

### **Re: 12c Platinum pictures: peanut CPU?**

Message #30 Posted by <u>glynn</u> on 13 May 2003, 12:17 p.m., in response to message #29 by Vieira, Luiz C. (Brazil)

Luiz--

That's why God gave us the "Dremel Moto-Tool"....

But we won't be able to read markings on a chip-carrier, true. And actually doing I. D. visually on a bare VLSI layout is UNLIKELY.

Yeh, I'm depressed.

:-/

Using the Moto-Tool on it would cheer me up, though!!

Well, someone could buy one and extract the chip. :-) Message #31 Posted by <u>Gene</u> on 13 May 2003, 12:17 p.m., in response to message #29 by Vieira, Luiz C. (Brazil)

Hammer and screwdriver might work. Cost would be roughly \$100, but we could "know" then.

**Re: Well, someone could buy one and extract the chip. :-)** *Message #32 Posted by glynn on 13 May 2003, 12:28 p.m., in response to message #31 by Gene* 

I don't know what a "Hammer" is, but I think I'll probably mix up a Screwdriver or two any minute now. ;-)

**Re: 12c Platinum pictures: peanut CPU?** *Message #33 Posted by* <u>*Raymond Del Tondo (Germany)*</u> *on 13 May 2003, 7:03 p.m., in response to message #27 by Vieira, Luiz C. (Brazil)* 

Hi Luiz,

'peanut' is nice for this thing:-)

But AFAIK peanuts are no nuts, instead they're in the family of beans!

Which of course is suitable too, because the calc is made from beancounters for beancounters;-)

Regards,

Raymond

#### **Re: 12c Platinum pictures**

Message #34 Posted by <u>Joerg Woerner</u> on 13 May 2003, 12:36 p.m., in response to message #1 by Gene

Hi Gene,

Thanks for your great pictures. The inside picture gives a good impression of the Y2K and later calculators. Give a Chinese PCB assembler a single-chip CPU and some epoxy glop-top and the calculator is finished. Just by comparing PCB's you could 10 years ago decide whether it is a HP, a TI or a Casio calculator. Now they all look similar and as I mentioned in another Posting the HP-30S, TI-30X IIS and a Citizen SRP something are sibblings. Please do me a favour and try to decipher the nameplate of the 12CP PCB. It seems to be under the battery holder, left from the UL 94V0 logo.

Thanks in advance.

BTW: Do you own a HP-9G for similar dismantling purposes ?

**The nameplate of the 12CP PCB** Message #35 Posted by <u>Gene</u> on 13 May 2003, 2:37 p.m., in response to message #34 by Joerg Woerner

Are you referring to the "GTF-" bit just to the left of the battery contact "circle"?

Might be a "CTF", but I can't tell.

Can't make any more of it out.

Gene

# **Re: 12c Platinum pictures**

Message #36 Posted by <u>JimC</u> on 13 May 2003, 1:28 p.m., in response to message #1 by Gene

I don't know if anyone has mentioned this before, and if so, please accept my apologies for chewing up bandwidth on this, but doesn't the aluminum (platinum?:p) faceplate end at the bottom of the calculator? This puts an easily damaged area immediately above a "handling" area. I think earlier models were mounted below a protective lip.

What happens once the aluminum faceplate begins to lift? I have seen this on other calculators. Also, with the key legend imprinted on the er, platinum you will lose the usefulness of the calculator.

# **Re: 12c Platinum pictures**

Message #37 Posted by <u>glynn</u> on 13 May 2003, 2:01 p.m., in response to message #36 by JimC

the 12c and 12cP share this design, and it has never been a problem, to my knowledge. The metal plate is too far inset.

Besides, some would say that losing the legends would improve... er, never mind.

As far as color, I wonder about the announcement this morning that the U.S. Treasury is coming out with colored \$20, \$50 and \$100 bills. Maybe Treasury feels that consumers will have more confidence in THEIR product, if it looks more like HP's...

Yes, same front "lip" design as original 12c				
Message #38 Posted by <u>Gene</u> on 13 May 2003, 2:38 p.m.,				
in response to message #37 by glynn				

No difference

Re: Yes, same front ''lip'' design as original 12c				
Message #39 Posted by <u>Scuba Diver</u> on 13 May 2003, 11:05 p.m.,				
in response to message #38 by Gene				
American money will soon be coloured? That's great news! Copying us Canucks, are you?				
My visits to the states will be much cheapermany a time, I'd come out of a bar as drunk as a skunk, get into a cab, and hand him a \$20 when I thought I gave him a \$5				
Oh wait, what am I saying? How can I get drunk on American beer?				
Never mind.				
:) B.				

# **Re: 12c Platinum pictures**

Message #40 Posted by <u>Ellis Easley</u> on 14 May 2003, 7:07 a.m., in response to message #1 by Gene

I wonder if the orange and blue shift key colors are a case of standard vs. custom colors, as glynn described in another thread. I have two Chinese 12C's, a three button and a 3 volt. The printing on the keyboard bezel is quite orange on the 3 volt compared to a sort of gold on the 3 button. The shift keys are the same colors on these two calculators, and are very similar to a 71B.

What I particularly wanted to see was the instructions on the back for the date functions. On both my Chinese units, they made a mistake on the first DMY example (31/5/98 entered as "31.51998" instead of "31.051998")(apparently they just wanted to update the instructions from their original 1980's dates! and let a mistake creep in). I see they have avoided this same error on the 12CP but what are those extra digits "51998" on the first DMY example and "1999" on both examples for delta DYS? It sure looks like somebody edited the lines on the Chinese 12C's but didn't delete enough of the old lines!

# You're correct. 12cp Date instructions wrong on back

Message #41 Posted by <u>Gene</u> on 14 May 2003, 9:21 a.m., in response to message #40 by Ellis Easley

Looks like they didn't have a proofreader on the payroll.

Gene

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### HP-21 Circuit Diagram Schematic

Message #1 Posted by Gordon Dyer on 12 May 2003, 6:50 p.m.

I have found a circuit diagram for the HP-21. I don't know if it is accurate but it is worth a look if you are interested.

http://www.cs.ubc.ca/~hilpert/eec/

Click on the calculators link at the top of the page, then click the HP21 link and then click TD23 Data: view

That should get you to hp21.gif

#### **Re: Any Intewrest? HP-21 Circuit Diagram Schematic**

Message #2 Posted by Gordon Dyer on 13 May 2003, 2:11 p.m., in response to message #1 by Gordon Dyer

Was anyone interested? I would like to know if it is accurate.

#### I downloaded it...

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 3:53 p.m., in response to message #2 by Gordon Dyer

... but missed the "Thank you" share. It's been quite noisy, busy morning here...

Thank you, Gordon; there are other good sources there.

Best regards.

Luiz C. Vieira - Brazil

#### Re: I downloaded it...

Message #4 Posted by <u>Ellis Easley</u> on 13 May 2003, 11:13 p.m., in response to message #3 by Vieira, Luiz C. (Brazil)

Yes, thanks Gordon! I'm going to ohm out the common portions of my HP25 and then maybe I'll figure out a way to add the additional chips to the schematic.

#### It's the same one I was sent from another contributor

Message #5 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 May 2003, 12:22 a.m., in response to message #4 by Ellis Easley

Hi, Gordon;

I opened the file and I saw the additional circuit to suppress batteries when using external AC Adapter. It's the same one I was sent form another contributor. I know who is he, of course (thank you, R.) but I keep my policy of never mentioning a name associated to particular gestures before asking for permission. I know you all understand that.

But I was not aware about where did it come from, and now you, Gordon, have opened the box.

Thank you very much.

Best regards.

Luiz C. Vieira - Brazil

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#### HP-42S eBay price record?

Message #1 Posted by Raymond Del Tondo (Germany) on 12 May 2003, 6:26 p.m.

Just to note that this unit was without original box!

http://cgi.ebay.de/ws/eBayISAPI.dll?ViewItem&category=9972&item=2528827817&rd=1

Another 42S, complete with box, went for 201 EUR some days ago.

BTW: I happen to have a 42S for sale, too. Just make me a suitable offer;-)

whats the exchange rate?

Message #2 Posted by <u>Norm</u> on 12 May 2003, 7:41 p.m., in response to message #1 by Raymond Del Tondo (Germany)

whats the exchange rate? I cant tell what that is in USD.

IT said EUR \$289 what's that !

- Norm

I'll give you 42 for that HP-42S but I did not say 42 WHAT.

42 American Eagles? 42 cans of coca cola ?

**Re: whats the exchange rate?** *Message #3 Posted by* <u>*Randy Sloyer*</u> on 12 May 2003, 8:32 p.m., *in response to message #2 by Norm* 

\$334 US.

What's the matter? Batteries dead in your LED calculator?

### wanna take that outside ?

Message #4 Posted by <u>Norm Hill</u> on 13 May 2003, 3:03 a.m., in response to message #3 by Randy Sloyer

NO actually they aren't dead!!!!! I dont have any problem that way. Bet U wish U had some RED LED's. Guess what, I dont even charge any batteries. I just stuck in a set of Alkaline AA and its been working ever since. Someday when it quits I suppose I'll stick another set of AA Alkaline in there. Whatsamatta, at 28 cents a battery, cant ya afffeerd it ?

I think the problem was I would not know a EUR from a hole in the ground and I did not have an exchange rate, Randy.

#### Re: wanna take that outside ?

Message #5 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 3:31 a.m., in response to message #4 by Norm Hill

"Whatsamatta, at 28 cents a battery, cant ya afffeeerd it?"

Gee, pall, whatsatt? I bet I can speak English this way in tha futur... <8^D

Seeyahrn'!

Luiz C. Vieira - Br'zl

#### hey norm-i found a 34c!

Message #6 Posted by <u>db(martinez,california)</u> on 13 May 2003, 11:46 p.m., in response to message #4 by Norm Hill

was hobbeling around the flea last weekend and there it was. you're right. it IS "the prettiest little calculator on gods green earth". i didn't have much hope for it but i paid a buck for it anyway and what do you know! it works! the batteries even hold a charge.

one question: the constant memory works for programs and storage registers but not for the stack. is that ok? even if that's not the way it was built, i like it anyway. in fact, now that i have gotten to know it; i like it so much that if you ever decide you have too many of them i will go as high as two american sawbucks (not euros) for any of your spares.

# May I?

Message #7 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 May 2003, 12:27 a.m., in response to message #6 by db(martinez,california)

Hi, D.B.;

now it makes at least three of us hwo have a crash for this beauty. And you're right: the first continuous memeory to hold stack contents was the HP41C, in fact right after the HP34C. I do not know if the HP95C also holds stack contents.

You may notice one thing: it keeps number format. Try it.

Best regards and congrats for your new addition. (does it show the '2'-digits blinking disease?)

Luiz C. Vieira - Brazil

<b>Did the 34c precede the 41c?</b> Message #8 Posted by <u>Gene</u> on 14 May 2003, 9:24 a.m., in response to message #7 by Vieira, Luiz C. (Brazil)
The PPC Journal covered the 41c in it's July 1979 issue and didn't cover the 34c until the August 1979 issue.
What was the official 34c intro date?
The 41c's was something like July 16, 1979 or so.
?
Gene

**Re: Did the 34c precede the 41c?** *Message #9 Posted by* <u>Valentin Albillo</u> on 14 May 2003, 9:32 a.m., *in response to message #8 by Gene* 

It was introduced in 1979-7-1

Source: <u>http://www.finseth.com/~fin/hpdata/hp34c.html</u>

Best regards.

# Re: HP-42S eBay price record?

Message #10 Posted by <u>Trent Moseley</u> on 12 May 2003, 9:53 p.m., in response to message #1 by Raymond Del Tondo (Germany)

My solar powered TI1786 says 201 Euros is = to \$231 according to the SF Chron of last Friday.

tm

# Re: HP-42S eBay price record?

Message #11 Posted by <u>Joerg Woerner</u> on 13 May 2003, 9:21 a.m., in response to message #10 by Trent Moseley

Really a TI-1786 ? The Datamath Museum searches this one... Regards, Joerg

**Re: HP-42S eBay price record?** *Message #12 Posted by* <u>*Howard*</u> *on 14 May 2003, 1:50 a.m., in response to message #10 by Trent Moseley* 

You better buy now before the US\$ sinks further!!!!

**Re: HP-42S eBay price record?** 

Message #13 Posted by <u>Mike (Stgt)</u> on 13 May 2003, 6:07 a.m., in response to message #1 by Raymond Del Tondo (Germany)

Nothing to complain, I think. Just compare the prize for an untouched HP-21S w/o box and a copy of the manual.  $\langle VBG \rangle$ 

Ciao.....Mike

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**LOL: eBay beginner's craziness;-)** Message #1 Posted by **Raymond Del Tondo (Germany)** on 12 May 2003, 6:20 p.m.

This seems like a real duel:

http://cgi6.ebay.de/aw-cgi/eBayISAPI.dll?ViewBids&item=2528827715

**Re: LOL: eBay beginner's craziness;-)** *Message #2 Posted by* <u>*Jürgen (CH)*</u> *on 13 May 2003, 2:32 a.m., in response to message #1 by Raymond Del Tondo (Germany)* 

Oh dear, and it comes from Switzerland. But I can affirm that \*not\* all Swiss HP enthusiasts are that crazy...

**Re: LOL: eBay beginner's craziness;-)** *Message #3 Posted by* <u>*Patrick*</u> *on 13 May 2003, 3:13 a.m., in response to message #1 by Raymond Del Tondo (Germany)* 

How about this one:

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3023296258&category=11713

With more than a day left to go, a simple vinyl case for a Voyager is at \$21.50. These normally go for about \$8. You can get a brand new 12C, with a case, for not a lot more than this auction's current value.

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#### Nuts about HP41's

Message #1 Posted by Randy on 12 May 2003, 3:34 p.m.

Fullnut, Halfnut, Blanknut, etc.

This has probably been asked and answered a hundred times, but does anyone readily know:

1) Is a HP41CX EXACTLY functionally the same no matter which nut it happens to be?

2) Does execution speed vary between nuts?

3) Are there undocumented quirks between nuts?

4) If the calculator you were looking for had a choice, which nut would it choose to be?

Thanks.

#### Re: Nuts about HP41's

Message #2 Posted by **David Smith** on 12 May 2003, 3:44 p.m., in response to message #1 by Randy

Yes, there are firmware differences between the nuts. I don't know if they have any effect on operation though.

The main difference that you can see is the display. The halfnut display was optimized for looking at from a shallow angle (like sitting on a desk). The fullnut wants to be viewed more head on (like being held in the hand). The halfnut display segments are sleeker than the fullnut. Also the halfnut keyboard is generally less clicky than a fullnut.

If my nut was to be used out in the field or away from civilization, I would want a halfnut. It is more reliable. It is also MUCH less repairable. For use around civilization, I much prefer the fullnut.

# **Re: Nuts about HP41's**

Message #3 Posted by <u>Mike (Stgt)</u> on 13 May 2003, 6:20 a.m., in response to message #1 by Randy

1) I once had "Fullnut" (coconut?) CX and it's operation was not too stable. After I sold it to someone near Heidelberg I realized that it was a rare one.

2) not realy

3) undocumented in HP's manuals, well documented elswhere (for example: ajust display contrast - if you may do MCode)

4) CX halfnut

Ciao.....Mike



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**I'll take 12c plat apart tonight and post pictures** *Message #1 Posted by gene on 12 May 2003, 1:08 p.m.* 

I'll also take good closeups of the front and back. I'll post the URL when they are up.

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I can hardly believe...

Message #1 Posted by <u>*R Lion*</u> on 12 May 2003, 10:13 a.m.

http://cgi.es.ebay.com/ws/eBayISAPI.dll?ViewItem&category=11713&item=3022298185&rd=1

Re: I can hardly believe...

Message #2 Posted by <u>Diego Diaz</u> on 12 May 2003, 10:37 a.m., in response to message #1 by R Lion

You know, some old-looking \*stone washed" jeans are quite more expensive than their \*new denim-00 fabric\* counterpart from the same brand (say, Levi's)

May be the \*new\* (looking at their feedback count) calc-collector's trend is twisting in the same direction...

So be aware for the next season's collections of sanded, scratched, stepped on, programmables: they'll look real cool!!!

Ok, just joking... or not?

Kindly from Spain.

Diego.

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# HP-41 Memory & Interfacing

Message #1 Posted by Diego Diaz on 12 May 2003, 1:28 a.m.

I had previously posted that message on late April, anyhow it was the last in the thread, and probably remains unseen (or -simply- no-one was willing to answer...:-(

Ok, just kidding...

<<Hi everybody,

It seems that the customized EPROM modules issue still have a lot of interest in this forum (easy to understand when looking at e-Bay prices :-)...

Let me see if I've understood the previous message...

- Are there EPROM chips (those UV erasable) that fit into a standar HP-41 module case??

- If the answer is YES, are there any clue about which modules could carry this (almost magic) chip?

- AFAIK, ROM modules are 10bit/word and RAM modules are 8bit/word... Anyhow, some modules share machine-code and user code programs in the same device, Does someone knows how they overcome the word lenght difference?

- Is it possible to place a small Lithium battery inside a, said, Quad-Ram module to turn it into a pseudo ROM?

... Well, I'm abusing I know, but those questions have been prowling into my head for long, since I'm a "harware guy" (those with the soldering iron and tweezers), sometimes messing my brain up, and you seem to be the only good answers source.

Thanks in advance and best whishes from the Canary Islands.

P.S. Please forgive my grammar "crimes".>>

Some MLDL related threads have born since I wrote this, and superb Meindert's work seems to flood some ligth inside my smoogy neurons, anyhow the question of the 10bit/word EPROM chips and M-code/U-code sharing remains somewhat obscure.

### **Re: HP-41 Zeprom Module**

Message #2 Posted by <u>Christoph Klug</u> on 12 May 2003, 3:39 a.m., in response to message #1 by Diego Diaz

ZEPROM modules are special EPROM modules, designed from Zengrange. This company also created the well known ZENROM, an advanced HP41 plug in module for synthetic and mcode programming.

First ZEPROMs used for military artillery applications, called GUNZEN or MONZEN and for military airoplane navigation. Later some more preacefully applications exist like surviving and custom made modules.

The internal size of an ZEPROM is 16KByte, furthermore a bank switching mode would be possible.

ZEPROM modules are powerfully plug in modules for HP41. Burning mcode or user code software is possible - also existing rom-image files.

Please contact me for more details or for burning support.

Best wishes - Christoph Klug

# Re: HP-41 Memory & Interfacing

Message #3 Posted by <u>Meindert Kuipers</u> on 12 May 2003, 4:01 a.m., in response to message #1 by Diego Diaz

U-code is stored in 56-bit registers (most internal CPU registers are 56 bits as are X, Y, Z, T, flags, etc). This is valid for all user memory and extended memory. This matches with the HP41 external interface, which uses a 56-bit cycle. This adds up to 7 bytes. An extra byte might have made a lot more sense, but I have no idea why this choice was made. User code instructions are 8 bits or multiples.

M-code is totally different. These are instructions that are executed by the CPU, and these just happen to be 10 bits long. The memory space of this is 64k of these 10-bit words. The only possibility to have user code in M-code space is to have it put in ROM (and indeed waste 2

bits). The translation is not very complicated and there are some M-code tools to do just that and put your user code in a ROM module. Again, I do not know why 10 bits was chosen.

M-code can never be run out of User space. A (quad) memory module is in User Space and will not work for M-code, battery or not. I have put small capacitors in extended function/memory modules to be able to swap programs with other users (gives you several minutes of storage), but only for user code and data, much like magnetic cards.

In MLDL or EPROM boxes the 10 bits need to be implemented. As typical available devices are 8 bits wide a trick is used with one EPROM containing the lower 8 bits (L8) and another one the upper two (U2). The U2 bits are packed with 4 of them in one byte. This requires some demultiplexing in an MLDL.

I have no idea how this is done in the ZEPROM, but I assume is is similar. In my MLDL the U2 bits are in the same chip, multiplexed in the same way but at a different location, requiring only one IC instead of two. The logic is more complicated, requiring two access cycles instead of only one.

Note that my MLDL will not fit in a module housing. The CPLD is a 144-pin SMD device, and that alone is too large to fit inside a module housing. Current goal is to put it in a card-reader housing. The only option to put it in a module is possibly chip-scale packaging (mini BGA) and limited functionality but this is not in my planning. If there are many interested I might investigate. I someone else is interested to do this, I will gladly offer my knowledge.

Hope this helps a bit

Meindert

**Re: HP-41 Memory & Interfacing** *Message #4 Posted by <u>Johnny Billquist</u> on 12 May 2003, 6:10 a.m., in response to message #3 by Meindert Kuipers* 

Hmm, not totally accurate, but anyhow...

User memory is a device in the HP-41. You access it with something similar to I/O instructions, and get 56 bit data.

Modules are always 10 bit wide, and are accessed in the normal addressable range of the CPU. This also applies to user code in modules. User code just have the high two bits always zero, and the low eight are as usual. The HP-41 can tell if it's user code, and calls the interpreter in that case to execute the code from normal memory.

The nitty gritty details have gone out of my mind, but I think it's documented in the ZENROM manual, which I have at home. I'll look it up, and write it here tonight.

So there really is only one kind of modules. 10-bit wide ROM. It can hold both user code and machine code.

### Re: HP-41 Memory & Interfacing

Message #5 Posted by <u>Diego Diaz</u> on 12 May 2003, 6:30 a.m., in response to message #3 by Meindert Kuipers

That's quite clearer now... Let me make a try to see how far have I got to understand:

HP-41 M-code is always 10 bit, and placed in a separated area. It's also the code that \*really\* controls the 41.

The 41, when instructed by this M-code, looks for U-code 8 bits \*instructions\* in the other area (somewhat I/O accessible, according to Johnny's comment, and retrieved in register - 56bits- sized blocks) to interpret them accordingly (i.e. produce the M-code sequence needed to perform the specific task, -say SQRT for example-) and then go back for the next U-code and so on.

Do not hesitate to correct me if some of the above is mistaken ;-)

Regarding EPROM's chips I'm willing to get a Zenrom but prices are high above my budget (anyhow I didn't know they were made of EPROM's and had supposed they were mask ROM's) Thanks for the info Christoph. Are any source of those chips -or related info- left nowadays?

I don't really want to stole your time for the much awaited (yes, me too) MLDL proyect, Meindert, but would like to ask you something regarding the Flash EEPROM area: Is that inside the microcontroller or is it the addressable memory that microcontroller is able to handle with external memory devices?

Again thanks you all, and friendly greetings from the Canaries.

Diego.

# Re: HP-41 Memory & Interfacing

Message #6 Posted by <u>Meindert Kuipers</u> on 12 May 2003, 7:15 a.m., in response to message #5 by Diego Diaz

Diego,

Just to answer your question: I am not using a microcontroller, but a CPLD, which is a device with loads of configurable logic and flip-flops, a total of 256 macrocells in the device that I selected. For details check out www.xilinx.com and find the information for the XCR3256XL, this is the selected device of the XPLA3 family. The memory (flash and sram) are external devices controlled by the CPLD.

To confuse things, the CPLD is based on flash technology and can be reprogrammed for enhancements or bug fixes with a special programming cable (although the cable is not that special).

The rest of your observations are correct.

Meindert

# Re: HP-41 Memory & Interfacing

Message #7 Posted by Johnny Billquist on 12 May 2003, 7:37 a.m., in response to message #5 by Diego Diaz

No no.

User code in a module is stored the same way as machine code.

User \*memory\* is accessed with I/O instructions.

A module can hold either 10-bit wide memory, accessible by the CPU, or 56-bit wide memory, accessible with I/O instructions. Consider all RAM memory as a device. There is no RAM in the normal memory area. In fact, the HP-41 CPU don't have a write instruction, only a read instruction.

When you look in CAT 2, you can see both user code and machine code functions. User code functions have a label starting with the superscript T. If such a function is called, the HP-41 will instead read the 10-bit memory words, and interpret them with the normal interpreter. When executing code from ROM, a system flag is set, to tell that the user PC is pointing into ROM, and not user memory.

User memory modules don't exist in the normal address space of the HP-41. They are just I/O devices. That's why you can combine them with ROM modules in the same slot. User memory modules are the normal MEM and 4xMEM for the 41C, as well as the X-MEM modules. The X-FUNC is the only module I'm aware of that have both a ROM and User memory.

So, if you create a ROM, with 10-bit memory, you can place either machine code or user code in that memory. Really easy actually.

:-)

### Re: HP-41 Memory & Interfacing

Message #8 Posted by Johnny Billquist on 12 May 2003, 7:38 a.m., in response to message #7 by Johnny Billquist

Oh. I just realized, in a way you got it right.

The way you describe it is how normal programs you write yourself is stored and executed.

User code in a module is the special case, in that the user code is stored in the 10-bit wide words of the ROM module in that case.

#### **Re: HP-41 Memory & Interfacing**

Message #9 Posted by <u>Diego Diaz</u> on 12 May 2003, 9:01 a.m., in response to message #8 by Johnny Billquist

Glad to know I'm getting the rigth picture... little by little.

Regarding the EEPROM's in the MLDL, (and linking to the previous thread - count 7 downwards-), it will also be possible to burn a 2764, 128, 256... with the L8 (2732) U2 (2716) -old fashion MLDL EPROM's- merged to fit the new MLDL2000 addressing specs, for testing purposes... well, just a thought.

Enjoy your 41's!!

Diego.

### Re: HP-41 Memory & Interfacing

Message #10 Posted by <u>Meindert Kuipers</u> on 12 May 2003, 9:39 a.m., in response to message #9 by Diego Diaz

My final MLDL2000 will only support the built-in devices: FLASH and SRAM in TSOP package. These will be soldered, and no further sockets are provided. The FLASH is in-circuit reprogrammable. Note that EEPROM is a different technology than Flash Eprom. In a previous response I mistakenly mentioned that the CPLD device is Flash based, but it is actually EEPROM based

For prototyping I am currently using the 'old' type EPROMS, but that is not planned as a 'product'.

BTW, The pictures and working VHDL code of the prototype are now available at www.kuipers.to/hp41. One of the pictures has a close-up of the CPLD.

Meindert

# Need a beta tester? Lol. (No text inside)

Message #11 Posted by <u>Gene</u> on 12 May 2003, 11:10 a.m., in response to message #10 by Meindert Kuipers

Told you nothing was in here!

# Re: HP-41 Memory & Interfacing

Message #12 Posted by <u>Diego Diaz</u> on 12 May 2003, 11:20 a.m., in response to message #10 by Meindert Kuipers

That's OK, I had seen the pictures with the EPROM's in your site, and that made me think of the burner story.

The Flash solution is, obviously, more apropriate for such a new design.

CU.

Diego.

# Re: HP-41 Memory & Interfacing

Message #13 Posted by <u>Chris Catotti (Florida)</u> on 13 May 2003, 3:12 p.m., in response to message #7 by Johnny Billquist

There was another module with ROM and User Memory. Almost all of the Extended Functions Module functions were provide for in the **HEPAX** Module to manage input/output of HEPAX Memory. The RAM is volatile -- if you remove the module from the HP-41 the RAM contents are lost. However Master Clear does not clear HEPAX Memory.

The HEPAX (*HE*wlett-*PA*ckard 41 eXpansion) Module by VM Electronics ApS, Denmark, came in four versions:

HEPAX - ROM with 8K RAM

ADVANCED HEPAX - ROM with 16K RAM

HEPAX Memory Module - 8K RAM Only

HEPAX Double Memory Module - 16K RAM Only

From the owners manual ...

"The term *HEPAX memory* is used to describe the up to 31408 words of expanded memory that may be added to the HP-41 system by using HEPAX modules.

"The basic unit of HEPAX memory is a *word* .Of the 8192 words in the Standard HEPAX and HEPAX Memory modules, 340 words are used internally by the HP-41 itself and the HEPAX file system - leaving 7852 words available to the User. The Advanced HEPAX and HEPAX Double Memory modules contain twice as much memory.

♦ MoHPC ▲

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#### HP12C Platinum with Viktor Toth's trig functions?

Message #1 Posted by Tony David Potter on 12 May 2003, 12:28 a.m.

Has anyone with access to a new Platinum and an old 12C tried to run Viktor Toth's trig function program (http://www.hpmuseum.org/cgi-sys/ cgiwrap/hpmuseum/articles.cgi?read=225) to see how the times compare? I assume Viktor did his calculations on an original HP 12C, and I'm curious how the times compare to the newer 12C's (one battery job) and the 12C Platinums.

Given the discussions about the program execution speed problems with the inate programs, I'm curious.

Thanks ahead of time. Tony David Potter

#### HP12C Platinum with Viktor Toth's trig functions - Gene?

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 12 May 2003, 1:14 a.m., in response to message #1 by Tony David Potter

Hi;

I think the only one that (we know about) has an HP12C platinum in hands is Gene. Unless otherwise stated...

A few days ago I wrote a small routine to compute permutations and combinations without simplifying terms, just plain expression and existing fatorial. It is a single sequence, no jumps or subroutine calls, uses only stack register and, for a given pair a and b, it returns  $C_{a,b}$  and  $P_{a,b}$  in X and Y registers at once. It was witten after an inspiring e-mail from Michel Beauliou (thenks, Michel).

I loaded it in an HP38C, an HP38E and an HP34C. The winner was HP38E, second place HP38C and as third place, the HP34C. I wonder about step numbers and LBL/GTO/SBR structure and the many extra checks a resourcefull O.S. must perform that are not prformed by others with less power.

As Viktor Toth's trigs use (in a thoughtfull way) loops to compute and accumulate the terms of the series for sine, we we will probably face an expected slow-down effect. Also, it's necessary to add a '0' to each [GTO], I guess, but step numbers will be maintained if the program is still in the first steps. Have you imagined that? Original Viktor Toth's uses almost 80 steps, right? In the HP12C it's almost all program memory and "consumes" 7 (or eight) registers. In the 12C Platinum it uses about 1/5 of the available maemory and all registers remain intact, what means you can load trigs and still compute cash-flow with 20 entries...

Just my US\$ 0.01.

Luiz C. Vieira - Brazil

#### I'll try it today

Message #3 Posted by <u>Gene</u> on 12 May 2003, 7:24 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

Let everyone know.

Thanks in advance (n/t) Message #4 Posted by <u>Tony David Potter</u> on 12 May 2003, 8:50 a.m., in response to message #3 by Gene

(n/t)

```
12c Platinum speed results with Viktor's Trig Program and another test
Message #5 Posted by Gene on 12 May 2003, 10:50 a.m.,
in response to message #4 by Tony David Potter
Hi all. Have run a few trig tests.
Cosine Tests
Х
          Original 12c speed 12c Platinum speed
1.77
             11 seconds
                                            5 seconds
3.14
              15 seconds
                                             8 seconds
arc cosine test
x Original 12c speed 12c platinum speed
cos(pi/4) 37 seconds
                                          24 seconds
(Note...the cosine of pi/4 is the input, so it should return pi/4 and does).
Bottom line: Run times are cut between 35% and 55%. Depends greatly upon loop vs. function calling. If you have a program
that calls square roots, powers, logs, etc. very often, then you won't get a lot of speed benefit. For example:
Test loop takes log and power 10 times and stops:
LN
E^X
LN
Е^Х
Goto 00
Original 12c - 9 seconds
12c platinum - 8 seconds
Real pain with my 12c platinum since it turns OFF whenever it encounters a R/S or GTO 000 in a program. Nice feature, huh?
```

(Surely they fixed this in the marketed version).

#### **Re: 12c Platinum speed results with Viktor's Trig Program and another test** *Message #6 Posted by John Smith on 12 May 2003, 11:24 a.m.,*

in response to message #5 by Gene

Thanks for the interesting results, Gene.

BTW, did you also test the other 12C trigs program, as you posted you would a few days ago ? I'd like to know.

All the best.

**Don't have a copy of the other one** *Message #7 Posted by* **Gene** on 12 May 2003, 11:44 a.m.,

in response to message #6 by John Smith

I used to have a copy, but it disappeared on the drive.

I'll be glad to test it.

[LONG] Re: Don't have a copy of the other one

Message #8 Posted by John Smith on 12 May 2003, 12:11 p.m., in response to message #7 by Gene

I don't have the original PDF document either, but fortunately this plain text version of the relevant parts was laying around. Best.

Program listing

SQRT is the square root functionX<>Y is the "X exchange Y" stack operation

01 STO 5	26 *	51 STO 5	76 +
02 1	27 -	52 g SQRT	77 -
03 STO 6	28 g SQRT	53 X<>Y	78 g X=0?
04 RCL 5	29 g GTO 00	54 1	79 g GTO 82
05 RCL 5	30 ENTER	55 -	80 g LSTX
06 CHS	31 ENTER	56 g X=0?	81 g GTO 66
07 STO 5	32 *	57 g GTO 59	82 RCL 4
08 RCL 6	33 1	58 g GTO 39	83 g X<=Y?
09 2	34 +	59 g n!	84 g GTO 89
10 +	35 g SQRT	60 STO 6	85 g LSTX
11 STO 6	36 /	61 RCL 5	86 8
12 Y^X	37 STO 4	62 -	87 *
13 g LSTX	38 3	63 g SQRT	88 g GTO 00
14 g n!	39 X<>Y	64 /	89 g LST X
15 /	40 ENTER	65 STO 5	90 CHS
16 +	41 *	66 RCL 5	91 g GTO 86
17 -	42 CHS	67 CHS	92 CLX
18 g X=0?	43 1	68 STO 5	93 ENTER
19 g GTO 22	44 +	69 RCL 6	94 *
20 g LSTX	45 g SQRT	70 2	95 CHS
21 g GTO 05	46 CHS	71 +	96 1
22 g LSTX	47 1	72 STO 6	97 +
23 1	48 +	73 Y^X	98 g SQRT
24 g LSTX	49 2	74 g LSTX	99 g GTO 37
25 g LSTX 50 / 75 /

You can test that the program is loaded correctly, and its accuracy by checking these results, shown as they are displayed in FIX 9 (f 9 in the 12C):

\_\_\_\_\_ x Sin(x) Cos(x) Tan(x) Time \_\_\_\_\_ 0.10.0998334170.9950041650.1003346726 sec.0.50.4794255390.8775825620.5463024907 sec.10.8414709850.5403023061.5574077249 sec.Pi/21.0000000000.00000000would div by 010 sec.20.9092974270.4161468362.18503986912 sec.Pi-7.098535e-121.00000000-7.098535e-1219 sec. \_\_\_\_\_ ArcCos(x)ArcSin(x) ArcTan(x) х Time \_\_\_\_\_ 0.1 0.1001674251.4706289060.0996686610.5235987751.0471975520.4636476071.5707963270.0000000000.785398163 10 sec. 0.5 12 sec. 1 15 sec. 15 sec. 10 - -1.471127675 100--1.56079663718 sec.1000--1.56979632618 sec.1E10--1.57079632718 sec. \_\_\_\_\_ ------Usage instructions \_\_\_\_\_ As the 12C doesn't have user labels, these are the entry points to compute the functions, with the argument X assumed to be in the display (X-register): \_\_\_\_\_ To compute, press: Input range Function \_\_\_\_\_ GTO 00, R/S, X<>Y -5\*Pi to +5\*Pi Sin(x) GTO 00, R/S Cos(x) -Pi/2 to +Pi/2 Tan(x) GTO 00, R/S, / -Pi/2 to +Pi/2 GTO 37, R/S GTO 93, R/S -1 to +1 ArcSin(x) ArcCos(x) ArcTan(x) 0 to +1 -9.99E49 to +9.99E49 GTO 30, R/S the constant Pi/2 GTO 92, R/S no input required Notes \_\_\_\_\_ - all angles are assumed to be in radians.

- no stack registers are preserved nor is X stored in LSTX, but R0-R3 are available at all times to store intermediate results or constants. The financial registers can be used as well.
- for Sin(x), Cos(x), and Tan(x) you can use f PRGM or GTO 01 instead of GTO 00. After any function is computed, the program pointer is left again at step 00, so you can compute a series of sines, cosines and tangents by simply pressing R/S.
- Sin(x) and Cos(x) are computed simultaneously. Sin(x) is left in the Y-register, and Cos(x) is left in the X-register (display), so you can obtain Tan(x) by simply pressing the [/] (division) key. If Cos(x) equals 0, you can't perform the division but must assume instead that Tan(x) becomes infinite
- the input range for Sin(x) goes from -5\*Pi to +5\*Pi, but large values of x (say > 2\*Pi) result in reduced accuracy and increased running times, so you'd do well restricting your arguments to the range from -2\*Pi to +2\*Pi and reduce any larger ones to that range (by taking the remainder modulus 2\*Pi).

#### 12c platinum speed results using Valentin's all trig program

Message #9 Posted by <u>Gene</u> on 12 May 2003, 1:00 p.m., in response to message #8 by John Smith

Ok. Have tested these examples.

[pre] cosine test X 12c platinum original 12c 0.1 6 seconds 6 seconds 0.5 7 seconds 7 seconds 1 3 seconds 9 seconds (No, that's not a misprint!) PI/2 10 seconds 10 seconds 2 12 seconds 12 seconds PI 22 seconds 19 seconds (Not a misprint either)

Arc Sine test 0.1 7 seconds 10 seconds 0.5 9 seconds 12 seconds 1 13 seconds 15 seconds

Make of these what you will. :-) [\pre]

#### Another 12c platinum speed test

Message #10 Posted by <u>Gene</u> on 12 May 2003, 11:58 a.m., in response to message #5 by Gene

Typed up the following bizarre program on both the original 12c and the 12c platinum. Note: to make it easier to read, I have put numbers all on one line.

360 n 10 ENTER 12 / i 90000 PV PMT CHS

SORT
1/x
3
Y*X
3
1/x
Υ^Χ
1/X
ENTER
X (Note: I used the newfangled X <sup>2</sup> function on 12c platinum)
CHS
PMT
RCL
PV
5000
-
PV
FV
GTO 00
Times: Original 12c: 7 seconds, 12c platinum: 8 seconds.
Tingland the local of the second state of the local design of the second state of the local design of the second state of the
the answer, 99,100.99/19. Interestingly, both agree to the last decimal point on
che answer.

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#### Somebody explain eBay to me

Message #1 Posted by Norm on 11 May 2003, 7:44 p.m.

I've been learning to sell a thing or 2 on eBay. Just a babe in the woods, mind you. Now, somebody plz explain this to me.

You only get 45 characters for the main title, which is what people search on. That's not much !!

What if you just plain need more than that ?? If they were going to put a hard-limit in, I could imagine 55, 60, maybe 65 characters. But 45 is nothing.

So, is there a way to make the main heading capacity 'expand' ??

- Norm

Re: Somebody explain eBay to me

Message #2 Posted by <u>Naim</u> on 11 May 2003, 8:01 p.m., in response to message #1 by Norm

a place where people get rid of their junk at unbelieveable prices

I see your point :0) Message #3 Posted by <u>Norm</u> on 12 May 2003, 2:23 a.m., in response to message #2 by Naim

```
I see your point :o)
```

eom.

### Re: Somebody explain eBay to me

Message #4 Posted by <u>Bob</u> on 11 May 2003, 9:34 p.m., in response to message #1 by Norm

There is no way to expand the headline. However, the description for the item can also be searched.

The best advice I can give is to: 1. Take a picture 2. Make headline descriptive 3. Sell without a reserve price, have faith.

Bob

### Re: Somebody explain eBay to me

Message #5 Posted by <u>Dave Shaffer</u> on 12 May 2003, 1:02 a.m., in response to message #4 by Bob

I'd agree with Bob's succint description - except to add that the auction title should contain as many different words as you can think of that people might search for: brand name, type of product ("PC"; "digital camera"; "calculator" (!), "battery", ...); model number or other terse description ( e.g. "P(entium) III"); and perhaps condition ("NIB") if likely to make it more desirable.

#### Re: Somebody explain eBay to me

Message #6 Posted by <u>Randy</u> on 11 May 2003, 9:41 p.m., in response to message #1 by Norm

This is how it works:

You email me that you have some vintage mint boxed HP41CX's and every peripheral in the 41 series, plus a brand new HP42S, and that you will be listing them as a bulk sale on ebay in a few minutes. You set a Buy-it-Now price of \$25.00 and shipping will be another \$10.00. Then I bid, you get your money, and I get the stuff.

Sounds fair to me, but you might want to ask someone else.

Best regards to HPcalcjunkies.

### isn't that a little steep?

Message #7 Posted by <u>Norm</u> on 12 May 2003, 2:25 a.m., in response to message #6 by Randy

isn't that \$25 and \$10 to ship, a little steep ?

How about you can have the pallet load of boxed 41C's for \$20.00 and maybe I will drive them to your house for free, seein' how I have got a pickup truck.

### Re: Somebody explain eBay to me

Message #8 Posted by <u>David Smith</u> on 12 May 2003, 3:57 p.m., in response to message #1 by Norm

When listing an HP calculator, list the model number as "HP-65" and not "HP 65". If somebody seaches for "HP 65", both headings will match. If somebody seaches for "HP-65" only the first one will. Also best to include the magic words "Hewlett Packard Calculator" and spell them properly.

Never place a hidden reserve price. Set your opening bid at what you would have reserved it for.

Also accept as many forms of payment as you can. "Paypal only" auctions typically bring less than half of what an "any payment that I can convert to bucks" auction does.

#### Re: Somebody explain eBay to me

Message #9 Posted by <u>Howard</u> on 12 May 2003, 5:01 p.m., in response to message #8 by David Smith

As an Australian I would also say do not sell exclusively to US.

#### Re: Somebody explain eBay to me

Message #10 Posted by <u>db(martinez,california)</u> on 12 May 2003, 6:12 p.m., in response to message #8 by David Smith

david; can you restate that first paragraph so i get? thanks - d

### David, good ideas

Message #11 Posted by <u>Norm</u> on 12 May 2003, 7:48 p.m., in response to message #8 by David Smith

I never liked reserve price either. I start bidding on auctions like that, I put in some fairly hefty numbers, I push the bid higher and higher, but it says 'reserve price not met'. Then I say "come on what the @#\$^\*& is this @#%@#% thing for sale or not?" and then I quit bidding and dont come back, OR, I email the seller what the reserve is, and then he (usually) tells me, and then I decide I dont want to go that high so whats the use.

I LIKE THE IDEA ABOUT HP-19 type of listing (include the hyphen). See, lets say you had an HP 19Bii then officially there's no hyphen (because HP lost their marbles about 10 years ago and couldn't even figure out how to quote their own model numbers). So officially it should be listed as HP 19Bii HOWEVER, you say list it as HP-19Bii and it will get caught by the searcher whether they type in HP 19Bii OR HP-19Bii . Smart, very smart.

Hey know whats dumb, very dumb ?? What the @#\$%#@\$^ is an HP-19Bii ????? SHOULDN'T IT BE HP-19C ????? What the heck is a 19Bii ?? That means they bumped the rev, it should be HP-19C. I was wondering back when Ronald Reagan dumped out all the insane asylums and put the kookoos back on the street... where did they all go ? THE HP BOARDROOM!! Ah hah, Carly's past mailing address is now out of the bag.

#### spell it right?

Message #12 Posted by <u>db(martinez,california)</u> on 12 May 2003, 10:35 p.m., in response to message #11 by Norm

david; did your spelling comment have anything to do with this guy and his Hewlett-Packerd Computer?

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=2729314889&category=14305

# **ROTFLMAO!**

Message #13 Posted by <u>Michael F. Coyle</u> on 13 May 2003, 12:13 a.m., in response to message #12 by db(martinez,california)

Hi db,

This is the funniest auction listing I've read in a long time! Thanks for pointing it out!

Now I guess I'll have to widen my searches to include "Hewlett-Packerd calcurlater."

- Michael

# **EXPLAIN ROTFLMAO**

Message #14 Posted by <u>Norm</u> on 13 May 2003, 3:06 a.m., in response to message #13 by Michael F. Coyle

IT IS TIME. For all the times I have read a chat board, somebody explain "ROTFLMAO" I have seen it quite a few times.

I have a hunch on 'LMAO'

but "ROTF" is a real mystery to me.

# a matter of degrees of tickle

Message #15 Posted by <u>glynn</u> on 13 May 2003, 5:48 a.m., in response to message #14 by Norm

LOL--- laughing out loud

ROFL-- Rolling on floor laughing

ROFLMAO-- Rolling on floor laughing my asterisk off

ROFLMAOAWMP-- ... and wet my pants.

Have fun on AOL now. ;-)

# Re: ROTFLMAO!

Message #16 Posted by <u>Ernie Malaga</u> on 13 May 2003, 2:08 p.m., in response to message #13 by Michael F. Coyle

>"Hewlett-Packerd calcurlater."

Better that than "You let pecker", hmm? 8^)

-Ernie

# Why II, que?

Message #17 Posted by <u>Ellis Easley</u> on 14 May 2003, 5:23 a.m., in response to message #11 by Norm

For calculators, HP stopped using the suffix for a revision at least on the Woodstocks, where "C" first meant continuous memory. For that matter, I don't think the HP35 was an "A" but the 9100 did have "A" and "B". But on the Pioneers, "B" means business (!), "S" means scientific - why didn't they call the HP27S the "HP27BS"? So to replace the original purpose of "B", they came up with "II", although the specific meaning seems to be "retrofitted with RPN" (except maybe the 32SII where it might be the opposite), for which we should be thankful.

# Re: Somebody explain eBay to me

Message #18 Posted by <u>Ernie Malaga</u> on 13 May 2003, 8:04 a.m., in response to message #1 by Norm

Sorry; eBay is an unexplainabe phenomenon. Perhaps this famous phrase sums it up:

"There's a sucker born every minute."

-Ernie

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#### HP-12c for macintosh on ebay

Message #1 Posted by Gene on 11 May 2003, 3:51 p.m.

No, I'm not the seller. :-)

I used to have this. Works like a charm on older macintosh systems. Not sure, but probably pre Mac OS 9, maybe even has to run under OS 7.X

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3023907331&category=3804

Might be useful to someone.

#### **Re: HP-12c for macintosh on ebay**

Message #2 Posted by <u>Ernie Malaga</u> on 11 May 2003, 6:55 p.m., in response to message #1 by Gene

Gene:

>I used to have this. Works like a charm on older macintosh systems. Not sure, but probably pre Mac OS 9, maybe even has to run under OS 7.X

You probably remember the Calculator Construction Set (CCS), a piece of software that was marketed in the early '90s. It allowed you to build your own calculator using HP-like interface (in black-and-white). I bought it once but didn't work well; I think it was not compatible with System 7.5 or 8.0, and the company that made it either ceased operations or discontinued the product.

This HP-12C desk accessory reminds me strongly of the CCS, and I wouldn't be surprised if it had been built using it. If that's the case, there is little to no chance that the program will run under modern versions of the Mac OS. In fact, unless the program comes in "fat" format, it would only run on pre-PowerPC Macs such as Quadras, LCs, or the IIfx.

Mac OS X? Forget t!

**Re: HP-12c for macintosh on ebay** *Message #3 Posted by* <u>*Gene*</u> *on 11 May 2003, 10:48 p.m., in response to message #2 by Ernie Malaga* 

My OS 7.X meant versions of OS 7.0, 7.1, or 7.5

I know this doesn't work under OS 9, so I'm also sure it wouldn't run under OS X.

You might have missed that 7. in front of the X. :-)

**Re: HP-12c for macintosh on ebay** Message #4 Posted by <u>Ernie Malaga</u> on 12 May 2003, 12:38 a.m., in response to message #3 by Gene

>You might have missed that 7. in front of the X. :-)

Actually, I didn't. I only tried to amplify on the subject. 8^)

-Ernie (an old Mac fanatic)

# Re: HP-12c for macintosh on ebay

Message #5 Posted by <u>Christof</u> on 12 May 2003, 12:00 a.m., in response to message #2 by Ernie Malaga

But I just happen to have this rather cool Macintosh Classic runnin system 7 with calcware link (for hp48) with the 48<->mac serial cable. It's not got a lot of other useufl stuff on it, though if I could find any of the older math programs.....

This wold be cool, maybe.

# Re: HP-12c for macintosh on ebay

Message #6 Posted by <u>Ernie Malaga</u> on 12 May 2003, 12:36 a.m., in response to message #5 by Christof

>But I just happen to have this rather cool Macintosh Classic runnin system 7 with calcware link (for hp48) with the 48<->mac serial cable. It's not got a lot of other useufl stuff on it, though if I could find any of the older math programs.....

Just keep your fingers crossed so you won't need to \_repair\_ your old Mac. It would be as difficult to find spare parts for an IBM PC AT. Rememer those?

And speaking of the HP-48, I too have a program (named "X.48") which runs perfectly under OS X and brings a 48 to my desktop. Surely that is \_the\_ calculator to have on a Mac!

-Ernie

#### Re: HP-12c for macintosh on ebay

Message #7 Posted by <u>Dave Shaffer</u> on 12 May 2003, 12:53 a.m., in response to message #6 by Ernie Malaga

re: " It would be as difficult to find spare parts for an IBM PC AT"

I've got a complete one in almost pristine condition, complete with original IBM B/ W monitor, that I'd sell for the right price (I'm not sure what that would be, though!). However, I WON'T part with the keyboard. They are the best ever made, and I have four of them - one for every PC I use regularly.

I suspect there are a lot of these as well as old Mac's out there.

Including my Mac Plus w/20MB ext HD Message #8 Posted by <u>Gene</u> on 12 May 2003, 7:26 a.m., in response to message #7 by Dave Shaffer

:-) It runs one game, Millionaire, that won't run on any newer machine. It's the reason I keep it around.

# Re: Including my Mac Plus w/20MB ext HD

Message #9 Posted by <u>Christof</u> on 12 May 2003, 11:07 a.m., in response to message #8 by Gene

they aren't that hard to find, really.

I see stacks of them here and there sometimes. Though I should grab a couple for spare parts soon as the move is done.

current going rate on a working classic is about 10% that of a well preserved 41CX.....

# **Macintosh Spare Parts**

Message #10 Posted by John K. (US) on 13 May 2003, 1:19 a.m., in response to message #6 by Ernie Malaga

ust keep your fingers crossed so you won't need to \_repair\_ your old Mac.

I've had pretty good luck with <u>DT&T Service</u>. They sell parts -- including those hardto-find Sony floppy drives -- for nearly all of the older systems. It's been a couple of years so I don't know how they are now, but I've ordered a Quadra 840av and G3 Powerbook m-boards from them without any problems.

They also fix the equipments if you don't feel like turning a screwdriver yourself.

#### Re: HP-12c for macintosh on ebay

Message #11 Posted by <u>Chan Tran</u> on 13 May 2003, 5:36 p.m., in response to message #6 by Ernie Malaga

I just happened to have 3 perfectly working Mac Classic II, 1 Mac Plus and 1 Mac 128K. I think it would be enough old Mac's for a while.



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**NEW HP-85 & HP-75 ;-)** Message #1 Posted by <u>Jürgen (CH)</u> on 11 May 2003, 3:48 p.m.

<u>HP-85 & HP-75</u>

88 keys, sound (integrated wavetable), ...

Unfortunately, too big and too heavy :-(

Have a nice week, Jürgen

#### **Re: NEW HP-85 & HP-75 ;-)**

Message #2 Posted by <u>Mike (Stgt)</u> on 12 May 2003, 6:19 a.m., in response to message #1 by Jürgen (CH)

No bad idea! An HP with "Satin Rosewood"-finish you will caress with your hand instead of taper with your finger tips a Platinum, Titatnium, or what so ever.

Ciao.....Mike

#### Re: NEW HP-85 & HP-75 ;-)

Message #3 Posted by <u>Tom (UK)</u> on 12 May 2003, 12:30 p.m., in response to message #1 by Jürgen (CH)

Wow!:

Keyboard: 88 Key Natural Response Action, Velocity Sensitive

I like the sound of a velocity sensitive keyboard. Does this mean the faster you press the ENTER key the faster you want the results - hence the calculator knows what accuracy to find the answer to by touch alone!

(Seriously - Doesn't HP care that familiar names they once 'owned' are being used for electronic gear?)

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#### HP-97 Charger Spec

Message #1 Posted by Andy Hall on 11 May 2003, 12:54 p.m.

I recently came upon a HP-97 that is missing it's charger. I would like to improvise a power source so I can determine if the calculator is functional before I try to purchase a charger for it.

Information on this web site says that the HP-97 requires a charger that puts out 8 VAC at 3 VA. On the calculator, near the charger connector, it says "5 VOLTS 2 WATTS".

Comments, explanations, and/or suggestions are welcomed.

**Re: HP-97 Charger Spec** 

Message #2 Posted by <u>David Ramsey</u> on 11 May 2003, 1:00 p.m., in response to message #1 by Andy Hall

Well, that agrees with the information printed on my HP-97 and the information printed on the AC adapter it came with. I can't explain the discrepancy.

# **Re: HP-97 Charger Spec**

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 11 May 2003, 1:47 p.m., in response to message #2 by David Ramsey

Hi;

there are at least six HP AC adapters compatible with HP97's original. All topcats (HP9x) may use them, also the original HP41 peripheral printer 82143A and some HPIL devices, like the 82161A (tape drive) and 82162A (thermal printer). All of these "guys" are powered by the same battery pack, too.

The three AC adapters I own that can be used with these equipments are:

82059B 82066B

#### 82040B

all of them have the same output connector and they are rated:

8 VAC 3VA ow 3W(82059B

I think the HP97 input specs are for mean average AC input voltage while 8VAC is the AC adapter voltage itself. As I have no HP97 (at least so far), I cannot go any further about the calculator specs.

Hope this helps a bit.

Luiz C. Vieira - Brazil

# **Re: HP-97 Charger Spec**

Message #4 Posted by <u>Jon</u> on 12 May 2003, 3:49 p.m., in response to message #3 by Vieira, Luiz C. (Brazil)

If you want to test it, just connect four rechargable batteries (AA is ok) to reach 4.8 to 5.2 volt aprox. Then connect it as you can to battery contacts.

Take care, the "-" is the battery contact closest to the edge of the battery holder.

The charger is 8 Volt because it has to charge 4 batteries 1.2V. Take into consideration that it is AC and the calculator has a diode and a resistor. It is ok. Never use this adapter it without a good battery pack connected. You could damage the calculator because the battery itself guarantees the correct volts. even when charging.

I hope I have helped you

Cheers

Jon

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# HP41CX CAT 2 function and MLDL

Message #1 Posted by <u>Meindert Kuipers</u> on 11 May 2003, 9:19 a.m.

When testing my MLDL I had no trouble at with my HP41C (speed upgraded). On my HP41CX I could not get my EPROM to show in the CAT 2 listing, and I was getting pretty desperate to find a solution. Then I simply tried one of the functions in the EPROM and .... it worked to my surprise.

Somehow there seems to be a difference between the CAT 2 functioning and recognition of ROMS on the HP41C and 'CX. I know that on the CX only the name of the ROM is displayed, and pressing ENTER will get the function list. In that case I do see the list of my own EPROM.

Anyone knoes the details of the behaviour? Should the ROM name have a certain format?

Thanks,

Meindert

# **Re: HP41CX CAT 2 function and MLDL**

Message #2 Posted by <u>Monte Dalrymple</u> on 11 May 2003, 10:34 a.m., in response to message #1 by Meindert Kuipers

The CX CAT 2 requires that the module name be at least eight characters long or else it doesn't display it. This is why the MATH 1B module doesn't show up on a CX.

Monte

# **Re: HP41CX CAT 2 function and MLDL**

Message #3 Posted by <u>Meindert Kuipers</u> on 11 May 2003, 1:24 p.m., in response to message #2 by Monte Dalrymple

It is that simple! Thanks

#### **Re: HP41CX CAT 2 function and MLDL**

Message #4 Posted by <u>JC Serra</u> on 11 May 2003, 2:10 p.m., in response to message #2 by Monte Dalrymple

Sorry, I'm new on the 41,

That means it doesn't work?

#### **Re: HP41CX CAT 2 function and MLDL**

Message #5 Posted by <u>Monte Dalrymple</u> on 11 May 2003, 5:01 p.m., in response to message #4 by JC Serra

All that happens is that the module name doesn't show up in a CAT 2 without pressing ENTER. When you hit ENTER during the CAT it allows you to see the individual programs and functions. At this point they all show up, including the "missing" one.

Monte

### **Interesting!**

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 11 May 2003, 3:50 p.m., in response to message #2 by Monte Dalrymple

#### Hi;

I was not aware about this, but I tried a few module names in my HP41CX and I found at least two interesting facts: some of them use a minus sign (-) in the beguining of the ROM name, others use two space characters in sequence as separators, and it may intend to increase the character number: For example:

-TIME 2C -CX TIME -PRINTER 3B -MASS ST 1H -CTL FNS -X MASS 1A -X EXT FCN -X CTL FNS -ADV CTL FN -EXT FCN 2D -CX EXT FCN Regular printer, optical wand and card reader reads (CAT 2):

CRD RDR 1G -PRINTER-- WAND 1F -

Two ROM modules with programs:

```
NAVIG 1B
FINANCE ID
```

(these are all the devices I have)

No one of them have less than 8 characters in their names. I own no MATH ROM, so I thank Dalrymple for adding this information. I was not known CAT 2 in the HP42CX would demand it. Was CX's CAT 2 "imported" from CCD?

Meindert, can you still change the MLDL header? If so, I suggest adding (-) signals before and after its existing name...

Thanks.

Luiz C. Vieira - Brazil

# **Re: Interesting!**

Message #7 Posted by <u>Monte Dalrymple</u> on 11 May 2003, 4:58 p.m., in response to message #6 by Vieira, Luiz C. (Brazil)

This fact is mentioned in Emery's "HP-41 MCODE For Beginners". I suspect that it's a byproduct of the rewriting of the CAT function for the CX but haven't had a chance to burrow through the mainframe listing to verify this.

Monte

# **Re: Interesting!**

Message #8 Posted by <u>Meindert Kuipers</u> on 12 May 2003, 2:47 a.m., in response to message #6 by Vieira, Luiz C. (Brazil)

The headers are in EPROM, and I have no prgrammer for these. This ROM was made by myself and a friend, and has very limited spare bytes. Tonight I will try another set of EPROMS and check if that works. The ROM I am currectly using has a name of 7 characters (-ML ROM) and that explains it all. The ROM does function in the 'CX, and that is the most important for me.

Meindert

### **Re: Interesting!**

Message #9 Posted by <u>Diego Diaz</u> on 12 May 2003, 7:08 a.m., in response to message #8 by Meindert Kuipers

Don't know if it will be of any help, but I do have an EPROM burner, as well as a huge bunch of 2716 & 2732 chips.

I'll be pleased to modify (names length or whatever) and burn the code you send me, then send the chips back to you into a padded envelope.

E-mail me if you want this \*service\*, I'll be really glad to contribute.

Cheers from Spain.

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Module Holder for \$45?!

Message #1 Posted by Jürgen (CH) on 11 May 2003, 5:27 a.m.

Found this on eBay:

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3022778120&ssPageName=ADME:B: RECO:US:2

Is too much Windows really that dangerous? ;-)

Re: Module Holder for \$45?!

Message #2 Posted by <u>Daniel Diggelmann</u> on 11 May 2003, 8:15 a.m., in response to message #1 by Jürgen (CH)

Well dangerous I don't know. But at least we know now that the salaries @MS must be good. Let's see how good tey really are..

**Re: Module Holder for \$45?!** 

Message #3 Posted by jose goncalves on 11 May 2003, 9:28 a.m., in response to message #2 by Daniel Diggelmann

Uau ! I wonder how much I could make if I decided to sell some of the 9 holders I have ! I have to be careful not to spoil the market, maybe ! Mainly because all of them have modules inside ...

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### Commodore SR4921 RPN

Message #1 Posted by Gordon Dyer on 10 May 2003, 5:46 p.m.

I was surprised to find a Commodore RPN calcualtor - the SR4921 RPN. Look for it in this museum: http://www.calculators.de/

#### **Other RPN-like calcs from CBM**

Message #2 Posted by <u>Raymond Del Tondo (Germany)</u> on 10 May 2003, 6:00 p.m., in response to message #1 by Gordon Dyer

Do you know the Commodore 'Minuteman \*6', and the 'Minuteman \*6X' ? The latter has even an ENTER key.

Raymond

#### **Corvus?**

Message #3 Posted by <u>Ernie Malaga</u> on 11 May 2003, 9:57 a.m., in response to message #2 by Raymond Del Tondo (Germany)

I remember receiving the newspaper clipping of an ad for a Corvus calculator with RPN. This must have been around 1974-75, and the newspaper was from Los Angeles, CA.

Does anyone remember it? If I remember well, it was about equivalent to the HP-45.

-Ernie

**The Corvus 500** *Message #4 Posted by* <u>*Gene*</u> on 11 May 2003, 2:03 p.m., in response to message #3 by Ernie Malaga

I have one of these and remember how much they used t advertise against the TI SR-51A slide rule calculator.

It has trig, logs, couple of conversions. I searched long and hard for one of these. Like to have never found it.

http://www.datamath.org/Related/Corvus/Corvus\_500.htm

The thing I remember most is that they used to have a chart comparing features with the SR-51A and it was about the most misleading thing you could imagine. There was a footnote at the bottom that indicated all the TI specs were taken from the SR-51A manual. Well, only if read by someone with their eyes closed! :-)

**Re: The Corvus 500** Message #5 Posted by <u>Ernie Malaga</u> on 11 May 2003, 7:04 p.m., in response to message #4 by Gene

Gene:

>The thing I remember most is that they used to have a chart comparing features with the SR-51A and it was about the most misleading thing you could imagine.

I agree. The Corvus 500 may be comparable to the HP-45, but not to the SR-51A.

Thanks for sharing the link. I'm glad I ended up having a 51A and then an HP-25.

-Ernie

### **Interesting!**

Message #6 Posted by <u>Mike</u> on 10 May 2003, 6:59 p.m., in response to message #1 by Gordon Dyer

I'm working on an online calculator catalog for users and the first user to upload a calculator, uploaded a 4921.

Commodore 4921

I'm hoping to have a version up this weekend that will have the look and feel of the demo shots. It will eventually be fully searchable with thumbnails for quick loading.

Stay tuned!

#### **Re: Interesting!**

Message #7 Posted by <u>Gordon Dyer</u> on 11 May 2003, 10:42 a.m., in response to message #6 by Mike

An interesting coincidence! I would like to find one to buy as I have several other Commodores.

# Re: Commodore SR4921 RPN

Message #8 Posted by <u>Mike Hicks</u> on 10 May 2003, 7:28 p.m., in response to message #1 by Gordon Dyer

I actually have this calculator. I was fortunate to win the auction on eBay. Not a bad looking calculator and it does use a 9 Volt battery, so I had it fired up and working pretty quickly.

**Re: Commodore SR4921 RPN** *Message #9 Posted by Ellis Easley on 12 May 2003, 6:08 p.m., in response to message #8 by Mike Hicks* 

How does the register stack compare to HP's - number of levels, automatic lift, does rolldown rotate the registers etc. I see it is a "red dot" - makes it more valuable?!

# **Re: Commodore SR4921 RPN**

Message #10 Posted by <u>Mike Hicks</u> on 12 May 2003, 10:30 p.m., in response to message #9 by Ellis Easley

The SR4921RPN has a four level stack: X, Y, Z and W (instead of T). It operates similar to the standard HP stack, except the W register does not copy into Z upon an X and Y combo function (like addition, etc). The roll down is the same as HP. Mine has a red dot, my guess is that they all do....

Re: Commodore SR4921 RPN

Message #11 Posted by <u>Ellis Easley</u> on 14 May 2003, 5:36 a.m., in response to message #10 by Mike Hicks

What ends up in Z after a 2 argument operation? Does it "repeat" like T on HP calculators? Then you could still do the constant operations by filling the stack. Although it's different, I kind of like the idea of an independent stack register, as W seems to be.

# Re: Commodore SR4921 RPN

Message #12 Posted by <u>Gordon Dyer</u> on 12 May 2003, 6:58 p.m., in response to message #8 by Mike Hicks

Hi Mike, did you get the manual with it?

Would you consider sending me a scan (300dpi colour) of the calculator and manual if you have it?

Thanks

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# **HP 97 Battery Question**

Message #1 Posted by Jay on 10 May 2003, 3:45 p.m.

I can power my HP 97 using a standard 6-volt Lithium battery. Is there any problem powering the calculator using a standard 6-volt dc power supply connected to its battery terminals?

# **Re: HP 97 Battery Question**

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 4:02 p.m., in response to message #1 by Jay

Hi;

theoreticaly, no. There is no problem at all, BUT (and read it as a loud and clear BUT) you MUST use a completely protected, regulated, 100% noiseless 4.8 to 5.2 Vcc power supply, not a 6 Vcc, because original cells are NiCad and their voltage is about 1.2 to 1.3 Vcc. 6 Vcc is not achieved even when charging them, so it's good preactice keeping it under 5.2 Vcc.

The "completely protected, regulated, 100% noiseless" is intended to copy batteries behavior, and that's what internal circuits expect to be fed with: clean, pure constant-current voltage supply. If you grab the first cheap 6Vcc power converter and measure it wihtout anything connected to it, you'll find about 7.5 Vcc, with a considerable 60hz/120Hz ripple (rectified and bad filtered), what will probably destroy your beloved HP97 after a few sections. IOt will probably resist bravely after a few hours/days/weeks, but everytime you switch it ON, all of the circuits will receive a brief 8.5 to 8 Vcc peak voltage (capacitor charging) before diodes .7 Vcc drop each (1.4 total)allow it to go close to 6 Vcc.

Spending some time developing a regulator with forward protection or making sure you find a regulated/proteced 5.2 Vcc power supply that will not float while the HP97 is reading/writing a card or printing while runnning a program (peak power demand) is a better choice.

Or rebuilding the battery with existing Motorolla cellphones battery packs... I rebuilt two of mine with these and they work way fine.

luiz C. Vieira - Brazil

### **Re: HP 97 Battery Question**

Message #3 Posted by <u>Jon</u> on 10 May 2003, 4:58 p.m., in response to message #2 by Vieira, Luiz C. (Brazil)

Luiz:

Can you say me which Motorolla cellphones battery packs works fine?.

Thanks

Jon

# **Re: HP 97 Battery Question**

Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 11 May 2003, 12:18 a.m., in response to message #3 by Jon

Hi, Jon;

I opened (WITH MUCH CARE NOT TO SHORTEN THEIR TERMINALS) at least ten battery packs from TELE T.A.C. series, being both SNN4258D and SNN4019E the ones I used most. I prefer the SNN4258D because it has NiMH cells (usually isolated with green plastic). There are other types I remember being disassembled, but I do not have their codes.

One thing that called my attention is that there are different batteries inside packs with same ID #. In fact, what matters is that they must keep the same Ah relation (Ampère/hour), and the cells inside are found in some different shape. I'd like to find N-size NiMH (HP41) but I think I'll never find them...

What I noticed is that in most cases, dammaged packs have one (worst case was two) bad cell, and unfortunately they are usually in the middle (Murphy's law); at least in one case the dammaged cell was in the edge so the other four ones were kept with their original metal contacts (no need to further soldering except for the terminals).

In general the cells are sub-C equivalent with a lower diameter, so you'll need something to keep them in place inside the HP97 battery holder (and all topcats plus HP82143A, HP82161/82162 and a few others use the same package). The existence of the holder

eases the job, you do not need to keep batteries firmly inside the equipment, just inside the holder (the small cage). I used a small piece of thick rubber in the middle of the cage so both batteries and contacts were kept in place. As I have only one 82143A (at least so far) that uses this pack, I rebuilt only one for testing, but I have the cage for a spare that I'll rebuilt and keep for emergency.

I hope it helps a bit. Anyway, I was informed a bit ago that my provider found another host for its customer pages and the one I had to place images is already available. I'll check for this and, if applicable, I'll scan the battery pack and place images there. Keep tunned!

Best regards.

Luiz C. Vieira - Brazil

# **Battery Question (and my e-space is back)**

Message #5 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 11 May 2003, 1:42 a.m., in response to message #3 by Jon

Hi Jon, folks;

I thought I could get my pictures back in great style. Look below:

(picture unavailable)

- 1 HP97 (and others) battery holder without cells
- 2 Original Hewlett-Packard NiCad battery cells
- 3 Rebuilt battery pack with Motorolla®-pack cells
- 4 The remaining cell from the pack of five used in (3)
- 5 Another set of cells (one missing) from another Motorolla® pack
- 6 Original Motorolla® SNN4258D
- 7 Opened SNN4258D with different (smaller) cells

Items (4) and (5) (cells) were taken form two different SNN4258D, as are the cells in (7), being this the newer SNN4258D I have. All of them are not good (low performance) and I identified at least one troubled cell on each of them. The one shown in (4) has a higher internal resistence: charges faster than the others, but goes drops to low voltage either faster.

Hope the image helps having an idea. All items were scanned in the same "shot",

keeping the same proportion. Images were retouched and background was chosen as for bweing neutral to all of them.

I immensely accept comments, suggestions, corrections, etc.

Thanks.

Luiz C. Vieira - Brazil

**Re: Battery Question (and my e-space is back)** *Message #6 Posted by Jon on 11 May 2003, 10:14 a.m.,* 

in response to message #5 by Vieira, Luiz C. (Brazil)

Luiz:

You have done a fantastic work. Thanks for the idea. I don't have these bateriaes available at this moment but I will look for something similar.

Jon

Re: Battery Question (and my e-space is back) Message #7 Posted by Jon on 12 May 2003, 3:54 p.m., in response to message #6 by Jon Luiz: I have found an old battery pack I used for the camera with 5x1.2 v. of similar length. The cells could be ok (less diameter but...). I know at least one of them is failing. How can I check each cell? Thanks Jon

#### **Re: Battery Question (and my e-space is back)**

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 12 May 2003, 4:31 p.m., in response to message #7 by Jon

Hi, Jon;

When I have this sort of situation, I must open the pack and access each cell's connection. Then I use an external power source that may deliver from Vbatt + 15% (min) till Vbatt + 40% (max), being Vbatt the nominal pack valtage. If you have five cells you should use an external supply from 7Vcc to 9.5Vcc with a series resistor enough to limit current intensity to a maximum of 20 mA. Then I'd check for voltage over each cell at the very moment the power is connected and after about one hour, measuring form time to time. The bad cell will be the slowest one to reach nominal voltage if it is shorted OR the fastest one if it has higher internal resistance. If you allow higher current, say, 30 to 35 mA, the cell that is NOT warm at the finger touch is the one with problems. I prefer measuring voltages.

I hope it helps. If you need further advice, let us know. There are others here, like Norm Hill, Glynn, Randy amongst other brainy guys, that deal either with analog devices or with batteries and they will surely add valuable info.

Best regards and success.

Luiz C. Vieira - Brazil

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Extended Numerical Keyboard with Structured Data Entry

Message #1 Posted by Gordon Dyer on 10 May 2003, 2:48 p.m.

Here is a new method of number input to a calculator which has been patented. The link gives a working version of a java calc with this method of entry. I think it is well suited to financial calculators.

I would be interested to see opinions on the usefulness of this, particularly if combined with RPN.

http://www.dotpoint.com/xnumber/

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### CARD ERR from 41c reader

Message #1 Posted by Steve on 10 May 2003, 11:22 a.m.

I'm attempting to rebuild a 41c card reader. I've replaced the rubber wheel and tightened the motor clutch. I've checked the order of the wires, and used known good cards. When I write to a card it does not report an error, however when I try to read the same card (or a card written by another reader) I get CARD ERR. I know there are probably many reasons for this error, but what's the most likely cause? The reader is in pretty good shape so I was hoping to bring it back to life. Thanks,

Steve

# Re: CARD ERR from 41c reader

Message #2 Posted by <u>Christof</u> on 10 May 2003, 2:27 p.m., in response to message #1 by Steve

Mine has been doing that a lot lately, and it is a pretty lightly used device with new rubber wheels.

If you look \*really\* closely, do you see hesitations in the movement of the card that seem a bit erratic and long?

I'm thinking I may have run into a ever so slightly uneven wheel. The only thing is, the first 2 dozen cards I wrote verified fine, and are still verifying fine sometimes. So It may be a cleaning need or---

I'd like to try a general check of attachment tightness and maye (help me out here, is this a good idea) head cleaning/demagnetizing.

AFTER I have time again, of course.....

# Re: CARD ERR from 41c reader

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 2:58 p.m., in response to message #1 by Steve

Hi;

I agree with Christof's precise warning about the irregularity when pulling the cards. Also, I had problems with both situations:

1- magnetic residual field, that can be "removed" with degausser devices like the ones used in "ancient" tape players/recorders. The card reader must be opened and the magnetic head must be accessible. This procedure was exhaustively discussed here about one year ago or more, and it's proven to be harmless.

2- head cleaning; I once had to use metal polisher so the head read/write surface was left like a mirror. After that, till today (about five years) it's running like hell, no errors at all.

Hope this adds a few more information.

Success!

Luiz C. Vieira - Brazil

# Re: CARD ERR from 41c reader

Message #4 Posted by <u>David Smith</u> on 10 May 2003, 4:32 p.m., in response to message #1 by Steve

One nasty little thing to look out for is the routing of the motor wires. Keep them well away from the head. Also, make sure the head is clean.

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# HP-67 Backgammon?

Message #1 Posted by Gene on 10 May 2003, 9:05 a.m.

Friend of mine made the purchase below in North Carolina this past week. Anyone know about the backgammon program he seems to have found? --Gene ------

Today I purchased an HP-67 and an HP-41 at an estate sale. The really interesting thing to me about the HP-67 is that it comes with a set of some thirty-six magnetic cards which supposedly allow the user to play backgammon. Many of the cards bear dates in January of 1978. Do you know anything about that?

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**i would like to try out some of the programmes onthe achive** *Message #1 Posted by <u>emmanuel erivona</u> on 10 May 2003, 7:26 a.m.* 

Iwould like to try out some of the programmes on the achives but i dont know how to go about it I use a hp 48sx calculator

**Re: i would like to try out some of the programmes onthe achive** *Message #2 Posted by Ellis Easley on 10 May 2003, 1:02 p.m., in response to message #1 by emmanuel erivona* 

I think most of the programs in the HP Museum FTP site are for older calculators. There are some other websites dedicated to the 48 series (one website is hpcalc.org) that have a LOT of downloadable software that can be brought into the calculator fairly easily (compared to the older calculators) because of the RS-232 port. You just need a cable to connect it to your PC, the cable is easy to find for sale but might use a hard-to-find connector making it a little hard to build your own.

**Re: i would like to try out some of the programmes onthe achive** *Message #3 Posted by* <u>*Christof*</u> *on 10 May 2003, 2:28 p.m., in response to message #2 by Ellis Easley* 

if you have a laptop or other computer with infrared, don't forget that you cna do serial transfers with the built in infrared port on the 48SX.(which I still claim has a better interface than the GX)

#### Palm ==> HP-48 via Infrared?

Message #4 Posted by <u>Patrick</u> on 10 May 2003, 3:25 p.m., in response to message #3 by Christof

Does anyone have experience with using the infrared ports on Palm devices to transfer programs to the HP-48GX?
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**the new Hewlett-Packard Calculator Indoctrination Center ??** *Message #1 Posted by* <u>*NH*</u> *on 10 May 2003, 2:11 a.m.* 

Hey, has everybody seen the new Hewlett Packard Communist Indoctrination Center, for loyal Carly Fiorina foot soldiers ???

Here it is, give it a browse, its the latest innovation in HP calculators (no calculators, but you can have a website).

http://www.hp-calculators.com

It's kind of interesting. Our new fuhrer, Mr. Valdez, assures us that along with fine products like Walmart 9S and 9G, that there will be other fine new products coming soon

(Kmart 9S and 9G ???)

I see they also put the "HP-12c" in the listing for 'scientific/engineering calculators'. OK, I'll do depreciation of money, instead of phase angles.

They allude to a 'new release' coming up in the next few weeks..... that would be the 'platinum' HP-12C. Well hey, since they are making it out of real platinum, at 3 times the price of gold, I should be able to pull profit by buying one, and melting it into a platinum ingot. Dang, those Wall Street calculator buyers sure do insist on high-end materials !!

;0)

## **Re: the new Hewlett-Packard Calculator Indoctrination Center ??**

Message #2 Posted by <u>Michael F. Coyle</u> on 10 May 2003, 6:49 p.m., in response to message #1 by NH

NH writes: ...that would be the 'platinum' HP-12C. Well hey, since they are making it out of real platinum, at 3 times the price of gold, I should be able to pull profit by buying one, and melting it into a platinum ingot. Dang, those Wall Street calculator buyers sure do insist on high-end materials !!

Actually it's a platinum-iridium alloy. That's why it's the "new standard."

- Michael (who's really sorry about this message, but will let it stand)

**Re: the new Hewlett-Packard Calculator Indoctrination Center ??** *Message #3 Posted by* <u>*Tony Pace*</u> *on 13 May 2003, 6:12 a.m., in response to message #1 by NH* 

This old hp-65er drilled down through the site and simply notes that Carly is evidently pitching these products to Middle- and High-school students. Don't be too harsh on her; it's an investment in new customers. But I do wonder if they have a site for those of us who have seen the light and live according to the RPN Gospel. :-)

**Re: the new Hewlett-Packard Calculator Indoctrination Center ??** *Message #4 Posted by* <u>*Robert*</u> *on 13 May 2003, 9:19 a.m., in response to message #3 by Tony Pace* 

They don't need a site for us. We have one. I just hope that the new engineering calcs have a big ENTER key, and look like serious instruments.

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## HP32sII

Message #1 Posted by <u>Nick</u> on 10 May 2003, 12:21 a.m.

Hello: I have a HP32sII that wont accept keystrokes, unless I press on the bezel. Then it works fine. I haven't taken it apart yet. Anybody run into such a problem? I am also wondering if it is possible to send a calculator in to HP for repair? Anybody try it recently on a recently discontinued 32sii? Thanks, Nick

## the way to fix it

Message #2 Posted by <u>Norm</u> on 10 May 2003, 1:59 a.m., in response to message #1 by Nick

the way to fix it

is to carefully balance it on the

mainline Burlington Northern railroad tracks.

Wait for a train to come thru.

After the train has passed, everything

should be okey-dokey.

## Re: the way to fix it

Message #3 Posted by <u>Randy Sloyer</u> on 10 May 2003, 9:55 a.m., in response to message #2 by Norm

Norm - don't give away all your good repair secrets. Is this the method for repairing all those 34C's you have? I was wondering how you got those chips to stay in the case. Now we know. A forged calculator :^)

## Re: the way to fix it

Message #4 Posted by <u>Nick</u> on 10 May 2003, 10:49 a.m., in response to message #2 by Norm

Norm: I went to the railroad track. There are 2 tracks. Which one do I balance it on? I dont want to make a mistake an ruin my calculator.

## LOL!!

Message #5 Posted by <u>Patrick</u> on 10 May 2003, 3:31 p.m., in response to message #4 by Nick

That was really funny!

You idiot, it doesn't matter which track you use so long as you make sure you are standing *between* the tracks as you balance it.

## Re: LOL!!

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 3:39 p.m., in response to message #5 by Patrick

At the moment the train passes, so you keep it in place???

Have anyone tried this enough times to confirm if it works fine? Anyone? Ahn? You?

Thanks!

8^D

## Try ducktape ! LOL!!

Message #7 Posted by <u>Norm</u> on 10 May 2003, 4:34 p.m., in response to message #6 by Vieira, Luiz C. (Brazil)

If you are a really fussy repair person, you can be extra thorough with a bit of ducktape to keep it in place on the track.

As to which track (there are 2 ?) don't use

the one that is used for a side-spur.

If you use a sidespur, you'll be waiting too long for your calculator to get fixed .

:0)

## Another issue... Norm?

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 6:21 p.m., in response to message #7 by Norm

Hey, Norm;

let's get the train aside for a while. I know you like the LED's better than the LCD's, and I support your decisions, no pun at all (but I'd never use my HP42S to try tye tracks...).

I saw your post about the HP34C: any success? I also found one HP37E, "sandwich" type, with no revealing signs of being opened before, and without the rubber sheet for the keyboard. I had a lot of Spices in hands and that's the first time I opened one without it. At least it seems never being opened before. "For the records".

Did you try the "paper-tissue" I mentioned? BTW, is this the name you give to it? That sort of paper mixed with cloths tissue, or something like this? It's perfect to replace rought or removed rubber sheets. I've successfuly placed it in some Spices (except for the one I mentioned above, all of the others had been opened before).

That's all for now. Best regards.

Luiz C. Vieira - Brazil

## no luck with 34c right now

Message #9 Posted by <u>Norm</u> on 10 May 2003, 8:40 p.m., in response to message #8 by Vieira, Luiz C. (Brazil)

Hi Luiz,

I am going to hold out for a 'genuine' rubber keypad membrane, rather than try to make one from scratch.

You may be right that some Spice calculators were assembled without the rubber keypad layer. Probably it was earlier ones with a lower serial number. But they are definitely nicer with the rubber pad, which is why they added it.

Although I put up classified ads, both for complete 34C, and also for parts of HP-34C (the rubber pad, the big IC chip) it is 'no luck' with HP-34C right now. There are not even any HP-34C on eBay at this time.

I was very lucky to have gotten one response from a classified ad from 60 days ago. That one was a real nice specimen, my favorite. I had to fix just a few minor things, and lubricate the switches, and didn't pay unreasonably. I paid a ton of money for one off eBay a couple of weeks ago, it has the display blanking malfunction and I believe it needs the rubber pad, and also to replace the big chip.

- Norm

## Re: LOL!!

Message #10 Posted by <u>Michael F. Coyle</u> on 10 May 2003, 6:43 p.m., in response to message #5 by Patrick

You can also use the third (electrified) rail, if your railroad supports this feature.

Just make sure you have a working battery pack installed, else you may damage the electronics!

(When you're done, will you have a well-trained machine?)

- Michael

## Re: LOL!!

Message #11 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 6:48 p.m., in response to message #10 by Michael F. Coyle

What about a "wheel\_train"-ed machine?

<8^D

## "Wheel-trained" ?

Message #12 Posted by <u>Michael F. Coyle</u> on 10 May 2003, 7:25 p.m., in response to message #11 by Vieira, Luiz C. (Brazil)

Are you referring to training wheels? (American term for extra wheels attached to a bicycle so that it won't fall over.)

Anyway, after fixing a calculator using these methods, perhaps a better image would be the Funeral Train.

- Michael, who may get run out of town on a rail if he continues these posts.

Re: "Wheel-trained" ? Message #13 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 8:06 p. m., in response to message #12 by Michael F. Coyle Hi; I thought about the metal wheels in train compositions, that's why I wrote: "Wheel-train"\_ed to be against "well-trained", as we expect a train wheel to pass over it. But I see it's not funny... |-( Sorry.

Luiz C. Vieira - Brazil

# Re: HP32sII

Message #14 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 3:07 a.m., in response to message #1 by Nick

## Hi;

you may find authorized repair for it, as it would be the best applicable solution. Anyway, the symptoms indicate you have a simple problem that demands opening the calculator and removing the mainboard, no need to remove the keyboard contact plate. Your major concerns ar opening it, removing the mainboard, put it back in place and locking calculator's case again.

Removing the mainboard also means "separation" of the LCD contacts (polymers), and both keyboard and LCD contacts are assured by "pressure" locks. These locks are simply metal "tabs" that must be twisted (about 90 degrees) to hold the mainboard in place.

There are six of these tabs, all around the LCD, and each time you twist them to remove the mainboard and twist them back to hold it in place, they (the tabs) scratch the mainboard, so you should be care and sure you'll "twist" them the fewer times you need.

After removing the mainboard you'll see the keyboard has all of its contacts with the mainboard pressed by a separate foam. If this foam recesses and does not press the keyboard's connectors firmly, the calculator's processor will not "sense" keys contacts. So you should carefully increase foam's pressure (by adding tape between the foam and the keyboard's connectors) and rebuilt everything back together.

I still think authorized HP repair is the best way, mostly because they will probably (and it's highly certain) send you a new unit. Well, there are those who will tell you a new unit may be worst than the one you have, so the decision is yours.

If you need extra advice on doing the repair by yourself, let us know. If you believe you do not have the skills to do it, I certainly will not encourage you to "give it a try". Instead, give HP Authorized Repair Center a try...

I'd also think twice before going to Norm's solution...; ^D (Hey, Norm; give Nick a chance...)

Success.

Luiz C. Vieira - Brazil

## Re: HP32sII

Message #15 Posted by <u>nick</u> on 10 May 2003, 12:05 p.m., in response to message #14 by Vieira, Luiz C. (Brazil)

Luiz: I have a hp 20s that I took apart a while back that I'm practicing with. It had a similar problem. The row with the 5 key didn't work, unless I pressed the bezel.

I see what you mean. After adding paper on top of the foam. I am using the smooth paper that postage stamps glue on. I put it back together. No life to the 20s. I suspect I pushed the paper too far down and deprived some other contacts further down underneath the plastic contact strip. I will try again with tape, as you suggested.

I am wondering how many times will the metal twists turn, before they break?

## Re: HP32sII

Message #16 Posted by <u>Nick</u> on 10 May 2003, 12:35 p.m., in response to message #15 by nick

I put sticky tape under the contacts. That seemed to do the trick. The 20s seems to be working well now. I had a bit of problem snapping the calculator back together. And the metal twists survived a my second twist (third, counting the factory istallation). Thanks for your help.

Norm, the train is late today. I'll have to go back tomorrow. Nick

## HP32sII - Strip metal twisting

Message #17 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 3:04 p.m., in response to message #16 by Nick

Hey, Nick; that's good news! Thank you for your feedback.

I forgot to mention: look out for ElectroStic Discharges (ESD); take precautions, O. K.?

About the strips: I think if you do not bend them too far (I try to keep it in a less-than-90\_degrees profile) they will survive after about a dozen twist-untwist porcedure. I can tell you I have gone that far or even more in one single Pioneer.

There are two two other things I have to tell you.

1) As you may have noticed, the two bottom strips (thanks; I'm collecting English terms as I see them replcaing mine...;^) at the extreme sides are different of the other four ones. They have two angled edgeds while others have two small tabs (strips?)at each side, like small forks, to made electrical contact. It's not critical, because if you look at the conections face of the mainboard, you'll see there are at least four "pins" connecting the positive pole (batteries). The tip is to slightly bend the small tabs that exist in the fork-type strips in the same direction they are already bent, before untwisting the strips when removing the mainboard, so they will scratch the surface slightly too, while you'll have to carefully straighten them back when they are under the mainboard's hole so you can remove it.

2) when you are placing the mainboard back, make sure you press it a little while you are twisting the sritps (I know there is a best sequence, but I did not stop to reason about it). This way the "small forks" will not scratch the mainboard too deep and when you release the mainborad (cease the preassure) it will remain a reasonable amount of pressure over both polymers and the keyboard's foam.

In time: the use of tape under the keyboard's contacts is not my idea; instead it was posted a few days ago by one of ours valuable contributors and I tested it so it works great.

About reassembling the case: the "trick" I use is to tear small slices of plastic appart from the border of the top (melted) internal posts (five or six?) so they allow being inserted back without much preassure and they still keep holding the case. The four ones that can be accessed outside after removing the batteries compartment cover I use one of both: heat glue or, when available, small screws. I prefer the second one, the problem is to find the d.. screws that fit in there.

Success. And let us know about the final results...

Luiz C. Vieira - Brazil

## Assembling Important notice!

Message #18 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 3:48 p.m., in response to message #17 by Vieira, Luiz C. (Brazil)

Oh, yes, very important.

Even the small quantity of fat in your fingers will be enough to "contaminate" the polymers' surface. And it's easily removed with alcohol.

Be sure cleaning all of thiese surfaces when reassembling the mainboard back in place (unlsee you do not touch them):

1 - mainboards "zebra" contacts for the LCD and keyboard

2 - both polymers (and take care assembling them back the way they were)

3 - keyboard contacts - take special care not rubbing them much enough to remove the carbon surface; in fact, avoid touching them so you'll not need to clean them.

If I remember something else, I'll post again.

Luiz C. Vieira - Brazil

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Painted HP logos ?

Message #1 Posted by jose goncalves on 9 May 2003, 10:47 p.m.

I've noticed that the front HP logo in my HP-11C and HP-15C are paited silver, while the one in my HP-12C in metalic golden. Are all HP-11C and HP-15C like this ? Is there any other Voyager with painted logo ?

In time: my calculators were manufactured in Brazil.

**Re: Painted HP logos ?** 

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 12:01 a.m., in response to message #1 by jose goncalves

Olá, José;

you're right: some Voyagers have plastic-molded, painted logos (newer) and others have metal stamped ones (earlier). I have an HP11C's logo that's made with thin metal and is stamped (not etched) to form the [hp] and the [11C] signs. I also have my old HP15C's logo that is simply a molded black plastic with both [hp] and [11C] molded signs and painting with metlic silver.

Hope this helps.

Luiz C. Vieira - Brazil

(what happened with the HP12C and the HP41? Please, e-mail me: lcvieira@quantica.com.br)

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## 41c Card Reader info needed!

Message #1 Posted by Steve on 9 May 2003, 9:41 p.m.

I'm rebuilding a 41c card reader and I can't remember the layout of the spring clips in the upper (sealed) assembly of the card reader. The spring clips are the long (3") forked clips that press against the top board when a card passes through. I think there are 2 clips, unless I've lost one. Can anyone describe the layout, or better yet, point me to a picture. I have a good article, but it does not show the upper assembly. Thanks!

Steve

## Found it!!!

Message #2 Posted by <u>Steve</u> on 9 May 2003, 9:49 p.m., in response to message #1 by Steve

Never mind, it's in Article #57. It looks like there are only two clips.

Steve

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HP-32S original box - clear window ? Message #1 Posted by Renato on 9 May 2003, 5:33 p.m.

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&category=11713&item=3023333177

Are all original 32s boxes like this ? I mean : with the cut-out window that shows the calculator inside the box ?

Renato

## **Re: HP-32S original box - clear window ?**

Message #2 Posted by <u>Terry Ingram</u> on 9 May 2003, 9:32 p.m., in response to message #1 by Renato

Not sure about all of the 32s models. But my 32sii is in a similar box with the cut-out window. The manual on the 32sii is not spiral bound.

Terry

**Re: HP-32S original box - clear window ?** 

Message #3 Posted by <u>Renato</u> on 10 May 2003, 11:05 a.m., in response to message #2 by Terry Ingram

Terry,

Thanks for posting. What are the year and country of manufacture of your 32SII ?

Renato

## Re: HP-32S original box - clear window ?

Message #4 Posted by <u>Terry Ingram</u> on 10 May 2003, 11:25 a.m., in response to message #3 by Renato

Renato,

The serial number is 3318S02823. Made in Singapore.

I have a second 32sii purchased as a back-up unit. The serial number is 3339S87868. Also made in Singapore.

These units were purchased together new. I'm not sure how to interpret the serial numbers to indicate year of manufacture.

The 32sii is a very useful calculator. I keep the back-up unit in the original box, but use the other unit almost everyday.

Terry

## **Re: HP-32S original box - clear window ?**

Message #5 Posted by <u>Renato</u> on 10 May 2003, 12:14 p.m., in response to message #4 by Terry Ingram

Terry, First two digits + 60 is year of manufacture - yours are 93 units. Second+third digits give week in that year. See http://www.hpmuseum.org/collect.htm#numbers

Renato

Is your box like this one ? Message #6 Posted by <u>Renato</u> on 11 May 2003, 11:13 p.m., in response to message #4 by Terry Ingram

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3023816200

Renato

## **Re: Is your box like this one ? Yes**

Message #7 Posted by <u>Terry Ingram</u> on 12 May 2003, 9:42 a.m., in response to message #6 by Renato

Yes.

I noticed on the 32s box previously discussed, the box depicted a left hand holding the calculator.

Terry,



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#### HP71 ROM module - functions ?A

Message #1 Posted by GE (France) on 9 May 2003, 3:33 p.m.

Hello, Thanks to Doug, a nice fellow met on this site I recently got a 71 Math module, but without doc. I have an old version of the HP Museum CDs, which don't carry the manual fot this module. Does anyone have pointers for me ? I do a CAT and it shows just a 32k LEX file, is this OK? TIA.

#### Re: HP71 ROM module - functions ?A

Message #2 Posted by <u>Alain (Canada)</u> on 10 May 2003, 8:31 a.m., in response to message #1 by GE (France)

Using cat, it returns the same thing for me. If you want to have the function list try using the lex "listlex". The syntax is : listlex\$("the name of lex"). It lists the keywords for the lex in parameter.

Also, you can have a look at Joseph K. Horn LEXicon by sorted by Lex Filename. See below for the MathROM.

url : http://pweb.jps.net/~joehorn/HP71/lexfiles.htm

Alain

MATHROM --/00 =pVER\$ "MATH:1A" MATHROM --/1E =pIMCHR MATHROM --/1F =pIMXCH MATHROM --/20 =pIMbck MATHROM --/21 =pIMcpi MATHROM --/22 =pIMcpw MATHROM --/38 =pCMPLX MATHROM --/39 =pREN MATHROM --/3D =pFNIN MATHROM --/3E =pFNOUT MATHROM --/F1 = pMEMMATHROM --/F2 =pERROR MATHROM --/F7 =pZERPG MATHROM --/FB =pCONFG MATHROM 02/01 ACOSH(#) MATHROM 02/02 ASINH(#) MATHROM 02/03 ATANH(#) MATHROM 02/04 BSTR\$(#,#) MATHROM 02/05 BVAL(\$,#) MATHROM 02/06 CNORM(#()) MATHROM 02/07 COMPLEX #var(?#,?#),?#var(?#,?#),... MATHROM 02/08 COSH(#) MATHROM 02/09 DETL fn MATHROM 02/0A DET(?#()) MATHROM 02/0B DOT(#(),#()) MATHROM 02/0C FGUESS fn

MATHROM 02/0D FNORM(#()) MATHROM 02/0E FNROOT(#,#,#) ffn MATHROM 02/0F FVALUE fn MATHROM 02/10 GAMMA(#) MATHROM 02/11 IBOUND fn MATHROM 02/12 IMPT(#) MATHROM 02/13 INTEGRAL(#,#,#,#) ffn MATHROM 02/14 IROUND(#) MATHROM 02/15 IVALUE fn MATHROM 02/16 LBND(#(),#) MATHROM 02/17 LBOUND(#(),#) MATHROM 02/18 LOG2(#) MATHROM 02/19 MAT {matrix command} MATHROM 02/1A NAN\$(#) MATHROM 02/1B NEIGHBOR(#,#) MATHROM 02/1C REPT(#) MATHROM 02/1D RNORM(#()) MATHROM 02/1E SCALE10(#,#) MATHROM 02/1F SINH(#) MATHROM 02/20 TANH(#) MATHROM 02/21 UBND(#(),#) MATHROM 02/22 UBOUND(#(),#) MATHROM 02/23 CON postfix MATHROM 02/24 IDN postfix MATHROM 02/25 ZERO postfix MATHROM 02/26 ZER postfix MATHROM 02/27 INV postfix MATHROM 02/28 TRN postfix MATHROM 02/29 SYS postfix MATHROM 02/2B FOUR postfix MATHROM 02/2C PROOT postfix MATHROM 02/2D FVAR fn MATHROM 02/2E IVAR fn MATHROM 02/2F CONJ(#) MATHROM 02/30 TYPE(#/\$) MATHROM 02/31 ARG(#) MATHROM 02/32 PROJ(#) MATHROM 02/33 RECT(#) MATHROM 02/34 POLAR(#)

<b>[LONG] Re: HP71 ROM module - functions ?</b> Message #3 Posted by <u>Valentin Albillo</u> on 12 May 2003, 5:33 a.m., in response to message #1 by GE (France)	
While you manage to get the manual or Quick User's Guide, I think this will help.	
Best regards.	
#HP-71 MATH ROM FUNCTIONS & SOME EXAMPLES#	
COMPLEX OPERATIONS	

```
______
COMPLEX A, B(2), C(3, 3)
COMPLEX SHORT C(5,5)
   Complex variable creation with REAL precission (12+3), or SHORT (5+2)
IMAGE 2D,C(2D.2D,2D.2D,"i")
   Output formats for complex variables
All the following complex functions do work in CALC mode and leave
the result in RES:
Z = (2, 3)
              Assignment
Z = (2, 3) + (4, 5)
              Sum
Z = (2, 3) - (4, 5)
              Substraction
Z=(2,3)*(4,5) Multiplication
Z=(2,3)/(4,5) Division
Z=(2,3)^(4,5)
              Raising to a power
              Square root
Z = SOR((2,3))
Z = SIN((2,3))
              Sine
Z = COS((2,3))
              Cosine
Z = TAN((2,3))
              Tangent
Z=SINH((2,3)) Hyperbolic sine
Z=COSH((2,3)) Hyperbolic cosine
Z=TANH((2,3)) Hyperbolic tangent
Z = EXP((2,3))
              exponential
              logarithm
Z = LOG((2,3))
R = REPT(Z)
              real part of a complex
             imaginary part of a complex
I=IMPT(Z)
Z=CONJ(Z)
              complex conjugate
              Modulus
Z = ABS(Z)
Z = ARG(Z)
              Argument
              Unitary vector (SIGN if real)
Z = SGN(Z)
Z=PROJ(Z)
              Projectivity
              Conversion rect -> polar
Z=POLAR(Z)
Z = RECT(Z)
              Conversion polar -> rect
IF (2,3) = (3,4) THEN
                       Equals test
IF (2,3)#(3,4) THEN
                       Unequals test
       _____
    ASSORTED REAL FUNCTIONS [X can't be COMPLEX]
_____
```

```
Hyperbolic sine (COMPLEX X allowed, too)
A=SINH(X)
A = COSH(X)
               Hyperbolic cosine (COMPLEX X allowed, too)
A=TANH(X)
               Hyperbolic tangent (COMPLEX X allowed, too)
               Hyperbolic arcsine
A = ASINH(X)
A = ACOSH(X)
               Hyperbolic arccosine
               Hyperbolic arctangent
A = ATANH(X)
A=GAMMA(X)
               gamma function
               base-2 logarithm
A=LOG2(X)
A=BSTR$(N,B) Converts N (base-10) to A$ in base B (2,8,or 16)
               Converts N$ (base B (2,8,or 16)) to A in base-10
A=BVAL(N$,B)
               Gives the error contained in the NaN stored in N
A$=NAN$(N)
N=NEIGHBOR(X,Y) Gives the successor [next machine representable number] of X
               in the direction of Y
N=SCALE10(X,Y) Gives X times 10 raised to Y (i.e: scales X)
               Rounds X based on the active OPTION ROUND
N=IROUND(X)
               Gives the type of the variable X (X can be any machine variable)
N=TYPE(X)
          _____
     MATRIX OPERATIONS
_____
NOTE: All matrix operations work with either real- or complex-valued matrices,
     unless otherwise specified.
DIM A(2), B(3,4)
REAL A(2), B(3, 4)
COMPLEX A(2), B(3, 4)
    Dimensions or redimensions matrices to be REAL precision (12+3)
SHORT A(2), B(3, 4)
COMPLEX SHORT A(2), B(3, 4)
   Dimensions or redimensions matrices to be SHORT precision (5+2)
INTEGER A(2), B(3, 4)
    Dimensions or redimensions matrices to be INTEGER precision
    (-99999 to +99999). There are *no* COMPLEX INTEGER matrices.
DESTROY A(2), B(3, 4)
```

Destroys matrices or vectors

Note: for the following operations, the result matrix can be an argument too, i.e: MAT A=INV(A) or MAT A=A\*A are allowed too, and mixing real and complex matrices in the same operation is allowed in most cases.

```
MAT A=ZER
                           Fills up matrix A with zeros
MAT A=IDN
                           Converts A to an identity matrix
MAT A=CON
                           Fills up matrix A with ones
                           Fills up matrix A with the value of X
MAT A=(X)
MAT A=B
                           Matrix assignment
MAT A=-B
                           Matrix change sign
MAT A=TRN(B)
                           Matrix transpose
                           Matrix addition
MAT A=B+C
MAT A=B-C
                           Matrix substraction
MAT A=B*C
                           Matrix multiplication
                           Multiplies all elements of a matrix by a number
MAT A=(X)*C
MAT A=TRN(B)*C
                           Matrix transpose multiplication
                           Matrix inverse
MAT A=INV(B)
MAT X=SYS(A,B)
                           Solves all systems with coefficient matrix A and
independent
                           terms B and places the solution matrix in X
MAT INPUT A,B
                           Matrix input
                           Matrix output to the display device
MAT DISP A,B
MAT DISP USING 1000;A,B
                           Same, but using a format image
                           Matrix output to the printer device
MAT PRINT A,B
MAT PRINT USING 1000; A, B
                           Same, but using a format image
                           Returns matrix determinant [Note: only for real matrices]
X = DET(A)
X=DET
                           Returns determinant of last matrix used in DET, INV, or SYS
X = DOT(A, B)
                           Dot product
                           Row norm of a matrix
X = RNORM(A)
                           Column norm of a matrix
X = CNORM(A)
                           Frobenius norm of a matrix
X = FNORM(A)
                           Upper bound of the first dimension of a matrix
X = UBOUND(A, 1)
X = LBOUND(A, 2)
                           Lower bound of the second dimension of a matrix
Example: Solve this system of equations
                   2*a + b + 3*c = 6
                   5*a - b + 4*c = 8
                  -3*a + 2*b - c = -2
DESTROY ALL @ OPTION BASE 1 @ DIM A(3,3),B(3),X(3)
MAT INPUT A, B
                  2,1,3,5,-1,4,-3,2,-1,6,8,-2 [ENTER]
MAT X=SYS(A,B) @ FIX 4 @ DELAY 0.5,0.5 @ MAT DISP X
```

ROOTS OF ARBITRARY FUNCTIONS

X=FNROOT(A, B, FNF(FVAR))

Finds a real root between A and B of the equation FNF(X) = 0where FNF(X) is a user-defined function. If it can't find a root, it returns a minimum of the function in that interval.

You can nest 5 calls to FNROOT, so solving a system of up to 5 non-linear equations or finding maxima and minima of a function of up to 5 variables is possible.

FVAR represents the variable in the function, and holds its value. It must be used in the definition, in lieu of the unknown.

FVALUE it's the value of the function at the computed root, so it should be near zero por true roots, else the computed value is a maximum or a minimum of the function, not a root

FGUESS it's the previous approximation to the root

The equation to be solved can be specified:

- in the call itself

X=FNROOT(1,2,FVAR^3-FVAR-1)

- in a user-defined function, single or multiline

10 DEF FNF(X) =  $X^{3} - X - 1$ 

X=FNROOT(1,2,FNF(FVAR))

INTEGRALS OF ARBITRARY FUNCTIONS

```
X=INTEGRAL(A,B,P,FNF(IVAR))
```

Computes the integral between limits A, B of the user-defined function FNF(X), using precission P.

You can nest 5 calls to INTEGRAL, so multiple integrals of up to 5 variables can be computed.

- IBOUND gives the maximum error. If negative, the process did not converge to the specified precission.
- IVAR represents the integration variable and stores its value. It must be used in the function definition in lieu of the integration variable.

IVALUE es the value of the last integral computed

The function to be integrated can be specified as follows:

- in the call itself:

I=INTEGRAL(0,1,1E-5,SIN(IVAR)\*COS(IVAR))

- in a user-defined function, single or multiline

10 DEF FNF(X)=SIN(X)\*COS(X)

I=INTEGRAL(0,1,1E-5,FNF(IVAR))

Note: INTEGRAL can use FNROOT in the function definition, and viceversa, so you can:

- find roots of equations defined by integrals

- integrate implicit functions

\_\_\_\_\_ ROOTS OF POLYNOMIAL EQUATIONS MAT R=PROOT(P)Given the vector P, which holds the coefficients of a polynomial equation of any degree >0, whose roots we want to find, it computes all roots, real and/or complex, and returns them stored in the complex vector R. Example: Find all roots of the following 5th-degree equation: x^5-3\*x^4+8.1\*x^2-1.37=0 (5 roots, 6 coefficients) DESTROY ALL @ OPTION BASE 1 @ DIM P(6) @ COMPLEX R(5) MAT INPUT P P(1)=? 1,-3,0,8.1,0,-1.37 [ENTER] MAT R=PROOT(P) @ FIX 4 @ DELAY 0.5,0.5 @ MAT DISP R -----FOURIER TRANSFORMS \_\_\_\_\_ MAT Z=FOUR(B) Computes either the direct or inverse Fourier transform for a series of data stored in matrix B, and returns the result in matrix Z. The number of elements in matrix B must be an integer power of 2, i.e: 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, ... END OF MESSAGE --

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## **HP-28S Autopsy Photographs**

Message #1 Posted by Paul Brogger on 9 May 2003, 2:38 p.m.

Folks:

I've taken some amateur close-ups of a broken HP-28s, and thought some of you might like to see them.

1: The <u>back case halves</u>, with everything but the keyboard flex circuit removed.

- 2: The <u>front case halves</u>, with the PCB.
- 3: The <u>closer view</u> of the alpha keyboard's inside front.

4: The <u>a pile of keys</u>. (This should give you some idea of how the double-shot molded keys look and how the keys are hinged on the Clamshell models.)

5: The <u>PCB front</u>, with many LCD connection pads, above & below.

6: The <u>PCB back</u>, with RAM chip and keyboard connection pads.

7: A <u>"personality shot"</u> of the PCB, backlit by a slave flash unit. The idea is to emphasize the CPU chips suspended in space by a rectangular array of micro-fine wire connections.

These are all a first cut with various pieces of equipment gathered from the thrift store. I'll probably try again with better lighting, smoother background, etc.

The pictures look ENORMOUS when I link to them. If someone has a suggestion on how to reduce their initial presentation, I'll give it a try.

The HP-28s itself had been "flexed to death" in my son's over-full backpack. You'll notice that nearly ALL of the pins meant to connect the front and back case halves have broken. I may rebuild it using

a drill press and a lot of tiny screws and acorn nuts. (It would be kind of neat to have an industrialstrength HP-28!) Meanwhile, it's a good subject for autopsy.

Enjoy!

## **Re: HP-28S Autopsy Photographs**

Message #2 Posted by <u>Daniel Kekez</u> on 9 May 2003, 6:28 p.m., in response to message #1 by Paul Brogger

Hi Paul,

The photos look good. Thank you for making them available to us online.

Two rows and one column of keys on my 28S have stopped working. I suspect it's a false contact, but I haven't had the time to try and dismantle the unit. I'm glad that I can see what to expect when I try to take it apart.

As for your question about making them smaller -- perhaps use a program like Photoshop to resample them at 72 pixels/inch (screen resolution) and about 800 pixels wide. That would make them fit better in a web browser. But you might still want to provide a link to the high-resolution version for people that want to print out the photographs, or look at fine details.

Thanks.

## **Re: HP-28S Autopsy Photographs**

Message #3 Posted by <u>Paul Brogger</u> on 9 May 2003, 7:49 p.m., in response to message #2 by Daniel Kekez

The connector for the keyboard flex circuit lies atop a rubber strip that is intended to maintain contact between the flex circuit pads and the PCB. (Look for the blue strip beneath the black connector pads in the middle-right of the first photo.)

Pinching the calculator front-to-back just below the display should increase pressure on the connector, and may help solidify the diagnosis of the problem. In fact, by examining the photo, you may be able to tell which connector pads are involved. (If you're curious, let me know the rows & column, and I'll trace them for you.) Chances are, the connector pads are all together -- perhaps the three pads on one end of the connector or the other.

I've fixed Pioneer models with similar problems by "building up" the rubber pressure strip. Several layers of double-stick tape under the rubber strip will make it thicker, and hence exert more pressure on the connections.

But I've never dismantled a Clamshell before. I don't think the pins are mushroomed (melted over) -- at least not ALL of them. A few survivors still exist on my damaged unit, and they don't look as if their ends had been heated. I haven't taken the labels off of the front parts, however, and so I don't know what lies beneath.

Good luck! (If you do successfully dismantle yours, I'm sure there are folks here who would like to hear the details of your experience.)

## A lot better than the one I had

Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 9 May 2003, 11:49 p.m., in response to message #1 by Paul Brogger

Hi, Paul;

I must thank you for the opportunity you gave everybody. I had just one "exploded view" of the HP28S and it was a black-and-white scanned ficture from an original HP Journal issue. Yours are a lot better than the one I had to offer.

To those who asked me a copy of the exploded view, I can tell you these photographs are a lot more revealing.

Thanks.

Luiz C. Vieira - Brazil

## **Re: HP-28S Autopsy Photographs**

Message #5 Posted by <u>Hans Brueggemann [GER]</u> on 10 May 2003, 4:25 a.m., in response to message #1 by Paul Brogger

paul, if you want to improve the lighting, try to scan the objects with your scanner rather than photograph them.

cheers, hans

**Re: HP-28S Autopsy Photographs** 

Message #6 Posted by <u>Paul Brogger</u> on 12 May 2003, 9:11 a.m., in response to message #5 by Hans Brueggemann [GER]

Thanks for the suggestion. I've scanned calculator exteriors before -- I don't know why it didn't occur to me to try scanning the innards as well . . . I'll give it a try.

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## Funny noise in keys,<> hp65

Message #1 Posted by JC Serra on 9 May 2003, 11:10 a.m.

I've got an old 65 and all the keys have a lot of movement, and all of them sounds when been shaked so it seems that instead of a calc I have a maracas.

The think is, as I post before, the 4 in my 42s have a curious click when is softly pressed so I wonder if is the same problem and if somebody have any experience about this subject.

Have the 42s keys a spring between the bubble and the plastic and can it justify the sound?

Thanks

## Re: Funny noise in keys,<> hp65

Message #2 Posted by <u>Erik Wahlin</u> on 9 May 2003, 11:58 a.m., in response to message #1 by JC Serra

Sounds like the key springs are either broken and/or the boards are loose inside the calculator. There is also a clear plastic piece inside that keeps the keys in place. Perhaps it is missing or loose.

**Re: Funny noise in keys,<> hp65** Message #3 Posted by <u>David Smith</u> on 9 May 2003, 12:15 p.m., in response to message #1 by JC Serra

The keys on all the HP LED calculators have quite a bit of rattle to them. If somebody opened your machine and left out the plastic frame that backs up the keys, they will rattle mightily... but you would also be complaining mightily about their feel.

## Re: Funny noise in keys,<> hp65

Message #4 Posted by <u>Ernie Malaga</u> on 9 May 2003, 10:19 p.m., in response to message #3 by David Smith

>The keys on all the HP LED calculators have quite a bit of rattle to them.

Not all of them. I had an HP-25 that had no rattle at all; the keys were nice and tight. On the other hand, an HP-67 I bought later \_did\_ sound like a maraca. I think this problem is exclusive to the Classic series.

-Ernie

**Re: Funny noise in keys,<> hp65** Message #5 Posted by <u>David Smith</u> on 10 May 2003, 4:39 p.m., in response to message #4 by Ernie Malaga

Mostly the classics and the spice series make nice musical instruments. There is one style of woodstock (HP25) keyboard that likes to rattle a bit. One very astute young reader calls her dad's calculator a blick-blick from its keyboard sounds.

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## Re: 17B mk 2 - how to open case?

Message #1 Posted by **Dave Brown** on 9 May 2003, 8:08 a.m.

Thanks for the info Jeff- I had assumed that getting it open would get me into the front as well but if not then I may revisit the stuck key and see if it can be attacked from the outside. I tried the contrast adjustment but with the stuck key of course it's a no go. I was hoping that was maybe all that I need to do but I have to get the key released somehow first. Will advise progress! Tks agn. Dave B

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## 17B mk 2 - how to open case?

Message #1 Posted by Dave Brown on 9 May 2003, 12:43 a.m.

Subject line sez all- I suspect this is one that needs to be sliced/ripped open(gently!) as I can find no case screws. It powers on with all display 'black' and won't respond to reset etc but this may be something to do with one of the keys being apparently stuck down- pity as its basically in 'as new' condition. Instruction book was still unopened and in original plastic wrapping. Hope to get it going again. DaveB

## Re: 17B mk 2 - how to open case?

Message #2 Posted by <u>Randy Sloyer</u> on 9 May 2003, 10:20 a.m., in response to message #1 by Dave Brown

The only access to a Pioneer keyboard is from the back. Don't try to peel the aluminum bezel off the front.

But, before ripping into it, I would try soaking the unit in warm distilled water. The thinking is that many times keys are stuck down by spilling cola and other sticky liquids into the keyboard. Then they get pressed and presto, stuck key. Let it soak for awhile, press the keys every five minutes or so, dunk again. If you see stuff coming out in the water, change it so you finish in clean water. See if it changes behavior at all, you may get lucky. When done, shake all the water out and leave to dry for at least a day. I've salvaged several "dead" 42S this way.

The other more fatal problem is the formed mylar dome under the key collapsing. You can't fix a single key without complete replacement. That will require an organ donor for the 4 mylar sheets that make up the keyboard and lots of patience to graft the parts together. Not a lot of fun, but it can be done.

## Re: 17B mk 2 - how to open case?

Message #3 Posted by <u>Dave Brown</u> on 9 May 2003, 6:26 p.m., in response to message #2 by Randy Sloyer

Tks Randy- Yes, having had another look at the problem I am going to have to get in the back and pull it all apart. There is only one key with a problem and it's not the keytop-looks like the underlying layers of stuff etc have indeed collapsed as the keytop is quite free and can be lifted up fine but just drops down when released. I suspect permanent damage so not sure what I'll find when I get in there- a great pity as it is in brand new condition and I doubt has ever ben used. I guess I need to prove the 'stuck key' issue is what prevents it otherwise behaving normally before I start to think about getting replacement bits from somewhere. Was hoping to be able to do that from 'outside' but it looks too difficult as I think I would have to 'damage' the keytop to remove it. DaveB

## Re: 17B mk 2 - how to open case?

Message #4 Posted by <u>Paul Brogger</u> on 9 May 2003, 7:12 p.m., in response to message #3 by Dave Brown

You don't want to try removing the key. The Pioneer calculator case front and keys are all molded as a single plastic unit. Each key is attached to the case by two thinner sections of the plastic, which act as hinges. To remove a key, you'd have to cut the hinge.

You may *still* want to do the water soak before opening the thing. It could be that the mylar dome is held down by something sticky, and not actually damaged.

Randy Sloyer just fixed a stuck R/S key on an HP-42s of mine with several baths in an ultrasonic cleaner. (It turned out that, for that one, I think he had to use a solvent to remove machine oil or something, but water should help with anything that's water-soluble.)

If you do need internal keyboard spare parts, those from any other Pioneer model should do. Here again, I think Randy has the details.

Good luck, and keep us posted.

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## HP-12C Platinum Coming Soon.

Message #1 Posted by Cr Toloss on 8 May 2003, 11:08 p.m.

Don't know how new this is but I read it today. I've read an article about the HP-12C being redesigned. It will be in the market some time this summer. Lots of changes including Algebraic/ Rpn. <u>HP-12C PLATINUM COMING SOON ! Page</u>

**Re: HP-12C Platinum Coming Soon.** *Message #2 Posted by* <u>*Vieira, Luiz C. (Brazil)*</u> *on 8 May 2003, 11:54 p.m., in response to message #1 by Cr Toloss* 

Hi; and thank you.

It's been <u>announced here</u> a couple of days ago. But I take your gesture as another source of "news", what shows how important it is for us all having alternative origins.

Best regards.

Luiz C. Vieira - Brazil

## **Re: HP-12C Platinum Coming Soon.**

Message #3 Posted by <u>Yani</u> on 9 May 2003, 6:38 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

Just checked with on my supplier's web site and the ETA is the 23rd of May with an RRP of AU\$218.99. There are already 15 on order and they only ordered 150! Now for the HP-15C Planinum - dream on Yani!

Yani - Australia

## **Re: HP-12C Platinum Coming Soon.** *Message #4 Posted by* <u>*George*</u> *on 9 May 2003, 3:34 p.m., in response to message #3 by Yani*

I saw one of these "platinum" hp-12c on eBay already. Check out this address:

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3023467042&category=11712

# That's the 3rd time you have posted that link...you're not the seller, are you?

Message #5 Posted by <u>Gene</u> on 9 May 2003, 4:31 p.m., in response to message #4 by George

Why do it three times? Lol.

# Re: That's the 3rd time you have posted that link...you're not the seller, are you?

Message #6 Posted by <u>George</u> on 10 May 2003, 10:37 p.m., in response to message #5 by Gene

If you're referering to me George, and not the guy that started the thread, no I am not the seller. I posted it twice, planning on deleting the first post. I wanted to change the subject title and did not realize that you have to give a password to be able to delete your old message. I thought that all you had to give was your email address. I am sorry if my learning experience has caused you any trouble.

# **Re:** That's the 3rd time you have posted that link...you're not the seller, are you?

Message #7 Posted by <u>Gene</u> on 11 May 2003, 7:49 a.m., in response to message #6 by George

The wink inside was meant to let you know I was teasing. :-)
# HP-12C Platinum on Ebay!

Message #8 Posted by <u>George</u> on 9 May 2003, 3:36 p.m., in response to message #1 by Cr Toloss

I saw one of these "platinum" hp-12c on eBay already. Check out this address:

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3023467042&category=11712

Can you believe that Wall Street article ?????

Message #9 Posted by <u>Norm</u> on 10 May 2003, 2:02 a.m., in response to message #1 by Cr Toloss

It's those business majors again.

They were just so enamored with their 'discovery' of the 12C calculator, in that article a few posts back.

Listen to this: 'a specialized calculator has advantages, unlike a laptop, you don't have to worry about whether its worth taking along'. OOOHH! Wow, you mean a calculator is smaller than a laptop, so maybe I would use it for things other than a laptop?

Ohh, wow, I never thought of that. I wish I had gone to business school so I could have brilliant flashes of insight like that.

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# OT: found a friden 1115

Message #1 Posted by Christof on 8 May 2003, 6:14 p.m.

Browsing thrift stores today I found a nicely cosmetic and working 1115.

paid a little 'too much' for it at \$20, but it works, and it's a nice addition to the few non-programmables I have.

Thing is built like a bomb shelter, too.

#### hey! that was mine!

Message #2 Posted by <u>db(martinez,california)</u> on 8 May 2003, 9:44 p.m., in response to message #1 by Christof

cristof -

well aren't you smug. quit bragging; i'm going to find a 9100 with the printer and manuals on sunday......for cheaper! i can smell it. it's been talking to me in my dreams.

are you two (.5) still going to the whole earth festival on saturday? we are. lets meet up. how about glen?

in a green jeallous fog - d

### Re: hey! that was mine!

Message #3 Posted by <u>Christof</u> on 8 May 2003, 10:42 p.m., in response to message #2 by db(martinez,california)

Where are you hunting Sunday? I'm told I have good scrounging luck.....

I will indeed be there. with cell phone, and 1.5 other people.

I'll hope Glenn can make it, but if he can't we could stop by or something.

the friden is cool, but I'm still holding out for a 97. ah... someday.....

**Re: hey! that was mine!** *Message #4 Posted by* <u>*db(martinez,california)*</u> *on 9 May 2003, 2:52 a.m., in response to message #3 by Christof* 

i'll be at my SECRET fishin' spot on sunday. the friden is more rare than the 97 if that means anything. see youall sat.

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**HP Calculators Are On Course for 2003 Expansion** *Message #1 Posted by Chris on 8 May 2003, 4:05 p.m.* 

Greetings,

Sorry if this is old news, but I had not noticed it on HP's site before, and I could not find a reference to it here.

http://www.hp-calculators.com/company/news/index.phtml

**Re: HP Calculators Are On Course for 2003 Expansion** *Message #2 Posted by jimc on 8 May 2003, 5:08 p.m., in response to message #1 by Chris* 

Thanks for posting the link. I hadn't read the article before.

Perhaps its just window dressing, but there are a couple of things that I found positive, among them the comments about the legacy models. Er, does this mean they are going to start re-manufacturing the 41cx? :p

However if I am a business type, someone's calculator running for 15 years does not make my company any money. I need to sell more calculators to do that.

To attract the newer user, HP will still continue to manufacture calculators that look like the 6s and 9g - sleeker, slimmer, smaller, and above all cheaper.

I REALLY REALLY want to believe in this re-birth of HP calculators. I hope HP will re-create the quality and craftsmanship of previous years.

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# Reminder: Get your HP GED before May 15 !

Message #1 Posted by <u>Randy</u> on 8 May 2003, 2:44 p.m.

HP and Scholastic Launch 2003 Create-A-Calculator Contest Contest Encourages Teachers and Students to Invent a Calculator and Win Scholarship Prizes

PALO ALTO, Calif., March 24, 2003 -- HP (NYSE:HPQ) and Scholastic Professional Magazines, a division of the global children's publishing and media company, today announced the launch of their first Create-A-Calculator contest, a nationwide effort to get students and teachers in grades K-12 involved in creating the next version of an HP calculator.

HP, the company that invented the first handheld scientific calculator, is offering teachers and students in the United States the chance to win scholarship money and prizes worth more than \$10,000.(1) Deadline for entries is May 15, 2003. Entry forms and more details are available in the March and April issues of Scholastic Instructor® and April/May issue of Scholastic Administr@tor<sup>TM</sup> magazine as well as at the HP Calculator and Scholastic Web sites at http://www. hp-calculators.com, http://teacher.scholastic.com/products/instructor/contests.htm or http://www. scholasticadministrator.com.

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### **HP41C Battery**

Message #1 Posted by Jack Ferman on 7 May 2003, 10:43 p.m.

Does anyone remember the battery which had an opening for plugging in the recharger block? I negrlected my 41 much too long because when I went to check the battery it has oozed stuff. Fortunately very little got into the battery opening so the Q-Tip & spit treatment cleaned 'er up just fine. Put N-cells in and the 41 flew like the old days. Are N-cells made Nickel Metal Hydride these days?

## **Re: HP41C Battery**

Message #2 Posted by <u>Randy Sloyer</u> on 8 May 2003, 12:03 a.m., in response to message #1 by Jack Ferman

Standard N's are alkaline.

The 82120A rechargeable pack had 1/2 N ni-cad cells which are no longer available. You can replace the ni-cads with 1/3 AAA Nickel Metal Hydride cells. They have more than 2X the capacity of the ni-cads. The Battery Station sells pre-fabed 4 cell replacement packs with the proper length tabs for less than \$20. Just tell them it's for an HP41 and they know what to do.

You'll need to add some filler to keep the cells from rattling around as they are smaller. I use 1/2" x 1/16" double sided foam tape, works very well.

## **Re: HP41C Battery**

Message #3 Posted by <u>Randy</u> on 8 May 2003, 2:16 p.m., in response to message #1 by Jack Ferman

An aside: Be careful never to put a skinny battery the same length as an N-cell into the 41C. If you ever see one, discard it fast because it is 12 volts instead of 1.5!

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### Is the '42S a battery hog?

Message #1 Posted by Dave Shaffer on 7 May 2003, 4:54 p.m.

The batteries just pooped out on my little-used 42S. It is one of the service units that were discovered two summers ago.

I haven't used it all that much, generally preferring my 41C, 41CX, and 11C for daily use. Maybe I am spoiled by the battery lifetimes on these latter units, but I am rather surprised that the 42S quit so soon. I doubt that it has even 20 hours on the battery set, whereas the older units get hundreds of hours on a set of batteries. (I use them regularly for MANY years, 5 to 10, before having to replace batteries.)

The little battery anunciator appeared above the two numerical display lines - for only a few minutes - before the batteries really died. This seems like a rather short warning interval!

I don't remember whether the dead batteries are ones that came with the calculator when I got it, or whether I had to put new ones in. If they are the originals, I can be somewhat forgiving - they probably sat around for several years. They are Panasonic LR44s - is Panasonic the HP OEM brand?

Might I have something turned on that shouldn't be - like the IR link? This calc didn't come with a manual. Could there be an internal short?

Also, it sits in a drawer most of the time. I don't think the ON button gets mashed in there, but it might. In any case, though, I would expect it to be turned off relatively quickly. What is the default turn-off time? I'd guess 5 or 10 minutes. (Can I change this?)

### **Re: Is the '42S a battery hog?**

Message #2 Posted by **David Smith** on 7 May 2003, 5:07 p.m., in response to message #1 by Dave Shaffer

These machines draw just about as much power when OFF as when ON. Your batteries powered the machine for over a year... pretty good.

**Re: Is the '42S a battery hog?** *Message #3 Posted by* <u>*Dave Shaffer*</u> on 7 May 2003, 5:17 p.m., *in response to message #2 by David Smith* 

re: "These machines draw just about as much power when OFF as when ON."

Where does it go? Keeping the memory alive? If I don't have any programs stored, can I switch/take out the batteries to get a longer lifetime, or does something else bad happen?!

Re: Is the '42S a battery hog?

Message #4 Posted by <u>David Smith</u> on 8 May 2003, 7:00 p.m., in response to message #3 by Dave Shaffer

The standby power goes into keeping the memory alive and part of the processor running. The "power" switch basically just turns off the display.

Yes, you can remove the batteries when the machine is not in use, but why bother. A guy on Ebay sells 10 batteries for \$3.50. You might also break a battery spring, etc in the process (they were not designed for constant use as a true POWER switch).

### **Re: Is the '42S a battery hog?**

Message #5 Posted by <u>Paul Brogger</u> on 7 May 2003, 5:40 p.m., in response to message #1 by Dave Shaffer

There's a flag concerned with IR ("PRINT") output that, if "on", causes a stream-of-machineconsciousness output of EVERYthing you do, with a concomitant increase in battery drain. You might want to check the PRINT settings . . .

I never use them (and so, no actual experience), but I believe you don't want the PRINT "PON" or "TRACE" modes set.

Also (I think), one of the three batteries being bad will mess up the whole group. Get some new Silver Oxide guys & pop 'em in there.

## Re: Is the '42S a battery hog?

Message #6 Posted by <u>Richard Garner</u> on 7 May 2003, 5:50 p.m., in response to message #1 by Dave Shaffer

I use Silver Oxide batteries in mine and get about 2 to 3 years out of a set. If you use the plain alcoline batteries you will only get about 6 months.

### Re: Is the '42S a battery hog?

Message #7 Posted by <u>Randy Sloyer</u> on 7 May 2003, 7:42 p.m., in response to message #1 by Dave Shaffer

Yes, the Panasonic LR44 was Hp's OEM battery supplied with the calculator. Just put in some new ones and you'll be good to go. Lucky guy. I still think we owe Johnny R. something for that HP parts find.

A good 42S consumes about 35-50 ua in use without I/R enabled. In standby, about 1 ua. It jumps to a power hogging 2 ma with a key down. So, theoretically speaking (and that's all it is) the 90mah LR44's should run a 42S for more than a year. I've used one daily for 12+ years and find the battery life to be between 1 to 3 years with alkaline cells. While silver oxides will last at least 2X, I've never found them at 1/2 the price, so I've never bothered.

I have seen 42S and 17Bii's that eat batteries in weeks. It is usually fuzz growing on the logic board somewhere caused by use outdoors and the resultant infiltration of undesirable elements. There is the rare flakey cpu as well for which there is no cure.

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#### RPN

Message #1 Posted by Henk van Wyk on 7 May 2003, 3:28 p.m.

I am the owner of an HP41C and love the RPN feature. Are newer models available which also have RPN ? The ones that I see in South Africa all have conventional functions.

### Re: RPN

Message #2 Posted by <u>Charles</u> on 7 May 2003, 5:59 p.m., in response to message #1 by Henk van Wyk

Henk,

I saw HP12c's, HP48GX's and HP49G's(new) for sale in Cape Town about 1 month ago at a number of branches of Audiolens. The 48's and 49's use RPL which is close to RPN and the 12c uses RPN but is essentially only financial. I can't remember the price but I think that it was R2000 for the 48 or 49. There are no HP32Sii's in stock.

I suspect that you would get a better deal on e-bay if you can trust the mail.

#### Re: RPN

Message #3 Posted by <u>Randy</u> on 8 May 2003, 2:14 p.m., in response to message #1 by Henk van Wyk

There are two great newer models available, usually on ebay. The HP41CV and the HP41CX. Even though these have been so-called obsolete for 13 years, in my biased opinion you do not need to look any further for a great RPN calculator (I can't stand to use an algebraic calculator for even 20 seconds). Then some people like the HP42S, I am told too.

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email fromHP

Message #1 Posted by Eddie Mabillard on 7 May 2003, 2:31 p.m.

Today I received an email from HP telling me to take a look at te new calcs' website, full of hope I jumped on it to find out about that new RPN, but as you can immagine was deceived disappointed, did not find any new in technical scientific or student model, I mailed them back perhaps am I too stupid to find them, but was told to be more patient, I have to wait some more, fall they told me! I hope it is fall this year. Eddie

#### **Re: email fromHP**

Message #2 Posted by <u>Jürgen (CH)</u> on 7 May 2003, 2:50 p.m., in response to message #1 by Eddie Mabillard

Although the eMail from HP sounds promising, I'll stick to my HP-41 (helps me to kill time until it's fall). I do not expect too much, so I won't be disappointed. But perhaps HP manages it to suprise us all?

Juergen (still believing in the impossible)

#### **Re: email fromHP**

Message #3 Posted by <u>Bill Wiese</u> on 7 May 2003, 2:52 p.m., in response to message #1 by Eddie Mabillard

Well, I'll post the email I got from HP.

They got my email addr, I'm pretty sure, from when I sent an email to Lee Khuan Goh and Ken? John? SomebodyElseInHPPR back in Dec (maybe early Jan.) after HP'd made some noises about new RPN calcs.

Never got a reply back - even though my email letter was nicely written, detailed, non-assailing, etc. - but guess I was added to the spam list.

And, of course, the email was in HTML, not plain text, which really makes me love it. (I usu delete all HTML email: emailing in HTML without a very good reason is just plain rude.)

To wit (text extracted, HTML eliminated, slight reformatting):

----- Dear Customer (sic)

Nothing adds up to value like the indispensable HP handheld calculator. Since HP first invented the handheld scientific calculator in 1972, we have developed a full, comprehensive range of financial, scientific and graphing calculators. In keeping with tradition, this year promises to be another exciting one for HP calculators as we plan to unveil several new models throughout 2003.

In an effort to complete your HP calculator experience, we are pleased to launch the WebZone, HP's official calculator website. This site provides you with a one-stop dedicated place to get up-to-speed on the latest HP calculator products and gain access to valuable guides and support files. This site also makes it easy for you to determine the right HP calculator for your needs. Check the HP Calculator Webzone often, especially before back-to-school, to get information on HP's exciting new models launching this year.

We invite you to visit the WebZone at: http://www.hp.com/go/calculators

The site offers:

- Product features, benefits and specifications for the full range of HP calculators

- Product pages that include:

o Full descriptions o Images o Downloadable manuals o Customer support information o Valuable training modules for each calculator

- Best fit guide for identifying the right calculator
- Purchasing information with the option to purchase online
- A primer on Reverse Polish Notation (RPN)
- New product launches with training modules

The Webzone reflects HP's continued commitment to innovation in the handheld calculator space. The above list is just the beginning. Stay tuned for many more exciting additions to the site and the HP Calculator product line throughout 2003 and beyond!

Please log onto Business Week's latest online edition and read about our HP 12c Platinum financial calculator, to be made available at retail from early June in the United States and Latin America. For Europe and Asia-Pacific, this will be widely available by the end of June: http://www.businessweek.com/magazine/content/03\_19/b3832018.htm

(signature block follows)

#### Re: email

Message #4 Posted by <u>glynn</u> on 7 May 2003, 3:57 p.m., in response to message #3 by Bill Wiese

So, actually it wasn't a misfire, but a formal launching of the "Webzone" site. S'cool.

HTML e-mail \*IS\* probably inconsiderate of those who use mail-readers like Eudora, or alternate platforms to PCs. Unfortunately, Microsoft made it the DEFAULT mode in Outlook Express, and if your circle of contacts is amongst Win folk, chances are you don't even KNOW that the stationery, rich-text and graphics and so on are NOT naturally part of that 7-bit ASCII world email belongs to.

I admit I send mail in HTML all the time to my friends. It is simply more visual control outta my native mail application. It is only when someone complains or states beforehand that I will think to turn OFF the HTML.

I would imagine that eventually, even the RFCs will catch up and HTML will be THE mail standard. (Just as annoying as finding that EVERYTHING is being .pdf'ed, just when the current Acrobat Reader 5.1 sucks so badly).

Oh well. :-/

#### **Re: PDF files**

Message #5 Posted by <u>bill platt</u> on 7 May 2003, 11:49 p.m., in response to message #4 by glynn

What is wrong with PDF? (I am not defending--just want to know what you have seen....) We use it all the time for pulling graphics, word documents, excel sreadsheets, hand sketches that are scanned etc etc into one easily ported, distributed and archived printable file. Seems a pretty good deal all around. Of course, I am using Acrobat (not the reader, the full program) and 5.- is much better than 4.- for making acrobat files.

Maybe the reader is another story.

Looking forward to your 2 cents

#### **Re: PDF files**

Message #6 Posted by <u>Christof</u> on 8 May 2003, 11:55 a.m., in response to message #5 by bill platt

There are a few things wrong with PDF-

1: I don't want to be forced to pay a few hundred bcks to be able to generate it.

2: readers are not available for enough platforms- and unlike even html (which is \*fine\* as a formatting language, and great as an email attachment, and takes FAR less bandwidth than pdf) PDF requires a lot of gui crap. I can read most things- even silly word doc, on a text only screen. An ssh connection, telnet, older computer without X running, even DOS on my 200LX

There are good points to PDF- and I'd probably like it a LOT more if there were readers for a few more platforms (like jornada 720) and it wasn't a monopolistic ploy on the part of one company to charge the world for a 'standard'

As for html in email---- it is fine, as an attachment.

#### **Re: PDF files**

Message #7 Posted by <u>Vassilis Prevelakis</u> on 8 May 2003, 5:27 p.m., in response to message #6 by Christof

Christof on 8 May 2003, 11:55 a.m., wrote:

> There are a few things wrong with PDF-

> 1: I don't want to be forced to pay a few hundred bcks to be able to generate it.

Come on, there are open source PDF generation software, you don't have to use Acrobat.

\*\*vp

>

#### **PDF files - free generators**

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 8 May 2003, 5:37 p.m., in response to message #7 by Vassilis Prevelakis

Hi;

LaTeX based environments for text processors (MikTeX is one of them) and PS viewers usually offer PDF viewing and generation. I downloaded MikTeX (about 300MB) and installed it in order to type my final post-graduation text. Works great, but usualy needs a few "tunning" before producing stable PDF files if vector images and dot-based images are mixed in the same document.

Just my US\$ 0.01 contribution.

Luiz C. Vieira - Brazil

#### **Re: PDF files**

Message #9 Posted by <u>Les Bell [Sydney]</u> on 9 May 2003, 6:06 a.m., in response to message #6 by Christof

>>

1: I don't want to be forced to pay a few hundred bcks to be able to generate it. <<

Nah. Just about every Linux system comes with ps2pdf. I routinely print from my Win2K laptop, through a Postscript printer driver, to a file on our Samba server, which I then run through ps2pdf to come up with a PDF. Total cost \$0.

I'm thinking about writing a print filter to do the whole thing automatically. Just click on print, and have the PDF emailed back as an attachment. Real easy.

You should also check out HTMLDOC (http://www.easysw.com/htmldoc) which is available for Windows and various UNIXes, and converts HTML pages into PDF books. Quite nice.

Best,

--- Les Bell [http://www.lesbell.com.au]

#### **Re: PDF files**

Message #10 Posted by <u>Richard Garner</u> on 8 May 2003, 12:57 p.m., in response to message #5 by bill platt

Speaking for myself, I have no problem with a limited amount of things on PDFs for internet use. My biggest issue is if I am going to spend \$200 or more for a calculator or software, it had better come with a detailed printed manual. It is stupid to have to go online and download a manual that should be provided with the product, then spend several hours printing it out. What about those people that do not have access to the internet, how are they to get manuals to learn how to use the calculator. I think that marketing has taken giant step backward when they stoped having good detailed manuals with the electronic products you buy.

#### **Re: PDF files**

Message #11 Posted by <u>christof</u> on 8 May 2003, 6:12 p.m., in response to message #5 by bill platt

aha,

you know, after even all this time on solaris, I've never tried to generate anything other than postscript.

it's buggy, but yeah, I can make pdf.

cool.

#### **Re: PDF files (yes, the Reader is a different story)**

Message #12 Posted by <u>glynn</u> on 8 May 2003, 9:02 p.m., in response to message #5 by bill platt

Hey Bill;

As I said: "(Just as annoying as finding that EVERYTHING is being .pdf'ed, just when the current Acrobat Reader 5.1 sucks so badly)."

My problem is not so much with the file format itself (though I could whine about people who are lazily scanning stuff to place in .pdf instead of actually creating a page of information visible and usable WITHOUT plug-ins, add-ons, etc.)

God knows we need better standards than those that the PC world usually gets sucked in to adopting. Real Audio? Flash,

Shockwave and so forth?

I am 100% behind vector-based web document standards like SVG, but because nobody is pushing content-creation software for this very hard for FREE (not even Adobe), it'll probably go nowhere.

But my MAIN complaint is the "gratis" Adobe Acrobat Reader version 5.1. Specifically, "Adobe Acrobat Reader v.5.1 (32-bit) for Windows 98SE, 2000, and XP". I do not know about the Macintosh version, nor the Unix/Linux version.

Now, if someone wanted to "compete" and put out a better reader, they could; but since it would likely have to go head-to-head against FREE, I don't really expect a lot of enthusiastic effort to be expended here.

I have just looked at Google. I figured that more people than just me have had difficulties with A.R.5.1. But I now guess I am the only one with a bitter taste over it. All I was able to find were 10,460 web-sites asking you to install it so you can read their files, providing the link.

And so my story is atypical, I'll admit. I tell it anyway:

It was a dark and stormy night (heehee). On that fateful February day, I was surfing around, trying to find spec sheets on components and wanting full documentation on certain CPU parts. I was able to see most of these using Adobe Acrobat Reader 4.0, which was a slow, dog of a program which crashed with a protection error every once in a while, on specific documents. But, generally, I got the docs I was looking for.

The website I was looking at had a warning that I might not be able to read their files unless I upgraded to Acrobat Reader 5.1. I had ignored that message a few times previous, with no major consequences; why I chose, finally, to heed it, I do not know.

But when I clicked on the file, and a dialog box popped up that stated "a new version of this software is available-- do you wish to download it now?", I figured, what the heck. What could it hurt? <now spooky, foreshadowing music rises>

The installation was odd. In former times, a single, downloaded .EXE would transfer, and then unpack a few files, ask you to reboot, and after that, you had your program to run. THIS time, An install package was downloaded, which ran, and began the process of transferring additional files from the main server to me. It all took far too much time and seemed overly awkward.

So, mark this #1: Server-tied Installation is AWKWARD.

After this, I rebooted, and went back to the .pdf doc files I had wanted. Clicking onto one, my browser went into "wait" mode, and there was still nothing but a promise of a file five minutes later. I had to shut down the browser. Tried again. Rebooted and tried again. The Acrobat Reader plug-in to the browser would work one time out of four or so.

There's my #2. Browser/A.R.5.1 clash.

I found I could still get the files by "save target as"ing the .pdf names. I saved them to my hard drive. I could load up on .pdfs, then go offline, and start an instance of the main Acrobat Reader. Cool, huh?

So that's what I did. And after closing my browser, I ran A.R., opened my first file, scrolled down it, AND IT LOCKED UP the computer. No keyboard, no mouse; would not respond to Ctrl-Alt-Del; I had to use the reset button on the computer and reboot.

Number 3: Scrolling sometimes locks up computer.

I HAD to be able to see these docs; I found I could print them if, when I opened a file, I did NOT move in the document, but just went directly to PRINT menu. At least I got hard copy. But, some of the documents were long. And there appears to be a limitation, so that anything over 99 pages simply will NOT PRINT.

Number 4: Can't handle long documents.

I was angry x 4 by now. I wrote Adobe. They got back to me saying that the problem had been in installation. I simply had to remove A.R.5.1, reboot and re-install. So I did that. Now the browser plug-in worked 2 out of 3 times, but there was still the too-common chance that it would go off "waiting". AND, I still could not scroll more than a page or two, before the system would LOCK UP.

Still the same problems, in different mix of frequency. I uninstalled again and updated my video drivers (though they had been working fine up 'til then) then re-installed.

I still cannot use Adobe Acrobat Reader 5.1 for Windows.

My system has been totally stable since I completely reworked it in November '02-- with the exception of Acrobat Reader. It has always been the weakest link. I do NOT believe it is written correctly, even if I happen to be the ONLY ONE ON THE PLANET who has had these problems.

