



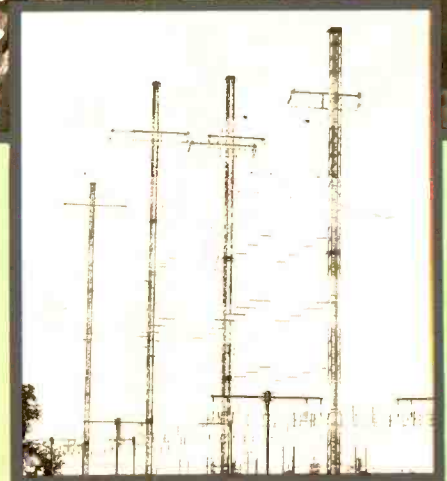
# MONITORING TIMES

A Publication Of  
Grove Enterprises

WCDONVILLE  
6400 WALBY ROAD  
MILLER, H. E.  
0693  
\*\*\*\*\*3 DIGIT PRE \*\*\*\*\*

## The Complete Guide to Radio in the Persian Gulf

Broadcasters • U.S. Military • World Navies  
DXers Roundtable Discussion



Complete Listing of English  
Broadcasts on Shortwave,  
Magne Receiver  
Review, and More!



# OEI OPTOELECTRONICS

## The only name in HANDI-COUNTERS

Check These Incredible Features  
On The All New UTC3000

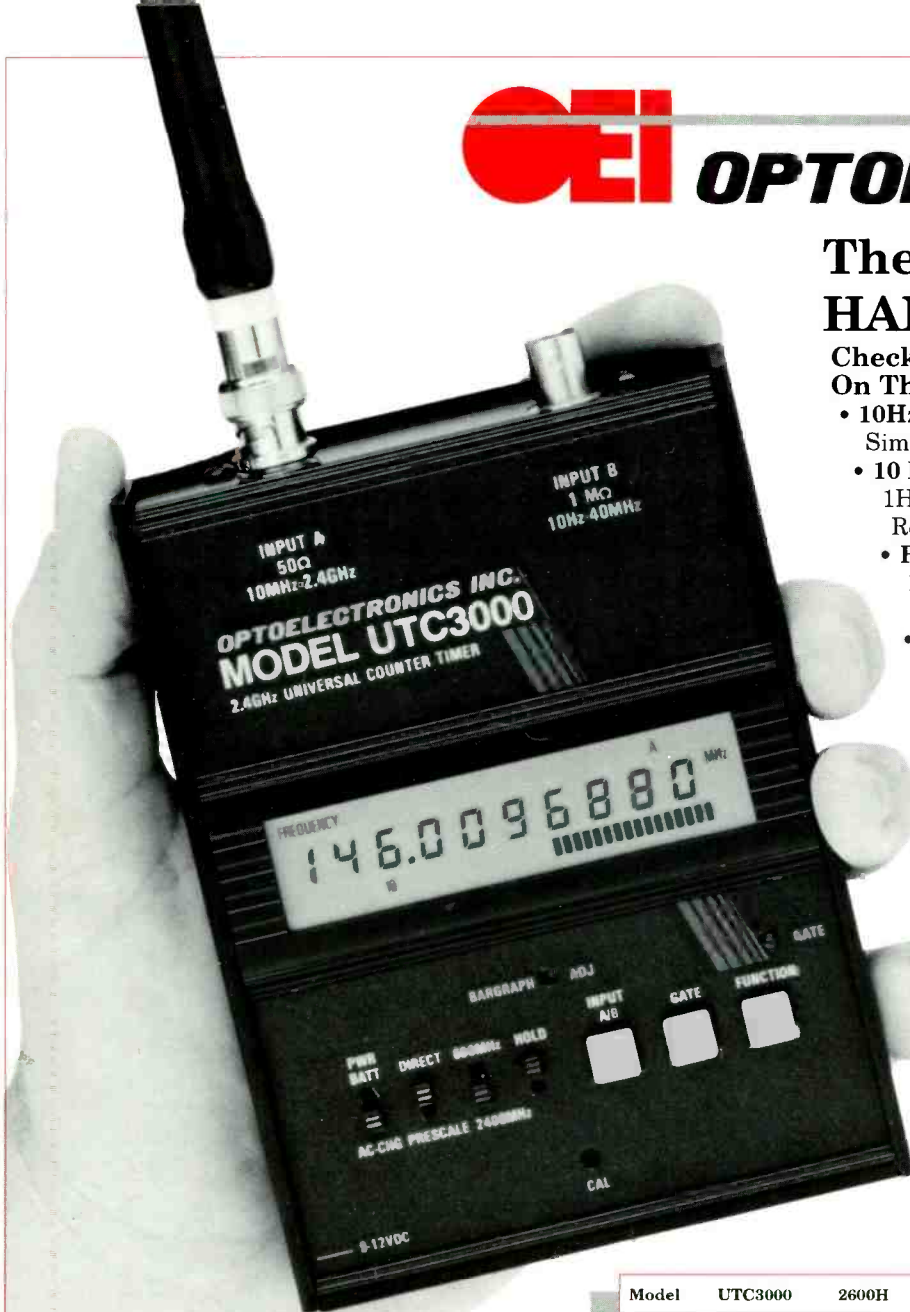
- **10Hz to 2.4GHz Range.**  
Simply amazing!
- **10 Digit LCD Display.**  
1Hz resolution to over 150 MHz direct.  
Readable in bright sunlight.
- **RF Signal Strength Bargraph.**  
16 Segment, Zero, & Full Scale adjustment.  
SEE the input signal!
- **Super Sensitivity.** <1mV 10-200MHz,  
<5mV to 2GHz for efficient antenna pickup.
- **6 Functions.** Frequency, Period, Ratio  
Time Interval, Average, & Prescale.
- **Hold Button.**  
"Locks in" your exact Measurement FAST!
- **Extruded Aluminum Enclosure.**  
Designed to fit every hand.
- **Priced Right! Only \$375.**

Includes Nicads, AC Charger/Adapter.

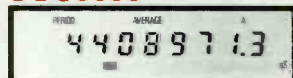
Or Select Our Most Popular  
**HANDI-COUNTER**, the model 2210  
that set the standard in handheld  
frequency counter technology!  
**Value Priced at only \$239.**

Professionals and Hobbyists all over  
the world have chosen OEI for 16  
years! **Shouldn't YOU?**

**HANDI-COUNTERS! ...Only from OEI!**  
Choose the model that fits your needs...  
and your budget! **CALL NOW!**



### UTC3000



Period Average Mode



Display Showing All Annunciators

Model	UTC3000	2600H	2210	1300H/A	2400H	CCA	CCB
Function	Freq, Period Ratio, Interval, Avg, Prescale	Frequency	Frequency	Frequency	Frequency	Frequency	RF Indicator
Range	10Hz- 2.4GHz	10MHz- 2.4GHz	10Hz- 2.2GHz	1MHz- 1.3GHz	10MHz- 2.4GHz	10MHz- 550MHz	10MHz- 1.8GHz
Display	10 Digit LCD w/Function Annunciators	10 Digit LCD	8 Digit LED	8Digit LED	8 Digit LED	8 Digit LED	.
RF Signal Strength Indicator	16 Segment Adjustable Bargraph	16 Segment Adjustable Bargraph	.	.	.	LED with Adjustable Threshold	10 Segment Adjustable Bargraph
Price	\$375.	\$325.	\$239.	\$179.	\$189.	\$299.	\$119.

Sensitivity: <1 to <10mV typical. Time Base: ± 1.ppm.; ± 5ppm. add \$75 - LED Models: ± 2ppm add \$80. - LCD Models. Nicads & AC charger/adapter included. (9v Alkaline - CCB.) Carry Case, Antennas and Probes extra. One year parts & labor warranty on all products.



## OEI OPTOELECTRONICS

5821 NE 14th Avenue • Ft. Lauderdale, FL 33334

**Toll Free Order Line:**  
**1-800-327-5912**

FL(305)771-2050 • FAX(305)771-2052



Visa, MC, COD, Cash, M.O. accepted. Personal  
Check allow 3 weeks. 5% Shipping, Handling,  
(Maximum \$10) U.S. & Canada. 15% outside  
continental U.S.A. In FL add 6% sales tax.





# MONITORING TIMES

## ***The War of the Words*** by Gayle Van Horn

6

In reponse to the developments in the Persian Gulf which give little sign of an early conclusion, *Monitoring Times* has made a decision to sacrifice the scheduled line-up of October features to bring you an intensive series on radio monitoring and the Gulf crisis.

Broadcast loggings editor Gayle Van Horn relates a short history of the Iraqi/Kuwait dispute. There are many players in this critical game, and each one has a broadcast station; Gayle provides the frequencies to tune them in and helps explain where each one stands in its historical perspective so you can better understand: For whose ears is the broadcast intended? What are the stakes, as far as the country of origin is concerned? Can this broadcast be believed?

Only Radio Kuwait is silent, the studio stripped of all equipment.

## ***The Gamble in the Gulf*** by Larry Van Horn

12

The build-up of United States troops in Saudi Arabia has brought the utility monitor the most activity on military communications channels since World War II. You want frequencies? Utility World editor Larry Van Horn has got 'em -- aeronautical, maritime, press -- Here's where to start searching for the latest action.



## ***Global Navies in the Persian Gulf*** by James T. Pogue

16



Enforcing the embargo against Iraq has involved the navies of several countries besides the United States. James Pogue provides not only the names, callsigns and functions of the ships sent to the Persian Gulf, but the frequencies for the naval communications stations of eleven participating countries as well.

## ***Tips on Hearing More*** A Forum with the Experts

20

Now that you're armed with background history and you know who to listen to on what frequencies, you may find it's not all that simple. How can some monitors seem to be right on top of the action so quickly? And they must have some *really* fancy equipment, right? Not necessarily; Take some tips from some folks who've been doing it long enough to know.

## And more ...



Readers attending the MT Convention will have the opportunity to meet this man, Alan Weiner, (former) pirate broadcaster. Watch for a report on the Convention in November.

If the features on the Persian Gulf have intrigued you, you may also want to pay special attention to several of our regular columns. John Santosuosso enlarges on the subject of our opening article; his "Outer Limits" (page 54) is a real eye-opener on exactly what people are hearing from the mid-East - licensed, clandestine and jammers! Glenn Hauser's Shortwave Broadcasting column (page 24) also reflects actual loggings.

Utility World (page 28) adds the Israeli Moshad frequencies to monitor, as well as being jam-packed with information on all kinds of subjects.

"T for Texas, T for Tennessee," says the old bluegrass song. We cover 'em both this month; it's a bonanza for federal frequency monitors from Texas (page 42) and for AM and FM listeners visiting Tennessee (on their way to the Convention, naturally) on page 52.

New to shortwave monitoring? You may be completely mystified by the variety of whirrs, squeals, beeps, clicks and otherwise weird noises that are produced by your set. Most of these noises are actually various communication modes that just require proper equipment to decipher them. "Uncle Skip" has given you a guide to their identification on page 40.

The Realistic PRO-2006 has proven to be such a popular receiver we thought it deserved a full review, even though it's not a new arrival (page 90). On the other hand, Magne covers the third and last of the new ICOM receivers previously announced but never arrived (in North America) -- the IC-R100 (page 88). Check out the back pages of *MT* for projects on all levels for the ham, the shortwave and the scanner listener -- There's something for everyone in *MT*.

## DEPARTMENTS

Letters	3	American Bandscan	52
Communications	4	Outer Limits	54
Shortwave Broadcasting	24	Below 500 kHz	56
Utility World	28	Program Guide	57
The Scanning Report	32	Frequency Section	67
What's New?	36	Magne Tests ...	88
The Beginner's Corner	40	Scanner Equipment	90
The Federal File	42	DeMaw's Workbench	92
High Seas	44	Experimenter's Workshop	94
On the Ham Bands	46	Antenna Topics	96
The QSL Report	48	Ask Bob	98
Reading RTTY	49	Convention Calendar	101
Satellite TV	50	Stock Exchange	102

# MONITORING TIMES

MONITORING TIMES (ISSN: 0889-5341) is published monthly by Grove Enterprises, Inc., Brasstown, NC, USA.

**Address:** P.O. Box 98, 140 Dog Branch Road, Brasstown, NC 28902

**Telephone:** (704) 837-9200

**FAX:** (704) 837-2216 (24 hrs)

**Subscription Rates:** \$18 in U.S. and \$26 elsewhere; Label indicates last issue of subscription

## STAFF

### Publisher

Bob Grove, WA4PYQ

### Managing Editor

Larry Miller

### Associate Editor

Rachel Baughn

### Subscriber Services

Beverly Berrong

### Advertising

Beth Leinbach

### Dealerships

Judy Grove

### Editorial Staff

**Frequency Manager** Greg Jordan

**Frequency Monitors** Richard Keen  
Larry Miller

**Program Manager** Kannon Shanmugam

**Program Monitors** John Carson  
Jim Frimmel

**Reading RTTY** Jack Albert, WA9FVP

**Beginner's Corner** T.J. Arey, WB2GHA

### Experimenter's

**Workshop** Rich Arland, K7YHA

**Plane Talk** Jean Baker

**DeMaw's Workbench** Doug DeMaw

**SW Broadcasting** Glenn Hauser

**High Seas** James R. Hay

**Scanning Report** Bob Kay

**Propagation Report** Ike Kerschner, N3IK

**Magne Tests...** Lawrence Magne

**Federal File** Rod Pearson

**Satellite TV** Ken Reitz, KC4GQA

**Outer Limits** John Santosuosso

**Antenna Topics** Clem Small, KR6A

**On the Ham Bands** Mike Stone WB0QCD

### SW Broadcast Logs

**QSL Corner** Gayle Van Horn

**Utility World** Larry Van Horn,

N5FPW

**Below 500 kHz** Joe Woodlock

**American Bandscan** Karl Zuk

Correspondence to columnists should be mailed c/o Monitoring Times. Any request for a personal reply should be accompanied by an SASE.

Second class postage paid at Brasstown, NC, and additional mailing offices.

POSTMASTER: Send address changes to Monitoring Times, Post Office Box 98, Brasstown, NC 28902.



## LETTERS

Tom McMillen, WB3HGW, is an active DXer and net control operator. During his 15 years as a ham, he has been honored by his peers for the service he performs. Despite this background, McMillen faced an enormous challenge in pursuing his hobby.

It wasn't that he was paralyzed and confined to a wheelchair, although his handicap and epilepsy prevented him from achieving the 13 words-per-minute required for a license upgrade from Technician to General. It was the U.S. Federal Communications Commission who declined McMillen's request for a waiver of the code exam, allegedly advising him at one point not to "rock the boat."

Another time, the *Federal Government* implied that they were intimidated by the *American Radio Relay League*, reportedly saying that the "...ARRL was against..." policy changes allowing waivers for handicapped hams.

Here's the great part of the story. McMillen wasn't discouraged by such churlish behavior. He decided to call in the artillery, writing a letter to King Hussein of Jordan, who holds ham call JY1.

A Jordanian official replied to the letter sympathetically, saying that the king had contacted President George Bush to request intervention on McMillen's behalf. President Bush then apparently referred Hussein's letter to the State Department, where officials responsible for Jordanian affairs reviewed the case together with members of the National Security Council.

Although the FCC did not say exactly how the McMillen case was handled, Fred Maia of the *W5YI Report* says that it appears that the State Department or President Bush's office, or both, contacted top leadership of the FCC, who then told amateur radio regulators to change their policy right away. This summer, McMillen received a phone call from the Commission, telling him that his request for waiver of the 13 word-per-minute code test was granted.

Bill Bogs relates how he was searching the military band around 240 to 300 MHz using his Yaesu FRG 9600 and Radio Shack PRO-2005 when the '2005 stopped on 257.90. "I punched the frequency into the '9600 and went back to searching," says Bill.

"To my surprise," continues Bill, "the receivers came alive. It seems that two groups of A-7s, one from Sioux Falls, South Dakota, and the other from St. Louis, Missouri, converged over my location in western Iowa for some mock dogfights and bombing runs. Reception was very good.

"The glossary of terms from the June issue [Milspeak: A Primer] really came in handy and I was able to use it to understand what was going on..

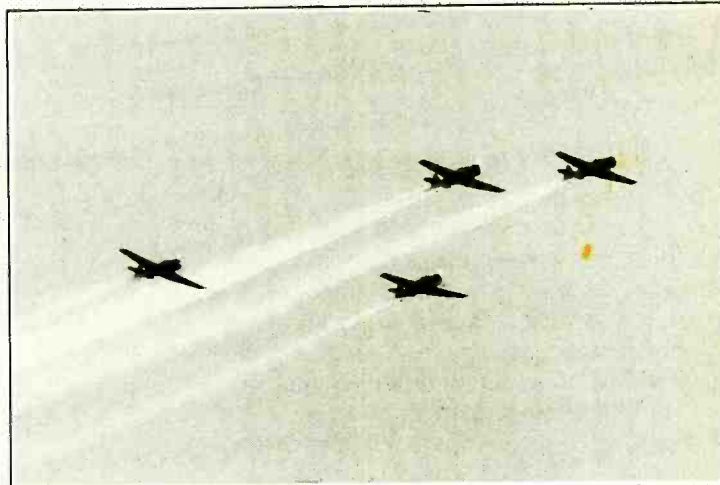
"One of the flights was comprised of four A-7s calling themselves Flight 41 (the group leader) 42, 43, and 44.

"During the dog fights they were practicing angles of attack, converging on the target from different angles. They would call out, 'Bogey! Bogey! Bogey!' indicating use of machine guns, I think. They also used 'Fox-1 Fox-1' and 'Fox-2 Fox-2', indicating missiles.

"Flight 43 was having problems and had to return to St. Louis early.

"After a few more runs, the flight leader called out, 'Knock it off. Knock it off. Knock it off,' and they returned to home base in St. Louis.

"The group from Sioux Falls didn't fare as well. During maneuvers, two A-7s were closing on each other from opposite directions. They clipped wings, suddenly needing 'loud-handles' for a 'nylon let-down.' The two pilots and a news reporter ejected safely with minor



Mark Swarbrick

*Dogfights and airshows -- Monitoring Times continues to be both indispensable and controversial.*

injuries. The A-7s were a total loss as they went down near Spencer, Iowa.

"The Milspeak article," concludes Bill, "allowed me to understand what was going on. It is typical of the work down throughout every issue of *Monitoring Times*. Keep up the good work."

There's no limit to the action you can hear on your radio, Bill. Thanks for sharing the experience. You just have to have patience -- and *Monitoring Times*. By the way, I think -- and you can never be absolutely sure on these things because their meanings do change -- that "bogey" generally refers to the sighting of the enemy; as in the old World War II movies, "Bogies at 12 o'clock!"

"Who needs a scanner?" asks Mark F. Henning of Hamburg, New York. "During an air show at the Niagara Falls Air Base, one of the security vehicles had the air-to-air communications from the U.S. Air Force Thunderbirds playing out of the PA speaker. And with all the people walking around with handhelds, I was always in ear shot of what was happening. Next year I'll leave the scanner at home and let others run down their NiCads!"

Chances are that most of those people walking the air show with handhelds were *Monitoring Times* readers. What happens if they read

**[Please turn to page 100]**



## Woodpeckers on the Shortwave Dial

The U.S. Customs service is questioning the utility of using the Over-the-Horizon "Backscatter" radar in their war against drugs. Originally designed for NORAD and intended to provide warning of Soviet Backfire bombers approaching from Mexico, the \$242.8 long-range radar project was repeatedly shot down by Congress. It resurfaced, last January, as part of President Bush's Drug Control Strategy.

Customs officials, however, say that they don't want the OTH Backscatter radar since aircraft as a means of transporting illegal drugs into the country has been fading in favor of delivery by boat, cargo container, commercial aircraft and motor vehicles. The new radar, says Customs officials, would detect none of these.

Officials further cite a draft report by the General Accounting Office that says that OTH Backscatter may not see small low- and slow-flying drug planes anyway.

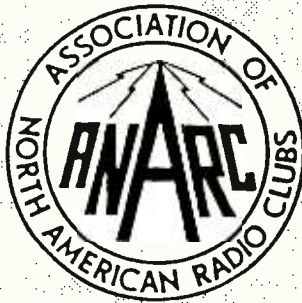
OTH Backscatter Radar bounces signals off the ionosphere to provide coverage at ranges from 575 to 2,100 miles. If accepted into the war on drugs, the OTH Backscatter radar would constitute nearly half of the Drug Enforcement Administration's total 1990 budget.

OTH Backscatter Radar can disrupt shortwave communications with a rat-a-tat sound often described as an audio "woodpecker."

## ANARC Newsletter Ceases Publication

Publication of the Association of North American Radio Clubs (ANARC) Newsletter has been suspended "during the current transition period caused by the resignation of the Executive Secretary."

According to a spokesman for the publication, "we are...not accepting requests for sample copies of the Newsletter nor renewing subscriptions." If the publication is canceled altogether, refunds will be made to subscribers "to the extent possible." Regrettably, no address at which subscribers may request a refund accompanied the announcement.



## SPEEDX Raises Subscription Rate

Citing a cash shortfall of some \$850.00 last year, SPEEDX treasurer Bob Thunberg has announced a hike in the annual rates that SPEEDX charges its members. The new rates, which were unspecified, will take effect on January 1, 1990. Says Thunberg, "...our renewal rate has not been as good as we anticipated.

"We hope that this is due to people temporarily dropping out of the hobby [because of] radio burnout...and not because they have become unhappy with SPEEDX."

In order to assist with the problem, the club has formed a "Friends of SPEEDX" program. According to Thunberg, donations of \$10.00 will bring you a certificate of appreciation. Those who donate \$25.00 will receive a SPEEDX pennant and will have their names published in the club bulletin.

For more information on how you can help this excellent ANARC member club, contact SPEEDX (Society to Preserve the Engrossing Enjoyment of DXing) at P.O. Box 196, DuBois, PA 15801.

## Radio Reporters on Government Payroll

According to the *New York Times*, for the last four years, the Israeli Foreign Ministry and a Jerusalem radio studio have run a covert program in which radio reporters were hired by the studio but given government guidance on what they should report to radio stations around the world.

The article in the *Times* says that money from the Ministry was secretly passed through the radio studio so that checks were written on the studio's bank account.

The Israeli embassies and consulates then helped the reporters recruit radio clients in major locations. The ministry's involvement in the program was kept secret, said a program administrator, because "what radio station is going to take a reporter who is on the payroll of the [Israeli] Foreign Ministry?"



## Exposure to Electromagnetic Radiation Nets Worker \$500,000

A Boeing Company electronics technician has been awarded \$500,000 for being exposed to electromagnetic pulse radiation on the job. Robert Strom, who has worked for Boeing for 29 years, sued the company in 1989, claiming that he contracted leukemia while conducting specialized radiation



tests known as Electromagnetic Pulse radiation or EMP. Last year he was told by doctors that he had only three months to live.

Strom said that he was not informed of the dangers associated with his job and that he and 700 of his fellow employees were used as human research subjects.

Although Boeing admitted no wrongdoing in the case, it has reportedly changed its procedures to protect workers from excessive MP exposure and to warn them of the dangers.

Meanwhile, Strom has said that he will use a major part of his settlement to establish a foundation to warn the public about the dangers of exposure to electromagnetic radiation, including overhead wires, powerlines, substations, transformers, video display terminals, and household items such as electric blankets. (Bob Grove's promised article on the topic -- delayed due to this month's Middle East coverage -- will be coming up soon in *MT*.)

## East Berlin Opens Hitler's Bunker

Workers in East Berlin opened part of Adolf Hitler's underground concrete bunker last month providing a tour for journalists and revealing a half-dozen eerie rooms that may eventually become an exhibition.

Journalists saw doors marked "toilet," and "shower" as well as a rusting steel door leading to the *reichsrundfunk* or radio station.

Hitler and his aides reportedly used the station to broadcast propaganda messages to the German people during World War II. A blown-up safe and what appeared to be a water tank were the only objects left in the room, which had pools of water on the floor.

Although part of the bunker was blown up by the Soviets at the end of the war, officials in Germany fear that opening up the remaining rooms to

permanent exhibition may provide an unwanted mecca for neo-nazis and other extremists.



## Gotta Have a Phone

The NYNEX Corporation has announced that it plans to spend at least \$100 million on a second cellular phone network in Manhattan by Christmas of next year.

The new network is intended for use by pedestrians using small, portable handsets, while owners of car telephones and currently available portable phones would continue to use the existing system. By using radio frequencies that it controls for existing cellular phones, NYNEX expects to get its system up and going before competing systems; the others are expected to operate on very high radio frequencies which are currently occupied but are being sought by these companies.

The handsets for the NYNEX system will reportedly retail for \$500 and the service will cost from 30 to 40 cents a minute.



## Window Banners Call Police

A lot of people would like to help

stranded motorists but are often afraid to stop and render assistance because of the possibility of themselves becoming a victim of crime.

A Los Angeles company is betting that a decidedly low-tech device may bridge the gap between stranded motorists and the owners of car phones. Called "Call Police" banners, they are hung by distressed motorists in their car windows where motorists who have car phones can see them. Hopefully, the car phone-owner will then notify police.

You can get your banner from WCIL for \$4.00 from P.O. Box 66955, Los Angeles, California 90066.

Our continued thanks to everyone who submits information for this column: Dave Alpert, New York, New York; Ruth Hesch, White Plains, New York; Hugh Miller, Woodinville, Washington; Gary Westfall, Beaverton, Oregon.

## New AOR Scanner

**1000 Channels.  
8-600MHz,  
805-1300  
MHz**




- Continuous coverage (except UHF TV 600-805)
- AM, FM and wide band FM tuning modes
- 10 Scan Banks 10 Search Banks
- Selectable Priority Channel
- Selectable Search Increments 5 955KHz
- Permanent memory backup
- 25 Day Satisfaction Guarantee Full refund if not Satisfied
- No Frequencies cut out
- All normal accessories included
- Size 6 7/8" H x 1 3/4" D x 2 1/2" W Wt 12 oz

**AR1000**  
Total Price Freight Prepaid  
(Express Shipping Optional)

# \$499

**ACE  
COMMUNICATIONS**

10701 E. 106th St. Indpls., IN 46256  
Toll Free 800-445-7717


Visa and Mastercard  
(COD slightly higher)  
FAX (317) 849-8794

*Who's right and who's wrong? What's really going on? Who did what and why?*

## THE WAR of the WORDS

*Follow the wave of opinion and propaganda as it unfolds on the Middle East shortwave broadcast stations.*

*by Gayle Van Horn*

**A**s I walked down the quiet street, a hot, dry breeze blows against my face. The fabric of my abha flaps in the wind and the popping noise it makes breaks my reverie.

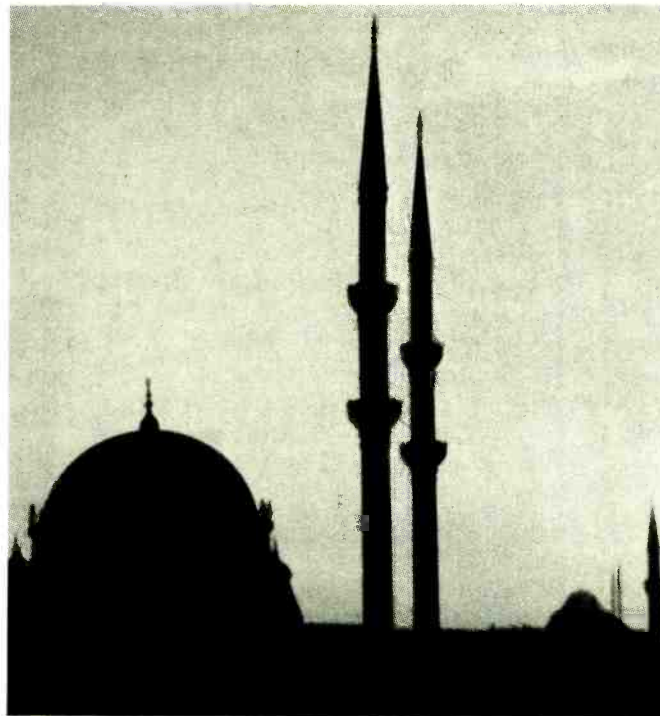
Looking to the west through the twin minarets of the mosque, I see a giant red sun centered, setting on a dusty horizon. The scene reminds me of a cheap post card I once saw in the airport souvenir shop in Dubai and I smile to myself.

As the sun is swallowed up by the desert sands, I hear his cries and look to the top of the minarets for the source of the melancholy voice that call the Arab world to salat, or evening prayer. Before long, the street swells with the devout. Some of the more dedicated among us make this pilgrimage five times a day.

This evening tension fills the air along with the brassy smell of bodies. Word has reached the city of over 100,000 Arab troops amassing on the border. Their intent is less than honorable.

I wash my face, hands, feet and quietly enter the mosque. Men in the front stand in rows right behind the prayer leader who faces Mecca. The other women and I stand behind the men in rows also. I start to bow from the hips and kneel with my face on the ground.

An Iman, or leader, approaches the mihrab. It contains the pulpit and lectern for the Koran. Slowly, methodically, he speaks these words from the Koran in Arabic: "The enemy of my enemy is my friend."



Today's date is August 2nd, 1990, and the place is Kuwait City.

Suddenly the clock radio turns on. I wake up in a cold sweat. The radio is tuned to the local all-news channel. The newscaster on the radio says that Iraq has invaded Kuwait overnight.

My Arabian dream has suddenly become a reality.

### The Day of the Overthrow

On August 2nd, elements of the Iraqi army streamed across the borders of Kuwait and overthrew the legitimate government.

The event has truly shocked and startled the whole world.

Shortwave broadcast listeners have used their radios to stay in the forefront of the situation. Radio has played a major role in the crisis. This has been evidenced by the last day of broadcasting at Radio Kuwait.

At the onset of the invasion, a statement from the Kuwaiti Defense Ministry was made, as well as international appeals for assistance. Radio Kuwait pleaded to their listening audience.

"Dear listeners everywhere. Do not be fooled by extraneous radio stations. Their news and bulletins are totally false. They are broadcasting venom through their propaganda which should not be believed. Do not pay attention to what these radio stations are broadcasting. This is our radio station. It is the sole and official radio station that is broadcasting its programs from Kuwait and in the name of Kuwait. This is Kuwait."

Music and appeals for help on shortwave frequencies continued, like the above, until the third of August at 1111 UTC. That was the last time Radio Kuwait was heard on shortwave.

### A New Radio Kuwait

But the Kuwaiti government is not completely silent, even from exile. Ahmed Fahad Sabah, a member of the Kuwaiti royal family, has announced the formation of Radio Free Kuwait, a new radio station that



will use Radio Cairo's shortwave transmitters in Egypt. Radio Free Kuwait will broadcast patriotic music, news and interview programs that will focus on the resistance to the Iraqi occupation in Kuwait.

"We have brought the whole world with us in our struggle against Iraq," said Sabah. "We must continue to take our problem to the people of the world until this man [Saddam Hussein] is removed from our midst."

Radio Free Kuwait is expected to broadcast about two hours a day in Arabic and English and will apparently use a few of Radio Kuwait's old announcers who escaped the country in the early hours of the occupation.

Listeners should continue to monitor Radio Kuwait's last reported frequencies for possible Radio Free Kuwait activity. The frequencies to watch include: 6055 9750 11990 13610 13620 15345 15495 15505 17850 17885 17895 kHz.

Radio Kuwait itself will probably not return to the air anytime soon, even if the conflict is resolved. One radio listener, equipped with a satellite dish, has been watching Iraqi TV news broadcasts. During one newscast, videotape showed Iraqi radio personnel "stripping Radio Kuwait clean." Evidently nothing was left and all the equipment was shipped to Baghdad. Basically there is nothing left of Radio Kuwait.

## A Troubled History

The country that committed the aggression and invaded Kuwait with a lightning accuracy was Iraq. Iraq claims to have invaded and annexed Kuwait based on long historic ties to the country.

Some of the world's earliest civilizations began in what is now Iraq. The ancient Greeks called this region Mesopotamia, meaning "between the rivers." The two rivers are the Tigris and Euphrates. Both rivers flow through present day Iraq. The deep feelings of ownership and nationalism by the Arabs of this land extend to this period, between 3500 and 3100 B.C.

The basis for most of the Iraqi claims on Kuwait and the Arabian peninsula involve the religion Islam. The followers of the prophet Muhammed, called Muslims, swept

Table 1  
UAE Radio and TV -- Dubai

0330-0400 UTC	on 15435	11945	13675
0530-0600 UTC	on 15435	17830	21700
1030-1110 UTC	on 15320	15435	17865 21605
1330-1400 UTC	on 15320	15435	17775 17865 21605
1600-1640 UTC	on 17865	11795	15320 15435 21605
2200-2300 UTC	on 9600	11985	13605
2300-0000 UTC	on 9600	11985	11940 13605

out of the Arabian peninsula and conquered what are now Egypt, Iran, Iraq, Israel, Jordan, Lebanon and Syria. Many of the conquered people adopted the Arabic language and Muslim religion.

For many years wars were fought on this land by both Arabs and outside forces. In 1923 most Arab lands were divided into mandated territories by the League of Nations and placed under British and French rule. The Arabs demanded their independence but...

...the British were the ones who drew the lines in the sand.

Many territories gained independence in the 1930s and 1940s. Britain withdrew from many sheikdoms in the 1960s, and by late 1971, it had withdrawn completely from the Arabian Peninsula.

Before the lines in the sands were drawn, Kuwait was a part of Iraq. These claims had been repeated on Radio Baghdad many times in the weeks preceding the invasion. No doubt, the powerful war of the words will continue.

## Iraq Argues its Case

Those of you who would like to monitor Radio Baghdad's English service may do so from 2000-2200 UTC on 13660 kHz. While this broadcast is intended for Europe, it is quite audible in the United States.

Programming to North and Central America is scheduled from 0130-0330 UTC on 11830 kHz. Recent monitoring of this channel here in the United States indicates that the announced 11830 frequency is off the air. Baghdad can be found during the same time slot on a new frequency of 11755 kHz in English.

Pop and Arabic music continue to fill their daily broadcasts, as well as frequent political tirades. During a recent such declamation, Baghdad included a question to the United States and Great Britain

## GILFER — first in Shortwave

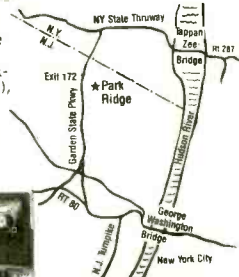


The Best Active Scanner Antenna Gets Better and Better...DRESSLER ara-1500.

Latest model in the evolution of this famous series, the 1500 offers wider freq. coverage (50-1500 MHz), high gain (11-16dB), and easy installation (indoors or out, vertically). Ideal for the ICOM R7000 and other wideband VHF/UHF receivers. Includes 12 vdc power supply, coupler, 25' coax, and mounting hardware \$189.95 (+ \$8).

### VISIT GILFER'S STORE

Easy to find, accessible from New York City. Take Garden State Parkway (NJ portion of N.J.), Exit 172. Gilfer is in the center of Park Ridge, opposite the Borough Hall. Store hours: M-F 10am-5pm, Sat. 10am-3pm.



Order operators: 1-800-GILFER-1  
(1-800-445-3371) NJ 201/391-7887

## GILFER SHORTWAVE

52 Park Ave. • Park Ridge, NJ 07656

## World Probe

\$29.95 World Band Scanner Antenna  
+ \$3 P & H • Cuts Noise • Improves Reception • Indoors or Out • Works with all World Band Portables and Scanners • Sleek 6-ft Probe with Integral 25-ft Low-Loss Shielded Feedline • Fully Insulated and Weather Sealed • Decorator White Design • AntennasWest Box 50082-M Provo, UT 84605 FREE Storage Pouch & Universal Connector Kit

## OUR 23<sup>RD</sup> YEAR!

SERVING SPECIALIZED COMMUNICATORS

6 ISSUES PER YEAR



48-56 PAGES PER ISSUE!

FULL COVERAGE FSTV, SSTV, FAX, RTTY, PACKET, TVRO, SATELLITES, MICROWAVE AND COMPUTERS

### THE SPEC-COM JOURNAL

Official Publication of  
The UNITED STATES ATV SOCIETY

\$20.00 USA \$25.00 CANADA \$30.00 DX

Office (319) 557-8791  
Facsimile (319) 323-5825  
Computer BBS (319) 582-3235  
P.O. Box 1002  
Dubuque, Iowa 52004

**Table 2  
Radio Oman**

**Radio Oman Schedule:**

0200-0400 UTC on 6085 17770  
 0200-0800 UTC on 17770  
 0400-1400 UTC on 11730  
 0400-2130 UTC on 6085  
 0800-1700 UTC on 17735  
 1400-1900 UTC on 9735  
 1600-1800 UTC on 7270  
 1900-2130 UTC on 6085

**Qatar Broadcasting Service Schedule:**

0245-0800 UTC on 11820  
 0900-1800 UTC on 17770  
 1800-2130 UTC on 15265

asking, "Why do you want to starve the Iraqi people?" This was a reference to the multi-national naval blockade of Iraq.

Iraq has also begun their version of Tokyo Rose, Hanoi Hannah and Argentine Annie. As in past wars and conflicts, propaganda messages have cropped up on the airways for the troops. This conflict is no exception.

Since the onset of the crisis, a male voice has been heard with a litany of Iraqi propaganda. I first noticed him on a US TV media newscast report, blasting a diatribe to the US troops stationed in Saudi Arabia. His abusive speech directed to US forces, referred to their families back home, dying in the desert, and ultimately being defeated by the Iraqi Army.

You can catch some of his propaganda on 11860 during the following time periods: 1000-1200, 1600-1800 and 2000-2200. It is unknown at this time if the 2000-2200 broadcast on 11860 is parallel to 13660.

Recently I noticed that the person heard on 11860 is the same announcer that is heard on Radio Baghdad's English service. This maladjusted announcer has been sarcastically named The Thief of Baghdad in the Van Horn radio room.

Like Kuwait, Baghdad has also put up its own clandestine broadcast. A new station calling itself Holy Mecca Radio has appeared in Arabic on 9730 kHz. The station has been heard broadcasting at various times between 0400 and 2100. This station supports Iraq and appeals to Arabs to rescue Mecca from foreign occupation.

Baghdad has also reintroduced its Voice of Egypt of Arabism program, which is critical of Egypt. The broadcast can be heard around 1830-2200 on 12025, 15150, 15170 and 17720.

**The View from Saudi Arabia**

As mentioned earlier, followers of Muhammed invaded what is now Iraq from the Arabian peninsula. By the nineteen hundreds and a host of territorial disputes later, the area was proclaimed the union of the Kingdom of Saudi Arabia.

During World War II Saudi Arabia's sympathies were with the allies. Since then, there have been mutual ties of friendship between the United States and Saudi Arabia.

Today we face the risk of war to retain stability in Saudi Arabia and guarantee the flow of oil. The worst fear of the United States is that the tables will now turn and Iraq will invade Saudi Arabia.

If you would like to follow the daily current developments in Saudi Arabia, try the Broadcasting Service of the Kingdom of Saudi Arabia (B.S.K.S.A.).

English broadcasts are scheduled for 1600-2100 UTC on 9705 (to Western Europe) and 9720 kHz (to Eastern Europe). Listeners in the United States should try the 9705 frequency, and as the days get shorter reception should improve.

Recitation of the Koran have also been noted from 0800-0955 UTC on 21505 and 21665 kHz.

Listeners in Europe and the Middle East especially the Arabian Peninsula, can also hear Saudi Arabia's mediumwave power



houses. Between 0300-1500 UTC, general Arabic programs from Riyadh are broadcast. In addition, between 1500-1700 the program "Call Of Islam" from Jeddah is also aired. Frequencies to check (power in kW in parenthesis) include: 549 (2000), 585 (1200), 594 (2000), 648 (2000), 900 (1000), 1440 (1600), 1512 (1000) and 1521 (2000).

**Of Sheikdoms and Emirates**

Saudi Arabia is not the only country on the Arabian Peninsula. As a result of the League of Nations 1923 action, several smaller emirates and sheikdoms were created.

The United Arab Emirates are made up of seven independent Arab states, lying along the eastern coast of the Arabian Peninsula, at the south end of the Persian Gulf. An emir (ruler) governs each of the states, called emirates.

Originally, the states were known as the Trucial States, and were under British protection until 1971, when they gained their independence.

Until the discovery of vast oil deposits, the UAE region remained underdeveloped. Today, the economy of the United Arab Emirates depends largely on the production and export of petroleum.

The UAE has begun to play an important role during the turmoil in the Middle East. US military planes and ground crews have been based at bases provided by the emirates.

Consequently, listeners may find additional news headlines on Persian Gulf developments from the English service of UAE Radio in Dubai. The current schedule is listed in Table 1.

A relatively quiet area during this crisis has been the Sultanate of Oman and the Emirate nations of Qatar and Bahrain.

During the mid-19th century, when Oman declined as a port of entry for arms and slaves, much of its former prosperity was lost -- until the oil discoveries within the interior in 1964.

Although these important nations do not have the immense oil resources as some of their neighbors, they do possess substantial quantities, and could likely become potential targets of Iraqi aggression.



**Table 3  
Radio Jordan**

0400-2100 UTC on 855 mediumwave  
1100-1315 UTC on 13655  
1320-1630 UTC on 9560

Unfortunately, only a command of the Arabic language will bring you news from the gulf sheikdoms of Oman and Qatar. The current schedules are listed in Table 2.

The last of the gulf emirates is the state of Bahrain. This island sheikdom is in the middle of the Persian Gulf, and their economy depends largely on the oil industry.

Despite it containing by comparison a small oil supply, it does have a leading oil refinery that ranks as one of the largest and most modern in the world. This refinery at Sitrah processes all of the country's crude oil as well as much of the oil that comes from Saudi Arabia by pipeline.

Bahrain also contains major port facilities, and has become the home port for the many war flotillas enforcing the UN blockade. For now, the only way to hear news from Bahrain is through the government-owned mediumwave station in English from 0300-2100 on 1584 kHz and Arabic from 0300-2100 on 612 and 801 kHz.

**Straddling the Fence ... er, River**

Another neutral country in the conflict is Jordan to the west of Saudi Arabia and Iraq. The River Jordan divides it into two parts -- the East Bank and the West Bank. During the 1967 Six-Day War with Israel, Jordan lost much of its needed agricultural land on the West Bank to Israel.

After the brief war, many Palestinian refugees in Jordan formed guerrilla groups to fight Israel and regain their homeland. Because of this, bitter Palestinians have weakened Jordan and the throne of King Hussein.

Unlike its Arab neighbors, Jordan has no oil, and in the past has had to rely on Iraq for that vital commodity. Iraq has also relied on Jordan as a major trading partner of goods and food. This relationship is now jeopardized with the UN sanctions imposed on Iraq.

To compound things, Jordan is faced with an overwhelming flood of refugees fleeing Kuwait and Iraq. What will this crisis in the



**Forbidden Technologies**

The Spook Book deals head on with Electronic Surveillance, Countermeasures, Lock Picking, Rearming Hand Grenades, Amateur Rocket Weapons and much more. Favorably reviewed. 258 pages, 8.5x11, soft bound..... \$ 34.95 postage paid

**Surveillance Audio Amplifiers**

SAA is a Surveillance Specialist cookbook. Covering any and all subjects concerning Audio Surveillance with no exceptions. From wiretapping to audio filtering, this is a must have publication. 277 pages, 8.5x11, soft bound..... \$ 34.95 postage paid



**Now Hear This!**

**Electronic Eavesdropping Equipment Design**

Full of detailed professional quality schematics and plans for all types of Electronic Surveillance Equipment. Excellent book! 110 pages, 8.5x11, soft.....\$ 34.95 postage paid



**The Cuckoo's Egg**

Tracking a Spy Through the Maze of Computer Espionage  
A true story you won't be able to stop reading. #1 "Best Seller"  
325 pages, 6.5x9.5, hard bound..... \$ 24.95 postage paid



**Attention Monitoring Times Conventioneer**

We will be at the Monitoring Times Convention in Knoxville, TN., Oct. 5-7.  
Write, Fax or call our BBS to let us know what you want us to bring for you to see.

Factory Distributors of:

- \* Cap-Stun, non-lethal weapons
  - \* Israeli Gas Masks
  - \* Z-Tool, lockout tools
  - \* Forbidden Technology publications
  - \* Surveillance Electronics
  - \* Countermeasures Electronics
  - \* Computer Hardware & Software
- Dektor Certified Countermeasures Technicians on Staff

**Send \$3.00 for Catalog** (Refundable with order)

**Advanced Electronic Technologies**

Suite 173, 5800-A No. Sharon Amity Rd., Charlotte, NC 28215  
Order Toll Free 1-800-543-5207 Info/Tech (704)545-2681  
FAX (704)545-9061 Computer BBS (704)545-7076

**The Scanner Listener's Handbook**

**How to Hear More on Your Scanner Radio.** by Ed Soomre, N1BFF.  
Your guide to exploring 25-2000 MHz. Includes a detailed breakdown of band allocations and users, plus chapters on scanners, antennas, accessories, 2-way radio systems, listening laws, equipment and information sources.  
\$14.95 + \$2 s/h (\$3 foreign)

**Crisis Communications**  
**A Handbook for Emergency and Survival Radio Monitoring.**  
Hurricane, earthquake, oil spill, - will you and your radio be ready when the next disaster strikes? "Five stars..."  
\$10.95 + \$2 s/h (\$3 foreign)

**Coast Guard Radio**  
**A Guide to Using and Monitoring US Coast Guard Communications**  
Full listings of USCG vessels, aircraft, installations. Frequencies, calls addresses, weather, Notices to Mariners broadcasts, much more.  
\$12.95 + \$2 s/h (\$3 foreign)

Order now from your radio book dealer or

**Tiare Publications**  
PO Box 493M, Lake Geneva WI 53147

Catalog \$1. free with order. Visa/MasterCard

gulf mean to Jordan's future?  
No one knows for sure.

With the constant shifting sands of Arab politics, why not check in with Radio Jordan's English service in Table 3 to find out what the future holds for Jordan.

### Israel Stands Poised

For years the major attention of the Arab nations has been devoted to Israel. The Jewish state is the proclaimed enemy of most of these nations.

Up until their independence, Israel was known as Palestine, and under British control. On Nov. 29, 1947, the United Nations voted to end their hold and divide the country into Jewish and Arab states.

The Jewish people agreed to the plan, but the Arabs wanted all of Palestine to be an Arab state. Nearby, Arab countries were preparing to crush the Jewish nation.

The state of Israel was proclaimed on May 14, 1948, under the leadership of David Ben-Gurion. The following day Israel was attacked by the Arab nations of Egypt, Iraq, Lebanon, Syria and Jordan.

After having fought five wars in four decades, is Israel braced for another possible fight? KOL Israel on shortwave may give you that insight. Table 4 gives KOL Israel's latest frequencies through the end of November.

### Significant Others

Like Israel, the Arab Republic of Egypt has fought many desert battles through the decades (most of them with Israel).

During the Six-Day War with Israel, Egypt, Jordan and Syria's military forces were almost completely destroyed. Israel also conquered and occupied a considerable amount of Egyptian territory. After several years of negotiating, Egypt and Israel signed a peace treaty, "The Camp David Accords," with United States government help.

Table 4  
KOL Israel

0500-0515 UTC	N.America/W.Europe	15640 11605 9435
	Australia	17575
	E.Europe/N.America	11655
1100-1130 UTC	W.Europe	21790 17575 11585
	Australia	15650
	E.Europe	17590
1800-1815 UTC	W.Europe	11585
	E.Europe	11655
2000-2030 UTC	N.America/W.Europe	12077 11605 9435
	W.Coast USA	11655
	Latin America	17575
0000-0030 UTC	N.America	12077 11605 9435
0100-0155 UTC	N.America	12077 11605 9435
0200-0225 UTC	N.America	12077 11605 9435

During this latest crisis, Egypt is fighting on the US side against Iraq. President Mubarek has sent troops to the gulf as part of a multi-national effort to avert war. Radio Cairo has and will continue to play a vital role in the war of the airways. English programming may be heard nightly from 0200-0330 UTC on 9475 and 9675 kHz.

Another country that has sent troops to the Arabian peninsula is Syria. During the Iraq-Iran eight year war, Syria supported Iran. Syria's President Assad has also battled for years with Iraq's President Hussein for the support of all Arabs in forming one Arab state, a dream of many Arab people. To see how far the dream has come, check out Radio Damascus broadcasting in English from 2005-2205 UTC on 12085 and 15095 kHz.

Iran during this crisis has been remarkably neutral. This Persian state has already received concessions from Iraq that eight years of war couldn't achieve. Prisoner

exchanges and land have been returned to Iran shortly after the conflict started. Economically, Iran has stepped in to fill the oil gap vacated by Iraq and Kuwait.

As in past crises, Radio Tehran has been an interesting station to monitor. Their English broadcast begins at 1130-1225 on 9575 9705 11715 11790 and 11940 kHz. Additional English is from 1930-2030 on 9022 and 6035 kHz.

As you can see, shortwave radio can be used to follow the current situation in the Persian Gulf and the surrounding region. Conflict is nothing new to this area of the world and the future remains uncertain.

The future for Kuwait is also uncertain. Listeners who monitored one of Radio Kuwait's last broadcasts heard a proud and determined nation in the face of adversity speak to the world these final words:

"This is Kuwait. We draw attention to the viewers and listeners of Kuwait TV and Radio that the broadcast will continue on the currently operational wavelengths for the radio . . . We hope to return and meet again, God willing, tomorrow Friday morning, on the road to victory. Kuwait radio will continue its broadcast around the clock. We are with you with our souls as a sacrifice for Kuwait."

Only time will tell if Kuwait's dream will come true.



The author would like to credit and thank the following sources of information in the preparation of this feature: BBC Monitoring Service, The International FIDO Net *Shortwave Echo*, *Media Network* and Jonathan Marks, *Monitoring Times* Managing Editor Larry Miller and *MT's* Utility World Editor Larry Van Horn



# uniden®

## \$12,000,000 Scanner Sale

Uniden Corporation of America has purchased the consumer products line of Regency Electronics Inc. for \$12,000,000. To celebrate this purchase, we're having our largest scanner sale in history! Use the coupon in this ad for big savings. Hurry...offer ends January 31, 1991.

### ★★★ MONEY SAVING COUPON ★★★

Get special savings on the scanners listed in this coupon. This coupon must be included with your prepaid order. Credit cards, personal checks and quantity discounts are excluded from this offer. Offer valid only on prepaid orders mailed directly to Communications Electronics Inc., P.O. Box 1045 - Dept. UN14, Ann Arbor, Michigan 48106-1045 U.S.A. Coupon expires January 31, 1991. Coupon may not be used in conjunction with any other offer from CEI. Coupon may be photocopied. Add \$12.00 for shipping in the continental U.S.A.

RELM RH806B-A ..... \$419.95  
 RELM RH256B-A ..... \$294.95  
 Bearcat 800XL-A ..... \$229.95  
 Bearcat 200XL-A ..... \$229.95  
 Bearcat 100XL-A ..... \$179.95  
 Bearcat 70XL-A ..... \$139.95  
 Bearcat 55XL-A ..... \$99.95  
 Bearcat 210XL-A ..... \$164.95  
 Uniden CARD-A1 ..... \$144.95  
 Uniden RD3XL-A1 ..... \$144.95  
 Uniden RD9XL-A ..... \$119.95

### ★★★ VALUABLE COUPON ★★★

#### Bearcat® 760XL-A

List price \$499.95/CE price \$254.95/SPECIAL 12-Band, 100 Channel • Crystalless • AC/DC Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz. The Bearcat 760XL has 100 programmable channels organized as five channel banks for easy use, and 12 bands of coverage including the 800 MHz band. The Bearcat 760XL mounts neatly under the dash and connects directly to fuse block or battery. The unit also has an AC adaptor, flip down stand and telescopic antenna for desk top use. 6-5/16" W x 1 1/4" H x 7 3/4" D. Model BC 590XL-A1 is a similar version without the 800 MHz band for a new low price of only \$194.95. Order today.

#### NEW! Uniden® Telephones

AM470D-A Uniden answering machine ..... \$69.95  
 AM464-A Uniden answering machine ..... \$49.95  
 AM468V-A Uniden answering machine ..... \$49.95  
 AM460-A Uniden answering machine ..... \$49.95  
 AM480-A Uniden answering machine ..... \$69.95  
 FP300-A Uniden feature phone ..... \$34.95  
 FP302-A Uniden feature phone ..... \$49.95  
 FP320S-A Uniden feature speakerphone ..... \$49.95  
 FP322S-A Uniden feature speakerphone ..... \$59.95  
 XE570-A Uniden cordless phone ..... \$74.95  
 XE422S-A Uniden cordless speakerphone ..... \$109.95  
 XE777S-A Uniden cordless speakerphone ..... \$109.95  
 BT100-A Uniden Trimstyle phone ..... \$17.95  
 KT280-A Uniden Family phone with 911 feature ..... \$29.95  
 FF150-A Uniden Executive phone ..... \$39.95

#### RELM® RH256B-A

List price \$587.50/CE price \$299.95/SPECIAL 16 Channel • 25 Watt Transceiver • Priority The RELM RH256B is a sixteen-channel VHF land mobile transceiver designed to cover any frequency between 150 to 162 MHz. Since this radio is synthesized, no expensive crystals are needed to store up to 16 frequencies without battery backup. All radios come with CTCSS tone and scanning capabilities. A monitor and night/day switch is also standard. This transceiver even has a priority function. The RH256 makes an ideal radio for any police or fire department volunteer because of its low cost and high performance. A 60 Watt VHF 150-162 MHz version called the RH606B-A is available for \$429.95. A UHF 15 watt, 16 channel version of this radio called the RU156B-A is also available and covers 450-482 MHz, but the cost is \$454.95.

### ★★★ Uniden CB Radios ★★★

The Uniden line of Citizens Band Radio transceivers is styled to compliment other mobile audio equipment. Uniden CB radios are so reliable that they have a two year limited warranty. From the feature packed PRO 810E to the 310E handheld, there is no better Citizens Band radio on the market today.

PRO310E-A Uniden 40 Ch. Portable/Mobile CB ..... \$83.95  
 PRO330E-A Uniden 40 Ch. Remote mount CB ..... \$104.95  
 ER100-A Uniden Emergency CB Mobile ..... \$49.95  
 GRANT-A Uniden 40 channel SSB CB mobile ..... \$166.95  
 PC122-A Uniden 40 channel SSB CB mobile ..... \$119.95  
 PRO510XL-A Uniden 40 channel CB Mobile\* ..... \$38.95  
 PRO510AXL-A Uniden CB Mobile with antenna ..... \$49.95  
 PRO520XL-A Uniden 40 channel CB Mobile ..... \$56.95  
 PRO640E-A Uniden 40 channel SSB CB Mobile ..... \$137.95  
 PRO810E-A Uniden 40 channel SSB CB Base ..... \$174.95

### ★★★ Uniden Radar Detectors ★★★

Buy the finest Uniden radar detectors from CEI today.  
 RD3XL-A Uniden 3 band radar detector ..... \$159.95  
 RD8-A Uniden visor mount radar detector ..... \$89.95  
 RD9GTL-A1 Uniden "Passport" size radar detector ..... \$99.95  
 RD9XL-A1 Uniden "micro" size radar detector ..... \$124.95  
 RD27-A Uniden visor mount radar detector ..... \$54.95  
 RD99GT-A Uniden remote mount radar detector ..... \$119.95  
 CARD-A1 Uniden credit card size radar detector ..... \$159.95

#### Bearcat® 200XL-A

List price \$509.95/CE price \$239.95/SPECIAL 12-Band, 200 Channel • 800 MHz. Handheld Search • Limit • Hold • Priority • Lockout Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz. The Bearcat 200XL sets a new standard for handheld scanners in performance and dependability. This full featured unit has 200 programmable channels with 10 scanning banks and 12 band coverage. If you want a very similar model without the 800 MHz band and 100 channels, order the BC 100XL-A for only \$189.95. Includes antenna, carrying case with belt loop, ni-cad battery pack, AC adaptor and earphone. Order your scanner now.

#### Bearcat® 800XL-A

List price \$549.95/CE price \$239.95/SPECIAL 12-Band, 40 Channel • No-crystal scanner Priority control • Search/Scan • AC/DC Bands: 29-54, 118-174, 406-512, 806-912 MHz. Now...nothing excluded in the 800-912 MHz band. The Uniden 800XL receives 40 channels in two banks. Scans 15 channels per second. Size 9 1/4" x 4 1/2" x 1 1/2". With nothing excluded in the 806-912 MHz band, this scanner is an excellent choice for law enforcement agencies. If you do not need the 800 MHz band, a similar model called the BC 210XL-A is available for \$178.95.

#### NEW! Bearcat® 147XL-A

List price \$189.95/CE price \$94.95/SPECIAL 10-Band, 16 Channel • No-crystal scanner Priority control • Weather search • AC/DC Bands: 29-54, 136-174, 406-512 MHz. The Bearcat 147XL is a 16 channel, programmable scanner covering ten frequency bands. The unit features a built-in delay function that adds a three second delay on all channels to prevent missed transmissions. A mobile version called the BC560XL-A featuring priority, weather search, channel lockout and more is available for \$94.95. CEI's package price includes mobile mounting bracket and mobile power cord.

#### NEW! Ranger® RC12950-A

List price \$549.95/CE price \$249.95/SPECIAL 10 Meter Mobile Transceiver • Digital VFO Full Band Coverage • All-Mode Operation Built-in liquid crystal display • Auto Squelch RIT • 10 Programmable Memory Positions Frequency Coverage: 28.0000 MHz to 29.6999 MHz. The Ranger RC12950 Mobile 10 Meter Transceiver by Ranger, has everything you need for amateur radio communications. The RF Power control feature in the RC12950 allows you to adjust the RF output power continuously from 1 watt through a full 25 watts output on USB, LSB and CW modes. The RC12950 also features a noise blander, roger beep, PA mode and more. The Mic Gain Control adjusts the gain in transmit and PA modes to maximize talk power. Digital VFO. Built-in S/R/F/ MOD/SWR meter. Frequency selections may be made from a switch on the microphone or the front panel. There is even a repeater split switch for repeater offsets. The RC12950 lets you operate AM, FM, USB, LSB or CW for full mode operation. The digitally synthesized frequency control gives you maximum stability. There's also RIT (Receiver Incremental Tuning) to give you perfectly tuned signals. With memory channel scanning, you can scan ten pre set frequencies to keep track of all the action. An optional CTCSS tone board is available (order # RTONE) for \$59.95. For technical questions, call Ranger at 714-858-4419. Order your Ranger RC12950 from CEI today.



BC760XL  
800 MHz.  
mobile scanner  
SPECIAL!

### ★★★ Extended Service Contract ★★★

If you purchase a scanner, CB, radar detector or cordless phone from any store in the U.S. or Canada within the last 30 days, you can get up to four years of extended service contract from Warrantech. This service extension plan begins after the manufacturer's warranty expires. Warrantech will perform all necessary labor and will not charge for return shipping. Extended service contracts are not refundable and apply only to the original purchaser. Warrantech does not have an extended warranty plan for handheld scanners. For mobile or base scanners, CB radios or radar detectors a 1 year extended warranty is \$19.99, two years is \$39.99 and four years is \$59.99. Order your service contract today.

### OTHER RADIOS AND ACCESSORIES

BC55XL-A Bearcat 10 channel scanner ..... \$114.95  
 AD100-A Plug in wall charger for BC55XL ..... \$14.95  
 PS001-A Cigarette lighter case for BC55XL ..... \$14.95  
 VC001-A Carrying case for BC55XL ..... \$14.95  
 BC70XL-A Bearcat 20 channel scanner ..... \$159.95  
 BC172XL-A Bearcat 20 channel scanner ..... \$134.95  
 BC1-A1 Bearcat Information scanner with CB ..... \$119.95  
 BC310A-A Bearcat Information Radio ..... \$79.95  
 BC330A-A Bearcat Information Radio ..... \$104.95  
 UC102-A Regency VHF 2 ch. 1 Watt transceiver ..... \$114.95  
 UC202-A Regency VHF 2 ch. 2 Watt transceiver ..... \$149.95  
 VM200XL-A Uniden Video monitoring system ..... \$179.95  
 BP205-A Ni-Cad batt. pack for BC200/BC100XL ..... \$39.95  
 FBE-A Frequency Directory for Eastern U.S.A. .... \$14.95  
 FBW-A Frequency Directory for Western U.S.A. .... \$14.95  
 RFD1-A MI, IL, IN, KY, OH, WI Frequency Directory ..... \$14.95  
 RFD2-A CT, ME, MA, NH, RI, VT Directory ..... \$14.95  
 RFD3-A DE, DC, MD, NJ, NY, PA, VA, WV Dir. .... \$14.95  
 RFD4-A AL, AR, FL, GA, LA, MS, NC, PR, SC, TN, VI ..... \$14.95  
 RFD5-A AK, ID, IA, MN, MT, NE, ND, OR, SD, WA, WY ..... \$14.95  
 RFD6-A CA, NV, UT, AZ, HI, GU Freq. Directory ..... \$14.95  
 RFD7-A CO, KS, MO, NM, OK, TX Freq. Directory ..... \$14.95  
 SMH-A Scanner Modification Handbook ..... \$14.95  
 ASD-A Airplane Scanner Directory ..... \$14.95  
 SRF-A Survival Radio Frequency Directory ..... \$14.95  
 TSG-A "Top Secret" Registry of U.S. Govt. Freq. .... \$14.95  
 TTC-A Tune in on telephone calls ..... \$14.95  
 CBH-A Big CB Handbook/AM/FM/Freeband ..... \$14.95  
 TIC-A Techniques for Intercepting Communications ..... \$14.95  
 RRF-A Railroad frequency directory ..... \$14.95  
 EEC-A Embassy & Espionage Communications ..... \$14.95  
 CIE-A Covert Intelligence, Elect. Eavesdropping ..... \$14.95  
 MFF-A Midwest Federal Frequency directory ..... \$14.95  
 A60-A Magnet mount mobile scanner antenna ..... \$34.95  
 A70-A Base station scanner antenna ..... \$34.95  
 USAMM-A Mag mount VHF ant. w/ 12' cable ..... \$39.95  
 USAK-A 3/4" hole mount VHF ant. w/ 17' cable ..... \$34.95  
 Add \$4.00 shipping for all accessories ordered at the same time. Add \$12.00 shipping per radio and \$4.00 per antenna.

### BUY WITH CONFIDENCE

To get the fastest delivery from CEI of any scanner, send or phone your order directly to our Scanner Distribution Center. Michigan residents please add 4% sales tax or supply your tax I.D. number. Written purchase orders are accepted from approved government agencies and most well rated firms at a 10% surcharge for net 10 billing. All sales are subject to availability, acceptance and verification. On all credit card orders, the ship to address must exactly match the credit card billing address. If the billing address is a P.O. Box or a P.O. Box Zip Code, UPS can not deliver to that address. When this occurs, the order must be shipped by mail at a higher cost to you. To avoid this extra charge, you may mail us a check with your order. Prices, terms and specifications are subject to change without notice. All prices are in U.S. dollars. Out of stock items will be placed on backorder automatically or equivalent product substituted unless CEI is instructed differently. A \$5.00 additional handling fee will be charged for all orders with a merchandise total under \$50.00. Shipments are F.O.B. CEI warehouse in Ann Arbor, Michigan. No COD's. Most items listed have a manufacturer's warranty. Free copies of warranties on these products are available by writing to CEI. Non-certified checks require clearance. Not responsible for typographical errors.

Mail orders to: Communications Electronics, Box 1045, Ann Arbor, Michigan 48106 U.S.A. Add \$12.00 per scanner for U.P.S. ground shipping and handling in the continental U.S.A. For Canada, Puerto Rico, Hawaii, Alaska, or APO/FPO delivery, shipping charges are two times continental U.S. rates. If you have a Discover, Visa, American Express or MasterCard, you may call and place a credit card order. 5% surcharge for billing to American Express. Order toll-free in the U.S. Dial 800-USA-SCAN. In Canada, dial 800-221-3475. FAX anytime, dial 313-971-6000. If you are outside the U.S. or in Michigan dial 313-973-8888. Order from CEI today. Scanner Distribution Center™ and CEI logos are trademarks of Communications Electronics Inc. Sale dates 7/15/90 - 1/31/91 AD #071590-A Copyright © 1990 Communications Electronics Inc.

For credit card orders call  
**1-800-USA-SCAN**

**COMMUNICATIONS ELECTRONICS INC.**

**Consumer Products Division**  
 P.O. Box 1045 □ Ann Arbor, Michigan 48106-1045 U.S.A.  
 For orders call 313-973-8888 or FAX 313-971-6000



"I've been monitoring the utility bands for the last 25 years," says *Monitoring Times* utility editor Larry Van Horn, "and I can't ever remember hearing so much activity on shortwave."

Because of its enormous scope, the current crisis in the Middle East is giving shortwave listeners a once-in-a-lifetime opportunity to monitor military action on what some say is the largest scale since World War II.

# The Gamble in the Gulf:

## Monitoring World Military Reaction to the Iraqi Invasion of Kuwait

by Larry Van Horn

The winds blow hot and heat up the land which is sand. It is a desolate place where daytime temperatures soar to 120 degrees Fahrenheit. To find relief, the people crowd along the coast lines, in river valleys and in the shadow of the mountains. Here there is water, enough to grudgingly support human life and crops.

As if the torture of the sun were not enough, the temper of the people is volatile, too. Throughout its long history, the Middle East has been torn by many conflicts. It has been a repeated thorn in the side of the world and once again, the heat is on.

On this occasion, one-time Soviet ally, Iraq, has invaded its Arab neighbor, Kuwait. The nations of the world have responded with outrage and with one of the biggest buildups of military force since World War II. The crisis continues to simmer at the near-boiling point.

Not surprisingly, the biggest response to the situation has come from the United States. President George Bush asked for and received permission to place large ground and air force elements in the deserts of Saudi Arabia. In addition, the U.S. has sent in a major naval armada to effectively surround the nation of Iraq. Other countries, from Holland to Australia, and even some Arab nations,

have entered the fray to one degree or another. The result is an unparalleled opportunity for radio monitors.

A couple of days before the invasion back in August, word had leaked out that Iraq was amassing troops on the border with Kuwait but that it did not plan to invade. This was a flag for me and I immediately went to the radios to check out what was going on. Already, U.S. Air Force and Strategic Air Command (SAC) channels were active with the communications of long range advance units. B-52 bombers and KC-10 tankers were heard moving toward Saudi Arabia and Diego Garcia and several Military Airlift Command (MAC) aircraft, possibly carrying members of the elite Delta Force, had already been dispatched.

United States diplomatic activity could be followed by monitoring Mystic Star channels. (Activity on Mystic Star channels should be watched closely for further moves by U.S. VIPs.) A check of recent Utility World logging sections will give you a good start on hearing the active Mystic Star frequencies.

One of the best places to start monitoring any military "flare up" in the world is the United States Air Force Global Command and Control (GCCS) frequencies. If the U.S. is doing anything in the world militarily, this is the best place to get some idea of the magnitude of the operation. In the case of Desert Shield, units and aircraft from both U.S. coasts were involved. Particular attention should be paid to MAC activity. Table 1 includes the absolutely latest I have on the USAF GCCS network.

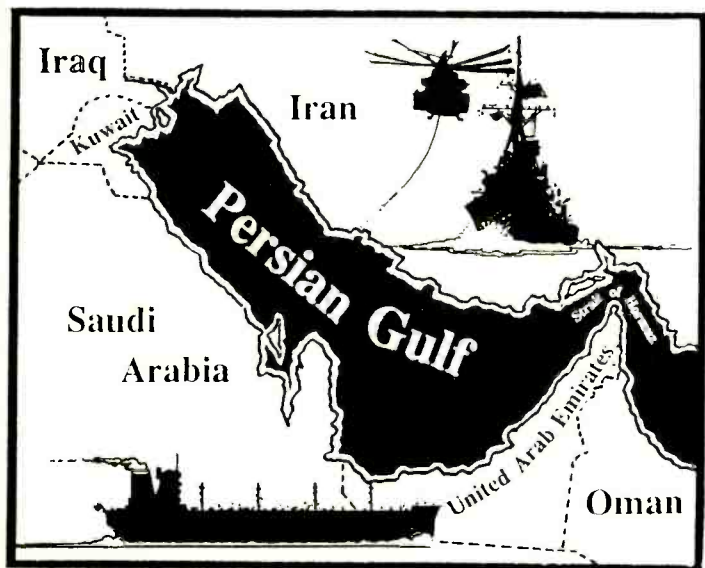


Table 1  
USAF Global Command and Control System

Albrook AB, Panama	18019	15015	11176	8993	6683	3137
Andersen AB, Guam	18002	13201	11176	8967	6738	4721
Ascension Aux AF	15015	13244	11176	8993	6750	
Clark AB, Philippines	23227	18002	13201	11176	8993	6738
Croughton AB, England	13214	11176	9011	6750	5703	3067
Elmendorf AFB, Alaska	13201	11176	8989	6738	3081	
Hickam AFB, Hawaii	18002	13201	11179	8964	6738	4729
Incirlik AB, Turkey	23227	15015	13214	11176	6738	3137
Lajes Field, Azores	13244	11271	8967	6750	4746	3081
Loring AFB, Maine	13214	11179	8964	6738	3074	
MacDill AFB, Florida	18019	13244	11246	8993	6750	4746
McClellan AFB, Calif.	18002	13201	11239	8989	6738	3067
Thule AB, Greenland	13201	8967	6738			
Yokota AB, Japan	18002	13201	11236	8967	6738	4747



**Table 2  
Middle East Air Traffic Control Monitoring**

**Europe A:**

Beirut (B)-Malta (M)-Tunis (T)  
2910(B) 3411(T) 4689(B/T) 5519(T) 5661(M) 8826(T) 8875(B)  
10084(M)

**Middle East (MID-1):**

Aden-Amman-Baghdad-Bahrain-Beirut-Damascus-Jeddah-Kuwait-  
Tehran  
2992 3404 5603 5658 5667 8847 8918 10018 13288 13312 13336

**Middle East (MID-2):**

Bahrain-Bombay-Delhi-Kabul-Kathmandu-Karachi-Kuwait-Lahore-  
Muscat-Tehran  
2923 2992 3446 3467 5601 5658 5667 6556 6624 8879 8918 10009  
10018 10066 13288 13312 13336

**Africa (AF-3):**

Addis Ababa-Aden-Benghazi-Bombay-Bujum Bura-Cairo-Cocos-  
Dar Es Salaam-Djibouti-Hargeisa-Jeddah-Khartoum-Mogadishu-  
Nairobi-Riyan-Sanaa-Seychelles-Tripoli  
3467 5505 5658 6574 6624 8847 8870 8888 8919 8959 11300 13288  
13294 13306 13336 17961

Note: Not all stations will appear on all frequencies.

**Table 3  
Selected VHF/UHF Middle East Aircraft**

Ankara, Turkey ACC: E sctr-127.3 129.3 129.45, 131.05 132.9  
240.8 253.3 259.75 337.3 362.05  
W sctr-128.8 133.55 285.15  
S sctr-128.1 128.75 234.6 345.95  
Tel Aviv, Israel ACC: N sctr-(Pluto) domestic 125.8 123.4  
Tell Aviv Intl-124.3 121.4  
S sctr-120.9 121.4  
Amman, Jordan ACC: W sctr-128.3 E sctr-128.5  
Cairo, Egypt ACC/FIR: 130.9 127.7 126.6 129.4  
Baghdad, Iraq ACC: 127.1 125.9  
Basrah, Iraq ACC: 124.525  
Kuwait ACC: 125.2 125.3 132.1 135.5  
Riyadh Mil, Saudi Arabia: App 126.0 178.0 Twr 124.3 341.6  
ELf 1 ctc ESSO Ops on 288.4  
Abu Dhabi Intl, UAE: App 124.85 125.1 125.9 127.5 129.5 231.4 270.0  
290.8 294.0-N sctr/124.4 128.1-S sctr  
Bahrain ACC: 126.7  
Beirut, Lebanon ACC: 119.3 120.3 120.4 123.7  
Damascus, Syria ATCC: 120.0  
Emirates ACC/UACC, UAE: 129.5 124.85 APP-124.4 127.5 125.9  
128.1 290.8 231.4 270.0 Kopter Cntl-127.5  
Jeddah ACC/FIC: N sctr-Tabuk RCAG 132.9 340.5/Arar RCAG  
133.3 345.6  
Hafr Al Batin RCAG 127.3 345.6/Hall RCAG  
128.1 5667 8918  
C sctr-Wejh RCAG 133.9 Yenba RCAG 132.3  
Gassim 134.3 5667 2992  
S sctr-Al Hada RCAG 134.5 132.1 325.0 Afif  
RCAG 126.5  
Khamis Mushait RCAG 132.1 344.5 5667 2992 5658 11300  
Muscat, Oman ACC: 123.95 124.55 128.15

**IF YOU OWN A SCANNER,  
YOU NEED THE...**

**AVAILABLE  
NOW!  
New  
1990-1991  
REGIONAL  
Editions**

**DIRECTORY OF  
NORTH AMERICAN  
MILITARY AVIATION  
COMMUNICATIONS  
VHF/UHF**

**See You at Knoxville!  
October 5 - 7, 1990**

HUNTERDON AERO PUBLISHERS  
P.O. Box 754 • Flemington, New Jersey 08822

**FEATURES**

- Still the ONLY North American directory featuring cross-indexes both by frequency and location.
- Covers 25-420 MHz
- Over 20,000 thoroughly researched, up-to-date frequency records
- Four editions:
 

1 - NORTHEASTERN	2 - SOUTHEASTERN
3 - CENTRAL	4 - WESTERN

**\$14.95 each;**

**Any 2 for \$27.95; Any 3 for \$38.95; ALL 4 for \$49.95**

*plus \$2.00 Shipping & Handling for each edition  
New Jersey residents please add 7% Sales Tax*

Phone Hours: 6:30 - 9:30 PM Weekdays;  
9:30 AM - 7:30 PM Sat. & Sun., EASTERN TIME

VISA, MASTERCHARGE ORDERS-- Phone Today

**1-800-542-SCAN**

*or send check or money order to:*

**HUNTERDON AERO PUBLISHERS  
Box 754 • Flemington, NJ 08822**

**Table 4  
Civilian Marine Radio Stations  
of the Middle East**

4XO-Haifa R, Israel:  
2649 3656 4238 4366.7 4385.3 4410.1 4425.6 6430 6470.5 6512.5  
6516.7 8485 8694 8718.9 8731.3 8753 8799.5 12860 13051.5  
13110.1 13119.4 13138 13144.2 17060 171.46.4 17257.7 17270.1  
17282.5 17316.6 22491 22605.3 22614.6 22645.6

JYO-Aqaba Radio, Jordan:  
2512.5 2612.5 4326.5 4416.3 4431.8 6390 6479 8528 8728.2 12725  
13159.7

SUP-Port Said, Egypt:  
4325 6425 8473 13060

SUH-Alexandria Radio, Egypt:  
3/8578 4/12970.5 16912

YIR-Basrah Radio, Iraq:  
4220 6330 8440 12660 16880 16906 22338

9KK-Safat Radio, Kuwait:  
2/4299 3/4413.2 4/6381 5/6509.5 6/8525 7/8737.5 8/12895  
9/13172.1 20/12925 21/17288.7 22/16995 23/22504 24/22605.3  
25/22642.5 32/4431.8 52/6518.8 72/8743.7 92/13181.4  
22/17298

HZG-Damman Radio, Saudi Arabia:  
4253.5 4278 4309 6364.5 6387 6466 8484.5 8556.5 8651 12658.2  
12752.5 12792 16860.8 16953 17062 22338.2 22427 22484

HZY-ARAMCO Ras Tanura Radio, Saudi Arabia:  
8480 12811.3 16960

A7D-Qatar Radio:  
4231 4316 4355 8454 8473 8630 12966 13024 16880 16935

A4M-Muscat Radio, Oman:  
4233 8445 12675.5 16868

A9M-Hamala Radio, Bahrain:  
4284 4302 8448 8454 12698 12709 17169 17175.2 17208 23312  
22322

**Table 5  
Middle East RTTY Press Services**

SANA: Syrian Arab News Agency - Damascus, Syria  
YKP 28/11080 33/15020

MINA: Middle East News Agency - Cairo, Egypt  
SUA 50/13653 94/5220 211/5275 231/7610 246/10150  
251/10610 289/15845 291/15935

INA: Iraqi News Agency - Baghdad, Iraq  
YI L68/5867 L71/10162.5 L73/14373 O72/13524 X70/14699  
X75/7565 Z74/9867

PETRA: Jordan News Agency - Amman, Jordan  
JYF 4/9463 6/5055

KUNA: Kuwait News Agency -  
I have not heard any transmissions from this news agency since  
the invasion. You might still want to check some of the  
agency's frequencies. The transmitters are in the control of  
Iraq and the INA might use them.



*The USS Tattnell, a guided missile destroyer, now on patrol in the Persian Gulf*

I mentioned earlier that SAC aircraft were involved in the operation. Listeners should keep a close watch on the primary SAC air-to-ground channels for increased activity and Emergency Action Messages (EAM). These channels and their "Sierra" designators are as follows: 4725 (S-390), 6761 (S-391), 9027 (S-392, 11243 (S-393), 13241 (S-394) and 17975 (S-395).

Because of the fact that the U.S. Air Force has conducted military exercises with the Saudi Air Force for years, we already know some things about Saudi military bases. The air field at Dhahran, for example, uses the call sign Hotel 1 and is the NCS (Net Control Station) of the system. Hotel 1 uses the frequencies 9130 and 11100. It is believed that most of the MAC flight operations went into this base and they do use shortwave frequencies 9130 and 11176 for those ops.

There is a military air field at Riyadh which uses Hotel 2 as a call sign and the frequencies 7300 and 12112. The air base at King Khalid uses the call sign Hotel 8 and the same frequencies as Hotel 3/4. These frequencies have been active during this crisis. The Saudi Air Force is one of the most sophisticated in the Arab world. The frequencies to watch include: 3095 (1900/0400) / 5526 (1900-0400) / 8967 (0400-1900) / 8990 (0400-1900).

Another way to monitor aircraft activity in the Middle East is through shortwave Air Traffic Control (ATC) Major World Air Route Areas (MWARA) transmissions. Four areas need to be watched to catch all of the activity in and around the Middle East. Table 2 is the *Monitoring Times* Guide to Middle East Air Traffic monitoring.

Not all activity occurs on shortwave. Listeners in the area of the conflict might do well to check out the frequencies listed in Table 3 for all sorts of military/civilian activity.