Needless to say, I encounter many websites where a .pdf is just behind a link, waiting for me to click on it. I now look at any link carefully before I click-- 'cause I can't click on a .pdf. I haven't uninstalled A.R.5.1, because I still need to print the small ones it will read. This is sort of a crapshoot-- most it will print, some it spits out part of.

My system has been experiencing random lock-ups now, always after using A.R.5.1. Even after it is closed, it runs in the background.

Number 5: Why is it running in the background after it is closed?

Number 6: Why does it want to use the modem so much?

For the record, the surfing system is: Celeron 533 w/256M RAM, 60gig drive. Win 98 Second Edition. All upgrades to OS installed. Internet Explorer 6.0.28 browser. HP Laserjet 4m postscript printer with 32M RAM. ATI Rage64 video.

I've been mad about this for some time, so forgive me for going off now. But no other application I have has given me so much grief. If I knew what I was doing with Postscript and the pdf construction, I'd write a damn Reader myself.

That, Bill, hopefully answers what you asked. I am sure the commercial products have a better Reader.

#### **Re: PDF files (yes, the Reader is a different story)**

Message #13 Posted by <u>Veli-Pekka Nousiainen</u> on 10 May 2003, 10:39 a.m., in response to message #12 by glynn

I would like to have a separate link to a RTF-document file OR just plain text when shown directly

#### HTML email

Message #14 Posted by <u>Patrick</u> on 8 May 2003, 2:05 a.m., in response to message #4 by glynn

Since HTML is the favourite son of spammers, it is also one of the best anti-spam devices known to man. All HTML mail I receive goes straight to the junk email folder. Of course, there is the occasional false positive, but not enough to make me want to see all that stupid spam in my Inbox.

#### **Re: email fromHP**

Message #15 Posted by <u>Raymond Del Tondo</u> on 8 May 2003, 5:59 a.m., in response to message #3 by Bill Wiese

> (I usu delete all HTML email: emailing in HTML without a very good reason is just plain rude.) > I second that. Sometimes there may be reasons to use HTML, but in most cases it's just annoying. Of course, using HTML, you could easily make a light blue background and use blue and red characters, which may look nice, but usually is hard to read, and therefore junk;-)

Raymond

#### **Re: email fromHP**

Message #16 Posted by <u>Bob</u> on 7 May 2003, 7:48 p.m., in response to message #1 by Eddie Mabillard

Well, it looks like the only thing new is the "Latest News from the General MAganer". It makes some vague references to new scientifics later this year, and the 12c platinum.

But nothing concrete.

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### Your "Online Museum" - On my site

Message #1 Posted by Mike on 7 May 2003, 12:31 p.m.

Ok, in response to Glynn's post, I reposted this with a note to say that the suggestion below, is to be hosted on my site and **is not a request to consume more of Dave's site bandwidth**.

I'm working on some software for some miliary friends and it occurred to me that this would be great for an online musem for your HP collection. I have a simple demo of what this will be like. All of the photos there have been uploaded by muself and some tessters.

Each person can upload photos of their collection, to the system. Photos would be stored in their own folders and they could add, subtract and edit as necessary.

The software automatically generates thumbnails of their images and displays them in an array. Clicking on any photo will bring up a larger photo (sized to fit the screen) along with information on your acquisition.

### Example of typical display

Right now, there is no description capability but I will be working this weekend to integrate this with my SQL database and hopefully by the end of the weekend, I'll have something ready for test. The "View" collection screen will be completely changed. It will not be a dropdown field. Since this is going to be integrated with a database, there will be a form to search the database by username, calculator type, condition, or just about any parameter you choose.

Link to a working (but not ready for your uploads yet)

What do you think of this idea? Suggestion? (No! I mean real suggestions)

PS: You can also register, if you want to use this some day. You can register here

# A quality idea-- thanks Mike!!

Message #2 Posted by <u>glynn</u> on 7 May 2003, 12:46 p.m., in response to message #1 by Mike

I just checked your demo-- I am impressed! NICE!

It IS a generous offer and a service that this community could benefit from. I think you are doing quite a good thing here.

So pleased to see this, Mike.

## Great "Online Museum" !

Message #3 Posted by <u>Michael F. Coyle</u> on 7 May 2003, 8:31 p.m., in response to message #1 by Mike

Hi Mike,

Terrific Site! It looks like it will be a real contribution to the HP calculator community.

One suggestion. When you set up the categories, include some provision for service/ disassembly photos and info. Not strictly related to collecting but very relevant to our needs. Also a category for literature, press releases, ads, and other calculator ephemera, whatever that means. ("Throwaway" calculators like the 6S, perhaps?)

I'm looking forward to seeing the site grow. Good Luck!

- Michael

**Re: Your ''Online Museum'' - On my site** Message #4 Posted by <u>Valentin Albillo</u> on 8 May 2003, 6:24 a.m., in response to message #1 by Mike

Seems an excellent idea, and utterly generous indeed. Just a question: will your site be limited to HP-only collections, or will it be possible to upload also pics and info for worthwhile, advanced non-HP models, for those of us with more extensive collections ? I'm talking about state-of-the-art vintage models, those actually competing with HP calcs of their time, not 4-function bangers, cheap things or newer models.

I really think it would be a good idea, as it would allow all HP fans the opportunity to see interesting machines which otherwise would probably be subestimated, and what's better, to read feature-by-feature comparisons and reviews by people who love and are knowledgeable about them all, and thus can provide non-biased, useful hindsights.

Finally, besides pictures and descriptions, will you allow uploading other kinds of info ? I'm thinking about uploading programs for the machines, articles, reviews, marketing brochures, trivia, whatever ...

Thanks in advance for all your efforts.

### I don't plan on MFG restrictions but...

Message #5 Posted by <u>Mike</u> on 8 May 2003, 9:01 a.m., in response to message #4 by Valentin Albillo

I'm not trying to document all of the calculator industry. I'm not even trying to document all of HP. Dave's site is great for that and I'm not going to try to duplicate anything that he started.

I'm simply writing a photo catalog program that will allow individuals, with collections, to upload images of their collections. I don't really care if they are HP or others.

If I ever do run into a bandwidth limitation, I will likely give preference to the better collections. By better I mean quality photos with decent descriptions of their calculators.

This is NOT going to simply be a photo hosting site. And I'm certainly not going to allow people to post photos and then link to them on eBay or other sites. And I'm not going to allow any sort of "For sale" items. People can use my <u>Trading Zone</u> forum for that, if they like.

Of course, I won't mind if they are linked back to posts on this site. And I will be monitoring for other bandwidth theft linking.

Because I can see how this could be abused, this won't be a free-for-all upload. Each member who wishes to upload a collection will have to have an account setup before anything can be uploaded. And each member will have to be a member of my forum. This will be a 5 minute process but will allow me to control what gets uploaded.

I don't see these as major limitations.

#### Re: I don't plan on MFG restrictions but...

Message #6 Posted by <u>Valentin Albillo</u> on 8 May 2003, 9:40 a.m., in response to message #5 by Mike

Thanks for the prompt reply, all your points understood.

Would you please tell me if this kind of content and quality are what you're after for your site ?

Sample pic from my collection

Thanks.

the moment.

Sure, that is just fine Message #7 Posted by <u>Mike</u> on 8 May 2003, 10:45 a.m., in response to message #6 by Valentin Albillo

I'm not really going to make value judgements on content, for the most part and would only limit content, if there was a bandwidth problem. I don't anticipate that, at

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### Bandwidth

Message #1 Posted by Mike on 7 May 2003, 12:25 p.m.

I did a quick check on bandwidth before I decided on this. I have a 500Meg limit on disk space and a 20G bandwidth limit.

My software will automatically resize all photos (after this weekend) to about 500 x 375. This produces approximately a 50K file. Also, since I also create a thumbnail that is much smaller, that will help reduce bandwidth.

I would like to also mention that this is **not going to be a photo hosting site** for anyone to upload photos for any reason. This is meant for those that have actual collections. There would be no remote linking to other sites. Everyone that wants to post photos will have to go through the registration process and all uploads are logged.

But if I had 5,000 50K files, that is only 250Meg. I doubt that I'd see 5,000 files uploaded but depending on how many will want to do this, there may be a limit on how much one could consume on this.

If I had 100,000 views of a 50K file, that is only 5G. And I hardly think I'm going to have that many views per month.

Anyway, it's a project in works.

# **Re: Bandwidth**

Message #2 Posted by <u>glynn</u> on 7 May 2003, 12:33 p.m., in response to message #1 by Mike

Thanks Mike. I wish your project much success. Collectors will likely start offering each other trades and such on the basis of the online looks.... I better start polishing. ;-)

Check if there is a way to hide your pages from web-crawlers (These can bitecha in the bandwidth).

Looks like a very good idea/service to me.

## Any suggestions?

Message #3 Posted by <u>Mike</u> on 7 May 2003, 12:59 p.m., in response to message #2 by glynn

I've been wondering how to get around these crawlers. I have done some simple things but see that they are on quite a lot.

An idea I have is to block view whenever I see them. I need to build this into the software. They are easy to spot by inspection so I imagine that I could to it in software.

Often I see things like XXX.YYY.ZZZ.TTT viewing forum such and such. When it's a crawler, I see this 10 or more times with only TTT changed. I might add some software this weekend to check for multiple views from XXX.YYY.ZZZ and return a short "blank" page.

The neet thing with SQL database software is that all of this is logged and easy to QUERY on. Returning a blank page to multiple of nearly the same IP is easy.

Thanks for jogging my memory that this is something I need to get on.

### **Re: Any suggestions?**

Message #4 Posted by <u>David Smith</u> on 7 May 2003, 5:13 p.m., in response to message #3 by Mike

I know that there are some HTML tags you can place on your page that "responsible" crawlers will honor and not creep all over your site. I don't know what the format is, but I'm sure somebody out there in HPLAND does...

#### **Re: Any suggestions?**

Message #5 Posted by <u>Jürgen (CH)</u> on 7 May 2003, 5:42 p.m., in response to message #3 by Mike

It is rather easy: Robot Exclusion Standards

Hope this helps, Jürgen

#### Doesn't work...

Message #6 Posted by <u>Mike</u> on 7 May 2003, 6:00 p.m., in response to message #5 by Jürgen (CH)

That is, it doesn't work with ill-behaved web crawlers. I do have this file set up. But there are many web crawlers that ignore that list. I can see when crawlers are on the site and they simply go where they like, ignoring the list.

It is only a voluntary thing that makes that robots.txt file work.

Since all my pages are created on-the-fly, I'll just send blank pages to crawlers. The only problem is sorting out the crawler from the normal user. But I don't think that is going to be too difficult of a challenge.

Thanks anyway,

### Re: Doesn't work...

Message #7 Posted by <u>Jürgen (CH)</u> on 8 May 2003, 4:37 a.m., in response to message #6 by Mike

Because there are so many good people on this forum I forgot that there are some bad people (or crawlers) which do not care about rules :-(

Another idea: The User-Agent field of an HTTP request header identifies the client software. I don't know if this data is available when you create the pages on the fly, but if it is, it may help distinguish "normal" users and crawlers.

Good Luck!

### **Re: Any suggestions?**

Message #8 Posted by Les Bell [Sydney] on 8 May 2003, 7:11 a.m., in response to message #3 by Mike

To block webcrawlers, create a robots.txt file in the root directory of your web server. Google for the format - there are lots of sites that explain it.

Best,

--- Les Bell [http://www.lesbell.com.au]

**Did you read the other replies?** *Message #9 Posted by <u>Mike</u> on 8 May 2003, 8:42 a.m., in response to message #8 by Les Bell [Sydney]* 

This has already been suggested. Of course I already have that. The robots.txt file does not stop a great many crawlers, that just ignore the file.

### Re: Did you read the other replies?

Message #10 Posted by <u>Les Bell [Sydney]</u> on 9 May 2003, 5:25 a.m., in response to message #9 by Mike

Did I read the other replies? Only afterwards. Next time, I might not bother at all.

The only other way I can think of putting rogue crawlers off the track is by using link obfuscation in Javascript. And the chances are, anything that would put a crawler off, will upset legitimate browsers, too.

Best,

--- Les Bell [http://www.lesbell.com.au]

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## My thoughts about the 12c Platinum from 2 months ago

Message #1 Posted by Gene on 7 May 2003, 9:46 a.m.

1) Color scheme is not what I would have chosen. The yellow shifted functions are very difficult to read on the platinum faceplate. A dark color would make them easier to read. The stainless steel / platinum is ok, but contrast is always important. On the original 12c, the functions stand out well.

2) Adding algebraic is a good idea, but since there is no algebraic hierarchy implemented (which means that  $1 + 2 \ge 3$  is calculated to be 9 rather than the correct answer of 7), the 12c platinum needs parentheses to be usable in algebraic mode. Without parentheses, I think algebraic will have a negative effect. Consider how one would solve ... 5 divided by (14 - 5) ... without parentheses. One has to do the subtraction in the denominator, store the result, then take 5 divided by the memory value. Parentheses are needed, IMO. Personally, I would prefer making sure that algebraic mode took the basic hierarchy we all learned in school into account - multiplication and division before addition and subtraction. Business users know that stuff too. :-)

3) Solving for an interest rate in an annuity problem is MUCH SLOWER than before. Try this: 360 N, 90000 PV, 800 CHS PMT, 0 FV then solve for i. On my normal 12c, this takes an already slow 15 seconds. The platinum takes 34 seconds. That's not good. Perhaps there is a problem with the solution algorithm? The TI BAII Plus solves this instantly and the old HP-10B solves it faster too.

4) General speed. The program execution is about 6x faster (at least, doing nothing other than a counting loop), but some functions now resort to showing "running" briefly in the display when they did not do so previously (particularly LN and the e<sup>x</sup> function). This will make users feel the calculator is slower, despite 20 years of technological improvements. I think it needs to be faster.

5) Maybe it's my unit, but the keyboard is flakey. The "g" shift key either makes no click or seems stuck and is hard to push. I hope that gets ironed out.

6) Since some functions were added to the 12c platinum (like the  $x^2$ ), I wish other functions had been added too. I think my wish list has already been shared with you.

7) Without a manual, I've been trying to play with the new algebraic mode and a couple of things are

not clear. If I type  $1 + 2 \times PMT = I$  get 2 squared or 4, even if all the necessary inputs needed to solve for the PMT have already been entered. Same is true for the other financial keys on the top row...they seem to work like an X^2 function. Is this intended?

8) More space for programs is good (400 steps, if I have checked it properly), but that will be tough to use without the addition of program labels and subroutines. I rarely used the 99 steps in the original 12c because programming was difficult without these types of programming features. 400 steps may be overkill with the built in feature set. Moving the functions around will cause users who type in programs from the original 12c to become confused (as these may be "novice" users) because the keycodes shown will be different.

Additional Notes:

I have tried running some programs and have run across something I don't understand. The HP-12c Platinum runs programs differently than the original 12c.

Program in RPN mode:

1 + GTO 000

Which should take the number shown in the display and add 1 to it, return to the beginning of program memory and stop. That is what happens in my non-Platinum 12c.

However, on the 12c Platinum, when I run this program, the calculator executes the steps AND TURNS ITSELF OFF. To see the result, I have to press the ON key. Is this what is intended? GTO 00 on the original 12c behaves differently than GTO 000 on the 12c Platinum. I think it should work like it does on the original 12c.

And.....

This behavior also shows up when a program stops with R/S.

Program in RPN mode:

1 R/S 2

When executed after typing GTO 000, the program should stop with a 1 in the display.

It does not do this. It turns off. When turned back on, a 1 is showing in the display. The program counter has been reset to 000, when it should still be placed at the R/S function.

This behavior is also different from my old 12c at my desk.

**Re: "My thoughts about the 12c . . . " -- You were a beta tester?** *Message #2 Posted by* <u>*Paul Brogger*</u> on 7 May 2003, 10:07 a.m., *in response to message #1 by Gene* 

From the "two months ago" I assume you were a beta tester.

Do you know whether any of your recommendations were incorporated in the final implementation? (That is to say, was the product still subject to revision, or did they just want to find out if it worked "well enough" in actual use?)

One wonders who did the *alpha* testing?

(A patient, nurturing voice keeps reminding me: *Now, now . . . Don't discourage them! They're doing some of the right things.*)

Lets hope for a HP-42S Platinum soon... Message #3 Posted by <u>Erik Ehrling (Sweden)</u> on 7 May 2003, 3:43 p.m., in response to message #1 by Gene

They would be able to build a 4MHz/32K RAM version without much development work at all... if we are really lucky they retain the original form factor and add a serial port...

/Erik

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#### Navigation

Message #1 Posted by Steven on 6 May 2003, 10:50 p.m.

I'm looking for the ultimate nautical calculator. (celestial navigation / great-circle & rumb-line navigation / tide calculation, etc) Any suggestions?

## **Re:** Navigation

Message #2 Posted by <u>Katie</u> on 6 May 2003, 11:11 p.m., in response to message #1 by Steven

I collect old navigational calculators and am very impressed with Tamaya's. Their latest, the NC-2000, sure looks like it does just about everything one could want along the lines of what you're looking for. They also seem to do a good job documenting how to use their machines. It's very expensive, list price is \$1200, but you didn't say that that was a concern.

## **Re:** Navigation

Message #3 Posted by <u>Trent Moseley</u> on 7 May 2003, 9:00 p.m., in response to message #1 by Steven

If you don't want to pay 1200 bucks, pick up a used 15C or a 42S and program it yourself for your special needs. That's what I did for my amateur astronomy requirements. I got a 15 and a 42 packed with stuff.

tm

**Re: Navigation** 

Message #4 Posted by <u>Chan Tran</u> on 8 May 2003, 7:44 a.m., in response to message #3 by Trent Moseley

If you are going to program it yourself why not picking up a 48. It's cheaper than the 15C and 42C and is easier to find. May be someone already wrote programs for that.

**Re: Navigation** *Message #5 Posted by christof on 8 May 2003, 12:20 p.m., in response to message #4 by Chan Tran* 

I'll second chan tran on this-

while the 42 can certianly do most of what you need (likely all with the 32k upgrade), and the 41 certainly can, the 48g/gx will be cheap, easy to backup (glenn does it through the IR link direct from calc to calc)- and you cna still get all the environmentally sealed usable packaging to use it in adverse conditions. Last I checked, the surveying specific providers still had a ton of that stuff.

there are/were also some airplane navigation pacs made, not sure if there were and nautical ones, but I know there are some astronomy apps floating around.

the 48 series takes a lot of flack here, but you won't find a better general purpose solution with 2 spares for under \$400, AFAIK

### How's the 41C module?

Message #6 Posted by <u>Randy</u> on 8 May 2003, 2:36 p.m., in response to message #1 by Steven

Pretending it is still the 1980's, anyone remember if the Navigation Pac was any good for the 41C series?

### Re: How's the 41C module?

Message #7 Posted by David Smith on 8 May 2003, 7:01 p.m.,

in response to message #6 by Randy

I know a guy who sailed around the world with one in a CX. Also a guy who sailed to New Zealand and back.

## Re: How's the 41C module?

Message #8 Posted by <u>Karl Schneider</u> on 9 May 2003, 12:17 a.m., in response to message #6 by Randy

Complete Nav Pac's go for around \$90-100 on eBay. It's an 8kB module whose contents won't fit into the RAM+X-mem on a 41C/V/X (and even if it did, the numbered registers used by the routines wouldn't be available). Worth getting if you need the specialized functionality, but I doubt that it's the best handheld navigational calculation package out there.

### HP41 nautic navigation module

Message #9 Posted by <u>Christoph Klug</u> on 9 May 2003, 3:42 a.m., in response to message #8 by Karl Schneider

For HP41 a special plug in module for nautic navigation exist, called "Bobby Schenk Module" or "Yacht Computer Navi Module". This advanced 8 KByte module was programmed in Germany by Bobby Schenk and Dr. Peter Förster. The module includes world wide navigation, route planning and Time Module features.

Best wishes from Germany - Christoph Klug

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**OT: Borland's Turbo Pascal under PocketDOS** Message #1 Posted by <u>Chris Randle (UK)</u> on 6 May 2003, 5:06 p.m.

Back on April 8th, I wrote

Borland's community site has a freely available download of Turbo Pascal v5.5 for DOS at http://bdn.borland.com/article/0,1410,20803,00.html

It should run on a PocketPC or WinCE machine under PocketDOS (not free) http://www.pocketdos. com/. I'll give it a go and report back.

Gave it a go. It does work. However, IMO it's not a satisfactory experience on a machine with a virtual keyboard.

**Re: OT: Borland's Turbo Pascal under PocketDOS** Message #2 Posted by <u>Raymond Del Tondo (Germany)</u> on 6 May 2003, 5:14 p.m., in response to message #1 by Chris Randle (UK)

Hello,

the Jornada 690 and it's relatives (680,7xx) does have a good real keyboard.

BTW: The older TurboC 2.0 for DOS runs fine on an HP-200LX;-)

Regards,

Raymond

# **Re: OT: Borland's Turbo Pascal under PocketDOS**

Message #3 Posted by <u>bill platt</u> on 8 May 2003, 12:06 a.m., in response to message #1 by Chris Randle (UK)

I think your point about the keyboard is really important. I find that even the good HP keys are pretty cumbersome for writing "programs" as opposed to keystroke programs (in other words, writing a long and involved rpl program, using lots of alpha "words" would be much better done on a big computer and then uploaded). That being said, I think keystroke programming (in either RPN or RPL) is unbeatable by any high level language, including pascal, for essentailly 100% mathematical constructions. (Maybe mathcad is even better?--I only used matcad once).

Thanks for your post(s) about PASCAL--I now have turbo loaded on the intel machine and it is fun to be able to write simple code with it after a long hiatus.

## **Re: OT: Borland's Turbo Pascal under PocketDOS**

Message #4 Posted by <u>Christof</u> on 8 May 2003, 1:03 a.m., in response to message #3 by bill platt

While I have wished for a connection to a keyboard for both the 41 and 48 machines, I've never had any issues with programming on the 75, 71, 95, or 2001x keyboards (admittedly, the 71 is a bit iffy in that)

I do think that having more than one way- when possible- is a good thing. And I'd enjoy it if I could use rocky mountain basic, RPL, keystroke, assembler, and a lispy language all on one handheld platform.

I might end up writing more of my code on a desktop (though thus far it's not the case in life. I'm a handheld addict.)-- but being able to, and having the best plausible engineering to do so- on the handheld, is essential to any programmable machine, IMO.

This always ends up being the one biggest problem I have with wince.... (the second biggest is the idiocy of the OS itself)

I still say that a querty 48/49 (say, in the 95 format, or even the 71 format with a bigger screen) would be marketable...

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#### HP9114b and my brothers advantage rom

Message #1 Posted by david e on 6 May 2003, 4:43 p.m.

Hi. My brother and I both use an hp41cx. However, we both split the cost of an advantage rom. Is there anyway to backup the rom on the hp9114b, and use the rom that way? ie tranfer the part of the rom I need to my calc ?

thanks.

### Buy another ROM cheap

Message #2 Posted by <u>Randy</u> on 6 May 2003, 8:35 p.m., in response to message #1 by david e

Check some of the past sales on ebay. If you buy the Advantage alone expect to pay alot. Find a calculator with one in it and try to get it at a reasonable cost. Then sell the calculator after retrieving your second Advantage ROM and I bet you will recover nearly all your money. I should not give away my bidding secrets, but I could not resist restating my belief that the HP41CX and modules can not be equated to dollars. If you have a good one, or two, or two hundred, you probably will always get your money back on it/them if you treat them kindly. Best regards. Hope I did not take Advantage of your time.

#### **Re: Buy another ROM cheap**

Message #3 Posted by <u>david e</u> on 6 May 2003, 9:12 p.m., in response to message #2 by Randy

umm Ok...but can I just put the functions i need on floppy and copy them to my calc?

### **Dim recollection: Yes ...**

Message #4 Posted by <u>Randy</u> on 6 May 2003, 10:13 p.m., in response to message #3 by david e

I used to copy programs from the Survey module and then modify them. Then I ran what I needed out of RAM and pulled out the ROM. I recall that it was tricky to make sure you got all the differently-named subroutines copied too. Anyhow, for my copy-from-ROM to RAM and then use, I did not need any mass storage device, although I used to run programs back and forth from a PC with the HP-IL/RS232C, and extended I/ O module and HI-IL module. If I were to get into this kind of thing again, I would have to RTFM. Then I would probably print out all the code from the ROM and start looking at what I wanted to copy. I used to enjoy the assemler-type code. Now, who knows ... Good luck.

### Re: Dim recollection: Yes ...

Message #5 Posted by <u>Ellis Easley</u> on 6 May 2003, 10:35 p.m., in response to message #4 by Randy

I think it's a question of whether the programs are written in machine language or user code.

On page 16, the manual says "Many of the programs in this pac are copiable using the COPY function."

I still think it is a question of the type of program. I imagine user code programs in ROM would still start with a global label, so they should show up in the CAT 2 listing with the little "T" supercorript character.

### Re: Dim recollection: Yes ...

Message #6 Posted by <u>db(martinez,california)</u> on 6 May 2003, 10:54 p.m., in response to message #5 by Ellis Easley

first you can execute "copy" to copy the program and again for any global labeled subroutines that are seperated from the main program. if they all fit you are in business. next; having both calcs handy, you two are in the best situation to re-label the subroutines. run the ram program till it stops and displays "nonexistant" at an xrom # and find the same place in the other 41 with the rom. that helps as you look for the "lbl"s and match them with the "goto"s and "exe"s. it's kind of time consuming on a large looping program like some of the ones in the survey pac but it will run just as well and you can even make inprovments. make notes as you go because you will probably see some subroutines more than
once. i've done it and i'm dumb. have fun.

# SO....

Message #7 Posted by <u>Steve Reh</u> on 7 May 2003, 12:29 p.m., in response to message #6 by db(martinez,california)

So, what about using the 9114 device to transfer a ROM image such as anyrom.rom?

# AdvMatrix are MCode, not User Language

Message #8 Posted by <u>Mike (Stgt)</u> on 7 May 2003, 4:03 a.m., in response to message #3 by david e

Hi,

as you may see here <u>http://ourworld.compuserve.com/homepages/nutem/romim.htm</u> the Advantage consists of two 4k ROM. You may only copy to RAM what is in User Language. If you copied such a routine, switch off the HP-41 and pull out the Advantage ROM. Next step through the copied program and change any XROM to XEQ. Of cause you need to copy those routines too.

Ciao.....Mike

# Re: AdvMatrix are MCode, not User Language

Message #9 Posted by <u>Chris Catotti (Florida)</u> on 7 May 2003, 3:04 p.m., in response to message #8 by Mike (Stgt)

Actually it has 12K ROM, but who's counting. The Advantage ROM was the first module make use of an op code instruction that permits of page switching. The HP-41 has a 64K addressing structure, consisting of 16 4K pages 0 through F (Hex 0000 through FFFF). The page switching is transparrent to the user.

# Re: AdvMatrix are MCode, not User Language

Message #10 Posted by <u>Mike (Stgt)</u> on 8 May 2003, 4:53 a.m., in response to message #9 by Chris Catotti (Florida)

Correct! It is transparent on my site if I had looked further down <G>. Thanks for the correction.

Ciao.....Mike

# Re: Buy another ROM cheap

Message #11 Posted by <u>Randy</u> on 8 May 2003, 2:04 p.m., in response to message #2 by Randy

From ebay recently:

This HP-41CV calculator does not turn on. I am not sure if it just needs a new battery, or if there is another problem. Sold AS-IS! It does have an ADVANTAGE pack and a case. It is from the early 80s. The case is in very good condition and the calculator is also in good condition. The calculator has a chip off the battery cover on the back side - about 1/4 inch by 3/8 inch. Not visible from the front. It also has some dust under the display cover. Comes with a handbook and programming guide - together in one spiral bound book. Buyer pays USPS shipping - either parcel post or Priority Mail. [UNIT SOLD BUY-IT-NOW FOR \$39, May 7, 2003]

This is a used Advantage module for the HP-41C/CV/CX calculator. This module adds math, matrix, computer science and business & financial functions to the basic hp 41 calculator. The module is working fine. This auction is for the extension module only. There is no documentation. However, it may be obtained online from the hp museum (www. hpmuseum.org). The auction is for what the picture shows. No calculator is included either! Buyer adds \$5 for s&h, domestic US. [UNIT SOLD FOR \$72, May 7, 2003]

These are the types of things I was talking about. The Buy-it-Now guy above sure got a good deal. Even a non-working CV will go without the module for over the \$39 he paid for it, and he could get about \$72 for the module alone. If it were my brother and I, we would both have the genuine article, each with an Advantage pac, and probably wind up with a slight profit or at least no money arguments (which is unusual for siblings not to be arguing about \$10 here and there all the time).

Good luck.

# Re: Buy another ROM cheap

Message #12 Posted by <u>david e</u> on 8 May 2003, 9:53 p.m., in response to message #11 by Randy

thank you for the link to an ebay auction. however, I can't drop that much money for a ROM. I simply would like to have a "copy" of my brothers (and mine!) ROM. is it possible to dump the whole rom, and then copy it to my calc? I could keep it in extended memory, or even main memory....

# Re: Buy another ROM cheap

Message #13 Posted by <u>Ellis Easley</u> on 10 May 2003, 12:46 p.m., in response to message #12 by david e

As I understand it, the problem is that in the 41, RAM space and ROM space are completely different and separate. RAM is organized in 56 bit registers and ROM in 10 bit instructions. Machine language programs can't be stored in the registers because the CPU just won't fetch instructions from there (user language programs are interpreted, not executed). User language programs can be stored in ROM - I assume they just waste two bits per instruction and use eight bite for each keystroke.

To do what you are talking about, you need a "MLDL" (see the just-previous thread). It's a device with battery backed RAM that is mapped as ROM and has some provision to write into it. It was expensive back then and it is still expensive. You can find all the plans for the original version on the PPC Journal CD-ROMS and build your own - one letter to the editor estimated it would take a trained technician with a well-stocked workshop three weeks to build one! (the writer wanted more general interest articles in the Journal)

Meindert is working on a new MLDL based on a large programmable logic device. It will still require considerable careful work to assemble one.

# Re: Buy another ROM cheap

Message #14 Posted by <u>Howard</u> on 11 May 2003, 2:11 p.m., in response to message #11 by Randy

I got that one for US\$39.00 as a "Buy it Now". It hasn't arrived yet but I can't see that I can lose.

# Re: Buy another ROM cheap

Message #15 Posted by <u>Randy</u> on 11 May 2003, 5:04 p.m., in response to message #14 by Howard

I'll give you \$39.50 for it sight unseen. Ha, Ha - I know, I know. Best regards.

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# HP Forum Archive 12

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# GOOD NEWS: first MLDL2000 prototype is working!

Message #1 Posted by Meindert Kuipers on 6 May 2003, 4:20 p.m.

Hello all,

Just 15 minutes ago my MLDL2000 first prototype saw its first custom ROM code with a CAT 2. This version only supports 8K of EPROM, and is currently loaded with 2 EPROMs (2732 and 2716 pair) of the -ML ROM, a rom with utilities I made for myself many years ago. These EPROMs were pulled out of an old ERAMCO MLDL.

This means that one big hurdle is taken: the electrical interface is proven to work, and my VHDL code proves the principle of being able to put all logic and registers in a single CPLD.

I have made some pictures of the breadboard prototype that I will post on my website within the next few days and make the schematics available. If all works well and copyrights permit then we will not have to chase those expensive ebay offerings for rare modules anymore ..

I will keep you posted!

Meindert

Re: GOOD NEWS: first MLDL2000 prototype is working! *Message #2 Posted by James MacPhail on 6 May 2003, 6:20 p.m., in response to message #1 by Meindert Kuipers* Excellent news indeed! Good work Meindert! James

# **Re: GOOD NEWS: first MLDL2000 prototype is working!**

Message #3 Posted by <u>Mike (Stgt)</u> on 7 May 2003, 4:06 a.m., in response to message #1 by Meindert Kuipers

Congratulation!

M.

**Re: GOOD NEWS: first MLDL2000 prototype is working!** *Message #4 Posted by Donald Leonard on 7 May 2003, 6:25 p.m., in response to message #1 by Meindert Kuipers* 

You bet - that is good news. I can't wait for the release of this puppy. Don

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# HP Forum Archive 12

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Shockingly new HP41CX !

Message #1 Posted by Randy Woodbury on 6 May 2003, 2:13 p.m.

I just bought a brand new beauty, a mint-mint HP41CX. However, the seller put 4 new 12-volt batteries into it before he mailed it. With 48 volts instead of the correct N-cell 6 volts, the little guy took quite a shock! Anyone got any idea what would have happened inside the innocent calculator (halfnut series) and if it can be un-cooked and revived?

**Re: Shockingly new HP41CX !** *Message #2 Posted by* <u>Gordon Dyer</u> on 6 May 2003, 2:31 p.m., *in response to message #1 by Randy Woodbury* 

I would start by not touching anything and getting my money back!

**Re: Shockingly new HP41CX !** 

Message #3 Posted by <u>Randy Woodbury</u> on 6 May 2003, 2:38 p.m., in response to message #2 by Gordon Dyer

Godon: Thanks, and I did do that. The seller agreed that he was pretty much a full nut for over-zapping the half nut. We re-negotiated so that I wound up buying at a "salvage" rate rather than a "new" rate, quite a savings, but for what? Probably now I have a very nice looking piece of junk. But if anyone still has any ideas ...

**Re: Shockingly new HP41CX !** 

Message #4 Posted by <u>Gordon Dyer</u> on 6 May 2003, 4:10 p.m., in response to message #3 by Randy Woodbury

Now look for a beaten up halfnut which still works and swop out the electronics....

# **Re: Shockingly new HP41CX !**

Message #5 Posted by <u>David Smith</u> on 6 May 2003, 5:35 p.m., in response to message #4 by Gordon Dyer

Swapping out the guts of a halfnut is not a very satisfying experience... heat stakes a mundo... never will feel quite the same again.

**Re: Shockingly new HP41CX !** *Message #6 Posted by David Smith on 6 May 2003, 2:39 p.m., in response to message #1 by Randy Woodbury* 

Spread a little cream cheese on it... it's toast.

Re: Shockingly new HP41CX !

Message #7 Posted by <u>Ellis Easley</u> on 6 May 2003, 5:15 p.m., in response to message #6 by David Smith

We need a place for horror stories like this.

I have some inexpensive multimeters that use that 12V battery. I expected it to be hard to replace but then I was surprised how available and cheap it is. It never occurred to me that it was easier to find than N cells!

What a tragedy.

I wonder if there is any chance an electrolytic cap might have shorted out and protected the ICs?

**Post ''horror stories'' here...** Message #8 Posted by <u>Mike</u> on 6 May 2003, 6:05 p.m., in response to message #7 by Ellis Easley

If you want a place to post horror stories, start by posting it here. Be the first.

HP Calculator Horror Stories

**Re: Post "horror stories" here...** Message #9 Posted by <u>Ellis Easley</u> on 6 May 2003, 6:30 p.m., in response to message #8 by Mike

I don't know if my 12C that I found in the street is a horror story or a success story, but I'll definitely post a description of my HP67 that had been attacked with a screwdriver.

**Re: Shockingly new HP41CX !** 

Message #10 Posted by <u>Howard</u> on 7 May 2003, 2:42 a.m., in response to message #7 by Ellis Easley

This might be silly - but you didn't say if you have tried the correct batteries in it yet. Who knows!!!! Maybe there is a guardian angel for HP41CX's.

### Thanks for the place to cry ...

Message #11 Posted by <u>Randy Woodbury</u> on 6 May 2003, 7:01 p.m., in response to message #1 by Randy Woodbury

For those of us that weep about the pain this nice machine suffered, at least know that I did not lose financially. The X-memory and Advantage modules inside survived, and I could recover all my costs and still have a nice looking dead, dead, dead 41CX to look at (oh, the humanity ... oh, the inhumanity). Funny how we think of these things as living, or in my case as once-living. I'd like to thank those who have responded and for those that still might. I posted this on a more obscure site yesterday and someone emailed me with a cryptic: "post it at the HP museum forum, and you WILL get answers." I think he knew what type of sad answers I was going to get. Anybody think the Smithsonian would trade me with the one they have that Sally Ride rode in space with? That one doesn't have to work any more, so mine could sit in just fine, right? Just joking ... thought I had to say that, because there may be people here even more fanatical about the old HPs than me (or us).

**Re: Thanks for the place to cry ...** *Message #12 Posted by Christof on 6 May 2003, 10:38 p.m., in response to message #11 by Randy Woodbury* 

some of the individual chips ma still be avive, or maybe the lcd. the keyboard and case are fine, and the battery holder is probably good.

Which could end up meaning a lot if used as a parts machine.

# **Re: Thanks for the place to cry ...**

Message #13 Posted by <u>db(martinez,california)</u> on 6 May 2003, 11:17 p.m., in response to message #11 by Randy Woodbury

that was me that wrote you about your post at the other website. i did forsee some sad answers but since i don't know squat about electronics i didn't say anything. christof is probably right that there are good leftovers. you can keep an eye out for a physically distroyed 41 with a good pcb. surveyors are forever ruining 41s by pounding on the keys till they are flat or droping them or (ouch) closing them in the truck tailgate. the ones that just die of terminal dirtiness go easy. hey! maybe i should post the tailgate story on mikes horror story site.

# How do you know it's defunkt?

Message #14 Posted by <u>Hans Brueggemann[GER]</u> on 7 May 2003, 1:52 a.m., in response to message #1 by Randy Woodbury

randy, how do you know that it doesn't work any more? did you check it with the correct batteries? if not, then you might give it a try. although 48v are definitely destructive for the calc, i know from own (in other(!) circumstances) experience, that these 12v cells are pretty high ohmic. so, if your 41cx has an overvoltage protection on board, maybe that protection clipped the battery voltage down to a save level?? just a guess.

cheers, hans

# Re: How do you know it's defunkt?

Message #15 Posted by <u>Dave Shaffer</u> on 7 May 2003, 11:10 a.m., in response to message #14 by Hans Brueggemann[GER]

I agree with Hans - give it a try with the PROPER batteries.

I once (inadvertantly, of course!) connected a Sony tape voice recorder (the kind that use mini-cassettes) to a power supply wall wart that has selectable output voltage. (You can use one supply to power all sorts of equipment - it has about 10 different kinds/sizes/genders of plugs on the end of the cord.) I had the voltage set way too high - probably 12V versus the desired 3V. Smoke actually came out of the tape recorder! After a few moments of "Oh s\*\*t! What have I done," I plugged it back in with the correct voltage selected, and it worked fine. It's still OK after many more years.

So, give it a whirl with the correct juice.

# Thanks for the observations!

Message #16 Posted by <u>Randy Woodbury</u> on 7 May 2003, 12:10 p.m., in response to message #1 by Randy Woodbury

I've been an HP-41'er since back in ol' '79 (and a '35er since ol' '72). My how time modules fly. So, sure I tried the right batteries ... and a Vulcan mind meld ... nothing. It's so perfect I have not had the heart yet to take off the rubber feet and unscrew it to look for any smoking parts. Having another 41CX halfnut that I have to open and clean often, it does not look to me that there is an easy-to-get-to pcb fuse, etc. I looked at the block diagrams in the repair manual posted and was not encouraged. Someone very smart about these units offered to have a look, and I think I will send it over before I do anything to it at all. I told some people at the office (who observed I was in a sad state) that it was like plugging their car radio into a 120-volt household outlet, but that would be a 10-X overvoltage and my calculator ONLY got a 8-X spike. Plus, to make my analogy more fair I would have to rectify the AC household current too. And, even if those 12-volt batteries are "ohmic" it doesn't seem like it would take much current to make things unhappy at 48 volts even for a mini microsecond. Of course, I was hoping for a miracle, something like: "This is no problem really. Just take it apart carefully and replace the big capacitor in the lower left that you will notice has had its top blown off. Buy one at Radio Shack and carefully solder it in." But I don't think a miracle cure is out there. Again, thanks to all those who have commented on the sad fate of a never-used HP41CX.

# **Re: Shockingly new HP41CX !**

Message #17 Posted by <u>David Smith</u> on 8 May 2003, 7:08 p.m., in response to message #1 by Randy Woodbury

By the way, you are not alone... I know of at least two other HP41's that bit the big one the same way. If it was a fullnut, it would be repairable (or possibly even OK). The power converter in the halfnut is located in the main chip... and it does not like all them volts.

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# HP Forum Archive 12

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NEW HP10C & HP15C !!!

Message #1 Posted by John Smith on 6 May 2003, 10:55 a.m.

New HP10C & HP15C models released !!!

# **Re: NEW HP10C & HP15C !!!**

Message #2 Posted by <u>Tom (UK)</u> on 6 May 2003, 12:42 p.m., in response to message #1 by John Smith

I suppose the numbers go in the big hopper and come out in the tray to the right?

The power consumption looks a bit high but the case construction looks like it's all metal :-)

Have you any details on the price?

### RPS

Message #3 Posted by <u>Patrick</u> on 6 May 2003, 4:33 p.m., in response to message #1 by John Smith

Reverse Polish Sausage!

### **Re: NEW HP10C & HP15C !!!**

Message #4 Posted by <u>Ellis Easley</u> on 6 May 2003, 6:48 p.m., in response to message #1 by John Smith

RPN and Algebraic - is that the "double screw"?

# Ah, dream machines ...

Message #5 Posted by <u>Randy Woodbury</u> on 6 May 2003, 7:26 p.m., in response to message #1 by John Smith

And, who says nerds like us don't have a sense of humor? Even when some say we don't have any senses at all. But, maybe these new HPs are just what my "shockingly new HP41CX" needs right now!

**Re: NEW HP10C & HP15C !!!** 

Message #6 Posted by Les Bell [Sydney] on 6 May 2003, 8:10 p.m., in response to message #1 by John Smith

Awwwww...That was cruel!

Best,

--- Les [http://www.lesbell.com.au]

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# HP Forum Archive 12

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Using SkwidInk Barcode Plotter Module

Message #1 Posted by Garry on 6 May 2003, 10:34 a.m.

I'm curious if any of you have worked with SkwidInk Barcode Plotter Module. I'm trying to get some ideas together on some possible applications for something like this. Thanks---Garry

**Re: Using SkwidInk Barcode Plotter Module** Message #2 Posted by <u>Mike (Stgt)</u> on 7 May 2003, 4:13 a.m., in response to message #1 by Garry

I did not realy work with it, just tested in JF Garniers HP-41 emulator. As I have localy only an HP895Cxi I tried it with a printer in the network. And it worked! (More or less: the last line of the barcode on the last page was shifted to a new page).

Anyway I was convinced by the emu41 \_and\_ Skwid's Barcode ROM.

Ciao.....Mike

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# **HP Forum Archive 12**

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#### Help with a 15C (Luiz PLEASE)

Message #1 Posted by <u>R Lion</u> on 6 May 2003, 8:38 a.m.

Recently I've got a 1984 USA 15C in very good cosmetic condition. Also it passes both self tests.

The problem is that when the number in the screen has more than seven numbers, the "ink" is weaker. If I delete some numbers, the presentation is normal again...

Curious: the "8,8,8,8,8,8,8,8,8,8" screen of the self test is perfect!

Ideas?

Raul

#### **Re:15C (New Batteries)**

Message #2 Posted by <u>Ron Ross</u> on 6 May 2003, 8:43 a.m., in response to message #1 by R Lion

Try new batteries. Next try to tighten the screws just a tad to get better pressure on the contacts. Else total dissassembly and clean contacts between LCD and board. Last option is not really advised. I really suspect a new set of batteries will solve your problem.

#### **Re:15C (New Batteries)**

Message #3 Posted by <u>**R** Lion</u> on 6 May 2003, 9:17 a.m., in response to message #2 by Ron Ross

Thanks Ron, but these batteries are new and make work perfectly other 15C...:-((

#### The 15c is opened!!!

Message #4 Posted by <u>**R** Lion</u> on 6 May 2003, 10:25 a.m., in response to message #2 by Ron Ross

It is opened: I need info for taking apart the board...

#### Re: The 15c is opened!!!

Message #5 Posted by <u>Raymond Del Tondo</u> on 6 May 2003, 10:51 a.m., in response to message #4 by R Lion

Hi Raul,

there were some descriptions round here, but I don't have the links.

To take out the board, you'll have to cut the heat stakes. For just re-aligning the display, it could be sufficient to cut all stakes BUT the bottom row. In other words, you could let the bottom row of stakes be there, so the PCB will not be too loose after closing the case. You can move the PCB out to an angle, and then take out or just re-align the display block. Of course the above description only applies to the single-PCB variant of the calc. Older ones have a separate LCD housing, so disassembling may be easier there.

Regards,

Raymond

**Re: The 15c is opened!!!** Message #6 Posted by <u>*R Lion*</u> on 6 May 2003, 10:57 a.m., in response to message #5 by Raymond Del Tondo

Could you explain what is exactly "the heat stakes"? Do you mean the four rows of "brown things"?

Thanks Raymond

#### Re: The 15c is opened!!!

Message #7 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 12:08 p.m., in response to message #6 by R Lion

Hello, Raul; I'm sorry I was not here sooner. Daily affairs (it's about 1:00 PM in Brazil, now, and I usually access this forum for longer sessions at night, seldom during the day)

Also, have a look here:



and



These images are from the first Voyagers type. This is, for me, the hardest one to "service" because you'll need to disassemble the "flex-LCD-IC's" assembly, and getting them back together is sort of a nightmare... unless you have pacience and adequate tools.

If yours is the one with a single PCB that goes front top to bottom, then you have to "cut" the top of the het-mldet revits; they are more than fourty black pins you find regularly spread over the PCB. The best way (and more time cnsuming) is carefuly cutting each oné's border, so you keep the top of the plastic to "melt" some of them them back and keep the mainboard in place again.

I'll wait for answer and get back later, O.K.? If yours is the one-piece PCB, you'll need to open it in order to clean the LCD's contacts, what demands disassembling it. Otherwise, if you heve the skills (I'm almost sure you havë), you can re-solder all terminals of the biggest IC, also known as R2D2 (not the Star Wars robot, the RAM/ROM Display Driver). Use a soldering iron with any wire connecting its metal parts to both (+) and (-) poles of the calculator, i.e., remove batteries and use a wire to connect them both to the soldering iron. This wil prevent ESD damage.

I'm getting back in a few hours.

Success.

Luiz C. Vieira - Brazil

#### Re: The 15c is opened!!!

Message #8 Posted by <u>**R** Lion</u> on 6 May 2003, 2:47 p.m., in response to message #7 by Vieira, Luiz C. (Brazil)

No... no fading with the selftest screen but PI with FIX 8 is almost invisible...

And yes, the "ill" 15c is one with single PCB: i'll try to clean contacts but I can not resolder... Thanks, Luiz

Raul

Strange, suspicious behavior

Message #9 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 3:47 p.m., in response to message #8 by R Lion

Hola, Raul;

I am not quite sure a single cleaning will solve the situation. Anyway, as you have all annunciators "lit" after the seftest, chances are their "state" help keeping the rest of the display readable. Try writing PI with a FIX 9 and keeop GRAD, USER and C (Complex Mode) ON, and check if low-end numbers are better to read. if so, a cleaning procedure is probably the best solution.

Success.

Luiz C. Vieira - Brazil

 Re: Strange, suspicious behavior

 Message #10 Posted by <u>R Lion</u> on 6 May 2003, 3:53 p.m.,

 in response to message #9 by Vieira, Luiz C. (Brazil)

 Hi Luiz:

 The PCB is out... How to clean? (Perhaps the comunication will be easier by email)

 Raul

#### **Cleaning the LCD**

Message #11 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 5:06 p.m., in response to message #10 by R Lion

Hi, Raul;

you may be right, unless its stated that:

"Procedures below assume you are acquainted with the process; do not try it unless you have the skills or you may damage your calculator!"

It does not apply to you, Raul, of course. PLEASE, read everything first as many times as you think you need before trying. It's harmless if carefuly done.

The major concerns are:

- 1 Electrostatic discharges; take your safety precautions
- 2 the two small springs that connect both bezels to the back label
- 3 keep track with removed parts and be aware of alignment, etc.

You see a metal frame around the LCD and it has four locking tabs on the top and another four on the bottom, and they lock the complete assy to the mainboard. You should carefully unfold (partially, not to straighten them) the tabs so you can remove the frame; keep the mainboard with the IC's on the top and the LCD on the bottom, for safety. Be carefull not to allow the LCD fall on teh floor and cracks...

After rmoving it, take the two polymers and carefully inspect them for dust and dirty particules. Clean it with the best cleaner you have (I use alchool and, while it's not yet dried, I remove the excess). Look at both conductive surfaces and check with reflexive light so you can "see" if it is homogeneous. It's also a good practice to clean the LCD's contact surface where the polymers touch it.

Rebuilding it needs patience: replace the polymers in their original position (they do not have a left- or right-prefetrence alignment, just place them as they were before) and then it's time to "push" them back.

First try to insert the complete set at once, gently twistint the tabs so they will all be in place at the same time. If you do not succeed doin that (I seldom do), you insert the lower part first (with the holes in the mainboard) and then the upper part (that borders the mainboard). Before you lock the tabs back (gently folding them as they were), chaeck if the polimers are aligned with both the LCD and the contacts in the mainboard. If you "see" they are twisted, try to pull the LCD assy back a little enough the polymer realigns itself. If it is twisted, may some segments be off.

If you are sure the polymers are in place, fold the tabs back and replace the mainboard. Remember placing the (-) pole

spring. Place the batteries and try the  $[ON]\&[\times]$  seftest and check if everything lits. If not, you may need to remove the LCD assy and check again for cleaning OR simply checking if the polkymers are not folded or twisted.

It's sometimes time demanding and tedious, but I have rebuilt all Voyagers of this type successfuly. I cannot say the same about the flex-circuit type.

If you are in doubt, don't do it. Try with a broken voyager first before doing. Anyway, you may succeed. I do!

Success!

luiz C. Vieira - Brazil

**Re: Cleaning the LCD** *Message #12 Posted by* <u>*R Lion*</u> *on 6 May 2003, 5:30 p.m., in response to message #11 by Vieira, Luiz C. (Brazil)* 

Hi Luiz: First of all, THANKS.

Only a question: How to re-build the PCB in its original position now, with all "heat spots" cut?

Raul

**Re: Cleaning the LCD** Message #13 Posted by <u>Raymond Del Tondo (Germany)</u> on 6 May 2003, 5:45 p.m., in response to message #12 by R Lion

Hi Raul,

that's why I suggested to leave the lower row of stakes in place;-)

However, you could use a hot glue device, I don't know the english word. It's that kind of glue you often see in electronic devices to hold cables in place.

Regards,

Raymond

**Re: Cleaning the LCD** Message #14 Posted by <u>Ellis Easley</u> on 6 May 2003, 7:04 p.m., in response to message #13 by Raymond Del Tondo (Germany)

You mean hot melt glue gun. I reassembled my 15C using a tiny drop of time-thickened superglue on each post, one at a time, pressing the PCB to the case until the glue set for each drop. The result was good. If I ever need to do another (actually, I have a 12C that could use it) I'm going to build some kind of fixture to hold things together. Randy Sloyer (I think) posted a description of undoing the stakes with a hot tool - instead of cutting them off, he melted them and formed them back into cylindrical form so they can be restaked. I'm going to try that if I have to start from scratch (my 12C is already cut apart). Does hot melt glue set up completely? The spring forces in the keyboard are always working against the glue, if it doesn't set up hard - if it has any "creep" - it will come loose in time. I have seen a high temperature hot melt glue that needs a different gun but I haven't tried it yet (too hot might be a catastrophe, it could melt the posts and they could separate from the case!).

#### Is it OK now?

Message #15 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 7:54 p.m., in response to message #14 by Ellis Easley

Hi, Raul;

About the LCD: is it OK now? Didi you have any difficulties? It would be good mentioning any part of the process you felt as needing more advice.

I think that as we have more and more users able to accomplish this sort of task, we'll have more and more calculators in condition to work.

Best regards.

Luiz C. Vieira - Brazil

#### Re: Is it OK now?

Message #16 Posted by <u>*R Lion*</u> on 7 May 2003, 1:58 a.m., in response to message #15 by Vieira, Luiz C. (Brazil)

I have not the skills for doing the job so I have got only a puzzle :-((

Actually a pity: keyboard, bezel, logo... all in this calculator is in best condition than in the one I use. But screen.

Raul

#### What's missing to accomplish the task?

Message #17 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 7 May 2003, 2:18 a.m., in response to message #16 by R Lion

Hey, Raul;

Now I'm worried: what happened? You disassembled it and did not get success reassembling back? If I understand it well, you removed the screen bezel, too. If so, and your calculator is already assembled, you can gently, gently press the LCD borders while showning a 9-digits number (PI?) and see if it reades better.

If needed, I can scan (I have no photo camera) images of the itermediate parts of the LCD reassembling. I'd rather have a digital camera in hands, now...

Let me know what you want.

Luiz C. Vieira - Brazil

**Re: stakes (gosh I hate those)** Message #18 Posted by <u>glynn</u> on 6 May 2003, 8:44 p.m., in response to message #14 by Ellis Easley

Having experimented, let me say that I have NOT found a hot-melt glue that would not "give" too much for this application. If we were talking of larger surface areas, it might pass-- but the small stakes will inevitably pull through the glue, given time and use.

Cyanoacrylates ("superglues") are convenient to work with and will probably do a passable job IF you don't bang the calculator or keyboard much. Remember, these glues depend on surface-to-surface contact (not a lot of "gap-filling"), and they have enormous adhesive strength, but are awful as far as shearing, tending to be brittle. There are several formulations made, and a few of these would be preferred for plastics-- get one made specifically for that.

The BEST option, in my opinion, would be to start by trimming with an x-acto knife, the "doughnut" from around the post where the plastic was deformed. This would at least allow as much of the post to remain as possible. On restaking, while holding pressure on the board to keep it down, I'd use a conical-tip soldering iron and push it lightly halfway (not fully) into the stake. You want to drive some material out above the board, but not cut it off from the rest of the stake. After doing each point for the whole board, then testing that it still worked, I would think it best to reinforce the job by adding a small drop of two-part epoxy over the mushroomed area, enough to cover its top and the ring-interface of board-to-stake. (This "filling" of the donut hole just intended to reduce some stress on the melted "neck" area of the stake.)

A "shortcut" I used on a different heat-staked device, was to use a blade tip on a soldering iron, to "shape" the deformed plastic UPWARD, so that I had MORE post than I otherwise would have. This was terribly tricky, because in the process of removing the circuit board, it would not lift cleanly until I had reheated and pushed around little gnarlies from my reformation effort. I had another less serious (and heatless) battle putting the board snugly back in place-- but at least then the job of re-staking was just a matter of melting the crown back to a button with the flat blade of the solder iron. But this was so much of a job I would not recommend it unless you pretty well figure you shall have to open it up again at some point, and I don't figure you could do this operation too many times before the posts were just too fragile.

**Re: stakes (gosh I hate those)** 

Message #19 Posted by Erik Wahlin on 7 May 2003, 2:08 a.m.,

in response to message #18 by glynn

I too use this method of restaking the cut heat stakes (i.e use fine solder iron tip) and it seems to work well. It is a one shot deal though. After re-staking with the solder iron I sometimes apply a small drop of epoxy but it may not really be neccesary unless someone presses real hard on the keys. One small note about cleaning the LCD zebra connectors. Make sure you don't strech the connectors as you clean them with alcohol or contact cleaner. Just brush them lightly or they won't fit and will have to be retrimmed.

#### Re: stakes (gosh I hate those)

Message #20 Posted by <u>Ellis Easley</u> on 7 May 2003, 6:12 a.m., in response to message #18 by glynn

I like the idea of displacing some of the plastic from the post to make a new mushroom cap. For one thing, I can apply it to my 12C that already has the tops cut off! And applying the epoxy afterward can be done in a leisurely manner. One bit of advice from Randy's post that might apply is to use the minimum temperature required to melt the plastic. A small pointed soldering iron sounds like the ideal tool - the pointier, the better, I think, because it would go deeper into the post and so the remaining wall would be thicker for a given amount of plastic displaced to the top. But the normal temperature of a soldering iron would burn the plasic and ruin it for structural purposes. I asked Randy for a temperature and he tried to give an estimate but pointed out that the practical way would be to use a variac to slowly raise the voltage until it just melts the plastic. Since a lot of people don't have a variac, I imagine a lamp dimmer would be fine for a small resistive load like a soldering iron. The low temperature on a variable temperature soldering iron is probably still much too high for this purpose.

#### Re: stakes (gosh I hate those)

Message #21 Posted by <u>Ellis Easley</u> on 7 May 2003, 9:26 a.m., in response to message #18 by glynn

One other thought about re-heat staking - I'm thinking about mounting the soldering iron in a drill press so I can set the depth, hopefully I can do all (40? 44?) posts uniformly (hopefully not uniformly bad!)

#### **Re: Help with a 15C (Luiz PLEASE)**

Message #22 Posted by <u>David Smith</u> on 6 May 2003, 2:43 p.m., in response to message #1 by R Lion

If yours is the single PCB model you may have a real problem. Yes, you can cut the heat stakes and free the circuit board, but is it just about impossible to get it back together so that it feels the same. You will probably be happier living with a lower precision world.

#### **Re: Help with a 15C (Luiz PLEASE)**

Message #23 Posted by <u>David Smith</u> on 7 May 2003, 5:27 p.m., in response to message #22 by David Smith

If you build the right tool and can cut the top edges of the heat stakes, but leave their centers, it is possible to remelt them.

The glue that I have used is called IC1000 (or is it IC2000) tire cement made by Bob Smith Adhesives. It is a black rubberized super glue used my model car racers to hold on tires. Best thing around for rebuilding battery packs, etc. You can find it a many good hobby shops and Hobbytown. Sice it sets slowly in blob applications, I would use some accelerator fluid.

One thing to be aware of in superglues is that they will outgas a superglue fume cloud that could possible contaminate the keyboard key contact access holes. I would keep the machine under a fan for a day or two... othwerwise it may be teeny weenie wire brush in the keyboard holes time.

#### THANKS TO YOU ALL (no text)

Message #24 Posted by <u>**R** Lion</u> on 7 May 2003, 7:55 a.m., in response to message #1 by **R** Lion

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### **HP Forum Archive 12**

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#### NEW HP 12C Platinum !!!

Message #1 Posted by <u>Y K Wong (Singapore)</u> on 6 May 2003, 3:59 a.m.

Guys,

HP just released the "new" HP 12C Platinum, it is RPN + Algebraic switchable and with 400 memory steps (vs. 12C 99 steps)! It is available at S\$185.00 (approximately US\$100) please go to http://www.educalc.net/default.asp?tid=147432 . I have spoken to the Sales Manager, according to her we should be expecting the "new" HP 32SII soon too :-)

#### Re: NEW HP 12C Platinum !!!

Message #2 Posted by <u>Frank B. (Berlin, Germany)</u> on 6 May 2003, 4:41 a.m., in response to message #1 by Y K Wong (Singapore)

Searching for "12c platinum" at www.hp.com reveals the manual for it!

Frank.

#### Re: NEW HP 12C Platinum !!!

Message #3 Posted by John Smith on 6 May 2003, 5:56 a.m., in response to message #2 by Frank B. (Berlin, Germany)

Thanks a lot for the info, but downloading and reading the manual it's kind of disappointing, because:

- It seems the only changes made are that there's now up to 400 program steps, instead on up to 99, and an algebraic mode, but
- Although it seems you can have up to 63 or 64 registers for data storage, there's no way to STO or RCL more than 20, from 0 to 9 and .0 to .9. HP hasn't provided any indirect capability (i) at all, so you can't use registers above those 20 neither manually nor in a program. They can be used just to store cashflows (up to 30 different cf)
- Further, you can do storage arithmetic only on registers 0 to 4, no extensions to allow it at least for registers 0 to 9.
- Although the manual describes its programming capabilities as "powerful", no improvements here at all. No subroutines, labels, flags, nothing. Still only two logical tests. No inserting program lines, still abysmal editing facilities.
- No new functions at all, in particular no scientific functions like trigonometrics.

In short, a real platinum opportunity missed once again. Had HP made some minimal improvements, such as adding scientific functions, subroutines, labels, and some way to use the extra registers, this could have been a dream machine for nearly everyone, business and scientific users alike. Wouldn't you buy a Voyager-series, classical RPN calculator with 400 program steps, basical scientific functions, and decent programming ? Yes, but sadly this isn't it. Many of us will buy it regardless, but it's a real pity when one considers what it could have been.

#### Re: NEW HP 12C Platinum !!!

Message #4 Posted by <u>James M. Prange</u> on 6 May 2003, 8:12 a.m., in response to message #3 by John Smith

I suspect that the "target market", financial and management types, wouldn't use trig or other "scientific" functions very much, and would do precious little programming on their calculator.

Maybe HP's idea is to "keep it simple", and they may well be right in this case.

Having a precious metal in the product name should be especially appealing to that market segment.

Regards, James

#### That's not true

Message #5 Posted by <u>Gene</u> on 6 May 2003, 9:29 a.m., in response to message #4 by James M. Prange

Even TI in their TI BAII Plus puts all trig functions AND hyperbolics in a \$30 calculator.

Wish HP would wake up that people want access to financial AND scientific functions. If not, TI will continue to clean their plate in the financial calculator market. For \$30, three BAII Plus calculators can be bought for one 12c Platinum.

#### Re: Maybe not what hoped for, but ...

Message #6 Posted by <u>Paul Brogger</u> on 6 May 2003, 11:21 a.m., in response to message #3 by John Smith

... but the simple increase in memory is suggestive. If they produce the 32SII in a decent package (better than the 30S, but o.k., maybe the original Pioneer quality is too much to hope for) with no more changes than 4x memory (i. e.,  $\sim 1$ K) *I* will be pleasantly suprised.

No, it wouldn't be the extensible, I/O enabled 41 replacement that many people dream of, but having a good shirt-pocket RPN offering again routinely available would be a *big* step forward.

#### Re: NEW HP 12C Platinum !!!

Message #7 Posted by <u>Tom (UK)</u> on 6 May 2003, 1:05 p.m., in response to message #3 by John Smith

From the manual:

"The status indicators turned on at the end of this test include some that normally are not displayed on the HP 12C Platinum."

Does anyone know what these are? Are they an indication od what a future calculator might do, or are they a left over from the last calculator to use this display?

#### Re: NEW HP 12C Platinum !!!

Message #8 Posted by <u>Gene</u> on 6 May 2003, 1:58 p.m., in response to message #7 by Tom (UK)

Well, the original 12c has annunciators that aren't used (USER for instance).

Might be the same thing.

Gene

#### Re: NEW HP 12C Platinum !!!

Message #9 Posted by Jonas Lööf on 7 May 2003, 6:19 a.m., in response to message #8 by Gene

But the 12c platinum has the "alg" and "rpn" anounciators that has never before existed on a segmented hp lcd display, has it? This seem to indicate that the display is new...

**True, but ...and a comment on the ALG "feature"** *Message #10 Posted by* <u>*Gene*</u> *on 7 May 2003, 7:35 a.m., in response to message #9 by Jonas Lööf* 

You are right, but that may or may not mean that the USER annunciator will be used for another model.

After all, the 12c has been made for over 15 years after the 11c/15c went the way of the wind and it's continued to have the USER annunciator, so it's hard to tell. Maybe there'll be another calc, maybe not.

The ALG feature is fairly useless. There are NO parentheses.

You can't solve 1 - (2/3) = without massive rearranging in ALG mode.

That's nuts.

**Re: True, but ...and a comment on the ALG ''feature''** Message #11 Posted by <u>Adem Ordna</u> on 9 May 2003, 4:23 p.m., in response to message #10 by Gene

It may not be the most efficient in keystrokes but 1-(2/3)

1 [Enter] 2 [Divide] 3 [Enter] [R\/] (roll down) [-] [x><y] [Enter]

You have to keep in mind the 12C platinum is a algebraic with a stack

# That doesn't work exactly as written, but I get the idea...still no excuse for algebraic withOUT ( )

Message #12 Posted by <u>Gene</u> on 9 May 2003, 5:27 p.m., in response to message #11 by Adem Ordna

Manufacturers need to either:

1) Implement basic hierarchy where multiplication and division are done before addition and subtraction (really, this ought to be required before HP sells any calculator),

or

2) Add parentheses.

If option 2 is taken, it becomes a real chore to solve many basic problems and in many cases requires people using ALG mode to begin in the middle of the problem and work outward. Hmm... that's what we all do when we use RPN.

Algebraic's argument is that you key a problem the way it is written.

Not true without #1 and/or #2 above.

My preference would be, if you're going to put ALG on a calculator, to do both!

Gene

#### New Display

Message #13 Posted by <u>Patrick</u> on 8 May 2003, 2:09 a.m., in response to message #9 by Jonas Lööf

The display may be new, but they may have made the decision to keep the old annunciators, even the unused ones. If they had turfed them, they would have also had to find all places in the code where they were used (such as in the self-test code). Eradicating that code might have required a more extensive test. Adding new functions doesn't have anywhere the same risk, ironically, as deleting old ones.

#### New Display... same characters?

Message #14 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 8 May 2003, 3:08 a.m., in response to message #13 by Patrick

Hi Patrick, guys;

I read part of the Platinum PDF and it's indeed mentioned that after the selftest, some annunciators may not be available in normal operation. Should we take it as an unchanged excerpt from the original HP12C's manual and there are no such USER, G, RAD annunciators or they have actually been kept and squeezed so that the new low-battery, ALG and RPN fit in the same area? I had this doubt and was not sure it was actually to be mentioned, but given the circumstances I would like to ask Gene: if you have the Platinum in hands, should you check for this particular fact, please? Also, were digits kept as for their original shape, size, format? (or will my TTF files be still useful?)

Thanks.

Luiz C. Vieira - Brazil

Re: New Display same characters?
Message #15 Posted by Gene on 8 May 2003, 7:28 a.m.,
in response to message #14 by Vieira, Luiz C. (Brazil)
After a self test, annunciators are:
RPN ALG USER f a REGIN D MY C PRGM
KIN ALO USEK I g BLOIN D.MIT C I KOM
No GRAD.
Digits seem to be "slimmer" than the original
Digits seen to be similar than the original.
My basic opinion:
If this were the same price as the original 12c, I'd still buy the original.
Reasons:
1) 400 steps may be nice, but I already don't program with the limited programming capabilities
in the 12cmore steps doesn't help me much there.
2) Solving for financial functions is slower as is the entire responsiveness of the machine. I'd
become frustrated very quickly.
3) ALG mode is useless without parentheses or hierarchy.
4) Color scheme is outlandish to have in office meetingspeople will think it is a toy while the

#### 12C Platinum PDF manual... where?

Message #16 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 12:31 p.m., in response to message #2 by Frank B. (Berlin, Germany)

Hi;

I tried to find the manual but I was not successfull. Can anyone post the final link so I can download it? Or even send me a copy to my e-mail address.

Thanks a lot.

Luiz C. Vieira - Brazil

#### Re: 12C Platinum PDF manual... where?

*Message #17 Posted by Ex-PPC member on 6 May 2003, 12:43 p.m., in response to message #16 by Vieira, Luiz C. (Brazil)* 

Try this:

HP-12C Platinum Manual

Best regards

#### Thanks... Downlaoding now.

Message #18 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 12:47 p.m., in response to message #17 by Ex-PPC member

Hi, V.A.;

somewhat hard to find this little fella...

Best regards.

Luiz C. Vieira - Brazil

#### From the 12C Platinum PDF manual

Message #19 Posted by <u>Mike (Stgt)</u> on 7 May 2003, 8:42 a.m., in response to message #16 by Vieira, Luiz C. (Brazil)

For a calculator that does not respond to keystrokes: 1. Insert a thin, pointed object all the way into the reset hole near the battery compartment and then remove it. 2. ...

If it fails - heavy metal f\*ck

<G>.....Mike

12C Platinum photo @ platinm1.tempdomainname.com

*Message #20 Posted by* <u>*Matt Kernal (US)</u> on 8 May 2003, 1:07 p.m., in response to message #2 by Frank B. (Berlin, Germany)*</u>

Found this Domain while looking through hp-calculators.com website:

http://platinml.tempdomainname.com which appears to be equivalent to: http://hpcalculators.com

And these links takes you to a couple HP photos of the 12C Platinum:

http://platinml.tempdomainname.com/images/products/12cplat-large-2.jpg

http://platinml.tempdomainname.com/images/products/12cplat-large-1.jpg

which also works through the hp-calculators.com domain

(ie. <a href="http://hp-calculators.com/images/products/12cplat-large-2.jpg">http://hp-calculators.com/images/products/12cplat-large-2.jpg</a> ).

I can't however, find any photos of the other new calculators Steven Soto mentioned (so far, that is).

Matt

#### **Re: 12C Platinum photo @ platinm1.tempdomainname.com** *Message #21 Posted by* <u>*Frank Wales*</u> *on 8 May 2003, 2:09 p.m.,*

in response to message #20 by Matt Kernal (US)

I note that it still has a 'CLx' button, rather than a '<=' button. Does that mean it still has the 12C's out-of-date feature of requiring you to erase all your input and start again when you make a keying error?

(I also note they've printed 'financial calculator' right on the front of the case. Just in case the owner forgets what it's for, I guess :-) .)

Yes, it really is a CLx, not a back-arrow

Message #22 Posted by <u>Gene</u> on 8 May 2003, 2:29 p.m., in response to message #21 by Frank Wales

Type 123456789 instead of 123456788 and you must retype the whole number.

I said it before...if the new 12c was the same price as the old, I'd still buy the old, more memory or not.

Since the new one will be \$30 more...

Gene

three cheers for the red, platinum and blue...

Message #23 Posted by <u>glynn</u> on 8 May 2003, 3:35 p.m., in response to message #20 by Matt Kernal (US)

It looks quite American...

Neil Armstrong would have used this on the moon.

Miss Liberty has this tucked under her left arm.

A calculator more suited to pork bellies than Euros, from the look of it...

;-)

(To complete the American decor, the back just HAS to have the following label added:

"Calculator batteries must not be eaten. Do not operate vehicles or heavy machinery while calculating. Not intended as a substitute for a trained mathematician.

...").

The more legal boilerplate, the better!

#### How about an HP-42S Titanium?

Message #24 Posted by <u>Raymond Del Tondo</u> on 6 May 2003, 5:23 a.m.,

in response to message #1 by Y K Wong (Singapore)

and

HP-15C Palladium HP-32SII Iridium HP-17BII PureGold

Other possibility: HP-42S 'Heart of Gold'

Ok, the last one was a Hitchhiker's joke...

Raymond

#### Re: How about an HP-42S Titanium?

Message #25 Posted by <u>Greg Savage</u> on 6 May 2003, 10:38 a.m., in response to message #24 by Raymond Del Tondo

Right now they only have Unobtainium models. ;-)

#### Re: How about an HP-42S Titanium?

Message #26 Posted by <u>Tom (UK)</u> on 6 May 2003, 12:48 p.m., in response to message #24 by Raymond Del Tondo

The HP49G should be the 'gold' version if you are refering to the HHGTTG (Hitch Hiker's Guide to the Galaxy). Why...

Well if you wrap it in a slice of lemon the effect is very similar to the result of a Pan-galactic Gargle Blaster. i.e. a big headache after reading the user guide and trying to get the thing to work, also the lemon reference is quite good for this product!

PS - does anyone know what the hardware is like and if it is suitable for a scientific model (if HP ever get their head out of the sand).

#### I was a beta tester. Can I speak now?

Message #27 Posted by <u>Me</u> on 6 May 2003, 7:50 a.m., in response to message #1 by Y K Wong (Singapore)

If it is online, I'll share my thoughts later today.

12C trig

Message #28 Posted by <u>db(martinez,california)</u> on 6 May 2003, 12:10 p.m., in response to message #27 by Me

the old 12c was short only a few lines of memory from being able to have a good trig program. there is a copy floating around somewhere on the museum. i think it was done by series expansion. the program works; it just needed more room to do decent output. now theres room. and a scientific comming out soon.

some people would complain if they got hanged with a new rope.

#### **12C trig here.** *Message #29 Posted by* <u>*Vieira, Luiz C. (Brazil)*</u> *on 6 May 2003, 12:26 p.m., in response to message #28 by db(martinez, california)*

Hi;

a great contribution from Viktor Toth, that can be found <u>here</u>, at the Articles Forum. If the Platinumn Version has plenty of program steps and its structure is the same (GTO nnn?) then existing programs need only a GTO nnn review and enhancement. I think all Financial professionals will be proud showing the new "breed". It's gonna be a salesperson dream... as a tool and as a promotional sales record.

Luiz C. Vieira - Brazil

#### Don't think they will...looks awful

Message #30 Posted by <u>Gene</u> on 6 May 2003, 2:01 p.m., in response to message #29 by Vieira, Luiz C. (Brazil)

It too looks like a toy. The original 12c will continue to sell rather well.

I don't think the financial people will like all that well. My 2 cents (as a financial person)!

Re: Don't think they will...looks awful

Message #31 Posted by <u>Wayne Brown</u> on 7 May 2003, 9:30 a.m., in response to message #30 by Gene

I agree. It's not as ugly as some of the other recent models (notably the 49G) but it's certainly a big step down from the original Voyager series.

I wonder if HP will ever again release a new calc I wouldn't be ashamed to own?

#### Re: 12C trig

Message #32 Posted by John Smith on 7 May 2003, 9:25 a.m., in response to message #28 by db(martinez, california)

"the old 12c was short only a few lines of memory from being able to have a good trig program"

Have you seen this ?

HP-12C Trigonometrics

#### Interesting first line of the page

Message #33 Posted by <u>Gene</u> on 7 May 2003, 10:06 a.m., in response to message #32 by John Smith

I mean the VERY first line. :-)

#### [OT] Re: Interesting first line of the page

Message #34 Posted by John Smith on 7 May 2003, 10:29 a.m., in response to message #33 by Gene

I don't get it ... what's so curious about the first line !?

AFAIK, this is an article published in Datafile some time ago. Being very fond of chess, I grabbed the whole web site to try the positions on my chess software, and this PDF file was there, which I remembered having seen before, perhaps included in a CD-R compilation or something. I then tried the program and found it delivers, too bad there seems to be no more PDFs there ...

BTW, Gene, do you have an HP-12C Platinum at hand ? Can you verify if this 12C trigs program runs fine on the new machine, and if yes, whether it does run faster ? If so, I might give the 12C Platinum a try as a daily-use, always-in-the-pocket RPN calculator.

**Ok, second line** Message #35 Posted by <u>Gene</u> on 7 May 2003, 11:00 a.m., in response to message #34 by John Smith

I have a platinum at home and will try it out.

#### Page not found

Message #36 Posted by <u>HP-12c trig is gone</u> on 8 May 2003, 1:06 p.m., in response to message #32 by John Smith

Anyone put this somewhere else?

#### **Re: Page not found**

Message #37 Posted by <u>db(martinez,california)</u> on 8 May 2003, 9:56 p.m., in response to message #36 by HP-12c trig is gone

i couldn't get it to copy from the site but i have a version of a shorter one by victor toth. if you want that, write to my email and i'll send you a copy.

#### **Re: Page not found**

Message #38 Posted by <u>Valentin Albillo</u> on 9 May 2003, 5:02 a.m., in response to message #36 by HP-12c trig is gone

Thanks for your interest. I'm just setting up a calc-related web site which will feature a number of my articles and programs and the one you mention was temporarily placed in another chess-related web site of mine, while making some tests.

This and all the other articles and materials will be generally available in a near future, but meanwhile, if you're still interested, please provide a valid e-mail address and I'll send a copy of it to you.

#### **Re: Page not found**

Message #39 Posted by <u>Veli-Pekka Nousiainen</u> on 10 May 2003, 7:11 a.m., in response to message #38 by Valentin Albillo

I would like to have the trig functions page. A local STaK (Suomen Taskutietokone Kerho=Finnish Pocketcomputer Club) meeting will be held in Helsinki 17th May Saturnday 13:00, where I will introduce the Platinum and the old style 12C (3 batteries) for comparison. I would like to load the trig fn programs into the new largeer program memory before the meeting. BTW: A simple adding loop runs about 5,83 times faster than before.

#### Yet, solving for i takes 2 times as long

Message #40 Posted by <u>Gene</u> on 10 May 2003, 8:47 a.m., in response to message #39 by Veli-Pekka Nousiainen

VP is correct. A simple loop doing nothing but + instructions runs about 6X faster on the new 12c platinum.

But, solving for everyday functions (Y<sup>X</sup>, e<sup>x</sup>, and the financial solution to the interest rate i) all take longer.

Have no idea why they would let this be the case.

Gene

#### My Guess-- I'll bet it's not a Saturn

Message #41 Posted by <u>glynn</u> on 10 May 2003, 1:21 p.m., in response to message #40 by Gene

It may sound odd, but what I'd bet is going on is that you have HP working to replace the most successful calculator they ever had, facing the phase-out of a part central to its function-- the Saturn processor.

We heard rumors, back just before they were folding the ACO division, that the Saturn was longof-tooth and would be replaced in short order.

We know that, now that HP \*has\* no calculator manufacturing facility of its own, it is relying on an outside manufacturer to realize its designs, INCLUDING the current 12c.

The outside manufacturer has made calcs of its own, and probably has its own choice of machinearchitecture.

Now there is current stock of 12c's and their parts-- enough to sell them probably for a few years yet. But if you know the well is gonna run dry, you start now: you have your contractor make the old design, but concurrently, you bring out its REPLACEMENT design.

And I'd bet that there is a reason it's "no longer fun" to be producing Saturn chips. Maybe the Saturn chip is supplied by Agilent, and they no longer want to extend a contract for a part whose volume and margin do not support continued production.

Or, assuming the ability to MAKE them stayed with HP and did not walk off with Agilent, it probably represents the only example of that PARTICULAR technology HP still makes; a production line with one customer, one purpose and no future past that.
HP, under those circumstances, would see that the Saturn-producing facilities were underutilized, while facilities for making inkjet cartridge nozzles (to pick an absurdity) needed expansion and so forth.

There comes a point where a particular part should be either outsourced or replaced-- and so you say to your outside contractor, "Can you make a version of this calculator using YOUR CPU parts instead of ours?"

Voila! A 12c-like "12c Platinum" that is not the SAME at its most fundamental-- it has had a BRAIN TRANSPLANT.

The "operating system" of one machine was ported, as best as could be, from one CPU to the other. But, Saturn was kind of a special beast-- and another calculator or CPU chip would have a different mix of instruction-set, of registers, of I/O setup and timings.

It is probable that the new chip being used on the 12c Platinum has a lot to recommmend it-- it is probably clocked faster and has wonderful features not implemented back when Saturn was current. But, as will be seen in the performance of the "12c Platinum", there are probably things the Saturn was set up to do in very few instructions, which the new CPU can only duplicate by doing many more instructions.

So, what Gene is mentioning about certain operations is possibly a result of an inherently faster processor having to run around doing a lot of stuff in the background that the Saturn was designed to do Natively.

If this is correct, the ONLY impact it will have on the user is the calculation times will be different. That is a shame, if it is slower on commands that are used a lot. But it may be the only thing that COULD be done-- as 12c Saturn version is phased out gradually, in favor of 12cP.

Once they have proven the viability of 12cP, the only thing to keep them from a 15cP or a 16cP is their assessment of market prospects. But they may already have filled the "slots" of their market strategy with different form-factors: hence whatever Steven Soto saw as a 33s, etc.

Anyway, that is my guess. Anyone out there able to substantiate or disprove any of my speculation?

:-)

#### I agree with Glynn's guess

Message #42 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 3:35 p.m., in response to message #41 by glynn

Hi Glynn, guys;

For sure, another processor and algorithm.

If we take the fact there are other O&M brands being held by HP design team, and based in the fact we had a large search for RPN related material (remember?), it's not hard to accept that, at least as a pilot project, this is probably the first RPN-derived HP product form the other already known brands (I do not have them in mind: anyone, please? I know the first letter is "K"...). This way, existing algorithms like the base four operations and some other features are kept and, in some case, reduced to accept the new RPN demands (smaller than any AOS-related). Otherwise, the not-existing features, like all HP12C financial resources and

how they affect and are affected by the automatic stack, might be programmed, and they had to take place as SW structres, not HW existing features. Let's take as an example the HP42S and the HP41. In the HP41 there were sixteen basic system registers with fixed, pre-defined arddresses. This does not happen with the HP42S, mostly because the "stack registers" will demand memory enough to contain a zero, a non-zero number, a complex number, a sischaracter ALPHA string or a matrix descriptor, and in this case, each "object" demands different memory space. It's a waste of memory to keep the maximum space needed to hold the largest object times five (let's not forget the LASTx register). So, the stack registers will occupy space as its needed. This is accomplished in the HP42S by software controll (and it is a Saturn-based machine), while in the HP41 its a matter of existing memory space.

I wonder what processor did HP use in the HP12C Platinum, and I guess it's one of the existing new processors used in the new algebraic machines. Hey, gene, don't you wanna have a look inside yours so we can have a confirmation? AHN????

My US\$ 0.02.

Luiz C. Vieira - Brazil

#### Luiz, the soul of my thoughts-- bravo!

Message #43 Posted by <u>glynn</u> on 11 May 2003, 6:03 a.m., in response to message #42 by Vieira, Luiz C. (Brazil)

<<note: I don't really know more than a wisp of what I'm talking about, so these are only wild darts in the air...>>

I wonder, Luiz;

Say we had a cpu with 56-bits, as is discussed in the link on cpu technology for the Voyagers.

and so had 10-BCD number plus 2 Exponents and also signs on both number and exponent.

Now, say we have developed routines that use these registers and memory of this size, and we can do amazing maths with them, achieving a certain precision of result.

But, imagine that our boss says: "you must use a different part now-- this one!" and hands us a RISC cpu with five or six times the registers, and the ability to act directly on data in situ in each register, not just on the one Accumulator you had before; but they are all only 32-bits wide.

Ack!!!

Your task, Mr. Vieira, is to modify your routines to make the same results, the same precision as before-- on the new architecture. Certainly you can do it...

BUT, you can see that now your data representation is not a native fit to one register. It must be split, and two registers (or, rather, sets of dual registers) must keep the numbers.

Your new processor is faster, clocking maybe ten times as many cycles each second. But the splitting of your data-representation into pieces COSTS YOU many of those cycles-and VERY costly in terms of time is an operation in which you must bring data in to a register PAIR from memory or copy it out from a register PAIR to some other place.

But these operations are central to certain maths. Solving For something tends to require a lot of swapping data back and forth, I would figure. And because the data-representation makes us handle two registers as if they were one big one, the benefits of our nifty new 32-bit RISC-based chip kinda get chewed away, most noticeable on certain complex operations.

I bring this up because many of the cpu "cores" used in designs of integrated circuits these days were designed with RISC instruction sets (good for our cause) and 32-bit data-paths (uh-oh) because large data-paths are complex and make it harder to produce reliable VLSI designs. And, besides that, nobody making the core design ever thought: "Gee, we need to support really long data representations, because somebody will do BCD math and need a 10-digit mantissa and exponents and signs to go with it..."

Most cpu designs had floating-point manipulations and C-language libraries in mind; so asking it to replace fully, functionally and FASTER, an odd little chip designed specifically for the BCD math task is like outfitting a race-horse with two barrels full of water and biggger shoes and bringing it to be your desert-camel. Enough training and it can work-- but the camel's whole plodding nature was in it, while the best we can expect the horse to do is awkwardly adapt and keep up as best it can.

I wonder if maybe the "core" of our 12cP's main chip is an ARM7 or a MIPS 32-bit one, or something similar. It would easily, EASILY explain a performance degradation on certain math ops despite 20+ years of cpu speed and performance "progress".

--- just more speculatin'--- glynn.

I wish (ope?) I could be the soul of your thoughts... (V 1.2) Message #44 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 11 May 2003, 1:28 p.m., in response to message #43 by glynn

Hi, Glynn. thanks for the nice words!

I posted this message a few hours ago, but I revised it for errors and it's been posted again, O.K.?

Hey, Glynn; Let's first talk about a few important things: internal core, data bus and SW precision.

Remember the ancient 8086 and its partner, the 8088? The 8086 was introduced before the 8088, and the 8086 is a 16-bit data bus processor, while the 8088 is an 8-bit data processor. After introducing the 8086, Intel realized that all commercially existing 8-bit architecture should be changed to accept the new 16-bit data bus processor, and industry would take a bit long to incorporate it in product lines. We know industry takes some time (nowadays it's shorter) to incorporate new technology and make it a consuming line. So, Intel introduced the 8088 later, and it was a lot better sold. The 80286 took a better advantage.

In both cases, either the 8086 or the 8088 were able to run, say, C- and PASCAL-

related compilers, and both could handle a lot more than 8 or 16 bits processing. And dealing with BCD data and straight binary representation is just a matter of handling data. In both cases, BCD and straight binary, either the 8088 or the 8086 already had their "hidden aces": both offer (and almost all general purpose processor, too) carry-bit for BCD and straight binary math operations. The carry bit, also found in the HP16C (the actual Das Kleine Wunder), allows "expanding borders" when dealing with "long-integer" or "double-precision" bigger guys. Just the carry bit. And you may know that the HP16C handles 64-bit # (not data) but also goes to 128-bit # when performing [DBL÷], [DBL×] and [DBLR] (DouBLe Remainder after division]. How come? It uses Y an Z registers to hold a 128-bit input data and X and Y registers to hold a 128-bit result, if Word-Size is set to 64, the maximum available.

But we know voyagers deal with 56-bits wide data numbers. Why is the HP16C able to handle 128-bit data?

Software. And when you bond internal design to software, or even better, you "design" internal structure having a software goal in mind, you custom chips will show exceptional performance when running the software they were molded to run. And that's what we've been seeing in almost all HP (I mean "H" "P", actually) calculators: exceptional performance with custom "chipset". Dealing with RPN custom chips means designing chips with stack registers availability or stack manipulation "made easy", as we found in both 8088 and 8086 when talking about BCD coded numbers and carry-bit handling. Imagine Voyagers chips (each R2D2 for each model) already have stack manipulation "made easy", register arithmetic "made-easy" (except for the HP16C, that does not offer register arithmetic and I wonder that would be hard to handle variable size registers with arithmetic abilities...). Even in specific cases, like HP15C matrices operations, optimizing them based in internal architecture would be a matter of knowing internal architecture enough to make the best of it. And you may be sure internal Voyagers design had in mind not a general purpose chipset, instead a number-dealing, KBD-LCD I/O restricted processing unit. And I imagine it is a single eight-bit unit, while a heavily optimized four-bit would also do the job alright.

Problems? Commercial problems! HP would never do what the company that sells the microprocessors used in the HP9G (what the name of it, d., it? K.,..) is doing: offer their chips to be used elsewhere. They are too much restricted, or too well focussed, that using a Voyager processor to hold an algebraic operating system would mean a complete redesign, perhaps a new project... just because they are not general-purpose, VLSI, 32-bit processors.

What called my attention is that they have probably ported existing HP12C software and created sort of morph-coding layer (does anybody know where is Linus Torvalds?) to convert HP12C's code to internal ARM7 or similar. That would, indeed, degrade performance if the conversion needs to emulate stack state for each single operation. That would mean a lot faster single operations and exponentially slowingdown loops and the like. If you use specific internal resources in programs, like solving cash-flow problems in a loop-controlled situation, your program will spend a lot more time in the Platinum than in a regular 12C. And simply increasing clock will reduce battery life, so HW and SW balance must be a lot well managed.

There are other circumstances, but I believe these are the ones that directly affect overall performance. I'd like to invite others to come to discussion, as you wish and want, so we may largely consider new technology. My last in-deep research goes a bit beyond RISC internals, but I briefly read about new technology a couple of years ago. As you may notice, Glynn's knowledge is fairly updated if compared to mine. This is my not-enough US\$ 0.01 contribution.

Luiz C. Vieira - Brazil

#### **Calculator Hardware**

Message #45 Posted by <u>Michael F. Coyle</u> on 11 May 2003, 8:20 p.m., in response to message #44 by Vieira, Luiz C. (Brazil)

Hi Luiz, glynn,

Very good posts. I agree with most of what you're saying, subject to a few comments.

First, I don't see mapping 56-bit words onto two 32-bit words as a big deal. These processors have to handle 64-bit integers and 64-bit floating-point on a regular basis. (More about f.p. below.)

Calculators will not be using StrongARMs or other 32-bit CPUs anyway. Reasons: 1. They cost too much. 2. They use too much power. They are really overkill for simple calculators, anyway. (My definition of simple: anything less than a 41 or 48.) For small calculators the overriding concerns are *do it cheap* and *do it with less power*. This means using the simplest CPU possible, one on which the CPU core, ROM, RAM, and I/O will all fit onto the same chip, then run it at as low a clock rate as possible. Getting it all on one chip kind of rules out 32-bit CPUs.

If I had to design a 12CP I'd use an 8-bit single-chip micro with RAM and ROM on board. There are many product families out there that would be suitable. These chips are all CMOS and are optimized for low power operation (standby or sleep modes, for instance). And they have enough horsepower to get the job done.

There are a couple of possible ways to write the software. The easiest way would be to write a simulator for the HP CPU and run it on the target machine. You could then in effect copy the entire 12C ROM, add the (few) enhancements and run it in simulation mode. (You would have to do something special about I/O.) The end result would be a little on the slow side, and memory utilization would not be so great, but it would get the job done quickly and cheaply. I have to wonder if this is what happened here. It would certainly explain the slow performance for some tasks.

A better approach would be to start from scratch, write optimized code for BCD arithmetic, digit access, etc., and rewrite the algorithms to really take advantage of what the target processor has to offer. The nice thing is that you no longer have to worry about the restrictions of the HP architecture, such as the limited number of registers.

In the future maybe scientific calculators may move away from BCD arithmetic and adopt binary floating point. Binary arithmetic is a better match for computer hardware anyway; it would be faster too. I heard somewhere that the 30S already does this. The main thing going for BCD is the comfort factor; it's nice to know that 100\*0.01 = 1 *exactly*. Maybe we're not ready to give that up yet.

Comments, criticism, etc. (usually) welcome.

- Michael

#### **Re: Calculator Hardware**

Message #46 Posted by <u>Chris Roccati</u> on 13 May 2003, 6:13 p.m., in response to message #45 by Michael F. Coyle

For the BCD arithmthics you can also use specialized 4 bits processors, for example Atmel's MARC4...

#### Atmel MARC4

Message #47 Posted by <u>Michael F. Coyle</u> on 13 May 2003, 7:42 p.m., in response to message #46 by Chris Roccati

Hi Chris,

The MARC4 looks interesting, especially the FORTH programming aspect.

It seems fitting somehow to implement an RPN calculator with a stackoriented language on stack-oriented hardware.

- Michael

#### **Re: Calculator Hardware**

Message #48 Posted by <u>Ellis Easley</u> on 14 May 2003, 5:59 a.m., in response to message #45 by Michael F. Coyle

I've read that for business applications, BCD math is preferred.

#### **Re: Calculator Hardware**

Message #49 Posted by <u>Valentin Albillo</u> on 14 May 2003, 9:47 a.m., in response to message #48 by Ellis Easley

Actually, it isn't just preferred, it's mandatory. Imagine that all quantities are in dollars and cents, and then try this line in (for instance) Visual Basic 6.0:

Print 0.10 + 0.10 + 0.10 + 0.10 + 0.10 + 0.10 + 0.10 + 0.10 + 0.10 - 1.00

Upon running it, you don't get zero dollars, as you should, but:

-1.11022302462516E-16

If you don't get zero after cashing in ten cents as few as ten times, and then forking out one dollar, just think what this kind of behavior can do to long series of additions and subtractions, normally intermixed, as is usual in accounting. You would find it extremely difficult to reconcile you cash activity.

#### It has never been a Saturn

Message #50 Posted by **Raymond Del Tondo (Germany)** on 10 May 2003, 5:51 p.m., in response to message #41 by glynn

Saturn-compatible CPU's were used in the Pioneer and Clamshell series, and 38G/39G/40G/48xx/49G, and of course in the famous HP-71B, but not in the Voyagers.

The Voyager series used a variation of the nut CPU, which was used in the HP-41 series. The redesigned 12C (NOT only the Platinum) uses a replacement of another kind. AFAIK it's a hardware nut CPU emulation.

Seems the 12CP could use some code optimizations;-)

Raymond

#### I'm Sure it Isn't

Message #51 Posted by <u>Michael F. Coyle</u> on 10 May 2003, 6:16 p.m., in response to message #41 by glynn

The 12C doesn't use the Saturn either. From what I've read, it uses the last of the 56-bit serial CPUs descended from the original HP-35 chip set. This was the same design used in all the Voyagers as well as the 41. By that time, the existing architecture was seen as unsuitable for more advanced calculators and Saturn was designed for the next generation of machines.

But I suspect your main premise is correct -- the 12CP CPU probably isn't an HP calc CPU. It doesn't really matter since there are no user-accessible hooks to machine-level programming or resources.

Saturn's future will really depend on what HP does with the 48/49. Migrating to another CPU will leave behind a lot of the low-level stuff beloved by 48 fans.

- Michael

#### Re: I'm Sure it Isn't (oops)

Message #52 Posted by glynn on 10 May 2003, 6:57 p.m., in response to message #51 by Michael F. Coyle

LOL!!! That's ONE way of insuring my bet is correct-- it can't be one because it never \*was\*!!

Of course Raymond and Michael are right, as I would have known by reading about the 12c cpu technology on this site.

I somehow thought the Voyager's cpus were 64-bit as well. How disappointing. I feel 8bits poorer knowing that some of your cpus are bigger than my cpu.

I'll probably need years of psychotherapy for this.

;-)

#### HP-12C Software

Message #53 Posted by <u>Renato</u> on 11 May 2003, 11:57 p.m., in response to message #51 by Michael F. Coyle

If a boss told me to implement 12c algorithms for a new hardware...

First, I would praise the Lord for being so lucky.

Second, as someone already said, my first option would be to implement a simulator for 12c cpu and hardware. I would do that because of the 12c financial algorithms - they were first implemented in the classic series, improved in woodstocks, and further developed in the original 12c. This was not a single person task. Being a prudent engineer, I would love to develop all 12c OS myself, but I would humbly accept that three generations of firmware developers did a great job, and use their work to the fullest extent possible.

Checking if the simulator approach was used on the 12cP requires a "forensics algorithm" equivalent for the financial functions. If results are exactly the same in 12cP and 12c, then I would guess a simulator is used.

Further considerations:

1. I doubt any original 12c firmware developers are available for doing the work on the 12cP

2. My \*bet\* is that 12c original source codes are not available anymore.

3. I guess HP used a third party engineer team for the 12cP. If this is true, the the 12cP probably has a lot of "features" unexpected in a HP RPN calculator. Some of these "features" (humpf...) seem to be detected by the beta testers.

My conclusion is:

Yes, there will be new HP RPN calculators.

No, they will not be the products we expect in terms of overall quality, features, documentation, etc.

What do the beta testers say: does the 12CP stand up for the famous HP RPN calculator quality ?

#### **Question for Gene**

Message #54 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 12 May 2003, 1:33 a.m., in response to message #53 by Renato

Hi;

after reading Renato's post, it came to my mind (sometimes it happens...) one question.

In all Voyagers there is a software reset (it also "rotates" the X-register contents) that must be used when calculator does not respond to keystrokes. It is triggered with the sequence [ON]&[first-row,fourth-key]. In the HP10C, 11C and 15C it's [ON]&[yx]. In

the HP16C it's [ON]&[D]; in the HP12C it's [ON]&[PMT];

Gene, does this "reset" still exists? I did not find it in the PDF I have here. It should be necessary to "pnch the keys" to see what happens. As we may notice, reset is now available as a metal contact in a hole at the left side of the battery, and this is new to the HP21C Platinum.

May we take some information form this test...

Luiz C. Vieira - Brazil

#### No "ON and PMT" reset on 12c platinum

Message #55 Posted by <u>Gene</u> on 12 May 2003, 2:35 p.m., in response to message #54 by Vieira, Luiz C. (Brazil)

Sorry, didn't notice the question.

I was able to do it on my original 12c, but I can't get any combination / quick key pressing, etc. to do this on the 12c platinum.

#### **Voyager Software Resets**

Message #56 Posted by <u>Katie</u> on 12 May 2003, 5:01 p.m., in response to message #54 by Vieira, Luiz C. (Brazil)

Luiz,

Do you find that the 12C truly rotates the X register value, I don't see that on mine. Starting with 1.0, for example, I get 0.0 after a few resets. However, on the 15C and 16C I get back to the original value after 28 resets -- a true rotation. An early 11c that I have doesn't do this reset at all but a later one does rotate after 28 resets. The 10C's that I have work more the like the 12C.

This "feature" seems to be very version specific. Has anyone else played around with this? The intermediate results (before it cycles around) that you get on the 15C can be very weird!

-Katie

#### **Re: Voyager Software Resets**

Message #57 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 May 2003, 12:15 a.m., in response to message #56 by Katie

Hello, Katie;

It's a good point of yours. I read about the "rotation" in an article about the HP15C's extra resources. I have it printed (somewhere) and the e-address is also saved (somewhere else), but I'll try to find it.

I have only new HP12C (Chinese breeds) I did not actually see a display rotation. I remember testing in a few Voyagers at the time I did not have any HP12C. Anyway, I got my chinese CN1180xxxx, ordered a [FIX]9 ([f][9]) and tried the following:

123456789 [ON][PMT]

First time the display goes blank; after presing [ON][PMT] again I got:

-4567980 12 BEGUIN

If I try [ON][PMT] again I get:

9.99999999 99

It seems numbers are normalized to MAX\_VALUE when something different than expected "runs" throught unexcpected, I guess. I wish I had others to try.

Thank you for the warning, Katie.

Luiz C. Vieira - Brazil

#### **Re: HP-12C Software**

Message #58 Posted by <u>glynn</u> on 12 May 2003, 5:11 p.m., in response to message #53 by Renato

I agree with and enjoy a lot of what you've said, Renato, but for two things I'd argue:

1. If HP is not prudent enough to archive expensive work like the development of software for a product like the 12c, then they are quite unusual. Even Apple, famous for disavowing that they ever MADE some of the products that carried them to fame, are aware of the whereabouts of the source code of every operating system and every machine Boot-rom they ever produced. They may never release any of it to hobbyists, but they know which file-cabinet to go to.

HP, I am quite sure, insisted on standards in reporting and archiving and, whether it came from a lone programmer, or a team, it was likely subjected to close scrutiny by mathematicians and logicians at the time, just so an algorithmic mistake did not sully their reputation.

Of course, code has to be commented to be useful for later researchers, and the comments are whatever the programmer feels is most important to be mentioned as he/ she writes the code. Hence, later eyes, later programmers (I agree with you that the then-programmers of the 12c are likely retired now) often have a next-to-impossible task of decoding somebody else's code. So, even if HP has every printout they ever did of the source, that does not necessarily mean that it would be easy to port it from one product to another without a bit of thrashing about.

But I am pretty sure that, if I were a VP of product development at HP, and I said, I want the original commented source on our venerable still-in-production 12c, it would be on my desk THAT DAY.

If it weren't, and someone told me it had gone to the bin, there would be some serious, nay, VIOLENT repurcussions that would make even Klingon underlings cower in fear and trembling.

Such an unthinking breach of stewardship as tossing out developed intellectual

property on a still-produced product, is simply inconceivable and intolerable in a modern corporation.

2. "Forensics", as you say, can tell us a lot about the specific internals of software written for a given machine. You can tell, for instance, if certain algorithms were used, and if rounding or certain precision was taken into account at given stages. But you've implied that forensically, we would be able to tell if a "12c simulation" was written to run under 12cP hardware, by examining to see if the two machines returned the same results.

I would say that the objective of ANY programming effort, whether a new implementation or a simulation, emulation or a code-translation layer, would be to achieve the same or BETTER results than the original. It would simply not do, to have 12c and 12cP DIFFER in what they achieve mathematically or operationally, unless it corrects a perceived deficiency or "bug". So, I am NOT sure that exact matching of result tells us ANYTHING substantial about the nature of the code within the 12cP.

You COULD say, and be absolutely sure of this: if HP's new financial calculator calculates a penny different on a Billion-dollar account than the standard 12c, whether or not it makes sense to the programmer, HP is going to have to do a lot of explaining; both old and new users are going to pitch a fit. Accountants don't like to think their math accrues error along with interest. And both old and new machines are still sold by HP. "Oh, yes, our 12cP finally gets it right, for \$20 more, but we still sell the old one for the financial tyros". LOL!! It \*would\* be a bit embarrassing, don't you think?

#### Re: HP-12C Software

Message #59 Posted by <u>Renato</u> on 13 May 2003, 3:36 a.m., in response to message #58 by glynn

Glynn,

Great post.

1. About source code availability. I agree - chances are that you are right, and that I got carried away in a line of thought. Anyway we will never know for sure. I forgot to mention that this line of thought started by looking at the "improvements" of the 12cP over the 12c - my conclusion is "someone could not or wanted not mess with the original code". Most "improvements" look like patches, instead of real source code modifications.

2. About forensics. I agree that two different algorithms \*can\* produce exactly the same results. But in the real world, when dealing with complex algorithms, if two programs deploy exactly the same answer, chances are that the two program are exactly the same.

3. Good point about precision of the 12cP x 12c. Messing with the precision of such a sucessful product is not advisable.

Renato

#### **Re: HP-12C Software**

Message #60 Posted by <u>Michael F. Coyle</u> on 13 May 2003, 4:17 p.m., in response to message #59 by Renato

I have to agree with glynn too; HP is too organized a company to lose source code to a current product. (Though I suppose it's possible.) Also, there are the engineer's original notebooks, sure to be full of useful background info, memos etc. (Notebooks are thye property of the employer, so they stay even when the engineer goes.)

I assume that it wasn't a question of the code being patched, just a desire not to mess around with something that was already good enough; hence, just incremental improvements.

As for accuracy, why not compare results to a calculator with more digits? (And does the manual specify accuracy limits, like the HP-35 or 45 manual did?)

- Michael

#### 12c platinum accuracy

Message #61 Posted by <u>Gene</u> on 13 May 2003, 7:35 a.m., in response to message #58 by glynn

How about this...I'll pull out my PPC ROM manual and run through some of the test cases for accuracy to see how the two 12c's compare.

So far, they have agreed in the last decimal point with everything I've tried.

I'll see what I can do.

#### Article sent

Message #62 Posted by <u>Valentin Albillo</u> on 10 May 2003, 12:11 p.m., in response to message #39 by Veli-Pekka Nousiainen

I've sent the HP-12C trigs article in PDF format to your e-mail address (less the DROP\_, of course). Best wishes for your meeting.

#### **O.T.: Just a small mention...**

Message #63 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 May 2003, 3:10 p.m., in response to message #62 by Valentin Albillo

Hi, Valentin;

I'd send you an e-mail to express my happiness when reading your name in these posts, but I could not find your e-mail address. Forgive-me if I should not do it publicly, but I could not help myself avoiding to mention it somehow.

By my own, let me say: welcome.

Luiz C. Vieira - Brazil

To remove this post, the passord is 12345.

#### [OT] Re: Just a small mention...

Message #64 Posted by <u>Valentin Albillo</u> on 12 May 2003, 5:22 a.m., in response to message #63 by Vieira, Luiz C. (Brazil)

Hi, Luiz. Thanks for your very kind words, the reason I do not include an e-mail address is I've suffered very bad spam experiences in the past which I'm not eager to risk repeating by making public my e-mail address again.

Including 'removable' bits in a posted address only serves to stop spambots at best, but it's totally useless to stop 'spamhumans', if you know what I mean.

However, if you can provide an e-mail address of yours, where I can contact you directly, I'll send you my own.

Best regards.

**Just a small mention... corrected for mispelled words.** *Message #65 Posted by* <u>*Vieira, Luiz C. (Brazil)*</u> *on 13 May 2003, 3:24 a.m., in response to message #64 by Valentin Albillo* 

Hello, Valentin;

When you mention 'spamhumans' I mostly read 'spam with (bad) actitude'. The worst case of invasion is the conscious invasion.

Please, be my guest: lcvieira@quantica.com.br

As you mention you are one of the Voyagers' fans, we have some (maybe a lot) to talk about. Except for the HP10C, I have at least one of each, even some with different "guts".

What I wanted most to express has already been expressed previously in this thread, but if you don't mind sending me your personal e-mail address, I'd gladly save it amongst others. And please, feel free e-mailling me anytime.

Best regards.

Luiz C. Vieira - Brazil

#### What about 33S, 17BII+, 19BII+, and 49GII?

Message #66 Posted by <u>Matt Kernal (US)</u> on 6 May 2003, 1:12 p.m., in response to message #27 by Me

In addition to the 12C Platinum, can you tell us (or point us to) more info about the other NEW caluculators Steven Soto mentioned in his post below (see HP-33S thread)?

Thanx, Matt

#### Re: NEW HP 12C Platinum !!!

Message #67 Posted by <u>Jim Kimes</u> on 6 May 2003, 1:15 p.m., in response to message #1 by Y K Wong (Singapore)

There is an article in the latest edition of Business Week (Wildstrom) and also an article in May edition of Strategic Finance on the 12C Platinum. Both articles are tributes to the 12C staying power over the years. Good articles.

#### **Re: NEW HP 12C Platinum !!! Link to magazine article**

Message #68 Posted by Gordon Dyer on 6 May 2003, 2:22 p.m., in response to message #67 by Jim Kimes

Here is the link to the Strategic Finance article. http://www.strategicfinancemag.com/2003/5tools.pdf

#### Re: NEW HP 12C Platinum !!! Link to magazine article

Message #69 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 3:50 p.m., in response to message #68 by Gordon Dyer

Hello, Gordon;

can you help me in one of both ways?

1 - If you can, please, send me the PDF file ( lcvieira@quantica.com.br )

2 - post the page address instead of the PDF file address so I can download it; my browser refuses to download the PDF file and shows a plug-in error; I cannot see the file.

Thank you very much.

Luiz C. Vieira - Brazil

#### **OT: Downloading unwilling files**

Message #70 Posted by <u>Holger Weihe</u> on 6 May 2003, 4:31 p.m., in response to message #69 by Vieira, Luiz C. (Brazil)

Hello Luiz,

there is a trick I use in such situations: Create a HTML file on your local system which contains a link to the PDF-file. When you open that local file with a browser, you can right-click the link and select "save target as...".

Holger

#### Thanks! Good tip/trick!

Message #71 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 5:08 p.m., in response to message #70 by Holger Weihe

I'll do that.

Thank you.

Luiz C. Vieria - Brazil

#### And here's a link to the BW page

Message #72 Posted by <u>J. Lopez</u> on 6 May 2003, 4:29 p.m., in response to message #68 by Gordon Dyer

http://www.businessweek.com/magazine/content/03\_19/b3832018.htm

#### Re: And here's a link to the BW page

Message #73 Posted by <u>Ellis Easley</u> on 6 May 2003, 5:45 p.m., in response to message #72 by J. Lopez

That page is so busy loading ads, it doesn't have time to load the article!

#### Re: And here's a link to the BW page

Message #74 Posted by **Raymond Del Tondo (Germany)** on 6 May 2003, 7:26 p.m., in response to message #73 by Ellis Easley

No problem here. Just disable Active Scripting and JavaScript, and most of the other nice stuff, then the page will load in three seconds.

Raymond

#### 12C Platinum on eBay

Message #75 Posted by <u>Jürgen (CH)</u> on 8 May 2003, 5:40 p.m., in response to message #1 by Y K Wong (Singapore)

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3023467042&category=11712

#### **Re: 12C Platinum on eBay**

Message #76 Posted by <u>Gene</u> on 8 May 2003, 5:51 p.m., in response to message #75 by Jürgen (CH)

Just for the record...that is NOT being sold by me. :-)

Mine is not in the package any longer.

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## HP31E strange behavior after [STO][ENTER]

Message #1 Posted by Vieira, Luiz C. (Brazil) on 6 May 2003, 2:55 a.m.

Hi folks, Spice people; (Norm, you're gonna like this)

first of all, I cannot say a word about what happened **before** calculator's maintenance because I observed the fact today, meaning May, fifth. Also, after opening, repairing, maintaining and closing some Spices for the last two months, I have no idea if the back case of this HP31E is its original one, so I cannot tell you its serial number. All I know is that this one came to my hands with a "MADE IN BRAZIL" back case, and seemed never being opened before.

This is an HP31E that has soldered IC's and it returns

[-8,8,8,8,8,8,8,8,8]

after [STO][ENTER], and that's fine for me. Anyway I decided to play with it and, just for fun, I wanted to see [Error 3] and began to ReCalL available registers (Ro to R3 in this Spice). No problem: with the

```
[-8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8]
```

still in the screen, it would be enough to press any key to clear the display to 0.00. Still according to the manual, all memory is cleared after [STO][ENTER], meaning stack and numbered registers.

Then it comes the weird stuff:

[	0.1000	]
[	10.0000	]
[	100.0000	]
[	1,000.0000	]
[	Error 3	]
	] [ [ ] [	[ 0.1000 [ 10.0000 [ 100.0000 [ 1,000.0000 [ Error 3

I was not worried because [STO][ENTER] returned the all-eight's display and that should mean the

calculator is fine. So I decided to go further:

```
[STO][ENTER] [-8,8,8,8,8,8,8,8,8]
              [ 0.0000
[CLx]
                            ]
[f][CLALL]
                            ]
              [ 0.0000
[RCL][0]
                            ]
              [ 0.1000
[RCL][1]
              [ 10.0000
                            1
[RCL][2]
              [100.0000]
                            ]
[RCL][3]
              [ 1,000.0000 ]
```

I could not believe that was happening. I insisted:

```
[STO][ENTER] [-8,8,8,8,8,8,8,8,8]
[CLx]
              [ 0.0000
                            ]
[f][CLALL]
              [ 0.0000
                            ]
[f][CLALL]
                            ]
              [ 0.0000
[f][CLALL]
           [ 0.0000
                            1
[RCL][0]
              [ 0.1000
                            ]
[RCL][1]
              [ 10.0000
                            ]
[RCL][2]
              [ 100.0000
                            ]
[RCL][3]
              [ 1,000.0000 ]
```

How come? I tried another approach:

[STO][ENTER]	[ -	-8,8,8,8,8,8,8	3,8,8,]
[CLx]	[	0.0000	]
[CLx]	[	0.0000	]
[X<>Y]	[	0.0000	]
[f][CLALL]	[	0.0000	]
[f][CLALL]	[	0.0000	]
[f][CLALL]	[	0.0000	]
[RCL][0]	[	0.1000	]
[RCL][1]	[	10.0000	]
[RCL][2]	[	100.0000	]
[RCL][3]	[	1,000.0000	]

Now the last experiment:

[STO][ENTER]	[-	-8,8,8,8	3,8,8,	8,8,]
[CLx]	[	0.0000	]	
[f][CLALL]	[	0.0000	]	
[RCL][0]	[	0.1000	]	
[f][CLALL]	[	0.0000	]	
[RCL][0]	[	0.0000	]	
[RCL][1]	[	0.0000	]	
[RCL][2]	[	0.0000	]	
[RCL][3]	[	0.0000	]	
[RCL][4]	[	Error	3 ]	

Recalling any of the registers after [STO][ENTER] will allow [f][CLALL] to clear all memory. It seems as if the calculator is "stuck" and does not finish [STO][ENTER] routine unless a register is recalled, even forcing [f][CLALL] not to work properly.

Another fact: I also tested another HP31E, "sandwich-type", and I got:

[STO][ENTER]	[-	-8,8,8,8	3,8,8	8,8,8,	]
[CLx]	[	0.0000		]	
[RCL][0]	[	0.0000		]	
[RCL][1]	[	0.0000		]	
[RCL][2]	[	0.0000		]	
[RCL][3]	[	0.0000		]	
[RCL][4]	[	Error	3	]	

No matter at all, no strange behavior. This one had a "MADE IN SINGAPORE" back case.

This is just to add another (bug?) "report" to all other Spices' ones. Or to help others with the fact that Spices may have a functional degradation after being repaired. In this case, the calcualtor has soldered IC's and I cannot say a word about its behavior before maintenance (replacing flex for wires).

Luiz C. Vieira - Brazil

**Re: HP31E strange behavior after [STO][ENTER]** Message #2 Posted by <u>David Smith</u> on 6 May 2003, 2:47 p.m., in response to message #1 by Vieira, Luiz C. (Brazil)

Somewhere I remember reading that you have to power the machine off and on after the self test to make sure it is ready for the real world.

### Re: HP31E strange behavior after [STO][ENTER]

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 3:35 p.m., in response to message #2 by David Smith

Hi, David;

as it is not a continuous-memoy unit, this would indeed be a solution.

Thank you.

Luiz C. Vieira - Brazil

Re: HP31E strange behavior after [STO][ENTER]

Message #4 Posted by <u>David Smith</u> on 6 May 2003, 5:40 p.m., in response to message #3 by Vieira, Luiz C. (Brazil)

I think it also applies to the continuous memory models. I think some internal registers in the CPU get loaded with non-normal values. Since the CPU is powered off in the "C" models, it gets reset when the system is powered back on.

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### **HP-33S**

Message #1 Posted by Steven Soto on 5 May 2003, 11:14 p.m.

Has anyone else seen a picture of this? I was dissapointed to see the enter key in the lower right hand corner, but at least it's a pocket calculator, and has RPN.

Any thoughts?

## Re: HP-33S-- HUH?

Message #2 Posted by glynn on 5 May 2003, 11:35 p.m., in response to message #1 by Steven Soto

I am pretty sure there is not a "33S"-- and you have not pointed to or left an address or given any clue where you are seeing this.

Re: HP-33S or do you mean HP-30S?

Message #3 Posted by Jim L on 6 May 2003, 12:02 a.m., in response to message #1 by Steven Soto

If you really mean 33 - please provide an URL. That's news to me.

### Re: HP-33S

Message #4 Posted by <u>*R Lion*</u> on 6 May 2003, 1:55 a.m., in response to message #1 by Steven Soto

Hi Steven:

Could you say us where to see the picture?

Thanks

Raul

### Re: HP-33S

Message #5 Posted by <u>Steven Soto</u> on 6 May 2003, 6:35 a.m., in response to message #1 by Steven Soto

I do not have a URL. The dealer at the local bookstore let me see an e-mail he got recently from HP. I didn't think I'd be the first to see it among those in this group.

It was a PDF showing the 33S, 17bii+, 19bii+, 12c Platinum, and 49gii. Exact release dates were not given for each model, but I got the impression that the 33s would come out first. It is also called the "swan", for what reason I don't know. Neither the 33s or the 17bii+ are in the pioneer case. The enter key is in the lower right hand corner, and as exected, they are dual (RPN and algebraic) systems.

Unfortunately, this is all I really know. I sorry I don't have a link; I didn't know I would need proof.

-Steven

## Re: HP-33S

Message #6 Posted by <u>Steven Soto</u> on 6 May 2003, 7:44 a.m., in response to message #5 by Steven Soto

By the way, this is the same bookestore where I recently found a PPC ROM, several HP71 modules, and various cases, manuals and batteries (even classics!) new, in their original boxes.

### **Re: HP-33S**

Message #7 Posted by <u>Paul Brogger</u> on 6 May 2003, 12:59 p.m., in response to message #5 by Steven Soto

We don't want proof -- we want the PDF!

While the 33s & 17Bii+ didn't have Pioneer cases, what *did* they look like? 30s? 10Bii? Other?

### **Re: HP-33S** Message #8 Posted by <u>Ellis Easley</u> on 6 May 2003, 5:49 p.m., in response to message #7 by Paul Brogger

That's what I'm afraid of - that they will put new models in the 10BII package.

### Re: HP-33S

Message #9 Posted by J.Manrique Lopez on 6 May 2003, 6:42 p.m., in response to message #8 by Ellis Easley

Why are you afraid of it? Would you prefer hp30s form factor?

Best regards,

J.Manrique

#1077 HPCC Member

### Re: HP-33S

Message #10 Posted by <u>Ellis Easley</u> on 6 May 2003, 7:19 p.m., in response to message #9 by J.Manrique Lopez

No. I don't like all that curvy stuff, also I don't "cotton" to displays with different zones like the 30S. But the 10BII feels much cheaper than even the 30S. The keys sometimes "click" without registering. If the new 12C has the kind of keyboard feel that the old machines had, I hope they can apply that to other new machines.

### Re: HP-33S

Message #11 Posted by <u>J.Manrique Lopez</u> on 6 May 2003, 7:21 p.m., in response to message #10 by Ellis Easley

Yes, I hope so too

J.Manrique

#1077 HPCC Member

### Re: HP-33S

Message #12 Posted by <u>Jose Gallegos</u> on 7 May 2003, 3:15 a.m., in response to message #11 by J.Manrique Lopez

It is very good news to all ;)

But what about pda style calc? (big screen, pen touch, enough flash ROM, etc)

Best regards!! JoGa

## Re: HP-33S

Message #13 Posted by <u>J.Manrique Lopez</u> on 7 May 2003, 3:55 a.m., in response to message #12 by Jose Gallegos

You have a lot of options for that, based on PocketPC like emu48 for PocketPCs.

Of course, I prefer Prof. Parisse's Giac/Xcas[1] and gnuplot running on my Linux/Familiar/GPE[2] iPAQ.

I think that touchscreen based handhelds will become more popular for such things when 640x480 screen resolution devices become more popular, because you'll get a decent screen for most work.

Best greards,

J.Manrique

#1077 HPCC Member

[1] http://www-fourier.ujf-grenoble.fr/~parisse/giac.html

[2] http://gpe.handhelds.org

### **Re: HP-48g** Message #14 Posted by <u>ould abdellaha</u> on 9 May 2003, 4:12 p.m., in response to message #5 by Steven Soto

hello i need a manul for hp48g tankyou

### Re: HP-48g

Message #15 Posted by <u>Daniel Kekez</u> on 9 May 2003, 10:32 p.m., in response to message #14 by ould abdellaha

There is a scanned copy of the HP-48G Series User Guide at <u>hpcalc.org</u>: <u>http://www.</u> <u>hpcalc.org/details.php?id=3937</u>

If you need a printed copy, place your request in the <u>Classified Ads</u>.

Thanks.

## **Re: HP-48g** Message #16 Posted by <u>Robert</u> on 13 May 2003, 3:39 p.m., in response to message #15 by Daniel Kekez

Hey! That's great. You wouldn't know where to download the Advanced User Ref, would you?

## Re: HP-33S

Message #17 Posted by <u>Renato</u> on 6 May 2003, 6:50 p.m., in response to message #1 by Steven Soto

Stephen,

Any of those new old stock itens left ? - I can dream, can't I ?

Renato

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### Adjust intensity on HP-42S

Message #1 Posted by JRG on 5 May 2003, 5:50 p.m.

One evening my precocious Border Collie, Miss, somehow got my HP-42S calculator and decreased the screen intensity. I no longer have the manual for this calculator. Can someone tell me how to adjust the display intensity?? My Border Collie won't tell me! Please help.

**Re: Adjust intensity on HP-42S** 

Message #2 Posted by <u>Gordon Dyer</u> on 5 May 2003, 6:05 p.m., in response to message #1 by JRG

Hold down the ON key and press + or - at the same time. You had better teach Miss to talk!

### **Re: Adjust intensity on HP-42S**

Message #3 Posted by <u>Rick</u> on 5 May 2003, 6:05 p.m., in response to message #1 by JRG

Turn the 42S on then press the EXIT (ON) key while pressing the + several times. If you make it too dark do the same except press the - key several times.

Hope that helps

Rick

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MUD-01 Micky Take

Message #1 Posted by Gordon Dyer on 5 May 2003, 5:37 p.m.

I think someone is taking the \*\*\*\*\* out of eBay prices for HP-01? Look at this: http://cgi.ebay.co.uk/ws/eBayISAPI.dll?ViewItem&item=2631746266&category=31387

**Re: MUD-01 Micky Take - LOOK at the price of this!** *Message #2 Posted by* <u>*Gordon Dyer*</u> *on 6 May 2003, 8:51 p.m., in response to message #1 by Gordon Dyer* 

http://cgi.ebay.co.uk/ws/eBayISAPI.dll?ViewItem&item=2631746266&category=31387

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### **32SII**

Message #1 Posted by Unspellable on 5 May 2003, 1:56 p.m.

I'm a newbie here. Can anyone tell me why the 32SII seems to be a hot item on eBay? Seems to fetch a high price compared to other calculators of comparable ability.

### Re: 32SII

Message #2 Posted by <u>D. Webster</u> on 5 May 2003, 4:01 p.m., in response to message #1 by Unspellable

It's pretty simple. More buyers than calculators. Have you tried to buy a shirt pocket sized RPN calculator lately at your local store?

### Re: 32SII

Message #3 Posted by <u>unspellable</u> on 5 May 2003, 5:48 p.m., in response to message #2 by D. Webster

Supply and demand ultimately walways sets the price of course, but there seems to be enough demand for the 32SII to run the price up. So I'm still left to wonder what makes it more desirable than other HP's.

### Re: 32SII

Message #4 Posted by <u>Paul Brogger</u> on 5 May 2003, 7:18 p.m., in response to message #3 by unspellable

I'll bet there has been lots of speculation on this recently. For my part, I suspect it's because it's the last (as far as we know at this time) of a proud line of H-P *keystroke-programmable scientific/engineering RPN* calculators.

H-P's recent offerings have been impressive graphics-and-alphanumeric computer-like machines (HP-28S, HP-48G & derivatives) which to some tastes are too bloated with features and capabilities to be easily learned and used.

The 32SII, however, is a simple, straightforward machine with impressive capabilities gathered into a nicely integrated and easily-grasped package. As such, it's a tool that can be more readily applied to certain problems than can, say, an HP-48G. (Part of the HP-41's appeal is no doubt that it served both camps: it was a straightforward keystroke progammable, and was amazingliy expandable for higher-end or special applications.)

The 32SII is (I think) hamstrung by a lack of memory, but within its limits, it's a very nicely put-together machine, and a genuine pleasure to use. Keystroke programming on a 32S/SII (and on its sibling, the 42S and its parent, the 41) is significantly improved over that on earlier models via the use of mnemonic codes rather than x/y keyboard coordinates. This eliminated the repetitive translation of keycodes to operations, while not yet forcing the fundamental shift to RPL, a pseudo-infinite stack, and graphing & alpha complexities.

So, on top of the collectors and people new to H-P calculators, it's in demand from users who know this simple, straightforward machine and want insure its availability for their forseeable futures.

(That's my 0.02 worth . . . )

### **Re: Unspellable**

Message #5 Posted by <u>Paul Brogger</u> on 5 May 2003, 4:30 p.m., in response to message #1 by Unspellable

Not to knock your "handle" or anything, but it reminds me of one of the few knock-knock jokes that I actually came up with:

Knock! knock!

Who's there?

Nebuchanezzar

Nebuchadnezzar who?

Nebchadnezzar get his name spelled right!

With regard to your question, The 32SII was recently discontinued, and is also a quite capable and still usable calculator, so there's a confluence of demand from users wanting a back-up unit, established collectors wanting to get one before it's too late, and various hangers-on and wannabe's who've heard recently of its discontinuation and that HP calculators are all the rage . . .

### **Re: Unspellable** *Message #6 Posted by* <u>*Patrick*</u> on 5 May 2003, 6:30 p.m., *in response to message #5 by Paul Brogger*

What is sad is that I just bought a 20S for \$26 and it reminded me so much of the 32Sii. Makes you wonder why they can still make the 20S but not the 32Sii... sigh.

### **Re: 20S**

Message #7 Posted by <u>**D. Webster**</u> on 5 May 2003, 6:58 p.m., in response to message #6 by Patrick

Actually, they don't. Haven't made a shirt pocket machine in any form for more than a year.

Zip. Zilch. Nada.

Just because you can buy them doesn't mean they are still in production.

The 12C does not count, sorry. And those things you can buy like the 30S and 10Bii shouldn't count as real HP calculators.

### **Re: Tales of Woe**

Message #8 Posted by <u>Paul Brogger</u> on 5 May 2003, 7:27 p.m., in response to message #6 by Patrick

I've what I think is an even sadder tale on this score:

As long as the 17BII was available, H-P *could* have been making the HP-42S, as they two apparently differ internally *only* in their ROM programs, and externally only in their keycap and faceplate legends. Bummer!!!

Of course, with the discontinuation of the HP-17BII, the issue is moot, but it sure was frustating to know that!

### Re: 32SII

Message #9 Posted by <u>Ellis Easley</u> on 5 May 2003, 11:53 p.m., in response to message #1 by Unspellable

Someone said here recently that where he lives (I think it was Texas), they have calculator competions among high school students and the 32SII is the favorite.

### Re: 32SII

Message #10 Posted by <u>Anon</u> on 6 May 2003, 2:16 a.m., in response to message #9 by Ellis Easley

It is. I wasn't the original person that posted that, but I live in Texas and the 32sii is extremely popular at competitions (it was popular in middle school too when it was in production). Most of my friends from middle school got a 32sii, and they still use it in high school. I just recently bought mine off ebay primarily for the competitions (and school tests, since HP has a much better keyboard and add on RPN, I'll start typing physics equations much faster than before.)

my 2 cents

### Re: 32SII

Message #11 Posted by <u>Ellis Easley</u> on 6 May 2003, 3:38 a.m., in response to message #10 by Anon

I wonder if HP is aware of this.

Some of y'all here in Texas are certainly aware of the "Robin Hood" system of public school financing, but others might not be. Basically, school districts that enjoy high property values have to collect extra taxes that are transferred to school districts with lower property values (nobody talked about that when Texas was being dragged through the mud during the 2000 election!) Let's just hope us poor taxpayers aren't forced to buy HP32SII's on Ebay for disadvantaged mathletes! Write your congressman and tell him to get on Carly to put the 32SII back in production!

### Re: 32SII

Message #12 Posted by <u>Ellis Easley</u> on 6 May 2003, 3:19 a.m., in response to message #1 by Unspellable

### Dear Unspellable,

if you are stout of heart despite your disability (and I must say, you spelling seems OK to me), you might like to learn how to navigate the Archives of this Forum. The topic you raise has been discussed a lot in the past year or so. What I remember is that when the 32SII first started selling for ~\$150 on Ebay, there were still some available in stores for the list price of \$60.

You can get to the Archives from the Museum home page or from the top of the Forum page (just under "Post a New Message"). The Archives work just like the Forum except each one has a very large index that takes a while to load. Instead of waiting for the full index to load, select "Search/Personalize Display" at the top of the screen just below the title. Then just type "32sii" in the box under the label "Only messages containing [Any] of the following keywords:" and select the radio button on that line, and then click "View Message Index". It will return an index of just those messages that match your search criteria. For instance, in Archive 9, 151 messages out of 3612 contain "32sii", and in Archive 8 there are 220 messages out of 3740.

Once you select one of those messages, you have access to the entire thread it is part of (just call me "ungrammarable"). If you are careful, you can get back to your search results index using the "back" button. My browser always loses track after a certain number of levels but if you always go "back" to the place you entered the thread instead of using the "Next in Thread" etc. or just selecting another message, you are never more than two levels down from your search results index. This effort will save you the trouble of having to re-do your search when your "back" button runs out of levels.

The highest numbered Archive is the one that the oldest messages in the Forum are being swept into on a regular basis. All the others are static (I assume). One difference between the Archives and the Forum is that in the Archives, you don't get the choice to "Respond". If you feel the urge to respond, just go to the Forum and post a new message. You can include a link to an Archived message in your new message, just copy the URL from the address bar while viewing the Archived message and paste it into your new message. You can turn that URL into a link in your new message with some of the simple methods described under <u>"advanced formatting</u> techniques" - there, I just used one! - which you can get to from near the top of the Forum page. <u>http://www.hpmuseum.org/artfmt.htm</u> - there's another one! I recommend opening a new window (by right clicking on the background of a window and selecting "Open Frame in New Window") to look at the "advanced formatting techniques" page while you are writing your message. I apologize for my references to Internet Explorer capabilities if these don't exist in your browser (although I imagine something equivalent does).



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### HP-9G / Citizen SRP-320G

Message #1 Posted by Joerg Woerner on 5 May 2003, 6:36 a.m.

Hi There,

Does anybody own a HP-9G? Ever disassembled ? I like to compare the printed circuit board of my Citizen with your HP-9G.

Regards, Joerg

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### Are these books worth getting?

Message #1 Posted by <u>Rick</u> on 4 May 2003, 5:57 p.m.

Hi all,

Like most here my interests are hp calcs. I was wondering if anyone has any of these books "Collector's guide to pocket calculators" and "A guide to HP handheld calculators and computers" and if so what do you think of them. I'm thinking of getting one or both if they are worth while. Any comments would be appreciated.

Thanks Rick

### Re: Are these books worth getting?

Message #2 Posted by John Smith on 4 May 2003, 6:39 p.m., in response to message #1 by Rick

Hi, Rick:

This is a very personal comment, others might agree or disagree. For what is worth, I have both books, and find "A guide to HP handheld calculators and computers" an absolute must. I've read it from cover to back many, many times, and I still enjoy it immensely. I would definitely recommend you order a copy as soon as you can, you won't be dissappointed in the least. It's full of both accurate data, historical facts, and lots of very interesting and amusing trivia about HP calculators and related products. The only thing is that it is a little outdated by now, but perhaps its author, Wlodek Mier-Jedrzejowicz, would consider publishing a 4th, updated & improved edition soon. Meanwhile, get the 3rd edition (or even the 2nd), you'll certainly be more than happy.

As for the other book, while interesting it is an altogether different kind of beast. It's more a catalog of old calculators, all brands (1,500+ models featured), with minimal information on particular models. Besides, only LED calculators are featured (with some exceptions), and so you won't find the HP-41C or any newer HP model there (including HP-11C, 15C, etc, not to mention HP-48/49). Due to its broad coverage, the information given for any particular model

is really minimal. For instance, the entry for the HP-55 doesn't even mention this model's outstanding feature, namely that it has a quartz-controlled timer (with split capability, 1/100th-second resolution, etc). So, it really doesn't make for interesting reading, it's obviously intended mainly for reference. If you are into general calculator collecting, this will be valuable. If you are just interested in HP models, you'll find the coverage in this book minimal.

### **Re: Are these books worth getting?**

Message #3 Posted by <u>Katie</u> on 4 May 2003, 8:38 p.m., in response to message #2 by John Smith

John, I'm in agreement with everything that you said about both books. Although I haven't read Wlodek's book as many times as you have :)

#### Thanks for the reviews

Message #4 Posted by <u>Rick</u> on 5 May 2003, 5:58 p.m., in response to message #1 by Rick

Thank you John and Katie for your inputs.

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### HP82143A on e-bay; if you want to repair yours,

Message #1 Posted by Vieira, Luiz C. (Brazil) on 4 May 2003, 5:08 p.m.

Hi;

The auction is almost finished and the unit seems to need maintenance, but the price is somewhat low, mostly if there are guys wishing to find replacement parts, AC adapters, etc...

Look here.

Luiz C. Vieira - Brazil
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Is this a Joke??????

Message #1 Posted by <u>**R** Lion</u> on 4 May 2003, 3:36 p.m.

Is this a joke????

"15C Calculator, it is in good condition, however has some worn markings on the backside, but all in all appears in good condition"

http://cgi.es.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3022298185&category=11713

**Re: Is this a Joke?????** *Message #2 Posted by* **DJ** *on 4 May 2003, 4:04 p.m., in response to message #1 by R Lion* 

"worn markings on the backside" ??? Looks like it was run over by a truck!

## Re: Is this a Joke??????

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 4 May 2003, 4:54 p.m., in response to message #2 by DJ

Hi;

I do not understand why all references to the calculator are made in the past: *The HP-15C* was a high end scientific programmable., or: *To see the imaginary part, the user* could press f(i) and hold it as long as needed.. It seems the text was extracted "as is" from a historical reference, as if the calculator no longer exists.

I found it, at least, weird.

Luiz C. Vieira - Brazil

## Re: Is this a Joke??????

Message #4 Posted by <u>Ernie Malaga</u> on 4 May 2003, 5:22 p.m., in response to message #3 by Vieira, Luiz C. (Brazil)

Luiz:

>I do not understand why all references to the calculator are made in the past: The HP-15C was a high end scientific programmable., or: To see the imaginary part, the user could press f(i) and hold it as long as needed.. It seems the text was extracted "as is" from a historical reference, as if the calculator no longer exists.

It no longer exists. The 15C is a discontinued model. That's why the sentences are in the past tense.

-Ernie

**Re: Is this a Joke?????** 

Message #5 Posted by <u>Patrick</u> on 4 May 2003, 6:45 p.m., in response to message #4 by Ernie Malaga

Being discontinued and being non-existent seem different to me. I personally have three of these non-existent calculators.

Re: Is this a Joke?????

Message #6 Posted by <u>Renato</u> on 4 May 2003, 7:07 p.m., in response to message #5 by Patrick

I think Luiz has a point. Freud said that when someone is trying to hide something, he ends up making mistakes that shows the truth. I know the name of the concept in Portuguese, but not in English. Maybe Dr. Meyers can help.

## Re: Is this a Joke??????

Message #7 Posted by Larry Corrado, USA (WI) on 4 May 2003, 9:01 p.m., in response to message #6 by Renato

The term in English is "Freudian slip."

LC

Re: Is this a Joke??????

Message #8 Posted by <u>Renato</u> on 4 May 2003, 10:29 p.m., in response to message #7 by Larry Corrado, USA (WI)

Freudian slip. Ok. So what do you think - does it apply in this case ?

Re: Is this a Joke??????

Message #9 Posted by <u>Ernie Malaga</u> on 5 May 2003, 12:14 a.m., in response to message #5 by Patrick

>Being discontinued and being non-existent seem different to me. I personally have three of these non-existent calculators

"Nonexistent" not in a physical sense, of course. Like Luiz, I'm using the word loosely as meaning "no longer being made or supported." If you check HP's website, you will find nothing about that model, and HP certainly accepts no more orders for it.

Besides, your three 15Cs are not \_the\_ HP-15C, but three physical copies of the one that became "nonexistent."

If I still don't make sense, let me know and I'll gladly shut up. 8<sup>^</sup>)

-Ernie

## Re: Is this a Joke??????

Message #10 Posted by <u>db(martinez,california)</u> on 5 May 2003, 2:55 a.m., in response to message #9 by Ernie Malaga

taking him at face value: he speaks spanish as a first language and uses ebay in spanish. notice the tense error "worn" in the first sentence. that is common in going from spanish to english when using our iregular verbs. i am not dissing his communication skills: i wish i could talk spanish like he talks english. i only speak english and dude......(pause)......dude.

anyway, he talks about the 15c in the present but he only wrote the first one and the last two & a half sentences. the rest, the past tense part, is coppied from someone who knows english and "hp" better. i'll ask him if it functions and get back to youall.

## Re: Is this a Joke??????

Message #11 Posted by <u>**R** Lion</u> on 5 May 2003, 7:03 a.m., in response to message #10 by db(martinez,california)

Spanish ebay... I gave you the link, I'm the "guilty".

The seller is from Cleveland, Ohio, perhaps spanish is his/her laguage but...

Raul

## Re: Is this a Joke??????

Message #12 Posted by <u>db(martinez,california)</u> on 5 May 2003, 12:04 p.m., in response to message #11 by R Lion

R Lion; maybe my trusting soul is wrong here and he is a sneak. or he is way lazy. or money is so tight for him that he can't afford 3 a76 cells to test it. one strange thing is that his reply to me came with a gringo's name attached. anyway here it is:

I cannot say, I am not the original user, and that is why I sell This unit "as-is"......Sorry for lack of information. Have a great day.....

still, the "that is why i sell this unit" is a common esl way to turn the phrase. notice the missing "the" too. maybe it's pauls wife? whatever.

i just ran out of interest. although; i might put a small bid in for the parts because i think this one smells like burned toast. i hope our mystery seller has a great day too.

## **Re: Is this a Joke?????**

Message #13 Posted by <u>Ron Ross</u> on 5 May 2003, 1:05 p.m., in response to message #12 by db(martinez,california)

I always look at a sellers feedback. I like it to be a high percentage (need not be perfect, in fact I like to see one or two negatives). And heres why. How did the seller respond to a negative, did he respond with a negative? was he at fault? If who he placed a negative with, have a lot of negatives? If so, fine, ebay methods at work (you deal on ebay often enough, your bound to deal with a jerk, especialy as a seller).

But If I see over 2% negative and he also responds with negatives, I go elsewhere. The only real leverage a buyer has on ebay is HIS BID!!! After you bid, you are at the mercy of the seller, will he ship item as described? After he has \$\$\$, he usually waits for you to recieve and post feedback. If you don't some sellers cry or post nuetrals. Either way, I feel it is a flawed system that rewards or at least allows sellers to carry on with poor habits. If I sell on ebay and a buyer fulfils his side of the bargain with a prompt payment, I need no more information, I leave a positive feedback, then and there. If a problem happens in shipment, I want to resolve the issue, so not to get a negative, but that should not be an issue of leverage, the buyer has paid promptly. If I do get a negative, I want the person to note how I corrected. Granted, deadbeat bidders do need to be identified. But that happens with NO Payment!

But my complaint is to many sellers get paid promptly, take their time shipping or due to poor postal deliveries, have an item lost, get a negative and immediately post a negative on a decent buyer, out of spite. While it may be the buyer did not wait for reparation, a payment lost in the mail will also draw a negative and whose fault is that?

I no longer post positive feedback to sellers until they post to me (on occasion I have if the item is better than stated or extreme care in packageing, etc.). I suggest you read a few negative comments posted by this seller before you bid on this PRIZE. Don't worry about competetion from me.

### Re: Is this a Joke??????

Message #14 Posted by <u>db(martinez,california)</u> on 5 May 2003, 10:58 p.m., in response to message #13 by Ron Ross

your right. after reading the answers to the negatives i pass too. that just might be the email owners wife. sure reminds me of my old mistake.

### Re: Is this a Joke??????

Message #15 Posted by <u>Gordon Dyer</u> on 5 May 2003, 7:11 a.m., in response to message #3 by Vieira, Luiz C. (Brazil)

Even if HP were still making the 15C, this one is definately in the past!

### Re: Is this a Joke??????

Message #16 Posted by <u>Ellis Easley</u> on 5 May 2003, 3:13 a.m., in response to message #2 by DJ

My 12C, that was run over by a car, doesn't look that bad!

### Re: Is this a Joke?????

Message #17 Posted by <u>Gordon Dyer</u> on 5 May 2003, 7:10 a.m., in response to message #1 by R Lion

Well, at least it is not accompanied by an MoHPC picture!

**Re: Is this a Joke?????** *Message #18 Posted by <u>Ellis Easley</u> on 6 May 2003, 12:16 a.m., in response to message #1 by R Lion* 

I went straight to Ebay and just looked up the item number, and everything was in English for me. I think the only reason we are seeing Spanish is because R Lion's original link was to his national Ebay website.

10% negative feedback is pretty high. And the enthusiasm of hid detractors is astonishing! THIEF! CROOK! And why has he started thanking them for negative feedback?

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## **DVD 200i Driver and software**

Message #1 Posted by Kamran on 4 May 2003, 1:45 a.m.

Dear all if any body can help me out in finding out that from where i can get the driver and software of HP DVD200i, i will be thank ful

regards

**Re: DVD 200i Driver and software** Message #2 Posted by <u>Ellis Easley</u> on 4 May 2003, 2:43 a.m., in response to message #1 by Kamran

It's not really what we do here, but I found this with two clicks at hp.com:

http://h20015.www2.hp.com/en/softwareCategory.jhtml? lc=en&pagetype=software&prodId=hpdvdwrite81681&sw\_lang=en

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## **Copy of Wand Manual from CD**

Message #1 Posted by **Donald Leonard** on 3 May 2003, 11:41 p.m.

It appears that my only chance to acquire a 82153A Wand at a reasonable price is one offered without a user manual. Is there someone out there with a Museum CD and a quality printer willing to print out a complete copy of it for me? I will gladly pay them for the materials, time/effort and shipping.

I am unable to do this myself as my WebTV STB does not have a CD or Hard drive - it's a 'dumb' terminal.

Please contact me by e-mail with your offer. Don

**Re: Copy of Wand Manual from CD** 

Message #2 Posted by Ion Abraham (New Mexico USA) on 4 May 2003, 12:35 a.m., in response to message #1 by Donald Leonard

Hi Don,

Done. If you will send your postal mailing address, I will send you the manual. If some of the pages do not render well enough from the pdf, I can make you better copy off my own copy of the wand manual.

By the way, in using the wand, I found it extremely helpful to use a thick ruler when you scan the bar codes. My wand does not like it when you don't go straight across a bar code, in a nice smooth motion.