As can be seen from James Pogue's accompanying article, the sea is playing a major role in the Persian Gulf conflict. The U.S. Navy is conducting what President Bush is calling a "naval interdiction." Others call it a blockade, but whatever words you choose to use, the primary U.S. Navy frequencies to monitor will be HICOM (High Command) channels. Three frequencies bear watching for flash traffic to and from naval units. These are: 7535 12215 23315 all in USB.



Table 6  
Utility Bands in the HF Spectrum

General Utility Bands		Concentrated Military Activity
2000-3500	15600-18068	3025-3155
4000-4850	18168-21000	4700-4750
5060-5950	21850-24890	5450-5680
6200-7000	25010-25670	5680-5730
7300-9500	26100-28000	6685-6765
9995-11650		8965-9040
12050-13600		11175-11275
13800-14000		13200-13260
14350-15100		15010-151970-18030
		23200-23350

Traffic about a naval activity is not limited strictly to military channels. Civilian marine stations should provide some very interesting listening as ships attempt to stay out of harm's way. Table 4 lists the primary marine radio station heard in the region and most transmit their messages in Morse code.

Another area of the shortwave marine spectrum to check for activity will be on the worldwide coastal/ship simplex channels. During the last Persian Gulf crisis (Iran-Iraq war), I heard Iranian naval bores challenging shipping traffic in the gulf.

You just never know what you are going to hear on these frequencies, so keep an ear cocked toward these channels for possible action by naval ships challenging civilian vessels. These channels include (asterisk indicates most active channels): 4125\* 4136.3 4139.4 4139.5 4143.6\* 4419.4\* 6210.4 6213.5 6218.6\* 6518.8\* 6521.9\* 8281.2 8284.4 8291.1\* 8294.2\* 12421 12424.5 12428 12429.2\* 12432.38 12435.4\* 16565 16568.5 16572 16587.1\* 16590.2\* 16593.3\* 22094.5 22098 22101.5 22105\* 22108.5 22124\* 22127.1\* 22130.2\* 22133.3 22136.4\*

Finally, on the ground in Saudi Arabia is the Army Corps of Engineers. Check the following frequencies for activity: 9130 and 11425. The following are the last known call signs in use. This net also is part of the U.S. Air Force Saudi network mentioned earlier.

- Castle 1 Riyadh Airport
- Castle 2 Khamis Mushait Airport
- Castle 3 Jeddah Airport
- Castle 4 Tabuk Airport
- Castle 6 Dhahran Airport
- Castle 7 Jubail Airport
- Castle 8 Al Batin Airport

RTTY-equipped monitors might want to check out some of the press services transmitting wire service copy on shortwave

from the Persian Gulf area. This is an excellent way to keep track of each government's view of the situation using hard copy. While this is not a complete list of frequencies, I have compiled the latest list as heard by Utility World reporters. Check out Table 5.

On the diplomatic front, the U.N. does have troops in the Middle East and these frequencies could prove interesting to monitor. I have come across a previously unpublished list of frequencies for U.N. forces in the Sinai. United Nations Ismailyah Operations in Al Ismailyah, Egypt, can be heard on 6632, 9006, 11233, 13231, 13257-primary and 3975 4704 5690 6204 6810 6905-secondary.

Use the TV news as a guide to what's happening in the region. Then use a book like Grove's *Shortwave Directory* to ferret out new frequencies. I have also found that general tuning through the utility bands works the best to find new activity and tactical channels used for a specific mission or agency.

Just where should you look for utility station activity? Table 6 will put you in the ball park.

Now is the time to fire up the shortwave radio and monitor one of the world's hot spots. As the crisis drags on, I am sure quite a few new channels will pop up in the shortwave spectrum associated with the conflict. So why don't you grab your log book, some scratch paper and your headphones and give the utility bands a listen, 'cause over in the Middle East ... the heat is on.

## SHORTWAVE NAVIGATOR

now lets you control your  
KENWOOD from your MAC!



\$99.00

For delivery outside  
North America,  
please add  
\$10.00.

Now you can enjoy all the great features of Shortwave Navigator with the added convenience of direct control of your Kenwood Receiver from within Navigator and by a separate receiver control program which allows scan, search, and other remote functions.

Separate audio timer software permits multiple timed recordings of broadcasts, just like a VCR, while allowing you to select and change different frequencies and modes.

The standard version of Shortwave Navigator is still available for \$69.00, and that includes one free upgrade. Remember, this is the program which received the first WRTH Industry Award.

See it in  
Knoxville Oct  
5-7, at the  
Monitoring  
Times  
Convention!

**DX Computing**  
232 Squaw Creek Rd.  
Willow Park, TX 76087  
(817) 441-9188

## HEAR MORE DX



SPECIAL \$79.95!  
(LIMITED SPECIAL BENDS SOON!)

Hear signals from every corner of the globe!  
Weak DX stations come in strong!  
Big performance and compact size!

Works like a large antenna and "peaked" for optimum short-wave reception. COVERS ALL SHORT WAVE BANDS (0.3-30 MHz). Strong signals with internal 18-dB amplifier. Low noise and built-in low pass interference filter. Works with 3 to 20 ft "low profile" antenna wire (supplied). 115VAC powered. Choice of BNC, UHF, Phono/HCA, F connector. ANTENNA PLUS-2 \$89.95. Scanner and Wide-Band models also available. Call/send for details!

### SCANNER STICK

Great Scanner  
Reception!

Covers all scanner bands 30-1000MHz. Only 35" long but picks up signals like a vacuum! Ruggedly housed inside a PVC tube it withstands weather that would tear other antennas apart! UHF for connector. Female to receiver. Mounts to mast up to 1 1/2" diameter. Special only \$29.95 (reg \$39.95). Add our RFP-40-UHF SIGNAL INTENSIFIER (only \$69.95) for an outstanding receiving system!

Listen to entire nights scanning in minutes! Record only the "ACTION" on your cassette recorder! Connects scanner to recorder. 115VAC or 9V batt versions available. Easy connection! TAPE SAVER TS-1 \$59.95!

INTERFERENCE FILTERS Scanner IIF-1 \$8.95, Short wave LPF-1 \$19.95. Variable Attenuator VA-20 \$12.95. Ant switch 3 pos \$14.95. Static Shield \$20.95. Continental US shipping/handling \$4. AK, HI, PR, Canada shipping/handling \$7. NY and MI residents add local sales tax.

MANY MORE PRODUCTS!  
SEND FOR DETAILS!



ELECTRON PROCESSING, INC.  
BOX 68 - MIT  
CEDAR, MI 49621 (616) 228-7020

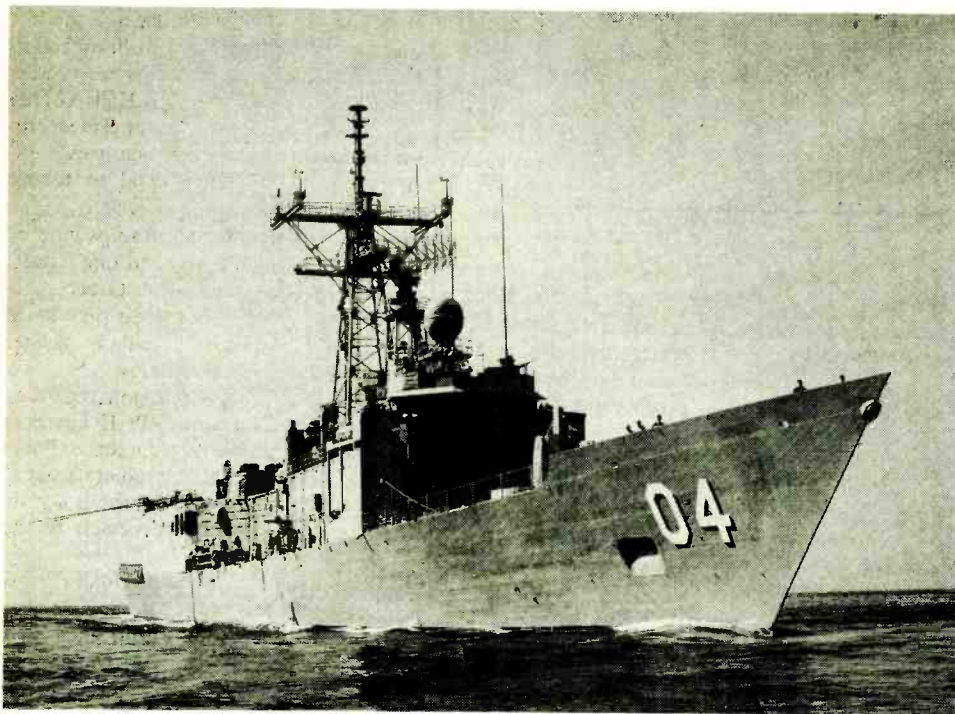
SATISFACTION GUARANTEED!

Order any product from EPI (except software) and if not satisfied, return it within 15 days for a full refund (less shipping/handling)

# Global Navies Converge on the Persian Gulf

(And You Can Tune Them In!)

by James T. Pogue



Australia's HMS Darwin guided missile frigate

On August 6, the United Nations Security Council met in emergency session and voted unanimously to order a worldwide trade embargo of Iraq. The purpose of the embargo was to force Iraq to withdraw from occupied Kuwait and to prevent further aggression against now threatened Saudi Arabia and other nations. This was the first such total boycott by the United Nations in 23 years.

In order to enforce the boycott, several nations elected to send naval forces to the Persian Gulf and surrounding areas. The commanders of these forces stay in close touch with their headquarters, and therefore, an enormous upsurge of naval communications is taking place on short wave frequencies this fall.

One of the first countries to send naval forces to the Persian Gulf was Australia. Two American-built "Oliver Hazard Perry" class frigates, HMAS ADELAIDE and HMAS DARWIN, were dispatched shortly after the U.N. boycott was announced. These ships are 453 ft. long, and their gas turbine engines can carry them along at over 29 knots. They carry a 76 MM gun mount, launchers for STANDARD surface to air missiles and HARPOON anti-ship missiles. They also carry the PHALANX close-in weapons system (CIWS) for protection against incoming missiles and torpedoes. To support the frigates, the 516 ft. long French-designed replenishment oiler HMAS SUCCESS is with them.

Departing from their homeport of Halifax, Nova Scotia, two Canadian warships responded to the crisis. HMCS ATHABASKAN, a "Tribal" class destroyer and HMCS TERRA NOVA, a "Restigouche" class frigate steamed towards the Gulf. ATHABASKAN is 426 ft. long

and TERRA NOVA is 371 ft. long. Both carry substantial weaponry including guns, missiles, torpedoes and antisubmarine (ASW) mortars. To keep the warships supplied with fuel and provisions, Ottawa has also sent the HMCS PROTECTEUR, a 564 ft. support ship as well. She can conduct standard underway replenishment (UNREP) as well as vertical replenishment (VERTREP) using her three Sea King helicopters.

Notwithstanding the U.S. effort, the most substantial response in type and size of ships has been sent from France. Leading the armada is the 869 ft. long angle-deck aircraft carrier FNS CLEMENCEAU. Capable of speeds in excess of 32 knots CLEMENCEAU is protected by numerous missile systems and guns. Her air wing consists of 16 Super Etendard strike fighters, three Etendard IVP recon/surveillance planes, 10 U.S. built Crusader air defense fighters, seven Alize ASW and strike aircraft and two Alouette general purpose helicopters. CLEMENCEAU carries a crew of 1338 men.

Leading the escort units for the carrier is the guided missile cruiser FNS COLBERT. Built in 1957, she carries Exocet missiles, ECAN surface to air (SAM) missiles, two 100 MM gun mounts, twelve 57 MM anti-aircraft guns and has a crew of 560.

Two 456 ft. long destroyers, FNS DUPEIX and FNS MONTCALM, have been dispatched as well. Gas turbine engines can carry them along at over 30 knots, and each carries Exocets, SAM's, a 100 MM gun mount, torpedoes, and has two helicopters embarked. Somewhat larger at 517 ft., destroyer FNS SUFFREN carries basically the same armament as DUPEIX and MONTCALM. FNS PROTET, a 337 ft. long "Commandant Riviere" class frigate rounds out the combatant list from France. Heavy on guns, she carries two 100 MM gun mounts and two 30 MM guns along with other weaponry.

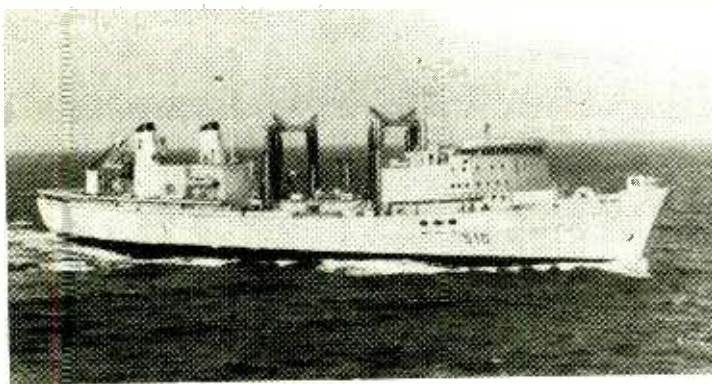
Keeping the French ships and their sailors supplied is the job of FNS VAR. This 516 ft. long replenishment tanker carries food, fuel and other supplies to the fleet.

For the first time since the end of WW II, the West German government has elected to send naval units in response to a situation outside their immediate defensive zone. A small flotilla of mine warfare and support ships left the Naval Base at Wilhelmshaven, bound for the Persian Gulf. The 178 ft. long FGS UEBERHERRN and FGS LABOE are type 343 mine warfare boats. Capable of making up to 24.5 knots, they carry Stinger missile launchers and 40 MM guns for defense. Built primarily for mine laying, they can also be used for sweeping. The FGS MARBURG and FGS WETZLAR are "Lindau" class minehunters. Built around 1959, the 155 ft. long boats are of wooden construction laminated with plastic glue to make them





*Canadian destroyer Athabaskan, now on duty in the Persian Gulf*



*HMCS Preserver, sister ship to the Canadian support ship HMCS Protector, now keeping the two Canadian destroyers supplied with fuel and provisions.*

impervious to magnetic mines. The FGS KOVRENZ is also a minesweeper, however it is of very new construction and little is known about it.

Supporting the mine warfare boats are the FGS WERRA, a 322 ft. depot ship and FGS WESTERWALD, a 344 ft. ammunition transport. WERRA will act as mother ship to the mine hunters and sweepers.

Another country that fought on the Axis side in WW II, Italy, has sent two combatants to help enforce the boycott against Iraq. The ITN LIBECCIO is a 405 ft. long, gas turbine frigate. She carries surface to surface missiles, SAM's, a 127 MM gun mount, torpedoes and two helicopters. The ITN ORSA is a slightly smaller "Lupo" class frigate. She carries basically the same armament and one helicopter, and was built primarily for convoy escort and surface warfare duties.

Tagging along with the two frigates is the ITN STROMBOLI. A 423 ft. long replenishment tanker that also carries stores, she can do VERTREP's with helicopters as well as standard UNREP's.

Returning to Northern Europe, the Netherlands government decided to send two combatant vessels to the Persian Gulf area "to support the U.N. resolution and deter further aggression by Iraq". Enroute are two 428 ft. long frigates, HNLMS PIETER FLORISZ and HNLMS WITTE DE WITH. Each ships can attain speeds of more than 30 knots, and carries an impressive assortment of Harpoon and Sea Sparrow missiles, gun mounts, torpedoes and Lynx helos.

With several vessels already in the area, the British government was able to respond quickly to the crisis that erupted in and around the Persian Gulf. HMS YORK, a type 42 class destroyer is 462 ft. long. It carries Sea Dart missiles, a 144 MM gun mount, torpedoes

and the Phalanx CIWS. The Lynx helicopter on board is equipped with Sea Skua missiles for attacks against surface targets. With YORK is the 372 ft. long "Leander" class frigate HMS JUPITER. She carries Exocet missiles, two Oerlikon gun mounts, torpedoes and one Lynx helicopter.

Steaming the Gulf of Oman, the type 22 or "Broadsword" class frigate HMS BATTLEAXE carries an arsenal of Exocets, Seawolf missiles, four 30 MM guns and two Lynx helos. With her is the RFA (Royal Fleet Auxiliary) ORANGELEAF. This 560 ft. former merchant vessel was converted by the Royal Navy for use as a support tanker in 1986. The RFA is similar to the U.S. Navy's Military Sealift Command in that most of the people manning the ships are civilian employees. Mrs. Thatcher's government also sent HMS HERALD, a survey ship that has been employed as a mine countermeasures support vessel since 1988 and three mine countermeasures ships (mine sweepers and/or hunters). Another RFA vessel to relieve ORANGE-LEAF should be leaving Britain soon as well.

Still other governments have said that they will send ships into the Gulf: Belgium, Greece and Spain. Spain intends to send one frigate, two corvettes and one support ship. The details of Greece and Belgium's responses have not been announced as of press time but it can be assumed that they will send light to medium surface combatants, support vessels and/or mine warfare ships.

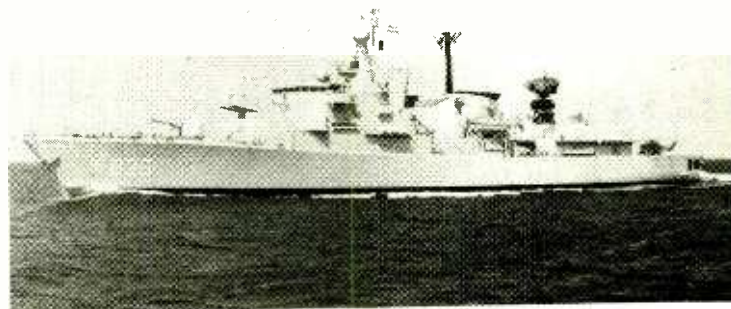
The government of Japan is wrestling with a decision regarding what naval action (if any) they will take. The post-WW II Japanese constitution prohibits the Japanese Maritime Self-Defense Force (JMSDF) from engaging in operations outside the immediate areas of their political and economic interests. In spite of this, there is a good chance Japan will send at least some mine warfare vessels to the Persian Gulf.

The Soviet government is said to have at least one "Udaloy" class destroyer and two supply ships in the Persian Gulf. The Soviets have been steadily building units of this impressive class of ship since 1980, and there are around 10 of them in service at this time. The general purpose 531 ft. long vessels boast SAM's, anti-ship missiles, 100 MM guns, torpedoes, ASW mortars and two Helix-A helicopters. As you can imagine, more information on the Soviet efforts is not available.

Many of the countries and states located in the Gulf area also have their own naval forces. A brief summary of these forces is also worth looking at.

Bahrain can put two 206 ft. and four 147 ft. long Exocet equipped fast attack boats to sea. They also possess two 126 ft. long fast attack boats with 40 MM guns that can lay mines if necessary.

The 49 ship Egyptian Navy is an interesting mix of vessels acquired from nations friendly with the changing alliances of that nation. Included are 12 Soviet built submarines, one British built destroyer, five frigates (two from Spain, two from China and one from Britain),



*The Royal Netherlands Navy frigate HNLMS Pieter Florisz*





*HMS Soberton, a minesweeper similar to those the Royal Navy is expected to send to the Persian Gulf*

and many fast attack boats from the UK, China and the Soviet Union.

Iran, Iraq's nemesis for at least the last decade, has a navy of around 42 ships. They include three destroyers, three frigates and two corvettes. The protracted war with Iraq and poor relations with the West have considerably weakened their navy, as it suffers severely from lack of maintenance and few (if any) spare parts.

One of the key players in this volatile region "officially" has no navy. Jordan has what is termed the Jordan Sea Force, and their fleet of eight coastal patrol craft ranging in length from 30 to 100 feet carry only 30 MM guns. It is interesting to note that the base of operations for the Jordanian Sea Force is the critically important port of Aqaba.

The navy of Qatar is small but can pack a pretty powerful punch. Three fast attack boats carry Exocet missiles and 76 MM gun mounts.

The central staging point for U.S. forces, Saudi Arabia has a navy of around 30 ships. Four French-built frigates, four U.S. built corvettes, four mine sweepers and two replenishment ships make up the bulk of the Kingdom's sea forces. There are a sizable number of U.S. troops involved in helping protect the Saudi's main naval base as well.

Syria's navy is of nearly all Soviet construction, and includes three "Romeo" class subs, two "Petya II" class frigates and at least 12 heavily armed "OSA" class fast attack boats.

With one of the largest navies in the area, Turkey possesses over 70 surface combatants. They include 12 destroyers, eight frigates, 30 mine warfare ships and a sizable submarine force.

Another country with a small but powerful naval presence is the United Arab Emirates. With at least eight fast attack boats equipped with Exocet and 76 MM guns, they are certainly a force to be respected.

On the other side of the coin is Iraq. Although Saddam Hussein has around 43 ships in his navy, he also has some serious problems. The bulk of his major surface combatants, four "Lupo" class frigates and six "Assad" class corvettes are still tied up at the Muggiano Shipyard in Italy where they were built. Since their completion several years ago, Iran has threatened to sink them at any cost should they try to make the transit to Iraq.

The vessels that Saddam actually has available include his flagship, the frigate IBN MARJID, five Soviet-built "OSA" class fast attack craft, three Soviet "Polnochny" class medium landing ships and three tank landing ships. IBN MARJID carries four Exocet missiles and a 57 MM gun mount. The OSA's carry the infamous Soviet Styx missile.

It can also be assumed that Saddam also has at his disposal the four 147 ft. and two 190 ft. fast attack craft that made up the Navy of Kuwait. These 41+ knot boats carry Exocet missiles, have 76 MM gun mounts and some can lay mines as well.

## WESTERN NAVAL UNITS IN THE PERSIAN GULF AREA

	Radio Callsign
<b>Australia</b>	
HMAS Adelaide (F01)	VKLA
HMAS Darwin (F04)	VKDA
HMAS Success (A304)	VLNN
<b>Canada</b>	
HMCS Athabaskan (DDH-282)	CYWM
HMCS Protecteur (AOR-509)	VDOC
HMCS Terra Nova (DD-259)	CZJV
<b>France</b>	
FNS Clemenceau (R98)	FBAW
FNS Colbert (C611)	FAUC
FNS Duplex (D641)	FADL
FNS Montcalm (D642)	FAGK
FNS Protet (F748)	FBRD
FNS Suffren (D602)	FASU
FNS Var (A608)	FBVA
<b>German Federal Republic</b>	
FGS Kovrenz*	
FGS Laboe (M1097)	*
FGS Marburg (M1080)	DRER
FGS Ueberherrn (M1095)	*
FGS Wetzlar (M1075)	DREM
FGS Werra (A68)	DRHZ
FGS Westerwald (A1435)	DRKT
* - Information not available	
<b>Italy</b>	
ITN Libeccio (F572)	IALI
ITN Orsa (F567)	IAOR
ITN Stromboli (A5327)	IGNL
<b>Netherlands</b>	
HNLMS Pieter Florisz (F826)	PADI
HNLMS Witte De With (F813)	PAVP
<b>United Kingdom</b>	
HMS Battleaxe (F89)	GVEW
HMS Herald (A138)	GQIM
HMS Jupiter (F60)	GSYA
RFA Orangeleaf (A110)	GURK
HMS York (D98)	GBBB

As more and more ships converge on the Persian Gulf, the naval situation for Saddam doesn't look good. If the political situation continues to deteriorate, however, we may see attempts by Iraqi ships to run the blockade, clandestine mine laying, air attacks or perhaps even some action between surface combatants. Only time will tell.

The tables that follow include a listing of major surface ships from navies other than the United States that are known to have vessels in or enroute to the Persian Gulf. Also included is a listing of naval communication stations and frequencies for nations with vessels participating in the U.N. boycott. These frequencies may be used for voice, radioteletype or in some cases Morse code (CW).

Armed with this information you should be able to tune in some of the naval activity in this part of the world as the crisis continues to unfold.



James Pogue is the author of *The Warship Directory: With Callsigns and Frequencies*, Volume 1, which covers the United States Canada and Great Britain. The book is available for \$12.95 plus 1.20 book rate shipping from DX Radio Supply, P.O. Box 360, Wagontown, PA 19376.



## NAVAL COMMUNICATIONS STATIONS

(All frequencies in kHz)

### Royal Australian Navy

Darwin - VHI: 4316, 6393.5, 8512.8, 12750, 22348 (CW)  
 Darwin Control: 8122, 8161 (USB)  
 Canberra - VIX: 4286, 6428.5, 8478, 12907.5, 16918.6, 17256.8, 22485

### Belgian Navy

Costende - OSN: 6391.5, 12725

### Canadian Forces - Maritime Command

Halifax - CFH: 4255, 4271, 4363.6, 4561, 5097, 5684, 5330, 6430, 6509.5, 8697, 8746.8, 10536, 10945, 12726, 13187.6, 13510, 15920, 16926.5, 17251.5, 22599.1  
 Vancouver - CKN: 4268, 4422.5, 6460, 6944, 8463, 8774.7, 12123, 12702, 12752.7, 13141.1, 17310.4, 22689

### French Navy

Brest - FUE: 4334, 6490, 8590, 12741  
 Djibouti - FUV: 8992.5, 13042.5, 13442.5, 16905, 20855, 22447  
 RFQP: 5832.5, 8107.6, 9078, 10813.6, 13442, 13654.6, 16124.6, 19384.6, 20855  
 La Regine - FUG: 4313, 5942, 6352, 7619, 8666, 12875, 16876, 20270  
 Paris - FUB: 4325, 4400.8, 4413.2, 5712, 8749.9, 8802.6, 13110.1, 13165.9, 17245.3, 17282.5, 22639.4, 22658.7  
 HWN: 4232, 5385, 6348, 8453, 13235.5, 17180  
 Reunion - FUX: 8475.5, 13215.5, 16915  
 RFVI: 6745.6, 7642.1, 7895, 10262, 10867.1, 10872, 13844.6, 16012.1, 16086, 20632, 26240  
 Toulon - FUU: 4390, 5217, 6984  
 Additional shipboard frequency: 13265

### Federal German Navy

Wilhelmshaven - DHJ59: 4283, 5361, 6913, 8648

### Greek Navy

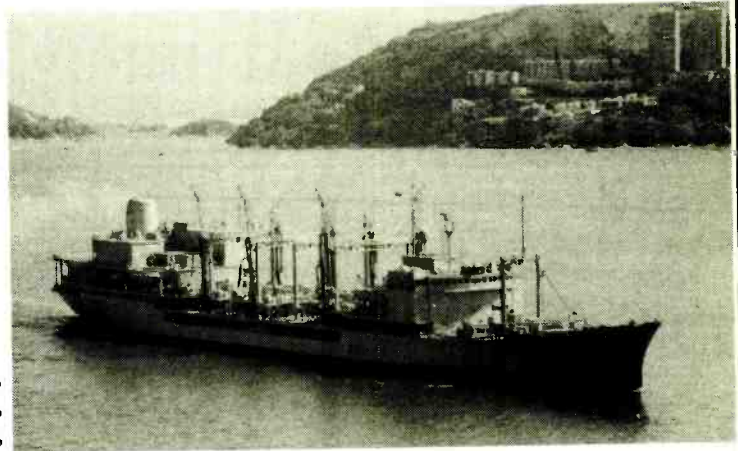
Khania - SXH: 4610  
 Spata - SXV: 8462

### Italian Navy

Rome - IDQ: 4280, 6390, 6395, 8486  
 IDR: 4615.3, 7302, 9090, 13891.6, 16005, 25134  
 RIFMCF: 5875, 11175

### Royal Netherlands Navy

Goeree Island - PBC: 4280, 4360, 6358.5, 6895, 8439, 8708, 13840.5, 17117.5



*RFA Omeda, a Royal Navy oiler similar to other support vessels sent to the Persian Gulf by Britain*

### Spanish Navy

Madrid - EBA: 4261, 6388, 6408.5, 6861, 6930, 8528.5, 12693, 13059, 14641, 17018, 17019, 20148  
 RETJ: 5430, 12469.5, 12703  
 98OQJ: 4230, 4279, 4311.2, 6251, 6357, 6377.5, 6447, 6771, 8326, 8391, 8441, 8447, 8458, 8465, 12693, 12932.5  
 98DDX: 6406.7, 25132  
 Cadiz - EBC: 6840, 7926, 12008  
 Cartagena - 94PLL: 4363, 6276, 6864  
 Huelva - 93WPR: 4196, 5273, 6844  
 Tarifa - 96OQZ: 4607

### Turkish Navy

Ankara - TBA/TBB: 4260, 4350, 6395, 6502, 8493, 8555, 8572  
 Izmir - TBH/TBO: 3358.5, 6374, 8504, 12748.4

### British Royal Navy

Whitehall - London - GYA/GYB/GYC: 4150, 4246.3, 4301, 5422.5, 5414.5, 5434.8, 6676, 8334, 8493.3, 9059, 11010, 12740.3, 16115, 16115, 16889.6, 16918, 16937.3, 17030.8, 18061, 19860, 22422, 22454.5, 23030, 25012  
 London - RXDB: 8449  
 Gibraltar - GYU/GYW: 4221.3, 4366.7, 4892.5, 5229, 6371.2, 6509.5, 6865, 7392.5, 7747.5, 8627, 12325, 12824.2, 13134.9, 13473, 13942.5, 14759, 15737, 15760, 16987.2, 17263.9, 17468, 22630.1  
 Malta - GYR/GYX/GYY/GYZ: 6481, 8566  
 Singapore - GXM/GYS: 4335, 6481, 8630, 12781.5  
 Additional shipboard frequency: 6757

Royal Navy ships may also be held on many Portishead Radio ship calling frequencies.

# Tips on Hearing More and Improving Your Shack

## A Monitoring Times Exclusive

**H**ow many times have you wanted to just sit down and talk with a fellow hobbyist about ways to improve your shortwave setup? For those of you who were unable to attend the 1990 *Monitoring Times* convention in Knoxville, Tennessee, this month, we've put together a special in-print version. This round table discussion focuses, as do all of our feature articles in October, on crisis monitoring.

How many times have you read about a monitor who seems to always be right on top of the action whenever there is a flare-up in the world. Ever wonder how they do it? And where do they get the right frequencies so fast?

Bob Grove leads our panel. He is the founder of Grove Enterprises and publisher of *Monitoring Times*. Bill Battles has carved his niche in the utility world and is the editor of the *DX Reporters* - Utility Voice section. Greg Jordan, an *MT* editor, manages the widely acclaimed broadcast frequency section of the magazine. Panelist number three is Skip Arey, another *MT* columnist who writes the beginner's column and has written in the past for several radio clubs. Finally, we get a feminine touch from *MT*'s QSL and shortwave logging expert, Gayle Van Horn.



Bob Grove won't let a computer into his shack -- at least not yet.

**MT:** Bob, let's start with you. How and when did you get started in radio listening?

**Grove:** I've been at it for about 40 years now, I started listening before I was even a teenager. My grandmother had a big old shortwave console and I delighted in tuning it through the shortwave bands listening to strange and wonderful signals from far off distant lands.

**Battles:** I started about four years ago. I was a scanner listener and enjoyed that aspect of the radio hobby. I found an ad in a magazine for a DX-400 and discovered shortwave radio and I've been hooked ever since.

**Jordan:** I started in 1979 as a hard core shortwave broadcast DXer. I did drift away for awhile, only to rejoin the hobby in 1984. I picked up some 70 countries in my first two years at the radio.

**Arey:** I've been at this for about 15 years now. I started by taking electronics in high school and got interested in radios. Then I discovered girls (giggle) and gave up the hobby for a while only to return after I got over girls.

**Van Horn:** I like to travel and shortwave is the cheapest way to get there. I've been at it since 1978 and I have enjoyed every minute.

**MT:** What is your primary interest in radio listening right now?

**Grove:** The highest frequencies that I ever tune are the low 800 MHz range,

just to see how far away I can pick up cellar telephone calls. The lowest frequency range that I tune is generally about 3 to 4 MHz. I never listen to mediumwave and I listened to longwave only enough to know what is in my area.

From the standpoint of my quarry, I am virtually and exclusively a utility buff; I love two-way communications and the more intriguing the better.

**Battles:** My main interest is aeronautical listening. I like to listen to aircraft transmissions, civilian and military, with special emphasis on military air communications. I classify myself a utility buff.

**Jordan:** As I said before I started out as a shortwave DXer; however, today I specialize more in program content than in country counting [DXing].

**Arey:** I am a DC to light listener. I casually listen to everything I can hear but I especially like the spy numbers broadcast. I find them fascinating.

**Van Horn:** Right now I do sort of a weird mixture. I still like chasing the weak and rare shortwave stations that I need to add to my totals and QSL (station verification) collection, but I have shifted more towards broadcast programs and content. I have also crossed over the bridge, so to speak, as I love to listen to and QSL utility marine band radio traffic.

**MT:** What kind of radio and antennas do you currently use?

**Grove:** Going from left to right in my radio room I have a Kenwood TS-440S ham transceiver. Next I have an ICOM R-7000 receiver for VHF/UHF and then a Realistic PRO-2005. I also have our old Grove SP-100 enhancer speaker and PRE-4 preamplifier (for VHF-UHF reception). On the roof is the new Grove scanner beam and a variation of the Grove Skywire for shortwave.



**Battles:** I have several radios including an R-392 surplus shortwave receiver, a DX-400 and a Kenwood R-2000. On the roof I have dipoles cut for 8993 and 5696 kHz, and a inverted V antenna, all fed with coax.

**Jordan:** My shack consists of an ICF-2002 and a Kenwood R-2000. Out on the balcony I have what I call the "Dr. Frankenstein" antenna and that is the whip from a AN-1 antenna feed with coax.

**Arey:** My shack consists of a couple of R-390 surplus receivers, an ICF 2010 for general listening, a DAC-250 Tianenmen square special and a PRO-2005. On the roof I use a Dandy DX portable with an antenna tuner and a Radio Shack discone for VHF/UHF.

**Van Horn:** I have a bunch of antennas on the roof. These include long wires and the Grove Skywire dipole. The receiver side of the shack consists of the main receiver, a Kenwood R-5000, Kenwood R-2000, Drake SPR-4, and a pair of Panasonic radios, the RF-3100 and RF-B300 as backups. I also have a Sharp FV-310 portable for on the road. The shack also includes about five scanners, and several pieces of ham gear.

**MT:** *If you heard about a major news story breaking, where would you first hear about it and where would you go to start monitoring the story?*

**Grove:** Well, I hear about things from a lot of sources. For instance, on this Persian Gulf crisis, I heard about it from an unlikely source. I received a FAX message telling us that something big was going on in Washington. A Dominos Pizza Parlor near the Pentagon had a sudden rush on pizza from the Pentagon. No kidding.

Thanks to that FAX we knew something big had to be happening 'cause they were burning the midnight oil over there. There was a big push on pizzas for the Pentagon. That's just one of many examples I could give you.

**Battles:** I watch the TV news every night and if I hear something of interest, I retire to the dials to see if I can hear it first hand.

**Jordan:** I would probably hear about a breaking news story from the shortwave radio -- I listen quite a lot. I would probably stay tuned to learn more.

**Arey:** As an Army Reserve Chaplain, I'd probably get a call from my Commanding Officer (laughter). Seriously, I listen to medium wave [AM] a lot in the car and I'd

## Add New Enjoyment To Your SW Receiver with the \*MICRODEC™ Decoder

MODE  
Selects, CW, RTTY, ASCII

POWER/  
VOLUME  
CONTROL

ALPHANUMERIC 5X7 DOT MATRIX  
8 SEGMENT LED DISPLAY

SIGNAL STRENGTH  
INDICATOR LED

DISPLAY  
INTENSITY  
CONTROLS

SEVEN LEVELS  
OF INTENSITY

BATTERY CHARGE  
LED

**\$199**

LIST PRICE \$229.95

**MICRODEC™ decodes MORSE, RTTY, and ASCII to ALPHANUMERIC CHARACTERS**

- Automatically tracks MORSE code speeds from 5 to 70 WPM
- Decodes 60,67,75,100 wpm RTTY and 110, 330 BAUD ASCII.
- Standard ASCII port to interface with your computer.
- Internal practice code oscillator.
- Standard cockpit green display. (red & yellow optional)
- Power switch/Volume control/Internal speaker

- \* Completely portable with optional NICAD rechargeable batteries mounted internally. — \$29.95 (List \$49.95)
- Ultra compact and lightweight (1.5H X 5.08W x 5.25L)
- Optional display color: \$15.00 (List \$30.00) (red or yellow)
- Operates on DC voltages between 9 VDC and 15 VDC (AC/DC adapter provided at no cost).

**SHIPPING AND HANDLING:** Continental United States add \$8.50 for UPS ground. Florida residents add 6% sales tax. Other types of Express shipments and foreign destinations will be quoted on request.

**METHODS OF PAYMENT:** MasterCard, VISA, Money Orders, Certified Checks, and Personal Checks. (Please allow two weeks for personal checks to clear.) QUANTITY DISCOUNT FOR HAM/SWL CLUBS. Dealer Inquiries Welcome.

**SOMERSET ELECTRONICS, INC.**

1290 HIGHWAY A1A, SATELLITE BEACH, FL 32937 • ORDER & FAX: (407) 773-8097

probably hear about it on the AM radio from some all-news station.

**Van Horn:** I watch a lot of CNN [Cable News Network] programming. When I see something that interest me or one of their famous "This Just In" slides, not only do I pay attention to the story, but I start thinking in terms of where I would go to hear that story.

**MT:** *We asked the senior member of our panel Bob Grove, what his most memorable monitoring event has been on radio over his forty years of listening. His reply:*

When then President Reagan was shot by John Hinkley, Vice President Bush was in Dallas, Texas. I knew that Air Force Two would be in Dallas and I knew that at that time of day what the propagation would be like between Dallas and Washington, DC, for WHCA [White House Communications Agency] communications. I then simply predicted, based on my knowledge of the shortwave spectrum, that the frequency to hear AF-2 comms would be in 18 MHz range.

I couldn't have been tuning for more than a few seconds and I heard Crown [the White House switchboard] talking to Air Force Two. At that point I was anywhere from a half hour to an hour ahead of all the news services learning the condition of the President, when AF-2 would be flying back with the Vice President aboard, where he would be landing, what hangar he'd be going to, just about everything I wanted to know about the situation.

**MT:** *When you sniff out a potential trouble spot or scenario developing, what reference*

*do you grab from the shelf to get you started in your search to find the action?*

**Grove:** Well of course I grab my own Grove *Shortwave Frequency Directory*. I'm sure the Bible is around here somewhere but I know darn well where the *Shortwave Directory* is [laughter].

**Battles:** If I am looking for something by agency then I whip out the *Ferrell Confidential Frequency* directory since it is a comprehensive frequency list. If I am looking for a specific agency, the Grove *Shortwave Directory* wins hands down.

**Jordan:** Since I do the frequency section of *Monitoring Times*, my own database is the most up-to-date source I have or know of. I have the absolute latest information in it so I do not need any other sources.

**Arey:** Well it depends on the situation and what I want to hear. If I am going shortwave broadcast, I consult the *World Radio TV Handbook* and the center section of *Monitoring Times*. If I'm headed in a Utility direction then the Grove *Shortwave Directory* or Klingenfuss' *Utility Guide* comes off the shelf.

**Van Horn:** I'd go for the *Passport to Worldband Radio*. I would also check the center section of *MT*.

**MT:** *Let's say that you where on vacation and you heard of a crisis or disaster that you wanted to monitor. All your regular reference sources were back at the shack. Where would you go to hear the action?*



*How do you keep your records? Whatever works for you, just as long as you keep some!*

**Grove:** Over the years, I have memorized certain frequency ranges in the shortwave spectrum that are hot listening areas. In fact, right in the beginning of my directory, I have printed these frequency ranges as a reference. Basically, during the nighttime check 4.2 to 10 MHz for your target. During the day look from 11 MHz up to either side of 18 MHz.

**Battles:** Basically I would do some general tuning over frequency ranges I have noted productive in the past. I do a lot of general tuning.

**Jordan:** I would probably do a lot of general tuning in bands I know would be propagating from the area I wanted to hear.

**Arey:** First, I would apply one of my old radio friend's general rules. Each morning he gets up and scans the Strategic Air Command frequencies. If things sound calm and normal then he gets dressed for work.

Seriously, it would depend on the situation but I would do some general tuning across the utility bands first, then go to the shortwave broadcast bands.

**Van Horn:** I'd go directly for a Voice of America or British Broadcasting Company [BBC] newscast. They really keep track of what's happening. These two broadcasters are great when a crisis situation hits for the latest information.

**MT:** *For the average listener that wants to hear more, what would you suggest he do to hear more and improve their listening setup?*

**Grove:** There are only two components a person needs and nothing more: a receiver and antenna. The only exception to that is if

the listener wants to monitor some digital communications, then they need some digital displays.

Oddly enough people often sell antennas short. They say "Well shoot, all you need to do is throw a hunk of wire up in a tree." Well, probably half your reception could be accomplished this way, but you can improve it with the following considerations:

1) Make that wire a specific length so that it has the best efficiency for the frequencies you are listening to.

2) Always, always use coax feedlines. Never use twin lead and never use single wire feeders.

3) An antenna no less than 20-25 feet and no more than 75 feet in length is ideal.

4) Get the antenna as far away from your residence and other noise generators as possible. And

5) do some propagation planning. If you want to hear stations primarily from the east or west coast and you are located in the Midwest, align the axis of the wire pointed north-south. Planning the installation is important to improving your hearing capability.

On receivers, get the best receiver you can afford, don't buy a receiver that costs less than \$200.00. This is absolutely the bottom level anyone should consider in their receiver purchase.

**MT:** *If you had to pick one accessory as a must for the shack, what would that accessory be?*

**Battles:** I find that a tape recorder is absolutely indispensable in the shack. Sometimes I might miss an ID the first time around and I can go back and replay the tape and get as many chances as I need to ID the station.

**Jordan:** I feel an antenna tuner is very important. I get better reception by being able to match the feed line with the receiver.

**Arey:** I think that a cushion for the seat in the shack is the most important [laughs]. On a serious note the tape is the most important accessory I can think of.

**Van Horn:** I agree with Skip and Bill that the most important accessory is a tape recorder. One added feature of using a tape recorder on a hard to hear station is the use of an audio filter to improve audio quality on the tape. Sometimes it can mean the difference between a tentative station logged or a confirmed station in the log book.

**MT:** *Keeping track of your catches is important. What kind of records do you keep?*

**Grove:** First off, I don't allow a computer in the house due to the interference it creates. When a computer goes on, I go off the air. I will allow one in the house when I get a laptop (reduced computer interference).

For now I write marginal notations on a logsheet of things that I have found and heard. I log them then confirm that with my shortwave directory. For VHF/UHF, I keep a master frequency book file that I have all penned in with frequency and information. I have been keeping that up for about 20 years and one of these days...

**Battles:** I do like most others and keep a logbook. I also maintain small hit list of specialty things I like to monitor such as SAC, Aircraft, Marine bands, etc. I also have a special box I call the "tactical box" with tactical frequencies and information in it.

**Jordan:** Much as I have mentioned before, my database for *MT* is my records and I use notes that I take to keep it up-to-date.

**Arey:** Records, let's see-Compact Disc, oh you mean on shortwave (laughs). I just use a plain old fashion logbook like the one I featured in the December 1988 issue of *MT* in my column. It works fine for me.

**Van Horn:** First I maintain a conventional logbook. I also use the computer to store station and QSL records, my country list and specialized station and country "hit" list. I use the hit list to keep track of new stations or countries I want to hear. The logbook is central to my record keeping, though.

Well, that about wraps it up and I hope that some of your questions were answered. I'd like to thank our panel of experts and I would like to thank you, our readers, for posing the questions. Remember to keep the questions coming and *MT* will help you with the answers. Good luck and I hope better DX.





# Enter A World Of Excitement with a Subscription to Popular Electronics®

## Get the latest electronic technology and information monthly!

Now you can subscribe to the magazine that plugs you into the exciting world of electronics. With every issue of Popular Electronics you'll find a wide variety of electronics projects you can build and enjoy.

Popular Electronics brings you informative new product and literature listings, feature articles on test equipment and tools—all designed to keep you tuned in to the latest developments in electronics. So if you love to build fascinating electronics, just fill out the subscription form below to subscribe to Popular Electronics... It's a power-house of fun for the electronics enthusiast.

### EXCITING MONTHLY FEATURES LIKE:

- CONSTRUCTION**—Building projects from crystal sets to electronic roulette
- FEATURES**—Educational training on digital electronics, Ohm's Law, Antennas, Communications, Antique Radio, Simplified Theory
- HANDS-ON-REPORTS**—User test comments on new and unusual consumer products
- SPECIAL COLUMNS**—Think Tank, Circuit Circus, Computer Bits, DX Listening, Antique Radio, Amateur, Scanner Scene

### PLUS: ALL OUR GREAT DEPARTMENTS!

You'll get 12 exciting and informative issues of Popular Electronics for only \$18.95. That's a savings of \$11.05 off the regular single copy price. Subscribe to Popular Electronics today! Just fill out the subscription order form below.



FOR FASTER SERVICE CALL TODAY  
**1-800-435-0715**

IN ILLINOIS 1-800-892-0753 (7:30AM-8:30PM)  
EASTERN STANDARD TIME

## Popular Electronics® SUBSCRIPTION ORDER FORM

P.O. Box 338, Mt. Morris IL. 61054

**YES!** I want to subscribe to Popular Electronics for 1 Full year (12 Issues) for only \$18.95. That's a savings of \$11.05 off the newstand price.

Payment Enclosed  Bill me later

Please charge my:  Visa  Mastercard

Acct. #

Signature \_\_\_\_\_

Exp. Date \_\_\_\_\_

PLEASE PRINT BELOW:

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

ZIP \_\_\_\_\_

Allow 6 to 8 weeks for delivery of first issue. U.S. Funds only.  
In Canada add \$5.00 Postage. All Other Foreign add \$7.50 Postage.

Popular Electronics AMT90

# Shortwave Broadcasting

Glenn Hauser

Box 1684-MT

Enid, OK 73702

**AFGHANISTAN** Radio Afghanistan in English, some via Soviet relays: 0930-1030 UTC on 21600, 17655, 9635, 4940; 1830-1930 on 17745, 15510, 9635. Also on the last set of frequencies at 1700--1800 is the Pashto/Dari service *Breeze of the Hindu Kush* (BBC Monitoring)

**ANDAMAN ISLANDS** Air Port Blair, 4761-variable, in Hindi closing at 1515 instead of the usual 1530 (Nobuyoshi Aoi, Japan, DSWCI *SW News*)

**ANGOLA** Voice of the Resistance of the Black Cockerel, pro-UNITA, heard from 1800 past 1845 on 7100 in Portuguese (BBCM)

**AUSTRALIA** Radio Australia added a special service for the Middle East, 1300-1500 on 17630 and 21775 from Darwin (Wade Smith, NB, and Bob Padula, *Australian DX News*)

**BAHAMAS** Radio Freedom was to be set up on Grand Bahama by three human rights groups, after the state radio refused to sell them airtime; unlicensed, and challenging the government to prosecute (CANA via BBCM) No frequency; most likely AM or FM

**BANGLADESH** Radio Bangladesh in English at 1230-1300 on 15195 and new 17817.1 (Wolfgang Bueschel, Germany, RCI *SWL Digest*) And the 1815-1900 broadcast heard on 15255 and 12032 (Ed LaCrosse, CA, *ibid.*)

**BOLIVIA** Radio Centinela, Tupiza, is a 600-watt shortwave-only military station at C.C. 180, "La Voz Militar del Sud," nominal 5930 but actually on 5925, at 1100-2200; at 1700 relays news from Radio Panamericana (Andy Sennitt, WRTH, Radio Netherlands *Media Network*)

More info sent us by the stations themselves: on 6080, Radio San Gabriel, 5 kW at 0900-1800 and 2000-0200. On 5025, Radio Litoral, 1 kW at 1100-2400. On 4860, Radio El Condor Uyuni, 750 watts at 1030-0300 (WRTH LA-News via *Radio Nuevo Mundo*)

Radio Galaxia, Guayaramerin, new 5159.5 ex-4540, heard at 2220-2246 (Gabriel Ivan Barrera, Argentina, RCI *SWLD*)

**BRAZIL** Radio Ibituruna, Governador Valadares, heard at 0030 on 2nd harmonic 2840 (Ole Forr, Norway, *SW Bulletin*)

Deutsche Welle off-frequency on 6078.2 in German from 0100 past 0200, parallel to 6075, both weak, but from 0200 a powerhouse on 6075; 6078.2 is not a spur, maybe Brasilia relay, causing het (Ernie Behr, Ont., RCI *SWLD*)

**CANADA** RCI had Arabic staffers on the payroll since April, but no programming; the Persian/Arabian Gulf crisis prompted RCI to insert Arabic news via the Austria relay at 0330 on 11730, 0430 on 15275.

*SWL Digest* will commemorate its 700th program November 17-18; a contest drawing will be held for those who return a survey questionnaire by the end of October, available now on request from RCI, Box 6000, Montreal, PQ H3C 3A8.

See last month: CBC says *Sunday Morning* will be back to 3-hour format in the fall; not my favorite program, but leftists will be pleased (Ernie Behr, Ont., *World of Radio*)

**CHAD (non)** Voice of the Struggling Chadian People has been observed on 11850 from 1600 in French, 1650 in Arabic, 1730-1820 in Sarah/Korah; resembles former clandestines from Zuwarah, Libya, Radio Bardai and Voice of the Chadian Popular Revolution (BBCM)

**CHINA** Voice of the Strait, mainly in Standard Chinese, but sometimes in Amoy; 0853-1000 on 11590, 7280, 6170, 6115; 1000-1721 on 11590, 7280, 6170, 5510, 4130, 2755 (double 1377); 2053-2200 on 7280, 6170, 6115, 5510, 4840, 4130, 2755; 2200-2230 on same minus last two; 2230-2410 on 7280, 6170, 6115, 4840. That was the first program; second program: 2154-2430 on 6000, 4900; 0030-0601 on 9505, 6000;

1255-1650 on 9505, 6000 (BBCM)

**COLOMBIA** La Voz de Guainia, Puerto Inirida, heard on 3499.97 at 0045 until closedown at 0154, bland music and jingles every 10 minutes, announcing 3315 (SIM & HBG, *SW Bulletin*)

(non?) Radio Patria Libre, "a voice for the Camilist Union Army of National Liberation," 6315 at 0025-0120 and 1130-1220; frequency and times vary (BBCM)

**COSTA RICA** Parmenio Medina of Radio Sonora has bought Radio Impacto, and planned to rename it Radio Cordillera, probably on mediumwave 980 only (*El Diario* and *La Nacion* via Ken MacHarg, CR) AWR and RFPI apparently missed a chance to bid on Impacto's SW transmitters (MacHarg)

Radio for Peace International is in an "emergency situation"--must vacate premises by November because of interference caused to video production studio next door, a "technical nightmare". So a "Focus One" campaign has been started to raise \$60,000, which would allow RFPI to install a more powerful transmitter at the new site nearby. Hopes not to be off the air more than a day or two for the move. For info on joining RFPI, or to send contributions, use this address: Box 10869, Eugene, OR 97440.

**CUBA** *DXers Unlimited*, from Radio Havana Cuba, has technical advice, propagation reports, phone interviews with Americans. Host Arnie Coro, CO2KK, says a second edition on weekdays has been added to the UTC Sunday 0400, 0240, 0440 airings (*World of Radio*)

(non) Radio Cuba Libre, clandestine from Florida reactivated, heard on 7100.5 with 5-minute transmissions repeated between 0030 and 0115ish, also mentioning 7080, 7060, 7040 (David Crawford, *DXSF* via *RNM*)

**CHILE** Radio Esperanza, Temuco, heard on 6088.66 from 0910 with Latin American pop-hymns to 1000 fadeout; not heard daily; also noted on 6088.6 variable from 0130 just above WYFR on 6085 (Ernie Behr, Ont., RCI *SWLD*) QSL says sked is Monday-Saturday 1400-2100; Saturday also 0400-1100; Sundays parallel to FM at 1100-0400 (Monday); 1 kW (Gabriel Ivan Barrera, Argentina, *Onda Corta*)

Varying around 7000 is new Radio Renacer, La Reina, near Santiago (WRTH *LA News*)

**DOMINICAN REPUBLIC** Radio Barahona, 4930, heard at 0028 with very bad audio (WJ Parks, *DXSF* via *RNM*) And at 0040-0135, overmodulated; likely the old R Mil transmitter (Terry Krueger, *ibid.*)

**ECUADOR** More USB tests from HCJB: on 9397.2 in Russian at 0200-0430, parallel AM on 11925 (Wolfgang Bueschel, Germany, RCI *SWLD*) And on 8937.5 in the aero band, once in AM at 0310, LSB at 0230-0245 (Seiden & Krueger, *DXSF* via *RNM*)

October topics on *Dateline 90*, Mondays: 1st, a new dark age? 8th, creativity; 22nd, stench of ethnic hatred; 29th listeners' forum contest. *DX Partyline*, Saturdays: 6th, SNAP at VOA, radio stamps; 13th, Cambodia, Grundig portable; 20th, Pitcairn, Pacific & SPEEDX reports; 27th, ANARC, SPARC, EDXC; Surinam. Both air at 1922 and next UTC days at 0052, 0252, 0522. John Beck, Clayton Howard and Rich Mc Vicar have tri-hosted some *DXPLs*.

Radio Catacocha, 6581, folk music from 0834 past 0934; could be a network name, as listed as La Voz de Juventud (Paul Edwards, Wellington, NZ, *OzDX* & *Onda Corta*)

Radio Nacional, Limon, on 3370, 250 watts, ex-1320 at 1100-0400 (WRTH *LA News* via *RNM*) Radio Centinela del Sur, Loja, back on nominal 4890 at 0500-0515 with special live basketball parallel Radio Luz y Vida 4853.1 (Dario Monferini, Milano, Italy)



**ETHIOPIA** (non) Voice of Ethiopia on the Path to Democracy is the latest name for the Ethiopian People's Revolutionary Party radio, 0330-0400 and 1430-1500 on 7010, also announcing the 49 meter band. The EPRDF radios given last month keep shifting their schedules (BBCM)

**GUATEMALA** Radio Buenas Nuevas, 4800, has expanded to : 1100-1400 and 2200-0330, in five languages, mainly Mam (David Foster and Peter Bunn, *OzDX*)

**INDIA** AIR's DXers Corner is scheduled alternate Mondays at 1040, 1435, 1925, 2130 (BBCM) North Eastern Service of AIR, Shillong, is only on SW; 1100-1220 on 7190, 1225-1630, 3255, in English and Hindi with English program summary daily at 1255 (Mick Ogrizek, *ADXN*) see also ANDAMANS, KASHMIR

**INDONESIA** RRI Semarang, back on 3935 after ages and ages, heard at 1440 (David Foster, *OzDX*) Earlier may pose a problem for ZLXA, New Zealand.

**IRAN** Tehran noted on 6080 in English to Europe 2200-2230 parallel 15084, not audible on 9022 (Bob Padula, *ADXN*) If correct, also two hours later than usual.

**IRAQ** With the invasion of Kuwait, Radio Baghdad's English broadcasts became the center of attention, 2000-2200 on 13660 to Europe; the 0130-0330 on 11810 and 11830 to North America and South Asia was much more difficult to hear. On *Media Network*, John Mainland in New Zealand reported new 11755 for the latter, but that was blocked by Havana on 11760. Reception of 13660 ranged from zilch to fair in mid-America; a mixture of Arab and western music, propaganda programs under various guises. On one occasion some slow-speed CW interference on 13661.7 caught our attention; this message was repeated over and over during the final half hour: "CQ CQ CQ DE ARRF ARRF ARRF (twice) HR TXT FOLLOWS SADAMM /sic/ HUSSEIN IS A BUTCHER SADAMM HUSSEIN IS A MURDERER SADAMM HUSSEIN IS A RAPIST SADAMM HUSSEIN MURDERS WOMEN AND CHILDREN SADAMM HUSSEIN WILL BURN IN HELL NUKE BAGHDAD NUKE BAGHDAD" On another occasion, someone was keying "BS" over Baghdad, per Jim Bohannon on Mutual via Tim Hendel.

The widely publicized and sneered at broadcasts from Baghdad to the American troops were on 11860 at 1000-1200, 1600-1800, 2000-2200 (BBCM) About a week into the affair, Radio Baghdad must have picked its song titles for their significance: "Re-United," "I Will Survive," and "Ain't No Stoppin Us Now" (Ed Janusz, NJ via Bill Westenhover, *W.O.R.*)

Iraq also pumped up its clandestine broadcasts, among them: reviving Voice of Egypt of Arabism, 1830-2000 on 12025, 15150, 15170, 17720, time varying; and Holy Mecca Radio, perhaps 24 hours, on 9730, later 9720 (BBCM)

And bubble-jammed as much as possible, perhaps also using captured Kuwaiti transmitters, which were not heard broadcasting on any known frequencies. Including: against VOA on 6015, 7205, 9530, 11705, 11960; BBC on 6030, 11730, 15165, 15180, 17785; Saudi Arabia on 7150, 9730; Iran on 6080, 7215, 9670, 11715, 11940; Turkey on 11955, 15160; Syria on 15095; Jordan on 9560; unknown targets on 7225, 9710, 15350 (Wolfgang Bueschel, Germany)

Almost immediately, BBC and VOA expanded Arabic times and frequencies; and several other countries added Mid-East broadcasts primarily for their nationals trapped in Iraq and Kuwait, among them: Holland, Poland, RFE-Polish, Japan, Australia, Thailand, Sweden

**ISRAEL** Plans for a VOA relay in the Negey Desert continue to see-saw as Israeli groups fight the government over its environmental impact (AP and *Washington Post* via David Alpert, Alan Johnson)

**ITALY** Voice of Europe, 7536.9, English pops and ID 0231-0256 (Robert Ross, Ont., *Fine Tuning*) 7539.8 with address at 0202, 0302 (Bob Colyard, NJ, *SPEEDX*) 7536.6 around 0200, faded in for ID! (Bill Westenhover, PQ, *RCI SWLD*) Often heard between 0730 and 2230 on 7539 variable (F Mougenez, France and D Monferini, Italy, *Play-DX*) Radio Italia Internazionale, Spoleto, 7140.1 seems 24 hours (S

Gomez, Catalunya, and Moneferini, *Play-DX*)

Parliament has approved a broadcasting bill giving the PTT power to allocate frequencies instead of the former free-for-all; many operators will not get licenses, and there will be no private shortwave, if enforced (*RN Media Network*)

**KASHMIR** (non) AIR, Delhi, 11620 at 1300-1530 with a "special" (unannounced) program in Kashmiri daily, amounts to a clandestine operation (Kanwajit Sandhu, Ludhiana, India, *NASWA Journal*) Rocket attacks and death threats on the AIR newsreaders in Srinagar have caused the transmissions to be moved to New Delhi, fed at 0350-0400 on 6045, 0655-0705 on 11850 or 9565, 1300-1630 on 11620, 1400-1425 on 6140 or 4860 (*RNMN*) Confirmed only at 0350-0405 on 9630, 0700-0730 on 11850 (BBCM)

**KAZAKHSTAN** Radio Alma Ata, 2nd program, on new 11825 parallel 9505 at 1405 and 1614 (Valery N. Ostroverkh, USSR, *DSWCI SW News*)

**KUWAIT** I was able to hear Radio Kuwait the day of the invasion, 15345 at 0500 until covered by static at 0515, just music (Kannon Shanmugam, KS) Later that day, 13610 faded in about 1930, no English but music and Arabic announcements past 2330 parallel to 15495 (gh, OK) 15505 and 13610 stayed on thru the night; 15495 was just a carrier; 15505 became plagued by woo-woo jamming. Newer Kuwait frequencies 17895 and 13620 were not disrupted (Stephen J Price, PA) 13620 and 15505 were heard the day of the invasion with music and announcements (Wade Smith, NB) Was hearing 21675 before 1100 UTC, but ceased at 1111 UTC August 3. Until then there were appeals for help, in Arabic. Some mediumwave resistance channels lasted a bit longer, 540 and 990 kHz. Egypt said it would provide Kuwaiti exile broadcasters a shortwave frequency for a two-hour daily broadcast (BBCM)

**LAOS** (non) Satthani Vithayou Kachai Siang Latthaban Potpoi Sat Lao (Radio Station of the Government for the Liberation of the Lao Nation) is a new clandestine on 10200 kHz, 0100-3000 and 0700-0900 in Laotian and Hmong; opens with national anthem of the former Kingdom of Laos (BBCM)

**LIBERIA** After several weeks off due to nearby fighting, ELWA was put back on the air by rebels to broadcast an "I lead the country now" speech by Charles Taylor; a few days later the station was heavily damaged by Doe forces' shelling, and may be permanently off the air (BBCM)

**MALAYSIA** V of Malaysia, 11885 from 1130 Chinese and old pop songs past 1430, frequency varying daily up to 11885.8, another day on 11885.4 (Ernie Behr, Ont., *RCI SWLD*)

**MEXICO** UN Radio says it broadcasts via Radio Mexico International, Monday-Friday 2100-2115 on 15430, 11770, 9705 (Radio Australia Japanese *DX Time*) in Spanish, presumably.



RADIO NEW ZEALAND INTERNATIONAL  
TE REO IRIRANGI O AOILAKOA, O TE MOAHIA HUIA EIAWA

Brookside Building, P.O. Box 100, Wellington, New Zealand  
Phone (06) 747 337, Fax (06) 311 911, Telex (06) 341 331

**NEW ZEALAND** Although call on 1602 kHz is 2XA, Print Disabled Radio new on SW 3935 is ZLXA, initially scheduled Sunday,

### DX Helper

Macintosh Software - W7HP

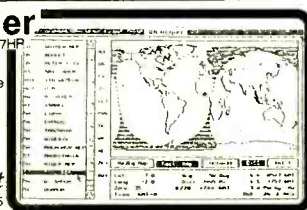
MUF Map • MUF Plot  
Gray Line • Great Circle  
Prefix, Zone, Obliast  
WWW Alert • CW Dnll

\$39.95 Info \$1  
ppd

AntennasWest

Box 50062-M, Provo, UT 84606

(801) 373-8425 See band openings on the map before they happen!





# Shortwave Broadcasting

Monday, Wednesday, Thursday at 0630-1000 (Arthur Cushen, NZ, RNMN)

Thanks to RNZI for finally providing a detailed SW program schedule. Besides news generally on the hour, on 17675: UTC Monday-Friday 0105 *Correspondence School*, 0130 *BBC Talking about Music*, 0205-0400 *In Touch with New Zealand*; 0420 *Business Report*; 0430 features: Monday, *Mailbox* or travelogue; Tuesday, *Insight*--current affairs; Wednesday, *Anthology*--NZ writing; Thursday, *About Pacific People*; Friday, *Spectrum*--NZ people and places; 0510, calling various Pacific islands; 0630, *Ears*--for children of all ages; Friday 2305 *Documentary*; Saturday 0012, *Money Matters*; 0105 *Saturday Magazine*; 0130 *Anything For a Laugh*; 0617, *Pacific Requests*; Sunday 0600-0800 *Totally Kiwi Music Show*. On 9855 at 0815: Monday, *Focus on Politics*; Tuesday, *Fishing Report*; Wednesday, *Rural Report*; Thursday, *Pacific Press Review*; Friday, *Fruit and Vegetable Report*; at 0700-1100 Saturday, *Scrapbook* (via Adrian Sainsbury, RNZI) Times and perhaps frequencies too, will change when NZ goes on DST October 7--start looking for the above one hour earlier.

**NORWAY** Radio Norway's English, now on Saturday as well as Sunday in September: 1200 on 25730, 21735; 1300 on 9590, 9585; 1600 on 15220, 25730; 1700 on 9655; 1800 on 17755; 1900 on 15235, 25730, 15220, 21705; 2100 on 15165; 2200 on 15195, 17730; next UTC day 0100 on 9615, 11925; 0200 on 9615, 11735 (Bob Padula ADXN)

**PAKISTAN** Radio Pakistan, English at 1600-1630 on 13665 and badly off channel, 7287 (Peter Bunn, OzDX) Also on 15605, 17554.3, new 21670. At 0230 on 17690, 21730 (Wolfgang Bueschel, Germany, RCI SWLD) At 0230 on 9545, 15115, 17640, 17725, 21730 (Craig Seager, Radio Australia Japanese DX Time) At 1105-1120 on 17565, 21520 (Bueschel, RCI SWLD)

**PERU** Radio La Voz de San Antonio, Bambamarca, heard on 13255, confirms its nominal frequency is half that, 6627, 500 watts, affiliated with Catholic Church (John Fisher, Ont., NU via DSWCI SW News)

Radio Huandoy, Caraz, 4562, heard at 2240; Radio Chota, Cajamarca on new 4890 ex-4850v, Andean music at 2150; Radio Vision, Juanjui, 5130, sked is 1000-0230; Radio Nor Oriental, 5270 signs off at 0300 (Rafael Rojas, Lima, Pampas DXing) Radio Cora, Lima 4914.6, operates 0930-0505. Radio Huanta 2000 on 4746.7 heard at 0200; La Voz de Oxapampa on 3260.1 at 0300 (Gabriel Ivan Barrera, Argentina, RN Radio-Enlace)

**PHILIPPINES** FEBC's revised English schedule: 0000-0230 on 15490; 0900-1100 on 11845, 9800; 1300-1600 on 11850 (Alok Das Gupta, India, RA Japanese DX Time)

**SOUTH AFRICA** Radio RSA planned to revise its English to Africa schedule in September: 0400-0500 on 11900, 7270; 1100-1200 still on 17835, 11900, 11805, 9555; 1500-1800 on 15270, 7230, adding 17790 at 1700 (BBCM)

**SUDAN** Sudanese Radio observed on 11632 and 9535 at various times of day, on 9550 at 1330-1400 (when the anti-Sudanese government Radio SPLA broadcasts on that frequency) (BBCM)

**SYRIA** Radio Damascus, in English at 2005-2105, 2110-2210 on 15095, 12085; and the anti-Saddam Hussein program Voice of Iraq, in Arabic on 12085 at 0300-0400 and 1700-1800 (BBCM)

**TAIWAN** The October-March schedule for VOFC relays via WYFR: 5950 at 0000-0900; 9680 at 0200-0600; 9852.5 at 2000-2300; 11740 at 0200-0500; 11805 at 2000-2300; 15130 at 2300-0100; 15215 at 0100-0300; 15440 at 1900-2000; 17805 at 2300-0100; 17845 at 0100-0300 and 1900-2000 (WYFR)

**THAILAND** VOA's new relay will be 80 km NE of Udorn Thani, seven 500 kW SW transmitters, 25 curtain antennas on a 1300-acre site, not connected with former USAF base (Mike Hardester, Okinawa, DSWCI SWN)

**TURKEY** Thanks to personal contacts while visiting Voice of Turkey, CIDX Messenger is a contributor to the *DX Corner* hosted by

Miss Semra Eren, every second Saturday at 2225, repeated Sunday 0325 on 9445 (Sheldon Harvey, CIDX)

**UAE** UAE Radio, Dubai, lost its news credibility when it ignored the Iraqi invasion of Kuwait for at least 24 hours after it happened, presumably scared stiff (gh) Here's the complete English schedule: 0330-0400 or later on 11945, 13675, 15400, 15435. 0530-0600 on 15435, 17830, 17865, 21700; 1030-1100 and 1330-1400 on 15320, 15435, 17865, 21605; 1600-1640 on 11795, 15320, 15435, 21605 (BRT via Wolfgang Bueschel) News at the outset except for 1630.

**UKOGBANI** British Forces Broadcasting Service, last heard during the Falklands war, returned to shortwave courtesy BBC, for *Operation Granby* in the Middle East: 0200-0230 on 7125, 9640, 13745; 0930-1000 on 15205, 17695, 21735; 1330-1400 on 15195, 17695, 21735; (RN Media Network) mostly pop music, greetings from loved ones. Best here at 1330 on 17695, sometimes 21735 (gh, OK) at 0200 on 7125, 9640 (Ben Krepp, MA)

**UKRAINE** Radio Kiev has started a Moldavian service on MW and unannounced SW 13795, 1600-1630, 1830-1900, 2000-2030 (BBCM)

**USA** Radio New York International, the short-lived international waters pirate in mid-1987, planned to come back in mid-September where it cannot be busted--buying time on WWCR, Nashville, 7520, UTC Mondays 0100-0500 (Karl Zuk, NY)

WRNO, New Orleans, kept on the air this summer for many weeks using a 500-watt backup transmitter while the main unit awaited tubes --a low-power DX catch! If you've been getting good reception on 13720 at 2100-2400, enjoy it while you can: this seasonal frequency will be gone from October 28th to March 31st, with 15420 extended instead.

No decisions have been made regarding present or future operation (David Briggs, KCBI, Dallas, via Jonathan Shearer)

Re Mother Angelica's plans for a European SW outlet: her 24-hour EWTN TV network is totally separate from the Official US Conference of Catholic Bishops; many of the more liberal bishops disagree strongly with her more conservative theological viewpoints. The Vatican can do little if anything about what she does (Ken MacHarg, Costa Rica)

KUSW now carries the Mormon program *Music and the Spoken Word*, featuring the Tabernacle Choir, Sundays at 1600 on 15590 (CJC of LDS, SLC) KUSW on 9850 in English until 1300--sign-off, causing a horrific mess, splatter from 9 to 11 MHz, two huge, distorted spurs on 9700 and 10000, wiping out WWV one day; why is nobody complaining to the FCC? KUSW is worse than the Cuban R Moscow relay on 11840 (Ernie Behr, Ont., W.O.R.)

**UZBEKISTAN** Radio Vatandosh is a new service from Tashkent, 0230-0300 on 9740, 7325, 7335, 11960 (Valery N Ostroverkh, USSR DSWCI SWN)

**YUGOSLAVIA** Radio Yugoslavia, in English: 0000-0045 on 11735, 5980, 6005; 1200-1230 on 25795, 21555, 17740; 1830-1900 on 11735, 9660, 7215; 2100-2145 on 15105, 11735, 9620, 7215 (BBCM)

**ZANZIBAR** Radio Tanzania heard between sign-on 1500 and sign-off 1831 on 11735 one day, 11734.2 another (Ed LaCrosse, CA)

Read much more about shortwave broadcasting and other media in REVIEW OF INTERNATIONAL BROADCASTING and/or DX LISTENING DIGEST. Samples are \$2 each, 10-issue subscriptions \$21, or both for \$40, in North America; US funds on a US bank, from Glenn Hauser, Box 1684-MT, Enid, OK 73702.

Monitor Glenn Hauser's DX news reports concluding each SWL DIGEST on Radio Canada International; Saturday 2337 UTC on 9755, 5960; Sunday 1837 on 17820, 15260, 13670; 2137 on 17875, 15325; 2307 on 11730, 9755; Tuesday 1233 on 17820, 11855, 9635 and C-SPAN Audio 1.

And the weekly half-hour, WORLD OF RADIO, on WRNO, New Orleans: UTC Thurs 0030, 1530, 2300, Fri 0030, Sat 0300, 2330, Sun 2030 -- on 15420 until 2100, 13720 until 2400, 7355 until 0300, then 6185; also on Radio for Peace International Costa Rica: Fri 2000, 2330; Sat 0315, 0645, 1930; Sun 0215, 0845, 2230; Tues 2230; Wed 0200, 0545 -- on 21566 and 13630 weekdays until 0300, weekends until 2430; 7375-USB weekdays from 2330, weekends from 0045.



# Broadcast Loggings

Let other readers know what you're enjoying. Send your loggings to *Gayle Van Horn*, c/o Monitoring Times. English broadcast unless otherwise noted.

- 0058 UTC on 6690**  
PERU: Radio Cutervo. Spanish. Peruvian huaynos music to 0100 UTC. Time check and ID as, "Esta es Radio Cutervo." (John Miller, Thomasville, GA) (James Bynum, Glenview, IL)
- 0159 UTC on 4934**  
KENYA: Voice of Kenya. Fair signal for sign-on interval signal. National anthem and different ID as, "The Kenyan Broadcasting Corporation, Nairobi." World news bits and upcoming program notes. (William Kruger, Miami, FL) (Dennis Green, Atlanta, GA)
- 0220 UTC on 15360**  
NORWAY: Radio Norway International. Xylophone music, ID and comments on journalist/broadcasters strife. (Mark Seiden, Miami, FL) Monitored on 11840 kHz at 0520 UTC. (John Carson, Norman, OK)
- 0230 UTC on 11790**  
USSR: (Armenian SSR) Radio Yerevan. Armenian/English. National news updates, folk music, and poetry readings. (Helen Takessian, Tucson, AZ) Monitored on 11920 kHz at 2255 UTC. (Stephen Price, Conemaugh, PA) (Bruce Grohman, San Antonio, TX)
- 0232 UTC on 11830**  
IRAQ: Radio Baghdad. National press review and newscast. Arabic music with fair signal quality. (Mark Seiden, Miami, FL) European service heard at 2000 UTC on 13600 kHz. Arabic service noted on 12025 kHz at 2000 UTC. (Stephen Price, Conemaugh, PA) (Robert Babin, Shrewsbury, MA) (Donald Westbrook, Columbus, OH)
- 0232 UTC on 9570**  
ROMANIA: Radio Romania International. "Sunday Studio Program" featuring Romanian literature and popular music. Audible on parallel 11940 kHz to Spanish services at 0300 UTC. (John Carson, Norman, OK) (Bruce Grohman, San Antonio, TX) (Jack Davis, Birmingham, AL)
- 0300 UTC on 9115 USB**  
ARGENTINA: Radio Rivadavia (tentative). Spanish. Male/female announcer duo with news bits on Argentina. Latin music and chat, however no clear "Radio Rivadavia" ID. (Jerry Wilham, Keauau, HI)
- 0345 UTC on 9780**  
YEMEN ARAB REPUBLIC: Radio San'a. Arabic. Usual Arabic programming with excellent music to IDs at 0400 UTC. (Stephen Price, Conemaugh, PA) (Robert Babin, Shrewsbury, MA) (Sam Wright, Biloxi, MS)
- 0402 UTC on 15060**  
SAUDI ARABIA: B.S.K.S.A. Arabic/Turkish. Holy Koran recitations and programming features. Excellent signal reception for Turkish announcements. (Stephen Price, Conemaugh, PA) (Robert Babin, Shrewsbury, MA) (Frank Hillon, Charleston, SC)
- 0409 UTC on 4865**  
COLOMBIA: LV del Cinaruco. Spanish. National news topics, ads with musical jingles. Canned Caracol network promos and extended news coverage on Medellin. (Sam Wright, Biloxi, MS)
- 0413 UTC on 12085**  
SYRIA: Radio Damascus. Arabic. Music to clear ID at 0415 UTC. (Stephen Price, Conemaugh, PA) (Robert Babin, Shrewsbury, MA) (John Carson, Norman, OK) (Brian Bagwell, St. Louis, MO)
- 0415 UTC on 11550**  
TUNISIA: RTV-Tunisienne. Arabic. Middle Eastern tunes to announcement ID as "Jimihuryya al Tunisiyya" at 0427 UTC. (Stephen Price, Conemaugh, PA) Monitored at 0340 UTC on 11970/12005 kHz. (Robert Babin, Shrewsbury, MA) (Donald Westbrook, Columbus, OH)
- 0427 UTC on 4904**  
CHAD: Radio Nationale Tchadienne. French. Station sign-on of instrumental and choral national anthem. ID and program comments to African highlife music. (Frank Hillon, Charleston, SC)
- 0428 UTC on 17675**  
NEW ZEALAND: Radio New Zealand. Station ID at tune-in and rapid drum signal. Pacific news items on Vanuatu and Fiji. Discussion on chemical weapons storage in New Zealand. Pop music vocals to international news. (Bruce Grohman, San Antonio, TX)
- 0456 UTC on 4820**  
HONDURAS: LV de Evangelica. Spanish. Religious prayers to station ID. Inspirational music and abrupt sign-off at 0500 UTC. (Frank Mierzwinski, Mt. Penn, PA) (Bill McDavitt, Durham, SC)
- 0514 UTC on 7376**  
COSTA RICA: Radio For Peace International. IDs and program promotionals. Later monitoring at 0620 revealed a discussion on pollution in the USSR's Aral Sea. (John Carson, Norman, OK) Audible on 21566 kHz 2300 UTC. (George Neff, Lutz, FL) (Travis Prewitt, Las Cruces, NM)
- 0625 UTC on 7255**  
NIGERIA: Voice of Nigeria. "Sporting Scene" show and international news. ID and commentary on the South Atlantic Treaty Organization. (John Carson, Norman, OK) (Robert Babin, Shrewsbury, MA)
- 0625 UTC on 17630**  
AUSTRALIA: Radio Australia. Commentary on Australia's views on nuclear arms, into music at 0627. (John Carson, Norman, OK) Audible on 5995 kHz at 0913 UTC. (Harold Bower, Sunbury, PA)
- 0745 UTC on 17855**  
MARIANA ISLANDS: KHBI-Saipan. "Divine Truth" discussion at tune-in. Interval signal, time/frequency, and ID to sign-off. (Mike Hardester, Okinawa, Japan)
- 0803 UTC on 9595**  
JAPAN: Radio Japan. Japanese. National finance report and local Japanese commercials. Good signal quality monitored to 0815 UTC. (Mike Femyer, Phoenix, AZ) (Travis Prewitt, Las Cruces, NM)
- 0935 UTC on 5050**  
ECUADOR: Radio Jesus de Gran Poder. Spanish. Gospel music and announcement breaks. Two station IDs, with programming monitored to 1000 UTC. (Frank Mierzwinski, Mt. Penn, PA) (Travis Prewitt, Las Cruces, NM)
- 1055 UTC on 3205**  
PAPUA NEW GUINEA: (New Guinea) Radio West Sepik. Donna Fargo's tune of "Happiest Girl in the USA." DJ followed with musical countdown to No. 1 and occasional "echo effects." (Earl Bailey, Oakland, CA)
- 1125 UTC on 3370**  
GUATEMALA: Radio Tezulutlan. Spanish. Variety of good Latin music presented by DJ and plenty of IDs. (Jerry Witham, Keauau, HI) (Robert Babin, Shrewsbury, MA) (William Kruger, Miami, FL)
- 1155 UTC on 5005**  
MALAYSIA: RTVM-Sarawak. Bahasa Malaysia. Recorded musical selections to time signal and "Radio Malaysia" ID. (Mike Hardester, Okinawa, Japan)
- 1158 UTC on 400.2**  
INDONESIA: (Sulawesi) Radio Republik Indo-Kendari. Indonesian. Closing musical notes and local ID. Interval signal ("Song of the Coconut Islands") to Jakarta network news relay. (Earl Bailey, Oakland, CA) (Don Medeland, Ridgecrest, CA)
- 1215 UTC on 3325**  
INDONESIA: (Kalimantan) Radio Republik Indo-Palangkaraya. Indonesian. Easy-listening and Indonesian gamelan music. Local station ID with good signal quality. (Earl Bailey, Oakland, CA)
- 1220 UTC on 6325**  
CLANDESTINE: Voice of the Khmer (tentative). Female announcer with near continuous musical selections. Saxophone instrumental music at 1259 UTC. Brief announcements with possible mention of "Khmer" twice. News program from male/female announcers. (Mike Hardester, Okinawa, Japan)
- 1240 UTC on 3245**  
PAPUA NEW GUINEA: (New Guinea) Radio Gulf. Pidgin. Country-western tunes (Willie Nelson/Hank Williams Jr.) to chime signal. Closing comments and ID to 1300 UTC sign-off. (Henry Magers, Monterey CA)
- 1340 UTC on 21550**  
FINLAND: Radio Finland. Promotional for Finnish language course, and listeners letters. (George Neff, Lutz, FL) "Northern Report" on 9560 kHz at 0640 UTC. (Bruce Grohman, San Antonio, TX)
- 1500 UTC on 11940**  
SINGAPORE: SBC-Radio One. ID and terrific "Oldies But Goodies" musical show. Quite strong quality to 1608 UTC sign-off. (Jack Hubby, Cupertino, CA) (Don Moreland, Ridgecrest, CA)
- 1525 UTC on 3306**  
INDONESIA: (Timor) Radio Republik Indo-Dili. Indonesian. Male/female announcer duo present vocal group music in five short commercial formats. Sign-off comments with RRI ID into chimes, "horn" signal and sign-off at 1546:20 UTC. (Mike Hardester, Okinawa, Japan)
- 1555 UTC on 3264.9**  
INDONESIA: (Sumatera) Radio Republik Indo-Bengkulu (tentative) Indo. Male announcer with several "RRI" mentions, without clear studio ID. Pop music, international news on the hour, and romantic tunes. (Mike Hardester, Okinawa, Japan)
- 1700 UTC on 4765**  
CONGO: RTV-Congolaise. Tentative. French. Unidentified station with carrier/program suddenly on without ID. Male announcer presents sports news, chat, and pop music tunes. (Mike Hardester, Okinawa, Japan)
- 1852 UTC on 9520**  
SWAZILAND: Trans World Radio. French. Sign-on interval signal and English ID, followed by French religious text. (Jerry Witham, Keauau, HI) (Earl Bailey, Oakland, CA) (Henry Magers, Monterey, CA)
- 2200 UTC on 11620**  
INDIA: All India Radio. World news at the hour. Extended talk on Indian trade with Bangladesh, and station ID at 2215 UTC. (Mark Seiden, Miami, FL) Monitored at 1830 UTC on 11935 kHz with "Women's World" show on fashions and ID. (Jerry Witham, Keauau, HI) (Robert Babin, Shrewsbury, MA) (Frank Hillon, Charleston, SC)
- 2202 UTC on 11790**  
USSR: (Lithuanian SSR) Radio Vilnius. "The Way We Live" magazine show and folklore tales on the haymaking season. (Robert Landau, Secaucus, NJ) (John Carson, Norman, OK) (Robert Babin, Shrewsbury, MA) (T.D. Leinweber, Blytheville, AR)
- 2350 UTC on 9655**  
THAILAND: Radio Thailand. "Community Calendar" of local events. Instrumental Big Band music to "This is Radio Thailand external services." Asian news bits with no parallel frequencies 4830/6070/7115/11905 kHz noted. (Mike Hardester, Okinawa, Japan)
- 2358 UTC on 4850**  
CAMEROON: Radio Cameroon. French/English. Program closedown in progress with multilingual IDs and comments. Frequency quote, Cameroon anthem and sign-off at 0002 UTC. (Stephen Price, Conemaugh, PA) (William Kruger, Miami, FL)

*DX season is in full swing now - have you sent your logs in? ---ed.*

# Utility World

Larry Van Horn  
c/o MT, P.O. Box 98  
Brasstown, NC 28902

No doubt by now most of you have read this month's feature piece I did on the crisis in the Middle East. If you haven't, check it out as the activity continues to escalate as of this writing. After I finished writing the piece, I got to thinking again about Israel and their potential role in all of this.