Best regards,

Ion Abraham Albuquerque, New Mexico icabraham@att.net

## **Re: Copy of Wand Manual from CD**

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 4 May 2003, 1:04 a.m., in response to message #2 by Ion Abraham (New Mexico USA)

Hi, Ion;

yours is a valuable tip. Please, allow me to add another.

To avoid permanently smear original printing, I use an acetate sheet (full-page size) over the printed bars prior to wand any of them. I think the original set already has something like this, but I bought mine as used, and I saw no acetate sheet as part of it.

The acetate will reflect part of the LED emission, demanding slower and more precise movements. But it worth the job if you think your original hardcopy will last longer.

My US\$ 0.01 contribution.

Luiz C. Vieira - Brazil

## **Re: Copy of Wand Manual from CD**

Message #4 Posted by Ion Abraham (New Mexico USA) on 4 May 2003, 10:03 a.m., in response to message #3 by Vieira, Luiz C. (Brazil)

Hi Luiz,

I completely agree. I remembered I should have added this to my reply a few hours after I sent it. I keep the bar code sheets in plastic already, so I just don't think about it anymore.

Best regards,

Ion

## Just a thought

Message #5 Posted by <u>Jim L</u> on 4 May 2003, 11:08 a.m., in response to message #1 by Donald Leonard

Since Dave's site is being used to request a copy from Dave's CD, It would be nice if Don ordered a copy if he hasn't already. I think that would make it legal too.

## **Re: Just a thought**

Message #6 Posted by Ion Abraham (New Mexico USA) on 5 May 2003, 8:26 a.m., in response to message #5 by Jim L

I don't want to get into an argument about this, but Don mentioned that he can't use the CD set because he doesn't have a CD-ROM drive. So I figured that it's OK to cut the guy some slack.

After all, the usefulness of Dave's very nice CD compilation is in making it possible for people to use the hardware.

I hope Dave is OK with this.

Regards,

Ion Abraham Albuquerque, New Mexico

**Re: Just a thought** *Message #7 Posted by* <u>*Dave Hicks*</u> on 5 May 2003, 2:55 p.m., in response to message #6 by Ion Abraham (New Mexico USA)

With respect to my copyright (I can't speak for HP), if someone owns a museum CD that he can't read, I don't have an issue with someone providing a print-out for him.

**Re: Copy of Wand Manual from CD-Thank you** *Message #8 Posted by Donald Leonard on 6 May 2003, 2:31 a.m., in response to message #1 by Donald Leonard* 

I want to thank those of you that replied here and by e-mail with kindness and an offer to help. It is really appreciated.

As I understand it, it is suggested that I spend \$15-\$30 for CD('s) that I have NO way to use, plus the cost of printing and shipping of a thin manual, about \$10. That makes the manual copy \$25-\$40. Since that is a little steep for a loose leaf copy of reported marginal quality, I am now forced to reconsider the wisdom of trying to replace this item, or add the \$25-\$40 to my max. bid and get a wand WITH a manual. I am just a little dissapointed that this has turned into a commercial pissing match. Don

## **Re: Copy of Wand Manual from CD-Thank you**

Message #9 Posted by <u>Ellis Easley</u> on 6 May 2003, 6:16 a.m., in response to message #8 by Donald Leonard

Don, I helped you out a while ago and I was glad to do it. I don't want to offend you but you are acting like someone who is proud of the fact he doesn't have a car - and talks about it whenever you're driving him around! You're right about the cost - it might turn out the same as if you bought an original manual - only you'll be getting hundreds of manuals. (I know about the WebTV situation)

Every once in a while someone posts a message here expressing resentment that all the manuals aren't online. Maybe a lot of regulars are grumbling about it under their breath. I don't know all the details involved in putting up a website - the best information I have is what I have learned from listening to radio shows that have considered putting up websites to enhance their broadcasts. The problem is that if you put up large files with any degree of popularity, your server gets overloaded and you have to add more servers. I understand one server can only provide video (for example) to 8 users. What if you have millions of potential users actually listening at the same time? If you've ever listened to a national talk show you know that if the host makes the mistake of saying the name of a website that he wants to talk about, he guarantees that the server will go down because of all the listeners who try to log on to it at the same moment. I know there aren't millions of people here but consider all the Ebay auctioneers who link to this website when they are listing an HP calculator. Then suppose all the manuals were online. Just about every curious bidder would come here and download a manual (I know I would!) and either that would be the end of the HP Museum or Dave would have to add more servers or Dave would have to make it members only. I think Dave's CD-ROMs are an ideal solution to that problem. (I know you have WebTV)

For the life of me, I can't understand why anybody wouldn't see what an incredible bargain Dave's CD-ROMs are! (WebTV)

Now that I've had my rant, here's an idea that just occurred to me: Audio CD players play MP3 CD-ROMs now (that's right, isn't it? Ordinary CD-ROMs with MP3 files stored on them?) And DVD players play audio CDs and MP3 CD-ROMs (same caveat) Why don't DVD players play CD-ROMs or DVDs with PDF files stored on them? (I don't mean "splain me why", I mean "who dropped the ball?"). Whatever happened to Kodak Photo-CD? I notice from the drug store ads in the Sunday papers that they have changed the name to something like "Picture CD". It used to be a CD-ROM or CD-R with JPG files stored on it. I know it takes someone to do it and usually they only do it if there's something in it for them. I've been wondering, who got the audio CD players to play MP3's? Certainly not the record industry!

There was something called an "E-book" once. I've got a bulky handheld device somewhere that plays 3" CD-ROMs holding E-books. That was before PDF files (as far as I know). I feel as though I've heard of something completely different called an E-book lately.

I suppose like everything else, it boils down to the ownership of content.

## A few thoughts from the commercial pisser

Message #10 Posted by <u>Dave Hicks</u> on 6 May 2003, 2:27 p.m., in response to message #9 by Ellis Easley

Thanks for the comments Ellis.

I did a calculation some years ago about the cost of putting the CDs on-line. I don't remember exactly, but the cost of bandwidth was much higher than the price that the CDs sell for. It's possible that bandwidth prices have come down since then but so have my prices - I'm now selling 4.5 GB of manuals for less than I used to sell 3GB. I read an article recently that said that the largest "bandwidth" provider in the world is "Netflix". A DVD mail-order rental place. ("Bandwidth" being measured in terms of the DVDs that they ship through the mail.) For now plastic is still cheaper for sending large amounts of data.

A further complication is that when people ask for them to be on-line there is often an implication that this reduces or even removes the price. I couldn't afford this even when I was employed, but now it's even more important that the museum operate in the black.

Some people may have noticed that my China pictures have been removed. They got "googled" and were starting to cost me a lot of money.

For any collector of HPs, I feel that 7 cents per manual is a pretty good price. I realize that for a single manual, it may not be as cheap as one might hope (though still frequently lower than any other option) so I do intend to investigate some sort of single manual download capability. I have looked at some canned/simple solutions but so far, when you add up the various fees, they come out higher than I would like to sell a manual for. I'll keep looking and/or come up with some other solution.

I'm fairly proud of the fact that my website has come through the dot bomb unscathed. It has never promised to make anyone millions of dollars - it doesn't even pay one person a reasonable wage, but unlike a lot of those high-flyers it actually manages to pay for its bandwidth and doesn't even need flashing ads plastered all over it.

I put a lot of work into the CDs. When I was working my "day job" I was coming home

and spending 6-8 hours a night on them for a couple of years. "Commercially" I would have been much better off spending that time on my "day job" which paid a heck of a lot better. I don't think it's unreasonable to request that the copyright be honored especially when someone specifically asks how I feel about it on my own site. Donald was disappointed by how this thread turned out and I was disappointed by how it started. That's life I guess.

## this is a family site. lets say urinator

Message #11 Posted by <u>db(martinez,california)</u> on 6 May 2003, 3:36 p.m., in response to message #10 by Dave Hicks

that's a very libertarian attitude dave: you ARE allowed to have a hobby that doesn't really pay for itself if you want and we are NOT allowed to expect you to pay for ours. there was a lot of time (which equals money using a simple formula) invested in those discs. he asked, you declined permission. oh well.

mr leonard; if you buy the disc you will eventually find a place to spin it and you will enjoy it.

## You're right but...

Message #12 Posted by <u>Dave Hicks</u> on 6 May 2003, 5:33 p.m., in response to message #11 by db(martinez,california)

Commercial Urinator sounds like something found in a large men's room. ;-)

Oh well, that's still better I suppose.

## Re: Copy of Wand Manual from CD-Thank you

Message #13 Posted by **Donald Leonard** on 7 May 2003, 1:56 a.m., in response to message #9 by Ellis Easley

I have absolutely NO complaints either about this site or the value of the CD collection. I agree that the content is an absolute bargin at \$30 - for someone who has the capability to read them. Surely you and others are not suggesting that someone who needs a copy of a manual should buy the CD('s) AND a computer to get it.

Please do not lose sight of the fact that I mention the conditions I am having to work around in an attempt to reduce having to reply to suggestins which are impractical because of these conditions. One condition I have not mentioned is that I was forced to take early retirement due to a permenent physical condition, and my descretionary funds are extremely limited. Hence, I must find economical solutions to my problem. Doing and buying things I don't need is foolish. I deliberately omitted this because I didn't want the kind of comments I have just received. Give me a break!

I originally thought that someone out there with a wand and manual might provide me with a scanned copy. Thinking further that there might be many more people with the CD set, I asked this group for help, which I received. What really surprised me, however, was the additional comments from others which resulted in absolutely no help and negative comments about my request and explanation of the conditions I have to work under. This has never happened before and I don't understand it.

Perhaps I misundestood the acceptable limits of help allowed on this forum. If so, I appologize for exceeding these limits. I know that I will carefully reconsider any future request for help here. Don

### **Re: Copy of Wand Manual from CD-Thank you**

Message #14 Posted by <u>Dave Hicks</u> on 7 May 2003, 12:48 p.m., in response to message #13 by Donald Leonard

"Surely you and others are not suggesting that someone who needs a copy of a manual should buy the CD('s) AND a computer to get it."

It's an option. Old PCs which are capable of reading the CDS can be found for about the price (or less) that you paid for an extended IO module on ebay. PCs just aren't "collectable" which is good in this case. It doesn't have to be a PC. One forum contributor uses an Amiga that was given to him. PCs are just readily available and cheap. I've seen functional but old PCs in local thrift shops for \$20.

On the other hand, if you find a wand for sale with the manual included, that's great too.

"Perhaps I misundestood the acceptable limits of help allowed on this forum. If so, I appologize for exceeding these limits."

Yes that's paragraph 4 of the terms of use. Your apology is accepted. Let's move on.

I mentioned to Ellis in an email last night that I had been thinking of offering to print it for you myself - ie you could order a CD (Just one not the whole set), send me an email reminder, and I would make and send you the print out. I decided not to offer that after your disappointment message, however, since we're back on good terms, I will make it now.

## **Re: Copy of Wand Manual from CD-Thank you**

Message #15 Posted by **Donald Leonard** on 7 May 2003, 7:09 p.m., in response to message #14 by Dave Hicks

Any offer of assistance is appreciated, even those I deem unreasonable or unacceptable for previously stated reasons. My \$104 purchase of the Ext-IO was a painful choice after watching months on ebay and being outbid on two prior offers. I really was shocked that I won that bid. I had no other choice in this purchase.

I originally thought that I had a chance to get the wand at a reasonable price if I purchased it w/o a manual. This forums communication clearily showed me that this approach is not going to happen.

I do not view any of the suggestions offered as either reasonable or practical because:

1. I need 1 manual, not a library. 2. I do not need nor can I afford to buy a piece of equipment which is only usable TO ME to read one manual, even if it only costs \$25-40. I personally view this as a ridiculous waste of money. 4. Until I have finished re-assembling my HP-41 system, all my available funds MUST be directed to this purpose, even if I now may have to bid higher on the item because no other solution is provided.

I really did not intend to break term 4 of the regulations. In the future I will limit my request for help to question and answer type. Don

**Re: Copy of Wand Manual from CD-Thank you** *Message #16 Posted by* <u>*Dave Hicks*</u> on 7 May 2003, 9:49 p.m., *in response to message #15 by Donald Leonard* 

Hi Don,

I just wanted to make sure you understood that my previous offer was for a printed manual. If you prefer ebay, that's fine but I wanted to make sure we're on the same page.

Dave

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## Question: 71B <-HPIL -> 71B

Message #1 Posted by John Smith on 3 May 2003, 9:41 p.m.

Hi all:

I've just been lent an HP-71B which has this interesting LEX file in IRAM, port 0. Now, I would like to transfer that LEX file to my own 71B. I don't have neither the card reader, nor any other mass storage device, but both 71Bs do have an HP-IL ROM plugged-in, and I've also got the required HP-IL cables.

I would like to connect both machines via HP-IL, then issue some command which would copy the LEX file from the one 71B to the other, but I don't know how to set them up to recognize each other, nor the required command syntax to perform the transfer, so I would really appreciate if some knowledgeable expert would provide some kind of how-to. For that matter, I also don't know how to free "port 0" in my own HP-71B, which I guess would be needed before performing the actual transfer.

Thanks.

## Re: Question: 71B <-HPIL -> 71B

Message #2 Posted by <u>Mike (Stgt)</u> on 5 May 2003, 5:32 a.m., in response to message #1 by John Smith

I assume you have an HPIL manual for the 71B at hand. There should be described that HPIL allows only one controler in the loop at any time. So one 71B should be set up as device \_before\_ connecting the loop. AFAIK you need a little routine on both 71Bs, one that converts your file to hex chunks and on the other a routine that converts it back to something useful.

At least that would be the way I'd try.

Ciao.....Mike

Message #3 Posted by <u>Raymond Del Tondo</u> on 5 May 2003, 6:50 a.m., in response to message #2 by Mike (Stgt)

Hi Mike,

I haven't checked, but would it work if done the following way:

1: Set target HP-71 as device. 2: connect loop 3: COPY LEX file to device

Regards,

Raymond

## **Re: Question: 71B <-HPIL -> 71B**

Message #4 Posted by John Smith on 5 May 2003, 7:02 a.m., in response to message #3 by Raymond Del Tondo

Hi Raymond,

"1: Set target HP-71 as device. 2: connect loop 3: COPY LEX file to device"

Thanks for the info, seems an easy procedure, but not having the manual I can't know how to perform the individual steps you mention. Could you please state exactly what commands are needed to do that ? I mean, something like this:

10 SET TARGET HP-71B TO LOOP(0) 20 COPY "MYLEX" TO LOOP(0)

you get the idea.

Message #5 Posted by <u>Mike (Stgt)</u> on 6 May 2003, 3:15 a.m., in response to message #3 by Raymond Del Tondo

I did not touch my HP-71B for a long time, so I only remember the concept, not the exact commands.

BTW, you received the money?

Ciao.....Mike

## Re: Question: 71B <-HPIL -> 71B

Message #6 Posted by John Smith on 6 May 2003, 4:41 a.m., in response to message #5 by Mike (Stgt)

"BTW, you received the money?"

What money ? What are you talking about ? "You're not thinking I'm someone else?"

I'm a collector, sir, I sell \*nothing\*.

Just to keep on topic: is the newly announced HP-12C Platinum for real ? Is it in the shops already ? Any differences other than RPN/Algebraic and 400+ programming steps ?

I'm pretty sure it doesn't hold a candle next to such business models like old venerable Sharp PC-1421 (aka EL-5510) Business/Financial Computer, but still it might be interesting for completeness, if nothing else.

At the very least, if it does have 400 steps, it will be possible to program Black-Scholes on it without twisting your brain (needless to say, B-S can be programmed in said Sharp model in four lines of BASIC, effortlessly, leaving some 16,000 bytes or so free).

## My mistake !

Message #7 Posted by John Smith on 6 May 2003, 6:05 a.m., in response to message #6 by John Smith

"BTW, you received the money?" "What money ? What are you talking about ? "You're not thinking I'm someone else?"

Excuse me, Mike, my mistake. My web browser was indenting your reply (to Raymond) incorrectly, and I thought your BTW was addressed at me, which I couldn't understand.

I apologize. And of course, thanks for your help.

## **Re:** My mistake !

Message #8 Posted by <u>Mike (Stgt)</u> on 7 May 2003, 4:29 a.m., in response to message #7 by John Smith

No need to appologize! Without salutation in the message body it was not clear on first glance whom I addressed my BTW.

Ciao.....Mike

### Re: Question: 71B <-HPIL -> 71B

Message #9 Posted by <u>Raymond Del Tondo</u> on 6 May 2003, 5:12 a.m., in response to message #5 by Mike (Stgt)

Hi Mike,

yes, money received. Many thanks!

Regards,

Raymond

Message #10 Posted by John Smith on 5 May 2003, 6:55 a.m., in response to message #2 by Mike (Stgt)

Thanks for your reply, Mike, but regrettably I don't have the HP-IL ROM manual, perhaps someone who does can shed some light on the exact commands needed.

What you say of only one controller active in the loop at any one time does make sense. As for the conversion to hex and back, I sincerely hope there's no need for that, because as the HP-IL ROM adds up to 50+ new keywords to BASIC, I expect it to also extend the functionality of many others, so perhaps there's some extended syntax of COPY, PRINT, or OUTPUT that allows for direct file transfers among 71Bs. Can someone please confirm if this is indeed the case ?

## **Re: Question: 71B <-HPIL -> 71B**

Message #11 Posted by John E Coplantz on 5 May 2003, 10:59 p.m., in response to message #10 by John Smith

Try this

Connect the HP71 to the HPIL cables

Then type RESTORE IO endline On the computer with the lex file type

COPY (file name) to :HP71

On the computer receiving the file type

type COPY :LOOP

Next press endline on both computers.

If it works both displays just blink.

Message #12 Posted by <u>Ellis Easley</u> on 6 May 2003, 12:52 a.m., in response to message #10 by John Smith

That manual is on the Museum CD-ROMs.

I know it's popular to despise the profit motive, but not only does buying Dave's CD-ROMs help him pay for the website, it is also an enormous bargain!

From someone who has spent a LOT of money over the years for manuals for obsolete equipment acquired cheaply, and still feels he is coming out ahead.

Sorry if I sound defensive, but this past weekend I asked for a manual that I already had on the Museum CD-ROMs, so I'm doing penance.

Re: Question: 71B <-HPIL -> 71B

Message #13 Posted by <u>Rodger Rosenbaum</u> on 11 May 2003, 4:59 a.m., in response to message #1 by John Smith

John,

Try this. Enter the following Basic program into the source machine, naming it SEND71.

10 DIM F\$[100] 20 RESTORE IO 30 RESET HPIL 40 CONTROL ON 50 REMOTE 60 OUTPUT :HP71 ; "RESTOREIO" 70 INPUT "FILE? ";F\$ 80 IF F\$="" THEN OUTPUT : HP71 ; "OFFIO" @ OFF IO @ STOP 90 OUTPUT :HP71 ; "COPY :LOOP" 100 COPY F\$ TO :HP71 110 GOTO 70

Turn on both HP71's; execute RESTORE IO and then RESET HPIL then OFFIO on both machines. This get both of them in a known state. Connect them with HPIL cables. On the source machine run SEND71. It will prompt you for a file name; type in the file you wish to send to the other HP71 and then hit enter. SEND71 will prompt you for another file name. Keep typing in the names of files you wish to send. When you're done, hit enter without any file name and SEND71 will stop. The destination machine can even be powered down, and SEND71 will wake it up.

Rodger

Message #14 Posted by <u>Rodger Rosenbaum</u> on 11 May 2003, 5:08 a.m., in response to message #1 by John Smith

I should have mentioned in the previous posting, when you type RESTORE IO on the two HP71's, you will get a "LOOP BROKEN" error if the HP71's HPIL port isn't connected to anything. The way to avoid this is to connect a single HPIL cable from in to out on the HPIL port of the HP71 before you execute RESTORE IO.

Or just have the two HP71's hooked together before you start.

Rodger

## Re: Question: 71B <-HPIL -> 71B

Message #15 Posted by <u>John Smith</u> on 12 May 2003, 4:15 a.m., in response to message #14 by Rodger Rosenbaum

Thank you very much for your detailed answer to my question. Same for all other people who offered advice, of course. I'll try all the procedures given next weekend, and will post whether I succeeded or not.

Again, thanks a lot to all of you, this forum is \*really\* superb !

## Re: Question: 71B <-HPIL -> 71B

Message #16 Posted by <u>Rodger Rosenbaum</u> on 12 May 2003, 6:27 a.m., in response to message #15 by John Smith

John,

I was just re-reading your original post, and thought I would clarify a few points. I assume you don't have an owner's manual, since you say you don't know how to free port ram. The procedure I gave you for copying that lex file will copy it to main ram, and it will run just fine there. You could copy it to a free ported ram, and it might be safer there from a system crash. To free port ram, type:

FREE PORT(0), or FREE PORT(.01) or FREE PORT(.02), etc.

Then to copy the lex file which will be in main ram to the port, type: COPY FILENAME TO :PORT(0) Don't type COPY FILENAME.LEX TO :PORT(0); the 71 doesn't use file extensions in commands. You can't have two files with the same name but different extensions in the 71. File types such as LEX, BASIC, TEXT and KEY

aren't really extensions as in windows.

To see what's in a port, type CAT :PORT(0) or CAT :PORT(.01), etc.

To reclaim the ram, type: CLAIM PORT(0) This will also destroy anything which was in the port, such as a LEX file.

When you use SEND71 to copy the LEX file, you don't need to include the path in the file name given to SEND71; it will find it even if is in a port. SEND71 will send it to main ram on the destination machine.

**Thanks again. You're very kind indeed** Message #17 Posted by <u>John Smith</u> on 12 May 2003, 6:37 a.m., in response to message #16 by Rodger Rosenbaum

Best regards.

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### **HP-IL device**

Message #1 Posted by Erik Wahlin on 3 May 2003, 7:07 p.m.

I recently came across a HP-IL module for an unknown instrument/application. I was wondering if anybody out there might know what this adpater worked with? On one end it has a 34 pin connection. On the other end the standard HP/IL output/input connections. The board inside has HP 82166-60001 on the PC board. Pictures at http://www.colutron.com/images/HP-IL1.jpg and http://www.colutron.com/images/HP-IL2.jpg Thanks!

#### **Re: HP-IL device**

Message #2 Posted by <u>Ellis Easley</u> on 3 May 2003, 7:35 p.m., in response to message #1 by Erik Wahlin

That's an HPIL-GPIO interface. GPIO means General Purpose I/O, I believe it has a 16 bit parallel bus with handshaking. The 82166A is equivalent to the 82165A except it doesn't have a built-in power supply, you would typically find some source of DC power on the equipment you are interfacing. The general idea is that you use the 82166A to convert a piece of equipment that has a parallel bus interface (for example, a Centronics type printer) to HPIL. If you have the Museum CD-ROMs, take a look at "Control The World With HPIL" on CD3, it is a book about using the 82165 and 82166 to connect things to HPIL. HP made several products with the model number 82166 - A is the interface you have, C was a kit of parts - IC's, transformers, connectors - along with software for the HP41 and 75, to use to build basically an 82166A into your equipment and develop software to drive it. I think there was also a B but I can't find it in my old catalogs, I think it was another kit.

### **Re: HP-IL device**

Message #3 Posted by <u>Ellis Easley</u> on 3 May 2003, 7:41 p.m., in response to message #2 by Ellis Easley

Also on CD3 are the manuals for the 82166A and other manuals numbered 82166 that are part of the 82166C kit. I think the user would be referred to the 82165A manual for details of operation, this is also on CD3.

#### **Re: HP-IL device**

Message #4 Posted by <u>Erik Wahlin</u> on 3 May 2003, 11:32 p.m., in response to message #3 by Ellis Easley

Thanks Ellis for the info. Di you know if the 82166A included anything other than the module or manuals? Thanks

### **Re: HP-IL device**

Message #5 Posted by <u>Ellis Easley</u> on 4 May 2003, 12:51 a.m., in response to message #4 by Erik Wahlin

According to the 82166A Technical Manual,

"The convertor package includes the following:

- \* Two HP82166A HP-IL Converters
- \* Two HP-IL cables
- \* Two GPIO connectors
- \* An evaluation board"

The evaluation board appears to be sort of a "null modem" that connects the GPIO interfaces of two 82166A converters. It also supplies power to both converters, since the power is connected at the GPIO interface. The evaluation board must be connected to a source of regulated (5V) or unregulated (6-8V) power, it has a zener diode regulator to get 5V from the unregulated supply connection. With two converters connected to an evaluation board, you could test both converters with one controller, or you could connect each converter to a different controller and communicate information between the two loops through the evaluation board

Most HPIL devices came with one HPIL cable so you could insert the device into an existing loop, so it makes sense that they would supply two cables with two converters. The 82165A HP-IL/GPIO interface came with one HIL cable, a 25 pin D connector (mates with the GPIO connector on the 82165A), and an AC adapter.

### **Re: HP-IL device**

Message #6 Posted by <u>Christoph Klug</u> on 5 May 2003, 8:21 a.m., in response to message #5 by Ellis Easley

Dear HP82166 IL-Converter enthusiasts,

as Gary Friedman describes in his nice book "Control the world with HP-IL" the IL-Converter is the key tool for any advanced hardware interface and measurement application with HP41 (and HP41).

My own two books continues the basic work of Gary Friedman and the idea behind this is : "Take HP-IL and connect your HP41 to the future". The I/O-Board manual with 300 pages and the IL2000 manual with 150 pages gives you the complete knowledge about working with IL-Converter for creating hardware interfacing solutions, measurement, control and data logger applications.

Some informations you find in HP-Museum articles forum item

003 = hardware interfacing activities

192 = interfacing IL2000 system to analogue world

311 = HP41-PC gateway & emulator.

From this articles you you get the imagination that the Hp41 is much more than a handheld calculator, the fourty one is also a powerful system controller - including nice gateway features to PC world...

Two differences exist between the HP82165 and HP82166 IL-Converter : The second unit is battery powered and includes an additional trigger output line, which is needed for advanced hardware applications.

For the HP41 you need the IL-Module plus the EXT-I/O module (or the Development module) for setting the internal status registers of the IL-Converter.

The I/O-Board manual and the IL2000 manual is available from me - also the HP82166 IL-Converter and some function tested interface hardware systems...

Best wishes from Germany - Christoph Klug

### **HP-IL pulse transformer**

Message #7 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 5 May 2003, 3:16 p.m., in response to message #6 by Christoph Klug

Hi Christoph, guys;

since I was known about the HPIL (80's) I used to dream of being able to connect anything to my HP41C. Anyway, at that time, the HPIL was somehow far from my bank account range (how come things in the past turn back into reality in the future? My bank account didn't change status so far...). Fortunately I was chosen to deserve an HPIL as a gift from a dearest contributor.

I remember I read about the HPIL kit (82166C) and I could also see the block diagram and the electrical interface, where we find a pulse transformer that is, in fack, a set of thre toroydal transformers. This transformer seems to be the starting point for any design. Do you (or anyone else) have the specs for this pulse transformer? I'd like to build the electrical interface and trace signals sent and receive by the HPIL. Also, by knowing the protocol, designing a custom controler may be a feasable chalange.

Thank you for any information.

Luiz C. Vieira - Brazil

### **Re: HP-IL pulse transformer**

Message #8 Posted by <u>Mantra</u> on 5 May 2003, 5:09 p.m., in response to message #7 by Vieira, Luiz C. (Brazil)

At least a few years ago you could still order them (along with the piece-part HP-IL sockets and plugs) from HP from their Roseville distribution center. I ordered a pile of them (<\$2 each) with plans to eventually build an HP-IL something project. I'll try to dig up the part number.

MM

### **Re: HP-IL pulse transformer**

Message #9 Posted by <u>Ellis Easley</u> on 6 May 2003, 12:40 a.m., in response to message #8 by Mantra

From the "HP 82166C HP-IL Interface Kit Technical Guide":

```
1810-0651 HP-IL hybrid network (contains caps, resistors, zeners)
0950-0852 HP-IL panel receptacle
9100-4226 HP-IL pulse transformer
1LB3-0003 HP-IL integrated circuit
1820-2810 Microprocessor (use this and you get an 82166A in function)
0160-4800 120pf 5% cap for HPIL chip oscillator tank
9100-1631 56 microhenry 5% inductor "
0410-1305 4 MHz crystal for microprocessor
```

#### **Re: HP-IL pulse transformer**

Message #10 Posted by <u>Christoph Klug</u> on 6 May 2003, 4:04 a.m., in response to message #8 by Mantra

Hallo HP-IL fans,

HP-IL impuls transformators are also available today from the German repair center of Agilent in Böblingen. But prices for one pice is placed in the high range of 40\$.

Find a buggy IL device from ebay, an old IL-printer of IL-cass drive. All this units includes the IL-Transformer and some more parts like the IL-Terminal you will need.

Fastest solution for starting any HP-IL hardware application is using the HP82166 IL-Converter. Also by using this you have much to do wiring the 34 bus lines to your own logic design or to a micro processor. Much easier is using the powerfully hardware design plattform of I/O-Board or IL2000 System, depending on your application.

The HP41 Development module includes a special monitor mode, for scanning the transfered loop data. May be this is a helpfully tool for creating a own HP-IL hardware design.

Some more design informations contains the book from Kane/Harper/Ushijima " The HP-IL System"

But for standart HP41 users who want a practical solution I recommend my two own books I/O-Board manual and IL2000 system ;-)

Best wishes from Germany - Christoph

I tried to send you an e-mail...

Message #11 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 6 May 2003, 12:13 p.m., in response to message #8 by Mantra

...and I was not successsful: "User Unknownm". If it is SPAM protected, can you contact me?

Thank you, "Mantra" (?).

Luiz C. Vieira - Brazil

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## LIF files

Message #1 Posted by kim on 3 May 2003, 3:09 p.m.

I'm lost, I need an intelligence transfusion.

I have a 71B, 9114B and a bunch of LIF files that I got from - amongst others - this site (and 5 original SWAP disks #1 to #5).

My challenge is that I can't figure out how to get a particular file loaded from a LIF to my 71B.

I have been able to copy files from a SWAP disk (#1) to a PC with LIFUTIL on my PC and back to a formatted floppy. I have read it on on my 9114B with my 71B. Even loaded (LEX) and RUN a couple of them (BASIC).

BUT

I have a copy of the JPC ROM (about 32K) in LIF format on a PC and would like to copy this to a floppy and - in turn - to my 71B (which has all the memory required) via my 9114B.

I think this is a challenge that must have been dealt with before. Can one of you please help....

Thanks and Best regards

Kim

## **Re: LIF files**

Message #2 Posted by <u>Ellis Easley</u> on 3 May 2003, 7:03 p.m., in response to message #1 by kim

I'm afraid I haven't mastered the LIF files myself but have you read Dan McDonald's article in the Articles Forum?

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/articles.cgi?read=24

I read it through once and I think I understand the concept but not well enough to pass it on myself. Dan explains the mechanics and then tells you how to use the HP LIFUTILS software to do what needs to be done.

I hope this helps.

BTW, if you are a Linux user, you can reproduce all the SwapDisks using Tony Duell's disk image files and utilities:

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/articles.cgi?read=260

## **Re: LIF files**

Message #3 Posted by <u>kim</u> on 4 May 2003, 3:41 p.m., in response to message #2 by Ellis Easley

Thanks a bunch. I'll read 'through this extensive material and hopefully WILL be more intelligent.

Kim

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### Luiz - email not working

Message #1 Posted by Ellis Easley on 3 May 2003, 8:54 a.m.

Luiz, I tried to respond to your email from 4-27 but it came back twice. System said (address intentionally deleted):

"Permanent Failure: 550\_<xxxxxx@xxxxxxx.com.br>...\_User\_unknown"

**Re: Luiz - email not working** Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 9:47 a.m., in response to message #1 by Ellis Easley

Hello, Ellis;

sorry for the inconvenience. The e-mail server uses a reply address that actualy does not work (SPAM protection?). Please, use the one in this post.

Thank you.

Luiz C. Vieira - Brazil

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## ThinkJet batteries from Ebay

Message #1 Posted by Ellis Easley on 3 May 2003, 8:47 a.m.

My batteries arrived the other day. I opened one up to see what condition it was in. The year on the cells in 1984. There is a little coating of rust around the button on some of the positive terminals and one of the negative terminals has a little blue corrosion creeping out under the shrink tubing. All the cells had a little voltage. I started charging the pack and measured the voltage every few minutes for a while. I measured the voltages across the three pairs of cells and they were very close to each other every time I measured. I also monitored the voltage across the current limiting resistor (BTW, the 4.7 ohm 5% resistor measured 5.3 ohms with my pretty good meter) I calculated 340 mA at the beginning. It fell quickly to 200 mA as the cell voltages started to rise. After about 10 hours the current had dropped to 188 mA and the cells were about 1.48V each and a little warm. I never noticed the voltage dropping but I wasn't monitoring them that frequently, it might have peaked between my readings. Also, I re-read my Sanyo manual and the temperature rise is only particularly acute when using the 0.3C fast charge rate - that might apply to the voltage drop as well.

I was beginning to worry because I sent my money order on April 4 and the package didn't arrive until the 29th or 30th. Also there was a local news story about an Ebay scam involving HP monitors! The seller who listed the auction said he did so for a friend and handed me off to him - after three weeks I was beginning to smell a rat! - but then the package arrived.

I wonder how these batteries would run a 9114, maybe after removing one cell  $(7.2V \rightarrow 6V)$  and changing the current limit resistor and adding the 2 pin Jones connector? The pack fits in the opening of the 9114 with room above - the wire for the Jones connector could loop in there - of course, it doesn't latch in place, but there's always the handyman's secret weapon!

## **Re: ThinkJet batteries from Ebay**

Message #2 Posted by <u>Bill Smith</u> on 3 May 2003, 12:10 p.m., in response to message #1 by Ellis Easley

regarding your last paragraph; if you find a way to make this work in the 9114, i'd really like to hear about it. i was able to get a 9114B recently, though without a battery and charger. there were a few of these offered recently, so i'm probably not alone. i have the 82059D from some other component, actually the 2225B, i think.

should you get a workable solution, consider writing it up so that an electronic ignoramous like myself could follow the instructions. thanks,

bill

## **Re: ThinkJet batteries from Ebay**

Message #3 Posted by <u>Ellis Easley</u> on 4 May 2003, 4:30 a.m., in response to message #2 by Bill Smith

I sure will. I've just taken another look and I'm more hopeful than before. Regarding the physical size, I think shimming the battery pack could make it fit snugly and done correctly, the latch might even work! Regarding the connector, there is enough clearance between the frontmost surface of the battery pack and the innermost wall of the drive cabinet that an electrical adapter completely external to the battery pack and the drive might be possible. Regarding the voltage, instead of removing a cell, the extra voltage could be dropped by one or two diodes in the adapter wiring. Also, it is possible that the drive will allow the extra voltage and, if it has a switching converter inside, it will actually use the extra power rather than just waste it. I'm not going to just try it with my precious 9114B, I'm going to do some research on the power supply in the drive. Finally, the sub-C cells in the pack are rated at 1.3A-H, I think - certainly contemporary sub-C NiCads are - and that is only about half of what the original 9114 battery's capacity is (2.4 A-H). But NiMH sub-C cells are rated at 3 A-H. However, even using only 5 of those is nearly a \$50 rebuild! DigiKey lists them at \$9.55 for the tabbed cells, \$8.60 each for 10. If we could put together an order for a case of 480, the price drops to \$5.77 each! Makes you think about living with a smaller capacity for \$4 total! Actually, those NiMH prices are from my 2000 paper catalog. The online catalog shows \$8.10, \$7.29/10, \$4.86/480. Only ten times as much for twice the capacity!

# **Re: ThinkJet batteries from Ebay**

Message #4 Posted by *David Ramsey* on 3 May 2003, 1:22 p.m., in response to message #1 by Ellis Easley

Why would you even think that 20 year old NiCads would be viable?

## **Re: ThinkJet batteries from Ebay**

Message #5 Posted by <u>David Smith</u> on 3 May 2003, 2:10 p.m., in response to message #4 by David Ramsey

I have some 30 year old nicad pacs that still work fine. Capacity is about 60% of stated value.

## **Re: ThinkJet batteries from Ebay**

Message #6 Posted by <u>Ellis Easley</u> on 3 May 2003, 7:14 p.m., in response to message #5 by David Smith

It's my understanding that unless the pressure relief valve has been activated by extreme temperature, NiCads don't deteriorate in storage, although it can take two or three charge/discharge cylcles to get them back to where they were.

## **Re: ThinkJet batteries from Ebay**

Message #7 Posted by <u>glynn</u> on 3 May 2003, 7:38 p.m., in response to message #6 by Ellis Easley

Except where moisture/humidity or temp extremes are involved. Once the battery gets furry on top, don't trust it.

ALSO: packs are subject to things that individual cells aren't. There is such a thing as "cell reversal", which comes about because cells can't be made all perfect and with exactly the same capacity.

If you string three cells, say, in series, and the actual capacity of each is, say, 502mA, 499mA, 501mA-- as the cell self-discharges, the middle one empties first. Then cell one and cell three have a differential to equalize between them. In practice, the tolerances on cell capacities vary much more than my little example, and sometimes the differential between cells is enough to cause a backwards flow through the middle cell, killing it with a "short". Then once you've lost a cell, charging the pack as a 3.6v unit is wrong, because now it is a 2.4v pack.

For reasons above, pack manufacturers usually ship the packs "unformed", meaning they don't charge the whole to its fullest extent. This reduces reversal problems on the shelf. 1-3 charge cycles "form" the pack to its fullest capacity.

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## AC adaptor

Message #1 Posted by Michel Beaulieu on 2 May 2003, 11:29 p.m.

I have a lot of wall adaptor for calculators and other appliance. If i test them i get a LOT more thatn it is written on the adaptor, why?

I read that this is an idle voltage that needs a load to get the written voltage but my question will be : will the level of the load affect the "final" voltage of the adaptor?

Is a witten 8 volt adaptor will be 8 volt on all calculator?

### thanks Michel

# **Re: AC adaptor**

Message #2 Posted by <u>Chris Catotti (Florida)</u> on 3 May 2003, 12:34 a.m., in response to message #1 by Michel Beaulieu

Probably not. The stated voltage is for a given load, i.e. current. Let's review Ohms law: V=I\*R

V: Voltage I: Current R: Resistance P: Power

V=I\*R I=V/R R=V/I

P=V\*I P=V^2/R P=I^2\*R

Anyhow, most of thwe wall module chargers are not regulated poer supplies, and therefore you should try to match both the Voltage rating (volts [V]) and the Current rating (milliamperes [mA]).

If your power supply is significantly undersized, you may cause it to overheat and melt or catch fire. If it is significantly oversized, you will probably supply to great a voltage to the calculator, and can damage the calculator.

# **Re: AC adaptor**

Message #3 Posted by <u>David Smith</u> on 4 May 2003, 5:39 p.m., in response to message #1 by Michel Beaulieu

I don't think I have ever seen an unregulated adapter put out its stated voltage or less even under a proper load. They always seem to be a bit on the high side.

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# **HP Forum Archive 12**

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**Ever hear of an Int'l Diamond Corp. 41C?** *Message #1 Posted by Matt Kernal (US) on 2 May 2003, 6:26 p.m.* 

Picked up a first-generation 41C (high keys, gold contacts in battery tunnel; 8039Axxxxx datecode) with a

DIAMOND TELLER

module in it. The back of the module says:

82500A-A02 INTL DIAMOND ID-31 SINGAPORE

The module's stamped datecode is: 2042

The calc also has two 82106A memory modules and a card reader. All have ~1980 datecodes (ie. 20xx).

The 41C's original back-label/legend is entirely covered with a sticker that says:

International Diamond Corporation, Inc. FULL SERVICE IMPORT BROKERS Diamond Teller<sup>TM</sup> Shipping Instructions

Package Diamond Teller,<sup>™</sup> with sufficient padding to prevent shipping damages.
Ship via Registered Insured United States Mail; Return Receipt Requested.
Ship to: I.D.C. Diamond Teller,,<sup>™</sup> P.O. Box 2278, San Rafael, Ca 94912

CAT 2 indicates program labels such as:

BUYN BYPMT1 HOLDFV SELPMT INVAMT RETAMT RETYRS BATT

and several others. Has anyone ever seen or heard of this calc/module before? I wonder how the card reader was

utilized when running the module? Possibly to allow off-line storage of program results (or not).

Google returned a few search results on "International Diamond Corporation", but nothing when combined with "calculator", "41C", or "module". Would be interested to hear more about this doohickey if anyone has any info.

Matt

#### **Re: Ever hear of an Int'l Diamond Corp. 41C?**

Message #2 Posted by <u>Matt Kernal (US)</u> on 2 May 2003, 7:32 p.m., in response to message #1 by Matt Kernal (US)

My mistake... the 41C's datecode/serial-number is 2039Axxxxx, NOT 8039Axxxxx (1980 on the brain.. sorry ;-)

Matt

Based on labels names...

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 2 May 2003, 11:57 p.m., in response to message #1 by Matt Kernal (US)

Hi;

I think I guess it's a financial module. See:

BUYN - N for Number, and BUY (period?) BYPMT1 - BuYing PayMenT 1 (first?) HOLDFV - HOLDing (?) Future Value SELPMT - SELlers PayMenT INVAMT - INVestment AMounT RETAMT - RETails AMounT RETYRS - RETail YeaRS (?) BATT - No idea; as it uses card reader, maybe (just maybe) allows user to check batteries before using card reader to save/retrieve a particular account's data; if you are a business man you may be interested on using the equipment, not necessarily mastering it.

These are just guesses; anyway, Diamond Co. seems to deal with international, import business.

My US\$ 0.05.

Luiz C. Vieira - Brazil

#### Re: Based on labels names...

Message #4 Posted by <u>Christof</u> on 3 May 2003, 5:53 a.m., in response to message #3 by Vieira, Luiz C. (Brazil)

RETAMT - RETails AMounT RETYRS - RETail YeaRS (?)

Luiz-

could those maybe be 'RETurn' instead of retail?

#### I thought about it too...

Message #5 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 9:57 a.m., in response to message #4 by Christof

Hello, Christoff;

I thought about return and, in fact, in my original text, I used:

RETAMT - RETails (RETurn?) AMounT RETYRS - RETail (RETurn?) YeaRS (?)

•••

But I remember reading RETURN as a financial function (HP calculators) in IRR - Internal Rate of Return, while retail is a financial related term. I know it is related to direct sales of small amount of goods, and I thought this program would allow the seller to comopute this particular kind of sale.

BTW, as a non-native English speaker and, mostly, not a financial professional, I do not know exactly when using "retail". In USA marlet, what's the best way to use it? What does it stand for, precisely?

Thank you. As I am guessing, I am also interested on knowing what is this module (and its functions) about, too.

Luiz C. Vieira - Brazil

#### Re: I thought about it too...

Message #6 Posted by <u>Christof</u> on 3 May 2003, 2:00 p.m., in response to message #5 by Vieira, Luiz C. (Brazil)

Luiz-

I'm not a finance major, of course- but the only major applications of the word reatil I know are as:

Retail Price (total of cost + markup) and Retail Markup

That's why my first thought was for Return for this. Return over X number of years sounds like something you would want to know about the past of a client company or project into the future for an investment?

#### I thought about it too... (Gene? Are you there?)

Message #7 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 2:40 p.m., in response to message #6 by Christof

Hey, Christof;

thank you. I'm always trying to learn.

I think Gene is one of the MoHPC contributors (amongst others) that deals with financial affairs; also, he wrote books about the subject. Maybe he is one of the guys that could help.

Hey, Gene; any clues? Anyone else?

Thanks again, Christof.

Luiz C. Vieira - Brazil

#### Re: return and retail and so forth

Message #8 Posted by <u>glynn</u> on 3 May 2003, 6:39 p.m., in response to message #7 by Vieira, Luiz C. (Brazil)

I am not a financial professional. I do live in the U.S., and so I get exposure to these terms informally all my life. Even so, there are a lot of things we live with every day and do not really question the exact nature of. A financial professional might be able to give you a most precise definition.

Return: this is always in relation to an investment. It is what you get back for having put your value into something. Typically, if all you get back is what you put there in the first place, this would represent a Zero return.

Most investments are intended to return more than you put in; though sometimes the way value is computed is subject to opinion and so not all investments of high return are as good as they look and not all investments of low return are as bad as they look.

In order to compare "apples to apples", be sure that the value of what you are being returned is evaluated the same way as what you are investing. Money, as in DOLLARS, is a good way to do this. If you invest 100 dollars and the return is "a feeling of satisfaction", be aware that you can't REALLY call that an "investment".

Retail: the sale of a good or service to the END-USER. This term is much abused, I think, because "end-users" are kind of a slippery term, and so is "Retail".

But these terms came about from a multi-tier form of distribution that began with the Trading Companies of Europe back in the 1500's. Raw materials would be purchased or bartered for, and they would be refined or turned into finished goods or intermediate products by manufacturers. Other manufacturers would take intermediate goods and process them or otherwise "add value".

Distribution, however, was something manufacturers rarely wanted to do or could afford to do on their own, so a Distributor would buy the goods from manufacturers, or from those who had sheperded products up to that point, Wholesalers.

A Distributor would purchase from a manufacturer or a wholesaler at a LOW price, and there was kind of an etiquette of business here, which was that:

A: the manufacturer would ONLY deal with a Distributor, and refer any customers who contacted them to the Distributor.

B: the only obligation of the manufacturer to his product was to hold safe (by repair, replacement etc) the Distributor from manufacturing or processing defects.

C: the Distributor bore all responsibility for shipping, stocking, damage along the way, theft, spoilage, and so on-- and if the customer was not satisfied by the product, the Distributor would make him happy somehow.

D: To bear these responsibilities, the Distributor had the absolute right to price the merchandise at whatever the customer would be willing and able to pay.

(NOTE: all this has been kind of codified into tax law, such that many countries have taxes on intermediate tiers, called "value-added" taxes. In the U.S., if you are purchasing an item that is used directly in the manufacture of the item you sell, you can "write-off" that purchase, in effect exempting that purchase from exposure to taxation.)

SO: you had a multi-tiered system where things were priced at ONE level to DISTRIBUTORS and at a HIGHER level to the ultimate buyers. Those ultimate buyers were purchasing a RETAIL item. They purchased it at a RETAIL store. They could only buy WHOLESALE if they got a business license in their state and were qualified/approved by a manufacturer or Wholesaler/Importer to buy-- and in olden times, that meant you needed to prove to them that you had been in that business a few years as a Retailer. As with so many chicken/egg scenarios, this meant the new Retailer-candidate had to struggle a while paying more through extra tiers of semi-wholesalers.

"RETAIL" now tends only to mean a price as high as can be gotten before the manufacturer says to the customer: "Heheh, I will sell DIRECT to you for THAT". In such a way, HP calcs have a LIST, or RETAIL price. On the "street", you can do better, say at Office Max, which IS, by definition, a Retailer, since they sell to the end-user from a brick-and-mortar store. Office Max, however, may state the LIST or Retail Price, and say that they are "40% off Retail". So you see, these terms are sort of loose and soft now.

Having worked many years in Retail establishments, I can tell you that the Gross Profit (similar to a Return of an investment), computed upon what we pay for furniture, as opposed to what we sell it for, is a rate of about 40 percent. The GP of a Pizza is about 33%. Trophies and plaques can range from 25% to over 300 percent above what we pay for the parts and pieces. Batteries tend to retail at twice what we buy them for at wholesale.

I used to wonder if this was good or bad or exploitive in some way. But I began to realize over time, that that Gross Profit is not all it is cracked up to be. In a Retail establishment, there are

many expenses and responsibilities that erode the RETURN on the owner's INVESTMENT. In addition to rent, utilities, fixtures, banking fees, equipment and upkeep, licenses, advertising, employee wages and wage-taxes, health and unemployment insurances, you also eat the costs of theft and damage of product, eat what goes bad or is too old to sell, reduce to cost things that are wasting your space, and then at the end of the year the state makes you inventory and takes a percentage of the value of that EVEN THOUGH YOU HAVEN'T SOLD IT YET.

And finally the Federal and most State governments tax your net profits, so the old story that all the above sort of expense doesn't count, because you can "write it off" at the end of the year--that's just reducing what will be taken from you out of your profit-- it never increases what you make, just reduces what the government takes from YOU. All retail organizations are under scrutiny, and not allowed to claim losses in operations year after year.

Overall, while, from a consumer standpoint, profits on the retail side seem kind of galling, once you understand what makes those profits go away and WHY, a Retail store does not harm or exploit anyone. If you don't like their prices, there are plenty of places looking for your business-- but prices don't tend to vary so much from one business to another precisely because they all have the same battle: give your customer what they want, and make SOME money doing it.

The beauty of Free-Enterprise, really. As the Internet redefines who can buy and sell what to whom, retailers are going to be there only because they can give you what you want NOW, rather than overnight or longer. And to do this, they'll have extended catalogs of inventories to assure that WHATEVER you are looking for, they'll have it. That, alone, is worth Something extra.

I really hope that I have explained all that correctly, and that it is understandable to people in all different countries. Business is an important thing in the U.S.A., so much so that it sort of defines our political and social systems as well as just our economic one. I know that's why some people look at us as crazy...;-)

#### Re: I thought about it too...

Message #9 Posted by <u>Dave Shaffer</u> on 3 May 2003, 5:41 p.m., in response to message #5 by Vieira, Luiz C. (Brazil)

Luiz,

I would add that the term "retail" (at least in USA English) also refers to the process of selling items (one or a few at a time) to the general public. Somebody who sells to anyone who comes through the door is said to be a "retailer," as opposed to a wholesaler, who generally deals in large quantities and directly with somebody (the retailer!) who will subsequently sell small quantities to a wider range of people.

A favorite pursuit in the USA is to "try to get it wholesale," meaning you paid a pre-markup, lower price.

#### Back to the module...

Message #10 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 6:20 p.m., in response to message #1 by Matt Kernal (US)

Hello, Matt;

I'm sorry I led the others to my own interests; let's see if there is anything else we can take from this module.

Can you identify if module contents are programs or functions? To see the diference, check for the names shown in CAT 2. If you simply see:

BUYN

then it's a function. If it is a program, you'd see:

#### TBUYN

The small <sup>T</sup>, that stands for "Text" or, you you prefer, "sTring", defines a program name instead of a function name. As both of them are in a ROM module, if you use either a program name or a function name from a module as part of a program of your own and remove the module, each of them - program or function name - will be replaced for an XROM mm,nn code.

Can you check for any evidence? Programs are easier to deal with, as they can be listed and tracked.

Best regards.

Luiz C. Vieira - Brazil

#### Re: Back to the module...

Message #11 Posted by <u>Chan Tran</u> on 3 May 2003, 10:00 p.m., in response to message #10 by Vieira, Luiz C. (Brazil)

I wonder you can print out the program listing and email to those of us who are interested.

#### Re: Back to the module...

Message #12 Posted by <u>Matt Kernal(US)</u> on 5 May 2003, 8:28 p.m., in response to message #10 by Vieira, Luiz C. (Brazil)

CAT 2 results in 100% program names as identified by the <sup>T</sup> prefix, except for the first one, which is the name of the module. The entire CAT 2 looks like this, with the following display, result, or prompt when the program name is XEQted:

DIATEL <sup>T</sup>R \*PRICE LIST\* CLARITY? <sup>T</sup>P CLARITY? <sup>T</sup>F14R COLOR?

<sup>T</sup>F14X WEIGHT?  $^{\mathrm{T}}\mathrm{S}$ \*BLUEBOOK\* TABLE? ТМ NONEXISTENT Τт \*PROFIT\* \*COMPARISON\* INVEST\$? ΤŢŢ \*MELANGE\* ΤV \*AUTO S\* INV AMOUNT? TW NONEXISTENT <sup>T</sup>W1 \*VARIABLES INVEST / YR: TBUYFV 2,495,000.00 <sup>T</sup>BUYFV1 -2,188.29TBUYN 38.06 <sup>T</sup>BUYN1 35.41 538.59 TBUYPMT <sup>T</sup>BYPMT1 6,771.18 <sup>T</sup>HOLDFV 110,120.67 <sup>T</sup>HOLDPV 172,034.15 THOLDN 0.64 TSELLPV 10.00 DATA ERROR TSELLN <sup>T</sup>SELPMT 0.00 <sup>T</sup>SELBAL DATA ERROR TINVAMT INVEST / YR: 0.05 <sup>T</sup>INVYRS INV YEARS: 1.55 THOLDYR HOLD YEARS: -0.19 TRETAMT YR RET AMT: NONEXISTENT <sup>T</sup>RETYRS RET YEARS: <beep> FOREVER: END RET BAL: AT 20 YRS: ID\* 0.00 <sup>T</sup>RETBAL END RET BAL: ID\* 0.00 <sup>T</sup>PRMPT NONEXISTENT Тχ \*FINANCIAL\* \*UPDATE\* PURCHASE\$? TX1 PURCHASE\$? <sup>T</sup>X2 PURCHASE\$? ТХ9 LIQUIDATION\$ 5.00 PROFIT\$ 0.00 % PROFIT 0.00 PURCHASE\$? ТΥ \*TBLS LOAD\* LOAD TBLS?  $T_{Z}$ \*TBLS CHECK\* <sup>T</sup>F1 CLARITY? <sup>T</sup>C1 COLOR? <sup>T</sup>C2 COLOR? TC3 COLOR? <sup>T</sup>C4 COLOR? <sup>T</sup>C5 COLOR? <sup>T</sup>C6 CLARITY? <sup>T</sup>C7 CLARITY? TF2 COLOR? TK8 CLARITY? <and flags 1 2 3 4 turn ON> <sup>T</sup>K7 CLARITY? <and flags 1 2 3 4 turn ON> ткб CLARITY? <and flags 1 2 3 4 turn ON> <sup>т</sup>к5 CLARITY? <and flags 1 2 3 4 turn ON>

<sup>T</sup> K4	CLARITY? <and 1="" 2="" 3="" 4="" flags="" on="" turn=""></and>
<sup>T</sup> K3	CLARITY? <and 1="" 2="" 3="" flags="" on="" turn=""></and>
<sup>T</sup> K2	CLARITY? <and 1="" 2="" flags="" on="" turn=""></and>
<sup>T</sup> K1	CLARITY? <and 1="" flag="" on="" turns=""></and>
<sup>T</sup> F3	WEIGHT?
<sup>T</sup> F13	0,01PT \$0,00
<sup>T</sup> F13Z	PRICE
<sup>T</sup> F7	4.00 -10
TBATT	*WARNING* *WARNING* *WARNING* REPLACE BATTERY.

Trying to enter program mode (by pressing PRGM key), results in PRIVATE response (of course ;-). I guess I need to check the archives now to refresh myself on how to "unPRIVATE" the programs (if possible).

So nobody's ever heard of this module before?

Matt

Back to the module... Indeed a Finacial

Message #13 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 5 May 2003, 11:56 p.m., in response to message #12 by Matt Kernal(US)

Hello, Matt;

you have a financial module, indeed. I believe it's a custom DIAmond inTErnationaL (DIATEL?), probably used by its representatives. I also believe it must exist a user's reference, available internally at Diamond International. I am almost sure this will be only found with old Diamond employee/salesperson.

As an example:

<sup>T</sup>F14R COLOR? <sup>T</sup>F14X WEIGHT?

It seems F14 refers to an specific product/catalog item/production line preference

These are all suppositions based on what I see. All of the financial programs should be tested and listed (at least partially) so one could find its particular use. Anyway, as a financial "tool", (big) chances are it can be customized so you can use it as a "quasi" general-purpose.

I hope others add comments, suggestions, corrections.

Success.

Luiz C. Vieira - Brazil

#### Re: Back to the module... Indeed a Finacial

Message #14 Posted by <u>Ellis Easley</u> on 6 May 2003, 1:35 a.m., in response to message #13 by Vieira, Luiz C. (Brazil)

Aren't Color, Clarity and (Carat) weight the "Three C's" of DeBeers, the monopoly that controls the world's supply of diamonds? I do wonder about "melange" - isn't that French for "mixture"? I saw a very interesting documentary on public television about the diamond business. It turns out that DeBeers' biggest problem is that there are too many diamonds in the world to justify the high price (hmmm ... I wonder if there is a lesson in this for HP calculator enthusiasts? I'm going to listen as I go on.) One thing DeBeers has done to help solve their problem is to spend a lot of money on TV advertisements popularizing the slogan "A Diamond is Forever". The goal of this campaign is to discourage people from selling their diamonds because DeBeers has enough trouble without lots of people trading used diamonds instead of buying new ones, which depresses the price of new diamonds. Another thing DeBeers does is to require their customers (diamond cutters) to buy diamonds in lots that include both high and low quality diamonds - I think this is where "melange" might come in. Customers who complain are given fewer good diamonds, so to get the best stones you have to take lots of inferior ones along with them, and then you have to try to make your money back on them. Anybody remember Sams PhotoFact TV repair manuals? Same idea. They came in sets of three - one popular model and two obscure ones. It worked to everybody's benefit because otherwise, Sams couldn't have afforded to bother printing the unpopular ones. If you were a diamond cutter, wouldn't you rather just cut the best quality diamonds, so you could make the most return on your work? So DeBeers, who make it their business to try to buy every diamond mined in the world, need to try to make a return on their lesser acquisitions. At the same time, the retail diamond market can offer a range of quality so that anybody can afford some kind of diamond. I wish I could remember coherently more facts of the diamond trade, but I can only recommend you try to see this PBS documentary. I'm quite sure it is separate from another on a related subject: artificial diamonds which, if I remember correctly, turn out to be fairly easy to spot because they are too perfect. Either that or their impurities make them easily identifiable.

**[OT] Re: Back to the module... Indeed a Finacial** *Message #15 Posted by John Smith on 6 May 2003, 10:02 a.m., in response to message #14 by Ellis Easley* 

Seems you're interested in diamonds. If so, have a look at this link:

**Diamond Treatments** 

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# HP Forum Archive 12

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# matrix ROM fro the 9825

Message #1 Posted by olivier croissant on 2 May 2003, 1:10 p.m.

Does anyone has a doc on the matrix ROM of the 9825A. or know how to use it ?

By the way what is the diffeence between the 9825A and the 9825B from the point of view of the fonctionalities? do they accept the same ROM ?

thanks

Re: matrix ROM fro the 9825

Message #2 Posted by <u>Katie Wasserman</u> on 2 May 2003, 11:06 p.m., in response to message #1 by olivier croissant

Here's a link to Dave Meier's site. He's got a scanned copy of the 9825 QR that has the matrix commands in there -- all the ROM modules I think.

http://www.n4mw.com/hp9825.htm

Re: matrix ROM fro the 9825

Message #3 Posted by <u>Ellis Easley</u> on 3 May 2003, 4:56 a.m., in response to message #2 by Katie Wasserman

The 9825B comes with most of the standard ROMs inside, there are jumper options to select between two different plotter ROMs and to trade off ROM space for extra RAM.

These ROMs are built in: String Variables, Advanced Programming, 9862A and 9872A Plotters, General I/O and Extended I/O. Matrix, Disk, and Systems Programming ROMs can be used with either 9825A or B. There are two different Disk ROMs, one can be used only in a 9825T. The Systems Programming ROM comes as a plug in cartridge for use in the 9825A; for the 9825B it is part of the internal large memory option that turns a 9825B

into a 9825T. [That sounds like the Systems Programming ROM replaces the OS ROM on the right side of the 9825A, which the 9825B doesn't need since the ROMs are in the card cage.] This is from "HP 9825 Desktop Computer Operating and Programming Reference", 09825-90200 November 1980. It covers both A and B.

# **Re: matrix ROM fro the 9825**

Message #4 Posted by <u>Tony Duell (UK)</u> on 3 May 2003, 8:20 p.m., in response to message #3 by Ellis Easley

I beleive I have a 9825T -- at least it's got 64K RAM and the system programming ROM built in (and all the other ROMS, of course). The 2 memory boards (top 2 PCBs in the stack) are very different to those in other 9825s. The top PCB contains 32K RAM and all the ROMs (system ROM, and all the add-on ROMs). The lower PCB cotnaisn another 32K RAM and the memory paging circuitry. The system ROM cartridge slot on the RHS of the machine is not used at all on the 9825T. In fact it's disabled -- the appropriate track on the CPU board is cut (The track to enable the front ROM slots is cut too, but that's taken over by circuitry on the new memory boards, so these slots can be used). The only ROMs not built-in are the Matrix ROM and the Disk ROM, and I have both of those as cartridges.. I wonder. MAybe the 9825B does have the sytem programming ROM built in (i.e. the same ROMs as the 9825T), but you can't access it without the memory paging circuitry that's added when you add the second 32K of RAM.

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# 9825A or B ROMs

Message #1 Posted by olivier croissant on 2 May 2003, 9:48 a.m.

I recently acquired a 98035 real time extension for the 9825A. It was in a sad state, because everything inside was spoiled by the internal battery that had leaked. I am trying to fix it. But I ignore how to use it. Does anyone has a doc, or know a command or two that I can use to test this extension ?

### Re: 9825A or B ROMs

Message #2 Posted by <u>achim buerger</u> on 3 May 2003, 6:12 a.m., in response to message #1 by olivier croissant

Olivier, I own the 98032A Installation and Operation Manual, but I would have to scan it. And I also have a 98032A interface in the same sad condition. From my experience it is irrepairable, because at least one of the quartz cristals was destroyed by the leaking battery. Try to shake the opened interface. If you hear some faint tinkle, then you propably have the same problem. Achim

### Re: 9825A or B ROMs

Message #3 Posted by <u>Ellis Easley</u> on 3 May 2003, 7:08 a.m., in response to message #2 by achim buerger

I also have a 98035 in unknown condition, and could use the manual. Is there a chart of the register bit definitions that would be just a few pages to scan? Those charts are usually quite complete in details. I would be happy to pay for the cost to copy the manual.

# Re: 9825A or B ROMs

Message #4 Posted by <u>achim buerger</u> on 3 May 2003, 6:32 p.m., in response to message #3 by Ellis Easley

In my previous posting I made a mistake: I wrote 98032A but I meant 98035A. And I found the 98035A Installation and Operation Manual on the latest MoHPC CD/DVD. It contains the description of the registers on about 10 pages. The whole manual is about 2MB.

# Re: 9825A or B ROMs

Message #5 Posted by <u>Ellis Easley</u> on 3 May 2003, 7:49 p.m., in response to message #4 by achim buerger

I'm always recommending the CD-ROMs but I didn't know that was on them! Thanks.

Olivier's post made me think about the unit I got a while ago, I opened it up and found some corrosion but not too much.

# Re: 9825A or B ROMs

Message #6 Posted by <u>David Smith</u> on 3 May 2003, 2:13 p.m., in response to message #2 by achim buerger

What freq is the bad crystal? There are many sources of replacement crystals. It is even not to expensive to have a single piece custom frequency made.

# Re: 9825A or B ROMs

Message #7 Posted by <u>Tony Duell (UK)</u> on 3 May 2003, 8:36 p.m., in response to message #6 by David Smith

The 98035 is one strange design!. There are really 2 clocks in there. One is done in software on the 'nanocontroller' (the 1820-1691 IC), and is used while the machine is powered up. This program also controls the outputs, etc. There is a separate battery-backed clock used when the machine is powered down. This is in the 24 pin IC on one of the PCBs (not the ROM chip, OK ;-)). THis chip seems to be a digital watch IC, repackaged. The outputs are the drive lines for a 3 digit 7 segment display (with annuciators, that's all you need for a 12 hour display and US date format). The control inputs are essentially the buttons you'd find on an LED watch. Softwre on the nanocontroller (again) reads/decodes the 7 segment data (I am sure this what the outputs are, I've driven a display from the chip in one of my 98035s...) and simulates 'pressing the buttons' to set/read the clock. Alas, since it's a 3 digit display, the crystal is not the

normal digital watch crystal -- there's a divide-by -3 in the counter chain (the normal watch crystal is 32768 Hz -- divide by 2^15 to get 1Hz). FWIW, the oscillator testpoint mentioned in the manual is one of the display scan lines (the fact that it's a multiple of 3 Hz, and the fact it's a 2:1 mark-space ratio, is what put me onto the fact tht it's a 3 digit multiplexed display output...)

## Re: 9825A or B ROMs

Message #8 Posted by *olivier croissant* on 5 May 2003, 1:30 a.m., in response to message #7 by Tony Duell (UK)

One component fell of the board when I open the box. it is a small silver rectangle with 2 pins out but so thin that any attempt to solder new wire to them failed miserably. So it could be the 32768 hz quartz. If I find such component, do you think that I may have any chance to repair the board ? (I already changed the battery that leaked and cleaned the board and all the gold tracks that were almost blue due to the corrosion brought by the leak).

Olivier

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# **HP Forum Archive 12**

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#### Calculator Design (A few questions)

Message #1 Posted by Ben Salinas on 1 May 2003, 11:51 p.m.

I almost have my design for the contest complete (http://www.hp-calculators.com/contest/index. phtml), but I have a few questions. I have designed the calculator using autodesk inventor, and have mapped the keyboard. I need help in deciding a few things. First, the basics on this calculator. It is slightly taller than a HP32sii, a bit thicker, and the same width. It has a 2 line LCD screen, which has a backlight, and many functions. I have mapped the keyboard, and written up a brief description (totals about 6 pages:) )(I will have it posted online tonight, and will follow-up with the address) of the functions. I need help in a few major areas. I need input to know whether i have left any vital functions out, or if i need to change any of the existing (like if they aren't useful). I also need info on how previous calculators have performed matrix operations. I also need to determine what flags should be included on the calculator. (I was looking at the 41's flags, and will probably include most of those)Finally, i need to decide on the cosmetics of the calculator. I need to decide on the color of the backlight, and the color of the calculator itself. Originally I was thinking black, but several of my friends have suggested a blue backlight with a silver-aluminum case. This would appeal to students, but I don't know how many engineers would want to walk around with a glowing blue calculator. What do you think?

BTW, I have decided on a name. It is HP-51, because it is one of the only numbers not already used, but also because of some crazy "Ben logic." I decided to incorporate HP, which is PH backwards. PH makes an F sound in english, and F in Hexadecimal is 15. So, 15 (F or PH) is HP backwards, so HP would be 51, and hence HP-51.

# **Re: Calculator Design (A few questions)**

Message #2 Posted by <u>Ben Salinas</u> on 2 May 2003, 12:02 a.m., in response to message #1 by Ben Salinas

Well geocities wasn't working, but let's try this anyway: (Sorry its so long)

Features And Functions When I started designing my entry, I knew the basic functions I wanted for my calculator. It needed to be scientific, and have all the functions I always wished my 32sii would have. Most importantly, it needed to be programmable. After designing my calculator's basic appearance, I started on the daunting task of mapping the keyboard. Each key needed the perfect location, depending on how much it would be used. Starting from the top left going right and then down, the functions are as follows.

Keys 01-06 (User keys) These keys have no predefined functions, but are used to select menus on the screen. They also have memory registers A-F, and are used for searching through the catalog (when in the catalog, pressing one of the buttons will take you to the catalog functions starting with the small letter above the key). The A key also doubles as the Alpha key and the B as the Alpha Lock. The F key is the = sign for the equation solver, and the D and E key are the < and > signs respectively.

Keys 07-08 These keys, when using their primary functions, are the store and recall buttons. They recall numbers from the English/Latin alphabet registers, and strings or letters from the Greek character registers. They are also the G and H registers. Their other functions are % and pi keys. These are buttons that are important enough to be on the keyboard, but not vital enough to be next to the keypad, or as a primary functions.

Keys 09-11 These keys perform the basic statistics of the calculator. Numbers are added to the stack with the Sigma+ buttons, and are removed with the Sigma- button. The previous entry is displayed in the top part of the LCD screen. The Up and Down arrow keys can be enabled in the SUM button. With this enabled, the arrows will scroll through the entries. The SUM button brings up a menu with the following choices: n, x, y, x2, y^2, x^y. The s,? button brings up a menu with the following choices: sx, sy, ?x, ?y. The xBAR,yBAR button brings up a menu with the following choices: xBAR(the symbol), yBAR, and xBARw. The L.R. button brings up a menu with choices: x (with ^ above), y (with ^ above), r, m, and b. These keys also have memory registers indicated by their letter to the right of them.

Key 12 Key 12 is the LBL and RTN key, which is used for programming. It is also the L register.

Key 13&14 Key 13 and 14 perform logarithmic functions. The primary functions use base e, while the secondary functions use base 10, or whatever base the calculator is in. They also have memory registers assigned to them. These are very useful functions, so they are directly above

the enter key.

Key 15-17 Key 15 performs squares and square roots. Key 16 raises numbers to powers, and roots. Key 16 is also the up arrow key, when the arrow keys are enabled (used for programs). Key 17 has the inverse and factorial button. These are more mathematical functions, which would be used while performing quick math, so they are closer to the number pad.

Key 18 Key 18 is the up arrow, which will scroll through programs by default, but can be configured to scroll through Statistic data. It is also the flag button. The menu allows to check if a flag is on, clear the flag, or set the flag. Flags 0-4 are displayed on the screen.

Key 19 Key 19 is the most important, most used key on the keyboard: the Enter key. This key could not be too close to the number pad, so the fingers have room, but can't be too far. It is also the largest key, mainly because if you need to find one key on keyboard, it is the enter key. The secondary function is the Show key, which displays the checksum for equations, and programs, and shows all the digits, whether in decimal or fraction mode.

Key 20-22 Keys 20-22 are the trig functions. The primary functions are sine, cosine, and tangent, and the secondary keys are arcsine, arccosine, and arctangent. The Hyperbolic functions can be found in the catalog. Key 20, 21, and 22 are also the left, down, and right arrow keys respectively.

Key 23 Key 23 is the down arrow (like key 18). The secondary function is the input/view function, used mainly for programming. These two functions have been consolidated onto one button. To use the input function, you would press: Input/View STO Variable to store in The view function is used by pressing: Input/View RCL Variable to view

Key 24 Key 24's primary function is the MODE button. This pops up a menu allowing you to select: Complex, Standard, .(decimal) or , (comma). The C key doubles as the i key. So, to input a problem like (5i+3)(2), you would first put the calculator into complex mode, by pressing: MODE Complex Then, the problem would be inputted by: 5 ENTER C (i) x 3 + 2 x The constant will be displayed on the screen (6), and the imaginary part will above on the screen (6i). The secondary function of this key toggles between Degrees and Radians. The mode will only be displayed on the screen if it is in Radians mode. To convert from Radians to Degrees, the calculator must be in radians mode. The keystrokes to convert 6.29 radians to degrees would be: 6.29 ENTER Second 0 (Convert) Second MODE ?(degrees,RAD) The answer, 370 degrees will be displayed, and the calculator will still be in radians mode. This allows users who prefer to work in one mode to input data from the other standard without switching modes.

Key 25 Key 25 is the R/S key (run/stop) and has the secondary function of PSE (pause). When used in a program, the R/S key will stop a program. When used in calculation mode, it will start running a program from whatever line it is one. The PSE key is used to pause a program or a

message for a given amount of time (PSE 10 would be to pause for 10 milliseconds)

Keys 26-29 Keys 26-29 are commonly used functions. Key 26 is one of my most used functions, the "switch key." It is used to, as the name implies, switch the number on the screen with the number previous to it in the stack. The secondary function to this is the "switch with variable" key, which switches the number on the screen with the number in a memory register. In programming mode, this can also be used to switch strings of letters. Key 26 is the +/- key, which multiplies the number highest in the stack by -1. The secondary function, R ^(up), moves up in the stack. Key 28 is the E key, used for scientific notation (1.235E10 is the same as  $1.235 \times 10^{10}$ ). The secondary key is R(down), which moves down in the stack.

Key 29 Key 29 is also very important for anyone who makes mistakes. It is the backspace key. The secondary function, the CLR function, pops up a menu with the options to clear: x (the number in the LCD screen), stack, eqn (equations), pgm (programs), vars (variables), or all (everything). The calculator can be reset by pressing the ON, A, and F key.

Key 30 Key 30 has a unique feature, the BASE function. This function allows you to operate in any base between 2 and 37. To change the base, enter the number of the new base, and press BASE. The base will be displayed on the LCD screen. To convert a number between bases, is very similar to converting from degrees to radians. The number on the screen is the number to be converted. Then press: Second 0 (Convert) Base to be converted TO BASE The new base will be displayed on the screen. To input letters, the variable keys are used. A-F are keys 1-6, but, for the higher letters, the alpha key must be used. To use this, press second A, or second B for the alpha lock. This will allow any letters to be inputted. There will be no conflict with trying to input numbers and letters at the same time because none of the letters fall on the same keys as a number. The secondary function on this button is the MEM function. This displays the amount of memory available, and allows you to clear specific equations, programs, and variables (including Stats variables).

Keys 31, 32, 33, 34, 36, 37, 38, 39, 41, 42, 43, 44, 46, 47, and 49 all have primary functions as a number or basic math function. Only the secondary function will be described.

Key 31 Key 31, along with 36, 37, 41, 42, and 47 all "work together." They will be discussed at the end of this section.

Key 32 Key 32's secondary function is the equation solver. This opens up the "library" of equations. Equations are inputted algebraically. This solver, which is different than the 32sii's solver, will solve for all of the possible answers. More about this solver is to come later

Key 33 Key 33's secondary function is the PROBability menu. This menu includes Cnr (combinations), Pnr, (permutations), RandomINT (chooses a random integer nearer to zero than the number entered), RandomDEC (produces a pseudorandom decimal), and SEED (for

adjusting the RandomDEC chosen).

Key 34 The secondary function of key 34 is the Parts menu. This menu allows you to take the INTeger part, the DECimal part, the ABSolute value, and the MOD of a number.

Key 35 Key 35's primary function is the XEQ command. By pressing this button, followed by a memory register a program in the memory register will run. While programming, this is the command which runs a subroutine. The secondary function is the display key. This pops up a menu allowing you to select SCIentific notation (including the number of decimal places), ENGineering (including the number of decimal places), FIX (fixing the number of decimal places), places), ALL (all digits), and SigFigs (more on this in the new function section).

Key 36-37 The secondary function on key 36 is part of the unit conversion.

Key 38 The secondary function of this key is the Pseudo-Graphing. More is available on this in the new functions section.

Key 39 The secondary function of this key toggles between the programming mode and calculating mode.

Key 40 This key is the second most important button on this calculator. This button is the second key, which effectively doubles the number of buttons on the calculator.

Key 41 The secondary function of Key 41 is part of the unit conversion functions.

Key 42 The secondary function of Key 42 is part of the unit conversion functions.

Key 43 The secondary function on Key 43 is the GOTO command. When used in programming, this acts like the goto command in c++. It permanently sends the program to the chosen destination. GOTO variable will take the program to line 1 of the given variable's program. GOTO . variable number takes the program to the line given by the number of the program given by the variable. In calculation mode, this "loads" a program, so it can be ran by pressing the R/S key.

Key 44 The secondary function of Key 44 is the ) which is only used for the equation solver.

Key 45 Key 45, is probably the most important, but most taken for granted button. This button turns on and off the calculator, and clears whatever is on the LCD screen.

Key 46 The secondary function of this button is a unit conversion button.

Key 47 The secondary function of this key is the FDISPlay, which displays numbers in fraction mode. Fractions are inputted like on the 32sii, using the .. as a / sign.

Key 48 This is a new feature which, to my knowledge, has never been implemented on any "full time calculator," only on PDA's. This calculator features a backlight on the LCD screen, which allows avid users, who have memorized their keyboards, to work in the dark and be able to see the LCD screen for their answer. By turning the backlight off, the battery will be conserved. The secondary function is the catalog button, which displays all the functions that wouldn't fit on the keyboard. A complete list is available at the end of this document.

Key 49 The secondary function on key 49 is the (which is only used for the equation solver.

NEW FUNCTIONS There are several new functions on this calculator, which I have designed, or implemented in a way I have not seen before. The first, and most impressive, is the Pseudo-Graphing function. This function allows the scientific calculator to graph in a way more accurate than a graphing calculator. This function was put in this calculator to increase the market to high school students, most of who depend on their graphing calculator. This function creates a table of value of only important points. This will greatly decrease graphing time and allow students to be weaned from their graphing calculator. Important points are those which are directly adjacent to curves in a graph, or at a vertex, as well as a point ½ to 1/3 of the way through a curve (which will make sure the line drawn on paper is accurate). Important points also include the x and y-intercept, and any other number which happen to be "nice" whole numbers. The table will display 2 lines at a time, and be scrolled through using the Up and Down "Program Navigation" keys (keys 18 and 23).

Another function that is new to me is the BASE conversion, and operation function. Converting bases is a fairly simple program to write, and it is about time it is included on a calculator. This will help computer scientists, and electrical engineers, as well as some advanced math students.

One of the most helpful functions on this calculator is the unit conversion. This unit conversion is similar to the unit conversion on the TI-86 graphing calculator, but never has been implemented on a scientific calculator. There are 5 buttons representing different types of units. They are TEMPerature, AREA, VOLume, LENGTH, and MASS. When one of these buttons is pressed, a menu system of units is displayed on the screen. This is to select the current unit that a number is in. The Convert button is then pressed, followed by another unit category (generally the same one). A second unit is then selected like the first. The number on the screen now reflects the new unit. The units for each category follow.

Temperature: degrees Celsius degrees Fahrenheit Kelvin Area: Cm<sup>2</sup> M<sup>2</sup> Km<sup>2</sup> In<sup>2</sup> Ft<sup>2</sup> Yd<sup>2</sup> Mi<sup>2</sup> acre Volume: Liters Milliliters Cm<sup>3</sup> M<sup>3</sup> In<sup>3</sup> Ft<sup>3</sup> Yd<sup>3</sup> Gallons Quarts Pints Cups Fluid Ounces Length: Cm M Km In Ft Yd Mi Mass: Milligrams Grams Kilograms Ounces Pounds

Catalog Functions Arrows Toggle- turn arrow keys in the center of the keyboard on or off. Left-Checks if left is pressed (works like a conditional test) Right- Checks if right is pressed (works like a conditional test) Down- Checks if down is pressed (works like a conditional test) Up-Checks if up is pressed (works like a conditional test) Power On With- turns this program on as the calculator turns on Power Off- turns off the calculator Matrices- toggles a menu to use matrices (NEED HELP WITH THIS) Sound (0-9) plays a sound (10 choices) Receive Infrared Signal- receives an infrared signal Send Infrared Signal- sends an infrared signal Connect with computer- "docks" with a computer via USB Send USB Signal- sends a USB signal Receive USB Signal- receives a USB signal Connect Infrared- makes a connection via infrared Connect USB- makes a connection via USB DSE ISG Start Timer – starts timer; stores time in TIMER register (on decimal button) Stop Timer- stops timer Reset Timer- resets timer to 0 HR --> HMS HMS-->HR Set Time- Set current time (Stores in TIME register, on 0 button) Hyperbolic- used with existing keys X?0- conditional tests X?Y- conditional tests RPN Mode ALGEBRAIC Mode NEED ANYMORE GOOD FUNCTIONS!!!!

Thanks -Ben

# **Re: Calculator Design (A few questions)**

Message #3 Posted by <u>Christof</u> on 2 May 2003, 2:01 a.m., in response to message #2 by Ben Salinas

I haven't mapped this out yet on paper, but a quick reponse would read: you want keystroke programming, some menus, full alphanumerics. other than that, 'just' (hahaha) munge together the 32SII and 42S and you should be fine.

A note on clocks: probably one of the most useful things on a calculator for me is a programmable count down timer, stopwatch, and appointment maker. with a loud enough alarm for me to hear when some other guy is blowing out his beakers with compressed air :p

the system you use for units is pretty decent, I have used it before. it cna be helpful to integrate a set of units flags (6 flags should give you enough for common and SI) with some capability to display and convert in the solver. this would make a lot of chemistry work a bit easier for students who could figure out how to use it ;)

## **Re: one less keypress**

Message #4 Posted by <u>glynn</u> on 2 May 2003, 2:03 a.m., in response to message #2 by Ben Salinas

In Conversions, you state:

"...When one of these buttons is pressed, a menu system of units is displayed on the screen. This is to select the current unit that a number is in. The Convert button is then pressed, followed by another unit category (generally the same one). A second unit is then selected like the first. The number on the screen now reflects the new unit"

The number in the X register or "focus" has been TOLD already what category of measurement it is. Pressing Convert tells it you want to perform that action on the unit in focus (very RPN-esque). At THIS POINT, the calculator should tell YOU what conversions are valid/possible-- you select from the menu right then. Eliminate that second "category selection" and save a keypress.

# **Re: Calculator Design (A few questions)**

Message #5 Posted by <u>glynn</u> on 2 May 2003, 2:46 a.m., in response to message #2 by Ben Salinas

Ben---

Just looking at your description and trying to piece it together mentally, I am quite impressed. You are obviously aiming at a premium calculator, one that meets the needs of practically everyone, in a package small enough for someone to keep around. (I am frankly embarrassed to be seen with some of the larger "hip-flask" sized graphing calcs. Hey, at least McCoy had a holster for his Tri-corder.)

I fear you want so much in this design, that you are going to scare the bejeesus out of a user trying to learn it. But I cannot argue that it is not well-enough thought out... it is very logical and for those who would study it for a while, it would certainly be a worthy tool for any task you put it to.

Um, as far as a backlight-- ick-- but if ya wanna get crazy/novel, run a rail on each side of the keyboard, with little focused lenses incorporated in them. A set of light-pipes for two bright white LEDs inside the calc. The lenses could be aimed at various angles and spreads so that, like stage lighting, they spotlight the legends above/below the keys. There is also that spooky whitish paint now that they use on tv remotes so that when the lights are out, it glows for a while. Hahaha, Alternately: incorporate a mic and voice-recognition. "One-Fiver-Two-Point-Thureee-Thureee-Sevin... ENTER...."

### Industrial design in the post-Imac era.

Message #6 Posted by <u>glynn</u> on 2 May 2003, 6:17 a.m., in response to message #5 by glynn

Monsieur Ben;

There is always the temptation to be trendy-- and that is not NECESSARILY a sin, except when it gets in the way of the basic functionality of the device, or misdirects the customer base about the nature of the device.

Plenty of companies (HP included) have been making mistakes on both counts when their marketing departments seek counsel from focus groups, attempting to uncover what the target audience would most like. Shiny chrome is in, and blue or violet lights, and translucency, and curves that make one think of a swedish kitchen appliance (or an alien marital aid) more than a professional computing tool.

A lot of this is the fickle nature of the public taste, and their sometimes odd perceptions and associations.

Back years ago, TDK was trying to market their premium cassette formulation against Maxell, and getting roundly whipped in the marketplace. A long market study ensued. A/ B tests established that the audio and durability aspects of the products were essentially the same, and in some ways TDK was superior, but consumers were buying lots more of the Maxell at slightly higher prices.

The study concluded that, in the U.S. market, audiophile consumers didn't like all the cheap low-grade crummy tapes, and all the cheap low-grade crummy tapes were molded of black plastic and had a black-shell box--- and, uh-oh, so did TDK.

Maxell had a grey plastic cassette and a clear-shell box, so to the consumer, it was a higher-quality tape, one that would take your music seriously. \*(Ben, you are young, so if you don't remember a time when people taped music onto cassette, don't worry. It was mainly for listening in the chariot.)\*

TDK did a very dumb thing as a result. They let the marketing department pick the color of their cassette. The marketing department asked people to pick which color cassette and box they liked best. They asked the GENERAL PUBLIC. Bad mistake, because the general public was not worried about picking the cassette with the best audio quality or anything like that-- they were picking what coordinated with their decors, or matched

their suits. This was the early eighties. They picked "Midnight Blue"...

Needless to say, TDK now had a product crippled by popular aesthetics. Yes, they recognized the mistake after only a year or so, and went slate-grey-- which is what audiophiles had been looking to buy-- and been buying for years from Maxell. Played catch-up ever since.

Right now, Ben, ANYTHING that has a blue or purple LED on it is "IN", because, quite frankly, up to a couple of years ago, we had all the red and green and yellow LEDs and NO BLUES. They were too expensive and inefficient to incorporate into products. Just recently, some manufacturers figured out how to make the blues, violets and whites cheaply and brightly. Consumers still think they are "new", and that they are "cool". But in a couple of years, it'll change. Public opinion always does.

Similarly, these coke-bottle or yam shaped calculator devices are going to be giggly props on "That 00's Show" whenever they get around to making that. Yes, it fits your hand. So does a baseball bat. Ever punch buttons on your baseball bat?

Designers often like to do wacky things with engineered materials because they CAN. If they had tried some something with last year's styrenes or polyethylenes, the product wouldna worked-- "ahh, but NOW, with these Lexans and Urethanes, I can do THIS..." and they show off.

But the stuff that WILL BE AROUND year after year doesn't often have a "look at me" quality. They tend to have an "I know what you are" quality. This is not to say they are not stylish or distinguished... just that they are rarely flashy in any way.

A great watch, for instance, never looks like you are supposed to control Sonic the Hedgehog with it. It will enhance the look of the wearer, without anyone yelling "Hey, check out that watch!!!" from across the room.

The statement a LASTING watch often makes is one that implies tasteful elegance and discrimination, or care and precision, or some aspect of the wearer (his masculinity, sensitivity, all-business attitude, etc.). Because the job of personal possessions MOMENTARILY may be to make a "statement" or "express individuality", but LASTING personal possessions tire neither the user nor annoy his friends.

So, just as analogy, you may have a hopped-up Camry with TRD decals and neon underneath and it suits you fine NOW-- and gets the girl-- but fifteen years out you'll look at the pictures your friends took and realize, gee, that was a fun car I wouldn't be caught Dead driving anymore (you may even say the same about the girl); the Lexus built on exactly the same chassis and rather understated looks (BTW, and it has a truly kickin' engine!) won't get your friends to look twice, but fifteen years out, you'll still be polishing it on weekends. It won't wear on you, you'll wear IT, and look good the whole time.

What should a calc say? Well, is it a "Student's" model, or a "Professional Tool" or a "Handy Friend"? You determine, as a designer, the personality the product exudes; but it MUST MATCH the nature of the device, and it MUST MATE with the perceptions of the target user-- else it will fail.

When looking at the nature of the device, some things just naturally fall behind, and others come forward. A 2-line calc is NOT going to be a game machine, for instance. And that fact alone GREATLY reduces the odds that it will \*ever\* be manipulated in the dark!!! So worry about glare, contrast, and such, so that it is useful indoors or out, but do NOT try to make it glow like Chernobyl.

The perceptions of the user are trickier to guess, but if you have a CLEAR picture in your mind of who the user should be, it will be easier to draw your conclusions.

Black has always been a so-called "safe" color (notwithstanding cassette tapes) because there is nothing really to object to in it. It can't be accused of looking dirty or of getting dirty too quickly; it doesn't look either masculine nor feminine; it doesn't look "kiddytoy" nor "high-falutin"; and so on. Problem is, it doesn't communicate much of ANYTHING to the user or intended user.

Note the 12c (best selling model HP has ever done). In its current incarnation, it has a gold toned bezel and dark chocolate looks. Like an expensive box of Neiman-Marcus truffles. In fact, it just looks like it is RICH and VALUABLE. What else would you sell a financial type?

So; is your user a Physicist, Doctor, Architect, Building Contractor, a Biologist, Oceanographer, an Anthropologist? Get the one or two in mind and stick with him/her, study what THAT PERSON values. The aesthetics will extend from what he/she already is comfortable trusting for qualities you are trying to impart in YOUR design.

If I chose a Physicist, say, I'd look at a Titanium finish (that slightly dull darkish silver with the grainy feel). Think of the focus ring on a damn nice camera. He'd identify with that metal, certain qualities. I'd choose to do my legends and such as engravure with enamel fill-- shiny black, shiny white, shiny blue, shiny red, shiny green. The look of them against the Titanium would not be the Ultimate in contrast, no, but would impart a look not unlike the tick-marks on graduated calipers or on a vernier dial-- not bad associations. I WOULD do a blue-tint on the LCD CHARACTERS if manufacturing processes allowed it. If I were backlighting, flourescent white. And so on. I'd want the

Physicist to immediately feel like this was one of the highest quality precision instruments ever delivered to the Lab.

(That was an example, Ben, not a specific recommendation of a design scheme.)

And now I'll say a word about Imac. For the audience Apple hoped for, it was a success. And then EVERYBODY started copying elements of its design for the "cool" factor.

But Apple had made Imac deliberately plasticky and fruit-flavored and Volkswagen-Beetly for the VERY GOOD REASON that they wanted a product that the Common Man and Woman would immediately buddy up to. It was unintimidating, it was unbreakable-looking, it was not going to require a degree to run it and you knew this because it had the aesthetic of a kid's learning toy. And, believe it or not, it took incredible engineering to pull off all that.

Notice how the imitators said, Hey! Translucent is IN! Bright ("Bondi") Blue is Cool! GrapeJuice and Tangerine and Lime are HOT! And so every PC maker proceeded to create mice and keyboards and cases that looked cheezy and like you got it out of a gumball machine.

Didn't last long, did it? That's because they were using Apple's words strung into nonsense sentences-- misusing the elements of communication by not trying to communicate (evoke) anything in particular except ape-ing of the language. And so the fad died. And Apple could not use it anymore, since it had been sullied by the misusers. So they moved on, to the embedded silver skin...

All design is communication. Some designers say "Form follows from Function", and that is right, partly. But it also must \*communicate\* its function, and its qualities that aren't as easily guessed, and it's creators vision of its personality and place in the life of its user.

Know you have your design mostly figured out, but just thought I'd respond to those of your friends with the Nextel/Sprint fixations. ;-)

### Re: Industrial design in the post-Imac era.

Message #7 Posted by <u>Ellis Easley</u> on 2 May 2003, 11:31 a.m., in response to message #6 by glynn

The latest 12C's are made of black plastic. I loved the rich chocolate brown of the Voyagers and the 71B, 75, HPIL peripherals, 28, some of the Pioneers, 82240 printer, etc. From what I have seen, some of the low-end pioneers started out in black plastic. Is it just a matter of the cost of a standard black plastic vs. a custom color? The one HP color I don't understand is the somewhat sickly looking (to me) greenish brown of the 65 and 67 (but they are still great calculators!)

### **Re: Industrial design in the post-Imac era.**

Message #8 Posted by <u>glynn</u> on 2 May 2003, 12:16 p.m., in response to message #7 by Ellis Easley

Does have to do with cost-- for two reasons.

One, if you have any "color" but black-- even whites and such-- you must provide all your subcontractors with samples and pointers to specific materials/ recipes to get there, and then inspect from time to time to make sure you still have color match. If you don't, maybe the battery door will not exactly blend in with the back. But with black, you can get a lot less picky. Our eyes do not differentiate blacks apart very well.

Two, those recipes mentioned above are done with ratios of specific dyes in "VIRGIN" plastic. If you can used "recycled" plastic (sprue and crunched-up pieces of stuff that came out mal-formed during the last molding run), you can reduce material costs a bit. The two cases which allow this are: A> if you don't care what color comes out (like an internal part); B> if it is black-- because remelted plastic (and the whole) can be made black easily with no fuss.

Hmmm, apparently someone at HP has decided that either the subcontractor will mess up less by using black, or that the audience does not care enough about the chocolate look \*(the gold accents being enough to impress)\*. And the subcontractor no doubt wants to use remelt as a proportion of the plastic.

Once again, black connotes: nothing.

(One exception: black anodization on aluminum-- public connotes blackened metal with images of high technical sophistication. It must LOOK metallic though; extruded or brushed).

# **Re: Industrial design in the post-Imac era.**

Message #9 Posted by <u>Ellis Easley</u> on 3 May 2003, 5:14 a.m., in response to message #8 by glynn

"(One exception: black anodization on aluminum-- public connotes blackened metal with images of high technical sophistication. It must LOOK metallic though; extruded or brushed)."

- Have you ever seen a Western Digital Microengine? It came in a massive chassis with an extruded aluminum front panel with black anodization. I can't get to the machine right now but I could scan the picture from the cover of the manual. It's about the size of a 19" rack mount box, about 6" or 8" high. The front panel has broad and narrow extruded horizontal stripes. The recessed stripes are black anodized, the front surface is brushed - 11 transitions altogether, dominated by one wide black and one wide brushed stripe - and the name in stylized letters is on the bottom right corner in black. There are no controls or openings on the front. If only I could find an OS diskette for it!

### Western Digital Microengine

Message #10 Posted by <u>Ellis Easley</u> on 3 May 2003, 5:16 a.m., in response to message #9 by Ellis Easley

I should have mentioned: ca. 1979

# Re: Industrial design in the post-Imac era.

Message #11 Posted by <u>Bill Platt</u> on 2 May 2003, 12:36 p.m., in response to message #6 by glynn

<snip> 'All design is communication. Some designers say "Form follows from Function", and that is right, partly. But it also must \*communicate\* its function, and its qualities that aren't as easily guessed, and it's creators vision of its personality and place in the life of its user.'

Very good point, and the whole post is a nicely conceived discussion of the problem of designing. It may even deserve to be posted somewhere else, as well, (is there an alt.design newsgroup??)

And I really appreciate Ben salinas work on his new design. That is a

comprehensive, and impressive document. Much more impressive than most anything I conceived of while in high school..

-Bill

## Re: Industrial design in the post-Imac era.

Message #12 Posted by <u>Michael F. Coyle</u> on 3 May 2003, 10:32 p.m., in response to message #6 by glynn

Hi Glynn!

Great essay, as usual. I'm saving it in case my company tries to do something stupid. :)

(BTW, what do you think red LEDs communicate these days? Strictly retro, or maybe some positive qualities too?)

- Michael

**Oooh, red LEDs. (Mmmm, Forbidden Donut),** Message #13 Posted by <u>glynn</u> on 4 May 2003, 1:51 a.m., in response to message #12 by Michael F. Coyle

I think red LEDs are cool, myself... but I am a retro kind of guy.

Yes, red LEDs DO impart a retro feel to anything they are incorporated into, but that is not necessarily negative. I know I had quite warm fuzzy remembrances of a TI LED watch I had in high-school. This led me to buy a Fossil LED watch, only to be rather disappointed in it. Unlike the TI, which, at the touch of its button, the time was displayed for 5 seconds-- the Fossil stupidly made you HOLD the button for as long as you needed to look at the time. Fossil, ya didn't do your homework...

I don't think anyone has ever REALLY asked some of the serious questions that go along these lines, though-- if consumers could choose a calculator with long battery life and a reflective display, or the same calc with a somewhat hungrier emissive display, what would they choose?

I know that Luiz V. here in the Forum has stated that he had that sort of choice in mind when he went with the more battery-frugal 41c over the 34c. He even paid

a premium to do so.

You know for me, when I first saw the 41c at my college's bookstore, the display was the deal-breaker. I could not imagine staring at that gray panel for my numbers. To pay THAT much for a calculator I could not read as well-- no way!!

For that reason, I have been interested mainly in the older LED model calcs, and in non-HP models I have a couple of Canons and an Elektronika that are all vacuum-fluorescent. I am pretty sure that if a new calc came out that had a really nice display, it would sell.

What technology? I don't know. Nowadays VF is way too hungry, and standard LED seems to be that way; I have been trying to find out if there was any gain in efficiency with the organic LEDs, but my preliminary look in that direction gave me the impression that efficiency was not its best feature. Which leaves a backlit LCD matrix as one option; the thought that maybe a "reversed" filter system would display white characters on a black background, well, I'd like to see it.

And there is the question of ALPHA. Most "retro" LED calc lovers take pains to point out that a calc doesn't need it. No, it doesn't-- but if it HAD it, it could do what LCD-based alpha-capable calcs DO: have more advanced file-storage capabilities, descriptive names and the ability to share files with other devices.

HP (and a few others) made advanced little dot-matrix displays that would have done this job quite well-- in fact, am I mistaken in thinking they were used on 9825 and similar? But they were a rather crude 5 x 7 cell, so nowadays a better LED display could/should be made with resolutions similar to that in the LCD world-- one up to the challenge of alpha, including attributes such as bolding and italic and underlines.

As for red-- no, if I were designing myself one from scratch, I have to say I'd go AMBER on black. It's WAY easier to live with on a day-to-day basis. If I wanted to get the pilots on my side, though, I'd go green, as they find it easiest to focus upon without having to adjust from their other instrumentation and surroundings.

Red was an LED color because they could make it very bright and efficient in that band of wavelengths. But my long stay on a Lear-Siegler ADM-11a has convinced me of the superior qualities of amber.

Ya know, I was ALWAYS this picky. It's just less Damning if I let people assume I'm getting crankier with age. ;-)

### Re: Oooh, red LEDs. (Mmmm, Forbidden Donut),

Message #14 Posted by <u>Ellis Easley</u> on 4 May 2003, 3:04 a.m., in response to message #13 by glynn

I bought a box of HP amber LEDs on Ebay a while back. Apparently, the model I got was already obsolete, I couldn't find the exact part number on the HP (or was it Agilent?) website, but I'm quite sure they are from a thriving family of devices made for use in outdoor highway signs. They are incredibly bright with normal current levels, like 20 mA (they are in the ordinary 5mm round package). I don't know if this scales sown - if smaller dice assembled into 7 segment or 5X7 displays would be very efficient, but it is a possibility

### Re: Oooh, red LEDs. (Mmmm, Forbidden Donut),

Message #15 Posted by <u>David Smith</u> on 4 May 2003, 5:46 p.m., in response to message #13 by glynn

I bought my first HP41 specifically because of the LCD display... you can read it in sunlight. And it ain't too shabby in room light either. I also still use a Toshiba T1000 laptop quite a bit... the brighter the sun, the better the display.

### Re: Oooh, red LEDs. (Mmmm, Forbidden Donut),

Message #16 Posted by <u>Michael F. Coyle</u> on 4 May 2003, 10:30 p.m., in response to message #13 by glynn

Hi Glynn!

I don't know about the 9825 specifically, but alphanumeric displays used to be provided by "dumb" 5x7 dot matrix displays with all memory, refresh, timing, etc. done externally. Displays like that are still sold. Nowadays you can also get "intelligent" displays with 4-8 characters and controller all in one package.

Even the newer displays are limited to 5x7 or 5x8, though; I'm not sure if this is due to technological limitations or no demand for higher resolution.

As for color and efficiency, new red materials such as GaAlAs are very good -- same brightness as so-called "high-efficiency" red but with about 1/4 the current. (They can also be driven with more current to produce a sunlight-

readable display, or so the data sheets claim.) Orange, yellow and green are available but not with super high efficiency.

If you want to see what's currently available check out the Agilent Web site. The HCMS-29xx is a good place to start. Prices (qty. 1) are about \$25 for 4 characters, \$50 for 8; that is, about \$6 per character. Cheaper in quantity of course. I'm considering picking up one or two of these to play with, to see what's really possible.

Modern rechargable batteries should give a nice long time between charges. I'm also wondering if it would be possible to use one of those high-capacity lithium photo batteries (e.g. CR-123) as a long-life disposable. After all, if it can run camera motors and such for dozens of rolls of film, it should have no trouble with LEDs.

- Michael

hp led source Message #17 Posted by <u>db(martinez,california)</u> on 5 May 2003, 3:06 a. m., in response to message #16 by Michael F. Coyle fwiw: there are cheap surplus hp leds here (just not OUR leds): http://www.bgmicro.com/prodinfo.asp?sid=855092592592593E-021669044200&prodid=ACS1076&page=1&cri=led+&stype=3

### **Re: Calculator Design (A few questions)**

Message #18 Posted by <u>hugh</u> on 2 May 2003, 11:31 a.m., in response to message #2 by Ben Salinas

random comments that occurred to me,

if you do want backlighting, shouldnt you light up the keys too (like a phone)?

i have yet to see conversions work really well with a comprehensive list. i think units on the 28c/48g is overcomplicated. also, are you to cope with different versions of, for example, the inch (european inches are 2.54cm, US inches are 2.54+2e-6 cm, ie + 2ppm and correspondingly all other lengths).

base 37! is there a good reason to stop there. alternatively, i dont think it would be a cheat if

you supported only the usual 2,8,16,10 etc.

from your description it looks like you only "goto" a number not a label?

your new graph feature; what you describe is difficult technically. to find the truly important parts of a graph, extrema, asymptotes, inflexions etc. involves symbolic work (claim). otherwise you are always at the mercy of sampling aliasing.

# **Re: Calculator Design (A few questions)**

Message #19 Posted by <u>Christof</u> on 2 May 2003, 1:27 p.m., in response to message #18 by hugh

Teh best use of backlighting for me is in 'odd' light conditions.

Cafes, dusk/twilight, situations with high aount sof artificial light pointed in unpleasant directions. Backlighting is- in my real world use on devices- more for time when high contrast just isn't cutting it than it is for absolute darkness.

So I say, go with the backlight, but I also say, keep the current mild blue (not the bright obnoxious blue) as it is a bit easier to read than the greens.

I'd also lay out the keyboard in such a way that a certain set of buttons (up down enter? six function keys at top?) are bigger, higher (1.2 mm makes a huge difference when operating by touch) or something. that would make properly designed programs and menus easy to operate in lower light conditions.

I'm also- I have to say it again- very very big on programmability. I find nothing wrong with the programming capacities of the 28/48/49 machines- the UI is a bit harsh, though. a logical extension of the 41/42 command set seems reasonable, but... well, to reduce the command set just doesn't.

Wehn you get right down to it- the older TI85 I just pulle dout of a drawer is smaller and has better weight distribution than the 48GXIt also has a farily well layed out keyboard (aside from crappy keys). The reaosn I don't use it is mostly the programming interface. A good, intuitive, learnable, USABLE programming language means a lot.

And, not to quote Gene too much- games programming is going to be important. Everyone can look down their noses at it, but it is important. to learning programming, to becoming familiar and comfortable with the machine, and to the human psyche. Laugh at me all you want, If you don't consider game programming in the calc, you
might as well use a 7seg display. Graphing is great, but graphing on a 2 line display (which I DO on my 42S) is just not quite enough by itself to justify not using a really capable machine that's a few ounces more.

In fact.... I'd suggest further that you go full tilt and duplicate the pixel count of the 28S. it's a 4 line display type that will fit in your machine's physical limits. RPN is a lot more fun with XYZT labels on the lines. and 3 lines visible when using menus is a lot nicer, too. And this isn't just for games.

Technically- I'd prefer the 4 lines in a display. Ask db down in martinez about how much easier surverying operations would be with the 2 extra lines. What about 2 var statistics? or coordinate pairs? if you have a menu running an donly one line left, you can't just look at the display and SEE the X coord you entered when the prompt is up for a Y coord Forget all about Z.

One other minor note- any handheld with programming capabilities- or that cna run programs- must needs be fully and (as much as possible) easily programmable from within the device. I could spend hours discussing the reasons- and a lot of poeple will never use the programming features. \*shrug\* I'm never going to use hyberbolics in my real life, but I'm not arguing haiving them there. :)

Programming is important. On many levels. Anyone who disagrees is welcome to trade me a 41CX for my 6G anytime ;)

### Re: Calculator Design (A few questions) - Long

Message #20 Posted by <u>JimC</u> on 2 May 2003, 1:17 p.m., in response to message #1 by Ben Salinas

I have but a couple of comments on the "form follows function" vein.

I really dislike the flat surface of the newer HP's (32 and 48's, etc). The larger volume region of my 41 with the slanted display allows for placing the calc. anywhere on my desk and still allows a view of the display.

As laid out so very well in a previous post, colour plays a large role in product acceptance. Engineers, scientists, etc., are very conservative, so therefore I tend to think that a more understated approach might translate into more sales. (but then I'm in engineering, not marketting). Translation: I still like black.

For me, RPN rather than RPL works. I can write a routine in the field, rather than sit down and program. I find it is usually a function of keystroke memorization rather than actual input/

output window programming. After all, the idea is to save time-my 41 allows me to do that, my 48 doesn't; however I do understand that some persons like and want to use RPL. Therefore, might there be a way to record keystrokes so that non-programmers like me can still utilize simplistic programming techniques?

Interconnectivity with PC's for backups. A flag to use AOS vs RPN Not as many menus! My 48 drives me crazy when I am trying to use a unit conversion. ("I'm sure I could assign that to a USER key") The ability to add cards/memory on, peripherals, etc. The same quality tactile feedback as my 41, not my 48. (bigger buttons for a clumsy old bugger like me)

Last but not least - good, conclusive documentation. Like my 21, not like my 48.

## **Re: Calculator Design (A few questions) - Long**

Message #21 Posted by <u>Joan</u> on 2 May 2003, 1:43 p.m., in response to message #20 by JimC

Well, I also have a couple of comments,

Today I just receive a new brand 41cx and:

1. Keyboard feeling is good but softer than the 42s and 48sx. 2. Display in the 42s is bad but it is much better than the 41cx. 3. I have to say that I'm happy with the 41 but for me the 65 gives me better sensations. 4. After all, I know that nothing is going to be like the hp machines that we all know. 5. My ideal machine is a 42s size calc with the 49g capabilitys and the two times the 42's screen and exactly the same tactile feeling. 6. Fortunately I meet the hp's on time, because I'm not expecting anymore.

Joan

### Re: Calculator Design (A few questions) - Long

Message #22 Posted by <u>Ben Salinas</u> on 3 May 2003, 12:46 a.m., in response to message #21 by Joan

Thank you all very much for your input (and for reading the 6.5 page document:)) I agree that blue is very trendy, and it is true that 5 years ago backlights were not blue (mainly because blue LED's hadn't been invented, and when they were, cost 50 bucks a piece (maybe)) However, i feel that green is too BLAH (for the lack of a better word), and red is hard on the eyes. This narrows it down to either light blue, or white. As for colors, after reading these opinions, i realize that the 32sii does not look 10 years old, because it is black. That would probably be the best color (as the titanium is probably too faddy) I do like the idea about using glow in the dark paint for the keys though. That would allow low light use.

The main reason I put the RPN/Algabraic function in the catalog, instead of in the flags is because the people who would take it out of RPN mode (Which it defaults to) are not the people who are avid HP users. It took me a few months to figure out what the flags did. While on the subject of flags, would you all suggest that most features also have a flag, so that settings can be changed, and checked in a program. And, are flags generally used for functions that are only on or off (as in RPN/Algabraic)?

To the catalog, I have added some common symbols (!, ",", ?), and the highest denominator (the /c on the 32sii), the %chg (tenative), and set date (to be inputted as . mmddyyyy). As soon as I can find a viewer for Inventor (Autodesk's new Autocad), I will post my inventor files online. Everything will be more clear when you can see the calculator body itself.

Once again I want to thank all of you for your input and praise. I hope to complete most of my design by next thursday. (due on the 15th of May) -Ben

#### Flags

Message #23 Posted by <u>Christof</u> on 3 May 2003, 5:50 a.m., in response to message #22 by Ben Salinas

Flags are often used either singly or in tuples.

I like the idea of having an abundance of flags- with negative integer flag numbers being for 'OS' use and positive flags being for "user" application. I see no reason to hard code a limit in, but 256 total is a good number- once you go beyond that you are probably addressing a total of 65,536 (16 bits of addressing) but... well, why not? Memory constraints aren't what they used to be and I can think of reasons a computer scientist would use more than 256 flags.

SIngle flags are things like pos/neg, printer presence, etc.

Tuple flags are binary counting mechanisms. a two flag tuple would have 4 positions, a 3 flag tuple would have 8, and so on.

Uses are varied- you \*could\* in theory (discounting menus) have 3 font settings on the display of a 42S - that would require a 2bit flag tuple.

An IR I/O serial device would be handled the same way- generally you would have several bits on the flag tuple to help define various serial speeds-300,600,1200,2400,4800,9600,etc.

On another note- this brings to my mind som problem issues with USB.

1: an area of concern with some people is unneeded openings on a device. IR requires no 'de-hermeticizing' or extra opening in the device, where a USB port does. and IR to usb converter is not hards to oobtain, nor supply. this also applies to serial in (in potential) HPIL- or any other serial two 'wire' system (including modems!).

2: power. USB, if used to connect to something like a 'pen drive', has to \*supply\* power. Incredibly large amounts of it in calculator terms. To power a USB port is going to do truly nasty things to your battery life.

3: versatiliy- as mentioned above, it is easy to get IR to usb and serial converters (and an easy enough homebrew for any other two wire system). USB locks you out of whole ranges of controllable devices- from telescopes to data recorders to scopes to field hardware. A lot fo this stuff simply requires serial. I can, with small to huge amounts of programming, connect an HP48 to the control serial console port of a Sun E15k supercomputer, or a meade telescope, or a small lab data logger, or even a modem to talk to my HP75 (ongoing project) I can't do that with a usb only device. remember, a USB to serial converter is going to try to draw power from the \*USB\* side, and an IR convertor HAS to.

(and lets not even get into the broken by design silliness of bluetooth. bluetooth would have been a good idea 15 years ago. right now, it's a giant step backwards.)

Long, rambly thoughts over :)

#### **Re: Calculator Design (A few questions) - Long**

Message #24 Posted by <u>Gunnar Degnbol</u> on 3 May 2003, 10:28 a.m., in response to message #22 by Ben Salinas

The .mmddyyyy date format is a US-ism. It is a midlle endian mess, and is quite weird if you are not used to it. In most of Europe the order is ddmmyyyy, in Japan and many other places (and in the ISO standard) it is yyyymmdd. The latter is more logical (a strange number system for counting days), and would be understood by most people, including americans. If this format is used it might makes more sense putting the digits before the decimal.

## **Re: Calculator Design (A few questions) - Long**

Message #25 Posted by <u>Christof</u> on 3 May 2003, 2:06 p.m., in response to message #24 by Gunnar Degnbol

While I se no reason not to allow different encoding systems for dates as a moality-

I prefer the ISO standard. Might be the military experience :)

I'd suggest yyyy.mmdd as it allows working with known dates prior to the common start date of the Common era, and allows you to work with rough dates a bit more handily through rounding.

-C

**Re: Calculator Design (A few questions) - Long** Message #26 Posted by <u>Gordon Dyer</u> on 3 May 2003, 1:14 p.m., in response to message #22 by Ben Salinas

Make sure you include a ddmmyyyy for us Europeans !

**Re: Calculator Design (A few questions) - Long** *Message #27 Posted by <u>unspellable</u> on 5 May 2003, 12:32 p.m., in response to message #22 by Ben Salinas* 

I'm a newbie here. Can anyone tell me why the 32SII seems to be a hot item on eBay compared to other models?

# **Re: Calculator Design (A few questions)**

Message #28 Posted by <u>Ben Salinas</u> on 3 May 2003, 1:14 p.m., in response to message #1 by Ben Salinas

I have found the Inventor viewer, and have created some basic views of my calculator. This viewer only views in 2s, so bear with it. To view the files, you must download the viewer at http://usa.autodesk.com/adsk/servlet/index?siteID=123112&id=2952277&linkID=3016127 and the files at www.geocities.com/piguy31415926/calculator.zip (Disregard the Letters on the keys. Eventually those will be the function names) On USB, I had contemplated the power issue (I believe it supplies 4.5 V, which is quite a bit) Perhaps an unpowered USB port. The main reason I like USB is because it can be divided up, and is bidirectional, and has a small footprint. (Can IR be divided up?) On the calculator, there is also an IR port, for wireless communication. USB also provides higher speeds, though I dont know if that will make a difference.

On the subject of dates, YYYYMMDD probably would be the best choice. This way the input could be YYYY.MMDD (Unless the year is like 0001).

Thanks again -Ben

# **Re: Calculator Design (A few questions)**

Message #29 Posted by Gordon Dyer on 3 May 2003, 1:27 p.m., in response to message #28 by Ben Salinas

I just had a look at your design and it is nice.

However please round off all corners to make the calc comfortable to hold. I bought a 28S and the sharp top edges when it is open make it very uncomfortable.

I also think that yyyy.mmdd is a good format for us all, but if you are displaying dates a set of the usual options would be good.

Also if you have used a 28C or S then there are someee things to learn NOT to do! the ergomomics of the key layout were not good, but if you stick to the 42S type of key layout thats fine.

I am looking forward to a full colour drawing with key legends and an emulator for Windows......

#### screen grab?

Message #30 Posted by <u>Christof</u> on 3 May 2003, 2:14 p.m., in response to message #28 by Ben Salinas

Okay, I admit it.

Not only do I not have Windows, I don't even have any intel x86 CPUs aside from the one in my 200LX in the house.

This software doesn't seem to have binaries for sparc or ultrasparc architectures, so- cna anyone do a screen grab and save to jpeg or tiff or png, etc?

thanks!

(and I'll table USB, but it seems to me a bad idea to run around making non standard ports for a standard)

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# **HP Forum Archive 12**

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# HP-48SX ....TEST FUNCTION

Message #1 Posted by steve on 1 May 2003, 8:36 p.m.

Hi,

Can someone tell me if I can perform a test for functionality and which buttons to push.

Thanks, Steve

# Re: HP-48SX ....TEST FUNCTION

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 1 May 2003, 10:37 p.m., in response to message #1 by steve

Hi;

locate the [ON] key and [C], [D], [E] and key. With the calculator switched to ON:

- 1 press [ON] and hold;
- 2 press [E] and hold;
- 3 release [ON];
- 4 release [E];

The test is "circular" and starts over after reaching the end. You should see "OK 48 SX" as a result for test OK. The self-test may be interrupted anytime with:

- 1 press [ON] and hold;
- 2 press [C] and hold;
- 3 release [ON];
- 4 release [C];

To test the keyboard:

1 - press [ON] and hold;

2 - press [D] and hold;

3 - release [ON];

4 - release [D];

You'll see three vertical lines.

5 - press [E];

you'll see "KBD1" in the top of the display. Now press each key on each roll, begining with the leftmost on the top roll ([A]) continuing to right till the last one ([F]) and going donw to each roll, always left to right, top to bottom.

After the last key is pressed ([+]), the display shows "KBD1 OK". If one key is not pressed (bad contact) or repeats, "KBD1 nnnnn" is shown, where nnnnn is an internal code for the missing/ repeated key.

In both cases, the kbd test may be interrupted with the sequence:

1 - press [ON] and hold;

- 2 press [C] and hold;
- 3 release [ON];

4 - release [C];

These sequences are also known as [ON]/[C], [ON]/[D] and [ON]/[E].

Hope this helps.

Luiz C. Vieira - Brazil

# **Re: HP-48SX ....TEST FUNCTION**

Message #3 Posted by James M. Prange on 2 May 2003, 1:44 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

I'll add a few other useful tests that can be done once you're in the [ON]&[D] interactive self-test mode:

[H] is a wired UART loop back test. \*Gently\* short the transmit and receive pins (the two center pins) together, or better yet, attach a cable and short the the transmit to the receive signal at the other end. If it passes, then "U\_LB OK" will be displayed.

[O] is an IR loopback test. For this one, have the IR/port cover in place, or point it at

something white (within a couple inches), so that you'll get some reflected IR. this one should display "IRLB OK" if it passes.

[K] tests port RAM devices. The ports can be either free or merged. If it passes, then the results are displayed as "RAM1 OK" or "RAM2 OK" in the upper left, and "32K" or "128K" in the upper right. The RAM1 results are displayed very briefly. For a 48GX with a multi-port card in slot 2, I surmise that only port 2 is tested. If a card is missing, or is a ROM card or write-protected RAM card, then the test for that port will fail. Personally, if I don't see an "Invalid Card Data" when I turn the calculator on, I assume that the cards are ok. In the case of an "Invalid Card Data", storing anything in each of the ports should clear it up, or in the case of the 48GX, the PINIT command is available to initialize all ports with one command. So maybe this test isn't very useful after all.

And of course, use [ON]&[C] to do a warmstart to get out of self-test mode.

Regards, James

Thanks Luis...just what I needed. (nft)

Message #4 Posted by <u>steve</u> on 2 May 2003, 11:56 p.m., in response to message #2 by Vieira, Luiz C. (Brazil)

nft

#### Thanks! Further tests in James' post

Message #5 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 12:08 a.m., in response to message #4 by steve

Hi, Steve;

thank you, too. A feedback means our help succeeded. BTW, did your SX succeed as well?

Also, if you want to go further, James' post describe usefull tests, too. If you are new to the HP48 team, it's a good idea to know if internal circuits and external ports/ connections are fine, too. These are major positive points in an HP48: expandability and external comms; in easy, standard ways.

Best regards.

Luzi C. Vieira - Brazil

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# HP Forum Archive 12

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#### classic charger question

Message #1 Posted by db(martinez, california) on 1 May 2003, 4:09 p.m.

i have four questions that i know someone must have already answered while i was not paying attention.

which calculator was the 03502A charger for? the museum just labels it as being for the classic series.

why does the 3 prong classic type plug have two chargers driving it (03502A and 82002A)?

why is the little squarish housing that looks like a ti charger give so much lower voltage than the older unnumbered one (5vdc/3.5vdc vs 14vdc/5vdc) regardless of the number printed on it?

is one of these another one of thoes "has to be checked under load" chargers so i am comparing apples and oranges?

thanks in advance. - d

#### **Re: classic charger question**

Message #2 Posted by <u>Trent Moseley</u> on 1 May 2003, 5:19 p.m., in response to message #1 by db(martinez,california)

I don't know. My 67 came with the 82002A which is switched (86/127V to 172/254V). I then obtained a 82002C which is not switched.

tm

#### **Re: classic charger question**

Message #3 Posted by <u>Ellis Easley</u> on 2 May 2003, 2:45 a.m., in response to message #1 by db(martinez,california)

You're right about measuring under load but when measuring the unloaded output voltage of a constant current supply, you are basically seeing the unregulated voltage going into the current regulator, which is running "wide open" trying to force 50 mA through infinity (or 10 Megohms or 20 Kilohms per volt, or whatever your voltmeter resistance is).

I don't know about the 03502A but generally, the two sources in the Classic charger are a constant voltage supply to power the calculator while the battery charges (usually seems to be described as 4V, but 3.75 is what the nominal battery voltage is), and a constant current supply to charge the batteries - supposed to put out 50 mA regardless of the load it is connected to (within limits). In practical terms, the highest voltage across 3 NiCads while charging is about 1.5V\*3=4.5V. The simplest way to get a fairly constant current is to start out with a voltage considerably higher than the voltage you will see at your load and then put a resistor in series with a value equal to the difference between the high voltage and your load voltage, divided by the constant current you want. Then as the resistance of your load changes, the series resistor is always much higher so it has a greater influence on the current flowing. Similarly, one way to generate a constant voltage is to start out with a voltage considerably higher than you need and put a transistor between that supply and your load - additional circuitry makes the transistor drop whatever voltage difference there is between the input and the load voltage. The higher the voltage across the transistor, the smaller percentage change it undergoes as the input voltage changes (the input voltage is unregulated - it is dependent on the AC line voltage and the load current). And the more constant the voltage across the transistor, the more predictable its gain and other characteristics. It is especially important that the voltage across the transistor doesn't drop to zero - then the regulator stops regulating altogether! The voltage difference that a given regulator circuit needs in order to regulate within specs is called the drop-out voltage - a term borrowed from electromagnetic relays - remember the old relay voltage regulators in cars?

The 82002A recharger starts out with a single unregulated supply of about 14V max. to produce the 4V constant voltage and the 50 mA/4.5V max constant current supply. It doesn't just use a resistor to generate the constant current, it uses two transistors and some resistors including a 13 ohm resistor that the charging current flows through, generating a small voltage drop that controls the behavior of the transistors - in a way multiplying the resistance of the small 13 ohm resistor but doing so in a way that makes the output current less dependent on the variation in the unregulated supply voltage. The extra voltage going into both regulators has the effect of improving their regulation (qualities of "headroom" and "linearity" apply) but since both load currents (calculator and battery) have to pass through devices that are dropping the extra voltage, and power being the product of voltage and current, the extra voltage represents power that is being wasted. In fact, if the input voltage stays near 14V under both loads (it probably doesn't), then approximately 10V is being dropped by the regulators and 4V is going to the loads. Without knowing just what the total of the two currents is, (that current I \* 10V) watts is being wasted to generate (I \* 4V) watts at the load, so the efficiency is only 4/(10+4) or 29%.

It is possible to get higher efficiency if you waste less voltage by starting with a lower unregulated voltage. It might be that the 03502A recharger was designed to be more efficient than the 82002A - smaller size is consistent with less heat dissipation due to higher efficiency. As long as the unregulated input voltage stays higher than the necessary load voltage by "a certain amount" - maybe as little as 1V for a very careful design - the regulators will work correctly (this applies to both constant voltage and constant current regulators.)

Even at these small power levels it is important to increase the efficiency because the wasted power takes the form of heat inside the recharger which shortens the life of the components. A lot of "wall wart" supplies now-a-days contain switching regulators, which are much more efficient, for this reason, although it is also justified because they have somewhat higher power ouput, like 5V at 1A, for more expensive loads, like pocket computers and digital cameras.

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# **HP Forum Archive 12**

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#### Yokogawa Hewlett Packard

Message #1 Posted by Gordon Dyer on 1 May 2003, 12:37 p.m.

For those of you who have not seen this, here is a page dedicated to a joint venture with HP which was started in 1963.

http://osaki.cool.ne.jp/calc/calculator/hp/hp.html#yhp

**Re: Yokogawa Hewlett Packard** *Message #2 Posted by* <u>*Matthias*</u> on 1 May 2003, 1:34 p.m., in response to message #1 by Gordon Dyer

I know these calc, but ... where can I buy one of them?

Matthias

Re: Yokogawa Hewlett Packard

Message #3 Posted by <u>Gordon Dyer</u> on 1 May 2003, 4:23 p.m., in response to message #2 by Matthias

I haven't ever seen one, but try writing to the owner of that site in Japan.

**Re: Yokogawa Hewlett Packard** *Message #4 Posted by* <u>*Ellis Easley*</u> on 2 May 2003, 1:04 a.m., in response to message #3 by Gordon Dyer

David Packard talks about YHP in "The HP Way" in a section about quality. It was HP's first joint venture and the Yokogawa company had been in the business of "process instrumentation". Could that have something to do with analog computing? I have a universal bridge from Yokogawa HP. The heart of it seems to be an enormous precision potentiometer that is connected to a very long dial, it must generate a voltage that models a complex function. We had a computerized network gain-phase analyzer at Tandy that I think was from Yokogama HP. I remember using it to plot the frequency response and calculate the equivalent circuit of quartz crystals - they would have

inductances of hundreds of Henrys and minute capacitances. Packard also talks about an HP facilty in Boeblingen, Germany, which was part of HP's first steps to distribute their products in Europe. I have two pulse generators built in Boeblingen including the 8005B - I always wanted that one because it is frequently mentioned in the test conditions section of semiconductor data sheets.

## **Re: Yokogawa Hewlett Packard**

Message #5 Posted by <u>Mantra</u> on 5 May 2003, 5:17 p.m., in response to message #3 by Gordon Dyer

Strictly YHP does not exist anymore - the joint venture entity was bought out by HP in the 90s from Yokogawa Electric and mostly went with Agilent as the Hachioji Semiconductor Test Division (products starting HP/Agilent 414x and 40xx and E52xx) and the Kobe Instrument Division (products starting 42xx and 419x). Unfortunately the chances of finding someone at either HP or Agilent who knows anything about YHP, let alone YHP calculators, is virtually nil. The layoffs were not kind at either company.

## **Re: Yokogawa Hewlett Packard**

Message #6 Posted by <u>Ellis Easley</u> on 6 May 2003, 1:53 a.m., in response to message #5 by Mantra

My universal bridge is HP4260A and the gain/phase analyzer I'm pretty sure is the HP4194A I found in my 1989 catalog. I looked in the 1986 catalog first and all the network analyzers were 87xx and used external computers, the 4194A is self-contained. Its proper name is Impedance/Gain-Phase Analyzer.

# **Re: Yokogawa Hewlett Packard**

Message #7 Posted by <u>David Smith</u> on 2 May 2003, 5:56 p.m., in response to message #2 by Matthias

I know a lot of the Yokogawa calculators were just regular HP calculators with Japanese labels. Mike Davis had Yokogawa HP65 last year.

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#### **HP Forum Archive 12**

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#### HP-97 Adapter

Message #1 Posted by J. Ibarra on 1 May 2003, 11:25 a.m.

I have bought an HP-97. It comes with US adapter 82059D input 90-120VAC, output 8VAC. The problem is that here, in Spain, we work with 220VAC. The best option I have found is a 220-125 transformer to be placed first. I have measured the output of this transformer and got 127 VAC. Once I added the HP adapter (with 127 V input now) I measured 13V output instead of 8V.

Has anybody measured this value?. I don't know if it could damage the calculator.

#### Re: HP-97 Adapter

Message #2 Posted by <u>Vassilis Prevelakis</u> on 1 May 2003, 12:18 p.m., in response to message #1 by J. Ibarra

J. Ibarra wrote: > Once I added the HP adapter (with 127 V input now) I measured 13V output instead of 8V.

Sounds about right, the 82059D contains just a transformer inside, its not a regulated power supply. To really meassure the output voltage you have to add a load.

\*\*vp

#### Re: HP-97 Adapter

Message #3 Posted by <u>David Smith</u> on 1 May 2003, 4:14 p.m., in response to message #1 by J. Ibarra

The 82059D output without a load connected is usually 12-14V. You should be just fine.

**Re: HP-97 Adapter** *Message #4 Posted by* <u>J.Ibarra</u> on 1 May 2003, 5:13 p.m., *in response to message #3 by David Smith* 

Than you:

Then I think I can use it.

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# HP Forum Archive 12

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# ANOTHER HP-25. Doens't work

Message #1 Posted by Jon on 1 May 2003, 7:58 a.m.

I have an hp-25 which don't work as it should. Is swithes on and lets you keying numbers. But when you press ENTER, +, -,\*,/, clx and some other keys the screen shows "00000000". In PRG mode it let you see all the program steps showing "40" some of them, and "13 00" others but it doesn't let you change anything.

Does anybody have any experience repairing these calcs

Thanks in advance

Jon

# my HP25C is like this: ROM failure

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 1 May 2003, 10:29 a.m., in response to message #1 by Jon

Hi, Jon;

I hanve an HP25C that's exactly like this: accepts any code you enter in PRGM mode, accepts numbers when keyed in, if you try and yours is like mine, you can even STOre and ReCalL them; but if you try anything else, like ENTER, CLX, EEX, CHS... clears the display for about one second and shows [ 00000000 ], right?

At the moment you pres any key except digits, [STO] n, [RCL] n (did I miss anyone else?) ROM is read for instructions to execute the routine associated with that keycode. All of ROM is searched (blank display) and as the last position is reached, whatever is found is shown: a bunch of zeroes.

I think a copy of the ROM contents may be created from an original ROM, but I have no idea about how to access the HP25 ROM chip and which one can be used to replaced it. If so, copying an HP25 ROM to use in an HP25 is no copyright violation, it's maintenance.

I have a working HP25; if you find a way to copy its ROM, let us know. I also have a notworking HP25C, and I have no way to copy its ROM contents.

Sorry I did not help the way you need.

Luiz C. Vieira - Brazil

# Re: my HP25C is like this: ROM failure

Message #3 Posted by <u>Jon</u> on 1 May 2003, 11:30 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

Thanks for the information Luiz.

I have tried replacing all the capacitors in the circuit because I have repaired some spices in this way. Nothing changes. So, you must be right.

If I can do anything I will make you know

Another sort of related fact Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 1 May 2003, 4:21 p.m., in response to message #3 by Jon

Hello, Jon;

I remember that some months ago I posted a message entitled "HP25 Scary Moments" where I described the "loss of memory" in my HP25 (not the "C" one). It suddenly was no longer able to record nothing, neither programs, nor data in numbered registers.

I decided to do something and resoldered all solder points in the mainboard, not only the ones around the chips. Well, wherever was the problem, it was solved with a few soldering activity.

maybe, just maybe, it will help you. If your HP25 was working fine and suddenly it stopped working (even if it was sored somewhere and you decided to allow it to see the sunshine again) chances are you have a bad contact or a cracked copper trail somewhere. If you have the time, get the multimeter and measure continuity on copper trails around the three chips closer to the batteries' conectors.

Good luck and success.

# Re: ANOTHER HP-25. Doens't work

Message #5 Posted by <u>David Smith</u> on 1 May 2003, 4:18 p.m., in response to message #1 by Jon

Displays of 0000000 are almost always caused by a bad ACT chip (the big 22 pin one at the bottom of the circuit board).

The indication of 13 00 or 40 in the program registers is an indication of a bad RAM chip (the chip just above the ACT chip. Some machines have two RAM chips (above and to the right of the ACT). I suspect that you cannot store and recall numbers either.

### Taking the opportunity to understand

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 1 May 2003, 7:10 p.m., in response to message #5 by David Smith

Hello, David;

It's always time to read and get precise information, and I always try to do it.

I read about ACT chips at this forum, about two years ago; I was not aware of some particular internal structures and from then on, I try to keep track with all, new information. I used to think when ACT chip was bad, calculator's overall operation was compromised, meaning it would act erratically. Based on these assumptions, I thought the ACT chip would carry the basic LED display control, KBD scan activity and number entering. ROM would be changed for each particular model. For example, HP27 and HP25 share everything except ROM; is it correct?

I thought if display is correct, number entering is fine but functions and/or memory is not O. K., then ACT chip is fine and ROM/RAM is failure. When my own HP25 was no longer able to hold numbers and programs (register would hold 0.00 and each program line was 13 00, whatever you stored there) and it was solved by resoldreing terminals, I was sure my "theory" was correct.

But I want both: helping with correct information and keep my own "babes" working fine. If I have given information that does not correspond to actual facts and as a consequence I may cause dammage to calculators that do not belong to me (and mine too), please, let me know for both reasons mentioned above.

I want to, please, call all contributors in here for correcting me anytime it's needed.

Thank you very much.

Luiz C. Vieira - Brazil

# HP-27

Message #7 Posted by <u>Michael F. Coyle</u> on 2 May 2003, 12:34 a.m., in response to message #6 by Vieira, Luiz C. (Brazil)

Luiz writes: For example, HP27 and HP25 share everything except ROM; is it correct?

I don't think so; most of the Woodstocks use PMOS circuitry but the HP-27 is unique in that it uses NMOS. This would imply that HP-27 chips are not interchangable with any other machine. I would imagine that the 27's power supply would also produce different voltages; has anyone confirmed this?

By the way, does anyone know what chip technology was used for the Spices? Perhaps someone could compare the power supply voltages with earlier machines.

- Michael

# **Oops!**

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 2 May 2003, 1:09 p.m., in response to message #6 by Vieira, Luiz C. (Brazil)

Hello, Michael;

I wonder what was I trying to use as an example... What I was supposed to mention is that if the ACT main IC is used in so many structures, like the HP25 and the HP27, and they have so diverse features, that this means they share the same structure but ROM contents and RAM organization; is it correct? I thought about one thing and wrote another completely different. I felt so embarrassed I didn't remember what I was actually going to write.

Thank you for noticing my mistake.

Luiz C. Vieira - Brazil

#### **Re: Taking the opportunity to understand**

Message #9 Posted by <u>David Smith</u> on 2 May 2003, 6:05 p.m., in response to message #6 by Vieira, Luiz C. (Brazil)

All the woodstock series (except HP27) ACT chips are compatible, even though they have different part numbers. You can freely swap them around... even among the non-C and C machines. Also includes the HP67 and HP97.

It is possible that a bad chip on the internal bus can make other chips appear bad, but certain failures seem to be always (like over 99% of them time) due to specific chips.

If you can't store or recall to memory or the program is all 13 00 or 40's then the RAM chip is bad. Some machines have two RAM chips, so it may be possible that only part of the memory is bad. Some RAM chips (especially the 25C) may me able to be made to work by grounding certain "unused" pins. See Katie Wass's piece in the "articles" section.

A display of 00000000 is "always" a bad ACT chip. Usually it is a hard failure, but sometime it may be an intermittent problem (that will soon go permanent).

#### How to repair the hp-25 with a hp-21

Message #10 Posted by <u>Jon</u> on 3 May 2003, 4:38 p.m., in response to message #9 by David Smith

Sorry, I am new in this "woodstock world". Which one is the ACT chip?. I have a working HP-21. Can I use its ACT chip for the HP-25?. I have both problems (RAM nok and display showing 0000000). What happens if I get a good ACT chip but I can 't repair the RAM chip?.

Thanks to everybody

Jon

# Re: How to repair the hp-25 with a hp-21

Message #11 Posted by <u>Michael F. Coyle</u> on 3 May 2003, 9:33 p.m., in response to message #10 by Jon

Hi Jon,

Are you really sure you want to sacrifice a working calculator to fix a broken one? Seems kind of drastic.

Anyway, it seems to me that if the ACT isn't working then that could also be producing the bad RAM symptom. If you must do the repair, try replacing the ACT and see if the RAM problem clears up at the same time. (If the RAM still doesn't work at this point, you're stuck -- you'll have to find a RAM chip from another machine.)

- Michael

# Location of the ACT chip (?)

Message #12 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 4 May 2003, 12:04 a.m., in response to message #11 by Michael F. Coyle

Hello, Michael;

I tried to find my notes about the ACT (Arithmetic-Clock-Timer? Is it correct?) chip location and I did not find them. I have in my mind the following location: under the LED display, right chip.

Is it correct?

Thank you.

Luiz C. Vieira - Brazil

# **Re: Location of the ACT chip (?)**

Message #13 Posted by <u>Ellis Easley</u> on 4 May 2003, 1:00 a.m., in response to message #12 by Vieira, Luiz C. (Brazil)

The ACT (Arithmetic, Control and Timing) chip is the 22 pin, 0.4" wide chip near the bottom (or front). It is like the CPU in the system.

# **Oops! again...**

Message #14 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 4 May 2003, 1:26 a.m., in response to message #13 by Ellis Easley

Hello, Ellis;

thank you. I was reading the posts in this thread again and I found <u>the</u> <u>one</u> where David describes its position... a "senior moment" of mine?

Is the ACT chip in the HP21 also compatible? I had an HP21 in hands somtime ago, and I remember I saw only three IC's: the two used to drive the display and the main IC. Is this an ACT chip as well?

I'm curious because if I am correct, the ACT chip must do everyhting, including RAM and ROM functionality. If so, all scientific functions, stack manipulation and basic 1 register memory are already there. If I am correct, the built-in scientific functions are not used in the HP22.

What am I missing?

Sorry, guys, I sometimes feel as having a gap of understanding when I reason about some isolated facts. Thanks for any additional information.

Luiz C. Vieira - Brazil

(Hey, Ellis; I'm preparing a pack with some material to send you, related to your e-mail, O.K.?)

#### Re: Oops! again...

Message #15 Posted by <u>Ellis Easley@worldnet.att.net</u> on 4 May 2003, 3:50 a.m., in response to message #14 by Vieira, Luiz C. (Brazil)

Luiz, did you see me this morning, asking for a manual that is on the Museum CD-ROMs?! See if you can get a TV station (or cable or satellite provider) in your area to carry "The Red Green Show", it helps us "older" guys cope with the ravages of time!

Also, we sometimes overlook the many resources of the Museum. It's kind of like Doctor Who's Tardis - it has many rooms that are seldom entered. Before I wrote my message, I went to the page on Woodstock technology and made sure what ACT stood for! The ACT does contain the stack registers and one user storage register. Since the chip on the left under the display contains ROM as well as its display function, maybe it contains all the code needed for the HP21? I only have the 25 and it has 1 (or 2) RAM chip(s) and another ROM down near the ACT. If I remove the lower ROM and the RAM, will I have a 21 or is the upper ROM specific to the 25? BTW, after my recent study of HP part number prefixes, I can recognize the general function of the chips at a glance - the ACT and the upper right chip are logic (1820 prefix) and the ROMs and RAM are memory (1818 prefix).

### **Re: How to repair the hp-25 with a hp-21**

Message #16 Posted by <u>Jon</u> on 4 May 2003, 3:59 a.m., in response to message #11 by Michael F. Coyle

Michael:

Idon't really like breaking the HP-21 but I use these machines fur fun. It is fantastic when they come back to life. If I can't repair it I will place the chip back to the HP-21. Anyway it is not still clear for me if HP-21 and HP-25 have the same ACT chip

### **Re: How to repair the hp-25 with a hp-21**

Message #17 Posted by <u>David Smith</u> on 4 May 2003, 6:05 p.m., in response to message #10 by Jon

Yes, the HP21 ACT chip will work fine in any woodstock machine except the HP27. It even works in the HP67 and HP97. It is the big fat (0.4 inch wide) chip at the bottom of the circuit board near the battery contacts.

They can be fairly sensitive to a heavy handed removal. Best to use a static controlled vacuum desoldering station.

If the RAM chip is bad, the HP25 will work fine as a simple calculator, but you will not be able to use memory registers or enter programs or the summation function. (Best way to check out an HP25 in two keystrokes is power on and press E+E+. If you don't see 2.0, the machine is bad).

The HP21 does not have a RAM chip. Also the machines have ROM code in the smaller of the two display driver chips (the ROM0/anode driver). This chip cannot be swapped between different machine types.

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# HP Forum Archive 12

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# What's with the HP 19Bii

Message #1 Posted by Norm on 1 May 2003, 2:20 a.m.

HI,

perusing the calculator aisle-ways at different stores (just to see if it is really as hopeless as it seems) NOTICED THAT the HP-12C is NOT the only classic calculator remaining.

There is an HP-19Bii on the shelves. Is this just leftover stock, or are they making more of them ? It's the style that folds out like a book. They wanted \$150 for the sealed unit at the store, but on eBay they went for \$250 - \$300.

Is it discontinued, or not? Should I buy it and try to mark it up on eBay ? If anybody wants a modest pass-thru, let me know I could get it sent along to you.....

Hmmmmmmm...... noticing that of the ONLY 2 classic calculators kept on the shelves, BOTH are for the business school, NOT the engineering school. When I was aware that just the 12C was still on the shelves, I thought that to be an obscene enough example of bias against engineering. So, might this be more evidence of boardroom bias against engineers, favoring business majors and their calculators instead ??

### Re: What's with the HP 19Bii

Message #2 Posted by <u>Ellis Easley</u> on 1 May 2003, 3:41 a.m., in response to message #1 by Norm

I believe the bean-counters want RPN for themselves. They think it impresses girls at cocktail parties.

## It does impress them!

Message #3 Posted by <u>Gene</u> on 1 May 2003, 7:33 a.m., in response to message #2 by Ellis Easley

ha! :-)

Gene

# Re: What's with the HP 19Bii

Message #4 Posted by <u>Katie</u> on 1 May 2003, 7:04 p.m., in response to message #2 by Ellis Easley

If you want to impress me at a cocktail party, you'd better bring along your 95C. :)

**Hmm... Nice girl, Place like this; What doing? ;-)** *Message #5 Posted by <u>glynn</u> on 1 May 2003, 7:58 p.m., in response to message #4 by Katie* 

I was wondering what an RPN pickup line might be...

LOL

# **RPN** party pickup lines,

Message #6 Posted by <u>NH</u> on 1 May 2003, 8:08 p.m., in response to message #5 by glynn

Heyyyaaaaa Baaabeeeee,

Wanna light up my digits ? Wanna push my 'enter' button ?

How would you like me to load my data into your stack ?

\*slap\* and she walks off..

hmmmmmmmm

**Nice girl. What a home decorator !** *Message #7 Posted by <u>Renato</u> on 1 May 2003, 8:49 p.m., in response to message #5 by glynn* 

http://www.wass.net/pictures/hp-1.JPG

How would you like a decoration like this ?

# Re: What's with the HP 19Bii

Message #8 Posted by <u>David Ramsey</u> on 1 May 2003, 6:24 p.m., in response to message #1 by Norm

Yes, the 19Bii is discontinued. It was never that popular, which is odd since it's much more powerful than the 12c.

If you like that style of calc, grab one cheap while you can!

#### I could mail it.....

Message #9 Posted by <u>Norm</u> on 1 May 2003, 8:13 p.m., in response to message #8 by David Ramsey

I dont need an HP 19B ii, but if somebody wants a brand new one, I could get it from the store and send it along.

I dont need a business calculator, I need an engineer's calculator.

How does that work anyway, does it have an automatic button for determining the best stock price to screw somebody?

Does it have an 'Enron' subroutine ? Like, does it tell U the best price to artificially inflate electrical contract futures in order to maximize your (illegal) rate of return?

Do you like, hit "f" "Ford" "Firestone" and it tells you how many people need to die in rollovers before you sell your stock shares before the news of the lawsuit comes out?

Do you like, hit "f" "Solve" "Hostile Takeover" "Share Price" and then it tells U the best price to make a hostile takeover stock offering and to maximize the returns to your own bank account ????

I mean, I presume it does things like that, if not, whats a business calculator good for anyway?