Several years ago in *PopComm* an article appeared concerning one of the more unusual number stations on shortwave. The female voice would continuously broadcast numbers and letters over an over. These broadcasts have been identified and associated with the Israeli Moshad (Israel's CIA).

If Israel should get dragged into the current conflict activity, these stations definitely bear watching. Table 1 reflects the latest logs that have appeared in these pages of stations associated with the Israeli Moshad number stations. Listeners as always are invited to send your logs of these stations to Utility World loggings column care of the address in the masthead.

Table 1  
ISRAELI MOSHAD NUMBER STATIONS

C102	6745 10125 11566 13921 17966
C10 X2:	6745
C10 1D:	6745
KPA2:	7445 10820
MIW2:	5360 6745 12747
SYN2:	5629 8465
UIX2:	4880
VLB2:	12950
VLB9:	4670
YHF:	4560

## VHI IDed

Geoff Halligey over UK way has IDed an unknown for UW marine listeners. For several months now this column has reported the existence of a new marine station in Australia using the call sign VHI.

According to Geoff, VHI is the Darwin Naval (Royal Australian Naval), Northwest Territory station in Australia. The frequencies used by this station are: 4316.0 6393.5 8512.8 12750.0 22348.0 all in CW. According to Geoff the station is used intermittently for fleet exercises.

Long time reader and reporter to this column, Rick Matthew, says that in the 1990 edition of the *Klingenfuss Guide* he listed VHI as Perth but in Supplement No. 1 has changed it to Darwin as well. In addition, Rick reports that some of the DX clubs have reported listeners receiving QSL cards for their reception of VHI from Perth.

Well, folks, another mystery solved by you, our readers. I'd like to thank Rick and Geoff for sharing this with us.

## Canada Spectrum Book

It's great to write this column and read letters from all of you and just like above I asked a question about Canadian

military frequencies. John Dunmore and John Simpson mentioned a book called *Canadian Military Radio Frequency Guide* by Robert S. Ing.

Shortly after that, Robert Ing drops a note and a copy of his latest book (2nd edition) in the mail. Boy, is this a winner. If you are interested in Canadian military monitoring, this one needs to be on your radio reference shelf.

The book covers the spectrum from 50 kHz to 50 MHz. Special sections in the book cover CW, FAX, RTTY and voice transmissions as well as a comprehensive list of Canadian military call signs, frequencies, CFARS (*I've been looking for this for some time.-ed.*), naval and coast guard vessels in an easy-to-use format.

The new second edition also includes tactical radio codes, sources of equipment and information, and is still THE ONLY publication of its kind on Canadian military comms.

The author, Robert S. Ing, has been involved in radio communications both as a hobbyist and professional for over 15 years. He has written numerous books and magazine articles on a variety of subjects.

*The Canadian Military Radio Frequency Guide*-2nd edition (1990) is on 8-1/2 X 11 inch paper text, cerlox bound, 130 pages (ISBN 0-9692707-9-8) and retails for \$20 (add \$2.50 postage/handling per book). A special condensed version on audio cassette is available for the visually disabled with braille cover. For more information, write to Robert S. Ing, P.O. Box 378-Postal Station O, Toronto, Ontario, Canada M4A 2N9. Be sure to tell Robert that *Monitoring Times* sent 'ya.

## Listens for Aeroplanes

Victor Matthews in Nova Scotia found our column on aero monitoring interesting. He says he listens to aircraft both military and civilian on his Sony ICF 2002 mainly on the North Atlantic routes. He says he even gets to see some of them fly over Halifax and Dartmouth going both ways.

For some of you VHF enthusiasts, Victor says he picks up transatlantic traffic on 132.5 and local traffic at 119.2 and 124.2. Thanks for the note, Victor, and I will try to put together some more information on worldwide MWARA routes and frequencies in the near future for you and our readers.

## North Atlantic MWARA Changes

Don Hamrick in Wilburn, AR, via MT's own Jean Baker has shared a very interesting bit of information concerning the NAT MWARA routes and frequencies. According to Don, the NAT B family of frequencies was decommissioned on 28 June 1990 and in its place is the new designator of NAT E.

The new frequencies associated with this new family include: 3476 6628 8906 11309. This new family of frequencies is for the Central North Atlantic area and was implemented in order to reduce the congestion on the old set of frequencies.

All aircraft operating in the New York or Santa Maria FIRs will be assigned frequencies from the NAT A or NAT E North Atlantic HF Families. I'd like to thank Jean and of course Don for this interesting new HF air communications development.



## Russian SESS Net Developments

Long time Ute World reporter Sam Ricks has checked in with an update on the Soviet Space Tracking network frequently heard on the marine bands in the HF spectrum.

Sam says that the Soviets are down to three tracking ships in the Atlantic and one in the Pacific. The Kosmonaut Viktor Patsayev had been at sea over a year when it recently departed for Leningrad via Dakar, Senegal. Sam also says that last year before the MIR manned space station was abandoned there were seven tracking ships in the Atlantic and one in the Pacific.

During the early part of this year, the Soviets scrapped the tracking ships Morzhovets, Nevel and Kegostrov and are expected to scrap the Borovichi later this year. In previous loggings in this column, Sam reported that the tracking ship NIS Kosmonaut Vladimir Komarov had turned up in Leningrad near the end of 1989. He recently found out the Komarov is being refitted at a Leningrad shipyard as the world's largest aerospace ecology center.

Current deployment of Soviet ships includes the Kosmonaut Y. Gagarin just south of the Azores and soon to be replaced by the Akademik S. Korolev; the Kosmonaut Pavel Belyayev in the Gulf of Guinea; and the Kosmonaut G. Dobrovolski off Montevideo. The Kosmonaut V. Volkov is in the South Pacific.

The Dobrovolski will probably be replaced by the time this is in print by the Patsayev. The Soviets have no margin to provide for mechanical breakdown. They are apparently not relying on the Soviet Navy's Marshal Nedelin, Marshal Krylov and the new nuclear powered tracking ship SSV-33 to take up the slack as the Volkov is still deployed in the Pacific.

Finally, it seems the Soviets are cutting corners on their overseas tracking networks. The new civilian tracking ship Akademik Nicolai Pilyugin under construction since 1988 should be nearing completion. I am sure that Sam will be watching the SESS nets for a new call sign indicating the Pilyugin's arrival at sea. Thanks a bunch to Sam Ricks for providing this SESS net input to Ute World.

## Bill Battles Checks In

Bill Battles has also replied to my request for CANFORCE frequency channel designators. From actual monitoring, Bill provides the following list of frequencies and designators as follows:

- 3046 Delta 1 Alpha
- 5850 Delta 1 Bravo
- 6693 Delta 1 Golf
- 6716 Delta 1 November?
- 6746 Delta 1 India
- 8993 Delta 1 Charlie
- 9010 Delta 1 Hotel

The only tentative is the 6716 listing. The CANFORCE frequency of 5684 uses SAC EAM broadcast in phonetics like our SAC EAM broadcast. Maritime comms to surface ships are on 4560 at night. They also act as the northern sector control for NORAD and use 9023, 11214, 11264, 10194, 10452, 14364, 14894, 14264 (??-ed.) and 18027 at various times for exercises. Trenton and Edmonton are base control stations.

Bill also has added another CG channel designator for 7845. He says that he and Tim Braun have verified the designator for this voice scrambled channel as 3 Echo 12. Many thanks, Bill, and I hope you check in again.

## USAF AWS Revisited

Last year we broke the story on the new USAF Weather Service station near Offutt. Dan Provost in Euleuss has provided an official message providing information on the new station that I shall repeat below:

The Air Force's First High Frequency Regional Broadcast (HFRB) is on line.

**Data site location:** Offutt AFB, NE 41.07N 95.55W

**Transmitter site:** Elkhorn, NE 41.35N 96.24W 1,294.35 feet MSL

**Broadcast:** Radioteletype (RTTY) on upper sideband (USB)  
Facsimile (FAX) on upper sideband (USB)

**Antenna type:** Dual low/high takeoff, Inverted cone omni directional model type AS-407/SF

**Broadcast range:** to be determined (estimated range 375 km or between 1500-3000nm)

**Power:** 10 kW

**Rate:** 75 baud, 100 wpm RTTY 120 scan per minute FAX

**Frequencies:** Night-3231 5096 and Day-6904 10576 11120 19326

Now I would like to ask any of our readers: if you have any more frequencies for any more of the new HFRB sites, please forward those to this column for a future update I am planning very soon.

## P7X-Whozit??

Long time friend Lloyd Scott in Bartow, Florida, is asking if I know who P7X heard on 5850 at 0300 with CW traffic. The traffic appears to be five character code.

Lloyd, while I don't have a definite listing on this station, my best guess is that you are hearing some sort of army station with coded traffic and coded call sign. Based on call sign blocks P7X would belong to North Korea but the time of intercept and frequency don't favor reception to that part of the world. Can any of our readers help Lloyd with this mystery?

## Good Marine Reference

Mr. Sewell in Massachusetts was recently talking to a friend and discovered a good reference for ships on the Great Lakes and the St. Lawrence Seaway, "Know Your Ships," updated annually. It lists ships and their specifications, shipping companies, markings, lock operations, etc. It is available from Marine Publishing Company, Inc., Thomas Manse-Publisher, P.O. Box 68, Sault Ste. Marie, MI. He also says that they have a catalog with other titles available on request. Thanks for the note and I hope this helps our readers interested in marine band activity on the Lakes.

## Something is Brewing

Black Bart has checked in again with another postcard message for MT Ute World readers. He notes that 13220.85 kHz in USB has been active all day with voice encryption. He says sometimes one side will be in the clear, by mistake? (Probably-ed.) Traffic heard includes stuff in reference to ship deployments, transfer of personnel than a voice says:

"Seabrook, Seabrook, this is Primrose." Then "Primrose this is Seabrook, go green-go for gold" then voice encrypted again. Anybody want to take a stab at this? And with that folks, it's time to close this edition of Utility and check up on what you are hearing. Now on with your logs from the Utility World.

## Utility Loggings

Abbreviations used in this column

*All times UTC, frequencies in kilohertz. All voice transmissions are English unless otherwise noted.*

AM	Amplitude modulation	ISB	Independent sideband
ARQ	SITOR	LSB	Lower sideband
CW	Morse code	RTTY	Radioteletype
FAX	Facsimile	UNID	Unidentified
FEC	Forward error correction	USB	Upper sideband
ID	Identification		

- 2423.0 ZLB-Awarua Radio, New Zealand, with weather for Chatham Is. in USB at 0942. (Gordon Trigg, Christchurch, New Zealand) *Welcome to the column, Gordon. Glad to see you and several others overseas supply some foreign support this month.-ed.*
- 4011.0 German female five-digit numbers station at 1945. (Tyke-UK)
- 4517.0 Virginia Information net w/net control station call ASA2VA working ASA2UN, ASA2FG and ASA2ZS at 2345 in USB. (Hurley, MD) *Believe this is US Air Force MARS.-ed.*
- 4550.0 Net control Keystone 131 discussing a repeater problem with Keystone 30 at 1240 in USB. (Hurley, MD) *Pennsylvania CAP.-ed.*
- 4561.0 LB calling Y3 in CW at 0250. (Dix, NY)
- 4565.0 Q62/Q64-comms about shifting frequency due to ISB broadcast (RFE) interference. They were having such a hard time hearing each other that both were yelling into the mics in USB at 0551. (Fernandez, MA)
- 4593.0 Middle East Region Net with net control Middle East 36 conducting roll call of members in CAP wings located in DC, MD, DE, VA, WV, NC, and SC. Net officials closed at 2248 followed by unstructured communications by members in USB. (Hurley, MD)
- 4700.0 Habitat (NAS Moffett, California) working KB648 in broken English about landing at Moffett at 1306 in USB. Mentioned Channel Alpha 1 for Habitat and Channel Alpha 2 for aircraft. Heard line maintenance to Habitat with radio checks in clear, green and RTTY at 1635. (Brinkley, CA)
- 5085.0 English female three/two digit number station at 1508, parallel to 4700. (Hurley, MD)
- 5330.0 English female three/two digit number station at 2326. (Dix, NY)
- 5543.0 95 to 43 saying he will type it up and send it TT (RTTY) also message to G22 that the E6 didn't make E7 at 1213 in USB. (Brinkley, CA) *Based on your date, Bill, and when the Navy picks its E7s, this was definitely not a Navy channel. Probably Marine and Army.-ed.*
- 5563.0 Units N45, 6J, 6X, H77, Q8J. I believe this to be the battalion frequency talked about on 5819. I think this is Army. Every sentence ended with "break." They were trying to set up RTTY comms and finally went at "sync-3." The RTTY tones were +1 kHz from the voice frequency. At 1235 in USB. (Brinkley, CA)
- 5598.0 Gander/New York Aeradio working various aircraft from 0540 to 0621 in USB. (Mark Stevens, South Sioux City, NE)
- 5639.0 SNY2-Israeli Moshad number station at 2031. (Dick Moon, George, Republic of South Africa) *Welcome aboard, Dick, glad to see your logs in the pages of MT's Utility World.-ed.*
- 5649.0 Shanwick Aeradio working various flights all westbound in USB from 1430-1436. (Tyke, UK)
- 5707.0 Navy tactical CIC to CIC with units C5, O, CF, M, I, and L. This was a convoy with unit L bending the column. A lot of talk about different tracks at 1355 in USB. (Brinkley, CA)
- 5819.0 N45 and 1E trying to setup RTTY comms at 1231. Going to battalion frequency at 1231 in USB. (Brinkley, CA)
- 6221.6 Townsville Radio, Australia, calling all shipping in USB at 0850. (Trigg, NZ)
- WNC-Tampa, Florida (Limited Coastal) working M/V Hale at 0005 in USB. (Perdue, AL) *Neal, I'll take all the limited coastal you hear. Don't mind seeing them at all.-ed.*
- 6450.0 Whiskey alpha 4 calling CQ (general call for any station). Made contact with Whiskey Romeo Charlie at 1225 (severe interference) in USB. (Hurley, MD)
- 6506.4 USCG COMSTA Guam calling with comm test at 1038 in USB. (Brinkley, CA)
- 6518.8 VCS-Halifax Radio, Nova Scotia, with end of weather and ID at 2343 in USB. Making a good trip to Alabama in total daylight path. (Perdue, AL)
- 6574.0 English male three/two-digit number station in USB at 0215. (Hill, MI)
- 6627.0 Unid station repeating five-digit groups in CW at 0215. (Hill, MI)
- 6680.0 Spanish female five-digit number station nat 0108. (Dix, NY)
- 6697.0 Channel alpha 2 for Habitat and Channel Alpha 1 for P3 aircraft out of Moffett KB 648 Japanese Navy to Habitat with more broken English at 1245. DD-105 another Japanese flight at 1305. Also heard the following: Ready 2 to Ready 3 then nothing heard at 1537. Habitat standing by for CATT (RTTY) at 1541. VA-801 from Habitat copy all out at 1639. RG-360 (Japanese) to Habitat for CRATT (Crypto RTTY) check at 0121. (Brinkley, CA) *Looks like the Japanese Navy has invaded the left coast. I have seen this one listed before.-ed.*
- 6731.0 Unid station with EAM broadcast at 2012 in USB. (Tyke, UK)
- 6738.0 JN51 (Japanese Navy?? See 9021.5 and 11210.7) working Hickam for weather report on Barbers' Point NAS, Hawaii. English so bad that Letterman (Hickam metro) had to repeat slooowly for him. The PIREP (Pilot Weather report) he gave was unintelligible and Letterman gave up trying to get it at 1240 in USB. (Brinkley, CA)
- 6760.0 Two fishing boats with some chit-chat including X-rated talk at 0352 in USB. (Hill, MI) *Boy oh boy, wonder if SAC DF them and a B2 paid them a surprise visit. You fishing boys might want to watch out where you camp your radios.-ed.*
- 6761.0 Griff 31 (B-52) with phone patch through Dandelion (Autovon 587-4491) to Strato Control for permission for bombing practice at 0341 in USB. (Henry Brown, East Falmouth, MA)
- 6784.0 CGR-774 calling CGR-774A and CGR-748 and VA12 calling VIO at 1243 in USB. (Brinkley, CA)
- 6837.0 Shell Oil Company ops in Lagos, Nigeria, heard at 1959 in ARQ and commercial traffic. (Moon, RSA)
- 6900.0 German female three/two-digit number station heard at 0402. (Fernandez, MA)
- 7500.0 Two unid stations in the green. One station had clear voice bleeding through, heard "Roger, I had negative contact." (Brinkley, CA)
- 7532.0 German female three/two-digit number station at 2337. (Dix, NY)
- 7701.0 PCW1-MFA Hague, Netherlands, with call sign only/ARQ idler at 2345. (Dix, NY)
- 7860.0 English female five-digit number station at 0641. (Fernandez, MA)
- 8180.0 Numbers station??? Oriental female in English giving long counts but sometimes starting with 0 or 1 or 4 and going up to 0 or 1 at 1300. (Brinkley, CA)
- 8425.0 P82 calling Y9R in CW at 0038. (Dix, NY)
- 8441.0 C6N-Nassau Radio, Bahamas, with CW CQ marker at 1101. (Dix, NY)
- 8441.4 5ZF2-Mombasa Radio, Kenya, with V CW marker at 0010. (Dix, NY) *Nice catch, Jack, not reported very often.-ed.*
- 8467.6 JJC-Tokyo, Japan, with newspaper in Japanese characters at 1710. 576/60 FAX signal. (Bilodeau, IL)
- 8502.0 PPL-Belem Radio, Brazil, heard at 0338 with CW NAVAREA broadcast. (Moon, RSA)
- 8535.0 ESF-Unid station calling CQ in CW, mentioned 8401.5. (Dix, NY)
- 8686.0 CNP-Casablanca Radio, Morocco, at 2317 with CQ CW marker. (Dix, NY)
- 8695.0 UHK/UFA-Batumi Radio, USSR, with CQ CW marker at 2301. (Dix, NY)
- 8696.0 ZAD2-Durres Radio, Albania, with V/CQ CW marker at 2303. (Dix, NY)
- 8711.0 VIS65-Sydney Radio, Australia, with a CW marker at 0726. (Trigg, NZ)
- 8728.2 Monaco Radio and TV service. Musical jingle and English/French voice marker in USB at 2024. (Moon, RSA)
- 8765.4 NMG-USCG COMSTA New Orleans working CGC Laurel (on 8241.5) with inquiry about the cutter getting a copy of the test tape, same comms as on 13113.2 earlier at 0344 in USB. (Fernandez, MA)
- 8773.0 Y30/Y96 talking about RTTY comms (on same freq), couldn't get a go on RTTY so moved to Hotel 077 at 0337 in USB. (Fernandez, MA)



- 8777.B "AT&T testing HICOM 1" then "AT&T testing HICOM 2" with long count. Then the phone company's 1,004 Hz tone for four minutes at 1918 In USB. (Brinkley, CA)
- 8855.D Belem Aeradio, Brazil, In USB at 0307 working Clipper 202. 9YC-Piarco Aeradio, Trinidad, In USB at 0259 working Paramaribo Aeradio, Surinam. (O'Connor, NH)
- 8988.D Japanese comms at the same strength as other comms, suspect this may be there bull channel at 1250 in USB. (Brinkley, CA)
- 9006.0 Trenton Military working several aircraft, one with exercise data in coded form, others with flight data and coded data being passed to Trenton. Bison 05 Alpha and Bison 05 Charlie had comms in reference to an upcoming landing at Halifax (in coded form) at 0700 in USB. (Fernandez, MA)
- 9021.5 Japan Air Leader (JN51?) giving weather report to flight at 1246 in USB. (Brinkley, CA)
- 9028.0 POX working CTP with coded traffic (British accents) In USB at 0130. (Hill, MI)
- 9180.0 Piccolo type transmission station at 1538. (Brinkley, CA)
- 10075.0 Houston, Texas, LDOC working W-1926 requesting operator to make phone call for Captain Frank. A/C was located 100 miles south of Cairo. In USB at 0042. (Hill, MI)
- 10112.0 McClellan AFB GCCS working SAM 24130 but comms not good, changed to 12258.0 at 1740 in USB. (Brinkley, CA)
- 10674.7 Unid stations with scrambled traffic. Very busy channel, Wholzit? (Barnette, NC) *Coast Guard maybe, don't really know it.-ed.*
- 11210.7 Japan Navy Air to Japan Air 51 with position report at 1310 in USB. (Brinkley, CA)
- 11214.0 479L working Trenton military with phonepatch traffic for a Colonel North (*Hummmmm !!!!!! ed.*) requesting a van at airport for 15 VIPs. (Barnette, NC)
- 11226.0 Meredith calling Macaroni with radio check at 1452 in USB on X-ray 905. (Brinkley, CA)  
Reindeer working Optimist on X-ray 905 with scrambler test. Optimist had trouble keeping scrambler activated. Inclusive, Raindrop and Lollipop got on freq to offer assistance. Shortly after, all switched to 9057 with more scrambled traffic. (Michael Barnette, Huntersville, NC)
- 11288.0 MacDill AFB GCCS and SAM 204 with DV2 aboard on ground at Andrews AFB with phone patch then airborne at 1300 with another phone patch then airborne at 1300 with another phone patch to 919 area code in LSB. (Brinkley, CA)
- 11387.0 Karachi, Pakistan, VOLMET in English at 0947 followed by the Sydney, Australia, VOLMET at 1002. (Trigg, NZ)
- 12242.0 English female three/two-digit number station heard at 0305. Usually I have found this simulcast on 11463 but not this night. (Fernandez, MA)
- 12278.0 Piccolo type transmission station at 1320. (Brinkley, CA)
- 12729.0 UVA-Unid USSR station with CQ CW marker at 0002. (Dix, NY) *Anybody have any idea who this Russian is, I haven't seen anything in the ITU updates.-ed.*
- 12747.0 MIW14-Israeli Moshad number station at 2351. (Dix, NY)
- 12790.0 XEQ3-Salina Cruz Radio, Mexico, with CW CQ marker at 2307. (Dix, NY)
- 12950.0 DHJ59-Sengwarden Naval Radio, West Germany, calling C6E and C6Z in CW at 0153. (Dix, NY)
- 13015.5 IAR-Rome, Italy, with CW marker and ID/frequency marker at 0437. (Bilodeau, IL)
- 13113.2 NMG-USCG COMSTA New Orleans, Louisiana, working CGC Salvia. The cutter inquiring if they were getting test tape (cutter was on 12342.4). Comms were tough so comms shifted to 18494 but unable to copy them due to propagation conditions at 0248 in USB. (Fernandez, MA)
- 13190.7 LPC42-Ushuala Radio, Argentina, heard at 1246 in USB with a voice marker. (Moon, RSA)
- 13193.0 VIT-Townsville Radio, Australia, with phone patch traffic at 0858 in USB. (Trigg, NZ)
- 13200.0 KKN39-Department of State Radio heard at 1645 with a CW QRA marker. (Hurley, MD)
- 13218.0 Abnormal 10 (Vandenberg WSMC) to Teamwork, then to Abnormal 20 (Wheller AFB) with no answer at 1852 in USB. (Brinkley, CA)
- 13220.5 Have Quick type of frequency hopping radio comms. Hearing only partial syllables at 1314 in USB. (Brinkley, CA)
- 13282.0 KVM70-Honolulu, Hawaii, VOLMET in USB at 0957. (Trigg, NZ)
- 13324.0 Piccolo type transmission station at 1538. (Brinkley, CA)
- 13411.5 91J to any station for a radio check, VEN225 responded at 1912 in USB. (Brinkley, CA)
- 14429.0 Lubumbashi, Zaire, heard with commercial traffic in French at 1440 using ARQ. (Moon, RSA)
- 14487.0 English female five-digit number station. (Moon, RSA)
- 14915.0 5KM-Bogota Naval Radio, Colombia, with RTTY traffic to CCS Chilean Naval Radio, Santiago, Chile, at 1330. 425/75N (Hawkins, MS)
- 15684.0 FNB-Unid station with ARQ Idler and CW ID at 0030. This one is driving me nuts, any help on the ID. (Hawkins, MS) *Hugh, I think the call should be FSB and that is Interpol, Paris, France. That is what I am hearing there.-ed.*
- 15867.0 Data burst like those heard on 18594 at 2050. Found this frequency started data burst series then on to 18594 then 20890 at 2130. Also heard Almighty talking to an unid station at 0250. (Brinkley, CA)
- 16097.0 Piccolo type transmission station heard at 1537. (Brinkley, CA)
- 16463.1 ATVO-Vishva Pankaj in USB at 1925 with traffic through GKT62-Portishead Radio. Also GNZH-HMS Argonaut at 1757 working GKT62. (O'Connor, NH)
- 16852.0 3EWT5-Solomon in CW working WCC-Chatham Radio, MA. (O'Connor, NH)
- 16911.2 JNA-Tokyo, Japan, with CQ CW marker at 1952. (O'Connor, NH)
- 16982.0 KOAT calling HKMR in CW at 1120. (Dix, NY)
- 16968.0 PPL-Belem Radio, Brazil, with V CW marker at 0024. (Hawkins, MS)
- 17029.0 JMC-Tokyo Radio, Japan, at 2147 with V CW marker. (Dix, NY)
- 17038.0 URL-Sevastapol Radio, USSR, with CQ CW marker at 2330. (Hawkins, MS)
- 17086.0 DHJ59 called by VOM in CW at 0244. See 12950.0 for DHJ59 ID. (Dix, NY)
- 17227.0 UFL-Vladivostok Radio, USSR, with DE CW marker at 2035. (Hawkins, MS)
- 17907.0 VADER 42 (USAF) working New York Aeradio in USB at 1501. (O'Connor, NH)
- 17966.0 CIO2-Israeli Moshad number station heard at 1848. (Dix, NY) Heard at 0050. (Bill Burghardt, Denville, NJ)
- 18003.0 Gunspot to Albrook AFB GCCS with RTTY traffic, (this jumped all over McClellan's traffic). At 2215 in USB. (Brinkley, CA)
- 18005.0 Runningback working phone patches for Ben Hogan to Resurface, Position 1, Slowpitch, and Margate at 1909 in USB. (Laura Quarantiello, San Marcos, CA)
- 18171.0 Atlas with several phone patches from 2021 to 2111. At 2112 heard Ambush calling Atlas. (Brinkley, CA)
- 18172.0 Piccolo type transmissions station at 1337. (Brinkley, CA)
- 18193.0 Tall Boy Uniform/Tall Boy Victor with radio checks at 1920 in USB. (Fernandez, MA)
- 18405.0 RCT57-TASS Press Service Moscow, USSR, with English news bulletins about the Philippines at 1325. RTTY 425/50R. (Hawkins, MS)
- 18604.0 USIA VOA-Greenville, North Carolina, with operational memos regarding frequency changes at 1340 using RTTY 850/75R. (Hawkins, MS)  
RCD36-Prensa Latina News Service Moscow, USSR, with RTTY 425/50N Spanish news bulletins at 1435. (Hawkins, MS)
- 19154.8 Musical tones in a two stanza tune (seven then five tones), repeated in AM mode at 1912. (Fernandez, MA)
- 19234.0 Piccolo type transmission station at 1612. (Brinkley, CA)
- 22543.0 7TF-Boufarik Radio, Algeria at 1446 with CQ CW marker. (O'Connor, NH)

# The Scanning Report

**Bob Kay**

c/o MT, P.O. Box 98  
Brasstown, NC 28902



*The 800 MHz band contains plenty of action. But most scanner buffs never explore beyond the cellular frequencies. See what you've been missing in the world ...*

## **"Beyond Cellular"**

If you're a typical scanner buff, you probably haven't fully explored the 806 to 960 megahertz band. Whenever I mention 800 megahertz to someone, they immediately start talking about cellular phone monitoring. Although cellular phones can be interesting monitoring targets, they are not the only occupants of the higher frequencies.

A quick glance at an official "Frequency Allocation Chart," reveals that the world of 800 megahertz contains more than 40 categories. As you study the chart, don't be alarmed if you discover a few unfamiliar terms or abbreviations. The following paragraphs offer brief explanations that will help everyone to become successful explorers.

The "Public Safety" frequencies fall between the following ranges: 810.0 to 816.0, 821.0 to 824.0, 855.0 to 861.0, and 866.0 to 869.0. As you probably know, public safety includes police, fire and ambulance services. When you visit a city with an 800 megahertz system, the local police frequencies can be located by searching through the above frequency limits.

Business "SMR's," occupy several megahertz of the spectrum and they can be found at the following points: 816.0, 821.0 and 896.0. SMR is an abbreviation for "Specialized Mobile Radio." SMR's are privately owned radio networks that provide voice and data communications for vehicle fleets in the service industry.

The "Private Microwave" frequencies can be found between 952.10 and 952.70. Nearly every scanner buff fantasizes about monitoring microwave transmissions. In reality, the fantasy rarely comes true. Microwave transmissions are "point to point." Think of them as narrow beams of energy that are precisely aimed between two fixed antennas. Microwave signals are always directed across open air space that does not contain natural or man made obstructions. Sure, the signal can be intercepted, but it requires sophisticated gear and a thorough knowledge of microwave technology.

The "Domestic Public" frequencies that begin at 928.0 megahertz are generally used mainly for paging purposes. These frequencies contain digital paging with some clear voice transmissions. The digital signals cannot be decoded and the voice messages are usually too brief to be of interest to third party monitoring.

Finally, let's take a peek at the cellular phone frequencies between 824.0 and 849.0 megahertz. Contrary to what you're probably thinking, this is not a new group of cellular frequencies. These are the actual mobile frequencies. Most of us are more familiar with the cellular base frequencies that appear further down the chart between 869.0 and 894.0 megahertz.

It's also interesting to note that cellular phone corporations are listed as "non-wireline," and "wireline services." Companies that do not operate a public land line phone system, are referred to as non-wireline. Land line phone companies, such as Bell Telephone, that operate cellular systems are called wireline services.

As you explore the world of 800 megahertz, don't expect to find a new adventure within every category. Many of the allocations are not being used and are reserved for future use. The primary deterrent to expansion is the high cost of equipment. To install an 800 megahertz system in a large city, the price often exceeds 40 million dollars.

In cities that have been plagued by radio problems, the advantages of a repeater controlled 800 megahertz system often justify the exorbitant price. Here in the Northeast, local police communications are often interrupted by "skip." As most of you know, skip refers to the ability of radio signals to bounce between the earth and the upper atmosphere. When conditions are favorable, radio signals can "skip" into areas that are thousands of miles away, completely disrupting local communications. New customers are lured to the higher frequencies by the absence of skip and the promise of a clean, quiet and dependable radio signal.

Monitoring frequencies above 800 megahertz doesn't require any specialized equipment. For optimum results, keep your coax lead as short as possible and waterproof your antenna connection point. The higher frequencies are severely affected by long feed lines and moisture.

A good 800 megahertz antenna can be made from a standard wire clothes hangar. If you're interested, I've got a complete package of home brew antenna projects that will keep you busy all winter. For more information, send an SASE to the Scanning Report and ask for "antenna info."

To monitor the frequencies that are beyond 800 megahertz, it's not necessary to buy a new scanner radio. Any programmable scanner radio that can search between 450 & 512 megahertz will work just fine. In fact, I've been using an old PRO-30 handheld.

If it sounds too good to be true, you couldn't be more wrong. Anyone can explore the new 800 megahertz band with a home made antenna and an old scanner radio. Have fun exploring.



## Treasure Hunt

This is the last month and your last chance to win the complete, nine volume set of *Police Call*. Published by Gene Hughes, *Police Call* is one of the most popular frequency guides on the market. If you're chosen as one of our two lucky winners, you'll be the first person in your neighborhood to receive the new 1991 edition.

With the complete set in your possession, you'll be capable of tracking down frequencies in all 50 states. And if you're planning a trip, you can program the frequencies into your scanner, prior to leaving home! Here are the clues:

1. Turn to page 11, of the May 1990 issue. Look at the picture in the upper left corner. Is that a picture of Bob Kay? True or false?
2. In the July 1990 issue, locate "Bob's Bargain Bin," and provide the price for the R61C/GRR7.
3. How many people are on the front cover of the 1990 edition of "Police Call?"
4. What is the phone number to the Hyatt Regency in Knoxville, Tennessee?
5. What is the frequency for "LoJack?"

Send your answers to Treasure Hunt, P.O. Box 98, 28902. And remember, there will be two lucky winners. One of them could be you.

## Frequency Exchange

Here in the northeast, nothing is more spectacular than the brightly colored leaves of autumn. Folks living in these parts, generally travel to the New England States for the annual, "Fall Festival." Since October is the most popular month for viewing the fall colors, I figured we would join the fun. Our first stop is **New Hampshire**. Conrad Ekstrom has provided the following frequencies for our enjoyment:

31.00	MacDonald's order window, Newport
37.18	Newport public works
44.940	State Police, channel 1
44.820	" , channel 2
45.260	" , channel 3
45.220	" , channel 4
45.180	Aircraft/radar use
47.90	New Hampshire Electric
48.420	New England Power Dams on Conn. River
151.985	Telephone Maintenance, Keasarge
154.54	Claremont International Speedway
154.60	Claremont International Speedway
155.00	MacDonald's, order window to cook, Claremont
168.125	Army Corp of Engineers, flood control at Mt. Ascutney

Massachusetts is our next stop. Let's check in with WBZ-TV and speak with Nat Whittemore. Nat has provided over 1,200 Police and fire frequencies for the entire state. In addition, Nat's list includes the PL tones for many of these agencies as well. Here's a small sample of what I have:

33.80	Abington Fire/tone 203.50
483.0125	Abington Police
158.955	Amesbury Fire/tone 203.50
482.8375	Amesbury Police/tone 146.20
154.13	Belmont Fire/tone 100

## Special Purchase!

REALISTIC PRO2022 at a rock bottom price!



- 1 microvolt sensitivity
- 30-54, 108-174, 380-512 and 806-960 MHz (less cellular)
- Dual power supply for desktop or mobile use
- 200 memory channels
- 10 search ranges
- Fast 25-channel-per-second scan/search rate
- Individual-channel delay and lockout
- Four decimal place readout

**Order Now! - Only \$275 plus \$7.50 UPS in US**  
~~349.95~~ While supply lasts

## New!

### Double-life Battery Pack for your BC200XLT!

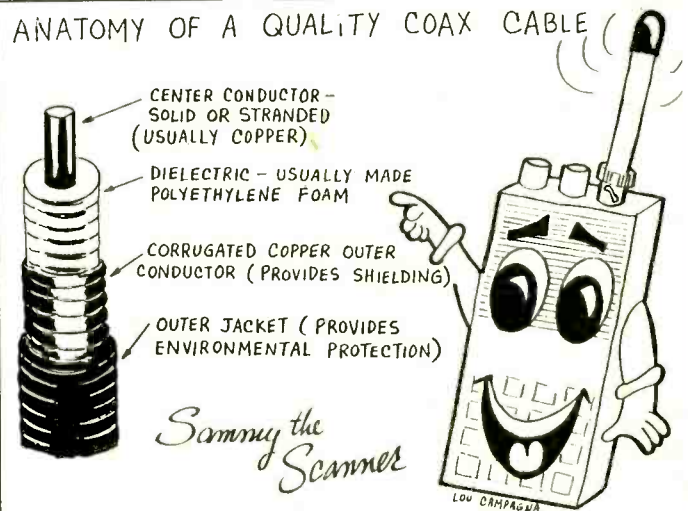
Twice the operating time for the same 10-12 hour charge. The MetroWest Pro-Pack 1200 slips right on your BC100XLT or BC200XLT to replace the original short-life pack (See MT's review, Sept, p.37). **Now only \$59 plus \$3 UPS in US.**

## Grove Enterprises

P.O.Box 98, Brasstown, NC 28902  
 MC/VISA 704-837-9200, 800-438-8155

471.4125	Belmont Police/tone 131.80
453.300	Boston housing police
154.325	Chelsea Fire/tone 114.80
470.8875	Chelsea Police/tone 131.80
154.40	Dracut Fire/tone 146.20
482.4625	Dracut Police/tone 146.20

Nat's list is arranged alphabetically, by city. Toward the end of his list, Nat has also provided a few pages of general listings:



NORTHEAST SCANNING NEWS:

212 W. Broad St., Paulsboro, NJ 08066

# The Scanning Report

37.620 Boston Gas Company  
 151.145 Statewide Police frequency/tone 71.90  
 450.1875 NBC-TV, Boston/tone 82.50  
 450.550 WBZ-TV/tone 146.20  
 455.650 WBZ-radio/tone 82.50  
 463.550 Four Seasons Hotel, Boston  
 464.100 Boston Marathon/tone 123.0

If you're interested in receiving the entire list, send \$3.00 dollars and an SASE to the Scanning Report, P.O. 98, Brasstown, NC 28902.

Anyone interested in visiting Rensselaer County, New York? Never heard of it? It's on the east side of the Hudson River, near Albany. Chris Linck, lives there, and he wants to share the following:

Rensselaer Countywide		State Police	
46.10	Fire, dispatch	154.665	Car to car
46.04	Ambulance	154.680	Car to base
46.22	Fire, truck to truck	155.370	Interagency
154.815	Sheriff, base	155.445	Base
155.340	Emergency medical	155.565	BCI
158.865	Sheriff, mobile		

As we wave goodbye to Chris, let's stop for a coffee at the home of George Fuller. George lives 7 miles north of Hartford, Connecticut, and he has provided a list of confirmed frequencies.

## Bradley International Airport

172.125 Navigational aids  
 172.175 Phone patches  
 172.900 Maintenance of airport radio  
 172.950 FAA mobile units discussing repairs

## Army Helicopters based at Bradley

41.90  
 242.40  
 393.70

## Air National Guard

34.15, 34.75, 40.05, 40.55, 40.65, 46.65 Flight channels  
 148.075 Base fuel trucks  
 149.225 Flight line  
 150.125 Base security  
 150.25 Mobile vans

Have you visited Groton, Connecticut? If not, let's drop in on Bruce Bouley, and see what he has to offer.

33.90 Groton, Fire  
 39.14 " Police  
 47.50 " ambulance  
 155.3850 Lifestar helicopter  
 158.790 Yale, campus police

In case you haven't noticed, we're returning to Massachusetts. As we near the border, turn on your scanner radios and punch in the following federal frequencies:

163.00 VA security, Brockton  
 163.20 U.S. Marshals

163.4125 Army Corps of Engineers  
 165.2375 U.S. Customs  
 414.75 Postal Inspectors  
 417.20 GSA

Many thanks to Mark Greenlaw, for providing the above frequencies. Out last stop is Mattapoisett, Massachusetts. David Ferreira has invited us to kick off our shoes and spend the night. While you're relaxing and enjoying Dave's hospitality, don't forget to check out his list of scanning frequencies:

151.7150 Ace auto body  
 154.60 Acushnet Process Co.  
 472.8875 American Eagle bus Co.  
 160.80 Amtrak/Conrail  
 463.40 Bay Cable TV  
 35.12 Benco Electronics  
 151.9250 IBM repair service  
 464.95 Midcity scrap iron  
 464.95 New Bedford gas & electric  
 152.57 New England telephone  
 462.325 Polaroid Corp.  
 152.33 Taxi, (Blue Bird)  
 461.60 Whaling City Cable TV

That's it for the Frequency Exchange. See you guys next month. In the meantime, you can invite everyone to your place by sending your favorite frequency list to, "The Frequency Exchange," P.O. Box 98, Brasstown, NC 28902.

## Scanning with Zorro

A scanner buff who calls himself "Zorro" has been helping California Police to arrest drug dealers. In Sonoma County, Zorro sent 13 tapes to his local police department. The tapes contained over two months of recorded cordless conversations between two local drug dealers. When detectives listened to the tapes, they obtained a search warrant and arrested several men for various drug violations. (Newspaper clipping sent in by "Zorro.")

## Car 54 Where Are You

In New York, the transit police are having a tough time communicating. The 25 year old subway radio system, has been breaking down on a regular basis -- sometimes for days. During these periods, transit police, who patrol the subways, tunnels and toll booths, cannot call for assistance.

According to the transit police chief, the problem has a significant impact on public safety. "If we can't reach an officer by radio, we can't stop crime."

To me, this sounds like a hot spot to monitor. If you're living in New York and have the transit police frequencies, send them to the Scanning Report, and I'll share them with other scanner buffs.

## Next Month

Don't miss the November issue. We'll travel to more of your neighborhoods and explore the mysteries of the world of scanning. The November issue also begins the last Treasure Hunt for 1990. To wrap up the year, I've got six fabulous prizes that you can win. Keep on scanning!



# RADIOSCAN

MAGAZINE

LA REVISTA INTERNACIONAL DEL RADIOAFICIONADO

*Conozca el Interesante Contenido de  
Radioscan Magazine  
¡Una revista editada en Español, para los radioaficionados!*

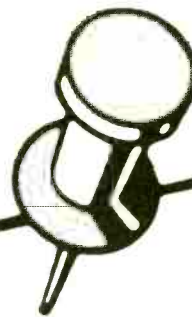
...Y ya está a la venta el libro

**"RADIOANTENAS"**

Editado por Radioscan Corporation

Ordene hoy por sólo \$9.95

(+ \$2.00 por UPS in USA, ó \$5.00 por vía aérea)



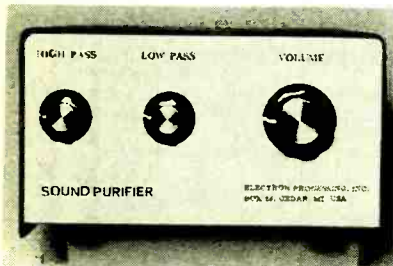
**Solicite un Ejemplar  
de RADIOSCAN Magazine**

Por sólo \$3.00

175 Fontainebleau Blvd. Suite 2K-5  
Miami, FL 33172 • Ph. 551-7225 • Fax 551-1785

*YES, we are reaching the Growing Hispanic Market  
in U.S.A and in 21 Countries.*

# what's new?



## Audio Stain Remover

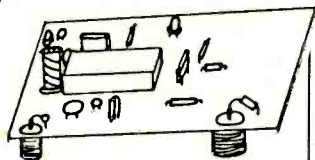
Background noises and extraneous "garbage" have always been a source of aggravation to anyone who listens to the radio. When the station that you want to hear is weak, the problem can be especially nerve-wracking.

Electron Processing is now offering an audio filter designed to improve reception of signals that are either weak or experiencing interference. The Sound Purifier makes reception more enjoyable by effectively sharpening your receiver's filters and thus eliminating the "garbage" from the sound.

Operation of the filter is easy. There are two front panel tuning controls and a handy volume knob. A potent 5-watt audio amplifier delivers plenty of sound, too.

The Sound Purifier connects between the external speaker and the receiver and is housed in a handsome 6" x 5.25" x 3" metal cabinet and is powered by 115 AC. (A mobile, 12 volt version is available for an additional \$4.00).

The Sound Purifier is just \$79.95. To get yours, send check or money order to Electron Processing, P.O. Box 68, Cedar, Michigan 49621 or call 616-228-7020.



## Tune Shortwave on your Scanner

Just about everyone who owns a scanner has at least a *tiny* interest in what's going on over on the shortwave bands -- not necessarily enough interest to go out and plunk down \$600 for a receiver. But some interest nonetheless.

Grove Enterprises has an inexpensive way for scanner buffs to sample the shortwave bands. It's the Grove Scanverter. All you need is a scanner with aircraft band coverage and a 9 volt battery.

A fully assembled module, you just plug it in and turn it on for continuous 4 to 22 MHz shortwave coverage. An easy-to-use conversion chart tells you where to tune and how to interpret your scanner's frequency readout for shortwave.

The Grove Scanverter comes complete with antenna and interconnect cable. Cabinet and 9 volt battery not included.

Get yours for just \$39.00 plus 2.50 UPS from Grove Enterprises at 1-800-438-8155 or write P.O. Box 98, Brasstown, NC 28902.

## The Warship Directory

You can't tell the players without a program." So goes the old saying and nowhere is this more true than with monitoring the current crisis in the Persian Gulf.

### The Warship Directory

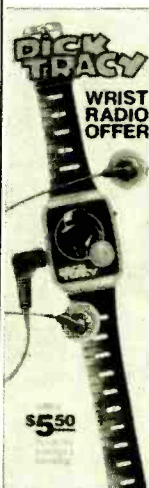


That's why the timing of James Pogue's latest book couldn't be better.

*The Warship Directory, Volume 1: U.S.-Canada-Great Britain* provides a complete listing of vessels, not only from the U.S. Navy but Maritime Sealift Command, Coast Guard, U.S. Army, research and training vessels, NOAA, Canadian Maritime Command, Canadian Coast Guard and British Royal Navy.

All are listed by vessel name and radio call; there are also radio frequency listings for shortwave and VHF, addresses and a glossary of terms.

The 90 page *Warship Directory* is available from DX Radio Supply for \$12.95 plus \$1.20 book rate shipping. The address is P.O. Box 360, Wagontown, PA 19376.



## The Dick Tracy Wrist Radio

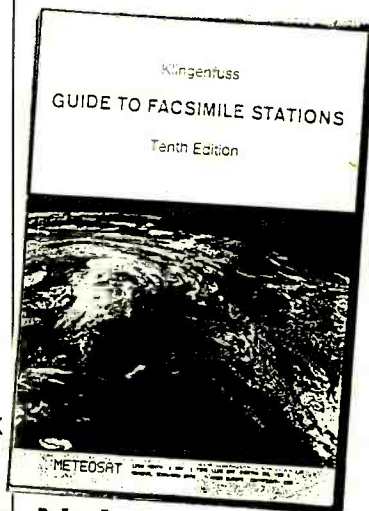
Old timers will remember the glimpse into the future that the comic strip Dick Tracy gave readers -- the

two-way wrist radio kept generations of children awe-bound.

With the success of last summer's Dick Tracy movie, it was inevitable that the flood of related merchandise would contain at least one Dick Tracy wrist radio.

There's little advertising copy with this version. It appears to be a one-way radio (i.e., an AM or AM/FM combo) complete with walkman-type earphones.

Undoubtedly available from a number of sources, we're getting ours by sending in an "official mail-in certificate" from the side of a box of Cap'n Crunch cereal. You can get yours by sending two UPC/Purchase seals from any box of Cap'n Crunch and \$6.25 (no cash or stamps, please) to Dick Tracy Wrist Radio Offer, P.O. Box 3332, Maple Plain, Minnesota 55348.



## Not a Facsimile

One of the most fascinating, yet little explored, facets of the monitoring hobby is copying facsimile photos, charts and other illustrations being transmitted over shortwave.

Perhaps two main reasons prevent most listeners from doing so. First, it requires relatively expensive accessories (special decoders and printers); secondly, most of the transmissions are oceanic weather charts.

But if you already have a computer, peripheral equipment isn't really all that expensive, and if you know where to look, you don't have to spend all your time copying weather charts from Rangoon.

Joerg Klingenfuss comes to the rescue with his latest guide, a superb collection of up-to-date frequencies and



equipment setting information. The directory portion, listed by frequency, informs the user of callsigns, agencies and contents, while the exhaustive schedule listings tell you where to tune and when.

Informative chapters describe the equipment available for FAX reception as well as the techniques to guarantee results. Over 300 crisp illustrations -- along with interpretations -- show the reader exactly what awaits the successful FAX enthusiast as well as how to read weather maps and charts.

Joerg Klingenfuss' *Guide to Facsimile Stations*, 10th edition, is 398 pages and is available from DX Radio Supply for \$24.95 plus 1.90 book rate shipping. The address is P.O. Box 360, Wagontown, PA 19376.

## The BBC World Service in Print

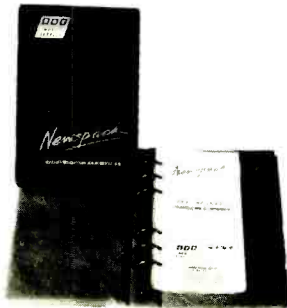
The BBC, that bastion of all that is right and good in journalism, is now hawking something called BBC-Memo Newspacks. The product is directed toward "diplomats, journalists and business communities."

BBC Memo-Newspacks are touted as "a new information system based on the small loose-leaf six-ring binder" and seem to be one-topic reports. For example, you can get a BBC Memo-Newspack on Germany (East and West), Czechoslovakia, Saudi Arabia, and the Foreign Hostage Crisis in Lebanon.

Many more titles are promised and each comes complete with a regular updating service. Each Newspack, promises the Beeb, contains "at least 10,000 facts" and is "produced to

## BBC - MEMO Newspacks

This is LONDON CALLING all diplomats, journalists and business communities!



BBC World Service editorial standards." That's good enough for us.

The ad for BBC Memo-Newspacks contains no information on price, leading us to think of the line, "if you've got to ask how much, you probably can't afford it..." If you are not wondering "how much," contact Nancy Holloway at the BBC World Service, P.O. Box 76, Strand, London WC2B 4PH, England, or call 071-257-2946.

## Fire!

Engine Company 224, respond to structure fire at 446 West 112th Street," barks the scanner speaker. For the next few hours, adrenalin flows through the veins of the exhausted firefighters as fast as the water from their hoses. If all goes well, the only loss will be things, not people. And if it doesn't go well...

In the time it takes to read this review, several fires will be intentionally set in the United States. Some of the fires will make innocent victims homeless, may cause injury or even death, and will certainly cost taxpayers tens of thousands of dollars in firefighting equipment, material and manpower.

Finding the cause of a fire is as much an art as a

## Is Your Radio Library Lacking?



**PASSPORT to WORLD BAND RADIO** The 1991 edition is here and it's better than ever. A huge compilation of who's broadcasting what when, arranged by frequency. Interesting features and Larry Magne's receiver reviews. Packed with info. **\$14.95** +\$1.55 ship.

**RADIO RECEIVER CHANCE or CHOICE Combo** Complete reviews of over 100 receivers and accessories including famous names like Grundig, Icom, Realistic, Kenwood, Sony, Yaesu, Japan Radio. Each review features a description, photo, specifications and conclusion. Needed info for buying gear. 2 vols. **\$25.00** +\$1.90 ship.

**TUNE IN ON TELEPHONE CALLS** Explains how scanners can tune in private phone conversations. Hear cordless, cellular, ship-to-shore calls, more. An in-depth look of the frequencies, services and techniques used to eavesdrop. **\$12.95** +\$1.20 ship.

**TOP SECRET REGISTRY of US GOV'T. FREQUENCIES** New 7th edition. Still one of the finest, most controversial scanner directories. Frequencies, locations, call signs, codes/signals, jargon for over 80 federal agencies. A standard. **\$19.95** +\$1.55 ship.

**SCANNER MODIFICATION HANDBOOK** 20 tested scanner modifications by communications engineer, Bill Cheek. Most mods for Realistic PRO-2004 & 2005. Easy enough for the average amateur hobbyist. **\$17.95** +\$1.55 ship.

**COAST GUARD RADIO** Exciting new book by veteran Coast Guard radioman, Jim Pogue. It's a complete listing of Coast Guard communications on longwave, shortwave and VHF frequencies. Boaters and landlubbers will find this book invaluable. **\$12.95** +\$1.55 ship.

**CITIZEN'S GUIDE to SCANNING** Columnist, Bob Kay shares his extensive experience with scanning. You CAN hear more than fire and police. Tips and insights. **\$12.95** +\$1.20 ship.

**GUIDE to OLD RADIOS** Identify old radios. Authoritative text and buyer's guide covers 3,300+ radios detailing model name & numbers, descriptions and prices. **\$16.95** +\$1.20 ship.

PLEASE SEND YOUR CHECK, MONEY ORDER, VISA or MC ORDER to

# DX Radio Supply

PO Box 360, Wagontown PA 19376

science. You learn what you can in class and in the field, but a good guide to investigation is essential.

The following two books from Fire Engineering are well written, authoritative and comprehensive. Both are well illustrated with handy indexes, and highly informative to the investigator as well as the fire curious.

*Practical Fire and Arson Investigation* by John J. O'Connor presupposes arson as a suspected cause, outlining the investigative procedure. Beginning with an overview of arson and arson investigation in the United States and continuing through the personality and motives of the arsonist, the volume examines the chemistry and behavior of fire as well as the investigative process to determine cause and origin.

Evidence collecting, examination of the fire scene, interrogation of suspects and witnesses, surveillance techniques and New York criminal law (a model used nation-

wide) are covered in detail.

*Investigating the Fireground* by Calvin Phillips and David McFadden concentrates on the fire scene and subsequent determination of cause and origin without the heavy criminal emphasis contained in *Practical Fire*. The approach is not necessarily better or worse, just different. The text covers the origination of fire and how it spreads, and goes on through the laborious, careful examination of the fire scene, with emphasis on buildings and vehicles.

It is slightly more pictorial than the O'Connor work, but includes no references to fire victims. O'Connor, on the other hand, devotes several pages -- complete with vivid photos -- to fatal fires. It would appear that Phillips and McFadden have attempted to provide a slightly more sanitized, family-oriented course in basic fire investigation while O'Connor wishes to provide the criminal investigator with clout.

To have your new product or book considered for review in *Monitoring Times*, send it to Editor, 140 Dog Branch Road, Brasstown, NC 28902.

Both books are highly informative and provide an eye-opening look into fire investigation never seen from the outside.

*Practical Fire and Arson Investigation* is \$40.50 (post-paid) and *Investigating the Fireground* is \$31.95 (post-paid) from Fire Engineering books, P.O. Box 21288, Tulsa, Oklahoma 74101.

## Computer Control for Kenwood R5000

Scanman is a computer program that allows owners of Kenwood R5000 and TS440, and Yaesu FRG 9600 and FT7576X, to control their radios by computer. The feature-packed disk allows the user to enter a frequency and then increment up or down; enter two frequency limits and search between them; scan a file of memorized frequencies sequentially or by description, including two wild cards; create and save frequency files including up to 30 bands; store unlimited numbers of files with 500 frequencies each; and switch between duplex frequencies as well.

Scanman is available in 5-1/4" disk for \$49.95 from J&J

Enterprises, 4001 Parkway Dr., Bossier, Louisiana 71112.



## Not the Same Old Radio

It's a scene that's repeated all too often in the homes of radio enthusiasts across this country. The scene is a festive birthday party. The place is Anywhere, U.S.A.. There in front of the celebrant is a pile of colorful boxes from loving family and

friends.

He rips into the first of the presents and finds a brand new, \$1,285.00 Japan Radio Corporation NRD525 receiver. Your face reddens. That's what you got him! If only you could find a gift for your favorite radio enthusiast that won't be duplicated!

Next time, give the brass-pounder an amateur radio calendar from KB1T Radio Specialties. Eighteen inches long by 11 inches wide, the calendar features full-page photos of people and events marking milestones in the history of communications. The calendar also lists contest dates, zone maps, lunar and meteoric data and other amateur-related tables.

Avoid the embarrassment of giving your favorite radio enthusiast just another expensive receiver. Give him the amateur radio calendar. Just \$10.95 plus \$2.00 shipping from KB1T Radio Specialties, Box 1015-Y6, Amherst, New Hampshire 03031.

## Tesla Coil Plans

As a small child I was spellbound by the enormous leaping sparks in the Frankenstein movies. You know what? I still am!

These special effects were not camera tricks. They were the singular accomplishment of a talented technician whose collection still remains intact.

How would you like to duplicate these feats? Imagine building a Tesla coil that generates a quarter-million volts of electricity, producing sparks over two feet long! Author Bill Evans did some forty years ago, scaring his new bride nearly half to death, so he dismantled it.

Evans' enthusiasm for the project was recently renewed and he has built an improved version, the plans (including photos and other illustrations) of which he shares with those of us who are fascinated with the cracking,

leaping electrical fire and the sharp smell of ozone.

Evans' plans include source lists as well as detailed parts descriptions and assembly instructions. Read the entire set of instructions before beginning; he adds bits and pieces of later experiments as he goes on. Evans closes his tutorial with a series of warnings about operating the device so that you don't zap your friend's pacemaker or burn down your house!

Now let's see... Where can I find a neon sign transformer, some glass plates, a few sheets of aluminum foil...

*Tesla Coil Plans* is \$10.00 postpaid from Bill Evans, 3014A West Victory Blvd., Burbank, California 91505.

## Home Cleaning Robot

Panasonic is giving consumers a peek into the future of house-cleaning..." With 1950s-style fanfare, the Secaucus, New Jersey firm has introduced a fully-automated Home Cleaning Robot.

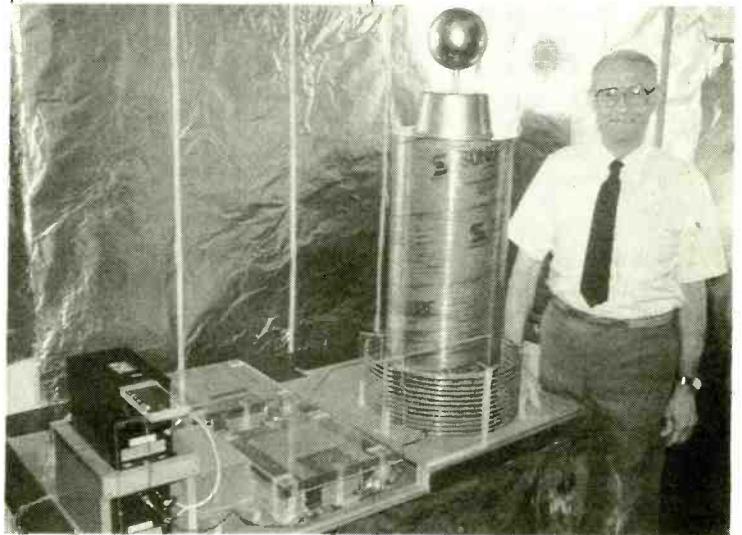
This "intelligent" vacuum cleaner is capable of performing one of the least-liked chores in all of life... learning Morse code. Whoops -- No -- Housecleaning!



The key to the extraordinary Home Cleaning Robot is its use of "fuzzy logic," a new type of technology that allows machines to make flexible decisions based on individual situations. As a result, Home Cleaning Robot -- or "HCR" as its close friends call it -- automatically moves through a room and cleans around obstacles such as furniture, planters or even randomly-placed objects. All you have to do is preprogram the size of the room to be cleaned.

HCR also has a built-in timer that allows the robot to clean while you are away on vacation. HCR cleans for up to 20 minutes and then automatically returns to its charging port. (We're looking for a version of HCR that can take offensive action should someone block its access to power.)

The Home Cleaning Robot is just 15 inches high and 17 inches in diameter, weighing in at about 40 pounds. Stop by your favorite robot store for more details.

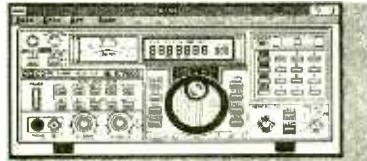




# PC Control Over ICOM™ R7000 Receiver

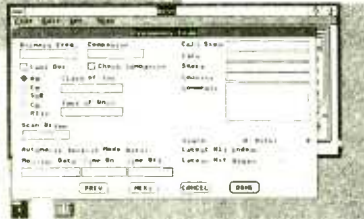
## The Remote Computer Scanning System™

The RCSS™ significantly enhances the ICOM™ R7000 receiver capabilities by providing automated PC control over the receiver scanning and memory functions.



Radio Control & Scanning Screen

Database Storage & Retrieval Screen



### Features

- Automatic detection and storage of active frequencies & other information while scanning.
- Scan using user specified Tuning Steps from 10 Hz to 100 MHz.
- Scan by Mode, Class of Service, or Type of Unit.
- Scanning now resumes upon loss of carrier with user supplied delay.
- Unattended frequency monitoring by time and date.
- Memory expanded to 1,000 frequencies.
- Monitor half-duplex communications by specifying companion frequency.
- Mouse/Keyboard driven graphic user interface.

## SYSTEMS & SOFTWARE INTERNATIONAL LTD

Demo Version Available

To order or receive more information, contact us at 4639 Timber Ridge Drive, Dumfries, VA, 22026, USA. Phone (703) 680-3559, Fax (703) 878-1460. RCSS™ is available for both IBM compatible & Macintosh computers.



## Amateur Radio 1990 Equipment Buyer's Guide



The **Equipment Buyer's Guide** gives you the edge in selecting just the right equipment for the shack, whether it be HF or VHF/UHF rigs or accessories. All the information is here in one handy, concise directory with descriptions, technical specifications, model numbers, retail prices and photographs. What do you do to get a license? How do you put a packet station on the air? What transceiver features are important to DXers? What equipment will you need for the new code-free license? These questions and more are answered in feature articles. Buy with confidence when you make your **decisions based on all the facts.**

### ORDER YOUR BUYER'S GUIDE TODAY!

Don't miss the single most valuable buying guide in the Amateur Radio field. Send only **\$4.95** today. Foreign: \$6. U.S. funds. Foreign orders are payable in U.S. funds only by check drawn on a U.S. bank, or by U.S. Postal Service Money Order.

YES, please send my copy of 1990 EQUIPMENT BUYER'S GUIDE for only \$4.95 (Foreign \$6.00) postage paid.

Date \_\_\_\_\_ Number of Copies \_\_\_\_\_

Name \_\_\_\_\_ Call \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Card No. \_\_\_\_\_  Check  MasterCard  VISA Expires \_\_\_\_\_

Signature \_\_\_\_\_

(Signature required on all charge orders)

Mail to: CQ Communications, Inc.  
76 North Broadway, Hicksville, NY 11801

## The 7 MHz Solution

John H. Watson, M.D. sat quietly reading the latest issue of *Strand* in his apartment at 221B Baker Street. His roommate was out for the morning and Watson was wallowing in the peace of passing time before the affairs of the day intruded.

Presently, the doctor was disturbed by a racket in the entranceway below. The clucking of Mrs. Hudson and the brisk ascending footsteps indicated that his friend had returned early from his adventures. The door swung open to reveal Mr. Sherlock Holmes, carrying an odd-shaped box with a brass horn protruding from its top.

Dr. Watson was seldom surprised at the unusual objects Holmes often brought to their flat. But this time his curiosity was piqued.

"I say, Holmes, just what have you got there?"

"A wireless set, Watson, a wireless set."

Watson looked at Holmes with surprise. "One of those contraptions that picks sounds out of the sky?"

Holmes rolled his eyes skyward and explained "My dear Doctor, the process of wireless communication is far more complicated than simply pulling signals from the sky. Why, information can be gleaned from the far corners of the earth instantaneously."

Seeing his friend's obvious enthusiasm, Watson asked, "Really, Holmes? And just what can you hear with this wireless set?"

*Sir Arthur Conan Doyle you're not, Uncle Skip.*

Okay, okay . . . before I get myself drawn and quartered by The Baker Street Irregulars or The Master's Class, let me move on to a serious answer to Dr. Watson's question.

When most folks acquire their first shortwave receiver, they can be somewhat overwhelmed by the many marvelous and mysterious sounds that come out of the speaker. In addition to voices and music, one can hear all

manner of clicks, beeps, hisses, swishes, tones, moans and what sounds like a poor imitation of Donald Duck. Now this can be very confusing to someone beginning the monitoring hobby, not just because these sounds are new, but also because you just can't help thinking that you are missing out on something.

In an effort to help everyone become more familiar with what's out there in the air, let's take a look at a 1 MHz chunk on the HF spectrum and try to figure it all out. Everyone break out their general coverage receivers and dial up 7 MHz while we all take a trip through

### UNCLE SKIP'S GUIDE TO WHAT YOU'RE HEARING

Now people in the know are already whining about how crowded the 7 MHz band is. But this is exactly why we are going to give it a whirl, Bunkey. This little piece of radio paradise gives us a chance to identify most of the things you can hear in the HF bands. Fertile ground for finding the sounds, don'tcha know.

#### AM Broadcast

May as well start with the obvious, right? Most people latched on to their first world-band radio for the purpose of turning in broadcasters from foreign lands. These are the voices and music that you can hear as you spin your dial through 7.100-7.300 MHz commonly called the 41 meter shortwave broadcast band.

But first, tune up 7.325 MHz during the evening and you can probably hear The World Service of the BBC. Try 7.345 MHz to pick up Radio Prague International, Czechoslovakia. Or dial up 7.520 to hear WHRI, Noblesville, Indiana, to get a taste of the growing number of domestic stations.

You have probably noticed that these three stations are slightly outside the 41 meter band.

True enough, but they are very easy to hear and recognize, you can then use them as a guide to examine other SW Broadcast stations throughout the band. May they also serve to remind you that band edges are artificial constructs and many wonders can be found just slightly over the edge. You will be likely to log broadcasters up through 7.400 MHz. Actually, if you spin up into the neighborhood of 7.400-7.415 MHz on

weekend evenings, you may just log one of several domestic "Pirate Broadcasters."

Be sure to take some time to listen to how SW AM sounds different from the AM radio in your car. On the shortwave bands you will hear signals fading in and out. Patience in listening to a signal that is less than perfect will often reward you with a new logging. Take your time with a signal.

#### CW Code Transmissions

While Continuous Wave transmissions are becoming an anachronism, many folks still enjoy transmitting via the international Morse code.

Tune around between 7.000 and 7.150 MHz. You will hear short beeps or buzzing sounds that come across as, you guessed it, dots and dashes. If your receiver has a CW button or a BFO (Beat Frequency Oscillator) turn this on for better reception.

Also if your receiver has variable filters, you can separate out the various code transmissions by setting things to the narrowest position. The signals you are hearing in this portion of the band are Amateur Radio operators communicating with one another.

If you want to understand what these folks are saying, you will need to learn the code. It's fairly simple. Purchase a code instruction tape from one of the advertisers in the pages of *MT*. You should be able to learn all the letters at a slow speed, 5 words per minute, with a few minutes practice every night for about a week.

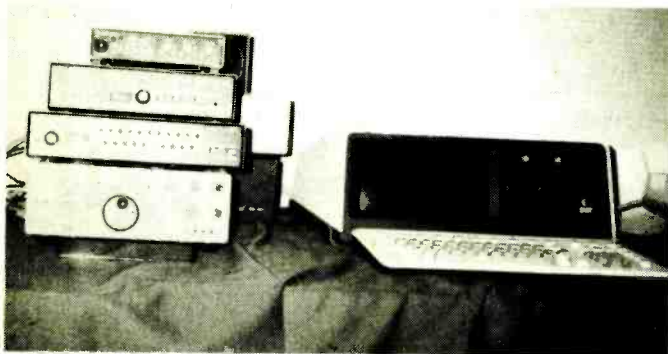
Once you have done this you can listen in on the hams that occupy the 7.100 to 7.150 portion of the CW frequencies. This is where novice code operators are allowed to transmit. As your ability to copy code increases, you can tune back down through to 7.000 MHz where the high speed, extra class, ops hang out.

By the way, once you have picked up the code you are half way to your ham ticket, why not go all the way and join in the fun of amateur radio?

#### SSB the Radio Duck

Did you happen to notice that sound that comes across like Donald Duck with a mouthful of marbles as you tuned through the broadcast frequencies? 7.150 through 7.300 is also the single sideband section of the United States 40 meter amateur radio band. Hams can transmit either upper sideband (USB) or lower sideband (LSB) but convention dictates that they will be using LSB on forty meters. If not, do not despair, so long as you have a BFO (that thing you used to make code sound better) you can turn that on and tune it until you clarify the SSB signal into something that sounds more like a human voice.

As you listen you will hear hams talking about just about every subject under the sun. Folks with common interests will congregate together and form nets to share information. A



Hams make use of home computers and demodulators to send and receive RTTY and packet radio.



directory of all current nets is available from the American Relay League, Inc., 225 Main Street, Newington, CT 06111, publication #027-5, \$1 plus shipping.

But if you want a taste of net operations you might give a listen to the SWBC DXing net heard every Sunday morning on 7.240 MHz at 10 a.m. Eastern Time. Not only will you hear ham radio operations, you will pick up lots of tips to improve your shortwave DXing. Double your pleasure, folks.

You will also hear SSB transmissions (both USB and LSB) throughout the 7.300-7.999 portion of the band. These are commercial and government stations. Two great sources for identifying all these folks are *The Shortwave Directory* by Bob Grove, published by Grove Enterprises and the *Klingenfuss Utility Guide*. Klingenfuss Publications, both available from many of the advertisers in *MT*.

### RTTY and Packet -- beetles and crickets

While tuning through the CW portions of the ham bands, you may have heard a sound that can best be described in writing as "Beedle beedle beedle beedle beedle." It sounds sort of like something you would expect to hear out of a video game.

Or you may hear something that sounds like a Gieger counter out of one of those 1950s-type science-fiction movies. For this sound, if you turn on your BFO and CW switch you hear it turn into the beedle beedle beedle sound. These are amateurs communicating using radioteletype (RTTY).

While RTTY has been around for decades and has mainly been used by commercial entities and the military, home computers have allowed many hams to begin to enjoy this mode where in the past they had to resort to surplus mechanical teletypes.

If you wanted to actually monitor the RTTY communication, you would need a home computer, a demodulator and a bit of expertise gleaned from Jack Albert's *READING RTTY* column. Beyond this I make mention of RTTY signals mainly to let you know what they are. There are hundreds of commercial, government and military RTTY signals in the 7.300-7.999 MHz band. I refer you again to the books listed under the SSB heading.

Now if you tune over to 7.0833 or 7.0913 with your CW/BFO switch turned on, you will hear crickets chirping. These bugs are hams using the newest form of communication available to them, packet radio. Packet is a marriage of the computer and the radio. You will also hear packet crickets in the government frequencies as well because the military had been using it for years. I guess this is called technological trickle down.

Kind of makes you want to look into getting hold of the hardware to hear it, huh?

### Time Signals

If you will just be so kind as to tune into 7.335 MHz you will hear the steady tick tick ticks and beep beep beeps of radio station CHU, Ottawa, Canada. You can tune this up every listening session to make sure your QSL reports will be accurate. Time signal stations can be heard throughout the shortwave spectrum, but CHU is very popular among hams and powerful enough to hear with even a modest receiver.

### Spy Numbers

If you have read even one issue of *MT*, you have probably become aware of these strange stations that just come on the air and spout a mess of numbers. What are they? Spys? Conjecture about the whys and wherefores of numbers stations have kept more than one member of the DX press gainfully employed.

Our trip through 7 MHz will give you a chance to hear some bonafide radio intrigue. Try 7.445, you will hear a woman repeating Kilo Papa Alpha Two over and over again. 7.525 will give you a woman giving five number groups in Spanish. 7.532 will turn up groups of five numbers in German. Loggings by numbers enthusiasts have identified over 25



## MIL-SPEC COMMUNICATIONS

P.O. Box 461 Wakefield, RI 02880 Call Today (401) 783-7106

### Military Surplus & New Communications Gear



Covering DC to Daylight at Discount Prices!



- AR-2515 Wide Coverage Scanner .....\$679
- AR-3000 Scanner .....\$895
- AR-900 Scanner w/cellular .....\$256
- ICOM R-71A HF Scanning Receiver .....\$850
- Collins R390A (Reconditioned/Calibrated) \$750\*
- Japan Radio NRD-525 .....\$1,150
- Sony ICF-2010 .....\$349
- Sony ICF-7600 .....\$220
- Sony Pro-80 .....\$350
- RACAL RA-6790 (GM)/R-2174 .....CALL
- AR-1000 Scanner .....\$455
- 3TF7 Ballast Tube - Brand New! .....\$40
- Bearcat BC-200XLT - w/Cellular restoration .....\$275

\* Cost includes Federal Express Shipping

### FREE DELIVERY TO YOUR DOOR!

WE OFFER REPAIR SERVICE • MANUALS • BROKERING  
PROFESSIONAL MONITORING STATION  
SEND \$2.00 FOR CATALOG CREDITED TO PURCHASE

frequencies between 7.300 and 7.999 that are fertile ground for this odd radio practice.

*MT* columns like "The Outer Limits" and "Utility World" will show you where the numbers are. But as you listen to our examples within the 7 MHz band, remember that patience is a virtue. Numbers stations can come on for a few minutes and remain silent for hours.

### Is that all there is?

Not by a long shot, Pal.

I didn't even bring up spread spectrum, pulse or data encryption. Radio communications are constantly changing as new technologies are developed. Keep an ear peeled to 7.300 MHz from time to time. This is a frequency used by stations granted experimental licenses to develop new radio technologies. You may just tune in a bit of the future.

### One Band Wonder

You don't have to limit yourself to just 7 MHz when you are beginning to feel your way around the radio hobby. Old Uncle Skip just picked that portion to suit his fancy. However, there is some value, for the beginner, in staking out a megahertz or two and getting to know it really well. By gaining expertise over a small segment of the entire shortwave spectrum, you will lay a foundation of experience to help you to listen intelligently throughout the rest of the bands. This hobby can easily overwhelm you, Compadre. Give yourself a chance to grow so you can really enjoy it.

And as Holmes finished telling "his Boswell" all there was to hear on the wireless set, what else could Watson do but utter those words he has said so often after a conversation with his friend: "Amazing Holmes . . . simply amazing!"

"Not at all my dear Watson." And Holmes turned his full attention to the wireless set as the Doctor looked on.



# Texas Military Monitoring

Everything is big in this state. Ten gallon hats and wide open spaces notwithstanding, you can also include the number of military installations within its borders when you talk about "big."

This state houses two Strategic Air Command (SAC) bases and Carswell and Dyess Air Force Bases (AFB). San Antonio could be called the military city vice the Alamo city as it is ringed by several major military installations including Lackland AFB, home of the US Air Force Recruit training installation.

Yes, this month we are going to take a look at the Lonestar State, Texas, as seen and heard by the readers of *Monitoring Times'* Federal File. Federal listening here is almost as big as the state itself.

Ben Saladino starts things out from the Dallas-Ft. Worth area. Ben says that the military aircraft band (225-400 MHz) is one of his favorite bands. Without further ado, here is what Ben has put together.

- 243.0 Worldwide Emergency/ELT
- 282.8 Search and Rescue
- 332.0 DFW Departure East
- 319.2 DFW Regional
- 239.0 Addison Airport Twr
- 280.9 Bell Helicopter
- 255.9 Carswell AFB (SAC) Twr
- 257.8 Civilian Common
- 340.2 NAS Dallas Twr (Pri)
- 360.2 NAS Dallas Twr (Sec)
- 239.3 Love Field Twr
- 383.1 Majors-Greenville Twr
- 265.6 Robert Gray AAF Twr
- 272.6 Sheppard AFB Twr
- 236.6 USAF All
- 271.6 Carswell AFB ATIS
- 278.0 NAS Dallas ATIS
- 239.8 Altus AFB Metro: weather
- 373.1 Barksdale AFB Metro
- 375.2 Bergstrom AFB
- 342.5 Carswell AFB Metro
- 255.4 Dallas/Ft. Worth Radio-FSS
- 344.6 Dyess/Randolph AFB Metro
- 272.7 Military Metro: weather
- 275.8 Carswell AFB Ground
- 382.8 NAS Dallas Ground
- 348.6 Love Field Ground
- 335.8 Majors Greenville Ground
- 336.4 Army Reserve/National Guard
- 241.8 National Guard Austin CP
- 300.75 Air National Guard Ops Dallas
- 242.6 National Guard NAS Copters
- 300.0 NAS Dallas
- 263.5 NAS Dallas Ops
- 271.4 NAS Dallas GCA
- 311.6 NAS Dallas GCA
- 305.4 UHF/DF Common Military
- 243.5 Carswell AFB
- 252.1 Carswell AFB Reserves
- 339.1 Carswell AFB Approach Rad
- 395.8 Carswell AFB GCA TAC Emer
- 303.0 USAF Chase Planes
- 349.4 MAC Altus AFB/Dyess CP
- 372.0 MOA
- 260.2 Aerial Refueling Backup
- 311.0 SAC Pri-Carswell/Dyess CP
- 321.0 SAC Sec-Carswell/Dyess
- 376.0 USAF Pilot-to-Dispatcher

- 372.2 USAF PTD-Randolph/Sheppard
- 314.2 TAC CP-Bergstrom
- 381.3 TAC CP Tinker AFB
- 338.0 USAF Thunderbirds
- 236.6 USAF Thunderbirds Air-Air
- 382.6 Tinker AFB Flight Test
- 361.6 Secret Service Uniform AF1
- 296.8 Space Shuttle
- 259.7 Space Shuttle
- 279.0 Space Shuttle EVAs
- Aerial Refueling Tracks:
  - 238.9 (AR-13) 276.5 (AR-102A) 344.7 (AR-104) 235.1 (AR-112) 289.7 (AR-114) 293.0 (AR-313)
- Carswell AFB GCA channels:
  - 340.7 371.2 379.3 392.0
- Navy Blue Angels Flight Demo Team:
  - 241.4 250.8 360.4 384.4 391.9 395.9 275.35 (A/C 1-4) 251.6 (A/C 5 and 6)
- General Dynamics Contractor:
  - 284.1-Pri 292.5 349.6 349.7-Sec
- DFW Regional Approach/Departure Control:
  - 269.1 379.9 309.8 322.1 397.2 252.9 227.8 225.7 372.1 256.7 338.2 364.0
- Fort Worth ARTCC Center:
  - 270.0 306.6 364.8 (*That is a special use airspace channel, Ben?Rod*) 380.3 Abilene/Brownwood-269.4 Ardmore-322.4 Blue Ridge-254.3 377.1 397.9 Brownwood MOA-346.3 Clinton/Sherman-363.1 Dublin-353.7 289.9 El Dorado-317.7 Frankston-265.1 Hobbs/Midland A-385.6 Keller-317.4 360.6 380.2 MOA (Rod-?)288.3 Marshall-269.2 327.8 McAlester-250.4 278.3 387.0 Midland A-269.0 Monroe/Shreveport-271.2 Oklahoma City-298.9 Paducah/Wichita Falls and A-319.8 354.0 Scurry-287.9 363.2 Texarkana-284.6 357.6 381.4 Waco-269.5 Wichita Falls A-278.5 Wichita Falls B-360.7
- Houston ARTCC: 269.0 343.9 Lufkin-269.9

**Notes/Abbreviations:**

- AR-### Aerial Refueling Track designation
- CP-Command Post
- SAC-Strategic Air Command
- ARTCC-Air Route Traffic Control Center
- GCA-Ground Control Approach Radar
- IFE-In Flight Emergency
- MOA-Military Operating Area
- PTD-Pilot to Dispatcher

Wewwww! Ben, that's quite a list of military aircraft activity in your area. I have added tags on some frequencies more to help update your list; hope it helps you and our other readers.

Ben also included a list of call signs he is hearing from the Metroplex area.

- Blue Thunder
- Cowpoke Control
- Mudbug Control
- Ranchman
- Raymond 24
- Raymond 28
- Hunter Ops
- Super Ops
- Hunter ##
- Lazer ##
- Opec ##
- Phoenix ##
- Spaz ##
- Swift ##
- Viper ##
- Bacon ##
- Bullseye ##
- Chill ##
- Choose ##
- Cowboy ##
- Elite ##
- Ethel ##
- Hawk ##
- Jambo ##
- Luger ##
- Pacer ##
- Spad ##
- Super ##
- Token ##
- Bergstrom AFB CP
- Carswell AFB CP
- Bardsdale AFB CP
- Dyess AFB CP
- Tinker AFB CP
- Bergstrom AFB CP
- VF-201 NAS Dallas
- VF-202 NAS Dallas
- F-14s (VF-201)
- B-52s
- KC-10s
- C-130s
- KC-135s
- C-21s
- F-16s (General Dynamics)
- C-130s
- F-15s
- B-52s
- F-16s
- F-4s (Marines NAS)
- KC-10s
- KC-135s
- B-1s
- B-52s
- B-52s
- C-21s
- F-4s (USAF)
- F-14s (VF-202)
- T-37s

A big Texas thank you to Ben for his great list and now it's time to move south to College Station where Bill Pritchard checks in with his Texas list of frequencies in Table 1. Bill has been an Aero monitor for years and uses his trusty MX-5000 and now a new PRO-2005. He is a licensed pilot and has been around air traffic control for about ten years. Bill says that being a Texas resident, I (and lots of readers) have plenty to listen to. There is no doubt about it, Bill; Texas is big on frequencies. Here are various call signs Bill has logged as well:

- F-4s: Corvette ##/Speed ##/Sucko ##/Golf ##/Kodak ##
- B-1s: Hawk ##/Mason ##
- C-130s: Horse ##
- KC-10s/DX-135s: Pecos ##/Intern ##
- Lima/Omaha: US Customs aircraft

Bill says none of his list is hearsay. It is all from FAA-DOD Defense pubs and is completely accurate. Bill would also like to get some US Customs VHF/UHF frequencies for his area. If anybody over that direction can help, drop me a line. He has confirmed 163.625 as a border patrol

**Table 1**

Laughlin AFB	Twr	396.0	App/Dep	259.1		Houston Center	346.4
Kelly AFB	Twr	320.1	App/Dep	353.5		Houston Center	281.5
Randolph AFB	Twr	258.3	App/Dep	391.2		Houston Center	307.3
Dyess AFB	Twr	295.7	App/Dep	338.3,	322.3	Ft. Worth Center	269.4
Sheppard AFB	Twr	272.6	App/Dep	308.6		Ft. Worth Center	319.8
Reese AFB	Twr	291.1	App/Dep	351.8		Ft. Worth Center	362.3
Bergstrom AFB	Twr	255.6	App/Dep	363.8		Houston Center	343.9
Carswell AFB	Twr	255.9	App/Dep	309.8		Ft. Worth Center	377.1
NAS Dallas	Twr	340.2	App/Dep	372.1		Ft. Worth Center	377.1
NAS Kingsville	Twr	346.0	App/Dep	383.6		Houston Center	281.5
NAS Corpus	Twr	340.2	App/Dep	363.1		Houston Center	353.6
Ft. Hood AAF	Twr	229.6	App/Dep	244.0		Ft. Worth Center	353.7

- Aerial Refueling Routes: AR-113 283.9 AR-167 235.1
- FAA Flight Service Stations: 255.4 (Common)
- Army Helicopter Operations: 41.5 (NBFM)



frequency. (Bill, that one is a repeater output.-Rod) and he would also like some FBI info for his area.

Bill, I recommend you check for customs on 165.2375 (R/out) and look in the 163.8 to 164.0 area for FBI repeaters. You should have at least an FBI repeater in your area as I do show an office. If you don't find any Customs comms, see if your local phone book has a local listing. No listing, no comms.

In fact, for all our Fed File monitors, a check in your phone book's government pages is an excellent way to find who you might hear in the federal ranges. Don't start looking for a State Department channel if you don't have an office in the area. You will get dead air unless a foreign dignitary comes into your area.

Thanks again, Bill, and yes, I would like some pictures for the column. Sounds like a neat hobby.

Continuing south now on IH-35, we roll into San Antonio and check in with another Bill (sorry, I could not read your last name). Here are a few Alamo city channels that Bill has put together.

- 41.5 M.A.S.T. (That is the military medical helo system, right.-Rod)
- 138.025/.075/.175 USAF OSI (Office of Special Investigations)
- 138.500 Randolph AFB SPs
- 138.900 Randolph AFB SPs
- 141.925 ATC Commanders (mobility?) (??-Rod)
- 142.350 M.A.S.T.
- 149.175 Kelly ground maintenance
- 149.205 Kelly AFB Cargo
- 149.250 Kelly AFB Disaster Preparedness
- 149.325 Town Patrol (??-Rod)
- 149.475 Lackland AFB SP training
- 149.535 Military Medical Network
- 150.225 Kelly AFB DET forwarding net
- 150.345 Kelly AFB Commander's Net
- 163.460 Lackland AFB SPs
- 163.487 Randolph AFB SPs
- 163.560 Lackland AFB Ambulance net
- 163.338 Military ??
- 163.510 Lackland AFB Base Commander's Net
- 163.538 Military ??
- 163.585 Lackland AFB Emergency (Base taxi)
- 164.200 Kelly AFB SPs
- 165.015 Kelly AFB Electronic Sec Command
- 166.225 Lackland AFB Fire
- 171.100 Kelly SPs
- 173.560 Kelly AFB Fire
- 233.500 M.A.S.T.
- 409.050 Lackland AFB SPs training
- 409.900 Lackland SP
- 413.075 Kelly Security Net
- 413.150 Kelly Security Net
- 413.175 Lackland AFB Base Commander
- 413.200 Air Guard
- 413.275 Kelly AFB Commander
- 413.325 Lackland AFB Commander

Thanks, Bill, for the list and sorry I could not read your name. Now we are going to move north again to Wichita Falls and Sheppard AFB. Tom (last name held at his request) sends in a great list for the base and surrounding area. This is a SAC bomber and tanker dispersal base so Tom, you might see some big aircraft in the base from time to time practicing a dispersal exercise. Without further ado, Sheppard AFB:

## For Military Monitors Only

**T- shirts designed exclusively for M.T. readers by M.T. author Steve Douglass**



Cobra Belle 100 Mission Shirt: Packed with eavesdropping gear, the men of the 55th SRW who fly these dangerous missions call it "Ticking the Bears tail" and is the inspiration for this colored hand silkscreened shirt.



Giant Talk Shirt: B-1, B-2, B-52 Bombers surround this colored hand silkscreened design & even the Giant Talk frequencies are listed.

100 % Cotton, White Only  
State Size S,M,L,XL  
Add \$3.00 Handling Charge  
6 to 8 weeks delivery  
Money Orders Only

**ONLY \$12.00**

**Monitors Only**  
6303 Cornell  
Amarillo, Texas 79109

- Approach/Departure: 261.7 292.3 294.7 308.6 324.5 341.5 349.0
- Area Monitor: 335.9 390.9
- Tower: 272.6 283.7 338.9
- Metro: 344.6 Ground: 289.4
- Clearance Delivery: 289.0
- ATIS: 269.9 PTD: 372.2
- "Rag Top": 261.1 "Press On": 292.9
- Other frequencies heard/usage unknown: 264.8 279.7 318.1
- Ft. Worth FSS: Wichita Falls Remote-255.4
- Security Police: TAC 1-139.925R/141.775M TAC 2-138.475
- Fire Department: 173.025
- Hospital: ER/Ambulance-170.375 172.300-Paging
- OSI: 138.075R/141.525M "Saturn Base" 138.175
- Commander's Net: F1 139.625R/138.900M phone patches F2 139.850R/138.275M
- USAF MARS: 143.450R/142.150M and 143.950 simplex
- Other Departments: ??? - 139.650 (lones) 148.095 163.4875 (command post?)
- Aircraft Maintenance: 148.475 173.6125
- Command Post: 163.325
- Command Sqdrn: 173.5375 Paging: 407.475
- Civil Engineering: 163.5875
- Transportation: 165.1375 Base Ops: 173.4375
- Listed channels but nothing heard yet: 149.475 163.4625 173.5125 173.5875 413.150 413.450
- Army Corps of Engineers: 163.4375
- FAA: channel 7 172.825R/169.225M
- NOAA NWS: 162.475 and 410.100 link to 162.475
- Archer City NAVSPASUR: 216.980 uplink to space 143.5R/142.5M Maint
- FBI: D1 163.9375R/167.5125M
- Wichita Falls can be linked to Dallas-Ft. Worth office via microwave.
- Ft. Sill, Oklahoma: 164.100 MP5 34.5 30.5 38.58 Range Control

### Command Jets End 29 Years of Flights

Boy, did I do a double take when I read that headline. George Neff sent it to Gayle Van Horn, who forwarded to me this article concerning the USAF Looking Glass aircraft. The article which appeared in the Tampa Tribune says that the Looking Glass aircraft will no longer stay in the air continuously. With President Bush's approval and no fanfare or advance public notice, the last uninterrupted string of flights landed at Offutt AFB in mid-summer.

Since the first of the flights at the beginning of the cold war, one of several EC-135 planes -- a military version of a Boeing 707 -- has been flying over the United States at all times. These aircraft act as an emergency command post should a surprise attack kill top US political and military leaders.

As soon as one plane would land, the next one would take off, but that practice has now ended. The amazing part of the story is that the squadron flew more than a quarter of a million flight hours of accident free flying.

The Looking Glass aircraft will now remain on ground alert and fly random sorties each week. An Air Force spokesman told me, "The roles and responsibilities of the Looking Glass aircraft have not changed, only the alert posture."

The Air Force says that by putting the Looking Glass on the ground during reduced tension, they can save some money. With that, it's time to get a cold cubo to go and check the scanner for more Middle East traffic. See ya in 30.







doing considerably more than that. In many instances, he'll also point out aircraft to the radar controller, acting as a second pair of eyes, so that nothing gets by him that shouldn't.

Another controller who may be involved is called a "tracker." If a position gets extremely busy, he will plug in and track the airplanes, make all the computer entries, and also answer some of the land lines. This way, the radar controller only has to watch the radar and talk to the aircraft he's working. Sometimes, there will also be an air traffic assistant on a position. They do not work airplanes, but handle the flight strips (the strips which have pertinent information on each aircraft worked by the controllers) and other noncontrolling duties.

"Centers' control areas are usually spread over parts of several states. For instance, Indy Center's airspace includes parts of Indiana, Illinois, Ohio, West Virginia, Kentucky, Virginia and Tennessee. Each center is divided into areas of coverage. This center has five areas of coverage, which are labeled A, B, C, D and E (see chart).

These areas are subsequently divided into sectors, with at least one VHF/UHF frequency pair (there are 43 VHF and 46 UHF frequencies here) to a sector. Transmitters/receivers for these frequencies are remoted to 18 sites, so that every inch of the center's airspace is covered, no matter how far a sector may be from the center facility itself.

The sector's airspace is designated as follows: Low -- surface to flight level 230, hi -- flight level 240 and above, and when traffic gets really busy in the higher flight levels, the high side is divided again from FL 350 on up to the limits of controlled airspace, which is Flight Level 600. On the Saturday and Sunday midshift -- and other times when traffic isn't very heavy, sectors are combined and a controller may be working three or four frequencies, though usually with less of a aircraft workload than he would have during peak traffic times.

"The number of controllers at an enroute center varies depending on the size of the facility. At the Indy Center, there are 325 controllers. Approximately 180 of them are at full performance level, with an additional 30 or so qualified to work some of the positions, probably all of the manual controller functions, or "d" side as we call them.

"As the system is still in the process of recovering from the strike back in 1981, there's a lot of training going on here as well as at other facilities. Training for developmentals (neophyte controllers) from the academy normally starts out on the manual positions, and they have to qualify on all of them, radar as well as manual to become an FPL. Of course, even a Full Performance Controller transferring here from another ARTCC would have to qualify on all of the positions and learn the center's coverage.

"The Air Traffic Controller workforce at all of the facilities is fairly young, with the average

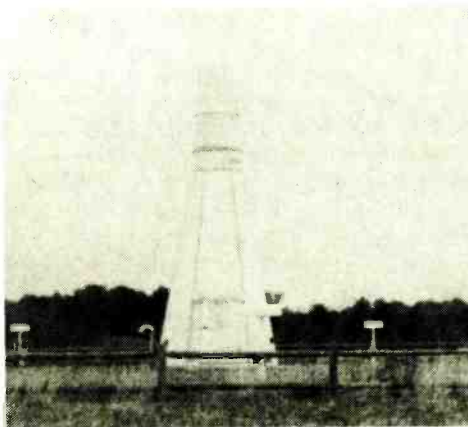
age of an FPL being around 32 or 33. They're fairly highly paid, bright and are the cream of the crop.

"It will be interesting as well as challenging to be part of the new system of air traffic control that is coming us very soon. Technology and new developments will change a lot of things, but controllers will still be involved and I'm going to be looking forward to what the future will bring."

Thank you, Tom Parks. We appreciate the interest you've shown and assistance given to "Plane Talk" over the years.

## The Readers' Corner

• In our June column, Bill Battles, New Hampshire, asked what type of aircraft was utilized by the FAA's Flight Check trips. Laura Quarantiello, California, tells us that they're North American Sabreliners -- white with blue stripes -- and have the FAA logo on the vertical stabilizer.

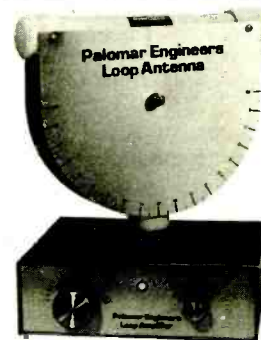


• This navigational aide (located in Yarmouthport, Massachusetts) photo was contributed by Bob Holmes, Rhode Island, who wanted to know if it was a legitimate FAA navaid and was it used by both military and civilian aircraft.

I was pretty sure that it was a VORTAC station but sent the photo to Bert Huneault, Canada, for confirmation, as he provides us with a lot of technical assistance. Bert agreed that it was indeed a VORTAC, which is a TACAN (Tactical Air Navigation) station collocated with a VOR. The military use the TACAN portion, which is similar to a UHF VOR/DME facility. For convenience and economy, TACAN stations are combined with VOR navaids at many transmitter sites -- thus the name VORTAC.

• Bruce Bruemmer, Minnesota, tells us that he monitored Aeroflot 4130s (heavy) approach and departure at Minneapolis/St. Paul International Airport when Soviet President Gorbachev visited the Twin Cities on June 3. The airport was closed to other traffic for about 20 minutes before his arrival and the same conditions prevailed before his departure.

## LOOP ANTENNA



Loops pick up far less noise than other antennas. And they can null out interference. Palomar brings you these features and more in a compact desktop package. The wideband amplifier with tuning control gives 20 dB gain. Plug-in loops have exclusive tilt feature for deep nulls. Loops are available for 10-40 kHz, 40-150 kHz, 150-550 kHz, 550-1600 kHz, 1600-5000 kHz and for 5-16 MHz.

Model LA-1 Loop Amplifier \$84.95. Plug-in Loops (specify range) \$69.95 each. Add \$4 shipping/handling in U.S. and Canada. California residents add sales tax.

# PALOMAR ENGINEERS

BOX 455, ESCONDIDO, CA 92025  
Phone: (619) 747-3343

Bruce says it was very interesting to be able to hear all this, but one thing he couldn't understand was why the captain of Aeroflot 4130 (heavy) seemed to have a Tennessee accent.

• NOVAIR -- mentioned in our June column is no longer on the air. Bill Battles, New Hampshire, says that it lasted for about six weeks, then folded and the radio equipment went up for sale. Too bad, but the contract stations which are in operation now are sufficient in number to provide service to the world's airlines. Newcomers would have to have something extra to offer in order to take business away from the other services. Obviously NOVAIR didn't have it.

• While on a recent trip to Atlanta, I revisited our friends at Atlanta (Eastern Airlines) Flight Support (featured in the August 1989 column). They send their best wishes to all the MT readers and some of them may attend our convention.

That's it for this time. Coming up is the long-awaited look at American Trans Air, an interview with the radio operations manager of Delta Air Lines (the official convention airline), a visit to an ATC Tower/TRACON, microburst and windshear problems and other subjects of aeronautical interest.

Until then, 73 and out.





# Monitoring "Amateur TV" Signals

While it's commonly known that you can hear ham operators, few people realize that you can also see them on the television. Along with a variety of other modes, the Federal Communications Commission also allows hams to send TV pictures.

Known as "ATVers" (amateur television), these hams transmit and receive "live" fast scan TV images "over-the-air" just like your local commercial TV station. These can be in black & white or full-color with sound. Unlike your local commercial TV station, however, you'll find some pretty strange programming is transmitted on the ham TV bands late at night and early in the mornings. You are liable to see just about anything. In fact, there are those who say that ham TV could give *America's Funniest Videos* a real run for their money!

What type of TV pictures do ATVers send? They send "live" pictures, home-movies, pet tricks, on-the-air construction or building projects, video from remote planes, boats and trains, weather radar relayed images from the National Weather Service, and more. They use outdoor cameras mounted at high places, run "mobile and portable" and even send signals launched from weather balloons at 100,000 feet!

Several of these balloon flights have already been conducted in Indiana, Ohio, Arizona, Kansas, Tennessee, Illinois and Florida. When one of them goes up for its two hour flight, you can watch the ham TV pictures that they're sending for about 300 to 400 miles! Watch *Monitoring Times* for advance information on future flights.

Ham TV is not restricted to the stratosphere, either. Two upcoming space shuttle flights (STS-35 and STS-37) are expected to send ham TV signals back from

space! Dr. Ronald A. Parise's long-delayed mission is expected to carry, among other things, slow-scan TV pictures (still-framed images in color) and it is believed that Lt. Col. Kenneth D. Cameron, scheduled to fly aboard STS-37 later this year or early next, will be equipped to receive (and, many of us believe, transmit) ham TV pictures from specially authorized ground stations.

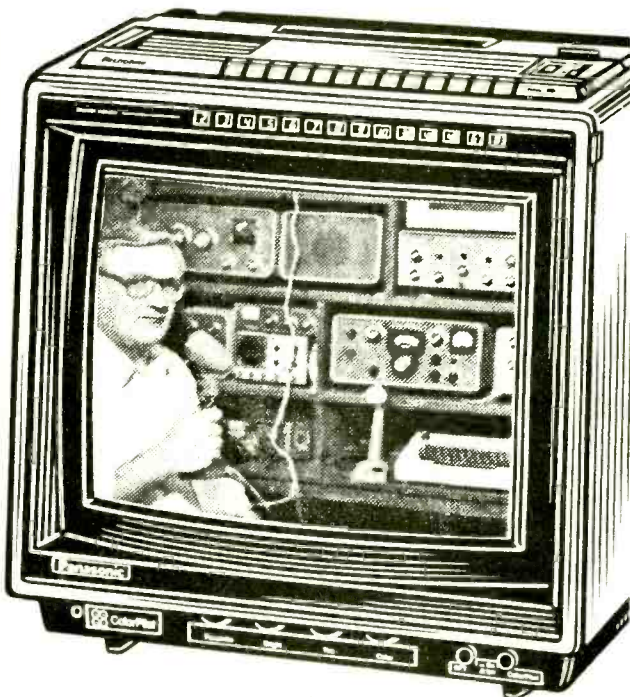
Some ham FM radio repeaters on VHF relay NASA Select Space shuttle audio. To see if there is a ham radio FM repeater near you that is retransmitting this information, program your scanner to "scan" from 144.0-148.0 MHz. Tune in and join the fun!

Even ordinary ham TV signals can travel over great distances on UHF when the band is just right (DX). My 439.250 MHz TV signal here in Iowa has traveled across Illinois, Indiana to Ohio -- over 470 miles -- more than once! Most hams transmit 100 watts of power on high-gain beam antennas so the signals are quite viewable with modest receive equipment. It is really neat to be able to "see" someone waving back at you from several states away!

What interest is this for you non-hams? Good news! You, with your shortwave monitoring station, can receive these signals if ham TV activity exists in your area! How can you tell when ham TV is on-the-air? You won't find it listed in *TV Guide* or your local newspaper TV show listings. You'll have to do what you do best - monitor. Set your receiver to tune just below UHF TV Channel 14 in the 420-440 MHz band.

You may also want to purchase the *North American National ATV Directory* (\$5.95 plus \$1 postage, from Spec-Com Communications, P.O. Box 1002, Dubuque, IA 52004), which lists over a thousand operators with maps of active locations. With this list you will be able to tell what system is in your area and even what UHF-TV frequency they transmit on.

If you have a cable-ready TV set or VCR, you might be able to tune in the hams on Channels 57-60 without buying additional equipment. You will need to disconnect your cable feedline, however, and hook up an



Clyde Miller WB4AOH, Owensboro, KY

outside UHF TV antenna. Some TV's and VCR's tune far enough below Channel 14 to get HAM-TV signals directly.

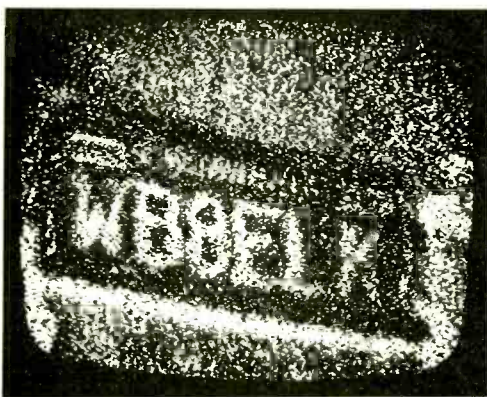
Of course, there are special antennas and preamps that "boost" signals available for ham TV reception. Contact John Beanland at Spectrum International, Inc., P.O. Box 1084A, Concord, MA 01742. Their catalog is

**UNITED STATES ATV SOCIETY \$5.95**

**NORTH AMERICAN  
ATV DIRECTORY GUIDE!**

A PUBLISHED LISTING OF REGISTERED PSTV OPERATORS, CLUBS, REPEATER  
AND OPERATING FREQUENCIES IN THE U.S.A., CANADA & MEXICO.

Photos by Dave Williams WB0ZJP



1988 478 mile record DX signal, from Bill Brown WB8ELK in Findlay, OH, to Mike Stone WB0QCD at Lowden, IA



available for 3 stamps or 75 cents.

Hams themselves use inexpensive little black boxes called "down converters" to receive FSTV signals. These devices are similar to your cable-TV boxes. They convert 420-440 MHz TV signals to Channel 3 or 4 on your TV set. Don Miller W9NTP of Wyman Research (RR#1 Box 95, Waldron, Indiana 46182) manufactures these down converters in kit, assembled board, and ready-to-go units. They start as low as \$39.00 for a kit and \$89.00 for already-built units.

Give him or his wife Sue a call at (317) 525-6452. They are nice people and can answer a lot of your questions about receiving ham TV signals. Always be sure to mention *Monitoring Times* when requesting ham-type information from any of these sources.

Interested? If you would like a VHS format, 6-hour videotape of Ham TV activity from 1980-1990 here in the USA, send \$49.95 plus \$1.50 for postage and handling to USATVS Videotape Duplication Service, c/o of Buddy Olson, Route 2 Box 154A, Maquoketa, IA 52060.

In our next column, we'll talk about intercepting and viewing Amateur Radioteletype, slow-scan TV and WEFAX data signals at minimum cost! Hint: Go out to your local Radio Shack Store and buy one of their



HAM-TV'er Fred Sharp at his Cleveland, Ohio, ATV station

discontinued COCO TRS80 Color II Computers. They are cheap! I've seen them selling for as low as \$25.00-50.00.

You do not need an expensive CCTV monitor, any standard B/W or Color TV set will do. Several neat low-priced programs exist that you can load by cassette, that require absolutely no interface -- just an audio wire from your shortwave receiver

(nothing else to buy!).

Get a COCO, get somewhat familiar with it, and we will broaden your shortwave monitoring capabilities to printing out ham and shortwave broadcast radioteletype signals on your TV screen and printer! Till next time, America... WB0QCD.

mt

#### GUIDE TO FACSIMILE STATIONS 1990

10th edition - June 1990

400 pages - \$ 33.- or DM 50.-

The FAX mode gets more and more fascinating. The recording of FAX stations on LW and SW and the direct reception of meteo satellites is no longer an esoteric science. New hard- and software connects a radio receiver directly to a laser printer. The result is press photos, satellite pictures and weather charts with the superior resolution of more than 2000 picture elements per scan line.

The new edition of our FAX GUIDE contains not only the usual up-to-date frequency lists and transmission schedules, including those of all US Navy stations worldwide. It informs you particularly about new FAX converters and programs on the market, and includes the most comprehensive international survey of the "products" of weather satellites and FAX stations from all over the world. More than 300 sample charts and pictures were recorded in 1989 and 1990. Here are that special charts for aeronautical and maritime navigation, the agriculture and the military, barographic soundings, climatological analyses, and long-term forecasts, which are available nowhere else.

Additional chapters cover

- List of 389 frequencies - from VLF to UHF - monitored in 1989 and 1990.
- Exact schedules of 98 FAX stations on 357 frequencies.
- Comprehensive list of geostationary and polar-orbiting meteo satellites. Schedules of GOES-East and -west (USA), GMS (Japan), and METEOSAT (Europe).
- Technique of FAX transmission. International regulations.
- Lists of abbreviations, addresses, and call signs. Test charts.

Further publications available are GUIDE TO UTILITY STATIONS (16th edition) as well as RADIOTELETYPE CODE MANUAL and AIR AND METEO CODE MANUAL (10th / 11th editions). We have published our international radio books for 20 years. They are in daily use at equipment manufacturers, monitoring services, radio amateurs, shortwave listeners and telecommunication administrations worldwide. Please ask for our free catalogue, including recommendations from all over the world. All manuals are published in the handy 17 x 24 cm format, and of course written in English.

Do you want to get the TOTAL INFORMATION immediately? For the special price of \$ 146 / DM 230 (you save \$ 25 / DM 40) you will receive all our manuals and supplements (altogether more than 1500 pages!) plus our CASSETTE TAPE RECORDING OF MODULATION TYPES.

Our prices include airmail postage to everywhere in the world. Payment can be by \$ or DM cheque, or cash. Dealer inquiries welcome - discount rates and pro forma invoices on request. Please mail your order to

Klingenfuss Publications  
Hagenloher Str. 14  
D-7400 Tuebingen  
West Germany

## Sophisticated Monitoring

### UNIVERSAL M-7000



If you are monitoring only voice shortwave stations, you are missing half the action! Thousands of shortwave stations transmit in non-voice modes such as Morse code, various forms of radioteletype and FAX. The Universal M-7000 will permit you to easily intercept and decode these transmissions. This is the most sophisticated surveillance decoder available. No computer is required. See the world of shortwave excitement you have been missing. From \$999.00.

### UNIVERSAL M-900

For those desiring to copy the basic modes (Morse code, Baudot, Sitor A/B and FAX), we suggest the affordable M-900. From \$499.95

## Huge New 1990 Catalog

The new Universal 88 page communications catalog covers everything that is new for the amateur, shortwave listener and scanner enthusiast. Equipment, antennas, books and accessories are all shown with prices. Available for \$1 postpaid.

**Universal Radio**  
1280 Aida Dr. Dept. MT  
Reynoldsburg, OH 43068  
☎ Toll Free: 800 431-3939  
☎ In Ohio: 614 866-4267

Universal has been serving radio enthusiasts since 1942. Visit our large showroom east of Columbus, Ohio.



## AIRCRAFT TRAFFIC

American Samoa-Hawaiian Airlines #461, SELCAL BCFM (DC-8), 6553 kHz USB. Full data prepared form card, photos of the aircraft, and a route chart. Received in 6 days for an English utility report, souvenir postcard and return postage. Airline address: Hawaiian Airlines, Box 30008, Honolulu, HI 96820 (Rick Albright, Merced, CA)

South Atlantic-RAF Lockheed Tristane Tanker, Ascot #3482, 11234 kHz USB. Partial data prepared form card with "#216 Squadron" (Brize Norton, UK) date-stamp. Also received a color photo of the aircraft and a friendly letter. Verified by G.A. Hannam, Flight Lt. Airline address: c/o HQ 1 Group, RAF Upavon, Pewsey Wiltshire, SN9 6BE, United Kingdom (Rick Albright, Merced, CA)

## ALGERIA

Algerian Press Service, 14922 kHz USB. Partial data friendly typed letter, with frequency schedule included. Verification signer, E.Hargas, Director Des Techniques. Received in 30 days for a utility report and one U.S. dollar for return postage. Station address: 7, Boulevard Che Guevara, El Djaza'ir, Algeria, Africa. (Hugh Hawkins, Port Gibson, MS)

## ASCENSION ISLAND

Haven Radio, RAF Communication Station, 11234 kHz USB. Partial data prepared form card with unit stamp and a color postcard of East Crater. Received in 41 days for an English utility report, a souvenir postcard, and return postage. Station address: Officer in Command, Comm Flt., RAF Ascension Island, South Atlantic (Rick Albright, Merced, CA)

## DOMINICA

Dominica Broadcasting Corp. 595 AM. Partial data form letter with glossy tourist brochure, verified by George James, senior technician. Received in 60 days for an English AM report and 2 IRCs. Station address: P.O. Box 1, Victoria St., Roseau, Commonwealth of Dominica, West Indies. (Randy Stewart, Springfield, MO)

## FRENCH POLYNESIA

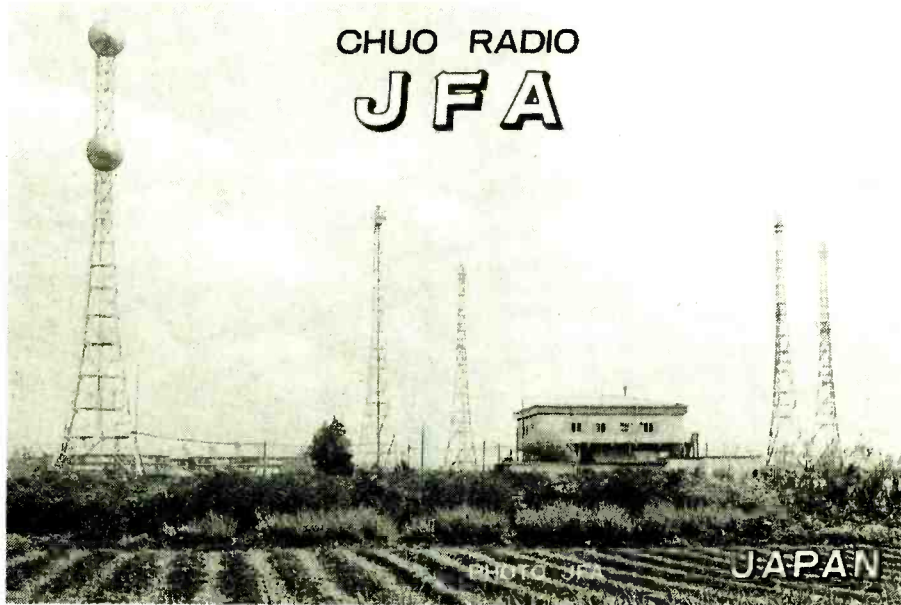
Tahiti FUM-French Naval Radio, 12664.5 kHz USB. Full data prepared form card, with illegible verification signer. Received in 131 days for an English utility report, souvenir postcard and return postage. Station address: Chef du Radio Electrique marine Nationale en Polynesia, Papeete, Ile de Tahiti, French Polynesia, Society Islands, (Dick Moon, George, South Africa) (Mike Hardester, Okinawa, Japan)

## ICELAND

Icelandic National BC Service, 15770/13855 kHz. Full data scenery card, with station stamp. Illegible verification signer. Received in 26 days for an English report. Station address: Efstaleiti 1, 150 Reykjavik, Iceland. (Darren White, New Augusta, MS) (Tim Johnson, Galesburg, IL) (Earl Bailey, Oakland, CA)

## HUNGARY

Radio Budapest, 9835 kHz. Partial data QSL card, without verification signer. Received in 40 days for an English report and one IRC. Station address: P.O. Box 1, H-1800 Budapest, Hungary. (Fraser Bonnett, Fairborn, OH) (Nick Terrence, Huntington, NY)



Thanks to Hugh Hawkins for this CHUO QSL from Japan, for which he waited two years.

## ITALY

RAI, 9575 kHz. Five (!) no data scenery cards, without verification signer. Station pennants, poster and Italian recipes. Received in 56 days for an English report. Station address: Viale Mazzini 14, 00195 Roma, Italy. (Michael James McFerrin, Fair Haven, MI)

## JAPAN

JFA-CHOU Gyogyo Radio, 8547.5 kHz USB. Personal letter and colorful data scenery card, verified by Mr. Masato Amano. Received in two years for an English utility report. Station address: Central Fishery Coast Station, 21-20-3, Futawahigashi, Funabashi-City, Chiba 274, Japan (Hugh Hawkins, Port Gibson, MS) *Hank informs me that this station had recently moved -- hence the QSL delay, and the above address is the most current one. Thanks, Hugh.-ed.*

JJY-Japan Time Standard, 8000 kHz. Full data special 50th anniversary QSL card, without verification signer. Received for an English utility report and two IRCs. Station address: Communications Research Laboratory, 2-1 Nukui-kitamachi 4-chome, Koganei-shi, Tokyo 184, Japan (Norman Anderson, Santa Ana, CA)

## PIRATE

Voice of Bono, 7413 kHz. Full data orange paper QSL, verified by Gary Daniels, and an unintelligible signature from "Bono" (the family dog). Received in nine days for an English report and mint postage. Station address: P.O. Box 6527, Baltimore, MD 21219 (Tim Johnson, Galesburg, IL)

## SHIP TRAFFIC

Orchid II-DZSI (log and bulk carrier), 500 kHz. Full data prepared QSL card. Received in 46 days for an English utility report and return postage. Ship address: Perseus Shipping Company, Ltd., Koyo Building-3rd floor, 10-17 Hamamatsucho, Minato-ku, Tokyo 105, Japan (Hank Holbrook, Dunkirk, MD)

Havfalk-LAKZ2 (bulk carrier), 156.65 MHz. Full data QSL card and photo of ship. Received in 26 days for an English utility report, and return postage. Ship address: Havtor Ships Management, P.O. Box 1374, Vikka Oslo 1, Norway. (Hank Holbrook, Dunkirk, MD) *This is Hank's 288th Norwegian ship QSLed and the first one he has heard in many years, as most are now on satellite.-ed.*

Timbo-5MOP (turbo electric tanker), 500 kHz. Full data letter. Received in 17 days for an English utility report, and return postage. Ship address: Rector Shipping Company, Inc., 132 Nassau Street-Room

1320, New York, NY 10038 (Hank Holbrook, Dunkirk, MD)

Phassa-ELFD5, (tanker), 500 kHz. Full data letter. Received in 41 days for an English utility report and return postage. Ship address: M/T Phassa c/o Embiricos Shipping Agency Ltd., Commonwealth House, 1-19 New Oxford Street, London WC1A, United Kingdom (Hank Holbrook, Dunkirk, MD)

Eleni M.-9HRQ (bulk carrier), 500 kHz. Full data prepared QSL card. Received in 90 days for an English utility report and return postage. Ship address: Thennmaris (Ships Mgt.) Inc., P.O. Box 70087, Voreoy 2, Kavouri, Glyfada 16610, Athens, Greece (Hank Holbrook, Dunkirk, MD)

## SWEDEN

Radio Sweden, 17880/15295 kHz. Full data scenery card, verified by Claude Stephenson. Received in 18/24 days for an English report. Station address: S-105 10, Stockholm, Sweden. (Tim Johnson, Galesburg, IL) (Nicholas Adams, Newark, NJ)

## UNITED ARAB EMIRATES

Voice of the U.A.E., 13605 kHz. Full data QSL folder card, verified by Ahmed A. Shouly. Received in 65 days for an English report. Station address: Ministry of Information and Culture, Box 63, Abu Dhabi, U.A.E. (Randy Stewart, Springfield, MO)

## UNITED STATES

WGCM-Gulfport, Ms-1240 AM. Full data letter, verified by Howard Yund, C.E. Also enclosed a station info sheet. Received in 18 days for an English AM report, and return postage. Station address: 2200 15th Avenue, Gulfport, MS 39501 (Larry Van Horn, New Orleans, LA)

WYFR-Voice of Free China relay, 5950/21720 kHz. No data QSL card, program schedule, and souvenirs, without verification signer. Received in 23/25 days for an English report. Station address: P.O. Box 24-38, Taipei, Taiwan, Republic of China (Joseph Davis, Canton, MI) (Nicholas Adams, Newark, NJ)

## VANUATU

Vila Aeradio, 6553 kHz USB. Full data prepared form card stamped with the airport seal, without verification signer. Received in 33 days for an English report, souvenir postcard and return postage. Station address: Vila Aeradio, Pacific Building, Port Vila, Vanuatu, Central Pacific (Rick Albright, Merced, CA)

## NextDay Reception Reports

Two-Color Printing  
Rainbow Cardstock  
100 200 300  
\$19.95 \$24.95 \$29.95

Specify • Receiver  
• Antenna  
• Your 40-Word Personal Message

• Command Attention • Send Clear Reports • Speed Replies • Save Time •  
Box 50062-M • Provo, UT 84605 • AntennasWest



## H.F. Packet: Here to stay or is it glorified RTTY?

When packet radio was first introduced in the late 70s, many hams felt that it was just a glorified form of RTTY. Now that the IBM PCs and the IBM clones are becoming more popular in the ham shack, packet systems are becoming more sophisticated in the VHF bands. RBBS's, Gateways and Digi-peaters are improving local area networks.

In spite of the many improvements, however, packet on shortwave (HF) is still less than adequate. Some HF packet channels are overcrowded and filled with a deluge of retries. Retries are retransmissions of packet data when errors are encountered by the receiving station. The problem is caused by several reasons.

First, packet radio is designed to detect when another station is sending data on the same channel. This doesn't always work because it is possible for two stations to send a packet at the same time. When they transmit the packet at precisely the same moment, the carrier detector in the terminal node controller (TNC) doesn't have time to respond. They will then interfere with each other causing "hits" or errors.

If both transmitting stations are connected to a far end receiving station, the receiving stations will send a request to repeat the packet. The repeated packet is then sent by the transmitting stations, but a delay, which is random, is set up in the TNC. This delay will cause one of the transmitting stations to wait a little longer and if all goes well, one of the packets will be successfully received.

This scenario works fine on VHF when the channel noise and fading is at a minimum. Unfortunately, popping noise and fading is a reality on shortwave. The probability of receiving the next packet error free is slim.

Second, frequency control is another problem. On VHF the tones are sent as an audio FSK signal and the channel frequency isn't a problem with an FM signal. HF, on the other hand, has a problem when the audio FSK signal is connected to an SSB transmitter. The audio tones as well as the transceiver's dial setting determine the transmit frequency.

Most hams use modern transceivers on HF. But some older rigs may have a problem transmitting on the same frequency as the receiver indicates. Older rigs are also plagued with frequency drift. There are some hams that use LSB and 1600/1800 Hz tones with their receivers set to 14.105, for example. Other hams are using 2110/2310 Hz tones



The Kantronics KAM has "Gateway" and "Node" capabilities to the HF bands.

with a dial setting of 14.101. They think they're 4 kHz apart but the frequencies actually overlap by 100 Hz.

I have tried on several occasions, when signals were 59+ (very strong), to connect to a bulletin board on 30 meters. Unfortunately, I had very little success. I was trying to download a file but I got disconnected. A packet station connects to another in the same way a telephone modem connects to an "On Line Bulletin Board." Instead of wires, a radio channel links the two stations together.

Using a Kantronics KAM, a Yaesu FT227 2 meter rig and a Kenwood TS-440 HF transceiver, I decided to operate a "Gateway" to 30 meters. A gateway is a feature that is available on a two port TNC like the Kantronics KAM. The HF radio connects to one port and the VHF rig to the other.

Both radios can be operated on either band from the computer or by another packet station via the gateway. I was able, for example, to connect to a station on HF and converse via the keyboard with a friend across town at the same time on VHF. The friend was also able to use my Gateway to connect to even another station on HF. Multiconnects are possible on packet because the TNC can "Switch Streams." It's almost like having several phone lines connected to your computer through several modems.

If you are a shortwave listener, you can copy packet radio using your M7000. But first you will need to make a few adjustments. The M7000 defaults to the Bell 103 standard using 300 baud packet (300 is used on HF). The tones are 1270 Hz for mark and 1070 Hz for the space tone.

Change the tones to 1600 Hz for mark and 1800 Hz for space using the RCa and RDa keys. These tones appear to be the standard for most TNCs operating on HF. Tune in the

frequencies listed below using LSB mode. I found the frequencies may vary about 20 to 30 Hz on a given night.

There really isn't a band plan for packet radio but it appears that the spacing is 20 kHz. It also appears that the carrier frequency is every odd kHz starting at 3 kHz but my dial setting appears to be 50 Hz lower on all channels. My equipment isn't at fault because I checked calibration against WWV. When I tried to use the nearest kHz setting on 30 meters, a station connected to me and said I was 50 Hz too high. He did agree that everyone should move up 50 Hz but he never explained why they were too low.

NNN

### Amateur HF Packet Frequencies (300 baud)

**40 meters**  
7,090.95 kHz  
7,092.95  
7,094.95  
7,096.95

**30 meters**  
10,142.95 kHz  
10,144.95  
10,146.95  
10,148.95

**20 meters**  
14,102.95  
14,104.95  
14,106.95  
14,108.95

**VHF PACKET (1200 baud)**  
144.95  
144.01  
144.03  
144.05  
144.07

# Squeezing the Golden Goose

Since the beginning of satellite delivered programming, it has been the dream of many a would-be Rupert Murdoch to corner the market on such delivery, sit back and collect the monthly checks from the consumers. The procedure is so easy it's almost scary.

## How DBS works

Forget what you've read about antique definitions of Direct Broadcast Satellites. Whatever the ITU might have pronounced years ago is laughably irrelevant now. The fact is DBS is whatever it is now and right now it is a C-band service to Americans who have big clunky 10 foot antennas in their backyards.

To reach this audience you have only to lease the necessary number of transponders on any available satellite, secure programming (movies, sporting events and the like), find a workable encryption system to avoid unauthorized reception and start beaming away. What could be simpler?

## Ghost of USCI

That's the question they asked back in 1983 at United Satellite Communications Inc. (USCI). USCI was the first attempt at DBS. Using a Ku-band delivery scheme and selling the hardware through Radio Shack stores, USCI sought to entice viewers with the obvious advantage of utilizing small three foot diameter reflectors to receive basic cable and premium movie programming.

Yet 18 months later the company was bankrupt and thousands of dish owners were without any service. What has changed in the last seven years to assure today's investors that the same fate won't await their money?

## TVRO grows up

The biggest problem USCI faced was that it was charging for programming on Ku that C-band dish owners were getting for free. It's impossible to fight that kind of competition. Secondly, it was offering too little programming. By 1983 most cable systems were offering more than five channels of programming. Given the choice it was hard to convince consumers to pass up the variety on cable for the restricted programming on USCI. In essence, there was no value offered to the consumer.

Since then much has changed in the satellite TV industry. The advent of scrambling in January 1986 made it necessary for consumers to begin paying for programming that had been "free." The



availability of dozens of new channels made the variety of satellite delivered TV more than a match for cable. The additional years brought an average of 25,000 new dish owners per month. The market base was expanding.

## Feeding frenzy

Nor did this coming of age go unnoticed by those whose business it is to make money from such opportunities. Waiting in the wings for the situation to be certified was a veritable zoo of big time investors. The certification was issued by none other than Mr. Murdoch himself. Without waiting to ascertain if his Sky Channel in Britain would succeed and apparently in need of even more tax write-offs than your normal billionaire, Murdoch announced his U.S. version: Sky Cable.

Crawling out of the woodwork came all manner of consortia, conglomerates, partnerships and loose-knit allies. Within weeks news spread of as many as 11 DBS players ready to get lest they be left choking on the dust of yet another Murdoch miracle.

## The players

Following the tradition of all sports, here's a scorecard so you can see who's playing.

Sky Cable -- NBC, Hughes Communications, News Corp. Ltd. (Rupert Murdoch) and Cablevision Systems, Corp.

USSB (United States Satellite Broadcasting) -- Hubbard Broadcasting, Pitway Corp., Cable TV pioneer Burt Harris, Nationwide Mutual Insurance and Nationwide Communications.

K-Prime Partners -- GE American Communications, TeleCommunications, Inc. (TCI), Cox Cable Communications and other MSOs (multi-system operators).

TVN -- formerly known as Touch Tone

Video. AT&T and Uniden America, among others, have teamed up to get a head start on all the others. Some six or seven other entities have also indicated they will seek their fortunes in the DBS mines.

## TVN advantage

Unhappily for the others TVN has quite an advantage in the run for the consumer's buck. With the help of AT&T, TVN has control of 11 channels on TelStar 303. Using channel 24 as the barker channel (with the 6.20 MHz audio being used as the SBCA's Information Net) TVN hopes to entice dish owners to sign up for its service. Channel 13 is a running commercial for the Uniden receiver and other related gear while channel 20 is a color bar demonstration of the Leitch scrambling system. The other channels are promos for up-coming films which TVN has apparently been licensed to show.

Still, TVN remains deep in the woods. Trying to convince consumers who already own satellite systems and already subscribe to extensive program packages at less than the quoted TVN prices to shell out more for yet another descrambler is asking a lot. To ask these same consumers to pay \$4 per movie for films that are available from video stores at half the price is asking too much.

In addition, TVN is having its own difficulties. As of this date they have yet to sign any of the cable basic programmers to their service. Industry rumors have them skirting financial problems.

So certain are all of these players in the success and huge profit margin just waiting for them that basic facts in numbers seem to be eluding them. The known TVRO universe is only 2.5 million. The start-up costs and operational costs of such a DBS venture are enormous. TVN must be banking on a huge increase in monthly dish installations to make a go of it. It appears to be the same bed of quicksand into which the investors at USCI fell some seven years ago. It's hard to believe that 18 months from now TVN will be the great TVRO success story.

## TRANSPONDER NOTES

The Discovery Channel (G1-22) and The Nashville Network (G1-2) have scrambled full time.

CTI, the company which has been testing its CD-18 turned CD-30 audio service for over a year, has apparently been taken over by Jones Intercable. Jones, which has had its



Galactic Radio services on S3-11 for some time, is now simulcasting its programming on the frequencies on which CD-30 were. It's interesting to see what happens to the competition when the big bucks start flying.

KBL Entertainment Network (\$2,19) is VCII encrypted showing sports programming of Pittsburgh area.

Heil news: Bob Heil, K9EID, of Heil Sound says his new SCPC receiver is in production. Improvements over the older model are said to be an equalization circuit to improve the audio, stereo tuning and a mechanical counter for a frequency reference. Bob also says to look for an eight page supplement in this month's issue of *Orbit* magazine on TVRO related audio products and systems.

The American Home Satellite Association has a zoning information package to dish owners and dealers. For those who are struggling with zoning ordinances, this could be what you need. Cost is \$40 to nonmembers and \$25 for AHSA members. For more information write: AHSA, 16 Broadway, Valhalla, NY 10595 or call 800-321-2472.

Arianespace is scheduled to launch Hughes Communications, Inc.'s SBS-6 and Galaxy 4 satellites this month. This is an extremely important launch for the satellite programming services. Next month they plan to launch GE Americom's Satcom C1 and GSTAR 4. The future for satellite television for the next ten years may depend on a successful launch.

Action Pay-Per-View is the name for a new PFV movie service on S3,6. Encrypted via the VCII Plus it will remain unavailable to the home dish market until the Plus market reaches the 60,000 mark. Films on this service are said to be of the B variety with the accent on action. Curiously, according to the July 11, 1990, issue of *Satellite Business News*, Action President Rick Blume was in on the beginning of the USCI service.

Chuck Dawson, originator of the now defunct F.U.N. channel, a scrambled adult movie service, and founder of K-Sat (now C-Sat) the grassroots anti-scrambling radio service, has recently put his new International Breeders Network off the satellite while financial problems are worked out. Some guys just can't hold a steady job.

## HDTB update

Next to the race for DBS supremacy is the race for acceptance of a High Definition Television (HDTV) standard. Two top players in this game are Zenith with its "Spectrum Compatible" system. Zenith defines HDTV as "improved picture

resolution, essentially twice the horizontal and twice the vertical resolution achieved by the current U.S. TV broadcast system (NTSC), improved audio comparable in sound quality to an audio compact disc, and reduced picture noise."

Almost everyone else will add that improved aspect ratio (screen height to width) that will have the same dimensions as a film screen is also essential. The trick is to get all this and still fit the signal into the current standard 6 MHz wide TV channel bandwidth. This Zenith has done. And so has its biggest rival.

General Instrument Corporation's VideoCipher Division has recently received the go ahead from the FCC's Advisory Committee for testing an HDTV standard. GI's big difference is that it not only compresses the HDTV signal into the required 6 MHz but it also encrypts the signal along the way. Dubbed DigiCipher by the poets at GI, the company hopes to get the nod from the FCC for its HDTV standard.

## Miles to go

Should you throw out all your old TV sets and rush out for the HDTV sets? Not yet. It turns out the FCC Advisory Committee won't even submit a report with recommendations until September 1992. Until then all manufacturers will have these projects on hold. I wouldn't anticipate any production sets out and in use before 1995.

In the meantime just imagine how many DBS services and new discoveries in HDTV technology will come along. My mind is bogged.

Incidentally, Zenith is also said to be working on what it calls a "flat tension mask" high-resolution color display.

## Coming attractions

There is no end to the imagination of cable programmers. The following is a list of channels planned for the near future. I'm not making any of this up.

Golden American Network -- This is for the over 50 set. From the folks who brought you the Nostalgia Network. Look for it April 1991.

The SCI-FI Channel -- to be launched on the new Satcom C4 bird. No exact date.

In Court Television -- "Live coverage of today's most newsworthy courtroom trials, from political to criminal to environmental. Plus expert legal analysis and commentary." No exact date.

Talk TV Network (TTV) -- "All talk, all day, all live." OK

SportsSouth Network -- It's from Atlanta, it must be, you guessed it: Ted Turner.

## Improve Your World Image



## PC HF FACSIMILE 4.0 \$99

A complete facsimile reception system for the IBM PC or Compatible. Receives up to 16 intensity levels.

**Includes:**  
Demodulator Software  
Frequency List  
80 Page Manual  
Tutorial Cassette  
Interpretation Guide

**Features:**  
Print on Epson, or HP Laser Jet  
Disk Save, Zooming, Image processing  
Unattended Image Capture and much more

## PC GOES/WEFAX \$250

Designed to receive images directly from U.S. and Soviet meteorological satellites. Includes all of the above feature plus a complete orbital tracking system and resolution of up to 256 gray levels.

**Software Systems Consulting**  
150 Avenida Cabrillo, "C", San Clemente, CA 92672  
**(714)-498-5784**

**High Performance**  
**800MHZ**

- Enjoy the best possible reception
- Hear signals other antennas miss
- Astounding performance outside
- Hear 10 times more signals when mounted directly on scanner

Only **\$19.95**

- Free shipping (Continental USA)
- Money back guarantee

**MAX System™**  
GROUND PLANE ANTENNAS  
CK-MO-MC-VISA Accepted (MA add 5% sales tax)

Send payment to Cellular Security Group,  
4 Gerring Rd. Gloucester, MA 01930  
Cr charge by phone (508) 281 8892

The Cowboy Network -- At a time when westerns do poorly in the ratings game, a whole network of westerns. Great idea.

The International Network -- "Presents first run dramas, news and motion pictures in Japanese, Chinese, Korean, Tagalog, Vietnamese, Cambodian, French, Russian, Hindi, Italian, Armenian, Persian, Hebrew and Arabic . . ." Have we left anyone out?



## Touring Tennessee



Welcome to Knoxville! What's on?

Hank Williams would be proud if he listened to the radio in Knoxville. Sooner or later he would hear himself. Country music dominates the dials in these parts, but the variety of entertainment, talk, and news available is almost endless. Here is a comprehensive guide to everyone you'll hear broadcasting in eastern Tennessee.

### FM Radio

Although Knoxville is clearly Country country, educational broadcasters clearly dominate the bottom of the dial. You'll find five of them here, two from the same organization.

The Appalachian Educational Commission Corporation operates WHGG on 88.3. WYLV is a new station on 89.1 from Alcoa, a Knoxville suburb. Both WUTK and WUOT broadcast from The University of Tennessee at Knoxville. WUTK concentrates on progressive rock music on 90.3. Powerful WUOT broadcasts classical and jazz music with nearly 100,000 watts, and is affiliated with National Public Radio, American Public Radio and the BBC. Look for them on 91.9 FM. You'll also find WKCS, the voice of The Knox County School System on 91.1 MHz.

Over a dozen commercial FM stations try for a piece of the Knoxville advertising pie. If you love rock 'n' roll, and you want to hear the best hits of all time, tune to WCKS, 93.1, with classic rock from nearby Karns, Tennessee. The leader of soft rock is WEZK, Easy 97 FM, at 97.5 MHz. You'll find similar sounds on WKNF 94.3 from Oak Ridge and U-102, WMYU in Sevierville, on 102.1 MHz. Today's top rock hits give WOKI, 100.3, from Oak Ridge a really hot sound, and if you want some album cuts thrown in look for popular WIMZ on 103.5 and 1240 AM.

Although they might be on the air by Columbus Day, WTNZ in Clinton, on 95.3, is silent as we go to press. WGTG in Wartburg on 101.3 will probably be playing country tunes and the one watt translator station W252AQ at 98.3 is anybody's guess. Tune in and discover what's new. DXers beware: you may think you've picked up Chattanooga on 106.1 FM, but you are actually receiving another one watt translator: W291AA. this one repeats The Moody Bible Institute's station, WMBW, from almost 100 miles away.

The heart of Knoxville radio is country music, and you'll find it all over the dial. The new kid on the block is WGAP from Maryville on 95.7. You might think it's from Knoxville,

but WNOX broadcasts from Jefferson City, 40 miles out of town. Their version of Country and Western originates from the studios of the Satellite Music Network in Chicago.

When they call it The Independent Voice of Knoxville, the staff of WIVK is not kidding. You find that almost one out of every two radios in Knoxville is tuned to 107.7 FM or its sister station on 990 AM daily, creating ratings as high as a 47 share. WIVK attracts the biggest percentage of listeners in any market nationwide.



Weekdays, experience the personality that has dominated Knoxville radio since 1953: Claude Tomlinson. His vocal characterizations of Lester Longmire and Old Man Shultz have

made them household names to everyone who listens to WIVK. Jim Donovan joins Claude adding his zany humor to create the top-rated morning show in America.

On Columbus Day weekend, WIVK sponsors "River Feast" at the World's Fairgrounds -- within walking distance of The Hyatt -- including a stage show, a huge barbecue and all sorts of fun. WIVK is also home of The Volunteer Network: the official voice of University of Tennessee football and basketball games. Big Orange fans tune in from all over the state and beyond for play by play and expert commentary by former Volunteer greats Tim Priest and Bobby Scott. If one station represents Knoxville, it's got to be WIVK.

### Tours at the Convention

During the *Monitoring Times* convention, the International Radio Club of America will sponsor a visit to WUOT-FM on the University of Tennessee campus with Jacqueline Jones as our hostess. Later, at 2 p.m. we'll journey to the studios of WIVK AM and FM. Promotions Director Steve Dallas will show us Knoxville's number one station. If you're a DXer, follow our convoy after dinner to Look Rock and witness an amazing DXpedition. Attendance is limited for the tours, so register early at the IRCA booth on the convention floor.

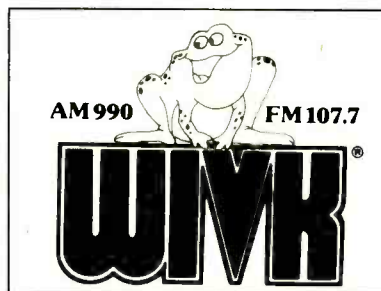
### AM Radio

Finally, here's a quick look at the 22 stations on the original broadcasting band. Religious

programming and gospel music is dominant, heard on 900 WKXV, 1490 WITA and Family Radio's WKNL 760. Also within reach are 1120 WCGM from Maryville, LaFollette's WWGR on 960 and a combination of religious and country music programming from WLIL in Lenoir City, found on 730 kHz. Country music plays all day long on WSEV 930 Sevierville, 1380 WYSH Clinton and WGAP 1400 Maryville.

WHJM 1180 Knoxville and 1040 WQBB serve up good old adult standards for your enjoyment. 850 is the news center from The University of Tennessee via WUTK-AM. Rock 'n' roll oldies are WKGN's area on 1340 and WMRE brings R&B oldies alive again. Contemporary light rock is WATO's forte on 1290 from Oak Ridge.

Probably the most interesting AM station in the Knoxville area is WTNN with studios in Farragut. They are courageously experimenting with New Age music, an ethereal sound for mood creation. Three stations are authorized but currently silent: Knoxville's WRJZ 620 and WEMG 1430, and WOR1 1550 from Oak Ridge.



### Don't Forget

When at the *MT* convention, tune to 530 kHz in the Hyatt Regency Hotel. Direct from room 530, you'll hear the latest convention news, rare airchecks of exotic stations and other zaniness from Radio Newyork International's Al Weiner and

other personalities. Perhaps you. Stop by and say "hello." Also remember that the latest weather reports from NOAA Weather Radio are available from WXX-46 on 162.475 MHz 24 hours a day with a strong one kilowatt signal. Now you know everything that's on the air. Grab your radios and go for it.

### Bits 'n' Pieces

✓ In the near future you might read this in "Ask Bob": "I've been getting lots of popcorn no matter how I adjust my squarial towards HS 601. I am well within its footprint and I know the DAC in my DAB receiver is working right. Do I need a stronger LNB?"

This futuristic tech talk is already being spoken in Canada, Europe and it's heading toward the United States. The Canadian Association of Broadcasters and the CBC have just concluded the first field tests of digital audio broadcasting in North America. A minibus rode the streets of Ottawa, Toronto, Montreal, and Vancouver as various groups of



people on board compared reception of conventional FM with a DAB transmission using the same frequencies usually set aside for UHF television channels 68 and 69.

The DAB transmissions consistently provided seamless reception with improved fidelity and dynamic range, while the FM signals suffered from fading and multipath familiar to everyone owning a car radio. Phasing out AM and FM in favor of DAB might be just a matter of time. DAB super radios could be in your hands as early as 1993. The Canadian tests were so impressive that many participants thought a CD player was hidden somewhere aboard the minibus. Over the air reception could never be that clean and quiet... until now.

✓ Meanwhile, the United States Information Agency, managers of the Voice of America, have been researching the viability of a worldwide, satellite delivered DAB system to replace their AM, FM and shortwave broadcast network. The VOA, in conjunction with NASA, plans to test various systems of DAB using mobile, portable and home receivers next summer. Details have not been released to the public and their actions have been shrouded in secrecy. The government does not want to reveal the motivation behind their studies and their possible uses of digital transmissions.

The National Association of Broadcasters, representing America's current AM, FM and TV broadcasters, have announced that they favor terrestrial DAB transmission systems that would encourage locally oriented programming instead of creating nationwide super channels.

✓ Renting a car soon? National Car Rental is supplying radio guides for their customers in 24 individual cities across the USA. If you don't want to accumulate lots of frequent flyer miles by visiting them all you can buy a complete set for \$4.50. Write to : 1990 Buick Radioguide, P.O. Box 219, Ypsilanti, MI 48197.

✓ Country music fans will love the Country Music Radiomap. A colorful 26 by 28 inch map shows over 2,300 full-time country music stations and would be a perfect addition to your glove compartment or suitcase. Send \$4.50 to: RRN Inc., Fulfillment Center, 22 West 21st Street, New York, New York 10010-6904.

✓ And if you want to listen to broadcast engineers from all over the country, tune into the Society of Broadcast Engineers Radio Chapter of the Air on the second Sunday of each month. The meeting comes to order on 14205 kHz at 0000 UTC.

## Mailbag

✓ Imagine having an FM radio that was

completely immune from interference from powerful stations on nearby frequencies. You've always wanted to hear a terrific jazz broadcaster on 88.3, but you live right next to a local FM station on 88.5, and you can't find a receiver to split them apart.

Now you can get the razor sharp selectivity you've always wanted. Dan Cashin brought our attention to experiments being done by Bill Nienajadly and other members of The World-wide TV-FM DX Association. By replacing the broadband crystal filters found in most FM receivers with similar devices that produce a much narrower bandwidth, you can hear absolutely everything that your antenna can grab. The entire modification can be done for less than \$10 in most cases and it's become the talk of every FM DXer

and serious listener from coast to coast. For complete details send a SASE to WTFDA, P.O. Box 514, Buffalo, NY 14205-0514.

✓ Ron Carruthers of Edinburgh, Scotland, writes that AM stereo is finally being tested in Britain. Radio Orwell on 1170 kHz near Ipswich is experimenting with the Motorola C-QUAM system using a 6 kHz audio bandwidth. If the results are pleasing, expect to see several independent local radio stations in stereo by year's end.

## New Station Grants

Here's the latest additions to America's broadcasters, courtesy of the M Street Journal: Florence, AL 96.1; Orland, CA 106.5; Shafter, CA 104.3; Thousand Oaks, CA 88.3; Graceville, FL 102.1; Haughton, LA 103.7; Belzoni, MS 92.9; Ash Grove, MO 104.1; Rochester, NY 105.9; Webster, NY 102.7; Rose Hill, NC 104.7; Meyersdale, PA 93.3; Belle Fourche, SD 95.9; Seymour, TN 96.3; Camas, WA 94.7; Goldenale, WA 102.3; Clarksburg, WV 90.1 and Point Pleasant, WV 99.5. Welcome aboard.

## For Sale

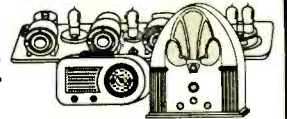
Let's head down to San Antonio, Texas, for our first offer this month. A really nice small market FM is for sale for only \$250,000 with liberal terms and a low down payment.

Also available is an AM/FM combination in the East Texas Piney Woods region for \$900,000. Call 512-476-9457 for details.

Another fine pair are situated in Minnesota. A 1000 watt AM with a construction permit for a 6000 watt Class A FM are for sale including equipment for the FM building and 40 acres of adjoining land. This is quite a buy for \$300,000.

Two stations for less than the price of one. A full-time AM station on 580 kHz combined with a Class A FM needs to change owners in a

**FREE  
SAMPLE  
COPY!**



## ANTIQUE RADIO CLASSIFIED

**Antique Radio's Largest-Circulation  
Monthly Magazine**

Articles - Classifieds - Ads for Parts & Services  
Also: Early TV, Ham Equip., Books,  
Telegraph, 40's & 50's Radios & more...

Free 20-word ad each month. Don't miss out!

Free Sample. 6-Month Trial - \$13.  
1-Year: \$24 (\$36 by 1st Class). Foreign - Write.

A.R.C., P.O. Box 802-P6, Carlisle, MA 01741

beautiful mountain area. 17 acres of land, a two-story building and a long track record with a positive cash flow makes this an attractive offer. The owner will even consider an aircraft in trade. The current asking price is \$260,000 or a reasonable offer. Call Tracy at 605-745-3797.

## International Bandscan

Michael Checkland, the director-general of the BBC, has decided that 75 million pounds must be cut from the corporation's yearly budget. The BBC's famous Radio Orchestra will cease to exist in the near future as a result. Over 1700 employees have been let go, and local broadcasting teleproduction centers in Manchester, Leeds and Newcastle will be consolidated into a single facility to be known as BBC North. New BBC Radio 5 is now on the air with a broadcast day that is dominated by World Service programming.

Radio Free Europe is planning to use Radio Prague's 900 kilowatt powerhouse on 1287 kHz for its broadcasts to Eastern Europe. In the land of green, an Irish version of the FCC, known as the IRTC, is considering allocating up to eight community radio stations for the Dublin area. The stations will be funded by subscription, local sponsorships and fundraising activities, and will be restricted to between four and six hours of operation daily.

A new service in Sri Lanka will be called Radio Colombo International and will use Trans World Radio's 400 kW transmitter in Puttalam on 882 kHz targeting an audience in India. Programming will be in English, Tamil and Sinhalese broadcast daily from 1030 to 1325 UTC. The Voice of Turkey is constructing five 500 kW transmitters and 49 new antennas to boost their external service broadcasts. The project should be completed by 1992.

**Credits:** Many thanks to Jacqueline Jones of WUOT, Steve Dallas of WIVK, and Jack Hogan of WEZK for their comprehensive information on the Knoxville broadcast scene. Also thanks to the M Street Journal, Broadcasting and Radio World magazines and the British DX Club for our overseas news. Readers Dan Cashin, Ron Carruthers, Alan Masyla, W. Earle Doan, Sheila Malbrain, Harold Bower, Robert Thomas, John Carson, David Parsons and John Cassidy made this writing much easier. Until next month, see you in Knoxville and happy trails.



## Radio War in the Middle East:

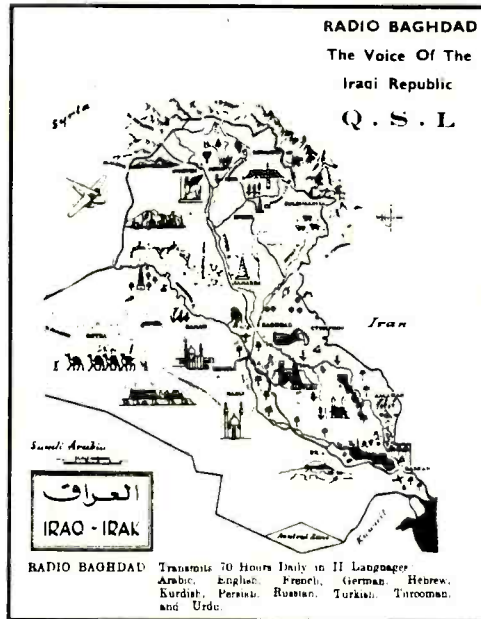
Saddam Hussein's invasion of Kuwait has touched off a radio war the likes of which have not been seen since World War II. If you want to get Saddam's view on what this is all about, tune in Radio Baghdad's English language broadcast from 2000 to 2200 UTC on 13660. You just might hear something else -- a Morse code jammer identifying as "ARRF" which declares, "Nuke Baghdad."

Radio Baghdad's usual English language announcer is the same one known to American forces as "Baghdad Benny." His propaganda transmissions have been aired on 1860 at 1000, 1600, and 2000 hours UTC. So far they have been difficult to receive in North America, but as the daylight hours shorten reception may improve.

Iraq's Arabic service, "The Voice of the Masses," should not be too difficult a target on 12025 when it signs on at 0200. However, in all probability you will also hear one of those notorious Middle Eastern bubble jammers and possibly Egypt's "Voice of the Arabs" service, which has been reported signing on at 0300.

A real DX challenge is an Iraqi clandestine aimed at Saudi Arabia. It appears to be broadcasting in Arabic 24 hours a day, but frequency choice and extremely effective jamming probably give you only a brief window around 2130 UTC. The station is Holy Mecca Radio. I did have a tentative log of this on 9730, but it has since shifted to 9720, where it has also been tentatively heard.

The CIA's Foreign Broadcast Information Service provides some very interesting insight on Holy Mecca broadcasts. Programs stress two points where Iraq believes its opponents are very vulnerable. Saudi Arabia has permitted large numbers of non-Muslims to come into its territory, thus threatening Islam's sacred shrines. The cities of Mecca and Medina are so holy that non-Muslims are not permitted to enter them. Iraq also has tried to turn this into a conflict between the "haves" and the "have nots." What backing it has received from the



Arab world has largely been from the stateless Palestinians and from the poorer Arab countries such as Yemen.

Iraq does not vent all its wrath on Saudi Arabia. There is plenty left over for Egypt. You may hear its anti-Egyptian program, "Voice of Egypt of Arabism (Saut Misr Al-Urubah)," according to the BBC Monitoring Service on 12025, 15150, 15170, and 17720 from about 1830 to 2000 sign-off. But beware of bubble jammers, especially on 17720. I have found 15150 and 15170 provide the best reception of this.

**Maggie on the Attack:** Britain's Margaret Thatcher has been even more outspoken against Saddam Hussein than George Bush. Thus it is not surprising that she has committed both sea and land troops to the Saudi Peninsula and the Persian Gulf. As a result British Forces Broadcasting Service is making its first appearance on shortwave since the Falkland Islands conflict and only the second since World War II.

It was logged here on 13745 at 0200 sign on with a rather good signal. You might also check 15205, 17695, and 21735 at 0930, and 15195, 17695 and 21735 at 1300 UTC. At least some reports are being verified. They can be sent to Box 1234, London W2, England. BFBS programs are quite enjoyable and make for some pleasant listening.

**Friend and Foe:** The Arab world is divided in its view toward Saddam Hussein. In the domestic media much has been made of the support he has received in Jordan, which has a large Palestinian population. Tune in the English language service of Radio Damascus for a very different view. You can hear Syria in English on 12085 and 15095 from 2005 to 2105. These transmissions have been very outspoken

in their condemnation of Iraq for its invasion and annexation of Kuwait. Syria has demanded that Iraq withdraw and has sent a small contingent of troops to Saudi Arabia.

The Syrians also sponsor an anti-Iraqi clandestine, Saut al-Iraq (Voice of Iraq), which you should be able to hear easily on 12085 at 0300 sign-on. There is a bubble jammer, but it is not a serious problem.

Although also threatened by Saddam Hussein, the United Arab Emirates have transmitted broadcasts remarkable for both their calmness and objectivity. Tune in the Voice of UAE from Dubai for an English newscast on 21065 at 1330. Want to know what weather conditions the American forces will encounter? The Voice of UAE normally includes a weather forecast for the Arabian peninsula.

Saddam's most solid support has come from the Palestinians, who may not always support his methods but see him as their only hope to unite the Arab world and enable them to gain a state of their own. In return, he has sought to cultivate their friendship. You can hear Iraq transmitting the PLO's Voice of Palestine program in Arabic on 9704 at 0330.

Ironically it is not Radio Baghdad but the Voice of the United Arab Emirates in Abu Dhabi which has most sought to present the Palestinian view to English-speaking audiences. In the past the station has distributed a book, *Shalom Rings Hollow*, by Ahmed A. Shouly, who is on the staff there. It's not completely objective, but virtually nothing written about the Middle East is, and it does look at that part of the world with a perspective seldom presented in the United States. Copies might still be available by writing to P.O. Box 63, Abu Dhabi, United Arab Emirates.

As propagation conditions improve it might be possible to hear Iran's English program on 9022 at 1930. So far it has not been audible, and although Iran has been reported to be using English at other times and on other frequencies, it has not shown up here.

However, if you know even a little Spanish you may find Iran's Spanish language broadcast on 15084 around 0130 quite easy to hear and very revealing. Iran is not an Arab state but is a Muslim country. It did fight Iraq for eight years. Despite a recent peace settlement with Saddam, its radio transmissions make it quite clear the Iranians have little love for Iraq.

It is well worth keeping an ear tuned to Tehran. As long as Iran enforces the UN sanctions they will be effective. If it should stop, they would be almost impossible to enforce. Iran is probably the only state in the region strong enough to counterbalance Iraqi power, and Iraq killed over one million Iranians. Could an Iranian-American alliance emerge? Impossible, you say? Remember the old saying, "The enemy of my enemy is my friend." Stay tuned to Iran.



A former unlicensed CB station in Saudi Arabia used to issue this QSL. From the collection of Chuck Boehnke.



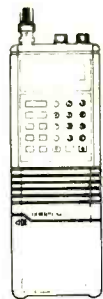
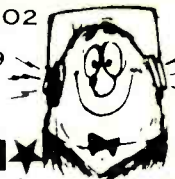
# GALAXY ELECTRONICS

67 EBER AVE. BOX-1202

AKRON, OHIO-44309

216-376-2402

★ **FREE** ★ **\$289**



**\$274**

## BC200XLT

200 Channels, 12 band with aircraft & 800 MHz, 10 priority channels, channel lockout, scan delay, automatic search, illuminated LCD display, snap-on battery pack, programmable, track tuning, direct channel access, with AC adapter, leather carry case & earphone.

FREE CELLULAR MODIFICATIONS WITH BC-200 & BC-760!!