:0)

# 'Bout the HP19BII...

Message #10 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 1 May 2003, 10:52 p.m., in response to message #9 by Norm

Hey, Norm; my regards to Captain Zener.

I am an Electronic Engineer and I have an HP19BII. Did you know it does trigs and logs with hyperbolics? All most usual functions an engineer would like finding. It resembles the HP27 in this particular aspect, and it does RPN or algebraic, user selectable. 6.5K RAM and a user-friendly programming language (neither HP12C, nor RPN like). HP SOLVE and IR printer output included, and it also does graphics (fixed types).

I like it, but of course, as I am an electrical engineer, there are other resources I'd like to have and there's no sense adding them to the HP19BII: complex, matrices, symbolic algebra...

Oh, yes: appointments and clock/calendar.

I like it. And it has the fancy clamshell look.

Best regards.

luiz C. Vieira - Brazil

# Re: 'Bout the HP19BII...

Message #11 Posted by <u>Christof</u> on 2 May 2003, 1:34 a.m., in response to message #10 by Vieira, Luiz C. (Brazil)

I have to agree with Luiz- I'e used my older chip-n-dent 19Bii as a minimalist travel PDA and done some pretty decent rough fieldwork with it (basic trig and stats stuff)

I wouldn't try to analyze the circuits in my 200LX with it, but with the most excellent solver and IR printer I think you could do a fairly handy amount of serious field work.

The 28S is still better, in the science department, but lack the easy test note taking and appointment modes useful in the lab.

If they'd added a decent shifted keyboard layout with a pile o sci functions (beyond the trig basics it has) it would still be a world class machine.

#### Re: I could mail it.....

Message #12 Posted by <u>Hans Brueggemann</u> on 2 May 2003, 2:33 a.m., in response to message #9 by Norm

na! the one thing that accountants fear most are negative figures. that's why they need a special business calculator. so , essentially, the 19BII is a 28S with the "-" omitted.

cheers, hans

ha ha, no minus sign

Message #13 Posted by <u>Norm</u> on 2 May 2003, 4:03 a.m., in response to message #12 by Hans Brueggemann

ha ha, the business calculator has no minus sign.

NOW I get it.

#### What ?? I think I did not get it.

Message #14 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 2 May 2003, 10:02 a.m., in response to message #12 by Hans Brueggemann

Hello, guys;

What does it mean?

My HP19BII has a [+/-] key beside the [INPUT] key to change the signal of an existing (or being entered) number.

Did I miss anything?

Luiz C. Vieira - Brazil

### Re: What ?? I think I did not get it.

Message #15 Posted by <u>Ron Ross</u> on 2 May 2003, 10:11 a.m., in response to message #14 by Vieira, Luiz C. (Brazil)

You only think you have that KEY. Actually, I DO think there is a bug associated with that key in RPN mode. Therefore, you ARE NOT allowed to use SAID KEY.

#### How come?

Message #16 Posted by Vieira, Luiz C. (Brazil) on 2 May 2003, 1:18 p.m., in response to message #15 by Ron Ross

Hello, Ron;

I am with my HP19BII in hands right now and I tested the [+/-] key in both situations: entering a number and changing is signal from positive to negative while entering it and after it is in the stack and the [+/-] key works fine.

I was not able to enter a negative exponent of ten, but you can always divide the previous entered number by a positive exponent of ten. Is that what you mean?

Luiz C. Vieira - Brazil

### missed our joke,

Message #17 Posted by <u>NH</u> on 2 May 2003, 1:41 p.m., in response to message #16 by Vieira, Luiz C. (Brazil)

Hi Luiz, you seem to have missed our joke.

We are trying to understand why anybody needs a business calculator. Perhaps one reason is because they only want positive results and no negative results. Therefore a business calculator has no negative sign.

Go back to the post

"I could mail it".

#### Re: missed our joke,

Message #18 Posted by <u>Ellis Easley</u> on 3 May 2003, 5:51 a.m., in response to message #17 by NH

Didn't the old mechanical adding machines have a big "+" key and a little "-" key? And you'll notice they didn't call them "subtracting machines"!

Actually, I hadn't made this connection before, but I have always felt that adding machines worked like RPN, since the "+" key worked immediately (sometimes was marked "+/=", wasn't it?) - "postfix-wise", I guess. But what I haven't considered before is that maybe this is why accountants like (or accept or don't mind) RPN, and keep buying the 12C.

#### **Re: How come?**

Message #19 Posted by <u>Massimo Gnerucci (Italy)</u> on 2 May 2003, 1:41 p.m., in response to message #16 by Vieira, Luiz C. (Brazil)

Luiz, of course your 19BII can handle negative numbers... it was only a joke on accountants: *[what] accountants fear most are negative figures - >* they don't like red numbers in their financial plans ;-)

It is easy for us abroad to miss some joke.

Cheers, Massimo

#### **Re: How come?**

Message #20 Posted by <u>Ron Ross</u> on 2 May 2003, 3:12 p.m., in response to message #16 by Vieira, Luiz C. (Brazil)

(from Wlodek Mier-Jedrzejowicz)

Early models of the HP19BII have a bug which is activated when the HP19BII is in RPN mode and the [+/-] and [x<>y] keys are pressed one after the other. A harmless way to see the bug is as follows:

1. Put a positive number on the stack, for example press the 9 key. 2. Change the sign by pressing the [+/-] key next to [INPUT]. 3. Exchange x and y by pressing the key with x<>y above it. 4. Now type a digit, for example 8; you will see a minus in front of it. (This is the bug; after +/- to change a positive number to negative, immediately followed by x<>y and a number, the number has a spurious minus sign placed in front of it.) 5. Press [INPUT] and you will see the number is really positive. 6. Type another number; it will again have a minus sign. 7. To deactivate the bug safely press CLEAR (the yellow key followed by the backarrow key).

The bug is dangerous, if you get to step 4 and see a number which is negative though it should not be, you might be tempted to press the backarrow key to remove the number and the minus sign. Since the minus sign is not really there, if you try to delete it, you confuse the calculator - it stops for a moment, then clears the stack after you press the next key. If the next key you press is [ON], it sometimes displays the screen to choose a language, and when you choose a language, you get MEMORY LOST! The bug can also lock up your keyboard - in that case you should reset the calculator by pressing the ON key and the third key from the left in the top row both at the same time. If you ever see the bug, press CLEAR at once to kill it!

There are some variations on the bug. If you press the backarrow key until only the minus sign is in the display, then press [INPUT] or try to use this minus sign, nothing will work except that the [-] key will put a second minus in the display. If you do steps 1 through 4, then press [+/-], x<>y, and a digit key again, you will see two minus signs, and you can repeat this process adding one more minus sign each time. If you press CLEAR now, then type a number, press [+/-], [INPUT], x<>y, [+/-], x<>y and then a digit key, you will see a zero (if the display mode is ALL) or a fraction mark (if the display mode is FIX) in front of the digit instead of a minus.

The same bug exists in early HP17BII models, though it behaves a little differently. It was removed early in 1991.

I Stole this explaination from Craig A. Finesth's description of the Hp19Bii. He has all sorts of information on all of the Hp calculators released. A very interesting site, no pictures, but lots of information.

**Thank you!** Message #21 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 2 May 2003, 4:23 p.m.,

in response to message #20 by Ron Ross

Hey, guys!

It seems a joke made the party over here. It remembers one of the Bee Gee's tops: "I started a joke..."

About the bug: I was not aware about it. It seems dangerous, indeed. I also tried a way to enter numbers with negative exponents of ten and I was not successful. Also, if you press [SHIFT][E] without prior entering a valid "mantissa" in RPN mode, the calculator does not enter a '1E\_' in the display, instead it waits for a message (?). Another bug?

Wow! What do these boxes hide from us...

Thanks again, Ron.

Luiz C. Vieira - Brazil

('bout the joke: I am a sitting duck when jokes are the subject... I always try the serious way before noticing people are laghing. Then I laugh with them. What to do? I humbly accept the sitting duck condition.)

# **Re: Thank you!**

Message #22 Posted by <u>Christof</u> on 3 May 2003, 5:29 a.m., in response to message #21 by Vieira, Luiz C. (Brazil)

the bug fails for me, which is probably a good thing.

I'ts still a grreat backup PDA, regardless ;)

# HP-12C and HP 19Bii

Message #23 Posted by <u>Norm</u> on 3 May 2003, 6:13 a.m., in response to message #22 by Christof

If Carly-oni and her thugs dumped the HP 19Bii (it does appear to have been discontinued) well, then when are they going to dump the HP-12C ?????

What's the big liking about the HP 19Bii ?? Is it that much different from HP-12C ?? Does it have a loyal following of stockbrokers, who are angry as the engineers about our favorite calculators getting trashed?

# A question:

Message #24 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 10:01 a.m., in response to message #22 by Christof

Hello, Christof;

have you tried to enter a number with a negative exponent of ten in the HP19BII (or 17BII) while in RPN mode? I did not try it hard, but I'd like to know if there is an "easier" way.

Thanks.

Luiz C. Vieira - Brazil
#### **Re:** A question:

Message #25 Posted by <u>Christof</u> on 3 May 2003, 1:55 p. m., in response to message #24 by Vieira, Luiz C. (Brazil)

Luiz:

In RPN mode

5 E - (minus sign) 10 <input>

seems to work

serial number on this one is: 3523S\*\*\*\*\*

The answer!

Message #26 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 2:34 p.m., in response to message #25 by Christof

Hello, Christof;

if I try:

5 [E] [+/-]

I get

-5E

If I try

5 [E] [-]

I get:

5E-

and that's what I wanted, thank you.

Let me see if I got it: if I press [+/-] while entering a number it changes the mantissa sign; if I press [-] right after [E] it adds a minus sign to the exponent of ten; if I enter any digit after [-] in the exponent and decide it's positive, I have to clear whatever is entered, clear the minus sign and enter whatever was entered again.

So, the [-] is a one-shot sign, and there is no key to actualy "change" the sign of the exponent. I never thought about using [-] key because it should perform the subtraction. Thank you again for showing me "the way to enter negative exponents of ten" in an HP17BII or 19BII in RPN (and even algbraic) mode.

Best regards.

Luiz C. Vieira - Brazil

# HP Forum Archive 12

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#### **Topcat: country of manufacture**

Message #1 Posted by <u>Renato</u> on 30 Apr 2003, 10:45 p.m.

I have 97 and 91 made in Brazil. I was surprised that they were manufactured here, as I never saw these in 70s and 80s. The 97 service manual says that they had A,B or S country codes (USA, Brazil and Singapore, respectively).

Do you brazilian guys have brazilian made topcats ? What about you from other countries ?

**Re: Topcat: country of manufacture** *Message #2 Posted by* <u>**David Smith**</u> on 1 May 2003, 4:20 p.m., *in response to message #1 by Renato* 

I have seen two "B" machines out of about 100 HP91/92/97/97S machines.

**Re: Topcat: country of manufacture** *Message #3 Posted by* <u>*Renato*</u> *on 1 May 2003, 9:50 p.m., in response to message #2 by David Smith* 

2 in 100. Looks like most were sold in Brazil. What about "A" vs "S"?

## **Re: Topcat: country of manufacture**

Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 1 May 2003, 11:00 p.m., in response to message #3 by Renato

Hi;

I have both HP67 and HP97 original user's guides, and they are both in English, bought in a used bookstore in Petrópolis, in the end fo the 80's (I remember they were cheap enough I could buy some other HP-related manuals). They are both in English, but I guess they came with calculators bought in Brazil. I also have four original Spices manuals, all in "Brazilian" Portuguese.

Have the manuals been sold in one single, English version? My HP55 has an original Portuguese manual, printed in USA.

Weird!

Luiz C. Vieira - Brazil

## **Re: Topcat: country of manufacture**

Message #5 Posted by <u>Renato</u> on 2 May 2003, 1:28 p.m., in response to message #4 by Vieira, Luiz C. (Brazil)

My dad's long lost 21 was SN1608B20797. Manual is 00021-90008, in Portuguese, printed in USA, March 1975. There is a error in the first page: "Proprietario" is written as "Propietario".

## **Re: Topcat: country of manufacture**

Message #6 Posted by <u>David Smith</u> on 2 May 2003, 6:10 p.m., in response to message #3 by Renato

"A" and "S" machines seem to be split 50-50. Later production are virtually all "S" machines, earlier ones "A" machines. This seems to hold for most HP production.

I have seen a couple of "B" HP21's, but not any of the other woodstocks or spice series.

I have also seen a few machines with mismatched codes/countries. One of the HP21 "B" machines said Made-in-USA. Several "S" numbered HP97's said USA. I think most of the HP-97S I/O machines have conflicting labels.

#### Woodstock: country of manufacture

Message #7 Posted by <u>Renato</u> on 3 May 2003, 12:07 a.m., in response to message #6 by David Smith

I have a "B" 29C, made in Brazil. I know about "B" made in Brazil 25s (don't have any currently).

Have the mismatched code/country units been repaired ? What would happen if a "B" machine went under service in USA ?

Also, someone has a 41cx with a "B" code, although only 41c and cv have been marketed in Brazil. My guess is that the back was changed, because it did no make sense to export calculators from Brazil (long story, off-topic).

#### Woodstock: interchangeable back halfcase

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 2:15 a.m., in response to message #7 by Renato

Hi Renato, Guys;

about Woodstocks and Spices and most Pioneers: the back of them is interchangealbe and there is no way to check for it, unless you get the original equipment with that serial number. I have at least two original Woodstock's backcase and I thrown away a Spice broken backcase (about half of it missing, right in the battery compartment; not recoverable) and I used another one's in the working machine. A new serial number, probably a new origin.

About the CX: its back label is different of the C/CV one, as it shows ED's keyboard instead of ALPHA keyboard. One can change a C backcase with a CV's, but it's not possible with the CX, unless he is successful removing the back label and replacing it. I think if there were CX's made in Brazil, and I agree it's unlikely as a past event, they were intended only for exportation (remember Passat Export-Only, made in Brazil, Renato?). As Renato mentioned and I add another mentioning, neither the HP41CX nor the HP16C were commercialized in Brazil. The ones found here were somehow "imported" and Brazilian Hewlett-Packard never offered local maintenance for these models.

Just a few more data.

Luiz C. Vieira - Brazil

#### completely O.T. re: export only

Message #9 Posted by <u>Ellis Easley</u> on 3 May 2003, 6:32 a.m., in response to message #8 by Vieira, Luiz C. (Brazil)

Except to say that I got a very nice 12C made in Brazil on Ebay, \$15.99 BIN.

But back off the topic, years ago I heard about the BBC computer but I never saw one here in the U.S. Last year I got one on Ebay from Australia. When I went looking for info on the web, I found quite a bit - most of the manuals had been scanned and OCR'd (except for the drawings which were included as .jpg files), not that they were that big. One thing I found was very interesting: a scan of an ad from the early 1980's offering for sale, in England, BBC computers (the original one, either the A or B version) that had been made for export to the U.S. where they didn't sell, so they were brought back to England and converted to the UK version. This would have involved at least changing the video chip to PAL from NTSC and changing the power supply from 110 to 220 - this wouldn't actually be a big problem by itself, my unit had an Astec power supply configured for 220 which just didn't have the jumper option installed to switch between 110 and 220, so all I had to do was add a wire. Most line operated switching power supplies run on about 400V DC and are built with a bridge rectifier and two 250V electrolytic capacitors in series, with ~100K resistors across each one to equalize the voltage and serve as bleeders. It only takes moving one of the AC line leads from the "corner" of the bridge to the node between the two capacitors to convert it to a voltage doubler so you can operate it on 110V. The 110V power supplies in the BBC computers were probably dual voltage units jumpered for 110, so they would just have had to open up the power supply chassis and move the jumper. However, if the safety rules in the UK are like the US, doing that modification would require the unit to be safety tested again (HiPot ground continuity/insulation leakage test or similar).

A couple of us got good deals on samples of 220V Tandy video monitors once. Converting them to 110 was a bit of a pain because they had a single electrolytic capacitor so I had to find a way to mount two capacitors and add two bleeder resistors.

#### **Re: Woodstock: interchangeable back halfcase**

Message #10 Posted by <u>David Smith</u> on 3 May 2003, 2:18 p.m., in response to message #8 by Vieira, Luiz C. (Brazil)

The CX back works just fine on a C or CV... the label is not all that different. Also the labels are not difficult to remove and replace... especially with my favorite goo-be-gone-for-a-while UnDu.

The machines with the mixed date codes on the back have the date code and the "Made in" text factory stamped in the case. Definitely not a case of swapped cases.

## UnDu and something else

Message #11 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 2:56 p. m., in response to message #10 by David Smith

Hi, David;

you're right about the CX back: I did not mention they are all the same, even from fullnuts to halfnuts (except for the beeper that is "fiercely" glued with a double-sided tape). And this leads me to the UnDu question: can you post the lab name or the brand? I remember I requested this data and the chemical component(s) before, and you answered promptly (thank you), but I cannot find it anymore. I tried to find something equivalent in Brazil, but it seems it is not available as a final product. I'll try to find the lab and ask if they have a similar product sold in Brazil.

And David, thank you sharing information about HP internals and correcting my mistakes.

Luiz C. Vieira - Brazil

#### Re: UnDu and 41 case backs

Message #12 Posted by <u>Randy Sloyer</u> on 3 May 2003, 7:40 p.m., in response to message #11 by Vieira, Luiz C. (Brazil)

I have found David's favorite goo-be-gone solvent Un-Do to be the first thing I reach for when it comes to anything sticky. David has said it is a very expense repackaging of the solvent Heptane.

Whatever it is, it is worth the money. Not that this helps Luiz, but I have found it in 4 oz bottles in the craft departments of Wal-Mart for the same \$4.99 that 1 oz containers sell for in the local hardware store.

Just a mention on the 41 case backs, I have seen early C models to be physically different with respect to logic board clamping. The case back has flat areas that exert pressure on the logic board by means of thick nylon spacers over the post. The screw boss area is flat. The later models have a small tube that extends from the boss down to press on the logic board. They are interchangeable so long as all the hardware stays with the back in question.

#### I forgot these ones...

Message #13 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 3 May 2003, 8:07 p.m., in response to message #12 by Randy Sloyer

Hello, Randy;

you're right. There are earlier 41C's with two nuts (externaly threatened to the bottom screw posts) that hold the mainboard. These earlier C's are externaly diferent because they have those top-keys, right? And their backhalves cannot be used with the later fullnuts because they cannot press the mainboard against the zebra connector.

Thank you, I actualy forgot those.

Luiz C. Vieira - Brazil

## Re: UnDu and 41 case backs

Message #14 Posted by **David Smith** on 4 May 2003, 5:52 p.m., in response to message #12 by Randy Sloyer

The HP41 case backs with the flat bottom posts are for the machines with the CPU card held down by nuts (or big fat washers). These machines have a third type of back label with a simpler, slightly less cluttered layout.

# Re: UnDu and something else

Message #15 Posted by <u>David Smith</u> on 4 May 2003, 5:50 p.m., in response to message #11 by Vieira, Luiz C. (Brazil)

UnDu is the solvent heptane. It is made in the USA by a company called... UnDu (I think). I causes any adhesive to loose its stickum for a few seconds until it evaporates. Removes those pesky beepers in a pinch.

Some types of rubber cement thinner are heptane (others are hexane). Undo is sold in small 1-2oz bottles for around \$5. Rubber cement thinner is 16-32 oz for the same chemical. It is also vey cheap from chemical supply houses.

# **Re: Topcat: country of manufacture**

Message #16 Posted by <u>Alex</u> on 2 May 2003, 12:16 p.m., in response to message #1 by Renato

There must have been quite a few HP97 machines made in Brazil. I've been keeping an informal record of serial numbers I observe on the net, eBay, etc. I've seen six HP97 machines with the "B" country of manufacture: 2006B64xxx, 2012B67xxx, 2103B69xxx, 2201B11xxx, 2208B09xxx, and 2301B14xxx. According to the HP97 service manual, the date coding is first two digits for number of years after 1960, and second two digits for the month number (\_not\_ week number) of manufacture.

Alex, www.calcmuseum.com

**Re: Topcat: country of manufacture** *Message #17 Posted by* <u>*Renato*</u> *on 2 May 2003, 1:42 p.m., in response to message #16 by Alex* 

Alex, thank you very much. My 97 is 1804B48120 - older than the ones you've seen. I don 't plan to sell it on ebay, but you can keep the number in your informal record if you want.

What about 91 and 92? Have you seen any of those?

**Re: Topcat: country of manufacture** *Message #18 Posted by <u>Alex</u> on 5 May 2003, 11:52 a.m., in response to message #17 by Renato* 

Hi Renato,

No, I haven't seen any "B" HP-91 or HP-92 machines. Mostly "A", and a few "S".

Alex www.calcmuseum.com

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## HP 32Sii Picture

Message #1 Posted by Charles on 30 Apr 2003, 4:45 p.m.

I've a slightly strange request- does anyone have a good quality front picture of an HP 32Sii keyboard with the orange/blue text/buttons ? I need something of the quality of the pictures on the museum site which I can print on an acetate sheet,cut out and use as a template like those on the 41C's. I have one of the latest HP32Sii's with the green text but find it difficult to read. Thanks for your help. (Now what can I do about the clicking buttons !)

# Re: HP 32Sii Picture

Message #2 Posted by <u>Gordon Dyer</u> on 30 Apr 2003, 6:21 p.m., in response to message #1 by Charles

I also have a new 32SII with nasty colout text. If your template making is successful let me know, I might buy one from you! Gordon.

## Re: HP 32Sii Picture

Message #3 Posted by <u>Chan Tran</u> on 30 Apr 2003, 8:19 p.m., in response to message #2 by Gordon Dyer

I have good success scanning the calculator on a flatbed scanner. If you have a flatbed scanner, try that out. If not, I can scan for you.

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#### Who made the first pocket calc?

Message #1 Posted by <u>Tom (UK)</u> on 30 Apr 2003, 12:58 p.m.

This site makes the modest claim:

"The HP-35 was the first pocket calculator with transcendental functions..."

The HP35 was made from 1972 (but I can't find the month it was available). But the following site:

http://www.nvg.ntnu.no/sinclair/calculators/executive.htm

Claims "The Sinclair Executive was the world's first pocket calculator, launched in August 1972..." Is this true? Does anyone know who made the first pocket calculator (including 4 bangers) that could be bought in a shop? (rather than a demonstration model).

A definition of 'pocket calculator' could be difficult but I think most people would know one when they saw one.

#### Re: Who made the first pocket calc?

Message #2 Posted by <u>Ron Ross</u> on 30 Apr 2003, 1:11 p.m., in response to message #1 by Tom (UK)

Hp is recognized as being the first to offer a scientific pocket calculator. Ti actually made the first pocket calculator, a simple four function calculator. Ti's first scientific to answer the Hp was an SR-50 and offered more functions than an Hp35.

I do not doubt Sinclair made a scientific and released it about the same time as an Hp35, but I believe HP was out first. Hp's literature certainly claims so.

Hp also lays claim to the first pocket programmable, the Hp65.

## Re: Who made the first pocket calc?

Message #3 Posted by <u>Andrés C. Rodríguez (Argentina)</u> on 8 May 2003, 9:20 a.m., in response to message #2 by Ron Ross

IIRC, the HP35 was introduced in January, 1972. If so, it predates the Sinclair, as most people think.

## Re: Who made the first pocket calc?

Message #4 Posted by Larry Gilbert on 30 Apr 2003, 3:03 p.m., in response to message #1 by Tom (UK)

The first portable (battery-operated) calculator was the Sharp QT-8B, manufactured in 1970. It was not a pocket calculator, measuring about 10" x 5", and it fit into a larger recharging cradle. It used an unusual blue tube display. In late 1970 - early 1971, Sharp shrunk this model to more of a "palm-size" and called it the EL-8; concurrently, Canon came out with the Pocketronic (a printing-only model with a ticker tape type printing mechanism). Many people consider those two the first truly pocketable calculators (coat-pocket only!). The next step in miniaturization came around September 1971, with the introduction of the Bowmar 901B (made in USA) and the Busicom Handy LE-120A (which may have beat the Bowmar by one or more months). These two, especially the Busicom, are closer in size to what we think of as pocket calculators. The Busicom is quite remarkable (and rare); it is only about 3/4" thick I believe, and is considered to be the first calculator with an LED display, and the first to use a single chip. The Bowmar sold initially for \$240, well under the \$300-\$400 for the other models, and therefore sold quite well, not just as a Bowmar, but also badged as the Craig 4501 and the Commodore C110.

## I Did.

Message #5 Posted by <u>Al Gore</u> on 6 May 2003, 11:11 p.m., in response to message #1 by Tom (UK)

just before i made the internet

# [OT] Another Invention..

Message #6 Posted by <u>Matt Kernal (US)</u> on 8 May 2003, 3:25 p.m., in response to message #5 by Al Gore

Al, you reminded me of another invention I attributed credit to you back in 2000 in a Letter to the Editor to our local newpaper. It went something like..

There is one invention I wouldn't have any problem if Al Gore claimed was his, if only he'd demonstrate how it should be done: the concession speech.

And now for something completely different... hey, wait, looky there, ain't that one of them new fangled cacalator thingies!

**Re: Inventions . . .** *Message #7 Posted by* <u>*Paul Brogger*</u> on 8 May 2003, 5:54 p.m., *in response to message #5 by Al Gore* 

I've been working on what may be the first of its kind: a microwave hair dryer.

I need some more beta-testers.

Anyone interested?

(Or maybe you would like to *recommend* someone . . . )

8^)

# HP Forum Archive 12

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**HP31E, charging circuit and flex-cable versus discrete wires** Message #1 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 30 Apr 2003, 3:44 a.m.

Hi;

last year I post some messages about an HP31E (Spice) I was given as not working. After disassembling it all (soldered version), cleaning it, rebuilding posts and resoldering two IC's terminals it got back to life... except for charging batteries.

I remember many contributors sent me suggestions, in special Katie Wasserman (thanks, Katie) who suggested me a brief "check list" over some diodes and other components.

After all of these discussions about flex-cable I decided to carefully check connections in that HP31E and I found a broken copper trail right were the flex cable is soldered to the mainboard. While inspecting, I decided to check the flex itself and suddenly another cooper trails broke in front of my eyes (maybe I forced a little more than I should... OK, OK: guilty-as-charged). Well, soldering iron connected to the AC line and let's remove the flex.

After a couple of hours there it was, a fully operative HP31E... and charging batteries. No problems at all with the power circuit.

I used parts of an ordinary PC-IDE flat cable to re-make all connections. It fits fine in the small space between the power supply PCB and the structural frame. I also used small pieces of foam with adherent in both surfaces to keep the power supply PCB in place; it looks as a stable assy.

This is an experience of mine and by no means is intended to prove others are wrong. Even without seeing it, I'm 101% confident that Renato's solution is cosmetically better, no doubts about it.

Oh, yes: this is a soldered-type Spice and it shows the "2"-digit blinking effect, while I'm finishing services over another HP31E, "sandwich"-type, that does not suffer for this bug; an opposed situation from the one observed when comparing my HP34C with Norm's one.

Just a few more data.

#### Re: HP31E, charging circuit and flex-cable versus discrete wires

Message #2 Posted by <u>David Smith</u> on 30 Apr 2003, 11:23 a.m., in response to message #1 by Vieira, Luiz C. (Brazil)

Yes, I also use flat ribbon cable to do my Spice repairs. Flex-cable generally refers to that flat printed wiring on plastic (usually Kapton) cable that HP used in the machines. The material that HP used likes to delaminate ot develop cracks in conductors. It particularly likes to fail right near the place where the bare conductors become coated on both sides with insulating film. Apparently the film contracts with time and stresses rip the conductors apart.

The other flex-cable failure that HP's are famous for are the HP97 card reader cables where the bare conductors come unglued from the backing where they plug into the connectors. When fixing HP card readers it is best not to unplug the cable.

#### **Reducing (production) costs**

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 30 Apr 2003, 11:49 a.m., in response to message #2 by David Smith

Afterall, using flex conductors means a lot of mainboards being soldered on a producion line without men interference and at a lower cost. If all Spices' calbes were hand soldered, producion cost would surely increase.

Just a note.

Vieira, Luiz C. - Brazil

**Re: HP31E, charging circuit and flex-cable versus discrete wires** *Message #4 Posted by Ellis Easley on 30 Apr 2003, 12:09 p.m.,* 

in response to message #2 by David Smith

I'm not sure about the sockets HP used in the 97, but that kind of connector comes in a version that has barbs to aggresively prevent unplugging the flat cable. You can "unlock" it by sliding in a thin sheet of something else between the cable (conductor exposed side) and the contacts. If the material you use is too thick, it will end up locked in there - then you need to find a thinner material to unlock it! The best thing would be very thin steel (don't know what dimension, I think of the old feeler gages) which the barbs can't bite into much. It's important to have material with a square-cut end as wide as the cable to push on all the contacts at once, a single barb will hang things up. As David says, it's better not to unmate one of these if you can avoid it. I've just remembered a failure mode of these connectors

which the barbs are intended to correct - we used cables about 2.5 or 3 inches wide (connecting the floppy disc controller and RS-232 boards to the Radio Shack TRS80 Model 3 motherboard) and when it is that wide, the plastic shell of the socket can't exert as much force out in the middle of the span as it can at the ends (due to the accumulation of the spring forces of the individual contacts) and so it "smiles"! (Think of Miss Swan on "Mad TV")

#### Re: HP31E, charging circuit and flex-cable versus discrete wires

Message #5 Posted by <u>jose goncalves</u> on 30 Apr 2003, 2:16 p.m., in response to message #4 by Ellis Easley

This piece of hard thin material you are decribing is exactly what the service manual for the 92 calls a "special tool" for releasing the flat cable. When I disassembled my 92 I found that even if I didn't disconnected the flat cable I would face problems for it already was full of small cracks and interruptions. I'm still thinking about the best approach to substitute that thing. Should I use common small gauge wire and solder ? I could install sort of a plug in the middle to allow me to remove the reader if I wanted to. Any suggestions ?

**Re: HP31E, charging circuit and flex-cable versus discrete wires** *Message #6 Posted by Ellis Easley on 30 Apr 2003, 10:06 p.m., in response to message #5 by jose goncalves* 

I have a small sample of some .1" center-center ribbon cable, two pieces about 5" long each, terminated with gold plated machined-pin connectors, pin on one cable and socket on the other. I use them to connect the keyboard to a TRS80 main logic board that I have mounted on a plank of wood, making the keyboard detachable. I think the samples are from Samtec. The pins are the size that mate with DIP IC sockets of the same kind. You could mount a SIP (single inline plug) socket strip at one end and then solder a ribbon cable terminated with the mating pin connector strip at the other end. This is probably overkill, since it doesn't need to be mated often, which is one reason for gold plated connectors, but it comes to mind because the connector is very compact in cross section (<1/8" thick), but it does require 3/8or 1/2 inch above the socket before the wire can bend, so that might disqualify it unless you can solder it on the tight end of the run and have plenty of clearance at the other end for the connector. Or if it is tight at both ends, but ther is a straight run in the middle of at least 1", you could do what I have done with the keyboard (which was an afterthought based on the possession of the samples!) There are rather bulky insulation displacement connectors for .1" ribbon cable, the cross section of the plug is about 3/8" by 1/2", you see these a lot in TVs, they mate with .025" square posts which are the same size used in dual row headers like thosed used in computers for disk drives, etc. only made in single row strips. Again, you can solder the cable at

one end and use connectors at the other. Then there are the more compact single row connectors (usually red) with terminals crimped on individual wires on .1" centers like the harnesses that connect the speaker and the front panel controls on generic PC chassis, these also mate with the same .025" square pins. Thes are probably the easiest to find connectors but they don't come in a pin version to be attached to a cable - however you can crimp sockets on either side then join the sockets with a single row header, they are made for this purpose with the same length of pin on both sides of the plastic strip that holds the pins. There are some more compact connectors used by Asian manufacturers that are metric but if the number of circuits isn't too high, 2.5mm connectors fit in places meant for .1" connectors. They are generally used with individual wires rather than ribbon cables, the terminals are crimped to the wires and then pushed into the shells where they latch in place. One example you might have seen is the audio connectors on CD-ROM drives before they were standardized with the 4 pin latching Molex connector. Is the 92 built like a 97? I'll take a look at my 97 and see what kind of clearance there is, and see what ideas come up.

**Re: HP31E, charging circuit and flex-cable versus discrete wires** *Message #7 Posted by Ellis Easley on 1 May 2003, 3:32 a.m., in response to message #6 by Ellis Easley* 

I opened up my 97 and I see that there is not a lot of clearance above the PCB at either end, so a right angle connector would be needed. The opening in the middle plastic is 0.180" X 1.490". The red Molex connectors measure 0.196" thick so that's too much. The black ones, which are actually the ones used for PC chassis front panel harnesses now that I look at it, are exactly 0.1" thick - they need to be since common PC motherboards use a dual row header (0.1" centers both ways) and plug single row sockets on both rows - so they would fit through the slot in the middle plastic. If you had a bunch of PC chassis harnesses, enough to add up to 2 X 13 pins, you could cut the wires to length, tape the plugs together to make two 13 pin single row sockets, solder 13 wires into each PCB, and then use a double-header to join the two sockets. Page 4 of this .pdf from DigiKey shows single row headers with many combinations of lengths above and below the plastic strip (drawing calls them "A head" and "B head"):

http://dkc3.digikey.com/pdf/T032/0074-0077.pdf

The black connector is called "C-grid" by Molex, you can see it on this page:

http://dkc3.digikey.com/pdf/T032/0081.pdf

The single row version only comes in up to 10 circuits and you have to buy the contacts separately and you have to have the right tool to crimp them right.

An idea that came to me when I looked in my junk box is to take a 28 pin machined pin open frame DIP IC socket, cut it into two strips, cut one pin from each (to make two 13 pin strips), bend the pins on one strip at a right angle and solder it into one of the PCBs. Then push 13 wires into the sockets of the other strip and solder them in place, and solder the other ends of the wires to the other PCB. Now you can plug the pins from the second strip into the sockets of the first strip. Page 5 of this .pdf has the kind of IC sockets I'm talking about:

http://dkc3.digikey.com/pdf/T032/0247-0252.pdf

The pin and the socket should be either both gold plated or both tin plated for reliability. Catalog number ED56283-ND or ED56286-ND are both all gold plated 28 pin sockets, one is 0.3" wide and the other is 0.6" wide, both cost \$2.07. Catalog number ED3128-ND or ED3728-ND are both all tin plated 28 pin sockets, one is 0.3" wide and the other is 0.6" wide, both cost \$1.13. The drawing for these parts, labeled "Solder Tail", shows the pin is .021" diameter but it doesn't say what range of pin sizes the sockets accept.

On page 3 of this .pdf are "single row sockets" which are strips made of machined pin sockets:

http://dkc3.digikey.com/pdf/T032/0254-0256.pdf

The drawing "Fig.1" shows that these parts have a pin .021 diameter and a socket that accepts pins from .015 to .025 diameter, which means you can plug one of these into another reliably (the contacts in the IC sockets are probably the same thing). The 7400 series has gold plating on both the pin and the socket. You can either order a 64 pin strip and cut it or order "custom" sizes - the price works out the same for a 64 pin ordered as custom. A 13 pin "custom" would be \$1.04 (0.26 base + 0.06 per pin).

I think I'm going to do this to my 97. To me, it makes sense to solder the wires to the card reader PCB and solder the socket to the main PCB, then you can unmate the connector before you remove the middle assembly to get to the card reader. Also, it looks like there is more room near the main PCB. It's probably a good idea to use a small screwdriver to separate the two connectors a little at a time to avoid bending the pins.

Flex x wires : a matter of taste ? Message #8 Posted by Renato on 30 Apr 2003, 10:57 p.m.,

in response to message #2 by David Smith

Decision to use wire or flex circuit seems to be a matter of taste. I used flex on a very nice 34c, with box, manuals, qrg, cartons, ac adapter, case. I felt this one deserved it. If conditions were not like that, maybe I would take other route. Also, I am fascinated by the idea of recreating replacement parts - kind if makes me feel much more optimistic about the future life of these interesting artifacts. Challenge was also a factor in this case. Why do it ? Because it is there...

#### **Re: HP31E, charging circuit and flex-cable versus discrete wires**

Message #9 Posted by <u>Howard</u> on 30 Apr 2003, 5:45 p.m., in response to message #1 by Vieira, Luiz C. (Brazil)

I have to report that I have got my 34C fully functional (See other thread). It had been very badly corroded and the power flex strip was totally disintergrated. I traced it all out and made a new one. I just used three wires. It worked well. Thanks Luiz for giving me the confidence to give it a go. This is the HP34C that was for sale on ebay as being corrodd and non operational. I paid US\$71 for it with a heap of manuals. Now with persistance I have a perfect 34C for what I believe is a great price. But more than that I have gotten great satisfaction in successfully repairing this 23yo machine.

## Good news, indeed!

Message #10 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 1 May 2003, 6:08 a.m., in response to message #9 by Howard

You're welcome.

Thank you for the feedback, Howard. That's what we're here for.

Luiz C. Vieira - Brazil

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## HP49G: Lost command remedy

Message #1 Posted by Juergen Rodenkirchen (GER) on 30 Apr 2003, 2:20 a.m.

Hi all!

The other day I discovered that I apparently had "lost" 2 commands, namely "->LST", "->ALG", on my HP49G, ROM 1.19-6. That is, they neither appear in the catalog nor can they be executed by typing in manually any more. BUT, I've a program loaded that includes these commands AND it works just fine. So, I guess, the commands actually are still there in ROM but the OS doesn't recognize them any more (broken pointer?). I'm not sure, but I think - apart from Re-Flashing the ROM - a work-around could be to isolate the commands in question from the program and to put'em in a cst-menue. Even better, one could use SYSEVAL to execute the commands in ROM from a custom menue? If this would be a remedy, does anyone know the ROM address of the commands mentioned?

Regards, Juergen

## Re: HP49G: Lost command remedy

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 30 Apr 2003, 3:09 a.m., in response to message #1 by Juergen Rodenkirchen (GER)

Hi, Jurgen;

I took a look at the HP49G's [CAT] and I found '->LIST' in both 1.18 and 1.19-6. I have a second HP49G in hands for now and each one has a different O.S. version. I was not able to find '->ALG' in any of them, nor '->LST'.

May I ask a silly question? Forgive me if it is too silly, but are you sure they are not part of an installed library? I remember you mentioned having some stuff installed in your HP49G, as you bought it as a second hand. Have you already checked for it? Maybe you need to init ports again after O.S. updating so you'll have them "activated".

Do you remember what were those commands for?

## Luiz C. Vieira - Brazil

# **Re: HP49G: Lost command remedy**

Message #3 Posted by Juergen Rodenkirchen (GER) on 30 Apr 2003, 5:39 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

Hi Luiz!

It's sort of "reassuring" that 1.19-6 seems actually to miss these both commands and it's not a ROM corruption of my copy (no libs installed anymore, b.t.w.). Anyway, it's a great pity that those commands are not in the ROM (anymore?): I'm almost sure that they were contained in OS 1.18. And, as said, I do have a program that uses those commands successfully (downloaded from somewhere)!!! That - to my opinion - means that they definitely do exist in ROM and that there MUST BE a ROM address for SYSEVAL? Or are they after all just programs that I've created during the math marathons and which are not in the current path anymore? I'm sorry, can't remember; I've to double check that later ...

As for the commands itself, they have the following valuable functionality:

->LST: Takes an Algebraic Expression apart in a list enabling you to execute it afterwards by means of RPL

->ALG: Is the opposite of ->LST: It takes a list of objects (like the above) and creates an Algebraic out of it.

Regards, Juergen

## Re: HP49G: Lost command remedy

Message #4 Posted by <u>James M. Prange</u> on 30 Apr 2003, 5:30 a.m., in response to message #1 by Juergen Rodenkirchen (GER)

They're part of library 256, the "hacker's library". Try 256 MENU to have them available as operations, or better yet, 256 ATTACH to have them available as commands and show up in the catalogue.

Note that these are considered to be **hacker** commands, so if you're using them, it might be wise to have a recent backup. They seem to have some argument checking, but I wouldn't bet that you couldn't get a "Try To Recover Memory?" if you misuse them.

I doubt that SYSEVAL would work for these; more likely LIBEVAL. (I'd consider these to be hacker commands too.)

\->ALG, \->LST, and \->PRG can change a composite object (algebraic, list, or composite) from one type to another. Try putting '1+2+3' on the stack and executing \->LST followed by \->PRG (note that the resulting program lacks the UserRPL "program delimiter" commands), followed by \->ALG to get back to what you started with. Also note that you can change a composite object to a "MetaObject" (the elements followed by the count on the stack) with the COMP\-> command, and change the MetaObject back to a composite with \->ALG, \->LST, or \->PRG.

Note that the composite objects are much the same "on the inside", but have different prologues, and therefore different types and behaviour, and are displayed differently.

Regards, James

## **Re: HP49G: That's it!!! :-)**

Message #5 Posted by Juergen Rodenkirchen (GER) on 30 Apr 2003, 5:42 a.m., in response to message #4 by James M. Prange

Woaw! Yes, that's the solution! Thank you so much, James!!! :-)

Regards, Juergen

## Where can I find literature...

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 30 Apr 2003, 6:08 a.m., in response to message #4 by James M. Prange

Hello James, folks;

is this sort of information available for download somewhere? I tend to use and access basic, "public-domain" documentation, but I see it's time to go beyond.

I'm thanked for any information about these "extra" subjects.

Luiz C. Vieira - Brazil

## **Re: Where can I find literature...**

Message #7 Posted by James M. Prange on 30 Apr 2003, 7:45 a.m., in response to message #6 by Vieira, Luiz C. (Brazil)

Try "Programming in System RPL" (and the errata for it), available at Eduardo's "HP Knowledge Base", <u>http://membres.lycos.fr/ekalin/index.php</u>. There's probably some information about this available at <u>http://www.hpcalc.org/</u>, and of course you could search the newsgroup from <u>http://groups.google.com/advanced\_group\_search?</u> group=comp.sys.hp48.

By the way, if you install the extable library (extable.HP), library 258, from extable.zip, then library 256 will be attached whenever you do a warmstart. Be warned that the extable library is big; 89998 bytes, so you might be better off using XModem to download it to the 49G. Use the filer to move the libary to flash, and then do a warmstart. The extable is basically an entry points table; it cross-references supported SysRPL entry points (addresses) with SysRPL command names (otherwise unnamed on the calculator). Very handy if you want to do any SysRPL programming on the 49G itself, or even if you just want to look at a SysRPL program with flag -85 set. Also good for looking up the address of a SysRPL command for use with SYSEVAL. extable.zip is available at <a href="http://etud.epita.fr:8000/~avenar\_j/hp/49.html">http://etud.epita.fr:8000/~avenar\_j/hp/49.html</a>, and includes tools for making your own entry points table including unsupported (but, I hope, stable) entry points, or if you don't like the names that HP uses, you could invent your own.

## Re: Where can I find literature...

Message #8 Posted by James M. Prange on 30 Apr 2003, 7:54 a.m., in response to message #7 by James M. Prange

Oh my gosh! I forgot to mention that all of that's **TOP SECRET!** 

Just kidding! It can be a bit hard to find, but some people have explored their calculators quite a bit and are willing to share their discoveries with ordinary users like us.

## Thanks a lot!!

Message #9 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 30 Apr 2003, 11:52 a.m., in response to message #8 by James M. Prange

;^)

## **Re: Where can I find literature...**

Message #10 Posted by Juergen Rodenkirchen (GER) on 30 Apr 2003, 9:17 a.m., in response to message #7 by James M. Prange

A BIG thanks for sharing information :-)

Best Wishes, Juergen

# **HP Forum Archive 12**

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#### **Battery Corrosion in Classics**

Message #1 Posted by Steven Soto on 29 Apr 2003, 11:27 p.m.

I hope this question hasn't already been done to death...

I got my first classic recently, an HP45, and it works fine on a charger. I found a new battery pack at a local bookstore, but I think the spring contacts in the calculator are too corroded to make good contact and charge the pack. I have tried using sandpaper and a knife, but the corrosion is very stubborn and I do not want to hurt the contacts. Any other ideas? Will I need to replace the contacts? I don't want a Frankenclassic, but if that's the only option, so be it.

The other question I have is regarding the battery pack. It has never been used. I bought it in the original packaging last week, but what I don't know is if the cells are still good after all of this time. Should I rebuild it, or address the contact problem first and then see if it will hold a charge?

Thanks. -Steven

**Re: Battery Corrosion in Classics** 

Message #2 Posted by <u>Katie</u> on 30 Apr 2003, 12:05 a.m., in response to message #1 by Steven Soto

I use super fine grain sand paper (1200) to clean off corrosion, but if it's really bad just try scraping it off with a knife first. But your problem may not be the battery contacts. There's a little spring metal plate that connects the outer 2 pins of the AC adapter jack together when running on batteries. This plate may not be making good contact and it needs to for the batteries to feed power to the circuit.

As far as the new battery pack goes, if you have a voltmeter you should get some reading from it even if it has been sitting around for years. If it reads '0' it probably needs to be rebuilt with new cells.

## **Re: Battery Corrosion in Classics**

Message #3 Posted by <u>David Smith</u> on 30 Apr 2003, 11:27 a.m., in response to message #2 by Katie

The classic battery packs make connection to the contacts along the curved EDGES at the top of the contacts (not the tops of the contacts). Make sure you get the edges cleaned off very well.

To make sure the contacts are the problems (and not the charger bypass strap) connect the battery pack with clip leads. Clip them near the middle of the contacts and not the near the tips where corrosion can be very hard to see.

#### **Re: Battery Corrosion in Classics**

Message #4 Posted by <u>Steven Soto</u> on 30 Apr 2003, 7:39 p.m., in response to message #3 by David Smith

Thank you. The edges were worse off than the tops of the pads. Incidentally, the edges are easier to clean than the tops of the pads. I now have a perfectly working classic. No Frankenstein.

-Steven

# **HP Forum Archive 12**

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#### HP-42S dead?

Message #1 Posted by Mike (Stgt) on 29 Apr 2003, 5:01 p.m.

Hello all!

I've got a HP-42S today (3305S...) which looks nice but is said to be out of order. Now at home I inserted batteries (which make an HP-21S work - hello Raymond!) but the display stays blank. I did the 'Exit'-'Sqrt' which is described in the manual to test if repair is needed. Nothin than a deep 'Blurp' from the beeper. Not repetable.

Now my question: is there a chance to get it back to live? I assumed the contrast would be down to clear display and pressed 'Exit'-'+' several times which led to another 'Blurp', alas since then not the slightest sign of live behind the keys. Is there still hope?

TIA.....Mike

## Re: HP-42S dead?

Message #2 Posted by <u>Ron Ross</u> on 29 Apr 2003, 5:06 p.m., in response to message #1 by Mike (Stgt)

Try the standard fix. Short the battery terminals.

## Re: HP-42S dead?

Message #3 Posted by <u>Mike (Stgt)</u> on 29 Apr 2003, 5:12 p.m., in response to message #2 by Ron Ross

Hi Ron!

That was a trick for dead HP-41: Bats out for about 7 hrs or even reverse over night. And that still works on HP-42S?

# Re: HP-42S dead?

Message #4 Posted by <u>christof</u> on 29 Apr 2003, 5:13 p.m., in response to message #2 by Ron Ross

I have had on numerous occasions with 17Bii and 42S machines had to short the battery terminals (with a piece of wire). Once I had to do this, put hte batteries in, remove them and do it over again!

if that fails, check your cells and try finding a new triplet of silver oxide cells. :)

## Re: HP-42S dead?

Message #5 Posted by <u>Mike (Stgt)</u> on 29 Apr 2003, 5:24 p.m., in response to message #4 by christof

Hi Christof,

I did the cycle now 3 times: short the terminal with a paper clip and put the bats back in: Nuthin! And the LR-44 (Made in ... - can't read it) work fine in an other calculator.

Ciao.....Mike

## Re: HP-42S dead?

Message #6 Posted by <u>David Smith</u> on 29 Apr 2003, 5:58 p.m., in response to message #5 by Mike (Stgt)

The 42S manual says to briefly short the battery string out WHILE IT IS IN THE CALCULATOR!!!

## Re: HP-42S dead?

Message #7 Posted by <u>Christof</u> on 29 Apr 2003, 7:38 p.m., in response to message #6 by David Smith

short the batteries out while in the calculator? Okay. I need to get home and look at the manual, but that seems pretty odd to do as the batteries make the circuit anyway.

I've heard of reversing the batterie sin some calcs but that seems REALLY dangerous and I'd not advise it unless you knew for \*sure\* that you would not fry the calc.

Is the case a bit loose?

#### **Batteries and power on Pioneers**

Message #8 Posted by <u>Christof</u> on 29 Apr 2003, 9:37 p.m., in response to message #6 by David Smith

Having been warned by David of a possible error in my advice I radiply sought out four Pioneer manuals upon returning home-

the advice in all four is the same- short the battery contacts out with a coin AFTER removing the batteries.

(42S, 20S, 32SII and 17BII manuals)

\*whew\* I was scared my advice was bad for a moment.

the various self test keystrokes may be also helpful ?

#### **Re: Batteries and power on Pioneers**

Message #9 Posted by <u>Ellis Easley</u> on 30 Apr 2003, 1:35 a.m., in response to message #8 by Christof

Some manuals - I don't remember whether Voyager or Pioneer - say to short the battery terminals with fresh button cell batteries in place. My theory is that it is an effort to avoid ESD damage by keeping both power supply rails connected by the low impedance of the cells. As your shorting bar approaches the terminals it is a potential source of ESD and without the cells, if the ESD jumped to the Vcc rail first, it might travel through the chips to get to the ground rail which is connected to the ESD shielding, into your hand and back to the earth.

#### **Re: Batteries and power on Pioneers**

Message #10 Posted by <u>Mike (Stgt)</u> on 30 Apr 2003, 9:22 a.m., in response to message #8 by Christof

I did short the bats connectors 2 nite - without the coin cells of cause <VBG> and insertet them this morning: no way to get it working. Display stays clear, no reaction with 'Exit'-'Sqrt'.

Ciao.....Mike

# Re: HP-42S dead?

Message #11 Posted by <u>Mike (Stgt)</u> on 30 Apr 2003, 4:42 a.m., in response to message #6 by David Smith

Hi David!

Where did you find that advice (page, chapter). Anyway, I'll give it a try. If it brings back the HP-42S it's worth killing the 3 cells. :-)

Ciao.....Mike

## Re: HP-42S dead?

Message #12 Posted by **David Smith** on 30 Apr 2003, 11:30 a.m., in response to message #11 by Mike (Stgt)

I'll check the manual for the exact page. A momentary short (a second or so) will not harm those small button cells. NEVER short nicad batteries... they can produce HUGE amounts of current.

## Re: HP-42S dead?

Message #13 Posted by <u>Mike (Stgt)</u> on 1 May 2003, 3:18 p.m., in response to message #12 by David Smith

Yep, I assume the "inner resistance" of the coin cells is high enaugh for a quick short. I'll tell when it helped.

## **Re: HP-42S dead?**

Message #14 Posted by <u>Mike (Stgt)</u> on 5 May 2003, 5:21 a.m., in response to message #13 by Mike (Stgt)

Even with the bats in place a short shortage did not help. Seems I have a test object for spare time on rainy days.

Thanx again for all advices

Ciao.....Mike

# Re: HP-42S dead?

Message #15 Posted by <u>paul w</u> on 7 May 2003, 2:40 a.m., in response to message #14 by Mike (Stgt)

one method that i heard and i used to help fix a workmates hp42 was called "bleeding the capacitor"

what i did was take the batteries out then push the on button numerous times (try about 15-20) this is suppose to deplete the capacitor power to nothing which when the new batteries are placed in "reboots" it.

hope it works

## Re: HP-42S dead?

Message #16 Posted by <u>Mike (Stgt)</u> on 7 May 2003, 4:33 a.m., in response to message #15 by paul w

I tried that too, may be not often enough. I still have a rest of hope for the HP-42S as two times the beeper made 'burrp'.

# Re: HP-42S dead?

Message #17 Posted by <u>Paul Brogger</u> on 30 Apr 2003, 11:20 a.m., in response to message #1 by Mike (Stgt)

Sounds like your next step may be to disassemble the unit, and swap out the PCB for another (from a 17B/BII, 27S or 42S) to try to isolate PCB problems from keyboard/display/connection issues.

It's nice to have a disassembled clean functioning spare -- both keyboard/case/display and PCB -- available for such testing. (I use a 17BII.)

Assuming disassembly goes well, the main things to worry about are scratching the PCB traces when you're twisting the hold-downs, and absolutely minimizing the number of times those twisties are cycled.

These units were not meant to be serviced, and the metal hold-downs (or whatever they should be called) that fasten the PCB to the display bezel will only stand being twisted back & forth a few times (maybe a half-dozen if you're lucky) before metal fatigue sets in. So don't disassemble/reassemble any more than is necessary.

Randy Sloyer has a "test rig" he uses to apply pressure, temporarily holding together cases & PCB's for testing -- that sounds like a good idea. I've tested quickly just pinching things together with thumb & forefinger, but that's got a lot of drawbacks, and may lead to false negatives.

If you care to sell the case, I've a working PCB that would LOVE to find a real home . . .

## Re: HP-42S dead?

Message #18 Posted by <u>Mike (Stgt)</u> on 1 May 2003, 3:16 p.m., in response to message #17 by Paul Brogger

When I read yours and Randy's appends I think it's time to hand the HP-42S over to the real experts. But I still hope to be one too (far in the future <G>).

## Funny noise in one of the keys.

Message #19 Posted by <u>J.C.Serra</u> on 8 May 2003, 10:02 a.m., in response to message #17 by Paul Brogger

Hello,

I've got a 42s and some days ago i realise that the 4 have a curious noise when it's pressed.

The key woks fine but if you put your finger on it without any pressure, only with the weight, it sounds like a 'click'. It seems to be a little space between the spring, if there is any, and the plastic key.

If I leave the finger there and press again the key, there is no funny noise.

Could somebody explains me how a pioneer key works? Is there any picture?

Lots of thanks.

## Re: Funny noise in one of the keys.

Message #20 Posted by <u>Randy Sloyer</u> on 8 May 2003, 1:21 p.m., in response to message #19 by J.C.Serra

I don't have any pictures of Pioneer keyboard internals but can post some if interested.

Does the key rock side to side? Try pressing on the left side of a button with the problem. Does the right side rise up? If so, the hinge that stabilizes the key is broken. It cannot be repaired. As you have seen, it still works, it's just not the same as the other keys.

The other common problem occurs on newer units made in Indonesia. The keys sometimes click loudly on release. While this is not what you describe, it may be related. What are the first 5 digits of the serial number? From this we can tell where and when the unit was made.

## **Re: Funny noise in one of the keys.**

Message #21 Posted by <u>JC Serra</u> on 8 May 2003, 2:52 p.m., in response to message #20 by Randy Sloyer

Hello Randy, It is a Singapore unit, 3142S...,and the key is not rocking, when you press on the left the right doesn't rise.

I've got a 32sii(ind) and is not the click that the button makes on release.

It is a very soft friction sound and it happen even if you touch the key as soft as you can.

Thanks for the suggestions.

If I see what's inside probably I can speculate with the noise. That's why could be very nice if there's some photos.

# Re: HP-42S dead?

Message #22 Posted by <u>Randy Sloyer</u> on 30 Apr 2003, 6:47 p.m., in response to message #1 by Mike (Stgt)

You'll most likely find the trouble to be one of two things:

1. Fractured solder connections on the 8k ram chip. Happens in about 70% of the dead 42S's I see. Primarily pin 14 - the power supply common pin. Can happen elsewhere as well. If you don't have about 5X magnification, you'll never see it. You can just apply some liquid flux and reflow all connections on the chip, especially near the cpu end. Be sure to clean off all flux residue.

2. The more difficult problem: an electrically stuck key. Since the rows and columns of the keyboard go to the address and data lines of the processor, a stuck key prevents the processor from running. You'll need to remove the logic board to get to the keyboard connector. Check between all 15 connections with an ohm meter - all should read infinity with respect to one another. The only way I've found to clear a short is David Smith's ultrasonic cleaner method of three passes in fresh distilled water each time. Clears about 50% of the shorts. Sometimes the keyboard is beyond cleaning when the conductive material starts flaking off. When that happens it is time for an organ transplant from a good one.
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#### **REPAIRING HP-67 CARD READER**

Message #1 Posted by <u>Jon</u> on 29 Apr 2003, 4:50 p.m.

My hp-67 card reader works fine when writing but not when reading. I have read in several places that a tantalum capacitor must be replaced. But I don't know which one!!!. Can anybody help me to identify it?.

Thanks in advance

Jon

### **Re: REPAIRING HP-67 CARD READER**

Message #2 Posted by <u>David Smith</u> on 29 Apr 2003, 5:56 p.m., in response to message #1 by Jon

The cap that fails is a small blue colored dipped tantalum capacitor located near the top edge of the card reader chip. Values from 4.7 to 10uF work fine. The main thing is it needs to be small so that the case can be closed.

Earlier versions of the reader have a resistor in that position and three cylindrical silver capcitors on the board. These caps do not seem to fail very often. I'm not sure which one is the power cap and which two are the head circuit capacitors.

### **Re: REPAIRING HP-67 CARD READER**

Message #3 Posted by <u>Jon</u> on 30 Apr 2003, 3:44 p.m., in response to message #2 by David Smith

Thanks for the information. I will try it

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#### HP 82240B Printer

Message #1 Posted by Trent Moseley on 29 Apr 2003, 2:59 p.m.

Just curious. I use the 82240B Printer with my 42S. Can other calculators work with it as well?

tm

#### Re: HP 82240B Printer

Message #2 Posted by James M. Prange on 29 Apr 2003, 3:36 p.m., in response to message #1 by Trent Moseley

At least all 28 and 48 series. And anything that works with a 82240A also works with the 82240B.

Regards, James

#### Re: HP 82240B Printer

Message #3 Posted by <u>Holger Weihe</u> on 29 Apr 2003, 3:56 p.m., in response to message #2 by James M. Prange

The HP-27S can print on it, too. Also several business calculators, i.e. the HP-19BII and HP-18C

Holger

#### Re: HP 82240B Printer

Message #4 Posted by <u>Randy Sloyer</u> on 29 Apr 2003, 4:04 p.m., in response to message #2 by James M. Prange

Two more Pioneers: The 17B/17Bii and 27S. And of course the 41 with 82242 I/R module.

#### Re: HP 82240B Printer

Message #5 Posted by <u>Tom Cox</u> on 30 Apr 2003, 7:37 p.m., in response to message #4 by Randy Sloyer

Also works with HP 39. But not wth HP 40.

Re: HP 82240B Printer

Message #6 Posted by James M. Prange on 2 May 2003, 2:01 a.m., in response to message #5 by Tom Cox

But not wth HP 40.

Not the 49G either. You need something that transmits IR.

And with the correct encoding too.

If anyone knows how to modify the printer so that it takes wired input, that would be very useful.

Regards, James

#### Re: HP 82240B Printer

Message #7 Posted by Gordon Dyer on 30 Apr 2003, 6:26 p.m., in response to message #2 by James M. Prange

The 28S also works with the 82240B, and I use a 17BII and 42S with it.

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### a few HP41 Questions

Message #1 Posted by Christof on 29 Apr 2003, 2:01 p.m.

The first I think has been addressed before, but I don't seem to be able to find the thread-

Is there any way to get the data from extended memory to magnetic cards withoutconverting it into main memory programs or data? Is there a way to code somethign to do this?

the second thing is:

is there any method for copying cards directly without having to determine type, enter program mode, etc.? I imagine somewhere along the line someone did this and I'd rathe rnot reinvent the wheel if I can avoid it :)

(otoh, if it involves getting a PPC rom, I think I'm out of luck.)

### **Re: your first Question**

Message #2 Posted by <u>db(martinez,california)</u> on 29 Apr 2003, 2:22 p.m., in response to message #1 by Christof

unfortunatly, no. and not by i.l. either. but if you get good at synthetic programming you might be able to take the store ascii file function (saveas) and knock off the ascii part then grab the bytes describing a data file and tack it on. i was looking at doing that with il but i'm too stupid. good luck and if you figure a way; please tell me.

Message #3 Posted by <u>Mike (Stgt)</u> on 29 Apr 2003, 5:09 p.m., in response to message #1 by Christof

Hi,

1st question: no, 2nd question: no. Sorry. Both answers imply AFAIK.

Ciao.....Mike

#### re: card copying- okay then

Message #4 Posted by <u>christof</u> on 29 Apr 2003, 5:18 p.m., in response to message #3 by Mike (Stgt)

What next?

Is there a way to synthetically get the reader to be ready for a card read (like with VER) nad then grab the bytes and store them directly, reverseing the process to write?

I'm not up on synthetics enough to be totally sure about where to start on a project like that.

For the file copying... I think db has a good idea, but it seems to me that that would very nearly require mcdoe programming to accomplish.....

#### Re: re: card copying- okay then

Message #5 Posted by <u>Mike (Stgt)</u> on 29 Apr 2003, 5:31 p.m., in response to message #4 by christof

Correct, with MCode you could do such things. But only with engough skills about the card reader. Synthetic programming does not help too much here.

M.

BTW, is it realy worth the time you spend on that. Look for a disk drive or two and copy "huge" amount of data gets so simple. And read/write of XM-Files too. ;-)

Message #6 Posted by <u>Chris Catotti</u> on 29 Apr 2003, 5:29 p.m., in response to message #3 by Mike (Stgt)

I used to use a program that could take Extended Memory files (PProgram, Data, ASCII) read from EM and write to Cards, and then read from cards and store in EM. I believe the program was written by Tapani Tarvainen (in my opinion one of the best synthetic programmers of the time).

Should I try to locate this priogram?

#### **Re: a few HP41 Questions**

Message #7 Posted by <u>Mike (Stgt)</u> on 29 Apr 2003, 5:38 p.m., in response to message #6 by Chris Catotti

Hi Chris!

I aggre that Tapani Tarvainen was (and AFAIK still is) an excelent programmer. But Christof's killing factor was: No PPC-ROM. Tarvainen's routines changed the filetype of anything in XM. For example you could save a program and read it back as data, useful for a BarCode program <G>.

Ciao.....Mike

#### **Re: a few HP41 Questions**

Message #8 Posted by <u>Christof</u> on 29 Apr 2003, 7:42 p.m., in response to message #6 by Chris Catotti

If that's possible without the PPC ROM then I'd love it :)

if it requires the PPC ROM I may be able to afford to find one of those someday. new job, new house, new bills....

### **Re: a few HP41 Questions**

Message #9 Posted by <u>David Smith</u> on 29 Apr 2003, 5:59 p.m., in response to message #1 by Christof

I am pretty sure that the PANAME module from France will do it.

Message #10 Posted by <u>db(martinez,california)</u> on 29 Apr 2003, 9:13 p.m., in response to message #9 by David Smith

chris; YES PLEASE DO TRY TO FIND IT!!!!!! sorry for shouting. i got excited. i really hope you can find it.

mike; i might have misunderstood you but when you said: "BTW, is it realy worth the time you spend on that. Look for a disk drive or two and copy "huge" amount of data gets so simple. And read/write of XM-Files too. ;-)" i think that you were either not noticing that cristof wants to move data files, not ascii files, or you have the answer to what has been for me, the big problem in the 41 i.l. system: it will move ascii files back and forth between x-mem and mass storage but not data or program files. it's as if hp thought we bought the 41 to do word processing and not anything like math.

there are two bad ways to do it: under program control, recall each extended register into the stack and have the 41 move the data four registers at a time, slowly////or do the same thing but dump it into (and waste) main memory and do it in bigger chunks, a little faster.

the tds surveying program got around that by writing two new functions called load and save and putting them in their rom. works like a charm, if you have the rom. i do but cristof dosn't.

cristof: if you find a way to copy a function, not program, from a rom i will bring it next time the 3 musketeers get together. hell, afik it might be easy to copy. when i got the rom it stopped being a problem to me and i never worried about it again.

#### **Re: a few HP41 Questions**

Message #11 Posted by <u>Christof</u> on 29 Apr 2003, 9:26 p.m., in response to message #10 by db(martinez,california)

I looks like there is a function (well, pair of functions) in the paname ROM to dump the entire extended memory to disk/tape and read it into extended memory. it seems that this only operates on the entire extended memory, though.

Actually, the manual is unclear- it seems you can read into EM without clobbering what is there, but WRTEM writes the whole contents of EM to mass storage.

(and it won't write to cards)

I will play with this once I either get my disk drive stable or find tapes :)

Message #12 Posted by <u>Chris Catotti (Florida)</u> on 30 Apr 2003, 12:18 a.m., in response to message #11 by Christof

Perhaps I was thinking of the program that changes file types of EM programs. Do you know where that is in the PPC Journal ?

PPC V14N4 PG 4547 "SAVING PROGRAM MEMORY IN EXTENDED MEMORY DATA FILES"

This program SPM (Save Program Memory) and GPM (Get Program Memory) allows the user to store and retrieve the entire contents of program memory in extended memory data files. The program requires an HP-41CX or an HP-41C/CV with an extended functions module.

PPC V14N3 PG 4547 pg 21-24

ASCII FILE PROGRAM - Part II A follow-up article to "Creating Programs in Extended Memory ASCI Files" published in PPCaL V13N8

"Creating Programs in Extended Memory ASCI Files" PPCaL V13N8

HP-41CX DISPLAY DEMO (mcode) PPC V13N8 Pgs. 14-15

#### **Re: a few HP41 Questions**

Message #13 Posted by <u>Ellis Easley</u> on 30 Apr 2003, 1:50 a.m., in response to message #1 by Christof

Maybe you can't get a PPC ROM but you might be able to get the PPC CD-ROMs! that Jake Schwartz distributes:

http://www.waterw.com/~jakes/index.html

(The link on the Museum Links page has a "-" between "jake" and "s", I just remember that and use the link and then correct it in the address bar!)

Every time I look for something in the PPC Journals I'm amazed by the discussions of topics that come up here on the Forum all the time, only they took place 20-25 years ago!

Only thing is since they are PDFs of scans, they can't be searched. There are some indexes (indices?) that were published periodically and the table of contents for each issue has links to its articles. But I'm not kidding, just jumping from one issue to the next and reading the tables of contents, or paging through the issues, is like looking for something in a dictionary or encyclopedia. (Somehow I think calculator people know what I mean by that.)

### **Re: a few HP41 Questions**

Message #14 Posted by <u>Christoph Klug</u> on 30 Apr 2003, 3:46 a.m., in response to message #13 by Ellis Easley

dear HP41 enthusiasts,

Also the advanced CCD-Module includes the feature of up/downloading any types of files from X-Memory to magnetic card. The CCD-Module manual describes two routines WF = write file and RF = read file.

The EXT-IL ROM (from SkwidInk)includes up/download of complete X-Memory contents (or main memory) to a mass-storage unit. This rom is ideal for controlling larg mass storage units like IL-Disk Drive and virtual drives :

Yes virtual mass-storage dirives. Use the surprising "HP41/PC gateway & emulator" solution for today mass-storage applications. Furthermore you get much more features. Refer to HP-Museum articles forum item 311....

Best wishes from Germany - Christoph Klug

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#### Terry Ingram, 9114B battery replacement

Message #1 Posted by <u>david e</u> on 29 Apr 2003, 12:08 p.m.

"A drop-in replacement is available from: TNR Technical, Inc. 1-800-346-0601 http://www. tnrtechnical.com/leadacid.html

PowerSonic PS-628 lead-acid battery. Cost: \$12.00

I have purchased this battery recently, and it installs easily, and works fine.

Terry "

Terry, you mentioned you got this to work. I got the battery, and assume I have to wire the contacts, but how do you charge this battery?

Thanks

#### **Re: Terry Ingram, 9114B battery replacement**

Message #2 Posted by <u>Gene</u> on 29 Apr 2003, 1:56 p.m., in response to message #1 by david e

I popped the top cover of the battery off, which was made to be non-destructively taken off.

The battery has 2 slip contacts that go over the leads from the battery.

Slipped them off. Took out old battery.

Slipped them on new battery and replaced the top.

Took 5 minutes and worked like a charm!

Gene

### **Re: Terry Ingram, 9114B battery replacement**

Message #3 Posted by <u>david e</u> on 29 Apr 2003, 2:10 p.m., in response to message #2 by Gene

But how do you charge the battery?

#### **Re: Terry Ingram, 9114B battery replacement**

Message #4 Posted by <u>David Smith</u> on 29 Apr 2003, 6:03 p.m., in response to message #3 by david e

The original battery holder had a charging circuit built in that was powered by an 82059D wall wart.

**Re: Terry Ingram, 9114B battery replacement** *Message #5 Posted by* <u>*david e*</u> *on 29 Apr 2003, 2:12 p.m., in response to message #2 by Gene* 

Also, I do not have old battery, I was battery less

**Re: Terry Ingram, 9114B battery replacement** *Message #6 Posted by* <u>*Gene*</u> *on 29 Apr 2003, 5:17 p.m., in response to message #5 by david e* 

Sorry then, if you don't have the battery housing, then I don't have any ideas. My misunderstanding.

Gene

#### 9114B battery HOUSING replacement

Message #7 Posted by <u>glynn</u> on 29 Apr 2003, 8:59 p.m., in response to message #6 by Gene

Actually, it shouldn't be too hard to work something out here. We apparently need to:

1. Provide charging circuit between AC wall power and battery.

2. Provide power for running the 9114b itself (but I think the battery does that, even if it is plugged in)

3. What else?

If ya wanna, for "authenticity", the 82059d transformer could be used... I forget exactly what that thing put out, but I think it was an AC output device (hmmm, was it 8VAC output?). So what you would be building is a charger circuit for this to run, one filtered by the battery. I am sure someone around here has the basic diagram and parts list for the 9114b's pack so all you have to do is duplicate that, if the parts are still available.

Otherwise:

Charging a lead-acid 6v battery is fairly easy to arrange. There are even off-the-shelf multi-step chargers which could do so, in the \$25-\$30 (US) range. The only thing to do then, assuming the 9114b itself is entirely run on the battery, is arrange for protection of the 9114b device from the charger's somewhat higher voltage (calling Captain Zener).

A "dumb", off-the-shelf solution would be finding a small rectified charger of 6-7.2v dc and <=120mA. You ought to be able to find this kind of small "brick" if you frequent thrift-stores and junque shops. It is less than an optimal solution: all it will do is TRICKLE charge, and not even to the battery's maximum capacity, but it would be gentle and do the job, if rather slowly.

A typical multi-step ("smart", hahahah) 6v lead-acid charger has a threshold switch, to give it two personalities. It would output up to maybe 7.8 volts at the peak, dropping to 7.2v or so to trickle-charge afterwards. It's current would not be limited while fast-charging-- the battery itself can handle this-- but in practice, you will likely find 1A or 2A maximums on the charger output itself. In trickle, the current would be limited at some arbitrary level such as 1/12 or 1/24th (safer) of the battery capacity. Once in trickle, you don't need to have the threshold switch kick back to fast-charge mode until your device has drawn down the battery with its load BELOW the battery's "nominal" voltage of 6v.

Has anyone investigated the alternatives for powering a 9114b in one of these ways?

#### Re: 9114B, 3421A battery charging

Message #8 Posted by <u>Ellis Easley</u> on 30 Apr 2003, 3:17 a.m., in response to message #7 by glynn

I traced out the schematic of the charging circuit in my 9114 battery but I don't know just where that is right now. It has the LED that blinks to indicate the cycling that glynn is talking about. There is a full wave rectifier without a filter. There is a small filtered supply isolated by diodes to power a comparator and reference. The pass element is a sensitive gate SCR and its gate is controlled by a comparator circuit with hysteresis, the SCR is triggered with DC as long as the battery voltage is below an upper limit. The LED is in parallel with the SCR, and so when it is glowing the SCR is being kept off and the LED is providing the trickle current. At this current the battery voltage starts dropping until it reaches a lower limit and the SCR is triggered again.

I have been studying the charging circuit in the 3421A service manual just lately, it has a very similar battery, just a little larger - 3.2 A-H, 6V lead-acid. But it has a very different charging circuit. It starts with filtered DC, its pass element is a transistor, and it has two comparators: one controls the constant voltage with a thermistor in the voltage divider to give the voltage a negative temperature coefficient - it's about 7.12 V at room temperature, and the other comparator along with a current sense resistor limits the current to about 1/2 A, with the voltage folding back when the charger goes into current limit. Other differences: the unit has a larger transformer that the 82059D and the unit can run from A/C with a no-good battery (lead-acid batteries become open circuit when dead) - it draws about 0.2 A. The Panasonic lead-acid batteries have some detailed charging specs printed right on them:

```
"Constant Voltage Charge
Cycle use: 7.25~7.45V(25deg.C)
(Initial current: less than 1.28A)
[this is always 0.4 times the A-H capacity]
Standby use: 6.8~6.9V(25deg.C)"
```

The voltages specified vary slightly between older and newer Panasonic batteries.

The 3421A charging circuit seems to have chosen to go between the two voltage ranges. I have been using my 3421A to charge some 6V 10A-H batteries I found a few years ago. I mean to rig up a charger just for them and also some 12V 7.2 A-H batteries I found at the same time - someone had thrown them in the dumpster at a mini-storage facility, I think they were trying to avoid the recycling fee. I think they should come in handy - if I keep them from going bad!

It has been nagging me that the batteries were going bad while I did nothing so I finally decided to get back on the project.

As they regain their function, the batteries behave thusly (I'm measuring the voltage across the current sense resistor and calculating the current): After letting them accumulate some charge, I remove the AC and turn on the unit and let them discharge for a while at 0.2A. When I turn the unit off and re-apply the AC, the charger goes into current limit for a while (~0.5A), the battery voltage being a little above 6V. After some time the charger comes out of current limit, at this point the battery voltage is ~7.1V and the current is just below 0.5A. The current continues to drop and appears to settle at about 0.05 - 0.1A, depending on the battery.

#### **Re: 9114B battery HOUSING replacement**

Message #9 Posted by <u>Ellis Easley</u> on 30 Apr 2003, 12:28 p.m., in response to message #7 by glynn

BTW, I asked the Ebay seller who had "hundreds" of ThinkJet batteries whether he had any 82033A's or 9114 batteries, he said no.

### Re: 9114B battery

Message #10 Posted by <u>glynn</u> on 29 Apr 2003, 2:20 p.m., in response to message #1 by david e

To answer the question, how is this battery charged?

The 9114b and most all portable equipment with built-in batteries would rely on the input from a POWER ADAPTOR (ac adaptor, power supply, wall-wart, power brick, etc).

Hopefully you have one. If not, get one, otherwise replacing the battery alone will do no good. It is the AC adaptor that charges the battery whenever you plug it in. You needn't wait until you see a "battery low" indicator.

The battery itself is a lead-acid battery. It will come to you charged. It will need recharging soon AFTER your use of the device. The battery is a good one for powering such devices; it can sit on a charger for long periods without being harmed. It can supply lots of power. And, if it is NOT stored away while DISCHARGED, will last a long time (5 years is typical). Make sure it is fully charged before you put your device in the drawer.

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#### HP-25 repair

Message #1 Posted by <u>Jon</u> on 29 Apr 2003, 11:02 a.m.

I have opened an HP-25 for cleaning. Some keys don't work properly. How can I dissasemble the keyboard?

Thanks in advance

Jon

#### Re: HP-25 repair

Message #2 Posted by <u>Michel Beaulieu</u> on 29 Apr 2003, 11:53 a.m., in response to message #1 by Jon

Don't dissambled it; it would be hard to get it work again!

You could clean it in a ultrasonic water base bath

Or if you don't have acess to this, use distillated water bath for "some time" and remove water with air spray of air from a compressor

Sometime i use a spray call "contact dexoidizer", it remove "rust" on the contact. You can find this at a TV repair shop.

Pay attention solvent cleaner, it can dissolve the plastic of the keys or the case itself! make a good test on the plastic before using solvent.

### Re: HP-25 repair

Message #3 Posted by <u>Randy Sloyer</u> on 29 Apr 2003, 1:19 p.m., in response to message #1 by Jon

If you are lucky enough to have a keyboard with holes in the PC board for each key, this solution works every time:

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/archv010.cgi?read=26576

### Re: HP-25 repair

Message #4 Posted by <u>David Smith</u> on 29 Apr 2003, 6:09 p.m., in response to message #3 by Randy Sloyer

If you only have one or two bad keys on a keyboard without the holes under each key (usually these were only used on the 29C and 25C) then you can drill an acess hole under the offending keys with a hand drill. You need to be careful not to drill through the circuit etches though. They are easily visible through the circuit board material except on a very few that were made of an opaque black material.

I suppose you could drill keyboards with lots of bad keys, but your chances of messing something up go up pretty quickly. I have a 25C keyboard with about half the keys bad. My ultrasonic cleaner is on the fritz, so I tried soaking it in vinegar and rinsing very well. It worked fine until the next day when everything dried out fully.

### Re: HP-25 repair

Message #5 Posted by <u>Ellis Easley</u> on 30 Apr 2003, 1:19 a.m., in response to message #4 by David Smith

I had a 25 keyboard (the one with a hole for every key) with very bad blue battery leakage all over it and I successfully cleaned it with diluted distilled vinegar. I don't have an ultrasonic cleaner, I use about half and half vinegar and water to clean battery leakage from everything. Sometimes I use hot tap water, that seems to speed things up especially thick deposits like on the battery packs themselves. Afterwards I rinse in plenty of tap water then in several changes of distilled water.

#### Re: HP-25 repair

Message #6 Posted by <u>David Smith</u> on 30 Apr 2003, 3:31 p.m., in response to message #5 by Ellis Easley

Ooooh, don't 'ya just love them crunchy feeling keys with the green and white poweders in them...



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Anyone looking for an HP-85?

Message #1 Posted by Larry Corrado, USA (WI) on 29 Apr 2003, 8:56 a.m.

There's an HP-85 for auction that might be had for a good price.

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&category=3284&item=3020907700&rd=1

Larry

**Re: Anyone looking for an HP-85?** 

Message #2 Posted by <u>Michel Beaulieu</u> on 29 Apr 2003, 11:54 a.m., in response to message #1 by Larry Corrado, USA (WI)

It looks like a computer, is it? or it's a calculator? Anyway it seems BIG!

Re: Anyone looking for an HP-85? [LONG]

Message #3 Posted by <u>Ex-PPC member</u> on 29 Apr 2003, 12:46 p.m., in response to message #2 by Michel Beaulieu

It \*is\* a computer, one of the very first truly personal computers, and one of the best at its time (1980+), long before the IMB PC even existed. Most important characteristics:

- 16 Kb RAM expandable to 32 Kb RAM. Most micros of its time had just 4 Kb or 8 Kb RAM.
- Built-in CRT display: 256x192 graphics plus 4 screens of 16 rows x 32 char. per row, scrolleable. Graphics and text where in separate planes and could coexist.
- Built-in thermal printer, could dump graphics as well. Virtually unique then.
- Built-in digital tape drive, could store 210 Kb of programs and data, offering sequential and random access for mass storage. Most everyone else was using audio cassettes, trying to guess where the program began on the tape.
- Excellent, full-size keyboard. The machine was heavy, but nevertheless portable, I carried it home and back many times. Due to the excellent keyboard and built-in CRT display, printer and mass storage, working at home was a pleasure.
- Excellent version of HP technical BASIC, with a full screen editor, checking syntax on program entry, full error messages, 12-digit BCD precision, vast number of commands, including graphics commands, printer commands, mass storage commands, arrays, strings, etc. The BASIC could be extended with new keywords written in assembler and available on tape as BIN (binary) programs or in plug-in ROMs. It would tokenize programs before running them and precompute branching destintations, to speed execution,

then decompile them again if you wanted to edit something, all transparent to the user.

- ROM drawer, which allowed the user to insert plug-in ROMs, extending further the machine capabilities. Most ROMs added scores of new keywords to BASIC. For instance the Matrix ROM implemented full matrix operations at the speed of assembly, the Mass Storage ROM allowed using external disks instead of the built-in tape, the Plotter ROM, the I/O ROM, the Assembler ROM, the Advanced Programming ROM, etc.
- Incredible amount of peripherals: printers, plotters, disks, all kinds of measurement devices, HP-IB interface, GPIO interface, graphics tablets, ...
- Superb physical quality, superb documentation.

Most of those features were well ahead of their time, and much more advanced than the ones in the pathetic IBM PC, to be released much later. I still remember how disgusted I felt at the dreadful BASIC of the IBM PC, which would accept any kind of garbage as input and only gave an error after you pressed RUN and the program got to that line, if ever. You just couldn't be sure that your program wouldn't crash on a simple typo, at a much later time, unless you passed through each and every line. No syntax checking on line entry. Not to mention compiled branching.

On the other hand, I remember fondly the nights I spent programming the HP-85, which was an incredible pleasure, and running the amazing binary games written by someone at HP, such as the "bat" and "mouse" programs, fully graphical, interactive experiences, when everyone else was playing pong, if at all. The "mouse" program was and still is one of the most challenging and fun games I've ever played, and reaching level 32 (with all corridors being dead-ends and an inexhaustible source of cats) was well-nigh hair-raising !

#### Re: Anyone looking for an HP-85?

Message #4 Posted by Larry Corrado, USA (WI) on 29 Apr 2003, 12:48 p.m., in response to message #2 by Michel Beaulieu

Yes, most people would consider it a small computer (small for its time.) It runs a built-in BASIC.

Larry

#### **Re: Anyone looking for an HP-85?**

Message #5 Posted by <u>Vassilis Prevelakis</u> on 30 Apr 2003, 12:31 a.m., in response to message #2 by Michel Beaulieu

```
Michel Beaulieu wrote:
> It looks like a computer, is it? or it's a calculator? Anyway it seems
BIG!
```

Of course its big, its supposed to be big, since it is mains powered, with built in mass storage device, multi-line display and text/graphics thermal printer.

If you wanted a "pocket sized" HP-85 you used the HP-75C/D which was small and battery powered, but had no built-in printer and a single line display (don't get me started on the magnetic cards :-).

More info on the HP-85 can be found at <u>http://www.ebbsoft.com/#hp</u> and <u>http://www.series80.org</u>.

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#### Appreciation

Message #1 Posted by Trent Moseley on 28 Apr 2003, 11:16 p.m.

As a newcomer I have to thank everyone that contributes to this Forum. It is such a wonderful exchange of ideas; from getting machines fixed (67 card reader dead for 10 years) to finding out about things in various other HP calculators that you never dreamed about.

tm

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#### hp test epuipment

Message #1 Posted by db(martinez, california) on 28 Apr 2003, 7:00 p.m.

some people here have talked about hp test equipment. i was at a junque store and saw some hp stuff last weekend and will be near it next sunday.

the bad news is that i don't know shit and can't test anything for you. if you want something i can get it for you and ship it OR if you have a local friend i can direct him toward the place. or a combination of both. they give a two week guarantee, but with shipping costs that is a moot point if you are the one who has to test them and you live far away.

this is the list of what they had and their prices: tektronix 6068 \$20// j-omega co - dc voltmeter - i didn't write this price.// hp 1600a logic state analizer \$30// hp 1714a oscilloscope \$50// hp 1207b o.s. \$30// hp 1340a x-y display \$20// hp 183a o.s. (one empty bay) \$20// hp 141a o.s. \$30// hp 181a o.s. \$25//

I am not selling this stuff. if you are not local or know someone who is then i will just be the unpaid middleman if anyone wants something. so don't blame me if it is broken or missing something vital. as bones on the original star trek might have said: dammit jim. im a surveyor, not an electronic engineer!

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#### how do i remove the 71b bezil?

Message #1 Posted by db(martinez, california) on 28 Apr 2003, 4:56 p.m.

i want to change out the outer screens. i have tried soaking a broken 71 in alcohol but it does not soften the glue. any ideas? thanks in advance.

**Re: how do i remove the 71b bezil?** *Message #2 Posted by David Smith on 28 Apr 2003, 5:54 p.m., in response to message #1 by db(martinez,california)* 

Although I have not done this with a '71, it does work on the 11C, 15C, etc. Also, dont think that removing the bezel will let you easily remove the display window... it is bonded to the case, not the bezel.

First find a product called UnDu at your local hardware or office supply store. It is the solvent heptane and causes any adhesive to forget about sticking for a few seconds. Next soak a strong thread in it and place a couple drops of the solvent under the bezel. Use the thread like a cheese cutter to slice through the stickum. Keep it wet. Also try and keep the solvent off of the keyboard background as it may leave some watermarks behind.

#### Re: how do i remove the 71b bezil?

Message #3 Posted by <u>db(martinez,california)</u> on 28 Apr 2003, 6:26 p.m., in response to message #2 by David Smith

thanks; i'll believe that it doesn't get me to the outer window so i won't bother. my screen is not so bad that i can't learn to live with it.

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#### hp 9825A

Message #1 Posted by Lee Jones on 28 Apr 2003, 1:49 p.m.

I am having a problem with our HP 9825A. It does not read the tape drive. Does any one know of a repair facility that could help?

#### Need more info.

Message #2 Posted by <u>Mike</u> on 28 Apr 2003, 2:48 p.m., in response to message #1 by Lee Jones

What are the symptoms? The most likely cause of problem is the tape drive capstan is dissolved. Almost all are.

I know that is not exactly what you asked but it might help find a repair facility, if you know the likely cause.

#### Re: hp 9825A

Message #3 Posted by <u>Tony Duell (UK)</u> on 28 Apr 2003, 5:36 p.m., in response to message #1 by Lee Jones

What's the exact problem? Does it move the tape? Does it give an error (if so, what?). Will it write correctly? Most likely, it's not moving the tape because the drive roller has decayed with age. This probably can be repaired, but it's not totally trivial. You need to strip the tape drive down, clean up the roller, and either put a rubber sleeve over it, or machine a groove for an O-ring. I doubt there are any offiical repair facilities that do this sort of work any more (and HP will no longer supply spares or complete tape drives) -- your only hope is to find an enthusiast who can do it.

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#### **Programming HP67**

Message #1 Posted by Howard on 28 Apr 2003, 9:42 a.m.

I have recently purchased an HP67 from Ebay. It is acting real weird in programming mode. For the first seven programme steps every line is the same - 001 31 25 24 - no matter what keys you press. After the seventh line all keys act correctly. It isn't a sticking key because it rights itself always after the seventh line. It does it every time. It seems to me like the programming gets in a tangle for a while. I have tried shorting across the two battery terminals (without batteries in) Don't some HPs get static build up or something. Anyway it has not fixed it. It does this so regularly and behaves normally that I think it must be something simple like set flags or something like that. It seems to do this after loading a pre-programmed card as well. Help!!! It is driving me nuts.

#### Sounds like a bad memory chip/register

Message #2 Posted by <u>Gene</u> on 28 Apr 2003, 2:29 p.m., in response to message #1 by Howard

Once had an HP-25 that did something like that.

You might have to either:

a) Live with it and only write programs in the last 217 steps.

b) Find a dead HP-67 and see if you can transfer the memory chips from the dead HP-67 (assuming the dead 67's memory chips are ok) to your HP-67.

or

c) Sell it and keep looking for one that works completely.

It doesn't sound like something that is fixable short of surgery.

sorry! --Gene

### **Re: Programming HP67**

Message #3 Posted by <u>Tony Duell (UK)</u> on 28 Apr 2003, 5:28 p.m., in response to message #1 by Howard

On the HP67, each program step is one byte. So 7 steps = 7 bytes = 56 bits = 1 'register' (this is the size of a floating point number too). It sounds like you have a dead register in one of the RAM chips (I would guess the instruction you're seeing is the one corresponding to a value of 255 (all 1s) or 0 (all 0s) in the memory) In the HP67, the RAM is combined with the ROM in the 8 pin ICs on the logic board -- and they're all HP custom. You will have to find another HP67 to take parts from :-(

#### **Re: Programming HP67**

Message #4 Posted by <u>Howard</u> on 29 Apr 2003, 1:46 a.m., in response to message #3 by Tony Duell (UK)

OK. The next problem is which chip is which?????

#### **Re: Programming HP67**

Message #5 Posted by <u>Ellis Easley</u> on 29 Apr 2003, 6:12 a.m., in response to message #4 by Howard

The Museum CD-ROMs have a service manual for the HP97, if I'm not mistaken, it should have the same chips as the 67.

#### A fix of sorts.

Message #6 Posted by <u>Howard</u> on 29 Apr 2003, 7:33 a.m., in response to message #5 by Ellis Easley

As it turns out I have a second HP67 with a non working card reader. So I have taken the whole removable board from off that one and placed it in the other. Problem sort of solved. I now have one fully functioning HP67 and one that works after a fashion. I can still programme with it but I have to start my programmes on line eight. Like so -

001 - anything. It types 001 31 25 24 002 - anything. It types 002 31 25 24 003 - anything. It types 003 31 25 24 004 - anything. It types 004 31 25 24 005 - anything. It types 005 31 25 24 006 - anything. It types 006 31 25 24 007 - anything. It types 007 31 25 24 008 31 25 11 (label A) 008 44 (clx) programme start.

#### I'll that again so that you can read it.

Message #7 Posted by <u>Howard</u> on 29 Apr 2003, 8:14 a.m., in response to message #6 by Howard

As it turns out I have a second HP67 with a non working card reader.

So I have taken the whole removable board from off that one and placed it in the other. Problem sort of solved.

I now have one fully functioning HP67 and one that works after a fashion.

I can still programme with it but I have to start my programmes on line eight. Like so -

001 - anything. It types 001 31 25 24.

002 - anything. It types 002 31 25 24.

003 - anything. It types 003 31 25 24.

004 - anything. It types 004 31 25 24.

005 - anything. It types 005 31 25 24.

006 - anything. It types 006 31 25 24.

007 - anything. It types 007 31 25 24.

008 31 25 11 (label A).

009 44 (clx) programme start.

#### Re: I'll that again so that you can read it.

Message #8 Posted by <u>Ellis Easley</u> on 29 Apr 2003, 8:45 a.m., in response to message #7 by Howard

You fixed it the way HP would have fixed it back "in the day". The repair depot probably had plenty of all the boards and just threw away anything defective. Anybody know where the Corvallis garbage dump is?

### **Re: Programming HP67**

Message #9 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 29 Apr 2003, 12:01 p.m., in response to message #3 by Tony Duell (UK)

Hello, Tony;

if we can base ourselves in the HP41's "RAM arrangement", then we should look for a series of two to four IC's with the same prefix (like 1LAxxx), replace the lowest-numbered one and try the calculator reaction.

I think RAM number may be close to the one found in the HP34C; better yet, the same one found in an HP67. I do not have an HP67 in hands, but a few days ago a call for help about an HP34C and its RAM chip is idententified with the prefix 1LB. As the HP34C has a lower amount of RAM, chances are that we'll find at least two RAM IC's in the HP67/97.

I tried to look at the MoHPC internal photo of an HP67 and, even without reading the # ID, the three top-right DIP-8 IC's seem to share the same code (MOSTEK MK-something), I'd guess RAM, while the lone top-left has a different code, maybe ROM.

Just my (doubtfull) US\$ 0.05

Luiz C. Vieira - Brazil

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#### HP Journal on the HP42S?

Message #1 Posted by jose goncalves on 26 Apr 2003, 6:04 p.m.

Is it possible that the Journal didn't have any reference to this superb product ? At least I was not able to find any ! I would like to know the stories about the development of the HP 42S, in that interesting and detailed style that made the Journal so famous among us. If we don't have anything is there any other place I can find something ? I remember hearing someone talking about a special issue of HPCC or was it a Keynote ?

I found it ! Message #2 Posted by jose goncalves on 27 Apr 2003, 3:59 p.m., in response to message #1 by jose goncalves

I found it, but it was not in the Journal. It's the Aug-Dec 1988 issue of the HPX Exchange (V1N6) and most of the pages are dedicated to commentaries on the HP 42S. It even has the (probably) first software routine for doubling the processing speed of the calculator.

Why not the Journal?

and that routine was here on the web... Message #3 Posted by <u>Gene</u> on 27 Apr 2003, 4:17 p.m., in response to message #2 by jose goncalves

Here is the page where I have this typed up:

http://www.rskey.org/gene/hpgene/hp42fast.htm

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N!

Message #1 Posted by <u>Trent Moseley</u> on 26 Apr 2003, 4:41 p.m.

Some time back there was a discussion on this Forum about the squareroot of pi divided by two equalling one-half factoral or 0.8862+. How is it that on some HP machines (67, 12C, 42S) the factoral function works only for integers and on others (15C, 32Sii) it works for fractions as well?

tm

#### Re: N!

Message #2 Posted by <u>Ellis Easley</u> on 26 Apr 2003, 4:49 p.m., in response to message #1 by Trent Moseley

Some HP calculators, including the 34C, use the same key for both the factorial and gamma functions. The best explanation I have read is from Viktor Toth:

http://www.rskey.org/gamma.htm

Re: N!

Message #3 Posted by <u>hugh</u> on 29 Apr 2003, 7:55 p.m., in response to message #2 by Ellis Easley

indeed, some hps let x! = gamma(x+1) also the 48g has this, but not the 20s.

interestingly, the only other machine i've seen to handle non-integer factorials is the sharp el-9900 (current production unit). which can handle x! for frac(x) = 0 or frac(x) = 0.5

this means .5! = sqrt(pi)/2 and you can calculate values for the chi-square, F & T distributions, since these only use half factorials.

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#### 71b history question

Message #1 Posted by db(martinez, california) on 26 Apr 2003, 2:39 p.m.

why did hp change from a plain plastic back to one with an aluminum plate in 1984. was this some orwellian thing?

#### **Re: 71b history question**

Message #2 Posted by <u>Kim</u> on 27 Apr 2003, 3:21 a.m., in response to message #1 by db(martinez,california)

I'm guessing here

Most changes are driven by either customer satisfaction or cost (sometimes both).

The Metal back is there (at least - maybe other things as well) as part of the ESD sandwich.

I read in some previous material that they ZAP(ed) something like 15kV through calcs and they have(had) to survive that (in running mode), undisrupted.

However the metal is vulnerable for scratches and dings more than the plastic and the process of mounting and miniscrewfixing is cumbersome (some of us tried loosing (and hopefully finding) some of the nuts, bolts (if they are called that at 1mm) spacers etc.) imagine the repaircenter guys.

I have not looked in a plastic back, but I would expect to find a sheet against the inside bottom of the 71 replacing the metal.

So in short - I assume cost reduction and cosmetics.

Kim

#### **Cheaper to manufacture**

Message #3 Posted by <u>Mike</u> on 27 Apr 2003, 2:51 p.m., in response to message #1 by db(martinez,california)

The plastic pack is much easier to assemble and repair. There is a metalic connection strip, similar to a what's in the 41 that make the two halves go together very easily.

In the metal back versions there is a flex circuit that is soldered to both halves. This is very costly and makes repir difficult.

Now, why metal vs plastic. Again, I think it is much cheaper to build. The metal back version has 3 additional screws that make electrical contact between the back and the insides.

BTW, I have owned over 60 of these and the only ones I have ever fail or are the metal back versions. Maybe a quirk but I have a box of bad metal back versions and none that are plastic. The flex cable often gets corrosion, for some reason.

Computers and Calculators Froum

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#### HP-34C display malfunction, need help

Message #1 Posted by <u>NH</u> on 26 Apr 2003, 11:19 a.m.

I have an HP-34C, and rebuilt it yesterday to make sure that there are not loose inner contacts (this is the unsoldered spice series).

Even so, THE DISPLAY DOESN'T BLANK PROPERLY. Example, if you type in Sin(45). You can see it calculating for a few seconds while it calculates. the result is correct. It even passes its self test 8,8,8,8,8,8,8,8,8

Let's say you just start entering a number: 2.2222222 Each time you type that "2", the whole display blinks in an unpleasant way. The "-" and all the commas light up.

Reminds me of things that maybe an HP-25C might do, they would show comma activity, if I recall. Luiz states that many of the SPICE series do what I am saying, but his sample of the 34C does not, and I never saw any HP-34C specimen do that before.

So three questions:

Did anybody see early versions of the 34C actually do this by design ? Did anybody see a unit degrade into this condition ?

Did anybody figure out a way to fix it, for example, whether the big chip, or the power supply is to blame ?

If U tell me what the problem is, of course, I will fix it. Cosmetically, the unit is clean as new and worth trying to save.

- Norm
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## **Best tools for learning / programming Saturn ASM?**

Message #1 Posted by <u>dgc</u> on 26 Apr 2003, 10:58 a.m.

What are the best tools if you want to start learning Saturn ASM? Ideally I would like to have the option to run the code in an emulator (i.e. not having to crash my calculator)...

Are the old HPTools still recommended or are there other/better tools?

//dgc

**Re: Best tools for learning / programming Saturn ASM?** *Message #2 Posted by* <u>*Raymond Del Tondo (Germany)*</u> on 27 Apr 2003, 1:03 p.m., in response to message #1 by dgc

It all depends on your taste;-)

I use the old 32bit Tools version 3.x , along with my favourite programmable text editor, and of course Emu48, which has an ML debugger.

As a complete software kit I'd suggest using Debug4x, which might be easier to use for beginners, than using editor scripts to perform on-the-fly building of the control files, etc..;-)

However, many programming problems can be solved using SysRPL in an elegant way, where you'll have to have deep knowledge of Saturn assembly language to solve it in ML.

BTW: I'd strongly suggest to use the HP SASM syntax, at least if you plan to write code on the PC.

IMHO SASM syntax is much more readable than MASD, which originally seems to have been developed for use on the HP-48 directly, where as much information as possible had to be squished on the small display, lacking readability.

Moreover, with SASM you'll get what you write. With SASM a loop is a loop, and not a

multiline macro construct with surrounding brackets, multiple statements in one line, etc... Especially for a beginner, it may be easier to debug code when it's written the way in which it will be actually stored, and displayed in the debugger;-)

And I'd suggest to use the ability of the better editors, like TSE/Pro or UltraEdit, to use inline comments. As good examples you could check the JAZZ sources, or the RPL48 sources, both available on www.hpcalc.org

All the above are just my thoughts, but maybe worth a consideration.

Raymond

**Re: Best tools for learning / programming Saturn ASM?** *Message #3 Posted by* <u>*Christoph Giesselink</u> on 29 Apr 2003, 8:40 a.m., in response to message #2 by Raymond Del Tondo (Germany)*</u>

I fully agree.

Christoph

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Is there a backgammon game for the HP48? Message #1 Posted by <u>dgc</u> on 26 Apr 2003, 10:55 a.m.

Does anyone if there is a backgammon game for the HP48? (I have searched all hpcalc.org but without success)

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# HP-34C in pieces, start betting pool, soldering SPICE calc?

Message #1 Posted by <u>Norm</u> on 25 Apr 2003, 10:09 p.m.

Hello,

Over at my household, I started the day thinking I would clean up an HP-34C. Now its in pieces all over the place. Right next to the computer here, piles of little keys, clips, plastic case parts, its starting to look pathetic.

Anybody want to start a betting pool for whether I get it back together ?? If anybody bets against me and I get it together, they have to mail payment within 5 days.

I paid a high price for this HP-34C, and the guy said it was perfect.

Well, no sooner do I try operating it a few minutes, and its quite unreliable. Just flaky, acting real flaky.

Now, this is in keeping with the early SPICE calculators. Are we really sure that Carly wasn't working there earlier, maybe as a junior engineer? I mean, this thing about chips stuck into the unit without any soldering. That's dumb, real dumb. It's Carly-dumb.

I stripped it all the way down, so that the IC's all fell loose. I see oxidation on pins of the 3 memory chips. I tried soldering to them, and you can't solder to them, not unless you use the tip of the solder iron to rub each pin for awhile. Obviously this is the failure mode for the early SPICE units, the oxide on the pins prevents contact.

So I am experimenting, folks. I'm converting this UNSOLDERED product to a SOLDERED product. I'm about 60% done. It looks difficult, but promising.

There was a fork in the road, I decided that I would accept an inferior cosmetic appearance, for a more reliable exterior performance. I mean, I can't realistically even remove the solder flux afterwards, so it wont look real pretty, but who cares, you have to tear it all the way down to see the solder and the flux.

The Leica self-illuminating low-power stereo-zoom microscope is real handy. There's a certain model that can be had brand-new for \$850, and its zoom, x7 to x 30. It helped me make sure that each connection was solid, esp. with the solder-resistant pins on the 3 memory chips.

WHAT'S KILLING me is I want to replace the 22uF electrolytic caps, figuring they'll go dry soon. I drove to the usual watering holes, here in Seattle. One folded, the other moved. Kind of pathetic, really, a country where there's only one or 2 stores that you could go to buy tantalum capacitors, in a city of 3 million.

No, Radio Shack doesn't count.

I would appreciate any input from those who have tried, or refused to try, converting an unsoldered unit to soldered.

## I disaseembled and successfully re-assembled...

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 26 Apr 2003, 12:57 a.m., in response to message #1 by Norm

...about a dozen Spices like yours in the past: I let them spread around the table and recalled them back together. To be perfectly honest with you, I lost the count of how many HP's and TI's I disassembled, washed case and keys, and successfully reassembled. My last challenge was getting to life two "franken"-HP42-"Stein" from three diceased ones. A few days ago I did exactly the same you did with.. an HP34C, my HP34C! It's happily working, all operational. With unsoldered IC's, you dam bet!

I use metal polisher in all IC's terminals and over the connection surface. I call the connection surface the flex-PCB, metal (not golden) coated, right? After letting all terminals and connection surfaces shinning, I use micro oil (Tutti; seems to come from Italy, with this name) and allow a tinny coat (contacts shine a bit more) to prevent oxidation. When you "sandwich" it back, preassure will be enough to connect all terminals together again.

Amongst the Spices I had in hands, at least five of them had missing segments and two returned [*Error 9*] after [STO][ENTER] self-test execution. All of them were successfull recovered and worked well. No one needed to be resoldered. In fact, there is an HP38C with me that has the keyboard frozen and if you switch it OF and ON a few times, [*Pr Error*] is shown even with fully charged batteries or with AC adapter plugged in, and this is a soldered-type Spice, not a "sandwich" type. I suspect there is noise from power supply and it is interfering with calculator operation, but I have no scope to track signals. 8<sup>(</sup>

I would not solder components; I think these "sandwiched" Spices are versatile to allow you to maintain them without the need of a soldering iron, unless you need to repair the power suply

unit. Even the flex connector to the batteries may be easily cleaned with metal polisher.

Wanna run the risk? Bag it all and sent it to me. I'll do whatever needed (except send my HP34C to replace it) and whatever I can to put it back to work. It's too bad Captain Zener is not allowed to cross country borders, because he could simply fly here and bring it in a few minutes, tops.

If you actualy want it, Norm, it will be my pleasure trying to help you. Send me ane-mail and I'll pass my actual address in Brazil. Mail delivery is from one to two weeks for each side. Anyway, I'm almost you'll find others close to you that would gladly help you faster. Anyway, be my guest.

Success.

Luiz C. Vieira - Brazil

## **Re: HP-34C in pieces, start betting pool, soldering SPICE calc?**

Message #3 Posted by <u>Howard</u> on 27 Apr 2003, 7:04 a.m., in response to message #1 by Norm

I have somewhat the same problem. Dumb old me did not realise that the three chips were not permanently attached and they fell off. My problem is that I don't know where each one goes or which way it is to be placed on the card. Could somebody point me to a post that has a photograph of these three chips in the correct position. Of course somebody couls alwayd pull their working 34C apart and then let me know. LOL Thank you in advance.

**Re: HP-34C in pieces, start betting pool, soldering SPICE calc?** *Message #4 Posted by Vieira, Luiz C. (Brazil) on 27 Apr 2003, 10:09 a.m., in response to message #3 by Howard* 

Hello, Howard;

the IC's area lways oriented in the same direction. If you position the calculator with the display in the upper position, you'll see there are three places (square holes)at the left for the ROM and RAM IC's and the big IC (Processor) rests in the right side. All of the IC's are oriented to top, meaning their pin #1 is at the top-left side of each place; there is always a smal mark in IC's: a painted spot or a single recessed dot. Any mark is close to pin #1, and looking from top, pin #1 is always at the first one at top-left.

Now have a look at the flex-PCB where the IC's are mounted; let's call it the main assy, O. K?. Looking at the side the IC's are mounted, find the location of the three small IC's and

place the main assy so these locations are at your left side. Now check th econnections from one IC to the other: they are exactly the same, meaning pin one of each of them are connected together, pin two, three, etc... The only exception is for the top-right pin (terminal 8) of the topmost IC: it is not connected to the others. This is what we were looking for: the RAM IC place. I was informed at this very forum that this is the position where pin 8 is fed by the batteries while calculator is OFF.

In my HP34C the topmost IC is 1LB902. As it's aRAM IC, maybe you'll find something closer

The other two are: mid position - 1MA10014 lowest position: 1MA11(?) - cannot read, it's too faded; would you check for me, please?

As these two IC's are in parallel, I checked if it works when positions are inverted and it runs smoothly.

I hope this helps you rebuilding your HP34C.

NORM: the main guy has a paper seal over it where it reads: 34C/B2102

00034-69110. But I was wrong: as I told you, I recovered many Spices for the last days and I confused the HP33C forthe HP34C. The one that is "sandwiched" is the HP33C; my HP34C is one with soldred IC's, I mean, the mainboard is conventional and the plastic support has bigger square holes. It is intended solely to lock components together and not to keep IC's terminals touching the flex circuits. I'm sorry I confused both calculators (in the begining of this month I had nothing less than 11 calculators opened in my workbench; there are only two, now) and gave you wrong information at first.

Success to you all.

Luiz C. Vieira - Brazil

#### Luiz

Message #5 Posted by <u>Howard</u> on 27 Apr 2003, 10:55 a.m., in response to message #4 by Vieira, Luiz C. (Brazil)

Hello Luiz, I checked and the ICs are: 1LB902 1MA114 1MA115 I take it from your message that I should assemble them in that order top to bottom. Only the middle one has a painted dot on it but they all have a HP emblem on them at one end. So I feel that all those emblems should be positioned in the same way. Thank you for your help. But my main problem and the reason why I pulled it to piecesis that this calculator had a bad battery leak and it has corroded and totally destroyed the flexible connecting strap from the battery terminals. Totally disintergrated!! I have traced things out and I have found where the leads (that might not be the correct term) - the traces within the flexible connector go to on the PC board. I feel that I could make up some ordinary wires connecting from the battery terminals (and the charger terminals) to this board where they make their first real connection on that board. Do you think that this will work? I really want to save this calculator as it was initially working after I had cleaned off all the corrosion but too much damage had been done to the connecting strip and it gave out after a little while. I have a 33C and I was going to use the connecting strip and PC board from it but the internals are a little different as the ICs and the connecting strip seem to be soldered on rather than the clamp type connections of the 34C. I hope you can give me some advice. All the best. Howard. (I can be contacted by e-mail but take the "spam" out of my name).

#### Wiring batteries connector

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 27 Apr 2003, 1:54 p.m., in response to message #5 by Howard

Hello, Howard;

I'm glad you could idnetify the IC's and their positions. Go for it!

About wiring the batteries' connector with ordinary wires: it has already been done, and I remember reading about this at this Forum. One thing to notice is that at least one of the cooper trails that come from batteries connector goes straight to the power supply board.

There are three cooper trails comming from the connector: one from (+) batt pole, a common one from (-) batt pole and one of the AC adapter connections and a third one, from the other AC adapter connection. This last one (AC) goes straight and only to the power supply, and the other two connect to the mainboard and the power supply. After identifying them well, you should cut the corroded portion of the flex

circuit (think of it as a cancer that must be removed before spreading around the rest of the calculator; show no merci!) and connect wires at their place. If you find a pice of flat cable, it will easen you job, look better and do the same.

Do you have the skills to try? It's not hard. If you need more precise advice about the connections, I'll open the 34C again and guide you as deep as possible.

I decided to post (and I try posting as much as I can) because maybe others can use the information as well. If there are some private statements, no matter at all: I'll email you directly. I have done this with others.

Best regards, Howard. And success.

Luiz C. Vieira - Brazil

## Howard,

Message #7 Posted by <u>NH</u> on 27 Apr 2003, 3:38 p.m., in response to message #6 by Vieira, Luiz C. (Brazil)

Hi Howard,

I tried writing you direct but your "spam big pond" address did not work for me.

Here is what I tried sendign to you direct, then:

Hello Howard, My name is Norm, I am enthusiastic about the HP-34C.

Sorry to hear about the mistake with the chips. Guess you didnt know that they are not soldered. This information is available if you carefully read the discussion of 34C at the HP Museum.

It is the heart of the problem with the "SPICE" series of calculators, because it makes them unreliable. The pins oxidize and then the connections go intermittent because there is no solder. THEY CHANGED THE DESIGN TOWARDS THE END OF PRODUCTION, so the later version has a standard normal circuit board. I think those are much less common than the original unreliable version. As you saw on my post, I experimented with soldering the chips. I have mixed feelings about it. It is hard to do it with a level of workmanship that is acceptable, although I did so. It required a microscope to check the pins. The pins did not want to accept solder sometimes due to the oxidation.

NOTICE that the pins on the little chips may be taking on a blue-ish color that may suggest they wont conduct electricity properly. I found that the little chips did NOT ACCEPT SOLDER unless each pin was "rubbed" with the solder iron for a significant period of time, to break thru the oxide and get fresh tin-lead thru them. This requires professional methods, including to de-flux afterwards.

I have a professional temperature controlled iron. Flux removal is important. You are also playing with fire due to ESD (electrostatic discharge) and dealing with ESD is important and can't be typed down in just a sentence. I have no idea what is your best strategy, for you personally. Maybe you would just reassemble and hope for the best.

Luiz wipes everything with a thin layer of electronics compatible oil, then reassembles it. He also mentioned apply a bit of refinishing to the pins on the 3 IC's.

HERE ARE MY TOP 2 SUGGESTIONS FOR YOU:

(a) Go to the office supply store, and ask to buy a "silver marker". They put out paint that is silver, and it dries. The brand is clearly called out as "PILOT" It says "PILOT SILVER MARKER" right on the side. Before I took apart the 34C, I put dots on the chips with the silver marker, and let them dry. You know, enough so that they were clearly identified. One dot on chip #1, two dots on chip #2, three dots on chip #3.

(b) Simply acquire additional specimens of the calculator. If you like the calculator enough to service it, then you could have more than one unit. Then it is very easy to cross-check the type of question you are asking.

For this reason, I am refraining right now from an extended discussion of "where the wires go". I could type it to death and you wouldn't want to read thru it. It's easier just to see a real unit, that you could acquire. I also do not have one apart right now.

Luiz may already be describing it for you.

HEY, did you get that good deal about 3 weeks ago, on eBay for a 34C that was in the box ???? From the seller in Ontario? It went cheap about \$70. I was going to snipe it, but never got back to the computer after running an errand.

Good luck ! - Norm

#### **Re: battery cable**

Message #8 Posted by <u>David Smith</u> on 27 Apr 2003, 5:27 p.m., in response to message #5 by Howard

Yes, replacing the battery flex cable with wires works very well. I have done it to dozens of these nasty, vile, wretched little machines.

I suspect that eventually all of them will need it someday. I have seen cracks in the flex circuits of machines that were new-in-box and never had batteries in them.

#### Flex circuit - not wire

Message #9 Posted by <u>Renato</u> on 28 Apr 2003, 12:18 a.m., in response to message #8 by David Smith

I used wires once. Next thing I will try is a flex circuit I found in a electronics store. It is for a microwave owen panel, but it looks like it will work ok, and appearance will be much better than wire. Did not have time for it yet, but as i paid one dollar for this circuit, I thought you might want to give a try.

Renato

#### **Re: Flex circuit - not wire**

Message #10 Posted by <u>David Smith</u> on 29 Apr 2003, 6:14 p.m., in response to message #9 by Renato

Wires work just fine and are much more robust and easier to work with than flex cables. I doubt that you could get a flex cable routed to the proper places and keep it working.

#### **Re: Flex circuit - not wire**

Message #11 Posted by <u>Renato</u> on 30 Apr 2003, 1:27 a.m., in response to message #10 by David Smith

Routing is not too hard - I once built a flex circuit using scotch tape and chomerics copper foil, and used it on a 34C (soldered ok on both ends). Advantages are: cosmetics and, as it is thinner than wires, it fits well in the case.

## **Re: Flex circuit - not wire**

Message #12 Posted by <u>David Smith</u> on 30 Apr 2003, 11:35 a.m., in response to message #11 by Renato

Ooooh, way too much work for us lazy slobs. There is plenty of clearance for wires. I usually use three conductor ribbon cable salvaged from old PC LED harnesses.

**Re: HP-34C in pieces, start betting pool, soldering SPICE calc?** 

Message #13 Posted by <u>Christof</u> on 28 Apr 2003, 2:31 a.m., in response to message #1 by Norm

in the manner of doing a camera test I took some really bad low light shots of a disassembled 32E I'm repairing- if you want to use the photos as props for discussion.

http://www.koyote.cx/static/photos/handhelds/HP/SPICE/

Note the 32E hasn't got the third IC.....

-C

# Anybody got HP-34C big chip?

Message #14 Posted by <u>NH</u> on 28 Apr 2003, 5:02 a.m., in response to message #13 by Christof

Maybe this should be a classified (sorry) but while we are here, anybody got a big chip for an HP-34C they could sell me? I also need the rubber key membrane.

Luiz and I are studying something: display blanking on spice calculators.

Say you type in sin(45). Do the commas blink while it does the computation?????? They would on the older HP-25C. Luiz definitely has some SPICE units where the commas blink, and others where they don't (same model number, different results).

Luiz says it must be a firmware upgrade that they did at a certain date forwards. I am wondering if they sort of "degrade" into this condition when the connections all start getting loose (spice chips not soldered down). That is, maybe they start out with display blanking, but don't finish with it, and its evidence of some deterioration?

I perceive that ALL HP-34C have display blanking, but maybe I'm wrong? If somebody

clearly recalls that they bought a brand-new HP-34c and the commas blinked on sin(45) from day #1, plz let us know.

Another thing to watch for. Type in: 2.2222222 and you will get an extra flash of all digits, each time you push "2" if there is not display blanking.

Certainly display blanking is superior. I find it deeply unacceptable to get this extra material in the display while I'm trying to run my calculations. I have an HP-34C here right now that commas blink while it types sin(45). It has a low serial number by the way. I consider the 'personality' of the calculator sufficiently inferior with the extra flashing, that it would be worth replacing the big chip to get the display blanking back.

HP-25C I am more accepting of the flashing, because maybe that WAS its personality. But not the 34C, it had a cleaner behavior. Anybody got my parts?

- Norm

## The 2-related blinking fact

Message #15 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 28 Apr 2003, 11:25 a.m., in response to message #14 by NH

Hello Norm, folks;

I checked again the HP33E and the HP34C and some other Spices (HP31E, HP37E and HP38E/C). The "not blanking", or "comma-blinking" (plus minus signal) happens when entering any nuber that contains a "2" digit elsewhere. If you type in a number whitout a "2" digit, no flicks at all. But at the moment a "2" is entered, every comma that follows every digit after the entered "2" blinks as you type the rest of the number.

with [STO][ENTER] the display remains quiet; [ENTER] will flick if the number has a digit "2" even in the hidden part, say, after the fifth place with [FIX]4; commas will blik only where is a hidden "2" when entering; all number functions that cause internal computation cause blinking commas (is there a chance any of these functions does not use the "2" digit internaly?); and the last interesting fact: [Sigma+] (for statistics) will cause a blinking display if any (or both) X- an Y-register contents have a "2"; if both numbers do not have a "2" digit, [Sigma+] executes with a silent display.

Because of this "2"-related selectivity I thought about firmware-related bug. And I observed it in some "sandwich"-mounted Spices.

I agree with Norm that this is somewhat weird. And his concerns about internal damage have theoretycal foundations for as long as I have the knowledge to technicaly judge

them. Silicon-based microchips, MOS-technology, are susceptible to ESD, no doubts about.

I like this sort of discussion and I'd like having more knowledge and data to go further.

Best regards.

Luiz C. Vieira - Brazil

## **Re: The 2-related blinking fact**

Message #16 Posted by <u>Ellis Easley</u> on 28 Apr 2003, 11:38 a.m., in response to message #15 by Vieira, Luiz C. (Brazil)

Could this be related to the behavior of the 25 while a program is running - where the digits that flash are related to the angle mode and/or display mode? BTW, I ran across an article in the PPC Journals about that but I don't know if I bookmarked it. I'll try to find it again. Maybe I'll run into an explanation of this Spice behavior!

## HEY EVERYBODY, important stuff, starting at "34C big chip"

Message #17 Posted by <u>NH</u> on 28 Apr 2003, 1:54 p.m., in response to message #14 by NH

That was really good stuff, Luiz.

I am trying to draw attention to it with this post.

You are right, I sort of thought it related largely to pushing the "2" button. But I didn't prove it like you did.

It just somehow seems like a deterioration in progress, or a low-serial-number bug. Something I dont like anyway. Would really like to know if its a factory thing, or a deterioration.

The missing link here is somebody who REMEMBERS how these low-serial-number units behaved on day #1, esp. 34C.

One guy said 'use toaster oven for solder paste for soldering down the chips'. The problem there is I think the whole assembly might melt (keyboard etc) so I'd be favoring a temperature-controlled professional-soldering-iron.

## Another "2"-digit fact (Spices)

Message #18 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 28 Apr 2003, 2:29 p.m., in response to message #17 by NH

Hello Norm, guys;

The "bliking" comma+minus\_signal may also be observed clearly when in PRGM mode. If any of the digits - program step, program instruction - contains a "2" digit, single-stepping or back-stepping over that particular instruction, i.e., when "leaving" the struction, will cause the "blinking" behavior.

The fact seems to happen when any processed data (in a general form) has the ASCII code for digit "2", that is '32'hex or '0011 0010'bin. I wonder if there is any particular internal routine where '32'hex code is part of display control or display status. If first models' firmware did not observe this fact and it became a "bug", corrected in later models.

Just my US\$ 0.05 contribution.

Luiz C. Vieira - Brazil

## **Re: Another "2"-digit fact (Spices)**

Message #19 Posted by <u>David Smith</u> on 28 Apr 2003, 6:10 p.m., in response to message #18 by Vieira, Luiz C. (Brazil)

A KeyNotes decribed the HP65 display system which may (or may not) be similar to the Spice machines. One inetrnal register contains the number to display and another one contains formatting codes for each digit (number, blank, sign, decimal, etc). By doing certain invalid operations you could hose up the formatting register and get weird displays. I would suspect that there is a hardware bug and that the "2" display code is interacting with the formatting register to give the funky display.

Also during program execution the display blanks and unblanks with each program step. By stopping execution on a certain (even/odd) step after doing certain invalid operations you got even werider displays.

## **Re: Anybody got HP-34C big chip?**

Message #20 Posted by <u>Trent Moseley</u> on 28 Apr 2003, 1:56 p.m., in response to message #14 by NH

My 25C does not blink or show commas doing any of the things you describe. Serial 1802S.....

tm

## Thanks Trent,

Message #21 Posted by <u>NH</u> on 28 Apr 2003, 6:17 p.m., in response to message #20 by Trent Moseley

that's an important tidbit of information. In the end we can only guess the truth, by observing actual units. That means even with 25C some do, some don't. I have definitely seen 25C that blink on sin(45) etc.

It seems now that we have a wide palette of HP calculators where some do, some don't, keep a clean and blanked display w/o "2 artifacts".

Guess what, for my specimens I definitely want the ones with a clean display and no artifacts.

#### The bugged ones are collectible...

Message #22 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 29 Apr 2003, 1:38 a.m., in response to message #21 by NH

Hey, Norm;

Congrats, after all!

You have a collectible item, so far. The bugged ones are like coins with the same stamp on each side... not so rare, indeed, but they are collectible items. Keep it and try to find an HP34C that does not blink, so you'll have both. Unless a collector chooses to buy your or offer to trade your "blinking" one for a "blank" one ;-)

Hey, I'm sending you an e-mail right now. Do not answer to this post before

reading it.

Best regards.

Luiz C. Vieira - Brazil

# Re: Anybody got HP-34C big chip?

Message #23 Posted by <u>Ellis Easley</u> on 29 Apr 2003, 9:42 a.m., in response to message #14 by NH

My 34C (S/N 2051S) doesn't flash commas or anything else while executing sin(45) or typing 2's. Running a program containing 2's, all digits, commas and minus sign flash. Looks about the same in FIX, SCI, ENG, DEG, RAD, GRAD modes. It's hard to write a program that loops without any 2's because you need GTO, (h LBL), or I with keys on the second row. The best I could do was a series of 16 repetitions of "5 +". This program flashed everything as described before.

**Re: HP-34C in pieces, start betting pool, soldering SPICE calc?** *Message #24 Posted by Ellis Easley on 28 Apr 2003, 9:44 a.m., in response to message #1 by Norm* 

I use a small wire brush to clean dull IC legs before soldering, thinking the metal bristles being generally all in contact with each other, it won't generate any static - am I deluding myself? I know that just because I haven't actually killed any IC's this way doesn't mean I haven't punctured some oxide layers and damaged them.

Also I clean tin plated PCB's this way. Looking at Christof's pictures, it looks like that flex circuit has been cleaned, it is so shiny.

Have you used low-residue liquid flux? That works great for hand assembly of surface mount components along with very fine gage rosin core solder. Apply the liquid flux to the PCB pads before placing the component. It dries right away but still does its job. You can generally tack solder the corner pins to hold the part in place without any additional solder, as long as the PBC is tin plated, then go back and solder all the pins with some more solder. I think the low-residue flux is quite poisonous, though - possibly just in the liquid form? It is water-clear and has very little odor.

If I get a no-solder Spice, I think I will try cleaning it as Luiz described and keep it no-solder. Maybe that expensive magical contact cleaner would work well here.

## **Another Soldering Technique**

Message #25 Posted by <u>Dan M</u> on 28 Apr 2003, 1:25 p.m., in response to message #1 by Norm

Here's another way to do some soldering... This is shown for SMT devices, but the overall technique and discussion of solder pastes, etc. may stimulate some thought within the Spice Fix-It Group.

Best Regards,

Dan M Bellows Falls, Vermont USA

Toaster Oven as Soldering Device

**Re: Another Soldering Technique** 

Message #26 Posted by <u>Ellis Easley</u> on 29 Apr 2003, 6:26 a.m., in response to message #25 by Dan M

I want to try that!

One thing my company learned when they first started doing surface mount is that one reason for the temperature profile is to allow all the moisture in the solder paste to evaporate before soldering temperature, otherwise little balls of solder splatter all over.

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# **HP Forum Archive 12**

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### HP-41 Squeal

Message #1 Posted by <u>Mark</u> on 25 Apr 2003, 7:23 p.m.

Put in a fresh battery pack, press ON, HP-41CX squeals, a high-pitched whine. No intelligence on the display. Pressing some keys makes the whine louder, some make it softer. Any suggestions on how to reset this baby so she powers up? Thanks in advance. For the record it's a fullnut, serial number 24xxx....

## **Re: HP-41 Squeal**

Message #2 Posted by <u>db(martinez,california)</u> on 25 Apr 2003, 9:07 p.m., in response to message #1 by Mark

it seems to be normal for a 41 to utter a small chirp of happiness when you slip in a set of batteries after a long period of non-use. this sounds more like "deliverance". i would check your battery polairity just to be sure, then cross the terminals on the 41 and leave it for about three days with no power. there may be some accidental partial program sequence in memory that is causing the noise and that will clear it out. synthetic programming can make a lot of tones and all synthetic is is a fortuitous string of steps that hp did not expect to go together - but do. if that dosn't work maybe you should send it to dr. mike. this could be a deep seated phobia of 6 vdc and require years of analysis.

#### Re: HP-41 Squeal - PPC ROM to the Rescue!

Message #3 Posted by <u>Mark</u> on 25 Apr 2003, 11:21 p.m., in response to message #1 by Mark

Installed the PPC ROM, managed to get the calculator to wake up by pressing lots of random keys while holding the ON switch. But when it woke up it was in some bizarre "2 \_ \_" mode with a bunch of random flags set and the radix set to "," that I could not clear with a master reset. So I just ran the 'CX' (curtain to absolute location in X) program in the PPC ROM, which I recalled from 20 years ago was one of those programs you just NEVER ran because it caused an almost immediate MEMORY LOST. Well I'm happy to report that the 'CX' program still works as advertised, even after 22 years. Got a cheerful MEMORY LOST and now all seems to be working fine. Thanks. -mark.

#### HP41CX scary moments - the sage continues

Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 26 Apr 2003, 2:12 a.m., in response to message #3 by Mark

Hi, Mark;

some months ago I passed some scary moments with my halfnut HP41CX. After experiencing a bad-contact behavior, it got into a "snooze" condition like yours: a high-frequency pitch, frozen keyboard, meaningless display. I readonce that removing the time module may "cure", but tell me: how to remove a time module... from an HP41CX?

I opened the calculator and simply shorten two capacitors inside it. One of them - the bigger one - seems to be in parallel with batteries (DC line) and the other... well, the h...! I shorten both and closed the calculator again. It was enough to put fresh batteries and see the so expected [MEMORY LOST ], sometime you hae it, sometimes you live, isn't it true?

As you have already been successful, I'm glad anyway.

Best regards.

Luiz C. Vieira - Brazil

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# HP Forum Archive 12

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## 48G Advanced User's Ref Manual

Message #1 Posted by Tom Cox on 25 Apr 2003, 3:53 p.m.

Does this document exist on Internet as a .PDF file? According to HP it is no longer available from them. Strange that they would promote it in their packaging with new 48GX but not have it available.

Re: 48G Advanced User's Ref Manual

Message #2 Posted by <u>**R** Lion</u> on 26 Apr 2003, 2:34 a.m., in response to message #1 by Tom Cox

This is not exactly what you ask for, but perhaps it helps...

Raul

http://www.hpcalc.org/hp48/docs/programming/hp48gaur.zip

Re: 48G Advanced User's Ref Manual

Message #3 Posted by <u>Tom Cox</u> on 26 Apr 2003, 3:48 p.m., in response to message #2 by R Lion

The file you suggest is a list of commands for 48G. It is a good start. Found the AUR manual available from CALCPRO. Thanks for the input. Those manuals appear to be in short suply.

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# HP Forum Archive 12

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A Call for Captain Zener ( and others) for HELP! Message #1 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 25 Apr 2003, 1:24 p.m.

Hi, all;

I have an HP82120A, serial # 2309Sxxxxx; it's a rechargeable batt pack for the HP41 series. I need help to identify a zener diode directly connected to the batteries terminals.

I measured voltage across it and I got to the (approximate) 6.2Volts as zener voltage. I inspected the circuit and got to the following:

a bridge rectifier (discrete, four diodes) a 100uF/25V electrolytic (filter) capacitor in parallel with a 10nF ceramic capacitor a SOT-type (like a BC-series transistor) integrated regulator a series rectifier a 365 ohms, 1%, 1/2 watt resistor and THE zener diode

Voltages measured are when connected to AC adapter are:

about 18Vcc after rectifier bridge about 12Vcc after regulator about 6.5Vcc over the batteries

This pack was recovered after being exposed to corrosive battery leakage and I used everything but original bridge rectifiers and 10nF ceramic capacitor. But I cannot red zener specs, it seems battery leakage reacted with surface coat and there is not visible inscriptions over it. It is too small, almost like those pre-SMD 1/12 watt sub-miniature resistors, found in many earlier VCR and a few PC power supplies. I want to know what zener is this one, because it is a lot critical, as it's responsible to be steady for a somewhat fragile component: the HP41 and all attached interfaces. As it is mostly indicated to be used when power demands go beyond battery lifetime, using it supposes other "power-consuming" components are connected to the calculator, like the wand, card reader or 82242 IR interface. And these are not easy to find, low-cost devices, as the HP41 itself.

I hope you all understand my concerns: if batteries are not good and this zener fails...

## Look, up in the attic !

Message #2 Posted by <u>CZ</u> on 25 Apr 2003, 2:19 p.m., in response to message #1 by Vieira, Luiz C. (Brazil)

It's a technician..... it's an engineer..... it's a Heathkit builder......

NO! It's Captain Zener! Gliding thru the attic in a tangle of oscilloscope probes and 50 ohm BNC cables, helping to keep people from despairing over their zener diode problems. Born on planet "HP" the only thing Captain Zener is vulnerable to is a greenish radioactive mineral called "Carlynite". If exposed to "Carlynite" Captain Zener is reduced to an incapacitated weakling who falls down and barfs into the bathroom john......

etc.

Introductions aside: Your battery pack is not familiar to me, so when you talk about all this stuff (regulators, resistors, etc) I dont see a circuit diagram so I dont know what its all about. Without a schematic, it doesn't mean much.

NEVERTHELESS..... you've been clear enough that the zener diode looked corroded by chemicals, BUT, it was functional and it measured 6.2V. You said it was around the size of a baby resistor (1/8W with leads is common in Japanese equipment).

WELL, ask yourself if there is space for a 1 Watt 6.2V zener, a 1N4735A.

YEP, the same unit we've been always chatting about before, the one that is good to rework into the HP-25C.

I'd say, you need space for a 1/4W resistor. If you have that space then the 1W zener will fit. Of course, its good to have extra lead-length to help the heat to spread out.

You may just need a 1N4735A then. Probably the one that was in there was from the 1/2W zener family. It would be good, if possible, to use the 1W zener instead (more melt-proof).

Let me know if you that is an acceptable part then, 1N4735A, 1W, 6.2V.

### Re: Look, up in the attic !

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 25 Apr 2003, 3:21 p.m., in response to message #2 by CZ

Hello, Norm... Oops, Captain Zener, sorry...

Thank you for the handfull concerns.

About the "charger" schematics... No big deal, it looks more like a two-stage regulator: first stage with the 12Vcc regulator, that provides an (about 1 to 3% drift) regulated 12Vcc so you can use a resistor-series voltage drop and a zener. Provided you'll have a stable 12Vcc and an expected current consumption, no matter fo final zener stage.

What called my attention was the tinny 6.2 V zener (it's the standard reference, right?). I take as a critical component, and I thouhgt a 1N4735A would do fine. Thank you.

This way nothing else need to change.

I'm still wondering about what zener is that; can anyone check for it, please?

Thanks, Captain Zener; good job!

Luiz C. Vieira - Brazil

# Re: A Call for Captain Zener ( and others) for HELP!

Message #4 Posted by <u>David Smith</u> on 25 Apr 2003, 5:32 p.m., in response to message #1 by Vieira, Luiz C. (Brazil)

Is your pack the one with three pins in the charger plug or two? It may not be a zener, it could be a plain diode.

### **Re: A Call for Captain Zener ( and others) for HELP!**

Message #5 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 25 Apr 2003, 6:25 p.m., in response to message #4 by David Smith

Hi, David;

the pack is a two-pin AC input type. I use a standard 82143A original AC adapter.

As for the diode, I cannot see it as another type but as a zener diode. It is inversely polarized in relation to the batteries poles. If it is a plain diode, the only application I'd see for this sort of connection would be as a free-whelling for inductive loads.

I did not measure the current intensity at this condition, but it shows a 6.2V breakdown voltage and its size indicates it is a 1/2 watt or 400mWatt zener.

Thenk you, David.

Luiz C. Vieira - Brazil

**Re: A Call for Captain Zener ( and others) for HELP!** *Message #6 Posted by Ellis Easley on 26 Apr 2003, 9:32 a.m., in response to message #5 by Vieira, Luiz C. (Brazil)* 

That sounds just like my battery pack. The three terminal regulator is HP 26-0275 which is a 78L12, this has been verified by Tony Duell, I believe, as being in his HP P/N cross reference list.

I did a quick calculation and the 365 ohm resistor biases the 6.2V zener at about 16 mA, or the charging current for the NiCads, not enough to run a high-drain peripheral - is it even enough to run the calculator while running a program I wonder? And so the zener is dissipating less than 100 mW.

If the zener is working, why change it?

## 16mA ?

Message #7 Posted by <u>Norm</u> on 26 Apr 2003, 11:14 a.m., in response to message #6 by Ellis Easley

How could 16mA be the charging current for the NiCads ? It sounds too low for purposes of charging.

It must serve a different person. Of course, a schematic would explain all.

## **Re: 16mA ?**

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 26 Apr 2003, 12:25 p.m., in response to message #7 by Norm

Hello, Norm;

if you have a look at the tinny cells... they are 2/3 (or 3/4?) N-cells, NiCad (original pack). It seems they deliver no more than 150mAh, what is good enough for the HP41 and somewhat crytical for "high" current devices (card reader, wand and IR module 82242A).

16mAh is about 10% nominal current, what matches average charging current. It still needs about 10 hours charging time.

Just a few more info.

#### **Re: 16mA ?**

Message #9 Posted by <u>David Smith</u> on 27 Apr 2003, 5:36 p.m., in response to message #7 by Norm

The cells are 1/2N cells (also called N70 cells). They are rated at 70mAH (later 80maH). They were last made by Sanyo a few years back (and are about impossible to find anymore). The 16ma charge rate is actually rather large for a trickle charge, but does not seem to cause cell heating which is the main killer of overcharged batteries.

#### **Re: A Call for Captain Zener ( and others) for HELP!**

Message #10 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 26 Apr 2003, 12:37 p.m., in response to message #6 by Ellis Easley

Hello, Ellis;

thank you for your comments.

To be honest I do not want to replace it, I want to know who is this guy. I prefer having two or thee as spare and also have a few 1N4735A, just in case... Norm made a good research job, it should not be wasted, don't you agree?

also I'd like to read this zener's specs so I think I will understand a bit of what did HP designers had in mind when they designed this charging circuit.

I know batteries are connected directly to the circuit load (HP41 circuitry) and there should be no noise at all in batteries' poles, but I do not feel comfortable with pure DC for charging batteries. A little PWM signal added to a DC component would act almost the same as inteligent chargers do. But when the batteries are in the circuit there's no way to change it.

Classics chagers have a separate regulated DC source to feed calculator while a nonregulated DC is used to charge batteries. Even being expensive, this sort of charger is a lot more reliable, I think.

Thank you again, Ellis.

Luiz C. Vieira - Brazil

#### zener diode data sheet

Message #11 Posted by <u>CZ</u> on 26 Apr 2003, 7:43 p.m., in response to message #10 by Vieira, Luiz C. (Brazil)

If you want to double-check zener diode spec's, goto www.onsemi.com

They are the company that took over after Motorola dumped all that kind of traditional semiconductor stuff, and focused on personal computers instead (blecch).

When you get to their website, type in 1N4735A for the 6.2V zener 1 Watt data sheet.

The data sheet is for a family of parts, so you may see it steering you towards a "base" part number that isn't 1N4735A but you click on the link anyway to see the datasheet.

I'm 90% sure that the 1/2W zener diode (6.2V) would have part number 1N5221B. So you'd type that in, with the same guidelines. Of course, maybe I am not remembering the part number correctly.

#### Re: zener diode data sheet

Message #12 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 26 Apr 2003, 8:09 p.m., in response to message #11 by CZ

Hello, Norm;

the diode I want to know specs about is the unknown guy in the battery pack, because I want to know what HP had in mind. You have already made the hardest part: finding the 1N4735A, and I am 100% confident with your choice, believe me!

About the "strange" guy: I thought about removing it and feeding it with a controlled DC source and check for zener test current so I'd have an idea about it. What bothers me is that I do not have a cotrolled DC source, nor a reliable ampmeter. When I need some stuff like a voltage source, I grab a few components and build it. I had a good lab for researching tasks, but I "left the building" in June 2002. No scopes, no controlled sources so far.

Thank you again. I'll check 1N5221B specs and I'll post again. My only concerns go for what did HP designers consider when placing a single 6.2V zener after a 12V regulator to "clip" voltage over batteries. As we have  $4 \times 1.25$  Vcc NiCad cells, nominal voltage is about 5 Vcc; will the battery pack reach 6.2V when charging?

Best regards.

Luiz C. Vieira - Brazil

#### Re: zener diode data sheet

Message #13 Posted by <u>Ellis Easley</u> on 26 Apr 2003, 10:34 p.m., in response to message #12 by Vieira, Luiz C. (Brazil)

The voltage across NiCads that are in good shape doesn't go as high as 1.5V during charging; in fact, as charging finishes (when all the chemicals have been converted), the voltage starts dropping and the temperature start rising. These are the two indications that intelligent NiCad chargers use to turn off the current.

Even if the battery voltage did rise above 6.2V, it wouldn't matter because the total current is limited by the 365 ohm resistor. Even with the batteries out of the circuit, the zener dissipates less than 100 mW.

The heat is created by a reaction to re-combine oxygen which is generated at the positive plate after it is fully charged and electrolysis of water begins to occur (the negative plate is made larger to guarantee that the positive plate will be charged first). The oxygen travels to the negative plate and reacts with cadmium and water to form cadmium hydroxide, which is the reaction that produces heat. By doing it this way (oversized negative plate), the generation of hydrogen is prevented. At least that's what I understand from my Sanyo databook.

#### Re: A Call for Captain Zener ( and others) for HELP!

Message #14 Posted by <u>Ellis Easley</u> on 26 Apr 2003, 10:04 p.m., in response to message #10 by Vieira, Luiz C. (Brazil)

First, I just looked at the schematic I sketched of my HP41 rechargeable pack PCB and I had overlooked the diode in series with the 365 ohm resistor, so the current I calculate is more like 14 mA. That might actually be high for the original NiCads, weren't they 110 mA-H? Plus, when good NiCads are in the circuit, dropping 4.8V, the zener is not conducting and the voltage on the 365 ohm resistor is higher and so the current is about 18 mA. Even when the cells have risen to 1.4V each, the current is about 16 mA.

Yes, I appreciate Norm's advice. I'm sorry to hear that Motorola doesn't make zeners anymore and that nobody has taken up the slack (maybe somebody like Oliver Whats-his-name of Germanium Power Devices will come forward.) Motorola's zener databook is what I've always used as a reference and I guess I didn't know how good I had it. If the TL431 came in a TO-220 package I'd feel a lot better! You could use it as is (with two resistors to set the voltage) for at least a 1W zener or heat sink it and use it where you would put a 7800 series (series) regulator. I can't think of any reason why you couldn't turn it upside down and use it instead of a 7900 series (series regulator)(a message from your department of redundancy department). I like shunt regulators because they get warm. Please don't tell the EPA I said that.

My rechargable pack was in pretty good shape and I can read the markings on the parts. The zener is marked "M[Motorola logo]K/020/057/503". The two diodes on the negative side of the bridge are marked "MK/020/965/426". The two diodes on the positive side of the bridge, and the diode in series with the 365 ohm resistor, are 1N4002. The three terminal regulator is marked "M26/-0275". I wonder why they used two different kinds of diodes in the bridge? Maybe that will become evident if we can find out what the two private labeled ones are. I looked in the service manual for the HP3421A and in it, HP consistently used 1901 as a prefix for rectifiers and switching diodes, and 1902 for zeners. It's probably safe to assume that the third line on these diodes is a datecode and they only used the unique digits from the part number, making the 6.2V zener a "1902-0057" and the diodes in the bridge "1902-0965". Looked at separately, these two zener diodes are connected back-to-back across the transformer secondary where they can clip high voltage transients of either polarity that come through the transformer from the line. Normally, the highest voltage across each diode is twice the peak voltage (capacitor charges to one peak, then transformer lead swings to the opposite peak) so any zener higher than 40 or 50 volts wouldn't normally conduct.

I'd like to read more about the idea that pulsating current is better for charging batteries. I have been studying a fairly old (1988) Sanyo NiCad databook lately (when I was having trouble soldering to the straps on my drill batteries) and it has no mention of the subject. There is a discussion of full wave vs. half wave rectification but the purpose of the discussion seems to be minimizing the weight of the transformer. BTW, this databook has a section on battery packs and they show photos of some examples, one of them is the HP Classic battery pack, 82001(might be A, the opening in the plastic for the terminals is a little shorter than my B).

Also, I looked up a PPC Journal article I had run into and bookmarked: V7N2P25 (Feb.-Mar. 1980), how to modify a Classic recharger (82002A) to use it as an AC adapter for a 41C. It includes a schematic of the Classic recharger as it comes and it shows both supplies - the constant voltage for the calculator and the constant current for the battery - originating from the same rectified and filtered source. BTW, the constant current source compares the voltage drop across a 13 ohm resistor to a transistor Vbe. 0.6/13=46 mA, 0.7/13=54 mA. The modification for the 41C consists of changing the zener on the base of an emitter follower transistor in the constant voltage supply to a 1N755A (7.5V 1/2W), adding a protective zener (1N754A, 6.8V 1/2W) after the emitter follower, adding a 1N4001 rectifier diode in series with the load, and then building a plug to mate with the little gold contacts that were accessible on the side of the early 41's.