**BC760XLT** 100 channel 12 band base/mobile scanner with 800 MHz band & Service Scan Weather, Priority, Lockout, Scan delay, Search, Programmable, Track tuning, Direct channel access

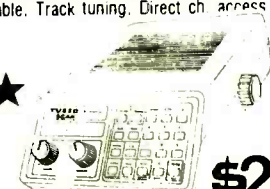
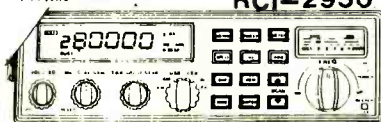


## AR-1000★

**\$455**

25 WATT 10 Meter Transceiver all mode operation backlit multi function LCD meter, frequency lock auto squelch, NB RF gain, PA external speaker jack 7 1/4"Wx9 1/4"Dx2 3/8"H

**\$289**  
**RCI-2950**



**\$299**

**TS2** 75 channels, 12 bands, Turbo-Scan, bank scan, Accu-Seek, Private Priority, Instant weather, digital display. (29-30, 30-50, 50-54, 118-136, 136-144, 144-148, 148-175, 406-440, 440-450, 806-950MHz)

## REGENCY

### POLICE/FIRE SCANNERS

<b>BEARCAT</b>		
BC-200XLT	200ch.29-54.118-174.406-512.806-952	<b>\$274</b>
BC-760XLT	100ch.29-54.118-174.406-512.806-952	<b>\$299</b>
BC-600XLT	100ch.29-54.118-174.406-512.Service Search	<b>\$229.00</b>
BC-100XLT	100ch.29-54.118-174.406-512.Handheld	<b>\$209.00</b>
BC-800XLT	400ch.29-54.118-174.406-512.806-912	<b>\$269.00</b>
BC-210XLT	40ch.29-54.118-174.406-512MHz	<b>\$219.00</b>
<b>REGENCY</b>		
TS-2	75ch.29-54.118-174.406-512.806-950	<b>\$299.00</b>
TS-1	35ch.29-54.118-174.406-512.Turbo Scan	<b>\$199.00</b>
INF-2	50ch.Pre-Programmed For All 50 States	<b>\$189.00</b>
INF-5	Pre-Programmed AC Only Digital	<b>\$99.00</b>
R-2060	60ch.29-54.136-174.406-512MHz	<b>\$129.00</b>

### SHORTWAVE RADIO

<b>KENWOOD</b>		
R-5000	100kHz-30mhz.Digital.100 Memorys	<b>\$849.00</b>
R-2000	150kHz-30mhz.Digital.10 Memorys	<b>\$649.00</b>
<b>SONY-2010</b>	150kHz-30mhz.76-108.118-136mhz	<b>\$359.00</b>
<b>SONY-2003</b>	150kHz-30mhz.Scanning. Memorys	<b>\$259.00</b>
<b>ICOM R-71A</b>	100kHz-30mhz.32 Memorys	<b>\$849.00</b>
<b>ICOM R-7000</b>	25-2.000mhz.100 Memorys	<b>\$1049.00</b>
<b>ICOM R-9000</b>	100kHz-2.000mhz.1000 Memorys	<b>\$4795.00</b>
<b>NRD-525</b>	0.9-34mhz.200 Memorys.Digital	<b>\$1159.00</b>
<b>FRG-9600</b>	60-905mhz.Continuous.100 Memorys	<b>\$559.00</b>
<b>FRG-8800</b>	150kHz-30mhz.Memorys.Scans	<b>\$679.00</b>
<b>GRUNDIG-500</b>	1.6-30mhz.Memorys.Scans	<b>\$499.00</b>
<b>KENWOOD RZ-1</b>	1mhz-905mhz.Continuous.100 Memory	<b>\$499.00</b>
<b>SANGEAN ATS-808</b>	45 Memorys.LCD Display.More!	<b>\$219.00</b>

## USED GEAR

28 PAGE 1990 PICTURE CATALOG \$1.00

AIR/POLICE/800 MHz

BUY  
SELL  
TRADE

**SAME DAY C.O.D. SHIPPING**  
**FREE SHIPPING & INSURANCE!!!**

Egypt is supposedly providing the Kuwaiti government in exile with a two-hour daily block of time on shortwave. Unfortunately, we do not yet have information on languages or frequencies in use. We hope to have these in the near future. The Kuwaitis were reported to have an exile station on 540 kHz mediumwave but may have abandoned this effort when Iraq put a powerful transmitter on the same frequency.

On another note, you can trace the Egyptians and Iraqis trying to interfere with each other. Often where one shows up so will the other. Jammers may also join in. Frequencies to watch include 12025, 15050, 15170 and 17720, but there are numerous others. Iraq is said to have allotted up to 50 frequencies to harass Egypt and her allies. Something can turn up on these frequencies at almost any hour of the day or night.

My deepest appreciation goes to Terry Krueger, David Crawford, David Potter, Frank McGuire, Larry Miller, Havana Moon and Herb Gesell for providing some of the above information. Remember, things can change rapidly in this confrontation. What was there yesterday may not be today, but something new may have taken its place. Look around. Shortwave is an excellent if little used tool for comprehending this tragedy.

**Elsewhere:** It looks as if unlicensed radio in Italy will go the way of Ireland. The Italian parliament has finally passed legislation which will force the licensing of all stations within two years. As in Ireland, no provision has been made for shortwave. Meanwhile you may still be able to catch The Voice of Europe on 7538.

John Goodliffe writes from England to inform us that Radio Caroline is currently off 558 for maintenance and repairs. When it returns another frequency will probably have to be selected since the old 558 kHz is now occupied. John says there is a good possibility Caroline will return to shortwave eventually, but the frequency definitely will not be the old 6214.

Thanks to Alan Masyga and several others who alerted us to the new film "Pump Up the Volume." Its featured character operates a pirate radio station. We will call this one must seeing.

The Voice of Bono writes to tell us they have a regular service in the 41-meter band (7100 to 7300 kHz). Let us know if you hear them.

The "Sonic Irritations" program we recently brought to your attention is now aired on WMNF Tampa 88.5 MHz Wednesdays at 11 p.m. local time. If vacationing in the area, you dare not miss it.

Being heard quite well by several of us in Central Florida is pirate XERK on 7435. Reports go to P.O. Box 25302, Pittsburgh, PA 15242 A recent QSL received here claims the station is located near the Mexican border.

Steve from Manhattan and Herb Gesell let us know Judah Mansbach struck again. WFPR

91.9 MHz in Floral Park, New York, was closed by the FCC and the operator fined \$1,500. We also note one station has returned to the air, but since the New York metropolitan area stations are publicity shy, we will not say which one.

Out in California Skip Harwood found Radio Anarchy on 7417 at 0410. He says things had been fairly quiet since the FCC raided the West Coast's Zodiac Radio.

In Connecticut Bob Thomas discovered a most peculiar numbers station. He came across it on 5930 at 0100. Bob says it started in Slovak and then switched to Spanish.

Bob also heard one of the few radio links Liberia has with the outside world during its bloody civil war. It's the 10 kW USB VOA feeder on 18515. You may come across this

often with instrumental music to keep the frequency open, but some traffic may show up as well. A similar feeder to Liberia from the United States will be found on 20125.

Finally here are a few brief pirate logs and QSLs. In Michigan, Bill Lauterbach came across WPOT on 7402 at 0438. Connecticut's Jim Kalach got a nice log of Hope Radio International on 7400 at 0226. He found another station on 7400 claiming to be operated by Moon Beam Press, but it is not. Steve Rogovich and Pat Murphy, both in Virginia, got QSLs from CFBN, which says it broadcasts from Canada. Pat's collection has also been enlarged by mailings from Radio Exp and Fourth of July Radio. See you again next month.



# Beacons Further Afield

Last Christmas, I went out to the Los Angeles area for a couple of weeks. In late June, I went to Ecuador and the Galapagos Islands for almost two weeks. In both instances, I took my Sony 2010 in order to do some DXing.

One of my fields of interest in radio are the marine coastal stations that broadcast in the various high frequency bands. What surprises me is that despite my rather far-flung travels, I can't really say that I heard much that was different from what I ordinarily hear back home in Illinois. I may have heard them at a little different hour on a particular frequency band, but it was essentially the same coastals that I hear at home.

The same thing held true in the case of international broadcasters. Sure, I heard programs beamed to South America instead of programs beamed to North America, but overall, it was the same broadcasters I usually hear.

When you have this kind of experience a couple of times, the tendency might be to leave your radio at home on the next trip simply because it doesn't offer much of anything different than you get at home. All changes, however, when you start listening to the low frequency beacons. Even a trip of a few hundred miles can introduce a whole new group of beacons that you never hear at home. You may still hear some beacons you hear at home, if the distance you travel is only a few hundred miles. Travel 1,000 miles or more and you open up a completely new set of beacons.

In California, I heard 32 new-to-me beacons. Most were from California, but there was one each from Arizona, Nevada and Idaho. I had heard one from California some years ago. This was the powerful consolan station SFI from San Francisco on 192. This beacon was shut down years back and has been dismantled for probably ten years. My one Idaho catch was a one-time only that happened four or five years ago. I had never logged a beacon from Arizona or Nevada.

The Ecuador experience was similar with 41 beacons logged from Ecuador, Colombia

## South American Loggings

210	CLO	Cali	COL
215	ESM	Esmeraldes	EC
221	CUR	Cuenca	EC
225	EPO	El Paso	COL
260	LAT	Latacunga	EC
272	GLS	Baltra (Galapagos)	EC ON/R
280	IPA*	Easter Island	CHILE ON/R
284	TEH	Bogota	COL
290	ZUI	Quito	EC
292	IC	San Cristobal (Galapagos)	SQ36
300	ABL	Ambalema	COL
300	SCR	San Cristobal (Galapagos)	ON/R
300	TFE*	Tefe	BRAZIL
307	TAU	Taura	EC
311	TBG*	Panama City (Taboga Is.)	PAN
315	R	Guayaquil	EC
340	PTZ	Pastaza	EC
348	LGM	Puerto Leguizamo	EC
350	UIO	Quito	EC
353	LAG	Lago Agrio	EC
360	OAS	QTH?	
365	PAL	Quayaquil	BC
368	UCU	Iquique	Chile
370	VVC	Villavicencio	COL
375	BUN	Buenaventura	COL
380	AJL	Abejorral	COL
380	ANA	Contamina	PERU
385	AUC*	Auraca	COL
390	PTN	Porto Viejo	EC
395	SRN	San Carlos de Rio Negro	VEN
397	NVA	Neiva	COL
400	BGA*	Bucaramanga	COL
400	OLM	Olmedo	EC
407	LET	Leticia	COL
412	ALE	Alejandria	COL
412	MTU	Mitu	COL
415	SLS*	Salinas	EC
418	TLC	Tulcan	EC
430	LML	Lomalinda	COL
1685	MER	Mercaderes	



and even Peru, Brazil, Chile, Venezuela and Panama. Six of these had been logged at one time or another from my home location, but almost all of those were very lucky chances when they occurred. TAU had also been heard several years ago when it was on a different frequency.

Note the beacons labelled "ON/R". These are located on remote islands such as Easter Island and the Galapagos group. They usually don't operate the beacon unless a plane is on the way in and the beacon serves as a homing device. In the case of GLS/272, this beacon served the airport where I arrived from Ecuador. Knowing the time of arrival on a different day, I was able to log the beacon.

The other two were mostly a case of luck. I just happened to have the receiver on and tuned past 280 at 6 o'clock in the morning when I heard "IPA" nice and clear. It was not there at that time on the two following days. SCR/300 was logged at a little after eight in the evening. I don't know the schedule of flights to San Cristobal in the Galapagos. Just another case of realizing that you don't get lucky unless you keep listening.

The last beacon doesn't technically belong in the below 500 kHz section. Yet there is no other place that the beacons in the 1600-1800 kHz range seem to fit. Most of them seem to be moving down below 500 kHz with the others as the expansion of broadcast band frequencies nears. Actually, this was the only one heard despite the fact that a couple of dozen or more are still listed for South America. These may be inactive or preparing to move lower.





## MT Program Team

### Kannon Shanmugam, Program Manager

4412 Turnberry Circle  
Lawrence, KS 66047

### John Carson

Norman, Oklahoma

### Jim Frimmel

Willow Park, Texas

# program

guide

## Sunday

### Oct 7th, 14th, 21st, 28th

- 0005 Christian Science Monitor: Herald of Christian Science. Religious programming explaining the doctrine of Christian Science.
- 0030 BBC: The Ken Bruce Show. A mix of popular music and entertainment news.
- 0101 BBC: Play of the Week. Hour-long drama selections.
- 0105 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0115 Radio Japan: This Week. The major events of the week, and current affairs topics in Japan.
- 0205 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0209 BBC: British Press Review. Survey of editorial opinion in the British press.
- 0210 Radio New Zealand Int'l: Sports Week. Continuous sports commentary.
- 0215 BBC: Feature. Topical programming on various subjects.
- 0230 BBC: Feature. More topical programming on various subjects.
- 0305 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0315 BBC: From Our Own Correspondent. In-depth news stories from correspondents worldwide.
- 0315 Radio Japan: Let's Learn Japanese. Japanese language lessons for English speakers.
- 0330 BBC: My Music. The return of the popular musical quiz, hosted by Steve Race.
- 0330 Radio Japan: DX Corner. Rika Kobayashi presents shortwave radio news, features, and reception reports.
- 0354 Radio Japan: Viewpoint. Japan's international role with regard to major issues at home and abroad.
- 0405 Christian Science Monitor: Herald of Christian

- Science. See S 0005.
- 0430 BBC: Stuart Colman's Record Hop. Legendary rock 'n' roll music (except October 28th: Musical Feature, music programming of a topical nature).
- 0445 BBC: Personal View. A personal opinion on topical issues in British life.
- 0505 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0509 BBC: Twenty-Four Hours. Analysis of the main news of the day.
- 0515 Radio Japan: Hello from Tokyo. Kiyoko Tanaka and David Powers present listener letters and questions.
- 0530 BBC: Financial Review. A look back at the financial week.
- 0540 BBC: Words of Faith. People share how their scripture gives meaning to their lives.
- 0545 BBC: Letter from America. Alistair Cooke's distinctly British view of America.
- 0554 Radio Japan: Viewpoint. See S 0354.
- 0605 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0630 BBC: Jazz for the Asking. A jazz music request show.
- 0705 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0715 Radio Japan: Hello from Tokyo. See S 0515.
- 0730 BBC: From Our Own Correspondent. See S 0315.
- 0745 BBC: Book Choice. Short reviews of current or future best-sellers.
- 0750 BBC: Waveguide. How to hear the BBC better.
- 0754 Radio Japan: Viewpoint. See S 0354.
- 1105 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1115 BBC: From Our Own Correspondent. See S 0315.
- 1115 Radio Japan: Hello from Tokyo. See S 0515.
- 1130 BBC: The Ken Bruce Show. See S 0030.
- 1154 Radio Japan: Viewpoint. See S 0354.
- 1201 BBC: Play of the Week. See S 0101.
- 1205 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1305 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1345 BBC: Sports Roundup. The day's sports news.
- 1401 BBC: Feature. Topical programming on various subjects.
- 1405 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1415 Radio Japan: Hello from Tokyo. See S 0515.
- 1454 Radio Japan: Viewpoint. See S 0354.

- 1500 KNLS: Weekend Special. Dale Ward presents music, news, and religious comments.
- 1505 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1515 BBC: Concert Hall. Recordings of classical music selections.
- 1515 Radio Japan: Let's Learn Japanese. See S 0315.
- 1530 Radio Japan: DX Corner. See S 0330.
- 1554 Radio Japan: Viewpoint. See S 0354.
- 1605 Christian Science Monitor: The Sunday Service. A religious service from the First Church of Christ, Scientist, in Boston.
- 1615 BBC: Feature. See S 0230.
- 1645 BBC: Letter from America. See S 0545.
- 2305 BBC: Words of Faith. See S 0540.
- 2310 BBC: Book Choice. See S 0745.
- 2315 BBC: Letter from America. See S 0545.
- 2315 Radio Japan: Hello from Tokyo. See S 0515.
- 2330 BBC: Feature. See S 1401.
- 2354 Radio Japan: Viewpoint. See S 0354.



Dale Ward presents "Weekend Special," a variety program on KNLS. The program can be heard on Sundays and Saturdays at 1500 UTC.

## legend

- \* The first four digits of an entry are the program start time in UTC.
- \* The time is followed by the station name, program name, and a brief summary of the program's content.
- \* Some listings may be followed by "See X 0000." The letter stands for a day of the week:

S=Sunday    M=Monday  
T=Tuesday    W=Wednesday  
H=Thursday    F=Friday  
A=Saturday

The four digits stand for a time in UTC. Listeners should check back to that date and time to find out more about that particular program.

- \* All days are in UTC. Remember that if you are listening in North American prime time, it is actually the next morning UTC.

For example, if you are listening to a program at 8:01 pm [EDT] on your Thursday night, that's equal to 0001 UTC and therefore Friday morning UTC.

- \* We suggest that you tune in to a program a few minutes before the schedule start time, as some stations

have tentative schedules which may slightly vary. Consult the frequency section beginning on page 65 for the frequencies in use by that station at that time.

**newsline** is your guide to news broadcasts on the air. All broadcasts are daily unless otherwise noted by brackets enclosing the day codes.

We invite listeners and stations to send program information to the program manager at the address above.

# program

# guide



Katsumi Komeiji (center) heads the staff of Radio Japan's "This Week," a week-in-review program on local Saturdays.

## Monday

Oct 1st, 8th, 15th, 22nd, 29th

- 0005 Christian Science Monitor (Europe, Americas): The Sunday Service. See S 1605.
- 0006 Christian Science Monitor (Asia): News Focus. In-depth news analyses, focusing on major international events.
- 0030 BBC: In Praise of God. A half-hour program of worship.
- 0034 Christian Science Monitor (Asia): Home Forum. Home and family affairs.
- 0101 BBC: Desert Island Discs. Celebrity castaways pick their eight must-have records.
- 0106 Christian Science Monitor (Asia): Encore. Features, repeated by popular request.
- 0134 Christian Science Monitor (Asia): Letterbox. Staff members respond to listener letters.
- 0145 BBC: Musical Feature. Musical programming of a topical nature.
- 0148 Christian Science Monitor (Asia): Religious Article. A reading from The Christian Science Monitor.
- 0205 Christian Science Monitor (Americas, Oceania): The Sunday Service. See S 1605.
- 0206 Christian Science Monitor (Europe, Africa): News Focus. See M 0006.

- 0209 BBC: British Press Review. See S 0209.
- 0215 BBC: Andy Kershaw's World of Music. Exotic and innovative music from the world over.
- 0230 BBC: Science in Action. The latest in scientific developments.
- 0234 Christian Science Monitor (Europe, Africa): Home Forum. See M 0034.
- 0306 Christian Science Monitor (Europe, Africa): Encore. See M 0106.
- 0315 BBC: Good Books. A recommendation of a book to read.
- 0330 BBC: Anything Goes. Sounds from the BBC archives as requested by listeners.
- 0334 Christian Science Monitor (Europe, Africa): Letterbox. See M 0134.
- 0348 Christian Science Monitor (Europe, Africa): Religious Article. See M 0148.
- 0405 Christian Science Monitor (Americas, Oceania): The Sunday Service. See S 1605.
- 0406 Christian Science Monitor (Europe, Africa, NE Asia): News Focus. See M 0006.
- 0430 BBC: Off the Shelf. A reading selected from the best of world literature.
- 0430 Radio New Zealand Int'l: Mailbox or Travel Pacific. Tony King with listener letters and Arthur Cushen's radio news, or Susan Buckland on visiting the South Pacific.
- 0434 Christian Science Monitor (Europe, Africa, NE Asia): Home Forum. See M 0034.

- 0445 BBC: Feature. Topical programming on various subjects.
- 0506 Christian Science Monitor (Europe, Africa, NE Asia): Encore. See M 0106.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0510 Radio New Zealand Int'l: Calling Tonga. Rudi Hill greets the island nation of Tonga.
- 0530 BBC: Waveguide. See S 0750.
- 0534 Christian Science Monitor (Europe, Africa, NE Asia): Letterbox. See M 0134.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: Recording of the Week. A personal choice from the latest classical music releases.
- 0548 Christian Science Monitor (Europe, Africa, NE Asia): Religious Article. See M 0148.
- 0606 Christian Science Monitor: News Focus. See M 0006.
- 0610 Radio New Zealand Int'l: Checkpoint. News about Maori and Polynesian affairs.
- 0630 BBC: Feature. See S 1401.
- 0630 Radio New Zealand Int'l: Feature. A program for children.
- 0634 Christian Science Monitor: Home Forum. See M 0034.
- 0706 Christian Science Monitor: Encore. See M 0106.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0710 Radio New Zealand Int'l: Calling the Cook Islands. Rudi Hill greets the island nation of the Cook Islands.
- 0730 BBC: Feature. See S 0230.
- 0734 Christian Science Monitor: Letterbox. See M 0134.
- 0748 Christian Science Monitor: Religious Article. See M 0148.
- 1106 Christian Science Monitor: Encore. See M 0106.
- 1115 BBC: Health Matters. New developments in the world of medical science and fitness.
- 1130 BBC: Composer of the Month. A month-long series on a particular classical music composer.
- 1134 Christian Science Monitor: Letterbox. See M 0134.
- 1148 Christian Science Monitor: Religious Article. See M 0148.
- 1206 Christian Science Monitor: News Focus. See M 0006.
- 1215 BBC: Quiz. A topical game show.
- 1234 Christian Science Monitor: Home Forum. See M 0034.
- 1245 BBC: Sports Roundup. See S 1330.
- 1306 Christian Science Monitor: Encore. See M 0106.
- 1309 BBC: Twenty-Four Hours. See S 0509.

## newslines

- 0000 BBC: Newsdesk
- 0000 Christian Science Monitor: News
- 0000 Kol Israel: News
- 0000 Radio Australia: International Report
- 0000 Radio Beijing: News
- 0000 Radio Canada Int'l: News [S-M]
- 0000 Radio Finland: Northern Report [T-A]
- 0000 Radio Havana Cuba: News [T-S]
- 0000 Radio Kiev: News
- 0000 Radio Korea: News
- 0000 Radio Luxembourg: News
- 0000 Radio Moscow: News
- 0000 Radio New Zealand Int'l: News [M-A]
- 0000 Radio Prague Int'l: News
- 0000 Radio Sofia: News
- 0000 Spanish Foreign Radio: News
- 0000 Voice of America: News
- 0000 WWCR: USA Radio News [T-A]
- 0005 Radio Pyongyang: News
- 0010 Radio Beijing: News About China
- 0030 BRT, Brussels: News [T-A]
- 0030 Christian Science Monitor (Asia): News [M]
- 0030 Christian Science Monitor: News [T-F]
- 0030 HCJB: Latin American News
- 0030 Radio Budapest: News [T-S]

- 0030 Radio Havana Cuba: Newsbreak [T-S]
- 0030 Radio Jamahirliya, Libya: News
- 0030 Radio Moscow (World Service): News in Brief
- 0030 Radio Netherlands: News [T-S]
- 0030 Voice of America (Americas, East Asia): News (Special English) [T-S]
- 0030 Voice of America (East Asia): News (Special English) [M]
- 0045 Radio Berlin Int'l: News
- 0045 Radio Korea (World News Service): News
- 0051 Spanish Foreign Radio: News Summary [S]
- 0055 KUSW: News [T-S]
- 0055 WRNO: ABC News [H, A]
- 0100 BBC: News Summary
- 0100 Christian Science Monitor: News
- 0100 Deutsche Welle: World News
- 0100 Kol Israel: News
- 0100 Radio Australia: World and Australian News
- 0100 Radio Canada Int'l: News [S-M]
- 0100 Radio Havana Cuba: News [T-S]
- 0100 Radio Japan: News
- 0100 Radio Luxembourg: News
- 0100 Radio Moscow: News
- 0100 Radio New Zealand Int'l: News [M-A]
- 0100 Radio Prague Int'l: News
- 0100 Radio Yugoslavia: News
- 0100 Radiotelevisione Italiana: News

- 0100 RAE, Buenos Aires: News
- 0100 Spanish Foreign Radio: News
- 0100 Voice of America: News
- 0100 Voice of Indonesia: News
- 0100 WWCR: USA Radio News [T-S]
- 0115 Radio Havana Cuba: Cuban Nat'l News [T-S]
- 0125 HCJB: World News
- 0130 Christian Science Monitor (Asia): News [M]
- 0130 Christian Science Monitor: News [T-F]
- 0130 Radio Austria Int'l: News
- 0130 Radio Budapest: News
- 0130 Radio Havana Cuba: Newsbreak [T-S]
- 0130 Radio Moscow (World Service): News in Brief
- 0130 Voice of Greece: News [M-A]
- 0151 Spanish Foreign Radio: News Summary [S]
- 0155 KUSW: News [T-S]
- 0155 Voice of Indonesia: News in Brief
- 0155 WRNO: ABC News [W, A]
- 0200 BBC: World News
- 0200 Christian Science Monitor: News
- 0200 Deutsche Welle: World News
- 0200 Kol Israel: News
- 0200 Radio Australia: International Report
- 0200 Radio Bras, Brasilia: News [T-S]
- 0200 Radio Canada Int'l: News [T-A]
- 0200 Radio Havana Cuba: News [T-S]
- 0200 Radio Luxembourg: News



# program

guide

- 1330 BBC: Andy Kershaw's World of Music. See M 0215.
- 1334 Christian Science Monitor: Letterbox. See M 0134.
- 1345 BBC: Personal View. See S 0445.
- 1348 Christian Science Monitor: Religious Article. See M 0148.
- 1405 BBC: Outlook Conversation, controversy, and color from Britain and the rest of the world.
- 1406 Christian Science Monitor: News Focus. See M 0006.
- 1430 BBC: Off the Shelf. See M 0430.
- 1434 Christian Science Monitor: Home Forum. See M 0034.
- 1445 BBC: Feature. See S 0215.
- 1506 Christian Science Monitor: Encore. See M 0106.
- 1515 BBC: Desert Island Discs. See M 0101.
- 1534 Christian Science Monitor: Letterbox. See M 0134.
- 1548 Christian Science Monitor: Religious Article. See M 0148.
- 1606 Christian Science Monitor: News Focus. See M 0006.
- 1615 BBC: Good Books. See M 0315.
- 1630 BBC: Health Matters. See M 1115.
- 1634 Christian Science Monitor: Kaleidoscope. News features and special segments on a variety of topics.
- 1645 BBC: The World Today. News analysis on a selected location or event in the news.
- 2305 BBC: Commentary. Background to the news from a wide range of specialists.
- 2306 Christian Science Monitor: One Norway Street. Current affairs reports and features, mainly from the U.S.
- 2310 BBC: Financial News. News of commodity prices and significant moves in currency and stock markets.
- 2315 BBC: Poems by Post. Michael Rosen presents your poetry requests.
- 2330 BBC: Multitrack 1: Top 20. Tim Smith presents what's hot on the British pop music charts.
- 2334 Christian Science Monitor: Letterbox. See M 0134.
- 2348 Christian Science Monitor: Religious Article. See M 0148.

## Tuesday

Oct 2nd, 9th, 16th, 23rd, 30th

- 0006 Christian Science Monitor: News Focus. See M 0006.

## the program file

October 1990

**FEATURED THIS MONTH:** Check out Radio Japan's new program lineup in this month's program guide. Instituted earlier in the year, it features many brand-new programs. Radio New Zealand International debuts in the program guide this month; the information is compiled from BBC Monitoring, as well as monitoring of our own.

**THOSE ZANY TANZANIANS:** Radio Tanzania, broadcasting from Dar es Salaam, features programs from two groups fighting South Africa's apartheid system. "Voice of the Pan-Africanist Congress" can be heard on Mondays, Wednesdays, and Fridays at 0415 UTC and 1830 UTC, and on Tuesdays

and Thursdays at 1815 UTC. Meanwhile, "Radio Freedom," the voice of Nelson Mandela's African National Congress, airs at the same times on other days of the week.

**CH-CH-CHANGES:** On September 29, many stations adjusted their schedules by one hour to compensate for the end (or start) of daylight savings time in their countries. For the first time, we've used a computerized system to make these adjustments. If you notice any errors, please let us know.

-- Kannon Shannugam  
Program Manager

- 0030 BBC: Megamix. A compendium of music, sport, fashion, health, travel, news and views for young people.
- 0034 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0101 BBC: Outlook. See M 1405.
- 0106 Christian Science Monitor: One Norway Street. See M 2306.
- 0116 Radio Japan: In Conversation. See M 0316.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Short Story. Brief tales written by BBC listeners.
- 0134 Christian Science Monitor: Letterbox. See M 0134.
- 0141 Radio Japan: Let's Practice Japanese. See M 0320.
- 0145 BBC: Europe's World. A magazine program reflecting life in Europe and its links with other parts of the world.
- 0148 Christian Science Monitor: Religious Article. See M 0148.
- 0150 Radio Japan: Commentary. See M 0350.
- 0155 Radio Japan: Tokyo Pop-In. See M 0555.
- 0206 Christian Science Monitor: News Focus. See M 0006.

- 0209 BBC: British Press Review. See S 0209.
- 0215 BBC: Network UK. A look at the issues and events that affect the lives of people throughout the UK.
- 0230 BBC: Sports International. Feature program on a topic or person making sports headlines.
- 0234 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0306 Christian Science Monitor: One Norway Street. See M 2306.
- 0315 BBC: The World Today. See M 1645.
- 0316 Radio Japan: Out and Around. See M 0516.
- 0322 Radio Japan (North America): Radio Japan Journal. A look at Japan today and its involvement abroad.
- 0322 Radio Japan: Radio Japan Journal (Part 1). See T 0322.
- 0330 BBC: John Peel. Tracks from newly released albums and singles from the contemporary music scene.
- 0330 Radio Japan: City Beat. See M 0530.
- 0334 Christian Science Monitor: Letterbox. See M 0134.
- 0337 Radio Japan: Japan Diary. See M 0537.

- 0200 Radio Moscow: News
- 0200 Radio New Zealand Int'l: News
- 0200 Radio Romania Int'l: News
- 0200 Radio RSA: News
- 0200 Swiss Radio Int'l: News
- 0200 Voice of America: News
- 0200 Voice of Free China: News and Commentary
- 0200 WWCR: USA Radio News [T-A]
- 0215 Radio Cairo: News
- 0230 Christian Science Monitor (Af,Eur): [M]
- 0230 Christian Science Monitor: News [T-F]
- 0230 HCJB: Latin American News
- 0230 Radio Havana Cuba: Newsbreak [T-S]
- 0230 Radio Moscow (World Service): News in Brief
- 0230 Radio Pakistan: News (Special English)
- 0230 Radio Portugal: News [T-A]
- 0230 Radio Tirana, Albania: News
- 0245 Radio Berlin Int'l: News
- 0245 Radio for Peace Int'l: UN Radio News [T-A]
- 0245 Radio Korea (World News Service): News
- 0255 KUSW: News [T-S]
- 0300 BBC: World News
- 0300 Christian Science Monitor: News
- 0300 Deutsche Welle: World News
- 0300 Radio Australia: World and Australian News
- 0300 Radio Beijing: News
- 0300 Radio Havana Cuba: News [T-S]

- 0300 Radio Japan: News
- 0300 Radio Moscow: News
- 0300 Radio New Zealand Int'l: News
- 0300 Radio Prague Int'l: News
- 0300 RAE, Buenos Aires: News
- 0300 Voice of America: News
- 0300 Voice of Free China: News and Commentary
- 0300 WWCR: USA Radio News [T-S]
- 0309 BBC: News About Britain
- 0310 Radio Beijing: News About China
- 0315 Radio Cairo: News
- 0315 Radio France Int'l: News
- 0315 Radio Havana Cuba: Cuban Nat'l News [T-S]
- 0325 HCJB: World News
- 0330 Christian Science Monitor (Af,Eur): [M]
- 0330 Christian Science Monitor: News [T-F]
- 0330 Radio Havana Cuba: Newsbreak [T-S]
- 0330 Radio Moscow (World Service): News in Brief
- 0330 Radio Netherlands: News [T-S]
- 0330 Radio Tirana, Albania: News
- 0330 UAE Radio, Dubai: News
- 0340 Voice of Greece: News [M-A]
- 0350 Radio Yerevan: News
- 0350 Radiotelevisione Italiana: News
- 0355 KUSW: News [T-S]
- 0355 Radio Japan: News [M-F]
- 0400 BBC: Newsdesk

- 0400 Christian Science Monitor: News
- 0400 Deutsche Welle: World News
- 0400 Radio Australia: International Report
- 0400 Radio Beijing: News
- 0400 Radio Berlin Int'l: News
- 0400 Radio Canada Int'l: News
- 0400 Radio Havana Cuba: News [T-S]
- 0400 Radio Moscow: News
- 0400 Radio New Zealand Int'l: News
- 0400 Radio Prague Int'l: News
- 0400 Radio Romania Int'l: News
- 0400 Radio Sofia: News
- 0400 Swiss Radio Int'l: News
- 0400 Voice of America: News
- 0400 Voice of Turkey: News
- 0400 WRNO: ABC News [F]
- 0400 WWCR: USA Radio News [M-A]
- 0405 Radio Pyongyang: News
- 0410 Radio Beijing: News About China
- 0425 Radiotelevisione Italiana: News
- 0430 Christian Science Monitor (Af,Eur,NE Asia): [M]
- 0430 Christian Science Monitor: News [T-F]
- 0430 Radio Canada Int'l: News [M-F]
- 0430 Radio Havana Cuba: Newsbreak [T-S]
- 0430 Radio Moscow (World Service): News in Brief
- 0430 Radio Tirana, Albania: News
- 0445 Radio Berlin Int'l: News

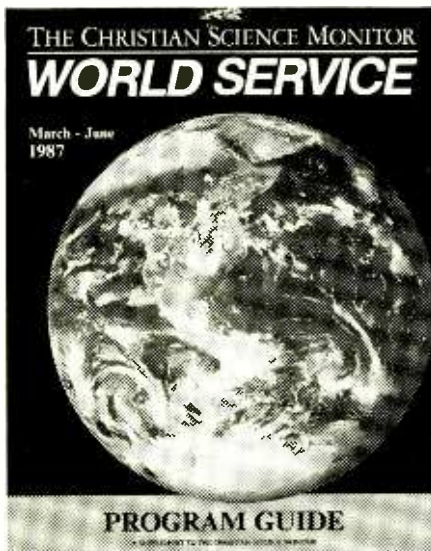
# program

guide

- 0340 Radio Japan: Radio Japan Journal (Part 2). See T 0322.
- 0348 Christian Science Monitor: Religious Article. See M 0148.
- 0350 Radio Japan: Commentary. See M 0350.
- 0355 Radio Japan: Tokyo Pop-In. See M 0555.
- 0406 Christian Science Monitor: News Focus. See M 0006.
- 0430 BBC: Off the Shelf. See M 0430.
- 0434 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0445 BBC: New Ideas. A radio shop window for new products and inventions.
- 0455 BBC: Book Choice. See S 0745.
- 0506 Christian Science Monitor: One Norway Street. See M 2306.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0510 Radio New Zealand Int'l: Calling the Cook Islands. See M 0710.
- 0516 Radio Japan: Out and Around. See M 0516.
- 0522 Radio Japan: Radio Japan Journal (Part 1). See T 0322.
- 0530 BBC: Financial News. See M 2310.

- 0530 Radio Japan: City Beat. See M 0530.
- 0534 Christian Science Monitor: Letterbox. See M 0134.
- 0537 Radio Japan: Japan Diary. See M 0537.
- 0540 BBC: Words of Faith. See S 0540.
- 0540 Radio Japan: Radio Japan Journal (Part 2). See T 0322.
- 0545 BBC: The World Today. See M 1645.
- 0548 Christian Science Monitor: Religious Article. See M 0148.
- 0550 Radio Japan: Commentary. See M 0350.
- 0555 Radio Japan: Tokyo Pop-In. See M 0555.
- 0606 Christian Science Monitor: News Focus. See M 0006.
- 0610 Radio New Zealand Int'l: Checkpoint. See M 0610.
- 0630 BBC: Musical Feature. Musical programming of a topical nature.
- 0630 Radio New Zealand Int'l: Feature. See M 0630.
- 0634 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0706 Christian Science Monitor: One Norway Street. See M 2306.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0710 Radio New Zealand Int'l: Calling Samoa. Rudi Hill greets the island nation of Samoa.
- 0716 Radio Japan: Out and Around. See M 0516.
- 0722 Radio Japan: Radio Japan Journal (Part 1). See T 0322.
- 0730 BBC: Europe's World. See T 0145.
- 0730 Radio Japan: City Beat. See M 0530.
- 0734 Christian Science Monitor: Letterbox. See M 0134.
- 0737 Radio Japan: Japan Diary. See M 0537.
- 0740 Radio Japan: Radio Japan Journal (Part 2). See T 0322.
- 0745 BBC: Network UK. See T 0215.
- 0748 Christian Science Monitor: Religious Article. See M 0148.
- 0750 Radio Japan: Commentary. See M 0350.
- 1106 Christian Science Monitor: One Norway Street. See M 2306.
- 1115 BBC: Waveguide. See S 0750.
- 1120 Radio Japan: Asiawatch. See M 1120.
- 1124 Radio Japan: Round and About. See M 1124.
- 1125 BBC: Book Choice. See S 0745.
- 1130 BBC: Megamix. See T 0030.
- 1131 Radio Japan: City Beat. See M 0530.
- 1134 Christian Science Monitor: Letterbox. See M 0134.
- 1137 Radio Japan: Japan Diary. See M 0537.
- 1140 Radio Japan: Radio Japan Journal (Part 2). See T 0322.
- 1148 Christian Science Monitor: Religious Article. See M 0148.

- 1150 Radio Japan: Commentary. See M 0350.
- 1206 Christian Science Monitor: News Focus. See M 0006.
- 1215 BBC: Multitrack 1: Top 20. See M 2330.
- 1234 Christian Science Monitor: Kaleidoscope. See M 1634.
- 1245 BBC: Sports Roundup. See S 1330.
- 1306 Christian Science Monitor: One Norway Street. See M 2306.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: Network UK. See T 0215.
- 1334 Christian Science Monitor: Letterbox. See M 0134.
- 1345 BBC: Stuart Colman's Record Hop (except October 30th: Musical Feature). See S 0430.
- 1348 Christian Science Monitor: Religious Article. See M 0148.
- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Focus. See M 0006.
- 1416 Radio Japan: Out and Around. See M 0516.
- 1422 Radio Japan: Radio Japan Journal (Part 1). See T 0322.
- 1430 BBC: Off the Shelf. See M 0430.
- 1430 Radio Japan: City Beat. See M 0530.
- 1434 Christian Science Monitor: Kaleidoscope. See M 1634.
- 1437 Radio Japan: Japan Diary. See M 0537.
- 1440 Radio Japan: Radio Japan Journal (Part 2). See T 0322.
- 1445 BBC: Musical Feature. See M 0145.
- 1450 Radio Japan: Commentary. See M 0350.
- 1455 Radio Japan: Tokyo Pop-In. See M 0555.
- 1500 KNLS: Swingin' Years. A rare source of big-band music on shortwave.
- 1506 Christian Science Monitor: One Norway Street. See M 2306.
- 1515 BBC: A Jolly Good Show. Dave Lee Travis presents listener record requests and dedications, and the UK's top ten albums.
- 1516 Radio Japan: Out and Around. See M 0516.
- 1522 Radio Japan: Radio Japan Journal (Part 1). See T 0322.
- 1530 Radio Japan: City Beat. See M 0530.
- 1534 Christian Science Monitor: Letterbox. See M 0134.
- 1537 Radio Japan: Japan Diary. See M 0537.
- 1540 Radio Japan: Radio Japan Journal (Part 2). See T 0322.
- 1545 KNLS: Faith for Today. A religious message.
- 1548 Christian Science Monitor: Religious Article. See M 0148.
- 1550 Radio Japan: Commentary. See M 0350.
- 1555 Radio Japan: Tokyo Pop-In. See M 0555.
- 1606 Christian Science Monitor: News Focus. See M 0006.



*The Christian Science Monitor inaugurated its World Service in 1987, making its respected world news coverage available to a wider audience.*

## newline cont'd from p.59

- 0455 KUSW: News [T-S]
- 0455 WYFR (Network): News [T-A]
- 0500 BBC: World News
- 0500 Christian Science Monitor: News
- 0500 Deutsche Welle: World News
- 0500 HCJB: Latin American News
- 0500 Kol Israel: News
- 0500 Radio Australia: World and Australian News
- 0500 Radio Beijing: News
- 0500 Radio Havana Cuba: News [T-S]
- 0500 Radio Japan: News
- 0500 Radio Moscow: News
- 0500 Radio New Zealand Int'l: News
- 0500 Spanish Foreign Radio: News
- 0500 Voice of America: News
- 0500 WWCR: USA Radio News [T-A]
- 0505 Radio New Zealand Int'l: News About NZ
- 0510 Radio Beijing: News About China
- 0515 Radio Canada Int'l: News [M-F]
- 0515 Radio Havana Cuba: Cuban Nat'l News [T-S]
- 0530 Christian Science Monitor (Africa, Europe, NE Asia): News [M]
- 0530 Christian Science Monitor: News [T-F]
- 0530 Radio Austria Int'l: News
- 0530 Radio Finland: Northern Report [T-A]

- 0530 Radio Havana Cuba: Newsbreak [T-S]
- 0530 Radio Kuwait: News
- 0530 Radio Moscow (World Service): News in Brief
- 0530 Radio Romania Int'l: News
- 0530 UAE Radio, Dubai: News
- 0530 Voice of Nigeria: News
- 0545 Voice of Nigeria: News About Nigeria
- 0551 Spanish Foreign Radio: News Summary [S]
- 0555 HCJB: World News
- 0555 KUSW: News [S, T-F]
- 0600 BBC: Newsdesk
- 0600 Christian Science Monitor: News
- 0600 Deutsche Welle: World News
- 0600 Radio Australia: International Report
- 0600 Radio Havana Cuba: News [T-S]
- 0600 Radio Moscow: News
- 0600 Radio New Zealand Int'l: News
- 0600 Voice of America: News
- 0605 Radio Pyongyang: News
- 0615 Radio Berlin Int'l: News
- 0630 Christian Science Monitor: News [M-F]
- 0630 Radio Havana Cuba: Newsbreak [T-S]
- 0630 Radio Moscow (World Service): News in Brief
- 0630 Radio Polonia: News
- 0630 Radio Tirana, Albania: News
- 0630 Swiss Radio Int'l: News
- 0640 Radio Prague Int'l: News

- 0645 Radio Berlin Int'l: News
- 0645 Radio Romania Int'l: News
- 0655 KUSW: News [S, T-F]
- 0700 BBC: World News
- 0700 Christian Science Monitor: News
- 0700 Radio Australia: World and Australian News
- 0700 Radio Havana Cuba: News [T-S]
- 0700 Radio Japan: News
- 0700 Radio Moscow: News
- 0700 Radio New Zealand Int'l: News
- 0700 Radio Tirana, Albania: News
- 0700 Voice of Free China: News and Commentary
- 0705 Radio New Zealand Int'l: News About NZ
- 0715 Radio Havana Cuba: Cuban Nat'l News [T-S]
- 0730 BRT, Brussels: News [M-F]
- 0730 Christian Science Monitor: News [M-F]
- 0730 HCJB: Latin American News
- 0730 Radio Austria Int'l: News
- 0730 Radio Finland: Northern Report [T-A]
- 0730 Radio Havana Cuba: Newsbreak [T-S]
- 0730 Radio Moscow (World Service): News in Brief
- 0730 Radio Netherlands: News [M-A]
- 0730 Radio Prague Int'l: News
- 0730 Radio Sofia: News
- 0730 Swiss Radio Int'l: News
- 0755 KUSW: News [S]
- 0755 Radio Japan: News [M-F]



# program

guide

- 1615 BBC: Omnibus. A half-hour program on practically any topic.
- 1634 Christian Science Monitor: Kaleidoscope. See M 1634.
- 1645 BBC: The World Today. See M 1645.
- 2305 BBC: Commentary. See M 2305.
- 2306 Christian Science Monitor: Curtain Call. A look at music and the people who write and perform it.
- 2310 BBC: Financial News. See M 2310.
- 2315 BBC: Concert Hall. See S 1515.
- 2316 Radio Japan: Out and Around. See M 0516.
- 2322 Radio Japan: Radio Japan Journal (Part 1). See T 0322.
- 2330 Radio Japan: City Beat. See M 0530.
- 2334 Christian Science Monitor: Letterbox. See M 0134.
- 2337 Radio Japan: Japan Diary. See M 0537.
- 2340 Radio Japan: Radio Japan Journal (Part 2). See T 0322.
- 2348 Christian Science Monitor: Religious Article. See M 0148.
- 2350 Radio Japan: Commentary. See M 0350.
- 2355 Radio Japan: Tokyo Pop-In. See M 0555.



*Richard Baker presents "Music for a While with Richard Baker," 45 minutes of classical music on the BBC's World Service.*

- 0350 Radio Japan: Commentary. See M 0350.
- 0406 Christian Science Monitor: News Focus. See M 0006.
- 0430 BBC: Off the Shelf. See M 0430.
- 0434 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0445 BBC: Country Style. See W 0145.
- 0506 Christian Science Monitor: Curtain Call. See T 2306.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0510 Radio New Zealand Int'l: Calling Samoa. See T 0710.
- 0516 Radio Japan: Out and Around. See M 0516.
- 0522 Radio Japan: Asia Hotline. See W 0322.
- 0530 BBC: Financial News. See M 2310.
- 0530 Radio Japan: City Beat. See M 0530.
- 0534 Christian Science Monitor: Letterbox. See M 0134.
- 0537 Radio Japan: Japan Diary. See M 0537.
- 0540 BBC: Words of Faith. See S 0540.
- 0540 Radio Japan: Asia Contact. See W 0340.
- 0545 BBC: The World Today. See M 1645.
- 0548 Christian Science Monitor: Religious Article. See M 0148.
- 0550 Radio Japan: Commentary. See M 0350.
- 0555 Radio Japan: Tokyo Pop-In. See M 0555.
- 0606 Christian Science Monitor: News Focus. See M 0006.
- 0610 Radio New Zealand Int'l: Checkpoint. See M 0610.
- 0630 BBC: Meridian. The world of the arts, including music, drama, and books.
- 0630 Radio New Zealand Int'l: Feature. See M 0630.
- 0634 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0706 Christian Science Monitor: Curtain Call. See T 2306.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0710 Radio New Zealand Int'l: Calling Niue and Tokelau. Rudi Hill greets the island nations of Niue and Tokelau.
- 0716 Radio Japan: Out and Around. See M 0516.
- 0722 Radio Japan: Asia Hotline. See W 0322.
- 0730 BBC: Development '90. Aid and development issues.
- 0730 Radio Japan: City Beat. See M 0530.
- 0734 Christian Science Monitor: Letterbox. See M 0134.
- 0737 Radio Japan: Japan Diary. See M 0537.
- 0740 Radio Japan: Asia Contact. See W 0340.
- 0748 Christian Science Monitor: Religious Article. See M 0148.
- 0750 Radio Japan: Commentary. See M 0350.
- 1106 Christian Science Monitor: Curtain Call. See T 2306.

## Wednesday

Oct 3rd, 10th, 17th, 24th, 31st

- 0006 Christian Science Monitor: News Focus. See M 0006.
- 0030 BBC: Omnibus. See T 1615.
- 0034 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0101 BBC: Outlook. See M 1405.
- 0106 Christian Science Monitor: Curtain Call. See T 2306.
- 0116 Radio Japan: Out and Around. See M 0516.
- 0122 Radio Japan: Radio Japan Journal (Part 1). See T 0322.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Feature. Topical programming on various subjects.
- 0130 Radio Japan: City Beat. See M 0530.
- 0134 Christian Science Monitor: Letterbox. See M 0134.
- 0137 Radio Japan: Japan Diary. See M 0537.
- 0140 Radio Japan: Radio Japan Journal (Part 2). See T 0322.
- 0145 BBC: Country Style. David Allan presents British country music.
- 0148 Christian Science Monitor: Religious Article. See M 0148.
- 0150 Radio Japan: Commentary. See M 0350.
- 0155 Radio Japan: Tokyo Pop-In. See M 0555.

- 0206 Christian Science Monitor: News Focus. See M 0006.
- 0209 BBC: British Press Review. See S 0209.
- 0215 BBC: Health Matters. See M 1115.
- 0230 BBC: Musical Feature. See T 0630.
- 0234 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0306 Christian Science Monitor: Curtain Call. See T 2306.
- 0315 BBC: The World Today. See M 1645.
- 0316 Radio Japan: Out and Around. See M 0516.
- 0322 Radio Japan: Asia Hotline. A look at the rapid changes in other Asian nations.
- 0330 BBC: Discovery. An in-depth look at scientific research.
- 0330 Radio Japan: City Beat. See M 0530.
- 0334 Christian Science Monitor: Letterbox. See M 0134.
- 0337 Radio Japan: Japan Diary. See M 0537.
- 0340 Radio Japan: Asia Contact. Japan's relations with the rest of Asia.
- 0348 Christian Science Monitor: Religious Article. See M 0148.

- 0800 BBC: World News
- 0800 Christian Science Monitor: News
- 0800 Radio Australia: International Report
- 0800 Radio Korea: News
- 0800 Radio Moscow (World Service): News
- 0800 Radio New Zealand Int'l: News [M-A]
- 0800 Voice of Indonesia: News
- 0805 Radio Pyongyang: News
- 0825 HCJB: World News
- 0830 Christian Science Monitor: News [M-F]
- 0830 Radio Beijing: News
- 0830 Radio Moscow (World Service): News in Brief
- 0830 Radio Netherlands: News [M-A]
- 0830 Swiss Radio Int'l: News
- 0840 Radio Beijing: News About China
- 0840 Voice of Greece: News
- 0845 Radio Berlin Int'l: News
- 0855 KUSW: News [S]
- 0855 Voice of Indonesia: News in Brief
- 0900 BBC: World News
- 0900 Christian Science Monitor: News
- 0900 Deutsche Welle: World News
- 0900 Radio Australia: World and Australian News
- 0900 Radio Finland: Northern Report [T-A]
- 0900 Radio Japan: News
- 0900 Radio Moscow (World Service): News
- 0900 Radio New Zealand Int'l: News [A]

- 0915 Radio Korea (World News Service): News
- 0930 Christian Science Monitor: News [M-F]
- 0930 Deutsche Welle (Africa): African News [M-F]
- 0930 Radio Beijing: News
- 0930 Radio Finland: Northern Report [T-A]
- 0930 Radio Moscow (World Service): News in Brief
- 0940 Radio Beijing: News About China
- 0955 KUSW: News [S]
- 0955 Radio Japan: News [M-F]
- 1000 BBC: News Summary
- 1000 BRT, Brussels: News [M-F]
- 1000 Christian Science Monitor: News
- 1000 HCJB: Latin American News
- 1000 Radio Australia: International Report
- 1000 Radio Berlin Int'l: News
- 1000 Radio Moscow (World Service): News
- 1000 Radio New Zealand Int'l: News [A]
- 1000 Swiss Radio Int'l: News
- 1000 Voice of America: News
- 1030 Christian Science Monitor: News [M-F]
- 1030 Radio Austria Int'l: News [M-F]
- 1030 Radio Korea: News [M-S]
- 1030 Radio Moscow (World Service): News in Brief
- 1030 Radio Netherlands: News [M-A]
- 1030 UAE Radio, Dubai: News
- 1040 Voice of Greece: News
- 1045 Radio Berlin Int'l: News

- 1055 HCJB: World News
- 1055 KUSW: News [S]
- 1100 BBC: World News
- 1100 Christian Science Monitor: News
- 1100 Deutsche Welle: World News
- 1100 Kol Israel: News
- 1100 Radio Australia: World and Australian News
- 1100 Radio Beijing: News
- 1100 Radio Japan: News
- 1100 Radio Korea: News
- 1100 Radio Moscow (World Service): News
- 1100 Radio RSA: News
- 1100 Swiss Radio Int'l: News
- 1100 Trans World Radio, Bonaire: News [M-F]
- 1100 Voice of America: News
- 1105 Radio Pakistan: News (Special English)
- 1105 Radio Pyongyang: News
- 1109 BBC: News About Britain
- 1110 Radio Beijing: News About China
- 1115 Radio Korea (World News Service): News
- 1130 Christian Science Monitor: News [M-F]
- 1130 Deutsche Welle: African News [M-F]
- 1130 Radio Austria Int'l: News [M-F]
- 1130 Radio Moscow (World Service): News in Brief
- 1130 Radio Netherlands: News [M-A]
- 1150 Radio Finland: Northern Report [T-F]
- 1152 Radio RSA: News in Brief



# program guide

- 1115 BBC: Country Style. See W 0145.
- 1120 Radio Japan: Asiawatch. See M 1120.
- 1124 Radio Japan: Round and About. See M 1124.
- 1130 BBC: Meridian. See W 0630.
- 1131 Radio Japan: City Beat. See M 0530.
- 1134 Christian Science Monitor: Letterbox. See M 0134.
- 1137 Radio Japan: Japan Diary. See M 0537.
- 1140 Radio Japan: Asia Contact. See W 0340.
- 1148 Christian Science Monitor: Religious Article. See M 0148.
- 1150 Radio Japan: Commentary. See M 0350.
- 1206 Christian Science Monitor: News Focus. See



*Edward Ho is a writer and a program presenter of Chinese programs on KNLS.*

- M 0006.
- 1215 BBC: Feature. Topical programming on various subjects.
- 1225 BBC: The Farming World. Issues in agriculture.
- 1234 Christian Science Monitor: Kaleidoscope. See M 1634.
- 1245 BBC: Sports Roundup. See S 1330.
- 1306 Christian Science Monitor: Curtain Call. See T 2306.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: Development '90. See W 0730.
- 1334 Christian Science Monitor: Letterbox. See M 0134.
- 1348 Christian Science Monitor: Religious Article. See M 0148.
- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Focus. See M 0006.
- 1416 Radio Japan: Out and Around. See M 0516.
- 1422 Radio Japan: Asia Hotline. See W 0322.
- 1430 BBC: Off the Shelf. See M 0430.
- 1430 Radio Japan: City Beat. See M 0530.
- 1434 Christian Science Monitor: Kaleidoscope. See M 1634.
- 1437 Radio Japan: Japan Diary. See M 0537.
- 1440 Radio Japan: Asia Contact. See W 0340.
- 1445 BBC: Business Matters. See W 0430.
- 1450 Radio Japan: Commentary. See M 0350.
- 1455 Radio Japan: Tokyo Pop-In. See M 0555.
- 1500 KNLS: Swingin' Years. See T 1500.
- 1506 Christian Science Monitor: Curtain Call. See T 2306.
- 1515 BBC: Poems by Post. See M 2315.
- 1516 Radio Japan: Out and Around. See M 0516.
- 1522 Radio Japan: Asia Hotline. See W 0322.
- 1530 BBC: Comedy. A regular series of humor (except October 3rd: Two Cheers for September, a satirical look at the month just past).
- 1530 Radio Japan: City Beat. See M 0530.
- 1534 Christian Science Monitor: Letterbox. See M 0134.
- 1537 Radio Japan: Japan Diary. See M 0537.
- 1540 Radio Japan: Asia Contact. See W 0340.
- 1545 KNLS: American Magazine. Articles on various occurrences in American and Alaskan history.
- 1548 Christian Science Monitor: Religious Article. See M 0148.
- 1550 Radio Japan: Commentary. See M 0350.
- 1555 Radio Japan: Tokyo Pop-In. See M 0555.
- 1606 Christian Science Monitor: News Focus. See M 0006.
- 1615 BBC: Feature. See T 0630.
- 1634 Christian Science Monitor: Kaleidoscope. See M 1634.
- 1645 BBC: The World Today. See M 1645.
- 2305 BBC: Commentary. See M 2305.
- 2306 Christian Science Monitor: One Norway Street. See M 2306.
- 2310 BBC: Financial News. See M 2310.
- 2315 BBC: Good Books. See M 0315.
- 2316 Radio Japan: Out and Around. See M 0516.
- 2322 Radio Japan: Asia Hotline. See W 0322.
- 2330 BBC: Multitrack 2. Graham Bannerman presents new pop music records.
- xxxxxx
- 2330 Radio Japan: City Beat. See M 0530.
- 2334 Christian Science Monitor: Letterbox. See M 0134.

- 2337 Radio Japan: Japan Diary. See M 0537.
- 2340 Radio Japan: Asia Contact. See W 0340.
- 2348 Christian Science Monitor: Religious Article. See M 0148.
- 2350 Radio Japan: Commentary. See M 0350.

## Thursday

### Oct 4th, 11th, 18th, 25th

- 0006 Christian Science Monitor: News Focus. See M 0006.
- 0030 BBC: Comedy (except October 4th: Two Cheers for September). See W 1530.
- 0034 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0101 BBC: Outlook. See M 1405.
- 0106 Christian Science Monitor: One Norway Street. See M 2306.
- 0116 Radio Japan: Out and Around. See M 0516.
- 0122 Radio Japan: Asia Hotline. See W 0322.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Waveguide. See S 0750.
- 0130 Radio Japan: City Beat. See M 0530.
- 0134 Christian Science Monitor: Letterbox. See M 0134.
- 0137 Radio Japan: Japan Diary. See M 0537.
- 0140 BBC: Book Choice. See S 0745.
- 0140 Radio Japan: Asia Contact. See W 0340.
- 0145 BBC: Society Today. A weekly look at the changes in Britain.
- 0148 Christian Science Monitor: Religious Article. See M 0148.
- 0150 Radio Japan: Commentary. See M 0350.
- 0155 Radio Japan: Tokyo Pop-In. See M 0555.
- 0206 Christian Science Monitor: News Focus. See M 0006.
- 0209 BBC: British Press Review. See S 0209.
- 0215 BBC: Network UK. See T 0215.
- 0230 BBC: Assignment. Examinations of current topical issues.
- 0234 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0306 Christian Science Monitor: One Norway Street. See M 2306.
- 0315 BBC: The World Today. See M 1645.
- 0316 Radio Japan: Out and Around. See M 0516.
- 0322 Radio Japan: Business Today. The latest trends in the Japanese economy.
- 0330 BBC: Quiz. See M 1215.
- 0330 Radio Japan: City Beat. See M 0530.
- 0334 Christian Science Monitor: Letterbox. See M 0134.
- 0337 Radio Japan: Japan Diary. See M 0537.

### newslines cont'd from p.61

- 1155 KUSW: News [S]
- 1155 Radio Japan: News [M-F]
- 1200 BBC: News Summary [S]; Newsreel [M-A]
- 1200 Christian Science Monitor: News
- 1200 Radio Australia: International Report
- 1200 Radio Beijing: News
- 1200 Radio Berlin Int'l: News
- 1200 Radio Canada Int'l: World Report [M-F]
- 1200 Radio Moscow (World Service): News
- 1200 Radio Polonia: News
- 1200 Radio Romania Int'l: News
- 1200 Radio RSA: News
- 1200 Radio Tashkent: News
- 1200 Voice of America: News
- 1210 Radio Beijing: News About China
- 1215 Radio Korea: News
- 1230 Christian Science Monitor: News [M-F]
- 1230 Radio France Int'l: News
- 1230 Radio Moscow (World Service): News in Brief
- 1230 Radio Polonia: News
- 1230 Trans World Radio, Bonaire: News [M-A]
- 1235 Voice of Greece: News
- 1245 Radio Berlin Int'l: News
- 1255 KUSW: News [S]
- 1300 BBC: News and Twenty-Four Hours on

- Sunday [S]: World News [M-A]
- 1300 Christian Science Monitor: News
- 1300 Radio Australia: World and Australian News
- 1300 Radio Beijing: News
- 1300 Radio Canada Int'l: News
- 1300 Radio Finland: Northern Report [T-F]
- 1300 Radio Moscow (World Service): News
- 1300 Radio Romania Int'l: News
- 1300 Radio Tirana, Albania: News
- 1300 Radio Yugoslavia: News
- 1300 Swiss Radio Int'l: News
- 1300 Trans World Radio, Bonaire: News [S]
- 1300 Voice of America: News
- 1300 WWCR: USA Radio News [S-F]
- 1305 Radio Pyongyang: News
- 1310 Radio Beijing: News About China
- 1315 Radio Berlin Int'l: News
- 1325 HCJB: News [M-F]
- 1330 BRT, Brussels: News [M-F]
- 1330 Christian Science Monitor: News [M-F]
- 1330 Radio Austria Int'l: News
- 1330 Radio Korea (World News Service): News
- 1330 Radio Moscow (World Service): News in Brief
- 1330 Radio Tashkent: News
- 1330 Swiss Radio Int'l: News
- 1330 UAE Radio, Dubai: News
- 1330 Voice of America: News (Special English)

- 1330 Voice of Turkey: News
- 1345 Radio Berlin Int'l: News
- 1355 WYFR (Network): News [M-F]
- 1400 BBC: News Summary [A-S]; 5-Min News [M-F]
- 1400 Christian Science Monitor: News
- 1400 Radio Australia: International Report
- 1400 Radio Beijing: News
- 1400 Radio Finland: Northern Report [T-A]
- 1400 Radio France Int'l: News
- 1400 Radio Japan: News
- 1400 Radio Korea: News
- 1400 Radio Moscow (World Service): News
- 1400 Radio Peace and Progress: News
- 1400 Radio RSA: News
- 1400 Voice of America: News
- 1400 WWCR: USA Radio News [M-F]
- 1405 Radio Pyongyang: News
- 1410 Radio Beijing: News About China
- 1415 Radio Canada Int'l (Cen/Europe): News
- 1425 HCJB: News [M-F]
- 1430 Christian Science Monitor: News [M-F]
- 1430 Radio Austria Int'l: News [M-F]
- 1430 Radio Moscow (World Service): News in Brief
- 1430 Radio Netherlands: News [M-A]
- 1430 Radio Polonia: News
- 1445 Radio Berlin Int'l: News
- 1500 BBC: Newsreel



# program

guide

- 0340 Radio Japan: Economy Update. Newly marketed products, consumer trends, and interviews.
- 0348 Christian Science Monitor: Religious Article. See M 0148.
- 0350 Radio Japan: Commentary. See M 0350.
- 0355 Radio Japan: Tokyo Pop-In. See M 0555.
- 0406 Christian Science Monitor: News Focus. See M 0006.
- 0430 BBC: Off the Shelf. See M 0430.
- 0434 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0445 BBC: Andy Kershaw's World of Music. See M 0215.
- 0506 Christian Science Monitor: One Norway Street. See M 2306.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0510 Radio New Zealand Int'l: Calling Niue and Tokelau. See W 0710.
- 0516 Radio Japan: Out and Around. See M 0516.
- 0522 Radio Japan: Business Today. See H 0322.
- 0530 BBC: Financial News. See M 2310.
- 0530 Radio Japan: City Beat. See M 0530.
- 0534 Christian Science Monitor: Letterbox. See M 0134.
- 0537 Radio Japan: Japan Diary. See M 0537.
- 0540 BBC: Words of Faith. See S 0540.
- 0540 Radio Japan: Economy Update. See H 0340.
- 0545 BBC: The World Today. See M 1645.
- 0548 Christian Science Monitor: Religious Article. See M 0148.
- 0550 Radio Japan: Commentary. See M 0350.
- 0606 Christian Science Monitor: News Focus. See M 0006.
- 0610 Radio New Zealand Int'l: Checkpoint. See M 0610.
- 0630 BBC: Feature. See W 1215.
- 0630 Radio New Zealand Int'l: Feature. See M 0630.
- 0634 Christian Science Monitor: Kaleidoscope. See M 1634.
- 0640 BBC: The Farming World. See W 1225.
- 0706 Christian Science Monitor: One Norway Street. See M 2306.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0710 Radio New Zealand Int'l: Calling Fiji. Rudi Hill greets the island nation of Fiji.
- 0716 Radio Japan: Out and Around. See M 0516.
- 0722 Radio Japan: Business Today. See H 0322.
- 0730 BBC: Write On.... Paddy Feeny reads listener letters.
- 0730 Radio Japan: City Beat. See M 0530.
- 0734 Christian Science Monitor: Letterbox. See M 0134.
- 0737 Radio Japan: Japan Diary. See M 0537.

- 0740 Radio Japan: Economy Update. See H 0340.
- 0745 BBC: Network UK. See T 0215.
- 0748 Christian Science Monitor: Religious Article. See M 0148.
- 0750 Radio Japan: Commentary. See M 0350.
- 1106 Christian Science Monitor: One Norway Street. See M 2306.
- 1115 BBC: New Ideas. See T 0445.
- 1120 Radio Japan: Asiawatch. See M 1120.
- 1124 Radio Japan: Round and About. See M 1124.
- 1125 BBC: Book Choice. See S 0745.
- 1130 BBC: Feature. Topical programming on various subjects.
- 1131 Radio Japan: City Beat. See M 0530.
- 1134 Christian Science Monitor: Letterbox. See M 0134.
- 1137 Radio Japan: Japan Diary. See M 0537.
- 1140 Radio Japan: Economy Update. See H 0340.
- 1148 Christian Science Monitor: Religious Article. See M 0148.
- 1150 Radio Japan: Commentary. See M 0350.
- 1206 Christian Science Monitor: News Focus. See M 0006.
- 1215 BBC: Multitrack 2. See W 1830.
- 1234 Christian Science Monitor: Kaleidoscope. See M 1634.

- 1245 BBC: Sports Roundup. See S 1330.
- 1306 Christian Science Monitor: One Norway Street. See M 2306.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: Network UK. See T 0215.
- 1334 Christian Science Monitor: Letterbox. See M 0134.
- 1345 BBC: Folk in Britain or Jazz Now and Then. A look at folk or jazz music on the British Isles.
- 1348 Christian Science Monitor: Religious Article. See M 0148.
- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Focus. See M 0006.
- 1416 Radio Japan: Out and Around. See M 0516.
- 1422 Radio Japan: Business Today. See H 0322.
- 1430 BBC: Off the Shelf. See M 0430.
- 1430 Radio Japan: City Beat. See M 0530.
- 1434 Christian Science Monitor: Kaleidoscope. See M 1634.
- 1437 Radio Japan: Japan Diary. See M 0537.
- 1440 Radio Japan: Economy Update. See H 0340.
- 1445 BBC: Write On.... See H 0730.
- 1450 Radio Japan: Commentary. See M 0350.
- 1455 Radio Japan: Tokyo Pop-In. See M 0555.



*The English service staff at the Voice of Indonesia.*

- 1500 Christian Science Monitor: News
- 1500 Deutsche Welle: World News
- 1500 Radio Australia: World and Australian News
- 1500 Radio Beijing: News
- 1500 Radio Finland: Northern Report [T-A]
- 1500 Radio Japan: News
- 1500 Radio Moscow (World Service): News
- 1500 Radio Romania Int'l: News
- 1500 Radio RSA: News
- 1500 Voice of America: News
- 1500 WWCR: USA Radio News
- 1505 Radio Pyongyang: News
- 1510 Radio Beijing: News About China
- 1525 Radio Finland: News Summary
- 1530 Christian Science Monitor: News [M-F]
- 1530 Deutsche Welle: African News [M-F]
- 1530 Radio Moscow (World Service): News in Brief
- 1530 Radio Tirana, Albania: News
- 1530 Swiss Radio Int'l: News
- 1530 Voice of Greece: News [M-A]
- 1545 Radio Berlin Int'l: News
- 1545 Radio Korea (World News Service): News
- 1552 Radio RSA: News in Brief
- 1600 BBC: World News
- 1600 Christian Science Monitor: News
- 1600 Deutsche Welle: World News
- 1600 Radio Australia: International Report

- 1600 Radio Beijing: News
- 1600 Radio France Int'l: News
- 1600 Radio Korea: News
- 1600 Radio Moscow (World Service): News
- 1600 Radio Polonia: News
- 1600 Radio Portugal: News [M-F]
- 1600 Voice of America: News
- 1600 WWCR: USA Radio News [M-F]
- 1609 BBC: News About Britain
- 1610 Radio Beijing: News About China
- 1615 Radio Canada Int'l: News
- 1630 BRT, Brussels: News [M-F]
- 1630 Christian Science Monitor: News [M-F]
- 1630 Radio Austria Int'l: News
- 1630 Radio Moscow (World Service): News in Brief
- 1630 Radio Netherlands: News [M-A]
- 1630 Radio Polonia: News
- 1630 RAE, Buenos Aires: News
- 1630 UAE Radio, Dubai: News
- 1630 Voice of America (except Africa): News (Special English)
- 1645 Radio Berlin Int'l: News
- 1655 WYFR (Network): News [A]
- 1700 BBC: World News [S-F]; News Summary [A]
- 1700 Christian Science Monitor: News
- 1700 Radio Australia: World and Australian News
- 1700 Radio Beijing: News

- 1700 Radio Japan: News
- 1700 Radio Moscow (World Service): News
- 1700 Radio Prague Int'l: News
- 1700 Voice of America: News
- 1705 Radio Pyongyang: News
- 1710 Radio Beijing: News About China
- 1715 Radio Korea (World News Service): News
- 1730 Christian Science Monitor: News [M-F]
- 1730 Radio Moscow (World Service): News in Brief
- 1730 Radio Peace and Progress: News
- 1730 Radio Romania Int'l: News
- 1735 WYFR (Network): News [M-F]
- 1755 KUSW: News [M-F]
- 1800 BBC: Newsdesk
- 1800 Christian Science Monitor: News
- 1800 Kol Israel: News
- 1800 KVOH: UPI News
- 1800 Radio Australia: International Report
- 1800 Radio Bras, Brasilia: News [M-A]
- 1800 Radio Canada Int'l: News
- 1800 Radio Korea: News
- 1800 Radio Moscow (World Service): News
- 1800 Radio New Zealand Int'l: News [M-F]
- 1800 Radio RSA: News
- 1800 Voice of America: News
- 1800 WWCR: USA Radio News [A]
- 1825 WYFR (Network): News [A]



# program

guide

- 1500 KNLS: Swingin' Years. See T 1500.  
 1506 Christian Science Monitor: One Norway Street. See M 2306.  
 1515 BBC: Music for a While with Richard Baker. Classical music with the well-known broadcaster.  
 1516 Radio Japan: Out and Around. See M 0516.  
 1522 Radio Japan: Business Today. See H 0322.  
 1530 Radio Japan: City Beat. See M 0530.  
 1534 Christian Science Monitor: Letterbox. See M 0134.  
 1537 Radio Japan: Japan Diary. See M 0537.  
 1540 Radio Japan: Economy Update. See H 0340.  
 1545 KNLS: Advanced English. English language lessons.  
 1548 Christian Science Monitor: Religious Article. See M 0148.  
 1550 Radio Japan: Commentary. See M 0350.  
 1555 Radio Japan: Tokyo Pop-In. See M 0555.  
 1606 Christian Science Monitor: News Focus. See M 0006.  
 1615 BBC: Assignment. See H 0230.  
 1634 Christian Science Monitor: Kaleidoscope. See M 1634.  
 1645 BBC: The World Today. See M 1645.  
 2305 BBC: Commentary. See M 2305.  
 2306 Christian Science Monitor: One Norway Street. See M 2306.  
 2310 BBC: Financial News. See M 2310.  
 2315 BBC: Music Review. Classical music events and developments from around the world.  
 2316 Radio Japan: Out and Around. See M 0516.  
 2322 Radio Japan: Business Today. See H 0322.  
 2330 Radio Japan: City Beat. See M 0530.  
 2334 Christian Science Monitor: Letterbox. See M 0134.  
 2337 Radio Japan: Japan Diary. See M 0537.  
 2340 Radio Japan: Economy Update. See H 0340.  
 2348 Christian Science Monitor: Religious Article. See M 0148.  
 2350 Radio Japan: Commentary. See M 0350.

## Friday

### Oct 5th, 12nd, 19th, 26th

- 0006 Christian Science Monitor: News Focus. See M 0006.  
 0030 BBC: Musical Feature. Musical programming of a topical nature.  
 0034 Christian Science Monitor: Home Forum. Home and family affairs.  
 0101 BBC: Outlook. See M 1405.  
 0106 Christian Science Monitor: Encore. Features, repeated by popular request.  
 0116 Radio Japan: Out and About. See M 1124.  
 0122 Radio Japan: Business Today. See H 0322.  
 0125 BBC: Financial News. See M 2310.  
 0130 BBC: Folk In Britain or Jazz Now and Then. See H 1345.  
 0130 Radio Japan: City Beat. See M 0530.  
 0134 Christian Science Monitor: Letterbox. See M 0134.  
 0137 Radio Japan: Japan Diary. See M 0537.  
 0140 Radio Japan: Economy Update. See H 0340.  
 0145 BBC: Global Concerns. Issues of an environmental nature.  
 0148 Christian Science Monitor: Religious Article. See M 0148.  
 0150 Radio Japan: Commentary. See M 0350.  
 0155 Radio Japan: Tokyo Pop-In. See M 0555.  
 0206 Christian Science Monitor: News Focus. See M 0006.  
 0209 BBC: British Press Review. See S 0209.  
 0215 BBC: Seven Seas. A weekly program about ships and the sea.  
 0230 BBC: Feature. See H 1130.  
 0234 Christian Science Monitor: Kaleidoscope. See M 1634.  
 0306 Christian Science Monitor: One Norway Street. See M 2306.  
 0315 BBC: The World Today. See M 1645.  
 0316 Radio Japan: Music Mix. A program for young listeners, with Japanese pop music and discussion.  
 0330 BBC: Focus on Faith. Comment and discussion on the major issues in the worlds of faith.  
 0334 Christian Science Monitor: Letterbox. See M 0134.  
 0348 Christian Science Monitor: Religious Article. See M 0148.  
 0350 Radio Japan: Commentary. See M 0350.  
 0406 Christian Science Monitor: News Focus. See M 0006.  
 0430 BBC: Off the Shelf. See M 0430.  
 0434 Christian Science Monitor: Kaleidoscope. See M 1634.  
 0445 BBC: Folk In Britain or Jazz Now and Then. See H 1345.  
 0506 Christian Science Monitor: One Norway Street. See M 2306.  
 0509 BBC: Twenty-Four Hours. See S 0509.  
 0510 Radio New Zealand Int'l: Calling Fiji. See H 0710.  
 0516 Radio Japan: Out and Around. See M 0516.  
 0522 Radio Japan: Science Scene. The latest scientific developments and research for new products.  
 0530 BBC: Financial News. See T 0125.  
 0530 Radio Japan: Japan Music Scene. Music, background, and interviews.  
 0534 Christian Science Monitor: Letterbox. See M 0134.  
 0537 Radio Japan: Japan Diary. See M 0537.  
 0540 BBC: Words of Faith. See S 0540.  
 0540 Radio Japan: A Glimpse of Japan. Japanese culture, lifestyles, and traditions.  
 0545 BBC: The World Today. See M 1645.  
 0548 Christian Science Monitor: Religious Article. See M 0148.  
 0550 Radio Japan: Commentary. See M 0350.  
 0555 Radio Japan: Tokyo Pop-In. See M 0555.  
 0606 Christian Science Monitor: News Focus. See M 0006.  
 0610 Radio New Zealand Int'l: Checkpoint. See M 0610.  
 0630 BBC: Meridian. See W 0630.  
 0630 Radio New Zealand Int'l: Feature. See M 0630.  
 0634 Christian Science Monitor: Kaleidoscope. See M 1634.  
 0706 Christian Science Monitor: One Norway Street. See M 2306.  
 0709 BBC: Twenty-Four Hours. See S 0509.  
 0710 Radio New Zealand Int'l: Calling Tonga. See M 0510.  
 0716 Radio Japan: Out and Around. See M 0516.  
 0722 Radio Japan: Science Scene. See F 0522.  
 0730 BBC: Feature. Topical programming on various subjects.  
 0730 Radio Japan: Japan Music Scene. See F 0530.  
 0734 Christian Science Monitor: Letterbox. See M 0134.  
 0737 Radio Japan: Japan Diary. See M 0537.  
 0740 Radio Japan: A Glimpse of Japan. See F 0540.  
 0748 Christian Science Monitor: Religious Article. See M 0148.  
 0750 Radio Japan: Commentary. See M 0350.  
 1106 Christian Science Monitor: One Norway Street. See M 2306.  
 1115 BBC: Global Concerns. See F 0145.  
 1120 Radio Japan: Asiawatch. See M 1120.  
 1124 Radio Japan: Round and About. See M 1124.  
 1130 BBC: Meridian. See W 0630.  
 1131 Radio Japan: Japan Music Scene. See F 0530.  
 1134 Christian Science Monitor: Letterbox. See M 0134.  
 1137 Radio Japan: Japan Diary. See M 0537.  
 1140 Radio Japan: A Glimpse of Japan. See F 0540.  
 1148 Christian Science Monitor: Religious Article. See M 0148.  
 1150 Radio Japan: Commentary. See M 0350.

### newslines cont'd from p.63

- |  |  |  |
|--|--|--|
| 1830 BRT: Brussels; News [M-F]                   | 1900 Radio Moscow (World Service): News          | 2000 Christian Science Monitor: News             |
| 1830 Christian Science Monitor: News [M-F]       | 1900 Radio New Zealand Int'l: News [S-F]         | 2000 Kol Israel: News                            |
| 1830 Radio Canada Int'l: News [M-F]              | 1900 Radio Portugal: News [M-F]                  | 2000 KVOH: UPI News                              |
| 1830 Radio Kuwait: News                          | 1900 Spanish Foreign Radio: News                 | 2000 Radio Australia: International Report       |
| 1830 Radio Moscow (World Service): News in Brief | 1900 Voice of America: News                      | 2000 Radio Beijing: News                         |
| 1830 Radio Netherlands: News [M-A]               | 1900 WWCR: USA Radio News [M-F]                  | 2000 Radio Havana Cuba: News [M-A]               |
| 1830 Radio Polonia: News                         | 1900 Radio Jamahiriya, Libya: News Headlines     | 2000 Radio Moscow (World Service): News          |
| 1830 Radio Prague Int'l: News                    | 1910 Radio Beijing: News About China             | 2000 Radio New Zealand Int'l: News [S-F]         |
| 1830 Radio Tirana, Albania: News                 | 1920 Voice of Greece: News [M-A]                 | 2000 Radio Polonia: News                         |
| 1830 Swiss Radio Int'l: News                     | 1930 Christian Science Monitor: News [M-F]       | 2000 Radio Portugal: News [M-F]                  |
| 1830 Voice of America: News (Special English)    | 1930 Deutsche Welle: African News [M-F]          | 2000 Radio Prague Int'l: News                    |
| 1840 Voice of Greece: News [M-A]                 | 1930 Radio Austria Int'l: News                   | 2000 Voice of America: News                      |
| 1845 Radio Berlin Int'l: News                    | 1930 Radio Budapest: News                        | 2000 Voice of Indonesia: News                    |
| 1852 Radio RSA: News in Brief                    | 1930 Radio Finland: Northern Report [M-F]        | 2005 Radio Pyongyang: News                       |
| 1855 KUSW: News [M-A]                            | 1930 Radio Havana Cuba: Newsbreak [M-A]          | 2010 Radio Beijing: News About China             |
| 1900 BBC: News Summary                           | 1930 Radio Moscow (World Service): News in Brief | 2015 Radio Berlin Int'l: News                    |
| 1900 Christian Science Monitor: News [M-A]       | 1930 Radio Romania Int'l: News                   | 2025 Radio Havana Cuba: Cuban Nat'l News [M-A]   |
| 1900 Deutsche Welle: World News                  | 1930 Radio Sofia: News                           | 2025 Radiotelevisione Italiana: News             |
| 1900 HCJB: Latin American News                   | 1930 Radio Yugoslavia: News                      | 2030 Christian Science Monitor: News [M-F]       |
| 1900 KVOH: UPI News                              | 1935 Radiotelevisione Italiana: News             | 2030 Radio Havana Cuba: Newsbreak [M-A]          |
| 1900 Radio Australia: World and Australian News  | 1945 Radio Korea (World News Service): News      | 2030 Radio Korea: News                           |
| 1900 Radio Beijing: News                         | 1947 Radio Jamahiriya, Libya: News               | 2030 Radio Moscow (World Service): News in Brief |
| 1900 Radio Canada Int'l: News [M-F]              | 1955 HCJB: World News                            | 2030 Radio Netherlands: News [M-A]               |
| 1900 Radio Havana Cuba: News [M-A]               | 1955 KUSW: News [M-F]                            | 2045 Radio Berlin Int'l: News                    |
| 1900 Radio Japan: News                           | 1955 Radio Finland: News Summary                 | 2045 Radio Korea (World News Service): News      |
|  | 1955 WYFR (Network): News [M-A]                  | 2055 KUSW: News [M-A]                            |
|  | 2000 BBC: World News                             | 2055 Voice of Indonesia: News in Brief           |



# program

guide

- 1206 Christian Science Monitor: News Focus. See M 0006.
- 1215 BBC: Feature. See F 0730.
- 1234 Christian Science Monitor: Kaleidoscope. See M 1634.
- 1245 BBC: Sports Roundup. See S 1330.
- 1306 Christian Science Monitor: One Norway Street. See M 2306.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: Short Story. See T 0130.
- 1334 Christian Science Monitor: Letterbox. See M 0134.
- 1345 BBC: Here's Humph! All that jazz with Humphrey Lyttelton.
- 1348 Christian Science Monitor: Religious Article. See M 0148.
- 1405 BBC: Outlook. See M 1405.
- 1406 Christian Science Monitor: News Focus. See M 0006.
- 1416 Radio Japan: Out and Around. See M 0516.
- 1422 Radio Japan: Science Scene. See F 0522.
- 1430 BBC: Off the Shelf. See M 0430.
- 1430 Radio Japan: Japan Music Scene. See F 0530.
- 1434 Christian Science Monitor: Kaleidoscope. See M 1634.
- 1437 Radio Japan: Japan Diary. See M 0537.
- 1440 Radio Japan: A Glimpse of Japan. See F 0540.
- 1445 BBC: Feature. See M 0445.
- 1450 Radio Japan: Commentary. See M 0350.
- 1455 Radio Japan: Tokyo Pop-In. See M 0555.
- 1500 KNLS: Swingin' Years. See T 1500.
- 1506 Christian Science Monitor: One Norway Street. See M 2306.
- 1515 BBC: Music Review. See H 2315.
- 1516 Radio Japan: Music Mix. See F 0316.
- 1534 Christian Science Monitor: Letterbox. See M 0134.
- 1545 KNLS: American Magazine. See W 1545.
- 1548 Christian Science Monitor: Religious Article. See M 0148.
- 1550 Radio Japan: Commentary. See M 0350.
- 1555 Radio Japan: Tokyo Pop-In. See M 0555.
- 1606 Christian Science Monitor: News Focus. See M 0006.
- 1615 BBC: Science in Action. See M 0230.
- 1634 Christian Science Monitor: Home Forum. See M 0034.
- 1645 BBC: The World Today. See M 1645.
- 2305 BBC: Commentary. See M 2305.
- 2306 Christian Science Monitor: Encore. See M 0106.
- 2310 BBC: Financial News. See M 2310.
- 2315 BBC: Worldbrief. A roundup of the week's news headlines and human-interest happen-



*The announcers of "Radio Japan Magazine Hour," the umbrella program for various Radio Japan features.*

- ings.
- 2316 Radio Japan: Out and Around. See M 0516.
- 2322 Radio Japan: Science Scene. See F 0522.
- 2330 BBC: Multitrack 3. Sarah Ward surveys the British alternative music scene.
- 2330 Radio Japan: Japan Music Scene. See F 0530.
- 2334 Christian Science Monitor: Letterbox. See M 0134.
- 2337 Radio Japan: Japan Diary. See M 0537.
- 2340 Radio Japan: A Glimpse of Japan. See F 0540.
- 2348 Christian Science Monitor: Religious Article. See M 0148.
- 2350 Radio Japan: Commentary. See M 0350.

## Saturday

### Oct 6th, 13th, 20th, 27th

- 0005 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0010 Radio New Zealand Int'l: Sports Week. See S 0210.
- 0030 BBC: From the Weeklies. A review of the weekly British press.
- 0045 BBC: Recording of the Week. See M 0545.
- 0101 BBC: Outlook. See M 1405.
- 0105 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0125 BBC: Financial News. See M 2310.
- 0130 BBC: Feature. Topical programming on various subjects.
- 0145 BBC: Book Choice. See S 0745.
- 0150 BBC: New Ideas. See T 0445.
- 0205 Christian Science Monitor: Herald of Christian Science. See S 0005.

- 0209 BBC: British Press Review. See S 0209.
- 0215 BBC: Network UK. See T 0215.
- 0230 BBC: People and Politics. Background to the British political scene.
- 0305 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0315 BBC: The World Today. See M 1645.
- 0330 BBC: The Vintage Chart Show. Paul Burnett presents top ten hits from the music charts of yesteryear.
- 0405 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0430 BBC: Here's Humph! See F 1345.
- 0445 BBC: Worldbrief. See F 2315.
- 0505 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0509 BBC: Twenty-Four Hours. See S 0509.
- 0530 BBC: Financial News. See M 2310.
- 0540 BBC: Words of Faith. See S 0540.
- 0545 BBC: The World Today. See M 1645.
- 0605 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0630 BBC: Meridian. See W 0630.
- 0705 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 0709 BBC: Twenty-Four Hours. See S 0509.
- 0730 BBC: From the Weeklies. See F 2315.
- 0745 BBC: Network UK. See T 0215.
- 1105 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1115 BBC: Feature. See A 0130.
- 1130 BBC: Meridian. See W 0630.
- 1205 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1215 BBC: Multitrack 3. See F 2330.
- 1245 BBC: Sports Roundup. See S 1330.
- 1305 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1309 BBC: Twenty-Four Hours. See S 0509.
- 1330 BBC: Network UK. See T 0215.
- 1345 BBC: Sportsworld. A weekly sports magazine (with breaks for news, through 1700 UTC).
- 1405 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1500 KNLS: Weekend Special. See S 1500.
- 1505 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 1605 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 2305 BBC: Words of Faith. See S 0540.
- 2305 Christian Science Monitor: Herald of Christian Science. See S 0005.
- 2310 BBC: Book Choice. See S 0745.
- 2315 BBC: A Jolly Good Show. See T 1515.

- 2100 BBC: News Summary
- 2100 Christian Science Monitor: News [M-A]
- 2100 Deutsche Welle: World News
- 2100 KVOH: UPI News
- 2100 Radio Australia: World and Australian News
- 2100 Radio Beijing: News
- 2100 Radio Canada Int'l: World at 6 [M-F]; News [A-S]
- 2100 Radio Japan: News
- 2100 Radio Kiev: News
- 2100 Radio Moscow (World Service): News
- 2100 Radio New Zealand Int'l: News [S-F]
- 2100 Radio Prague Int'l: News
- 2100 Radio Romania Int'l: News
- 2100 RAE, Buenos Aires: News
- 2100 Spanish Foreign Radio: News
- 2100 Swiss Radio Int'l: News
- 2100 Voice of America: News
- 2100 Voice of Turkey: News
- 2110 Radio Beijing: News About China
- 2125 WYFR (Network): News [M-F]
- 2130 Christian Science Monitor: News [M-F]
- 2130 Radio Budapest: News
- 2130 Radio Canada Int'l (Africa): News
- 2130 Radio Moscow (World Service): News in Brief
- 2130 Radio Sofia: News
- 2155 KUSW: News [M-A]
- 2200 BBC: Newshour

- 2200 BRT, Brussels: News [M-F]
- 2200 Christian Science Monitor: News
- 2200 Radio Australia: International Report
- 2200 Radio Beijing: News
- 2200 Radio Canada Int'l (Asia): News
- 2200 Radio Canada Int'l (USA): World at 6 [M-F]; News [A-S]
- 2200 Radio Finland: Northern Report [M-F]
- 2200 Radio Havana Cuba: News [M-A]
- 2200 Radio Moscow (World Service): News
- 2200 Radio New Zealand Int'l: News [S-F]
- 2200 Radio Peace and Progress: News
- 2200 Radio Yugoslavia: News
- 2200 Radiotelevisione Italiana: News
- 2200 Voice of America: News
- 2200 Voice of Free China: News and Commentary
- 2208 Voice of America (Carib): Caribbean News [M-F]
- 2210 Radio Beijing: News About China
- 2225 Radio Havana Cuba: Cuban Nat'l News [M-A]
- 2230 Christian Science Monitor: News [M-F]
- 2230 Kol Israel: News
- 2230 Radio Havana Cuba: Newsbreak [M-A]
- 2230 Radio Moscow (World Service): News in Brief
- 2230 Radio Poland: News
- 2230 Radio Sofia: News
- 2230 Radio Tirana, Albania: News
- 2230 Radio Vilnius: News

- 2230 Swiss Radio Int'l: News
- 2230 Voice of America: News (Special English)
- 2230 WYFR (Network): News [M-F]
- 2245 Radio Berlin Int'l: News
- 2255 KUSW: News [M-F]
- 2255 WYFR (Network): News [M-A]
- 2300 BBC: World News [A-S]; 5-Minute News [M-F]
- 2300 Christian Science Monitor: News [M-A]
- 2300 Radio Australia: World and Australian News
- 2300 Radio Canada Int'l (Caribbean): News
- 2300 Radio Japan: News
- 2300 Radio Moscow: News
- 2300 Radio New Zealand Int'l: News [S-F]
- 2300 Radio Vilnius: News
- 2300 Voice of America: News
- 2300 Voice of Turkey: News
- 2305 Radio Poland: News
- 2305 Radio Pyongyang: News
- 2315 Radio for Peace Int'l: UN Radio News [M-F]
- 2330 Christian Science Monitor: News [M-F]
- 2330 Radio Canada Int'l (USA): News [A-S]
- 2330 Radio Moscow (World Service): News in Brief
- 2330 Radio Tirana, Albania: News
- 2333 Radio Jamahiriya, Libya: News Headlines
- 2335 Voice of Greece: News [M-A]
- 2355 KUSW: News [M-A]
- 2355 Radio Japan: News [M-F]



# TOURISM

A VISION OF AMERICA

When Americans head out on the open road, we appreciate how great America really is, and our freedom to travel. Now, more than ever in the past, people from the world over can visit America. Foreign visitors strengthen our global relations and in 1989, they added \$43 billion\* to our economy. As our number one export, tourism improves the USA's balance of trade with other nations.

Tourism  
Works For  
America . . .  
and for  
you.

\*Preliminary 1989 Estimates. Source: U.S. Travel and Tourism Administration



BUCK, The Tourist Dollar

The National Travel and Tourism Awareness Council

©1990, National Travel and Tourism Awareness Council



# MT Monitoring Team

**Greg Jordan,**  
**Frequency Manager**  
 7718 Krefeld Glen Drive #719  
 Charlotte, NC 28227  
 Also on Fidonet, Shortwave Echo  
 Compuserve 72260,317

**Richard A. Keen**  
 Colorado

**Larry Miller**  
 Pennsylvania

# frequency

section

## 0000 UTC [8:00 PM EDT/5:00 PM PDT]

0000-0015	Radio Prague Int'l, Czechoslovakia	7345	11680	11990
0000-0025	Radio Finland, Helsinki	11755	15185	
0000-0030	Radio Canada Int'l, Montreal	9755	11730	
0000-0030	M Radio Norway International, Oslo	15165		
0000-0030	Radio Korea, Seoul	15575		
0000-0030	Radio Australia, Melbourne	11880	13605	15240 15380
		15465	17630	17750 17795
0000-0050	Radio Pyongyang, North Korea	15115	15160	
0000-0100	M-H Radio New Zealand, Wellington	17675		
0000-0100	BBC World Service, London, England	5975	6005	6175 6195
		7325	9590	9915 11750
		12095	15260	17830
0000-0100	Adventist World Radio, Costa Rica	9725	11870	
0000-0100	Radio Moscow N.American Service	11710	11730	11780 11850
		11980	12040	15425 15580
		15595		
0000-0100	Radio Sofia, Bulgaria	11660	11720	
0000-0100	Radio Kiev, Ukraine	7400	9860	11790 13645
		15485		
0000-0100	Radio Moscow World Service	12055	15140	15170 15280
		15420	15425	15460 15480
		15550	15590	17570 17600
		17610	17620	17730 17775
		17850	17890	17935 21555
		21595	21655	21690 21790
		21825		
0000-0100	CBC Northern Quebec Service, Can	9625(ML)		
0000-0100	CBN, St. John's, Nfld, Canada	6160		

0000-0100	CBU, Vancouver, British Columbia	6160		
0000-0100	CFCF, Montreal, Quebec, Canada	6005		
0000-0100	CFCN, Calgary, Alberta, Canada	6030		
0000-0100	CHNS, Halifax, Nova Scotia, Canada	6130		
0000-0100	Christian Science World Svc, Boston	9410	9850	13760 15435
0000-0100	CKWX, Vancouver, British Columbia	6080		
0000-0100	CFRB, Toronto, Ontario, Canada	6070		
0000-0100	FEBC Radio Int'l, Philippines	15480		
0000-0100	KSDA, Guam	15125		
0000-0100	KUSW, Salt Lake City, Utah	15590		
0000-0100	Radio Beijing, Beijing, China	17705	15100	
0000-0100	Radio Havana Cuba	11820		
0000-0100	Radio Luxembourg, Junglinster	6090		
0000-0100	Spanish National Radio, Madrid	9630	11880	
0000-0100	Voice of America-Americas Service	5995	9775	9815 11580
		15205		
0000-0100	Voice of America-Caribbean Service	6130	9455	11695
0000-0100	Voice of America-East Asia Service	7120	9770	11760 15185
		15290	17735	17820
0000-0100	Radio for Peace Int'l, Costa Rica	7375	13630	21566
0000-0100	WHRI, Noblesville, Indiana	7315	9495	
0000-0100	WINB, Red Lion, Pennsylvania	15145		
0000-0100	WRNO Worldwide, Louisiana	7355		
0000-0100	WWCR, Nashville, Tennessee	7520		
0000-0100	WYFR, Okeechobee, Florida	5985	13695	15170
0030-0100	S,M Radio Canada Int'l, Montreal	5960	9755	
0030-0100	Radio Australia, Melbourne	11880	13605	15160 15240
		15380	15465	15560 17630
		17750	17795	21740
0030-0100	Radio Canada International, Montreal	5960	9755	
0030-0100	BRT Brussels, Belgium	9925	13675	
0030-0100	M-A Radio Budapest, Hungary	6110	9520	9585 9835
		11910	15160	
0030-0100	Radio Netherlands Int'l, Hilversum	6020	6165	15560
0035-0100	HCJB, Quito, Ecuador	15155	17875	25950ssb
0045-0100	Radio Berlin International, GDR	9730	13610	13690 15240
0050-0100	Vatican Radio, Vatican City	6150	9605	11780

## 0100 UTC [9:00 PM EDT/6:00 PM PDT]

0100-0105	Vatican Radio, Vatican City	6150	9605	11780
0100-0115	All India Radio, New Delhi	9535	9910	
		11715	11745	15110
0100-0125	RAI, Rome, Italy	9575	11800	

## the frequency file

October 1990

Welcome to another month of frequency info, where the revolving-door mentality doesn't scare us. Especially at this time of the year, when there are not only time changes, but frequency changeovers as well. It'll all be over with by November, and until then, we'll continue to keep you as up-to-date as possible - as always. **MONITORING TIMES - As Accurate as They Wanna Be**

### Moscow City Council to Ration Cigarettes

It's amazing how headlines jump out at you on shortwave. The above headline recently stuck out in a report on Radio Moscow. During those periods when geomagnetic storms wreak all types of mischief on your listening habits, powerhouses like Radio Moscow still manage to get through.

If you're primarily a DX'er, I hope you took the opportunity (?) of the sometimes static summer months to listen in on programming such as this.

### If It's Late Nite, It Must Be David Letterman

Well, not exactly. But there are strange things out there in the wee hours. From Africa to the Pacific and beyond, your early morning hours offer you prime DX - and some pretty good programming as well.

### Reader Survey: Send in Your Comments

It has been a very contradictory year in the world, and this is reflected on shortwave as well. Some stations have left us, others have signed on or plan to

sign on. What do you think was the major event on shortwave this year? Was it Radio Baghdad's special broadcasts for American troops in the Arabian desert? (We list those broadcasts, by the way, purely for your information and not by any means to support propaganda.)

Or was it Radio RSA's decision to terminate all of its shortwave broadcasts targeted beyond Africa? Or does it have something to do with events in pirate radio (you will note that, due to the nature of these birds, we don't list them here - check out Outer Limits elsewhere in this magazine for that info).

Whatever you think that event was, write it on a postcard and send it to me at the address at the beginning of this section. I'll tally your responses and report them to you in the December issue.

### You Can Take it With You

One of my clients came into the office the other day and told me he was shipping out to the Persian Gulf. He's a reservist, and ready for the mission. I know you are supporting these men and women as we all are. Why not let them in on the benefits of taking a shortwave radio with them? I know if I was stuck in the desert, I'd feel a little closer to home if I heard KUSW or the Christian Science Monitor. So, tell a friend about shortwave.

See ya next month. Until then, take care. And don't listen to too many Radio Baghdad programmes entitled "Documents Show that Kuwait Was Always A Part of Kuwait."

-- Greg Jordan, Frequency Manager

# frequency

section

0100-0125	Radio Netherlands Int'l, Hilversum	6020	6165	15560
0100-0130	Kol Israel, Jerusalem	15640	9435	11605
0100-0130	Radio Berlin International, GDR	9730	13610	13690
		15240		
0100-0130	Radio Canada International, Montreal	5960	9755	
0100-0130	Radio Japan Americas Svc, Tokyo	17755		
0100-0130	Radio Prague Int'l, Czechoslovakia	5930	7345	11680
0100-0130	CBC Northern Quebec Service, Can	9625	(ML)	
0100-0130	Radio Sweden, Stockholm	15405		
0100-0145	Radio Yugoslavia, Belgrade	7215	11735	15105
0100-0150	Deutsche Welle, Koin, West Germany	6040	6145	9565
		15105	11865	
0100-0200	Radio Moscow North American Svc	11690	11710	11730 11780
		11850	11980	12040 15290
		15425	15580	15595
0100-0200	Radio Moscow World Service	12055	15140	15170 15280
		15420	15425	15460 15480
		15550	15590	17570 17600
		17610	17620	17730 17775
		17850	17890	17935 21555
		21595	21655	21690 21790
		21825		
0100-0200	BBC World Service, London, England	5975	6005	6175 7325
		9590	9915	11750 12095
		15260	21715	
0100-0200	S,M Radio Canada Int'l, Montreal	13720	11940	11845 9755
		9535		
0100-0200	A-H Radio New Zealand, Wellington	17675		
0100-0200	CBN, St John's, Newfoundland	6160		
0100-0200	CBU, Vancouver, British Columbia	6160		
0100-0200	CFCF, Montreal, Quebec, Canada	6005		
0100-0200	CFCN, Calgary, Alberta, Canada	6030		
0100-0200	CHNS, Halifax, Nova Scotia, Canada	6130		
0100-0200	Christian Science World Svc, Boston	15435	9850	13760 9410
0100-0200	CKWX, Vancouver, British Columbia	6080		
0100-0200	CFRB, Toronto, Ontario, Canada	6070		
0100-0200	FEBC Radio Int'l, Philippines	15480		
0100-0200	HCJB, Quito, Ecuador	17875	15155	
0100-0200	KUSW, Salt Lake City, Utah	15590		
0100-0200	Radio Australia, Melbourne	11880	15160	15240 15465
		15560	17630	17750 17795
		21525	21740	21775
0100-0200	Radio Havana Cuba	11820		
0100-0200	Radio Japan General Svc, Tokyo	5960	17810	17835 17845
0100-0200	Radio Luxembourg, Junglinster	6090		
0100-0200	Radio for Peace Int'l, Costa Rica	7375	(T-A add 13630)	
0100-0200	Spanish National Radio, Madrid	9630	11880	

0100-0200	Voice of America-Americas Service	5995	9775	9815 11580
		15205		
0100-0200	Voice of America-Caribbean Service	6130	9455	
0100-0200	Voice of America-East Asia Service	7115	7205	9740 11705
		15205	21525	
0100-0200	Voice of Indonesia, Jakarta	11755	11788	
0100-0200	WHRI, Noblesville, Indiana	7315	9495	
0100-0200	WRNO Worldwide, Louisiana	7355		
0100-0200	WWCR, Nashville, Tennessee	7520		
0100-0200	WYFR, Okeechobee, Florida	5985	9505	11720 17612
0130-0200	Radio Budapest, Hungary	6110	9520	9585 9835
		11910	15160	
0130-0200	M-A Voice of Greece, Athens	11645	9395	9420
0130-0200	Radio Baghdad, Iraq	11755	11810	11830
0130-0200	Radio Austria International, Vienna	9870	9875	13730
0155-0200	Vatican Radio, Vatican City	15105	9645	11750

## 0200 UTC [10:00 PM EDT/7:00 PM PDT]

0200-0215	Vatican Radio, Vatican City	15105	9645	11750
0200-0220	Radio Veritas-Asia, Philippines	15220	15360	
0200-0230	SLBC Domestic Service, Sri Lanka	4940		
0200-0230	Kol Israel, Jerusalem	9435	15640	11605
0200-0230	H,A Radio Budapest, Hungary	6110	9520	9585 9835
		11910	15160	
0200-0230	FEBC Radio Int'l, Philippines	15480		
0200-0230	T-A Voice of America	5995	9775	9815 11580
		15205		
0200-0230	Swiss Radio International, Berne	6095	6135	9650 9885
		12035	17730	
0200-0250	Deutsche Welle, Koin, W. Germany	7285	9615	9690 11835
		11945	15235	17770
0200-0300	BBC World Service, London, England	5975	6005	6110 6175
		7135	7325	9410 9590
		9915	11750	12095 15260
		15390	21715	
0200-0300	RAE, Buenos Aires, Argentina	11710		
0200-0300	KSDA, Guam	13720		
0200-0300	Radio Moscow North American Svc	11690	11710	11780 11850
		11980	12040	12050 13605
		13675	15290	15315 15425
		15435	15530	15580 15595
0200-0300	Radio Moscow World Service	11600	11630	15140 15170
		15230	15280	15415 15480
		15550	15590	17560 17570
		17600	17620	17730 17850

## LEGEND

\* The first four digits of an entry are the broadcast start time in UTC. The second four digits represent the end time.

\* In the space between the end time and the station name is the broadcast schedule.

S=Sunday M=Monday T=Tuesday W=Wednesday  
H=Thursday F=Friday A=Saturday

If there is no entry, the broadcasts are heard daily. If, for example, there is an entry of "M," the broadcast would be heard only on Mondays. An entry of "M,W,F" would mean Mondays, Wednesdays and Fridays only. "M-F" would mean Mondays through Fridays. "TEN" indicates a tentative schedule and "TES" a test transmission.

The last entry on a line is the frequency. Several codes may be found after a frequency as follows:

- \* SSB indicates Single Sideband transmission.
- \* v after a frequency indicates that it varies.
- \* Notations of USB and LSB (upper and lower sideband transmissions) usually refer only to the individual frequency after which they appear.
- \* [ML] after a frequency indicates a multi-lingual transmission containing English-language programs. All other frequencies may be assumed to be English language programs directed to various parts of the world.
- \* Listings followed by an asterisk (\*) are for English lessons and do not contain regularly scheduled programming.

We suggest that you begin with the lower frequencies that a station is broadcasting on and work your way up the dial. Remember that there is no guarantee that a station will be audible on any given day. Reception conditions can change rapidly, though, and if it is not audible one night, it may well be on another.

## HOW TO USE THE PROPAGATION CHARTS

Propagation charts can be an invaluable aid to the DXer in determining which frequencies are likely to be open at a given time. To use the propagation charts, choose those for your location (they are divided into east coast, midwest and west coast of North America). Then look for the one most closely describing the geographic location of the station you want to hear.

Once you've located the correct charts, look along the horizontal axis of the graph for the time that you are listening. The top line of the graph shows the Maximum Useable Frequency [MUF] and the lower line the Lowest Useable Frequency [LUF] as indicated on the vertical axis of the graph.

While there are exceptions to every rule (especially those regarding shortwave listening), you should find the charts helpful in determining the best times to listen for particular regions of the world. Good luck!



# Are You Ready for Fall DX SEASON?!



We're rootin' for ya, but you gotta stay tuned in to get the best tips and articles on your monitoring hobby. Moving? Send us your address change in time to keep your MT coming. Subscription current? Check your label to see your date of expiration. Says William Kiely of County Cork, Ireland, "I think your magazine is the best that I have ever read. (I write the Utility column for the Irish Radio Transmitters Society's magazine) . . . MT covers all the spectrum of radio that I am interested in." If you feel that way, too, make sure you're getting the inside scoop this fall!

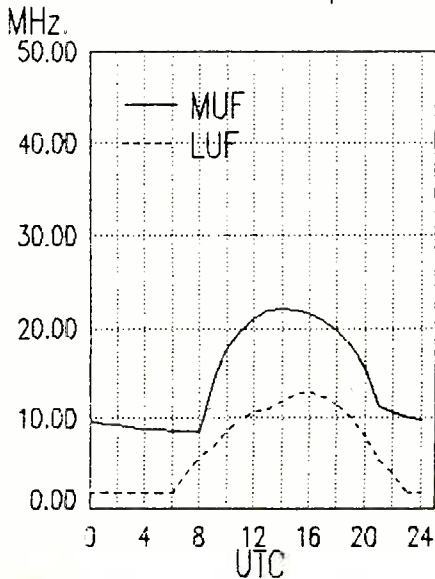
**Stay glued to Monitoring Times  
and be a Winner!**

		17860	17890	17960	21555
		21585	21625	21655	21690
		21790	21825		
0200-0300	CBC Northern Quebec Service, Can	9625	(ML)		
0200-0300	CBN, St. John's, Newfoundland, Can	6160			
0200-0300	CBU, Vancouver, British Columbia	6160			
0200-0300	CFCF, Montreal, Quebec, Canada	6005			
0200-0300	CFCN, Calgary, Alberta, Canada	6030			
0200-0300	CHNS, Halifax, Nova Scotia, Canada	6130			
0200-0300	Christian Science World Svc, Boston	9455	9850	13760	
0200-0300	CKWX, Vancouver, British Columbia	6080			
0200-0300	CFRB, Toronto, Ontario, Canada	6070			
0200-0300	HCJB, Quito, Ecuador	15155	17875	25950	ssb
0200-0300	KUSW, Salt Lake City, Utah	15590			
0200-0300	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17630	17750
		17795	21525	21740	21775
0200-0300	Radio Baghdad, Iraq	11755	11810	11830	
0200-0300	T-A Radio For Peace Int'l, Costa Rica	7375	USB	(T-A add	
		13630)			
0200-0300	Radio Romania Int'l, Bucharest	5990	6155	9510	9570
		11830	11940	15380	
0200-0300	Radio Cairo, Egypt	9475	9675		
0200-0300	Radio Havana Cuba	9710	11820		
0200-0300	Radio Luxembourg, Junglinster	6090			
0200-0300	Voice of America-South Asia Service	7115	7205	9740	11705
		15160	15250	21525	
0200-0300	Radio Cultura, Guatemala	3300			
0200-0300	A.S Radio New Zealand, Wellington	17675			
0200-0300	Voice of Free China, Taiwan	5950	7445	9680	
0200-0300	WHRI, Noblesville, Indiana	7315	9495		
0200-0300	WRNO Worldwide, Louisiana	7355			
0200-0300	WWCR, Nashville, Tennessee	7520			
0200-0300	WINB, Red Lion, Pennsylvania	15145			
0200-0300	WYFR, Okeechobee, Florida	6065	9505	11720	
0230-0245	Radio Pakistan (Slow speed news)	9545	15115	17660	17725
		21490			
0230-0300	T-A Radio Portugal, Lisbon	9600	9680	9705	11840
0230-0300	Radio Sweden, Stockholm	9695	11705		
0230-0300	Radio Tirana, Albania	9500	11825		
0245-0300	Radio Berlin International, GDR	6080	11890	13610	13760
		15240			

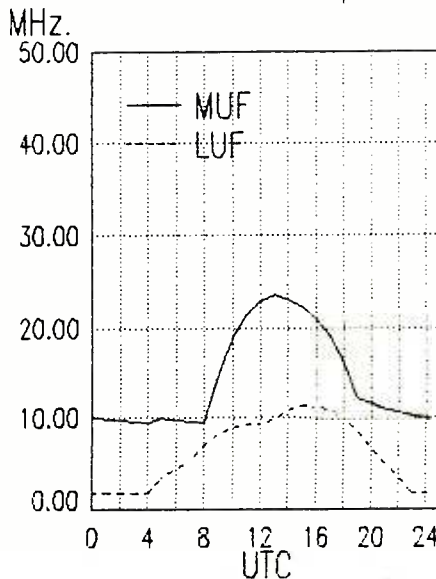
		15465	15560	17630	17750
		17795	21525	21740	21775
		9475	9675		
0300-0330	Radio Cairo, Egypt				
0300-0330	Radio Japan General Service, Tokyo	17835	17810	17765	9645
0300-0330	Radio Prague Int'l, Czechoslovakia	5930	7345	11680	
0300-0330	Radio Japan Americas Svc, Tokyo	15195	17825	15325	21610
0300-0330	Radio Berlin International, GDR	6080	11890	13610	13760
		15240			
0300-0330	Radio Baghdad, Iraq	11755	11810	11830	

0300 UTC [11:00 PM EDT/8:00 PM PDT]					
0300-0315	Azad Kashmir Radio, Pakistan	7286	4980	3665	
0300-0330	Radio Australia, Melbourne	11880	15160	15240	15320

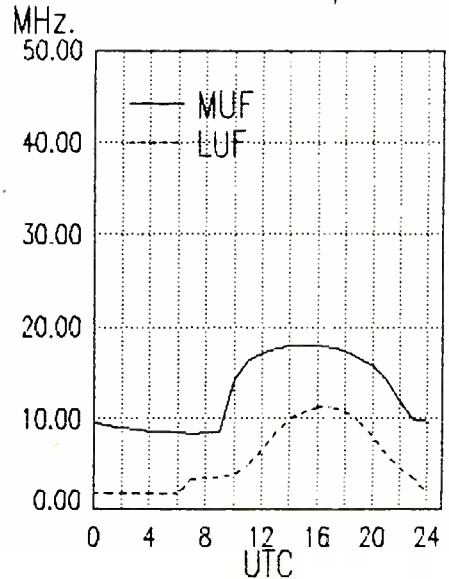
East Coast To  
Western Europe



East Coast To  
Eastern Europe



East Coast To  
Arctic Europe



**East Coast**

# frequency

section

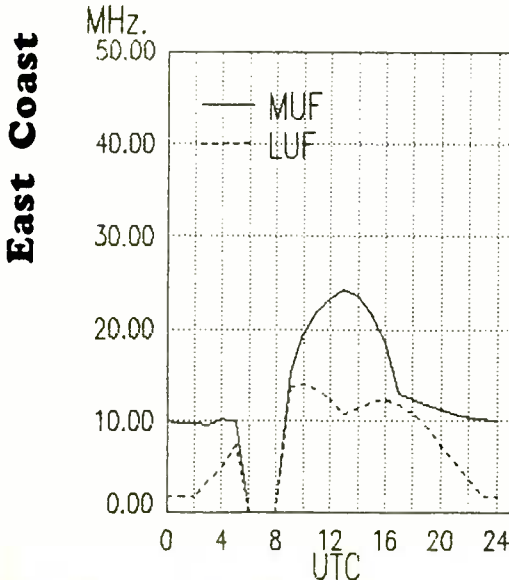
0300-0350	Deutsche Welle, Koln, West Germany	6085	6120	9545	15205
		11810			
0300-0355	Radio Beijing, China	9690	11655	11715	15100
0300-0400	A-S Radio New Zealand	17675			
0300-0400	T-A Radio Canada International, Montreal	9535	9755	11845	11940
		13720			
0300-0400	BBC World Service, London, England	5975	6005	6175	6195
		7135	7325	9410	9600
		9915	11750	12095	15220
		15260	15420	17705	21715
0300-0400	CBC, Northern Quebec Service, Can	9625 (ML)			
0300-0400	Radio Moscow North American Svc	9635	12050	13605	15180
		15425	15455	15530	15580
		15595			
0300-0400	Radio Moscow World Service	7305	11615	11630	11675
		11775	11960	11980	
		11995	12040	15140	15170
		15230	15280	15315	15320
		15415	15480	15540	15550
		17560	17570	17600	17620
		17730	17850	17860	17890
		17995	21555	21585	21625
		21655	21690	21740	21790
		21825	21880	25780	
0300-0400	CBN, St. John's, Newfoundland, Can	6160			
0300-0400	CBU, Vancouver, British Columbia	6160			
0300-0400	CFCF, Montreal, Quebec, Canada	6005			
0300-0400	CFCN, Calgary, Alberta, Canada	6030			
0300-0400	CHNS, Halifax, Nova Scotia, Canada	6130			
0300-0400	Christlan Science World Svc, Boston	9455	9850	13760	
0300-0400	CKWX, Vancouver, British Columbia	6080			
0300-0400	CFRB, Toronto, Ontario, Canada	6070			
0300-0400	Faro del Caribe, San Jose, Costa Rica	5055	9645		
0300-0400	HCJB, Quito, Ecuador	17875	15155		
0300-0400	Radio Cultural, Guatemala	3300			
0300-0400	Radio Havana Cuba	9710	11820		
0300-0400	Trans World Radio, Bonaire	9535	11930		
0300-0400	Voice of America-Africa Service	6035	7170	7280	9525
		9575	11835		
0300-0400	Voice of Free China, Taiwan	5950	7445	9680	9765
		11745	15345		
0300-0400	WHRI, Noblesville, Indiana	7315	9495		
0300-0400	WRNO Worldwide, Louisiana	6185			
0300-0400	WWCR, Nashville, Tennessee	7520			
0300-0400	WYFR, Okeechobee, Florida	6065	9505	15440	
0310-0325	Vatican Radio, Vatican City	11725			
0315-0330	Radio for Peace Int'l, Costa Rica	7375	USB		
0315-0345	Radio France International, Paris	3965	5990	7135	7280

		9745	9790	9800	11705
		11790	11995	15135	15155
		15300			
0330-0400	Radio Netherlands Int'l, Hilversum	9590	6165		
0330-0400	Radio Tirana, Albania	9500	11825		
0330-0400	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17795	21525
		21740	21775		
0330-0400	United Arab Emirates Radio, Dubai	11940	13675	15400	15435
0330-0400	Radio Japan General Service, Tokyo	17835	17810	17765	
0340-0350	M-A Voice of Greece, Athens	11645	9395	9420	
0349-0357V	Radio Yerevan, Armenia	11675	11790	15180	15455
		15485			
0350-0400	RAI, Rome, Italy	11905	15330	17795	
		17690	17665		

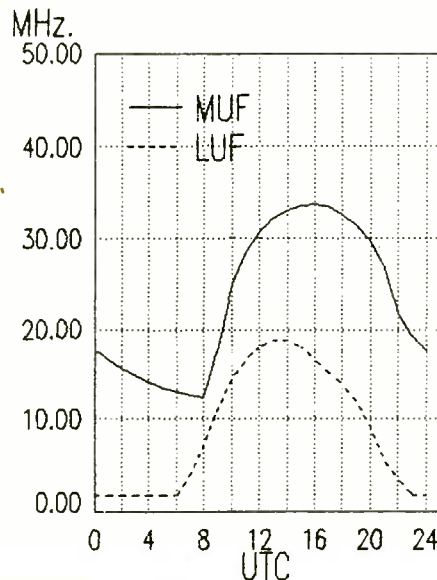
## 0400 UTC [12:00 AM EDT/9:00 PM PDT]

0400-0410	M-F Radio Zambia, Lusaka	4910			
0400-0410	RAI, Rome, Italy	11905	15330	17795	
0400-0415	Radio Prague Int'l, Czechoslovakia	5930	7345	11680	
0400-0425	Radio Cultural, Guatemala	3300			
0400-0425	Radio Netherlands Int'l, Hilversum	9590	6165		
0400-0430	Radio Romania Int'l, Bucharest	5990	6155	9510	9570
		11830	11940	15380	
0400-0430	A-S Radio New Zealand, Wellington	17675			
0400-0430	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17795	21525
		21740	21775		
0400-0430	Swiss Radio International, Berne	6135	9650	9885	12035
0400-0430	Trans World Radio, Bonaire	11930	9535		
0400-0445	Radio Berlin International, GDR	6080	9730		
0400-0450	Deutsche Welle, Koln, West Germany	7225	7150	9765	9565
		11765	15265		
0400-0450	Radio Pyongyang, North Korea	13650	15180	17765	
0400-0455	Radio Beijing, China	11685	11840		
0400-0500	Voice of America-Africa Service	6025	6035	7280	9525
		9575	11785	11835	
0400-0500	Radio Moscow North American Svc	9635	11895	12050	13605
		15180	15425	15455	15530
		15595(+17605 from 0430)			
0400-0500	BBC World Service, London, England	5975	6005	6195	7105
		7120	9410	9580	9600
		9610	9670	9915	12095
		15070	15245	17885	21470
		21715			

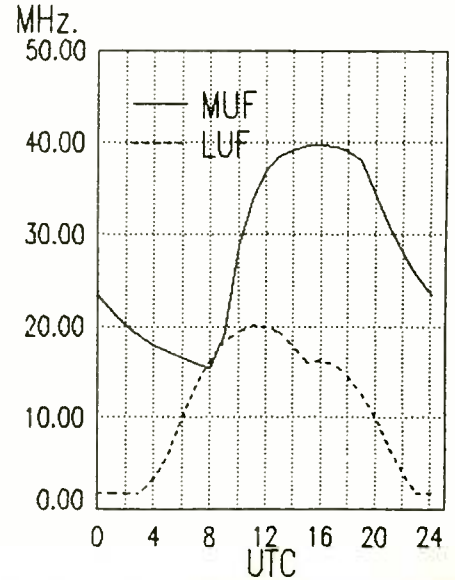
East Coast To Middle East



East Coast To West Africa



East Coast To South Africa





# frequency

section

0400-0500	Radio Sofia, Bulgaria	7115	11720	11735	11760
0400-0500	Voice of Turkey, Ankara	9445	17880		
0400-0500	Radio Moscow World Service	11615	11630	11775	11780
		11980	11995	12010	12040
		15140	15230	15280	15315
		15415	15520	15540	15550
		15590	17560	17570	17600
		17620	17625	17715	17730
		17850	17860	17890	21555
		21585	21625	21690	21740
		21790	21825	25780	
0400-0500	CBC, Northern Quebec Service	9625	(ML)		
0400-0500	Radio for Peace Int., Costa Rica	7375	USB		
0400-0500	Radio RSA, Johannesburg	7270	11900		

NOTE: Radio RSA has started an early-morning transmission for Africa, the first in this time slot since they abandoned all non-Africa targets on May 1, 1990. This may be an opportunity, given optimum conditions, to once again sit in on what's going on - or not going on - under the Southern Cross. Former Radio RSA listeners will recognize those last four words as a pun! (Under the Southern Cross was a popular RSA programme)

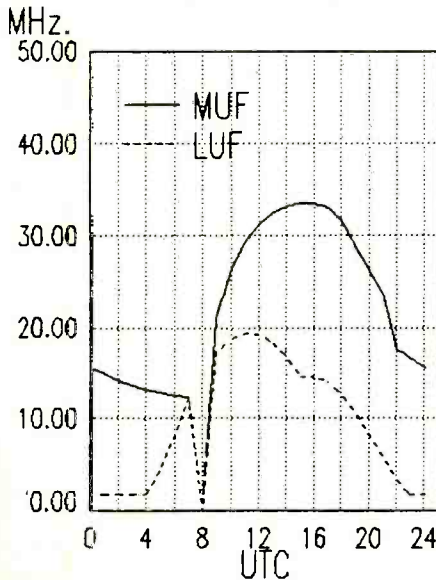
0400-0500	CBN, St. John's, Newfoundland, Can	6160			
0400-0500	CBU, Vancouver, British Columbia	6160			
0400-0500	CFCF, Montreal, Quebec, Canada	6005			
0400-0500	CFCN, Calgary, Alberta, Canada	6030			
0400-0500	CHNS, Halifax, Nova Scotia, Canada	6130			
0400-0500	Christian Science World Svc, Boston	9455	9840	13760	17780
0400-0500	CKWX, Vancouver, British Columbia	6080			
0400-0500	CFRB, Toronto, Ontario, Canada	6070			
0400-0500	HCJB, Quito, Ecuador	17875	15155		
0400-0500	KSDA, Guam	15225			
0400-0500	Radio Havana Cuba	9710	9750	11760	11820
0400-0500	S-F WMLK Bethel, Pennsylvania	9465			
0400-0500	Voice of America-Middle East Service	3980	5995	6040	6140
		7170	7200	11785	15205
0400-0500	Radio Canada International	15275			
0400-0500	WHRI, Noblesville, Indiana	7315	9495		
0400-0500	WRNO Worldwide, Louisiana	6185			
0400-0500	WWCR, Nashville, Tennessee	7520			
0400-0500	WYFR, Okeechobee, Florida	6065	9505		
0425-0440	RAI, Rome, Italy	5990	7275		
0430-0500	A-H Radio New Zealand, Wellington	17675			
0430-0500	M-F NBC Windhoek, Namibia	3270	3290		
0430-0500	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17630	17750
		17795	21525	21740	21775
0430-0500	Radio Tirana, Albania	9500	11835		

0445-0500	Radio Berlin Int'l, GDR	11785	11890	13760	15125
0455-0500	Voice of Nigeria, Lagos	7255			

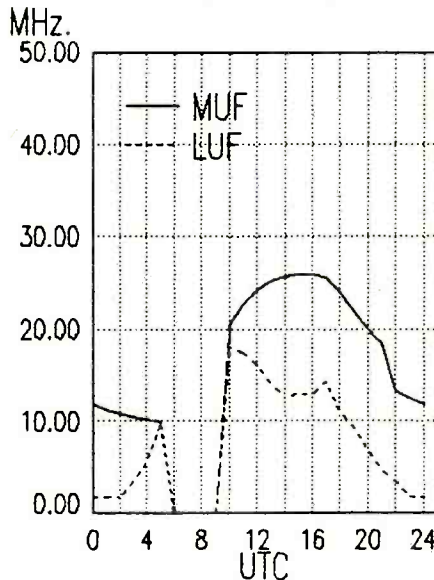
## 0500 UTC [1:00 AM EDT/10:00 PM PDT]

0500-0505	Radio Oranje, South Africa	3215			
0500-0515	Kol Israel, Jerusalem	9435	11605	11655	12077
		15640	17575		
0500-0515	Azad Kashmir Radio, Pakistan	7268	4980	3665	
0500-0520	Vatican Radio	6185	9645		
0500-0530	Vatican Radio African Service	17710	17730	21650	
0500-0530	M-F NBC Windhoek, Namibia	3270	3290		
0500-0530	Radio Berlin Int'l, GDR	11785	11890	13760	15125
0500-0550	Deutsche Welle, Koln, West Germany	5960	6120	9670	11705
		11845			
0500-0600	BBC World Service, London, England	5975	6005	6195	7120
		9410	9600	9640	9915
		12095	15070	17740	17885
		21470	21715		
0500-0600	CBU, Vancouver, British Columbia	6160			
0500-0600	Radio Jordan, Amman	13655			
0500-0600	CFCF, Montreal, Quebec, Canada	6005			
0500-0600	CFCN, Calgary, Alberta, Canada	6030			
0500-0600	CHNS, Halifax, Nova Scotia, Canada	6130			
0500-0600	S-F WMLK Bethel, Pennsylvania	9465			
0500-0600	Christian Science World Svc, Boston	9455	9840	13760	17780
0500-0600	Radio Moscow North American Svc	9635	11895	12050	13605
		15180	15425	15455	15530
		15595	17605		
0500-0600	Radio Moscow World Service	11615	11630	11710	11980
		11995	12070	15060	15140
		15155	15230	15280	15305
		15405	15415	15430	15540
		15550	15590	17560	17570
		17600	17620	17625	17635
		17710	17730	17765	17850
		17860	17890	17995	
		21555	21585	21625	21630
		21645	21690	21740	21790
		21825	21880	25780	
0500-0600	A-H Radio New Zealand, Wellington	17675			
0500-0600	CKWX, Vancouver, British Columbia	6080			
0500-0600	CFRB, Toronto, Ontario, Canada	6070			
0500-0600	HCJB, Quito, Ecuador	15155	17875		
0500-0600	Radio Australia, Melbourne	11880	15160	15240	15320
		15465	15560	17630	17750
		17795	21525	21740	21775

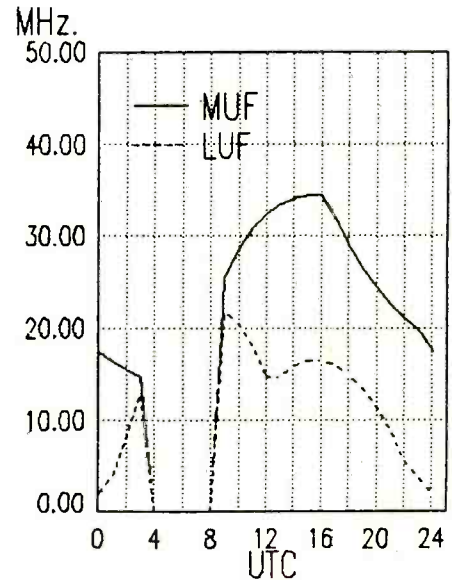
East Coast To  
Central Africa



East Coast To  
East Africa



East Coast To  
Indian Ocean



East Coast

# frequency

section

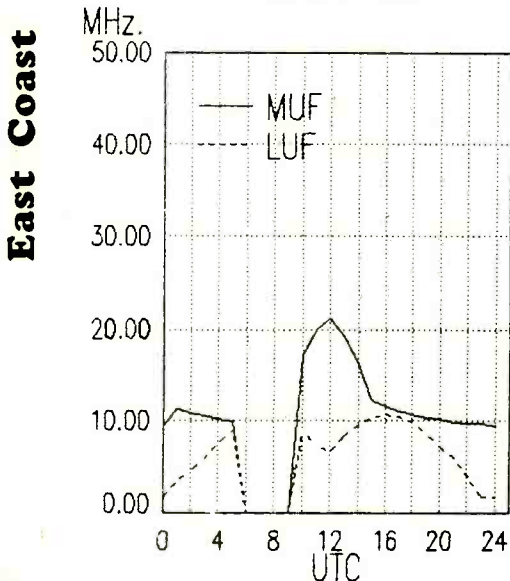
0500-0600	Radio Havana Cuba	9710 11760 11820 9750
0500-0600	Radio Japan General Service, Tokyo	17765 17810 17825 17890
		15195
0500-0600	Radio for Peace Int., Costa Rica	7375 USB
0500-0600	Spanish National Radio, Madrid	9630
0500-0600	Voice of America-Africa Service	3990 6035 7280 9540
		9575
0500-0600	Voice of America-Middle East Service	3980 5995 6140 7170
		7200 11785 15205
		7255
0500-0600	WHRI, Noblesville, Indiana	7315 9495
0500-0600	WWCR, Nashville, Tennessee	7520
0500-0600	WYFR, Okeechobee, Florida	5985 11580 17640 15566
0530-0600	Radio Austria International, Vienna	6015
0530-0600	Radio Romania Int'l, Bucharest	15340 15380 17720 17745
		17790 21665
0530-0600	M-F NBC Windhoek, Namibia	3270
0530-0600	UAE Radio Dubai	15435 17830 21700
0555-0600	Voice of Malaysia, Kuala Lumpur	6175 9750 15295

0600-0700	Christian Science World Svc, Boston	9455 9840 11980 17780
		17855
0600-0700	CKWX, Vancouver, British Columbia	6080
0600-0700	CFRB, Toronto, Ontario, Canada	6070
0600-0700	Radio Moscow North American Svc.	9635 12050 13605 15180
		15425 15530 15595 17605
0600-0700	Radio Moscow World Service	11710 11775 11980 11995
		12010 12030 15140 15155
		15170 15305 15320 15375
		15405 15415 15520 15540
		15550 15585 15590 17560
		17570 17600 17620 17775
		17635 17710 17730 17775
		17765 17850 17860 17890
		21545 21585 21625 21630
		21645 21655 21690 21725
		21740 21755 21790 21825
		25780
0600-0700	Voice of the Mediterranean, Malta	9765
0600-0700	HCJB, Quito, Ecuador	15155 17875
0600-0700	Radio Jordan, Amman	13655
0600-0700	ABC Brisbane, Australia	9660
0600-0700	Radio Tonga, Kingdom of Tonga	5030v
0600-0700	Voice of America-Africa Service	3990 6035 6080 6125
		7280 9530 9540 9575
		11915
0600-0700	Voice of America-Middle East Serv	3980 5965 5995 6060
		6095 6140 7170 7200
		7325 9715 11785 11805
		11925 15195 15205 17715
0600-0700	Radio Havana Cuba	9750
0600-0700	WHRI, South Bend, Indiana	9495 9620
0600-0700	Voice of Hope, Lebanon	6280
0600-0700	Voice of Malaysia, Kuala Lumpur	6175 9750 15295
0600-0700	Radio Korea, Seoul	7275
0630-0700	Radio Finland, Helsinki	11755 9560 6120
0630-0700	Vatican Radio African Service	17710 17730 21650
0630-0700	BRT, Brussels, Belgium	13675 11695
0630-0700	Radio Tirana, Albania	9500 7205
0630-0700	Radio Polonia, Warsaw, Poland	6135 7270 15120 9675
0630-0700	Swiss Radio International, Berne	15430 17570 21770
0645-0700 A	Radio for Peace Int., Costa Rica	7375 USB
0645-0700	Radio Berlin Int'l, GDR > Three	9760 13610 13690 15445
0645-0700	Radio Berlin Int'l, GDR > different	11970 21450
0645-0700	Radio Berlin Int'l, GDR > programs!	5965 6115 7185
0645-0700	M-F Radio Canada International, Montreal	6050 6150 7295 9750
		11775 17840
0645-0700	GBC Radio, Accra, Ghana	6130

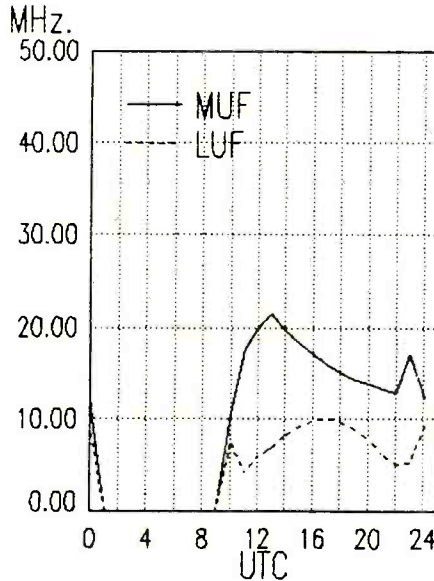
## 0600 UTC [2:00 AM EDT/11:00 PM PDT]

0610-0615	Sierra Leone Brdcstng.Svc.,Freetown	3316
0600-0630	S Radio Norway International, Oslo	15165
0600-0645v	Radio For Peace, Int., Costa Rica	7375 USB
0600-0650	Deutsche Welle, Koin, W. Germany	11765 13790 15185 17875
0600-0650	CBU, Vancouver, British Columbia	6160
0600-0700	Radio Pyongyang, North Korea	15180 13650
0600-0700	Radio Australia, Melbourne	11880 13700 13705 15240
		15465 17630 21525 21740
		21775
0600-0700	BBC World Service, London, England	5975 6180 6195 7120
		7150 9410 9580 9600
		9640 12095 15070 15245
		15280 15400 15420 17640
		17710 17790 17885 21470
		21715
0600-0700	M-F NBC Windhoek, Namibia	7165 7190
0600-0700	CFCF, Montreal, Quebec, Canada	6005
0600-0700	SIBC Solomon Islands	9545 5020
0600-0700	A-H Radio New Zealand, Wellington	17675
0600-0700	WYFR, Okeechobee, Florida	5985 6065 7355 13760
		15566 17640
0600-0700	ABC Domestic Network, Australia	15425
0600-0700	S-F WMLK Bethel, Pennsylvania	9465
0600-0700	CFCN, Calgary, Alberta, Canada	6030
0600-0700	CHNS, Halifax, Nova Scotia, Canada	6130

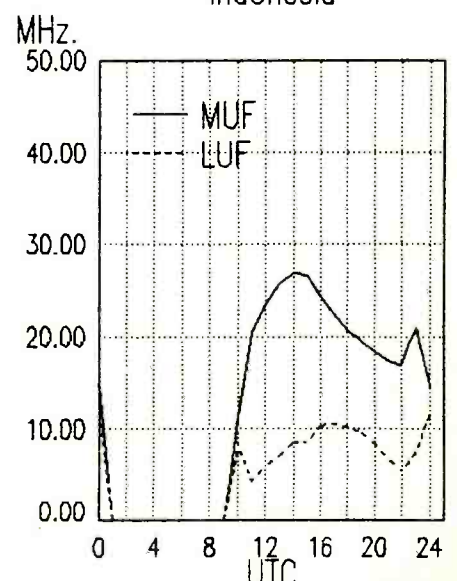
East Coast To  
Central Asia



East Coast To  
South East Asia



East Coast To  
Indonesia





# frequency

section

0645-0700 HCJB, Quito, Ecuador 9610 11835 (alt 6050)  
 0645-0700 Radio Romania Int'l, Bucharest 11810 11940 15335 17720  
 17805 21665

## 0700 UTC [3:00 AM EDT/12:00 AM PDT]

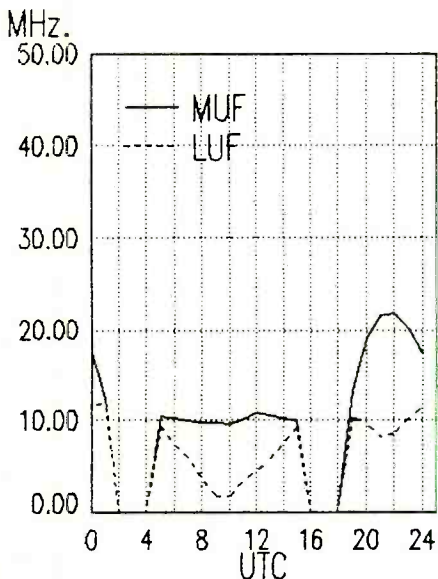
0700-0710	Sierra Leone Brdcstg.Svc.,Freetcwn	3316			
0700-0715	Radio Romania Int'l, Bucharest	11810 11940 15335 17720			
		17805 21665			
0700-0725	BRT Brussels, Belgium	21815 11695 6035			
0700-0730	Radio Australia, Melbourne	11880 13700 13705 15240			
		15465 17630 21525 21740			
		21775			
0700-0730	Radio Tirana, Albania	11835 9500			
0700-0750	Radio Pyongyang, North Korea	15340 11335			
0700-0800	A Radio for Peace Int'l, Costa Rica	7375 USB			
0700-0800	Voice of Hope, Lebanon	6280			
0700-0800	CBU, Vancouver, British Columbia	6160			
0700-0800	TWR Monte Carlo	9480			
0700-0800	Radio Havana Cuba	11835			
0700-0800	WYFR, Okeechobee, Florida	6065 7355 13760 15566			
0700-0800	Voice of the Mediterranean, Malta	9725			
0700-0800	ZBC-1, Zimbabwe	7283			
0700-0800	A-H Radio New Zealand, Wellington	9855			
0700-0800	BBC World Service, London	5975 7150 9410 9600			
		9640 9760 11940 12095			
		15070 15280 15360 15400			
		21715			
0700-0800	Solomon Islands Broadcasting Co.	5020 9545			
0700-0800	Voice of Free China, Taiwan	5950			
0700-0800	WHRI Noblesville, Indiana	9370 9495 9620			
0700-0800	ABC Brisbane, Australia	9660			
0700-0800	CFCF, Montreal, Quebec, Canada	6005			
0700-0800	CFCN, Calgary, Alberta, Canada	6030			
0700-0800	CHNS, Halifax, Nova Scotia, Canada	6130			
0700-0800	Christian Science World Svc, Boston	9455 9840 11980 17780			
		17855			
0700-0800	Radio Moscow World Service	7315 11710 11980 12010			
		12030 15060 15140 15155			
		15170 15210 15280 15305			
		15320 15375 15405 15520			
		15540 15550 15585 15590			
		17560 17570 17580 17600			
		17635 17635 17665 17710			
		17730 17815 17850 17860			
		21495 21585 21625 21630			
		21645 21655 21690 21715			

0700-0800	CKWX, Vancouver, British Columbia	6080	21725 21740 21745 21755
0700-0800	CFRB, Toronto, Ontario, Canada	6070	21790 25780 (+17755 0730)
0700-0800	GBC Radio, Accra, Ghana	6130	
0700-0800	HCJB, Quito, Ecuador	9610 11835 15270	
0700-0730	Radio Berlin Int'l, GDR > Three	9760 13610 13690 15445	
0700-0730	Radio Berlin Int'l, GDR > different	11970 21450	
0700-0730	Radio Berlin int'l, GDR > programs!	5965 6115 7185	
0700-0800	KNLS, Anchor Point, Alaska	9785	
0700-0800	Radio Japan, Tokyo	21500 17765 17810 17890	
		21690	
0700-0800	Radio Jordan, Amman	13655	
0700-0800	Voice of Malaysia, Kuala Lumpur	6175 9750 15295	
0710-0800	HCJB, Quito, Ecuador(S. Pacific Sv.)	6130 9745 11925	
0715-0730	Vatican Radio, Vatican City	15190 17730	
0730-0800	Radio Prague Int'l, Czechoslovakia	17840 21705	
0730-0800	ABC, Alice Springs, Australia	2310 (ML)	
0730-0800	ABC, Katherine, Australia	2485	
0730-0800	ABC, Tennant Creek, Australia	2325 (ML)	
0730-0800	Radio Austria Int'l, Vienna	21490 15410 13730 6155	
0730-0800	HCJB Quito, Ecuador	9745 11925	
0730-0800	KTWR, Agana Guam	15200	
0730-0800	Radio Australia, Melbourne	6035 11880 13700 13705	
		15240 17630 21525 21775	
0730-0800	Radio Netherlands, Hilversum	9630 9715	
0730-0800	Radio Sofia, Bulgaria	11720 15160 17825	
0730-0800	Swiss Radio Int'l European Service	3985 6165 9535	

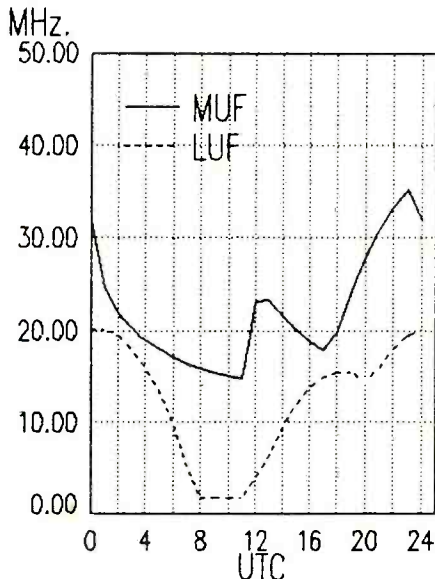
## 0800 UTC [4:00 AM EDT/ 1:00 AM PDT]

0800-0803	Radio Pakistan	17555 21575
0800-0810	Sierra Leone Brdcstg Co., Freetown	3316
0800-0825	Radio Netherlands Int'l, Hilversum	9630 9715
0800-0825	Voice of Malaysia, Kuala Lumpur	6175 9750 15295
0800-0825	Radio Finland, Helsinki	17800 21550
0800-0830	S Radio Norway International, Oslo	15165 25730
0800-0830	Radio Australia, Melbourne	13700 13705 15160 15240
		17630 17750 17795 21525
		21775
0800-0830	Voice of Islam, Dacca, Bangladesh	15195 11705
0800-0850	Radio Pyongyang, North Korea	11830 15160 15180 15230
0800-0900	Radio Moscow World Service	7315 11710 11850 12010
		12030 15060 15140 15155
		15210 15305 15320 15375
		15400 15405 15415 15520
		15535 15540 15550 15580

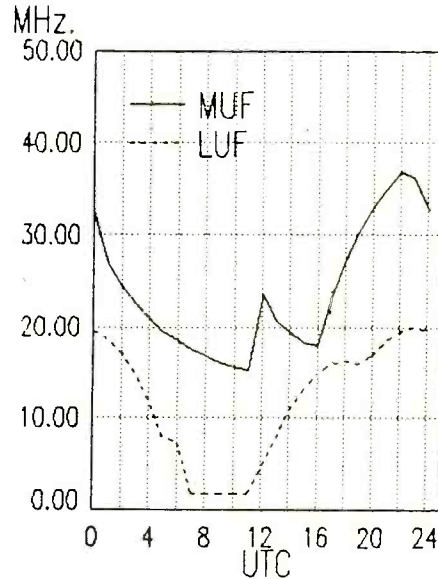
East Coast To  
Far East



East Coast To  
Australia



East Coast To  
Pacific



East Coast





# frequency

section

0900-1000	ABC, Katherine, Australia	2485	21785	21790	21800	25780
0900-1000	ABC, Tennant Creek, Australia	2325 (ML)				
0900-1000	S Adventist World Radio, Portugal	9670				
0900-1000	A Radio for Peace Int., Costa Rica	7375 USB				
0900-1000	KTWR, Agana, Guam	11805				
0900-1000	Radio Australia, Melbourne	5995 9580 9655 9760				
		17715 21775 21825				
0900-1000	A,S Radio New Zealand, Wellington	9855				
0900-1000	S Radio Bhutan, Thimpu	5023v				
0900-1000	Voice of Hope, Lebanon	6280				
0900-1000	BBC World Service, London, England	5975 9740 11750 12095				
		15070 15190 15360 15400				
		17640 17705 17790 17885				
		21470 21660 21715				
0900-1000	CFCF, Montreal, Quebec, Canada	6005				
0900-1000	CFCN, Calgary, Alberta, Canada	6030				
0900-1000	CHNS, Halifax, Nova Scotia, Canada	6130				
0900-1000	Christian Science World Svc, Boston	9455 9530 9840 11705				
		13760 17855				
0900-1000	CKWX, Vancouver, British Columbia	6080				
0900-1000	CFRB, Toronto, Ontario, Canada	6070				
0900-1000	FEBC Radio Int'l, Philippines	9800 11850				
0900-1000	HCJB, Quito, Ecuador (alt. S.Pac.Sv.)	6130				
0900-1000	HCJB, Quito, Ecuador (S.Pac.Serv.)	9745 11925				
0900-1000	Radio Japan Australian Svc., Tokyo	15270 17890				
0900-1000	Radio Japan General Service, Tokyo	11840 17810				
0900-1000	Radio Jordan, Amman	13655				
0900-1000	Voice of Nigeria, Lagos	7255				
0900-1000	WHRI, Noblesville, Indiana	7355 9495				
0910-0940	M,W,H,A,S Radio Ulan Bator, Mongolia	11850 12015				
0920-1000	ABC, Perth, Australia	6140				
0930-1000	Radio Afghanistan, Kabul	17720 15250 4940 6085				
		9635				
0930-0955	RRI Surabaya, Jawa Timur, Indonesia	2377				
0930-1000	CBN, St. John's, New Foundland	6160				
0930-1000	KTWR, Agana, Guam	11805				

1000-1030	Swiss Radio International, Berne	9560 13685 17670 21695
1000-1030	Radio Australia, Melbourne	5995 9580 9655 17715
		21775
1000-1045	Radio Berlin Int'l, GDR	11785 11890
1000-1045	Radio Berlin Int'l, GDR	21465 21540
1000-1100	Radio Beijing, China	11755 15440 17710
1000-1100	ABC, Alice Springs, Australia	2310 (ML)
1000-1100	ABC, Katherine, Australia	2485
1000-1100	Radio Baghdad, Iraq	11860

NOTE: The above broadcast is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.

1000-1100	Solomon Islands Broadcasting Co.	5020
1000-1100	ABC, Perth, Australia	9610
1000-1100	ABC, Tennant Creek, Australia	2325 (ML)
1000-1100	KSDA, Guam	13720
1000-1100	Radio Moscow World Service	11710 11850 12030 15060

		15110 15140 15155 15210
		15320 15375 15405 15520
		15535 15540 15550 15580
		15585 15510 17570 17615
		17655 17665 17765 17775
		17790 17815 17830 21495
		21625 21630 21645 21655
		21690 21715 21725 21740
		21745 21775 21785 21790
		21800

1000-1100	All India Radio, New Delhi	17685 17387 15050 15335
		21735

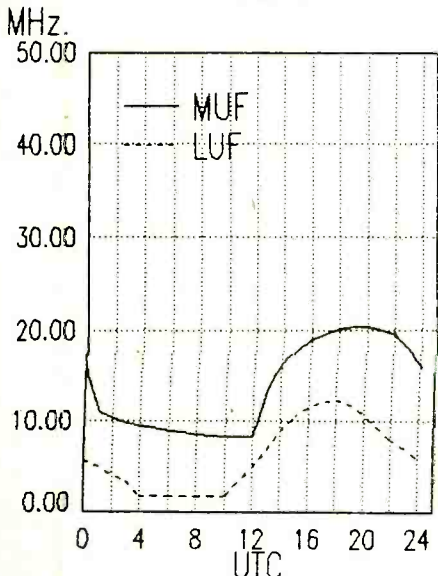
1000-1100	BBC World Service, London, England	9410 9740 9750 12095
		15070 15190 15360 15420
		17705 17790 17885 21660

1000-1100	CBN, St. John's, Nfld, Canada	6160
1000-1100	CFCF, Montreal, Quebec, Canada	6005
1000-1100	CFCN, Calgary, Alberta, Canada	6030
1000-1100	CHNS, Halifax, Nova Scotia, Canada	6130
1000-1100	Christian Science World Svc, Boston	9455 9495 9530 15115
1000-1100	CKWX, Vancouver, British Columbia	6080
1000-1100	CFRB, Toronto, Ontario, Canada	6070
1000-1100	FEBC Radio Int'l, Philippines	11850 9800
1000-1100	ABC Brisbane, Australia	9660
1000-1100	WYFR, Okeechobee, Florida	5950
1000-1100	HCJB, Quito, Ecuador	9745 11925
1000-1100	KTWR, Agana, Guam	11805
1000-1100	KUSW, Salt Lake City, Utah	6135
1000-1100	Radio Jordan, Amman	13655
1000-1100	Voice of America-Caribbean Service	9590 11915 15120
1000-1100	Voice of America-Pacific Service	5985 11720 15425
1015-1100	S Italian Radio Relay Svc, Milan	9815

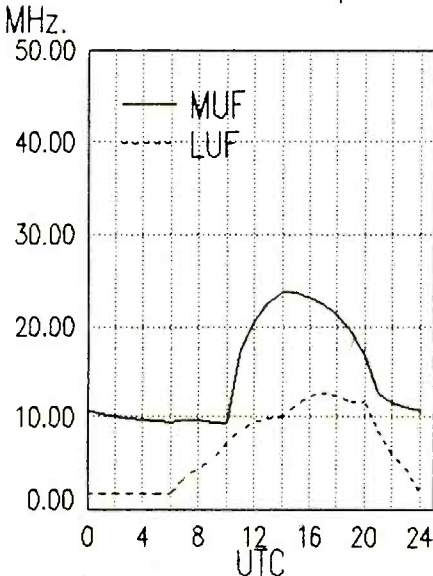
## 1000 UTC [6:00 AM EDT/3:00 AM PDT]

1000-1015	Radio Budapest, Hungary	15160 15220 11925 9835
		9585 6110
1000-1025	BRT Brussels, Belgium	21810 26050
1000-1030	Radio Afghanistan, Kabul	17720 15250 4940 6085
		9635
1000-1030	A Radio for Peace Int., Costa Rica	7375 USB
1000-1030	Voice of Vietnam, Hanoi	9755 12035

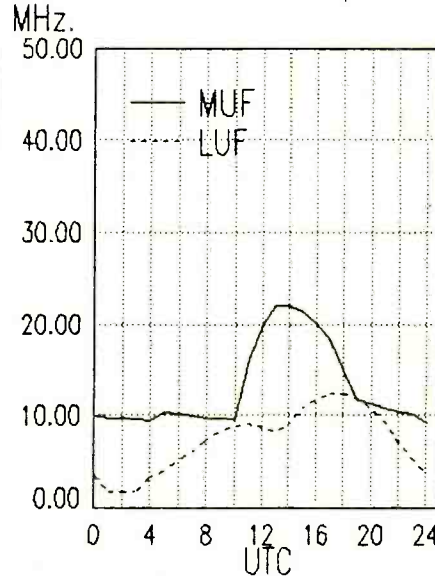
East Coast To  
Alaska



Midwest To  
Western Europe



Midwest To  
Eastern Europe



MONITORING TIMES

October 1990





# frequency

section

## 1200 UTC [8:00 AM EDT/5:00 AM PDT]

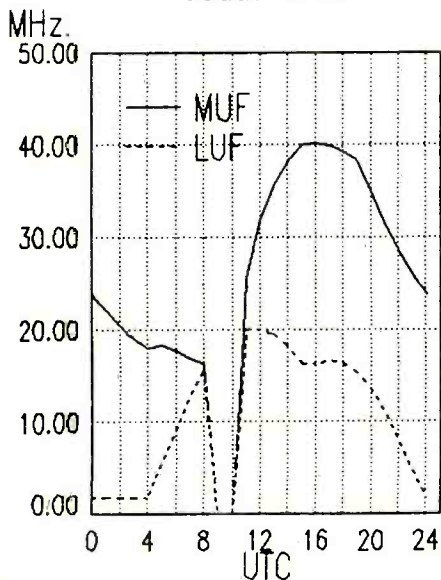
1200-1215	Vatican Radio, Vatican City	17840	17865	21485	21515
1200-1225	Radio Netherlands Int'l, Hilversum	5955	9715	17575	21480
1200-1225	Voice of Islamic Republic of Iran	9575	9705	11715	11790
1200-1225	M-F Radio Finland, Helsinki	15400	21550		
1200-1230	Radio Romania Int'l, Bucharest	15380	17720		
1200-1230	Radio Thailand	11905	9655	4830	
1200-1230	M,W,H,A,S Radio Ulan Bator, Mongolia	11850	12025		
1200-1230	S Radio Norway International, Oslo	15165			
1200-1230	Radio Tashkent, Uzbekistan	7325	9715	11785	15460
1200-1230	Radio Australia, Melbourne	5995	6020	6035	6080
1200-1300	ABC, Alice Springs, Australia	2310	(ML)		
1200-1300	WWCR Nashville, Tennessee	15690			
1200-1300	ABC, Brisbane, Australia	9660			
1200-1300	SBC Singapore	11940			
1200-1300	ABC, Katherine, Australia	2485			
1200-1300	ABC, Perth, Australia	9610			
1200-1300	Trans World Radio, Bonaire	11815	15345		
1200-1300	ABC, Tennant Creek, Australia	2325	(ML)		
1200-1300	Adventist World Radio, Costa Rica	9725	11870		
1200-1300	BBC World Service, London, England	5965	6195	9515	9740
		11775	12095	15070	17640
		17705	17790	17885	21470
		21660	21710		
1200-1300	CBU, Vancouver, British Columbia	6160			
1200-1300	CFCF, Montreal, Quebec, Canada	6005			
1200-1300	CFCN, Calgary, Alberta, Canada	6030			
1200-1300	CHNS, Halifax, Nova Scotia, Canada	6130			
1200-1300	Christian Science World Service	9495	9465	9895	11930
1200-1300	CKWX, Vancouver, British Columbia	6080			
1200-1300	Radio Moscow World Service	7370	11685	11850	12025
		12030	15060	15110	15140
		15210	15305	15320	15375
		15540	15550	15585	17570
		17655	17665	17790	17815
		21630	21645	21655	21690
		21740	21745	21755	
		21785	21790	25780	
		(+11840 via Cuba)			
1200-1300	CFRB, Toronto, Ontario	6070			
1200-1300	HCJB, Quito, Ecuador	11740	17890	25950	USB
1200-1300	Radio Beijing, China	9530	11660	15285	17855
1200-1300	Radio Jordan, Amman	13655			

1200-1300	Radio Korea, Seoul	9570	9750
1200-1300	Voice of America-East Asia Service	6110	9760 11715 15155
		15425	9530
1200-1300	WHRI, Noblesville, Indiana	9465	11790
1200-1300	WYFR, Okeechobee, Florida	5950	6015 11580 17750
1215-1225	Radio Bayrak, Northern Cyprus	6150	
1230-1300	S Italian Radio Relay Svc, Milan	9815	(ML)
	(Play-DX news every 2nd Sunday)		
1230-1300	Radio Bangladesh, Dacca	15195	11705
1230-1300	Radio France International, Paris	9805	11670 15155 15195
		17650	21635 21645
1230-1300	Radio Australia, Melbourne	5995	6020 6035 6080
		9580	11910 15465
1230-1300	Radio Sweden, Stockholm	15190	21570 17740
1235-1245	Voice of Greece, Athens	15625	15650 17535
1245-1300	Radio Berlin Int'l, GDR	11705	11785 11890 11970
		13690	15240 15440 17780
		21465	21540
1245-1300	Radio Berlin Int'l, GDR	6115	

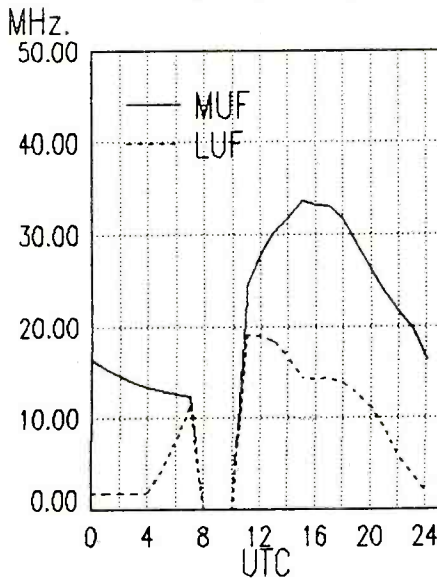
## 1300 UTC [9:00 AM EDT/6:00 AM PDT]

1300-1325	Radio Finland, Helsinki	15400	21550
1300-1330	Radio Yugoslavia, Belgrade	17740	21555 25795
1300-1330	Radio Berlin Int'l, GDR	6115	
1300-1330	Radio Berlin Int'l, GDR	11705	11785 11890 11970
		13690	15240 15440 17780
		21465	21540
1300-1330	Radio Tirana, Albania	11855	9500
1300-1330	S Radio Norway International, Oslo	9590	
1300-1330	Radio Australia, Melbourne	5995	6020 6035 6080
		9580	15465
1300-1330	S Trans World Radio, Bonaire	15345	11815
1300-1330	Swiss Radio Int'l European Service	3985	6165 9535
1300-1350	Radio Pyongyang, North Korea	9325	9345 9645 13650
		15180	
1300-1400	S Italian Radio Relay Svc, Milan	9815	
1300-1400	M-F Radio Canada Int'l, Montreal	9635	11855 17820
1300-1400	BBC World Service, London, England	5965	9410 9515 9750
		11775	12095 15070 17640
		17705	17790 17885 21470
		21660	21710
1300-1400	ABC, Alice Springs, Australia	2310	
1300-1400	ABC, Brisbane, Australia	9660	
1300-1400	ABC, Katherine, Australia	2485	
1300-1400	ABC, Perth, Australia	9610	
1300-1400	ABC, Tennant Creek, Australia	2325	(ML)

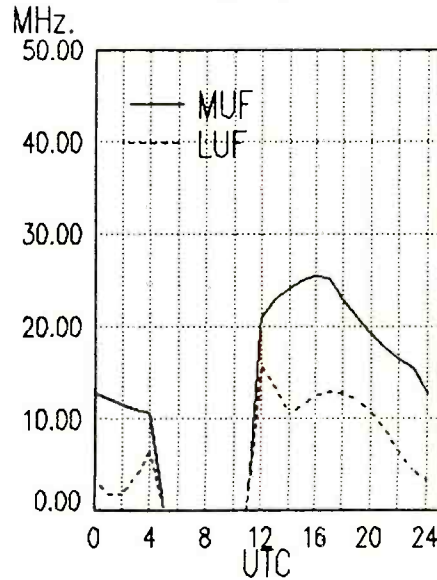
Midwest To South Africa



Midwest To Central Africa



Midwest To East Africa



Midwest

# frequency

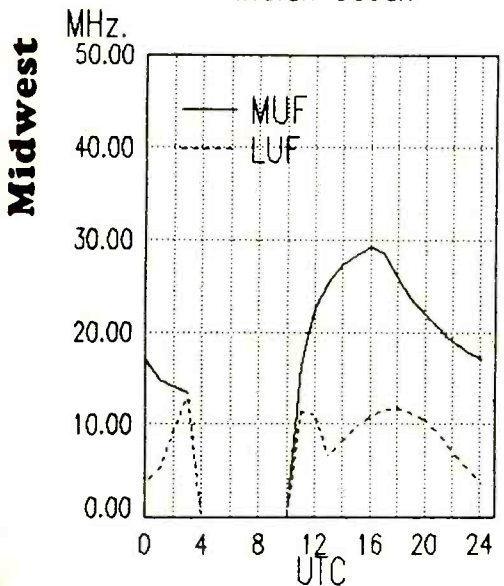
section

1300-1400	Adventist World Radio, Costa Rica	9725	11870
1300-1400	CBC Northern Quebec Service, Can	9625	
1300-1400	CBN, St. John's, Newfoundland	6160	
1300-1400	CBU, Vancouver, British Columbia	6160	
1300-1400	CFCF, Montreal, Quebec, Canada	6005	
1300-1400	CFCN, Calgary, Alberta, Canada	6030	
1300-1400	CHNS, Halifax, Nova Scotia, Canada	6130	
1300-1400	Christian Science World Service	9495	9465 9895 11930
1300-1400	CKWX, Vancouver, British Columbia	6080	
1300-1400	CFRB, Toronto, Ontario, Canada	6070	
1300-1400	Radio Moscow World Service	7135	7175 7315 7370
		9665	9885 11960 11995
		12000	12025 12030 12050
		15060	15305 15320 15375
		15540	15550 15585 15595
		17570	17655 17815 21630
		21645	21690 21740 21745
		21755	21785 21790
			(+11840 via Cuba)
		11850	
1300-1400	FEBC Radio Int'l, Philippines	11740	17890 25950 USB
1300-1400	HCJB, Quito, Ecuador	15590	
1300-1400	KUSW, Salt Lake City, Utah	15590	
1300-1400	Radio Beijing, China	9530	11660 11855 15285
1300-1400	Radio Romania Int'l, Bucharest	11940	15365 17850 21665
1300-1400	Radio Jordan, Amman	13655	
1300-1400	Voice of America-East Asia Service	6110	9760 11715 15155
		15425	
1300-1400	WHRI, Noblesville, Indiana	9465	11790
1300-1400	WWCR, Nashville, Tennessee	15690	
1300-1400	WYFR, Okeechobee, Florida	5950	6015 11550 11580
		13695	17750
1315-1400	Radio Tikhly Okean, Vladivostok	5015	
1330-1400	All India Radio, New Delhi	11760	9565
1330-1400	Radio Austria International, Vienna	15430	
1330-1345 A,S	Radio Finland, Helsinki	21550	15400
1330-1400	Radio Australia, Melbourne	5995	6020 6035 6080
		7215	9580
1330-1400	Laotian National Radio	7116v	
1330-1400 A	Trans World Radio, Bonaire	11815	15345
1330-1400	Voice of Turkey, Ankara	17785	
1330-1400 M-SBRT	Brussels, Belgium	21820	
1330-1400 M-FBRT	Brussels, Belgium	21815	
1330-1400	Radio Tashkent, Uzbekistan	7325	9715 11785 15460
		17740	
1330-1400	Swiss Radio International, Berne	9620	11695 15570 17830
		21695	25680
1330-1400	UAE Radio, Dubai	15320	17775 21605
1330-1400	Voice of Vietnam, Hanoi	9840	10200 15010