The 6.8V protective zener looks to me like cutting things pretty close. If the 7.5V zener is high and the 6.8V zener is low, it is going to be drawing current and there isn't anything to limit it. The text says the 1N4001 is to prevent discharging the battery on the 41 but I think they also needed another junction voltage drop since they started with 7.5V.

I tried to find an article about the HP41 rechargable pack that might have schematics and part numbers but so far, no luck. However, I did find this: in V13N9P8 there is an article about batteries in general. First there is a lot of discussion from someone at HP about the batteries for the earlier calculators (before the 41). Then starting on page 11 there is a shorter article from a battery shop in California about the special problems of the 41, which have been discussed here before - people who got the card reader found their batteries had a very short life. The introduction to the set of articles states that the 41 article will help people cope until the rechargeable pack is available from HP, so it must have already been announced at that time (Dec. 1986).

The 41 article says the 41C in ' "computing" state ' draws about 6 mA and the card reader draws 250 mA. The article also has general instructions for building an AC adapter for the 41. It does not reference V7N2. It does suggest using a "6.3 or 6.8 V" zener to protect the calculator. I wonder if 6.3 was a typo or if the writer was thinking of the common vacuum tube heater voltage?

I think the function of the 6.2V zener in the 41C rechargeable pack is the same as we have been discussing for the 25, except in the 41, 6.2V is a better fit since the battery has twice as many cells as the 25. The 12V pre-regulator and the low charging current makes it possible to use a small zener.

I have "extracted" the two articles as GIF files and will email them on request. The whole bunch is about 500KB. The Classic recharger schematic alone is about 10KB. I guess I could scan my 41 rechargeable schematic too, it's just hen scratchings on a post-it note.

## I'd like having them

Message #15 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 26 Apr 2003, 10:24 p.m., in response to message #14 by Ellis Easley

Hello, Ellis;

I'd like very much having all of the information you have about this subject, meaning schematics, scratch notes, e-catalogs, whatever. Man, I saved your text and I'm gonna print it (as I have one with many others)! It's full of important, valuable information. Thank you very much!

Best regards.

Luiz C. Vieira - Brazil

## Motorola vs. "ON Semiconductor".

Message #16 Posted by <u>CZ</u> on 27 Apr 2003, 2:59 a.m., in response to message #15 by Vieira, Luiz C. (Brazil)

Actually, Motorola didn't shut down the zener production line. They sold it off to a new entity called "ON Semiconductor". http://www.onsemi.com

So you could say that was charitable of them. Rather than smash all the equipment with hammers, and burn down the building, they just sent it along to somebody else. I can live with that.

If Carly were in charge, they'd make sure nobody could ever have zeners again. It's not like that. I still preferred seeing everything be "Motorola" and don't know why the big-wigs have to keep divesting themselves of whatever good things built the company originally.

## Ме Тоо

Message #17 Posted by <u>Michael F. Coyle</u> on 27 Apr 2003, 1:15 p.m., in response to message #14 by Ellis Easley

I'd like to see your power supply schematics, too. I don't have a Classic or a 41, but I'm curious anyway.

Maybe you could take your diagrams and earlier power supply info and add it to the Articles Forum. Information like this is too valuable to just let slip into the Forum Archive.

- Michael

## Re: A Call for Captain Zener ( and others) for HELP!

Message #18 Posted by <u>Ellis Easley</u> on 28 Apr 2003, 11:08 a.m., in response to message #10 by Vieira, Luiz C. (Brazil)

I downloaded two datasheets from On Semi, 1W and .5W zeners. I did as Norm suggested and searched for 1N4735A. I tried getting there through the parametric search but never found this family of parts! Then I did the same searching for 1N755A which is used in the PPC Journal article. This is the .5W family.

I believe the diodes on my 41 rechargeable pack are .5W zeners mainly because of the lead diameter. The specs for DO-41 (1W) and DO-35 (.5W) from the two datasheets give a pretty wide latitude for the body size, it can be the same for both packages. But the DO-35 has smaller diameter leads. I measure .020 on the diodes on my pack. If they were 1W they would have thicker leads like the .032 leads on the 1N4002 diodes also on my pack.

Both DO-41 and DO-35 are glass packages. I think I have read that zeners in plastic packages sometimes change their voltage after soldering because of stress on the die from the leads that is felt by the die while the plastic is softened by the heat from soldering.

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## MLDL2000 - update (long)

Message #1 Posted by Meindert Kuipers on 25 Apr 2003, 8:45 a.m.

As some of the regulars here will probably know, I am working on a project to develop a combination of Rombox and MLDL for the good old HP41. As development is now coming to a stage where there is some outlook to an actual prototype I would like to exchange information in a somewhat different way by starting a mailing list to keep all interested up to date with what's happening.

To subscribe to the mailing list please send an email to majordomo@kuipers.to with in the body the text: subscribe hp41\_dev. To post a message simple send email to hp41\_dev@kuipers.to. Note that only subscribers will be allowed to send messages to the list.

Let me know if you do not like this way of communication or if you rather prefer this forum.

The MLDL2000 is a non-profit project. All information will in the be available to the group under the GNU license: schematics, PCB layout, VHDL sources, specification, CPLD programming file. I will even use free tools as much as possible to accomplish all this. Most information is already available at www.kuipers.to/hp41.

Functionally, the MLDL2000 will store up to 47 (!) ROM images in Flash Eprom and up to 11 ROM images in SRAM, that can be edited at will with a suitable program. Bank switching will be supported and the MLDL2000 will have a simple interface to the outside world to allow up- and downloading of ROM images, programming and erasing Flash and to some extent data exchange with the HP41. For detailed specifications please have a look at www.kuipers.to/hp41

As I currently see it I will supply a PCB mounted with components and programmed CPLD. I will probably not supply the housing and/or the HP41 connectors. The PCB will be small enough to fit in a card reader housing. The CPLD with all the logic is reprogrammable in the field to add features or to fix bugs.

The project is far from finished, but proceeding nicely. No hardware is prototyped yet, but simulations show succesful access from Flash Eprom and SRAM, including the '040' WROM

instruction. This leaves the external interface and bank switching to be implemented. I intend to start prototyping a simple rombox within a few weeks to prove interoperability with the HP41.

I would like to call for help for the following:

- PCB layout, prefreably in CADSOFT Eagle

- hardware design issues: 5V-3.3V conversion, supplies

- specifics on HP41 bank switching: need some more detailed info

If you think you have something to offer, please contact me!

As usual, comments are welcome!

Meindert

#### Re: MLDL2000 - update (long)

Message #2 Posted by Vieira, Luiz C. (Brazil) on 25 Apr 2003, 11:48 a.m., in response to message #1 by Meindert Kuipers

Hello, Meindert;

I wish I have more knowledge to help the way I'd like, but for now I can only research the power supplies.

Would you send me the specs and limiting factors? I mean

- input (or available) voltage - input voltage characteristics (battery type, recharger circuit or not) - output/needed voltage(s) - load characteristics (current demand OR what is the load)

About the fourth item: possibly you have the FLASH writer, memory IC's, controler and a few other devices. Steady current consumption is the most desirable situation, and in most cases you may design a power supply based on this particular assumption. Anyway, if you have some sort of load that has variable power consumption, it must be considered to avoid power loss. If your input voltage comes from batteries, what sort of batteries (and in which number) you intend to use: rechargeable or not? Or you think it's better using the very own calculator batteries?

Have you already thought about this all? As I think you're dealing with logic design a lot more than electronic design (I'm downloadig your updated files later) maybe you did not thave the time even to think about these.

I'll try the best to help wher I believe I can.

(Calling Captain Zener; calling Captain Zenenr... did he let any speciall call device with somebody? PLease, tell Norm I'll need some analog advice here...)

Luiz C. Vieira - Brazil

## Re: MLDL2000 - update (long)

Message #3 Posted by <u>Meindert Kuipers</u> on 27 Apr 2003, 11:57 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

Luiz and others,

Power requirements for the MLDL2000 are pretty simple. I do not expect it to draw more than 1 mA, probably even half of that. The CPLD, Flash and SRAM all run at 3.3V. A simple regulator will derive that from the HP41 battery. SRAM could be protected by a small cell when unplugged, but nothing rechargeable is planned.

Flash programming requires most power, but I will specify that that works only with the HP41 connected (I need the 41 clocks anyway).

My biggest challenge is hooking up the Xilinx CPDL (XPLA3 type) to the HP41. All I/O for the CPLD is 3.3V, but 5V tolerant, with a max at 5.5V. This means that HP41 I/O's will be too much, and a converted is required here. Driving the HP41 from the CPLD is another difficult point, but can be solved using an external CMOS driver circuit connected to the HP41's supply. There are some tricks to make the 3.3V CPLD talk to that by. There are only two lines to be driven that way (ISA and DATA) and the additonal power consumption is not that much.

You are totally correct that I am a digital type, but I am learning.

Meindert
## Re: MLDL2000 - update (long)

Message #4 Posted by <u>Holger Veit</u> on 28 Apr 2003, 7:30 a.m., in response to message #3 by Meindert Kuipers

Meindert,

I think it is not a real problem to hook the CPLD to the supposedly 5.5V outputs of the HP-41. The whole issue with the 3.3 vs. 5 V is that the threshold values for Low and High are setup in a way (IIRC 0.4V/2.0V) that they are compatible to standard LS-TTL. A driving LS-TTL will usually exceed the High-Threshold (it could in theory infact drive 5 V or more), but the CPLD contains clamping diodes in the IO buffer element that will limit this to the CPLD supply voltage. If you want to be on the safe side, just add a 5V1 Z-diode to each CPLD input connected to the HP. There are some converters from CMOS to LVTTL (that's what the 3.3V TTL is called) but this appears overkill to me (besides you need some additional logic for the ISA line to switch direction - it is bidirectional. In the Xilinx docs you can BTW find some paper that explains conversion between CMOS and LVTTL.

Holger

## Re: MLDL2000 - update (long)

Message #5 Posted by <u>Meindert Kuipers</u> on 28 Apr 2003, 1:36 p.m., in response to message #4 by Holger Veit

Here comes Captain Zener again ...

Holger, I think you are correct. Note however that the HP41 power with fresh batteries can exceed 6V. Driving ISA (or DATA) is actually more tricky I think, and I did go through the Xilinx doc. Normally I could use a pullup to 5V for a logic high level, and not drive ISA for high levels, and drive low for low levels. The problem is that the HP41 expects ISA low when idle (reading zero means nothing is connected), and that means I would have to drive ISA low all the time and that creates a problem on this bi-directional line if something else is driving this.

The only solution I see is with an external driver, while the CPLD has an ISA\_in, ISA\_out and ISA\_enable for enabling the output driver (same for DATA). I you have another way around this let me know, but the logic is not that complicated, just requires an extra component (which might be needed anyway for 3.3-5 volt conversion).

Driving TTL would be less problematic, but driving the HP41 CMOS under the steady state level would draw more current (though only for a short time I must admit). I am preparing some experiments to see how this can best be solved, but I am certainly open for your input!

Thanks,

Meindert

#### Re: MLDL2000 - update

Message #6 Posted by <u>James MacPhail</u> on 2 May 2003, 5:08 p.m., in response to message #5 by Meindert Kuipers

the CPLD contains clamping diodes

Normally, I would try to avoid this sort of voltage limiting due to the battery power wasted, but I admit that has to be weighed against development and manufacturing resources.

I also worry that clamping will affect other modules on the bus that expect CMOS levels, causing them to malfunction when the bus signals are clamped to ~4 volts.

Perhaps the first prototype can reveal if this is going to be a significant issue.

James

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## Two MORE TI's!

Message #1 Posted by <u>Speck</u> on 25 Apr 2003, 12:16 a.m.

http://www.shopgoodwill.com/viewItem.asp?ItemID=553390

I'm starting to think this is an epidemic!

(BTW, I'm not partial to any particular classic machines, either. I just do this as a public service to the group, as a "Thank You" for the help I get from here with my 49G. It's not much, but it's a start. Thanks, everybody!)

Speck.

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**You've got to see this – if you can!** Message #1 Posted by **Tony Copley** on 24 Apr 2003, 9:36 p.m.

Amusing ad, "Product is as shown in picture". The perfect gift for Mini Me. http://cgi.ebay.com/ws/ eBayISAPI.dll?ViewItem&category=11713&item=3020777294

What??!!?? Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 24 Apr 2003, 10:11 p.m., in response to message #1 by Tony Copley

How come? Are they all intentded to be in one single case... at the same time?

(The seller added the icon instead of the picture itself)

Luiz C. Vieira - Brazil

#### Re: What??!!??

Message #3 Posted by <u>db(martinez,california)</u> on 24 Apr 2003, 10:59 p.m., in response to message #2 by Vieira, Luiz C. (Brazil)

the buyer should have been reading the hp forum. glen & koyote & me knew a place in sacramento (where the seller is) that was selling them for \$20 a pop, for one.

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### HP-41 Challenge!

Message #1 Posted by Jeff on 24 Apr 2003, 8:14 p.m.

If you have a number in X. You need to test this number against the values: 1,2.5,3.125 X<=Y? or similar test. You need to perform (4) Different actions based on the results of the tests. If X<=1.0 then add .1 If X<=2.5 then Multiply by 1.1 If X<=3.125 then add .2 Else Multiply by 1.08 The HP-48GX has the CASE function which performs this very well. What is the best solution for the HP-41? I have tried using the GTO statements and LBL statements. I have tried using flags to direct the program execution but I think that my attemps, Although they work, are not quite good. What is the best Byte/Time ratio that can be obtained?

#### **Re: HP-41 Challenge!**

Message #2 Posted by <u>Johnny Billquist</u> on 25 Apr 2003, 8:42 a.m., in response to message #1 by Jeff

1 - X<=0? GTO 00 1.5 - X<=0? GTO 01 0.625 - X<=0? GTO 02 3.125 + 1.08 \* GTO 03 LBL 00 2 + GTO 03 LBL 01 2.5 + 1.1 \* GTO 03 LBL 02 3.325 + LBL 03

That's my suggestion anyway.

## Re: HP-41 Challenge!

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 25 Apr 2003, 11:27 a.m., in response to message #2 by Johnny Billquist

Hello, John; may I? I just arrengend (formatted) your solution.

```
1
-
X<=0?
GTO 00
1.5
-
```

X<=0? GTO 01 0.625 \_ X<=0? GTO 02 3.125 + 1.08 \* GTO 03 LBL 00 2 + GTO 03 LBL 01 2.5 + 1.1 \* GTO 03 LBL 02 3.325 + LBL 03

here the original program continues, right? May I use your suggestion and make it work like a subroutine call? This way it would look like:

```
1
-
X<=0?
GTO 00
1.5
-
X<=0?
GTO 01
0.625
-
X<=0?
GTO 02
3.125
+
```

1.08 \* RTN LBL 00 2 +RTN LBL 01 2.5 +1.1 \* RTN LBL 02 3.325 +RTN

I hope you don't be mad with me... This is just another way to use your solution.

Best regards.

Luiz C. Vieira - Brazil

## Re: HP-41 Challenge!

Message #4 Posted by <u>Jean-Marc Baillard</u> on 25 Apr 2003, 4:57 p.m., in response to message #3 by Vieira, Luiz C. (Brazil)

Hi, everyone! here is a solution to this challenge:

1 X<Y? GTO 01 + RTN LBL 01 CLX 2.5 X<Y? GTO 01 CLX 1.1 \* RTN LBL 01 CLX 3.125 X<Y? GTO 01 CLX .2 + RTN LBL 01 CLX 1.08 \* RTN ( 28 lines , 43 bytes )

Best regards, JMB.

## **Re: HP-41 Challenge!**

Message #5 Posted by <u>Dave Shaffer</u> on 25 Apr 2003, 6:38 p.m., in response to message #4 by Jean-Marc Baillard

Try turning it around - check from the high side first.

In Luiz'z notation (and using x<>y for interchange x and y) and assuming the value to be tested is already in x:

3.125 x<>y x>y? GTO 00 2.0 x<>y x>y? GTO 01 1.0 x<>y x>y GTO 02 0.1 + GTO 03 LBL 00 1.08 \* GTO 03 LBL 01 0.2 + GTO 03 LBL 02 1.1 \* LBL 03 (resume whatever you were doing here)

#### **Re: HP-41 Challenge!**

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 25 Apr 2003, 7:58 p.m., in response to message #5 by Dave Shaffer

Hello, Dave;

yours is a very elegant solution. If I am not wrong, it seems to me Jeff's original verrsion resembles yours. At least I remeber seeing this x<>y comparison "structure" a few months ago.

Is it correct, Jeff?

Best regards. (It seems a lot of us still program -or remember how to- under RPN with style...)

Luiz C. Vieira - Brazil

## **Re: HP-41 Challenge!**

Message #7 Posted by <u>Dave Shaffer</u> on 25 Apr 2003, 11:46 p.m., in response to message #6 by Vieira, Luiz C. (Brazil)

Luiz,

Thank you for your kind words. I sort of messed up my presentation - I intended to have line breaks at each step, as you have showed us how to do! (It looked so good before I sent it!)

I suspect that with a little more attention paid to the x and y variables on the stack and the order of the comparison (greater than or less than) that you could save even a few more steps.

To Jeff: did you really have a problem where this particular order of comparison and subsequent arithmetic was needed?

You mean like this?

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 26 Apr 2003, 12:28 a. m.,

in response to message #7 by Dave Shaffer

Hello, Dave;

some souls are gone, others are about to come, but kindness and politeness are timeless, isn't it? That's what makes this Forum rule: people in here are amazingly kind and polite. Thank you too, Dave; my pleasure.

About the listing: if you what something to be shown the way you typed it in, start it with a [pre] and finish it with a [/pre]. Both [pre] and [/pre] will be invisible; to show them it's necessary to use the  $\[ and \]$  trick. Look at your own listing below:

3.125 x<>y x>y? GTO 00 2.0 x<>y x>y?

```
GTO 01
1.0
x<>y
x>y
GTO 02
0.1
+
GTO 03
LBL 00
1.08
*
GTO 03
LBL 01
0.2
+
GTO 03
LBL 02
1.1
*
LBL 03
```

(resume whatever you were doing here)

Was it what you wnated? the [pre] and [/pre] are Dave Hicks' *gifts* for us, amongst others... PLease, have a look <u>here</u> and you'll understand better.

Best regards.

Luiz C. Vieira - Brazil

## **Re: You mean like this?**

Message #9 Posted by <u>Jeff</u> on 26 Apr 2003, 8:46 a.m., in response to message #8 by Vieira, Luiz C. (Brazil)

Thanks to all who posted responses on this thread. I have taken the liberty of compiling all the responses into a list and will be trying each one out for byte/time. I have been working on this routine for a while and thought that there surely was a better method to complete what I needed to have done. This is the reason that I posted this challenge. Below is the list. I will post the byte counts and input/ outputs sometime this weekend. Again thanks to all.

E X<>Y X<=Y? GTO 01 2.5 X<>Y X<=Y? GTO 02 3.125 X<>Y X<=Y? GTO 03 1.08 \* RTN LBL 01 .1 + RTN LBL 01 1.1 + RTN LBL 03 .2 + RTN "Jeff" my original program.

1 - X<=0? GTO 00 1.5 - X<=0? GTO 01 0.625 - X<=0? GTO 02 3.125 + 1.08 \* GTO 03 LBL 00 2 + GTO 03 LBL 01 2.5 + 1.1 \* GTO 03 LBL 02 3.325 + LBL 03

1 - X<=0? GTO 00 1.5 - X<=0? GTO 01 0.625 - X<=0? GTO 02 3.125 + 1.08 \* GTO 03 LBL 00 2 + GTO 03 LBL 01 2.5 + 1.1 \* GTO 03 LBL 02 3.325 + LBL 03

1 - X<=0? GTO 00 1.5 - X<=0? GTO 01 0.625 - X<=0? GTO 02 3.125 + 1.08 \* RTN LBL 00 2 + RTN LBL 01 2.5 + 1.1 \* RTN LBL 02 3.325 + RTN

1 X<Y? GTO 01 + RTN LBL 01 CLX 2.5 X<Y? GTO 01 CLX 1.1 \* RTN LBL 01 CLX 3.125 X<Y? GTO 01 CLX .2 + RTN LBL 01 CLX 1.08 \* RTN

3.125 x<>y x>y? GTO 00 2.0 x<>y x>y? GTO 01 1.0 x<>y x>y GTO 02 0.1 + GTO 03 LBL 00 1.08 \* GTO 03 LBL 01 0.2 + GTO 03 LBL 02 1.1 \* LBL 03

3.125 x<>y x>y? GTO 00 2.0 x<>y x>y? GTO 01 1.0 x<>y x>y GTO 02 0.1 + GTO 03 LBL 00 1.08 \* GTO 03 LBL 01 0.2 + GTO 03 LBL 02 1.1 \* LBL 03

#### **Re: You mean like this?**

Message #10 Posted by <u>Jeff</u> on 26 Apr 2003, 9:11 p.m., in response to message #9 by Jeff

Thanks again to all that posted regarding this thread. Here are the results for the challenge. Johnny Billquist 64 Bytes/.64 seconds=100 BT Jean-Marc Baillard 53 Bytes/.50 seconds=106 BT Dave Shaffer 54 Bytes/1.04 seconds=51.92 BT Jeff Davis 53 Bytes/.71 seconds=74.67 BT Congratulations Jean-Marc Baillard! These byte counts include an .END and a LBL. Thanks to all. If there are further thoughts to make this sequence faster or shorter please let us know. Best Regards, Jeff

#### **Re: You mean like this?**

Message #11 Posted by Johnny Billquist on 28 Apr 2003, 6:49 a.m., in response to message #8 by Vieira, Luiz C. (Brazil)

This solution is a bit shorter than mine, but offers the stack for it. It depends on what you need. I don't like it just because I want to keep stack usage to a minimum, but apart from that it's efficient.

## Re: HP-41 Challenge!

Message #12 Posted by <u>Jeff</u> on 27 Apr 2003, 2:25 p.m., in response to message #7 by Dave Shaffer

This particular routine, is being used to calculate a safe distance between centers that will be used in a subsequent calculation. The subsequent calculation will determine how many cavities can fit into a mold using a square or round pattern. Similar to wire packings. Thanks to all, Jeff

# Re: HP-41 Challenge!

Message #13 Posted by Johnny Billquist on 28 Apr 2003, 6:50 a.m., in response to message #3 by Vieira, Luiz C. (Brazil)

Thanks. I didn't realize it would become so messed up. I wrote it the way you formatted it for me.

Much obliged. I'll try to remember the [pre] next time, now that I know.

And yes, it might be prettier to have as a subroutine.

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### Calculators at Fry's; its not just HP

Message #1 Posted by <u>NH</u> on 24 Apr 2003, 1:40 p.m.

HEY, I was at several stores today, but especially "FRY'S" in Wilsonville, OR. I was wandering past the calculator departments, just to look and see what they got.

Any calculators, all of 'em, not just HP (of any type, 4-function, scientific, printing-accountant). I mean, they had Casio, and TI, and all the other competitors.

It was all TRASH, man, they are all just so much chinsy, uninspired, boring rotten lousy trash. Lightweight, cheap, chinsy. Keys that feel they are worth a penny each, dull and unininspired displays.

When it came to 'accountant' calculators with a print-tape, it was amazing how from the bottom of the line to the top, they all use those crummy, slow, one-wheel printheads. You know, you type in 7 digits, and what do you get: rrr-rrr-rrr-rrr-rrr-rrr

## RRRRRRR!

bleccch. I remember real printing calculators that had a pound of metal in 'em, and when it had to print the numbers, it went WHAM! and that was it.

The top-of-the-line they couldn't even be bothered to put in a better printer than the one from the bottom-of-the-line.

If I needed a calculator, I'd probably just slug it out on eBay, and find something from 20 years ago.

Nothing worth buying from the factories anymore.

All been Carly-ized. Carly works weekends at TI and Casio.

The most humorous part of the aisle at Fry's was the "HP" stuff. A bunch of rag-tag graphing calculator models, and a few of those \$19 HP specials for Wal-Mart. Any of 'em sitting on the

hangar so long they were covered with dust, AND, half of -em ripped open then taped shut again, others with so many abrasions on the clear-pack it looked liek it had been kicked around the store and back, and a lot of the packaging dented up because people tryign to push buttons thru the clear plastic then put it back again. I mean, NOBODY wanted this stuff, so when people dont buy stuff, it was shelf-rot big time.

TI proudly proclaiming how they had connived their way into over 10,000 different high school & math cirriculums, etc etc.

Now, that's just me and my field observations.

So no need to tell me how mistaken I am.. If so its already noted before you wrote that.

If you found a super-duper calculator that you just love greatly, at Fry's, then congrats you got luckier than me. :o)

I would appreciate any links to first-class cool little units, like that HP-10 with the mini print-tape. Surely the factories still make things like that(?) which are clever and intriguing, maybe Frys' just didn't stock that model ?? Somebody has got a cool printing calculator somewheres ? Maybe with some bright green digits ?

The most hysterical models were the \$12 ones that sported 'fractions'. If you wanted 3/4 displayed (three quarters) it would put up something with a little "L" in the display 3L4 .. Ooo laa laa, innovation, progress I was impressed.

Next time I'm staying at home, why drive to the retail store, nothing to buy there !

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#### HP-45 problem

Message #1 Posted by Michel Beaulieu on 24 Apr 2003, 12:24 p.m.

Hi, i have a strange problem on my HP-45 : if i push in a number, only the last on apper on the LCD. If i pus the number 258, the 5 erase the 2 and the 8 erase the 5. I can do some calculation on this one digit number like 1 ENTER, 3 and divide them i get .33333. If i make factorial of 5 i get 120 so ok.

But if i make SIN, TAN or COS, the diaplay get blank and never come back until i get the calculator off-on. LN and ex are doing the same. All other math calculations are ok on the digit i enter or the multi digit i get from a previous answer (like 1 Enter 9 + and 1/x i get good answer)

Can this problem be fix of it is it a bad/dead obsolete chip?

Thanks for help me again with hardware problems...

**Re: HP-45 problem** 

Message #2 Posted by <u>David Smith</u> on 24 Apr 2003, 5:32 p.m., in response to message #1 by Michel Beaulieu

Most likely cause is a bad ROM chip. Then a bad CPU chip.

#### **Re: HP-45 problem**

Message #3 Posted by <u>Renato</u> on 24 Apr 2003, 6:38 p.m., in response to message #2 by David Smith

Could this be a stuck key ?

## **Re: HP-45 problem**

Message #4 Posted by <u>Michel Beaulieu</u> on 24 Apr 2003, 6:57 p.m., in response to message #3 by Renato

I try a "motherboard" from a good working HP-45 and the calculator works great so the problem is on the board that have a lot of gold on it... Is there a known problem i can solve on that board? I looked all the connection and they look ok. I cheked all diodes and they are ok. There are a lot of golden chips on the board, what are they for?

Thanks

## **Re: HP-45 problem**

Message #5 Posted by <u>Tony Duell (UK)</u> on 24 Apr 2003, 8:10 p.m., in response to message #4 by Michel Beaulieu

The chips are basically : Control and Timing, Arithmetic and Registers (those 2 chips form the 'CPU'), 2 ROMs, RAM, and Clock Driver/Init. I have (hopefully) sent you some information by e-mail describing the chips, and what they do.

# **Re: HP-45 problem**

Message #6 Posted by <u>Tony Duell (UK)</u> on 24 Apr 2003, 8:02 p.m., in response to message #1 by Michel Beaulieu

Alas it most likely is a custom chip that's failed (or at least I can't think of a keyboard or PSU problem -- the sections that use standard components -- that could cause this fault). My first guess (without seeing the machine) is that one of the 2 ROMs has failed. Second guess would be either the A&R or C&T chips. The ROMs would have to come from another HP45, the other 2 chips are used in some other classics.

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#### interesting calculator article

Message #1 Posted by Ellis Easley on 24 Apr 2003, 9:30 a.m.

I went looking for the Bob Pease article about Spice (the simulator program) but I can't find it, however I did find this one about calculator accuracy:

http://www.elecdesign.com/Articles/Index.cfm?ArticleID=747

It's from 1992 and it's not actually written by Pease but it is just serious enough to make you wonder if the author is pulling your leg.

It's good to know that Pease is still writing his articles. Here is an index to them:

http://www.elecdesign.com/Index.cfm?Action=Pease

I found another, smaller index of his articles at National Semi. It has the advantage of being easier to read!:

http://www.national.com/rap/Story/Index/

The article on "Muntzing" is very interesting on the subject of low-cost manufacturing. This article about "mentoring", I think anyone would enjoy reading:

http://www.national.com/rap/Story/0,1562,7,00.html

Pease is an analog IC expert from National Semiconductor but his articles cover a wide range of subjects. He wrote a good book on analog troubleshooting and contributed a great article on the first successful transistor operational amplifier to another book by Jim Williams of Linear Technology. Pease worked at Philbrick while they were still building the op-amp modules and he includes a hand drawn schematic in his article where he explains why nobody was successful at cloning the module (its operation depended on parasitic feedback). One day I would like to build an op-amp from his article.

Re: interesting calculator article

Message #2 Posted by <u>hugh</u> on 24 Apr 2003, 2:14 p.m., in response to message #1 by Ellis Easley

the first article, for sure, is a well-known april fool.

**Re: interesting calculator article** 

Message #3 Posted by Vassilis Prevelakis on 26 Apr 2003, 8:43 a.m., in response to message #2 by hugh

Yes, its a hoax, it says so at the end of the article.

\*\*vp

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Extended-use rechargeable battery 92266B

Message #1 Posted by <u>Renato</u> on 23 Apr 2003, 10:18 p.m.

Just curious : HP-41 peripheral booklet lists Extended-use rechargeable battery 92266B and Extended use charger 92266A. I've never seen these - even in pics. Does anyone have them ?

**Re: Extended-use rechargeable battery 92266B** Message #2 Posted by <u>David Smith</u> on 24 Apr 2003, 5:34 p.m., in response to message #1 by Renato

They were full sized nicad "N" cells for use in the standard alkaline battery holder. These cells were charged externally to the machine.

**Re: Extended-use rechargeable battery 92266B** Message #3 Posted by <u>Renato</u> on 26 Apr 2003, 10:24 p.m., in response to message #2 by David Smith

David, thank you for the information. Do you know how the external charger looked like ?

Renato

**Re: Extended-use rechargeable battery 92266B** Message #4 Posted by <u>David Smith</u> on 27 Apr 2003, 5:32 p.m., in response to message #3 by Renato

If I remember right it was a little black box with four slots for the batteries. It was powered by a wall wart. I have also seen a version that was designed for AA batteries, but had little adapter cradles for the "N" cells.

#### **Re: Extended-use rechargeable battery 92266B**

Message #5 Posted by <u>Renato</u> on 27 Apr 2003, 5:54 p.m., in response to message #4 by David Smith

The version for AA batteries would be HP branded ? I know radio shack used to sell AA charger , n-size batteries and adapters for charging n-size on the aa charger (it was described in this forum).

Renato

### **Re: Extended-use rechargeable battery 92266B**

Message #6 Posted by <u>David Smith</u> on 28 Apr 2003, 6:13 p.m., in response to message #5 by Renato

I think the "AA" adapter solution was not from HP, but sold by some of their distributors or dealers (mayby Educalc). I have seen the same model charger/ adapters with several different machines.

#### Re: Extended-use rechargeable battery 92266B

Message #7 Posted by <u>Ellis Easley</u> on 29 Apr 2003, 6:49 a.m., in response to message #6 by David Smith

I looked in my old HP catalogs earlier in this thread but didn't find this. But when David mentioned EduCalc, I looked in those catalogs and there is a picture of the product. I'll scan the page and email it if you want. It might be in one of the EduCalc catalogs on the Museum CD-ROMs.

Next to it is another brand NiCad charger with optional sleeves for N cells. Wouldn't it be necessary to reduce the current for N cells from what is being put out for AA cells? A PPC Journal article I referenced in another thread suggested using a AA charger with a resistor to reduce the current for the N cells. Putting a resistor in series would depend on knowing what the voltage is inside the charger. But assuming the charger was putting out 50 mA for a AA, and the voltage of a cell is nominally 1.2V, and wanting say 15 mA for the N cell, you could put a resistor in parallel to draw the extra 35 mA and it would be 1.2V/35mA=34.3 ohms and dissipate 42 mW. 34 ohms is a standard 1% value and a 1/4W resistor would do. A 33 ohm 5% resistor would draw a little more than 36 mA (with more latitude!) and would do about as well.

#### **Re: Extended-use rechargeable battery 92266B** *Message #8 Posted by <u>Ellis Easley</u> on 29 Apr 2003, 8:53 a.m., in response to message #7 by Ellis Easley*

The 92266A and B are in educ85.pdf which is on CD5, on page 12. "A" is the recharger with 4 cells, "B" is 4 more N cells. There is also a different solution from the same 3rd party I mentioned before (Ledford Micro) which includes a recharger made for N cells.

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Yes, I know it's a TI

Message #1 Posted by <u>Speck</u> on 23 Apr 2003, 9:12 p.m.

http://www.shopgoodwill.com/viewItem.asp?ItemID=552161

Just in case anyone here collects vintage TI's as well. FYI.

Speck.

Re: Yes, I know it's a TI

Message #2 Posted by <u>Michael F. Coyle</u> on 24 Apr 2003, 12:15 a.m., in response to message #1 by Speck

Yeah, but it's a good TI.

Anyway, it seems like most people on this forum are pretty open-minded about TI's and others. (Even if we think HP's are a cut above.)

**I've been meaning to ask about that.** *Message #3 Posted by* <u>*Christof*</u> *on 24 Apr 2003, 1:25 a.m., in response to message #2 by Michael F. Coyle* 

yeah, by far the most numerous in my collection is HP. But my collection is primarily (not exclusively, but primarily) base don handheld computing technology.

and for me, that means that idela machines are nes that can be programmed from within the device (yeah, that DOES leave windowsCE machines pretty much out of it- even the palm platform has better onboard coding tools)

So i've got several programmable TI machine s(and a few that aren't, like my lovely 2550, which is really very cool to whip out sometimes)

And I've got a lot of Sharp machines. And you know, they are pretty wel designed. aesthetically and functionally. you haven't got a problem finding tapes for your microcassette storage, for example. and serial is the rule from all the way back to 1979ish.

I \*love\* HPs, but sometimes I'm not entirely certain that they are, in fact, the best ever handheld computers all the way through Carlyborging. Though as scientific calculators, they are pretty much without equal all the way through.

Re: TI 2550

Message #4 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 6:55 a.m., in response to message #3 by Christof

It is lovely, isn't it?

One thing I like about the early TI's is the way each model's manual shows how you can do things that are built in to the next model.

### Re: TI 2550

Message #5 Posted by <u>Christof</u> on 24 Apr 2003, 12:37 p.m., in response to message #4 by Ellis Easley

The 2550 is really a nice machine for what it is, yeah. I admit I prefer polish- prefix or postfix. I also admit that's probably because my brain seems to be a lispmachine. ;)

I've used the 2550 on tests where only a 43function calc were allowed. And I've gottne some comments. They range from: "dude! that thing is so old, hwo can you use it?" to "Wow, that's really pretty, where can I get a calculator with a glowing display?"

If I was building a list of favorite calcs, though- sorted by type- the Ti2550 would get my vote in the '4banger algebraic LED' category. (very closely followed by my Computek Mark 5 portable)

## Re: TI 2550

Message #6 Posted by <u>Michael F. Coyle</u> on 24 Apr 2003, 1:08 p.m., in response to message #5 by Christof

Yeah, my dad had a 2500. It cost him \$80 at the time. But it waas a great little machine. Built like a brick (but somewhat more durable). It lasted for years.

It's not so clear-cut at all [LONG]

Message #7 Posted by John Smith on 24 Apr 2003, 7:18 a.m., in response to message #3 by Christof

Christof writes:

"I \*love\* HPs, but sometimes I'm not entirely certain that they are, in fact, the best ever handheld computers all the way through Carlyborging. Though as scientific calculators, they are pretty much without equal all the way through."

I agree with you 100%. As a collector, I'm interested not only in HP machines, but other brands as well, and own a lot of both HP and SHARP handheld computers/calculators. It may be the case that die-hard HP fans find what follows outrageous if not downright insulting, but the fact is that a neutral, dispassionate, feature-by-feature comparison makes it plainly clear that most classic, \*vintage\* SHARP machines are much better than most (vintage, I'm not talking about the newer models) HP ones in many respects, including those of ergonomy, durability, aesthetics, and of course programming capabilities, all at a fraction of the price.

They usually boast:

- Beautiful, shiny, fully metallic bodies, very solidly built, which are extremely durable. No HP model has such fully metallic body.
- Large alphanumeric LCD displays (from 1 to 4 lines and from 16 to 40 characters per line), usually dot-addressable for full graphic capabilities, up to 32x160. No vintage HP model has such large displays or graphic capabilities.
- Complete qwerty keyboard and numeric pad. No keycodes, prompted inputs and outputs. Only the very expensive (at the time) HP-71B had both keyboards, the HP-75 had no separate numeric keypad, and no other vintage machines had non-shifted, qwerty alpha keyboards, if at all.
- Serial port (even in the smallest models) for standard I/O, fully configurable with

BASIC commands. Most vintage HP models had no I/O capability at all, and the ones which did used HP-IL, an expensive, proprietary standard, which required costly compatible HP-IL devices.

- Can connect to a printer (sometimes plotter) and cassette for mass storage of programs and data. Unlike HP, these were quite inexpensive and quite convenient.
- Non-volatile RAM, both built-in and in the form of RAM cards which keep programs and data even when removed from the machine (so no hurry to replace batteries, and you can instantly bring your programs and data to another machine). Compare that with the daunting task of replacing the batteries in an HP-28S without losing your RAM contents.
- Large amounts of RAM, 10 Kb being typical even in the very smallest models (smaller than even an HP-15C), up to 64 Kb or more. Compare that with the 0.4 Kb or 0.3 Kb available on the HP-15C and HP-32S/SII.
- Powerful, extended BASIC language, featuring 2-dimensional arrays, strings, long variable names, graphic and I/O commands, and plenty of built-in functions. Want to store 200 names and addresses in RAM, up to 80 characters in length ? Simply DIM MYDATA\$(200,2)\* 80 and you're all set. Compare that with the incredible contortions you're bound to make to fit anything complex in an HP-15C, 32S, 41CX, if it can be done at all ...
- Fast processing speeds, typically from 10 to 50 times the speed of an HP-15C, say. For instance, FOR I=1 TO 1000: NEXT I runs in 7 seconds in the smallest models, less than 1 second in the most advanced. Try the equivalent loop on your vintage HP.
- Can be programmed in machine code directly from the keyboard, by using PEEK, POKE and CALL. The processor is usually Z80-like, thus its assembler is quite standard. On the other hand, no vintage HP model is programmable in machine code, except for the costly HP-71B, and the HP-41C requires very expensive hardware to even try. Both have proprietary processor, using a very non-standard assembly language and CPU architecture.
- Full attention given to ergonomy. BASIC functions and algebraic expression can be used and evaluated directly from the keyboard, without programming, you can compute intermediate results in the same line, use the previous result in any part of a new expression, recall the complete expression to the display for editing and re-execution, with all its operators and data. Compare that with LAST X on HP

models, which recalls only the last argument in X. Only the HP-71B had that capability. Also, you can assign arbitrary expressions or sequences of characters to keys, for instant execution. Again, only the HP-71B could do that.

• Like HP, SHARP also has specialized models with the same physical characteristics and compatible BASIC language, but including specialized functions such as financial, statistical, logical, matrix operations, and even double precision (20+ decimal digits), all of them fully integrated with BASIC and executing at 15-30 times the speed of equivalent functions in comparable vintage HP models. So you can use all the power and speed of BASIC for your financial calculations, say, dealing with cash flows and IRR computations by using the built-in functions from your program, with the advantage of a large amount of RAM, from 4 Kb onwards. You can also save your financial data on cassette, send them to a PC or modem via the serial port, or print them on the attached printer. Compare that with the abysmal programming features of the HP-12C, the 0.099 Kb RAM you have for your program and data, and then having to record everything (program, data, results) by hand.

In other words, next time you take your vintage HP model out of your pocket and try to impress some fellow by telling him these are the best handhelds in the world, think twice. If you are unlucky, he might produce a SHARP PC-1261 out of \*his\* pocket (10 Kb RAM, 40 Kb ROM, 8-bit CPU, 2x24 char alphanumeric LCD display, full qwerty keyboard, extended BASIC language, serial I/O port), which is \*smaller\* and much faster than your HP, and make your bombastic claims sound utterly hollow. Specially if there are more people present, that could be very bad to your morale, and the resulting ridicule could shatter your HP faith for good.

#### Re: It's not so clear-cut at all [LONG]

Message #8 Posted by <u>Chan Tran</u> on 24 Apr 2003, 8:15 a.m., in response to message #7 by John Smith

I collect mostly HP calculators, but I am now getting some TI. I especially interested in models that were competing with the HP models that I bought i.e TI50 or 51 vs HP25. TI 58 & 59 vs HP41C etc... I wanted to see if I missed something by opting for HP instead of TI.

### Re: It's not so clear-cut at all [LONG]

Message #9 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 8:18 a.m., in response to message #7 by John Smith

I've got a 1261! with the cassette/printer interface, barely used. I agree the Sharps are very striking in appearance, as are some of the Casios. I also have the first pocket computer Radio Shack sold - is that a Sharp?

I got my 1261 from a co-worker who also sold me my 41C which had belonged to another co-worker before him who had given it plenty of use. The guy who sold them to me was an older fellow who wasn't finding the machine that he was looking for. Today he is probably happy with an organizer. I haven't done much with the 1261 and I remember being disappointed that I couldn't program it in machine language. I just now scanned the manual and I don't see PEEK and POKE or CALL. Are they undocumented?

#### Re: It's not so clear-cut at all

Message #10 Posted by <u>John Smith</u> on 24 Apr 2003, 9:37 a.m., in response to message #9 by Ellis Easley

Ellis wrote:

"I've got a 1261! with the cassette/printer interface, barely used."

Congratulations !

"I agree the Sharps are very striking in appearance, as are some of the Casios. I also have the first pocket computer Radio Shack sold - is that a Sharp?"

Yes, the TRS-80 PC-1 is an exact clone (less the SHARP logo) of the SHARP PC-1211 pocket computer, which was the very first of its kind, released at the time of the HP-41C, with nearly 4 times the memory of a bare-bones HP-41C, 2 times larger dot matrix yellow LCD, fully metallic body, and BASIC language to boot, at less than half the price. It sold extremely well and gave birth to a new class of handheld computing capability. It, as well as the TRS-80 PC-2, PC-3 and PC-8 were SHARP machines manufactured specifically for Tandy.

"I haven't done much with the 1261 and I remember being disappointed that I couldn't program it in machine language. I just now scanned the manual and I don't see PEEK and POKE or CALL. Are they undocumented?"

Yes, they are undocumented, but present and functional nevertheless. Have a look at this page (and the whole site):

PockASM Macro Assembler for Sharp Pocket Computers

#### Thanks!

Message #11 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 10:41 a.m., in response to message #10 by John Smith

Now I'll have to get programming!

#### Aldweb site

Message #12 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 11:02 a.m., in response to message #10 by John Smith

I hope I didn't shut down the Aldweb site, it has become unavailable past its home page. The site linked from the Aldweb page that was linked here, that had an upgraded assembly language system, rather hosed up my computer that window became uncloseable and unresponsive and slowed other windows to a crawl.

#### **Re: Aldweb site**

Message #13 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 12:38 p.m., in response to message #12 by Ellis Easley

I guess not, it's OK now.

#### Re: It's not so clear-cut at all

Message #14 Posted by <u>Christof</u> on 24 Apr 2003, 12:11 p.m., in response to message #10 by John Smith

The Sharp 'Thing' with onboard BASIC, assembler capability, and z80 like cpus has extended all the way until very recent times in the parts of the wizard series.

I'm currently hunting a few down after having played with a friend's- while I like the 71 keyboard a lot more, these machines look like perfectly acceptable replacements for any windows CE device (with the sole exception of wireless networking).

I've always found that the programming interface of the sharps and the HPs was ... well, empowering to the user. The ability to write code, even very simple code as demonstrated in the cookbook portion of a manual, makes a lot fo difference in your relationship to a machine. To quote Herbert "Without Me, You're Nothing." (referring to a computer.)

P.S.- all this sharp loving aside, I'm still quite fond of my 41/42/48/75/71 machines. and RPN. But HP did make a few errors in interface design and LCD capabilities.....

### Re: It's not so clear-cut at all [LONG]

Message #15 Posted by <u>Ex-PPC member</u> on 24 Apr 2003, 10:01 a.m., in response to message #9 by Ellis Easley

You're rigth, the first Tandy pocket computer was a clone of the Sharp PC-1211, only with the TRS logo instead of Sharp's one.

It is a really beautiful machine and, for the time, truly state-of-the-art. And very capable, too. I wrote some 100+ programs for it back then, and frequently was amazed at the tremendous ease with which you could program almost anything on it. For instance, I remember a 6-line program to solve the "Towers of Hanoi" puzzle for any number of disks, as well as an equally short program to solve the "N-queens" chess problem, also for any N. Writing those same programs for the HP-41C was much, much more difficult, and resulted in quite long listings, a far cry from the minuscule BASIC programs implemented for the PC-1211.

#### Re: It's not so clear-cut at all

Message #16 Posted by <u>Richard Garner</u> on 24 Apr 2003, 9:49 a.m., in response to message #7 by John Smith

It's not programable, but one of the best caculators I have ever used is a Commodore SR9091R. It is 26 years old, and a side from looking a little worse for ware and having the batteries rebuilt several times, it still works.

#### did you mean...

Message #17 Posted by <u>db(martinez,california)</u> on 24 Apr 2003, 1:31 p.m., in response to message #16 by Richard Garner

... the SR 9190 R ? my favorite comodore is the 4921. it's like the 4912 - but rpn.

#### Re: did you mean...

Message #18 Posted by <u>GE</u> on 24 Apr 2003, 5:15 p.m., in response to message #17 by db(martinez,california)

Commodores are great, some are really weird, but I like better the Sharps. Basic is so readable, amazingly slow at the beginning (on the 1211), but quickly improved.

Had BASIC machine been equipped with graphic displays, they might have wiped the competition from the face of the world (yes the 71B has a graphical display, the PC1500 too, but way too small).

If you want to show off a bit, you'd rather use a nice EL5100 (the predecessor to the PC1211). Was not a BASIC machine, but had the FIRST alphanumeric display EVER (yes, I think so). So now try to prove me wrong. Also, to show off even more, there are rarer models...

On the TI side, there are quality models. It is and was just a matter of price (price being a matter of target market anyway).

Side note : good thing that HPers start to become nostalgic on some other brands too !

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#### Oh No another 67 card reader question

Message #1 Posted by Malcolm Brooks on 23 Apr 2003, 6:55 p.m.

To all,

I am working on another HP67 card reader.

I have replaced the gummy wheel - adjusted the fingers so the motor pulls the card through - fixed the clutch - cleaned the keyboard contacts - fixed the cracked posts.

So now I get the card pulling through nice and even at the right speed.

It gives an error on read - no error on write - and yes I will change the capacitor when I can get one today.

BUT - I tried reading the written card in a known good card reader and - error. From previous posts the capacitor only affects the read and the write is ok. I know the write actually writes something but it is not readable in a good reader. I used a good reader to write a dummy program then tried the read in a good reader - OK. Then I used the suspect 67 to write a dummy program and then try reading in a good 67 - error.

Could this still be the capacitor or do I have something else wrong?

Thanks Malcolm

#### Re: Oh No another 67 card reader question

Message #2 Posted by <u>David Smith</u> on 24 Apr 2003, 5:40 p.m., in response to message #1 by Malcolm Brooks

It COULD be one of the capacitors connected to the head circuit (there is one on each head winding), but not likely.

My bet is a bad head winding. There are two windings that should have a resistance of around 40-50 ohms. Also the black head wire should show zero ohms to the metal case around the head. Another posibility is a bad reader chip.

Also, did you clean the head and get those pesky little eyebrow shaped springs back in properly? And are the wires to the head connected to the circuit board. The soldered ones break loose all too easily. The ones that plug into the little connector stake pins love to pop out.

#### Re: Oh No another 67 card reader question

Message #3 Posted by <u>Tony Duell (UK)</u> on 24 Apr 2003, 8:14 p.m., in response to message #1 by Malcolm Brooks

This does \_not\_ sound like a faulty PSU capactior. My first guess is that you're losing one of the data channels (at least) on both read and write (there are 2 channels/tracks on the card. A pulse on one of them is a '0', a pulse on the other is a '1', basically). This could be a defective sense amplifier IC (1826-0322 IIRC), it could eb head problems. First check the head connections. Are all 5 wires connected to the card reader PCB, in the right place? Then check the head windings. You should read about 50 ohms between the blue and orange wires and also between the red and yellow wires. If one winding is open-circuit, you will not be able to read or write.

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#### humorous bid pattern

Message #1 Posted by db(martinez, california) on 23 Apr 2003, 12:11 p.m.

re:

http://cgi6.ebay.com/aw-cgi/eBayISAPI.dll?ViewBids&item=3019223110

tell me; is "creator" clear on the concept of "bid what you think it is worth"? if anyone has a comment on this and you just email it to me, i can then erase this. it is barely on the hp forum track.

#### Re: humorous bid pattern

Message #2 Posted by <u>Tony David Potter</u> on 23 Apr 2003, 12:24 p.m., in response to message #1 by db(martinez,california)

Seems as if he's familiar with the mantra "pay as little as you can", since he saw the opening bid of \$1.00, then bid in an increasing amount until he reach the point where he didn't feel it was worth it.

He understood your concept. He must have felt the book was not worth more than \$7.50

I follow that mantra, too. If I see a low bid on something I want, I'll slowly up it as to pay as little as possible should I get outbid. YMMV.

I'll delete if you delete.

-Tony David Potter

**Could you explain how this works?** *Message #3 Posted by* <u>*Jim L*</u> *on 23 Apr 2003, 3:31 p.m., in response to message #2 by Tony David Potter* 

It doesn't seem like it would have any effect to me except for taking more of your time but I might be missing something.

### Re: Could you explain how this works?

Message #4 Posted by <u>Tony David Potter</u> on 23 Apr 2003, 10:48 p.m., in response to message #3 by Jim L

Since the prior bidder's bid is hidden behind the Initial Bid, you have no idea just how high the orginal bidder bid. I've seen many auctions where the top bidder just put up a "token" bid trying to get an item on the cheap, and if it's something I kinda want, I'll put up a "token" bid just high enough to top it. Sometimes I'll be the new top bidder, and sometimes the first bidder really did bid higher.

It's a crap shoot, and the only way to probe what the price is is by slowly elevating your bid. I do it, even if it is a newbie technique and I'll be derided out of the group, but on a \$1.00 initial bid, there really is no way of telling whether the top bid just bid enough to hold a place or if they really bid what their "max bid" was.

I'm sure that that's not the "approved" technique, where you do research on how your "opponent" bid on his prior auctions, and whether he's a claim jumper or in it for the long hall. Chide me if you must.

--Tony David

#### Re: Could you explain how this works?

Message #5 Posted by <u>Jim L</u> on 23 Apr 2003, 11:31 p.m., in response to message #4 by Tony David Potter

"It's a crap shoot, and the only way to probe what the price is is by slowly elevating your bid."

That's not true. You'll know the other bidder's bid whether you bid in small amounts or bid your maximum up front. Either way, once you exceed his bid, the current bid will be his maximum bid plus the minimum bid increment. Your bid is a proxy bid just like his was.

Anyway, once you've probed the guy then what do you do? If you exceed his bid at

\$10, how do you figure out if that was a token or his max and how does that help?

## **Re: humorous bid pattern**

Message #6 Posted by <u>Paul Brogger</u> on 23 Apr 2003, 4:04 p.m., in response to message #1 by db(martinez,california)

I found myself in an interesting related situation, with the outcome potentially not very humorous.

I was top bidder on a "broken" Pioneer style calculator. My maximum bid was WELL above what the proxy system had arrived at, and I felt I was in the driver's seat. Then, I get an email via eBay from someone asking, "Is it possible to fix these calculators?" I explained that yes it was, and that the MoHPC had all the information he would need.

I also added that I was currently the high bidder, and that if he chose to bid, by all means jump in with both feet. I didn't want to be in the position of having enabled a competitor to justify a bid on the item, and then having that competitor bid it up to within a dollar or two of my maximum before backing out.

Well, he must have thought it over, but two days later, this guy is suddenly the top bidder. A review of the bid history showed he'd issued something like ten bids to get there. (After the auction closed, I could see that he had bid in \$5.00 increments until he came out on top.)

As it turned out, a third party sniped the article from both of us, but I wondered: if my maximum been \$20.00 higher, might this second bidder have backed out and cost me \$50.00 for having given him some information? That would NOT have been humorous!

#### **Re: humorous bid pattern**

Message #7 Posted by <u>db(martinez,california)</u> on 24 Apr 2003, 2:06 p.m., in response to message #6 by Paul Brogger

i guess there was a little bit of interest in it and you guys have interesting points, so i won't delete my first post and leave all this headless. my first thought had been like what jim said; what a waste of time! that and; he looked like a kid that wants to stay up while mom puts him to bed. no. no. no. no. no. ...... as daddy turns the light out and they shut the door. the guy raised the bid, then his own bid by 50 cents eleven times. oops. actually he got so mad that he raised it 75 cents once. then he gave up. i usually just bid once and forget it. i don't win much though, so don't go using my syster either.

## **Re: humorous bid pattern**

Message #8 Posted by <u>Spice\_Man</u> on 24 Apr 2003, 4:57 p.m., in response to message #1 by db(martinez,california)

That bid pattern is exactly how some of the sniping programs work out there.

Spicey
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**Voyagers: a fifth m-board layout "found"** Message #1 Posted by Vieira, Luiz C. (Brazil) on 23 Apr 2003, 9:10 a.m.

Hy, Voyager Fans (and users)

About a couple of weeks ago I got into contact with four HP12C's mainboards. They all belong to one of our regular contributors.

At a first look, one of them called my attention: I had never seen such layout before.

It resembles the first single-mainboard Voyagers but it has "space" for two IC's, instead of the three ones normally found in the HP11C, 15C and 16C. I have never seen the HP10C internals (but I was lucky enough seeing and playing with one HP10C in the 80's...), so I cannot say a word about it. Hey, if there is anyone brave enough to open one HP10C and take a picture, I'd gladly store it with the others.

Anyway, these three scientific Voyagers share the same layout. I also did not see an earlier HP12C (at least not yet) but I am almost sure it has the same layout; it would not make sense having more than one layout in such a factory line, I guess.

This "recently found" layout has space for two IC's and only one is used: the one that was supposed to control the LCD (named RAM/ROM/Display Driver, or R2D2 - thanks, Tony) also scans the keyboard. I thought there was one Voyager-specific IC used to scan the keyboard, but I think that this IC may have other features. The supposed KBD scanner "only" is the same one for the three Voyagers (11, 15, 16), but Tony Duel also mentions something extra about this IC; is it correct, Tony, or I am refering to you wrongly? If so, forgive-me.

And another interesting feature is the LCD's connections. Now I tell you: newre HP12C use a different LCD, EVEN those with 3 batteries. Earlier Voyagers use a different pins/connections arrangment, asymetrically distributed. These "newer" HP12C use an LCD that has connections with uniform distribution, the same number of connections in both LCD's top and bottom surfaces.

I did not remove the LCD from a newer chinese HP12C, the ones with one battery. But I saw its

internals, and at components side, connetions are the same and similar cooper trails (PCB) seem to have the same functionality.

I remember reading some posts about LCD exchanging from diferent Voyagers; now I must say that in some cases, even between the newer, 3-batteries type HP12C (Indonesia, Singapore) and other earlier Voyagers, the LCD may be not compatible. Now I am curious about the single-battery Chinese HP12C: what sort of LCD does it use?

One question: I remember that the major concerns about changing LCD's in newer HP12C were related to Power Supply voltage (3.3Vcc against 4.5Vcc). I agree with the fact a 3.3Vcc LCD shoul not be used in a 4.5Vcc circuitry; LCD's timelife would be significantly reduced. Otherwise, if we consider the opposite situation, an LCD designed to work with voltages below and about 4.5Vcc could work in 3.3Vcc circuitry; dimm and viewing angle could be "adjusted" with a new polarized filter and scanning schemes.

As soon as I find a lpace to hold the scanned image I'll post it again.

I must apologise to those who kindly offered a place to hold some of my pictures and I have not yet given them a return. Thank you all; I'm just trying to find my own place, so I'll feel myself a lot more comfortable uploading stuff without disturbing host's piece..

Also, I want to apologise to those still waiting for the "HP28S explodeded view" picture. I'll surely need to scan the original article and filter image again. One of our contributor mentioned having another site with HP stuff where the original article is available.

Well, I think that's all for now. I'll collect some more data about Voyager internals and, if applicable, I'll build an article about this subject. I just want to be sure you all understand that I like Voyagers a lot for many reasons, but I'd like having more information about them.

Comments? Suggestions?

Luiz C. Vieira - Brazil

### Re: Voyagers: a fifth m-board layout "found"

Message #2 Posted by <u>Randy Sloyer</u> on 23 Apr 2003, 1:15 p.m., in response to message #1 by Vieira, Luiz C. (Brazil)

I think there are at least three different LCD's in 4.5V Voyagers. I found on the very early two board units, the LCD was just the display without a plastic carrier and more difficult to align properly.

The first single board versions used the same asymmetrical pin out but was attached to a plastic carrier with two index pins. I found this LCD to be usable in the original two board unit if you remove the plastic carrier held on with double-sided tape. The solvent Undo works fine for this.

The next which I found on later 15C's (a two-chip unit) use the wider symmetrical pin out, same as the current 4.5V 12C's. I have a dead 12C 3V unit I think I will dissect tonight, I suspect it is the same display. The chip probably has a step-up converter for the LCD circuitry.

Some of the early 12C displays had silver reflectors instead of the current gold, making nice replacements for broken scientifics.

### Re: Voyagers: a fifth m-board layout "found"

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 24 Apr 2003, 2:56 a.m., in response to message #2 by Randy Sloyer

Hello, Randy;

you wrote:

I think there are at least three different LCD's in 4.5V Voyagers. I found on the very early two board units, the LCD was just the display without a plastic carrier and more difficult to align properly.

Yes, the LCD seems to be the same, but the "display set" is completely different: metal frame is "taller" in the single PCB-type, as weel as both "resistive" polymers. The plastic carrier helps keeping plymers aligned, and in the flex-PCB type it is somewhat hard to rebuild the LCD/Chipset module.

Thanks for adding this valuable info.

Luiz C. Vieira - Brazil

### Re: Voyagers: a fifth m-board layout "found"

Message #4 Posted by <u>Gordon Dyer</u> on 23 Apr 2003, 6:28 p.m., in response to message #1 by Vieira, Luiz C. (Brazil)

Hi Luiz, another interesting post! I would like to see a picture of the pcb's you refer to. If you have no place to host them then ask Dave Hicks, he may like the pics too and post it into the guest area for you to link from your forum message. Best wishes....

**This deserves to be included in the voyager technology and packaging page** *Message #5 Posted by <u>Renato</u> on 23 Apr 2003, 8:56 p.m., in response to message #4 by Gordon Dyer* 

Don't you agree ?

### Re: Voyagers: a fifth m-board layout "found"

Message #6 Posted by <u>Wayne Brown</u> on 24 Apr 2003, 1:22 a.m., in response to message #1 by Vieira, Luiz C. (Brazil)

Luiz,

It looks like you're becoming one of our resident Voyager experts! I don't have a use at present for this information -- my only Voyager is a 16C that's still in perfect working order. But I think it's great that you (and others) are gathering this kind of information and posting it here. Someday the supply of "new old stock" and barely-used HP calculators finally are going to run out, and keeping the existing supply running will be the only way for any of us (or our children) to enjoy these wonderful machines. As more and more of them break down over the years, information like Dave is stockpiling here at the MoHPC is going to be extremely valuable for those who want to keep their precious HPs running. I'm so glad that so many people like you are donating their time and efforts to make certain this information will be available when it's needed. Future collectors and users are going to be very, very grateful for what's being done here.

#### Thanks! and other comments

Message #7 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 24 Apr 2003, 2:20 a.m., in response to message #6 by Wayne Brown

Hello Wayne, folks;

I'm also glad you enjoy information like this one. I was able to turn them into concise information after many good tips from Tony Duel (mostly) and others; when we have giants' sholders to support us, the job is easier.

I am sure there is more information about Voyagers, as Randy Sloyer (thank you!) added up here. BTW, Randy, can you identify the LCD's codes? I'm still thinking if it would be possible to use newer Chinese HP12C's LCD's in the older Indonesian/Singaporean without loosing reliability. I inspected the chinese ones closer and the annunciators have a different layout, what suggests a new design. What do you think? As you mentioned the possibity of having a step-up converter to drive the LCD, did they keep the same electrical characteristics? And you added one new information: it's possible that the unit I scanned this very weekend uses the same mainboard you have in your HP15C. It seems that these (probably last upgraded) Voyagers, and not only the HP12C, used a single processor+ROM +RAM+KBDscanner+LCD\_driver as we have in the newer HP12C; again, the HP15C demands an extra ROM/RAM IC. One small note: in the HP15C, if you take registers I, 0 and 1, the remaining ones that compose the "common pool" (registers+programs +advanced\_functions) exactly match 64 count.

So, let me thank all of the other contributors, too; also, I'd not feel compelled to write if there are no readers.

My US\$ 0.05.

Luiz C. Vieira - Brazil

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### **HP34C Battery Terminals**

Message #1 Posted by Howard on 23 Apr 2003, 8:55 a.m.

The battery terminals on my 34C have broken off (due to old age and my using ordinary rechargeable AAs rather than HP batteries). I have patched them up for the moment but does anybody have a suggested permanent fix? (Remove the "spam" to reply directly)

# **Re: HP34C Battery Terminals**

Message #2 Posted by <u>Katie Wasserman</u> on 23 Apr 2003, 9:41 a.m., in response to message #1 by Howard

Here's a pointer to an old message descibing how I replace these contacts. Let me know if you need more details and/or pictures.

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/archv007.cgi?read=14438

-Katie

### **Re: HP34C Battery Terminals**

Message #3 Posted by <u>Howard</u> on 23 Apr 2003, 9:47 a.m., in response to message #2 by Katie Wasserman

Thank you. I see there are a few alternatives in that series of posts.

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Anyone need some HP-IB modules? Message #1 Posted by Gene on 23 Apr 2003, 7:54 a.m.

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=2524687342&category=25402

Found these on ebay...not sure what they are for, but someone might have a use for them.

Re: Anyone need some HP-IB modules? Message #2 Posted by <u>Vassilis Prevelakis</u> on 23 Apr 2003, 4:44 p.m., in response to message #1 by Gene Gene wrote: > Found these on ebay...not sure what they are for ...

They are adaptor cards for the HP 9825, 9835 and 9845 (I am not sure about others).

\*\*vp

**Re: Anyone need some HP-IB modules?** *Message #3 Posted by <u>Ellis Easley</u> on 23 Apr 2003, 8:09 p.m., in response to message #2 by Vassilis Prevelakis* 

Thanks Gene, I snapped them up! Most of them are actually parallel interfaces, but those are more versatile that the HPIB.

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### 17B vs. 17B II

Message #1 Posted by pfred on 22 Apr 2003, 5:08 p.m.

Is the only difference between the 17b and 17bii that the 17bii has the added feature of using algrebraic or rpn?

**Re: 17B vs. 17B II - a few more add-ons** *Message #2 Posted by* <u>Vieira, Luiz C. (Brazil)</u> on 22 Apr 2003, 11:53 p.m., *in response to message #1 by pfred* 

Hi;

There are three new features beyond RPN:

the RND (rounding) feature, over the RCL key; MODES menu (over the DSP key) adds ALG, RPN and DBL menu labels; softkey [DBL] in the MODES menu, for double space printing.

I bought an HP17BII last year and it came with the original HP17B Manual del Proprietário (Spanish) and the Cómo usar la NPI (How ot use RPN), where new features are discussed.

Hope this helps.

Luiz C. Vieira - Brazil

**Re: 17B vs. 17B II - a few more add-ons** *Message #3 Posted by* <u>*Christof*</u> *on 23 Apr 2003, 12:32 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)* 

Luiz-

would the variable height stack (as with the 19BII) be a new feature as well on the 17BII vs the 17B?

### Re: 17B vs. 17B II - a few more add-ons

Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 23 Apr 2003, 2:55 a.m., in response to message #3 by Christof

Hello, Christoff; howdy?

Yeap! Both HP19BII and HP17BII stack share the same shrinking/stretchening (Is it correct?) abilities. As the HP17B was algebraic-only, you may consider all HP17BII's RPN and stack-related features as new.

Hope this answers your question.

BTW, I cannot understand how come the HP12C prevails against both HP17BII and (mostly) HP19BII. Please, don't blame me yet, I take the HP12C as a great calculator (and all financial dealers as well), but both HP17BII and HP19BII are amazing... Well, I'm only an engineer, what should I know about financial calcs?

Best regards.

Luiz C. Vieira - Brazil

### Re: 17B vs. 17B II - a few more add-ons

Message #5 Posted by <u>GS Leong</u> on 23 Apr 2003, 5:54 a.m., in response to message #4 by Vieira, Luiz C. (Brazil)

The 12c has a cult following among financial wizzards it is the industry standard.

### Why the 12c?

Message #6 Posted by <u>Gene</u> on 23 Apr 2003, 7:28 a.m., in response to message #4 by Vieira, Luiz C. (Brazil)

One big reason is that the 12c has each function on a key...no long complicated menus to navigate through to find a function...you can SEE it on the keyboard.

Another big reason is that many financial people were taught on the 12c back in the early 1980s at school and these are the people who are in management today who teach / suggest the 12c to the new people working for them today.

I consider the key-per-function argument as very strong. I can't stand having to wade through menus looking for functions that are needed.

Before anyone suggests that the 41c, 42S, etc. needed menus or catalogs, it's not the same...These calculators have many, many more functions on the keyboard than the 17b/17bII calculators do...AND they had the ability to make custom keyboards or assignments...

The 17B/17BII is way too menu oriented for me.

My 2 cents. Gene

### Menus R Us

Message #7 Posted by <u>Glen Kilpatrick</u> on 23 Apr 2003, 12:05 p.m., in response to message #6 by Gene

Hah! Gene, I prefer the menus, have only to point to the 32S \_vs.\_ 32Sii. The latter has lots of functions, all on keys (I think), and the keyboard is quite cluttered. The former has (softkey) menus, seems (IMHO) easier to use (but as they say, YMMV).

**Re: Menus R Us** Message #8 Posted by <u>Christof</u> on 23 Apr 2003, 12:37 p.m., in response to message #7 by Glen Kilpatrick

Hehehe,

and I like the keyboard of the 32SII! :)

seriously, having both the 17BII and the 12C- if I was doing strictly financial stuff within the power of the 12c, I would probably prefer it. I tend to prefer the 17BII right now because of the solver, the printing, and the layout (I'm much more trained to the pioneer keyboard, probably because I'm only 32)

Which reminds me- Gene, is your book still available? prefer selling personally or via amazon-borg.com ?

### **Re: Menus R Us**

Message #9 Posted by <u>Scuba Diver</u> on 24 Apr 2003, 12:55 a.m., in response to message #8 by Christof

I have both a 12C and a 17BII and although the 12C sits on my desk at work and sees daily use, I prefer the 17.

I like the menu design of the 17, however I do question why the keyboard is so sparce (so few keys even have a shifted function!) Perhaps a happy medium exists; if some of the more common functions were made "shifted" functions, then there'd be less of a need to use the menu system.

My 2 cents (Canadian) B.

# **Re: Menus R Us**

Message #10 Posted by <u>Christof (US)</u> on 24 Apr 2003, 1:17 a.m., in response to message #9 by Scuba Diver

I'm not sure what the beef is with menus, myself.

the HP65 has plenty of shifted functions. and the 55, and take a gander at the 34 if you think the 32SII is full of 'keyboard glyphics'

the 41CX has a fairly paltry looking 3 functions per key, but wait! there's another function set on the back of the calc.....

the 17BII is so lightly done as to appear to be incomplete- a bit of an over-reaction by marketing thinking that the appearance of simplicity would sell machines?

any way you look at it, it's a bizarre argument against the 32SII and a bizarre design for the 17BII :)

### Re: Menus R Us

Message #11 Posted by <u>Ron Ross</u> on 24 Apr 2003, 8:28 a.m., in response to message #10 by Christof (US)

If Hp had just tossed in three (six) simple trig functions in an extra menu, the 17bii would have sold much more. It would have been a really nice alternative to an Hp32s since it would have had lots more RAM to make up for any other features it lacked. As it is, it is mearly a business calculator, and while I don't feel as hostile towards them as Paul B.(I believe Paul feels they are only good for parts for scientifics), I don't cry when one is lost to the world either.

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### Zengrange Pac

Message #1 Posted by Nick on 22 Apr 2003, 4:50 p.m.

I acquired an HP-41 pac called Zengrange. Does anybody have any ideas as to what it does? Thanks,

**Re: Zengrange Pac** Message #2 Posted by <u>Raymond Del Tondo (Germany)</u> on 22 Apr 2003, 5:09 p.m., in response to message #1 by Nick

'Zengrange' is the name of the company. What else is stated on the pac?

### **Re: Zengrange Pac**

Message #3 Posted by <u>Tony Duell (UK)</u> on 22 Apr 2003, 8:00 p.m., in response to message #1 by Nick

Is this an EPROM module? (can you see a quartz window to erase the chip in one side of the module?). My ZEPROM module simply says 'Zengrange' on it. If it is an EPROM module, then it could contain anything -- these EPROMs were intended to store custom software. Does it show up in CAT 2, and if so, what's the module title?

#### **Re: Zengrange Pac**

Message #4 Posted by <u>mmarkov22@yahoo.com</u> on 22 Apr 2003, 8:45 p.m., in response to message #3 by Tony Duell (UK)

Cat 2 gives FLT TEST. There are a lot of programs after that. The next few: FLT 1A, Y HAT, f>c, TS, C>F, K>C, FT>M, NI>NIRT and so on... The module has a paper glued on top, it saying #1 with the date 10-12-88 and nothing on the bottom.

There is no quarts window on the side of the pac. Looks identical to any HP pac. When I XEQ FLT TEST, I get a non-existant error message.

## **Re: Zengrange Pac**

Message #5 Posted by <u>Ellis Easley</u> on 23 Apr 2003, 2:22 a.m., in response to message #4 by nmarkov22@yahoo.com

If you tried to execute name of the ROM, that might be why it is saying "nonexistant". Try entering 100 and then XEQ C>F, see if you don't get 212. Otherwise "nonexistant" probably means it needs another pack to be present. You could try to load the programs into main memory and then examine them in Program mode, look for statements labeled "XROM xxyy", you can figure out from these what ROM they are trying to use.

The quartz window Tony is talking about might be under the paper label.

Some of those functions sound like temperature conversion, and then you have "ft>m", feet to meters. Maybe something to do with refrigeration?

### **Re: Zengrange Pac**

Message #6 Posted by <u>Stephan</u> on 23 Apr 2003, 2:52 a.m., in response to message #4 by nmarkov22@yahoo.com

Sounds to me like it deals with aviation. Some of the apreviations are familiar to me. Like FLT means Flight, HAT might be Hight above Threshold, f<c Fahrenheit to Celsius conversion, TS True Speed and so on. I think that Ellis is on the right way. The modul it self I unfortunaltely don't know but as I have seen Tony is on the Re:-List that's a good start! He helpt me as well a year ago with very good advices. Greetings from Switzerland Stephan.

## **Re: Zengrange Pac**

Message #7 Posted by <u>Christoph Klug</u> on 23 Apr 2003, 4:36 a.m., in response to message #6 by Stephan

Hi,

if you want to burn/load your Zeprom with your own software application or some helpfully rom-image files, I can help you.

Best wishes from Germany - Christoph Klug

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## Mint HP41CX prices - MoHPC site update?

Message #1 Posted by <u>Tom (UK)</u> on 22 Apr 2003, 1:43 p.m.

All,

Some long time ago I alerted those who watch this page about some mint boxed HP41CX's being sold on ebay (UK) for \$75 dollars as a buy it now.

Well the same seller is still listing them, but after several were sold instantly at the \$75 BIN price [one by me :-)] they listed them with no BIN price. (OK they were listed as 50 pounds - but I'm converting it for the majority who understand US \$ prices)

They come up for sale about 1 per week from the same seller - so he must have bought a big pile of boxes (100??)

The price now seems to have stabilised at approx \$420 each so the prices page could be updated with this info?

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### HP and Tektronix

Message #1 Posted by Ellis Easley on 22 Apr 2003, 9:20 a.m.

As is mentioned here occasionally, HP oscilloscopes were never as good as Tektronix and the weak point of HP scopes was the trigger (or to put it another way, Tektronix scopes always had a better trigger). I have been browsing through "The HP Way" by David Packard and I ran into a page about oscilloscopes. First, he talks about an engineer named Howard Vollum who Bill Hewlett met while he was in the Army during WW2, who was interested in building a new type of oscilloscope: "He wanted to design one with a triggered sweep, a concept from radar technology." He talked with Packard but rather than join HP he wanted to start his own company, which HP helped him do by introducing him to their sales representatives. The company he started was Tektronix.

Packard goes on to say that HP should have started building scopes earlier but didn't introduce their first one until 1956 - the model 150, which is the earlier of the two scopes of mine which have the original round HP logo. Packard says it wasn't very reliable. When HP organized their R&D into four divisions in 1957, one of them was just for oscilloscopes. But Packard says they never caught up with Tektronix until they "developed an oscilloscope system managed by a computer some years later" - the digital sampling scope?

I want to add something from an older thread:

Michael F. Coyle wrote re:HP Logo:

"Well, way back when, the HP logo was in "portrait mode" rather than "landscape mode" like it is now.

Somewhere over at work we have a 200C floating around with the original (?) logo.

(Another OT logo question: when did Tektronix switch from the round to the rectangular CRT in their logo? I'm guessing 1970-ish.)

- Michael "

### Then I responded:

A question about the different HP logos came up a while ago and I thumbed through "The HP Way" but the only picture of a logo in that book is from a 1967 trade show booth decorated with the portrait mode logo. At one point the HP logo was neither portrait nor landscape mode, it was just a circle not quite enclosing the lower case "hp", the top of the "h" and the bottom of the "p" traveled a good way past the circle. You can see this logo on the HP200A oscillator in the HP Virtual Museum:

### http://www.hp.com/hpinfo/abouthp/histnfacts/museum/earlyinstruments/0002/0002front.html

At one point HP spun off a company called Dynac to build systems integrated from HP products. The name Dynac was chosen to fit the upside-down HP logo:

### http://www.hp.com/hpinfo/abouthp/histnfacts/museum/earlyinstruments/0006/0006front.html

The portrait mode logo encloses the circle in a tall rectangle and truncates the excursions of the letters at the perimeter of the circle with the region below the circle solid color and the region above the circle scored horizontally. It gives me the impression of "earth and sky". I have two HP oscilloscopes from the late 50's and early 60's. Both pieces of equipment have only the round logo and the manual for the older scope has it too but the manual for the newer scope has the portrait mode logo on the covers and title page. As it happens, the older scope has a plain round CRT and the newer one has a post-deflection acceleration CRT which blocks the beam from reaching the phosphor at the very top and bottom of the round face, sort of like the portrait mode logo cuts off the tails of the letters. Later oscilloscopes with PDA have rectangular faces. I have always thought that the landscape mode HP logo reflects the change from round to rectangular CRT's on oscilloscopes. For a while the landscape mode logo was blue on the right and black on the left, later it was blue on both sides with the letters still black, and now both sides and the letters are all in a convenient color already in use on the panel. Did HP feel black and blue for awhile? It would seem to have been HP's heyday (70's-80's) but if the logo represents an oscilloscope, HP probably did feel beat up by Tektronix!

# **Re: HP and Tektronix**

Message #2 Posted by <u>Michael F. Coyle</u> on 22 Apr 2003, 4:55 p.m., in response to message #1 by Ellis Easley

I never thought the HP logo had anything to do with 'scopes in any way. I always though they were just abstract designs. Anyway, oscilloscopes never dominated HP the way they did Tek. The usual rule of thumb for test equipment was, "Tek for 'scopes, HP for everything else." (Though Fluke has always made dandy DMM's.)

I think black and blue were just color choices and don't convey any secret message. I suppose they went for the monochromatic logo just to reduce costs a little.

I used to use an HP 175A (ca. early 1960's). It was ECO'd for "improved trigger operation." And behind me right now is a 1741A storage scope. Both work fine; I've never had a problem with triggering or anything else. The price was right on the 1741A -- it's on permanent loan from my employer :)

I wonder why HP never really caught up with Tek in oscilloscopes. Maybe it's because Tek devoted almost all their resourses to oscilloscope R&D, while HP had its finger in so many pies that it could only spend the minimum necessary to stay in the game. (Just a guess on my part.)

### **Re: HP and Tektronix**

Message #3 Posted by <u>Ellis Easley</u> on 23 Apr 2003, 12:51 a.m., in response to message #2 by Michael F. Coyle

I have a 175 also, I paid "real money" (\$365) for it at a surplus store (~1983?), it was calibrated and had a manual, two input vertical plugin and delayed sweep generator. Only bad thing about it is that I can't use it in the summer here in Texas - it draws about 800 watts! Also the acoustic energy from its high voltage transformer is in the 40 kHz region and it would activate a TV I had with ultrasonic remote, it would turn on and raise the volume higher and higher! The 150 was being thrown out at TCU where I had worked in the security department and later would hang out, one of the cops brought it to me. The rubber isolators holding the fan had given up but otherwise it was functional. I didn't know till now that it was HP's first scope. In the past year I bought a ton of stuff from an Ebay seller called "AST Electronics" who reduce the price on items till they sell, many of the things I paid \$10 for. I got an HP 12?? which must be a competitor for the Tek 5000 series - low frequency, high input sensitivity but just built in a standard configuration, no choice of plugin options. Also a 180 series which might have been HP's answer to the 7000 series - 100 MHz mainframe with plugins up to 18 GHz sampling. I only got 50 MHz plugins with it and the beam is skewed to one side, that'll be fun to look into. And finally, I also got a 1741 for \$61. The listing said the storage function didn't work and I figured I'd just have a regular 100

MHz scope but the storage does work and all I can guess is that they didn't notice the little switch that turns storage on and off! It was the single most expensive item I bought from them and it was the only thing damaged in shipment. The box must have rolled over and the unit fell on its face which smashed the knobs for one of the vertical inputs. They cannabalized some knobs and shafts from another unit and sent them to me. What do I need with so many scopes? Good question! This is why I musn't look at Ebay on a regular basis.

# HP 175A

Message #4 Posted by <u>Michael F. Coyle</u> on 24 Apr 2003, 12:09 a.m., in response to message #3 by Ellis Easley

The 175 we had at work was pretty neat. It had the delayed sweep plug-in and a **4-channel** vertical plug-in. Very handy for debugging logic and such. We had that scope from 1967 to 1983. I think it was the heaviest piece of test equipment I ever used. Worked great, though, once it stopped drifting.

We had the brochure for that scope too. It had a couple of really interesting peripherals. One was a kind of sampling unit that would let you measure the voltage at any point on the display with a DMM. Remember, this is from the mid-60's long before oscillscopes had measurement cursors. The most interesting item was a thermal printer that plugged into the horizontal plug-in socket. It could make a hard copy of any repetitive waveform!

- Michael

# **Re: HP 175A**

Message #5 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 7:27 a.m., in response to message #4 by Michael F. Coyle

I think I've seen the app note - and I think I have the equipment! It's the 3480, you trigger it from the scope's delay generator output - the signal that triggers the main sweep, available on the back - and you use the intensified portion of the delaying sweep to "select" the spot where you want to measure the voltage. I haven't actually done it yet.

The 3480A/B(benchtop/rackmount)have Nixie tubes and the 3480C/D have LEDs. The 3480 is a mainframe with the A/D and the display and there is a slot for an input plugin. I have the 3484 "multifunction" plugin, which makes it like a DMM.

You mentioned the ECO for the 175's trigger - I think I've seen that in the backdating pages in my service manual. It affects the control similar to the holdoff on Tek scopes. What I have had trouble with on my scope is the trigger on the main sweep. Both sweep circuits use a similar trigger based on a tunnel diode. My "bible"

in high school was the GE Transistor Manual and it had a chapter on tunnel diodes, plus Radio Shack carried them back then, so I was familiar with them. They have to be biased very critically so a small increase in voltage will make them do their "negative resistance" thing. The circuit in the delayed sweep plugin used smaller currents and a Cermet pot and I never had a problem with it. The one in the mainframe, for the main sweep, used a 20 ohm, 5W rheostat and it just wouldn't stay set. A few years ago I finally replaced it with a 100 ohm multi-turn pot in parallel with a smaller resistor and now its OK. Recently I saw that Radio Shack carried a 20 or 25 ohm rheostat - probably for a speaker attenuator pad - and I was tempted to try it, for the sake of authenticity! - but I resisted.

## **Re: HP and Tektronix**

Message #6 Posted by <u>mantra</u> on 5 May 2003, 5:42 p.m., in response to message #2 by Michael F. Coyle

A mixture of lore told to me by an HP Elder...

Tektronix' "venture capital" came from Dave Packard - he knew or knew of Tek founder's "triggered oscilloscope" idea (based on radar range gate tracking concepts) during WWII. I think this is alluded to in "The HP Way".

In the late 40s and 50s, HP used a distributor channel, i.e. did not sell direct with its own sales force like Agilent does today (this was the pre-computer products era - HP only sold test equipment). That distributor was Norm Neely (those on the US West Coast who have bought from HP might have heard of and been puzzled by the HP US sales pre-90s regions: Eastern Sales, Southern Sales and Midwest Sales and Neely Sales). At that time Norm Neely was also the Tektronix distributor in the US. Thus HP did not need to sell an oscilloscope and Neely didn't want HP to because the Norm's product line already had scopes covered. In fact, HP happily recommended Tek scopes to complement their wares.

At some point in the 50s, Tek decided to both expand product lines into HP's baliwicks and sell through different channels. As always 'scopes were "core test technology" and the loss of Tek hurt Neely badly. It also left a gap in HP's test "solutions". As a result HP acquired Neely's rep company and Norm was the first VP of sales for HP. Shortly after the first HP oscilloscopes came on the market.

My take on this is that HP was pushed into oscilloscopes rather than having made a chosen product extension. Thus many of the HP scopes of yore (until the recent Infinium and Jedi scopes, which started to eat Tek's lunch) were often 2nd fiddle, me-too products behind Tek. The 1980A still makes me twinge with pain.

### **Re: HP and Tektronix**

Message #7 Posted by <u>Ellis Easley</u> on 5 May 2003, 11:40 p.m., in response to message #6 by mantra

That goes along with what I have read in "The HP Way" - distributors not wanting competition among their clients but wanting all bases covered, and HP buying out a major distributor of theirs to form their own sales force. Also about HP helping Tek get started.

I guess Packard is being diplomatic when he says, "As time went on it became quite clear that if we were going to offer a complete line of electronic measuring instruments, we needed to fill in the line with our own oscilloscope." But he goes on to acknowledge that HP lagged behind Tek on scopes until they developed "an oscilloscope system managed by a computer", by which I assume he means a digital scope.

Their first scope, the 150, was designed in 1956 (doesn't say when it shipped). I can't find the section where he talks about bringing sales in-house. It's a hard book to use as a reference because it has no index and the chapters aren't chronological (except within themselves). It might be a "zen" book (not that I know what I'm talking about!)

The stuff about oscilloscopes is all on pages 78 and 79.

What do you think of my theory that the HP logo evolved as a reflection of the change from round to rectangular oscilloscope CRTs? In fact, the first change was cutting off the excursions of the tails of the "h" and the "p" just as the first post-deflection acceleration CRTs, still round, limited the beam from hitting the top and bottom of the screen.

### I've used them both, and..

Message #8 Posted by <u>Jeremy</u> on 22 Apr 2003, 10:15 p.m., in response to message #1 by Ellis Easley

In my limited experiences to modern scopes from each maker, the HPs were more intuitive, but the Teks had more capability and weren't UNintuitive.

I don't know the model #s of the scopes, but the HP is a 100MHz digital storage scope, which is almost completely menu driven. For every button you press or knob you turn, something tells you on the screen what you're doing.

The Tek assumes you know a few things, and if you do, you will do just fine.

-Jeremy

# Re: I've used them both, and..

Message #9 Posted by <u>Ellis Easley</u> on 23 Apr 2003, 1:57 a.m., in response to message #8 by Jeremy

I hope some Brits will correct me if I misapply a term I have heard Arkwright the shopkeeper use - You don't know you're born! I'm talking about real ANALOG sopes - scopes that don't tell you anything you can't interpolate from some little hash marks on the screen! Scopes with knobs that turn switches that select real components, not an optical encoder that tells a microprocessor to tell a D/A to pump out a little more current!

Actually, I do have one HP digital scope that I also bought on Ebay a few years ago, model 54200D. I had used a better digital scope at work - my company went from Tek analog scopes to HP digital scopes, so maybe Dave Packard was right when he said HP finally caught up with Tek. My scope is only 50 MHZ (200 MS/s) but what really caught my attention is that it has a digital trigger like a logic analyzer (it is based on the same boards as a 1630 logic analyzer, which can also be configured with oscilloscope channels). I was always kludging up a digital trigger from available gates when troubleshooting with just a scope and I always meant to build a box with some PALs and DIP switches to make a general purpose digital scope trigger, and here was a scope with all that built in! The possibility of hooking this scope up to a computer is what got me started learning about HPIB (only about twenty years too late!)

One thing about my scope that HP corrected on the next family - it has no knobs, only buttons which can be a pain when moving through a thousand choices. HP used rotary optical encoders with spinner knobs on later models.

I've never used a Tek digital scope but at one time we had a 300 MHz Tek analog scope that had intelligence inside to draw labels and even help menus on the CRT.

I have to mention my absolute final HP scope-like device. I asked about it here once but got no reply. In time I did find manuals for it and it is a real doozy! I paid \$10 for it but because it weighs 70 lbs (not more than the 175 but I bought that locally), it required my purchases to be sent by freight. It is the 5480 signal analyzer (ca. 1968). The introduction says it is " ... best described as an oscilloscope for looking at signals that are buried in noise." That description plus a switch on the front panel labeled "Histogram - Time or Frequency domain" makes it sound like an FFT analyzer but it's not that powerful although it does contain a simple computer. It uses A/D conversion and magnetic core memory to calculate an average from up to 2^19 instances of a repetetive (but not necessarily periodic) signal. It is possible to set it to run unattended for 10^9 seconds (31.8 years!) It has a light to tell you if the power has failed, which stops the operation but since it has core memory, you can restart it and it will go on from where it left off. The vertical bandwidth is only 50 kHz but "can be extended using a sampling oscilloscope". It has connectors on the back to hook it up to an HP 211x computer. I haven't opened it up or plugged it in yet, but I expect it to look a lot like a 9100 inside.

### An ANALOG scope and an HP-34C and

Message #10 Posted by <u>Norm</u> on 24 Apr 2003, 3:09 a.m., in response to message #9 by Ellis Easley

an ANALOG scope and an HP-34C and you are walking on a cloud, man. Those are real tools from when the world made sense.

I got involved when the Tek 475 was king, and those run good as long as the contacts dont get dirty. I rapidly migrated to things like 2236 (the cheap flavors that cost far less than the 2465B). They'd be like 60 MHz or 100 MHz.

Finally got a 2465B but I still need probes for it.

Was able to get an official blue scope-cart from eBay so I can wheel it around in the livingroom.

## Re: An ANALOG scope and an HP-34C and

Message #11 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 7:52 a.m., in response to message #10 by Norm

The very slender cart with a single support - the "scope-mobile"? Gorgeous!

I got one of the rather square Tek carts with four supports made of tubular metal from a guy on Ebay who sold me a 5000 series scope. Worst shipper I have run into, although luck came through in the end. First the scope arrived with a little tear in the outer kraft paper wrapping. Something narrow about 3 inches across - I can only imagine a forklift blade - had punctured both layers of metal on the back of the chassis. Miraculously, nothing functional was damaged but the trace rotation pot. The scope was wrapped in a garbage bag then packed in a diaper box barely larger than the chassis with a few loose foam pellets. Now I understand HP's packing instructions, especially the inner box! The procedure for making a USPS claim seemed daunting so I decided to keep it for it's interesting story. Before the scope arrived, he had sold me the cart and I had sent payment. It took months to arrive, he had a bunch of excuses. The box it came in had broken open but luckily none of the parts had fallen out, even though the very heavy casters were loose in the box and could easily have fallen out. After it was all over, I wrote him that if I were him, I wouldn't brag about "never a handling charge"!

#### you let the shipper off too easy

Message #12 Posted by <u>Norm</u> on 24 Apr 2003, 12:30 p.m., in response to message #11 by Ellis Easley

you let the shipper off too easy

I would have told the guy "refund me a \$20 credit for the damage, OR I leave negative feedback that says you dont package the merchandise adequately".

### Re: you let the shipper off too easy

Message #13 Posted by <u>Michael F. Coyle</u> on 24 Apr 2003, 1:30 p.m., in response to message #12 by Norm

Norm,

Not to put too fine a point on it, but isn't that extortion?

If it were me, I'd either go for an exchange (if it's a commonly available unit) or just leave negative feedback. Packing like that is really inexcusable.

- Michael

#### Re: you let the shipper off too easy

Message #14 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 3:13 p.m., in response to message #13 by Michael F. Coyle

I don't think this guy cared much about feedback. There wasn't any option of an exchange and the unit was working, even with the hole in the back. The guy told me to go through the post office for an insurance claim, I called them about it but it sounded like a lot of trouble for not much return.

I had a funny feeling about the guy from a pre-auction email - he seemed a little belligerent - I thought maybe he was an immigrant for some reason (he had a German name). Once I committed myself by bidding I decided to see it through.

I kind of like the "story quality" of the hole in the unit - it's quite spectacular, especially considering it missed everything critical! - and also, I found a couple of nice, old Tek scope probes stuffed behind the drawer of the cart! That's sort of a refund.

I have asked for and received refunds before, two times from new Ebay sellers who wanted feedback more than cashflow. One was my HP67 that had been savaged, the seller refunded about 20% (I think I had suggested the amount) and the other was an inexpensive TI calculator that was in fine shape except the battery door latches were broken so it wouldn't stay closed with the cells in place, I'm pretty sure the seller did it - I asked if he noticed the problem when he tested the unit, he said he tested it with a bench supply. He refunded all my money and told me to keep the calculator. Then there was my HP1741 scope with smashed knobs, at first the seller wanted me to make a claim with the freight company. In my opinion, it was another case of insufficient packing, I asked the seller if they couldn't send me some knobs from another unit (this seller had TONS of equipment) and they agreed, sent me the whole switch assembly! And finally, I got an HP97 with a broken key from a pretty active seller. I was able to do a little research which included a 97 that was sold with broken keys on Ebay, suggested a refund for the difference - which I said I would be willing to take as a credit toward another of their auctions (they had a lot of interesting items!) and they agreed.

I've never left negative feedback but I have composed some. Once I got an HP9825A from a seller in Quebec. They said it wasn't working, they didn't know why, and it was in good shape otherwise. The photos didn't show the right side of the unit. I was new to the 9825 at the time but they weren't - I later found that they had auctioned working units before and after mine. My unit was missing the OS ROM cartridge that plugs in on the right side, which they must have realized. In my innocence, I told them the ROM was missing and gave them a description and asked if they had seen it lying around - they ignored my emails. I was going to post this with negative feedback: "Watch out for dese French-ies! Dey is cheat-hers!" only in all caps. I never did, though. I was able to get a ROM from another seller, I think I paid \$35 for it.

I think experiences like this set an upper bound on how much business Ebay will be able to do: their success depends on their sellers and a certain proportion of them are ignorant about how to pack things for shipment and have no concept of customer service. One quickly learns that the only way to come out ahead on Ebay is to pay a very low price. Otherwise one gets tired of the aggravation and quits looking at the auctions - that's where I am, I only look when people point things out here in the Forum!

### Re: An ANALOG scope and an HP-34C and

Message #15 Posted by <u>David Smith</u> on 24 Apr 2003, 5:47 p.m., in response to message #10 by Norm

The Tek '475 is still king... a better general purpose analog scope cannot be found. Although it is rated for 200-250MHz, I have used it to align 550MHz UHF transmitters.

I bought a lot of 4 "dead" ones on Ebay for around \$200. The problem was the voltage selector was set for 220V.

# WOW!

Message #16 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 6:56 p.m., in response to message #15 by David Smith

can't say anymore

### Tek 475

Message #17 Posted by <u>Norm</u> on 24 Apr 2003, 9:33 p.m., in response to message #15 by David Smith

It's hard to grouse about Tek 475, seeing how I got one downstairs.

Main thing is just they are getting old. The contacts and the pots keep getting noisy.

I had to replace a dry electrolytic cap in mine, to keep it running.

The 200 MHz is nice.

Most people would prefer a 2465B (400MHz) though their inner complexity is frightful.

I always preferred the cost/value pinnacle of the 2236 (if i got the model right) the one with 100MHz bandwidth, and a nice clean looking portable front-panel. There is less 'noisy connection' behavior from the front-panel pots and switches

in comparison to 475. You can also get it with a nicely integrated voltmeter/ counter that doesn't put a big hump on the top (2236B ?)

To this day, they should be making more 'mini's' like the size of a carton of cigarettes. And they should stick with the analog CRT. But nooooooo they had to discontinue all the good stuff, and sell stuff thats pretty nearly unusable.

Carly is also working part-time at Tek. So all they sell now is chinsy plastic digital junk. So, I don't buy it !!

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#### The HP-28S speedup program on my site...

Message #1 Posted by Gene on 22 Apr 2003, 7:35 a.m.

Got the email below about the speedup program for the HP-28S on my site. I thought I had typed it up correctly. Any suggestions? --Gene ------

Originally, I was searching for a download manual for my 11c, but at least I found this on your fine site:

HP-28S Speed Up! << RCWS 64 STWS 'FAST' DUP RCL SWAP DUP PURGE HOME #C6F0302331DFFBCh #E60D51FFF00F1h #C808461241131h OVER STO #DFFB7h SYSEVAL STO STWS >> 'FAST' STO

I tried it out without much thinking and it does not work. A closer look shows, that the part

#E60D51FFF00F1h #C808461241131h OVER STO

makes not much sense, at it tries to store #C808461241131h in a variable of name #E60D51FFF00F1h.

Are there some brackets missing or something alike? I did not dare a trial and error in order not to erase the memory.

**Re: The HP-28S speedup program on my site...** *Message #2 Posted by Ex-PPC member on 22 Apr 2003, 10:30 a.m., in response to message #1 by Gene* 

Perhaps this may be of help in order to understand the speed-up procedure, as it's commented ...

HP-28S Speed

### Re: The HP-28S speedup program on my site...

Message #3 Posted by <u>Christoph Giesselink</u> on 22 Apr 2003, 4:59 p.m., in response to message #1 by Gene

Writing assembly software for the HP28S using the known address entry of HOME is a crap way of programming.

Alonzo Gariepy published some HP28S based helper tools in his "HP28S PROCESSOR NOTES" for more convenient programming. But I personally use a modified ASS program from Friedrich Schroeder CHK2 article.

```
ASS [BE22]
<< -> lm
<< HEX "" 1 lm SIZE
FOR i
"#" lm i DUP2 1 + DUP SUB 3 ROLLD
DUP SUB + + STR-> B->R CHR + 2
STEP
# 3CEAAh SYSEVAL
# 4F3Dh SYSEVAL
>>
```

This allows me to write normal SysRPL programs with the HPTOOLS (v3.1.0) and a modified/ expanded HP28S entry point list from Jean-Francois Garnier. From these binary sources I make a so called "MCode" string and also calculate the checksum of the MCode for later verifying on the machine.

Then I type in the MCode String, the most difficulty part, check the checksum to be sure that a didn't made a mistake, and finally call the assembler ASS to make the "System Object".

The machine code for the fast/speed program is always something like this

```
RPL
CODE
AD0EX
D0=(5) #FFF00
LC(1) #F
DAT0=C 1
D0=A
LOOP
ENDCODE
```

00000	69C20		CON(5)	=DOCODE
00005	32000		REL(5)	LBL000
A0000	132		AD0EX	
0000D	1B00F		D0=(5)	#FFF00
	FF			
00014	30F		LC(1)	#F
00017	15C0		DAT0=C	1
0001B	130		D0=A	
0001E	142		A=DAT0	A
00021	164		D0=D0+	5
00024	808C		PC=(A)	
00028		LBL(	000	

The MCode is

MSPEED [4861] "69C20320001321B0 0FFF30F15C013014 2164808C"

Enter the string whithout any white chars, they are only for better reading, then the checksum will be ok. The "assembled" program itself without the program name is only 20 Bytes long!

The HP28S CHK2 checksum program and many other things can be found at <u>http://www.</u> hpcalc.org.

Happy trying

Christoph

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## HP Ultra VGA 1280

Message #1 Posted by <u>Jer</u> on 21 Apr 2003, 5:07 p.m.

I have an HP Ultra VGA 1280 moniter, but I can't get it to go very bright. Videos and games are dark. Is there a way to increase the brightness? I have the know for brightness all the way up.

### Re: HP Ultra VGA 1280

Message #2 Posted by <u>Ellis Easley</u> on 21 Apr 2003, 5:52 p.m., in response to message #1 by Jer

I don't know how many hours are on your monitor, but that is the nature of CRT's - over time in operation, the electron guns emit fewer electrons and the image becomes less bright. TV picture tubes used to be "restored" by installing a small transformer to boost the voltage to the CRT filament, this would incrase the emission for a while.

#### Re: HP Ultra VGA 1280

Message #3 Posted by <u>jer</u> on 21 Apr 2003, 6:13 p.m., in response to message #2 by Ellis Easley

Ok thanx a lot.

### Re: HP Ultra VGA 1280

Message #4 Posted by <u>Chris(FLA)</u> on 22 Apr 2003, 12:52 a.m., in response to message #1 by Jer

One of my jobs was to "brighten" up old Data General terminals and other monitors. If you are lucky you can open up the monitor(high voltage carefull) and find the sub bright and turn that up a little. This fixed the dark problem on the terminals and monitors.

Chris

## Re: HP Ultra VGA 1280

Message #5 Posted by <u>Howard</u> on 22 Apr 2003, 1:49 a.m., in response to message #4 by Chris(FLA)

I'm not an expert but I would be looking at the settings in the computer control panel. It might have something with the resolution and number of colours etc.

Re: HP Ultra VGA 1280

Message #6 Posted by <u>jer</u> on 23 Apr 2003, 4:48 p.m., in response to message #5 by Howard

hey, thank you guys so much fr your help. i actually had a friend do sometyhing with the video card that brightened it up, so it works great now. thanks again!!

**Re: HP Ultra VGA 1280** Message #7 Posted by <u>Ellis Easley</u> on 23 Apr 2003, 8:13 p.m., in response to message #6 by jer

I considered suggesting increasing the reference current to the RAMDAC on your VGA card, but that might not have helped if the monitor didn't have any "headroom" plus required soldering. I'm glad you got it working by whatever means!

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### 697 HP Printer

Message #1 Posted by Dan on 21 Apr 2003, 2:09 p.m.

Have 697 HP printer that has used 1.5 mil of the 3 mil that oringinal paper said printer could print.

Lately, the printer has started to show lines throught a small percent of what is printed when the print action is initiated. There is no standard to the problem as the lines...similar to the "strikeout" feature... are random.

I don't have "strickout" activated so I can't figure out why the lines have suddenly appeard. I cleaned the cartridges and the other pads in the printer. but lines still appear.

Hope someone can offer help.

Thanks for taking the time.

This may be a duplicate post as I messed up when previewing the first post.trying to get back to send I made the original post disappear. Apologize for duplication

### Re: 697 HP Printer

Message #2 Posted by <u>Michael Meyer</u> on 22 Apr 2003, 12:28 a.m., in response to message #1 by Dan

I do have one suggestion:

Forget about the printer. Spend some time using a classic RPN calculator, such as an HP-25. If you need print, try and HP-97.

You'll forget all about the other printer problems.

Michael

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### What is this switch on a 55 ?

Message #1 Posted by Renato on 21 Apr 2003, 1:16 a.m.

Have you seen it ? http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3019993514

The Museum photos do not show a switch. The unit on auction shows it clearly, and it does not look like it is an adaptation.

**Re: What is this switch on a 55 ?** *Message #2 Posted by* <u>*Katie*</u> *on 21 Apr 2003, 1:47 a.m., in response to message #1 by Renato* 

It looks like some sort of custom modification to me. But I've got no idea as to what function that swtich would serve unless it's to replace a broken on/off or prog-timer-run swtich.

## It's at least tricky

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 21 Apr 2003, 1:56 a.m., in response to message #1 by Renato

Hello, Renato;

I have an HP55 and I searched for any possible correction/modification at the same position the switch is, and I saw no marks in calculator's case. I did not open my calculator to see what's closer to the extra switch, but i can tell you in that same position there is nothing, and the closest internal component is the keyboard. The mainboard ocupies the area "under" the backlabel only.

Maybe it is some sort of very well know modification, and one of our friend will come to help soon. Well, I have no idea of what could it be, and it seems the sellers have no idea of what could other switches be too, so I'd not create perspectives under a possible answer.

May the buyer be a contributor so we can ask him about it...

{ }s.

Luiz C. Vieira

## Re: What is this switch on a 55?

Message #4 Posted by <u>Ellis Easley</u> on 21 Apr 2003, 6:03 p.m., in response to message #1 by Renato

Maybe it is for the perennial programmable calculator mod - speedup. My HP25 with working memory that I finally bought was a little flakey in the memory when it arrived. I found that it's capacitor had been changed to speed it up! HP41 speedups usually included a switch to select normal speed for speed-dependent operations and the 55 timer function would be such an operation. Of course, the 55 has a crystal and not an LC tank. The switch might select between two crystals, or between a crystal and an LC tank, or it might connect something to the crystal to make it oscillate at a harmonic.

Re: What is this switch on a 55 ?

Message #5 Posted by <u>David Smith</u> on 22 Apr 2003, 5:13 p.m., in response to message #1 by Renato

One (remote) possibility is that it is a switch to blank the display during long program runs to save battery power. I know of a couple of machines that were modified to do this, but am fairly sceptical about just how much extra battery life you got by doing this.

### Re: ... blanking LED's to extend battery life?

Message #6 Posted by <u>Paul Brogger</u> on 22 Apr 2003, 7:25 p.m., in response to message #5 by David Smith

For my part, since I've been playing with the new battery pack in my HP-97, I'm not so skeptical . . .

I've been running the batteries down periodically for a full reccharge, and to do this I run a fun little idle loop. As the power falls, the "low power" LED comes on gradually.

I noticed that, early on, the low power indicator flashes in synch with whatever the display happens to be doing, until the power reaches a greater degree of lowity (;^) er, rather, a lower level) at which fuzzy point it stays on continuously.

This indicates that, during that transition period, the power drain of the display is enough to take the voltage below some threshold, and when the display blanks, the voltage is restored somewhat.
Unless I'm missing something, the LED display must be a significant (if not the dominant) portion of a classic's / woodstock's / spice's power usage. (That is, as opposed to the digital circuitry, and aside from the card reader and printer.)

### **Re: lowity**

Message #7 Posted by <u>Ellis Easley</u> on 23 Apr 2003, 2:39 a.m., in response to message #6 by Paul Brogger

Do you possibly mean "lowicity"?

Here are a couple of words I learned from a book about sheet metal work: "rollation" which I think means either wrapping sheet metal around a piece to get an idea of the perimeter, or rolling the edge of a piece across a flat surface to determine the perimeter; and "trimulation" which means just what it sounds like - cutting it bigger and trimming it to size!

Re: Yeah! "Lowicity" . . . That's it!

Message #8 Posted by <u>Paul Brogger</u> on 23 Apr 2003, 10:07 a.m., in response to message #7 by Ellis Easley

Sometimes I find myself typing me into a verbal corner, and despite the existence of a "backspace" key, I desperately want to find a way to make it work . . . Coining a new word on-the-spot often helps! (I suppose I would have made a lousy lead guitarist.)

At our office for quite a while, we monthly awarded a certificate and an engraved addition in a place of honor on a plaque, to the person who had come up with the best word. Some winners: "frivial" (frivilous and trivial), "relieviate" (to simultaneously relieve and alleviate), "versionary" (the person envisioning the next version).

(And I do like "lowicity" better than "lowity" . . . )

## Re: Yeah! "Lowicity" . . . That's it!

Message #9 Posted by <u>Ellis Easley</u> on 23 Apr 2003, 8:18 p.m., in response to message #8 by Paul Brogger

Do you have "Chicken Express" in your town? Or any chicken place that offers livers and gizzards. I love livers, hate gizzards but I think they should offer a combination plate and call it "lizzards"! Kids would order it just to play with them like toys.

### Re: Yeah! "Lowicity" ... That's it!

Message #10 Posted by <u>Trent Moseley</u> on 23 Apr 2003, 10:09 p.m., in response to message #9 by Ellis Easley

Ellis,

Are you trying to start a new franchise?

tm

Re: Yeah! "Lowicity" . . . That's it!

Message #11 Posted by <u>Ellis Easley</u> on 23 Apr 2003, 10:49 p.m., in response to message #10 by Trent Moseley

Yeah, carry out reptile dishes! I tasted rattlesnake when I was an Explorer scout and I've had crocodile at a Cajun joint. Then there's frog legs - are those reptile? I think they are amphibians.

**Re: Yeah! "Lowicity" . . . That's it!** *Message #12 Posted by <u>yan can cook</u> on 24 Apr 2003, 2:18 p.m., in response to message #11 by Ellis Easley* 

and you can use chicken in each recipe.

**Re: Yeah! "Lowicity" . . . That's it!** *Message #13 Posted by David Smith* on 24 Apr 2003, 5:42 p.m., *in response to message #12 by yan can cook* 

I prefer "long pig"...

**Re: Yeah! ''Lowicity'' . . . That's it!** Message #14 Posted by <u>Ellis Easley</u> on 24 Apr 2003, 6:58 p. m., in response to message #13 by David Smith

What's that? A hot dog?

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# 9825A <-> Hp 41CX

Message #1 Posted by olivier croissant on 21 Apr 2003, 12:27 a.m.

Hi,

I have a 9825A with a HP-IB interface, a 41CX + HP-IL and an interface HP-IL/GPIB (so ex HP-IB as I understand) I would like to communicate between both machines to exchange data. Does anyone has a clue whether I will be able to do that or not ?

## Re: 9825A <-> Hp 41CX

Message #2 Posted by <u>Vassilis Prevelakis</u> on 21 Apr 2003, 1:45 a.m., in response to message #1 by olivier croissant

The Development Utility Owner's Manual for the HP 71B (HP 82440A) available on the MoHPC CDROM, provides advice and software for the exchange of data between the HP71B and another computer over HP-IL.

Also the manual for the HP-85 HP-IL interface adapter (HP 82938A) also available on the CDROM contains HP-85 and HP 41 programs for the exchange of data (also a program to allow the built-in printer of the HP85 to be used by the HP 41).

If you want to save HP41 programs on the 9825A you will need the HP 82183 Extended IO module (one went for about \$100 on eBay).

\*\*vp

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## **HP 48GX Libraries**

Message #1 Posted by <u>Tom Cox</u> on 20 Apr 2003, 5:51 p.m.

I am unclear on how to download a Library file to Calculator, put it on stack, attach it to a port, and then free up the memory occupied on stack.

Any help appreciated.

# **Re: HP 48GX Libraries**

Message #2 Posted by <u>Ron Ross</u> on 20 Apr 2003, 8:14 p.m., in response to message #1 by Tom Cox

On Hpcalc.org there is an explicit description of how to load libraries onto an HP48G sereies calc. The 49G should also be there as well. A 49G is somewhat different and if you have a 49 ask again.

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## Steel ruler to take apart spice ?

Message #1 Posted by <u>NH</u> on 20 Apr 2003, 5:48 p.m.

Regarding that cantankerous troublesome lower-edge of the two plastic halves when taking apart a "spice" HP-34C.....

Did anybody try sliding a steel ruler between the two halves, along that troublesome lower edge, sliding it in between the two uncooperative halves ?

The trick is to allow the back-half to slide translationally past the top-half, true?

But it doesn't slide because of the molded ledge on the top-half. A thin, stiff piece of metal would allow it to slide past the top-half.

It may enough to use a steel-ruler. One of those shiny spring-metal drafter's templates (the ones about 2" x 4") would be even thinner. The ultimate would be a piece of .010" Tungsten metal foil (nothing is stiffer than Tungsten while avoiding britleness). But I haven't seen any of that since I was working in a laboratory.

Once the stiff piece of metal is in between, the back-half should translate past the top-half and the clamp should release?

Wanted to know if anybody else had tried this.

## I use old telephone cards

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 20 Apr 2003, 9:09 p.m., in response to message #1 by NH

Hi, Norm;

I had the same trouble opening Spices.

The trick is to allow the back-half to slide translationally past the top-half, true?

For these days I slide the corner of old telephone cards to accomplish this. They smear a bit, but once the corner is rought (two, three times tops) you can always use the other three ones and even cut the card with a scissor.

One of our contributors uses dental floss. It seems to be nice, but I did not try it so far. I looked at the Articles but did not find anything about it.

In the past I used my fingernails, but sometimes it hurts...

Hope this helps a bit.

luiz C. Vieira - Brazil

(as always, my regards to Captain Zener)

Here it is again -- Dental floss Message #3 Posted by <u>Karl Schneider</u> on 21 Apr 2003, 12:58 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

The "dental floss" trick for opening Spice units:

Opening Spices the gentle way

## Thank you, Karl!

Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 21 Apr 2003, 1:40 a.m., in response to message #3 by Karl Schneider

You're the man!

I could not remember who gave the great idea.

And I feel bad with myself not giving the fair credits.

Thanks again.

Luiz C. Vieira - Brazil

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# Thinking of "Minty" new standards. (yeah, it is long)

Message #1 Posted by glynn on 20 Apr 2003, 3:48 a.m.

This comes, in part, from looking at posts from many people here who have laughed-- or cried-- over vendors on eBay who have grossly overstated the condition of machines for sale.

Of course, words like "pristine", "mint", "near-mint", "new in box", and so on are highly subjective. They likely always will be.

Some things that don't really seem subjective at all, like "Works!" and "All segments light up fine", turn out to be very much in the eye of the beholder, as my own experience on eBay finds.

And what is important to me, a calculator User, differs a bit from the priorities of a Collector. That just comes naturally.

How, for instance, would I characterize the extent and severity of the scratches on the brushed aluminum faceplate of my 15c? Well, they are not so noticeable as to draw attention to themselves--but right now, looking closely at them, I see one wide sort of "buff", one little pock-mark (as if hit by a BB lightly) and a little skinny curved scratch that the light catches well but is not deep enough to be more than a disturbance of the clearcoat on top. No big deal, to me.

If I wished to sell this Near-Mint machine :-) I would thus evaluate its cosmetics differently, probably, from a collector wishing to buy one truly worthy of his collection. And I might not even remember that I had engraved my initials under the left-front foot. Oops.

And so, it seems, we are ALWAYS going to be debating things like what we sent to someone, what the UPS/Post Office did, what we got from someone, and whether anyone should have ever mentioned that segment 3 on digit 4 of that LED calc was dimmer than the rest.

There is, of course, the possibility of some independent evaluation organization. You send your calc to a certified evaluation consultant, who looks it over, puts a grade on it, and then sends it back. You can use the official grade in your advertising or auction, which simply says to the buyer, well, it's not a piece of junk, and as of xx date, it was considered by an authority as meeting this level, having this

grade.

Truly, though, sellers are less likely to be convinced that this service is a necessity, than a potential buyer might consider it to be. The seller would be paying for the evaluation; an extra cost cutting into his margin. Most calculators sold are not (yet) in the hands of the knowledgeable collectors-- so the seller likely would not consider the thought of sending out his merchandise to an entity who would charge him just to tell him he can say "two thumbs up!" on a later ad. He'll just say it, and of course add, "Auction is final".

I'm not saying that an independent valuation organization would not be useful. In collecting, I'd like to have some of my own machines "certified" as a particular grade, so that I have a better handle on what they would be worth to other collectors. I think it would help me make a better case to the insurance company for whatever I lost in a fire, flood, theft or other disaster. And should I ever sell a machine, I think a better price might be had for it with less haggling if I could point to the review of a pro. So, there is a DEFINITE place for this service.

(I seem to remember a remark or two from contributors here that indicated they have done "consulting" in this area or acted as an impartial go-between in some transactions, and as part of that they were asked to evaluate condition. This is great: can someone refresh my memory about who was doing this? Todd G.'s name came to mind for some reason, but my mind has been known to come up with random data that I can not research to verify-- or perhaps at some point in the past he was looking for someone else to do this).

But certainly, here is the point: IF a seller or user, without having to send away his calculator, could come to an evaluation which we could generally AGREE fairly assessed the condition of the equipment, I think we would be MUCH BETTER OFF than we are right now.

It would be self-description of course, and no real substitute for the evaluation of a professional, but it might at least get sellers to consider carefully enumerating those visual or functional quirks that they so easily overlook otherwise.

I know that, if such an evaluation existed, I would personally subject my own calculators to the test, just to see where they "fell" in relation to the optimal. This might give me incentive to look for a charger for my 33c whose click-in end wasn't bound together with scotch tape... ;-D

Further, just how do the professional evaluation services themselves reach an agreement that an object is "Mint" or "Very Good"? They either have internal subjective measures of qualities-- or they have summarized for themselves the flaws to look for that separate ordinary from special-- which they can successfully use to place an objective measure on the piece.

What, though, could \*--WE--\* do to minimize the wide variability of SELF-DESCRIPTION of a calculator's condition?

I propose that, for EACH MODEL CALCULATOR, we (us, the Forum, the MoHPC crowd) agree upon STANDARDS of evaluation of Functionality and Cosmetics and Completeness. I repeat, FOR EACH MODEL.

In order for that to work, it would have to be in a format, such as a checklist, worksheet or WEB-PAGE (my favorite), that would allow the owner or possessor of a particular calculator to UNEQUIVOCALLY answer specific questions, leading to a score or set of scores. perhaps even with certain qualifiers (I have a class C drivers license, with restriction A. It means I have to wear glasses to read my speeding tickets).

The entire completed form would be easy to email someone inquiring about specifics on the calc, and the seller might gain credibility and interest for his wares by complying and advertizing that his machine "Scores 1175/1200 on the MoHPC scale for Functionality"...

Now, I'm not suggesting that this would solve the problems of deceptive trade. Nor am I suggesting that anyone would warranty anything differently. But if I have a checklist from the seller that states "keys work freely (do not stick in operation)" and the merchandise comes and it feels like Pepsi syrup is one of its features, I am going to have a reasonable SPECIFIC grounds for complaint to the seller, or to this board ABOUT the seller.

"Aw, c'mon, Glynn" I hear you say; "everybody these days has a digital camera and Pictures Don't Lie. There is no need for anyone to have to sit down and answer 100 stupid questions about a calculator; What You See Is What You Get, and Caveat Emptor".

Well, True. But as you may have experienced yourself, pictures sometimes come from other (ahem, borrowed) sources, they are actually quite hard to take well with ANY camera (paying attention to lighting, angle etc) and Especially hard to take well with most Digital Cameras, as small objects like calculators can rarely be focused upon at less than 1 meter distance, and so your "zoom" into its beautiful face loses much clarity and resolve. There is, in short, a lot you CAN'T tell from a photo, particularly once it has been reduced to the size of a stamp and down-ported to 96dpi so that an auction's page loads fast on eBay.

I've spent a lot of time poring over such pictures, and come to the conviction that: A> most people and their cameras can't take pictures worth a tinker's damn; B> those that CAN, do whatever they can to portray fewer flaws than actually are apparent on a cursory glance at the machine in-person. Pictures don't Lie, but they do not represent sufficient information to do anything but REJECT the more obvious "dogs".

And, for "Caveat Emptor", it will ALWAYS be true that, before you part with your money, you should be aware of what might be, as opposed to your expectations of what SHOULD be. I think a set of standards actually enhance your ability to make sound judgements about the merchandise, and

even about the seller.

A seller who offers prime merchandise should welcome the chance to meet established criteria with his machine and thus realize top-dollar for it. A buyer should be able to sleep nights between the time he places a bid and when the box shows up at his door, knowing that all the relevant questions have been answered and he can expect something of a "known quantity".

Even if a calculator is not in really fine cosmetic fettle, (hey, how was \*I\* to know that Ajax/Comet/ BonAmi wasn't a good keyboard cleaner? LOL) there may still be reason to have a standard checklist. For instance, have any of us, wanting to know about someone's Voyager, tried to walk them through the several on-board diagnostics? This would be a part of the functionality checking procedure for that class of machine. I would think that a web-page for evaluation of Spices would show a picture of a clean battery compartment and a "furry" one for comparison and point perhaps to another page for suggestions on carefully cleaning one up from that condition so as to make points on that score.

Well, so the basics of what I suggest are these:

1. We think about establishing a set of standards for A> Functionality; B> Cosmetics; C> Completeness & Originality.

2. We write up the standards for EACH pre-1990 HP machine model in existence and their variants. If wished, extensions for the newer ones or rarities in the calculator field could be written up as well-- or for other RPNs (Novus, Elektronica), for peripherals (card-readers, HPIL printers, etc) or for anything calculator-related; but I think MoHPC members should have the "say" in defining the terms of evaluating the HP museum machines FIRST and FOREMOST; it's our bailiwick.

3. The standards should be written such that a non-expert can do the evaluation completely and accurately. No voltmeter readings. You should not have to ask someone to have mag-cards at their disposal-- so only ask those kinds of questions you might ask a potential seller if you had him on the phone with you. If needed, optional scores might be provided for ("oh-- you have some mag-cards? Good-- try this:")

4. I believe the BEST format for the evaluations would be a commonly-accessible set of web-pages, with check-boxes to answer in. A tally/summary sheet at the end (hit SUBMIT) would be printable or save-able afterward. It would list those questions by how they were answered (OK, Not OK, Not Answered) so that anyone could see for themselves the areas which dealt the final score. This summary would ask the participant, at the end, to agree with the statement that he/she had answered each question to the best of his/her ability.

5. As web-pages, they could contain links to how-to's or sets of pictures illustrating, for instance, what a "glass perfect" plastic LED cover looks like while reflecting light, compared to one with light-

to-average hairline scrubmarks. In that way, the standards would have points of comparison that most all of us would agree make the difference between "mint" and "near-mint".

6. The community of the MoHPC should do this for the following reasons: A> we are the ones most concerned with evaluation; B> our coming up with standards would enhance awareness of the MoHPC community and its collectors as a mark of "collector sophistication"; C> we need less subjectivity in our sport now. (Up till this point, it was rare for a calculator to sell used for more than the price HP sold it for new. Now, though, it happens all the time). D> We are the only ones who could reasonably be expected to do this.

7. The standards act also as a guideline to potential collectors. If I want to look into buying a 35, I would read the museum page FIRST, but it would also help to have extra guidance in knowing the kind of questions to ask, about wear on the bezel, for instance. Or about how snappy or loose is that switch? And knowing what minor changes to functionality or cosmetics there were can tell me much about the specifics of any machine I may look at. This is one reason for having model/machine-specific standards.

8. Finally, as I said earlier, Users and Collectors have different criteria. Although I could get along with evaluating my machines according to Collector guidelines, they probably would score great functionally but less so cosmetically. But a Collector's Scale and a User Scale could be simultaneously calculated. My 33c and 15c would be excellent user machines, as exhibited by the summary-- and not collector-level machines, which is exactly what I'd have to say on my ad if I were to sell them. So, I interject the possibility that Scales for meeting different objectives are worth considering too.

I want to solicit opinion of course, but I also wish to get you to think further on your own about how such standards would benefit or harm, and what a checklist for your prize machine might look like. In cosmetics, I suggest mentally cutting your calc into "zones" or areas of focus: display, keyboard, back, sides, etc. and evaluating each separately. We would need to discuss how to relate such topics as uneven segment-brightness on a display-- and I think the discussions themselves would do US much good, as teaching and showing others what we already "know" sometimes refreshes our own state of knowledge.

-- glynn.

## Re: Thinking of "Minty" new standards. (yeah, it is long)

Message #2 Posted by Gordon Dyer on 20 Apr 2003, 6:25 a.m., in response to message #1 by glynn

Hi Glynn, your idea for a set of criteria to assess the condition of calculators is very good and would be of huge benefit to all collectors. You have made a lot of very relevent and useful comments which have grabbed my attention! And it would be good to see the Forum used to produce something more solid than just chat and help, though it works very well for those. (e.g. Jeremy's polls have been very interesting).

I have been involved in database projects at work (specification and implementation, not coding) and know from bitter experience that it is too easy to be very ambitious to begin with and then find it fails becuse of the complexity and amount of data which is required to be updated, or because the real objectives and use were not specific and clear. I suggest that to start off, a generic set of criteria are put together which can be used for any calculator. If this is successful then so long as the format is easily expandable then more specialised or specific model entries could be added.

There are a few questions I have which need answers before we could decide if this would be valuable.

1) Is Dave willing to host a set of input pages on his website? or do we have another volunteer to host the database?

2) What is the purpose of the information? Is it to aid assessment of calculators being sold or is it to provide a standardised record for those collectors who are honest about and proud of their collections?

3) Will this have any effect on the sellers in eBay who do not already expose the "truth" about the items they are selling?

4) Are members willing to input their personal details, or which details can be held which to not compromise security?

I think to get something going we should treat this as an MoHPC database for members only to share info about their collections, this will develop the criteria and then it could be used to attempt to standardise the descritions for selling. However we will find the the format and requirements for a collectors database are VERY different to the format and requirements for a product description for sale.

I would be very interested in a database of collectors calcs for interest, we could even publish stats showing the distribution of numbers and condition of the calcs which are still alive. maybe it is an expansion of the interesting polls carried out by Jeremy recently?

These are just a few thoughts triggered by a quick scan of your Post, now I will get back to reading it more carefully!

**Re: Thinking of "Minty" new standards. (yeah, it is long)** *Message #3 Posted by* <u>*Wayne Brown*</u> on 20 Apr 2003, 12:33 p.m., *in response to message #1 by glynn* 

Slide rule collectors use a system of condition codes running from C0 (Mint) through C8 (Damaged and well worn). It's a lot less elaborate than what you propose, but it works pretty well and you might want to take a look:

http://www.slideruleguy.com/forsale.htm#condition\_codes

**Re: Thinking of ''Minty'' new standards. (yeah, it is long)** *Message #4 Posted by <u>Michael F. Coyle</u> on 20 Apr 2003, 6:22 p.m., in response to message #1 by glynn* 

Hi Glynn,

Your proposal is very interesting. What concerns me a little, though, is whether it will improve the eBay situation. It seems to me that the people who are honest now will continue to be honest after the appraisal comes into use. The liars will just overstate the condition of the machine and still make "all sales final". (I.e. "You don't agree with me? Tough.") The only people whose behavior this is likely to change are those who are basically honest but don't know how to appraise calculators.

I guess we could shun the liars if enough complaints come in but it seems as if we could do more. But let's face it, if a one-time seller is cleaning out his attic, wants to get rid of a calculator, and makes an overly "optimistic" appraisal of its condition, there is not a damn thing we can do about it.

The only honest appraisal is an independant appraisal. That's why someone from the bank shows up at your house when you refinance your mortgauge. But I think you're right, I think that at current market prices, the market won't bear an appraisal cost. Maybe when prices reach the \$3000 level...

(I looked at some sites for camera collectors. They have the same problems with eBay as us. See <u>http://www.ihagee.org/top02.htm#tr049</u> for their take on eBay. They have a guide to eBay descriptions like the one that someone put on the forum recently; I like "Ding -- bashed repeatedly" and "Fungus -- mushrooms growing between elements".)

When we develop a checklist maybe we can test it on some auction items and build a data base. (Sort of a precursor to a Price Guide.)

- Michael

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## New HP49G

Message #1 Posted by Vieira, Luiz C. (Brazil) on 19 Apr 2003, 5:21 p.m.

Hi;

I got the chance to have a new HP49G in hands and I could see the following:

both User's and Advanced guide included (as already mentioned by other contributor);
new connection cable has more lenght and comes with two adapters: an HP48-compatible (I'm not sure about the HP39/40) and a DB9-compatible;

- 1.18 O.S. already installed (last supported version)

- I played with it a little and felt it faster than an earlier one I have since 2000 (at least screens are built in a flash); did anyone check for it?

All the rest is the same, but I felt the keys a bit "though" when pressing. I do not see it with good eyes. The only thing that quickly called my attention was the speed. I thought it was because of the O. S. version but it seems it isn't. I put both with the same O.S. and the earlier one "paints" the screen slower than the new one. Would it mean new LCD drivers? If so, this sort of enhancement was added probably after ACO got closed.

Just a few impressions of mine.

Additional comments?

Luiz C. Vieira - Brazil

# Re: New HP49G

Message #2 Posted by J.Manrique Lopez de la Fuente on 19 Apr 2003, 7:38 p.m., in response to message #1 by Vieira, Luiz C. (Brazil)

New hp49g?

Serial number?

J.Manrique - #1077 HPCC Member

**Re: New HP49G - Bought recently** *Message #3 Posted by* <u>*Vieira, Luiz C. (Brazil)*</u> on 19 Apr 2003, 9:54 p.m., *in response to message #2 by J.Manrique Lopez de la Fuente* 

Hola, J. Manrique;

At least this unit was bought recently and I am about to become its actual owner, it will depend on a few arrangements...

Serial # is CN1450xxxx (chinese unit)

Maybe it's not exactly a "new" unit, but I was the one who opened it: a sealed blister. Manuals are still originally shrink-wrapped. It is with me since then, and I intend to keep it.

Does the partially serial # helps? If you need the complete # I'll e-mail it to you.

Best regards.

Luiz C. Vieira - Brazil

## **Re: New HP49G - Bought recently**

Message #4 Posted by J.Manrique Lopez de la Fuente on 20 Apr 2003, 4:21 a.m., in response to message #3 by Vieira, Luiz C. (Brazil)

Hello Luiz,

C145xx is from China, done 45th week of 2001, isn't it? So, yes, it isn't a new model.

This year, every hp49 I've sold came with the two manuals, and pocket manual, and the accesories you've mentioned (cable+ hp48 adaptor + PC DB9 adaptor).

From our national distributor I know that there aren't more hp49 calcs untill May or June. Let's see if that calcs are «new» or not.

Best regards,

J.Manrique - #1077 HPCC Member

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### graphing calculators a hula-hoop fad

Message #1 Posted by Norm on 19 Apr 2003, 4:32 p.m.

Greetings, thought I'd just follow up on the heavy 48G+ criticism that I posted about a week ago. It was amazing that, when I threw my firecracker onto the chat board, how many people wanted to buy it. There were 5 inquiries, even though the initial post insulted anybody who would want to buy it from me, chuckles, but they emailed me anyway...

Good news is that another engineer is buying it from me, for very much the same reason as me. Just to see if he likes it or not. Well I wish him the best, maybe he will like it.

"By the pound" the 48G+ is an incredible hardware value. It's solid, the plastic is good, the keys feel good, it looks solid and imposing. BUT, the command usage and the presumption that I want the display to run like that, and all the goofy stuff coded into it by the software hounds, did not impress. I mean c'mon, in the formula library, I can look up Area = PI x  $r^2$  and download the formula???

I mean, I thought I was supposed to know that sort of thing, and when I know that, then it sort of means I went thru coursework and that I got educated. If I have to look it up in the 'library' then that's a problem.

One thing I firmly believe. As I gather information on this 'graphing calculator' era, I see it in a dim light. EXAMPLE:

I visited my patent attorney just YESTERDAY. We rode in his SUV to go get lunch. There was a TI-86 graphing calculator on the seat. The clerk at a store had already told me, weeks ago, that TI-86 is the most popular for high-school and college. So there was one. I picked it up and my escort said "its busted".

He said "its my son's calculator. I didn't want to buy it for him, but he used comments from the math teacher as an excuse to make me buy it. Now it's busted. But what I really noticed was, before it busted, that all my son was doing with it was using it to play videogames."

Well, just one more battle-field observation of the rifles jamming on the front-lines.

And don't figure the kid learned his math any better, than if he had an HP Classic in his hands. In fact, thanks to the distractions of a graphing calculator, he probably learned his math to a substandard level.

"If I sketch a graph with pencil & paper, it will look better than the tiny little 130 x 130 pixel display on the calculator. The calculator does not need to provide a graph, because if you know your material, then the graph should already be seen inside of our minds."

......Words from wise and all-knowing mathematical swami, puffing on pipe on the snow-capped mountaintop, with HP classic calculator next to him.

#### I have to disagree with you.

Message #2 Posted by <u>Speck</u> on 19 Apr 2003, 9:40 p.m., in response to message #1 by Norm

Norm,

Personally, I think it's all a matter of perspective. Not everyone who uses, or has use for, a graphing calculator is an engineer, or an engineering student. Granted, that's probably the largest demographic, but certainly not the only one. And certainly some of those individuals are not going to have the math background that an engineer would. Therefore, having a low-cost, programmable, graphing utility available would be very convenient at times.

As far as the equation library is concerned, I agree that there are some formulas in there that pretty much everybody should know, such as the areas and perimeters of certain basic shapes. However, there are also some in there which no one should \*really\* waste their time memorizing. Should I truly have the law of Biot-Savart at hand at all times, or should I be able to look it up when I need it? Rote memorization is not learning; having the formula in front of you does not guarantee that you have any inkling as to how to use it properly (or at all). Besides, it's just the 48 series that had the equation library, right? (someone verify this for me, please.) My 49 doesn't have it, and neither did any of my TI's. All of those calcs have features that most people will rarely use, but I have been surprised by the number of features I have actually used over the years.

All the kid did was play video games on his TI-86? Well, let's look at what the digital computer was originally intended for (numeric processing), and what the most common use is today (entertainment). Don't blame the machine for what the dumbass did with it. While in school (high school and college), I noticed four things that students did with their calcs, and in no particular order:

1. Playing games (as you mentioned earler) 2. Number crunching (a terrible waste of power) 3. Graphing 4. Using the programming interface as a notepad (no extra points for guessing what for)

I don't believe there are a lot of teachers that truly understand the power these students have access to, in their backpacks, almost every day. IMHO, if they taught what could actually be done with these machines, they could alleviate many of the desktop PC's and educational programs that are such a necessity and supposedly help students "learn." But then people like me would have a far harder time impressing people with "parlor tricks". :) (And if you are worried about cheating, you can always ban the machines on tests. This will clearly demonstrate who is learning the material, and who is using the machine as a "crutch.")

Did I use the graphing features of my graphing calcs? Yes, but mostly early on. Rarely now. Anymore I use the handhelds for programming (they

came with languages built-in; my desktop didn't. And I wouldn't want a programmable PC with a single-line screen, so why should I have to settle for a programmable calc with one?), numeric equation solver (yes I know how to do it, so I don't wish to take the time doing it again unless I need to demonstrate something), and curve fitting (definately NOT intuitive, as is pure math. The picture in my mind doesn't always give the correct answer to four decimal places).

There may be some question about which calculator is most suited for students, and which is suited for professionals. The HP's are certainly not the most user-friendly machines in the world. However, if there's something about it I don't like, I can usually change it. This was one of my major gripes about the TI products I've owned in the past. If there was something you didn't like about it, well taht was just tough. You were stuck with it. I liken TI calcs to Macintoshes, and HP's to IBM PC's. One is more user-friendly, and one is more useful. What one should remember about graphing calculators, or any others for that matter, is that they are TOOLS, nothing more. Any tool can be used properly or improperly. And any tool can be useful. It wouldn't have been created if it weren't useful to someone.

Now, where'd I put that damn soapbox? (scrathces head) Speck.

**Re: I have to disagree with you.** *Message #3 Posted by* <u>*Trent Moseley*</u> on 19 Apr 2003, 11:51 p.m., *in response to message #2 by Speck* 

Speck,

I think you are very eloquent.

tm

### **Re: I have to disagree with you.**

Message #4 Posted by James M. Prange on 20 Apr 2003, 1:24 a.m., in response to message #2 by Speck

The "Equation Library" was built-in on the 48G series only. For the 48SX, it was on a plug-in ROM card that could be purchased separately. The 49G doesn't have this library built-in, but improved (faster and expandable) versions are available for download from hpcalc.org. I suppose that "expandable" may imply that unwanted equations can be removed; certainly there are some that I don't need in the library because I already know them, and others that I would never use.

Regards,

James

#### statistics- a fad?.

Message #5 Posted by <u>Christof</u> on 21 Apr 2003, 11:23 p.m., in response to message #2 by Speck

The one thing above all else that I hink justifies the very existance of graphing calcs- evne more than the programmability I find so absolutely required- is statistics functions.

from the simple histogram to the ability to store thousands of individual measurements- the statistics capabilities (when people are smart/ educated/aware enough to use them) cna be som much more valuable in the real world than any other set of functions.

we are lied to to an astounding degree each day- from simple thing like cnn polling 'who we should attack next' without including an option of 'no attacks' or even 'other' - to histograms so obviously skewed they look like a fun house mirror reflection- to incomplete seperation of groups- we are lied to. constantly. The ability we have to reach into a pocket and look- to pop some numbers in and with a few keystrokes generate meaningful reports on the data we are being fed (eevn if it's just a report that the data makes no sense) is invaluable to any pretense of a free society in our informationally overloaded age.

now if only someone else on the planet would \*use\* the machines for this......

-C

### I'll second what Speck said (+ more)

Message #6 Posted by <u>Jeremy</u> on 20 Apr 2003, 10:43 a.m., in response to message #1 by Norm

I can honestly say that when I was in high school and learning math, the graphing calculators helped. Sure, you can draw them out on paper, but it is easier and more efficient to have a machine do that. There is nothing really learned by physically drawing them out, right?

Once you can visualize what a function looks like, you don't really need to see it graphed too often from that point on, right? But class time is valuable, and the less time you spend physically drawing out graphs, the better.

As for playing games, you certainly can't blame a kid for doing that. I bet you would have done it when you were his age... I know I would have and I don't consider myself a bad student. He would still have to pass the tests, right?

To me, the harm in graphing calculators comes from them doing many of the things that students should learn to do by hand. Now that we have graphing calculators, students don't bother to learn as much as they should. For example, simultaneous equations. They are a pain in the ass to do by hand and to learn to do by hand, but I am better for it in the end. After you get proficient at doing it by hand, there is no reason to go on doing it by hand. But if you learn how to use the calculator/computer as a crutch... That is bad news.

In that respect, even a four function calculator can do harm. My ex girlfriend was pretty sharp, but she couldn't do division by hand. To me, that is

scary. It also reflects further into electronics. Nowadays, EE grads don't know how to design an Op Amp, but using the technology available we can build things with op amps. It is too hard to know everything.

Maybe the best idea is to limit the technology available for certain levels of students. For example, Algebra I students might have to graph functions by hands and solve simultaneous equations by hand. Calculus students wouldn't.

-Jeremy

### **Re: I'll second what Speck said (+ more)**

Message #7 Posted by <u>Ellis Easley</u> on 21 Apr 2003, 8:04 p.m., in response to message #6 by Jeremy

"There is nothing really learned by physically drawing them [graphs] out, right?"

"To me, the harm in graphing calculators comes from them doing many of the things that students should learn to do by hand."

I think you contradict yourself here. From plotting graphs by hand you learn - how to plot graphs. I'm from the old days when the darkness was just beginning to clear. The TI2500 was the only calculator I saw in high school, and I couldn't afford one. (Big exception: I did have an opportunity to use an HP desktop programmable with a plotter attached for a few weeks. Trying to remember what model it was has been a driving force in my HP interest.)

I think it is important to know how to do, or at least to have an understanding of the steps involved in doing, any of the things a machine can do for you faster and/or better. Long division, for instance. First, it gives you an appreciation of the time the machine is saving you. Second, it prepares you to recognize and deal with the limits that all machines have, when you run into them. Please read Robert Pease's ("What's All This ...") articles on the subject of Spice (the simulator, not the HP calculator series.) How can you know the computer is wrong if you can't check its work? Finally, every manager has to know the jobs of his employees at least well enough to hire them.

### well its still busted

Message #8 Posted by <u>NH</u> on 20 Apr 2003, 5:36 p.m., in response to message #1 by Norm

well, its still busted.

The kid can't even play videogames on it, if its busted. Of course that was a TI we were talking about. Maybe the HP is more reliable.

Well back to work.

#### To Norm, Trent, and James

Message #9 Posted by <u>Speck</u> on 20 Apr 2003, 7:24 p.m., in response to message #8 by NH

Norm,

I agree that if it's busted, then it's less than useful for anything except maybe as an impressive-looking paperweight. But what exactly do you mean by "busted?" I've seen several TI's dropped onto concrete floors, but which still functioned afterwards (my own TI-85, a very similar predecessor to the TI-86, comes to mind). The HP-48xx calcs tended to get a lot of screen blowouts, as the fabric bag offered little, if any, protection to the screen from direct impacts. The hard slide cases, used on the HP-39G, 40G, 49G, and all of the TI's, seem to offer a much greater level of screen protection. Something rare like a blown processor or a cracked circuit board, or invasion by a foreign matter would be hard, if not impossible, to fix. A bad battery terminal might be a bit easier to fix, and the kid might be back in business. Of course, if he's gaming, then he's running assembly, and maybe the assembly program is causing startup problems, meaning a full reset (leave the batteries out, including the backup button cell, for a few days--easiest fix of them all) might just do the trick.

I've also seen "dead" calcs, which really just needed new batteries and a contrast adjustment. Not outside the realm of possibility.

Thank you very much for your kind words. ----- James,

Thanks for clearing up that library issue. And I suppose ANY calc can have an equation library, depending on how program or memory space is utilized. The nice thing about the HP libraries is that some of the equations appeared to come with explanantory graphics, so that you knew what the variables related to. Graphics can be a bit harder to program efficiently, or to store as an equation variable.

Speck.

### **Re: To Norm, Trent, and James**

Message #10 Posted by <u>Speck</u> on 20 Apr 2003, 7:28 p.m., in response to message #9 by Speck

BTW, my formatting looked A LOT better in the message box before I posted it. I'll work on that.

Speck

#### Formatiing messages and Comments

Message #11 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 20 Apr 2003, 8:57 p.m., in response to message #10 by Speck

Hello, Speck;

I read the messages (not completely) in this thread but I think that the needing for one or other feature is not only a matter of simply needing but also a personal choice. When I read that using graphics is a waste of time (or something like this) I think other features are available. And I like using graphics as well, mostly in high-definition screens, with advanced, full-featured programs that cost about the price of a bunch of HP48G's... not counting the system to run them. Based on pictures available at the MoHPC, if the X-Pander was available its screen resolution would be the best one. Amazing!



I think writing/plotting on paper is something that demands time. Accuracy will also depend on writers ability to draw, as plotting will depend on screen's resolution. Having a final "view" in your mind may suffer distortions from a bad drawing, and when you are using graphic equipment, a zoom-in may reveal local behaviors not easily seen when looking at the math expression or hand plotting.

Well, but this is not my main concern. I wrote to let you know about two "tricks" I almost always use when posting here.

The first one is [nl]. This guy allows a new-line anytime you want it. If you use a single [ENTER], lines will be written as if it does not exist. If you use two [ENTER], you get a new-line with a separating line.

If you want to keep a sequence in an specific format, use [pre] before the first character and [/pre] after the last one. If you want something like this:

insert press display

5.3 CHS -5.3

you should type:

[pre] insert press display

5.3 CHS -5.3 [/pre]

Maybe you already know about it, but...

Well, add my own name to the ones that think you wrote well.

And Norm, as I have mentioned before, I try being in both words: analog and digital. But I try to keep track with anything that's new. I believe graphic calculators added a new dimension to the way students get knowledge. What concerns me, as a teacher, is that many of the new "tools" have not been well used. You see, the abacus is still used as a math tool, many contributors in here defend the slide rule (I never used one as a math tool) and others the numerical calculators. Symbolic algebra and graphics must be brainy activity.

What if we were still using the logarithmic tables to compute every structure in a building?

Thanks to new math tools we can go further, and graphics calculators at least allow people to "see" a function even without the skills to draw it by hand. And I see it with good eyes, I do not like having to draw the same curve two, three, four times after adjusting this or that parameter. I do not like to throw old notes away, but I do not care overwriting old files with new data.

Just my thoughts.

Luiz C. Vieira - Brazil

#### Hello Luiz,

Message #12 Posted by <u>NH</u> on 21 Apr 2003, 12:08 a.m., in response to message #11 by Vieira, Luiz C. (Brazil)

Hello Luiz, that 3rd graphics screen looked pretty good.

Almost looked like there was enough pixels to do the job.

What did your graphics come from, that you put in your post ? Was that somebody's calculator, or was that a PC program.

### Re: Hello Luiz,

Message #13 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 21 Apr 2003, 1:37 a.m., in response to message #12 by NH

Hello, Norm!

Hey, it's been good to read your posts. I do not agree with some stuff, but they are indeed good points, your points.

Have a look <u>here</u> and read till your heart keep beating. The graphics are from the "I-wish-Carly-was-not-there" X-Pander. A few months before being launched, the full project was cutt-off (and latter ACO as well). A shame!

Well, join us and feel sad, too.

Best regards, my friend.

Luiz C. Vieira - Brazil

(I'm mourning; no messages to Captain Zener this time)

#### I'm slow as a vacuum tube

Message #14 Posted by <u>Norm</u> on 21 Apr 2003, 1:05 p.m., in response to message #13 by Vieira, Luiz C. (Brazil)

Well gee, I'm just as slow as a 12AX7 to not have known the story about that XPander.

Thanks for filling me in. That's very interesting. Imagine the fortune they must've spent just to do a prototype and to do those market studies. For a fact, I'm sure they spent FAR MORE than it would've cost to put the HP-34C (or 41C) back into production, just on their one little Faux Pah.

It's hard for me to comment about whether its right, or wrong, as a decision. Probably wrong, because i believe they should innovate and experiment with calculators, and this could be the 'experimental' model. BUT I also believe in the tried and true, that which already worked, that which already had a loyal customer base. In other words, they have no business discontinuing items like 32Sii, or even its ancestral predecessors.

The big problem with the 'Xpander' remains..... its such a tiny little screen to be trying to run graphics. This is the flaw with graphing calculators. Hey, as I type, I am on a screen that is 1280 x 1024 pixels, that's 1.3 Million pixels. And I get to fairly triple that to 3.9 Million pixels because they are in fullest color.

Now, on this super-duper 'Xpander', we had, what was it, 200 x 300 ? That's 60,000 pixels. That's only 1.5% of the screenarea that I have got on a real computer.

I would just continue to insist upon a personal-computer based mathematical graphing package, if there was even a need for me to use one (no requirement just now) until then I like a number-based calculator, such as 32S, 32Sii, or..... well you know the rest.

Thx for sharing on 'Xpander'. I wonder who got the two thousand prototypes ?

Bet they had an army of Carly secret-service in black-suits run around and reclaim them under penalty of death, and then they crunched them all up to make sure nobody could have any fun.

Vacuum tubes are timeless...

Message #15 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 21 Apr 2003, 3:50 p.m., in response to message #14 by Norm

Hey, Norm;

never mind... I was known about it later, too; after it's been gone. Well, how can it be gone without ever been?

I have some experience with students and their needs (or what they think they need...). I always say that they MUST be better than their teachers, at it includes me. One of my students asked me once: "Do you consider yourself a better professional than your former teachers?" I stopped for a while and answer: "as a teacher, I am sure I'm an improved version; as a professional, I intend you to be improved versions". I think I'd answered him well.

I wonder if Einstein was born in the 80's: would it be a genius and go beyond his own theory or he would go for drugs and crackery? Today's math tools may be taken as brain toys, and that's teh big problem, you know?

Based on this, I plenty agree with you: pocket mah tools should not disguise major concerns. As you get a better acquaintance, powerfull desktops are on demand.

About vaccum tubes: they are timeless (no oxidation being considered here). If I am not wrong, the only electronics to survive after a giant EMP bomb... (is the 12AX7 that "in"famous double triode? I don't remember... Such a long time I do not read about vaccum tubes' specs)

Best regards.

Luiz C. Vieira - Brazil

### Vacuum tube databook

Message #16 Posted by <u>Norm</u> on 21 Apr 2003, 7:31 p.m., in response to message #15 by Vieira, Luiz C. (Brazil)

Hi Luiz, I don't want to sound rusty by mentioning vacuum tubes, but they sure are a lot of fun. Kind of impractical at the heart, which makes them entertaining. No 45 RPM jukebox should be without a few vacuum tubes. I've never designed nor prototyped with vacuum tubes, being a "linear IC analog person" but that doesn't stop me from wishing that I had used vacuum tubes instead.

Pleasantly, even right now, there is a lot of activity with vacuum tubes. Mainly with the vinyl record stereo equipment crowd. There are definitely web links for studying vacuum tube equipment still available. There's a clean division there..... grossly overpriced stuff (some that delivers performance, some that is junk despite its price) and

then, bargain-oriented stuff that will sound only so-so. You can still buy a stereo amplifier kit that is based upon vacuum tubes. One serious weakness in my opinion, they use a minimal complement of glass. For example, they get rid of the vac tube rectifiers and zener regulators. They replace them with ordinary silicon diodes. BAD MOVE. More glass is better. It's about 'getting your moneys worth' and getting your stereo system to light up like a christmas tree.

I have a copy of the classic "RCA VACUUM TUBE DATA BOOK". Yes, the 12AX7 is a double triode. It's the most basic building block of the glass world... its just 2 'transistors' in a single casing. A lot of those get used obviously.

What's striking about that old book, is how clean and clearly it reads. These guys really had a very crisp and decisive vision of what they were trying to do and the explanations were excellent. The data book is very interesting, and will always be interesting, that is, if one is doing a sort of 'archeology digging'.

While it is hoped that each generation of teacher would be better, it is inevitable that there is some sliding back down the hillside. This is true of any industry, how about HP ? Each calculator better than the predecessor? NOT!

When I learned typing in high school, we took 6 months in a roomful of noisy IBM Selectrics, and we learned to type !! NOW, for typing class, everybody sits down and turns on a PC and boots Windows XP, and does NOT learn to type.

When I learned standard college physics at UW, they sat you down in a roomful of wooden desks, and the professor got up to the lecturn, and began writing down equations. THEN they would augment this by, almost every session, wheeling in some sort of a demonstration. Maybe it was as simple as a mass sliding down an incline. Maybe it was a diffraction grating, or a demonstration of a glass-jar capacitor.

I am fearful about the outcome, and maybe I shouldn't be so skeptical, but I presume that some "Carly" took over the department, threw all the demonstrations into the dumpster, and now......

..... everybody sits down at a PC and boots Windows XP and does NOT learn their physics.

That's just my impression lately. Bill Gates has got a remarkable victory indeed, helping to screw up most every topic and industry on Earth, replacing competency with personal computers.

But of course, it wouldn't be better if we all went back to vacuum tubes. Guess we all have to just muddle along.

- Norm

ACK

Message #17 Posted by Vieira, Luiz C. (Brazil) on 22 Apr 2003, 2:13 a.m.,

in response to message #16 by Norm

You bet!

(mostly to acknowledge and agree with)

Luiz C. Vieira - Brazil

### Formatting & ...

*Message #18 Posted by* <u>Speck</u> on 21 Apr 2003, 7:15 p.m., in response to message #11 by Vieira, Luiz C. (Brazil)

Luiz,

Thank you for the formatting hints. I knew neither of them. Are they somewhat universal, or do they only apply to this board? If they're only for this board, is there a listing anywhere of what commands are available for use, and how to properly use them? As you showed, using the right commands at the right time can make all the difference.

I liked the looks of the expander and what is could do, but I was also one of those who didn't care for the fact that it was supposedly not programmable. It did look like a step in the right direction. The screen made the TI-92's look like a piece of garbage. I downloaded the Xpander software, but I haven't gotten around to installing it, and am a bit leery about it anyway, as all the handhelds it was shown on had the vertical screen orientation, and mine is a clamshell (with the keyboard and horizontal screen). Don't know if that will cause problems or not. Oh, well. Only one way to find out, I guess.

Speck.

#### Re: Formatting & ...

Message #19 Posted by <u>Ellis Easley</u> on 21 Apr 2003, 8:19 p.m., in response to message #18 by Speck

Look at the top of the first page of the Forum, under "advanced formatting techniques"

I just used one!

To get started, open that page in another window ("not trying to teach my grandmother to suck eggs")

 That's it!

 Message #20 Posted by Vieira, Luiz C. (Brazil) on 22 Apr 2003, 12:58 a.m., in response to message #19 by Ellis Easley

 Hey, speck;

 Ellis is showing the "door".

 That's what I would do.

 Best regards; thanks, Ellis.

 Luiz C. Vieira - Brazil

### Re: Formatting & ...

Message #21 Posted by <u>Speck</u> on 23 Apr 2003, 9:47 p.m., in response to message #19 by Ellis Easley

Thank you very much.

#### it wouldn't turn on anymore

Message #22 Posted by <u>Norm</u> on 21 Apr 2003, 12:05 a.m., in response to message #9 by Speck

The TI-86 would not turn on anymore, even if it had good batteries. That could mean a busted wire from the battery terminal, or it could be a blown micro. Could be anything. Until he gets another one, no more TI-86 video gaming.

#### Re: graphing calculators a hula-hoop fad

Message #23 Posted by <u>Ellis Easley</u> on 21 Apr 2003, 8:23 p.m., in response to message #1 by Norm

The following is an excerpt from an editorial by Richard Nelson titled "What is PPC?" from the PPC Calculator Journal V8N6P3-4, August-December 1981, which was reprinted on the last page of V1N1 of the PPC-UK journal, July 1982:

"We are dedicated to personal computing using a personal computer. We are less concerned with home computers, business computers, desktop computers, commercial computers, or consumer computers. [\*] The computer we seek is small, light weight, and configured to be portable and as convenient to transport as a wrist watch or camera. The personal computer, as defined by PPC, is with the user; the user does not go to the computer to use. A personal computer has its own self contained power source, it is hand held, and becomes an essential part of the daily life of its user. Record keeping, time and calender functions, communications, and information processing are all within the realm of the PPC ideal personal computer."

\* Alll I reealy wanna doo, computer, is program you! (Apologies to Bob Dylan - E.E.)

After the reprint are some unattributed additional comments (which I assume are from David M. Burch, the editor of the PPC-UK journal), of which this is an excerpt:

"We contribute to the State-of-the-Art. In fact, we exist to contribute to the goal of having a large memory, high speed, personal computer with communication capabilities. The hardware is limited by the software. Our machines can solve more problems than any individual or small group of individuals can develope for them."

I think these remarks are relevent to this thread because these organizations were very important to the development of HP calculators and handheld computers - these voices were heard by HP.

### Re: graphing calculators a hula-hoop fad

Message #24 Posted by <u>Christof</u> on 21 Apr 2003, 11:07 p.m., in response to message #1 by Norm

well, if it's a fad, it's a decade long fad with no sign of slacking. In fact, it seems that future offerings will be even more full of non-4banger types of offerings, including better graphics.

because a high schooler uses a graphing calculator for games doesn't negate the value of a graphing calculator in general. I \*don't\* use the graphing capabilities all that much- but I \*do\* use the graphics capabilities. There is still very little made that provides the level of 'in pocket' programmability and utility -- to a person who wishes to do more than trig functions-- than the ti83s,ti89,hp48gx calculators.

I see a lot of students who have rather expensive graphing calcs and don't need them, but I see a lot of students who have them and get a LOT of benefit from them. Even if they are 'spoiled' by not having to carry log tables.

as for including the formula for area in a formula library, your argument seems absurd to me. it is like not including 'and' in a dictionary because everyone who uses a dictionary should already know what and means. Or- like no documenting 'ls' on a new unix box because anyone using the command line must laready know the command. (or maybe, not documenting 'login' is a better comparison)

I vote for completeness over pride most of the time :)

-C

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HP-41 Card reader and "Memory Lost " message

Message #1 Posted by <u>Renato</u> on 19 Apr 2003, 4:25 p.m.

A couple of days ago someone asked if a "Memory lost" message would be possible when reading magnetic cards in a 41. Yes it is. As a WALL card set is a "image" of the 41 memory, if a restore from cards to memory operation fails, "Memory lost" is the expected message. I guess this prevents creating a invalid memory state.

Also: just fixed gooed roller on a 82104 reader. Could not get metallic clamps right yet. Couldn't they think on another solution for this ?

Renato
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### HP-45 and crystal add

Message #1 Posted by Michel Beaulieu on 18 Apr 2003, 7:36 p.m.

I read on the museum page of the HP-45 that we can add a crystal to the calculator to incrase the timer accuracy. The crystal is a 784KHz. The problem is that i can't find anywhere this value; is it really a 784 KHz? Where to find one?

Thanks Michel

### Re: HP-45 and crystal add

Message #2 Posted by <u>Erik Wahlin</u> on 20 Apr 2003, 1:22 a.m., in response to message #1 by Michel Beaulieu

I believe that the only place you are going to find one is to use the crystal from an HP-55. I tried looking for a crystal once for a 55 and could not find anyone that makes it.

### Maybe a X-tal with a divider...

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 20 Apr 2003, 3:37 a.m., in response to message #2 by Erik Wahlin

Hi Michel, folks;

I do not know if at least one of the connections for the X-tal in the HP45 circuit accepts direct waveform. If so, you can try a multiple ( $\times$ 8,  $\times$ 10,  $\times$ 12, etc.) and use a divider. I think there's plenty of space inside the HP45 case so you can add a small PCB with the (MOS) oscilator + divider and connect it to the mainboard.

Just a suggestion.

Luiz C. Vieira - Brèsil

### Re: HP-45 and crystal add

Message #4 Posted by <u>David Smith</u> on 20 Apr 2003, 9:08 p.m., in response to message #2 by Erik Wahlin

Try International Crystal in Oklahoma City. They can make just about anything for a somewhat reasonable price. In the before time I had a couple hundred of the crystals. Sold them along with the instructions on how to modify the HP45. Wish I had more...

**Re: HP-45 and crystal add** *Message #5 Posted by Vieira, Luiz C. (Brazil) on 20 Apr 2003, 9:25 p.m., in response to message #4 by David Smith* 

Hi;

maybe they also have special prices for big quantities. I have an HP55 and I know crystals may degradate (mechanical joints, mostly) after some time. I'd like having a couple of them, for safety.

If Michel is contacting them, I think others in here would like to order these crystals, too. What about joining efforts and order a bunch of them for a significant reduction in price?

Just a suggestion.

Luiz C. Vieira - Brazil

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### 2 Luiz, James: OS 1.19-6

Message #1 Posted by Juergen Rodenkirchen (GER) on 18 Apr 2003, 3:31 p.m.

Luiz, James, JFYI: I finally succesfully upgraded my HP49G to OS 1.19-6 :-) Looks great, works great! Many thanks to you both for recommending and encouraging me to eventually upgrading!

Best Wishes from Germany, Juergen

**Thanks for sharing** Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 18 Apr 2003, 5:29 p.m., in response to message #1 by Juergen Rodenkirchen (GER)

Hi, Juergen;

Good news! And it means your 49G is working fine so far, right?

Thank you for sharing the good news. I think many of us in here (I'm surely included) get these good news as the reason for all what happens at the MoHPC. Also, thank you, Dave; what else would allow people in different, far countries, to help each other with their HP calculators the way we do... without leaving home?

Best regards, Juergen; be sure many others are satisfied and ready to help the same way. I'm honored.

Luiz C. Vieira - Brazil

### **Re: Thanks for sharing**

Message #3 Posted by Juergen Rodenkirchen (GER) on 19 Apr 2003, 11:19 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

Hi Luiz!

> Good news! And it means your 49G is working fine so far, right?

Right! It's great! 1.18 can't by no means compare with 1.19-6. All those extra features. And the new CAS is really much better (now it's really FUN to follow Nicks Mathematical Marathons). I'm absolutely enthusiatic about this OS! And it's stable (as far as I can judge it), James were right!

> Best regards, Juergen; be sure many others are satisfied and ready to help the same way. I'm honored.

Me too, Luiz, sincerely me too!

Juergen Rodenkirchen (GER)

### **Re: Thanks for sharing**

Message #4 Posted by <u>James M. Prange</u> on 20 Apr 2003, 1:35 a.m., in response to message #3 by Juergen Rodenkirchen (GER)

Glad to read that it worked out well for both of you. As near as I can figure out, HP decided that revision 1.18 was "good enough" and no more time and money should be spent on it, but some of the developers kept working on it on their own time.

I assume that the problem with IF structures is cured too. The only thing that I can figure is that somehow the operating system was corrupted before you got the calculator.

Regards, James

#### **Re: Thanks for sharing**

Message #5 Posted by Juergen Rodenkirchen (GER) on 20 Apr 2003, 1:34 p.m., in response to message #4 by James M. Prange

Hi James!

>I assume that the problem with IF structures is cured too.

Right! Everything's working perfectly well ...

> The only thing that I can figure is that somehow the operating system was corrupted before you got the calculator.

I agree, espec. because I did encounter other strange things with this OS like "transporting" of the seperator-line (the line seperating the the status area from the stack, you know) when scrolling a program ... odd! But now everything's fine! Thanks again!

Best Wishes, Juergen (GER)

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### Help with HP 32S II

Message #1 Posted by Frank on 18 Apr 2003, 2:24 p.m.

Hi: I recently purchased an HP 32S II at a pawn shop. I have owned a 32S II before, and I cant figure this out. It appears to be an older one from 1991. Not a newer one with the silver face. It says made in Indonesia instead of singapore. It dosent have typical serial nos. to id the date of manufacture. Serial no. is 1D91902292. Also in the middle of the case back, there is a logo that says NOM-1 with some symbols that have NYCE with them. Do You have any idea about this model?

Thanks Frank

### Re: Help with HP 32S II

Message #2 Posted by <u>Joan</u> on 18 Apr 2003, 3:02 p.m., in response to message #1 by Frank

Hello,

I Think is not an older one because ID9 means Indonesia 1999 and 19 give a reference about the week. I have some 32sii's one of them with serial no 3207S... and another ID839... both with brown bezels and unfortunately I can see a lot of differences....

Regards.

## Re: Help with HP 32S II

Message #3 Posted by <u>Trent Moseley</u> on 19 Apr 2003, 5:24 p.m., in response to message #1 by Frank

Frank,

I bought my 32Sii new in September 1999. The serial no. is ID92000513.

tm

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Results from my poll (41 wins by a landslide)
Message #1 Posted by Jeremy on 18 Apr 2003, 1:12 p.m.
Here's the original post for reference:
This one is party to make up for my oversight of a few models in one question of my last poll. I am interested which hp calculator you would pick as your favorite (if you could have only one) and the reason(s) why.
a. hp 42s
```

```
b. hp 48G/GX/G+ (whichever...)
```

```
c. hp 34C (hehehe)
```

d. hp 32s

e. hp 32SII

```
f. hp 41C/CV/CX (whichever)
```

```
g. hp 10C/11C/15C (whichever)
```

```
g. Other (elaborate)
```

Maybe after THIS post has been up a few days, I will tally things up and we will know which model is the MoHPC favorite...

a. 42s - I (5.26%)

b. 48 series - I (5.26%)

c. 34c - II (10.53%)

d. 32s (0%)

e. 32sii - II (10.53%)

f. 41 series - XI (57.89%)

g. 10 series - I (5.26%)

h. other - I(29C) (5.26%)

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### HP9100B Repair

Message #1 Posted by Thomas Falk on 18 Apr 2003, 9:27 a.m.

Hi everyone,

I have a nonfunctional HP9100B calculator here. The symptoms: No display.

With the help of the service manual on the museums CD I have found that the analog part is ok. All voltages are there and the deflection circuits seems to be ok. The digital signals starting the horizontal and vertical deflection are missing, but some other signals controlling the character generator are coming from the digital circuits

The service manual does stop right at the border to the digital part. The digital circuit works in principle, there are clocks and signals everywhere, but not at the connections to the character generator.

Are there any typical errors I could look for or does have somebody some more information on the digital part?

Thanks for any hints,

Thomas

## Re: HP9100B Repair

Message #2 Posted by <u>Ellis Easley</u> on 18 Apr 2003, 10:27 a.m., in response to message #1 by Thomas Falk

Mine developed an intermittent display at one time. I was able to trace the problem to a transistor on the vertically oriented board on the far right side of the base (not one of the main plug-in boards with ejectors in the card cage). The schematics show a connection directly from the power transformer to the logic - or possibly limited by a resistor in the power supply chassis. The transistor that failed simply squares up the AC signal from the transformer and the squared output signal is what starts every re-paint of the display. The squaring circuit is a common emitter amplifier overdriven by the AC input. The transistor was shorted from collector to emitter by the time I found it.

I don't remember exactly what pointed me in that direction or where I heard that the display was synchronized to the line the way it is - possibly it's in the text in the manual? Here you go - on the power supply schematic, it starts at pin 6 of the transformer and goes to 2K resistor "R1" and from there the signal is labeled "60 Hz sync to display J27-K". That's pretty clear! BTW, be careful counting pins on the connectors that use letters to identify the pins - some letters are skipped to avoid ambiguity.

The machine had worked fine when I first acquired it and then it was in storage for a number of years. I had just "torn it down" to clean everything and then put it back together and it was working fine. I left it running and went out of the house for a while. When I came back the display was dark and the unit was very warm. I had left it sitting on a sheet of foam that I had used for protection while I was working on it, and had blocked all the air inlets in the base. I turned it off, opened the case and went away to pray for some time. After it cooled off it worked OK but then I found that the display would go blank intermittently and seemed to respond to tapping the case (you've got to try that!).

I think I followed the AC signal just because it was something simple that went down into the logic and luckily, found the incorrect behavior of the shorted transistor right away. I replaced the transistor with a 2N3904 or 3906, I don't remember what the polarity of the circuit is but it will be obvious if this is the case with your unit. Since the main logic power supply is -15V, it is probably a PNP - 2N3906. While I had the machine apart I tried to count all the transistors - I stopped at 600!

The text for the vertical deflection amplifier says "The cycle starts with ZDRV pulsing negative momentarily." This is not the output of the transistor I replaced. It is DC coupled to the AC signal, it's not a differentiator, its output is a square wave. But if the square wave is missing then there probably won't be a pulse on ZDRV.

## Re: HP9100B Repair

Message #3 Posted by <u>Tony Duell (UK)</u> on 18 Apr 2003, 7:04 p.m., in response to message #1 by Thomas Falk

Jsut about \_all\_ HP9100 faults result in no display. For the display to come up, the entire digital side must be working. Even a fault in the keyboard or card reader can remove the display!. FWIW, the 9110B will work (assuming no other faults) with the card reader removed, but \_not\_ with the keyboard unplugged from the logic chassis. So you might want to remove the card reader for the moment, just to eliminate it from the list of possible causes. The bad news is that, AFAIK, there are no official schematics or repair information for the 9100 processor. I've never found such information in a patent, for example (unlike for the HP98x0 machines, where the patents have a lot of useful information). The better news is that I pulled my 9100 to bits ;-), and have been known to give talks about the internals at HPCC meetings, etc. There are a fair number of things you can check inside the 9100 with a 'scope or logic analyser (I would start with the master clock, then the clock divider, then look at the microcode and ROM address registers). If you have a 'scope, then feel free to contact me by e-mail and I'll talk you through the testpoints, etc. One thing to be aware of. The PCBs with red handles contain 20 JK flipflops each. The top connectos on these boards carry the Q and Q/ signals from each of the flipflops (and a few extra signals on the corner pins), and are thus useful testpoints. But while the outputs show a voltage change, the J and K inputs to these flip-flops are \_current\_ operated (they're the base of a common-emitter transistor stage) and can't easily be monitored with normal test equipment.

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### 41CX display contrast

Message #1 Posted by **Donald Leonard** on 18 Apr 2003, 3:49 a.m.

One difference between the CX Fullnut and the Halfnut versions are the display segment widths, and the lower visibility or apparent contrast of the thin Halfnut segments. I do remember that the display contrast of my old CX Fullnut that was stolen was adjustable somehow. I've read very carefully both manuals for my replacement CX Halfnut, 'Synthetic Programming' book by Wickes, 'Calculator Tips & Routines' book by Corvallis Software, and the PPC Rom index and routine listing for any comment about this, and was suprised that NOWHERE was anything written about how to adjust the display contrast. As I get older I am finding it manditory that I have bright light to get good contrast with this display.

I've tried to access this forums archives on this subject, but I got no response from any archive. Does anyone out there Know how to adjust the display contrast? I have the knowledge and tools for synthetic functions if this is required.

### **Re: 41CX display contrast**

Message #2 Posted by <u>Ernie Malaga</u> on 18 Apr 2003, 4:16 a.m., in response to message #1 by Donald Leonard

>Does anyone out there Know how to adjust the display contrast?

Donald:

I don't think there is any way to change the contrast of the HP-41 display, short of altering the circuitry inside -- and even that may be impossible. I just don't know electronics or the innards of the machine.

Are you sure your calculator's LCD isn't defective? I have a 41CX that has plenty of contrast.

-Ernie

### **Re: 41CX display contrast**

Message #3 Posted by **Donald Leonard** on 18 Apr 2003, 4:50 a.m., in response to message #2 by Ernie Malaga

No, the display is not faulty. It looks exactly like any other Halfnut. But, put it next to a Fullnut and you see one of the big advantages (perhaps the ONLY advantage) of the Fullnut. Even when I was in my 30's with young eyes I prefered the wider segments.

There was a key sequence that adjusted the contrast - I think it was a register entry that altered it. Don

### **Re: 41CX display contrast**

Message #4 Posted by <u>Diego Diaz</u> on 18 Apr 2003, 11:01 a.m., in response to message #1 by Donald Leonard

Hi Donald,

I'm sorry but I bring no good news for you, Fullnut's display contrast is by no means adjustable.

I've read somewhere in the archives that Machine-Code Hepax module has a so called "CTRST" function wich allows contrast adjustment in the Halfnut display ranged from "0" to "15".

May be your best option is to get an Halfnut, (thats the easy part as there are always some of em at eBay, not cheap though)... and, this is the hard part, find an Hepax module and manage to get it! The last (and only) one I saw rises above \$600...

Anyhow, I wish you best of the lucks.

#### **Re: 41CX display contrast**

Message #5 Posted by <u>Jeff</u> on 18 Apr 2003, 9:31 p.m., in response to message #4 by Diego Diaz

Isn't there someone out there that can write this code and put it on an eprom for the rest of us to use? Maybe we could start a custom rom and start discussing all the items we want on this rom. Anyone interested? Jeff

### **Re: 41CX display contrast** *Message #6 Posted by* <u>*Diego Diaz*</u> *on 19 Apr 2003, 7:49 a.m., in response to message #5 by Jeff*

Hi again,

Such a module require a \*really\* weird chip, namely a 10 bit word, 4 kiloword, serialized clocking interface memory chip... No, you can't step into Radio Shack and ask the clerk... well, you can, of course, but he more likely stare at you as a if Terminator have entered a GunShop... ;-)

There are Ram/Rom box out there (MLDL's), they are half a printer in size (82143) and you can place a couple of EPROM's (2732 and 2716) to simulate any module you have the code of, anyhow you need an EPROM programmer or somebody who can do the job for you, of course portability goes way out.

Again sorry for the bad news... :-(

CU

### **Re: 41CX display contrast**

Message #7 Posted by <u>Ellis Easley</u> on 19 Apr 2003, 8:36 a.m., in response to message #6 by Diego Diaz

If you would like to relive the experience of a community developed custom ROM, and if you want to get to the bottom of whether the display contrast can be changed, get the PPC CD-ROMs that Jake Schwartz provides. They contain a tremendous amount of information and history about many HP calculators and especially the 41. Read all about it here:

http://www.waterw.com/~jakes/ppccdrom.htm

#### I'm interested, but...

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 19 Apr 2003, 2:32 p.m., in response to message #5 by Jeff

... I have no means to do it by myself. I thought about PIC processors, because they are easy to find and fairly documented. One of our contributors was testing AtMel controlers, but as I lost about all my e-mails, I cannot find any reference to his name. At least four guys were involved in this subject, being Meindert and Vassilis two of the ones I remember the names. I hope the others understand this is some sort of "senior moment", and I'd like to know who else is dealing with.

I am sure current controlers have enough resources so they can be used to read data (even have this data internally recorded, as many of them have plenty OTP ROM) and send it as a 10-bit "stream" word, keeping synchronous activity with clock and control signals available in the HP41's I/O ports.

I have no means to do it, and my knowledge about HP41's machine language is "zero". But I learn fast... even being a 41 Y.O. "guy".

Luiz C. Vieira - Brazil

### Re: I'm interested, but...

Message #9 Posted by <u>Meindert Kuipers</u> on 20 Apr 2003, 8:59 a.m., in response to message #8 by Vieira, Luiz C. (Brazil)

I am still working hard on my MLDL2000, and there is some progress. I could not spend as much time as I wanted lately but I am now back on the track again. There will be an interface to the outside world, based on a very simple JTAG-like synchronous protocol. This would support a parallel interface to a PC by bit banging the PC's parallel port. I am already investigating USB controllers which are almost single chip solutions between USB and a number of parallle bits, and that would give the MLDL2000 a nice USB interface. Please note that software has to be written as well, both on the PC and HP41 side. The interface is primarily intended to be able to load and save the ROM and RAM in the MLDL2000.

The MLDL2000 would allow anyone to keep all his/her favourite ROMS in one place, and add functionality in machine code, including the control of contrast.

The (almost, I will try to update later today) latest specifications and VHDL code are available at www.kuipers.to/hp41. Note that this is all work in progress.

As for the status of the MLDL2000: I am currently implementing the WROM instruction, but there is a nastly little bug in the state machine that I am trying to resolve. When that is done it is time to do the PC interface.

There are some questions that I would like to ask the forum:

- Is anyome familiar with the HP41 DATA line and how is works when a module supplies data?

- Is there more specific information available on the extra HEPAX instructions? I know what they do but wants some more specifics. It will be very difficult to implement though...

- Bank switching: Is there a complete overview of all the particulars?

### Re: I'm interested, but...

Message #10 Posted by <u>Chris Catotti (Florida)</u> on 20 Apr 2003, 3:36 p.m., in response to message #9 by Meindert Kuipers

I have an ADVANCED HEPAX (i.e. 16K RAM with the ROM built in). It does have the contrast function, and could be copied (programmed) as M-Code in another device. I believe that some HP-41 ROM Modules were implemented with UV EPROM's. In theory these module cases could be cracked open, UV erased, and then reprogrammed with your favorite functions (M-Code) and Programs (User Code). I believe there is one user in our community that has the required hardware, but has not had time to set it all up and verify its operation.

### Re: I'm interested, but...

Message #11 Posted by <u>Jeff</u> on 20 Apr 2003, 5:58 p.m., in response to message #10 by Chris Catotti (Florida)

The CHHU Chronicle V2N4 Page 9 has an article regarding the Halfnut and this article does have the m-code for the contrast function. Also there is information on other m-code instructions as well.

<b>Re: I'm interested, but</b> Message #12 Posted by <u>Diego Diaz</u> on 21 Apr 2003, 3:30 p.m., in response to message #10 by Chris Catotti (Florida)
Hi everybody,
It seems that the customized EPROM modules issue still have a lot of interest in this forum (easy to understand when looking at e-Bay prices :-)
Let me see if I've understood the previous message
- Are there EPROM chips (those UV erasable) that fit into a standar HP-41 module case??
- If the answer is YES, are there any clue about which modules could carry this (almost magic) chip?
- AFAIK, ROM modules are 10bit/word and RAM modules are 8bit/word Anyhow, some modules share machine-code and user code programs in the same device, Does someone knows how they overcome the word lenght difference?
- Is it possible to place a small Lithium battery inside a, said, Quad-Ram module to turn it into a pseudo ROM?
Well, I'm abusing I know, but those questions have been prowling into my head for long, since I'm a "harware guy" (those with the soldering iron and tweezers), sometimes messing my brain up, and you seem to be the only good answers source.
Thanks in advance and best whishes from the Canary Islands.
P.S. Please forgive my grammar "crimes".

### **Re: 41CX display contrast**

Message #13 Posted by **Donald Leonard** on 20 Apr 2003, 11:07 p.m., in response to message #1 by Donald Leonard

I want to thank everyone who has contributed to this thread. I will continue to monitor this to see if anything further developes. Don

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Why the results in the "Favorite Calculator" poll? - Followup Message #1 Posted by Mike on 18 Apr 2003, 12:22 a.m.

Ok, some are speculating on why this spread in the voting. It seems to have surprised some. I'm not sure I understand why anyone is confused as the 41 was the most successful calculator and the 42S is compatible with it. The 41 was around for quite some time.

I believe, though, that the age of the voters and the number of calculators they have owned, may be a contributing factor. **So, let's see.** 

If you voted in the "Favorite Calculator" poll, how many have you owned and what is your age range? Click the photos below, to reply. Use your BACK button to return.

How many HPs in the list, have you owned? (picture unavailable)

What is your age range? (picture unavailable)

**Re: Why the results in the ''Favorite Calculator'' poll? - Followup** *Message #2 Posted by* <u>*GS Leong*</u> *on 18 Apr 2003, 8:02 a.m., in response to message #1 by Mike* 

I have 6 different models of calc's and some duplicates for a total of 9 calc's. I am 42 years old and my first calc was an HP 21 back in the mid 70's

**Re: Why the results in the "Favorite Calculator" poll? - Followup** *Message #3 Posted by* <u>*Trent Moseley*</u> *on 18 Apr 2003, 11:33 p.m., in response to message #2 by GS Leong* 

I have seven HP's: 25C, 67 12C, 15C, 16C, 42S, and a 42Sii. All in working condition. Sold or given away to my kids: 31E, 11C, 48GX. So what's the beef?

tm

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### The low popularity of the HP-34C.

Message #1 Posted by <u>NH</u> on 17 Apr 2003, 10:08 p.m.

The HP-34C scored quite low on the popularity score.

This is not because it isn't the best calculator on Earth, since of course, it is. :o)

However, the unpopularity is for a different reason. It's because it was sold in-between the 25C and the 41C .

Even though it is the best looking unit, with a nicely coordinated set of colors, including multi-color keys, and its got the RED LED's and it is an extremely logical layout, it seems that the 34C was sold right after a time-period where many buyers had already gotten the 25C. Those buyers had already parted with all their money and had to use their 25C calculators, because they could not afford to purchase again and get a 34C.

Then, the 41C began to be sold even as the 34C was just getting into gear. Even though the 41C isn't the best calculator (because 34C is best) people bought the 41C because they wanted extra features and extra programming capabilities, and to have something so complicated they would never figure out how to use it.

Therefore the 25C and the 41C created a lot of division of the flow of money and the demand, for the 34C.

This "in-between 25C / 41C" is what made the 34C relatively un-popular.

It happens that I was going thru high school and getting read to buy a calculator, at exactly a timeperiod when it was too late to buy a 25C, but the 41C was not seen to be widely available (and may have been far more money).

Hence I was naturally introduced to the 34C due to the ideallic time at which I happened to be ready to buy something. I can still remember digging thru photographic 'discount' advertisements at the back of magazines, and looking for the lowest price from the camera sharks back in New York.

Therefore I dont have to undo any errant brainwashing that the 34C is NOT the best one, and and I prefer it and consider myself lucky to have needed a calculator at exactly that time, so that I just naturally received the best calculator ever made w/o even having to think twice about it.

The RED LED's are so much nicer than the LCD of the 41C (although some insist on focusing on outdoor sunlit computational situations, like field engineers or petroleum engineers, where obviously the 41C would be preferred. I would rather carry around a 34C and a black folding umbrella, than a 41C of course.

A boxed-34C just sold on eBay at a very high price (\$273). Since the 34C was unpopular by the poll, then it says that all those eager bidders didn't really like the unit. My interpretation, then, is that all those eager bidders were collector/packrats, unlikely to use the unit for its inspired and timeless beauty.

Fortunately, being free of any close-minded biases, excessively strong opinions, or erroneous consideration that any calculator other than 34C is best, then I can use it (and promote it) w/o any restraint .

Best looking little calculator on God's Green Earth.

**Re: The low popularity of the HP-34C.** 

Message #2 Posted by <u>Ernie Malaga</u> on 17 Apr 2003, 10:46 p.m., in response to message #1 by NH

> However, the unpopularity is for a different reason. It's because it was sold in-between the 25C and the 41C.

So did the HP-67 and 97. And even in spite of their (much) higher price, they sold quite well.

There's got to be a different explanation. Of course, one presents itself almost immediately: the sample used for the poll is too small to be statistically significant. But this conjecture I leave as an exercise for those forum members who know Statistics better than I do -- and that includes almost every one. 8<sup>^</sup>)

-Ernie

### Not so at all...

Message #3 Posted by <u>Mike</u> on 18 Apr 2003, 12:02 a.m., in response to message #2 by Ernie Malaga

The sample size is absolutely perfect. The poll was not...

"What is the most popular calculator for all people of all time.

It was "What is the most popular calculator, of those that can read this post."

Given that, the sample size is perfect.

The reason the 34C scored so low is because many people have many calculators. The 34C was a piece of junk, interms of how long it would last. Contacts would break rendering it a piece of junk. I must have had 30 of this series and over half had corroded or broken contacts.

The other issue is "age." How many voting were even around for the 67. They probably never owned one, as a user. Many of us have used every one of those calculators. But many others aren't old enough to have used them all :-) So, there is a bias in that respect.

I'll run another poll that asks the age of those voting and participating in this poll.

We shall see.

## Re: Not so at all...

Message #4 Posted by <u>Spice\_Man</u> on 18 Apr 2003, 1:42 a.m., in response to message #3 by Mike

>The sample size is absolutely perfect. The poll was not... >"What is the most popular calculator for all people of all >time. >It was "What is the most popular calculator, of those that >can read this post."

No, it was "What is the most popular calculator, of those that can read this post, given only this list of calculators from which to choose."

Spicey

### Wrong!

Message #5 Posted by <u>Mike</u> on 18 Apr 2003, 6:18 p.m., in response to message #4 by Spice\_Man

The response that I gave was with respect to the sample size, as an explanation as to why the 34C was not as popular, as the others.

Adding other calculators to the list (your agrument), doesn't make the 34C more popular. There is no way that a larger list, could be the explanation.

### Wrong!

Message #6 Posted by <u>Spice\_Man</u> on 19 Apr 2003, 1:31 p.m., in response to message #5 by Mike

But a smaller list could be!

### **Re:** The low popularity of the HP-34C.

Message #7 Posted by <u>Frank</u> on 18 Apr 2003, 9:51 a.m., in response to message #2 by Ernie Malaga

The 29c/19c probably come into play there as well, as do the TI58/59 and later 58c. Personally I had just bought a 29c in late 1977 for the 195 plus tax along with the TI58 and Commodore M-55, and noted with interest the spice series when released and expanded, but could not justify with what I had, with money reasonably tight then anyway at 2.50/hr. Same with the 41c when it was first released, however it was much more tempting so I put it in my procurement plans for the next year when I'd be working as an engineer full time, though did not get around to buying so the next bought back in the early 80's was the 15c. Having had the spice series later, I noted they represented a cheaper construction/cost reduction than the woodstocks, though had desirable expanded functionality.

#### I disagree...;-) Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 18 Apr 2003, 12:41 a.m., in response to message #1 by NH

Hello, Norm,; my regards to Captain Zener!

I used and programmed the HP34C when I was studying at the university (E.E.) and the HP34C had his popularity, it was and will be a powerful calculator.

I just think you forgot two other characters in this plot: TI58C and TI59. Their price and available resources, together with the "WYSIWYG" AOS, made them rule for long time. And the HP34C "shared" part of his success with these two, too; they also share part of the same existing "era".

I have been using an HP34C for a few days and I saw that it actually uses less power than the other spices. I also compared (at least this unit's) LED's brightness and found it a bit lower than others I could put side by side. Is it a fact? While an HP38C with the same batteries (NiCad 700 mAh, from Gama Power) "wanted some more" once, the HP34C is being used a bit more (I'm trying some routines on it) and did not stop for resting so far. Would it be a better power management? I don't think so, it seems their P.S. unit is the same.

Well, looking at the HP25C, the HP34C has plenty more. Even if we compare it with the HP29C. In time: the HP29C is a must! I think the HP29C as the one that lost place for another HP calculator, the HP67.

When I was about to buy my first HP41C (with one memory module) I was offered an HP34C for about half the price and three-years warranty (from the local shop). I declined. Not because I *wanted extra features and extra programming capabilities, and to have something so complicated they would never figure out how to use it*, but because I wanted low-power consumption and no need to plug it in an AC outlet to recharge batteries for ten to twelve hours so I could barely use it for 3 to 4 hours before plugging it again. I wanted to use a calculator I would not care for batteries till it showed me the BAT annunciator and give me 'bout a month or two to replace them. ALPHA is a nice feature, too, and sometimes helps a lot, mostly when it allows a program to be used without a written/printed procedure. And I must confess: I use calculators under plenty of light, I like reading, writing and studying while using them. LED displays are hard to read under, let's say, sunlight. Well, my own preference. When we're ate the office under "regular" light conditions, LED's or LCD's are just a matter of preference.

It took me a long time to actually get acquainted with all HP41 features described in the Owner's Handbook. I mastered all of them because I wanted to know about them all. Except for the ALPHA features and memory requirements in some very specific cases, everything else can be done in an HP34C, considering a few operation limits.

I like the HP34C and I can tell that because now I have one and I'm using it. But for me its greatest opponents are the HP15C and the HP11C because of their similarities: keystroke programming, program listings with keycodes, numerical solve and integration (15C only), flags, subroutine calls, key-touch execution (A to E labels), gamma function, and a few others. For me, the HP15C is a plenty enhanced HP34C and the HP11C is an HP34C without solve and integrate. In the particular case of the HP11C, both have the same amount of memory. and of course they are "virtual" opponents because they lived in different eras.

Based on this all I tell you that each one that selected the HP11C or the HP15C as preferred calculators have implicitly chosen the HP34C, because this would be their choice if we are talking about this, let's say, twenty years ago.

I wrote too much.

I'm expecting comments, agreements and disagreements as well.

Best regards, Norm, folks.

Luiz C. Vieira - Brazil

**Re: The low popularity of the HP-34C.** *Message #9 Posted by* <u>*Trent Moseley*</u> *on 18 Apr 2003, 11:59 p.m., in response to message #1 by NH* 

Frank,

I agree 100%. All the time I subscribed to Key Notes, HP was always pushing the 41+++. And maybe rightfully so. After putting out all the cash for the 67 I never did buy one. But I must say that the 41++ must be the most successful and most popular of all the HP calculators.

tm

### **Re: The low popularity of the HP-34C.**

Message #10 Posted by <u>Chan Tran</u> on 19 Apr 2003, 8:09 p.m., in response to message #9 by Trent Moseley

The poll did not show that the HP-34C has low popularity. It just showed that few people consider it as the best calculator. It could be quite popular in its time as it represented a good compromise between features and cost. I bought one in 1979 as the replacement for my broken 25. At \$150 it was less than the 25 I bought in 75. I thought it offered significantly more capablities at the cost of somewhat poorer quality than the Woodstock series. I did not experience any problem, however, as I only had it for one week before I returned it for full credit toward the HP-41C which was a \$300 calculator. I don't want to elaborate but at the time it was very clear to me that either the HP-67,HP-97 or the HP-41C was a better calculator than the HP-34C. I think the only reason one would buy the 34C was because of its price.

### Maybe right, Chan.

*Message #11 Posted by* <u>*Norm</u> <i>on 20 Apr 2003, 5:43 p.m., in response to message #10 by Chan Tran*</u>

You might be right, Chan. Maybe the main reason people bought the 34C was price.

The 34C was cheaper, and at the time, it was definitely all I could afford, so I fit right into your theory.

I remember people saying how much the 41C cost them and I would just roll my eyeballs because i could not afford that.

But I also recall liking the simplicity and straightforward layout of the 34C, focusing on numbers, and actually not containing any alphanumeric qualities.

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### **HP Printer Components**

Message #1 Posted by Speck on 17 Apr 2003, 9:07 p.m.

Hi, everyone. I've got an off-topic question: Does anyone know of a source (or alternative substitute) for those little sponges in HP DeskJet printers? I salvaged a DeskJet 682C printer from a one-way trip to the landfill sometime back. I picked it up, fully intending to see "what makes it tick." The person who owned it thought the print head was going bad, because it printed blank lines through the characters. A new ink cartridge pretty much solved that one, but the cartridge seemed to be picking up debris from somewhere. A closer look showed that the cup that the nozzles rest in (in the "home" or "parked" position, whichever you prefer) has a tiny foam sponge in it, and the sponge is loaded with ink and/or is disintegrating. Looking at your past "gummy wheel" threads, I'd have to guess that it's both problems. I was wondering if anyone here has faced this problem before, and what the \*best\* solutions are? It seems to be a great little printer, and couldn't have come at a better price! Sure, I can use it as a "draft" or backup printer, but it seems like it could be a much better printer than that with a little TLC. Any suggestions? Thanks.

Speck.

### **Re: HP Printer Components**

Message #2 Posted by Michael Meyer on 17 Apr 2003, 10:08 p.m., in response to message #1 by Speck

Hi.

Each new print cartridge comes with a little rectangular piece of absorbent material. It's usually packed under the little clear plastic circle under the print head/cartridge. You remove the old one with a tweezer or needle nose pliers, and slide the new one in its place.

I would think, in a pinch, that a little piece cut off an index card would suffice.

Enjoy your Thinkjet. Pretty awesome advance in technology at the time!

When I worked at the VA hospital in Kansas City, about twenty years ago, they'd bought new

ventilators that used Thinkjets for outputting vent parameters. They were always throwing away "used up" cartridges that simply needed a little moistening with water on a Kleenex. Made for an endless source of ink!

Michael

## **Re: HP Printer Components**

Message #3 Posted by *Ellis Easley* on 18 Apr 2003, 12:58 a.m., in response to message #2 by Michael Meyer

The ThinkJet cartridges come with the item Michael described, which doesn't actually contact the cartridge. I think the printer purges the jets before printing, while the carriage is "home" and the little paper item is there to absorb the ink. I have a DeskJet 340 and I have had trouble with cartridges drying up in it, I think it's because I don't print often enough. I have better luck with my infrequent printing with a small laser printer.

My 340 has a little red gasket under the home position of the cartridge, I assume that is to enclose and seal the print jets to slow down their drying out. I don't know if there is a sponge in there. The rubber piece reminds me of the cups on HP plotter pen carousels that seal the tips of the pens from drying out when not in use. Those accumulate ink and they are easy to take out and clean or replace.

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### HP 9825A- troubles

Message #1 Posted by olivier croissant on 17 Apr 2003, 7:54 p.m.

I just aquired a 9825A that has a bad key problem. I tried to access the keys, but could remove the last board from the front bezel that seems to to be glued (I unscrewed all the small screws). Does someone had a similar problem ?

I also cannot have the printer work, despite an external good appeareance. no obvious problem.

I would like to find a tape that fit the 9825A. Can I use a modern tape? if yes where can I find it ?

Thanks

Olivier

### Re: HP 9825A- troubles

Message #2 Posted by <u>Tony Duell (UK)</u> on 17 Apr 2003, 9:43 p.m., in response to message #1 by olivier croissant

For the keyboard : Once you've removed all the little screws (and there are a lot of them), the PCB will come free. It may seem to be stuch down by the plastic layer over the dome contacts, but it's not really fixed. Carefully prise (pry) it up from one edge, I think. Or at least that's how the 9831 keyboard comes apart. Be warned that if you do this, the keys are all loose and will fall out. Make a diagram of where they go before removing the PCB. For the printer : Does it do anything? Does it feed the paper? Does it make any mechanical noises? Does anything appear on the paper (you are using HP thermal paper, right?)

### Re: HP 9825A- troubles

Message #3 Posted by <u>olivier croissant</u> on 17 Apr 2003, 11:39 p.m., in response to message #2 by Tony Duell (UK)

Hi Tony,

For the keyboard, this is what I supposed, but even exercising a reasonable prying effort, it seems to be stuck. May be it is because of the age, the plastic layer (a very thin transparent layer that I see from the edges) has melt into a kind of glue or something. I will try to submit a more powerful pulling effort.

For the printer, despite paper, when I turned on the key "prt all" after the first input (I assume it should print what I wrote), it display "error 15" which translate to "paper problem or printer failure". Can a component has gone bad? I tried to unmount everything and clean everything, up to the board that is in contact with the printer and the roll that support the board.

I assume I should be able to do two kind of tests : 1) see the paper moving forward (paper advance). But I do not know the command to do that (I do not have the manual yet, I ordered it from computer museum, but I do not have it yet). DOes someone know the command ? 2) print command . How do I print a result or a string with it ?

Thanks

Olivier

## Re: HP 9825A- troubles

Message #4 Posted by <u>Tony Duell</u> on 19 Apr 2003, 5:41 p.m., in response to message #3 by olivier croissant

As far as I can tell, the only 'feedback' from the printer to the rest of the machine is the out-of-paper sensor. Problems with the printhead or solenoid driver can't be detected automatically. In which case, I'd suggest investigating the paper sensor. There's an LED and phototransistor on the little PCB on top of the printer. These connect to a circuit built round one section of an LM339 comparator (U11 in my notes, but this is not the offical HP designation) on the keyboard/display/printer interface. The output of that comparator goes to a shift register that's connected to the keyboard/display/printer controller chip (the big 40 pin on on that PCB). Since you imply the keyboard and display are fine, I'd not suspect the controller chip or the shift register at this stage. But I would check the paper out circuit. Trace the connection from the yellow wire to the paper out sensor to the -ve input of the comparator (IC11c in my notes) so you find the

right chip. Then look at the output of this comparator with a logic probe (or similar) when you insert or remove paper from the printer. If it doesn't change state (or if it's not a valid TTL voltage level), debug this circuit. It's not complicated.

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### **Poll Results - Favorite Calculator**

Message #1 Posted by <u>Mike</u> on 17 Apr 2003, 5:12 p.m.

Here are the results so far on the "Favorite Calculator" poll. **Click the photo**, for the latest result or to vote, if you have not done so.

(picture unavailable)

**Re: Poll Results - Favorite Calculator** 

Message #2 Posted by <u>Richard Garner</u> on 17 Apr 2003, 7:01 p.m., in response to message #1 by Mike

I wonder what happened to all those people that said they would not have anything but a 32sII. It looks like most everyone wants the 41c or 42s.

**Re: Poll Results - Favorite Calculator** 

Message #3 Posted by <u>Ernie Malaga</u> on 17 Apr 2003, 10:51 p.m., in response to message #2 by Richard Garner

>I wonder what happened to all those people that said they would not have anything but a 32sII. It looks like most everyone wants the 41c or 42s.

In my case it was a 41CX. I've never seen a 32SII except in pictures in the MoHPC or elsewhere.

I have a 32S, however. My appreciation fot it would be much higher if it weren't for the menus. Menus just drive me insane very quickly. For many years I've operated and programmed IBM midrange computers (chiefly System/36 and AS/400) and I have always loved the command line to do my quick work. Command lines beat menus in efficiency any day -- provided, of course, that you know what you're doing.

And that may explain why I like the 41CX so much: it uses an equivalent of a command line, when commands are XEQ'd using ALPHA names.

### **Re: Poll Results - Favorite Calculator**

Message #4 Posted by <u>Chan Tran</u> on 18 Apr 2003, 11:29 a.m., in response to message #3 by Ernie Malaga

Are you sure that command lines are handy when it's on a handheld device and not a device with a full size QWERTY keyboard?

#### **Re: Poll Results - Favorite Calculator**

Message #5 Posted by <u>Ernie Malaga</u> on 18 Apr 2003, 2:04 p.m., in response to message #4 by Chan Tran

Chan:

>Are you sure that command lines are handy when it's on a handheld device and not a device with a full size QWERTY keyboard?

Most definitely yes. Even in the HP-41's limited alpha keyboard, it takes me just an instant to type X>0 after pressing XEQ and ALPHA, than it does to hunt down the function in the HP-32S menus:

[shift][TESTS] [x?0] [>0]

Of course a full-size, QWERTY keyboard would be even better.

-Ernie

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### HP 67 Card Reader Mag Head

Message #1 Posted by Gene DiResta on 17 Apr 2003, 1:16 p.m.

I have gotten my HP 67 card reader to work thanks to the HP forum response to earlier messages. I have one remaining problem. I can read and write cards from programs programmed in the HP 67, however the reader has a difficult time reading pre-recorded hp strips. I presume there is an alignment issue. How is the card reader head aligned to read the pre-recorded cards ? Any suggestions ?

Re: HP 67 Card Reader Mag Head

Message #2 Posted by <u>David Smith</u> on 17 Apr 2003, 7:05 p.m., in response to message #1 by Gene DiResta

The head was aligned at the factory then glued into place... attempts to fix it will most likely cause more harm than good.

## Re: HP 67 Card Reader Mag Head

Message #3 Posted by <u>Tnoy Duell (UK)</u> on 17 Apr 2003, 7:57 p.m., in response to message #1 by Gene DiResta

I would e very suprised if head alignment was the problem. It was never intended to be adjustable (the head is glued in place), and I've never heard of it causing a problem. You might have 'copatability problems' if your motor speed is way off, or if your switch contacts are out of adjustment (you'll either miss the first transistion on the card if the card-at-head swtich makes too late, or pick up noise if it makes too early). Look at the HP97 service manual on the CD-ROMs. The procedure for setting up an HP67 reader is similar.
## Re: HP 67 Card Reader Mag Head

Message #4 Posted by <u>Gene DiResta</u> on 22 Apr 2003, 12:41 p.m., in response to message #3 by Tnoy Duell (UK)

Good afternoon Mr. Smith and Duell,

The card reader's mag head came loose from the plastic holder; the glue must have fatigued. I apologize for not explaining the problem in greater detail in my first request for assistance since I presumed this was a common occurrence, like the "gummy wheel" problem. So I repeat the question, are there any alignment/positioning procedures for the mag head that has come loose?

## Re: HP 67 Card Reader Mag Head

Message #5 Posted by <u>David Smith</u> on 22 Apr 2003, 5:17 p.m., in response to message #4 by Gene DiResta

I think that head alignment was set just by the mechanical tolerances of the plastic housing. One problem in getting the head reset is the head height/card pressure clearance. I have seen some machines fixed by inserting a card in the reader with a couple of ounces of weight on the head while the glue sets.

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## Coconut,Halfnut,Fullnut

Message #1 Posted by Bill Platt on 17 Apr 2003, 10:42 a.m.

To anyone familiar with the HP41:

I am confused by the "Fullnut" & "Halfnut" business. I understand the basic C, CV, CX differences, viz. lines of program increase 5x from c to cv, and additional functions to CX, incl time functions.

And I think I understand "Blanknut"--this is a CX with "clean" keyboard for customization?

I hope the answer is straightforward, but I am prepared for the confusion!

Thanks,

Bill

## Re: Coconut,Halfnut,Fullnut

Message #2 Posted by <u>JimC</u> on 17 Apr 2003, 11:08 a.m., in response to message #1 by Bill Platt

My first post appears to have been lost, so I'll try again.

I think that the Blanknut has a blank top row of keys. This allowed for a degree of customization.

The Fullnut is distinguishable by the square corners on the display screen and is the earlier generation of the 41. I think is is a little heavier than the Halfnut, and the reason is the full size main circuit board in the unit. The Halfnut has greater integration and as a result the main board is smaller.

Probably one of the other 41 "Nuts" could explain this better than I can!

## Re: Coconut,Halfnut,Fullnut

Message #3 Posted by <u>Bill Platt</u> on 17 Apr 2003, 12:30 p.m., in response to message #2 by JimC

OK, so then there are actual physical differences between half and fullnut.

So the next questions are:

1. Are the half- and full-nut labelled or named at all differently, or are they identical in HP designation?

2. this difference (half and fullnut) only happened to the CX?

3. Are there any \_functional\_ differences? (Is greater integration merely a physical integration, or is there something more?)?

(By the way, I have the Virtual HP-41, on the PC, and it makes me smile--and my coworkers get a kick out of it, too! But the REAL THING would be even better...)

## Re: Coconut,Halfnut,Fullnut

Message #4 Posted by <u>JimC</u> on 17 Apr 2003, 12:58 p.m., in response to message #3 by Bill Platt

I have had both calculators 41CX full and Halfnut - the fullnut was swiped by an unscrupulous low life. Anyways in functionality if I recall, they are identical. The physical differences are internal, with the only external identifier being the screen as mentioned in earlier post.

They were not labelled differently, although there may be differences in where they were mfg'd, resulting in a different serial number.

I can't say for sure about if the 41C/CV had halfnut variations. Again, I will need to defer to other Nut nuts for this question.

Glad you are enjoying the emulator. I have one for my pocketpc and although I love to use it, it is a poor second compared to using the real thing!

## Re: Coconut, Halfnut, Fullnut

Message #5 Posted by <u>james</u> on 17 Apr 2003, 1:23 p.m., in response to message #4 by JimC

Coconut was the HP internal codename for the original 41C, the 41CX was Honeynut and the 41CV Silverbird. There was a version known as Option 001 which was meant to be customised by the user and therefore had no labels on the upper rows of keys or on the surrounding keypad. This was the blanknut.

During the 41's life it was modified with a reduced number of electronic components and these versions became known as the halfnuts with the earlier versions becoming known as fullnuts. As already mentioned in an earlier post the display is the obvious external difference bewteen half- and fullnuts. I think all three types, 41C, CV and CX can come in either half- or fullnut versions. I am not certain if HP used the halfnut or fullnut designations internally or whether these originated from enthusiasts - anyone know?

**Re: Coconut,Halfnut,Fullnut** *Message #6 Posted by james on 17 Apr 2003, 1:27 p.m.,* 

in response to message #4 by JimC

PS - I think that one functional difference is that with halfnuts it is possible to program the display to get a full set of lower case characters and also to adjust the contrast of the display.

## Re: Coconut, Halfnut, Fullnut

Message #7 Posted by <u>JimC</u> on 17 Apr 2003, 4:19 p.m., in response to message #6 by james

I would be interested in learning how to do this on my 'arfnut. I recall that to get lower case you go into Alpha mode, then shift, a - e (the upper row) is then lowercased. I am unaware of how to do this unless it is through a routine or program. I don't think they are available through standard keyboard access.

Anyone know how to do this?

### Re: Coconut,Halfnut,Fullnut

Message #8 Posted by <u>james</u> on 17 Apr 2003, 7:01 p.m., in response to message #7 by JimC

Not really, but it appears to involve the use of the 41's machine code programming (way beyond my expertise) - see for example earlier archive threads:

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/archv010.cgi? read=30715

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/archv009.cgi? read=21543

and for a good explanation of the internal differences between halfs and fulls:

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/archv010.cgi? read=30672

#### Re: Coconut,Halfnut,Fullnut

Message #9 Posted by Johnny Billquist on 22 Apr 2003, 7:41 a.m., in response to message #7 by JimC

To access the contrast control, or the lower case characters (except for a-e), you have to program in machine code. The font for all characters are defined in the display driver, but the HP-41 software was not changed to access any of this, so it is totally impossible to get to this using either normal user code, nor synthetic code.

#### **Re: Thanks for Coconuts**

Message #10 Posted by <u>Bill Platt</u> on 28 Apr 2003, 10:33 a.m., in response to message #1 by Bill Platt

Thanks to everyone for your responses!

Regards,

Bill

# **HP Forum Archive 12**

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## The 42S input project

Message #1 Posted by Randy Sloyer on 17 Apr 2003, 10:24 a.m.

It was a joint effort by Paul Brogger and Tony Duall. The last thread was here: <u>http://www.</u> <u>hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/archv006.cgi?read=11137</u>.

I was able to duplicate Tonys circuit and add a PIC to help out. I had one talking serial comms at 75 baud with a PIC mpu interfaced to the analog muxs connected to the keyboard lines. It worked for loading programs into the 42S, but I was not able to complete the project and contain it within the calculator. The problems I encountered are:

1. Trying to fit the PIC, cmos mux, and MAX232 chips inside the 42S. With a .032" pc board, the surface mount chips are still too thick to fit without hitting the metal shield on the back plate.

2. Finding a suitable connector for the serial comms to fit inside the case.

3. Capturing the I/R output stream and decoding to redirect to a PC via standard ASCII. The actual decode is easy from a software standpoint, but it is the increase in processing power required leads to significantly decreased battery life. I figured I would want upload ability if I changed or wrote a program in the field and wanted to archive it.

It all came down to anything I did to add external circuitry would tax the weak little 90mah button cells big time. That lead to supplying power from the pc. Sounds easy, but I couldn't find a decent 4 pin connector that would fit inside the case. The super mini-usb connector used on the new digital cameras seemed like a good idea, but I couldn't figure out a way to secure and connect it. The 4 pin 2mm connector on the 48 would work with some case hacking, but I didn't want to bother.

I put the whole thing aside months ago and haven't given it further thought. It seems to me the proper way to do it is to disassemble the ROM and add the input via I/R through an unused input pin on the Saturn processor. The extension code could go in a 28 pin otp eprom and be soldered onto the logic board in the vacant position used by the language rom on the international version 17Bii. Very clean, but requiring a large effort to find the menu handling and key assignments in the rom. The I/R stream handling is probably already done somewhere in Saturn assembly as it exsists in the 48. Christof had

started some disassembly, I don't know what progress he made.

As much as I wanted to make this work, I just don't have the time to devote to it. Maybe if I win the lottery...

### **Re: The 42S input project**

Message #2 Posted by <u>Kim</u> on 17 Apr 2003, 11:31 a.m., in response to message #1 by Randy Sloyer

I have been reading through this thread and started to think about a project I was involved with MANY moons ago.

In my efforts of trying to increase the memory of a 28C with the CMT ram module I bumped into a fellow 'nerd' that was trying to make a serial port on the 28C. You can easily make the connection why we started talking. Even on a 28 with 32K ram "Memory lost" was bad news.

The gentleman and I connected to Wlodeck in UK and found the right pad on the PCB to use for serial IN (using the IR out pad (before the open collector transitor) for OUT)

We effectively made a two wire serial port on the 28C.

Assuming (and this might be where it falls on it's face) that the hardware and some software is similar. This should be possible on the 42S. The trick was to make an object into text and transmit the text through the I/O and this worked well. A small piece of SW helped this look like an I/O with commads like SEND filename and RECIEVE filename.

Has anybody looked into something like this?

I don't own a 42S (i used to and GAVE it away to a family member who in turn GAVE it away to someone in his school) so I'm not much help here. (Other than - maybe this)

## **Re: The 42S input project**

Message #3 Posted by <u>Christof</u> on 17 Apr 2003, 1:31 p.m., in response to message #1 by Randy Sloyer

I'm still trying to get the disassemblers themselves to work.

I do agree that probably the best way to do it is to build the functionality needed into rom. I also recall reports of one of the HP engineers who worked on the 42 actually completing this. (wiht a big old eeprom hanging out of the back.)

Things to remember: the 42 'looks' for a second rom first, this means that instructions to do nearly anything possible can just be put into a second rom on the second set of pads.

there do exist utilities to translate the printer stream into text. So it doesn't \*really\* have to output ascii, though it would be a massive help

also, someone somewhere has disassembled the rom. I just wish I knew which process he used to do it so I could duplicate the work for this project.

## **Re: 42S input project: HOW tight?**

Message #4 Posted by <u>glynn</u> on 17 Apr 2003, 2:10 p.m., in response to message #1 by Randy Sloyer

Randy;

It's always a trade-off, of course-- with little or no space, little or no power, and little or no support for control; designers ALWAYS have to make decisions based on working around what IS, not necessarily what would make most SENSE. Given what you had in circumstances and the laudable mission you set out to get as CLOSE to as possible, I'd say you got very far indeed, and I applaud your work (and Paul's and Tony's) to create what HP did NOT implement: an integrated I/O solution.

Not having a 42s myself, I have no means to look at the layout of one of these little jewels. But I am interested in following your project. I may not be able to help much, but I love to watch. ;-)

Randy, you say that "With a .032" pc board, the surface mount chips are still too thick to fit without hitting the metal shield on the back plate."

Okay, so what space inside the calc do you really have to work with?

What spaces are there, and what is the L-H-W of these?

(p.s.-- I wouldn't, barring electrical interconnection with it, worry too much about merely butting something against a plate-- maybe with a teflon film between-- UNLESS it would lead to undue stresses or flexure failures of the calc.)

Would a mylar flexible "pc board" solve the problem of space, or is it all even tighter than that?

## **Re: The 42S input project**

Message #5 Posted by <u>Paul Brogger</u> on 17 Apr 2003, 2:40 p.m., in response to message #1 by Randy Sloyer

The tight spaces involved are another reason to absolutely minimize what gets installed in the calculator.

How about NOTHING? Just program a robotic "finger" to press the keys as directed from a computer. (An array of electromechanical "pushers" would work too, but not nearly as elegantly . . . )

Imagine surfing the Web while, nearby, your 42s is being gently massaged by a delicate mechanical digit with several joints and a loving touch . . .

## **Re: The 42S input project**

Message #6 Posted by <u>glynn</u> on 17 Apr 2003, 4:14 p.m., in response to message #5 by Paul Brogger

LOL Paul!!

You know the "mission creep" that occurs around here, whenever we get involved in a project. Everybody will keep adding wished-for extra features and accessories.

Only a matter of time, and we'll have something designed to bring us beer, knead our tense shoulders, and...

...well, such a project just might get out of hand!

=;-0

**Re: "... out of hand"????** *Message #7 Posted by* <u>*Paul Brogger*</u> on 17 Apr 2003, 4:27 p.m., in response to message #6 by glynn

Well, I was only being half humorous. In fact, a robotic finger would have the advantages of: no invasive electronic work involved, no tight spaces and fewer power supply issues, and the disadvantage of cycling the keys however many more times they'd be physically pushed . . .

(But our robot would need a second "finger" if we wanted to automate the self-test.)

And to minimize power drain by the IR output, one could train a digital camera on the screen and teach some monitoring software to do character recognition . . .

I can see it now: "My HP-42S Web Cam" . . . In fact, a REALLY cool virtual 42s would be a web link to control the finger, and a web cam to show the results -- virtual access to a real device! (With several people trying simultaneously to manipulate the stack . . . )

# **HP Forum Archive 12**

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### Re: HP 42S "Input Project"

Message #1 Posted by Paul Brogger on 17 Apr 2003, 9:52 a.m.

I think you'll find somewhere in the Archives a series of posts on "The INPUT Project" . . .

I wired a ribbon cable to an HP-17B circuit board -- one line for each trace in the keyboard matrix. It wasn't long before I discovered that by connecting a row and column wire through a resistor (not shorting them directly), I could simulate keypresses. The circuit board with the gray ribbon cable and lots of bare wire ends is still in my calculator fix-it box. (I'll donate it to the Museum if it's ever of historical interest. ;^) ) By identifying the proper traces, it is possible to gain access to all of the keyboard traces from the exposed side of the PCB -- no disassembly is required beyond opening the back case.

I thought in terms of an array of magnetic relays, spaced about a flex circuit which would be laid inside the back case of the calculator, and then either wired to the circuit board (*no* PCB/LCD disassembly required) or inserted into the PCB/keyboard connector (PCB/LCD disassembly necessary). With a few more draws on the hookah, I could imagine a little tray with an IR sensor in the top end, and a matching array of electromagnets in the base, all tied to the PC (or an HP-48) through a serial or parallel connector . . .

With such an arrangement, one could simply set the HP-42s in its "docking station", launch some fancy interface software on the PC, and go have dinner. The PC should be able to wake up the 42s, verify the keyswitches are working, download any data calculated or input, delete anything requiring deleting, and then enter programs as specified. By the time the dishes were done (or maybe the next morning), the 42s should be ready to roll . . .

I think such a thing is doable -- but my electronics design and interfacing abilities are not even rudimentary. (My choice of magnetic relays probably betrays my seriously out-of-date design toolkit!) Of course, the magnetic relay approach needn't necessarily be taken. One could simply insert some sort of micro-fine edge connector such as is found in PDAs, or hang a gray ribbon cable with a DB-25 or smaller thingie on it. This would involve exposing the 42s' CPU leads directly and permanently to the outside world, and I'm not sure how good an idea that is. Another approach might involve optoisoloators and a simple power connection, that might even be separate from the 42s' power lines.

Someone else was going to look into using semiconductor switches to simulate the keypresses, but I haven't heard an update, and don't think anything is being actively pursued.

The effort of embarking upon such an undertaking needs to be balanced against the perceived gain over what is already available. The HP-48G is unfortunately bigger and clunkier, and the RPL vs. RPN drawback is significant for some, and the later vintage of its manufacture has resulted in a less satisfying look and feel, and . . .

But the '48 has a lot going for it, and there are PDA's available too. I know they aren't an HP-42S, and an emulator running on a PDA is but a sterile, barely tantalizing reminder of the original device. But *just how much* is, say, the difference between an HP-48 and an HP-42s *worth*?

Maybe enough to organize a 42s Input Project, maybe not.

## Re: HP 42S "Input Project"

Message #2 Posted by <u>Ron Ross</u> on 17 Apr 2003, 10:25 a.m., in response to message #1 by Paul Brogger

I seem to recall that there is an open IC next to the RAM that may have been for a future I/O capability of sorts. The 42s has output capability via IR. If the I/O capability could be hardwired via IR circuit and an extra trace back to the missing I/O chip, we would be left with developing a bootstrap program to key in to activate our new found serial port. That is an option I think should be persued.

## Re: HP 42S "Input Project"

Message #3 Posted by <u>Paul Brogger</u> on 17 Apr 2003, 2:30 p.m., in response to message #2 by Ron Ross

If you look <u>here</u> you'll see two rows of solder pads for another chip. I think Tony Duell learned that this location is not for I/O as such, but for an external ROM. Apparently, another CPU line may be tied high or low (perhaps via one of the unconnnected jumpers on the PCB), and that will cause the Saturn to read the *external* ROM rather than the internal.

So, if one were to hack the code and create a compatible ROM, one could presumably redefine the behavior of the calculator -- perhaps enter a special "I/O" mode with the CPU sensing one or more of the keyboard lines as (fast) serial or parallel input rather than simply keypresses. (Note that one could also probably make -17B/BII PCBs behave as -42s'...)

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## HP 42S Memory Upgrade

Message #1 Posted by Tom Cox on 16 Apr 2003, 9:28 p.m.

Just got back my calculator after having memory upgraded. Works fine. One thought for anyone else thinking about this upgrade -- if it takes as long for you to enter programs as it does me, it took about 6 hours to enter the 6k programs I had in machine -- imagine how long it will take to enter 30k worth of programs.

Speaking of programs for 42S, does anyone know of a good source for HP 42S specific programs? I know there are plenty of HP 41 programs, but adapting them for 42S so as to take advantage of 42S features is not trivial.

Personally, I would love to have a 42S with lots of memory that could transfer programs to/from PC. I know that 48 and 49 series allow this, but I like small size of 42S.

## **Re: HP 42S Memory Upgrade**

Message #2 Posted by <u>Gene</u> on 16 Apr 2003, 10:01 p.m., in response to message #1 by Tom Cox

My 42s is also upgraded and works like a champ.

I don't know of a place for HP-42S specific programs. Sorry. There are lots of HP-41 programs here on the museum, and lots at my calculator site:

www.rskey.org/gene/hpgene

The HPX Journal available on CD rom from Jake Schwartz has a few HP-42S programs in the last couple of issues.

There's also a graphical mine hunt game for it too.

Anything else?

## Re: HP 42S Memory Upgrade

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 16 Apr 2003, 10:10 p.m., in response to message #1 by Tom Cox

Hello, Tom;

about the time to load programs in the HP42S+ (32KRAM) you're right: keystroke sequences may only be abbreviated if you

1) assign and use functions with the CUSTOM menu or

20 create subroutines/subprograms to perform common tasks, what also saves keystroke sequences.

I once wrote a big, big program for the HP42S in 1990, right after it was available in Brazil. The program - a Load Flow basic, standard and accelerated Newton-Raphson convergency method - was for academical purposes and it serve me well: my only top 10 (or A) ever while at the university (Electrical Engineering). Also, that was the first time a student solved the problem automatically with a pocket calculator. I had the program almost finished in my HP41CX, basic memory with program steps and contorl variables, X-Memory with the bus and voltage matrices.

I rewrote almost everything so the new program could deal with indexed matrices instead of X-registers and use internaly available complex numbers resources. The program was even more understandable. I remember I could only work with 10 buses in the HP41, but I gained a lot of extra memory with the HP42S. I did not test to know how "far" it could go in teh HP42S. And at that time, it was an 8KRAM model.

I remember I tested how deep could it be a matrix in the HP42S+ and I thought about writing a program to create a random maximum complex matrix and invert it.

As mentioned by one of our contributors in the first months of 2002, the biggest deal is not loading the HP42S+ with a lot of programs, instead using the extra memory to manipulate larger databases. If you have a standard 8KRAM HP42S and use half of it with programs, then you have about 4KRAM to store data. With a 32KRAM unit you increase extra space seven times, form 4KRAM to 28KRAM. Wow!

Unfotunately my 32KRAM unit stopped working this very evening. I'll open it tomorrow to see what's going on... This unit is the one I used to create the Load Flow program and I bought it in October 1989. What a pitty! But I will try to repair it.

Just a bit of story...

#### Sad 42s

Message #4 Posted by <u>Renato</u> on 16 Apr 2003, 11:28 p.m., in response to message #3 by Vieira, Luiz C. (Brazil)

Luiz,

Looks like your 42s may be sad, at her sisters depart. Other than that, you know you can count on me if she needs parts.

Renato

Re: Sad 42s Message #5 Posted by <u>Vieira, Luiz C.</u> on 17 Apr 2003, 3:23 a.m., in response to message #4 by Renato

Hello, Renato;

thank you for your support. May I call you today later? (I mean "today" as "Thursday") Please, send me an e-mail with your contact phone numbers. As I mentioned in some posts before this one, I lost almost all of my e-mails and the one that I had your phone numbers is lost.

Thank you again.

Best regards.

Luiz C. Vieira - Brazil

## **Re: HP 42S Memory Upgrade**

Message #6 Posted by <u>Christof</u> on 17 Apr 2003, 1:13 a.m., in response to message #1 by Tom Cox

There's plenty on Gene's site- and the ufl in the minehunt game is very useful outside of it. I hope to extend it to a full alphabet at some point.

I'm (STILL) working on a text editor, in my spare time. which isn't so spare, and the program needs some few very serious tweaks beforte it can be called usable.

I really should have something distributable at some point.

After that I have two things I'd like to see. both of which I may have to do myself.

one is a basic clock with alarms or elapsed time computations.

the second (and more fun) is a FPS graphical reworking of the old dungeon game gene has listing for.

## HP42S clock abilities

Message #7 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 17 Apr 2003, 1:33 a.m., in response to message #6 by Christof

Hi, Christof;

I've been looking at the HP42S earlier inner guts and the new HP17BII; also, a few months ago, one of our contributors posted a photo of the earlier HP17BII.

You know what? Internals are the same for the HP42S and the HP17BII. Not even an extra Xtal or IC for clock control/generation. This makes me think that the HP17BII's clock is completely SW emulated. The contributor (was it Paul Brogger?) that posted the photo was sad, as I was, because the HP42S could be still in production as the HP17BII was. Same applies to all Voyagers, as posted in one thread a few months ago, too...

The hard parts are:

1 - finding (if existing) a valid memory position/address where clock counting is updated 2 - reading it so it can be used in a program

The HP28S has a SYSEVAL address that gives the internal 32-bits (or less?) clock counter so you can generate a clock, a stopwatch and even an actual calendar. All of them

"working" when the calculator is OFF, of course. I do not know if the HP28S system is able to wake itself up as a result of a past-due alarm while the calculator is OFF, as it happens with the HP48/49/17/19.

That would help a lot. I have no idea if this sort of SW resources are available, but displaying a real-time clock in an HP42S may not be too hard if clock counter can be "seen".

My thoughts and support.

Luiz C. Vieira - Brazil

## **Re: HP42S clock abilities**

Message #8 Posted by <u>Randy</u> on 17 Apr 2003, 7:14 a.m., in response to message #7 by Vieira, Luiz C. (Brazil)

Hi Luiz,

Don't forget this article: <u>http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/articles.</u> <u>cgi?read=266</u> for a few tidbits about the clock.

For your sick 42S - check for cracked solder connections on the ram chip, especially pins 14 and 15, the most common failures.

#### **Re: HP42S clock abilities**

Message #9 Posted by <u>Christoph Giesselink</u> on 17 Apr 2003, 11:19 a.m., in response to message #7 by Vieira, Luiz C. (Brazil)

I wrote a posting about stop watch abilities on the HP42S at <u>http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/archv009.cgi?read=23708</u> some time ago. In opposite to my old posting I must say, that there isn't or I didn't found any ability to call SysRPL/Assembler routines from the FOCAL code. The operating system area with it's RPL/Assembler code is completely different from the FOCAL area. The FOCAL area is just handled as RAM-WORD object by the OS.

From my actual point of view there may be two possible solutions:

1) Add a "language" ROM and use the XFCN command to expand the FOCAL command set.

2) Replace the HP42S OS by putting CPU controller into EPROM Mode and use the "language" ROM place for a modified OS.

Regards

Christoph

## **Re: HP 42S Text Editor**

Message #10 Posted by <u>Christof</u> on 17 Apr 2003, 2:39 p.m., in response to message #6 by Christof

No matter what, this is going to be a bit hackish sinc eI can't extend the 42S any. (right now, anyway)

I've been using registers 40 through 49 for the program itself, I'm wondering if I shouldn't make part of the code require a SIZE 120 or something and use more indirection?

Will people be using a lot of code that will conflict with my registers?

(for memory pointers, just the memo functions will take up somewhere around 600bytes. the full text editing system including file concatenation, a faked directory structure, and such may take as much as 2k- though probably less.)

Two other thoughts I've had involve structuring the memory.

I can use individual matrices per 'text file' and a master matrix to keep a 'directory'

or I can reinvent LIF on the 42S and make one large matrix with an internal directory structure to find the text files, all of which will be included in it. This takes longer but will look cleaner when doing things outside of the text editor.

- one of the reasons this is taking so long is I keep playing with differnet methods like this.

I've also given up on the GETKEY based input system. many people hate the 32Sii alpha keyboard anyway, and I don't have any reasonable system for holding keyboard templates down on a 42S.

I may try that method again later, but it will eat memory and cpu cycles like candy... (no problem for me at 32K ram, but not everyone has that)

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### **Repair/Restoration**

Message #1 Posted by **Paul** on 16 Apr 2003, 8:48 p.m.

Is it possible to have an HP-25C repaired? If so, could someone please recommend a trusted technician.

## **Re: Repair/Restoration**

Message #2 Posted by <u>Trent Moseley</u> on 16 Apr 2003, 11:04 p.m., in response to message #1 by Paul

Specifically, what is the problem with your 25C?

tm

#### **Re: Repair/Restoration**

Message #3 Posted by <u>Paul Siegmund</u> on 17 Apr 2003, 11:12 a.m., in response to message #2 by Trent Moseley

I've rebuilt the battery pack using 1.2v,700mAH NiCads but they don't seem to charge - calculator does not get warm in charge mode. Also, after it has been on and running for a while, the digits start to flicker. It appears that, for some reason, the calculator is not receiving proper voltage. So, I'm basically looking for someone who is a knowledgeable, careful repair person to check the unit over. Thanks for your reply.

#### **Re: Repair/Restoration**

Message #4 Posted by <u>David Smith</u> on 17 Apr 2003, 7:07 p.m., in response to message #3 by Paul Siegmund

It sounds like your charger may be bad. Check it with a meter. It outputs around 8 volts AC without a load on it (if I remember right).

#### **Re: Repair/Restoration**

Message #5 Posted by <u>Tony Duell (UK)</u> on 17 Apr 2003, 8:06 p.m., in response to message #3 by Paul Siegmund

You are going to 'rub some of us up the wrong way' by asking for a 'trained technician'!. Many of us here are self-trained, but still manage to get things to work. You may want to ignore the rest of this message, since I have no formal training in electronics or calculator repair at all. But in case you find it interesting... The charger circuit in the Woodstocks consists of a diode and 8.20hm (I think) resistor in series, connected between one terminal of the AC adapter connector and the +ve side of the battery pack. The other side of the conenctor goes to the -ve side of the battery pack (and the system OV rail). IIRC, the resistor is shorted out when the machine is turned on (and thus the total current (battery charging + calculator) needed is higher than when the just the battery is being charged. These components are on the main PCB in the calculator on one of the thin 'strips' alongside the cutout for the battery pack. It's easy to test them. However, are you sure the problem is in the calculator? Most of the time a no-charge fault is caused by the AC adapter -- often broken wires in the cable connecting the adapter to the calculator. Check you've got around 10V AC between the contacts in the calculator connector with the adapter plugged into the mains.

### **Re: Repair/Restoration**

Message #6 Posted by <u>Paul</u> on 17 Apr 2003, 8:29 p.m., in response to message #5 by Tony Duell (UK)

Yes, I've used another charger and still have the same problem. Actually, I really need a qualified HP "techie" specializing in vintage calculators for an evaluation. Do you happen to know of someone? If so, I could send them a lot of potential clients.

#### **Re: Repair/Restoration**

Message #7 Posted by <u>Tony Duell (UK)</u> on 17 Apr 2003, 9:39 p.m., in response to message #6 by Paul

Just out of curiousity, what qualifications should this person have?

#### **Re: Repair/Restoration**

Message #8 Posted by <u>Paul</u> on 18 Apr 2003, 10:21 a.m., in response to message #7 by Tony Duell (UK)

Tony, you seem to be the person I've been looking for. Do you happen to do outside work. Unfortunately, I do not pocess any of the electrical equipment need for testing or repair and you are highly recommended by the HP community. If possible, I'd like to send the calculator to you for your examination rather than try to explain all the quirky problems. One thing of note, the positive contact did have some leakage corrorsion that I was able to remove and I also placed a piece of aluminum foil between the batteries and spring inside the pack. Also, I've tried other batteries. At first, the new batteries seemed to charge since the calculator got "warm" to the touch. When this no longer occurred, I used a pair of freshly charged, standard NiCads. However, the 25C works fine for about 5-10mins then begins flickering digits. Also, another odd thing that sometimes occurs - in program mode, the displayed keycodes don't jive with the actual key. But, like I said, it's not consistant. This why I really need an expert like yourself to look it over.

#### **Re: Repair/Restoration**

Message #9 Posted by <u>Tony Duell (UK)</u> on 18 Apr 2003, 6:32 p.m., in response to message #8 by Paul

I do \_sometimes\_ take on repairs for others. But \_only\_ if they can bring the machine to an HPCC meeting in London, and collect it from me at a meeting. There are good reasons for this. Firstly, I've had too many things damaged in the post (even when well-packed). More importantly, I once had a very unpleasant experience (not with anyone here I hasten to add) where I was sent a machine in reasonable, but definitely used, condition, I repaired it, and was then accused ot damaging a 'minit condition' machine. So I only accept repairs when there are witnesses as to exactly want the machine was like when I received it and when I returned it. Yes, I know most people are honest, and won't try tricks like this, but one bad experience was enough!

#### The lay of the land

Message #10 Posted by <u>glynn</u> on 18 Apr 2003, 7:45 a.m., in response to message #6 by Paul

Paul, sir, the old HP that developed, sold and serviced calculators and such, has gone through many changes, layoffs and "re-invention" cycles over the years. Many of us here lament that, but that's part of the reason for belonging to a community of enthusiasts and collectors. Unlike HP, which offers NO support to products beyond its "support life", those of us here who CAN help each other, try VERY HARD to "steer" the owners of our favored calcs in the right direction.

It may well be that you will send off your 25c to someone to do the diagnosis and repair-- but NO ONE that I know of can claim the certification by Hewlett-Packard, to repair machines older than their End-Of-Life date. HP's attitude is similar to that of many companies these days: you merely need to throw out the old, and purchase the current offering.

If the product, considered now "disposable" by everyone in "certified" worlds, is only held onto by collectors and caring users, it will be difficult to find a "technician."

If the only parts available are "cannibalized" from other machines, as would be the case for a 25c, and the only people who care to DEAL with a 25c in the present are those who love them and make it their hobby, then I personally would say, your best-case scenario is that one or two here at the MoHPC forum would qualify "ex grege"(from the flock), not "ex-oficio" (having the title), by virtue of their having enough experience, knowledge, sense and decency to help you out.

TO reiterate: HP does not certify technicians for repair of these machines, and back in the long-ago day when these machines were supported, they were generally supported by a repair depot in Corvallis Oregon that no longer exists. If you must find someone whom you have more inherent trust in than those here, perhaps HP itself can point you to a facility it recommends. But I think a call to the service organization will confirm: your 25c is no longer considered a repairable item.

So, what do \*we\* do, here at MoHPC? We recommend, firstly, that you be willing to LET us help you by doing some troubleshooting from afar.

The 25c has no "diagnostic mode", but symptoms of various failures often point to the flaw. Knowing definitely about it is a matter of YOU making

measurements, describing the situation as it exists, and being willing to follow recommended procedures.

Believe me, no person regularly here would EVER say anything that would lead you to risk the health of your calculator. They love these calcs too much to throw out their caution. They will ask questions and come to a conclusion based on the facts you can give. Sometimes, the conclusion they come to is that THEY have the ability to do the repair, in which case they'll make the offer to.

In MOST cases, people find that, if they are not too quick to pass on the advice offered, but actually engage in the process, that they themselves can get their calculator healthy again, repaired and restored. You will find many testaments here, if you stick around, of people who have been given advice, taken it, and had a happy result.

Here at the Forum, many of the respondents have EE's, doctorates, parchment of various types you'd be SO LUCKY to have paying you attention at any repair facility anywhere. There are self-taught technically-minded EXPERTS with no certifications, degrees or pedigrees OTHER THAN they have proven to be deeply committed and involved in the loving repair and restoration of these classic machines. Again, you should BE so lucky to find such expertise anywhere else.

The 25c is a good and generally robust machine, but it DOES have something of an Achille's Heel: the machine can eventually die a permanent, ugly death IF it receives too much power for too long by using a power supply meant to charge AND power the calc, WHEN the battery is not there, making bad connection, or otherwise disabled.

The advice most people will LOOK to give first therefore, will NOT focus on checkout of your CPU or display drivers; you have given them a reason to focus on the machine's most common failure points, so listening to them can SAVE YOU this machine, and continuing to use it WITHOUT following their train of enquiry may make us all sad.

Now \*I\* will offer some specific hardware advice. This is based on some things you have said. It is not offered as "expert". Peer review will be valuable, so other input is solicited.

1. You rebuilt your own battery pack. Fine.

2. You can operate the calc on AC power. You say the pack is not charging-- this

implies to me that the calc, when on batteries, removing the charger, is not functioning.

3. You say you have tried another charger, and your theory is that one charger could have been bad, but two won't be. Although that logic is flawed, in my experience with chargers, I believe you are correct that they "work", because they turn on your calc. Verifying AC voltages would, nonetheless, be a GOOD THING TO DO.

4. Given what I have heard SO FAR, I would ask: have you checked your pack's connections? Have you checked that the connections BETWEEN the pack and the calculator (the "contacts") is secure? Have you sanded them lightly to remove corrosion? Have you put bits of aluminum foil between them and the contacts (small little intervening folded strip, just to see if contact is being made securely?)

I am suggesting that the calculator is not "seeing" the batteries, either because one or more of them are defective, or because the contact between pack and calc is not sufficiently made.

YOU can at least look at those possibilities, I am sure. The successful result would be batteries in the machine that DO charge, and subsequently run, the calc. Charge with the machine OFF, please.

Now let me tell you a little more about that Achille's Heel. IF you are not charging batteries because they are not properly connecting, they cannot act to "buffer" a little transformer which is not very "smart". WITH a sufficient load on it, the transformer puts out the right voltage, right current. If the battery does not exist in the circuit to put the proper load on it, the power supplied to the rest of the calc is a bit too much, but still passably regulated in most areas EXCEPT ONE: the "Continuous Memory" chips. If they are supplied extra power for long, they will die. You will not find replacement chips for them on the open market. A donor calc would have to be found, and those with functioning memory chips are damn scarce.

It seems possible to me that flickerinng in the display is a result only of poorlyregulated, "unbuffered" power due to a defective/disconnected battery pack. But BEWARE!-- it could ALSO mean that your memory is being adversely affected. I believe the damage you cause by operating the calc, if it has not got a healthy battery, is cumulative and may quickly become fatal. So, if you take away no OTHER advice, take this PLEASE: Turn off the calc and don't use it as a "desk" machine, not until you've investigated and resolved the issue of non-charging batteries.

By the way, Paul: we're folk who love what we do-- so when someone asks a question of us, we will point you in the direction we think will prove worthwhile to you-- but we are also people who sometimes take umbrage when someone comes in expecting one of us to be wearing an HP badge or waving a diploma from "HP School". Those of us who stay here, make it our home, know that listening to most of the regulars here is MORE valuable than what you'll find in your hometown (and a lot cheaper, too!)

Most of us here know Tony Duell to be one of the most capable, electronicsaavy and knowlegeable voices in our community (if I were LOOKING to get myself a diploma in vintage calc repair, I would go to Tony to teach me, and I'd show a diploma signed by HIM with pride)-- and know David Smith and Trent Moseley to be valuable and experienced members fully able to help; in fact all three have proven their help over and over, as many others here have. Some of the crowd here are experts at one model, others are widely-experienced. If you have friends/colleagues who need assistance with vintage calculators, do tell them about the community here, for we exist to further the future of these old machines and their use.

Thanks. Let us know what you find.

---glynn.

#### Re: The lay of the land

Message #11 Posted by <u>Paul</u> on 18 Apr 2003, 12:23 p.m., in response to message #10 by glynn

Greeting Glynn, Thank you so much for your reply. I'm basically trying to find someone who could examine and hopefully repair my HP-25C. It doesn't matter if they they have an HP badge or not, just someone that maybe you could recommend. My first 25C was bought back by HP many years ago since they were not in a position to perform repairs; it was exchanged for a 42S with printer. The current HP25C was purchased via eBay and is in very excellent to near mint condition except for a corroded terminal that I was able to clean. In doing so, I also cleaned a polished the other. Regarding the battery pack, I removed the original batteries and replaced them with 1.2v Panasonic NiCads and, initially, they seemed to be charging since the calculator got warm during the process. That does not happen now. I can use the 25C for about 5-10mins until the digits begin to blink and flicker, when powered off for a bit, it begins to work for a short while again. Since I'm not an electrication or electrical engineer, my common sense tells me the for some reason the unit is not getting the required voltage but don't have a clue regarding the charging issue. Any insight or advice would be appreciated

### Son of The lay of the land

Message #12 Posted by <u>glynn</u> on 18 Apr 2003, 4:41 p.m., in response to message #11 by Paul

The 5-10 minutes of okay behavior before the blinking begins is a pointer that this is almost certainly a THERMAL problem, meaning something is getting hot, and yes, that could be due to voltage regulation problems, but THAT in itself is a large subject, ranging from the power adaptor wall-brick spoken of in earlier posts in this thread, to the resistor and diode mentioned in another post, to, well, chips that have already seen their share of abuse and just can't take it anymore.

You mentioned some interesting points in your post to Tony. One, that there WAS some terminal corrosion. Two, and maybe a real factor in whether we're talking silk purse or sow's ear here, is the mismatch between displayed program codes and the keys they correspond with. Of course, we need to rule out obvious things first: Do all your digits display when in plain-ol' "Run" mode?

RAM chips are not forever. ROM chips have gone bad, too, and they also are not easy to find replacements for. I wouldn't rule out pc-board corrosion or solder-joint degradation at the moment. But I am probably going to agree that what this machine will need IS a deeper checkout than what you can yourself comfortably provide.

Having these additional observations of yours switch the line of inquiry slightly and make your request for hands-on expertise understandable, where it sort of seemed elitist to me before.

You may want to ask a more general question of yourself first: how much is this e-Bay investment worth to you as a working machine? What you've put into it by buying it, plus your battery-pack rebuild, plus what someone will charge you to discover the exact problem and replace whatever is necessary, may be MORE than setting this one aside or reselling it as a "parts" machine, and acquiring a functional, fairly clean example of the model.

If economics are not really a consideration (i.e., this one is the one you

want to keep), and you want to get it working as it should, because you want to program and use it, then that's all good; I just want you aware that costs depend on the trouble the unit is in, and the demand/supply of the parts it requires. Costs rarely seem "fair"at the moment: "Dang, it cost me \$\$\$ and now it needs ### and that adds up to \*\*\*...".

Assuming people you hear of here WANT to take on the job, Mr. Siegmund, please understand that there is a special dynamic in usercommunities that makes your relationship with those in them slightly different.

If I am in a business to make a profit and I say I can do something for you, I will set aside dinner and not do any sleeping and I'll apologize to the wife for coming home late-- because my PROFESSIONAL commitment is to YOU, the customer, and I depend on your business and referrals for my survival. And I will charge you whatever the going rate is, regardless if the repair means just touching up a dull connector with a nail-file.

Most EVERYBODY understands and expects this relationship in "the BUSINESS world", as YOU DO-- which is obviously what you were searching for: "Actually, I really need a qualified HP "techie" specializing in vintage calculators for an evaluation." and, "...If so, I could send them a lot of potential clients." ;-)

In user-communities, however, if there WERE businesses the community itself would rely on them and not be as likely to individually aim a screwdriver in the direction of a valuable piece of gear. It is the LACK of reliable paid-professional sources that makes users band together more and talk through problems and learn as much about the internals as can be gleaned from old documentation, periodicals, and rooting around them with voltmeters.

The upshot of this is that most of us have projects of our own, lives to live, jobs that keep food on the table, and we NEED nothing from you (or any referrals) to do what we want to do.

We do it because we want to, IF we want to, and it becomes a project for us only IF we think that, at the end of it all, you'll be happy, and we'll be happy we became involved.

We will take time out when we feel overwhelmed by other events, we

will not like to be "bugged" every day with frantic e-mails wondering what happened to us, we will look around amongst our buddies for parts, and even buy things on eBay just for parts--- and you'll think you are forgotten before you finally hear that some "framistan" was replaced, and your calc is on the way.

Now this may sound absolutely topsy-turvy to the normal relationship of business to customer, and that's because the relationship IS different, even if money is involved in the repair.

The money will likely be a slight recompense to the time largely freely given, and parts will have to be valued at some arbitrary level based on what our reclamation baskets hold and how likely we are to ever see one again.

The MAIN thing is that the professionalism values held by an enthusiast are often seen in the absolute care with which he treats the calculator, the insistence on getting things right and not just putting a band-aid on it.

The old business values of price and delivery are tied only to the profitmotive, not the volunteer-motive. Chances are, the volunteer wants to do "right" by you, give you the most value he can-- but HE must be free to define what that entails exactly.

The enthusiast often enters the relationship giving you fair warning: "I don't know till I look at it. My plate is full. I'll get to it when I can. I will contact you, when I know. I will try to make you the best deal I can on the parts. I'll need you to be patient". This does not mean he or she is inept or unaware of the demands of business. But this is NOT a business, not meant to be lucrative. It is a Hobby, meant to be personally satisfying.

It is often the customer who does not understand why his offer of money has not changed the relationship over to the "business" model. But until and unless someone makes a specific commitment with prices, deadlines and all, don't make that assumption. Give the volunteer the opportunity to prove his worth to you. He may not be in business, but he does not like to feel he has taken advantage of you or let you down. Let him know that you are interested in learning more about calcs, in being more than just another project on his stack, and likely yours will be first on his stack because he wants to help you and enjoys unravelling a mystery.

Well, I have written this in the hope that you will understand now why

some of the things you have been asking are more than just a matter of looking into the "MoHPC Yellow Pages". Tony may want to help, he may be too busy with other things right now, or he may actually feel that your calc is a basket-case. But it's HIS choice, he hasn't yet \*(as of my writing this)\* offered anything but advice.

Neither have I. In fact, shortly after reading your post this morning to Tony, indicating that we had nominated him to be asked to take your calc on as a project, I felt I was going to have to apologize directly to Tony, for taking away his choice to offer, and to the community at large, for appearing to ignore the many 25c enthusiasts who might have also otherwise cared to get involved. I had wanted to let you know that the guys helping you are DAMN GOOD at their craft, and reliable sources of information. I saw that you had taken it to be the equivalent of me handing out a guy's business-card. If that turns out to be the way he wants, fine. But if not, I want you to know that business amongst collectors and in a user-community setting IS a strange animal to outsiders, but that you should be able to get help here-- if you understand who you are dealing with, and WHY they are willing to do what they do.

By the way-- I've traded a few things in my collection for a few things I've wanted. I've bought stuff from individuals here. I've had calcs repaired, by folk in our group. I'VE NEVER been burned HERE (wish I could say that about eBay). I am comfortable with everybody on this board, even those I fight with!! So observe and know: this is a GREAT group of people.

#### Re: The lay of the land

Message #13 Posted by <u>Tony Duell (UK)</u> on 18 Apr 2003, 6:52 p.m., in response to message #10 by glynn

A couple of quick points. Firstly, it's safer to charge the batteries with the calculator \_ON\_, not off. The extra load of the calculator will pull the AC adapter voltage down a bit even if the battery pack goes open-circuit, which may save the RAM chip. The worst possible situation for the RAM is to have the adapter plugged in, no (or open-circuit) battery pack, and the machine off. The RAM then gets about 12V, and promptly expires. Of course \_the\_ safest way to charge the battery is in a reserver power pack (a little holder for a battry pack containing the charger circuit). But reserve power packs are rare for the Woodstock series. Secondly, thanks for supporting my view (shared, I suspect by almost everyone here) that the current best repaired are

self-trained enthusiasts. FWIW, I do have some qualifications -- I'm a particle physicist -- but not in electronics or computing. And I am certainly not HP trained or certified. On the other hand, even if I say so myself, I've worked on many models of HP calculator from the 9100 onwards. Fianlly, if you really want me to teach you how to repair calculators, come to an HPCC meeting. I'll help you in any way I can :-)

#### Re: The lay of the land--charge while on!!

Message #14 Posted by glynn on 18 Apr 2003, 7:24 p.m., in response to message #13 by Tony Duell (UK)

Okay, charge while calc is ON!

Thanks Tony-- I needed to know that myself...

---glynn (no 25c, not yet anyway)

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#### **Questions about HP-97S**

Message #1 Posted by museum on 16 Apr 2003, 5:45 p.m.

Does anyone knows, how the HP-97S was sold? Was there a similar box to the HP-97? Is there a soft case too as there is one for the HP-97?

Matthias

**Re: Questions about HP-97S** 

Message #2 Posted by <u>B. Cohen</u> on 17 Apr 2003, 2:49 a.m., in response to message #1 by museum

They were sold directly from HP and were shipped in foam with a brown corrugated box with foam cutouts for the calculator and the interface. Unfortunately they didn't ship with the brown case which was standard wigh the HP-97

# HP Forum Archive 12

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#### david e

Message #1 Posted by hp9114B battery alternative on 16 Apr 2003, 3:54 p.m.

Hi....I recently came into a hp9114B disc drive. The unit is missing the battery however. Is there any other alternative power source that may work?

#### **Battery or Battery Pack**

Message #2 Posted by <u>Mike</u> on 16 Apr 2003, 5:05 p.m., in response to message #1 by hp9114B battery alternative

Is it missing just the battery or is it missing the whole battery pack?

Replacement, drop-in replacement batteries are available. Don't know where you would get a pack, if that's what you are missing.

#### **Re: Battery or Battery Pack** *Message #3 Posted by* **Tony Duell (UK)** on 16 Apr 2003, 6:23 p.m.,

in response to message #2 by Mike

If you are missing the complete battery pack, then you can power the drive by feeding 6V DC from a PSU (capable of suppling at least 1.5A) into the 2 pin plug inside the battery compartment at the back of the drive. The connector (suprisingly for HP) is a standard part -- a 2 pin mini-Jones connector. Such connectors were used on radio equipment at one time, and a friendly radio amateur might have a suitable socket in the junk box. If you take the top cover off the drive (4 TX9 screws on the underside), you can see the back of the connector. The red wire is, as expected, +ve.

#### **Re: Battery or Battery Pack - drop-in replacement**

Message #4 Posted by <u>Terry Ingram</u> on 17 Apr 2003, 3:12 p.m., in response to message #2 by Mike

A drop-in replacement is available from: TNR Technical, Inc. 1-800-346-0601 http://www. tnrtechnical.com/leadacid.html

PowerSonic PS-628 lead-acid battery. Cost: \$12.00

I have purchased this battery recently, and it installs easily, and works fine.

Terry
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#### SPC (Statistical Process Control) data connector info wanted Massage #1 Posted by Ellis Easley on 16 Apr 2003 6:41 a m

Message #1 Posted by <u>Ellis Easley</u> on 16 Apr 2003, 6:41 a.m.

Does anybody know the pin assignments for the little 4 position connector on some digital calipers and indicators? I have done some Google searching and I have learned it is called the SPC interface and might have originated with the Mitutoyo company. There is a big industry supporting the connector with cables, computer interfaces and software but none of the websites I found gave the pinout. The connector on the caliper is a PCB edge with 4 gold plated contact fingers and the mating connector, which I've only seen in pictures on the web, has 4 spring contacts reminiscent of one side of the connector on an HP41 module.

I did find this page which describes a homebrew convertor to make a measuring device with another type of interface look like an SPC interface device. It includes a .pdf with a schematic of the convertor and good descriptions of the two protocols, also C source code and 8051 object code for the micro on the convertor. However, the connector it describes is the "other end" of the cable that plugs into a Mitutoyo controller:

http://www.matronics.com/cncscale/

I think I will be able to figure out the pins by experimentation but if anybody can tell me what the assignments are I'd appreciate it!

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#### Extended IO Module (HP-82183) on eBay

Message #1 Posted by Vassilis Prevelakis on 16 Apr 2003, 3:57 a.m.

NIB, XIO? Wow

Let's see how much this baby will fetch!

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3018805880

\*\*vp

Re: Extended IO Module (HP-82183) on eBay

Message #2 Posted by <u>Ellis Easley</u> on 16 Apr 2003, 7:10 a.m., in response to message #1 by Vassilis Prevelakis

I bought a few things from this seller about a year ago, he is a good guy. I think many of us would love to be in his position regarding the calculator equipment he is selling. He owns a machine shop and is interested in CNC machines and retrofitting non-CNC machines. I've seen him sell cutting lasers on Ebay! The calculator stuff he is selling on consignment for three guys who are scientists and engineers who are gadgeteers and are now all retired. They had gone in together on a warehouse to store their collections. Being older and wiser now, they apparently have decided they have better things to do and have made an arrangement with Bob to sell some of their stuff so they can move out of the warehouse. He gets first pick but isn't a calculator nut. I bought an HP97 in unknown working condition with case and two application pacs from him on Ebay, turned out to be OK. He told me about the stuff he was selling and I told him what I know about the calculators - pointed him to the Museum, though I don't know if he ever came here. I bought a few things from him off Ebay. I got a 41C card reader and a tape drive and some manuals. I asked him about ROM modules and described them, small black squares - he was afraid he might have thrown some away! I think this might happen a lot since the modules look so simple, people think they are just spacers or cabinet feet! I got my HPIL Development module with a group of HPIL parts plus odds and ends, the seller didn't list the module in the auction and didn't know what it was. I wrote and thanked him, told him the module was probably worth more than the rest of the parts! (I don't know if this is true but I am glad to have the module, I had given up on getting one.)

#### Re: Extended IO Module (HP-82183) on eBay

Message #3 Posted by <u>Malcolm Brooks</u> on 16 Apr 2003, 8:35 a.m., in response to message #2 by Ellis Easley

Thanks,

I wanted that - I was hoping no one saw it.

Oh well.

Who wants to swap a IL devel rom for an Ext IO rom?

Thanks Malcolm

#### Re: Extended IO Module (HP-82183) on eBay

Message #4 Posted by <u>Massimo Gnerucci (Italy)</u> on 16 Apr 2003, 9:32 a.m., in response to message #3 by Malcolm Brooks

Thanks, I wanted that - I was hoping no one saw it.

Well, nobody... we were at least six: the three early bidders, Vassilis, you and me... :-)

Actually it's rather optimistic that such items go unnoticed but I don't understand why all of these sightings here. Prices are already steep enough; if some of us, sometimes, misses one of such items I think it's not so bad.

This is particularly true for misplaced items.

I don't see why we should care for the latest high price, too. I think the majority of us is already screening eBay.

I welcome posts such the one from Katye about hundreds of batteries available instead. This is a service towards the community.

Massimo

#### Any predictions?

Message #5 Posted by <u>Dave Mabry</u> on 16 Apr 2003, 2:37 p.m., in response to message #1 by Vassilis Prevelakis

What do you think this Extended I/O module will bring? I can't remember prices from previous ones.

#### **Re: Any predictions?**

Message #6 Posted by <u>gene</u> on 16 Apr 2003, 2:48 p.m., in response to message #5 by Dave Mabry

last one was about \$100.

The extended IO didn't bring all that much.

Gene

```
Looks like I was about right! :-) Re: Any predictions?

Message #7 Posted by <u>Gene</u> on 21 Apr 2003, 8:19 p.m.,

in response to message #6 by gene

I had guessed around $100.

:-)

Gene
```

#### Re: Extended IO Module (HP-82183) on eBay

Message #8 Posted by **Donald Leonard** on 20 Apr 2003, 11:18 p.m., in response to message #1 by Vassilis Prevelakis

O.K. guys, you can start picking on me now for being an idiot for paying such an exorbanant price for the Ext-IO module offered on ebay (payed \$103), and contributing to the rediculous price escalation of HP-41 items. I am truly guilty - BUT in my defense I can only plead that I am NOT a collector, but still enjoy the great flexibility of this old 1980's system and ease of use. I play with it several times a week, not storing it in a case or on a shelf. Don

#### Re: Extended IO Module (HP-82183) on eBay

Message #9 Posted by <u>Vassilis Prevelakis</u> on 21 Apr 2003, 1:58 a.m., in response to message #8 by Donald Leonard

Donald Leonard wrote:

> O.K. guys, you can start picking on me now for being an idiot for paying such an exorbanant

> price for the Ext-IO module offered on ebay (payed \$103) [...]

Actually the price did not go as high as I expected. In fact since a knowlegable user (taytec) bid \$101.01 I would think that \$103 is not that far overvalued.

Maybe this is an indication of more mature biding, but I think that it is more likely that the idiotic auction title ensured that few of the general eBay crowd noticed the auction.

I am very glad that someone from this forum got this module.

BTW if you need a high quality manual for this module, check the new MoHPC CDROM. I contributed a re-typeset version of the original manual. I thought that the original manual was such a let down compared with the software, that I scanned the text of the original manual (which was printed on a typewriter-style printer) and produced a new manual that looks more like the typeset HP manuals (e.g. the HP-IL module). Since the manual has been typeset from scratch, the PDF file is searchable and can be printed on a colour printer.

\*\*vp

#### Re: Extended IO Module (HP-82183) on eBay

Message #10 Posted by **Donald Leonard** on 21 Apr 2003, 4:46 a.m., in response to message #9 by Vassilis Prevelakis

Unfortunately I don't have a computer to access the web, read CDROM's or download stuff. I only have a gifted \$100 WebTV set top box which has no CDROM or Hard Drive. Therefore I don't have access to any of that information. But I appreciate your leting me know that it is there. Perhaps someday it may be placed in an archive here in HTML. Don

#### Re: Extended IO Module (HP-82183) on eBay

Message #11 Posted by <u>db(martinez,california)</u> on 21 Apr 2003, 3:43 p.m., in response to message #10 by Donald Leonard

here in the big city the library has internet connections and the ability to print b&w versions of color pages. if you can do that where you live; maybe someone could send you a really long email attachment of the manual version that vassilis typed up.

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### [OT] Canon f-300p

Message #1 Posted by Jonas Lööf on 16 Apr 2003, 3:55 a.m.

I know this is of topic, so pleas disregard if your not interested.

I have the oportunity to buy a used Canon f-300p calculator (see: http://pocket.free.fr/html/canon/f-300p\_e.html). I have not been able to find any more information on this type of device. Does anyone here have any information to share?

/Jonas

### Re: [OT] Canon f-300p

Message #2 Posted by <u>Ellis Easley</u> on 16 Apr 2003, 7:23 a.m., in response to message #1 by Jonas Lööf

Viktor Toth includes it among Canon machines but doesn't have any info or picture, maybe you can learn something from the info on the other Canons he has listed:

http://rskey.org/minor.html

The Canons are about 1/4 of the way down the page.

#### Re: [OT] Canon f-300p

Message #3 Posted by Jonas Lööf on 16 Apr 2003, 7:53 a.m., in response to message #2 by Ellis Easley

Yes I saw this, too. The f-300p seem to be quite different from the other Canon calculators listed there, thoug... The screen is much bigger, for one thing... Thanks anyway!

### **Re: [OT] Canon f-300p** Message #4 Posted by <u>Paul Brogger</u> on 16 Apr 2003, 7:48 p.m., in response to message #1 by Jonas Lööf

Have you seen <u>this</u>?

It has a little bit of info. Good luck and enjoy!

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HP-41 Plotter Module "PLOTBC" prgm. error

Message #1 Posted by **Donald Leonard** on 16 Apr 2003, 2:07 a.m.

Decades ago, while a member of the SoCal PPC club, I purchased a Plotter Module and 7470 Plotter to make bar codes. After being stolen, I managed to replace the Plotter module. I recall that a PPC member provided club members with a patch for the user entered program "PLOTBC". The manual supplied barcodes have a text line right under the program name/title which states "PROGRAM REGISTERS NEEDED: nn". However, neither the bar code nor the listing provides this line. Close examination of the program shows that label 12 which prints the program title contains two label print commands, yet only one prints the title - the other does nothing. The pen moves to the area, but nothing happens. It then moves to the bar code area and starts to print the bar code. My recollection is that the patch provided by the member corrected this error. Is there anyone out there that has this patch? Don

# Re: HP-41 Plotter Module "PLOTBC" prgm. error

Message #2 Posted by <u>Christoph Klug</u> on 16 Apr 2003, 3:28 a.m., in response to message #1 by Donald Leonard

Dear Donald,

creating nice and fast HP41Barcode prints also would be possible with EMU41 plus virtual SKWIDINK Rom both running on a PC.

For more details refer to the HP museum article forum item 311....

Best wishes from Germany - Christoph Klug

### Re: HP-41 Plotter Module "PLOTBC" prgm. error

Message #3 Posted by <u>Ellis Easley</u> on 16 Apr 2003, 12:46 p.m., in response to message #1 by Donald Leonard

I have no experience with the Plotter ROM or the PLOTBC program, but I have been studying the manual on the Museum CD-ROM. On page 117 there is a series of example bar code plots which result when PLOTBC is given the keystrokes on the preceding pages. The example of a program bar code plot includes the program title but not the number of registers. The utility program bar codes starting on page 195 have both titles and number of registers that look like they were typeset and not plotted along with the barcode. Please excuse me if this was obvious to you, and the patch you remember was an enhancement to PLOTBC and not just a fix.

I also studied the program listing starting on page 169 to see the two LABEL instructions you noted after LBL 12. Below, I have added comments to a few lines with my underestanding of the operation:

121 LBL 12

122 FS? 09 "If flag 09 set, does not print title. Otherwise, prints title and moves to next row."

123 RTN

124 CLA empty alpha for first LABEL function

125 2

126 PEN

127 CLX x=0

128 LORG 0 same as 1 for label origin, lower left of text

129 ACOS puts 90 in x (degree mode set for sure?)

130 LDIR label direction 90 degrees plots text perpendicular to bottom edge - like portrait mode on landscape mode plotter

131 LABEL alpha is empty for this one

132 ARCL Z program name was on stack in z? put in alpha

133 LABEL this one plots the program name

### 134 RDN

# 135 GTO c

How could the program determine the number of registers needed? As I understand it, the actual program bar code is plotted by a ROM function which is passed the program name, the row of bar code to plot, and the number of bytes to plot on the row. I guess the ROM routine calculates the starting byte for the row assuming all rows before this row had the same number of bytes. After plotting a row which is not the last row, the ROM routine increments the row number by 1. After the ROM routine has plotted the last row of the program, it returns the row number zero. So the PLOTBC program isn't dealing with the program bytes at all, it is just asking the ROM to plot bytes until they run out. The program could multiply the number of bytes per row by the number of rows that were plotted (until the ROM returned 0) but that wouldn't be exact because of the uncertainty of the number of bytes in the last row, and the total wouldn't be available until after all the plotting was finished.

I'm still learning the 41 - I see the 41CX has a function RCLPTA that returns the number of bytes in the program whose name is in alpha. That number divided by 7 and rounded up would be the number of registers. The text "PROGRAM REGISTERS NEEDED" is 24 characters alone, which is the size of the alpha register, so you would have to use LABEL twice, once for the words and then again for the number. And getting the number from X into the alpha register would be a pain. You would have to use CLA to clear alpha, then extract the digits one at a time, add 48 to convert each digit from 0-9 to ASCII, then use XTOA to append the ASCII character to alpha, then use LABEL to plot the characters of the number. To be exactly like the book, you would need to put ASCII ":" and a space in alpha before the digits.

Well, that shows how much I know - ARCL X can be used to put a text version of the number in X into alpha. The first time I read that page, I understood it to mean that only ASCII data stored in a register could be ARCLed. There is a routine (LBL 00) in the XBC program, which supports PLOTBC, that appends the number in X to alpha after using a loop with the FIX function to suppress trailing (insignificant)zeros but I don't think you can call that label in XBC from PLOTBC. However, since the number of registers is a whole number, you could just FIX 0 and then ARCL X.

It will be necessary to take steps to position the pen to plot the "Registers" line and then to plot the first line of program bar code.

If I had all the hardware I'd try this to see if it really works!

So the answer to your question is, no, I don't have the patch, but maybe my ramblings will help

you to modify the program.

I meant to look in the PPC Journal CD-ROMs to see if the patch is there, it might well be.

Today's program was brought to you by the functions RCLPTA and ARCL.

**Re: HP-41 Plotter Module "PLOTBC" prgm. error** *Message #4 Posted by Donald Leonard on 17 Apr 2003, 2:24 a.m., in response to message #3 by Ellis Easley* 

Thank you for your reply, and nicely done. Yes, I recall that the patch was published in the PPC newsletter.

I did miss the page 117 example of program plot. But, I knew that all Plotter Modules printed the 'header' this way. As I recall the 20+ year article, the patch not only added the 'needed register' line, it also altered the height of the bar code using something like .200 in the X reg. before Xeq BCSIZE, and reduced the height of all text after the title to around 1.5 in the X reg. before Xeq CSIZE. This new format for bar codes was used by the PPC newsletter crew (Richard Nelson) for all published bar codes as it was very efficient of page space. Since I do not have access to the PPC CD set, your best place to look is the earliest issue with the shorter bar codes.

Your analysis of the program section (LABEL 12) is the same as mine as I understand it.

I don't remember the specifics of the patch. I think the program stores the register length somewhere within the program - perhaps within the program label or the end. All that the patch may require is a synthetic line or two to locate and extract the program reg. size, load the text and extracted reg. size in alpha and Xeq LABEL. I see no reason to Xeq LABEL with a cleared alpha reg.

I am about 15 years out of practice programming the 41 as my system was stolen and I have just replaced most of it. It won't take me too long to catch up as it is a lot like riding a bike or sex. You really never forget how to do it after a little practice.

### **Re: HP-41 Plotter Module "PLOTBC" prgm. error** *Message #5 Posted by* <u>*Ellis Easley*</u> on 17 Apr 2003, 3:48 a.m., *in response to message #4 by Donald Leonard*

I'll use that clue to try to find the patch on the CD-ROM.

The only sense I can make of printing a blank label is to position the pen, but I think that must be done already elsewhere in the program.

BTW, I'm happy to look for the patch but you might like to know that the CD-ROMs are easy to get and not very expensive. You can read about it here:

http://www.waterw.com/~jakes/ppccdrom.htm

#### one more thing about the PPC CD-ROMs

Message #6 Posted by <u>Ellis Easley</u> on 17 Apr 2003, 3:55 a.m., in response to message #5 by Ellis Easley

I think the info file for the PPC CD-ROMs says the scanning resolution that they had to use to fit in all the issues means that you can't read the bar codes after printing the pages. That might influence your interest in the CD-ROMs.

**Re: HP-41 Plotter Module ''PLOTBC'' prgm. error** 

Message #7 Posted by <u>Donald Leonard</u> on 18 Apr 2003, 3:18 p.m., in response to message #5 by Ellis Easley

I want to thank Ellis Easley for providing me the PPC newsletter article and BC\* program I was looking for. I am not sure if I had used this program or just implemented the features of this program into PLOTBC (I think that is what I did). For the record and for anyone who is or will be interested in this program, it is in V13N7P22 (Vol. 13 Num. 7 Page(s) 22-24). Thanx again, Ellis. Your time and effort is greatly appreciated as I don't have the hardware to do it myself.

### Re: HP-41 Plotter Module "PLOTBC" prgm. error

Message #8 Posted by <u>Ellis Easley</u> on 18 Apr 2003, 3:49 p.m., in response to message #7 by Donald Leonard

You're welcome, Don, and I'm glad you were able to replace your 41. You can see by the polls that have been taken here in the last couple of days that it is still the most popular HP calculator.

To anyone who wants to take extracts from large .pdf files like the ones on the MoHPC and PPC CD-ROMs but doesn't have the retail Adobe Acrobat, I discovered an easy way to do it without creating giant files. I used the graphics selection tool in the free Acrobat reader to copy the material I wanted to extract, then I pasted it into Windows Paint and saved it as a .GIF file. My first attempt was to paste the graphics into a Word document in WordPad which resulted in a 1.5MB file containing less than 1/2 page from a PPC Journal. The .GIF file via Paint was only about 32kB!

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#### 9114B floppy drives.

Message #1 Posted by Christof (USA) on 16 Apr 2003, 1:58 a.m.

After reading the other thread on drives, I'm curious if anyone has tried using a modern 1.44 drive on one of these-would they be backwards compatible?

also- the drive in mine has a different model no.

MP-F52W-50

It is exhibiting erratic behaviour, but I'm not sure what the source of the trouble is. 72.7% of the time it passes self test (the rate is increasing, as it hasn't happened at all the last 12 times I've powered up)

When initializing:

It often produces an error "invalid media" with several new and several used 720K floppies. generally this occurs after writing for a while, at which point the machine starts trying to rapidly read or write to one area - fairly obgviously having some difficulty.

It's possible that a cleaning diskette could fix this, or that I can find some old macs. But I \*have\* several later model Sony drives sitting unused amongst my room of sun hardware....

I'm carefully trying to take the drive unit apart now to clean, we shall see what happens.

-Christof

#### Re: 9114B floppy drives.

Message #2 Posted by <u>Vassilis Prevelakis</u> on 16 Apr 2003, 4:04 a.m., in response to message #1 by Christof (USA)

Christof (USA) wrote: > After reading the other thread on drives, I'm curious if anyone has tried > using a modern 1.44 drive on one of these [...]

Well, I guess you **haven't** been reading the other thread. If you **were** reading the other thread you would know how incompatible the 9114 drives are with modern drives :-)

Is the battery fully charged and capable of delivering the close to 2A current the drive needs? Try powering the drive from a bench power supply, or at least check the battery voltage while the drive is accessing the floppy.

Also, have you tried cleaning/lubricating the drive?

\*\*vp

#### Re: 9114B floppy drives.

Message #3 Posted by <u>Christof</u> on 16 Apr 2003, 11:35 a.m., in response to message #2 by Vassilis Prevelakis

Ahhhhhhhh, I was confused as to which models were being referred to.

that makes it harder.

I have cleaned the drive out entirely and had no improvement, I may find someone with experience aligning heads locally and try that.....

#### Re: 9114B floppy drives.

Message #4 Posted by <u>Christof</u> on 16 Apr 2003, 11:49 a.m., in response to message #2 by Vassilis Prevelakis

oh, btw. I did check the power, it seems to be fine - new SLA battery, too.

#### Re: 9114B Pinout

Message #5 Posted by <u>Christof</u> on 16 Apr 2003, 12:42 p.m., in response to message #2 by Vassilis Prevelakis

Does anyone have a full pinout of the drive in this case?

I maight be able, with a friend, to get something working with standard drives if I can figure out how to fake a connector.

#### Re: 9114B Pinout

Message #6 Posted by <u>Ellis Easley</u> on 16 Apr 2003, 4:03 p.m., in response to message #5 by Christof

The 9114B drive has a 34 pin dual row receptacle connector, doesn't it? Tony Duell and I were discussing the use of some of the odd numbered pins on the 34 pin data connector to carry power to the drive. Here's what I wrote about the way it was done on some Sony drives that Tandy used:

"You can see on the PCB where there are places for optional zero-ohm resistors which either connect all the odd pins (except pin 1) of the data connector to ground or connect one group of odd pins (3,5,7,9,11) to +5V and another group (29,31,33) to +12V (all the remaining odd pins except pin 1 [providing a logic signal] are directly connected to ground). When the drive has the option for power on the data cable, the 4 pin power connector is deleted. Tandy used a data cable that ran to the first FDD first (remember that the standard IBM "twisted" cable has the connector for the first drive at the far end - better for transmission line termination with removable 150 ohm resistors installed on the drive at the end of the cable, but later abandoned, with permanent 1K resistors on all drives, and a shorter cable used), then after that first data connector (or possibly after a second receptacle connector to allow a second 3.5" drive of the same type), there are punches in the ribbon cable to isolate those odd pins on additional devices from the +5V and +12V coming from the motherboard."

The even numbered pins should be the standard Shugart bus:

2 -

- 4 -
- 6 -
- 8 Index Pulse from drive
- 10 Drive Select 0
- 12 Drive Select 1
- 14 Drive Select 2
- 16 Motor On signal to drive
- 18 Head Carriage Direction signal to drive I think high=in
- 20 Head Carriage Step Pulse to drive
- 22 Write Data to drive
- 24 Wrote Enable to drive
- 26 Track Zero signal from drive
- 28 Write Protect signal from drive
- 30 Read Data from drive
- 32 Head Select signal to drive high=head 1 (top surface)
- 34 -

IBM's floppy disk drive controller generates two Motor On signals and two Drive Select signals assigned like this at the controller end of the cable:

10 - Motor On A

12 - Drive Select B

#### 14 - Drive Select A

16 - Motor On B

These four wires on the cable are split apart from the other wires and twisted 1/2 turn between the two drive connectors so the connector nearest to the controller has the untwisted signals and goes to drive B, and the connector at the other end of the cable from the controller has the twisted signals and goes to drive A. Both drives have their jumpers or switches set for Drive Select 1 (signal on pin 12 selects the drive, signal on pin 16 turns on the spindle motor).

The signals I have described above are the ones used in the PC which had drives that only worked at low density and didn't have a disk change signal. On the AT there are two new signals - a Density Select signal from the controller to the drive that tells the 1.2 MB 5.25" drive whether to treat its diskette as 360KB or 1.2MB media; the i.44 MB 3.5" drive only listens to the sensor that detects the density hole in the diskette shell. I think the density Select is on one of the low numbered even numbered lines. The AT drives also provide a Diskette Change signal from the drive that I think is on pin 34.

Also, there is a fourth Driive Select signal.

#### Re: 9114B Pinout

Message #7 Posted by <u>Tony Duell (UK)</u> on 16 Apr 2003, 6:19 p.m., in response to message #5 by Christof

Here's the pinout, but it won't do you much good. As I mentioned before, the 9114 drives (and those in most other HP disk units) rotate at 600rpm. A normal PC drive, rotating at 300 rpm will \_not\_ work without changes to the controller circuitry. You will find it a lot easier to repair the existing drive!. Anyway, the pinout : Odd pins : (1) RstDskChng (3)-(11) +5V (13)-(27) Gnd (29)-(33) +12V Even pins : (2) DskChng (4) LED on (6) DS3 (8) Index (10) DS0 (12) DS1 (14) DS2 (16) MotorOn (18) StepDirection (20) Step (22) WriteData (24) WriteGate (26) Track00 (28) WriteProt (30) ReadData (32) SideSel (34) Ready

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### Thinkjet battery dutch auction

Message #1 Posted by Ellis Easley on 15 Apr 2003, 10:25 p.m.

I learned an interesting lesson. Since it looked like there wouldn't be many bids and the price would be \$4, I decided to bid on some more lots. First I tried to bid on 6 at \$8, thinking it would be in addition to my previous bid (4 at \$20) and I would get a total of 10, but the system said 4X20 is more than 6X8, so no go - try again. Then I tried bidding on 10 at \$8 and it said 4X20 is more than or equal to (might have said that before and I didn't notice) 10X8 - try again. So then I tried 10 at \$8.01 and that replaced my original bid. Apparently the system just won't allow a lower total dollar bid.

#### The total value of your bid must increase

Message #2 Posted by <u>Mike</u> on 15 Apr 2003, 11:05 p.m., in response to message #1 by Ellis Easley

You can only change your bid, IF the total value of your new bid is greater than the total value of your old bid.

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#### So, you think you like Classic hp calculators?

Message #1 Posted by Jeremy on 15 Apr 2003, 8:05 p.m.

I have just come to the conclusion that to *really* appreciate them, you have to at least take one apart. It would also help to have some newer, disposable calculator apart next to it. It was a whole different world back then. They had built something that would have cost \$1,500 in today's dollars.

I have just disassembled a 32E, and although it is very nicely made compared to newer calculators, it is not very 'technician-friendly' compared to the Classic series. That snap-together enclosure at the bottom is a terrible idea. Would it really kill them to just use two more screws and make it come apart without any drama? I don't think so. You could argue that the cost would really add up, but I don't think HP was ever shy about transferring that to the consumer, hehe. (Rightfully so.)

The 45 I have had apart though was an absolute dream to work on. The screws came right out. You didn't have to undo anything that couldn't be redone to take it apart. After that, it was pretty intuitive if you just looked at how it went together.

One improvement I will comment on though. The contacts for the keypad on the 32E were pretty much sealed from the outside world, which is a good thing. You could probably spill a Coke right on the keypad and it would still work. They keys would be all sticky and nasty, but since the actual contacts are hermetically sealed from the outside world, everything would be OK.

I do love the features of my 32SII and 48G. The construction is also good. That they cannot be easily taken apart does not make them suffer much, it's just that they're only beautiful on the outside now. They are built once very well, and if anything goes wrong, down the road, tough luck. I think that they have come so far that something is less likely to go wrong on these newer ones than on the older ones. Still, that is only half the beauty. To design something that is rugged, functional, **AND** reparairable the way the Classic series was designed is truly becoming a lost art.

On that happy note, I hereby urge all owners, (even the non-technically inclined ones) to grab your #1 philips screwdriver and take your classic HP apart. There is an article provided elsewhere on this site that will walk you through it and hopefully prevent too much drama.

### **Re: So, you think you like Classic hp calculators?**

Message #2 Posted by Les Bell [Sydney] on 15 Apr 2003, 9:54 p.m., in response to message #1 by Jeremy

You mean, like:

If'n it ain't broke - keep fixing it until it is?

<grin>

Best,

--- Les [http://www.lesbell.com.au]

### taking apart

Message #3 Posted by <u>Norm</u> on 15 Apr 2003, 11:08 p.m., in response to message #2 by Les Bell [Sydney]

Interesting post.

It seems impractical to take apart a 32S, after reading material from those who had done so, they're really talking some difficult brain surgery on a disposable item. Reminds me of when the vets at the zoo tried to operate on a tarantula spider (you can't do it, they don't heal).

Yes, a spice series (34C) is atrociously designed plastic down at the lower edge. It looks great cosmetically, but its a time-bomb for anybody who feels a need to open it up. Typically they start fracturing the plastic.

Therefore, that piece of plastic is an example of malicious design engineering, putting a characteristic into a manufactured instrument that is helpful to nobody.

I've got a favorite topic about that lower edge. If you take a sharp X-acto knife, you can delicately shave away a bit of the plastic so that it would come apart easier in the future. We're talking about just .005" of plastic, or maybe .010" absolute max. Very faint little shavings.

It's hard to describe exactly where you do it. Sure I know where, its on the bottom-half that the unit sits on. There's two ledges that can be trimmed (not necessarily at a 90 degree

angle, you can 45 it to help the parts slide past).

Other than that, can't really get it into words but I did this already and it can be trimmed and the future disassemblies become easier.

And that type of X-acto trimming job can be done on other various bits of cantankerous plastic designs also.

- Norm

**Re: taking apart** *Message #4 Posted by* <u>*Howard*</u> on 16 Apr 2003, 1:59 a.m., *in response to message #3 by Norm* 

Does anybody have a copy of the drawing that Luis had about the makeup of that lock system on the 34C? I can get a copy of the post but the drawing did not come out in my copy. Thank you.

**Re: So, you think you like Classic hp calculators?** *Message #5 Posted by* <u>*Vassilis Prevelakis*</u> on 16 Apr 2003, 4:14 a.m., *in response to message #1 by Jeremy* 

HP throughout the history of its calculator line tried to keep customers from opening their calculators (or if they did open them to leave evidence behind). [1]

I would count the infuriating little covers and the screws under the instruction label on (most? - all?) classic series models as a greater act of sabotage than the snap-on cover.

\*\*vp

[1] OK not 100% true, you can open a 41, 71B, 75C/D and no one will know, although the 41 card reader also hides screws under the label.

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### Another Poll !

Message #1 Posted by Jeremy on 15 Apr 2003, 7:34 p.m.

This one is party to make up for my oversight of a few models in one question of my last poll. I am interested which hp calculator you would pick as your favorite (if you could have only one) and the reason(s) why.

a. hp 42s

```
b. hp 48G/GX/G+ (whichever...)
```

c. hp 34C (hehehe)

d. hp 32s

e. hp 32SII

- f. hp 41C/CV/CX (whichever)
- g. hp 10C/11C/15C (whichever)