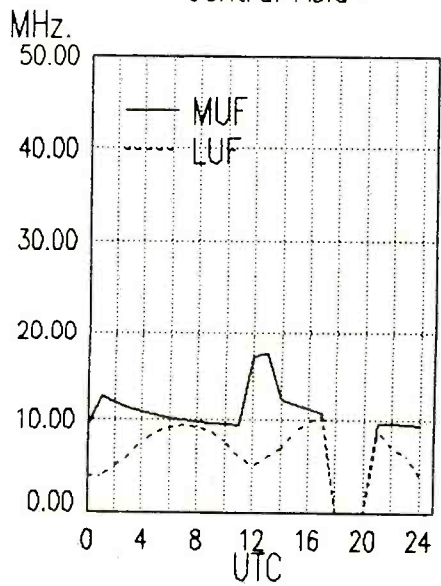
## 1400 UTC [10:00 AM EDT/7:00 AM PDT]

1400-1415	Azad Kashmir Radio, Pakistan	7268	4980	3665
1400-1420	Radio Jordan, Amman	13655		
1400-1430	Radio Canada Int'l, Montreal	5220	11955	15385
1400-1430	ABC, Alice Springs, Australia	2310	(ML)	
1400-1430	Radio Australia, Melbourne	5995	6020	6035 6060
		6080	7215	9580
1400-1430	ABC, Tennant Creek, Australia	2325	(ML)	
1400-1430	Swiss Radio Int'l, Berne	6165	9535	12030
1400-1430	Radio Juba, Sudan	9540/9550		
1400-1430	Radio France International, Paris	11925	21780	
1400-1430 S	Radio Norway International, Oslo	21710		
1400-1430	Radio Polonia, Warsaw, Poland	6095	7285	
1400-1430	Radio Sweden, Stockholm	11905	17740	
1400-1430	Radio Tirana, Albania	9500	11895	
1400-1500	ABC, Brisbane, Australia	9660		
1400-1500 S	Radio Canada Int'l, Montreal	11955	17820	11720
1400-1500	Radio Sta. Peace & Progress, Moscow	11870	15180	17635 17805
	(from 1330 add:	15435	15480	15560 17835)
1400-1500	Voice of the Mediterranean, Malta	11925		
1400-1500	Radio Beijing, China	5220	7405	11815 11855
		15165		
1400-1500	Radio Korea, Seoul	9570	9750	15575
1400-1500	ABC, Katherine, Australia	2485		
1400-1500	ABC, Perth, Australia	9610		
1400-1500	All India Radio, New Delhi	11760	9565	
1400-1500	BBC World Service, London, England	9410	11750	12095 15070
		17640	17705	17790 17880
1400-1500	CBC Northern Quebec Service, Can	9625		
1400-1500	CBN, St. John's, Newfoundland	6160		
1400-1500 M-A	CBU, Vancouver, British Columbia	6160		
1400-1500	CFCF, Montreal, Quebec, Canada	6005		
1400-1500	CFCN, Calgary, Alberta, Canada	6030		
1400-1500	CHNS, Halifax, Nova Scotia, Canada	6130		
1400-1500	Christian Science World Service	9530	13625	17555 21780
1400-1500	CKWX, Vancouver, British Columbia	6080		
1400-1500	CFRB, Toronto, Ontario	6070		
1400-1500	FEBC Radio Int'l, Philippines	11850		
1400-1500	HCJB, Quito, Ecuador	11740	17890	25950 USB
1400-1500	KUSW, Salt Lake City, Utah	15590		
1400-1500	Radio Japan General Service, Tokyo	11865	11815	
1400-1500	Radio Moscow World Service	7135	7370	9655 11850
		11995	12025	12030 12050
		15320	15375	15540 15585
		17625	17815	21630 21680

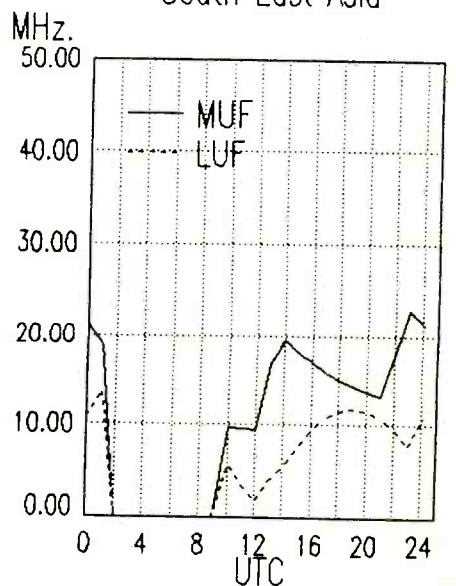
Midwest To Indian Ocean



Midwest To Central Asia



Midwest To South East Asia





# frequency

section

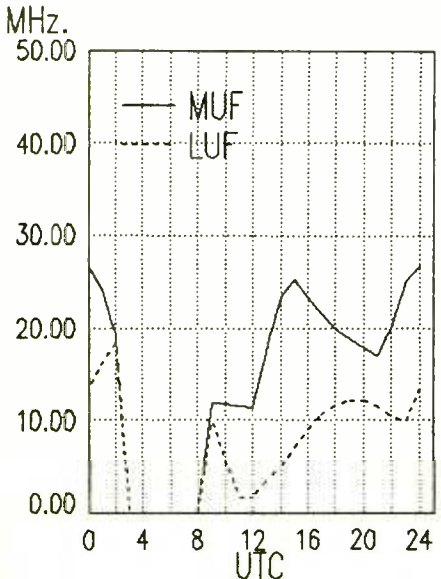
1400-1500	Radio RSA, Johannesburg	9555	11925	17835
1400-1500	Voice of America-East Asia Service	6110	9760	15155 15425
1400-1500	Voice of America-South Asia Service	7125	9645	9760 15205
		15395		
1400-1500	Voice of Nigeria, Lagos	7255		
1400-1500	WHRI, Noblesville, Indiana	9465	15105	
1400-1500	S WRNO Worldwide, Louisiana	15420		
1400-1500	WWCR, Nashville, Tennessee	15690		
1400-1500	WYFR, Okeechobee, Florida	5950	6015	11580 13695
		17750		
1405-1500	WYFR, Taiwan	11550		
1405-1430	Radio Finland, Helsinki	15185	21550	11820
1415-1500	M-A Radio Bhutan	5023v		
1415-1425	Radio Nepal, Katmandu	5005	7165	(alt. 3230)
1430-1500	Voice of Hope, Lebanon	6280		
1430-1500	Voice of Myanmar (Burma)	5990v		
1430-1500	Radio Australia, Melbourne	5995	6020	6036 6060
		6080	7215	9580 9710
		9770	12000	13745
1430-1500	F ABC, Alice Springs, Australia	2310	(ML)	
1430-1500	F ABC, Tennant Creek, Australia	2325	(ML)	
1430-1500	Radio Austria International, Vienna	6155	11780	13730 21490
1430-1500	Radio Netherlands Int'l, Hilversum	5995	13770	15150 17575
		17605		
1445-1500	Radio Berlin International, GDR	6115	9730	
1445-1500	M,W,H,A,S Radio Ulan Bator, Mongolia	9795	13780	
1445-1500	Vatican Radio, Vatican City	6248	7250	9645 11740

1500-1555	Radio Beijing, China	11815	15165	7405
1500-1600	Radio Jordan, Amman	9560		
1500-1600	S Radio Canada Int'l, Montreal	11955	17820	
1500-1600	FEBA, Seychelles	9590	15330	
1500-1600	Voice of the Mediterranean, Malta	11925		
1500-1600	Voice of Hope, Lebanon	6280		
1500-1600	F ABC, Alice Springs, Australia	2310	(ML)	
1500-1600	ABC, Perth, Australia	9610		
1500-1600	F ABC, Tennant Creek, Australia	2325	(ML)	
1500-1600	BBC World Service, London, England	9410	11750	11775 12095
		15070	15260	17640 17705
		17780	21470	21660 21710
		5990v		
1500-1600	S Voice of Myanmar (Burma)	5990v		
1500-1600	S Radio Canada Int'l, Montreal	11955	17820	
1500-1600	CBC Northern Quebec Service, Can	9625	(ML)	
1500-1600	CBN, St. John's, Newfoundland	6160		
1500-1600	CBU, Vancouver, British Columbia	6160		
1500-1600	CFCF, Montreal, Quebec, Canada	6005		
1500-1600	CFCN, Calgary, Alberta, Canada	6030		
1500-1600	CHNS, Halifax, Nova Scotia, Canada	6130		
1500-1600	Christian Science World Service	9530	13625	17555 21780
1500-1600	CKWX, Vancouver, British Columbia	6080		
1500-1600	CFRB, Toronto, Ontario	6070		
1500-1600	FEBC Radio Int'l, Philippines	11850		
1500-1600	HCJB, Quito, Ecuador	11740	17890	25950 USB
1500-1600	T-S KNLS, Anchor Point, Alaska	11715	(or 9750)	
1500-1600	KTWR, Agana, Guam	11650		
1500-1600	KUSW, Salt Lake City, Utah	15590		
1500-1600	Radio Australia, Melbourne	5995	6020	6035 6060
		6080	7215	9580 9710
		9770	12000	13745
1500-1600	Radio Japan General Service, Tokyo	11865	11815	21700
1500-1600	Radio Moscow World Service	7110	9655	9755 11850
		11890	12010	15375 15435
		15540	15585	15595 17670
		17710	21630	21690 21740
		21755	21790	
		(+11840 via Cuba)		
1500-1600	Radio RSA, Johannesburg S. Africa	7230	15270	
1500-1600	Voice of America-Middle East Service	9700	15205	15260 21530
1500-1600	Voice of America-South Asia Service	6110	7125	9645 9700
		9760	15205	15260 9350
		7255		
1500-1600	WHRI, Noblesville, Indiana	9465	15105	
1500-1600	IRR WRNO Worldwide, Louisiana	15420		
1500-1600	WWCR, Nashville, Tennessee	15690		
1500-1600	WYFR, Okeechobee, Florida	5950	11830	13695 11580
		17750		

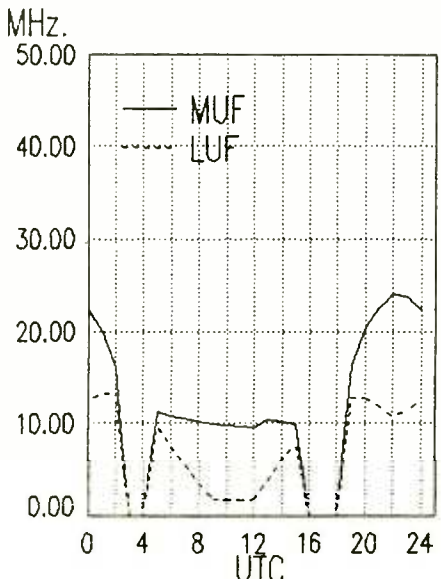
**1500 UTC [11:00 AM EDT/8:00 AM PDT]**

1530-1600	Radio Sofia, Bulgaria	11680	15310	17825
1545-1600	Radio Berlin International, GDR	15240	17880	
1500-1515	M,W,H,A,S Radio Ulan Bator, Mongolia	9795	13780	
1500-1515	Vatican Radio, Vatican City	11955	15090	17870
1500-1515	WYFR, Taiwan	11550		
1500-1525	Radio Netherlands Int'l, Hilversum	5955	13770	15150 17575
		17605		
1500-1530	Radio Berlin International, GDR	6115	9730	
1500-1530	Radio Sweden, Stockholm	17740	11905	
1500-1530	Radio Romania Inter'l, Bucharest	11775	11940	15250 15335
		17720	17745	
1500-1540	FEBA, Seychelles	11865		
1500-1550	Radio Pyongyang, North Korea	9325	9640	9977 11750
1500-1550	Deutsche Welle, Köln, W. Germany	9735	11965	17765 21600

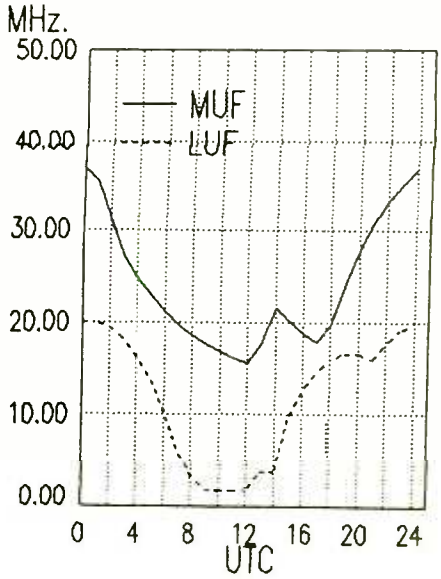
Midwest To  
Indonesia



Midwest To  
Far East



Midwest To  
Australia



Midwest

MONITORING TIMES

October 1990

# frequency

section

1515-1530	RCI European News Svc, Montreal	11935 15315 15325 17820
		15305 17795 21545
1530-1540	M-A Voice of Greece, Athens	11645 15625 17535
1530-1600	Radio Tirana, Albania	11835 9500
1530-1600	Radio Omdurman, Sudan	11635 9550/9540
1530-1600	Radio Sweden, Stockholm	17880 21500 21655
1530-1600	Swiss Radio International, Berne	13685 15430 17830 21630
1540-1555	M-A FEBA, Seychelles	11865
1545-1600	Radio Pakistan	21740 21480 17895 17580
		15605 13665
1545-1600	Vatican Radio, Vatican City	15120 17730 21650
1555-1600	M,A FEBA, Seychilles	11865

1600-1700	Radio Moscow World Service	7110 9655 9840 11630
		11890 12005 12010 12015
		15375 15540 17600 17670
		17710 21585 21630 21740
		(+11840 via Cuba)
1600-1700	CBU, Vancouver, British Columbia	6160
1600-1700	CFCF, Montreal, Quebec, Canada	6005
1600-1700	CFCN, Calgary, Alberta, Canada	6030
1600-1700	CHNS, Halifax, Nova Scotia, Canada	6130
1600-1700	Christian Science World Service	9530 13625 13745 21640
1600-1700	CKWX, Vancouver, British Columbia	6080
1600-1700	CFRB, Toronto, Ontario	6070
1600-1700	KTWR, Agana, Guam	11650 11910 13720
1600-1700	KUSW, Salt Lake City, Utah	15590
1600-1700	Radio Beijing, China	9570 15110 15130
1600-1700	Radio France International, Paris	6175 11705 12015 15360
		17620 17795 17845 17850

1600-1700	Radio Jordan, Amman	9560
1600-1700	Radio Korea, Seoul, South Korea	5975
1600-1700	Trans World Radio-Swaziland	15135
1600-1700	Voice of America-Africa Service	7195 9575 11920 15410
		15445 15580 15600 17785
		17800 17870
1600-1700	Voice of America-Middle East Service	3980 9700 15205 15260
1600-1700	Voice of America-Asia Service	7125 9645 9700 9760
		15205 15260 15395
1600-1700	Radio RSA, Johannesburg	7230 15270
1600-1700	Voice of Nigeria, Lagos	7255
1600-1700	WHRI, Noblesville, Indiana	15105 21840
1600-1700	WINB, Red Lion, Pennsylvania	15295
1600-1700	WRNO New Orleans, Louisiana	15420
1600-1700	WWCR, Nashville, Tennessee	15690
1600-1700	WYFR, Okeechobee, Florida	11830 13695 17750 15566
		11580 17612 21525 21615

1610-1625	M FEBA, Mahe, Seychelles	11865
1615-1620	Vatican Radio, Vatican City	9645 11740
1615-1630	M-ARCI European News Svc, Montreal	11935 15305 15325 17820
		21545
1615-1630	Radio Budapest, Hungary	15160 15220 11910 9835
		9585 7220
1630-1655	M-ABRT Brussels, Belgium	17580 21810
1630-1700	Radio Netherlands, Hilversum	15570 6020
1645-1700	Radio Berlin Int'l, GDR	6080 7260 7295 9730
1645-1700	Radio Berlin Int'l, GDR	13690 15350 17780
1630-1700	Radio Austria Int'l, Vienna	11780 13730 21490

## 1600 UTC [12:00 PM EDT/9:00 AM PDT]

1600-1610	M,A FEBA, Mahe, Seychelles	11865
1600-1610	Vatican Radio, Vatican City	6248 7250 9645 11740
1600-1615	Azad Kashmir Radio, Pakistan	7268 4980 3665
1600-1630	Radio Berlin Int'l, GDR	15240 17880
1600-1630	Radio Sofia, Bulgaria	11680 15310 17825
1600-1630	Radio Pakistan	13665 15605 17555 17650
		21480 21740
1600-1630	S Radio Norway International, Oslo	17765 21705
1600-1630	Radio Polonia, Warsaw, Poland	6135 9540
1600-1630	M-F Radio Portugal, Lisbon	21530
1600-1630	Voice of Vietnam, Hanoi	9840 15010 12020
1600-1640	UAE Radio, Dubai	15320 15435 17865 21605
1600-1650	Radio Pyongyang, North Korea	9325 11760
1600-1650	Deutsche Welle, Koln, W. Germany	6170 7225 15105 15595
		17825 21680
1600-1700	KSDA, Guam	11980
1600-1700	Radio Baghdad, Iraq	11860

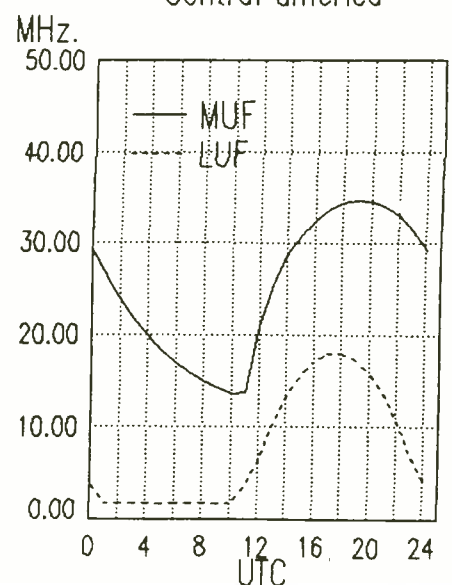
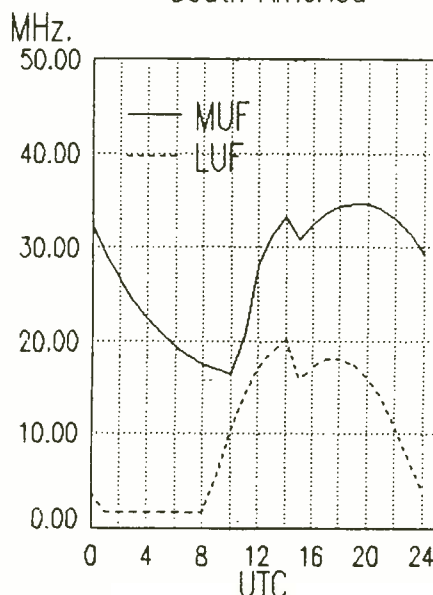
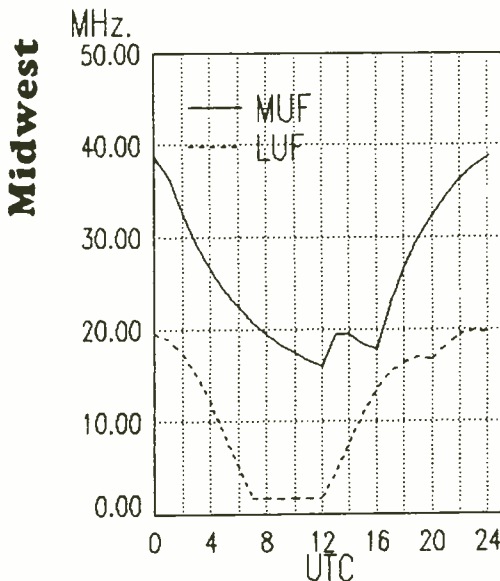
NOTE: The broadcast shown above is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.

1600-1700	F ABC, Alice Springs, Australia	2310 (ML)
1600-1700	BBC World Service, London, England	9410 11775 12095 15070
		15260 17640 17705 21660
1600-1700	Radio Australia, Melbourne	5995 6020 6035 6080
		7215 9580 9710 9770
		12000 13745
		(+ 6060 until 1630)
1600-1700	ELWA, Monrovia, Liberia	11800
1600-1700	ABC, Perth, Australia	9610
1600-1700	F ABC, Tennant Creek, Australia	2325 (ML)
1600-1700	CBC Northern Quebec Service, Can	9625 (ML)
1600-1700	CBN, St. John's, Newfoundland	6160

Midwest To Pacific

Midwest To South America

Midwest To Central America





# frequency

section

## 1700 UTC [1:00 PM EDT/10:00 AM PDT]

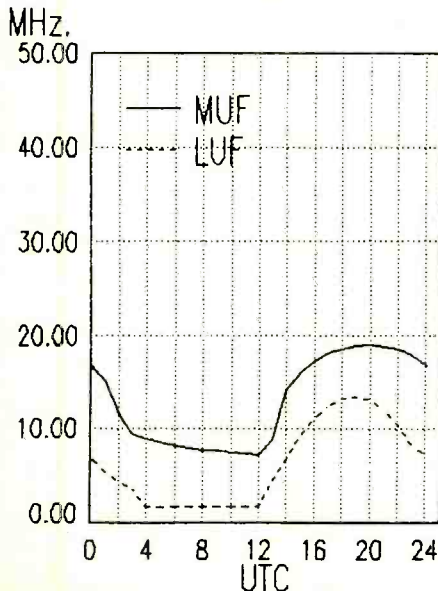
1700-1725	Radio Netherlands, Hilversum	15570	6020		
1700-1730	Radio Sweden, Stockholm	6065	9615		
1700-1730	Radio Berlin Int'l, GDR	6080	7260	7295	9730
1700-1730	Radio Berlin Int'l, GDR	13690	15350	17780	
1700-1730 S	Radio Norway	25730	17765		
1700-1750	Radio Bras, Brazil	15265			
1700-1800	ELWA, Monrovia, Liberia	11800			
1700-1800	Radio Beijing, China	9570	11575	15225	
1700-1800	Radio Australia, Melbourne	5995	6020	6035	6080
		7215	7240	9580	9710
		9770	11855		
1700-1800	BBC World Service, London	9410	11775	12095	15070
		15260	15310	15400	17640
		17695	21470	21660	
1700-1800	Voice of America-Africa Service	7195	9575	11920	15410
		15445	15580	15600	17785
		17800	17870		
1700-1800	Radio Moscow World Service	12005	12010	12015	15150
		15265	15540	17600	17670
		17695	21585	25375	
		(+11840 via Cuba)			
		9465			
1700-1800 S-F	WMLK Bethel, PA	3980	6040	9700	9760
1700-1800	Voice of America-Middle East Service	11760	15205	15260	
1700-1800	Voice of America-South Asia Service	7125	9645	9700	15395
1700-1800	WHRI, Noblesville, Indiana	13760	15105		
1700-1800	Radio RSA, Johannesburg	7230	15270	17790	
1700-1800	Christian Science World Service	9530	13625	15385	21640
1700-1800	Radio Baghdad, Iraq	11860			
NOTE: The broadcast shown above is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.					
1700-1800	Radio Moscow Africa Service	11690	11745	11775	11850
		11960	15230	15330	15415
		15535	15585	17565	17570
		17595	17615	17655	21565
		21630	21715		
1700-1800	CBC, Montreal	9625	(ML)		
1700-1800	Radio Surinam Int'l (via Brazil)	17750	(ML)		
1700-1800	Radio Japan, Tokyo	9535	11815	11865	
1700-1800	Radio Pyongyang, North Korea	9325	9640	9977	11760
1700-1800	KUSW Salt Lake City, Utah	15590			
1700-1800	WINB, Red Lion, Pennsylvania	15295			
1700-1800	WRNO, New Orleans, Louisiana	15420			
1700-1800	WWCR, Nashville, Tennessee	15690			
1700-1800	WYFR, Okeechobee, Florida	11830	13695	15440	17750
		17885	21500		

1700-1730	Radio Prague Int'l, Czechoslovakia	5930	6055	7345	11990
1715-1800	Radio Pakistan	11570	15605		
1730-1740	Radio Bayrak, Northern Cyprus	6150			
1730-1755	BRT Brussels, Belgium	11695	5910		
1730-1800	Radio Sta. Peace & Progress, USSR	6110	9705	11695	11745
		11775	11850	11910	11980
		12055	12065	15330	15480
		15585	17565	17615	17635
		17655	21715		
1730-1800	Radio Sofia, Bulgaria	11680	15310	17825	
1730-1800	Swiss Radio Int'l, Berne	9535			
1730-1800	Vatican Radio African Service	21650	17710	17730	
1730-1800	Radio Tirana, Albania	7155	9480		
1730-1800	Radio Romania Int'l, Bucharest	15340	15365	17805	17860

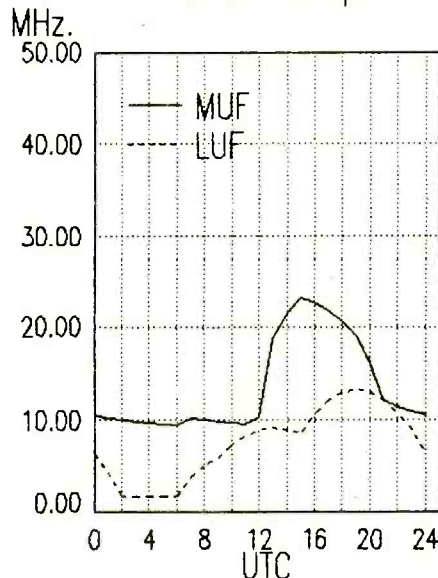
## 1800 UTC [2:00 PM EDT/11:00 AM PDT]

1800-1815	Kol Israel	11585	11655		
1800-1830 S	Radio Norway International, Oslo	21730			
1800-1830	Voice of Ethiopia, Addis Ababa	9660			
1800-1830	Radio Sweden, Stockholm	6065	7265		
1800-1830	Voice of Vietnam, Hanoi	15010	12010	9840	
1800-1845	Trans World Radio, Swaziland	15210			
1800-1845	All India Radio, New Delhi	11935	15360		
1800-1855	Radio Mozambique, Maputo	9618	4855	3265	
1800-1900 F	ABC, Alice Springs, Australia	2310	(ML)		
1800-1900 F	ABC, Tennant Creek, Australia	2325	(ML)		
1800-1900	Radio Korea, Seoul	15575			
1800-1900	KVOH, Rancho Simi, California	17775			
1800-1900	BBC World Service, London	9410	12095	15070	17640
1800-1900	Radio Australia, Melbourne	5995	6020	6035	6080
		7205	7215	7240	9580
		11855			
1800-1900	Radio Moscow World Service	11765	11840	11890	13605
		15185	15375	15540	17570
		17670	17695	21740	
1800-1900	ELWA, Monrovia, Liberia	11800			
1800-1900 M-F	Radio New Zealand, Wellington	15485			
1800-1900	CBN, St. John's, Newfoundland	6160			
1800-1900	CBU, Vancouver, British Columbia	6160			
1800-1900	CFCF, Montreal, Quebec, Canada	6005			
1800-1900	CFCN, Calgary, Alberta, Canada	6030			
1800-1900	CHNS, Halifax, Nova Scotia, Canada	6130			
1800-1900	Christian Science World Service	9455	21780	21640	17555
1800-1900	CKWX, Vancouver, British Columbia	6080			
1800-1900	CFRB, Toronto, Ontario	6070			
1800-1900	KUSW, Salt Lake City, Utah	15590			

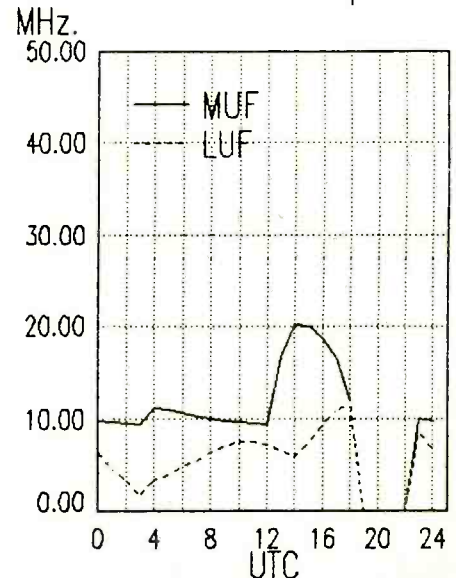
Midwest To  
Alaska



West Coast To  
Western Europe



West Coast To  
Eastern Europe



MONITORING TIMES

October 1990

81

# frequency

# section

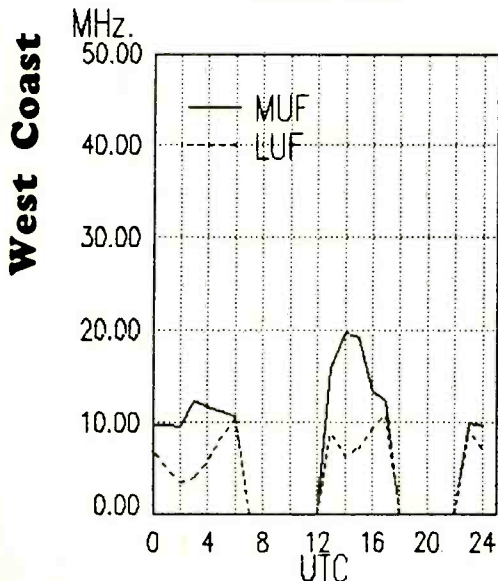
1800-1900	Radio Jordan, Amman	9560		
1800-1900	CBC Montreal	9625		
1800-1900	S-F WMLK Bethel, Pennsylvania	9465		
1800-1900	Radio RSA, Johannesburg, S. Africa	17765	15270	7230
1800-1900	A,S Radio for Peace Int'l, Costa Rica	13630	21566	
1800-1900	Voice of America-Africa Service	7195	9575	11920 15410
		15445	15580	15600 17785
		17800	17870	21485
1800-1900	Voice of America-Middle East Service	6040	9700	9760 11760
		15205		
1800-1900	WHRI, Noblesville, Indiana	13760	17830	
1800-1900	WINB, Red Lion, Pennsylvania	15295		
1800-1900	WRNO, New Orleans, Louisiana	15420		
1800-1900	WWCR, Nashville, Tennessee	15690		
1800-1900	WYFR, Okeechobee, Florida	11830	13695	15440 17885
		21500		
1815-1900	Radio Bangladesh, Dacca	11860v	15255	
1830-1845	Radio Prague Int'l, Czechoslovakia	6055	7345	
1830-1845	Radio Finland, Helsinki	11755	9550	6120
1830-1855	BRT Brussels, Belgium	5910	11695	13675
1830-1855	Radio Polonia, Warsaw, Poland	5995	6135	7125 7285
		9525	11840	
1830-1900	Radio Riyadh, Saudi Arabia	9705	9720	
1830-1900	A,S Radio Canada Int'l, Montreal	13670	15260	17820
1830-1900	M-F Radio Canada Int'l, Montreal	21675	17875	15325 7235
		5995		
1830-1900	Radio Afghanistan, Kabul	4915	6020	7215 9635
		11830	15440	17745
1830-1900	Radio Tirana, Albania	7120	9480	
1830-1900	Radio Netherlands Int'l, Hilversum	6020	15560	17605 21685
1830-1900	Swiss Radio International, Berne	9885	11955	
1830-1900	Swiss Radio Int'l European Service	3985	6165	9535
1840-1850	M-A Voice of Greece, Athens	11645	12105	15625
1845-1900	Radio Berlin Int'l, GDR	9665	9730	
1845-1900	Radio Berlin Int'l, GDR	9760		
1845-1900	All India Radio, New Delhi	15360	11935	11620 9550
		7412		
1845-1855vIRR Africa No. 1, Gabon		15475		

## 1900 UTC [3:00 PM EDT/12:00 PM PDT]

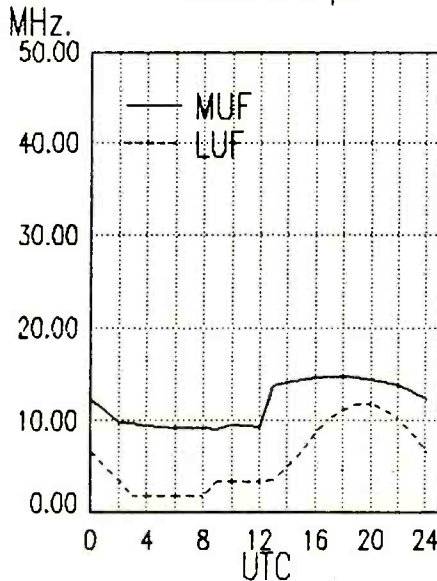
1900-1915	Sierra Leone Brdcstng Co., Freetown	3316		
1900-1920v	Radio Omdurman, Sudan	11635		
1900-1925	Radio Netherlands Int'l, Hilversum	6020	15560	17605 21685
1900-1930	Radio Berlin Int'l, GDR	9760		
1900-1930	Radio Berlin Int'l, GDR	9665	9730	
1900-1930	M-F Radio Budapest, Hungary	15160	11910	9835 9585
		7220	6110	
1900-1930	Radio Canada Int'l, Montreal	13670	15260	17820
1900-1930	Radio Sofia, Bulgaria	11680	15310	17825
1900-1930	Radio Afghanistan, Kabul	9635	7215	6020 15440
		11830	17745	
1900-1930	M-F Radio Canada Int'l, Montreal	13670	15260	17820
1900-1930	Radio Japan General Service, Tokyo	11865	11850	15270
1900-1930	S Radio Norway International, Oslo	15165		
1900-1930	M-F Radio Portugal, Lisbon	11740	15250	21530
1900-1930	Voice of Vietnam, Hanoi	9840	12020	15010
1900-1945	All India Radio, New Delhi	7412	11620	11935 15360
		9550		
1900-1950	Deutsche Welle, Koln, W. Germany	11785	11810	13790 15390
		17810		
1900-2000	ELWA, Monrovia, Liberia	11800		
1900-2000	CBC, Montreal	9625		
1900-2000	M-F Radio New Zealand, Wellington	15485		
1900-2000	Radio Moscow British Service	7330	11630	11890 15185
		17695		
1900-2000	Radio Moscow World Service	11765	11840	12010 12060
		13605	15405	15540 15580
		17570	17670	21630 21740
		21630		
1900-2000	Radio Moscow African Svc	11960	12035	15230 15520
		17655		
		(in English & Zulu)		
1900-2000	M-F RAE, Buenos Aires, Argentina	15345		
1900-2000	Radio Beijing, China	9440	11515	
1900-2000	Solomon Islands Broadcasting Co.	5020		
1900-2000	KVOH, Rancho Simi, California	17775		
1900-2000	BBC World Service, London, England	9410	12095	15070 15400
		17880		
1900-2000	CBN, St. John's, Newfoundland	6160		
1900-2000	CBU, Vancouver, British Columbia	6160		
1900-2000	CFCF, Montreal, Quebec, Canada	6005		
1900-2000	CFCN, Calgary, Alberta, Canada	6030		
1900-2000	CHNS, Halifax, Nova Scotia, Canada	6130		
1900-2000	Christian Science World Service	9455	17555	21640 21780
1900-2000	CKWX, Vancouver, British Columbia	6080		

PLEASE NOTE: The above-captioned broadcast from Africa Numero Un in Libreville, Gabon, West Africa, is irregular. They are on until approximately 2300 UTC on this and other frequencies, primarily in French, which is why we do not list them here. You may want to check into those broadcasts as a source of African culture since we no longer have regularly audible broadcasts in English from any other African station south of the Sahara.

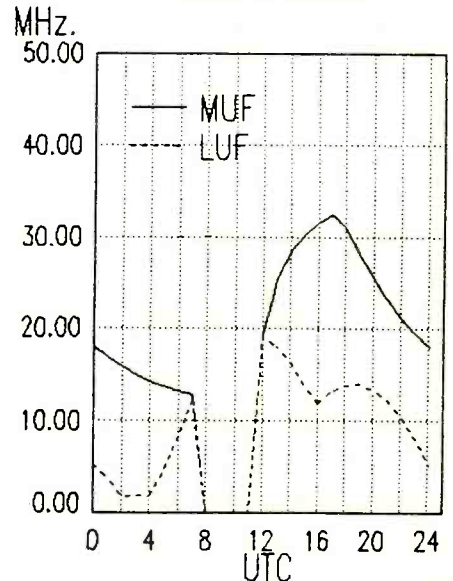
West Coast To Middle East



West Coast To Arctic Europe



West Coast To Central Africa





# frequency

section

1900-2000	CFRB, Toronto, Ontario	6070		
1900-2000	GBC Radio, Accra, Ghana	6130		
1900-2000	HJCB European Service, Ecuador	17790	21480	25950ssb
1900-2000	KUSW, Salt Lake City, Utah	15590		
1900-2000	Radio Algiers, Alger	9510	9685	15215
1900-2000	Radio Australia, Melbourne	5995	6020	6035 6080
		7205	7215	7240 9580
		11855		
		(+13745 from 1930)		
1900-2000	Radio Havana Cuba	11800		
1900-2000	Radio Jordan, Amman	9560		
1900-2000	A,S Radio for Peace Int'l, Costa Rica	13630	21566	
1900-2000	Spanish National Radio, Madrid	11790	15280	15375 15395
1900-2000	Voice of America-Africa Service	7195	15410	15445 15580
		15600	17785	17800 17870
		21485		
1900-2000	Voice of America-Middle East Service	6040	9700	9760 11760
		15205		
1900-2000	Voice of America-Pacific Service	9525	11870	15180
1900-2000	WHRI, Noblesville, Indiana	13760	17830	
1900-2000	WINB, Red Lion, Pennsylvania	15295		
1900-2000	S-F WMLK, Bethel, Pennsylvania	9465		
1900-2000	WRNO, New Orleans, Louisiana	15420		
1900-2000	WVCR, Nashville, Tennessee	15690		
1900-2000	WYFR, Okeechobee, Florida	11830	13695	15440 15566
		17612	17885	21615
1920-1930	M-A Voice of Greece, Athens	9395	11645	
1930-2000	M Radio Tallin, Estonia	5925		
1930-2000	Radio Austria International, Vienna	5945	6155	12010 13730
1930-2000	Radio Romania Int'l, Bucharest	5955	9690	9750 11810
1930-2000	A,S Radio Budapest, Hungary	6110	7220	9585 9835
		11910	15160	
1930-2000	Radio Sofia, Bulgaria	11660	11765	15330
1930-2000	Radio Yugoslavia, Belgrade	11735	7215	5980
1930-2000	Radio Tikhyy Okean, Vladivostok	5015	7335	9885 11870
		11995	15180	15435 15535
		15560	17645	17850
1930-2000	Voice of the Islamic Republic Iran	6035	9022	
1935-1955	RAI, Rome, Italy	7275	9710	11800
1940-2000	M,W,H,A,S Radio Ulan Bator, Mongolia	11850	12050	
1945-2000	All India Radio, New Delhi	15360	11935	9550

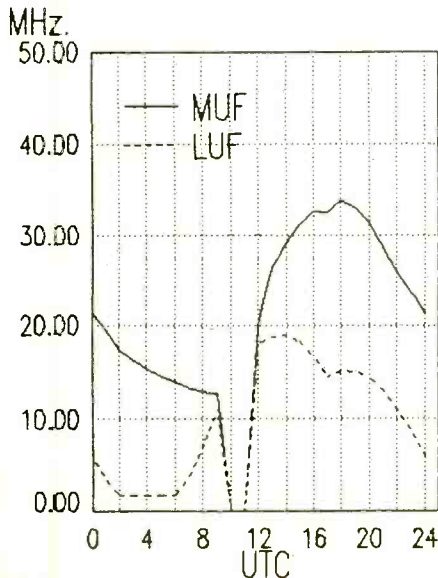
2000-2030	Kol Israel, Jerusalem	15640	11605	17630	15485
		17590	12077		
2000-2030	M-F Radio Portugal	15250			
2000-2030	Radio Prague Int'l, Czechoslovakia	5930	6055	7345	11990
2000-2030	Radio Romania Int'l, Bucharest	5955	9690	9750	11810
2000-2030	Voice of the Islamic Republic Iran	6035	9022		
2000-2045	Radio Berlin Int'l, GDR	13610			
2000-2050	Radio Pyongyang, North Korea	6576	9345	9977	9640
2000-2100	M-F Radio for Peace Int'l, Costa Rica	13630	21566		
2000-2100	Voice of Hope, Lebanon	6280			
2000-2100	BBC World Service, London, England	5975	9410	12095	15070
		15260	15400	17755	17760
		17880			
2000-2100	Radio Australia, Melbourne	6020	6035	7205	7215
		7240	9580	11855	13745
		(+6080 & 5995 until 2030)			
2000-2100	All India Radio, New Delhi	9950	11860	15360	
2000-2100	M-AABC, Alice Springs, Australia	2310	(ML)		
2000-2100	ABC, Katherine, Australia	2485			
2000-2100	M-AABC, Tennant Creek, Australia	2325	(ML)		
2000-2100	CBN, St. John's, Newfoundland	6160			
2000-2100	CBU, Vancouver, British Columbia	6160			
2000-2100	CFCF, Montreal, Quebec, Canada	6005			
2000-2100	Radio Moscow World Service	7315	11630	11670	11805
		11890	12060	13605	15185
		15315	15355	15560	17695
2000-2100	Radio Moscow Africa Service	11715	11775	11960	12035
		15520	15535	21630	21740
2000-2100	CBC, Montreal	9625	(ML)		
2000-2100	CFCN, Calgary, Alberta, Canada	6030			
2000-2100	CHNS, Halifax, Nova Scotia, Canada	6130			
2000-2100	Radio Baghdad, Iraq	13660			
2000-2100	Christian Science World Service	9455	13770	15610	17555
		15265			
2000-2100	CKWX, Vancouver, British Columbia	6080			
2100-2200	Radio Sta. Peace & Progress, USSR	9470	9820	11830	11880
		11980	15260		
2000-2100	CFRB, Toronto, Ontario	6070			
2000-2100	KUSW, Salt Lake City, Utah	15590			
2000-2100	Radio Beijing, China	9440	9920	11500	11715
		15110			
2000-2100	ELWA, Monrovia, Liberia	11800			
2000-2100	Radio Baghdad, Iraq	11860			

NOTE: The broadcast shown above is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.

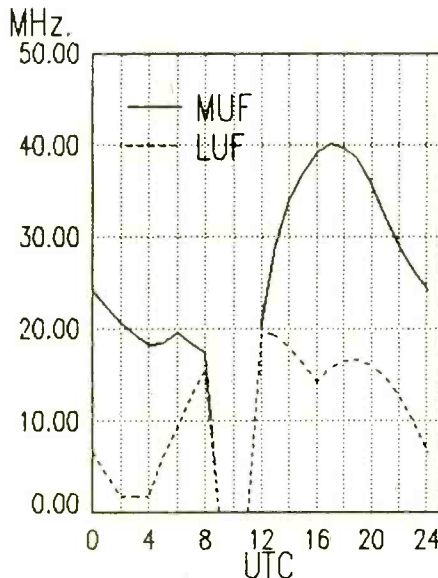
## 2000 UTC [4:00 PM EDT/1:00 PM PDT]

2000-2005	Vatican Radio, Vatican City	7250	9645
2000-2010	M,W,H,A,S Radio Ulan Bator, Mongolia	11850	12050
2000-2010	Sierra Leone Brdcstng.Co., Freetown	3316	

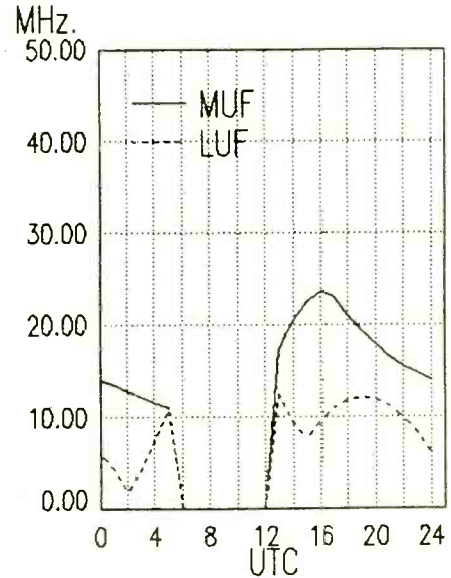
West Coast To West Africa



West Coast To South Africa



West Coast To East Africa



West Coast

# frequency

section

2000-2100	Voice of America-Africa Service	7195	15410	15445	15580
		15600	17785	17800	17870
		21485			
2000-2100	Voice of America-Middle East Service	6040	9700	9760	11760
		15205			
2000-2100	WHRI, Noblesville, Indiana	13760	17830		
2000-2100	WINB, Red Lion, Pennsylvania	15185			
2000-2100	WRNO, New Orleans, Louisiana	15420			
2000-2100	KVOH, Rancho Simi, California	17775			
2000-2100	Solomon Islands Broadcasting Co.	5020			
2000-2100	WWCR, Nashville, Tennessee	15690			
2000-2100	WYFR, Okeechobee, Florida	11830	13695	15440	15566
		17612	17885	21525	21615
2000-2100	M-F Radio New Zealand, Wellington	15485			
2005-2100	Radio Damascus, Syria	12085	15095		
2025-2045	RAI, Rome, Italy	7235	9575	11800	
2030-2100	Radio Korea, Seoul	7550	6480	15575	
2030-2100	Radio Netherlands Int'l, Hilversum	9860	13700	15560	
2030-2100	Voice of Vietnam, Hanoi	9840	12020	15010	
2045-2100	Radio Berlin Int'l, GDR	7185	9665	9730	
2045-2100	Radio Berlin Int'l, GDR	13610	15350		
2045-2100	All India Radio, New Delhi	7265	7412	9550	9910
		11620	11715		
2045-2100	Vatican Radio, Vatican City	9625	11700	11760	15120
2050-2100	Vatican Radio, Vatican City	6190	7250	9645	

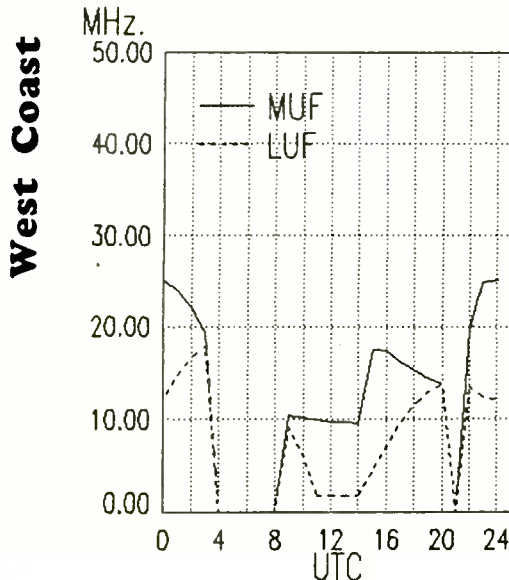
2100-2150	Deutsche Welle, Köln, West Germany	9670	9765	11785	13780
		15435			
2100-2200	Radio Canada Int'l, Montreal	15325	17875		
2100-2200	ELWA, Monrovia, Liberia	11800			
2100-2200	Radio Angola Int'l Svc, Luanda	3355	9535		
2100-2200	All India Radio, New Delhi	11715	11620	9910	9550
		7412	7265		
2100-2200	CBC Montreal	9625			
2100-2200	M-F Radio New Zealand, Wellington	15485			
2100-2200	Radio Moscow World Service	7315	9800	11615	11630
		11670	11745	11775	11805
		11840	11890	11985	12040
		12060	13605	15185	15230
		15315	15355	15425	15535
		15580	21740		
2100-2200	Voice of Turkey, Ankara	9795			
2100-2200	Radio Kiev, Ukraine	9865			
2100-2200	CBN, St. John's, Newfoundland	6160			
2100-2200	CBU, Vancouver, British Columbia	6160			
2100-2200	Voice of Hope, Lebanon	6280			
2100-2200	CFCF, Montreal, Quebec, Canada	6005			
2100-2200	CFCN, Calgary, Alberta, Canada	6030			
2100-2200	CHNS, Halifax, Nova Scotia, Canada	6130			
2100-2200	Christian Science World Service	9455	13770	15610	17555
		15265			
2100-2200	Solomon Islands Broadcasting Co.	5020	9545		
2100-2200	CKWX, Vancouver, British Columbia	6080			
2100-2200	CFRB, Toronto, Ontario	6070			
2100-2200	KUSW, Salt Lake City, Utah	15590			
2100-2200	Radio Australia, Melbourne	11880	15465	17795	
		(until 2130: 7215 13745)			
		(from 2130: 15240)			

2100-2200	KVOH, Rancho Simi, California	17775			
2100-2200	Radio Baghdad, Iraq (to Europe)	13660			
2100-2200	Radio Baghdad, Iraq	11860			
NOTE: The broadcast shown above is intended for joint US-Arab troops in Saudi Arabia and the Gulf area, and is subject to change due to situational constraints.					
2100-2200	Radio Beijing, China	9920	11500		
2100-2200	Radio Jordan, Amman	9560			
2100-2200	Radio for Peace, Costa Rica	13630	21566		
2100-2200	Voice of America-Africa Service	7195	15410	15445	15580
		15600	17785	17800	17870
		21485			
2100-2200	Voice of America-Middle East Service	6040	9700	9760	11760
		15205	11710		
2100-2200	Voice of America-Pacific Service	11870	15185	17735	
2100-2200	WHRI, Noblesville, Indiana	13760	17830		

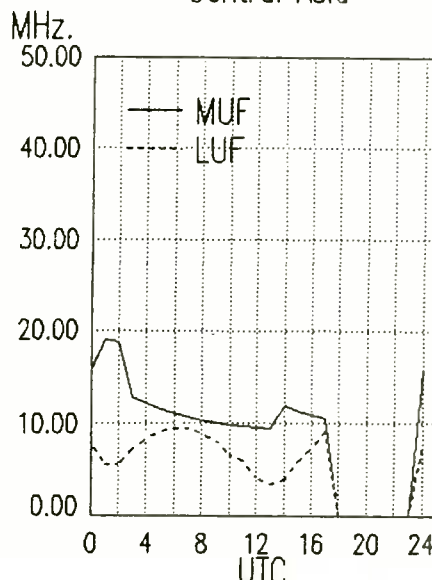
## 2100 UTC [5:00 PM EDT/2:00 PM PDT]

2100-2105	Radio Damascus, Syria	12085	15095		
2100-2110	Vatican Radio, Vatican City	6190	7250	9645	
2100-2115	Radio Prague Int'l, Czechoslovakia	5930	6055	7345	11990
2100-2125	Radio Netherlands Int'l, Hilversum	9860	13700	15560	
2100-2130	M Radio Ljubljana, Yugoslavia	5980	7240	9620	
2100-2130	Radio Berlin Int'l, GDR	7185	9665	9730	
2100-2130	Radio Berlin Int'l, GDR	13610	15350		
2100-2130	Radio Budapest, Hungary	11910	15160	9835	9585
		7220	6110		
2100-2130	Vatican Radio African Service	17730	17710	21650	
2100-2130	Sierra Leone Brdcstng.Co., Freetown	3316			
2100-2130	Radio Korea, Seoul	15575	7550	6480	
2100-2130	Radio Romania Int'l, Bucharest	9690	9750	11810	11940
2100-2130	Radio Beijing, China	3985	11715	15110	
2100-2130	Radio Japan General Service, Tokyo	17890	17810	15270	15230
		21610			
2100-2130	Radio Sweden, Stockholm	9655	11705		
2100-2130	Swiss Radio International, Berne	9885	13635	15525	12035
2100-2130	Radio Finland, Helsinki	6120	11755	15400	

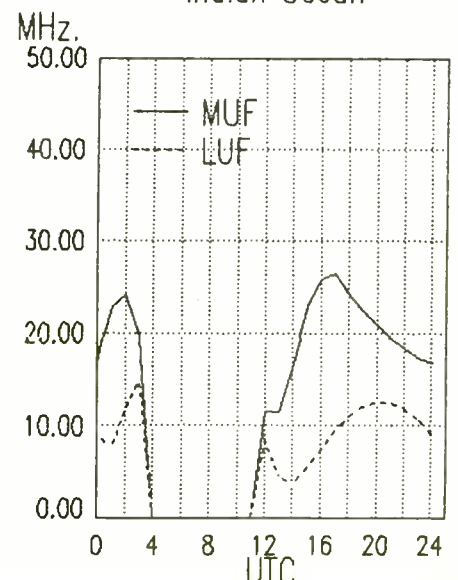
West Coast To South East Asia



West Coast To Central Asia



West Coast To Indian Ocean





# frequency

section

2100-2200	WINB, Red Lion, Pennsylvania	15185
2100-2200	BBC World Service, London, England	5975 9410 12095 15070 15260 15400 17755 17760 17880
2100-2200	WRNO Worldwide, Louisiana	13720
2100-2200	WWCR, Nashville, Tennessee	15690
2100-2200	WYFR, Okeechobee, Florida	11830 13695 15566 17612 17885 21525 21615
2110-2200	Radio Damascus, Syria	15095 12085
2130-2200	Radio Sofia, Bulgaria	11660 11765 15330
2130-2200	Radio Canada Int'l, Montreal	11880 15150 17820
2130-2200	HCJB, Quito, Ecuador	15270 17790 25950ssb

## 2200 UTC [6:00 PM EDT/3:00 PM PDT]

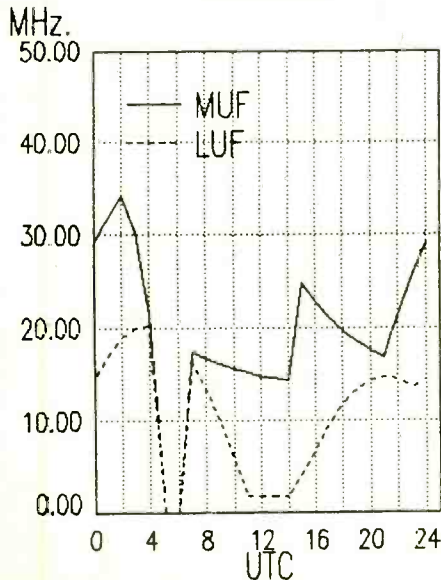
2200-2205	Radio Damascus, Syria	15095 12085
2200-2215	M-H Radio New Zealand, Wellington	15485
2200-2215	Sierra Leone Brdcstng.Co., Freetown	3316
2200-2215	M-AABC, Alice Springs, Australia	2310 (ML)
2200-2215	ABC, Tennant Creek, Australia	2325 (ML)
2200-2215	M-F Voice of America-Caribbean Service	9640 11880 15225
2200-2225	RAI, Rome, Italy	5990 7235 9710
2200-2230	BRT Brussels, Belgium	5910 9925
2200-2230	Radio Beijing, China	3985
2200-2230	ABC, Katherine, Australia	2485
2200-2230	S KGEI, San Francisco, California	15280
2200-2230	S Radio Norway International, Oslo	17730
2200-2245	Radio Yugoslavia, Belgrade	7215 9620 11735 15105
2200-2245	All India Radio, New Delhi	7412 9550 9910 11620
2200-2300	BBC World Service, London, England	5975 6005 6175 6195 7325 9410 9590 9915 11750 12095 15070 15260 15400 17750 17830
2200-2300	CBC Northern Quebec Svc, Canada	9625
2200-2300	CBN, St. John's, Newfoundland	6160
2200-2300	Radio Korea, Seoul	15575
2200-2300	Radio Moscow North American Svc	11670 11690 11710 11780 11800 12040 12050 13605 15315 15355 15425 15580 15595 17735
2200-2300	Radio Sta. Peace & Progress, USSR	9470 9820 11830 11880 11980 15260
2200-2300	Radio Moscow World Service	11615 11745 11775 11985 15140 15560 17570 21690 (from 2230 add: 7315 15480 17655 17850 17890)
2200-2300	CBU, Vancouver, British Columbia	6160
2200-2300	CFCF, Montreal, Quebec, Canada	6005

2200-2300	CFCN, Calgary, Alberta, Canada	6030
2200-2300	CHNS, Halifax, Nova Scotia, Canada	6130
2200-2300	Christian Science World Service	9465 15275 15300 15405 17555
2200-2300	CKWX, Vancouver, British Columbia	6080
2200-2300	CFRB, Toronto, Ontario	6070
2200-2300	KUSW, Salt Lake City, Utah	15590
2200-2300	Voice of Hope, Lebanon	6280
2200-2300	Radio Australia, Melbourne	11880 13605 15240 15465 17715 17795 21740
2200-2300	Radio Havana Cuba	7140
2200-2300	Radio for Peace Int'l, Costa Rica	13630 21566
2200-2300	Radio Tonga, Kingdom of Tonga	5030v
2200-2300	Voice of America-East Asia Service	7120 9770 11760 15185 15290 15305 17735 17820
2200-2300	Voice of America-Eur/Pac. Service	9852 11805 15345 15370 17610
2200-2300	Voice of Free China, Taiwan	17750 21720
2200-2300	United Arab Emirates R., Abu Dhabi	9600 11985 13605
2200-2300	WHRI, Noblesville, Indiana	13760 17830
2200-2300	WINB, Red Lion, Pennsylvania	15185
2200-2300	WRNO Worldwide, Louisiana	13720
2200-2300	WWCR, Nashville, Tennessee	15690
2200-2300	WYFR, Okeechobee, Florida	11580 11830 13695 17612 17885 21525
2205-2230	Vatican Radio, Vatican City	9615 11830 15105
2230-2300	Voice of Vietnam, Hanoi	9840 12020 15010
2230-2300	Radio Polonia, Warsaw, Poland	5995 6135 7125 7270
2230-2300	Radio Tirana, Albania	7215 9480
2230-2300	Kol Israel, Jerusalem	15640 12077 11605 17575 17590 17630
2230-2300	Radio Sofia, Bulgaria	11660 15330
2230-2300	Radio Vilnius, Lithuania	6100 9675
2230-2300	Swiss Radio Int'l, European Service	6190
2245-2200	Radio Berlin International, GDR	5965 7295
2245-2300	All India Radio, New Delhi	15110 11745 11715 9910 9535

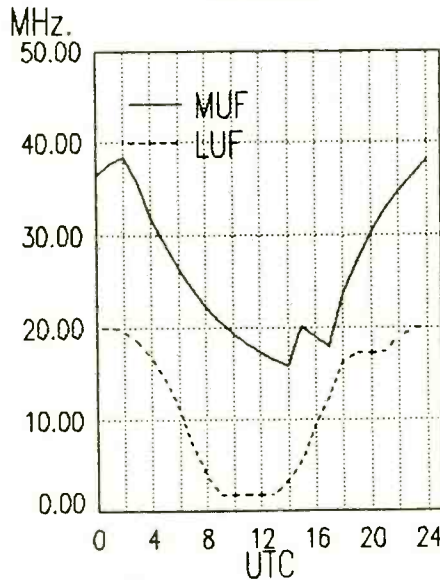
## 2300 UTC [7:00 PM EDT/4:00 PM PDT]

2300-2310	Sierra Leone Brdcstng.Co., Freetown	3316
2300-2315	FEBC, Manila, Philippines	6030
2300-2325	Radio Finland, Helsinki	11755 15185
2300-2330	Radio Berlin International, GDR	5965 7295
2300-2330	Radio Vilnius, Lithuania	6100 11790 13645 15180 15455 15485
2300-2330	Radio Canada Int'l, Montreal	5960 9755 11905

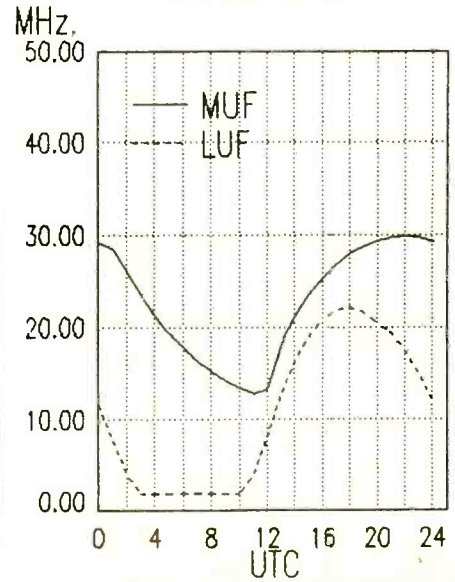
West Coast To  
Indonesia



West Coast To  
Australia



West Coast To  
Central America



West Coast

# frequency

section

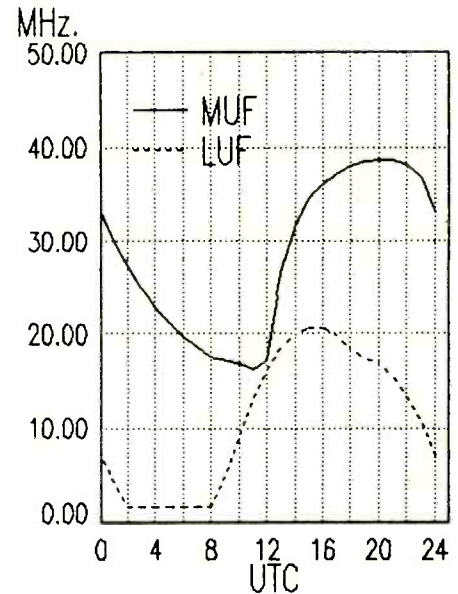
2300-2330	Radio Sofia, Bulgaria	11660	15330
2300-2330	S Radio Norway Int'l, Oslo	15165	
2300-2345	WYFR, Okeechobee, Florida	5985	11580 15170
2300-0000	Adventist World Radio, Costa Rica	9725	11870
2300-0000	Radio Moscow North American Svc.	11670	11690 11710 11780
		11800	12040 12050 13605
		15315	15355 15425 15580
		15595	17735
2300-0000	Voice of Turkey, Ankara	9445	9665 9685 17785
		17880	
2300-0000	Radio Moscow World Service	12005	15140 15480 15550
		15590	17570 17600 17620
		17655	17730 17850 21585
		21690	21790
2300-0000	CBN, St. John's, Newfoundland	6160	
2300-0000	CBU, Vancouver, British Columbia	6160	
2300-0000	CFCF, Montreal, Quebec, Canada	6005	
2300-0000	CFCN, Calgary, Alberta, Canada	6030	
2300-0000	CHNS, Halifax, Nova Scotia, Canada	6130	15405
2300-0000	BBC World Service, London, England	5975	6175 6195 7325
		9410	9590 9915 11750
		15260	
2300-0000	Christian Science World Service	9465	15275 15300 17555
		15405	
2300-0000	Radio for Peace Int'l, Costa Rica	13630	21566
2300-0000	CKWX, Vancouver, British Columbia	6080	
2300-0000	CBC Montreal	9625	
2300-0000	CFRB, Toronto, Ontario	6070	
2300-0000	KSDA, Guam	15125	
2300-0000	KUSW, Salt Lake City, Utah	15590	
2300-0000	Radio Australia, Melbourne	11880	13605 15240 15465
		17630	17715 17750 17795
		21740	
2300-0000	Radio Japan General Service, Tokyo	11835	15195 17810 21610
		17765	
2300-0000	Radio Luxembourg	6090	
2300-0000	Radio Pyongyang, North Korea	11735	13650
2300-0000	Radio Tonga, Kingdom of Tonga	5030v	
2300-0000	Voice of America-East Asia Service	7120	9770 11760 15185
		15290	15305 17735 17820
2300-0000	United Arab Emirates R., Abu Dhabi	9600	11985 13605
2300-0000	WHRI, Noblesville, Indiana	13760	17830
2300-0000	WINB, Red Lion, Pennsylvania	15145	
2300-0000	WRNO, New Orleans, Louisiana	13720	
2300-0000	WWCR, Nashville, Tennessee	15690	
2305-2355	Radio Polonia, Warsaw, Poland	5995	6135 7125 7145
		7270	
2330-0000	Voice of Vietnam, Hanoi	9840	12020 15010

2330-0000	Radio Korea, Seoul	15575
2330-0000	Radio Tirana, Albania	6120 9760 11825
2335-2345	M-A Voice of Greece, Athens	9395 11645

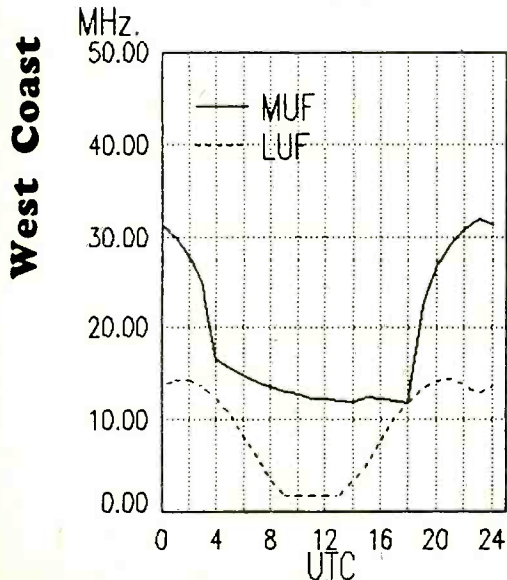
## SUGGESTIONS? SOMETHING MISSING?

Let us know your corrections, additions, and suggestions of what you'd like to see to Program Manager Kannon Shanmugam at 4412 Turnberry Circle, Lawrence, Kansas 66047.

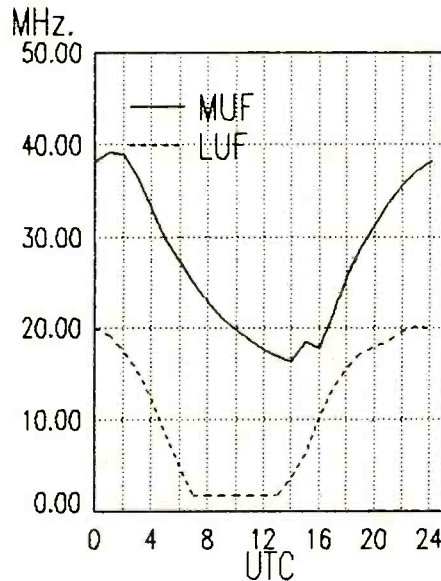
West Coast To  
South America



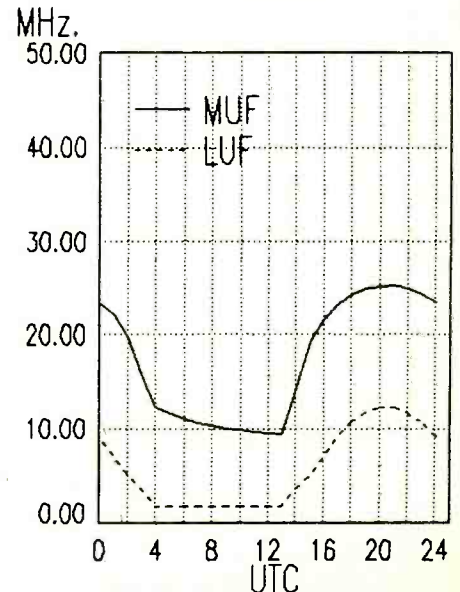
West Coast To  
Far East



West Coast To  
Pacific



West Coast To  
Alaska





# THE PROS SUBSCRIBE.



## SHOULDN'T YOU?

Several professional monitoring agencies, in fact, have subscriptions to **Monitoring Times**. That's because every month **Monitoring Times** offers the latest in:

- ▶ International Broadcasting
- ▶ Utility Monitoring
- ▶ Scanners
- ▶ Shortwave and Longwave
- ▶ Satellites
- ▶ Electronic Projects
- ▶ Listening Tips
- ▶ Frequency Lists
- ▶ Broadcasting Schedules
- ▶ News-breaking Articles
- ▶ Features
- ▶ Exclusive Interviews
- ▶ Insights from the Experts
- ▶ New Product Reviews & Tests

Jammed with up-to-date information and concisely written by the top writers in the field, **Monitoring Times** is considered indispensable reading by top government agencies.

From longwave to microwave, if *you* are interested in communications, **Monitoring Times** is your foremost guide to international broadcasters; new equipment and accessories; profiles of government, military, police and fire networks; home projects; and tips on monitoring everything from air-

to-ground and ship-to-shore to radioteletype, facsimile and space communications.

*Order your subscription today* before another issue goes by: only \$18 per year in the U.S.; \$26 per year for foreign and Canada. For a sample issue, send \$2 (foreign, send 5 IRCs).

### **MONITORING TIMES**

P.O. Box 98  
Brasstown, N.C. 28902

*Your authoritative source, every month.*

- Yes, begin my subscription to **Monitoring Times**. I've enclosed a check.
- Send me a sample issue. Enclosed is a check for \$2.
- For MC/VISA orders, call 704-837-9200.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

## ICOM's New IC-R100 Car Radio

A couple of months back, we looked at Philips' DC777 AM/FM/shortwave car radio, and found that it worked nicely in the car. No DX machine, mind you -- just a pleasant set for listening to international broadcasts while cruising on down the road.

It seems that when it rains, it pours. ICOM has also come out with a serious shortwave car radio, the IC-R100, and it's very different from the Philips offering.

### Small, with Features Aplenty

As you might expect from ICOM, the 'R100 is small with a number of communications-oriented features. It covers all the way from 500 kHz to 1.8 GHz in the AM, wide-FM, and narrow-FM modes. Given all this, it's surprising that it doesn't cover the longwave broadcasting band found in many parts of the world outside the Americas. The Philips unit does, though.

The 'R100 has all sorts of scanning and search functions, as well as 100 memory channels -- a lot more than are on the Philips unit. There's also a tiny speaker on the bottom of the 'R100, and it sounds quite good. If you want to hook it to an external speaker, there's a plug on the back. It's all mono, though. Unlike the Philips unit, the 'R100 does not offer stereo or any other high-fidelity features.

Unlike the Philips unit, which uses an ordinary automotive antenna connector, the 'R100 uses a PL-259 connector for its world band antenna and another connector for a VHF/UHF antenna. This makes it a pain to connect to a regular car antenna.

### Good Performer as a Radio...

As with the Philips unit, the 'R100 offers no narrow AM bandwidth or single-sideband facilities. However, its only bandwidth -- 6 kHz -- does a pretty good job of rejecting adjacent-channel interference. Remember, you can't really DX from a car because of all the ignition noise that clobbers weak stations. As to sensitivity, it's not equal to that of a good communications receiver, but it's plenty good enough for listening to world band radio while driving around.

There are three knobs on the front of the 'R100 -- volume, squelch and tuning,



which is adjustable from 1 to 25 kHz steps. There's also a 12-button keypad, and here's the set's biggest fault.

### ...but Terrible Ergonomics

That little keypad measures just 1-1/2 x 1-1/4 inches, or about 4 x 3 centimeters. Each button is tiny, and half of them are triple-function -- that is, they can do up to three different things each. So the button labeling -- both on and above each button -- is all but impossible to make out from a distance.

Too, the keypad is in the same vertical plane as the 'R100's front panel. This means that if you see it from any angle other than head-on, keypad legibility becomes even worse.

So even though the keypad numbers are in the handy three-by-three-over-one layout found on most telephones, we found ourselves picking up the receiver -- like you'd hold up a kitten -- to read the keypad and press those tiny buttons. You can imagine what it would be like for drivers to stick their heads near the radio so they can see those little buttons as they zip through rush-hour traffic.

That's not the end of it, either. To make matters worse, frequency entry requires more button-pushing than it should. To get Radio Prague on 5930 kHz, for example, you have to press ENTER -- 5 -- decimal -- 9 -- 3 -- 0 -- and ENTER again. It takes a steady hand, strong nerves, and real concentration to push those little bitty buttons in the right order while you're fighting traffic.

### Bottom Line: Nice, but No Cigar

The bottom line is that the electrical performance of ICOM's new IC-R100 is more than adequate for listening to world band radio in the car. Its ergonomics, though, are a driver's worst dream come true. Overall, the Philips DC777 is much better.

For those of us in the United States or Canada, whether or not to buy this radio is moot. Like ICOM's other new models, the IC-R72 and IC-R1, it's not sold there. In Europe, Asia and other parts of the world it sells from about the equivalent of 700 US dollars to around \$1,000.



You can hear Larry Magne's equipment reviews the first Saturday of each month, plus PASSPORT editors Don Jensen and Tony Jones the third Saturday, over Radio Canada's "SWL Digest." For North America, "SWL Digest" is heard at 7:35 PM ET on 5960 and 9755 kHz, with a repeat Tuesday at 8:30 AM ET on 9635, 11855 and 17820 kHz.

PASSPORT'S "RDI White Paper" equipment reports contain everything found during its exhaustive tests of communications receivers, antennas and advanced portables. These reports are now available in the U.S. from Universal Shortwave and EEB; in Canada from PIF, C.P. 232, L.d.R., Laval PQ H7N 4Z9; in Europe from Interbooks, 8 Abbot Street, Perth PH2 0EB, Scotland, and Lowe Electronics stores; and in Japan from IBS-Japan, 5-31-6 Tamanawa, Kamakura 247. For a complete list of reports, send a self-addressed stamped envelope to RDI White Papers, Box 300M, Penn's Park PA 18943 USA.





# The ICOM EXPERTS

Minutes From  
Washington, D.C.

## CLASSIC



### R71A .1-30 MHz

- World Class HF Receiver
- All Mode AM, CW, SSB, RTTY, FM (Opt)
- Keyboard And Memory Frequency Entry
- 32 Programmable Memory Channels
- Optional Filters, Voice, 12VDC, Computer Input
- Many EEB Options Listed In Our 1990 Catalog
- 117/220/234 VAC 13.8 VDC (Opt)
- 11.25W x 4.44 x 10.9D (Inch) 16.5 Lbs

List \$999

EEB Discount Price \$849.95 + UPS

Get The Details From  
Our FREE 1990 Catalog.

## CLASSIC



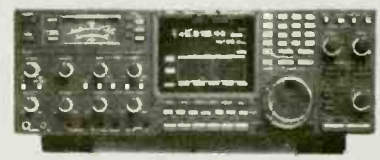
### R7000 25-2000 MHz

- VHF/UHF Classic Nothing Like It Under \$4000
- Triple Conversion Eliminates Images
- Tuning Steps .1, 1, 5, 10, 12.5, 25 MHz Increments
- 99 Programmable Memory Channels
- Sensitivity Better Than .5µV (12dB SINAD) FMN
- Multimode AM, FM, FMN, FMW, CW/SSB
- Many EEB Options Listed In Our 1990 Catalog
- 117/220/234VAC 13.8VDC (Opt)
- 11.25W x 4.4H x 10.9D (Inch) 17.5 Lbs

List \$1199.00

EEB Discount Price 1019.00 + UPS

## CLASSIC



### R9000 .1-2000 MHz

- Never Has So Much Been Offered In One Receiver
- Covers Everything VLF (100 kHz) To Super UHF 2 GHz
- Multimode AM, FM, FMN, FMW, CW, SSB, RTTY
- 1000 Programmable Memory Channels
- DDS (Direct Digital Synthesizer) Tuning
- CRT, Spectrum Analyzer, Multi Screen Readout
- Power 100-120VAC 220-240 12VDC (Opt)
- EEB Optional Power Supply And Filters
- 16.7W x 5.9H x 14.4D (Inch) 44.1 Lbs

List \$5495.00

Call  
EEB Discount Price ~~52795.00~~ + UPS

## FREE DETAIL LITERATURE ON ALL ICOM PRODUCTS CALL 1-800-999-9877

## NEW



### Magnavox 3805 Digital

- SW 3.2-7.3/9.5-21.75 MHz
- FM/FM Stereo/AM
- PLL Synthesized
- 20 Memories 5 AM 5 FM 10SW
- Clock 12/24 Hour Alarm
- Push Button Memory Recall
- 4AA Or Optional AC Adapter

Unbelievable \$129.95 + UPS

## NEW

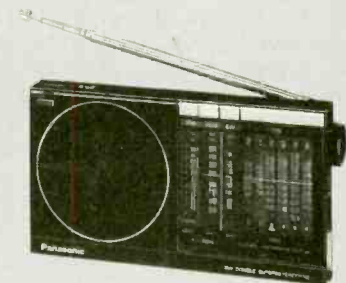


### SONY ICF SW 7600

- SW All Bands .1-3C MHz
- FM Stereo With Headphones (Incl)
- 10 Memories & Clock Timer Alarm
- CW SSB (USE, LSB)
- Keyboard Frequency Entry
- Complete System Including Ext Ant, Headset, Book, AC Adapter
- New Replacement For ICF-2003

List \$259.95 EEB \$219.95

## CLOSEOUT



### Panasonic RFB20

- LW/MW/FM/6SW Bands
- Easy Analog Tuning
- Excellent Audio For Size
- 2 Year Panasonic Warranty
- Carry Case & Earphone (Incl)
- 3AA DC Optional AC Adapter

List \$149.95 **46% OFF**

EEB \$79.95 While They Last



ELECTRONIC EQUIPMENT BANK  
323 MILL STREET, N.E.  
VIENNA, VA 22180

ORDERS: 800-368-3270

LOCAL TECH: 703-938-3350

FAX: 703-938-6911

- PRICES SUBJECT TO CHANGE
- PRICES DO NOT INCLUDE FREIGHT
- SORRY, NO CODs
- RETURNS SUBJECT TO 15% RESTOCK FEE

CIRCLE 106 ON READER SERVICE CARD

## The Realistic PRO-2006

*Although the Realistic PRO-2006 scanner is not a new arrival on the market, it has proved to be an extremely popular receiver. The following is an in-depth review by a respected MT contributor, Bob Pamass.*

The Radio Shack PRO-2006 is a 400 channel, wide coverage scanner radio, manufactured in Japan by General Research Electronics. It is the successor to the PRO-2005 and a grandchild of the PRO-2004, the super scanner which put Radio Shack out in front of its competition in the base station scanner market.