```
g. Other (elaborate)
```

Maybe after THIS post has been up a few days, I will tally things up and we will know which model is the MoHPC favorite...

Cheers! -Jeremy

Message #2 Posted by <u>hugh</u> on 15 Apr 2003, 8:18 p.m., in response to message #1 by Jeremy

hmm. here's a completely different answer :-)

i've often wondered what calculator would be the best single choice if i were isolated. on a desert island, say, or without contact with any modern technology. this is a similar problem to asking; what's the best calculation machine that doesnt depend on anything and isnt likely to break down.

scenario: the planet has 1e12 barrels of oil left and we consume 80e6 per day. 35 years later globalisation ends. i am on my farm growing potatoes and hunting rabbits with my bow and arrows. but hey, i still need to calculate.

(a) solar powered hp? casio made some nice solar machines, but what if they got wet or broke one day?

(b) hang on to a good slide rule for emergencies.

(c) my brain & a pencil plus some log tables from ebay.

### **Re: Another Poll !**

Message #3 Posted by <u>db(martinez,california)</u> on 15 Apr 2003, 10:47 p.m., in response to message #2 by hugh

jeremy; the 41

hugh, regarding your "end of globalization" scenario; did you ever see that episode of gilligan's island where the professor connected a bunch of coconuts, poured in some juice and had everybody stir like crazy? they powered a radio with it. even though they didn't get rescued; it worked. a 41 would draw a lot less "juice" and so need fewer coconuts. as an added benefit; mary anne was particularly saucy in that episode. it must have been static cling.

### **Gilligan's Island**

Message #4 Posted by <u>NH</u> on 15 Apr 2003, 11:18 p.m., in response to message #3 by db(martinez,california)

In my large DVD collection, I've got just ONE episode of Gilligan's Island and it was quite enjoyable. Always hoping for more. Plenty of "Beverly Hillbillies" and "All in the Family". Could care less about "Twilight Zone". And the big missing item in all of this is "Time Tunnel" episodes. Those absolutely have not been found on DVD.

**Re: Gilligan's Island** Message #5 Posted by John K. (US) on 16 Apr 2003, 12:59 a.m., in response to message #4 by NH

What?! You don't have *The Prisoner*? How unmutual of you. ;^)

### **Re: Another Poll !**

Message #6 Posted by <u>hugh</u> on 16 Apr 2003, 9:04 a.m., in response to message #3 by db(martinez,california)

top idea! no i didnt see that episode. i know you can power low power stuff with fruits and potatoes (lemons especially). making a natural battery is quite a good idea. i have a clockwork radio. it has a solar panel too.

in that case, i'll have a 32sii and a bunch of coconuts :-) the 32sii has only 2 cells, less voltage means less coconuts wired(?) together :-)

#### **Re: Another Poll !** *Message #7 Posted by* <u>*hugh*</u> *on 16 Apr 2003, 9:06 a.m., in response to message #6 by hugh*

mistake. sorry the 32sii has 3 cells! no good then. which machine has the lowest voltage, i wonder?

Message #8 Posted by <u>Ron Ross</u> on 16 Apr 2003, 10:09 a.m., in response to message #7 by hugh

Actually Voltage is probably not a problem. It is current draw. So your 32s is a very good bet. Actually, any LCD (even the 48) would work fine off of any natural battery source of the correct (and use a somewhat low) voltage. Just like a regular cell, you will have to cascade lemons or whatever to make a battery. Every cell chemistry has a somewhat different voltage output. Lemons with Copper (a REAL penny) and zinc (shave off top of battery post of dead battery in boat, else just stick your wires into two cells on said battery) and will probably only require two lemons to operate said calculators.

A 34C would probably also power up, but wouldn't last very long vs an LCD would last until the fruit rotted or was carried away by ants, flies, whatever.

#### Lemons

Message #9 Posted by <u>Bill Platt</u> on 16 Apr 2003, 3:35 p.m., in response to message #8 by Ron Ross

Hi Ron,

Now you are on to something here. A lot of people have been geeting excited about electric cars lately, especially hydrogen powered ones.

Why not rotting fruit electric cars!

But I cannot remember something about batteries---doesn't the voltage of a natural battery drop as it is "used up" yes it does---but what about rotting fruit? There is a lot of wasted fruit out there--I bet one could come up with some real power.....

But does the characteristic voltage fall as the rotting process proceeds? Does acid content decrease with rotting? I think it must, but not sure (is sourness a sign of acid--or is acid bitter?)

Message #10 Posted by <u>Ernie Malaga</u> on 15 Apr 2003, 9:14 p.m., in response to message #1 by Jeremy

I vote "f" (HP-41). To me, it has the right balance between complexity and user-friendliness. And the keyboard is great.

-Ernie

### **Re: Another Poll !**

Message #11 Posted by <u>David E</u> on 15 Apr 2003, 9:40 p.m., in response to message #10 by Ernie Malaga

f. hp41CX

### **Re: Another Poll !**

Message #12 Posted by <u>Les Bell [Sydney]</u> on 15 Apr 2003, 9:51 p.m., in response to message #1 by Jeremy

f. HP-41CX. If I'm allowed a card reader, printer and a few modules as well, I'm in seventh heaven.

The 41C/CV/CX was the "sweet spot" for capability vs complexity, imho. Its expandability makes it capable of doing so much, yet it's small enough to fit a shirt pocket.

I reckon HP could still be making and selling the 41CX today, perhaps with a faster processor, more RAM, but almost no other changes.

Best,

--- Les [http://www.lesbell.com.au]

### **Re: Another Poll !**

Message #13 Posted by <u>Howard</u> on 16 Apr 2003, 2:06 a.m., in response to message #12 by Les Bell [Sydney]

I agree 100%. HP41CX and my bloody card reader (if I could get it to work) LOL

**Or, take the one here :-)** Message #14 Posted by <u>Mike</u> on 15 Apr 2003, 10:21 p.m., in response to message #1 by Jeremy

#### Take the poll here

If I set this up right, anyone should be able to vote (registered or not). We shall see...

Belay that order! Vote here. : )

Message #15 Posted by <u>Jeremy Zorns</u> on 15 Apr 2003, 10:39 p.m., in response to message #14 by Mike

I've always wanted to say that since the first time I heard it on Star Trek: The Next Generation....

Or just take them both, that is always a good solution! Heheh

-Jeremy

### **Interesting coincidence**

Message #16 Posted by <u>Mike</u> on 15 Apr 2003, 11:08 p.m., in response to message #15 by Jeremy Zorns

The polls are slightly different. I started this one this morning at 8:30. Originally my polls were setup so that only registered members could vote but I changed it. Looks like it's working ok.

Mike

#### **Re: Or, take the one here :-)**

Message #17 Posted by <u>Richard Garner</u> on 15 Apr 2003, 11:35 p.m., in response to message #14 by Mike

The 41CX would be my first choice. It was the first HP I ever bought and the one I know best. It has almost every thing you need and the rest software wise can be programmed. The Hp 42S comes in at a very close second because of its size and use of the 41CV command structure.

## I HAVE 5 different favorites

Message #18 Posted by <u>Norm</u> on 15 Apr 2003, 11:15 p.m., in response to message #1 by Jeremy

My favorite calculator depends on what I am doing. No one calculator is right for everything.

SOOOOOOOOOO.....

Sometimes I am just balancing my checkbook. In that case, I go f-fIX-2 and I use my HP-34C.

But if I am doing my analog electrical engineering, well that's more intense so I go f-ENG-4 and use my HP-34C.

Then comes the calculator for my briefcase. I want something that gives me a warm fuzzy feeling when I am out and about, so for that I'd use HP-34C.

Then comes a calculator on the desk at work. There, I like to really make clear to the world what decade my roots are in. So for that I use an HP-34C.

And lastly, comes tutoring work, like teaching a kid a bit of mathematics or trigonometry. There, due to the need to not have any B.S. or unwanted complications, I always reach for an HP-34C.

So my 5 votes for a favorite calculator are

(c)

(c)

(c)

also (c) and lastly (c).

#### Thank goodness you put them all in one post

Message #19 Posted by <u>Jeremy</u> on 16 Apr 2003, 1:28 p.m., in response to message #18 by Norm

...or I would have a hard time tallying them up properly. -Jeremy

Message #20 Posted by <u>Trent Moseley</u> on 15 Apr 2003, 11:31 p.m., in response to message #1 by Jeremy

This is not a vote. Just an opinion.

I have one Woodstock, one Classic, three Voyagers, and two Pioneers. And I think the 41C+ will win.

tm

## **Re: Another Poll !**

Message #21 Posted by <u>Michael F. Coyle</u> on 16 Apr 2003, 12:25 a.m., in response to message #1 by Jeremy

g sub 2 -- None Of The Above.

For my favorite I would pick a Woodstock -- either a 29C (first choice) or 25C. Both do most of what I use a calculator for and if they only had delta-percent they'd be perfect.

I just love the way the curved back of those machines fit perfectly into my hand. Much better than the usual clunky fit of the more squared-off units. (I did own a 34C for a short time but I didn't care much for the ergonomics -- a step backward from the Woodstocks, IMHO.) I was heatbroken when I lost my 25. Maybe it's time to get a replacement.

After that, Voyagers -- either the 15C or the 11C (which I have). Pocketable, elegant, and I always liked the horizontal layout. I always wondered why the horizontal layout didn't get used by later machines.

#### **Re: Another Poll !**

Message #22 Posted by <u>Massimo Gnerucci (Italy)</u> on 16 Apr 2003, 2:46 a.m., in response to message #1 by Jeremy

After trying each HP handheld... definitely "f", no contest. 41 is my first and last love :)

Massimo

Message #23 Posted by <u>Christof</u> on 16 Apr 2003, 2:54 a.m., in response to message #1 by Jeremy

urgh...

for stricly calculator as calculator use, with some decent programmability to keep me from going bugnuts-

42S

for real hacking- hardware and software .... uh. hrm.

an HP48GX with HPIL! (please, someone figure out an expansion card that does that!)

no, I just can't decide. note that I really really really write more programs than I do integrate equations. So it's one of the two- both cna do I/O- both can in theory talk to a computer. One has that wonderful form factor and keyboard, the other a usebale display...

nope, can't decide.

the Gilligan answer?

HP48GX. why? because I can have a lifetime supply of solar 4.5V feeds and rechargeable NiMH cells and use a serial printer.

(and agian I say- give me IO in a 42S and the contest is over, complet, fin. Except that a 28S with IO would compete... \*sigh\*)

Message #24 Posted by <u>glynn</u> on 16 Apr 2003, 4:40 a.m., in response to message #1 by Jeremy

Okay, I'll be different.

I like very much the LED models-- and if I were not on a desert island-- OR had a generator-- I would probably choose a 34c or the 67/97 models.

On the island, however, I'd take the 15c and, uhm, Ginger.

;-)

**Re: Another Poll !** 

Message #25 Posted by <u>Wayne Brown</u> on 16 Apr 2003, 7:57 a.m., in response to message #24 by glynn

I'd choose the 16C if it were in the poll, but since it isn't, I'll choose the 41CX. And Mary Ann. :-)

### Vote Totals, so far

Message #26 Posted by <u>Mike</u> on 16 Apr 2003, 7:44 a.m., in response to message #1 by Jeremy

**Click image to vote, if you haven't voted.** Note: The Total votes shown are the total number of people that have voted, not the votes cast. You may select multiple calculators if you have equal favorites.

(picture unavailable)

### Re: Vote Totals, so far

Message #27 Posted by <u>Christof</u> on 16 Apr 2003, 2:54 p.m., in response to message #26 by Mike

I wonder what would happen to the totals if the current HP using college crowd - or people who first used the 42/32/48 era machines were the primary voters.

I also wonder what would have been different if HP had put out serial connectable disk, 'real' printer (thinkjets would be fine for full lab reports) and a serial keyboard connection. Better yet, an expansion card based HPIL interface (if such a beast be possible, I know it's a memory interface, but a ROM is a ROM, maybe)

For reasonable prices- \$300 for a floppy drive wouldn't make sense, in context.

#### **Re: Another Poll !**

Message #28 Posted by <u>Eddie Mabillard</u> on 16 Apr 2003, 11:49 a.m., in response to message #1 by Jeremy

hello Jeremy I would have the 42S and if it is discontinued the 15c

cheers Ed

### **Re: Another Poll !**

Message #29 Posted by <u>Jim C</u> on 16 Apr 2003, 12:06 p.m., in response to message #1 by Jeremy

I would have to pick the 41 series as my fave.

For second place, I'd have to pick the 67 (why am I going back in time?)

For third, I think I'd pick the 48, but only for features, certainly not for the tactile/ease of use.... (flames->dev/null)

**Re: Another Poll !** *Message #30 Posted by* <u>GS Leong</u> on 16 Apr 2003, 5:51 p.m., *in response to message #29 by Jim C* 

Hp 41 series without question

Message #31 Posted by <u>Peter Lampione</u> on 17 Apr 2003, 1:58 a.m., in response to message #1 by Jeremy

The 32SII!

It has most of what I need (for more complex things, nowadays I use the PC), and in the quickest possible form to use. Unit conversions, fractions are especially nice; I somehow find it very intuitive to multiply by 4/3, rather than divide by 3, then multiply by 4 (unless the quantity, divided by 3, has some natural meaning). And the use of memory is superb! STO A takes two keystrokes! Much better IMO than STO 02, not only for brevity, but because I find it easier to remember that I just put "price" in P, rather than to remember that I put in (say) 06. I believe that the 32SII marks the culmination of calculator design for "fast and useable". I like also my 42S, but the calculator that is always next to the keyboard, and that gets 98% of the use, is the 32SII.

Peter

**Re: Another Poll !** *Message #32 Posted by* <u>*Dave Shaffer*</u> on 17 Apr 2003, 3:49 p.m., in response to message #31 by Peter Lampione

HP-41, with an 11C/15C in emergency reserve

# **Re: Another Poll !**

Message #33 Posted by Larry Corrado, USA (WI) on 17 Apr 2003, 8:02 p.m., in response to message #1 by Jeremy

Well, I haven't used several of the machines in the poll, but I'd have to choose the HP-15C, followed closely by the 34C.

FWIW...

LC

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# HP-41 CX

Message #1 Posted by Giancarlo Gentile on 15 Apr 2003, 7:07 p.m.

I have an HP 41 CX model and the display is malfunctioning. Does anybody know if its possible to fix it? HP here in Brasil tells me that, once this is an old model, they can't fix it.

Thanks

### It is probably pretty simple

Message #2 Posted by <u>Jeremy</u> on 15 Apr 2003, 7:25 p.m., in response to message #1 by Giancarlo Gentile

It is probably just a matter of a dirty connection or something. That is usually what it is. I have never looked inside a 41, but if the display is modular as it is on the 32E I have just had apart, the contact between the LCD and the circuit board is made by a friction fit. Those types of contacts are more prone to malfunction by getting dirty that a soldered connection. On the other hand, if something goes wrong with a unit that has been designed in this manner, there is a better chance that it can be fixed.

If you have any technical skill in this area, you might want to take the machine apart and have a look. (There are instructions on how to do that linked from the homepage of this site.)

-Jeremy

# Re: HP-41 CX

Message #3 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 15 Apr 2003, 9:34 p.m., in response to message #1 by Giancarlo Gentile

Hello, Giancarlo;

I met a Giancarlo at Universidade Católica de Petróplis in the late 80's. Would that be you?

The HP41 series has two basic types: the fullnuts and the halfnuts. Unfortunately I have no provider to hold my pictures anylonger so you could see a picture of them both. I'll send the picture to your e-mail if you wany. As a reference, please, take a look at your calculator's LCD and check if there is a black frame with rounded corners around the LCD's actual viewing area. If you see this black frame, yours is a halfnut-type. If the display has no frames and 90-degrees angles at the four corners, yours is a fullnut.

In the halfnut type, Jeremy's description is correct, but there is a big "hill" to climb: accessing the LCD's assy mean removing all (heat-molded) plastic rivets that lock the keyboard to the upper half-case, and the halfnut's LCD assembly contains not only the LCD's driver circuit, but also the ROM and RAM chips. Handling it demands extra caution and I have never disassembled a halfnut LCD... so far.

If yours is a (somewhat rare) fullnut HP41CX, LCD assembly is a separate module that is soldered in the keyboard and you may have just to resolder it. I can guide you in the second case.

Feel free contacting me if you want to carry on. As I live in Brazil too, we may arrange your HP41 maintenance here. (I have at least six different models in my workbench right now...)

Best regards.

Luiz C. Vieira - Brazil

(if you e-mail me, you can -surely- write in Portuguese...)

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#### HP42S

Message #1 Posted by Giancarlo Gentile on 15 Apr 2003, 7:03 p.m.

I'd like to know if it's possible to get the Owner's manual for the HP-42S calculator.

Thanks

#### Re: HP42S

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 15 Apr 2003, 9:47 p.m., in response to message #1 by Giancarlo Gentile

Hi;

English or Portuguese?

Drop me a line.

Luiz C. Vieira - Brazil

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### **HP-41CX Halfnut Contrast**

Message #1 Posted by Jeff on 15 Apr 2003, 6:20 p.m.

I was reading one of the CHHU issues today and they describe a program to change the angle of the display on a Halfnut. Can anyone point me in the direction of this program? Thanks

## **Re: HP-41CX Halfnut Contrast**

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 15 Apr 2003, 9:16 p.m., in response to message #1 by Jeff

Hi;

You'll need specific ROM to control halfnut's contrast. If I am not wrong, PPC ROM and PANAME are both that have this functions. In fact, you may also add all lower-case letters in a halfnut LCD.

There is more about this subject, this is what I can tell.

Best regards.

Luiz C. Vieira - Brazil
# **Re: HP-41CX Halfnut Contrast**

Message #3 Posted by Johnny Billquist on 16 Apr 2003, 9:22 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

I don't think there is any functions in the PPC ROM for this. The contrast is controlled by a register that you only can access through machine code. The PPC ROM only holds user code, unless my memory is wrong. Also, I believe the PPC ROM was made before the halfnut, so that would mean it's very unlikely they have a function to control the halfnut contrast.

The same is true for lowercase characters. You really need to program in machine code to generate those characters.

This is one of the few moments when I think that I might enjoy a halfnut CX instead of my fullnut.

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## 41C Frustration

Message #1 Posted by Malcolm Brooks on 15 Apr 2003, 6:19 p.m.

I have a recently acquired 41c with a bad contact somewhere. I have pulled it apart multi times and cleaned all the connectors.

The calculator will turn on and work basically ok but. The lower left of all characters are not solid black. The calc will turn itself off after 6sec.

I can get around the 6sec turn off by setting "ON" but it still is REALLY anoying.

I would suspect the soldering on the display but on the odd occasions when the display works ok the calc stays on for more than 6sec as well. Tells me its not the display connectors.

Can someone give me any hints?

Thanks Malcolm

# **Re: 41C Frustration**

Message #2 Posted by <u>Ed Martin</u> on 15 Apr 2003, 7:32 p.m., in response to message #1 by Malcolm Brooks

You probably have a bad solder joint on one of the jumpers that go between the motherboard and the LCD display driver board. These are small pieces of metal that look kind of like connector pins, and are soldered at each end. Try gently lifting each one with a fine object such as a dental pick. These solder joints are prone to failure and can lead to this problem.

Also clean all contacts (especially the zebra connector to the CPU board) with an isopropyl alcohol pen and make sure everything is snug. Don't overtighten the screws, as the posts are prone to breakage.

Good luck !

#### **Re: 41C Frustration**

Message #3 Posted by <u>Malcolm Brooks</u> on 15 Apr 2003, 8:23 p.m., in response to message #2 by Ed Martin

Hmmm.

Lots of cleaning done multiple times = EXACTLY the same

If its the solder joints on the display - Why when it goes in this mode does it turn off after 6sec?

This is very repeatable -

good display ( by twisting case slightly ) - no turn off

bad display - turn off in 6sec.

Thanks Malcolm

#### **Re: 41C Frustration - a couple of questions**

Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 15 Apr 2003, 9:45 p.m., in response to message #3 by Malcolm Brooks

Hello, Malcolm;

May I ask a few questions?

1 - what type of HP41 you have: full- or halfnut? (if it has a mainboard and zebra connectors, it is a fullnut) 2 - (silly question; forgive-me) have you opened and cleand internal connections or just batteries and external module's connectors? 3 - have you checked to see if screw posts are O.K.? No one broken or cracked?

About the solder connections: the LCD module in the HP41 controls its operating state when the calculator is switched to ON. When you execute the ON function (as you mention as being an anoying procedure, and I agree with you, its anoying) the LCD's command to switch the calculator OFF is bypassed. So, the bad segments (light-gray instead of dark-gray) and the 6sec operation are the very signs that you have a bad connection in the LCD module.

I'm sorry this is not so much help, but may clear up a little bit.

Success.

Luiz C. Vieira - Brazil

### **Re: 41C Frustration - a couple of questions** *Message #5 Posted by* <u>*Malcolm Brooks*</u> on 15 Apr 2003, 11:26 p.m., *in response to message #4 by Vieira, Luiz C. (Brazil)*

To Luiz,

Its a 41c.

I have taken it to bits and cleaned multi times.

All the posts are ok.

The connector type is almost like a millipede looking from top. Very fine gold connectors in half circles.

Two nuts holds the board down firmly over the connector.

Are you saying the lcd module itself decides when to shut down the machine? Thats wierd. But if that's true then that would perfectly explain it. I was thinking the lcd module can't shut down the machine - therefore problem is not in display connector. - Wrong.

If thats the case what precautions should I take when resoldering these wires? I'm worried about the cmos. My soldering expertise is a bit a... agricultural. Any suggestions?

Thanks Malcolm

#### **Re: 41C Frustration - a couple of questions**

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 16 Apr 2003, 2:45 a.m., in response to message #5 by Malcolm Brooks

Hello, Malcolm;

you wrote:

All the posts are ok. The connector type is almost like a millipede looking from top. Very fine gold connectors in half circles. Two nuts holds the board down firmly over the connector.

That's good info. I have one of this millipede-like (mine haven't walked alway so far...) zebra connector. It's one of the best for connection, but it takes a lot of care to be kept in perfect shape. If yours is fine, better.

Are you saying the lcd module itself decides when to shut down the machine? Thats wierd. But if that's true then that would perfectly explain it. I was thinking the lcd module can't shut down the machine - therefore problem is not in display connector. - Wrong.

What really happens is that the calculator's CPU monitors the LCD state. When the LCD signs what I call "idle state", the CPU shoots itself down. There is a terminal used for this purpose, and as D.B., I sometimes cannot be confident about my bRAiM existing data. Anyway, if you slightly swing the calculator's case and and the display goes fine and the idle condition happens after about ten minutes instead of six seconds, than be sure you have a bad contact somewhere, and finding it is the major task.

I'd find someone with the skills to resolder the LCD's connections. One of our contributors in here resoldered the same terminals in his faulty HP41CX, and it's working fine.

The only precaution that must be taken is to connect battery terminals to the soldering iron's metal body while doing the job. You may remove the mainboard, the millipede connector (if you are not so confident, keep it in a closed box... kidding, I could not resist!) and take just the upper half of the calcualtor's case. Please, take care with a small plastic "stick" over the top of the LCD's assembly. It serves to keep it in place and to make things difficult to dust and dirt.

Hope this helps a bit more.

Success. and keep posting, so we can guide you better.

Luiz C. Vieira - Brazil

## **Re: 41C Frustration - a couple of questions** *Message #7 Posted by* <u>*Malcolm Brooks*</u> on 16 Apr 2003, 8:40 a.m., *in response to message #6 by Vieira, Luiz C. (Brazil)*

YES YES YES

Thanks heaps - that was it.

I would not have got that without your help.

Display is now good and turn off time 10min

Thanks Malcolm

# **Re: 41C Frustration**

Message #8 Posted by <u>db(martinez,california)</u> on 15 Apr 2003, 11:08 p.m., in response to message #1 by Malcolm Brooks

malcom; try those jumpers. i had one with 2 of 3 of your symptoms and it was that. - d

### **Re: 41C Frustration**

Message #9 Posted by <u>Malcolm</u> on 15 Apr 2003, 11:28 p.m., in response to message #8 by db(martinez, california)

To db,

Jumpers? do you mean the lcd display connector wires?

Thanks Malcolm

# **Re: 41C Frustration**

Message #10 Posted by <u>db(martinez,california)</u> on 16 Apr 2003, 1:22 a.m., in response to message #9 by Malcolm

malcom; you are forcing me to use my memory and that chip is about burned out.

on one type of old 41 there are a bunch (13 to 15 or so) flat-ish wires between the bottom of the screen and the pcb, all in a row and out in the open when you take the back off. if this is the type you have then do like luiz said: take a sewing needle and gently lift each of those "jumpers" at each connection. we believe that one or more will be sitting in place but that the solder has come undone. that is why the screen may work if you twist the calc; you twist it into good contact.

if you find a loose one: there is no need to put more solder on the joint, just apply a bit of flux to the broken joint. hold the jumper down tight with the pin and use a real small tiped soldering iron. give it a little heat then blow on it and let up on the pin. try to lift it with the pin again. if the jumper isn't soldered down then give it a bit longer of a jolt with the soldering iron and test it again. keep trying longer times till the joint holds when you test it or till your 41 lies in smoldering ruins, whichever comes first.

this is common and it's the easiest to fix problem so hope like hell that it's whats wrong. - d

# **Re: 41C Frustration**

Message #11 Posted by <u>Malcolm Brooks</u> on 16 Apr 2003, 8:38 a.m., in response to message #10 by db(martinez,california)

Yeah,

That was it. Perfecto.

Thanks heaps for the help,

Malcolm

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#### **Re: RPN Financial calculator**

Message #1 Posted by Christof on 15 Apr 2003, 3:33 a.m.

Well... I wonder if this is going to be the HP RPN scientific....

I'm curious, a quick search doesn't appear to give me any way to order this from within the US. Anyone else find anything?

-C

# **Re: RPN Financial calculator**

Message #2 Posted by <u>Renato</u> on 15 Apr 2003, 2:35 p.m., in response to message #1 by Christof

Christof, I did some search on the web - no results. Even the manufacturer web site (in China) is obscure, and not always accessible.

If you want one, I can buy it online in Brazil, and send to you.

Renato

**Re: RPN Financial calculator** *Message #3 Posted by* <u>*Christof*</u> on 15 Apr 2003, 6:07 p.m., *in response to message #2 by Renato* 

I'm interested, yeah.

email me :)

# **Re: RPN Financial calculator**

Message #4 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 11:17 p.m., in response to message #3 by Christof

Are you talking about the Aurora FN1000 that Massimo had talked about? Do you think it might be a HP12C clone? It looks like it has blue and yellow shift keys, and the feature list looks the same as the 12C including the calendar functions that not all financial calculators have.

## **Re: RPN Financial calculator**

Message #5 Posted by <u>Christof</u> on 16 Apr 2003, 12:58 a.m., in response to message #4 by Ellis Easley

It appears to be programmable, which simply means I must have it. (my collection would probably be best termed the Museum Of Handheld Computing- if I had enough of them and time to put pages up)

If it's cheap enough, it might even be fun to hack.

### **Re: RPN Financial calculator**

Message #6 Posted by <u>Massimo Gnerucci (Italy)</u> on 16 Apr 2003, 3:13 a.m., in response to message #4 by Ellis Easley

Ellis,

Renato in his original post referred to a brazilian auction site where a seller is auctioning this calc claiming it is HP-12 compatible.

Here is the auction's picture: <u>http://www.mercadolivre.com.br/org-img/original/</u> <u>MLB/7428311\_484.jpg</u>

This picture, albeit ruined by a pasted on writing, shows some of the keys you find on the HP-12C. It definitely is an RPN calc.

Soon after I screened the web to find more info about it and finally found that chinese Aurora site.

It would be interesting to try it out and see if they actually cloned the HP ROMs or came out with a compatible but original product.

### **Re: RPN Financial calculator**

Message #7 Posted by <u>Ellis Easley</u> on 16 Apr 2003, 7:37 a.m., in response to message #6 by Massimo Gnerucci (Italy)

I don't know Portugese but I'll bet the text over that picture says "equal to 12C"!

I like to have one of everything too - WalMart sells Aurora brand calculators, I think I'll ask if they can get it - I've bought two HP12C's from their closeout tables although I have never seen them in with the regular stock. I don't know if that means they are burned out on RPN financials or that they are looking for a cheaper model!

#### **Re: RPN Financial calculator**

Message #8 Posted by <u>Ellis Easley</u> on 16 Apr 2003, 7:45 a.m., in response to message #6 by Massimo Gnerucci (Italy)

Oops! I read to quickly again - you point out they are claiming it is 12C compatible.

When I look at the picture on the Aurora site, I don't know off the top of my head how you make the 12C produce the display shown - "54-4333 65"

### **Re: RPN Financial calculator**

Message #9 Posted by <u>db(martinez,california)</u> on 16 Apr 2003, 11:34 a.m., in response to message #6 by Massimo Gnerucci (Italy)

does that blue key say "alpha"?????? do we have a company trying to make and market a new rpn here? they need to sell something. where can we buy this? it's like heinlein said "anyone can clap and chear but real applause is green".

## **Re: RPN Financial calculator**

Message #10 Posted by <u>Christof</u> on 16 Apr 2003, 11:42 a.m., in response to message #9 by db(martinez,california)

It \*looks\* like theres a blue alpha, yellow something, recognizable y^x, and blue shifted legends above all the keys with a second legend above some fo the others.

And while the kyes look suspicously similar to the ones on a 49g (ugh) it's \*still\* better than a 9s if it is a programmable RPN....

# **Re: RPN Financial calculator**

Message #11 Posted by <u>Massimo Gnerucci (Italy)</u> on 16 Apr 2003, 12:44 p.m., in response to message #10 by Christof

It \*looks\* like theres a blue alpha, yellow something, recognizable y<sup>x</sup>, and blue shifted legends above all the keys with a second legend above some fo the others

And I also spot the usual financial keys (n i PV PMT) besides GTO, x<>y, CLx, RDN, STO, ENTER...

Massimo

# **Re: RPN Financial calculator**

Message #12 Posted by <u>db(martinez,california)</u> on 16 Apr 2003, 9:16 p.m.,

in response to message #11 by Massimo Gnerucci (Italy)

renato, luiz, marx, is this available in brazil or is it just one on an auction, and can you look at it and find if it exists and is rpn? if so then it is time for the dozens of people here who have participated in threads bemoaning hp for abandoning us rpn users, and others about making a new rpn, to cough up some dough. if aurora thinks there is a market they may make another one. they might even ask us users what features would cause us to buy one. i'll make it simple for them if they ask: a 32k 42s with i/o, and i don't care what color the shift keys are.

DAVE: you speak chinese. how about a sideline business? i'll be your

first customer.

# **Brazil price for FN 1000**

Message #13 Posted by <u>Renato</u> on 16 Apr 2003, 11:23 p.m., in response to message #12 by db(martinez,california)

It is being advertised as 12c equivalent. Business management students in Brazil are taught on how to use 12c. There are also many books on business math using 12c. Aurora and the distributor are obviously trying to catch a part of this. I don't think they will be successful. It costs half as much as a new 12c, but IMO a used 12c would be the best option.

Local Brazil price for the FN 1000 is R\$179,00 (Brazilian Reais). Exchange rate to US\$ is now around 3.1 reais to 1 us\$ (it was 3.7 just some days ago). Shipping to US would cost around us\$20.

I can arrange to buy a few for you guys - not too many, as I don't have the time.

I could also contact the seller and ask if he would be willing to export (that does not make economical sense, but if you want it...)

Hey Massimo - Ciao !

#### Is it available elsewhere?

Message #14 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 17 Apr 2003, 1:49 a.m., in response to message #13 by Renato

Hi Renato, guys;

I was not following this thread since it started, I just read it right now.

I know that it must be available elsewhere, but it seems it has not been noticed by other contributors in here. I took Renato's observations and it comes to my mind one question: are they testing market response in Brazil? Although strange, it may be possible. If it is not acceptable here and it becomes an unsuccessful product (a "fiasco") then it may be cancelled without associating the company's "good" name with an RPNbased calculator that did not sale as expected.

I'm not a business guy, maybe this is all an hallucination of mine...

Luiz C. Vieira - Brazil

### I think I know what the display means -

Message #15 Posted by <u>Ellis Easley</u> on 17 Apr 2003, 7:03 a.m.,

in response to message #14 by Vieira, Luiz C. (Brazil)

The picture on the Aurora site shows the display:

"54-4333 65"

I started browsing the HP12C manual thinking maybe it was an amortization schedule display or something and it jumped out at me - it is in program mode, it says:

"line 54 - GTO 65"

("f" is 42, "g" is 43)

Or it would if it was a 12C, so I'll bet it is - what are the chances of a prefix being "43" by accident? Since the key layout is different you can't use the keyboard as a key to read programs.

# **Re: I think I know what the display means -**

Message #16 Posted by <u>Christof</u> on 17 Apr 2003, 2:25 p.m., in response to message #15 by Ellis Easley

in response to message  $\pi 15$  by Litis Lastey

Hang on now, there's something more to this.

If one can in fact clone a 12C to that level, then it should be possible to make a cloned 42S without getting sued into the ground, no?

# Re: I think I know what the display means -

Message #17 Posted by <u>Ellis Easley</u> on 18 Apr 2003, 1:41 a.m., in response to message #16 by Christof

I wonder if maybe Aurora is the OEM HP has been working with, and they gave them the rights to use the 12C chips to make a cost reduction. I think they would want to change the code so the key codes are "rectangular" but I wonder if there is anyone at HP who knows where the source and the tools are!

# **Re: Brazil price for FN 1000**

Message #18 Posted by <u>db(martinez,california)</u> on 17 Apr 2003, 12:28 p.m., in response to message #13 by Renato

renato; you are right; it does not make economic sense to import these one at a time, and by a route that crosses the equator twice. thank you for the information. i will look here now that i know it exists. someone said that wallywlrld carries aurora products and there is (sadly) one of those in town.

be proud; you live in an rpn country.

### **Re: Brazil price for FN 1000**

Message #19 Posted by <u>Christof</u> on 17 Apr 2003, 2:23 p. m., in response to message #18 by db(martinez,california)

well, at the very least, since DB and I (and glen) live in the same region, shipping 2 (or 3) should be slightly cheaper than shipping one. (per item)

Best by far would be to find a way to grab a gross and resell them here. Which I lack the funding for, alas.

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hp15c programs "who has them"

Message #1 Posted by <u>mark</u> on 14 Apr 2003, 11:05 p.m.

I recently purchased a hp15c calculator and I was wondering were I could download some surveying programs.

**Re: hp15c programs ''who has them''** Message #2 Posted by <u>db(martinez,california)</u> on 17 Apr 2003, 5:12 p.m., in response to message #1 by mark

i have a copy of Havey's 144 line traverse/inverse program written for the 11c. there is a 131 step triangle solutions program in the 11c owners handbook. will those help?

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### HP28S Exploded View picture already sent

Message #1 Posted by Vieira, Luiz C. (Brazil) on 14 Apr 2003, 10:06 p.m.

Hi, guys;

I sent the HP28 Exploded view ("disassembled" is better) scanned from HP Journal, August 1987, to the three guys who asked for it: Raymond, Marx and Scuba. It's not the way I'd like it to be, but I promise I'll scan it again and try to enhance it. Also, I am trying to get access to my former provider to allow some pictures to be available to download (not this one that does not belong to me). As stated at the HP Journal, its contents may be reproduced since a complete reference for the source is mentioned.

Thank you for being pacient.

Best regards.

### HP28S Exploded View picture - E-mail server errors

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 Apr 2003, 10:19 p.m., in response to message #1 by Vieira, Luiz C. (Brazil)

Hi, guys;

I received a message where the e-mails for Scuba and Marx were taken as unavailable, and Raymond's is takne as unknown.

If you have alternative, not-spam protected e-mails, drop me a line with this e-mail as part of the text and I'll send the image again.

Thanks.

Luiz C. Vieira - Brazil

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#### **HP-94E Versions**

Message #1 Posted by *Erik* on 14 Apr 2003, 10:04 p.m.

Like the HP-35 and HP-41 and other HP there are versions in the HP-94E.

Pictured are HP-94s with 2 types of serial number labeling.

1st picture is an HP-94E with a stamped serial number

2nd picture is an HP-94E with a printed serial number on a white background

Which type is more common? I think the stamped serial number is more common but am not sure. What type serial numbers do others have?

Are there other HP-94 variations besides the D,E and F series?

(picture unavailable)

(picture unavailable)

### **Re: HP-94E Versions**

Message #2 Posted by <u>Katie</u> on 14 Apr 2003, 11:58 p.m., in response to message #1 by Erik

Erik,

I have a 94E and a 94F and both have "stamped" serial numbers starting with "26xxJ". I think that your printed "28xxJ" is unusual because of the late date of manufacture. If 1988 is in fact the year of manufacture, perhaps this unit came from a special run.

-Katie

# No Serial Numbers

Message #3 Posted by <u>Mike</u> on 15 Apr 2003, 9:35 a.m., in response to message #1 by Erik

I have a 94F that has no serial number at all. It just has a label with the Just the label. The area where the serial number is supposed to be is blank from the factory.

It also has a glossy surface texture. All the others I have seen have a matte finish.

HP-94F Photos

(picture unavailable)

By the way, I have also started a site for posting photos, etc. Feel free to stop by from time to time. It's mostly a place where I can easily post photos online.

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#### HP-94 Handheld Computer Applications

Message #1 Posted by Erik on 14 Apr 2003, 7:51 p.m.

What applications were written for HP-94 Industrial Handheld Computer?

I know that Dupont Chemical had "DUPONT AGENCY SYSTEM" software for Shipping/ Receiving/Inventory that was used in warehouses across the country.

Anybody have or know of any other software that was actually used or even written?

Thanks, Erik

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### A poll for 48 users/owners

Message #1 Posted by Jeremy on 14 Apr 2003, 7:33 p.m.

After typing my raving response to Norm's 48G+ thread, I would like to hear other peoples' answers to these questions:

1. What percentage of the features of your hp48G would you guess that you use?

2. Are you satisfied with that? Please explain briefly.

3. Are you glad you bought it, or do you feel ripped off?

4. If you could only have ONE calculator, and you had to choose between one of those listed below, which would it be?

a. TI-85 b. hp 48G/GX/G+ (whichever...) c. hp 34C (hehehe) d. hp 32SII e. hp 20s f. TI-89

5. On a scale of 1 to 10, 10 being the best, what overall score would you give the HP48G/GX/G+?

6. If you had to pick one thing about the 48 series as its main downfall, what would it be?

a. Slow processor b. Unintuitive design (too hard to figure out) c. Poorly designed, from the standpoint of user-friendliness d. Poorly designed, from an ergonomic standpoint e. Other (explain in one sentence or less)

Thanks for your input. If anyone's interested, I might add up the results after a few days' time.

-Jeremy

Message #2 Posted by <u>Bill Platt</u> on 14 Apr 2003, 7:42 p.m., in response to message #1 by Jeremy

1. Use less than 5% of features. (Only used one for 2 months) 2. This is just fine. I don't want to add too much "overhead" to the calculation process--the tool is supposed to speed up work, not make more! 3. Glad I bought it. It is extremely useful for weight-moment calculations (because of the Array feature--called "LIST" math). 4. 32SII. The display is MUCH better in low light. It does everything a calculator MUST do. And you didn't disallow having a computer. (I have used 32sII as ONLY calc, until recently, for about 7 years). 5. 7 6. b.

#### Re: A poll for 48 users/owners

Message #3 Posted by <u>Christof</u> on 14 Apr 2003, 8:57 p.m., in response to message #1 by Jeremy

hrm. I'm going to have to comment on some of this, but:

1: hard to say. Probably 30-40% if you count all the programming exrcises and functions used in various libraries i have downloaded. (actually, counting IR/modules/serial/downloads... it might be more like 60%. I really don't know. Without any IO or downloads, 10%. but I wouldn't use it without them)

2: I am fairly satisfied. I have some areas I would like to see things having been done differently, but overall it's a fantqastic machine in its format

3: I have..... 6. I don't feel ripped off (9 if you count 28c/s machines)

4: among the ones listed ? 48SX. or GX. I don't know how your list qualifies, ther. Conspicuosly not on your list, but quite relevant- 41C/V/X and 42S The 42S is much preferreed over the 32, and would be very nearly my first choice for a one-calc-for-life machine. The 41CX might win out because of IO. maybe.

I think this is very relevant as the 48 is really more of a post-41 machine than a post-34 machine. The 42S or 32S(ii) wold be more reasonable for that definition.

5: assuming something like windows CE screentap only idiot calc as a 1, and my dream machines (42SX and 48/71 combo) as 10s..... 7.

6: the main thing missing is a 48 version with a horzontal format and proper keyboard (200LX style, but keeping the <- -> shifts)

I don't think the cpu is all that slow. it's still quite usable in performance for very complex math more thana \*decade\* later.

I don't think the design was bad at all- within the constraints of the package. the UI could have been done differently, but it's not really all that bad once you are used to it. Better docco would have made a huged difference, and did- when I went and found/bought some.

I think it is still a very viable machine for developmental revisions- but those revisions would have to start with no less than a 16mhz cpu, competitive graphics design, and CF replacing the existing expansion slots.

#### Re: A poll for 48 users/owners

Message #4 Posted by <u>Ernie Malaga</u> on 14 Apr 2003, 9:17 p.m., in response to message #1 by Jeremy

>e. Other (explain in one sentence or less)

OK, I'll explain it in less than one sentence:

[begin]

[end]

There! 8^)

-Ernie

#### Re: A poll for 48 users/owners

Message #5 Posted by <u>Chan Tran</u> on 14 Apr 2003, 9:54 p.m., in response to message #1 by Jeremy

1. Hard to say. May be 30%? I use most features except the symbolic and not so much graphing. 2. I am very satified with the calculator. It's not perfect but RPL is an improvement over RPN in my opinion. Unit conversion is convienient. The Solver is nice. Good programming capabilities. 3. Yes I am glad I bought them (48sx and 48gx) and both at \$260 each. I think they are worth their price. 4. The 48 (may be GX as it has better screen). Second is the 41. I have owned and used the TI85,HP34C,HP32SII,HP20S and I don't think any of them are that great. 5. I give it an 8. It can be better. 6. For the SX it's the low contrast screen. For GX it's the key board and label colors.

Message #6 Posted by <u>Trent Moseley</u> on 14 Apr 2003, 10:13 p.m., in response to message #1 by Jeremy

I had a 48GX, couldn't stand it or RPL so I gave it to my nephew, and he loves it. I own one Woodstock, one Classic, three Voyagers, and two Pioneers. Also didn't care for the 31E (it woke up with four decimals), so I gave it to my son. To each his own!

I love the discussion.

tm

## Re: A poll for 48 users/owners

Message #7 Posted by <u>Daniel Kekez</u> on 15 Apr 2003, 1:19 a.m., in response to message #1 by Jeremy

1. Maybe 5-10% of the features.

2. I'm not satisfied only using that much of it, but I've only owned it for 4 months and haven't spent much time working with it.

3. Yes, I'm glad I have it. I bought it at clearance discount, and I am glad I could save a few dollars. At the moment, I don't \*need\* it because my 32SII meets my requirements, but I am interested in experimenting with it and programming it. That's why I bought it.

4. (d) HP32SII -- I own a TI-86, HP32SII, HP48GX, and HP20S. My preference is an RPN Scientific that fits in my shirt pocket.

5. Maybe an 8? That may vary as I use it more.

6. Other: Cost of accessories -- I would probably buy a memory card if it's wasn't so expensive (although when I need the extra memory, I might find the cost worth it).

I found some features were intuitive, I quickly picked up others after reading the maunal -- userfriendly and beginner-friendly are not the same thing. I find it user-friendly after spending some time becoming familiar with it.

Really, I can't complain -- I knew what I was buying when I purchased it, and it met my expectations.

Thanks.

Message #8 Posted by Les Bell [Sydney] on 15 Apr 2003, 1:46 a.m.,

in response to message #1 by Jeremy

- 1. Probably around 5%
- 2. Not really. It's a waste, frankly.

3. I didn't buy it - it was a gift from my family. I feel guilty that I don't appreciate it as much as I feel I should.

4. You omitted the  $41C{V,X}$  from that list. I have two of those and am very glad of them.

5. Around a 5.

6. Lousy documentation. I'd expect such a complex beast to have a long learning curve, but not such a steep one. The annoying thing is that earlier RPL calcs had much better documentation, and going over the 28 manual on the Museum DVD ROM has clarified some things about the 48GX.

Even after that, though, I still see a huge jumble of commands and functions and not much unifying elegance. . .

Best,

--- Les [http://www.lesbell.com.au]

### **Re: A poll for 48 users/owners**

Message #9 Posted by James M. Prange on 16 Apr 2003, 12:53 a.m., in response to message #8 by Les Bell [Sydney]

The annoying thing is that earlier RPL calcs had much better documentation, and going over the 28 manual on the Museum DVD ROM has clarified some things about the 48GX.

Agreed. As you have the musem DVD, also see the 48SX Owner's Manual and Programmer's Reference Manual.

Regards, James

Message #10 Posted by <u>Karl Schneider</u> on 15 Apr 2003, 1:55 a.m., in response to message #1 by Jeremy

1. What percentage of the features of your hp48G would you guess that you use? 5%, *if that much, of my 1993 48G. The unit conversions and equation library are handy.* 

2. Are you satisfied with that? Please explain briefly. *Sure; I've got others that are easier to use: 15C, 32Sii, 20S, 42S, 41CV, 34C. I also have the RPL 28C and 49G, and the specialized 12C, 17Bii, and 16C.* 

3. Are you glad you bought it, or do you feel ripped off? Yes, glad. At \$55 + \$20 later for a manual, it's not a bad value.

4. If you could only have ONE calculator, and you had to choose between one of those listed below, which would it be?

a. TI-85 b. hp 48G/GX/G+ (whichever...) c. hp 34C (hehehe) d. hp 32SII e. hp 20s f. TI-89 32Sii -- easy to use, fast, legible LCD, does almost everything one would need in a handheld calc.

5. On a scale of 1 to 10, 10 being the best, what overall score would you give the HP48G/GX/G + ? As a handheld calc, a "3". It's just too arcane and unintuitive.

6. If you had to pick one thing about the 48 series as its main downfall, what would it be? *b.*, *mostly*.

a. Slow processor b. Unintuitive design (too hard to figure out) c. Poorly designed, from the standpoint of user-friendliness d. Poorly designed, from an ergonomic standpoint e. Other (explain in one sentence or less)

**Re: A poll for 48 users/owners** *Message #11 Posted by* <u>*R Lion*</u> *on 15 Apr 2003, 2:22 a.m., in response to message #10 by Karl Schneider* 

1. What percentage of the features of your hp48G would you guess that you use?

Impossible to say: I use most of the programs installed (third party and my own) and many of the 48 normal scientific features

2. Are you satisfied with that? Please explain briefly.

YES: I use what I need ("living" on ROM or on RAM)

3. Are you glad you bought it, or do you feel ripped off?

This machine amaze me everyday: the best of the 48 is that it is MY 48, different of the others, because the progs and the really very high customisation

4. If you could only have ONE calculator, and you had to choose between one of those listed below, which would it be?

The 48GX (I have the 32SII, the 42S and the 15C)

5. On a scale of 1 to 10, 10 being the best, what overall score would you give the HP48G/GX/G+ ?

9

6. If you had to pick one thing about the 48 series as its main downfall, what would it be?

The slooow firmware (just install MetaKernel and the 48 is MUCH better)

Message #12 Posted by <u>Holger Weihe</u> on 15 Apr 2003, 5:47 a.m., in response to message #1 by Jeremy

1.) Maybe 25% if you include all the commands used for RPL-programming. Maybe 8.375% if only mathematical functions count.

2.) I think that is ok. I don't need all functions, but I am glad to know they are available if I need them. Also I had much fun with this calculator (programming, games, IR-remote-control...)

3.) When I bought it, my first GX costed about 220 Euro/\$. That was a lot of money for a student, but It was really ok. I \_wanted\_ the HP48!

4.) It would be the HP48GX. Other calcs are faster for small calculations (I like the 32SII). But they lack some advanced functions. The HP-49G has even more functions, but I don't need them (and don't find them without a manual at hand). I like the older HPs very much, i.e. the voyagers or spice series. But they would not fit as my \_only\_ calculator.

5.) I would rate it 8.

6.) definitely "a". If it was faster, it was the perfect machine for me.

Holger

PS: The results would interest me!

### **Re: To Holger**

Message #13 Posted by <u>*R Lion*</u> on 15 Apr 2003, 6:02 a.m., in response to message #12 by Holger Weihe

The HP-49G has even more functions, but I don't need them

and if you should need them, just install MetaKernel, Alg48 and Erable in your 48. You'd get 95% of the 49...

Regards

Raul

Message #14 Posted by <u>John</u> on 15 Apr 2003, 6:14 a.m., in response to message #1 by Jeremy

My answers will refer to a 48SX with 'Equation Library', 'Math Pac' and my own custom programs. (I bought a 41CX when it was introduced and the 48SX when that came.)

(1) Possibly around 5%, and that is probably a lot? (2) Yes. Satisfies my needs. (3) Still happy with it. (4) It would be the 48SX, although I don't know that many to compare with. (5) For my needs, a 10. (6) I wish that programming was more 'intuitive', like on the 41.

PS I find the 48SX documentation to be excellent.

**Re: A poll for 48 users/owners** *Message #15 Posted by <u>Clive Marner</u> on 15 Apr 2003, 7:47 a.m., in response to message #1 by Jeremy* 

I've just bought Norm's 48G+, so I'll let you know in a few months!

**Re: A poll for 48 users/owners** *Message #16 Posted by* <u>*Tom (UK)*</u> *on 15 Apr 2003, 7:53 a.m., in response to message #1 by Jeremy* 

1. What percentage of the features of your hp48G would you guess that you use?

5-10%

2. Are you satisfied with that? Please explain briefly.

No - further use requires alot of learning / memorising

3. Are you glad you bought it, or do you feel ripped off?

No - but not ripped off

4. If you could only have ONE calculator, and you had to choose between one of those listed below, which would it be?

a. TI-85 b. hp 48G/GX/G+ (whichever...) c. hp 34C (hehehe) d. hp 32SII e. hp 20s f. TI-89

d but I was sorely tempted to say 'none of the above' because you havn't listed the 41 or 42.

5. On a scale of 1 to 10, 10 being the best, what overall score would you give the HP48G/GX/G + ?

5 - but only because of the build quality and half decent manual

6. If you had to pick one thing about the 48 series as its main downfall, what would it be?

A different level of calculator to what I need - the late RPN models were just about right.

#### **Re: A poll for 48 users/owners**

Message #17 Posted by <u>Michael F. Coyle</u> on 15 Apr 2003, 9:46 a.m., in response to message #1 by Jeremy

1. 20% or so.

2. Yes, I'm satisfied. I've only had it a short time, percentage will eventually go up.

3. Glad I bought it. It's a helluva fun toy.

4. d. 32SII -- long battery life rules out 34C, pocketability rules out 48.

5.7.

6. e -- too big to fit in a shirt pocket. (Perhaps this falls under "d" instead.)

- Michael

### Re: A poll for 48 users/owners

Message #18 Posted by James M. Prange on 16 Apr 2003, 12:35 a.m., in response to message #1 by Jeremy

1. What percentage of the features of your hp48G would you guess that you use?

HP 48GX, actually. I won't even hazard a guess. Certainly all program structures and stack manipulation commands. But for mathematics, my use is pretty much for basic arithmetic, geometry, trigonometry, coordinate system transformations, and statistics. Some use of string commands, mostly for labeling printouts and such. I seldom use the graphing features, but it's nice to have them available when I want them. And I play around with it a lot, just to experiment with what can be done.

2. Are you satisfied with that? Please explain briefly.

Sure. What more would I want a calculator to do? And if it can do even more than I know how to use, so what? It doesn't reduce what I can do with the calculator.

3. Are you glad you bought it, or do you feel ripped off?

I bought it back around 1994 (at maybe about US\$275?), and I certainly didn't feel "ripped off", if I understand that term correctly. I did choose to spend my money, and the 48GX is at least as good as I'd read. But I was slightly disappointed; not that there's any problem with it, but it isn't as much of an improvement over the 48SX as the 48SX is over the 28S. But now that they're available at bargain basement prices on eBay, I have two spares, and if I weren't so short of money I'd buy more while they're cheap.

4. If you could only have ONE calculator, and you had to choose between one of those listed below, which would it be?

a. TI-85 b. hp 48G/GX/G+ (whichever...) c. hp 34C (hehehe) d. hp 32SII e. hp 20s f. TI-89

b: 48GX

5. On a scale of 1 to 10, 10 being the best, what overall score would you give the HP48G/GX/G + ?

Do you mean as compared to any other calculator currently available? If so, then 10.

6. If you had to pick one thing about the 48 series as its main downfall, what would it be?

a. Slow processor b. Unintuitive design (too hard to figure out) c. Poorly designed, from the standpoint of user-friendliness d. Poorly designed, from an ergonomic standpoint e. Other (explain in one sentence or less)

e: It's too big to fit in my shirt pocket.

Regards,

James

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## **HP-25C Battery Pac**

Message #1 Posted by <u>Trent Moseley</u> on 14 Apr 2003, 6:26 p.m.

What's the best way to open up the 25C battery pac so I can reinstall new rechargable nicads?

tm

#### **Re: HP-25C Battery Pac**

Message #2 Posted by <u>David Smith</u> on 14 Apr 2003, 6:38 p.m., in response to message #1 by Trent Moseley

I prefer so slice along the heat weld seam around the top of the pack to separate the top and bottom of the pack, insert new cells, and then glue it back together.

Some people like to cut out the center bar between the cells and them pry them out. This does not leave the pack looking like it did when new.

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## 6.022136736e23

Message #1 Posted by <u>hugh</u> on 14 Apr 2003, 6:20 p.m.

you might think this is avogadros constant; either if its 1997 or you've just bought a shiny new hp9g. well, despite the reassuring ten significant figures, its no longer this number. since 1998, avogadro's constant has been 6.02214199e23. so why isnt the new number in the 9g, eh?

<conspiracy theory> had anyone else noticed that avogadros constant had changed. some other constants too. it seems to me that there is a sinister plot to gradually move the physical constants about so that mass can be redefined in terms of avogadro. ie define 1 mol as NA, giving a by-definition na value. then they can finally throw the physical kg mass away. </conspiracy theory>

**Re: 6.022136736e23** *Message #2 Posted by David Smith on 14 Apr 2003, 6:36 p.m., in response to message #1 by hugh* 

When I was in school it was 6.023E23... I think we are just getting fewer molecules in our moles... just like the continually shrinking contents of coffee cans, toilet paper rolls, etc.

#### Re: 6.022136736e23

Message #3 Posted by <u>**R** Lion</u> on 14 Apr 2003, 6:51 p.m., in response to message #1 by hugh

Why the IUPAC has the "old" NA?

http://www.iupac.org/reports/1993/homann/values6.html#reference

Raul

# Re: 6.022136736e23 - Which one is which?

Message #4 Posted by Vieira, Luiz C. (Brazil) on 14 Apr 2003, 7:27 p.m., in response to message #3 by R Lion

Hello, Raúl;

you brought to the light one interesting point: which one is THE Avogadro's Constant? If there is an old value, than the new one already exists...

Hey, Hugh; where else can we find disruptions in Constants' Chain? I mean it, I agree with you that if they have been changed, then reasons are. If there are no reasons, \<conspiracy theory\> has not reached \</conspiracy theory\> yet! It's still an instance!

Although may sound fictious and senseless, 5.254 e17 is a significant value. As an error, it goes below .0001%, or .00008724470477% (6.02214199[EEX]23 [ENTER] 5.254[EEX]17 [%T]} to be 9 significant digits with 3 correct digits.

Best regards.

Luiz C. Vieira - Brazil

(P.S. - percent functions have their place ... )

# Re: 6.022136736e23 - Which one is which?

Message #5 Posted by <u>Fred</u> on 15 Apr 2003, 5:35 a.m., in response to message #4 by Vieira, Luiz C. (Brazil)

I hope that PI will never change ..... but who knows ????

;-))

#### Re: 6.022136736e23 - Which one is which?

Message #6 Posted by <u>hugh</u> on 15 Apr 2003, 1:07 p.m., in response to message #4 by Vieira, Luiz C. (Brazil)

as you point out, a lot of it is down to people thinking all the given digits are known. in fact the ..199 of the new value is suspect and the value should be written as 6.02214(199) e23 like it is on the nist website. which really means they only changed one digit, a 3 to a 4 outside of one standard deviation and this happened because they renormalised a whole set of constants. to that end a few other constants have changed too. so, a lesson to calculator makers is to avoid putting physical constants in rom.

i put in the consipiracy bit for fun, but i do think we'll soon see the kg defined in terms of avogadro. one suggestion is to define 12g as NA atoms of carbon-12.

### Re: 6.022136736e23

Message #7 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 7:52 a.m., in response to message #1 by hugh

Does the kilogram mass standard reside in France, like the meter bar? If so, and if your conspiracy theory is true, maybe it would account for France's bad mood.

#### Re: 6.022136736e23

Message #8 Posted by <u>hugh</u> on 15 Apr 2003, 9:04 a.m., in response to message #7 by Ellis Easley

meter bar? not anymore. the meter was defined in terms of wavelengths of krypton-86 for a while.

<conspiracy> then it was dropped in favour of defining the speed of light as exactly 299792458m/s then defining the second in terms of light frequency. </conspiracy>

the kg mass should still be in france right now.
## Re: 6.022136736e23

Message #9 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 9:41 a.m., in response to message #8 by hugh

"the meter was defined in terms of wavelengths of krypton-86 for a while."

That's what I thought, but I read recently that now the SI system defines the meter as the distance light travels in a vacuum in 1/299,792,459 second. My tongue-in-cheek remark was that maybe with the physical kilogram standard facing obsolescence along with the meter bar, France might feel some resentment.

## Re: 6.022136736e23

Message #10 Posted by <u>Fred</u> on 15 Apr 2003, 10:01 a.m., in response to message #9 by Ellis Easley

Everybody knows that the real definition of the meter is the 1/324 of the height of the Eiffel tower ....

## Re: 6.022136736e23

Message #11 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 10:15 a.m., in response to message #9 by Ellis Easley

Oops! I didn't read carefully enough.

## Re: 6.022136736e23

Message #12 Posted by <u>Dave Shaffer</u> on 15 Apr 2003, 12:46 p.m., in response to message #11 by Ellis Easley

Sorry to say: no conspiracies.

For reasons of ease of use (i.e. you don't have to go to Paris), the speed of light is now a defined standard: 299792458 meters/second and the time definition is set by some number of cycles (I don't remember the value, but you can look it up) of a certain transition of the Cesium atom (as used in cesium frequency standards/ clocks). The meter is then derived from these two values.

The remaining fundamental quantity (mass) is still defined by a piece of something somewhere (Paris or Boulder, Colo.). However, folks are working on relating it to fundamental physical quantities, too. I think this would be by relating force (through electromagnetic interactions) to mass and using Newton's F=ma (where time and distance are also needed, for the acceleration term, but we took care of those quantities in the preceding paragraph).

It is changes like these that cause "changes" in things like Avagadro's number. Every few years, there are complete recalculations of all the physicals constants, in a big least-squares adjustment that takes into account the latest in measurement precision.

## Re: 6.022 more or less

Message #13 Posted by glynn on 15 Apr 2003, 6:48 p.m., in response to message #12 by Dave Shaffer

I don't have a scientific background, but from primary school I was under the (maybe mistaken) impression that the PERFECTION of such a system as CGS and all that was the Definition/Derivation of these in terms of their relationships.

For instance, I was moderately sure that a gram was a cubic centimeter of something or other (maybe water?). And temperature was based on heating water, and some energy measurement was that expended by a gram of water falling one meter, and so on and on...

So like, if you change a meter, that would call for a redefinition of the standard volume. If you change the standard of volume, then the number of molecules you can count within it would probably change, right?

Maybe they should re-do all this anyway. I want seconds that are at least 50% longer, for sure. Downloads will be so speedy.

#### Major changings...

Message #14 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 16 Apr 2003, 2:52 a. m., in response to message #13 by glynn

Glynn, you smart boy!

That's for sure the best one!

Hey, I like very much reading your posts (too bad our primary common interest is too far and timeconsuming, so we did not e-mail to each other

about that...) and they are realy amazing. About this one, you do not need a scientific background when your solution goes beyond it...

Have you seconds like this one, plese save some for me, too...

Best regards. And keep posting... we need to go beyond the e-sphere.

Luiz C. Vieira - Brazil

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# HP Forum Archive 12

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## **USB-Serial Adaptor?**

Message #1 Posted by **David Bengtson** on 14 Apr 2003, 9:40 a.m.

Does anyone have any experience with USB to serial adaptors and the HP-Connect software? I'm using a 49G, and would like to give up the serial port to a Palm Pilot. I'm primarly curious as to how the PC Connectivity kit works with a USB to Serial adaptor.

Thanks

Dave

## **Re: USB-Serial Adaptor?**

Message #2 Posted by John K. (US) on 14 Apr 2003, 11:51 p.m., in response to message #1 by David Bengtson

Dave,

You'd probably be better off using the serial-USB adapter with the Palm device, rather than the 49G. The newer Hot-Sync software supports USB directly, whereas the HP-Comm probably won't work unless your USB card's driver has some way of disguising them to look like a standard COMn port.

## **Re: USB-Serial Adaptor?**

Message #3 Posted by <u>James M. Prange</u> on 16 Apr 2003, 3:04 a.m., in response to message #1 by David Bengtson

I'm primarly curious as to how the PC Connectivity kit works with a USB to Serial adaptor.

I expect that it may well depend on which adapter and the driver that comes with it.

I've been using a "USB Serial Converter-UC 310". It came with a USB cable, the converter itself, a DB25 to DB9 adapter, and a driver CD-ROM. It's not listed now, but visit http://www. cablewholesale.com/catalog/usbadaptors.htm

Using HPComm v3.0r4, ASCII and binary file transfers, "Backup...", and "Restore" (all using the Kermit protocol) work fine, but "Capture Image..." doesn't work with the converter.

If I use the built-in serial port instead of the converter, then "Capture Image..." does work.

The HP Connectivity Kit XModem kit version 1.0.9 can't find the COM port when I use my converter.

If I use the built-in serial port instead of the converter, then the XModem kit does work.

Hilgraeve's HyperTerminal Private Edition, Ver 6.3 (see http://www.hilgraeve.com/htpe/index. html) works with either the converter or the built-in serial port. I guess that the HyperTerminal that comes with MS Windows would also work, but I don't know that for certain. This works as a terminal emulator, allows you to "Capture Text..." (from XMIT or the various print commands), "Send Text File..." (using SRECV on the calculator), transfer using the Kermit protocol, and transfer using the XModem protocol. But note that it doesn't recognize the 49G's XModem Server mode, so you have to use XSEND and XRECV on the calculator and always provide a name on the receiving device. Also, for XModem, it initially expects CRC error checking, and it takes a considerable time to fall back to checksum error checking.

I usually use HyperTerminal, it always works. Sometimes I have trouble with HPComm losing the connection, and occasionally I can't get it to connect at all without rebooting MS Windows.

I haven't found any application that works as well as MS-DOS Kermit (though I suppose that I could try Kermit 95), but it's no surprise that it can't find the adapter's serial port. Under MS Windows 98SE, it often has trouble finding the built-in serial port, though it always works perfectly with the built-in serial port if I boot to DOS.

All of this is using MS Window 98SE. With the various possible operating systems and

software and naraware configurations, i our mineage may vary	software	and hardwa	re configurations,	, "Your Mileage	e May Va	ıry".
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Regards, James

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# **HP Forum Archive 12**

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## **O.T. regarding the order of letters**

Message #1 Posted by Ellis Easley on 14 Apr 2003, 7:37 a.m.

The recent 48G discussion included the non-qwerty keyboard. I know that the qwerty layout was designed to slow down fast typists to reduce key jams on mechanical typewriters. Also that there is a Dvorak layout that improves typing efficiency on electronic keyboards. But what is on my mind is the order of the letters of the alphabet, specifically the version of the Roman alphabet used for English. I have a little familiarity with the alphabets used for Spanish and German but I haven't considered them yet regarding this subject (I don't know exactly where the additional letters go in the order). Also, the English alphabet is the basis of ASCII, so its numerical order is at least pervasive!

Here is why I am wondering:

ABCD

EFGH

IJKLMN

OPQRST

UVWX

YZ

I think the distribution of the vowels is interesting, and the pattern "sort of" includes "Y" among the vowels, as we are taught it sometimes is. Does anybody know why the letters are in this order and why the vowels are distributed as they are? Don't some languages older than English, but still "alphabetic", do without vowels? If they were added at some point in history, were they just "spread around"?

## **Re: O.T. regarding the order of letters**

Message #2 Posted by <u>Ernie Malaga (Miami)</u> on 14 Apr 2003, 9:20 a.m., in response to message #1 by Ellis Easley

Ellis:

>Don't some languages older than English, but still "alphabetic", do without vowels? If they were added at some point in history, were they just "spread around"?

Yes, there are languages which use alphabets and yet are written without vowels. Arabic and Hebrew are two such languages. Both include over- and under-markings to indicate vowels, but those are customarily omitted.

Languages that use the Latin or Greek alphabet, however, have separate letters for the vowels and do not omit them when writing. But they are related to neither Arabic nor Hebrew, but to Phoenician, which also had its vowels and used them like we do. Once I read that the letter O was the oldest (i.e., unchanged) of the alphabet, being some 5,000 years old.

One interesting question regarding alphabets is, why did the Romans change the order of the letters when taking the Greek alphabet to create the Latin one?

-Ernie

## **Re: O.T. regarding the order of letters**

Message #3 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 10:39 a.m., in response to message #2 by Ernie Malaga (Miami)

"One interesting question regarding alphabets is, why did the Romans change the order of the letters when taking the Greek alphabet to create the Latin one?"

Ernie, this sounds like just the kind of thing I'm wondering about. I'm going to try browsing an unabridged dictionary to see if it has any articles on the subject. Ellis

## **Re: O.T. regarding the order of letters**

Message #4 Posted by <u>Chan Tran</u> on 14 Apr 2003, 11:08 a.m., in response to message #3 by Ellis Easley

I need QWERTY keyboard only for touch typing as I learned it that way. I don't think I can touch type a handheld machine. So almost any order can be learned relatively quickly as long as you need to look at the keyboard to type.

## Re: O.T. regarding the order of letters

Message #5 Posted by <u>James M. Prange</u> on 16 Apr 2003, 1:04 a.m., in response to message #2 by Ernie Malaga (Miami)

One interesting question regarding alphabets is, why did the Romans change the order of the letters when taking the Greek alphabet to create the Latin one?

Maybe because the Greek alphabet wasn't invented in Rome, therefore it needed improvement?

Regards, James

## Re: O.T. regarding the order of letters

Message #6 Posted by <u>db(martinez,california)</u> on 14 Apr 2003, 11:47 a.m., in response to message #1 by Ellis Easley

is abcdefg...... the official correct order, or did we just get that one from the song?

## Re: O.T. regarding the order of letters

Message #7 Posted by <u>Paul Brogger</u> on 14 Apr 2003, 12:02 p.m., in response to message #1 by Ellis Easley

Here are a few hints (and maybe the email address of someone who can provide more detail).

This was found with a Google search on "origin alphabetic sequence". I didn't find much else in a quick scan of the results -- there must be more available somewhere!

### Re: O.T. regarding the order of letters

Message #8 Posted by <u>Tom (UK)</u> on 14 Apr 2003, 2:29 p.m., in response to message #1 by Ellis Easley

Interesting topic!

In medieval I think (NOT FROM MEMORY!) that there was an extra letter caller 'thor' or possibly 'torr' which looks like a curvy upper case 'Y' and was pronounced 'th'. I don't know where this may have fitted in the 26 letters or was just shorthand.

This causes me endless amusement with 'fake' shop signs in tourist traps that go something like:

"Ye Olde Shop"

To which the uninitiated say "Yea Oldey Shop" (pronounce all the letters to get the full effect) but should be simply pronounced "The Old Shop".

"UK and US - 2 great nations separated by a common language" - don't know who said this but it's very true.

**Re: O.T. regarding the order of letters** 

Message #9 Posted by <u>r. d. bärtschiger.</u> on 14 Apr 2003, 3:17 p.m., in response to message #8 by Tom (UK)

"UK and US - 2 great nations separated by a common language" - don't know who said this but it's very true.

I think this may have been George Bernard Shaw. Not 100 % sure.

rdb.

**Re: "Separated by a Common Language"** *Message #10 Posted by* <u>*Paul Brogger*</u> on 14 Apr 2003, 4:12 p.m., in response to message #8 by Tom (UK)

<u>Here</u> is what appears to be an authoritative treatment, but while looking for it (with a Google phrase search), I found it attributed to Mark Twain and Winston Churchill . . .

(I'd thought it was G. B. Shaw, too . . . )

**Re: "Separated by a Common Language"** *Message #11 Posted by* <u>*r. d. bärtschiger.*</u> *on 14 Apr 2003, 5:56 p.m., in response to message #10 by Paul Brogger* 

The following is copied from Encarta.

" Language

England and America are two countries separated by the same language.

Attributed to: George Bernard Shaw (1856–1950), Irish playwright. Attributed in this and other forms, but not found in Shaw's published writings.

Encarta® Book of Quotations © & (P) 1999,2000 Microsoft Corporation. All rights reserved. Developed for Microsoft by Bloomsbury Publishing Plc. "

It is probably impossible to difinitively identify the origin of this phrase.

rdb.

## Re: O.T. regarding the order of letters

Message #12 Posted by <u>Christof</u> on 14 Apr 2003, 9:02 p.m., in response to message #1 by Ellis Easley

As far as i can tell after some research, querty was designed to prevent armature jams by placement of the letters, not by slowing down the typist. It may not be the most suitable layout for computing, but it does work fine when doing NAVPERS forms on a selectricII. Plenty of very fast typists out there. :)

## **Re: O.T. regarding the order of letters**

Message #13 Posted by <u>glynn</u> on 14 Apr 2003, 9:49 p.m., in response to message #12 by Christof

Qwerty is a layout that had reason for early "hammerstrike" mechanisms, avoiding entanglements. As far as the Selectric II, however, that should not be a problem, as it is a "ball" mechanism.

Incidently, has anyone ever used one of those daisywheel typewriters that don't type anything until you've hit a few keys, then they spin up and start whacking? Frightening--that alone probably caused more than a few typists to petition their bosses for a PC.

## **Re: O.T. regarding the order of letters**

Message #14 Posted by <u>Christof</u> on 14 Apr 2003, 11:10 p.m., in response to message #13 by glynn

I admit I'm not very clear when writing.

I did try to mention that the entanglement of armatures (rather, the prevention of entanglement) was the reason for the qwerty keyboard.

I had mentioned the selectricII while discussing the speed of typing on a querty keyboard. I hadn't intended to state that that was the armature mechanism the querty keyboard was designed for. (how could I when the selectric series came out long after

qwerty and use balls instead of armatures anyway?)

sorry for the confusion.

-C

## **IBM SELECTRIC better than computer**

Message #15 Posted by <u>NH</u> on 15 Apr 2003, 12:46 a.m., in response to message #14 by Christof

HI,

IBM Selectric is better than a computer.

Not for computing.

For learning to type !!!!!

No distractions. Just a piece of paper you roll into it rrrrr rrrr rrrrr rrrrr.

Like a little charge of gunpowder going off underneath each keystroke. LOVE IT.

no wonder I learned to type 70 wpm on a selectric and nobody else did.

Typing on a computer is like typing on a bunch of mashed potatoes.

I am POSITIVE THAT on many computer keyboards, I am out-typing the microprocessor scan rate. There's too darn many mistakes and I refuse to believe its me.

If its scanning anywhere in the KiloHertz or tens of Kilohertz range, it could be missing things. I can never type quite as fast on a computer. When setting aside an IBM Selectric and using a computer instead, I always feel like an Indy 500 race car driver who has been handed the keys to a dump truck. You are always having to fight it to get it where you want it to go.

Just my opinion IMHO.

## **Re: IBM SELECTRIC better than computer**

Message #16 Posted by <u>Dave Shaffer</u> on 15 Apr 2003, 12:36 p.m., in response to message #15 by NH

re: "Typing on a computer is like typing on a bunch of mashed potatoes."

You are using the wrong keyboard! I have four computers that I use with some regularity (two at home, one at school, one at our other house) - they ALL have old IBM PC/AT keybords. These boat anchors have a nice clicky sound and feel - they make almost as much noise as the Selectric ball makes when it hits the paper. They are almost 20 years old, and still working fine. They were built at the same time and with the same quality as the early HP calculators. They are also fetching similar prices on Ebay. I figure these four keyboards are part of my retirement plan, to sell when I get too old to do this stuff any more.

## Clicky IBM PC/AT keyboards

Message #17 Posted by <u>Karl Schneider</u> on 16 Apr 2003, 1:51 a.m., in response to message #16 by Dave Shaffer

Dave Schaffer wrote:

"...old IBM PC/AT keybords... are almost 20 years old, and still working fine. They were built at the same time and with the same quality as the early HP calculators. They are also fetching similar prices on Ebay."

Heck, I have two of them! I'd better become an eBay seller, or find a proxy-seller service.

## **Re: Clicky IBM PC/AT keyboards**

Message #18 Posted by <u>Dave Shaffer</u> on 17 Apr 2003, 3:33 p.m., in response to message #17 by Karl Schneider

Karl,

They have to be genuine IBM, with the 10 function keys on the left where they should be, especially if you still use old Wordperfect/Quattro/ Lotus. You can then do all the operations with just the fingers of your left hand never leaving the keyboard area.

The last one I saw on E-bay, I dropped out of the bidding before it got to

## **Re: Clicky IBM PC/AT keyboards**

Message #19 Posted by <u>David Smith</u> on 17 Apr 2003, 7:10 p.m., in response to message #18 by Dave Shaffer

I have seen many AT auctions where the buyer apparently said keep the machine, just send the keyboard... I have four of them in my stash (one went flakey though).

## **Re: Clicky IBM PC/AT keyboards**

Message #20 Posted by <u>Dave Shaffer</u> on 18 Apr 2003, 1:12 p.m., in response to message #19 by David Smith

David,

How did it go "flakey"? Like an HP calculator with funny keys?!

Maybe you can fix it. (If you don't want to, I might be interested!) These keyboards can be opened up and cleaned. You can also pull the keycaps off, although that doesn't really give you access to the internals of the key switch mechanism. I had a bad key on one of them which seemed to clear up all by itself once it was put back into use.

## **Re: Clicky IBM PC/AT keyboards**

*Message #21 Posted by* <u>*David Smith*</u> on 18 Apr 2003, 3:29 p. m.,

in response to message #20 by Dave Shaffer

Several of the keys started being intermittent. I opened it up and cleaned it. Not much change. Also the bail mounts to the space bar broke. I'm keeping around for spare parts in case one of the other ones breaks.

## **Re: IBM SELECTRIC better than computer**

Message #22 Posted by <u>Bill Platt</u> on 15 Apr 2003, 3:16 p.m., in response to message #15 by NH

Back in college (late 80's) one of my professors, who was a really fast (100wpm) typist showed me that she could easiy out-type the buffer on any of the computers we had, including a VAX 11-780 (vt220 terminal), an IBM clone (whatever was right before 286), an Apple 2-E, and the very first Macintosh.

She would type in a flurry, and then a few seconds later, the VAX would start to bEEPbEEEbEEEP!!!

## **Re: IBM SELECTRIC better than computer**

Message #23 Posted by <u>David Smith</u> on 15 Apr 2003, 5:57 p.m., in response to message #15 by NH

Never use a Selectric for typing classified/confidential stuff. It is a very easy task to take the sounds that a Selectric makes and reverse engineer the letters that are being whacked by measuring the times if the various clicks and whirls and clunks the machine makes... Selectrics are definitely not Tempest qualified and are banned from all classifed govt work.

## **Re: IBM SELECTRIC better than computer**

Message #24 Posted by <u>NH</u> on 15 Apr 2003, 6:54 p.m., in response to message #23 by David Smith

THAT's how the neighbors knew what I wrote about them .

:o|

I'm going to go and watch all my James Bond movies again, and see if they screwed up by putting IBM Selectrics into top-secret government settings.

## **Re: IBM SELECTRIC better than computer**

Message #25 Posted by glynn on 15 Apr 2003, 9:46 p.m., in response to message #23 by David Smith

Seems like it would just be easier to read the carbon-film ribbon. That's what I used to do.... ;-)

## **Re: IBM SELECTRIC better than computer**

Message #26 Posted by <u>David Smith</u> on 16 Apr 2003, 5:45 p.m., in response to message #25 by glynn

Ribbons always go in the crypto burn bag...

## **Re: IBM SELECTRIC**

Message #27 Posted by <u>Ernie Malaga</u> on 15 Apr 2003, 7:32 p.m., in response to message #15 by NH

In 1974, when I was 19, my father bought me an IBM Selectric I (the rounded one). Using it I learned to type and eventually reached my top -- 90 words per minute back then, although I've slowed down after the years.

But the Selectric isn't such a great machine, in my opinion. That typewriter went on repairs so many times that I lost count. Good thing that a friend was an IBM technician and always billed it as if the machine were still in warranty. (Shhh -don't tell IBM!)

My father, on the other hand, had a Remington Portable dated 1924 that never needed repairs, never jammed, never failed to operate. Now THAT'S what I call a good machine. Of course you can't change typefaces and the keys are harder to press.

Me, I prefer my Macintosh for typing documents. After all, it allows me to \_erase\_ and rearrange things. 8^)

-Ernie

## Re: O.T. regarding the order of letters

Message #28 Posted by <u>Scuba Diver</u> on 15 Apr 2003, 11:04 p.m., in response to message #14 by Christof

Does anyone have an Apple 2C? Didn't that come with a toggle that allowed the user to switch between QWERTY and Dvorak?

I never saw a 2c up close so I don't know if the keycaps were removable; I sure hope that they were, otherwise you wouldn't be able to move the keycaps around when you switched keyboard modes...

## Re: O.T. regarding the order of letters

Message #29 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 11:09 p.m., in response to message #28 by Scuba Diver

I don't know about the AppleIIC (I think that's the correct spelling!) but I'm sure I've seen a computer with the option of interpreting the keyboard as the Dvorak layout rather than qwerty. Since I haven't seen that many computers, I think it was an option with MS Windows at some point.

### Re: O.T. regarding the order of letters

Message #30 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 8:02 a.m., in response to message #12 by Christof

I knew the ultimate purpose was to prevent jams. Slowing down the typist might be a side effect. But isn't the Dvorak layout designed to speed up typing by putting the most used letters under the strongest fingers?

### **Re: O.T. regarding the order of letters**

Message #31 Posted by <u>Scuba Diver</u> on 16 Apr 2003, 6:40 p.m., in response to message #30 by Ellis Easley

Thanks for correcting me Ellis. Actually, I think it was the Apple ][c :)

Anyway, here is a blurb that I found on a site I found through google, www. dvortyboards.com. According to the site, the Dvorak keyboard puts the 5 vowels and 5 most common consonants on the middle row; this means that your fingers do less travelling, thereby reducing repetitive stress disorders. "Enter the PC age and Apple computer...Then the Apple IIc was introduced, with a QWERTY/Dvorak switch right there in front where everybody could see and use it... Dvorak, along with many other international keyboard layouts is available through Windows: Settings - Control Panel - Keyboard - Language - Properties. There are even Dvorak layouts for one-handed typists, left or right."

Anyhow, it seems to make sense, I just can't see me learning it...you can't teach an old dog new tricks!

Β.

### Re: O.T. regarding the order of letters

Message #32 Posted by <u>Ellis Easley</u> on 16 Apr 2003, 7:03 p.m., in response to message #31 by Scuba Diver

I think now maybe it was a ][C I saw with the Dvorak option - and thanks for the better spelling, I saw it in my mind but didn't think there was anything on the keyboard to do it!

Just to be pedantic; it was the " //c". Message #33 Posted by <u>glynn</u> on 17 Apr 2003, 1:35 a.m., in response to message #32 by Ellis Easley

:-)

**Re: Just to be pedantic; it was the " //c".** *Message #34 Posted by <u>Ellis Easley</u> on 17 Apr 2003, 4:02 a.m., in response to message #33 by glynn* 

I guess ][ was pre-C

Re: Just to be pedantic; it was the " //c". Message #35 Posted by <u>Massimo Gnerucci (Italy)</u> on 17 Apr 2003, 5:12 a.m., in response to message #34 by Ellis Easley Yes. The "e" model logo already was printed as "//e". Massimo

## **Re: Just to be pedantic; it was the " //c".** *Message #36 Posted by* <u>*Scuba Diver*</u> on 18 Apr 2003, 12:40 p.m., in response to message #35 by Massimo Gnerucci (Italy)

Let's just be thankful that the HP logo has remained the same!

## Re: Just to be pedantic; it was the " //c".

Message #37 Posted by <u>Massimo Gnerucci (Italy)</u> on 18 Apr 2003, 1:47 p.m., in response to message #36 by Scuba Diver

Well... it was once turned upside-down to form the "dy" logo of Dymec.

http://www.interex.org/tech/csl/RTE/archive/poyner1.htm

Massimo

## HP Logo

Message #38 Posted by <u>Michael F. Coyle</u> on 18 Apr 2003, 5:42 p.m., in response to message #37 by Massimo Gnerucci (Italy)

Well, way back when, the HP logo was in "portrait mode" rather than "landscape mode" like it is now.

Somewhere over at work we have a 200C floating around with the original (?) logo.

(Another OT logo question: when did Tektronix switch from the round to the rectangular CRT in their logo? I'm guessing 1970-ish.)

- Michael

## **Re: HP Logo**

Message #39 Posted by <u>Ellis Easley</u> on 21 Apr 2003, 5:46 p.m.,

in response to message #38 by Michael F. Coyle

A question about the different HP logos came up a while ago and I thumbed through "The HP Way" but the only picture of a logo in that book is from a 1967 trade show booth decorated with the portrait mode logo. At one point the HP logo was neither portrait nor landscape mode, it was just a circle not quite enclosing the lower case "hp", the top of the "h" and the bottom of the "p" traveled a good way past the circle. You can see this logo on the HP200A oscillator in the HP Virtual Museum:

http://www.hp.com/hpinfo/abouthp/histnfacts/museum/ earlyinstruments/0002/0002front.html

At one point HP spun off a company called Dynac to build systems integrated from HP products. The name Dynac was chosen to fit the upside-down HP logo:

http://www.hp.com/hpinfo/abouthp/histnfacts/museum/ earlyinstruments/0006/0006front.html

The portrait mode logo encloses the circle in a tall rectangle and truncates the excursions of the letters at the perimeter of the circle with the region below the circle solid color and the region above the circle scored horizontally. It gives me the impression of "earth and sky". I have two HP oscilloscopes from the late 50's and early 60's. Both pieces of equipment have only the round logo and the manual for the older scope has it too but the manual for the newer scope has the portrait mode logo on the covers and title page. As it happens, the older scope has a plain round CRT and the newer one has a postdeflection acceleration CRT which blocks the beam from reaching the phosphor at the very top and bottom of the round face, sort of like the portrait mode logo cuts off the tails of the letters. Later oscilloscopes with PDA have rectangular faces. I have always thought that the landscape mode HP logo reflects the change from round to rectangular CRT's on oscilloscopes. For a while the landscape mode logo was blue on the right and black on the left, later it was blue on both sides with the letters still black, and now both sides and the letters are all in a convenient color already in use on the panel. Did HP feel black and blue for awhile? It would seem to have been HP's heyday (70's-80's) but if the logo represents an oscilloscope, HP probably did feel beat up by Tektronix!

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# HP Forum Archive 12

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## Red-Hot HP-34C auction over, lot of sniping

Message #1 Posted by <u>NH</u> on 14 Apr 2003, 6:05 a.m.

There was an HP-34C auction on eBay and the item was as close to factory-new as you are likely to see anymore.

In the box, all manuals, unit very close to new, etc. Item #3017859365 It went for \$273.

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3017859365&category=11713

The amount of sniping was really intense. In the last 2 minutes it went from \$150 to \$273 at the close. Most of the jump was in the last 20 seconds. The 2nd highest bidder placed his entry just 6 seconds before the auction.

## **Re: Red-Hot HP-34C auction over, lot of sniping**

Message #2 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 6:46 a.m., in response to message #1 by NH

I can get in around 4 seconds - if my ISP doesn't just lock up! The trick is to have a WWVB receiver clock. If you want to get fancy, you can calibrate your clock to Ebay and get an idea of the latency by doing a Refresh about 2 minutes before the end. But that doesn't seem to make any difference to the results, and might contibute to my lockup problem!

## **Sniping Tips**

Message #3 Posted by <u>Clive Marner</u> on 14 Apr 2003, 7:25 a.m., in response to message #2 by Ellis Easley

Or you could use www.lotsnipe.com, who provide their 10 second snipe service for free. www.auctionsniper.com can get down to at least 3 seconds (I've not tried closer), they give you 3 free snipes & it's \$0.25 per snipe thereafter.

## No need to split hairs on sniping

Message #4 Posted by <u>Mike</u> on 14 Apr 2003, 2:30 p.m., in response to message #3 by Clive Marner

All that one can hope to accomplish by sniping is to set a price that someone can't have a chance to beat by "giving it a little extra thought."

If you bid in the last 5, 10 or 15 seconds or so, it makes no difference if you use a tool or do it manually. None whatsoever. If I bid with 10 seconds and you use a sniping tool, I'll still win if my bid is higher.

The ONLY point of a sniping tool is if you can't be there in person.

All that sniping does is prevent running up the bid by emmotional outbidding by those that can see the current high price.

LOL ! Auction Searches ...

Message #5 Posted by <u>NH</u> on 15 Apr 2003, 12:32 a.m., in response to message #3 by Clive Marner

LOL. It is humorous that people set up an entire website just for sniping.

I want a different auction website. I want an automatic auction watcher to find items in the first place. eBay only allows steady search-monitoring of 3 items maximum. But let's say I have 10 favorite calculators, and 2 favorite nostalgic turntables. I want to enter all that stuff and it will notify me whenever any of that pops up, on any auction anywhere.

I have never seen that website, and eBay's limited offering of 3 favorite searches is next to useless.

Ideas ?

## Re: ... sniping

Message #6 Posted by <u>Paul Brogger</u> on 14 Apr 2003, 10:16 a.m., in response to message #1 by NH

I think I'd pay eBay a 10% sales premium for *one extra minute* beyond the posted close on certain items . . .

## Re: ... sniping

Message #7 Posted by <u>Randy</u> on 14 Apr 2003, 1:32 p.m., in response to message #6 by Paul Brogger

eBay could increase their revenues by either:

Randomizing the closing time within 5 minutes.

Or better yet,

Roll the closing time ahead a minute every time a new bid is received within that minute window.

That would kill off the automatic sniper programs and services.

I wonder if sniping is common on other items.

Just like Basketball - it all happens in the last few minutes.

### Re: ... sniping

Message #8 Posted by <u>Ron Ross</u> on 14 Apr 2003, 2:12 p.m., in response to message #7 by Randy

Sniping is actually what an Auction is meant to be. (No, I do not snipe via a Bot but I can neither condemn Nor condone it). If we all played fair and bid our maximum and only once, we would not have this practice. However, while we all want a good deal, we are all fanatical Hp calculator geeks (geese???) waiting to be PLUCKED!

We have as a collective bunch driven the cost of \$5-10 electronics (thats what most other obsolete electronics go for) to the astronomical prices they command. It has become such a market that some make this hobby into a second income. Thanks to ebay, we get this. We all want an item at a good deal and in certain areas of interest, this is almost always possible. However, Calculator geeks tend to be techno-geeks as well and are very internet and ebay savy and as a whole, end up driving an otherwise mediocre market into the stratusphere. That is why we actually screw up an otherwise modest market.

Most all of us took economics and learned about the shepard and the grazing problem. While each shepard came out ahead by overgrazing, the pasture went to hell with everyone overgrazing. Sort of like all of us on ebay. If you were to check most any other type of hobby, you will find a pretty flat price range, but not for us. Individually, we might be a tad above average in smarts, but as a whole, we are ONE DUMB FLOCK.

**Re:** ... sniping - it's what made the 1st world the way it is... Message #9 Posted by <u>Tom (UK)</u> on 14 Apr 2003, 2:35 p.m., in response to message #8 by Ron Ross

"Most all of us took economics and learned about the shepard and the grazing problem. While each shepard came out ahead by overgrazing, the pasture went to hell with everyone overgrazing. Sort of like all of us on ebay. If you were to check most any other type of hobby, you will find a pretty flat price range, but not for us.

Individually, we might be a tad above average in smarts, but as a whole, we are ONE DUMB FLOCK."

Your last 2 paragraphs summarise the unregulated free market economy.

**Re:** ... sniping - it's what made the 1st world the way it is... Message #10 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 8:22 a.m., in response to message #9 by Tom (UK)

With apologies to the people who are trying to replace a tool they need for their work, for the most part these calculators are collector's items which end up being priced as luxuries in an open market - this is probably a testament to the greater earning power of people who use HP calculators in their careers!

If these calculators were commodities, which I understand to mean items of utility that are consumed at a predictable rate, the prices they are bringing would have drawn people to produce more of them.

The case that gives one pause is the 32SII, which was getting high prices on Ebay while there were still some in stores for the much lower list price.

## Sheep and Calculator Collector

Message #11 Posted by <u>Michael F. Coyle</u> on 15 Apr 2003, 7:58 p.m., in response to message #8 by Ron Ross

Ron Ross writes:

We all want an item at a good deal and in certain areas of interest, this is almost always possible. However, Calculator geeks tend to be techno-geeks as well and are very internet and ebay savy and as a whole, end up driving an otherwise mediocre market into the stratusphere. That is why we actually screw up an otherwise modest market.

Most all of us took economics and learned about the shepard and the grazing problem. While each shepard came out ahead by overgrazing, the pasture went to hell with everyone overgrazing. Sort of like all of us on ebay. If you were to check most any other type of hobby, you will find a pretty flat price range, but not for us.

(<disclaimer> I have not taken an economics course so the following may be naive. </disclaimer>)

So what happens to the sheep? Many of them will end up starving. Eventually you reach a point where the pasture ends up supporting the "right" number of sheep. The sheppards will be forced to find the right balance where the pasture pays out the maximum sustainable amount. Under- and overgrazing are just signs that this optimum point has not been found yet.

Is calculator collecting any different? In the end, people pay as much as they feel reasonable to get what they want. No one is putting a gun to our heads while we write out the check. Every person's definition of "reasonable" is different of course.

Why are 10C's going for \$300? Simple, there are enough people around willing to pay \$300. The people who lost in the last auction will now decide that they're willing to pay a little more, say \$325. A few people will drop out. As the price rises the number of serious bidders will drop. By the time 10C's are going for \$3000 there will be very few people, perhaps none, willing to shell out that kind of money. At that point the price will stabilize. Collectors will remember the good old days when 10C's cost "only" \$1000. "Gee, I wish I had gotten one then. What a bargain!"

eBay as such does not alter this process. It probably does accelerate it as on-line auctions are an efficient way to get an item in front of a large number of interested buyers. But even without eBay, the same price increases would have occured,

though probably more slowly.

If the prices of other collectables have not gone up much lately, I assert that their prices went up in the past and have now stabilized. HP collecting is a less mature area -- people have been informally buying, selling and collecting since the days of the HP-35 but it has become a blood sport only in the last few years.

I guess I ought to conclude by paraphrasing an old joke. One man asks another, "Would you pay \$300 for an HP calculator?" "Sure!" "Would you pay \$3000?" "What do you think I am, some kind of a nut?" "We've already established that; now I'm just trying to determine your price."

Get 'em while they're cheap!

- Michael

## Wouldn't work for a couple of reasons

Message #12 Posted by <u>Mike</u> on 14 Apr 2003, 2:39 p.m., in response to message #7 by Randy

The #1 reason is that you presume that eBay would want to prevent sniping. That isn't a valid assumption. I have seen many times when someone wanted to protect a bid by bidding excessively high and got burnt by someone else doing the same thing.

Sniping benefits eBay. Prices are higher because of sniping.

The 2nd thing that is wrong is that if an auction was simply extended, a minute or so, the only people around to see that extra time would be previous likely snipers.

There would be no need to bid excessively high. No one would ever bid more than 2% higher than the previous bid, unless they weren't present at the close simply because there would be time to increase your bid.

That means NO ONE would ever be burnt again on an eBay auction by two people putting in protection bids. eBay would lose. Bids would ONLY be what bidders wanted to pay.

Bottom line: If you want an item, NEVER bid early AND only bid what you are willing to pay.

## My motto: 'bid late, bid low'

Message #13 Posted by <u>Tom (UK)</u> on 14 Apr 2003, 2:45 p.m., in response to message #12 by Mike

Rather than: 'bid early, bid often' - because your only pushing the final price up.

## **Re: Wouldn't work for a couple of reasons**

Message #14 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 8:25 a.m., in response to message #12 by Mike

Other than my current Dutch bid, I prefer sniping because it keeps ME from getting caught up in a bidding war!

### Re: ... sniping

Message #15 Posted by <u>hugh</u> on 14 Apr 2003, 5:37 p.m., in response to message #7 by Randy

your second suggestion, i put to ebay about a year ago. basically, any bid in the last 5 mins, pushes the close forward by 5 mins (or some selectable threshold).

since then, i no longer think the idea is worthwhile. for me, at least, i consider what i would be prepared to pay for an item then i bid that amount. if another bidder wins by \$1, i think on how much i've saved :-)

i still bid fairly late, because there are a lot of muppets out there that erode a bid without really thinking about true value.

### Re: ... sniping

Message #16 Posted by <u>GE</u> on 14 Apr 2003, 5:51 p.m., in response to message #15 by hugh

This is very true that we get what we deserve in this case. No one is innocent, apart from me of course (!!!) - I stopped eBay 2 years ago.

Last week I got an HP10 (not C) on some (unspecified...) online auction. I bid 5 days in advance, and was the only bidder. The opening bid was 32 Euros (about \$34) - I just bid that and won.

So the secret seems to be : don't follow others. It takes some strength to do that, believe me : at times I'm almost crying when I look at what eBay has on store (price

not counting).

Well, that's life. Next time it's your turn, I hope.

You won because

Message #17 Posted by <u>Mike</u> on 14 Apr 2003, 5:55 p.m., in response to message #16 by GE

No one else saw the listing and no other reason.

**Re: You won because** Message #18 Posted by <u>GE</u> on 14 Apr 2003, 5:59 p.m., in response to message #17 by Mike

You are totally correct, that was the point. What did you understand ? Puzzled.

## eBay anti-sniping feature

Message #19 Posted by <u>NH</u> on 15 Apr 2003, 12:35 a.m., in response to message #6 by Paul Brogger

If eBay would better serve their customers thru innovation, they could create an "antisniping feature".

Simple, if the seller prefers, he enables an option that EXTENDS THE AUCTION BY 10 MINUTES everytime a new high-bid is recorded. Sniping is thereby ended, and frantic emotional bidding is encouraged. More dollars to the sellers, more eBay hysteria, more commissions (ever dwindling value to the buyers).

I dont think they will do that because eBay is too big to care anymore. And people will get confused if there is not a concrete end-time to the auction.

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Ebay con

Message #1 Posted by Howard on 14 Apr 2003, 4:54 a.m.

How's this for a rip off! http://cgi.ebay.com/ws/eBayISAPI.dll? ViewItem&item=3018842204&category=20335

**Crook, Con, or just plain crazy?** *Message #2 Posted by* <u>*NH*</u> *on 14 Apr 2003, 5:57 a.m., in response to message #1 by Howard* 

YAH That's a funny one.

"NUTBOY" LOL what a handle. Get any item you want for free.

I sent him a seller question, asked him if he was crazy.

- Norm

## Violates eBay rules

Message #3 Posted by <u>Mike</u> on 14 Apr 2003, 3:00 p.m., in response to message #1 by Howard

I suspect. I'd suggest that everyone send complaints to eBay and I bet he's gone within days.

eBay specifically states you cannot use ebay auctions to steer people to items outside ebay.

Also, if he posts more than 10 identical auctions, he is in violation of eBay rules. Simply doctoring the title to sell the same thing does not get around that.

Finally, if he lists items in the subject, "that he is not selling in the actual auction" that is KEYWORD SPAMMING. So he can be bounced for that.

I suggest people complain and he will be removed.

### Why violation ?????

Message #4 Posted by <u>Norm</u> on 15 Apr 2003, 12:49 a.m., in response to message #3 by Mike

Why is it a violation of eBay rules to post more than 10 identical auctions.

Is that all at the same time (parallel) or one after another (serial).

I mean, what if I had a whole palletload of HP-41C's new-in-box and it had sat in a warehouse 20 years. Maybe theres 50 calculators. If I sold them one at a time over 2 years did I violate eBay rules ???

Just trying to broaden my knowledge appreciate any reply.

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#### **HP Forum Archive 12**

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#### HP 41 AND PC

Message #1 Posted by Jon on 13 Apr 2003, 2:40 p.m.

I have read it is possible to connect an HP-41 to the PC. But I don't really know how to do it. Which module is neccesary? Which PC port (or special card) is used? Where is available the software?

Thanks in advance

Jon

#### Re: HP 41 AND PC

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 Apr 2003, 9:41 p.m., in response to message #1 by Jon

Hi;

the first module is the HPIL (82160A). It allows the HP41 to "talk" to the world. Then you'll need a PC board (I do not know its ID but for sure many in here know) for on-line operation. I have an HP9114B and I exchange information from the HP41 to the PC by using floppy disks. If I am not wrong, there is an issue about bus speed and compatibility, and you should use the standard HPIL-PC board in slow machines. Anyway there seems to be an updated hardware that to run in faster machines.

Sorry not helping that much. As I see your post for a few hours without answer, I decided to post this few information.

Best regards.

Luiz C. Vieira - Brazil

#### Re: HP 41 AND PC

Message #3 Posted by <u>Bill Smith</u> on 14 Apr 2003, 12:25 a.m., in response to message #1 by Jon

There are several relevant postings on the Articles section of this site. See #118, 260, 311, and especially #54. The easiest direct connection requires the 82160A HP-IL module in the 41, and the 82973A HP-IL PC card. The TRANSFILE41 software allows use in any PC with an ISA slot. Some other softwares prefer the card in a 286 PC.

You'll find some of the hardware expensive and hard to find.

Best of luck, BS

## **Re: HP 41 AND PC** Message #4 Posted by <u>Christoph Klug</u> on 14 Apr 2003, 6:10 a.m.,

in response to message #3 by Bill Smith

Dear Jo,

todays best solution for HP41-PC transfer is using the HP-IL/PC Interface card plus EMU41 software !

Refer to the HP-Museum article forum item 311 - there you get an imagination about the surprising and advanced features.

Needed software and hardware is easy available from Jean-Francouis Garnier (EMU41) and from me (HP-IL/PC Interface Card).

Best wishes from Germany - Christoph Klug

#### Re: HP 41 AND PC

Message #5 Posted by <u>Christof</u> on 14 Apr 2003, 1:08 p.m., in response to message #4 by Christoph Klug

I've got a pair of nice portable 386 machiens with ISA slots- the part I'm missing is some sort of extended HPIL for the 41.

has anyone considered making new modules for that- or even perhaps recoding the stock HPIL module? (personally, if I had a rom I could pop into the existing HPIL, I'd be ecstatic)

#### HW and electrical transformer/coupler

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 Apr 2003, 4:18 p.m., in response to message #5 by Christof

Hi, Christof;

I have been thinking about this for a long time, and I think the easiest part is the electrical coupler/transformer. I have the original HP Journal issue about the HPIL and many electrical considerations are made in those articles, even a waveform analisys.

As many have already told here, today's microcontrolers are fast, low-powered and resourcefull enough to hold the task. I am almost sure it can be done. What worries me is the HP41 bus interface and SW translation/adapting.

Any clues? I remember many guys were working with this, but I have lost my e-mails and the some names come to my mind are: C. Klug (in this thread), M. Kuypers and V. Prevelakis, and I am sure there are others (please, forgive me).

Best regards.

Luiz C. Vieira - Brazil

#### **Re: HW and electrical transformer/coupler**

Message #7 Posted by <u>christof</u> on 14 Apr 2003, 9:05 p.m., in response to message #6 by Vieira, Luiz C. (Brazil)

Maybe there's a way to do it with just the existing HPIL modules? change the ROM inside? I don't have a spare to pull apart, but i can give it a try carefully and see.....

#### **Re: HW and electrical transformer/coupler**

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 Apr 2003, 9:38 p.m., in response to message #7 by christof

Hello, Christof;

unfortunately, HPIL chip is a single unit (at least for the HP41 module). I know HPIL ROM has already been downloaded, but we must consider that it runs in the HP41's CPU. The HPIL chip itself has a transparent protocol that can be replaced at the moment the new one accepts HP41's commands/signals and generates the same output/ input handling. Internal registers are a matter of bus address.

Are you interested in having a look at the article? If you have the issue, try HP Journal, January 1983 issue. Its first four papers are all dedicated to HPIL design and specs at the literature level, neither hidden secrets nor protocol explanations.

If you do not have this issue, tell me and I'll scan the articles for you.

Best regards.

Luiz C. Vieira - Brazil

#### Re: HW and electrical transformer/coupler

Message #9 Posted by <u>Christof</u> on 14 Apr 2003, 11:07 p.m., in response to message #8 by Vieira, Luiz C. (Brazil)

Luiz-

I don't have that issue after a scan of my shelf. I don't \*think\* it's scanned anywhere in my collection, either.

(and how I wish we had OCRd docco at least in part. to be able to search and custom make text files for travel.... ah, well)

#### Re: HW and electrical transformer/coupler, now: MLDL2000

Message #10 Posted by <u>Meindert Kuipers</u> on 15 Apr 2003, 2:56 a.m., in response to message #6 by Vieira, Luiz C. (Brazil)

I am still worlking hard on my MLDL2000, and there is some progress. I could not spend as much time as I wanted lately but I am now back on the track again. There will be an interface to the outside world, based on a very simple 3 or 4 wire synchronous protocol. This would support a parallel interface to a PC by bit banging the PC's parallel port. I am already investigating USB controllers which are almost single chip solutions between USB and a number of parallle bits, and that would give the MLDL2000 a nice USB interface. Please note that software has to be written as well, both on the PC and HP41 side. The interface is primarily intended to be able to load and save the ROM and RAM in the MLDL2000.

As for the status of the MLDL2000: I am currently implementing the WROM instruction, but there is a nastly little bug in the state machine that I am trying to resolve. When that is done it is time to do the PC interface.

There are some questions that I would like to ask the forum:

- Is anyome familiar with the HP41 DATA line and how is works when a module supplies data?

- Is there more specific information available on the extra HEPAX instructions? I know what they do but wants some more specifics. It will be very difficult to implement though...

- Bank switching: Is there a complete overview of all the particulars?

#### Re: HW and electrical transformer/coupler, now: MLDL2000

Message #11 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 8:42 a.m., in response to message #10 by Meindert Kuipers

Have you considered using the TI USB cable for (at least) the TI83+? It sells in the US for around \$15 and TI has offered a \$15 rebate for quite a while.

As I understand TI's explanation of their various cables, originally they used the serial port of the PC to connect to their calculators. But since the calculator interface was a simple clock and data system (not RS-232), they just used some of the modem control signals and bit-banged them. This required them to do something completely different for the Mac. Finally they made a USB cable with electronics to interface with the calculator's port.

#### Re: HP 41 AND PC

Message #12 Posted by <u>Vassilis Prevelakis</u> on 16 Apr 2003, 4:32 a.m., in response to message #5 by Christof

Christof wrote:

> has anyone considered making new modules for that- or even perhaps recoding the stock HPIL module?

You don't need to recode the stock HP-IL module, you can write code to drive the HP-IL chip in the 82160A module without interfering with the ROM in the same module.

This is what the Extended I/O module does.

Just because the ROM is in the same packaging as the rest of the electronics, it doesn't mean that you cannot write your own code.

However, trying out your code is going to be "interesting" either way since both your new module and the replacement of the 82160A ROM have to be custom HP parts that can no longer be produced.

Sorry but you will have to use either an MLDL or an emulator.

\*\*vp

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Surveying tape cartridge vol 2 9815 Message #1 Posted by <u>Scott Stewart</u> on 13 Apr 2003, 1:20 p.m.

I have been trying to purchase or find a tape copy of surveying vol 2 for the 9815???

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### A guide to the modules

Message #1 Posted by jose goncalves on 13 Apr 2003, 10:30 a.m.

Is there any place where I can find information on the contentes of the HP41 application modules ? I see that there are more than one product for modules with the same name and I read somewhere that there are some different releases for some of the modules. I have now some 25 pieces that I'm trying to organize. These include Math 1, Stats, Home management, securities x (!), games, finance, finance + memory (!), quad memory, x-functions, x-memory etc.

### **Re:** A guide to the modules

Message #2 Posted by Vieira, Luiz C. (Brazil) on 13 Apr 2003, 9:30 p.m., in response to message #1 by jose goncalves

Hello, José;

the ROM version is usually shown in CAT 2. If you have a card reader attached to the HP41, when you execute CAT 2 you'll find the following header:

CARD RDR 1x

where 1x is the ROM version, where x stands for C, D, E, F, G, H... If you have an HP41CX it's easier: CAT 2 will jump to the headers without showing module's functions. Also, in the HP41CX, internal extra functions (TIME and X-FCN) have different headers:

-TIME 2x -CX TIME -EXT FCN 2x -CX EXT FCN

For theseROM's, 2x also mean their version and th x stands for C, D, etc. AFAIK, these are the only standard HP modules with a 2x ID.

I can send you a PDF file with most modules' XROM # and their functions. E-mail me.

Luiz C. Vieira - Brazil

## Re: A guide to the modules

Message #3 Posted by <u>Monte Dalrymple</u> on 13 Apr 2003, 10:14 p.m., in response to message #1 by jose goncalves

Here is the information that I have for many of the ROM modules. It's not complete yet and navigation isn't clean yet either:

http://www.systemyde.com/hp41/modules.html

I've sent this to Dave for inclusion in the Museum if he wants.

Monte

Re: A guide to the modules

Message #4 Posted by <u>Mike (Stgt)</u> on 14 Apr 2003, 3:48 a.m., in response to message #3 by Monte Dalrymple

Hi Monte!

That's a good presented table you offer. May be this helps too: <u>http://ourworld.compuserve.</u> <u>com/homepages/nutem/romim.htm</u>. It's just a print-out of my ROMs database on my HP200LX.

Ciao.....Mike

**Re: A guide to the modules** *Message #5 Posted by* <u>*Monte Dalrymple*</u> on 15 Apr 2003, 6:27 p.m., *in response to message #4 by Mike (Stgt)* 

Hi Mike,

Thanks! I got this information by looking through ROM images. It got to where I could read the header information without referring to the hex conversion tables. Sad, but true. I am learning mcode in case I ever get an MLDL or try to reverse-engineer the Nut CPU.

Your list is much more comprehensive. I guess that I might as well give up on collecting...

Thanks, Monte

### Re: A guide to the modules

Message #6 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 3:29 a.m., in response to message #1 by jose goncalves

One of the modules you listed, "finance+memory", is probably a combined module that was built by a third party out of the separate HP modules. I assume "memory" would be an HP41C main memory module, either the original one or the quad memory. If so, it will only function correctly in a 41C, not a CV or CX, since they contain the full main memory already. Similarly, the CX contains the X-functions and the timer modules, so you can't plug another one in. Once you identify the types of modules combined, using CAT for the finance or other ROM module, and experimenting with SIZE for the memory module, you can refer to the documentation for the separate modules, many of which are on the Museum CD-ROMs. As far as I know, HP only made one product which was functionally a combined module, the Math/Stat module. It came with both manuals for the single modules. The HP securities module is labeled "SECURITIES X".

## Finance + Memory...

Message #7 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 Apr 2003, 6:16 a.m., in response to message #6 by Ellis Easley

Hi, Ellis;

Based on what you mentioned, as a safety precaution and to be sure about it, one should first try the Finance + Memory in an HP41C prior to use (if applicable then) in a CV or CX.

I once tested a mainboard (2001) that I did not look carefuly and thought was from an HP41C, and plugged four 82106A on it. It switched to ON without any troubles.

I tried SIZE 000 to see [00 .REG. 319 ] and it worked fine. I switched it to OFF, removed the last module and witched it to ON again expecting a [MEMORY LOST ] message. Instead, it started a high-pitch frequency and no message in the display. I removed the batteries and the remaining three modules then I switched it ON again. [MEMORY LOST ] was there, and after SIZE 000 I saw [00 .REG. 319 ] without any memory module. "Que babaca..." ("What a j..k ...") I thought. In Portuguese, of course.

It runs fine till today.

That's why I think it should not EVEN be tested in an HP41CV or CX, as Ellis mentioned. Existing memory may conflict. And this sort of "hybrid" justifies itself partially when we consider cash flow computations in an HP41C with a financial module.

Luiz C. Vieira - Brazil

### **Re: A guide to the modules**

Message #8 Posted by <u>Renato</u> on 14 Apr 2003, 10:49 a.m., in response to message #1 by jose goncalves

I suggest connecting a printer and doing catalogs in each module. Printouts will give a good starting point for making sense of the modules. Combined modules would be easily identified. I can lend you my printer, when you come to Campinas, or I can print the catalogs for you.

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The color of the HP14B front panel

Message #1 Posted by jose goncalves on 13 Apr 2003, 8:39 a.m.

What type of paint I should use to restore the part of the front panel of my HP14B, around the display ? I can't match the exact brown. I suppose the color is the same as for the HP 42S, the HP32S and some others. Any ideas ?

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**Re: cleaning keyboard - additional** Message #1 Posted by <u>Christof</u> on 13 Apr 2003, 5:12 a.m.

Baby toothbrushes aren't bad. canned air used in intelligent ways (so you don't cause extreme condensation) and a vacuum seem to work best for me

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**eBay item description does not seem right** Message #1 Posted by <u>Nick Nicholas</u> on 13 Apr 2003, 2:19 a.m.

Regarding the auction of a HP 32sii on ebay: http://cgi.ebay.com/ws/eBayISAPI.dll? ViewItem&item=3017508084&category=11713, the calculator seems to be a silver bezel version. Did this version ever come in the box as shown? If not, this is not a NIB as claimed or more accurately NOT new in original box.

**Re: eBay item description does not seem right** Message #2 Posted by <u>Mike Sebastian (Texas)</u> on 13 Apr 2003, 9:44 a.m., in response to message #1 by Nick Nicholas

For what ever it's worth, I purchased a HP32SII in the new color scheme when it first came out. It did not come in a box.

I'd recommend contacting the seller for clarification.

### No clarification needed

Message #3 Posted by <u>Randy</u> on 13 Apr 2003, 11:15 a.m., in response to message #2 by Mike Sebastian (Texas)

Like oil and water.

The box is 1991-1993.

Calculator is 2000-2002.

IMO, the box is worth more than the calculator...



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**HP Calc Emulator Discussion on Slashdot** Message #1 Posted by Les Bell [Sydney] on 12 Apr 2003, 9:11 p.m.

Here's the slashdot page <u>http://slashdot.org/articles/03/04/12/179214.shtml?</u> tid=173&tid=159&tid=100

However, the main page it refers to has itself been slashdotted. Might have to try the Google cache, or something.

Best,

--- Les [http://www.lesbell.com.au]

**Re: HP Calc Emulator Discussion on Slashdot** 

Message #2 Posted by John K. (US) on 14 Apr 2003, 12:56 a.m., in response to message #1 by Les Bell [Sydney]

Looks cool. It's a shame that it only runs on the Hi-res Palm devices like a Clié or a Tungsten though.

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**if you don't like ebay posts then don't open this** Message #1 Posted by **db(martinez, california)** on 12 Apr 2003, 2:59 p.m.

i found an interesting auction at http://cgi.ebay.com/ws/eBayISAPI.dll? ViewItem&item=3017475874&category=11712

in his "about us" section he describes his business like this: "CA Service is an authorized reseller and service center for Hewlett Packard......" but in the item description he says "This is untested it is missing the battery and battery cover it appears to be new, but i have no way to test it so i have to sell it AS IS".

so, do we have an hp service center that can't install three button cells to test a unit that doesn't even have a battery compartment door in the way or a weasel for a seller?

btw: hidden in the verbage is an \$8 shipping fee for a \$4 stamp. a bio-engineered weasel?

### a good evaluation

Message #2 Posted by <u>NH</u> on 12 Apr 2003, 4:01 p.m., in response to message #1 by db(martinez,california)

a good evaluation, something not quite right there. "bioengineered weasel" a most excellent terminology I hope to emulate. Maybe Carly is also bioengineered ?? Might explain a few things. :o)

**Re: if you don't like ebay posts then don't open this** Message #3 Posted by Larry Corrado, USA (WI) on 12 Apr 2003, 9:42 p.m., in response to message #1 by db(martinez, california)

Looking at the other brands listed, it sound like he might service HP computers and/or printers rather than calculators. Still, they should be able to test a calculator...

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### Sony Drives for 9114 - Sources?

Message #1 Posted by Mike on 12 Apr 2003, 2:55 p.m.

I have a 9114 that needs a new drive. The movable head has been bent up when someone removed a stuck disk (I suspect).

I suspect original drives are hard to find but perhaps some other system (Apple, IBM, etc) may use this drive. It is an OA-D32W-11 that was in this 9114.

Anyone know of another disk system that uses this drive type?

**Re: Sony Drives for 9114 - Sources?** 

Message #2 Posted by <u>Tony Duell (UK)</u> on 12 Apr 2003, 5:15 p.m., in response to message #1 by Mike

The 9114A nad 9114B use different drives!. The drive in the 9114A is also used in many HP HPIB drive units (such as the 9133), and in some older Apricot computers. The drive in the 9114B is also used in the HP 9153 (I think). I've never seen it used elsewhere, but many parts (head carriage, stepper motor, analoge ASIC chip, etc) are also used in the Apple 800K drive used on old Macs. That's a possible source of a head. But of course you'd need to align it after fitting (which is not hard, but you do need a 'socpe and alignment disk). In your case, you need the first type of drive, from a 9114A. The head often gets damaged when the grease on the disk holder/eject mechanism goes hard. The disk holder doesn't latch properly, and the disk rips the top head off as it ejects.

### Re: Sony Drives for 9121 - bad grease

Message #3 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 6:44 p.m., in response to message #2 by Tony Duell (UK)

Tony, In your post which I referenced in my response below, you said you could provide step-by-step instructions on removing the hardened grease from the drives in the 9121D/S and 9114A, et al. Have you or will you please? I have the HPCC Datafile CD-ROM that Jake Schwartz provides (Twenty Years of Datafile 1982-2001) - would it by any chance be there? MoHPC Articles Forum #78 cheers one on regarding the cleaning but doesn't provide specific instructions. I have a 9121 that I want to start using but I want to do the preventive maintenance first.

#### ps

Message #4 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 7:24 p.m., in response to message #3 by Ellis Easley

I can get the drive unit out of the 9121 on my own, I just need to know the steps for getting rid of the hardened grease.

BTW, you mention that the 9114B drives have power on the 34 pin data cable - Tandy/ Radio Shack used drives like that in the computers built by Tandy at the end and for quite a while before. I don't think Tandy thought it up, I'm sure Sony offered it that way. Both 720K and 1.44M drives like this were used. You can see on the PCB where there are places for optional zero-ohm resistors which either connect all the odd pins (except pin 1) of the data connector to ground or connect one group of odd pins (3,5,7,9,11) to +5V and another group (29,31,33) to +12V (all the remaining odd pins except pin 1 [providing a logic signal] are directly connected to ground). When the drive has the option for power on the data cable, the 4 pin power connector is deleted. Tandy used a data cable that ran to the first FDD first (remember that the standard IBM "twisted" cable has the connector for the first drive at the far end - better for transmission line termination with removable 150 ohm resistors installed on the drive at the end of the cable, but later abandoned, with permanent 1K resistors on all drives, and a shorter cable used), then after that first data connector (or possibly after a second receptacle connector to allow a second 3.5" drive of the same type), there are punches in the ribbon cable to isolate those odd pins on additional devices from the +5V and +12V coming from the motherboard.

#### **Re:** ps -- drives with power on the 'data' cable.

Message #5 Posted by <u>Tony Duell (UK)</u> on 13 Apr 2003, 7:03 p.m., in response to message #4 by Ellis Easley

Floppy drives with power on some of the odd numbered pins of the data cable (normally all grounded) are not that uncommon. I've seen them used in other machines. What makes the 9114 (and other HP) drive units unusual is that they rotate at 600 rpm (PC drives rotate at 300rpm). So you can't use a PC drive in a 9114 without changes to the controller board. The Sony drive in the 9114B looks to have been a standard unit, though. THere are soldered jumpers for power on the data cable .vs. power on a separate connector (and there are pads to fit such a connector). There are a couple of other soldered confioguration jumpers too. There even seems to have been a vesrion with a Mac-style motorised eject mechanism (!). That was never used in the 9114B, of course. I don't know if the 600 rpm drives with 34 pin connectors were used anywhere else. Maybe there is some obscure machine that had them.

### Re: ps -- drives with power on the 'data' cable.

Message #6 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 4:10 a.m., in response to message #5 by Tony Duell (UK)

I logged in this morning to add another ps. about the spindle motor speed! I'd like to know what HP's reasoning was for using 600 RPM. It cuts "average rotational latency" (1/2 the time of a revolution) in half but since HP's systems are so slow, you have to use a higher interleave (which means more revolutions to read a given number of sequential sectors) to improve performance. It all seems to add up to faster diskette wear.

Next time I open up my 9114B, I'm going ot compare the drive to the ones Tandy used - see how much is in common.

Doubling the spindle rotation speed also means the frequency of the read and write signals is doubled, possibly requiring different reactive components in those circuits - maybe even different heads. The actual doubling of the rotational speed is possibly a jumper option on the motor PCB, or it could be a ceramic resonator of twice the frequency on the motor PCB. Some 1.2MB 5.25" drives (not the original one in the IBM PC/AT) had two spindle speeds selected by a pin on the 34 pin cable - 360 RPM for 1.2 MB mode (500 Kb/s data rate just like an 8" drive except 80 cylinders instead of 77) and 300 RPM for the 360 KB mode (so the data rate would be 250 Kb/s, simplifying the FDC circuit). The drive used in the PC/AT only spun at 360 RPM; it used the same heads for data at 300 Kb/s and 500 Kb/s.

BTW, you mentioned non-Mac drives that look like they have provision for motorized eject - I've noticed that a lot of 3.5" drives have a rotary damper (loaded with thick silicone oil) coupled to the diskette loading mechanism via a rack-and-pinion gear mechanism. I think this is to make the head land on the media gently. It looks like a motor with the same pinion gear could be mounted in the same location as the damper.

Re: ps -- drives with power on the 'data' cable.

Message #7 Posted by <u>Tony Duell (UK)</u> on 14 Apr 2003, 6:50 p.m., in response to message #6 by Ellis Easley

IIRC, the original spec for the 3.5" drive stated a 600rpm spindle speed. HP used such drives (they were standard Sony units, and I think Sony were the inventors of the 3.5" disk). The 300 rpm ones were introduced later, so they could be used with standard PC disk controllers...

### Re: ps

Message #8 Posted by <u>Steve (Australia)</u> on 14 Apr 2003, 1:18 a.m., in response to message #4 by Ellis Easley

I believe there is an article in the articles forum that describes in painstaking detail how to get rid of the gunky grease and even repair the head assembly.

I am particularly sure because I remember writing it :-)

Steve

### Re: ps

Message #9 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 4:20 a.m., in response to message #8 by Steve (Australia)

Steve, I read your article and I appreciate it. Tony had offered to post a step-bystep procedure for cleaning out the old grease, and with a mechanism like a 3.5" FDD, I really like having some idea on the order to attack disassembly!

I remember when I first saw a 3.5" FDD - the first ones were all from Japan - having been familiar with 5.25" drives based on the Shugart 500 (?is that right?) drive - even Tandy was building its own 5.25" drive - the 3.5's were so beautiful by comparison! So compact and precise!

### **Re: Sony Drives for 9121 - bad grease**

Message #10 Posted by <u>Tony Duell (UK)</u> on 13 Apr 2003, 4:41 p.m., in response to message #3 by Ellis Easley

I don't think I ever wrote this up for Datafile, so it won't be on the CD-ROM. And it's a long time since I've done it, but I can still remmeber roughly what to do. Adter taking the drive out and disconnecting all the external cables, take off any mouning brackets/ plates. Then remove the one screw on the back and take off the top cover. FLip the drive over. Take out the 3 screws on the 'foil' shield over the PCB. Take off the shield, then ease out the PCB (you will probably have to untagle the wires to the stepper motor). Unplug the connectors from the PCB and set the PCB aside. Still working from under the chassis, take out the 2 screws at the very front. These hold the front panel in place. Remove this, taking care not to damage the LED or lose the eject button/spring. Put all these parts aside. Back on top now. At the rear left, take out the screw holding the eject damper in place, and remove it. Note how the little white arm fits in place. Take out the 2 screws on the head load solenoid bracket (one holds an earth tag in place), and take the bracket out. Feed the wires through the chassis. Again from the bottom, take out the 4 screws near the sides which hold the disk holder in place. Carefully free the hodler from the head assembly -- if this is a double-head drive put a piece of clean tissue paper (a lens tissue or similar) between the heads so they don't touch). Take off the E-circlips on the sides of the disk holder assembly and separate the parts. Note how they go together. Clean the parts in a degressing solvent (start with propan-2-ol, use something stronger if this doesn't work) and remove the old grease. Apply a little new grease (I use Electrolube plastic grease, if only because I have it around), and put everything back together. Incidentally, if it's a 9121, then it should have single-sided drives. There's no risk of ripping a head off with these..

### **Re: Sony Drives for 9121 - bad grease**

Message #11 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 4:27 a.m., in response to message #10 by Tony Duell (UK)

Thanks Tony! Sounds like a complete teardown. Yes, I have only single sided drives but the description of the problem sounds like a diskette could get stuck in there and I'd just as soon avoid it.

## That is exactly what happened Message #12 Posted by <u>Mike</u> on 14 Apr 2003, 12:15 a.m.,

in response to message #2 by Tony Duell (UK)

First, this is on an 9114A.

Second, when I began to test the drive, before I knew about the head problem, I couldn't even insert a disk because the drive was stuck.

I opened it and found exactly what you say. When I degunked the mechanism but noticed the dangling head. So, apparently that is what happened. A disk must have been stuck at one time and yanked out.

Since I'll likely not find another drive, except from another 9114A, this will probably just be used for parts.

**Re: Sony Drives for 9114 - Sources?** Message #13 Posted by <u>Vassilis Prevelakis</u> on 14 Apr 2003, 9:54 a.m., in response to message #2 by Tony Duell (UK)

Tony Duell (UK) wrote: > The 9114A and 9114B use different drives!

Yes, but while their interfaces are not pin-compatible, can an older drive be connected to an 9114B controller via a modified i/f cable?

Thanks

\*\*vp

### **Re: Sony Drives for 9114 - Sources?**

Message #14 Posted by <u>Tony Duell (UK)</u> on 14 Apr 2003, 6:48 p.m., in response to message #13 by Vassilis Prevelakis

I suspect you can make up special cables to use the 'wrong' sort of drive with each controller, but I've never tried it. From what I remember of the pinouts, the 2 drives have pretty much the same signals..

**Re: Sony Drives for 9114 - Sources?** 

Message #15 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 5:27 p.m., in response to message #1 by Mike

I searched the archives for "sony" - first I came upon your post about the 9121 FDD that needs manual diskettes - there you had a link to a site with info on that drive:

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/archv009.cgi?read=25585

But I knew there was another discussion and I found it:

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/archv006.cgi?read=10635

basically, Tony says:

"The grease-turned-to-glue problem mainly occurs in the older full-height 3.5" Sony drives, used in the 9114A, 9133, 9121/2/3, etc. "

"An old Apple Mac+ drive is one of the best sources of spares for the 9114B."

You didn't say "A" or "B", sounds like "B" might be easier to find parts.

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### Schematic for HP-41 keyboard?

Message #1 Posted by Paul Brogger on 12 Apr 2003, 2:41 p.m.

I'm having trouble with an HP-41CV, and I think it's in the keyboard. I'm wondering whether anyone has a schematic available so I can try to correlate behavior with electrical design, and perhaps get some hints as to where I should look.

Anybody got one? A link? (If it's something that may be e-mailed, please take the "NoHormel" out of my address above, and send it my way.) Thanks!

**Re: Schematic for HP-41 keyboard?** *Message #2 Posted by* <u>*Randy*</u> *on 12 Apr 2003, 3:41 p.m., in response to message #1 by Paul Brogger* 

Schematic is in the 41C service manual.

Page 35 in \INTERN\HP41SRVC.PDF on the Museum CD 5.

**Re: Schematic for HP-41 keyboard?** *Message #3 Posted by Ellis Easley on 12 Apr 2003, 3:52 p.m., in response to message #1 by Paul Brogger* 

There is an HP41C service manual on the MOHPC CD-ROMs:

cd5\intern\hp41srvc.pdf

The schematic is on page 36/45.

I also have a 57KB .pdf file which is a schematic of the HP41C. It's not an HP drawing, it doesn't have a name on it. I'm sure I downloaded it from a site that was mentioned here but I can't remember where the site is. I'd be happy to send you the file - in fact I just did!

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## In defense of the 48G+ graphing calculator

Message #1 Posted by <u>NH</u> on 12 Apr 2003, 12:19 p.m.

KIDDING! This is NOT in defense of 48G+ .. I cannot supply any defense for the 48G+ graphing calculator. It stinks !

However, I will request guidance to the contrary of somebody else wants to defend the 48G+ graphing calculator.

MY STORY: I'm here posting at HP Museum, and clicking and learning, etc., for purposes of determining whether the classic calculators really were the best, or whether there is still an adequate product coming out of the factory presently.

As part of that learning experience, I bought a brand-new 48G+ from the store, and carefully took it out of the box and just study it, see what it does, try some calculations, etc etc.

I SIMPLY REGARD THE PRODUCT AS ATROCIOUS. I welcome any contrary view, BUT MEANWHILE, what I see is this thing is just set up to razzle-dazzle you, intimidate you, then sit in the box and never be used.

I see evidence from the first page of the introductory guide "the power of a computer with a math graphing package, but in the form factor of a calculator, blah blah blah". OK there it is, written down. The mentally retarded people who ran the calculator division into the ground (the managers and the marketers) saw computers and mathematical software packages and said "we have to compete with that". WRONG! They paid themselves half a million bux each to say "we have to compete with that" and then they all retired rich, leaving a nuclear waste dump of garbage in their wake.

ANALOGOUS FACT: If you were making hammers, and all of a sudden compressed-air nail guns come out, you DO NOT QUIT MAKING HAMMERS. The new market is additive to the old ones. Carpenters will now buy both hammers, and nail guns. They do not suddenly never buy a hammer again, just because there are nail guns. But the dumb stupid marketers at HP decided they would not make hammers anymore.

## BACK TO THIS 48G+ calculator package:

The guides themselves stink. They are in black & white, published like an afterthought. There is no powerful voice from on-high, clearly guiding you through the foundational principles and then building on those foundations with progressively higher clearly defined lessons. An old classic such as 34C is very educational and filled with solid examples, highlighted in various colored publishing.

NEXT, I see the most brazen mental fogginess in the way they set it up. OK they went to an infinite stack. I'm not necessarily complaining about that. However, say I entered a bunch of data into that stack (including matrices, vectors, equations??) potentially a lot of work !!! All you have to do is hit the "DEL" button and it clears the whole stack. This is absurd. it's not even labelled "Clear". You would clear your stack by accident creating considerable frustration. This is absurd.

I SEE AN OBSESSION WITH ALPHANUMERICS, but there is no convenient alphabetic entry. As a touch typist I type 70 wpm. With their method of alphabetics, I'd be lucky to type 2 or 3 wpm. This is hardly what I call progress. A calculator ("a hammer") does not even need alphabetic characters. If it has them, I want a QWERTY input that allows me to not waste my time. These marketing bozo's do not understand that they do not have the right to waste the time of intelligent educated people

In the 48G+ after taking, cumulatively, one day to study it, I see a thing that is useless, and devised purely to waste my time. I could invest months of study and still not get hardly anywheres with it.

BECAUSE unlike a marketer, I am equipped with a thinger called a "brain", all of a sudden the light bulb goes off ("eureka, idea!") and I say "either I would buy the mathematical software package and run it on my PC, OR, I would use the classic numerical calculator. This graphing product is a malicious attempt to waste my time, and I dont even want it in my house". By tossing it out of my life, I can get back to legitimate work tasks, quite likely using a nice classic calculator as I go about my business. But the key is, I go back to attending to my business, rather than wasting my time with this pathetically devised 48G+.

This is the conclusion that I draw. If i missed something, somebody let me know.

About mathematical graphing software packages for a home PC, I have heard the "MATLAB" package is quite good, and maybe discussion of THOSE TYPES OF SOFTWARE PACKAGES is a natural extension of dismissing the 48G+ and the Carly-droids who created it.

ONE MAGICAL BEAUTY OF THE COMPUTER CULTURE... I can dump this thing on eBay. I dont think the Carly-types appreciate how damaging eBay is to their dictator-ambitions. Before eBay, we were held hostage to whatever pretty tinsel the stores put in front of us. If you, say, preferred an HP-25C, hell would freeze over before you could ever locate a working specimen. BUT NOW, you can get whatever you want, person-to-person, thru the eBay method of communication.

AS TO NEW MERCHANDISE, before eBay, once you bought a thing, you're screwed. Say I didnt like this 48G+ and it took me a month to decide it. Tough! Can't return it! You're stuck with it. And you might as well hurl it into a dumpster. BUT NOW, I can vandalize HP quite tangibly, by reselling it on eBay. I may not get my full price, but I DEFINITELY REDUCE THEIR UNIT SALES BY QUANTITY 1.00 !! :0)

I believe that eBay has subtly altered the "shopping mall to landfill" equation that Carly-types thrive upon for maximal profits. As the economy adjusts, Carly-types wonder "who let the air out of my tires" because there is some sort of drag present that they dont understand. The drag is that if their product is crap, people will resell it, and their "target demographic" marketing baloney will implode on itself much faster than they realized.

Comments welcomed, should my conclusion be erroneous. If somebody actually LIKES 48G+ (like, a crazy man or somebody in the mental asylum or something) contact me and we could even arrange a unit sale w/o eBay overhead.

- Norm

## graphing calculators = calculator?

Message #2 Posted by <u>Michel Beaulieu</u> on 12 Apr 2003, 1:07 p.m., in response to message #1 by NH

I read a lot of comments about the HP-48 series and the HP-49 and even the HP-28 c/s. I have a HP-38 and tried the HP-49 and HP-48 but, like a lot of you, i don't like them, they are not "ergonomic" and to do SIMPLE math they are getting me crazy...

I have a great question : IS IT POSSIBLE TO CONCTRUCT A GOOD GRAPHING CALCULATOR THAT MEETS what we think is ok in a calculator???

I am a physic teacher and use a TI-83+ a lot in classroom with viewscreen because all sudents have one so...

I think that TI graphing calculators series are more "ergonomic" as a learning tool (ti-83 eries) and even as sicentist or mathematician work tool (the TI-89 or TI-92); they are also, in my opinion, well construct, repairable and good quality, as much as the HP-48 series.

But for non graphing needs, i don't use graphing calculator because of the form factors and simplicity reasons : I prefer the HP-41 or the HP-25

So even if HP or TI invent a very good graphing calculator with all the quality we can expect and all the OS we like, i'm sure we will not like it as much as a HP-15C or a 41 and so we will criticate the "calculator"

This come to me that graphing calculators are not really calculators but are "portable graphing tool" or "learning tool" and none of these tools will meet my "calculators" needs. It's not just only the form factor but some other reasons, that i can't fix in my mind that make me USE A LOT my graphing calculators at school and LOVE A LOT my HP-41 at school and everywhere...

### **Re: In defense of the 48G+ graphing calculator**

Message #3 Posted by <u>*R Lion*</u> on 12 Apr 2003, 1:14 p.m., in response to message #1 by NH

If somebody actually LIKES 48G+ (like, a crazy man or somebody in the mental asylum)

Is really necessary to insult? Many people is very happy with his 48S/SX/G/G+/GX...The absolute Queen in 90's. If you can't reach to understand this calculator, it is a pity, but don't insult. Just use that brain you say you are equipped with.

Raul

And it is VERY convenient to clear the whole stack with an only key.

### 48G+ clearing the stack

Message #4 Posted by <u>NH</u> on 12 Apr 2003, 2:19 p.m., in response to message #3 by R Lion

Is really necessary to insult? ... it is VERY convenient to clear the whole stack with an only key. - Raul

---->>>it is very convenient to clear the whole stack BY ACCIDENT ??

Agree'd a "CLR STK" is a favorable function that I wish to have.

It is available on 25C, I dont see it on 34C or 32S

Not having a stack-clear button available is a drawback, but having an "accidental unlabelled" stack-clear is worse.

It could reasonably stated that it must be clearly labelled and a multi-button press so that it doesn't occur by accident.

### **Re: 48G+ clearing the stack**

Message #5 Posted by <u>Christof</u> on 13 Apr 2003, 12:26 a.m., in response to message #4 by NH

Okay, what I hate about modern computing most- MORE than anything- is hand holding. I do not want warning boxes when I delete things. I do not want a warning box when I clear the stack- and I like being able to do it with a fairly easy combination keystroke. Maybe this is part of me coming from the unix world in computing rather than the windows world? (and yes, I have accidentally "rm -rf \*"d myself. I learned a lot about backus that way :)

I admit I like the 48SX better than the G series, but both operate just fine once you learn the interface. and it's not that hard.

the <- arrow key clears a space. you shift it to clear the stack. okay. this is not a problem. I'm handy with a STO function and I know what modifies lastx

do you think it was any harder to keep data in the stack with a 41?

### **Re: 48G+ clearing the stack**

Message #6 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 5:05 a.m., in response to message #5 by Christof

When I finally came to terms with the 48 (48SX, 48G and 49G simultaneously), one of the things I had to learn is that the stack isn't just a place to leave things, like a paper tape. When I want to save something, I should store it in a variable. Then I can also take advantage of the hierarchical directory system. Clearing the stack should be a fairly frequent operation before starting a new task, whether I use the actual clear stack function or just hit the back arrow a few times.

## **Re: In defense of the 48G+ graphing calculator**

Message #7 Posted by <u>db(martinez,california)</u> on 12 Apr 2003, 2:19 p.m., in response to message #1 by NH

i know what you mean but i like mine.

i have personaly known only two people who use one of the 48 series as a calculator but have known many dozens of folks that use canned programs on them. i think that is what it is for. i don't think i could even learn rpl but all that memory and the ability to read and write to a pc come in handy.

maybe if you look at those old joe horn shareware disks you'll find a use or two for yours. or not.

### **Re: In defense of the 48G+ graphing calculator**

Message #8 Posted by <u>**R** Lion</u> on 12 Apr 2003, 2:34 p.m., in response to message #7 by db(martinez,california)

that use canned programs on them. i think that is what it is for

I think a programmable calculator is for using as calculator, for using shareware and for using your OWN programs. RPL is not as dificult!(I'm not a genius;-)

Raul

(AND the User's guide explain the use of the DEL/CLEAR key. And the same behaviour has the DROP and the SWAP keys)

### **Re: In defense of the 48G+ graphing calculator**

Message #9 Posted by <u>hugh</u> on 12 Apr 2003, 3:18 p.m., in response to message #1 by NH

several of your points, i am inclined to agree. the 48 documentation is poor, and could be better. alas, this is the way now. the ti89 docs are worse. personally, i felt the 28c had considerably better docs for a rpl machine and indeed, the 28c build and style are rather nice. the extra alphabetic keys particularly. the 48 keyboard is cramped and many, quite usual functions (eg factorial) are buried away under menus or even sub-menus. the 48, i also found, woefully too slow. graphing would have been considerably improved if it were, say, 4 times faster.

on the plus side, i think its well built. the display is clear and buttons positive. the gx has adequate memory and some very cool stuff is available free to download and install (eg alg48

and that rather nice "java" stack interface - nothing to do with web java). if the 48 was built like a 28c, expandable and faster, i personally would have liked it a lot more. nevertheless, i dont regard the 48 as a failure. a collegue at work uses one every day and says he likes it and once you get used to it, its good.

in terms of competition, you do have to keep looking over your shoulder. this weekend i took a (brief) look at the casio fx4800p. quite a nice bit of kit. fast, spacious, easy to program (uses the fx4000p/7000g program style). all the expected programming features. nice display. 15 digits internal precision. not symbolic though... and i dont think it graphs. a friend with this machine is now thinking of selling his 32sii because, as he says, "all my handy programs i've keyed into this now and it works well. i dont need the hp anymore".

### so far, so good, 48G+

Message #10 Posted by <u>Norm</u> on 12 Apr 2003, 4:10 p.m., in response to message #9 by hugh

I actually sweated bullets about posting something highly editorial/controversial. Of course, some will disagree with me, wont like my closed-minded cave-man HP-34C attitude.

But it started a lot of replies.

I AGREE ABOUT SOMETHIGN... the fit & finish of the calculator itself is super. The big pixelated LCD display is a work of art, in terms of the hardware itself. The zipper case is solid, the box is a nice pretty shade of purple :0) and if they'd print the manuals in color they'd be OK too. This thing has the POTENTIAL to be a very fine unit. The factory spit out a beautiful thing for ONNLYY \$115 . I mean it would cost \$10,000.00 to manufacture something like that just 15 or 20 years ago.

But i dont like the way it operates, period.

I already got 3 inquiries in an hour about pricing to re-sell this 48G+

HEY if you guys can figure out how to IR link it to your computer, and download JAVA and Aplets and make it do streaming web browsing and email and all that, and edit the shapes of chemical molecules ("transparent aluminum") hey fine super have at it. Over here its just adding PSI loading to the subterranean foundation footings of my house.

And YES I think HP is absolutely blowing it in the calculator world. Take that approximate form factor, and, you know, make a 34C out of it for us cavemen. If they can sell some 48G + fine. But maybe sell a simpler version to appease the primitive caveman buyer. Cavemen buy calculators too. We calculate how hard to pull hair on woman to drag behind us (requires coefficient of friction, mass of woman, etc)

### Re: In defense of the 48G+ graphing calculator

Message #11 Posted by <u>Spice\_Man</u> on 12 Apr 2003, 4:19 p.m., in response to message #9 by hugh

Ya, the 48G series are nice calculators, but completely different from the older HP's. If you get the 48G with the mindset of operating a classic HP, you will definitely dislike it. Hey, I hated the 41C series when it first came out, with the hard-to-see, cheap looking LCD screen (compared to the LEDs), and functions that required a million keystrokes (XEQ, Alpha, blah blah blah, ALpha) and a lot of memorization.

Spicey

P.S. What is VoidWare?

**Re: In defense of the 48G+ graphing calculator** *Message #12 Posted by* <u>*hugh*</u> *on 13 Apr 2003, 9:50 a.m., in response to message #11 by Spice\_Man* 

voidware is me talking bollox as usual and some pictures of calculators :-)

### Re: In defense of the 48G+ graphing calculator

Message #13 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 4:39 p.m., in response to message #1 by NH

You've got to give an HP48 at least ten years before you give up on it. That's about how long I had my 48SX (and I had added a G along the way) before I spent some time with them in a period of inspiration and actually figured out how to use them. Possibly just because it has a serial port, there is a huge quantity of stuff you can download for it. (There is a lot of stuff for the 41, 71, 75 but no standard way to move it without a little effort.)

I think the 48's are the kind of thing that suffers from being too versatile (had to look that one up to make sure it had the intended meaning and it does: "having the capabilities of doing many different things; having many functions or uses").

I'm not sure the nail gun analogy is the best one - maybe the 48's are like a nice Kennedy tool

box with lots of drawers and packed with many fine, carefully made tools. When you first get it, you find yourself opening one drawer after another trying to find the tool you need, which is frustrating. But if the tools you need are in there, in time you will learn where they are. In theory, you should be able to move your most often-used tools to the top compartment, with user key assignments. I'm real familiar with them on the 41C but not on the 48 ...

## Re: In defense of the 48G+ graphing calculator

Message #14 Posted by <u>Christof</u> on 13 Apr 2003, 1:04 a.m., in response to message #13 by Ellis Easley

The top uses of the 48- beyond the basic scientific calc stuff you can do with a 20s or 32sii-

1: coding. algo testing, simulation, assembly- this is really one of the two all time great computer scientist calculators (the other being the 16C) you cna easily write and debug a lot of code on this. and it does translate.

2: field statistics. fantastic. in the lab or in a field situation it's far more useful to me than a laptop with a screen I can't see in the sunlight and a 2 hour battery life.

3: surveying. nuff said.

4: solver, graphing, and integration. Yeah, mathematica is great- and costs far more than my 48G. So- just call it scintific/engineering math. This is the area where people either seem to love it or hate it. \*shrug\*

5: PDA and games- actual handheld computer stuff. Remember that this came out at a period in time where a 286 laptop was too expensive for most people to buy. there were no palm pilots. and, IMO, it's still a very good handheld for most PDA functions.

(but yes, the typing sucks. to fix it, one could build a serial keyboard)

### **Re: In defense of the 48G+ graphing calculator**

Message #15 Posted by <u>James M. Prange</u> on 13 Apr 2003, 5:47 a.m., in response to message #1 by NH

Certainly companies often err when they discontinue a model just because they've come out with a model that has more "bells and whistles". I still use a text editor even though my PC has a word processor that could accomplish the job. Calculators without alpha and graphing capabilities are still useful and in many cases preferable. I think that there's room in the market for a very simple, low-cost, four-function RPN model, a more advanced model with the features typically found on "scientific" calculators, alphanumeric and graphing models and various special-purpose and "in-between" models as well. Let's hope that some company comes out with well-designed and well-built RPN models (or maybe even just "resurrect" the better discontinued models) to take advantage of the opportunities.

Many of us find the RPL models with their extra features to be very useful. I don't always use the extra features on an RPL calculator, but when I want them, I don't have to get another tool; the one that I have with me already has them. Come to think of it, quite often when I run a named program, I use some "extra features", hardly being aware that I'm doing so. Complaining that the calculator can do more than one needs often strikes me as being like a groom complaining that his bride is too beautiful.

Let's not discard the nail gun just because we can pound a nail in with a simple hammer. But if you don't need or even want a nail gun, then why buy one? No one's ever twisted my arm to do so; I'm sure that a hardware store would be happy enough selling me another hammer. If they stopped making hammers, I expect that used hammers would remain available for a long time.

And yes, those who decide what to put on the outside of a package or in an advertisement generally do tend to depict the product "in the best light". That shouldn't be any surprise to anyone.

Yes, the 48G series "guides", to put it kindly, leave a lot to be desired (the 49G guides are even worse). Unfortunately, it seems that as products get more complex and potentially more useful for more purposes, the documentation that comes with them gets thinner and more simplistic. Maybe they're trying to give the impression that using the product is so intuitive that no instructions or reference information is needed. If you want to put the 48G series to best use, you pretty well need extra documentation such as the "Advanced User's Reference Manual" and "third-party" books such as "Insights". Online resources such as <u>http://www.engr.uvic.ca/</u> ~aschoorl/, <u>http://www.hpcalc.org/</u>, and the comp.sys.hp48 usenet newsgroup are also very helpful. Keep in mind that information on the 48S series usually applies to the 48G series as well. I'm glad that I had previous experience with the 28S and 48SX.

I'm surprised that anyone would complain about being able to clear the stack with a single keypress; don't the guides mention that? When no command line or other editing environment is active, keys meant to be used in a editing environment, such as CursorLeft, CursorRight, DEL, and backspace do what's printed above them, CursorUp (with STACK above it) gets you into the interactive stack, and CursorDown (with VIEW obove it) puts you into the "best editor" environment for the object on level one. In my opinion, this is very well thought out and useful, although I can see that it might be a bit of a surprise to someone not familiar with the calculator.

By the way, if you do manage to accidently clear the stack, then use the last stack recovery operation, labelled "UNDO" on the 48G series.

But the choose boxes and input forms on the 48G series can be a bit too much. I usually prefer the 48S series style menus (available with a LeftShifted keypress).

And yes, I'd prefer to have the alphabet keys in QWERTY order instead of alphabetical order, but that's a bit hard to do with only six columns of keys. I've often thought that it may have been better to have a "horizontal" instead of a "vertical" form factor for the 48 and 49G. I guess that the designers felt that the vertical form factor fit in the hand better, and perhaps they were right.

Of course, if you really want a QWERTY keyboard, you could always connect the 48 to your PC and use Kermit's remote host capability, but then you'd probably be better served with a mathematics application on the PC itself. But the idea of these calculators is that they're handheld and very portable, and they're designed to be used primarily as calculators, not as general purpose computers or PDAs. You could write a letter on the 48, you could use it as a terminal emulator, and I think that I've read that you can even use it as a web browser, but I wouldn't recommend doing such things with it. When RPL calculators were introduced, many of us didn't have a PC available, so these calculators filled more of a need. Even now, I don't always have a PC available when and where one would be useful. Also note that employers are often extremely fussy about what they'll allow on their computers, but I've never had one question my having and using my own "Personal Calculator" on the job. I suppose that I could get one of those little touch-screen PDAs (or whatever they're calling them now) and install a calculator emulator on it, but I don't think that I'd like a calculator (or computer) without real keys that I can feel with my fingertips.

Give the 48G+ a chance and approach it with the attitude that it was probably designed as it was for good reasons, rather than with a hostile "why didn't they design it just like the calculators that I'm familiar with" attitude, and perhaps you'll learn to like it. But if you want to get rid of the 48G+, I expect that eBay is the best way. Certainly they usually go for more than I'd be willing to pay for yet another 48 series calculator; I suspect that the ones that I already have will last longer than I will.

## **Re: In defense of the 48G+ graphing calculator**

Message #16 Posted by <u>James M. Prange</u> on 13 Apr 2003, 7:08 a.m., in response to message #15 by James M. Prange

PS:

Others have mentioned that there is a lot of software available for downloading. True, but sometimes it's available in binary format only, and I have a tendency to distrust a program that I don't have the source code for; it doesn't always work as intended, and often the documentation is poor. If it's written in SysRPL, assembly language, or uses SYSEVAL, and has a bug, then there's a potential for a "Try To Recover Memory?". Note the word "Try"; sometimes recovering memory isn't successful, or only partially successful.

I'm not saying that you should never use a program or library that you don't have the source code for (I often do so), but do at least take the precaution of having a recent backup available just in case things don't work out.

Usually, I prefer to write my own programs; it isn't that difficult and you can do a lot even with just UserRPL.

Regards, James

**Re: In defense of the 48G+ graphing calculator** 

Message #17 Posted by James M. Prange on 13 Apr 2003, 8:14 a.m., in response to message #16 by James M. Prange

PPS:

For projects that require a lot of keying in, such as writing a fairly long program, I prefer to write the source code file with a text editor on the PC, if it's available. This has the advantage of the QWERTY keyboard, more advanced editing operations, a bigger screen so I can see more of the program, and comments and formatting that are lost when the object is compiled are still available in the source code file.

Regards, James

### **Re: In defense of the 48G+ graphing calculator**

Message #18 Posted by <u>Robert</u> on 13 Apr 2003, 11:36 a.m., in response to message #15 by James M. Prange

James, I believe that a querty keyboard would classify the calc as a computer at some schools, making it forbidden. It's been a while since I've been to college, so the rules may have changed.

That said, I have to say that I WISH that the 48G was available while I was in engineering school! It's a little much for adding up a few numbers, but we can not fault it for being too powerful.

-Robert

## A Question for NH

Message #19 Posted by <u>Chan Tran</u> on 13 Apr 2003, 5:56 p.m., in response to message #18 by Robert

I have 2 questions for NH: 1. Which one of the classic do you pick as the best? 2. Which calculators did you use in the past?

**Re: A Question for NH** *Message #20 Posted by* <u>*Ellis Easley*</u> on 14 Apr 2003, 4:51 a.m., in response to message #19 by Chan Tran

I don't mean to step on any toes, but Norm has made it very clear that he thinks the 34C is the best HP calculator. The Spices seem to be slighted for a couple of weak points, but I have also felt that the 34C is the best of the LED calculators without magnetic cards. I've never chimed in on the favorite calculator discussions because I've never been a very heavy calculator user (actually I am very heavy, but you know what I mean!) and I am just recently getting familiar with the calculators I have bought over the years, thanks largely to the Museum's resources. At this point, I tend to think the 41 family is the best, but my judgement is based more on the fun factor than actual performance!

### Hello Chan,

Message #21 Posted by <u>NH</u> on 14 Apr 2003, 5:42 a.m., in response to message #19 by Chan Tran

Hello Chan, in answer to your question, yes I prefer the HP-34C calculator, and that preference is for all types of general purpose casual computing. I prefer the display, the cosmetic appearances, and the feel of the keys. The 2 slide switches, which set the two most important "modes" of the calculator, are also very suitable.

I don't see 34C as any more sophisticated than what it is. I won't be trying to get it to do any graphs. What I see in 34C is an item that was VERY WELL THOUGHT OUT for what it is.

I trusted HP entirely and went to 32S due to being tired of dealing with batteries and charging them. I bought 3 of them. Almost immediately, I found the item less intriguing to work with, it seemed cheap, the display dim & grey, and tedious to work with due to the extra menu's. The coloring of the unit is uninspired. ORANGE & BROWN what's that remind me of, maybe Halloween ? I kept the faith for 10 years however. The 32S does not age well, it gets dust into its display, the paint around the display chips, etc. With the chaos erupting as HP discontinued the 32Sii, I re-evaluated carefully (thanks to HP Museum) and now I am buying HP-34C with confidence. I'm going backwards into time and none of you can stop me :o)

I have memories of the HP-25C being around, and they were cute little items when first released, but the 34C has more capability and the best cosmetics.

The owner's manuals for the HP-34C are very good, color, as I was saying, and highly instructive. ("a voice from on-high", you know, authoritative and showing leadership, as it should be).

The graphing calculator concept is flawed. The screen is too small. If I want to do those sorts of things, I will purchase some commercial mathematics software and put it on my PC. Then i can enter equations and solve them abstractly, with a screen big enough to do that. I can graph on a relatively HUGE display, in full color, and even have multiple windows, etc.

A calculator is small, and therefore it should do smaller things than a desktop computer. Above all, I seek products with a very clear vision of what they are, and where they are going.

For the 48G+ to work as a concept, it should be bigger, and have more buttons. Even

the display is TOO SMALL for what they are trying to do. It's way smaller than a radio shack TRS-80 from around 1980. Although I did something wild by putting up the loud editorial on the chat board, I am not a foolish person. Let me give you an example. I can see that the 48G+ should have sections of the keyboard that are divided up into these different areas of functionality. For example, the foundational "HP-34C" type of qualities should be sectored into an area of the keyboard. Then you can just run the thing without a lot of foolin' around. Another area can deal with the abstract math and symbolic formula entry. And another area of the keyboard could deal with programs and downloads, etc etc. If they did that, the unit would start to make some sense, and each user could grow with it.

FACT: The HP calculators are not popular anymore. I chatted with a knowledgeable clerk at the college bookstore. She said the only thing that is popular with the students and professors is a "TI-86" graphing calculator. Even then, bet nobody really uses it for much. I think HP shot themselves in the foot really bad when they discontinued the 32Sii (the obvious ancestral descendent of the 34C).

EVER SEEN ONE OF THOSE CASIO KEYBOARDS and its got a bunch of "demo" buttons on it? You hit the "demo" button and it starts playing like crazy. And half the customers, they take it home, but they dont even know how to play it, so they just hit the "demo" button a few times, then forget about it. That's how I see the 48G+ . ESPECIALLY when I found those demo modes regarding plotting.

It gives me a number of sample plots. A sine-wave climbing linearly, a lissajou pattern, an ellipse. Whooopie tilt. You coull probably do that with a TRS-80 a full 25 years ago, and you'd have a better graphic display. (I'm completely sarcastic here, because I know what a hunk of junk is a TRS-80).

ANYWAY you asked me my story & situation, so there it is.

Regards,

- Norm

### Re: Hello Chan,

Message #22 Posted by <u>Chan Tran</u> on 14 Apr 2003, 7:41 a.m., in response to message #21 by NH

Thank you Norm for answering my questions. The HP25 was my first calculator and I liked it very much but with limited battery life it was a pain. Also, without a card reader or continuous memory it was not very useful as a programable calculator. I later bought the 34C (after I broke my 25) for a week. I did like it well but exchanged it for the 41C then CV and CX. I bought the 48SX and then GX when they were introduced. I have a 97 later on and did have a 28C for a number of years. The 48 is not a perfect calculator but if I only can have 1 calculator I would have to pick the 48. Like the 41 it has long battery life and a way to permanently store program. I agree the graphing feature is not neccesary or useful.

### **Re: Hello NH**

Message #23 Posted by <u>*R Lion*</u> on 14 Apr 2003, 7:48 a.m., in response to message #21 by NH

Have you tried a 15C?

No leds, but long battery life, the same blue/gold colors that 34c, and much more RAM for programs. For me, is the best. (Leaving my 48GX apart, of course ;-)

Best regrads.

Raul

### Hello R Lion

Message #24 Posted by <u>NH</u> on 15 Apr 2003, 1:12 a.m., in response to message #23 by R Lion

Thanks for mentioning the hp-15C.

I have every high regard for that calculator. Knowing it is quite close to the 34C and 32S not sure why I never reached for it.

At the time, I was still quite busy my 34C.

I see 15C as similar, sort of a 'me too' item but I totally understand that if you are familiar with it, no need to stop using it.

What's quite highly offensive is that HP still makes one flavor of the 15C, but for the business school (12C ??). It's for financial work. BUT even though they make the exact same unit, very much the same as 15C (meaning they have all the circuit boards and all the plastic) they dont keep making the 15C alongside of it.

That is beyond any justification of any kind, just showing favoritism to the Wall Street types. Apparently it got so entrenched on Wall Street that it is still the standard to this day, sort of like how billionaires only drive around in "Bentley" cars. So why should they get to have a classic calculator kept as production but we dont get any brand new 15C calculators kept as production.

If 15C were available new i might grab one. Not ready to pursue it on a usedmarket basis.

And i do prefer the RED LED calculators. I'm getting really intoxicated with that clear crisp glow. Who could've imagined, back in 1980, that the first units would be the best units. LCD pretty dim, pretty dull.

#### **Re: Hello R Lion**

Message #25 Posted by Jon on 15 Apr 2003, 9:15 a.m., in response to message #24 by NH

Are you confusing favoritism with supply and demand?

//That is beyond any justification of any kind, just showing favoritism to the Wall Street types. Apparently it got so entrenched on Wall Street that it is still the standard to this day, sort of like how billionaires only drive around in "Bentley" cars. So why should they get to have a classic calculator kept as production but we dont get any brand new 15C calculators kept as production.//
# **Re: Hello R Lion**

Message #26 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 10:12 a.m., in response to message #25 by Jon

I have a theory that the financial people would like to keep RPN to themselves - gives them an air of superiority - and in support of my theory, all I can offer is that the financial people in any company (like HP) have a lot of influence over what products will be produced.

Massimo found what looks like an RPN financial calculator made by an Asian company, Aurora. See his post:

http://www.hpmuseum.org/cgi-sys/cgiwrap/hpmuseum/forum.cgi? read=31621

In case that post was swept into the archives and isn't available from here, this is the website linked by that post:

http://www.aurora.com.cn/HTML/english/db.asp? Type\_Name=Calculator&Ver=EN

Look at model FN1000 - programmable, financial, no "=" key, what looks like an "enter" key on the lower right corner. I wonder if it is an HP12C clone? Note the yellow and blue shift keys.

# Hello Jon,

Message #27 Posted by <u>Norm</u> on 15 Apr 2003, 5:09 p.m., in response to message #25 by Jon

Hello Jon,

To answer your question:

No.

There is no such confusion, in the earlier comment that was written by yours truly.

- Norm

#### Re: In defense of the 48G+ graphing calculator

Message #28 Posted by <u>James M. Prange</u> on 14 Apr 2003, 1:56 a.m., in response to message #18 by Robert

James, I believe that a querty keyboard would classify the calc as a computer at some schools, making it forbidden. It's been a while since I've been to college, so the rules may have changed.

Good point. This may have influenced the design decisions. For non-students, a querty keyboard would be nice. But I think that to be successful in this field, the manufacturer has to keep students as well as non-students in mind. People will tend to stick with something similar to what they're familiar with when they make a new purchase. And for advanced calculators, it may be that more are purchased for students than for non-students anyway.

The "Rules" are often arbitrary and don't always apply common sense. What, besides a pencil, paper, and his mind, a student should be allowed to use, is a good question. There are some things that he has to have thoroughly learned and kept in memory, but after all, when he finishes school, he will, at least some of the time, have reference materials, calculators, and computers available, and be able to discuss problems with others, so trying to memorize \*everything\* is a waste of time and effort and counter-productive. I certainly never attempted to memorize tables such as trig or log tables, and although I learned to extract square roots with pencil and paper back in grade school, I'd have to look that method up to use it now. I remember one person who had several sheets with lots of formulas derived from the law of sines that he felt he just had to memorize; he didn't do very well in trigonometry.

But it must be difficult to define just exactly what a device must have and be capable of doing to be classified as a "computer". After all, I suppose that one could learn to type just fine with the keys in a non-querty arrangement.

At work, we once had a nifty little gadget designed for handling statistical process control (it actually printed and drew using a tiny four-color plotter). I always had trouble typing in the alpha characters on that thing, and at first assumed that it was because the keys were so tiny. But I noticed that one of my co-workers could type on it faster than I could, and much faster than he could type on a regular qwerty keyboard, where he used the "hunt and peck" method. So then I realized that the main reason that I found it difficult was that the alpha keys were in alphabetical order, even though they were arranged in three rows, so I had to "hunt and peck" through the alphabet. But for him, having the keys in alphabetical order made them much easier to find. And now there are those little touch-screen devices. I'd probably call them computers, even though they don't have keyboards. And devices capable of wireless connections that could cover the whole classroom (and beyond). I suppose that new technology must cause some consternation to the rule-makers. Maybe forbid anything that uses electricity? But then they'd have to go back to using slide rules or tables. Makes me glad that I'm not an instructor.

Regards, James

## Re: In defense of the 48G+ graphing calculator

Message #29 Posted by <u>Wayne Brown</u> on 14 Apr 2003, 7:52 a.m., in response to message #1 by NH

First of all, let me say that I appreciate simplicity. (Heck, I still keep slide rules around for quick calculations and even carry one in my pocket). But I don't think the 48 is overly complicated for what it's designed to do. True, there's a lot of study and practice necessary to use all of its capabilities, and personally I'm still a lot more comfortable with RPN than with RPL. Most calculator programming I do is of the "do it right now, no time to plan it carefully, just throw something together and see if it works" variety. Anything more complex usually is reserved for a "real" computer. My 41CX is perfect for that sort of thing. But for running canned software I love my 48GX. I use it daily for all sorts of things that other people use a PDA for -- keeping up with phone numbers, appointment calendar, notepad, etc. Plus it's nice for filling an odd moment or two with Tetris or Sokoban. With good math software (like Erable) I can play around with algebra or calculus in a coffeeshop or at the library without carrying a laptop with me. The graphing capabilities help me quickly check my son's homework without having to draw the graphs myself. (I'm much more verbally than visually oriented, so I usually have to graph an equation on paper rather than just "seeing it in my head" like many people can do.)

Sometimes I wish it was smaller and lighter. The 41 beats it handily there, as well as in simplicity of operation and keystroke programming. But for early '90s technology the 48 is pretty good. I still like a 4-level stack, and especially the T-register, but sometimes an infinite stack is nice too. If I accidentally clear it (which happens occasionally) then UNDO brings everything right back again. (Of course, as a UNIX sysadmin, I'm accustomed to powerful and dangerous commands -- without the luxury of UNDO!)

One more thing: I'm certainly no fan of Carly. (In fact, I keep hoping Walter Hewlett eventually can dig up some hard evidence of vote-rigging or bribery in the Compaq merger and then we might get to see Carly do some jail time.) But whatever you think of the 48 series, you can't blame (or give credit to) Carly for it. One of the principal people behind the 48 was Bill Wickes. Dr. Wickes was a very well-known user back in the PPC Journal days and was a major

player in the development of synthetic programming for the HP-41. His interest and expertise with HP calculators lead him to a job with HP and he became the "father of the 48" (and the 28 before that). The other people on the 48 design team were part of the "old" HP too, before the coming of the Carlyites, and many of the 48's features were based on things suggested by users from the PPC years. Many people thought the new design departed too far from the 41 and its predecessors, but most of the new features came from engineers and enthusiatic users, not from marketing types. Your 48G+ has more memory, but otherwise is the same as the 48G that's been available for years.

The bottom line for me is I wouldn't give up either my 48GX or my 41CX (or, for that matter, my 16C). Each is suited to particular tasks and I use them wherever appropriate.

# **Re: In DEFENSE of the HP-48GX/G+/G/SX/S graphing calculators** *Message #30 Posted by* <u>*HrastProgrammer*</u> on 14 Apr 2003, 10:15 a.m.,

in response to message #1 by NH

>If somebody actually LIKES 48G+ (like, a crazy man or somebody in the mental asylum or something)

I LIKE HP-48GX ... it is the best calculator ever made. I have three of them (all with 128K + 2048K RAM cards) as well as HP-48G+, HP-49G and HP-48G expanded to 1280K.

But to use them, you have to know them ... I am sick of negative comments about HP-48GX/G +/G/SX/S calculators from people who don't know anything about them.

Just 0.01 EUR from someone who is (obviously) crazy or in mental asylum (whatever does it mean). And NO, I don't want to buy your HP-48G+.

# **Re: In defense of the 48G+ graphing calculator**

Message #31 Posted by <u>Ron Ross</u> on 14 Apr 2003, 12:01 p.m., in response to message #1 by NH

My \$0.02,

I like the Hp48G series, all things considered. I do not like their large size, but that is my only real gripe. No, I don't need or use the graphics, and I actually prefer an Hp42s, but I often need units conversions of every sort, and the 48g has nearly every conceivable one.

The 48 series is actually easier to program than a 15c (which is similiar to your 34c). It can be more complex also, but it can be used as a simple keystoke programmable, just like the earlier Hp's. I for one feel Hp should always have a flagship calculator, for bragging rights and for the

individual who wants ALL the BELLS and WHISTLES.

But I don't think you will ever get more than a handful of people to go back to LED technologie. I use a 33c on my desk for fondnes and nostalgia, but I would not trust it for more than a couple hours of use away from a wall socket, ie meetings or field work. And I program a few small quick and dirty programs for my 33c, but these programs displace each other vs on a 48, they get to complement each other. I admit a 34c does have more memory here, but you are still limited only a few programs are you not?

The 48 also allows me to tap into a much larger library of programs without any real pain or effort of keying them in by hand. Just load them onto the 48G. That is one of its greatest strengths.

### OK, I'll defend the 48 (long)

Message #32 Posted by <u>Jeremy</u> on 14 Apr 2003, 7:16 p.m., in response to message #1 by NH

"This is the conclusion that I draw. If i missed something, somebody let me know."

You missed a lot of things, I will break it down for you.

"I SIMPLY REGARD THE PRODUCT AS ATROCIOUS. I welcome any contrary view, BUT MEANWHILE, what I see is this thing is just set up to razzle-dazzle you, intimidate you, then sit in the box and never be used."

I disagree. I use mine efficiently every day at school and many days at home. Most of the time, I use the basic scientific functions, and about 10% of the time, I use something fancy like unit conversions or the Constant Library. You didn't bother to learn about that stuff, did you?

"All you have to do is hit the "DEL" button and it clears the whole stack. This is absurd. it's not even labelled "Clear". You would clear your stack by accident creating considerable frustration. This is absurd."

If you had bothered to read the Quick Start Guide, (not a whole lot of work) you would know that when you are NOT entering or editing a line of the stack, the stack functions automatically perform the purple shift functions labeled above. This is simple operator error. No one is dumb for gradually improving the design over the years. Have you ever heard the acronym 'RTFM'? Read the F----- Manual. If you had only read the Quick Start Guide, you would be well on your way.

"In the 48G+ after taking, cumulatively, one day to study it, I see a thing that is useless, and devised purely to waste my time. I could invest months of study and still not get hardly

anywheres with it."

Then you're either very closed-minded or very slow on the uptake. After one day of studying it myself, I knew all the basics and could probably utilize about 30% of what it can do. (which is about 170% of what a 34C can do, in my way of reckoning...)

"BECAUSE unlike a marketer, I am equipped with a thinger called a "brain", all of a sudden the light bulb goes off ("eureka, idea!") and I say "either I would buy the mathematical software package and run it on my PC, OR, I would use the classic numerical calculator. This graphing product is a malicious attempt to waste my time, and I dont even want it in my house". By tossing it out of my life, I can get back to legitimate work tasks, quite likely using a nice classic calculator as I go about my business. But the key is, I go back to attending to my business, rather than wasting my time with this pathetically devised 48G+."

Here is something that perhaps you didn't consider. What if you're at work, and you would just like to see something graphed quick and dirty style. Let's say your employer doesn't let you install your own choice of software on your work computer. It would be an easy matter to do a quick bar graph or scatter plot. What if you're student, and you just need to get an idea of what a function looks like during a test? "Hold on, professor, while I go and get my laptop. What? I can't use a laptop on exams? But Norm said I could just fire up Matlab!!??"

You knew from the start that you like the vintage HP LED calculators the best. I think you tried an LCD model after that, then came here and started whining. All the newer ones suck, all the older ones are great and all that jazz. After all that, you bought a 48G+ and proceeded to complain about that one too. Why didn't you learn after the first one?

The whole attitude of your post is one of someone who has already decided how things should be, and how dare anyone ever change them in some crazy scheme to improve. Let me get this straight: because YOU accidentally deleted the stack, it is a bad idea to have that feature so easily accessible? I would think that if you had spent a few hours reading the Quick Start Guide, you would know that ahead of time. At any rate, now you have learned your lesson and you won't do it again. Problem solved. Isn't it a bit easier to just adjust your mind a bit than to ruin a design that seems to work so well for so many engineers and engineering students?

What it comes down to is this: If you want to use a 48 to its full capacity, you have to dedicate more than one day to it. If you're not willing to do that, either don't buy one or just use it for the basics. I am the type of person who likes to use his stuff to the fullest. However, I'm quickly realizing that it's not going to happen, since the 48 does so much. I'm learning to live with the fact that if I can only get 50% out of it, I'm still WAY ahead of the game.

Here's my real defense of it. I bought my 48G on eBay for \$40. My thanks goes out to someone like you who got intimidated by it and thought it was poorly conceived. Even if I only use it as

a basic RPL (not RPN, mind you) scientific calculator and ignore all the fancy features, it is worth \$40. The screen is great, you can see 4 levels of the stack at once. They keypad is great too. (just my opinion) I have a 45 with the old-school keypad, so I'm no stranger to a Classic HP keypad or the Classic LED display. Actually, the new ones are built to tighter tolerances. If you pick up a 48 and shake it, nothing rattles. Try that with your classic and at the very least, the keys all rattle around. The battery pack might move a bit too...

Yes, there are some drawbacks, as you pointed out. But there are many improvements which you have totally brushed off. It is a shame, because there are features that you could probably use that you will never discover because you gave up so easily. It is almost like you made up your mind before you bought it. I can hear it now: "If I can't learn to use everything in one day, and with very little effort, it's CRAP!"

There is another possibility too though... Maybe you're trying to reinforce your relationship with your 34C by buying newer and totally different HPs and systematically denouncing them? That is fine. I am really happy for you since you have found a calculator that you love so much. Why don't you just stick with it then? You have already decided that it is the best for you, so why make it so hard on yourself?

Now I will say it again, the 48 series is not for everyone. I think probably about 1% of the HP48 owners out there can use it to its fullest. Some people will give up easily, when they realize it has no = key. Some people will become master programmers on it but never learn to use unit conversions. Some people just want a scientific calculator with a great display. To each his own.

I have reread this, and I hope it doesn't come out too hostile. I'm not trying to start some kind of flame war on an obscure calculator forum. I'm just defending my baby with as much enthusiasm as you have attacked it with. ;)

Background: I bought a tired 45 and fixed it up first. I love that thing. The charm of the LEDs, the clunkiness and ruggedness of the keys, the whole package. Next, I bought a 48G. I used it on an Advanced Communications test and the constants library saved my bacon. I had no idea he assumed we memorized the charge of an electron. If I had only my trusty hp45, I would have been up the creek. Next, I bought a 32SII, which I think you might have had too. It is nice because its thin and light compared to the 48. It will do as a basic scientific calculator. But it still pales in comparison to the 48G in terms of features. If you don't need those features, it is true that the 48G is overkill. But even so, a 32SII is going for \$100-200 and the 48G is going for \$35-55. Wouldn't it make more sense to buy a 48G if your money was tight? Luckily, I'm not one of those poor suckers (hehehe) that has to make do with just one calculator. I also have a TI85, which I enjoy using tooo. Sometimes, I will even go back to my vintage TI-30. (LED) There are +s and -s to each one, and when one of them gets to me, I just switch and be happy. I advise you to do the same. If it is THAT bad, and there is simply no room in your collection for such a fine machine, then sell it with no regrets. But when the day comes when you need a

feature you don't have on your trusty 34C, you might feel just a twinge of regret. A few years ago, I bought my first hp, a 48GX. It was during the middle of a school term, and I couldn't spare the time to learn how to use it. So I sold it on eBay for almost what I paid for it and went back to my TI-85, cursing HPs name. Now that I have a bit more time and will to learn, I'm glad to be back in the family. I can use that TI-85 like an extension of my hand. Sadly, I will probably never achieve that level of mastery with my HP48G. On the other hand, I have been using the TI-85 since Algebra II in high school (1992) so to be fair, I should give the 48 another 8 years or so to catch up... Yes, it does suck that the learning curve is so slow, but it has been worth it so far. When I'm done with college, I might not need any fancy bells and whistles, at which point i will switch back to my 32SII or 45. Variety is the spice of life, Norm. ;)

-Jeremy

## **Re: In defense of the 48G+ graphing calculator**

Message #33 Posted by <u>Peter Lampione</u> on 17 Apr 2003, 2:13 a.m., in response to message #1 by NH

Ah, my same thoughts, more or less! A PC is much easier to use, you can communicate what you do easily, integrate the results in other documents, it is way ahead. And now, with laptops at \$1000... A true calculator (32SII, 42S), is way faster to use for normal calculations (try to do the equivalent of a STO A on the HP 48; how many keystrokes? And how intuitive? Come on!) I have a 48GX, but it's basically a deadweight in a drawer. I haven't sold it because I don't need the money now, but maybe I should, just to free up the space - I mean, I never ever use it...

Maybe I am spoiled because I have more PCs, laptops, etc (due to work) than I care for, but certainly all those PCs don't make my 32SII less useful...

Peter

**Re: In defense of the 48G+ graphing calculator** *Message #34 Posted by* <u>*Ellis Easley*</u> *on 17 Apr 2003, 4:05 a.m., in response to message #33 by Peter Lampione* 

To paraphrase DeBeers, "An HP is forever."

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HP 95LX "main battery low" message.

Message #1 Posted by Jorge on 11 Apr 2003, 4:17 p.m.

Hello, I have a 95LX that displays the message "main battery low" even when I install fresh batteries. Is ther anything I can do to fix it? Any help greatly apreciated.

Jorge

**Re: HP 95LX "main battery low" message.** *Message #2 Posted by* <u>*David Smith*</u> *on 11 Apr 2003, 5:57 p.m., in response to message #1 by Jorge* 

Clean the battery contacts well and also replace the backup battery.

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#### **Ebay Auction**

Message #1 Posted by Howard on 11 Apr 2003, 9:25 a.m.

Am I dumb or what? What is for sale here? They look like cases for HP41C,CV or CX but are there calculators with them?

#### **Re: Ebay Auction**

Message #2 Posted by <u>Woody</u> on 11 Apr 2003, 9:49 a.m., in response to message #1 by Howard

Howard,

Can you please post the link to the auction ? I don't find what you are looking at.

Woody

#### **Oops! I answered my own question.**

Message #3 Posted by <u>Howard</u> on 11 Apr 2003, 9:52 a.m., in response to message #1 by Howard

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=3017871393&category=11713

**Re: Oops! I answered my own question.** *Message #4 Posted by* <u>*Howard*</u> *on 11 Apr 2003, 9:55 a.m., in response to message #3 by Howard* 

I see you have to scroll to the right.

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#### **Re: Newcomer has questions**

Message #1 Posted by James M. Prange on 11 Apr 2003, 12:47 a.m.

Hi Ernie,

you're missing my point.

Maybe so. I do see your point that RPN and RPL are different, and I agree with that. But I think that RPL is easy to understand and well worth learning. "Classic RPN" has to run on hardware with relatively limited resources. The RPL calculators have, if I'm not mistaken, faster processors, and certainly more built-in memory (well, possibly excepting the 28C), so why shouldn't RPL take advantage of the improved hardware? Why, for example, would one want to restrict the stack to only four levels? Or to save only one last argument? I see RPL as an improved version of RPN.

As I mentioned in an earlier post, I wrote the example programs off the top of my head without testing or optimization.

Ok, it's a simple enough example that it doesn't really need any testing. Well, at least not the RPL program, which will obviously work; I'm not about to buy myself a 41 and learn to program it just to see if the 41 program works. But I glanced at your RPL example, and off the top of my head, I couldn't see any reason to go to the bother of using a local variable. Now that I've thought about it a bit, I see that using the local variable gives your version the advantage that it's a user defined function; that is, it can be used in an algebraic object. But about the only time that I use algebraic objects is when I'm copying a formula that's already been written down by someone else, and seldom even then.

>why would you want fancy formatting when a program's on the stack?

And that points to another design flaw. Programs are meant to be read by \_people\_, because they have to be understood by \_people\_ if they are to be modified, improved, or what-have-you. Removing the "fancy formatting" removes understandability and confuses the programmer. Good coding standards \_require\_ use of comments and indentation whenever possible.

I think that you're missing \*my\* point here. My point is that if I wanted to peruse a program and perhaps edit it, I wouldn't be looking at it on the stack, but in the editor, where I could scroll through it and see the entire program, or I'd print it out, and with those methods it does have the indenting (although the indenting is what the decompiler applied; not necessarily what I would have used). Or better yet, if I wanted a really good look and I wrote it on the PC, I'd be looking at the source file, indented and commented as I saw fit (of course, that would require that I be at home so that I could use my PC). And yes, good programming practice requires the use of comments and indentation in the \*source\* code whenever possible. But for simple programs, someone familiar with the programming language can look at the code and see what it does even without indenting or comments. I do use indenting, and, when I write a program on the PC, some comments? Wouldn't that defeat much of the purpose of compiling?

To be sure, there are languages that save the source code and interpret it at run time, but I have my doubts as to how feasible it would've been to use that method on a hand-held at the time that UserRPL was designed, or even now.

>If I really wanted to keep the program from being compiled, I could embed it within a character string and even keep comments in it

*Come, now, who's making things more difficult than they have to be?* 8<sup>^</sup>)

Well, you complained that the RPL compiler discarded the programmer's formatting, so I demonstrated that you could make it retain the formatting if you really wanted to. I certainly don't recommend that anyone use that method; keeping the source code in its own file on the PC makes a lot more sense.

>RPL is simple and straightforward.

Debatable and subjective. It's equally possible to argue that RPL is complicated and convoluted.

Certainly you can write complicated and convoluted programs in RPL if you choose to do so. I suppose that the same could be said of any language. How about the 41's version of RPN? Using GTOs, I suppose that you could make things \*extremely\* complicated and convoluted if you chose to do so.

>As long as I use a variable name descriptive enough that I remember what the program was written for in the first place

RPL variable names are, in practice, limited to 4 or 5 characters because more than that won't fit in a menu key label. Sometimes my HP-28C can't put more than 3 characters! One cannot be descriptive when limited to such short variable names. I should know -- I've been an RPG

programmer for 20 years, and RPG II and RPG III program variables are limited to 6 characters. Yech!

Haven't you ever noticed that in "PRG ENTRY" mode, pressing the menu key for a variable puts the whole name in the command line? There, if it's too long to fit in the 22 character standard display, you can scroll left or right to see the rest of it. The name can be up to 127 characters, which I suppose should allow one to be descriptive enough. The first few characters that you can see in a menu should be enough to give you a clue, and on any RPL calculator except the 28C, you can organize your variables into directories, which should give you more clues as to what a variable is for.

>But I thought that the "RP" in both "RPN" and "RPL" stood for "Reverse Polish". Doesn't that mean arguments first, operator last? Notice how many of the arguments in your program come \*after\* the operators? Now that's what I call backwards.

As mentioned above, programs are meant to be read by \_people\_. People use human speech (with a given language) to communicate ideas. When you say "store in register 01" you use a verb in the imperative tense ("store") and an object or "parameter" ("in register 01"). That's the \_natural\_ way to speak.

Natural in English, which most often uses a "Subject Verb Object" word order, but perhaps not for various other languages. But doesn't "1 plus 2" sound more natural than RPN's "1 2 plus" to our English accustomed ears? Yet we (the folks on this forum, that is) prefer to use RPN.

Like Yoda of the "Star Wars" saga, you can say "In register 01 store," but taking this backwardness as far as that doesn't clarify a program in the least.

I wonder which word order he uses in foreign language versions of those movies.

For that reason, I feel that RPL is more backwards than RPN. IMHO, HP took Lukasiewicz's invention just too far.

But suppose that the "objects" for "verbs" such as STO, RCL, FOR, or flag commands are already on the stack, as a result of a previous operation? If I have to put the "objects" after the "verb", then I suppose that I'd have to push the "verb" onto the stack, and then rearrange the stack to get the "objects" to the bottom of the stack, or maybe write them down on a scratch pad and key them in again. That's the genius of the "Reverse Polish" way of doing things; it lets you easily use the results of previous operations.

Why do things differently for certain commands just to conform to English language patterns? I'd rather that a programming language be self-consistent.

Not that RPL is perfect of course. If it were up to me, then "IF" would be discarded as it's superfluous in RPL, and for some commands that require more than one argument, the order of the arguments seems "unnatural" to me. The REPL command comes to mind; I experimented the last time that I used it. Certainly I can imagine many additional commands that I'd like to have built-in, "Garbage collection" can take an awfully long time under certain conditions, and I could no doubt think of other things that I'd rather were different.

But, as you yourself said, "stick with what you like."

Certainly. I have RPL calculators and a 16C. In some ways I find the 16C inconsistent and rather limiting, but it's occasionally useful because, being a rather specialized calculator, it has some special capabilities that aren't built-in to the RPL models (though I suppose that I'd program them in myself if I used them very often). But having RPL models, I doubt that I'd ever really use other RPN models. What could I do on them easier than I could do it on an RPL model? Something that fits in a shirt pocket would be nice, but considering current prices, I'll put up with a Brand X algebraic input calculator when I want to compare prices in the grocery store. The RPN models are interesting and often admirable in design and quality, but for me, they'd end up being museum pieces, just left on a shelf or stored away somewhere.

>And then add the lack of IR, crippled serial I/O, flakey keys, poor keyboard layout, lack of keyboard overlays, big ugly chunk of plastic over the display, hard to read lettering on the faceplate, numerous operating system bugs...

You just gave a precise description of the HP-49G! 8^)

Some steps forward, some steps back. The 49G is sometimes fun to play with, and has some new operations that are useful, but for "real work", I'll keep using the 48 series calculators.

Regards, James

# **Re: Newcomer has questions**

Message #2 Posted by <u>Ernie Malaga (Miami)</u> on 11 Apr 2003, 8:45 a.m., in response to message #1 by James M. Prange

James:

Thank you for your detailed and most interesting reply. After reading it, all I can say is, "Let's agree to disagree." It's obvious that RPN and RPL require different mindsets from their users. And perhaps I'm too old (47) to make the transition without trouble.

-Ernie

# **Re: Newcomer has questions**

Message #3 Posted by <u>James M. Prange</u> on 12 Apr 2003, 4:17 a.m., in response to message #2 by Ernie Malaga (Miami)

Ernie,

Ok, I was a mere youngster still in my thirties when I became acquainted with RPL.

I've had the 16C for less than a year. I'm pretty confident doing things "manually" on it, and I've worked through the Owner's Handbook and written a few very simple programs. Interesting, and it has some things in common with RPL models, but I'm sure that if I felt any "real work" need for any but the most rudimentary program, even with binary, octal, decimal, or hexadecimal integers, then I'd write it for an RPL model, even though the RPL calculators lack many built-in features that the 16C has for working with these objects.

I don't think that it's so much a matter of age. I expect that you could learn to be a proficient RPL programmer, and I could learn to be a proficient RPN programmer, but what's probably lacking for both of us is motivation.

Regards, James

# May I?

Message #4 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 12 Apr 2003, 7:55 p.m., in response to message #3 by James M. Prange

Hello Ernie, James, folks;

a few days ago I received an e-mail from one of our contributors (recently injured by a thief) mentioning he noticed I deal with RPN and RPL as well, as he does the same.

I read the posts from both of you and I must tell you I sometimes choose RPN or RPL style *programming* after trying them both in the same problem. And I consider programming and using in a different way. Let me put it in a different perspective.

When I want to deal with numbers only (most of the time) I take any RPN calculator in hand, but I prefer a Voyager. They have "almost" everything you need already printed in the keyboard. I used the word "almost" mostly because of the HP15C, that requires some background to use Numerical Integration and SOLVE. How to use them is the only information not printed on its back label.

If there is no Voyager at hands, or if I need any sort of ALPHA manipulation, like labeled messages or interactive input, I go for a 41 or a 42. In their case, function names and menus will probably slow operation a bit down, but there is no problem.

The major problem is related to large database manipulation (large for a handheld calculator). If I want to observe statistical data to determine a tendency and define parameters and curve fitting I'll use the HP42S mostly because it allows using lists (matrices) as input data, and editing a matrix in an HP42S is relatively easy. In other cases, using X-Functions (HP41) may also be of help, and dealing with ASCII files in an HP41CX (ED) is, at least, fun.

I consider using an HP48 for simple daily computations as fast as using an HP42S IF you keep your eyes in stack contents. In fact, I see as a major concern the stack contents clearing from time to time if you allow previous results to remain there and selective, cautious use of the conceptually correct LAST ARG instead of the also conceptually correct LAST X. I am not sure about the other guys, but I care much about T-contents replication when programming. If I am using a four-level deep, stack-based calculator (RPN), manipulation of stack contents is sometimes as easy as pressing [Rv] (roll-down) four times to review its contents, and I do not remember storing ALPHA data in any stack register other than in program execution. But I must admit manipulating data by keystroke sequences available at the RPL-based calculators is harder. Simply rotating stack-"level" contents demand the number of levels to be rotated to be firstly input prior to execute "ROLL" or "ROLLD". A third "ROT" function allows a faster three-level rotation. Picking a copy of any available "level" contents is a matter of specifying it and executing "PICK". A lot more names to remember, I know, but that's a price I was willing to pay at the time I learnt RPL concepts.

I consider writing programs a very different issue. Using voyagers, HP41 or HP42 is a matter of internal resources and programmers' needs. But using RPL-based calculators go beyond this. I "think I need" RPL-based calculators to develop bold, audacious programs that allow you to access external devices easily and delve into mass-storage extensive data to find patterns... O.K., O.K., I know you can do it with a palm and use another functional- or imperative-paradigm language at your request, but how much will it all cost? Four, five, eight times what you expend with an HP48G+, SW and RPLcompiler included. And I feel RPL-based calculators programming as a fast procedure. I know other contributors do not feel like this, but for me RPL brought many features I used to dream of: no specific "environment" for specific data like programs, registers and APLHA; ability of entering program instructions/functions in an existing program; easily generation (or ability to easily generate) user functions (not programs) as internal existing features; easy, standard way to communicate with external devices (not available with the HP28, only in the HP48/49); math/algebraic tools and extended data manipulation (matrices, complex numbers, etc.). What surprised me was the ability of handling symbolic expressions with differential (derivative) and integration (with polynomial equivalent) as well. And as mentioned in some press advertisement, the HP28S was "the first portable equipment to offer symbolic algebraic manipulation based on resident system features (ROM)", i.e., symbolic manipulations features were recorded in ROM and did not need to be loaded as part of RAM-based software.

All of this amused me.

I like RPL and RPN as well, no matter what. No preferences, just a matter of demanding needs and available resources. I think easiness of using this or that system/resources also depends on operator acquaintance with the resource itself. Some users learn particular aspects faster than others: some prefer graphics, others prefer numbers, others symbolic manipulation. But all of them must prefer a pocket-size portable device to accomplish this all.

My thoughts, though.

## Re: May I?

Message #5 Posted by James M. Prange on 13 Apr 2003, 1:20 a.m., in response to message #4 by Vieira, Luiz C. (Brazil)

(Regarding RPL) In fact, I see as a major concern the stack contents clearing from time to time if you allow previous results to remain there...

At a first reading, I thought you meant that the stack contents were cleared without the user doing anything. They aren't, of course; objects are taken off the stack as operations use them as arguments. Of course, it's not a good idea to just leave objects on the stack indefinitely. If you want to save an object indefinitely, the stack isn't a good place to do so; it would be too easily lost. Store such objects in a global variable or in a port. Having more objects on the stack reduces the amount of memory available to work in and slows down garbage collection, and in the case of the 49G, seems to slow down everything. First, of course, don't put extra copies on the stack without any reason for doing so, and do some stack cleanup to get rid of things that you no longer want on the stack. I think that most users clear the stack either when finished with what they're doing, or before starting the next project. If you want to keep some objects on the stack, the "Interactive Stack" (VIEW up or down on a 28, CursorUp on a 48 or 49G, also HIST on a 49G) is perhaps the easiest way to "manually" clean up or rearrange the stack, especially when you're not sure about just what level objects are on.

For someone who started with RPL, the RPN stack is a bit strange in that it can't really be "cleared" in the same sense that the RPL stack is; on my 16C, it seems that the closest I can come is having all four levels filled with zeros. So far as I've noticed, if I really wanted to set all levels to zeros, it's not a single operation (short of clearing \*all\* memory).

LAST or LASTARG is perhaps most useful for error recovery, but can also (usually) be used for reusing the arguments in another operation.

I am not sure about the other guys, but I care much about T-contents replication when programming.

It is useful, but for an RPL user, it's a little disconcerting to find extra copies of an object.

Regards, James

## Re: May I?

Message #6 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 Apr 2003, 3:24 a.m., in response to message #5 by James M. Prange

Thank you, James;

you are right; I'd rather write:

In fact, I see as a major concern the **need of clearing** stack contents from time to time if you allow previous results to remain there...

Long text, other language...

You wrote:

For someone who started with RPL, the RPN stack is a bit strange in that it can't really be "cleared" in the same sense that the RPL stack is; on my 16C, it seems that the closest I can come is having all four levels filled with zeros. So far as I've noticed, if I really wanted to set all levels to zeros, it's not a single operation (short of clearing \*all\* memory).

I agree with you. That's why I always call stack registers clearing in an RPNbased calculator and stack (actualy) clearing in an RPL-based calculator. And the HP16C is the only Voyager that does not have a "stack registers clearing" command (or function). All other Voyagers have their stack registers cleared when CLEAR[Sigma] (statistic registers) is performed.

The term **clearing** is not well used in some RPN-related literature, mostly because I feel as register clearing and register contents clearing as different actions. I cannot understand a register clearing procedure... Is it a fact or a misunderstanding of mine? I sometimes feel myself a bit confused about some terminology and I sort of create my own set of words to define some actions in a "better" way. At least in Portuguese I'm successful.

Thank you again.

Best regards.

Luiz C. Vieira - Brazil

## **Re: clearing registers**

Message #7 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 8:00 a.m., in response to message #6 by Vieira, Luiz C. (Brazil)

As HP points out in the manuals, clearing a register is just storing zero in it. It is insignificant if next you are going to store, or ENTER data into it, but does matter if you are going to use STO+ or other register arithmetic.

I guess I am talking about register contents clearing. If the comparison is between RPN and RPL calculators, then clearing the RPL stack destroys the objects on the stack - essentially clearing both the registers and the contents while clearing the RPN stack just stores zero in all the levels.

Then you have the 17BII in RPN mode, where clearing the stack destroys all but the first level of the stack, and stores zero in it.

## **Good point, Ellis**

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 Apr 2003, 11:07 a. m.,

in response to message #7 by Ellis Easley

Hello, Ellis;

you are right about HP17BII/19BII RPN implementation: in this case, clearing the stack means destroying Y-, Z- and T- registers. And as you may have noticed, pressing ENTER with a zero in the X-register will bring them back... with zeroes stored on them! Fascinating...

About RPL stack: as different objects have their memory requests, I believe HP28/48/49 design team decided to call stack "registers" as stack "levels", because the term register is so much associated with a group of seven bytes (HP calculators terminology except for the HP16C) that I believe it might confuse some users.

Best regards.

Luzi C. Vieira - Brazil

#### Re: May I?

Message #9 Posted by <u>**R** Lion</u> on 13 Apr 2003, 3:04 a.m., in response to message #4 by Vieira, Luiz C. (Brazil)

I like RPL and RPN as well, no matter what. No preferences, just a matter of demanding needs and available resources.

I agree. So my time is shared between a 15C and a 48GX.

And I love both!

Raúl

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### Non-working HP-65

Message #1 Posted by Jürgen (CH) on 10 Apr 2003, 7:25 p.m.

I've got a nice HP-65, but unfortunately, it does not work. Sometimes when I turn it on, I can see flickering dots. But most of the time, nothing happens. The battery is OK, I've tested it in an HP-67. I've opened the calc, everything looks fine. I've disconnected the card reader motor and connected it to the batteries; the motor works. I guess some of the electronic parts on the PCB are dead. Any idea on how to find the faulty component? Any advise highly appreciated!

Thanks, Jürgen

#### **Re: Non-working HP-65**

Message #2 Posted by **David Ramsey** on 11 Apr 2003, 2:03 a.m., in response to message #1 by Jürgen (CH)

Have you tried cleaning the power switch contacts and the metal piece inside the power switch?

#### **Re: Non-working HP-65**

Message #3 Posted by <u>Jürgen (CH)</u> on 11 Apr 2003, 4:01 a.m., in response to message #2 by David Ramsey

Yes, I've tried that. Does not seem to be the problem.

#### **Re: Non-working HP-65**

Message #4 Posted by <u>David Smith</u> on 11 Apr 2003, 6:00 p.m., in response to message #1 by Jürgen (CH)

Have you tried the machine on the charger? Also clean the battery contacts. The battery touches the SIDES of the contact springs near the top of them.

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Since when did the 19BII become so rare? Message #1 Posted by <u>Scuba Diver</u> on 10 Apr 2003, 6:48 p.m.

Did you see this auction on eBay?

http://cgi.ebay.ca/ws/eBayISAPI.dll?ViewItem&item=3017947577&category=11712

He set the buy it now price at \$315. and set the minimum bid at \$274.99!

I know the 19BII is nice, but it's not worth \$315 US! The seller also describes the 19BII as "very rare"...I don't think so!

If someone uses the "Buy It Now" option, then I guess one really is born every minute...

B.

### Re: Since when did the 19BII become so rare?

Message #2 Posted by John K. (US) on 10 Apr 2003, 11:35 p.m., in response to message #1 by Scuba Diver

> The seller also describes the 19BII as "very rare"...I don't think so!

Ah. You've obviously mislaid your eBay Jargon file. Here are a few handy tips for future reference:

Hard to Find -- "It's the only one I'm auctioning today."

Rare -- "It's the only one I'm auctioning this week."

Very Rare -- "It's the only one I'm auctioning this month."

Unique -- "It's the only one I'm willing to sell."

Mint -- "It looks more-or-less like it did when I bought/inherited/salvaged/found/stole it."

Minty -- "It's mint (q.v.), except for the funny green sauce I dribbled on it while eating lamb chops the other night."

New in Box (NIB) -- "I bought this with the sole intent of selling it for many times what I paid

for it."

Nice -- "Looks great-- doesn't work."

Complete -- "Except for the valuable, hard-to-find bits required to make it work."

Not Tested/Sold As-Is -- "12VDC? 120VAC? There's a difference?"

Like New -- "Like running over it with a car could really be **that** bad for it."

With Extras -- "I didn't feel like auctioning the manual and case separately."

Buy It Now -- "...for twice what it's worth, or risk paying three times as much to stave off snipers."

Well, that's just a small sample. If you're interested in a complete, printed, mint, new in box copy with extras, watch for my eBay auction! ;^)

# Re: Since when did the 19BII become so rare?

Message #3 Posted by Laurence Carr on 11 Apr 2003, 3:10 a.m., in response to message #1 by Scuba Diver

We still sell these new and boxed with manual, batteries and 12 month HP warranty for around \$198 at Classic Calculators in the UK (www.classiccalculators.com).

## **Re: Since when did the 19BII become so rare?**

Message #4 Posted by <u>Scuba Diver</u> on 11 Apr 2003, 3:55 p.m., in response to message #3 by Laurence Carr

John, I love the dictionary!! You've significantly enhanced my eBay lexicon!

If you ever have an extremely rare, mint 12C with extras, let me know. I've got about \$400 US burning a hole in my pocket...

B.

# Probably explains the lack of bids

Message #5 Posted by <u>Mike</u> on 11 Apr 2003, 11:57 p.m., in response to message #1 by Scuba Diver

Clearly too high. That probably explains the lack of any bids.

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### **Re: Pascal Handheld**

Message #1 Posted by David Smith on 10 Apr 2003, 6:27 p.m.

I would hope that Pascal died the horrible and brutal death that it deserved. And C++ and Java will follow. Not to mention ADA.

# **Re: Pascal Handheld**

Message #2 Posted by <u>David Smith</u> on 10 Apr 2003, 6:30 p.m., in response to message #1 by David Smith

And also FORTH... RPN is GREAT for calculators. It is a TERRIBLE idea for grown up computers. Even die-hard FORTH addicts cringe at the idea of having to go back and work on a program that they wrote a couple of years before.

**ok, David, so now I'm curious** Message #3 Posted by <u>glynn</u> on 10 Apr 2003, 8:26 p.m., in response to message #2 by David Smith

Okay-- I'll bite:

If Pascal, C++, Java, Forth, ADA are all deserving of a horrible death, what should I go learn?

;-)

## Re: ok, David, so now I'm curious

Message #4 Posted by J.Manrique Lopez de la Fuente on 11 Apr 2003, 4:08 a.m., in response to message #3 by glynn

Hello,

With .NET Technology none language has death, you can use "past art". I recommend seeing a bit more here:

http://www.go-mono.com

It is .NET and it is Free (LGPL License), and it works in handhelds.

Best regards,

J.Manrique

#1077 HPCC Member

Re: ok, David, so now I'm curious

Message #5 Posted by <u>David Smith</u> on 11 Apr 2003, 6:08 p.m., in response to message #3 by glynn

Good 'ole plain jane "C". ADA, C++, and Java have too much going on behind the scenes. A program that compiled to less than 4K in "C" was 1.8 meg in ADA, 290K in C ++, and was never able to run in Java (200 lines of code in C, over 2000 in Java).

Re: ok, David, so now I'm curious

Message #6 Posted by <u>glynn</u> on 11 Apr 2003, 8:51 p.m., in response to message #5 by David Smith

Hmm, and I even have a compiler or two for that.

(What do you think of slightly re-cast C's like Objective C?)

#### Re: ok, David, so now I'm curious

Message #7 Posted by <u>David Smith</u> on 13 Apr 2003, 5:22 p.m., in response to message #6 by glynn

I've never used it, but suspect it has a lot of the evils of C++. I like my generated code plain, simple, and without any hanky-panky going on in some HUGE run time library.

#### **Programming languages.**

Message #8 Posted by <u>Christof</u> on 15 Apr 2003, 6:33 p.m., in response to message #7 by David Smith

There's nothing wrong with Forth even on a modern sunblade- it's fantastic.

.net is a 'world standard' only for \*one\* specific, tied down, locked in segment.

Java has its place, but I havne't found it yet.

C is great and fine, but hardly the end all be all- it's quite annoying, in fact.

Objective C is not C++ and assuming it must suck because C++ does is just ... well. you have your One True Language and Love It Dearly, but dont' denigrate \*everyone\* else on the planet for it.

Seriously, if I was going to set out to learn a language as a first timer today-I'd choose BASIC or RPL.

Laugh all you want, you CAN build quite good code on either if you pay attention to good coding practices. you also tend to have simple development environments (in a HP75C you have to turn it ON. comapre that to getting started coding in turboC with absolutely zero starting knowledge) and the machines tend to be available, cheap, lightweight, and portable. Simulators for RPL machines (48G mainly) and BASIC interpreters are available for just about every platform you could want, from my Model1 (admittedly, it doesn't do the RPL part) to my 200LX to my sunblade.

if you want to learn something shiny and new, C or perl. or python, which may not seem as evil to a person who isn't used of the screwiness of older compiled languages like C. of course, my all time first choise for learning is lisp. scheme, CLISP, or ELISP.

### **Re: Programming languages.**

Message #9 Posted by <u>David Smith</u> on 17 Apr 2003, 7:19 p.m., in response to message #8 by Christof

Actually, I have used well over 100 programming languages plus assemblers for well over 50 processors. I have also written a half dozen compilers. I use the tool that best fits the job. If I was stranded on a desert island with one language it would definitely be "C".

I did not say that Objective C sucks, just that I have never used it but based on my experience with other "objective" languages would ASSUME that it had the same library bloat/virtual machine/semiinterpretive execution that goes along with the object based programming model.

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# **Re: Ambroid PROWELD Label**

Message #1 Posted by David Smith on 10 Apr 2003, 6:24 p.m.

Nope, carbon tet and TCE are two different things.

I think one can prove ANYTHING causes cancer. There was a study done where they stuck some mice with a needle. Others were actually injected with distilled water. Guess what? Those injected with water got more cancers than those just stuck. Now why do bottles of water sold in California not say "This produce contains a substance known to cause cancer"? Bags of sandbox sand have the Warning of Doom.

#### **Re: hazardous materials**

Message #2 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 11:01 a.m., in response to message #1 by David Smith

Then there are the things that, if they are as bad as they say now, we might as well just lie down and die. My dad's Electrical Engineer's Handbook, ca. 1940, has a chart comparing insulating oils for capacitors and transformers. PCBs were at least an order of magnitude better than anything else they had, so it's no wonder they were put to wide use. Now PCBs are considered to be extremely hazardous. A few years ago, a power company truck carried a leaky transformer for a few miles through the center of our downtown area. It leaked about 5 gallons of oil that contained a trace of PCBs, the transformer having been drained and refilled with something nonhazardous. All the pavement that had come in contact with the oil was dug up and replaced. Now, maybe PCBs are that dangerous. But for many years, used PCB transformer oil was sprayed on rural dirt roads to keep down the dust!



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**Re: HP-41 CX went for \$610 in the end** *Message #1 Posted by* <u>*Clive Marner*</u> *on 10 Apr 2003, 6:14 p.m.* 

Sorry Doc. Enjoy.

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### Re: HP-9G

Message #1 Posted by Martin (UK) on 10 Apr 2003, 1:13 p.m.

Many thanks for your responses/comments.

They have come in very useful.

Best regards,

Martin

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#### What's the history of the "Gummy Wheel"?

*Message #1 Posted by* <u>*Steve</u> <i>on 10 Apr 2003, 12:46 p.m.*</u>

I just repaired an 41cx card reader that suffered from a "gummy wheel". It seems like there's a lot of info on how to repair it, but now I'm wondering if anyone knows the story/history behine this problem. My understanding is that all (at least 41cx) HP card readers suffered the problem. My questions are, what caused the problem, what material was the original roller made of, why did HP use this material (they must have know it would fail), did HP make an attempt to replace the wheel once it was identified? Thanks!

Steve

### Re: What's the history of the "Gummy Wheel"?

Message #2 Posted by <u>glynn</u> on 10 Apr 2003, 5:12 p.m., in response to message #1 by Steve

I'm not sure \*what\* is behind the degradation of rubber and elastic parts at HP-- but I can tell you it is not just limited to 41cx readers.

The 67 and 97 readers, the big "D" shaped tire on the 9100a, and capstan drive tape machines such as the 9144a are some of those I can directly testify have turned "mushy" with time.

I have also seen this pathology on the older Colorado QIC-style tape drives, though the cases I saw were all attributed by the service tech we used to "excessive shuttling"-- where the tape used might have a block that can't be read properly, so the drive might forward and reverse the tape over and over to try to read it. It was guessed that these machines, doing unattended backup and verify, were "shuttling" all night. The equivalent of "driving the tires off" a car.

I am darn sure that my 9100a reader was never used that way; ditto, I would think, for the card reader on my 97. It seems just age did it in those cases. Heat is often blamed, but I am not so sure about that. My car has PLENTY of rubber that never has melted, though it has lived most of its life in this part of the southern U.S. we affectionately call Hell. On the other hand, you would expect that an office wallflower like the 97 would neither be exposed to, nor generate,

enough heat to make a difference to its parts. Why would heat particularly be a problem in the cardreader?

Other possibilities people have mentioned:

1. Air. Some rubber products oxidize, and thus breakdown. Surely you know that your reader was only intended for use in a complete vacuum? :-)

2. Some microbes attack and eventually eat natural-based rubber. Witness the foam pads on your eight-tracks. (The "Andromeda Strain" theory)

3. Aerosols and vapors from solvents are attracted particularly to this rubber. Your cologne was too strong.

4. HP used a supplier with an inferior formulation of rubber (this in comparison with TI, who never seems to have this happen)

5. The lack of use of the parts is the problem-- because they get hardly any exercise, the "soft" polymers dry out of the piece, leaving porous compounds that disintegrate on use. (This is the "Armor-All" theory; supposedly, adding polymers in will keep these parts "new").

I don't know what validity can be assigned to any of this. (My bet is on #4). I DO know that it's a problem, for sure.

# **Re: Deteriorating Rubber**

Message #3 Posted by <u>Paul Brogger</u> on 10 Apr 2003, 5:38 p.m., in response to message #2 by glynn

We tried using the kids' pacifiers for Christmas ornaments -- kind of a nostalgic, family-oriented thing . . .

After a couple of years, the "sucky" parts turned gooey, sticky, and started falling apart. Ditto for the yellowish nipples on the old resuable baby bottles.

It seems deterioration of rubber components is a problem in many areas. (One might suspect that it had a part in having the kids in the *first* place, but let's not go there . . . )

#### Paul has the answer!

Message #4 Posted by <u>glynn</u> on 10 Apr 2003, 6:54 p.m., in response to message #3 by Paul Brogger

The clue was --

>>> After a couple of years, the "sucky" parts turned gooey, sticky

Now I understand: HP also made "sucky" parts.

:-)

**Re: Deteriorating Rubber** 

Message #5 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 8:43 a.m., in response to message #3 by Paul Brogger

Ozone is well known for causing rubber to deteriorate, and I recently heard a news report that pine trees are responsible for putting a lot on nitrogen oxides in the air, and as I understand it, the reason nitrogen oxides in car exhaust is bad is because it leads to the generation of ozone - the NOx acting as a catalyst, I guess.

**TI's have plenty of gum. Stuck to the case....** Message #6 Posted by Michael Meyer on 15 Apr 2003, 12:19 a.m.,

in response to message #2 by glynn

The TI's I've rebuilt: half a dozen SR-52's and a dozen or more TI-59's have all had deteriorated rollers.

I opened up a batch of SR-52's that had a wad of gum melted to the back of the case! Why would anyone put gum (or putty) into the calculator? But wait... there's no rubber roller! It's not gum afterall! Good thing I didn't try to chew it....

None of the HP's I've seen were that bad.... to the point of dripping to the back of the cases.....

The TI-59's and SR-52's work fine now. I used plumber's washers glued onto the shaft and "lathed" down to the perfect size. I'll wager that the plumbing washers will last more than 20 years.

Michael

#### Re: TI's have plenty of gum. Stuck to the case....

Message #7 Posted by <u>glynn</u> on 15 Apr 2003, 3:22 a.m., in response to message #6 by Michael Meyer

Well, I suppose I should be happier knowing it isn't just HP's fault. I'd been told by a TI fan that they had no such difficulties.

The consensus seems to be that if there is a roller or belt or other product, it may turn to goo with time, smog or whatever, and probably grow fungus if it can. I think the jury is out and we'll simply have to wait and see about model-airplane or surgical tubing. Maybe five, ten, fifteen years?

This is discouraging. Is there no known formulation of rubber/urethane/other synthetic which would do what the HP materials can do, WITHOUT inevitable liquification or cracking, guaranteed?

**a spiritual answer ...** Message #8 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 8:56 a.m., in response to message #7 by glynn

... not in this world

#### Re: What's the history of the "Gummy Wheel"?

Message #9 Posted by <u>David Smith</u> on 10 Apr 2003, 5:59 p.m., in response to message #1 by Steve

The rubber wheel is NOT actually rubber. It is a polyurethane that HP chose for its ability to grip and pull a card that had been soaked in oil through the reader. This compound consists of a synthetic rubber cured with an isocyanate curative. Their choice of materials was not stable with time and the polymer chains break down into their primodial goo. If you have a reader that has not been rebuilt, just wait. You WILL soon experience the joy of goo.

### **Re: What's the history of the "Gummy Wheel"?**

Message #10 Posted by <u>ToddG.</u> on 10 Apr 2003, 10:08 p.m., in response to message #9 by David Smith

Dave is correct regarding the material. My understanding is that this polyurethane will oxidize over time, and thus turn to goo. I seem to recall reading that they used the best material available at the time, but it was not impervious to ozone attack from the air (oxidation). Some of the folks on this board have repaired many of the readers in the 65, 67, and 41, and they use more modern materials (e.g., surgical tubing) that may be more resistant to oxidation.

### **Re: What's the history of the "Gummy Wheel"?**

Message #11 Posted by <u>Paul Brogger</u> on 12 Apr 2003, 2:38 p.m., in response to message #9 by David Smith

What*ever* the material was, its breakdown is dramatic! I'd just recently resurrected my HP-97 after several years in (warm, indoors) storage, and just fixed the card reader yesterday. The wheel was not so much a "wheel" at all, but a gummy, waxy build-up! It had no more hint of its original form than the fact that it was wrapped around the metal hub. Goo indeed!

### **Re: What's the history of the "Gummy Wheel"?**

Message #12 Posted by <u>David Smith</u> on 13 Apr 2003, 5:24 p.m., in response to message #11 by Paul Brogger

Wait till you find one that some fungus has decided is quite tasty... the wheel can sprout all sorts of white furry growths.

### Mine was like this...

Message #13 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 Apr 2003, 1:58 a.m., in response to message #12 by David Smith

... after about nine years resting inside a shoes box (the same box I stored my "spread-around" HP41C). The goo sort of "cracked" in many small parts and in between them was the mentioned white furry.

I did not take a picture, but it is quite a site...

Luiz C. Vieira - Brazil
### Re: Mine was like this...

Message #14 Posted by James M. Prange on 14 Apr 2003, 2:03 a.m., in response to message #13 by Vieira, Luiz C. (Brazil)

I hope that the shoes (and your feet) didn't develop the same problem.

Regards, James

### Re: Mine was like this...

Message #15 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 5:19 a.m., in response to message #14 by James M. Prange

Another thing made of polyurethane is toothed timing belts. I have an old HP chart recorder with such a belt on the chart drive. I left it in the garage for a couple of years and when I tried it out one day, the paper didn't move. I opened it up and the only thing left of the belt was the loop of fabric that made up the outer surface - even the printing on the fabric was legible. Also a small pile of polyurethane crumbs and a couple of empty cockroach egg cases. Apparently, two generations of cockroaches were weaned on that belt!

I'm amazed by the wisdom of mothers. I rented a storage unit that I didn't enter for a number of years and when I finally moved my stuff out, I found that some of it was infested with termites which got in through cracks in the concrete foundation. Wherever there was the sand that the termites bring up to build their tunnels, I found lizard eggs. I'm sure Momma lizard put them there knowing the babies would be able to snack on termites as soon as they came out of their shells!

## Re: Mine was like this...

Message #16 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 14 Apr 2003, 5:55 a.m., in response to message #14 by James M. Prange

Tell me about it...

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### **Re: Pascal-Thanks**

Message #1 Posted by Bill Platt on 10 Apr 2003, 11:14 a.m.

Thanks for your responses! The borland Turbo Pascal for FREE sounds very cool... -Bill

**Re: Pascal-Thanks** Message #2 Posted by <u>J.Manrique Lopez de la Fuente</u> on 10 Apr 2003, 1:38 p.m., in response to message #1 by Bill Platt

Hello,

And don't forget FreePascal:

http://www.freepascal.org

Maybe I should look for time to put it on my Linux iPAQ :-)

Best regards,

J.Manrique

#1077 HPCC Member

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#### **Re: if hp made toasters**

Message #1 Posted by Paul Brogger on 10 Apr 2003, 9:44 a.m.

If HP made toasters . .

They would each have one slot. You would put one piece of bread in, push "Enter", then put the next piece of bread in, and so on.

You could toast up to four slices at once, but you'd have to retrieve them one by one. You could swap and reorder their positions before retrieving, and once you'd filled the toaster with four slices, you could extract an infinite number of slices (though, all of the same type of bread)!

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#### My 18C has s/n 2638A37459...

Message #1 Posted by Raymond Del Tondo on 10 Apr 2003, 4:26 a.m.

My 18C has s/n 2638A37459, which is even somewhat earlier.

Sorry...

Regards,

Raymond

#### 2637A31xxx

Message #2 Posted by <u>casey</u> on 10 Apr 2003, 7:00 a.m., in response to message #1 by Raymond Del Tondo

MIB

### Re: 2637A3114xx

Message #3 Posted by <u>Frank V</u> on 10 Apr 2003, 8:27 a.m., in response to message #2 by casey

In great shape.

# Congratulations & little contest [Was: Re: 2637A31xxx]...

Message #4 Posted by <u>Raymond Del Tondo</u> on 10 Apr 2003, 9:02 a.m., in response to message #2 by casey

You won!

Hmm, we could make a little conntest of lowest serial numbers. Below I mention my calcs with s/n equal or even earlier than in the museum list (http://www.hpmuseum.org/collect. htm#numbers):

HP-17B: 2747A00651 HP-17B: 2801A00457 HP-20S: 2831A16267 HP-33E: 1814A13665 HP-35: 1302S50202 (T3, common s/n front part) HP-45: 1301S13542 (common s/n front part) HP-48SX: 3003A00131 HP-80: 1247A45830 (common s/n front part)

Those with remark '(common s/n front part)' usually have printed date code, and a stamped 5-digit number after the country code. AFAIK all of those models have a printed date code, so here the rightmost five digits count.

Regards,

Raymond

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### HP49G IF-structure bug?

Message #1 Posted by Juergen Rodenkirchen on 10 Apr 2003, 2:51 a.m.

I'm currently using an HP49G with ROM version 1.18 (afaik, the last "supported" version) which seems to have a serious bug with "IF THEN (ELSE) END" structure: When I'm trying to use short cuts (usual LEFT- or RIGHT SHIFT with IF) with the IF-structure soft-key to obtain the "IF THEN (ELSE) END" sequence at once, the machine will stall with the busy annunciator active and a "3:" at the right lower part of the display (stack level 1). The same may happen even if working without any short cut if the structure words are not typed in in sequence one after the other (but are "interrupted" by any commands as you normally would work) ... hope, you know what I'm talking about ;-) Thus, the only work-around seems to be to press soft key IF, THEN, (ELSE), END by soft key, one after the other in ADVANCE and subsequently fill in the if-sequence, then-(else-) sequence. Does anyone know more about this?

Juergen

## **Re: HP49G IF-structure bug?**

Message #2 Posted by James M. Prange on 10 Apr 2003, 4:27 a.m., in response to message #1 by Juergen Rodenkirchen

Works normally for me with both 1.18 and 1.19-6.

You don't happen to have anything assigned to these keys do you?

Any libraries loaded? If so, then try holding down the backspace key while warmstarting to keep any library configuration routine from being executed and see if that cures it.

Regards,

James

## **Re: HP49G IF-structure bug?**

Message #3 Posted by Juergen Rodenkirchen (GER) on 10 Apr 2003, 6:14 a.m., in response to message #2 by James M. Prange

> You don't happen to have anything assigned to these keys do you?

No, I'm almost sure that nothing's assigned to the keys, but I'll double check that tonight (I haven't the machine at hand right now).

> Any libraries loaded? If so, then try holding down the backspace key while warmstarting to keep any library configuration routine from being executed and see if that cures it.

There's indeed a library loaded (Periodic table). I bought the machine 2nd hand as it's alas no longer available "officially" here :-( so that I'm not really aware about what the library's doing in detail. I'll try to avoid lib-config-routine execution at warmstart too.

Thanks a lot for your valuable input!

Regards, Juergen

Re: HP49G IF-structure bug? No success ...

Message #4 Posted by Juergen Rodenkirchen (GER) on 11 Apr 2003, 2:54 a.m., in response to message #2 by James M. Prange

James, JFYI the "remedies" you suggested didn't work: RCLKEYS gives {S}, so no assignments. I even purged all existing libraries. I guess, the FlashRom has got corrupted somehow ... if you have any other ideas, they'd be appreciated, of course :-) Thanks for your help anyway.

Juergen

### Re: HP49G IF-structure bug? No success ...

Message #5 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 11 Apr 2003, 6:10 a.m., in response to message #4 by Juergen Rodenkirchen (GER)

Hello, Jurgen;

a few weeks ago someone at this forum posted a message about another problem related to the HP49G behavior, but in his case, O.S. version was earlier than the one installed in yours. Mine runs with 1.19-5 and runs fine.

What is the sequence you use to call the PRGM menu to the top key roll? If I use 23 MENU [ENTER] and press [left-shift][IF] or [right-shift][IF} I get one of both IF-THEN-(ELSE)-END structures.

Aren't you willing to upgrade just for checking pourposes? If not, don't you consider reloadind current installed O.S.? If it is data corruption, reloading may solve the problem. I'd also try another copy.

BTW, did you observe this behavior before? I mean, have any idea of any particular alteration/addition/removal before the symptoms being observed? It might help further analysis.

Best regards.

Luiz C. Vieira - Brazil

## Re: HP49G IF-structure bug? No success ...

Message #6 Posted by Juergen Rodenkirchen (GER) on 11 Apr 2003, 8:26 a.m., in response to message #5 by Vieira, Luiz C. (Brazil)

Hi Luiz!

>What is the sequence you use to call the PRGM menu to the top key roll? If I use 23 MENU [ENTER] and press [left-shift][IF] or [right-shift][IF} I get one of both IF-THEN-(ELSE)-END structures.

I'm using here [left-shift] PRG BRCH IF to get there (I'll try 23 MENU [ENTER] tonight). Then I encounter either of the following phenomenons:

1. [left-shift] [IF] returns IF THEN END ok. But subsequently pressing [left-shift] [IF] (e.g. in order to insert an IF THEN END after the 1st IF) stalls the machine.

2. [right-shift] [IF] returns IF THEN ELSE END but stalls the machine immediately.

> Aren't you willing to upgrade just for checking pourposes? If not, don't you consider reloadind current installed O.S.? If it is data corruption, reloading may solve the problem. I'd also try another copy.

It has just been curiosity if there's some sort of bug in OS 1.18 ...

> BTW, did you observe this behavior before? I mean, have any idea of any particular alteration/addition/removal before the symptoms being observed? It might help further analysis.

Well, I've just started to use this HP49G which I bought 2nd hand. So, I can't tell what the previous owner did with it (except of loading 2 libs that I purged lately). Anyway, I'm currently enjoying the excellent Trigonometry-, ComplexNumbersand SequencesSeriesLimits-Marathons of Nick (can't remind his complicated, long greek name)-- b.t.w., an absolutely incredible work that the guy did here. I have had some problems to follow the course due to missing commands with OS 1.18 and so I'm indeed planning to upgrade to 1.19-5 soon anyway. However, thank you very much for your help!

Best Wishes and a have Nice Weekend :-) Juergen

### Re: HP49G IF-structure bug? No success ...

Message #7 Posted by <u>James M. Prange</u> on 11 Apr 2003, 10:07 p.m., in response to message #6 by Juergen Rodenkirchen (GER)

Hi Juergen,

It sure sounds strange. I expect that if Revision 1.18 had this bug, then I would've read about it long ago, and besides, I have a 49G with revision 1.18 that gives me IF THEN END for LeftShift IF and IF THEN ELSE END for RightShift IF (where the IF key pressed is the sub-menu key), and I can fill in the blanks just fine. I even tried two consecutive LeftShift IF presses (it is plausible that a bug in that case may have gone unnoticed), and that also worked as it should.

I agree with Luiz that the next thing to try would be to re-install the "ROM", but I'd skip 1.19-5 and upgrade to 1.19-6 instead. You can get it at <u>http://www.epita.</u> <u>fr/~avenar\_j/hp/49.html</u> or somewhere on <u>http://www.hpcalc.org/</u>. Lots of other

good stuff on hpcalc.org too.

By the way, you may want to look into the CASE structure as a replacement for nested IF structures.

Regards, James

#### From me, thank you too, James

Message #8 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 11 Apr 2003, 11:11 p.m., in response to message #7 by James M. Prange

Hi, James;

are you using 1.19-6 O.S. version? As it is available at Avenar's homepage, no doubts about stability, so there's no need to ask...;^)

I am using 1.19-5 since it was available and I must confess I did not try 1.19-6 because I was just lazy enough to install it...  $|^{()}$ 

Thanks for your support on trying it. I'll do it this very weekend.

Best regards.

Luiz C. Vieira - Brazil

#### You're welcome

Message #9 Posted by James M. Prange on 12 Apr 2003, 2:27 a.m., in response to message #8 by Vieira, Luiz C. (Brazil)

I've been using 1.19-6 since shortly after it became available. See JYA's page for a list of changes, additional features, and bug fixes.

In my opinion, it's the stablest and generally "best" 49G ROM so far, and the general consensus on comp.sys.hp48 seems to be the same.

Regards, James

# **O.S. already updated**

Message #10 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 13 Apr 2003, 9:34 p.m.,

in response to message #9 by James M. Prange

Hi;

this is to let you know I have already updated my HP49G's O.S. to 1.19-6 version. I did not use any "suspicious" resources, but all data that what was already stored in the calculator (as all programs and libraries) *prevailed*.

Thank you again, James.

And Juergen: now I can say I recomend based on my own experience.

Success.

Luiz C. Vieira - brazil

### Re: O.S. already updated

Message #11 Posted by Juergen Rodenkirchen (GER) on 14 Apr 2003, 2:21 a.m., in response to message #10 by Vieira, Luiz C. (Brazil)

Thanks for the message and encouragement, Luiz! As mentioned, I'll follow you and will update my OS most probably on the upcoming Easter weekend ... well, at least, I hope so: You know, Holidays often turn out to be very preoccupying ;-)

Juergen

## Re: James, Luiz: Thanks a lot for helping!

Message #12 Posted by Juergen Rodenkirchen (GER) on 12 Apr 2003, 1:37 p.m., in response to message #1 by Juergen Rodenkirchen

... and am looking forward to install 1.19-6 :-) Thanks for the link, James and - as Luiz said - for the testing of 1.19-6!

Juergen

### Let us know...

Message #13 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 12 Apr 2003, 6:57 p.m., in response to message #12 by Juergen Rodenkirchen (GER)

...if you have success. I believe everyone in here looks forward for anyone's successfull results.

Best regards.

Luiz C. Vieira - Brazil

## Re: Let us know... Will do :-)

Message #14 Posted by Juergen Rodenkirchen (GER) on 13 Apr 2003, 3:52 p.m., in response to message #13 by Vieira, Luiz C. (Brazil)

> ...if you have success. I believe everyone in here looks forward for anyone's successfull results

... and that's why I always feel surrounded by friends when entering this forum :-) Btw, I've already downloaded all the necessary files for 1.19-6 from Jean Yves' site and do plan to upgrade on Easter weekend (hopefully I will have the time). I let you know when I'm done with it ...

Best Wishes, Juergen

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### **Re: To Michael Coyle: re: single-digits**

Message #1 Posted by glynn on 10 Apr 2003, 2:40 a.m.

>>if I need a water pump for an '86 Ford,

Heh, I've an '85 Toyota... Best \$600 car I ever bought for \$1000. :-/ Well, it's a long story.

But here in Metropolis, all you want is a "beater" anyway, one that when you look at it, it says: wouldn't you rather steal something that has "fully-functional brakes"?

Uh, this may sound odd, Michael, but I am studiously avoiding looking at any patents. This selfimposed set of blinders may come off Eventually-- I just don't want everybody else's recipes in my head while I'm cooking up my own stew.

Discussing LED displays is okay-- from a "eight-tracks and vinyl" standpoint, anyway; that portion of the technology is sort of moot to my own projects.

Anyway, you've satisfied my curiosity. One inductor per segment makes perfect sense, and I can kinda guess the result of this. Resonating at the driver circuit's pulse frequency, the pulse is stretched out a bit, so the ultimate turn-on time of the segment is a bit longer than the actual pulse duration; in effect, it's as if you gave a bit of "persistence" to the segment while you have gone on to another segment of that digit. Or so I think. But I would be a little leary of this from the standpoint of potential RFI. Hmmm. Do Classics emit much RF noise?

You're right, of course. An LED manufacturer or hybrid chip house would most certainly do a \*wonderful\* job of making new "old" displays, and I BELIEVE the task of junking, stripping and using old parts to revive collectible calcs is already "de rigeur" within our own clan here at the MoHPC mansion.

I'll stop, then, worrying about the \*OLD\* calculators. It's only been a way for me, anyway, to try to attract others here to adopt an activist "CAN DO" stance. I don't like to feel alone.

I really hate whining and pawing at the leg of corporations (or anyone), asking them to do what they

usedta, because they usedta do it so well. My own past involvements lead to a cynicism about that, while my faith in the creative and collaborative process is still so sure.

Take care-- g.

# Re: To Michael Coyle: re: single-digits

Message #2 Posted by <u>Michael F. Coyle</u> on 10 Apr 2003, 8:48 p.m., in response to message #1 by glynn

Hi Glynn,

You're getting closer on the inductors, but...

There's no resonance involved. The inductors are used only as energy-storage devices, nothing more. The power supply charges them and they discharge through the LEDs. It's just RL time constants. The pulse time is short, just a few microseconds, but (presumably) the refresh rate is high.

If I told you any more, I'd have to kill you. :)

I can understand your desire not to contaminate your mind with Prior Art, but just keep in mind that these are EXPIRED patents we're talking about here. All of their IP is now freely available for anyone to exploit, even commercially. End of sermon.

I think we've pretty done the subject of LEDs to death here, so I think it's time to bring this thread to a close. But I'd like to discuss the idea of Open Source calculators and whether there's a possible project to be had. I'll write up some ideas and start up a new thread in the next day or two to see if anyone else seems interested.

- Michael

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### **Re: if hp made toasters**

Message #1 Posted by James M. Prange on 10 Apr 2003, 2:13 a.m.

I'm sure glad that my dad bought a Toastmaster about 1960. I still use it today. Sort of like an early HP calculator. Would be nice if things were still built like that.

Regards, James

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**Re: almost the earliest 18c serial number!** Message #1 Posted by <u>Massimo Gnerucci (Italy)</u> on 10 Apr 2003, 2:04 a.m.

Almost. Got an 18C with a S/N of 2638A38427, which ties it according to the list for the earliest year/week

Damn! :-) Mine is almost 1500 units later!

Massimo

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#### **HP45**

Message #1 Posted by Howard on 10 Apr 2003, 12:20 a.m.

My HP45 appears to have a strange quirk. For the first 3 minutes or so after I turn it on the y<sup>x</sup> key does not work. All other keys are OK. After that it seems to be ok. I think I read somewhere that some HPs need a bit of time to warm up. I wonder if this is what is happening. Has anybody else come across this strange phenomena.

## Re: HP45

Message #2 Posted by <u>Jeff</u> on 10 Apr 2003, 7:03 a.m., in response to message #1 by Howard

I have never experienced or heard of any such "warming up" phenomenon. More likely the y<sup>x</sup> key contacts are dirty. They are relatively easy to get to and clean. Post a reply if you care to try to clean them and need instructions, or search the Forum archives.

## Re: HP45

Message #3 Posted by <u>Ernie Malaga (Miami)</u> on 10 Apr 2003, 10:06 a.m., in response to message #1 by Howard

Howard:

>I think I read somewhere that some HPs need a bit of time to warm up.

Mmm... solid-state electronic devices need no warm-up time; they start working the moment you power them up. However, as Jeff mentioned, your HP-45 may have a dirty contact under the  $[y^x]$  key.

-Ernie

## Re: HP45

Message #4 Posted by <u>Katie</u> on 10 Apr 2003, 4:18 p.m., in response to message #3 by Ernie Malaga (Miami)

I've never hear of this problem on the 45, but some 21, 22 and 25 do have a warm-up issue. Although solid-state devices don't normally need any warm up time, when the chips are marginal heat can make a difference in their performance (both making things work and not work).

The 3 Woodstocks mentioned sometimes develop a problem with their memory chip where it will not work a until the chip heats up a bit. If you let the calculator stay on for a few minutes then turn them off and back on this usually fixes the problem. You can bypass the warm-up time by heating the chip slightly. I also have seen 65's that work fine until the CPU chip has been on for about 5 minutes. If you cool it off it start working again.

That said, I suppose that the 45 in question could have a marginal ROM chip and heat makes a difference.

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Picture of the "exploded" HP28S

Message #1 Posted by Vieira, Luiz C. (Brazil) on 9 Apr 2003, 11:40 p.m.

Hi, folks, Marx;

the picture of the exploded HP28S I'm refering to can be found at the Hewlett-Packard Journal, August 1987, p. 19. I have not found the file with the scanned image I made a few months ago, and my provider simply removed both DOWNLOAD and IMAGES directory from the page I was taken as a "guest" and there is no FTP server anymore (system upgrade?) so I can no longer (at least for now) offer a place for you to download such images. Anyway, I'll scan it again and send the image to you all, O.K.? I'm just trying to figure out why the scanner does not respond to any comands after I removed the ZIP drive... Windows affairs, whatelse to say?

I'm refering to the source (HP Journal) because maybe some of you already have it. I promise to generate the best image I can to reinforce details and hide glitches.

Thank you for your patience.

Best regards.

Luiz C. Vieira - Brazil

**Re: Picture of the "exploded" HP28S** Message #2 Posted by <u>Gordon Dyer</u> on 16 Apr 2003, 12:26 p.m., in response to message #1 by Vieira, Luiz C. (Brazil)

Hi Luiz, did you find the picture yet? I would like a copy when you find it... Best wishes, Gordon



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#### **Re: How to open an HP 28S**

Message #1 Posted by Scuba Diver on 9 Apr 2003, 11:14 p.m.

Hi Luiz!

As a 28S fan, I'd love to see the pics too...any chance I could get a set?

Β.

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#### Hope I didn't just mess up

Message #1 Posted by John Cadick on 9 Apr 2003, 10:50 p.m.

I just bought an HP41CV on EbaY.

http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&category=11713&item=3018074950

The thing that bothers me is that the key pad is light colored and I don't remember ever seeing one that color. Any thoughts.

John

### Re: Hope I didn't just mess up

Message #2 Posted by <u>Scuba Diver</u> on 9 Apr 2003, 11:12 p.m., in response to message #1 by John Cadick

I think you're OK...that looks like it's a keyboard overlay. Pretty common.

B.

Re: Hope I didn't just mess up

Message #3 Posted by John Cadick on 9 Apr 2003, 11:18 p.m., in response to message #2 by Scuba Diver

Thanks. I hadn't thought of an overlay. I was afraid that the old "act in haste and repent at leisure" was going to apply.

John

### Re: Hope I didn't just mess up

Message #4 Posted by <u>db(martinez,california)</u> on 9 Apr 2003, 11:40 p.m., in response to message #1 by John Cadick

the cx came with an overlay just like that.

#### it was spray paint

Message #5 Posted by <u>CZ</u> on 10 Apr 2003, 2:16 a.m., in response to message #4 by db(martinez, california)

The seller spray-painted the keyboard a lighter color so that those tire tracks from being run over didn't show.

Re: it was spray paint

Message #6 Posted by John Cadick on 10 Apr 2003, 9:58 a.m., in response to message #5 by CZ

LOL

Oh good. I was afraid it was something bad. I hope they did it with water colors so it will come off when I put my new 41CV into the dishwasher.

John

### Re: it was spray paint

Message #7 Posted by <u>GE</u> on 10 Apr 2003, 3:05 p.m., in response to message #6 by John Cadick

Hmmmm... I wouldn't put it in the dishwasher if I were you, those 6-views cardboard models don't take it too well.

#### Re: it was spray paint

Message #8 Posted by John Cadick on 10 Apr 2003, 4:03 p.m., in response to message #7 by GE

Double Hmmmmm...... You may be right. However, you're thought opens the possibilit that I could clean it up with crayons and magic markers. ;-}

### Re: Hope I didn't just mess up

Message #9 Posted by <u>Les Bell [Sydney]</u> on 10 Apr 2003, 5:02 a.m., in response to message #1 by John Cadick

That's a keyboard overlay, for sure. A good sign; it will have protected the keyboard underneath from dust and perhaps ultraviolet-induced fading.

Best,

--- Les [http://www.lesbell.com.au]

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I think you're too late Tom. (hehehe) Message #1 Posted by Jeremy on 9 Apr 2003, 9:34 p.m.

I think Dr. Anoop broke the seals precisely 2.5 hours before your post. :)

-Jeremy

**Re: I think you're too late Tom. (hehehe)** Message #2 Posted by <u>Dr Anoop Sahal</u> on 14 Apr 2003, 1:18 p.m., in response to message #1 by Jeremy

Well actually, A call to heal the sick interupted (again) my private time and I actually have not got round to opening the manuals.

I'm not clear as to whether the 7 CD set includes manual 1 and 2 or is there a seperate 7 CD set for each manual. Can I get spare overlays?

**Try here for a list** Message #3 Posted by <u>Tom (UK)</u> on 14 Apr 2003, 2:42 p.m., in response to message #2 by Dr Anoop Sahal

Look at the page:

http://www.hpmuseum.org/software/swcd.htm

To see what's on the CD's. Even if you do open the manuals you will probably want to buy them anyway - so order them then see if you still want to open the packaging.

It looks like it has:

HP-41CX Owner's Manual Volume 1 HP-41CX Owner's Manual Volume 2

PS I have no connection with these pages other than being rather pleased that the site's owner has made a space available for the HP collecting community - thanks Dave H.

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#### It should be very simple...

Message #1 Posted by Jeremy on 9 Apr 2003, 9:31 p.m.

I bought my HP-45 off of eBay for a cheapish price (\$45, oddly enough...) because it showed wear and some of the buttons had to be pressed very hard in order to work. From the start, I suspected that the contacts were just dirty from 30 years of use. So I took 'er apart and thoroughlly cleaned the contacts. This was a bit of a trick, as the contacts themselves aren't readily accessible. I kind of very gently cleaned underneath the flexible metal strips that complete the circuit when a button is pressed with a toothbrush dipped in rubbing alcohol. I'm 95% sure this is your problem. Elsewhere on this site are instructions on how to clean this contact by preparing a small strip of 1000 grit sandpaper. Go back to the main page and look on the link bar to the right until you see the part about repairing HP calcs. If you poke around a bit, you will see what I'm saying.

The capacitor replacement would be overkill in this case. The reason they suggest replacing the caps is because sometimes electrolytic caps get fatigued over the years and eventually, they could leak and mess up the board. Personally, I wouldn't go this far unless I were having that problem or I suspected damaged cap. I think in your case, it is just a dirty contact. Figure out a way to clean that contact, and you will be golden.

-Jeremy

PS - I don't know if you're the type of person to disassemble your calc, but once you have it apart, you will find that it is not such a big deal.

## Re: It should be very simple...

Message #2 Posted by <u>David Smith</u> on 10 Apr 2003, 6:19 p.m., in response to message #1 by Jeremy

There is one cap in the reader circuit that is well known to have a particular failure problem that causes the reader to write but not read. The cap is the small blue dipped tantalum electrolytic capacitor on the card reader board. I replace them on every reader that I rebuild... I suspect that they will ALL fail eventually, just like the drive roller.



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#### **Re: HP-26 Minimal Calculator**

Message #1 Posted by Gordon Dyer on 9 Apr 2003, 9:17 p.m.

I agree, it must be a 26C !

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### **Re: HP 25 Batteries**

Message #1 Posted by Gordon Dyer on 9 Apr 2003, 9:08 p.m.

I replaced my HP-25 batteries with NiMH AA and they last longer but are completely compatible, just take a little longer to charge.

### **Re: HP 25 Batteries**

Message #2 Posted by <u>Michael Meyer</u> on 9 Apr 2003, 10:36 p.m., in response to message #1 by Gordon Dyer

Try replacing them with AA Energizer Lithium Maganese cells. Then you won't have to worry about charging, or changing, for a long long time.

But don't EVER try to charge them! It will become the "Holy Hand Grenade of Antioch"!

Michael

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**Re: Features/Functions for a calculator** 

Message #1 Posted by Ben Salinas on 9 Apr 2003, 8:03 p.m.

I was planning on it being a physical one, to appeal to students. (Most standardized tests/teachers do not allow use of "small computers") -Ben

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### **Re: if hp made toasters**

Message #1 Posted by hugh on 9 Apr 2003, 7:26 p.m.

that's why i grill my toast. i seriously considered buying a dualit for about 5 minutes then came to my senses... anyway, consider this;

"The sucess and prosperity of our company will be assured only if we offer our customers superior products that fill real needs and provide lasting value, and that are supported by a wide variety of useful services, both before and after sale." Statement of Corporate Objectives. Hewlett-Packard, 1977.

#### Re: if hp made toasters

Message #2 Posted by <u>Daniel Kekez</u> on 9 Apr 2003, 10:19 p.m., in response to message #1 by hugh

Hugh, thank you for posting the quote. I was thinking of doing the same thing myself. This seems to be a much better business philosophy than what is practiced today. Now, it seems companies try harder to meet the expectations of their shareholders than they do trying to meet the needs of their customers.

## Of course they do

Message #3 Posted by <u>Woody</u> on 10 Apr 2003, 7:52 a.m., in response to message #2 by Daniel Kekez

Of course companies try harder to meet the shareholder expectations than customers. It is not hard to understand why.

You must keep the shareholders happy with stock growth, dividends, profitable forecasts, and strong business plans. If you don't, and they lose confidence, your company can lose half its value in a heartbeat. Then you are done and have to sell out or fold up the tent and go home.

Now, keeping (or delighting) customers satisfied is one component of the above factors in

shareholder satisfaction and confidence. People buying your product is a key to staying in business, right ? Not doing so will slow or stop the growth and profit. However, this is usually a slower process than losing shareholder confidence and there is time to correct it over time. (Hope springs eternal for consumers. After all, how long have we all been patiently waiting for another great calc ?))

...but make no mistake, the shareholders hold the reins in most companies and the CEO's know it.

### thats the dumbest thing I ever read

Message #4 Posted by <u>Carly</u> on 10 Apr 2003, 2:24 a.m., in response to message #1 by hugh

"The sucess and prosperity of our company will be assured only if we offer our customers superior products that fill real needs and provide lasting value, and that are supported by a wide variety of useful services, both before and after sale."

\*\*\*\*\*\*

That's the dumbest thing I ever read in my life. Whoever wrote that is fired. I dont care if its the last thing I do here, in my company we care about ONE SHAREHOLDER and that shareholder is ME.

If I cant make \$100 Million take home this year by my salaries and options, then I'll write in bonuses for each division I sell off to a competitor. Its about time you people took a page from my book, and learned that customers are the LAST place to go if you are looking for some quick easy money.

Customers are WAAYYY too demanding and picky, and they expect service after the sale, and they are slow to part with their bank balances. Backroom merger deals are much quicker for fattening up my wallet.... errr my purse....

- Carly

### Re: It is You!!!

Message #5 Posted by <u>Ron Ross</u> on 10 Apr 2003, 8:35 a.m., in response to message #4 by Carly

I can't believe you really took time out to respond to all of us loyal customers to enlighten us. You are the Great one. Don't hesitate to continue to wipe your feet upon my coat. You are certainly welcome to grind your heals into our backs as you trod accross us on your way to and from your bank. I love to hear your laughter as you hear us moan. We are after all, just a bunch of babies wanting a new rattle.

### LOL

Message #6 Posted by <u>C.Z.</u> on 10 Apr 2003, 1:20 p.m., in response to message #5 by Ron Ross

LOL

bunch of babies want a new rattle.

LOL

no rattle for you, customer.

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### Re: 30. 6 vs. 30.6001...

Message #1 Posted by hugh on 9 Apr 2003, 7:19 p.m.

thanks for the info,

interesting, but even more confusing. 30.6 is the actual number, but 30.6001 is really interesting as a fix for any floating point error. now the 29c from 1977 has the 001 but now i dont really know if the 25 book just abbreviated because of lack of space or it \*preceded\* the 001 hack. certainly, that all modern versions of the algorithm use 30.6001 because they just copied older works. i thought meeus had invented it, but seeing older cases makes me question this. and here's another interesting thing; any method predating computing would have used 30.6 so it must have been invented around this time. ie 1975'ish. i can see that using 30.6001 \*works\* as a tool to avoid problems early on. this is a kindof algorithmic archeology. :-)

### Re: 30. 6 vs. 30.6001...

Message #2 Posted by <u>Trent Moseley</u> on 9 Apr 2003, 11:08 p.m., in response to message #1 by hugh

Hugh,

As I posted to Andres there was no need to shorten the program because the program in the Application Book only used 46 program steps out of a total of 49.

tm

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#### Zener diode

Message #1 Posted by Michel Beaulieu on 9 Apr 2003, 7:01 p.m.

Hi, i have a HP-25 fully working with original charger and new NI-CD batteries. Is it normal that the case of the calculator on the right side is getting hot when charging?

I read here that we should add a zener diode in order to protect the electronic power circuit on the 25; what zener diode to use and where to connect it?

Thanks Michel

#### **Re: Zener diode**

Message #2 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 9 Apr 2003, 8:45 p.m., in response to message #1 by Michel Beaulieu

Hello, Michel;

in fact there is a somewhat "big" resistor (for a pocket calcualtor) at this very side of the case. It is a 1 watt (maybe 1/2 watt, for the time, I guess) and it is right in series with the "power line". And it gets warm when batteries are charging, it's normal.

BTW, I'm sending you an e-mail right now. Other subjects...

Hope this helps.

Luiz C. Vieira - Brazil

# CAPTAIN ZENER TO THE RESCUE... 1N4735A .

Message #3 Posted by <u>Norm</u> on 10 Apr 2003, 1:16 a.m., in response to message #2 by Vieira, Luiz C. (Brazil)

LOOK! Up in the attic! It's a techie, its an engineer, its a Heathkit assembler,

NO! ITS CAPTAIN ZENER ! Saving HP-25C's and their owners from untimely death, fire and destruction, handing out zeners to those truly in need.

Originally from planet Motorola, Captain Zener stuck his finger into one lightbulb socket too many, AND SUDDENLY, the voltage transients transformed him into Captain Zener, unable to go back to his originally non-Zener self.

Captain Zener's only weakness is seeing an HP calculator w/o a double-width "ENTER" button, which will cause him to lose all his super-powers until it is taken away.

And the only radioactive element to which he is vulnerable, a greenish material called "Carlynite" which if he is exposed to causes severe hemmorrhaging of profitability, and loss of any calculators worth buying.

----->> UH OH, got so far carried away there nobody is reading. Captain Zener will get down to business in the following post.

# IT IS A 6.2 VOLT 1N4735A .

Message #4 Posted by <u>Norm</u> on 10 Apr 2003, 1:56 a.m., in response to message #3 by Norm

Hello,

We had a worthwhile discussion going on the 'most correct' zener for an HP-25C. One guy said "6V zener" and I was objecting to the possible excessive amount of heat in the unit, and somebody said 0.5W zener and I said 1.0 Watt zener (also 6V is a less available value than 6.2V) One guy said the charger is 0.8VA but I said it is 1.8VA, and I didnt even have a charger handy to test with.

Therefore the thread ended w/o conclusion.

The three main concerns are

(a) making sure the zener doesn't leak current thereby slowly draining the battery, and
(b) making sure that when the zener diode is conducting heavily (somebody pulls the battery pack but leaves in the charger) that the zener can absorb the current w/o overheating.

(c) making sure that it has a predictable and rapid turnover in conduction, not conducting below a threshold, but conducting heavily above that threshold.

I finally ran a test out here, and the 1N4735A passes all the tests. It is, technically, a 6.2 Volt 1.0 Watt +-5% glass-jacketed zener with solder-leads. Motorola used to make the best ones, now it is "On Semiconductor". The doping at 6.2V gives a sharp transition not true of the lower voltage models like 5.1V etc. Therefore it doesn't leak current from the battery.

I tested this today:

For overheat, I tested it using the 1.8VA charger. It was a 3-component series test. I put two of them "back to back" (AC symmetry) and added a current-limiting resistor in series. Recalling that the resistor in the calculator is around 8 ohms, I went with 3.3 ohms just to make it a "torture test".

The charger is indeed 10VAC unloaded, meaning 14VAC peaks (enough to fry CMOS chips with a little luck). These parts get hot, but not unacceptably hot. The peak current is 0.4amps, and acceptably brief in the torture test. The charger remains quite cool BTW.

Where to solder in ? Across the battery terminals, at a mechanical place of your choosing. Deliberately leave enough lead length to encourage some heat dissipation. Presumably internal so the calculator is not cosmetically degraded. With the black stripe towards the (+) terminal of the battery.

What if you want to run your calculator with no batteries at all? Well, I doubt this gives you the license to run the calculator w/o a battery present. It only prevents high-voltage damage to the CMOS chips. The thing is, you need a bulk storage capacitor, and if memory serves, a value would be in excess of 1,000 uF and impractical to add as a rework.

I do recall running my HP-34C continuously from wall power, around 1985, using 2,000 uF instead of batteries, and a series clamp of 5 1N4003 diodes that regulated the voltage sitting on the bulk capacitor. That's a specialized enough idea that I wouldn't expect anybody to get interested in that. Considering the classic value of these calculators, a fully regulated DC supply would be more appropriate if you want to leave it on 24/7 . Set it carefully to something like 2.8 volts (not too hard on the LED's).

Keep reading! ---->>

Where to get a 1N4735A zener: Its the sort of thing you can get from a Digi-Key. If somebody feels they cannot locate this ten cent part readily, email me at analogee@gte. net and \*\* I will simply mail you one for free \*\* for the first few users who agree to test out and report their satisfaction in HP-25C, but dont bug me about that unless you cant readily get it from other sources (wouldn't want you to pay \$4.00 UPS shipping on a ten cent zener).

- Captain Zener

## What about HP-34C

Message #5 Posted by <u>C.Z.</u> on 10 Apr 2003, 2:11 a.m., in response to message #4 by Norm

Somebody plz explain whether the HP-34C is equally vulnerable in the same way that HP-25C is.

Like if you pull the battery but you plug in the charger, is it a possible way of frying the chips on the HP-34C.

#### **Re: What about HP-34C**

Message #6 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 9:05 a.m., in response to message #5 by C.Z.

The 34C has about the same battery and charger circuit and also needs to have the battery in place at all times to work properly, but the Woodstocks - and apparently the 25 and 25C in particular - seem to be particularly sensitive to the higher voltage. The RAM chips that provides memory for the storage registers and program memory in the 25 and 25C fail a lot. I have several 25's that work except for the memory and only one that has a working memory.

## Thanks regarding HP-34C.

Message #7 Posted by <u>Norm</u> on 12 Apr 2003, 11:57 a.m., in response to message #6 by Ellis Easley

OK, thanks for that information.

So if a feller was really fussy, he could add that same 1N4735A zener diode to the HP-34C .

However, sounds like it isn't necessary since there was not an obvious track record of damaging the units by overvoltage.

WELL, what's going on here is the progression of semiconductors, CMOS computing / memory chips in particular.

We're trying to run the chip normally on 2V - 3V and all of a sudden comes a 14V overvoltage. The question is which generation of chips was most rugged.

In the very earliest days, the chips were fragile due to the technology being embryonic and not fully thought out (the 1970's and early 80's).

In the intermediate time (the 80's) the chips were reasonably tough as the process matured, and they could probably take a lot of overvoltage.

But in the 90's and up to the present day, the chips are fragile once again, because they utilized the mature process techniques to make the geometry super-tiny so that they will run at 100MHz or a gigahertz.

Super tiny geometries once again, are frail.

So what you're telling me is that historically, the chips in the HP-34C could withstand the 14V overvoltage because they were from the right vintage of CMOS manufacture.

And therefore it's none too necessary to add a zener to the 34C.

#### **Re: Thanks regarding HP-34C**.

Message #8 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 12:55 p.m., in response to message #7 by Norm

The Museum article on Series 20 technology (<u>http://www.hpmuseum.org/</u><u>tech20.htm</u> says that most of the chips in the Woodstocks are PMOS and only the 25C and 29C had CMOS memory chips. The Series 30 articles don't say what IC technolgy is used and only 3 models (33C, 34C and 38C) have continuous memory.

In the earlier zener diode discussion, I was thinking of asking you what you thought of the "programmable zener" IC's as regards sharpness of knee and leakage current. Then I remembered that the one of these that I have seen used most is (without any external voltage divider) a 2.5V device! TL431, so it might be a candidate for a "battery replacement" for AC operation. I've only seen it in TO-92 and 8 pin surface mount packages which are rated for less than 1 watt dissipation but according to a TI databook it was also available in a surface mount transistor package with a heat sink tab (SOT-89) rated for up to 3 watts. However, I don't see this package listed in the DigiKey or Mouser catalogs. So I'm thinking of taking a TO-92 part and epoxying it to a piece if aluminum the size of the inside of the battery holder. I've seen small lamp dimmers that heatsink their Triac that way, which will dissipate a few watts into and through the plastic shell of the assembly. The databook says the 431 only needs 1 mA to meet its voltage specs. I'll need to measure the calculator current drain with just one "1" and with all "8"s displayed to get a good idea of minimum and maximum current requirement - better see what it is with a program running too. One other thing that I noticed in a PPC Journal article is that the HP25 power switch closes two circuits when the unit is on - it might short out the current limiting resistor and just depend on the transformer winding. How do you suppose a device like a 431 would behave with a large capacitor across it?

## **Re: Thanks regarding HP-34C**.

Message #9 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 6:13 p.m., in response to message #7 by Norm

"We're trying to run the chip normally on 2V - 3V and all of a sudden comes a 14V overvoltage."

In the PMOS Woodstocks like the 25, a DC-DC convertor generates +6V and -12V for the IC's from the 2.5V supply. If the convertor provides the same step-up at 14V input, the IC's would see 84V across their power pins!

This suggests another possible way to protect the calculator: add voltage limiting to the DC-DC convertor, preferably on the primary side of its transformer.

The RAM chip in the 25C must run directly from the battery. I don't have a 25C but I have heard that its memory chip is even more sensitive than the 25.

BTW, I understand there is another supply, +4V nominal, which feeds the displays in the Woodstock and Classic machines.

Also BTW, the Classics have the DC-DC convertor and use PMOS IC's like the Woodstocks, but don't suffer from the overvoltage problem because the recharger provides two separate power supplies: a constant voltage supply to run the calculator during charging, and a constant current supply to charge the battery. When you remove the recharger plug from the calculator, a spring loaded contact connects the battery to the calculator power input. The 65 and 67 have their card reader circuit powered directly from the battery connection so it is said that their card reader circuit can be damaged by running from the recharger without a battery, since the constant current supply voltage will rise to something like 12V when the battery is missing.

I wonder what kind of power supply the Spice models have inside - have you noticed a toroidal transformer?

## **RE:** Active Zener IC Questions.

Message #10 Posted by <u>Norm</u> on 13 Apr 2003, 3:59 a.m., in response to message #9 by Ellis Easley

HI, I dont have a data sheet for the TL431. I think it would be OK to have the large capacitor across it because it will shunt the current BEFORE the capacitor charges up higher than the threshold.

MEANWHILE what will bite you on the active zener thing is that it always draws some power. I dont have a spec sheet. Say that it is 50 microamps (its probably 5 or 10 times more) well, that will drain the battery slowly and reduce the time that your calculator can sit before the battery is drained.

The 1N4735A has now been carefully chosen, and the thing is, it wont draw 10 uA, it wont even draw 5uA, when the battery is just sitting there (i.e. when it is not zenering to do protection).

So the 1N4735A meets the requirements of the application. You could try to find something else, but why, if a 10 cent part will satisfy the requirement.

Its quite puzzling that HP didn't put the part in at the original time. I mean, the part was available then. Obviously the designers of the time didn't appreciate the problem of integrated circuits failing from momentary over-voltage transients. It was learned after the HP-25 was being manufactured.

- Norm

## **Re: RE: Active Zener IC Questions.**

*Message #11 Posted by* <u>*James M. Prange*</u> on 13 Apr 2003, 6:13 a. m.,

in response to message #10 by Norm

Its quite puzzling that HP didn't put the part in at the original time. I mean, the part was available then. Obviously the designers of the time didn't appreciate the problem of integrated circuits failing from momentary over-voltage transients. It was learned after the HP-25 was being manufactured. Hmm. I expect that they were well aware of how easily ICs could be destroyed, but manufacturers often tend to be "penny-wise and pound foolish", especially since a few pennies per unit can add up to a lot of pounds when a product is being mass-produced. So perhaps they settled for a stern warning not to connect the charger / external power supply without having batteries installed? But they may well have been guilty of not thinking through the possibilities of failed batteries and poor battery contacts.

Regards, James

#### **Re: RE: Active Zener IC Questions.**

Message #12 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 6:36 a.m., in response to message #10 by Norm

I was primarily considering the 431 as a sort of battery eliminator for AC only use, similar to the way you describe using a string of forward biased diodes. It's only \$0.32 in the Mouser catalog (\$0.63 in DigiKey) or you can pull one from many old VGA boards where it was used as a reference for the RAMDAC. It is very sharp - 0.2 ohm dynamic impedance - and only requires 1 mA to meet its voltage specs.

The only reason to use it as a protective zener would be to get a desired voltage lower than 6.2V with a sharp knee. To do so, it would be necessary to add a resistor voltage divider to put 2.5 volts on the control pin at the desired zener voltage. The control pin itself draws 4 microamps max (2 typical). Using a "rule of thumb", I guess you'd want to swamp that 10 times in the voltage divider, for 40 microamp total - but that would be at the zener voltage, at 2.5 V battery potential it would be proportionally less. It has a diode across the shunt transistor to conduct when forward biased and its reverse leakage is specified as 1 microamp max.

Of course, at the higher voltage it would be dissipating more when it was "working". Part of my pipe dream is that if I can use some of the space where the NiCads go to put a sheet of aluminum to use as a heat sink (with the flat of the TO-92 epoxied to it) to pass the heat into the plastic of the battery pack, I might be able to dissipate as much as the SOT-89, which is 3125 mW at 25 C case temperature (2000 mW at 70 C and, strangely, 2625 mW at 85 C - one of those must be a typo, or else they are swapped). The TO-92 itself is only spec'd at 775 mW at 25 C ambient (496 mW at 70 C, 403 mW at 85 C).

It could do both jobs (battery eliminator, protective zener) with a switch to short out the top resistor in the voltage divider when the cells are out. I've got a TI2500, their first calculator, that can run on NiCad or alkaline AA cells. There were several versions of the 2500 that used different numbers of cells - mine uses either 3 NiCads or 4 alkalines - sounds backwards but that's what it is. It uses the same cell holders for either kind of cells. When you install the fourth alkaline, you displace a metal clip which I assume is operating a switch inside the calculator. I guess it either disconnects the recharger jack or conditions the unit for the different total battery voltage, or both.

#### Hello Ellis,

Message #13 Posted by <u>Norm</u> on 15 Apr 2003, 1:01 a.m., in response to message #12 by Ellis Easley

Hello Ellis, just replying to your post.

You think much like me, about having an "AC desktop" solution for an HP calculator. You know, to leave it on 24/7 on the desktop. You can't do that with batteries in it, because its a charging circuit that will overcharge and outgas the batteries.

I was doing that back around 1985 - 1990 with my HP-34C.

I took out the batteries, and put in two aluminum electrolytic caps. I used the largest pair that fit into the "AA" battery spaces. You know, pick a voltage rating on the cap of only 6.3V, but then look for lots of capacitance.

I think two caps at 1000uF was enough. But apologies I dont remember for sure. Maybe you needed even bigger like 2200uF apiece.

Then came the string of 5 diodes to limit the maximum voltage value.

BACK TO THIS 431. Well, you could apply it, but I'm not gung-ho. 5 diodes times 0.6V per diode gives you a predictable 3.0 volts. Want the RED LED's a little dimmer? Maybe to extend their life in a 24/7 situation? Make it 4 diodes and you'll be at about 2.4 volts not 3.0 volts.

What could be wrong with that? Simple as putting a wheel onto a go-cart. If you hook that TL431 up wrong (or it fries) then you lost your regulation.

ALSO, you mentioned that maybe it would do both jobs (i.e. protect the calculator ). Well it can't do the job of protecting the calculator if you are running the calculator on batteries.

Didnt' you say that the active regulator circuit required 1 milliampere of current to operate in-spec ? That's too much, it will drain-down the battery and noticeably shorten the charge storage time.

Don't get me wrong. I like fancy stuff. I like circuits from the linear databook, and beyond. I like active zener circuits and voltage regulation that is good to 5 decimal places. BUT I like to use the right hammer for the job. If all you need is 5 diodes, why go beyond. They are very reliable and dont need a heatsink.

I'd take a line from Scotty "the more they overdo the plumbing, the easier it is to stop up the drain".

Suggest that if you just use 5 diodes, your modification will be finished same-day but if you use the 431, it will be a lot of foolin' around and delay you from a satisfied result.

Good luck.

#### Re: Hello Ellis,

Message #14 Posted by <u>Ellis Easley</u> on 15 Apr 2003, 9:30 a.m., in response to message #13 by Norm

"Didnt' you say that the active regulator circuit required 1 milliampere of current to operate in-spec ? That's too much, it will drain-down the battery and noticeably shorten the charge storage time."

Well, in the protective version of the circuit, you have a resistor voltage divider to program the device to be a  $\sim 6V$  zener. Until the control pin reaches 2.5V, the shunt element is open circuit and only has 1 microamp max. leakage. So only that and the voltage divider would be drawing current.

What got me started on this is the possibility that something less than 6.2V would provide better protection, or to state it another way, 6.2V might be too high to provide the protection desired. Considering the DC-DC convertor in the HP25, and assuming its output increases linearly with the input voltage, 6.2V in could be putting 44v across the PMOS chips! I know the 6.2V zener has the best dynamic impedance - BTW, why is that? Is it one of God's secrets?

So I started thinking about using a programmable zener to get a lower zener voltage with a sharp knee. Then I remembered that the one part I was familiar with, the TL431, operated at 2.5V - and the idea of the battery eliminator application jumped out at me! Again, the advantage over a string of forward biased diodes would be the better dynamic impedance.

When the idea of doing both jobs with the same part with a voltage divider for the protective circuit, then shorting out the top resistor to make it a 2.5V zener for the battery eliminator circuit, accomplished by a switch that acts when the cells are installed as in the TI2500 - at that point I guess mission creep had set in! I'm pretty sure before I'm finished I'll have a little 1" square fan in the battery compartment to cool the device!

#### Re: Hello Ellis,

Message #15 Posted by <u>NH</u> on 15 Apr 2003, 5:24 p.m., in response to message #14 by Ellis Easley

It's true that 6.2V is none too low, BUT, if you put in the 14V peaks to a 25C, they dont immediately fail. Some of them fail some don't. So if you drop back to 6.2V (from 14) it would imply that, effectively, none of them would fail.

What still holds up the active zener, to me, is whether it leaks too much when non-conducting. I didn't see a link to a data sheet, or I could try to review it with you.

If you set the active zener to about 5V, then you drop the voltage to 3.0V then we need to measure leakage of the whole circuit.

The 1N4735A would be around 1 to 5 microamps. Up to probably 100 microamps is not too worrisome.

Somehow I thought 1 milliampere was implied on the active device. If it is only 1 microamp then that's well below 100 microamps.

However input leakage at one terminal does not determine the leakage of the entire circuit.

It still appears to me that the 1N4735A meets all the criteria for a protective device, and the 25C is far better off with that item than without it.

You ask why the 6.2V zener has such a low dynamic impedance. Well, its just a P-N junction and they manipulate the doping of the crystals to deliberately set a low breakdown voltage. A zener breaks down much lower than rectifier diodes, of course.

When they change the doping around, they get

inherently good results at 6.2V , quite lousy results at 5V and below, and reasonable results at higher voltages (10V 22V 33V etc).

Yes 6.2V seems to be the best. No, I dont know why, but one could go back to the semiconductor math class for that and get a feel for it. I'm satisfied just to see that it is so.

Motorola used to make those parts and they had very high standards (kind of like Mr. Hewlett and Mr. Packard). Motorola is now selling only bigger ticket items (cell phones, microprocessors) and the zener factory went to "ON SEMICONDUCTER" (www. onsemi.com) you can get a 1N4735A data sheet there.

"Diodes Inc" makes diodes, and they arent' hardly going to stop with a name like that. Their zeners were of poorer electrical qualities than Motorola's. Poorer transitions in the conducting I/V curve. I also bought Diodes from them once that had been packaged in a low-temperature meltable plastic, barely able to make it thru a soldering process. Of course, I presume they fixed their error, but makes you wonder who's in charge.

## Re: What about HP-34C

Message #16 Posted by <u>David Smith</u> on 13 Apr 2003, 5:30 p.m., in response to message #5 by C.Z.

Although I have not traced out the power supply of the Spice machines (never had a bad one), I suspect that it is somewhat better than the Woodstocks (hard to be much worse). The chip failure rate of the Spice machines is MUCH less than the Woodstocks. I have never seen a bad RAM chip in a Spice machine. A couple of bad ROM chips and a couple of bad CPU chips is all.

#### Re: What about HP-34C

Message #17 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 5:24 a.m., in response to message #16 by David Smith

More points in the plus column for Spice! and the 34C

## Re: IT IS A 6.2 VOLT 1N4735A .

Message #18 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 Apr 2003, 2:32 a.m., in response to message #4 by Norm

Hello, Norm; good to read your posts again.

> One guy said the charger is 0.8VA but I said it is 1.8VA, and I didnt even have a charger handy to test with.

I was the one who mentioned the 0.8W, and I explained I was using a Spice's charger, rated 0.8W, to charge the batteries in my HP25 for more than ten years. When you mentioned the 1.8VA (power factor to be disregarded) Woodstock AC adapter in another post, I posted a message about this all.

I would like to carry the final workbench tests that you suggested, but I have no precision "meter", just one multimeter that I repaired once and did not have the chance to calibrate and a capacitance meter. And you are completely right: the thread ended without conclusion.

About the "final" Captain Zener solution: if not available, what risks one will face if using a 6.2V, 1W zener diode that is not the 1N4735A?

Two things: if batteries are O.K. and in place, the zener diode is transparent to the circuit because battery voltage will not be over (nominal voltage plus 15 to 20%), right? If voltage across the zener diode does not reach the test-voltage value, then it will not conduct. I never considered the fact that the zener diode would leak battery current. Is it a wrong analysis?

The other thing: isn't the charger based on a half-wave rectifier? I compared the HP21's P.S. diagram with the HP25 circuit and I found the first components to be the same: one resistor and one diode. Should the peak voltage be considered 14V or 7V?

I once thought about driving a transistor to form a "higher-current" zener. As it will only act when batteries are not O.K. or absent, the AC adapter would only supply

the maximum available current, that would be partialy limited by the (~)8-ohms resistor.

I myself had a few doubts (not about your posts, about my own concerns) because I did not have the necessary equipment in my workbench, and I thought I should research a lot more and offer facts instead of questions. You now offered a lot of facts and I keep asking questions.

Thank you.

Best regards.

Luiz C. Vieira - Brazil

#### answers to the questions from the press

Message #19 Posted by <u>Captain Zener</u> on 10 Apr 2003, 5:17 a.m., in response to message #18 by Vieira, Luiz C. (Brazil)

Luiz Vieira wrote:

> I would like to carry the final workbench tests that you suggested, but I have no precision "meter", just one multimeter that I repaired once ...

Hello Luiz, Well, to get a clear picture you want to use a Tektronix oscilloscope, a mainstay back at the secret underground laboratory of Captain Zener. It helps to see exactly what's cooking with the waveforms. The charger has got a bit of 3rd harmonic distortion for example, and also, to exactly peg the peak current in my 'torture test' that made sure the zener wouldn't melt

:0(

:0)

Luiz Vieira wrote:

> About the "final" Captain Zener solution: if not available, what risks one will face if using a 6.2V, 1W zener diode that is not the 1N4735A?

What matters here is the 1 Watt most especially. After that, something around 6.2V is good. If you drop down in voltage (like a 5.6V or a 5.1V) at some point your going to get some leakage even at the idle battery voltage (2.8V). I'm not

sure which other zener you have in mind, because there's not that many zener families in circulation, one of the most common alternative families is a 1/2 watt series... dont go there.

Again, again, again, let me dwell on something about the family of zener diodes that comes from a semiconductor factory: They have a very sharp transition at 6.2V, and don't leak any current if they are at or below that optimal 6.2V threshold. But if the diode is adjusted by dopants so that it clamps lower, for its manufacture, specification, and sale, like the ones specified at 5.1V or heaven forbid 3.3V (those are ghastly) then the thing is so "moooshy" that it will leak current almost no matter what voltage you put onto it. That's why we are, in the end, reaching for the 6.2V units, to exploit the sharpness of the threshold. I would probably breathe easy with a 5.6V but expect trouble even with a 5.1V (it will tend to draw down the battery gradually due to leakage in such a zener).

Luiz Vieira wrote:

> if batteries are O.K. and in place, the zener diode is transparent to the circuit because battery voltage will not be over (nominal voltage plus 15 to 20%), right? If voltage across the zener diode does not reach the test-voltage value, then it will not conduct. I never considered the fact that the zener diode would leak battery current. Is it a wrong analysis?

Hello Luiz,

Yeah, you are drifting over to the 'dark side' here (sorry, old Star Wars laserdiscs tonight). Your comment is true for the 6.2V unit because it transitions so sharp and below 6.2V does not leak hardly even a few microamps. At 3.3V no problemo.

But if you go and grab for example, a 3.3V zener and figure it wont conduct at 3.2V, you are in for heap-plenty disappointment. A 3.3V zener will still be conducting crazily at  $2 \frac{1}{2} V$ . And that unacceptable leakage is present even on a 3.9V or a 5.1V zener, because of the qualities of the semiconductor doping.

Basically a zener diode "likes to be around 6V" they can be built to run very well there with a sharp threshold. When they fill the purchase-orders for diodes with lower voltages, the excessive dopants create a mooshy and gradual transition, which isn't really what people want. They want abrupt conductivity at the specified zener voltage, and no conductivity below it.

BTW, for purposes of navigation, zeners specified HIGHER THAN 6V (8.2V,

10V etc) are also quite reasonably sharp. But the 6V zeners are sharpest of all. The data sheet chooses values spaced logarithmically so 6.2V is the typical number called out (like for 1N4735A).

Luiz Vieira wrote

> The other thing: isn't the charger based on a half-wave rectifier?

Yes it is. For the torture test, I happened to choose 2 zeners in "back-to-back series" so that the transformer has a more symmetrical loading. Asymmetric loading (one diode) is a bit distasteful. For purposes of charging the batteries, the single diode, obviously, was enough. For purposes of observing heat at the zener, the torture test chosen was fair enough, and worse than the actual situation for which we are applying it .

Luiz Vieira wrote:

> Should the peak voltage be considered 14V or 7V?

Not 7V. It is 14V. You must always have one lead of the transformer as a ground reference, and there is a peak at +14V and another at -14V, and nothing else. It is true that due to the single diode, HP only uses the positive half-peak at +14V.

Luiz Vieira wrote:

> I once thought about driving a transistor to form a "higher-current" zener. As it will only act when batteries are not O.K. or absent

It is common to utilize transistors as pass elements when a zener is not available at a high-enough wattage. Such techniques can also 'synthesize' a multicomponent zener that behaves better with low thresholds (that 3.3V specified zener problem). But now you are into all sorts of tedium to actually specify and design the transistor and its circuit. You would only do that if necessary; here its not so use a 1N4735A.

Luiz Vieira wrote:

> I had a few doubts (not about your posts, about my own concerns) because I did not have the necessary equipment

"Have no fear, Captain Zener is here."

:o)

- Norm Seattle area

#### I need more, new equipment...

Message #20 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 Apr 2003, 8:55 a.m., in response to message #19 by Captain Zener

Hi, Norm;

Thank you again! I must go back to my Analog Footnotes and read them all over again. Some information is lost among the years and it's necessary a "refresh" (dynamic memory afairs) form time to time.

Hey, can I (we) count on you when this sort of subject comes to bother? I see that you have gone deeper enough to even consider construction techniques and their consequence in components performance.

What secret sign should we use to call Captain Zener? (a particual nice touch of yours...) What is the color of his back cover so we do not confuse him for other flying entities?

Thank you again; mostly to keep your posts in such an easy, funny, educative (no pun intended at all) speech.

Luiz C. Vieira - Brazil

#### Captain Zener secret identity..

*Message #21 Posted by* <u>C.Z.</u> *on 10 Apr 2003, 1:29 p.m., in response to message #20 by Vieira, Luiz C. (Brazil)* 

Hi Luiz, glad it helped. A lot of analog engineering work is knowing approximately what is the big picture, and only going into micro-details when necessary.

For example, if I need to pass 30 watts thru a transistor and its only rated for 5 watts, then it would be a waste of time to run a bunch of equations for what bias resistors to use, since it will go up in smoke anyway. The big picture says go back to the transistor catalog and pick another transistor, BUT, a lot of the design engineers, amazingly, will be busy running formulas. As an aside, obviously, making no constructive progress either.

Similarly, with the zener family, you have to see the big picture that although they provide an entire family of parts, doped to any voltage, that the 6.2V unit is "the best one available" and the lower voltage ones are really lousy.

It therefore works out nicely that the 6.2V unit (1N4735A) also fills the need for the HP-25C problem.

(HP-34C has the same problem ????)

As to captain Zener's secret identity, it can be readily found if truly needed, 2-3 posts back was my e-mail address and an offer to send out free zeners to those truly in need and willing to report back.

Thanks for having helped to hash this out, Luiz.

- Norm (Seattle area)

Re: Captain Zener secret identity..

Message #22 Posted by <u>Dave Shaffer</u> on 10 Apr 2003, 4:58 p.m., in response to message #21 by C.Z.

You can always spot Captain Zener when he's flying: He's the one with the knees bent at almost a 90 degree angle (unlike those other super guys, who fly with their knees stretched straight behind them!).

# Re: Captain Zener secret identity..

Message #23 Posted by <u>Michael F. Coyle</u> on 10 Apr 2003, 9:12 p. m.,

in response to message #22 by Dave Shaffer

His knees are sharply bent.

## My brain was probably upside down...

Message #24 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 10 Apr 2003, 10:35 p.m., in response to message #21 by C.Z.

Hi, folks;

Excuse-me digging here again, but I do not like keeping error records, instead I prefer understanding what was wrong.

I was connecting to the www right now, trying to figure out where did I get the 7V peak voltage instead of 14V peak (correct answer, for sure) and I found where my brain stuck down: symmetrical power supply and bridge rectifier.

I believe I am writing this post to justify myself for my own guilty feeling.

Thank you, Norm. Send my regards to Cp. Zener

Luiz C. Vieira - Brazil

# **Re: CAPTAIN ZENER TO THE RESCUE... 1N4735A**.

Message #25 Posted by <u>James M. Prange</u> on 11 Apr 2003, 1:18 a.m., in response to message #3 by Norm

Any relation to Clarence Zener?

Re: CAPTAIN ZENER TO THE RESCUE... 1N4735A.

Message #26 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 9:07 a.m., in response to message #3 by Norm

I think maybe Captain Zener is in breakdown!

**Re: CAPTAIN ZENER TO THE RESCUE... 1N4735A**. Message #27 Posted by <u>James M. Prange</u> on 12 Apr 2003, 7:20 p.m., in response to message #26 by Ellis Easley

Maybe he's caught in an avalanche?

## Re: CAPTAIN ZENER TO THE RESCUE... 1N4735A.

Message #28 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 7:27 p.m., in response to message #27 by James M. Prange

Is tunneling out an option?

## Let the Captain take his nap...

Message #29 Posted by <u>Vieira, Luiz C. (Brazil)</u> on 12 Apr 2003, 7:57 p.m., in response to message #28 by Ellis Easley

... its just a quiescent matter.

## **Re: Zener diode OFF TOPIC for Luiz**

Message #30 Posted by <u>Daniel Sancho</u> on 10 Apr 2003, 5:01 p.m., in response to message #2 by Vieira, Luiz C. (Brazil)

Hello Luiz Cláudio:

You wrote me and I answered you....

have you received my answer?. Please ... write me and send me your e-mail address to write you

Greetings

Daniel (www.teclas.org)

## Conclusion???

Message #31 Posted by <u>Michel Beaulieu</u> on 10 Apr 2003, 5:25 p.m., in response to message #1 by Michel Beaulieu

So what is your conclusion : I'm not gonna use my calculator with the adapter connect and i'll never remove the batteries so is their still danger for my 25 in these conditions?

Can i make a power supplies fully regulated for my 25, 41 41 printer, 67, and 97 so i can discard the original dnagerous AC wall adapter that come with all these claculators?

Thanks Michel

# **Re: Conclusion???** *Message #32 Posted by* **David Smith** on 10 Apr 2003, 6:12 p.m.,

in response to message #31 by Michel Beaulieu

The danger lies in the chance that the battery may appear to be OK or inserted and connected properly, but the woodstock series battery contacts (and HP-10A and HP19C) are rather well known for, well, not making contact. Often times one will insert a good battery and the machine will not come on. You then take out the battery and snap it back in and, presto, you have joy. One thing that can help is to put a small wad of aluminum foil on top of each battery post before inserting the pack.

#### Here is your conclusion

Message #33 Posted by <u>C.Z.</u> on 10 Apr 2003, 8:56 p.m., in response to message #31 by Michel Beaulieu

Here is your conclusion:

You are a 25C user, and so, it depends on what you plan to do with it. If you dont plan to use it much and you want it 100% stock and you dont like modifying something, and you don't want to take the back off, then don't do anything !!

Just be careful about this issue with not removing the battery while the charger is on, and leave it at that. We can't MAKE YOU put a modification into your calculator.

On the other hand, maybe you plan to use it quite a lot, the battery terminals are a little tiredlooking, and you fear you might be forgetful about this 'remove the battery pack while the charger is on' (or maybe you got a 12 year old and he might do it). And you have already got the back off, and you dont mind modifying something, WELL, IN THAT CASE GO AHEAD AND ADD A 1N4735A and your HP-25C is that much more bulletproof. If you dont have such a zener but you plan to install it, email analogee@gte.net and provide a street address and I'll just mail you one for free.

SO it all depends on you. If memory serves, somebody asked about the zener rework because they wanted to put the rework in. Maybe that was you, or it wasnt, I dont know. It all depends on your personal electronic preferences and the amount of take-apart your happy with, and whether you want to risk blowing chips in a classic calculator over a bit of dirt on a battery terminal.

Let us know what you decide !! Good luck !

- Captain Zener

#### "replace the dangerous wall adapter" ???

Message #34 Posted by <u>C.Z.</u> on 10 Apr 2003, 9:10 p.m., in response to message #33 by C.Z.

One other thing....

You mentioned an interest in "replacing the dangerous wall adapter". (Wall adapter occasionally referred to as "wallbug" btw).

I'll provide this add'l post to try to de-rail that train of thought.

The thing is, the wallbug works fine, and its an authentic original device, looks right, and really isn't the essence of the problem. The lack of voltage protection in the calculator is more the real problem. If you replace the wallbug with something else, all of a sudden you have to start worrying again... "what about this, what about that".

There is an internal resistor in the calculator and the wallbug matches to that. If the zener is added you have a complete, working, problem-free solution. If you replace the wallbug with another, then I gotta say 'which wallbug' and I dont want to go there, and we DONT have a complete solution, and it wont even look cosmetically correct and the cord wont have the right plug on the end.

ALSO ABOUT BATTERY CHARGING..... the reason batteries charge up is because of periodic pulsing of the 60 Hz (or 120Hz if full-wave rectified). If you put a smooth DC current into a battery, surprise, it wont charge up properly. It will develop a surface charge and quit taking current. The pulses help because they sort of 'rattle the electricity into position' and help load the cargo into the container. If you didnt know that dont feel bad, I'm 38 and only learned it recently.

THEREFORE you talk about replacing the wall adapter with a steady DC power source and if you do that it wont charge up and so you've permanently attached yourself to a wall socket.

Maybe you want to put your calculator on a desk and leave it on 24/7 with household power. In that case, you might seriously consider a fixed steady DC power source because its well regulated, but even then you have to sacrifice a classic wall adapter to steal the cord off of it. Why do that if the wall adapter can power the thing anyway. Besides most people arent going to want a classic calculator sitting powered for 24/7. And the battery wont charge correctly, in fact, if you did that, you would take the battery out because the battery has its own ideas about what the incoming voltage ought to be and thats a conflict. If you want to run the calculator 24/7 on a desk, I already discussed something carefully... creating a battery pack substitute for an HP-25C or an HP-34C. You need 2000 uF of capacitance (approx?) and 5 diodes. You put that into it instead of the battery pack you plug in the charger and you leave it on forever (saves wear on the slide switch!) I was doing that around 1985 with my HP-34C. But really you still dont truly need a dedicated DC power supply, you can STILL use just the original wall adapter charger that came with the unit.

Whats keeping you from leaving a unit on 24/7 is actually the batteries. The circuit HP uses doesn't stop charging. Therefore, it appears you could overcharge the batteries, so HP set you into a cycle of charging it, then discharging it. Most of us are accepting of that, but maybe you want to just power it from a wall socket permanently.

There is nothing bad or dangerous about the charger, rather, its the lack of regulation/ protection to the IC's in the calculator, and to a lesser extent, that you can overcharge the batteries if you dont unplug the charger after awhile.

- Captain Zener

HP didn't really set you up for contin

## I decide that :

Message #35 Posted by <u>Michel Beaulieu</u> on 10 Apr 2003, 9:58 p.m., in response to message #34 by C.Z.

Ok, thanks forr all these advice, i didn't know about rechargeable batteries needs.

Well, my HP-25 is working like new BUT is very ugly; full of scratches, no more gold label on the faceplate (i put a DYMO sticker on all the shift keys on the faceplate!), the plastic LED cover has been artistcaly scratches etc... so i don't care about modifying it

Secondly, i use it very often : i have a HP-41CX on my desk connect to a printer at school (i teach physic) but since i prefer LED and the form factor of the 25, my newly installed batteries drained in about 2 working days. So i'll make the modification! My students ask me why i carry this ugly calculator in my pocket all day long insted of the one i teach them to use : the TI-83 ;-); i don't really have an answer yet; don't you have one for me?

Just a last question : will the zener draw some current when the calculator if off? I mean enouf to make my batteries drain noticely faster?

## My HP-25 here

Message #36 Posted by <u>Michel Beaulieu</u> on 10 Apr 2003, 10:18 p.m., in response to message #35 by Michel Beaulieu

http://tihp.99er.net/custom.html

Don't laught ;-)

## HP-25C plugged in continuously ??

Message #37 Posted by <u>Norm</u> on 11 Apr 2003, 11:25 p.m., in response to message #35 by Michel Beaulieu

Hello,

Michel asked if the 1N4735A zener is going to drain-down the battery. NO, it will not leak current at the battery voltage of about 2.6 - 3.0V.

MEANWHILE, sounds like the plan here is to leave the calculator plugged in continuously, turned on ?

Is that OK? If you leave the charger plugged in forever, then does the battery pack overheat or outgas ?

## **Re: HP-25C plugged in continuously ??**

Message #38 Posted by <u>Michel Beaulieu</u> on 12 Apr 2003, 7:57 a.m., in response to message #37 by Norm

No, just plug it for changing and never use it with the adaptor. Any problem with discharging in this situation?

thanks again Michel

## Your plan is A-O-K.

Message #39 Posted by <u>Norm</u> on 12 Apr 2003, 11:46 a.m., in response to message #38 by Michel Beaulieu

OK, just to confirm your intentions, your plan for usage of the HP-25C looks A-O-K and typical.

You describe you'd be using the HP-25C exactly as the manufacturer intended. Plug it in to charge it (maybe use it simultaneously) and then, unplug it and run the battery down, and repeat that process.

Adding the zener enhances the ruggedness of the calculator, by giving protection against damage if the battery pack is removed with the charger on (or gets an intermittent connection at the battery terminal while the charger is on).

As per your last question, I'll confirm, one more time, NOOO, there wont be any unwanted discharge of the battery by adding a 1N4735A. None whatsoever. Because it only conducts heavily at 6.2V, and does not conduct at all for voltages of up to 5V.

If it proves useful, here is a link to a data sheet, for a 1N4735A zener diode (it is part of a numbered family starting at 1N4728).

http://www.onsemi.com/productSummary/0,4317,1N4735A,00.html

If you have an electronics store around, they would have them. It's kind of like going to a hardware store and asking for a #10-24 screw. But even at that, not everybody has them. In bulk, they are a 7 cent part. I've got a few around here.

I'm starting a post to discuss the 48G+ graphing calculator (I dont like it) if you have any input feel free to help get that dialogue going.

- Norm

#### Dont solder it in backwards !!

Message #40 Posted by <u>Captain Zener</u> on 12 Apr 2003, 11:50 a.m., in response to message #38 by Michel Beaulieu

Before Captain Zener departs the scene and returns to his secret underground laboratory,

plz be sure to consider this one last thought: don't solder the zener in backwards !! The black band MUST go to the (+) terminal of the battery contacts.

The unbanded end goes to the (-) battery contact.

If you were to install it backwards, you would get a short circuit with very high current, overheating of the battery, and smoking and destruction of the zener with possible harm to the calculator also.

It would be almost as damaging and destructive as putting a chunk of Carlynite in front of Captain Zener.

## Re: Dont solder it in backwards !!

Message #41 Posted by <u>Michel Beaulieu</u> on 12 Apr 2003, 12:36 p.m., in response to message #40 by Captain Zener

Ok, thanks for all your advices; i'll tell you what happend after i install one of these zener.

## **Re: I decide that :**

Message #42 Posted by <u>David Smith</u> on 13 Apr 2003, 5:20 p.m., in response to message #35 by Michel Beaulieu

Well actually the zener WILL have a small amount of current leakage. Mayby even enough to double the apparent self-discharge rate of the cells... but if you actually use the machine any at all the increased leakage current will never be noticed.

## Re: Ti-83 vs Hp25

Message #43 Posted by <u>Ron Ross</u> on 14 Apr 2003, 11:42 a.m., in response to message #35 by Michel Beaulieu

It is simply a more elegant solution.

RPN KICKS Algebraic BUTT!!! End of discussion.

LED Looks better than LCD. You have a pocket programmable, and the Ti-83 doesn't fit in a normal pocket.

You like the one extra critical angles mode that the Ti-83 lacks (gradiants, this is obviously not true, but you may get them to investigate a little history, or look into CE).

Any of the above could be used as an excuse to use an Hp25 over the Ti-83. Whether any are practical reasons, doesn't really matter I suspect.

We could deveolp a top ten list as I am sure there are numerous reasons why WE would use an Hp25 (or any older Hp LED) over a Ti-83. Many older Hp's used to have units conversions, a Ti-83 has none built in.

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#### **Some solutions**

Message #1 Posted by Michel Beaulieu on 9 Apr 2003, 6:58 p.m.

I have a lot of these cable repaired in my TI collection : Just use an hair dryer to heat the contact area and slide a finger all over the glued area when hot; the result is great.

If one time is not enought, just do it 2 or 3 more time!

If not enought use WITH CARE a clean soldering iron on the cable and pass it all the way on the contacts area

If not enought, last chance, remove the cable from the LCD, cut some millimeters of the end of the cable and "glue" it with heat on the LCD with a "fer a repasser" (sorry i don'T know the english work for that thing we ues to remove fold on clothes...)

It shoud work!

#### You guys are crazy.

Message #2 Posted by <u>Jeremy</u> on 9 Apr 2003, 9:23 p.m., in response to message #1 by Michel Beaulieu

(with all due respect of course)

TIs are made to be disposable and cheap. As such, I would almost bet money that if you wrote a friendly letter and enclosed it with the calculator in a package to TI, they would simply send your son a new one. The letter should say something to the effect of:

"We have always had great success with TI calculators, and for some reason, a couple segments of the LCD just went bad... I know it is out of warranty, but I'm hoping you can do something for my high-school son."

If they sell in Wal\*Mart for \$12 or \$18, they cost TI about \$0.90. In the interest of keeping your business, they would probably just send you a new one.

Now if it a matter of pride in being able to repair the calculator, that is another thing. Along that line, the advice already given sounds good enough. ;)

-Jeremy

PS - You'd be surprised at what a well-worded and polite letter to the right person can do for you. Maybe even if your son handwrote it, it would have a better effect. I know for a fact that TI has a vested interest in keeping high school students happy with their products...

**Re: You guys are crazy.** *Message #3 Posted by* <u>*Michel Beaulieu*</u> on 9 Apr 2003, 10:02 p.m., in response to message #2 by Jeremy

It's true for a TI-30 x ir newer one but i repaired a TI-67 Galaxy programmable calculator with heat; this calculator is very rare and repairable. I slso did it with older TI models for collection purpose of obsolete rare items...

# **Re: Thanks For All!**

Message #4 Posted by <u>Paul Brogger</u> on 10 Apr 2003, 9:34 a.m., in response to message #1 by Michel Beaulieu

Right, the thing isn't "worth" bothering with.

But if I'm successful, I'll get a weird sense of satisfaction completely out of proportion to the objective significance of the accomplishment. I'm sure it's a psychological flaw or deviant obsession, but there's a small increment of self-reliance to be obtained from fixing a "disposable" product. I guess I'm maintaining hope for servicability in a throw-away world.

This was \$5 as the thrift store, but I didn't check it out carefully enough. I'm not trying to rescue \$5 so much as exert a degree of mastery over my physical surroundings.

There are any number of superior products available. The older son (a high school senior, doing VERY well) is taking good care of his 48G+ after losing an HP-22s and flexing a -28s to death. The child in question (who represents a dicier proposition in many ways) just lost his second HP-30S, which had been covered with purple Marks-a-Lot along the way -- kind of taking the decorate-your-calculator-with-a-color-changing-faceplate idea to the next level . . . I'm a bit wary of putting too much into replacements for the middle-schooler just yet.

Thanks for the "heat & press" idea, and for the explanation of the probable mechanism employed.

I've already tried to build up the center of a "pressure ridge" that runs across the inside back plate and which seems to be meant to do exactly what I need done -- that hasn't worked, but I'll try some stiffer stuff.

The "return for a replacement" idea occurred to me, and I always have that as a last resort.

As always, a fine array of responses to an off-the-wall inquiry! Thanks again!

## **Re: Thanks For All!**

Message #5 Posted by <u>Ron Ross</u> on 10 Apr 2003, 10:16 a.m., in response to message #4 by Paul Brogger

You might also consider an Hp6s for such a child. It is a piece of Crap, but it is an extremely durable piece of crap. It is small, made with an aluminum housing and my girl beat the stuffing out of it in her back pack for two years until upgrading to a graphics.

It is also CHEAP in cost if you can find it.

## **Re: HP-6s Crap** Message #6 Posted by <u>Paul Brogger</u> on 10 Apr 2003, 10:46 a.m., in response to message #5 by Ron Ross

Yes, the 6s is crap.

Or was, in my case.

The unit I bought was SO unreliable, with bouncy keys and missed keystrokes that (as I've reported proudly in the past) in a fit of pique, I threw it forcefully at the trash can, and have not regretted the action for one second.

I'll take just about *any* TI over an HP-6s (at least, one like the unit that I encountered) on any day of any week.

Crap, indeed!

# Re: Heat & Pressure Worked Great!

Message #7 Posted by <u>Paul Brogger</u> on 10 Apr 2003, 1:44 p.m., in response to message #1 by Michel Beaulieu

I set the opened calculator on a metal lamp shade with the offending area of the connector in direct contact with the heat.

It didn't work the first time.

I set it back on, then went to the auto parts store and bought a Permatex "Rear Window Defogger Repair Kit", containing a tiny bottle of conductive copper paint. (Maybe someone would like to comment on whether I was on a right track?)

But when I got back, the calculator was fine! It's back together and destined for my son's backpack (and a lot more abuse!)

Thanks for the help!

## **Re: Heat & Pressure Worked Great!**

Message #8 Posted by <u>Ellis Easley</u> on 12 Apr 2003, 10:42 a.m., in response to message #7 by Paul Brogger

I think that kind of conductive paint provides conductivity in both the "through" and "across" dimensions, as it will have to carry a hefty current for a 12V heating element. Probably contains a high proportion of copper particles that all draw together when the paint carrier dries. The conductive adhesive that I have read about contains a small proportion of tin particles suspended in an gummy acrylic material (like self adhesive stickers) such that only an occasional particle will find itself in contact with both surfaces on either side of the adhesive. It is intended for the tiny currents required by LCDs and keypads, etc.

I'm glad to know about the heat method! I wonder if the "fer a repasser" is an iron for clothes? (fer : ferrous)

#### **Re: Heat & Pressure Worked (not so) Great!**

Message #9 Posted by <u>Paul Brogger</u> on 12 Apr 2003, 2:34 p.m., in response to message #8 by Ellis Easley

You're exactly right about the Permatex defroster-fixer -- it's a copper suspension that needs vigorous shaking and dries *really* fast. But I wasn't going to use it as glue -- I wanted to paint new, individual connections between each PCB pad and its respective conductive trace on the flex connector.

And, it worked Great! (That is, as great as heat & pressure did, but the crucial "Middle Schooler Acceptance Test" is still pending . . . ) I got an art brush and painted short coppery lines from each PCB pad, up to and over each black line on the flex connector.

On the off chance that the flex was a sandwich, and covered with a clear insulator, I cut a couple of small, longitudinal slices into the end of each flex conductor trace before painting. I didn't do 'em all -- just the ones in the problem area. And the thing works fine, for now. (By the way, the brush cleaned up nicely with the first thing I tried -- isopropyl alcohol.)

The heat & pressure approach didn't withstand the rigors of young teenage life -- after one day in the backpack, the calculator had relapsed.

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Ellis...you bid on 95 of these things? Message #1 Posted by <u>gene</u> on 9 Apr 2003, 6:15 p.m.

95? Is that you?

What would you DO with that many? :-)

Obviously, you can buy as many as you like!

Gene

My fault...you bid on 1 @ \$20?

Message #2 Posted by <u>Gene</u> on 9 Apr 2003, 6:16 p.m., in response to message #1 by gene

Oops!

Guess I didn't read EITHER...hope I'm not "touchy" :-)

**Re: Ellis...you bid on 95 of these things?** *Message #3 Posted by Ellis Easley on 12 Apr 2003, 8:29 a.m., in response to message #1 by gene* 

I bid on 4 of them because I have 4 old packs waiting to be rebuilt, and I'm disenchanted with the cells in the portable drill battery packs I bragged on a while back - the straps they are connected with don't solder easily. I think they are made of stainless steel and I finally managed to tin them using an organic acid flux and 96/4 tin/silver solder, then washing all the flux off and finally soldering wires to them with 96/4 rosin core solder. Along the way I found that one source of trouble was the heat sink effect of the cells so next pack I rebuild, I'm going to try making cuts most of the way across the width of the strap, from alternating sides. After making a few cuts like that, I will stretch them out like expanded metal, making a longer, narrow (ziz-zag) strip that should be easier to tin (better temperature control), easier to wash off the flux, and maybe even long enough to eliminate any additional wires.

#### **Re: Ellis...you bid on 95 of these things?**

Message #4 Posted by <u>Christof</u> on 12 Apr 2003, 8:40 p.m., in response to message #3 by Ellis Easley

First of all, I did bid on 10, yes. That's because I have use for 6 (one in, one spare, for 3 devices) and I tend to give out spares when people I know need them.

For rebuilding purposes, I've found that off the shelf 3 AA cell NiMH battery packs for cordless phones hooked up in groups of 2 work wonderfully. a bit of foam to keep things from shaking and you've got plenty of power to handle basic use.

**Re: Ellis...you bid on 95 of these things?** *Message #5 Posted by* <u>*Christof*</u> *on 12 Apr 2003, 8:40 p.m., in response to message #4 by Christof* 

Oh, BIG thanks to Katie!

**Hear, hear!** Message #6 Posted by <u>Ellis Easley</u> on 14 Apr 2003, 5:28 a.m., in response to message #5 by Christof

Yes, thanks Katie!

Did anybody remember to thank the guy who found the HP42S warantee replacement units in HP's parts department?

**Re: Ellis...you bid on 95 of these things?** *Message #7 Posted by* <u>*Ellis Easley*</u> *on 14 Apr 2003, 7:09 a.m., in response to message #4 by Christof* 

I thought about using some NiMH AA cells to rebuild an 82033A battery (for HP97 and HPIL printer and tape drive) but they won't fit. They might fit in the battery compartment - without the 82033A plastic - crossways, but it looks very iffy!

#### **Re: Ellis...you bid on 95 of these things?**

Message #8 Posted by <u>Christof</u> on 14 Apr 2003, 11:22 p.m., in response to message #7 by Ellis Easley

I've actually made several cloned 82033A packs from scratch, so I've not had that problem. I do, when using AA cells, lay them the other direction in some cases. (can't remember which packs I do which with at the moment)

for the thinkjet, I just used a couple already assembled 3 AA packs intended for cell phones and wired them together works great :)

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**Re: I would think it would be very loose w/o the reader though... (NM)** *Message #1 Posted by David Smith on 9 Apr 2003, 6:09 p.m.* 

Just do what HP did... stick in a small block of foam rubber. I use a silicone rubber foam made for padding electronics in RC airplanes.

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### **Re: HP33c just stuff in AA cells**

Message #1 Posted by David Smith on 9 Apr 2003, 6:08 p.m.

If you use the machine quite a bit you will be buying a pair of AA cells (about \$2.00) every week. A pair of NiMh cells cost less than \$4.00 and will last you years. A real no-brainer...

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### **Re: 32E dismantling**

Message #1 Posted by David Smith on 9 Apr 2003, 6:02 p.m.

There is a snap catch inside the calculator near the bottom end of the keyboard. Lift the top end of the case so that it clears the battery contacts. Place your thumbs in the battery compartment and fingers on the front label edge of the keyboard. Then very firmly squeeze. You want to slide the calculator back towards the front of the machine so that the catch is released. It can take quite a bit of pressure.

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