The PRO-2006 is almost identical to the discontinued PRO-2005, with the exception that the PRO-2006 boasts Hyperscan™, a catchy way of saying that it scans fast — about 26 channels/second versus the PRO-2005's 16 channels/second rate. At about \$400, the PRO-2006 is \$20 cheaper than the PRO-2005 was. Both scanners are built using surface mount components and are housed in a gray plastic cabinet.

### Frequency coverage

The PRO-2006 covers 25-520 and 760-1300 MHz, except for two gaps in the cellular telephone bands. The two gaps in the 800 MHz range can be restored in all the Radio Shack continuous coverage scanners by removing a diode. Diode D502 is the culprit in the PRO-2005 and PRO-2006.

A matrix of diodes, attached to the microprocessor's input port, is often used to configure radios for sale in different markets. The diode matrix on the new PRO-2006 is located on the vertical board just behind the front panel. There are two diodes present, and holes drilled for two more.

### Lots of memory

The PRO-2006 has the usual features that scanner buffs have come to expect: individual channel lockouts, selectable two second rescan delay, an external speaker jack, etc. Casual scanner users don't need 400 channels, but scanner hobbyists can have those channels filled up in no time flat, especially with frequencies in the vast 225-400 MHz military air band, and other federal government allocations.

With so many channels to program, one dreads the thought of a power failure, which could clear memory in a hurry. Not to worry, the PRO-2006 memory is backed up by a conventional 9 volt alkaline battery (not supplied), which should be replaced every six months or so.

The 400 channels are divided into 10 bands of 40 channels each, and one can select or

deselect any channel bank from the scan list. Individual channels can be locked out in the customary way, but the PRO-2006 maintains the handy feature introduced in the PRO-2004, a LOCKOUT REVIEW. Successive depressions of this key step through the locked out channels.

Scanners worth their keep have a priority feature, with channel 1 usually designated the priority channel. The PRO-2006 is more flexible. Any of the 400 channels may be designated the priority channel. When the PRIORITY key is depressed, that channel will be sampled every two seconds and the radio will stay there if a signal is heard.

The PRO-2006 has two scan speeds, which measured approximately 13 and 26 channels/second. While scanning at high speed, the PRO-2006 won't skip over weak signals like some of the AOR-2515 scanners do. Adding diode D501, situated at an unmarked location between D502 and D503, sped up the PRO-2005 scan and search rates by 25 percent. Adding the same diode in the PRO-2006 has no effect on the scan or search rates.

It has been claimed that a PRO-2005 could be made into a PRO-2006 by merely replacing the CPU clock crystal with one of a higher frequency. Don't believe it. Changing the PRO-2005 clock speed would affect both the rescan delay and the priority rate, and they would no longer be two seconds long, as they are in the PRO-2006.

When programming a channel, the PRO-2006 firmware sets the mode automatically, based on its idea of what mode is most prevalent on that frequency. This feature saves extra keystrokes, and makes one appreciate the thought that went into the design of this radio. The default mode can be overridden easily, if need be, such as to listen to a military mid-air refueling operation in the 225-400 MHz range, which is mainly populated with AM signals.

### Searching

The SEARCH facility found on most programmable scanners allows the entry of a pair of frequencies, then by pressing a key, the radio searches frequencies between those limits. The PRO-2006 allows for 10 pairs of limits. These pairs of limits are stored in their own memory, and don't use up any of the conventional 400 memory channels. One can set up several search pairs, for instance:

46.610-46.970 MHz: cordless telephones  
144-148 MHz: the 2-meter ham band  
418.625-418.900: Drug Enforcement Admin.

Another unique feature of the better Radio Shack models is the MONITOR key, which stops the search and stores the frequency in



*Identical in appearance to the PRO-2005, there is a difference.*

one of ten special monitor memories. These memories are separate from the 400 main memory channels. The search can be restarted from where it left off by striking the up or down arrow key.

The user can select the search direction (up or down) and step size of 5, 12.5 or 50 kHz, although the PRO-2006 is intelligent enough to select a default step size based on the frequencies being searched. As on the PRO-2004 and PRO-2005, there is a hidden step size of 30 kHz, but this step size is only used in the cellular phone band after restoring full 800 MHz coverage.

The selected parameters are displayed on the LCD panel, smaller than the panel in the PRO-2004.

The DIRECT key allows one to start searching up or down from whatever frequency is on the display. Let's say the scanner is in MANUAL mode, and set at channel 26, which contains 460.100 MHz. Striking the DIRECT then UP-ARROW keys starts the PRO-2006 searching upwards from 460.100. This is a nice feature.

The PRO-2006 contains a "window detector" circuit, which is called into play during a SEARCH operation. This circuit tries to detect when the radio is tuned close to the center frequency of a station, and prevents the search from halting prematurely, off to the side of the signal.

The AFC (automatic frequency control) circuit of the Bearcat 800 XLT often causes a search of 850 MHz signals to halt prematurely. Even though the signal sounds on frequency, the display reads the wrong frequency. Neither the PRO-2004 nor the PRO-2006 have this problem.

The PRO-2006 includes a SOUND SQUELCH, resembling the VSC circuit on the ICOM R-7000, which may be used during scan or search operations. With the sound squelch enabled, signified by a red lamp above the pushbutton, the scanner will skip over unmodulated signals. This is handy for skipping over "birdies," link signals with a constant carrier, or baby monitors when baby is asleep.

The manual warns that the sound squelch may be fooled by signals with low modulation, and skip over them. The PRO-2006 SOUND



SQUELCH tries to detect the presence or absence of modulation (not human speech), so unfortunately, it thinks that noisy dead carriers, digital data signals, and paging tones are worth monitoring and will stop the scanner to listen to them.

### Basic performance

To evaluate sensitivity, the PRO-2006 was compared with its grandfather, the PRO-2004. Since a signal generator was not used, quantitative measurements could not be made. Instead, an Antenna Specialist AV-801 antenna was switched between radios, signals from stations were compared by ear, and the results tabulated.

Simply put, the PRO-2006 proved more sensitive than the PRO-2004 on all bands tested, and much more sensitive in the 850 MHz range. The earlier PRO-2005 was also more sensitive than the PRO-2004, but both the PRO-2005 and the PRO-2006 let 800 MHz trunked systems and cellular telephone conversations bleed through while searching the 118-132 MHz commercial aircraft band. The 800 MHz interference was heard on the 2005 and PRO-2006, not the 2004.

Although the PRO-2004, PRO-2005 and PRO-2006 can suffer the effects of intermodulation, they are much more immune than the overly sensitive image laden Bearcat 800 XLT. Intermodulation from paging appeared on several frequencies above 1000 MHz, in a region not many people monitor. Oddly, audio from television channel 50 was heard on 1251.625 MHz. The PRO-2006 has a 10 dB attenuator, operable by a slide switch on the rear. The attenuator helps eliminate intermod, but few people would want the attenuator enabled while scanning or searching as it degrades both wanted and unwanted signals. A programmable attenuator feature, selectable for each channel, would have been a better idea.

The up conversion design of both the ICOM R-7000 and Radio Shack PRO-2006 allows use of a very high IF (intermediate frequency), which helps avoid image problems.

The audio output quality is good, although the top mounted speaker directs the sound at the ceiling, but adding an optional external speaker allows the sound to be directed at the user's head.

Unfortunately, the audio level of AM signals is somewhat below that of NBFM signals, requiring a slightly different setting of the volume control, although this has improved over the PRO-2005. When scanning both AM and NBFM modes, one has to find a compromise position of the volume control.

### Mechanical and electrical construction

The newest scanners use tiny surface mount components, which permits manufacturers to cram more circuitry into smaller cabinets. This

technology makes home repairs and circuit modification almost impossible. The "lick and stick" parts are so small it is difficult to tell a surface mount resistor from a capacitor, and components are rarely marked with their values.

The PRO-2006 is smaller and lighter than the 2004. It is enclosed in a gray plastic cabinet, with a plastic front panel. If one is going to pay \$400, one deserves to own some metal, but several stages are internally shielded in their own metal compartments. The entirely plastic cabinet of the older PRO-2003 allowed wideband noise to radiate out of the scanner and into nearby shortwave receivers.

The PRO-2006 vertical front panel is an advancement over the sloping panel of the 2004. You can stack the scanner on top of other equipment and see the controls without standing up. If sitting directly on a table, two hinged plastic feet, padded with rubber bumpers, can fold out from under the front of the radio to tilt it at a good viewing angle.

There is a single BNC antenna connector on the rear of the PRO-2006, and the radio is supplied with a telescoping antenna which screws in through a hole in the top of the cabinet.

Internal construction is excellent, and the internal shielding is commendable. Interstage shielding is very important in a wide band receiver, to prevent it from "hearing itself," an undesirable phenomena which results in birdies. The PRO-2006 owner's manual lists dozens of birdie frequencies. The shielding is much better in the PRO-2006 than in the 800 XLT, which uses no shielding around the 800 MHz converter stage, and probably accounts for some of the birdies in the Bearcat.

Frequencies and other indicators are displayed on a backlit LCD (liquid crystal display) panel, and the level of backlighting can be dimmed by a pushbutton switch. As with the PRO-2005, the poor contrast on the small LCD panel makes it difficult to read a frequency more than just a few feet away, and is nowhere near as good as the greenish blue fluorescent display in the old Bearcat 300.

However, physically challenged and vision impaired scanner buffs will appreciate the conventional raised rubber keyboard in the PRO-2006. Only moderate pressure is required for actuation, and key depressions are confirmed by a mild "beep" audio tone.

The PRO-2006 is the right size to fit under the dashboard of intermediate sized cars, but there are few concessions to those wanting to use this scanner in a vehicle. It can operate on 12 VDC although neither a mobile power cord nor mounting bracket are provided.

The PRO-2006 is warranted for one year, which is reassuring.

### What's missing

So, with all these neat features, what's missing from the PRO-2006? It would have

## THERE IS NO EXCUSE FOR PAYING TOO MUCH

Free shipping on all prepaid orders.

### New! Uniden MR8100

100 Channel Turbo Scanner. \$495

### New! Anteco MM2054

Mobile Scanner Antenna... \$35

GRE Super Amplifier

100 MHz to 1 GHz...\$55

Uniden-Bearcat BC200 XLT

200 Channels, 800 MHz...\$255

Channel Master 5094A

Scanner Antenna/Ccax...\$45

GRE All Band Scanner Antenna

Tapered Duck, BNC Connector...\$18

### New! Sangean ATS-803A

SSB/FM/AM/SW Portable...\$188

Clearance! Regency INF-5

Base Turbo Scanner...\$89

### INTERCEPT INC.

6014 Oak Hill Drive

Flowery Branch, GA 30542

404-967-9757 '90 Catalog..\$1

been better to have more channel banks with fewer channels in each bank, say 20 banks of 20 channels. A "search and store" mode, like that on the ICOM R7000 and older Bearcat 250 would have been nice, and such a circuit is being marketed by Key Research. A lighted keyboard and a signal strength meter would also be welcome, as would a mobile mounting bracket and SCA output jack.

A frequency query facility, as found in the Uniden 200 XLT, would have been very useful for finding in what memory channel a given frequency is stored. Mega-channel scanners really need this feature and it would have been trivial to implement in the PRO-2006 firmware.

### Summary -- it's tops

If all one wants is a scanner to monitor local police and fire, there are certainly cheaper and simpler models than the PRO-2006. This scanner is the best base/mobile scanner available at time of writing. AOR's AR-2515 has more channels, but its buggy firmware and tendency to skip active channels prevent it from taking top honors. At about \$400, the PRO-2006 scans much better than the ICOM R7000, a great VHF/UHF communications receiver, priced at over \$1,000.

The PRO-2006 has the right features and performance, especially for scanning the wide 225-400 MHz military aircraft band and the newer federal law enforcement radio systems with their dozens of channels.



## Build a QRP Transmitter for 40 Meters

Licensed amateurs have enjoyed the adventures associated with very low power (QRP) transmitter operation for decades. This interesting challenge began in the early days of radio when few experimenters could afford to buy the parts needed to build a high power (QRO) transmitter: the years of The Great Depression inspired innovations in radio designs that led to good efficiency with minimum parts.

Now, in this day of solid-state techniques, along with the proliferation of low-cost surplus components, we can build transistorized QRP transmitters that are inexpensive and compact. It is possible to construct a flea-power rig and have it on the air in a couple hours.

Today we have more than 100,000 dedicated QRPers, worldwide, according to information I have received from the various QRP societies. The movement is growing as the prices for commercial amateur equipment continue to increase at an exponential rate.

But, beyond this consideration comes the thrill of enjoying a chat with some distant ham

when you are using 5 watts or less of transmitter output power. Some dedicated QRPers use only milliwatts of power. A 50-mW CW transmitter can span a distance of 1000 miles under ideal band conditions if you use a dipole antenna at a reasonable height above ground.

For example, I have received signal reports of RST 569 at midday on 40 meters from stations 800-900 miles away while operating with a one-transistor crystal-controlled 50-mW transmitter. On 20 meters I have worked the four corners of the world with 2-watt rigs and modest antennas. I have even broken into DX pileups with QRP equipment.

A QRP operator is a patient person. It is important to call CQ on a quiet frequency. Several CQs may be necessary before someone answers your call. It is wise to call only those stations with relatively strong signals. This is because the other person may be using a 100 watts (or even a kW) and although his signal is loud at your location, your weaker signal may not be readable at his

QTH. The exception is when the other station is also equipped with a QRP transmitter.

QRP equipment is ideal for field use from a battery type power supply. Campers, vacationers and hikers are fond of QRP gear for this reason. Small solar-electric panels are sometimes used to keep a NiCd battery pack topped off for the portable QRP station. (See my article in *MT*, June 1990.) Vehicle and boat batteries also serve well as sources of power.

### The Simplest Type of QRP Transmitter

If you are a beginner to transmitter construction, I recommend that you start with a simple circuit, get it percolating well, then put it on the air and try your hand at contacting another amateur station. Figure 1 shows a simple circuit that you can tack together on a breadboard in less than an hour.

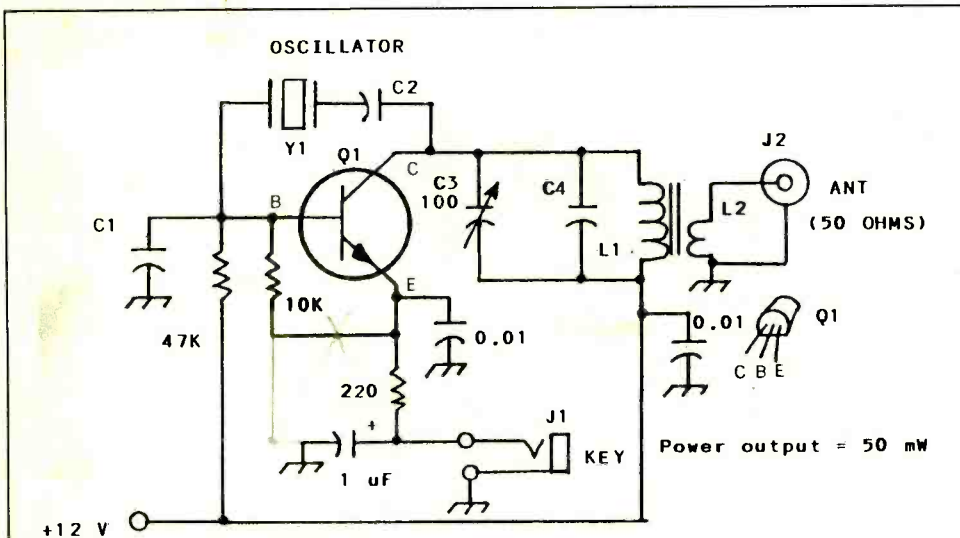
In this example, we can build it for 80, 40 or 20 meters from the component values listed. C1 and C2 control the feedback, which is necessary to make Q1 oscillate. Too little feedback prevents the crystal from vibrating, and too much feedback robs transmitter output power and causes a chirpy CW signal. C3 is used to tune L1 to the crystal frequency.

L2 has the proper number of turns to match the Q1 collector to a 50-ohm antenna or load. Output power will be low if L2 is too small. Excessive loading will occur if L2 has too many turns, and this can prevent Q1 from oscillating, cause a chirpy signal or lower the output power. You may experiment with the number of L2 turns in an effort to strike a compromise between power output and a nonchirpy signal.

The oscillator is keyed via J1. When the key is up (open circuit) there is no current flow through Q1 and hence no oscillation. Closure of the key completes the base and emitter return circuits to provide oscillation.

The crystal, Y1, is a fundamental type that is chosen for the desired operating frequency. I do not recommend WW-II surplus FT-243 crystals, since many of them tend to be sluggish (Q1 may not oscillate), although if their internal parts (including the quartz element) are cleaned carefully with hot water and soap, then rinsed and dried, they may work nicely. I prefer plated crystals in HC-6/U holders for best results. General-purpose crystals that are ground or etched for a 30-pF load capacitance are suggested, should you order a new crystal.

Q1 need not be a 2N4401. Any similar NPN transistor with an fT (frequency at which the transistor gain is unity or 1) of 100 MHz



**Figure 1** - Schematic diagram of a 50-mW QRP transmitter. Fixed-value capacitors are disc ceramic, 50 V or greater. Resistors are 1/4- or 1/2-W carbon film or carbon composition. Decimal-value capacitors are in uF. Others are in pF. K = 1000. Silver mica or polystyrene units may also be used for C1, C2 and C4.

- C1 - 80 M, 47 pF; 40 M, 33 pF; 20 M, 22 pF.
- C2 - 80 M, 470 pF; 40 M, 330 pF; 20 M, 150 pF.
- C3 - 100 pF air variable or mica trimmer.
- C4 - 80 M, 220 pF; 40 M, 100 pF; 20 M, none.
- J1 - Two-circuit phone jack
- J2 - SO-239 coaxial connector or RCA phono jack.
- L1 - 80 M, 7.5 uH, 39 turns no. 28 enam. wire on Amidon Associates T50-2 (red) toroid core; 40 M, 3.2 uH, 25 turns no. 24 enam. wire on a T50-2 toroid; 20 M, 1.3 uH, 18 turns no. 24 enam. wire on a T50-6 (yellow) toroid. cores are available from Amidon Assoc., Inc., 12033 Otsego, N. Hollywood, CA 91607.
- L2 - 80 M, 6 turns no. 24 enam. wire over L1 winding; 40 M, 4 turns no. 24 enam. wire over L1 winding; 20 M, 3 turns no. 24 enam. wire over L1 winding.
- Q1 - See text.
- Y1 - See text.



or greater is suitable in the Figure 1 circuit. Such devices as the 2N4400, 2N2222A, 2N3553, 2SC779 and 2N3866 are excellent for this QRP rig. Some of these devices are available as surplus for as little as 15 cents a piece. How's that for economy in this era of high prices? If you want more output power, use two of these transistors in parallel at Q2.

### Assembling the Transmitter

The Figure 1 circuit can be hooked together on a piece of perforated board or a universal type of breadboard. An etched PC board is not required. But, you may wish to make a small PC board for the project if you're experienced at layout and etching. The entire circuit should fit easily on a 2 by 2 inch PC board. Make an effort to keep all of the component leads as short and direct as practicable. RF circuits always work best if you minimize unwanted stray inductance (caused by excessive lead length).

### Checkout and Operation

Connect a 1/2-W 48-, 51- or 56-ohm carbon resistor across J2, apply +12 volts and close the key while monitoring the transmitter frequency with a receiver. If no signal is heard, adjust C3 until oscillation occurs. Key the transmitter and listen to the note. If it is a bit chirpy, readjust C3 until the signal sounds proper. You may tune for maximum output power (C3) while observing the S meter of your receiver. Alternatively, you can use a VTVM and an RF probe, or a scope, when adjusting C3 for maximum output power from L2.

If no oscillation occurs after adjusting C3, try another crystal. If this does not cure the problem try increasing the value of C2 until oscillation takes place: Your particular crystal may require more feedback voltage. Finally, and assuming that the wiring is correct, try replacing Q1 if the circuit fails to oscillate.

It is important that the SWR of your antenna is low. The circuit works well, as described, if the load impedance is between 40 and 70 ohms. I suggest that you check the antenna system first with your station transmitter and an SWR meter. If you use an antenna tuner, adjust it for an SWR of 1 before connecting the QRP rig to the antenna system. Your best DX will occur when the antenna is matched to its feed line, and when the feed line is matched to the transmitter. Maximum power transfer always occurs when unlike impedances are matched.

### Some Closing Comments

If you are not a licensed amateur you may still want to construct this project as a learning exercise. It is legal for you to own a transmitter if you do not use it on the air. Use the resistor mentioned earlier as a dummy antenna when testing the circuit. Take the transmitter to a ham friend's house and ask him to test it on the air.

This project may be the one that encourages you to study for your amateur license. It may be used with a receiver as a code-practice oscillator. Reference 1 lists two QRP organizations that publish quarterly journals. The publications contain numerous simple circuits and all manner of information about the QRP movement, worldwide.



#### Reference:

1) QRP Amateur Radio Club, International (QRP ARCI), P.O. Box 776, Alpine, TX 79831.

SPRAT (G QRP Club), Rev. George Dobbs, G3RJV, St. Aiden's Vicarage, 498 Manchester Rd., Rochdale, Lancs OL11 3 HE, England

## WEATHER SATELLITE HEADQUARTERS

Would you like to View The Earth from an orbiting Wx satellite, Track Hurricanes, Storm Fronts, Cloud Cover, and wonder where to obtain this sophisticated equipment without searching the entire country? **LOOK NO FURTHER! GTI Electronics** has been working with satellite imagery for over 15 years and can save you **Time, Money, Aggravation, etc.** and it's a **ONE STOP SHOP.**

**Realtime Intercept, Display & Storage of the following:**

**NOAA METEOR GOES METEOSAT FAX GOESTAP UPI AP**

We can supply **Dishes, Mounts, 1691 Feeds, 1691 Converters, Receivers, Preamps, Video Cards, Monitors, Goestap Interface, Custom Cables, Computers, Video Printers, Antennas & Panadaptors.** We supply unit quantities or complete systems. Call or write for pricing or quotations. Demo diskettes for IBM or clones W/VGA capability for program review & image display are available for \$5.00. Call for consultation before you buy.

**GTI Electronics**  
**Dept. MT**  
**1541 Fritz Valley Rd.**  
**Lehighton, Pa. 18235**

**Tel. 717-386-4032**  
**Fax 717-386-5063**

**VISA —**  
**MASTERCARD**

## Computer Aided Scanning

*a new dimension in communications from Datametrics*



Now you can enhance your ICOM communications receiver through a powerful computer controlled system by Datametrics, the leader in Computer Aided Scanning. The system is as significant as the digital scanner was five years ago and is changing the way people think about radio communications.

The Datametrics Communications Manager provides computer control over the ICOM R7000 or R71A receiver.

Powerful menu driven software includes full monitoring display, digital spectrum analyzer and system editor.

Innovative hardware design requires no internal connections.

Comprehensive manual includes step-by-step instructions, screen displays, and reference information.

Extends ICOM capabilities including autolog recording facilities, 1000 channel capacity per file, and much more.

Overcomes ICOM limitations such as ineffective scan delay.

## Datametrics, Inc

— R7000 system \$ 349  
 — R71A system \$ 349  
 — Manual and demo disk \$15

Requires ICOM receiver and IBM PC with 512K and serial port. The R71A version also requires an ICOM UX-14.

Send check or money order to Datametrics, Inc., 2575 South Bayshore Dr. Suite RA, Coconut Grove, FL 33133. 30 day return privileges apply.

## Mixed Mods

### The Poky PRO-2021

Brian King has submitted some modifications for the Realistic PRO-2021 scanner. The first mod is a scan speed increase. The 2021 has a poky 7 channel per second scan rate in the high speed mode. By replacing the existing R-147 resistor with a 1/4 watt carbon film resistor of 15 K ohms the scan speed is increased from 7 to 11 CPS in the high speed mode. (Ed. note: on my 2021, after performing this mod over two years ago, I noted that the scan speed was on the order of 13 CPS with no problems in locking onto a signal. Scan speed may vary according to the scanner.)

There may be a way to add frequency coverage on the 810-960 MHz band by adding a resistor from pin 13 of IC-8 to the RF end of R-113. I have not personally done this mod, but wonder if anyone out there has? If you would like to share the success or failure of adding 800 MHz to a PRO-2021 scanner, please write me at the Brasstown address.

### Performing the BC-140 Mods

Jerry Brown, K2VA, wrote to tell of his success at modifying the Bearcat BC-140 (EW, July '90 MT). Says Jerry, "Upon removing the printed circuit board from the bottom half of the cabinet, by taking out the five screws and unsoldering the black wires from the ground shield, I discovered another ground shield soldered to the board that made it impossible to install the 22 ohm resistor and tap into the runs at the connector.

"The shield was easily removed by unsoldering it from the board. BE CAREFUL. The PC leads on the board are very close together and the pads come off the board very easily with too much heat from the soldering iron."

Jerry also states that you don't need to use SPST switches for the priority scan and instant weather switches. Instead, these need to be momentary contact push button switches (RS # 275-1547B). These two control lines only need to be momentarily grounded to enable or disable the selected function. In addition, Jerry placed the two push button switches on the front panel between volume and squelch pots.

Finally, Jerry says that it is not necessary to program the local weather frequency into the BC-140. These NOAA freqs are

apparently preprogrammed into the scanner and it selects the active frequency in your local area.

Thanks, Jerry, and no, I don't have any mod info on the BC-170. How 'bout it, gang... anyone out there have any mods for the BC-170 scanner?? Write me at the Brasstown address.

### Increased Sensitivity for the IC-202

For the last few months we've apparently been leaving the ham radio operators out in the cold. This modification is intended to right that wrong.

This ham modification was submitted by Scott Richards, G5CSU, and concerns the ICOM IC-202 two meter portable SSB transceiver.

In the late '70s and early '80s, ICOM marketed two portable two meter transceivers. The IC-202 was the first marketed and then superseded by the IC-202S. The "S" model included lower sideband along with extended frequency coverage to 146 MHz. Styling was almost identical and the two radios enjoyed much popularity both in America and Europe.

(Ed. note: I can attest to that since being stationed in the UK for 5-1/2 years, many of my UK ham friends used one version or the other of the IC-202 coupled to a 4CX250 amplifier to put a potent two meter SSB/CW signal on the air from Britain).

These portable VHF SSB packages can be had at radio rallies (hamfests) for around £100 (\$150 US). (Ed. note: IC-202 series transceivers can be purchased somewhat cheaper in the US. Check the "yellow sheets" and hamfest flea markets. A stock 202 should run about \$85 while the 202S will cost around \$125.)

As they stand, either of the IC-202 radios

are a marvel of engineering and packaging. They are a fun radio to use and many hours of enjoyment can be had using this equipment.

One of the major deficiencies of both radios is the lack of receiver sensitivity. The manual states that both radios exhibit a .5 uV for 10 dB S+N/N. In reality this figure is exaggerated and a more realistic sensitivity reading would be on the order of 1.0 uV. This is assuming that the receiver is properly aligned, of course.

Therefore, the first order of business is to hot-up the receiver a bit. Remember, these radios were designed and produced before the major advances in receiver front end technology found its way into the amateur radio market. Hence, the addition of a good two meter preamp is essential to successful VHF operation.

Two meter preamps are plentiful; however, good two meter preamps are rare indeed. Advanced Receiver Research, Box 1242, Burlington, Connecticut 06013, makes a very fine line of VHF/UHF receiver preamps.

The ARR model P144VDA was chosen for the modification to my IC-202. This particular preamp has a 15 dB gain and less than 1 dB noise figure. This means that the incoming signal will be amplified by 15 dB with little addition of noise to the receiver front end. A low noise figure is very important in preamp selection, as 15 to 20 dB of gain is of little use if the preamp injects excessive noise right along with the desired signal.

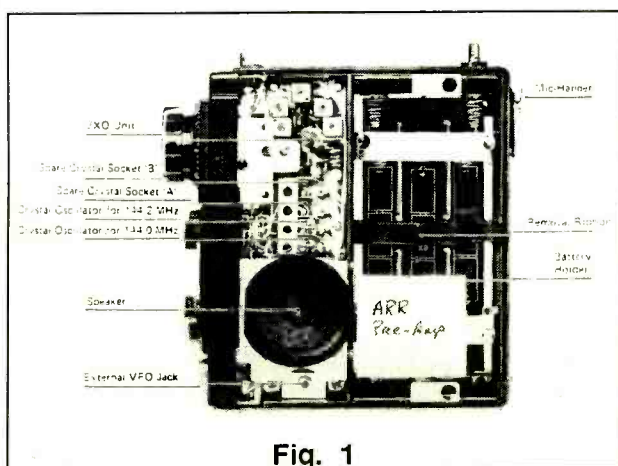


Fig. 1

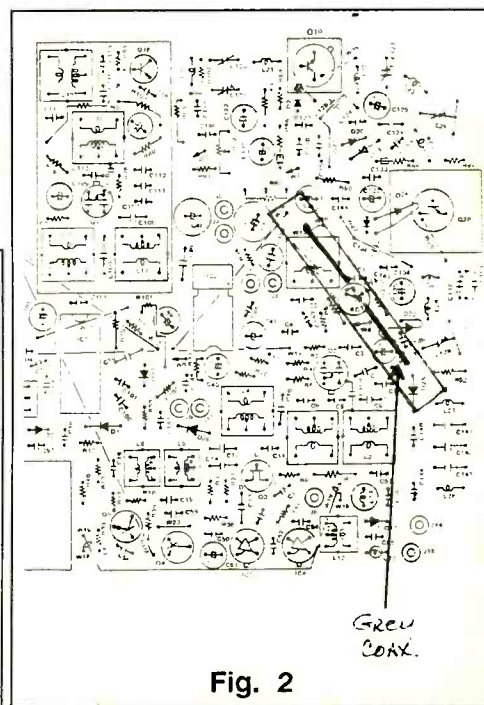


Fig. 2



Monitoring Times invites you to submit your favorite projects for publication. For more information, contact Rich Arland, c/o MT, P.O. Box 98, Brasstown, NC 28902

Since my IC-202 was not going to be used in a mobile or portable environment, inclusion of the ARR P144VDA preamp inside the IC-202 was a simple matter of removing the existing battery compartment and installing the preamp in that area -- Figure 1. The battery case takes up almost half of the underside of the IC-202 chassis. Removing it was not difficult, just a few screws and the entire assembly pops out of the case.

The preamp was placed in the lower left portion of the chassis next to the speaker using double sided sticky tape. Power for the preamp was taken from the positive side of the power plug and routed to the underside of the chassis via a convenient hole next to the antenna connector. Input/output cables (RG-174) for the preamp were also routed via the same hole.

Input to the preamp was taken at diode D-25. This is the same for the IC-202 and IC-202S. There is a two inch piece of grey subminiature coaxial cable that connects D-25 to the top of L-1 which is the input to the RF amplifier. Locate this coaxial cable and remove it. The input coaxial cable (RG-174) is soldered to the input pads on the preamp. Output from the preamp is routed back through the same hole to the pads at L-1 where it is soldered in place behind the coil.

**WORD OF CAUTION:** In order to solder the coax to the PC board pads behind L-1, you are going to have to remove the front panel, speaker and the VXO unit PCB in order to gain access to the underside of the main board. This is a simple process but it is time consuming. Don't rush the project and you will have no problems. A ground lug is soldered onto the ground plane of the preamp and terminated on the chassis in a convenient hole using a screw and lockwasher.

The final step in the installation of the preamp is to tune the unit. This is best done by someone experienced in tuning VHF/UHF circuitry. Simply peaking the preamp for max noise does not insure that the preamp is doing the best job it can. It is better to align the preamp by using noise figure measurements at a given frequency which insures that the maximum gain is being provided for the least amount of generated noise.

With the preamp perking along, the difference in receiver characteristics was

## PC SWL \$99.00

### A Complete Digital Reception System

PC SWL contains the hardware, software, instructions and frequency lists needed to allow you to receive a vast variety of digital broadcasts transmitted over shortwave radio with any IBM PC or Compatible computer. The product consists of:

- Demodulator**
- Digital Signal Processing Software**
- 80 Page Tutorial Reference Manual**
- World Press Frequency List**
- Tutorial Audio Cassette with Samples**

PC SWL automatically decodes Morse code, Radio Teletype, FEC (forward Error Correcting Code), SELCAL (Selective calling transmissions), and NAVTEX.

#### ADVANCED FEATURES:

- Tuning Oscilloscope
- Digital Waveform Presentation
- Auto Calibration and Code Recognition
- Continuously Tunable Filter Frequencies
- Variable Shift
- Adjustable CW Filter Sensitivity
- Farnsworth Code Compatibility
- Unattended Capture and Printing

**Software Systems Consulting**  
**150 Avenida Cabrillo "C"**  
**San Clemente, CA 92672**  
**(714) 498-5784**

## Midnight Engineering

Finally, a magazine for the entrepreneurial engineer! Covers:

- Hardware Design
- Software Development
- Marketing
- Small Business



**FREE SAMPLE ISSUE!**  
**303-225-1410**

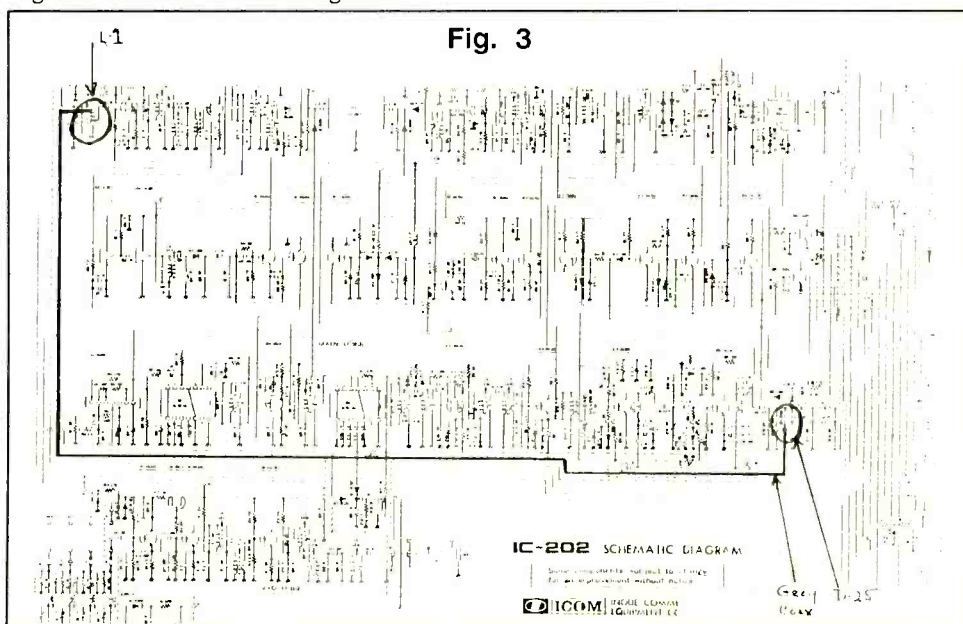
Midnight Engineering  
 111 E. Drake Rd, Suite 7041  
 Fort Collins, CO 80525

dramatic, to say the least. Since the preamp was placed inside the IC-202 case, no extra wires or coax cable protrude, enhancing the looks of the transceiver and drastically reducing the chances of problems with the input/output preamp connections.

My thanks to G5CSU for the aforementioned mods to the ICOM-202 series of VHF SSB/CW transceivers. Hopefully this will stimulate some of you out there to dust off the rig and haul out the soldering iron.

That's a wrap for this month. I have enough S-meter mods for the PRO-2004/5 for a two-part column. Thanks for the input. Anyone having the desire to part with an ICOM IC-202S please contact me via Brasstown. 73s es keep the ole iron hot.

mt



## A Portable Direction-Finding Antenna

Have you ever wished that you could track down the source of illegal radio interference? Perhaps you've been involved in an operation where portable DF (direction finder) beam antennas were being used to track down a transmitter. Or maybe you've been in one of the "fox hunt" hidden-transmitter games enjoyed by amateur radio operators as one of their "radio sports." Well, whether you're hunting down clandestine jammers or just finding out where the signals you monitor originate, direction finding can be an interesting and informative pursuit.

### Null and Void:

This month we look at a beam antenna design which gives a relatively sharp null (sharp reduction in signal level) when rotated to point at the transmitting station being monitored (See Figure 1). This antenna can be cut for any frequency you wish in the VHF-UHF bands. To find the lengths (in inches) of the various components, use the formulas in Table 1.

### Let's Make One:

1. Cut the vertical elements from heavy copper wire or other convenient wire or rod.
2. Take a dry piece of varnished wood long enough to hold the vertical elements at the appropriate separation (D in Figure 1). Drill a hole in each end, as shown in Figure 1, to hold the vertical elements. Insert the elements in the wood, leaving 1/4 inch for soldering on the phasing

**Table 1**  
**Formulas to Calculate Element Lengths**

VERTICAL ELEMENTS LENGTH (L) = 2808/F MHz  
 ELEMENT SEPARATION DISTANCE (D) = 2951/F MHz  
 1/4 WAVELENGTH PHASING LINE (P1) = 1948/F MHz  
 1/2 WAVELENGTH PHASING LINE (P2) = 3895/F MHz

For example here are lengths at two different frequencies:

	146 MHz	150 MHz
VERTICAL ELEMENTS LENGTH (L)	19.2 INCHES	18.7 INCHES
ELEMENT SEPARATION DISTANCE (D)	20.2 INCHES	19.7 INCHES
1/4 WAVELENGTH PHASING LINE (P1)	13.3 INCHES	13.0 INCHES
1/2 WAVELENGTH PHASING LINE (P2)	26.7 INCHES	26.0 INCHES

lines at the bottom as shown in Figure 1.

3. Cut the two phasing lines (P1 and P2) 1/2 inch longer than the formula length. This extra 1/2 inch is used where they attach in soldering at each end. I cut my lead-in line to 6 feet 11 inches. For the phasing lines, be sure to use RG-58 coax with polyethylene dielectric, not foam.
4. Carefully remove 1/2 inch of the outer insulating jacket from each end of each phasing line. Carefully cut away 1/4 inch of the shield (braid) from each end. Also cut away 1/4 inch of the inner polyethylene dielectric leaving 1/4 inch of the inner conductor bare. Be careful that wires from the outer braid do not cross the end of the inner dielectric to touch the center conductor and short out

the line. Do these cutting and stripping steps to one end of your coax lead-in cable also. When you have finished this step, you will be ready to put one end of each phasing line and the one end of the lead-in cable together as shown in the inset in Figure 1.

5. Bring the phasing lines and the lead-in together as shown in the inset of Figure 1. Tape them to hold them in place, and solder the shields of all three cables together. Then carefully solder the center conductors of all three cables together. Be careful here not to get the inner dielectric too warm or the shield may short to the center conductor through the dielectric. If you think you are possibly getting it too warm, let it cool before finishing the soldering. Once you are finished, inspect the connections for soundness and freedom from shorts and then tape them over.
6. Overlap the 1/4 inch free end of one of the phasing lines on the bottom of an antenna element and solder in place as shown in Figure 1. Do the same for the other phasing line and the other antenna element. Tape the phasing lines to the wooden boom to keep them from pulling loose at the solder joints.
7. The antenna is now ready to connect to your rig.

### Using the Beam:

This beam is designed to be easily carried and rotated by hand. A pole or long stick glued (no metal brackets) to the center of the

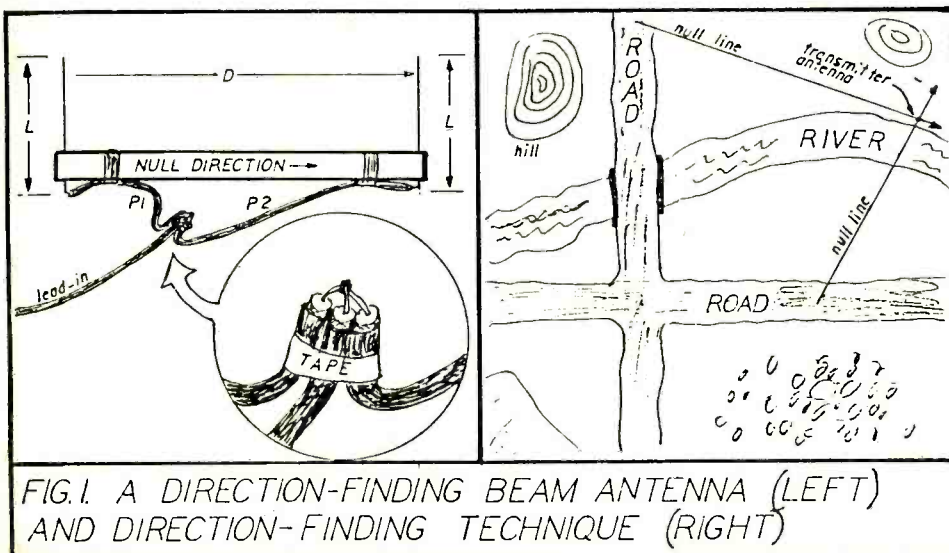


FIG. 1. A DIRECTION-FINDING BEAM ANTENNA (LEFT) AND DIRECTION-FINDING TECHNIQUE (RIGHT)



wood boom of the beam will help you elevate and rotate it easily.

Tune in a station and hold the beam above your head and rotate it. You will notice that there is one place in the rotation where the signal drops off in strength significantly. This is the null. When a null is obtained, the end of the wood boom with the long phasing line (P2) is pointing at the antenna of the transmitting station.

It may be possible to get an even deeper null by leaning the pole holding the antenna boom. Try various angles for the pole to get the best null. Remember that antennas are often not located near the station, but may be on an antenna tower miles away from where the radio station is located.

You can get "false" nulls from reflections from buildings, fences, autos, towers, and the like so a DF antenna should be used out of doors, well away from such things. Before you trust your readings with the DF, practice on a few stations with known antenna locations so that you are confident that you have mastered the technique required. Taking several null readings from different locations helps determine true direction better than one reading.

#### A Bonus

Not only can you tell direction with a DF antenna, you can also use the following technique to find the station's location. If, on a single station, you take two or more null-direction readings far enough apart to plot them separately on a map of your area, you can find the location of the station's transmitting antenna at the point where the null lines cross on the map (see Figure 1). Happy hunting.

#### Call for Antenna-Trivia

Do you have a special bit of trivia concerning antennas? It could be about unusual or weird things which have been utilized as antennas, the strangest or most unusual antenna you ever heard of, interesting uses for antennas, unusual things which have happened to antennas, etc. Send them to me, I'll read them all and report the ones that seem most appropriate for the readers of this column to enjoy. Readers sending in ones judged as outstanding will receive a special certificate of appreciation.

## The Best\* Just Got Better!

The Eavesdroppers™ now includes our new Zap Trapper™ Electronic Gas Tube Lightning Arrestors. Receive-only design shunts damaging transients to ground at only 1/7th the voltage buildup of the available 200 watt transmit-type arrestors, providing maximum solid state receiver protection.

Protect your investment - combine an excellent shortwave receiving antenna with the best receiver protection money can buy.



- Completely assembled and ready to use
- Only 42' overall length
- 8 trap circuits permit reception on all shortwave bands, 11-90 meters
- All connections soldered and enclosed in ultrasonically-welded, hermetically-sealed trap covers
- Includes 50' of 450 lb. test nylon rope

**Model T** includes 10C twinlead feedline

**Model C** includes weatherproofed center connector for your coax & coax sealant

- Either model \$79.95
- UPS for lower 48 states \$4.00
- COD add \$3.00, IL add 7% sales tax
- Foreign shipping quoted

*"The best...built like an antenna should be."* -Larry Magne in *World Radio TV Handbook*

*"Our best seller."* -EEB in their recent ads and catalogs

*"Now in use in 45 countries."* -Gilfer Shortwave in 1983

### Antenna Supermarket

PO Box 563 Palatine, IL 60078 Tel (708) 359-7092 Fax (708) 359-8161

At your dealer or direct • Visa & Mastercard accepted

#### RADIO RIDDLES

**Last Month:** We discussed the idea of a reflector element as part of an antenna system. Then you were asked "Where did we get the idea of using a reflector in an antenna, and who used the first radio antenna with a reflector?"

Well, Heinrich Hertz, when he discovered the electromagnetic waves we call "radio waves" knew that radio waves were on the same spectrum as light waves. Being a well-trained physicist, he knew then that reflectors as used in the field of optics would work to reflect his waves if he made them of the correct size and of a conductive material.

He used a metal parabolic reflector to focus his waves in the world's first parabolic reflector microwave antenna. And that, believe it or not, happened in the 1800s.

**This Month:** In the early days of radio, direction-finding installations depended heavily on a device known as a "goniometer." Many DF installations still utilize a goniometer. So what is a goniometer, anyhow? For the answer, tune in next month.

That's it for this month. Till the next time, Peace, DX, and 73.



#### Write On!

**MT** columnists welcome your response to their columns. It's the way to keep **MT** lively and up-to-date.

Please address your letter to the author  
c/o Monitoring Times  
P.O. Box 98  
Brasstown, NC 28902.



If you request a personal reply, you should always enclose a self-addressed, stamped envelope.



**Q.** *Is there any way to extend the frequency coverage of my Sony ICF2010 as can be done on some scanners? (R.W. Austin, Jr., Stratford, NJ)*

**A.** Unfortunately, no. Scanners have that capability because they are manufactured to meet different band plans in different areas of the world. The HF (shortwave) spectrum and aircraft (118-137 MHz) band are the same worldwide.

**Q.** *During times of natural disasters and emergencies--earthquakes, floods, tornadoes, hurricanes--where does a listener find the hams operating relief communications? (Frank A. Vacanti, Boulder, CO)*

**A.** It would be flip to say, "anywhere they want to!", but this is very nearly correct. Different areas have different communications plans, especially when short-range VHF simplex and repeaters are called up. Naturally, all such communications will take place within the FCC allocated amateur radio bands.

For longer distances, there is more organization. During the hurricanes, several frequencies in the 20 meter band are commonly used during major catastrophes like hurricanes. Try 14.325 MHz (disaster reports), 14.283 MHz (Caribbean islands emergency communications) and, for health and welfare messages, listen to 14.275, 14.290 and 14.303 MHz.

At night and for shorter distances during hurricanes, the 75 and 40 meter bands (lower sideband) is utilized; monitor 3907, 3917, 3923, 3927, 3935, 3940, 7247 and 7268 kHz.

For more information about the Amateur Radio Emergency Service (ARES) and Radio Amateur Civil Emergency Service (RACES), write to the American Radio Relay League, 225 W. Main St., Newington, CT 06111.

**Q.** *Is it possible to "tune around" a memorized frequency on my PRO38 hand-held scanner without having to constantly re-enter new frequencies above and below? (Elliot Morris, Plainview, NY)*

**A.** Not unless the scanner is equipped with an up/down search function, or comes with a tuning knob. Perhaps the PRO38 is capable of such a function but it would not be possible without additional circuitry to support the microprocessor capability.

**Q.** *A local newspaper reported how a hiker used a borrowed radio from a Girl Scout troop on Mt. Whitney to contact a commercial airliner which, in turn, called the National Guard for assistance. What kind of radio could they have been using to contact the plane? (Chris Thompson, LA, CA)*

**A.** It is quite possible they had an emergency locator transmitter (ELT) or emergency position indicating radio beacon (EPIRB), both of which automatically transmit an emergency tone on 121.5 MHz, a commonly-monitored international emergency and calling frequency, when activated.

**Q.** *Is it possible to buy a speech inversion descrambler now that the ECPA is in effect? How about a circuit diagram? (Alex Kazazian, Ashland, OR)*

**A.** Since ECPA is generally interpreted as to make it illegal to possess an unauthorized descrambler, none is presently manufactured in the United States. A schematic of the popular DSC-1 descrambler previously made by Grove Enterprises is available for \$2 plus an SASE sent to their address: PO Box 98, Brasstown, NC 28902. Some experience in electronics and a source of parts are required.

**Q.** *Your book reviews, and even some advertisements, often don't specify whether shipping charges are for first class or book rate shipping. How can I know? (Frank Vacanti, Boulder, CO)*

**A.** Books are nearly always shipped book rate or UPS, considerably less expensive than first class.

**Q.** *Is it possible to hook a communications receiver to a satellite TVRO receiver to hear some of those "hidden" signals? (Angus Ashdown, Lexington, MO)*

**A.** Absolutely. Your TVRO receiver probably has a "baseband output" jack; attach the antenna input from a shortwave receiver like a Kenwood, Yaesu, ICOM, or even a Sony ICF2010 or Sangean ATS803A. Set the SW receiver to 6.8 MHz upper sideband and start tuning!

If your TVRO system is of the LNB (low noise block down-converter) variety, attach an ICOM R7000 or AOR AR3000 to the 900 MHz output instead.

**Q.** *Is there any way to extend the delay time on the PRO2005 scanner? (James Coble)*

**A.** The delay is a function of the time base crystal. By replacing the crystal (actually a ceramic resonator) with one of lower frequency, you will extend the delay time--and slow down the scan/search speed proportionately.

**Q.** *I have noticed an increasing presence of offensive language on the amateur radio bands. Is there any way this can be stopped? (Name withheld)*

**A.** Yes. Recent Supreme Court rulings have upheld more stringent language standards on amateur as well as broadcasting transmissions. Report amateur violations to the Amateur Auxiliary of the American Radio Relay League, 225 Main St., Newington, CT 06111.

If the ARRL fails to respond, notify your closest FCC field office. If the language is hard core, criminal charges will be filed.

**Q.** *Can you provide me the address of a TV satellite periodical called "Transponder"? (John Stankus, Austin, TX)*

**A.** The *Transponder* is published by Terra Publishing, Inc., PO Box 460, Salamanca, NY 14779-0460.



Questions or tips sent to "Ask Bob," c/o MT, are printed in this column as space permits. If you desire a reply by return mail, you must enclose a self-addressed, stamped envelope.

**Q.** I have an old Hallicrafters SX43 receiver which gets shortwave as well as FM broadcasting. Would there be any harm in connecting it to the cable TV line? (E.K., Ft. Walton Beach, FL)

**A.** None whatsoever. Success will depend upon the bandwidth of the signals present on your cable system. Chances are that FM will work just fine, but good shortwave reception is unlikely. Most cable systems filter out signals below about 50 MHz.

### Correspondence

Several readers responded to my comment in the August column in which I said I was unaware of any mobile shortwave converters on the market. Most commonly brought to my attention were two MFJ models, but a check with the factory informs us that they have been discontinued.

Bob Herendeen of Los Altos, California, brought to our attention one model available in kit form, the SC-1, which covers any two shortwave bands. Contact Ramsey Electronics, 793 Canning Parkway, Victor, NY 14565 for further information.

A previous answer concerning an Ontario scanner monitor brought considerable correspondence about the Ontario Provincial Police and the noise heard on one of their channels. Some OPP channels send data transmissions and others transmit the annoying "cloaking" signal to discourage scanner monitoring.

Mike Miskell of Ottawa suggests that listeners may wish to use a Uniden BC760XLT with the optional CTCSS tone decoder board and switch installed; properly adjusted to 107.2 Hz, the noise disappears and the scanner operates normally.

A comprehensive list of questions and answers regarding monitoring may be found in Bob Grove's "Scanner and Shortwave Answerbook," \$12.95 plus \$2 shipping from Grove Enterprises, P.O. Box 98, Brasstown, NC 28902.

## Feeling Left Out?

Have your favorite communications (Police, Fire, etc) moved to the 800MHz band? Are the scanners available which access this band too expensive? If you are like many scanning enthusiasts, this can be a real dilemma. For those of you who are still in a futile search for 800 MHz coverage on your hand held scanning radio, GRE America, Inc. has a product for you. Introducing the newly developed **Super Converter™ II** which has all of the features that you have come to enjoy in our

**Super Converter™ 8001** (810 - 912 MHz coverage, etc.), and more.

The **Super Converter™ II** has a convenient switch which allows for an instant return to normal scanning frequencies without disconnecting the unit. It is also equipped with BNC connectors for easy adaptability to your handheld scanner.



Introducing the **Super Converter 8001™** from GRE America, Inc. The **Super Converter 8001™** once attached allows any UHF scanning or monitoring receiver to receive the 810 to 912 MHz band.

It has been our experience that most scanning radios suffer from a lack of sensitivity due to antenna and power limitations. Introducing the GRE **Super Amplifier™**. The **Super Amplifier™** is a compact pre-amp designed to work with scanners and it amplifies the reception of the VHF/UHF bands (from 100MHz to 1GHz) as high as 20db.

The **Super Amplifier™** has an adjustable gain which is controlled from the back of the unit and allows amplification level of up to 20db through all frequencies, equipped with a bypass switch to return to normal scanning frequencies. As with all other GRE products, you will find the quality and design of the **Super Amplifier™** to be of the highest standard.

Wide range frequency (up to 1GHz) antenna is exclusively available from GRE America, Inc.

**For more information**, or a dealer near you (new dealers are welcome), contact GRE America, Inc. at the address below.

**GRE America, Inc.**



GRE America, Inc.  
425 Harbor Blvd.  
Belmont, California 94002

Telephone (415) 591-1400  
Outside CA: (800) 233-5973  
Fax: (415) 591-2001



## DO IT YOURSELF WITH THE CLASSIC RADIO RESTORATION CUSTOMIZED KIT

FOR FREE INFORMATION CONTACT

**CLASSIC RADIO SERVICE®**

25 MAPLE RD., P.O. BOX 764  
WOODACRE, CALIFORNIA 94973

415-488-4596



# LETTERS

continued from page 3

your comments and *everyone* leaves their radios at home?

Better bring along that hand-held, Mark!

**Before** we forget -- Although the airshow season has passed, scratch these frequencies down in your notebook for next year. Blair Parkhurst of Burnaby, British Columbia, offers these frequencies:

- 251.600 Blue angels 5 & 6
- 275.350 Blue Angels 1,2,3, & 4
- 122.975 Ray-Ban Gold Aerobatic Team
- 120.000 Canadian Warbirds
- 123.575 J. Michael Wiegen in his Cyclone

"Most others at the Abbotsford International Air Show (August 8-11)," says Blair, "use the air show primary frequency of 121.000. Mike Wiegen actually narrates his performance live on the 123.575 MHz frequency."

Brian warns that the Canadian Armed Forces Snowbirds team may be hard to hear. "They appear not to be using any of the 20 frequencies attributed to them in previous years."

**Jeff** Annis of Bethesda, Maryland, passes along a clipping from the *Illinois Times*. The article describes the one-year old battle between a blind, black pirate radio operator who, despite a \$750 fine from the FCC, has decided to remain on the air. DeWayne Readus -- who now calls himself Mbanna ("I rebel") Kantanko -- operates his unlicensed FM station from a housing project on the east side of Springfield, Illinois.

Says Mr. Annis, "[This is] a story about a pirate with a political cause -- not just a techno-nerd teeniebopper playing music or a classical music freak too lazy to get a license.

"Katanko isn't only a pirate -- I'll bet he doesn't know what a QSL is --," continues Annis, "but he is certainly more important than much of the junk you write about. Not surprised you missed the story."

Have a nice day, Jeff.

**More** flack: We print it all, good and bad. "I have never been comfortable with articles that tell readers how to eavesdrop on our law enforcement and military," says Robert Cavdell. "Human nature being what it is, that type of information might not be used in our/mine/your best interest.

"However," continues Robert, "Bob Kay's sophomoric tirade was just too much. If he can't find anything to write about except the cost of President Bush's aircraft expense [sic], he isn't much of a writer. Bad taste.

"So spare me your pious platitudes and

cancel my subscription. And while you're at it, remove my name from your mailing list."

At this point Robert's writing becomes unintelligible.

**Interested** in satellite reception? We've found a freebie you might be interested

in. Electronics Specialists, Inc., is offering a reprint of an article called, "Curing Satellite System Electrical Interference & Interruptions." Sources of interference, interruptions and possible damages are described and steps that have been successful in preventing these problems are discussed.

## MONITORING POST PIN-UP

To try to catch up a bit with our featured monitoring posts, here are three of our readers with their equipment.

Alan Johnson, N4LUS, of Bethesda, Maryland, sent this photo of himself and his well-organized shack (equipment not listed).



Ila Hester of Winston Salem, North Carolina, is has all bases covered with her Kenwood R-820-S and ICOM IC-R70 receivers and Regency K100, Z30, Bearcat 150 and 100XL scanners.



Andy Miller, WB0OAF, of Sioux Falls, South Dakota, doesn't tell us what rigs he owns, but as a professional consultant in computer, TV, stereo, and audio equipment, there isn't much he couldn't build or fix!

Why not send us a snapshot of you and your listening post? We'd like to feature YOU in this spot!





To get your copy, simply mention *MT* when you write: Electronic Specialists, Inc. 171 South Main Street, Natick, Massachusetts 01760 or call toll-free 1-800-225-4876.

"Your September issue contained an item from Helena Apkhadre of Radio Tbilisi (p.3). What many *Monitoring Times* readers may not know is that a journalist from Soviet Georgia, Nugzar Rahadze, has been working with WXIA-TV in Atlanta, Georgia, in a Georgia-to-Georgia journalist exchange."

Rick Dodds, a monitoring enthusiast from nearby Smyrna, Georgia, says that "Nuggie has been here in Atlanta for two summers, adding his unusual insight into feature news stories.

You may remember an interview we ran on Don Pitts, the long-time former White house communications director back in May of this year. Pitts was a radio pioneer who in 1919 built his first radio station and who in 1926 started work in the Coolidge White House where, as he put it, "communications was a joke." The blunt-talking Pitts -- he once described Lyndon Johnson as "that jerk" -- retired in 1971 after keeping eight U.S. presidents in touch with the world.

We recently received word that Pitts has passed away at the age of 81, the victim not of his age but of a car accident in Marion, South Carolina.

A number of people have reported hearing the Iraqi shortwave broadcasts directed to the U.S. soldiers in the Saudi desert. The programs, heard on 11860 kHz at 1000-1200, 1600-1800 and 2000-2200 UTC, have had a rather repulsive mixture of blatantly false news, music and mockery. Here's what some readers have heard:

Bill Conte of Downingtown, Pennsylvania, says that during one hour-long broadcast, the announcer said that oil-rich petrol emirs imported teenage American girls for sexual purposes, harped on the desert heat, quicksand, rising taxes in the United States, war injuries and U.S. soldiers missing in action in Vietnam.

Ken Martin of New York quotes Baghdad as saying: "To the American soldier in the Saudi Arabia desert: Would you like to be one of the cripples who are only lamented in the charity ceremonies? Do you want to go back home from the Arabian desert psychologically broken?"

Still another reader remarked about news reports that told of pro-Iraqi demonstrations "disrupting world capitals."

It's pretty strange stuff, the likes of which haven't been heard since Hanoi Hannah graced the airwaves during the Vietnam war.

"I see that many of the hobby's elite are members of 'Old Crows,' apparently an organization of ex-CIA agents involved in

communications," observes Ed Dougherty of Austin, Texas. "I understand that the publisher of *Monitoring Times* is an 'Old Crow.'"

I think you have him mixed up with someone else.

The term "Old Crow" apparently originated among U.S. radio and radar operators who monitored and jammed enemy broadcasts during World War II. The equipment used to do this was code named "Raven." Those who manned the equipment were called Raven Operators and later became known as Old Crows.

Today the group, subtitled the Defensive Electronics Association, is a non-profit organization with 25,000 members in the U.S. and 45 allied nations. Its declared purpose is to foster a strong electronic defense system.

I am not aware of any "Old Crows" at *Monitoring Times*. Real clowns, yes. Old Crows, no.

*We'd like to hear your comments, opinions, and experiences concerning the world of radio. Please understand that personal replies are not always possible.*

*Letters should be address to Letters to the Editor, Monitoring Times, P.O. Box 98, Brasstown, NC 28902. Please include the your name and address.*

### CONVENTION CALENDAR

Date	Location	Club/Contact Person			
Oct 6-8	Columbus, OH	Columbus ARA/ Special Event Station WBTO Freqs: 7.240, 14.340, 21.375, 28.500 MHz. Certificate awarded for 10 Columbus contacts (WBTO counts for 6). Send names, QTH's and signal reports of stations to: Roger Dzwonczyk WB2EIG, 283 East Longview Ave, Columbus, OH 43202. Send #10 or 9x12 SASE and \$1 postage or 1 IRC for certificate and/or QSL.	Oct 21	Denver, CO	Rocky Mt Radio League/ Fred Brachle N0FIK 8230 Reed Ct, Arvada, CO 80003 [303]425-5791 Jeffco Fairgrounds, 15200 W 6th Ave, Golden, 8am-2pm; Talk-in 146.34/94
Oct 7	Huntington, IN	Huntington Co ARS/ Mike Brooker WD9JFC 3341E - 722N, Huntington, IN 46750	Oct 21	Centralia, IL	Centralia Wireless Assn/ Louls Hodges W9IL Route 1 Box 98A, Centralia, IL 62801
Oct 7	Hershey, PA	Central PA 99/4A Users Group/ Dave Ratcliffe P.O. Box 14126, Harrisburg, PA 17104-0126 717-238-5414 or 717-564-2975	Oct 21	Stirling, NJ	Tri-County RA/ Bert Eldert KE2KX 1850 North Gate Rd, Scotch Plains, NJ 07076
Oct 12-13	Warner Robins, GA	Central GA ARC/ Jesse Kirkham WB4KQA 110 Brown Dr, Warner Robins, GA 31093	Oct 27	Brooklyn Park, MN	Twin Cities FM Club/ SASE to Hamfest Minn. P.O. Box 5598, Hopkins, MN 55343 [612] 474-1529 Location: Hennepin Technical College/Brooklyn Park Campus, 9000 Brooklyn Blvd; Admission \$4.50 in advance, \$6 at door, 7:30am-3pm. Speakers: Ron Parise WA4SIR, Astronaut (schedule permitting), and Wayne Green W2NSD.
Oct 12-14	San Jose, CA	Pacific Div Conv/ Emmett Freitas, AE6Z 481 Fenley Ave, San Jose, CA 95117	Oct 28	Sellersville, PA	R.F. Hill ARC/ Frank Benner W3BRU 523 Vine St, Perkasie, PA 18944
Oct 13	Syracuse, NY	RA of Glr Syracuse(RAGS)/ Viv Douglas WA2PUU 121 Clearview Rd, DeWitt, NY 13214 [315] 469-0590. Location: NY State Fairgrounds, 3 mi E of Thruway Exit 39 off Route 690, 9am-5pm; Talk-in 145.91 and 147.30 MHz	Nov 3-4	Lawrenceville, GA	Alford Memorial RC/ Gail Moore P.O. Box 3100, Lithonia, GA 30058 [404] 985-8750 ; Gwinnett Co Fairgrounds
Oct 13-14	Memphis, TN	Mid-South ARA/ Harry Simpson W4MF 183 D MacCauley Ave, Memphis, TN 38127	Nov 4	Southfield, MI	Oak Park ARC/ Alan Quirie KA8ZRR 4324 Mandalay, Royal Oak, MI 48073
Oct 13-14	W Palm Bch, FL	Palm Beach Rptr Assn/ James Schoech WD4LHF 129 Dayton Rd, Lake Worth, FL 33467	Nov 4	Westminster, MD	Carroll Co ARC, Penn-Mar RC/ Ken Jones KB3JA 218 Centennial Ave, Hanover, PA 17331
Oct 13-14	Boxborough, MA	New Eng Div Con/ Eugene Hastings W1VRK 18 Churchill Ave, Marblehead, MA 01945	Nov 9-11	Houston, TX	So Texas Convention/ Rory Burke KA5MBH P.O. Box 524, West Columbia, TX 77486
Oct 14	Maysville, NC	Maysville ARC/ JoAnn Taylor WD4JYR 220 Anita Fort Dr, Swansboro, NC 28584	Nov 10	W. Monroe, LA	Twin City Hams/ Benson Scott AE5V 745 40 Oak Farm Rd, W. Monroe, LA 71291
Oct 14	Friendship, MD	Columbia ARA/ William Machia N3HTJ 5127 Columbia Rd, Columbia, MD 21044	Nov 17-18	Tampa, FL	Fia Gulf Coast AR Council/ Patricia Barbriere WB1GZW 2225 Glen Dr, Safety Harbor, FL 34695
Oct 20	Smithfield-Selma, NC	Triangle East ARA/ Harry Greenberg W2AC 2401 Covered Eridge Rd., Clayton, NC 27520			

*Monitoring Times is happy to run brief announcements of radio events open to our readers. Send your announcements at least 60 days before the event to: Monitoring Times Convention Calendar, P.O. Box 98, Brasstown NC 28902.*



# STOCK EXCHANGE

**NON-COMMERCIAL SUBSCRIBER RATES:** \$.25 per word - *Subscribers only*. All ads must be paid in advance to *Monitoring Times*.

All merchandise must be personal and radio-related.

**COMMERCIAL RATES:** \$1.00 per word payable with ad

**1-3/4" SQUARE DISPLAY AD:** \$35 per issue, payable in advance. Send camera-ready copy or copy to be typeset (reverse type not available).

Ads for Stock Exchange must be received 45 days prior to the publication date.

*Monitoring Times assumes no responsibility for misrepresented merchandise.*

## INDEX OF ADVERTISERS

ACE Communications	4
Advanced Electronic Technologies	9
Antenna Supermarket	97
Antennas West	7,25,48
Antique Radio	53
Cellular Security Group	51
Classic Radio Service	99
Communications Electronics	11
CQ Communications	39
Datametrics	93
DX Computing	15
DX Radio Supply	37
Electron Processing	15
Electronic Equipment Bank	89
Galaxy Electronics	55
Gilfer Shortwave	7
GRE America	99
Grove Enterprises	33,Cover III
GTI Electronics	93
Hunterdon Aero Publishers	13
ICOM America	Cover IV
Intercept, Inc.	91
Klingenfuss Publications	47
Midnight Engineering	95
MilSpec Communications	41
Monitoring Times	87
Monitors Only	43
OPTOelectronics	Cover II
Palomar Engineering	45
Popular Electronics	23
Radio Scan	35
Software Systems Consulting	51,95
Somerset Engineering	21
Spec-Com Journal	7
Systems and Software	39
Tiare Publications	9
Universal SW Radio	47

*When readers are in the market, they look here to find your ad ... Will it be here?*



ICOM IC-R1 Communications Receiver - Handheld portable scanner. Wideband frequency coverage: 100 kHz to 1300 MHz continuous coverage. Signal strength indicator. 100 memories. 10 banks of search frequencies. FM, Narrow FM and AM modes. Selectable channel separation: 0.5, 5, 8, 9, 10, 12.5, 15, 20, 25, 30, 50 kHz. Clock and power on/off timers. Built-in NiCd battery. Many other features. Uses same accessories as other ICOM handhelds. Includes AC adapter/charger, antenna, carrying strap, and belt clip. Dimensions 1.9"Wx4"Hx1.4"D, weight 9.9 oz. New with warranty. \$450. 703-222-7554.

Wanted: NRD-525 will pay up to \$750. Must be in mint condition - 404-253-9368. Leave message or call after 7:00 p.m.

BEARCAT BC300 - \$125. REGENCY M-400 - \$75. REALISTIC DX-160 - \$50. Joe [606] 272-6747.

For Sale: Brand new REALISTIC PRO-2022 scanner (includes 806 MHz-960 MHz less cellular). Still in unopened original box. Includes attachable whip and one year warranty. Radio Shack sells for \$349. Yours for \$310 (includes shipping). Prepaid or UPS/COD. Randy Reese, 125 Starling Drive, Medina, NY 14103 [716] 798-0772.

For Sale: MICROLOG Model AVR-2, Morse and RTTY to Alpha-Numeric CRT Converter - \$200 OBO (have 4 to sell). HAL Communications Terminal Model CT2100 - \$200 OBO. ELECTRO Comm FSK Converter Model 402 - \$300. Call John Stangle at [305] 749-1776 days, 5001 Hiatus Road, Sunrise, Florida 33351.

Wanted: RCA 45 RPM (only) record changer with or w/o amplifier. Call John Stangle [305] 749-1776 days.

Back Issue sell out MONITORING TIMES 58 issues from 1985. POP COMM 71 issues from 1984. Both sets \$150 + S&H [916] 345-0773.

For Sale: KENWOOD R-5000 receiver with YK-88CN and YK-88SN filters, mounting bracket, and external speaker - \$835; SONY ICF-2010 receiver - \$250; INFO-TECH M-6000 v.2 demodulator with monitor and cables - \$540; BC-100XLT scanner and whip antenna - \$150. Alan Rothschild, 1518 Crest Drive, Columbus, GA 31906, [404] 576-4259.

**Used Technical Books: Radio, Electronics, Math, Military, Magazines, Catalogs, etc., Large List: \$1.00 (Stamps OK). SOFTWAVE, Dept. MT, 1515 Sashabaw Ortonville, MI 48462.**

KENWOOD R-5000, brand new in box - \$675. PANASONIC RF B-600 receiver, new - \$250. NIPPON FS-1196 PLL receiver with 25 memory preset - \$50. SANGEAN 803A receiver - \$125. Call [612] 824-8509.

Wanted: SONY ICF 5900W - Harald Herp [301] 855-7071.

For Sale - Make Offer: Old radio and television tubes, new in boxes. Large assortment. Also, antique tube testers. For list send SASE to J. Wolmer, 1313 NE 16 Ave, Ft. Lauderdale, FL 33304 or call 305-764-5346.

KENWOOD R-5000 receiver with 4 kHz filter - \$750 includes shipping and insurance. Dave [313] 427-4981.

PRO2021 200 channel scanner w/GRE Super-Converter for 800 MHz - \$275 includes shipping and insurance. Dave [313] 427-4981.

REGENCY MX-5000 scanner 25-500 MHz including military aircraft; clean - \$190. [318] 984-2561 nights.

One used, one never used SONY 2010 - \$275 and \$300. Never used BC800 - \$200. Never used BC200 with extra battery pack, car lighter cord and extra 18" antenna - \$250. Never used PANASONIC voice activated recorder - \$170. Plus books, books, books. Don Loebel [407] 439-0427.

**Satellite TV New Equipment, Subscriptions, Guides. Discount Brokerage Pricing. Address to POB 758, Portland, OR 97207.**

R5000 with YK-88A1 AM filter, like new, original box, used for only 6 months - \$775. Call Roger evenings [603] 357-7741.

UHF/VHF SCANNER PUBLICATION. Northeast Scanner News (NESN) is a monthly publication for scanners in the Northeast, Maine through Virginia, west to New York and Pennsylvania. Over 600 subscribers read this 60-page newsletter. For sample copy, send \$2 cash, check or money order made payable to LES MATTSON and mail to NESN, 212-MT West Broad St, Paulsboro, NJ 08066.

YUPITERU MVT-5000: Handheld Superscanner. Military aircraft, Satcom, Cellular, CB: Voice squelch, RIT, many extras. New - \$475 [708] 495-4431.

## KEEP IT SECRET

**Low-Cost Electronic Countermeasures to Defeat Taps and Bugs**

This is the first hands-on countersurveillance tape designed to teach you how to detect and defeat eavesdroppers *without* having to rely on expensive consultants or equipment. Pros take you through real scenarios using common electronic gear to uncover actual bugs and taps. Learn how to protect your privacy. Color, approx. 90 min., VHS only. Send \$73.45 ppd to: CEP, Inc., P.O. Box 865-OMT, Boulder, CO 80306. Or Call (303)443-2294.



## HUGE 88 PAGE CATALOG

- ▶ Shortwave Receivers
- ▶ Amateur Radio Gear
- ▶ Scanners
- ▶ RTTY & FAX Equipment
- ▶ Books & Accessories

Send \$1 to **Universal Radio**  
1280 Alda Drive  
Reynoldsburg, OH 43068

## YOU AIN'T HEARD NOTHING YET!

Largest selection of scanner frequency guides (Federal, military, police, aero, etc.); AM/FM/TV broadcast directories; HF "ute" directories; Books on espionage, covert ops., bugging, wiretapping, surveillance, clandestine radio, & more!  
**BIG FREE CATALOG!**

CRB RESEARCH  
P.O. Box 56-MT  
Cammack NY 11725

## HEAR ALL THERE IS TO HEAR WHERE YOU LIVE

25 MHz - 1500 MHz  
Frequency Search Service

Send SASE to:

### HEALD

6886 Jefferson St.  
North Branch, MI 48461

Also: Heald's Scan-Rail \$9.95  
Heald's Scan-Air \$9.95

## PRO-2004/5/6 Search and Store Modules

- Automatically find elusive frequencies. Internal no-holes installation, keyboard control, retain all present functions.
- Dual-mode Power Model PS-90 stores in the main memory channels with a DIP switch adjustable limit to 255 channels or only in the ten monitor ch. - \$44.95
- Model SS-45, Ten monitor ch. - \$24.95

Wired/Tested/Postpaid (US & Canada)  
US checks or MO in US\$, NC add tax

**KEY RESEARCH**  
POB 846M, CARY, NC 27512-0846

## PC Software by W2XQ

### JRC NRD-525 & Kenwood R-5000

Database mgt of rcvr memories, scanning!  
Send \$60 + \$2.50 s/h or SASE for catalog.

**TRS Consultants**  
PO Box 2275-MT  
Vincentown, NJ 08088  
609-859-2447



## twenty-five cents

Would you pay twenty-five cents if it would help you hear more stations? One quarter (cash only) is all it takes to get one of the most comprehensive book catalogues in the radio business.

DX Radio Supply, P.O. Box 360, Wagontown, PA 19376. We're books. Only books. And we do it better.

## BUGGED? WIREAPPED?

Find out fast! Factory direct countermeasures equipment catalog \$1.

**CAPRI ELECTRONICS**  
P.O. Box 589A  
Bayfield, CO 81122  
(303) 884-9084

## RADIO COLLECTION SPECIAL!

1991

Passport to World Band Radio  
**\$13.95**  
(includes US Shipping)  
Save \$6.00!

Free Catalog with an SASE  
PO Box 149, Briarcliff, NY 10510

## CB RADIO OWNERS!

We specialize in a wide variety of technical information, parts and services for CB radios, 10-Meter and FM conversion kits, repair books, plans, high-performance accessories. Thousands of satisfied customers since 1976! Catalog \$2.

**CBC INTERNATIONAL**  
P.O. Box 31500MT, Phoenix, AZ 85046

**THE MAP** *DX 'ability!*

The MAP improves your receiver's SELECTIVITY and AUDIO QUALITY without modifications

- Easy To Install
- Wide and Narrow Bandwidths
- Synchronous Detection
- Works with 455 kHz IF receivers

**KIWA** 9815 - 61st South Write or call for  
Seattle, WA 98118 Free Information  
206 - 722 - KIWA

**RADIO COMMUNICATIONS MONITORING ASSOCIATION**

Since 1975  
"The Radio Club for Scanner Owners!"

For Information Write:  
**R. C. M. A.**  
BOX 542  
SILVERADO  
CA 92676-0542

## Satellite Television Sourcebook

by Ken Reitz  
Satellite TV Editor/Monitoring Times

### The Ultimate Resource For Home Satellite Television

**\$20.00 Postage Paid**  
Personal Checks - Money Orders To:  
**Xenolith Press**  
Route 5, Box 156A  
Louisville, VA, 23093  
Allow 4-6 weeks for delivery

## SCANNER NEWSLETTER

Covering Maine through Virginia. NESN is 60 pages every month of news you can use. For a sample send \$2.00 in cash, check or MO payable to Les Mattson, 212-T West Broad Street, Paulsboro, NJ 08066

## MetroWest announces . . .

Double Time for your Bearcat 100 XLT and 200 XLT Scanners

- Run TWICE as long between charges with the New MetroWest Pro Pack 1200!
- 1200 ma-hr pack has Double the capacity of the original Bearcat pack.
  - Perfect fit, style and color match to scanner. Only 0.2" thicker than BC Pack. Fits into factory case.
  - Recharges with your Bearcat module
  - Guaranteed to double your run time
  - 30 day trial and 1 Year performance guarantee
  - Fully USA Made

**MetroWest** Only \$59  
822 N. Spring (plus \$4 S&H)  
LaGrange Park, IL 60525  
(708) 354-2124 MasterCard and VISA accepted

**PEREGREN**

## One Toll-Free Phone Call Could Earn You \$500.

We are a nationwide market leader in the fire/water restoration business and we are looking for people across the country, LIKE YOU, to join our team. If you are interested in learning more about our Fire Spotters Network,

call Judy Winn at  
800-544-1666 or write:  
P.O. Box 3298, Oakland, CA 94609

## AUDIO LOW-PASS FILTER

Improve the audio output quality of your receiver. Filters out annoying high freq background noise. Lets you hear more of the voice and music you are tuning in for. Simple L-C circuit requires no power and may be used with any 8-ohm auxiliary speaker.

\$29.95 Plus \$3.50 Shipping/Handling

**CHILTON PACIFIC LTD.**  
5632 Van Nugs Blvd. Ste# 222  
Van Nugs, CA 91401

## 801-SCAN

Computer-Controlled Scanning for the ICOM R7000 or R9000  
Transform your ICOM into the Ultimate Scanning Receiver! Easily manage your 1800-channel 200-bank databases. Advanced Auto-Search. Flexible continue-timer mode/timeouts. Scan or search 15 freq-per-sec. Import or export your channels from text files or the radio memories. Many more features. Compare demo programs before you decide! Requires IBM/compatible with 512K. Complete program with interface for \$134.95, demo \$2.50. Check or M.O. Free info.

**801-SCAN** 397 Del-Rich Village #212  
Richardson, TX 75080

## AIRSHOW HOME VIDEO

Offutt AFB • Scott AFB • Peoria & Springfield, IL • St. Louis, MO  
Thunderbirds • Blue Angels  
• Golden Knights

Numerous military fly-bys including B1 and F117A Stealth Fighter; Numerous static displays; Numerous civilian acts and fly-bys  
VHS tape length approx. 3 hours  
**\$19.95 plus \$3 s/h**

Send check or money order to:  
**P.O. Box 253, Gridley, IL 61744**

## Scanner Modifications, Repairs

Get more channels, faster scan rate, speeding search, restore skipped frequencies, improve sensitivity of your scanner, increase memory channels, disable the beep and much more.

Send #10 SASE envelope.  
All work guaranteed.

**Krueger Communications**  
P.O. Box 60, Pharr, TX 78577  
1-512-380-0764

## LESCOMM IMPROVED PRO-2006 - \$479.95 -

Includes:  
**30CPS SCAN RATE!**  
LED S'METER SSB ADAPTER CONNECTOR  
DEEP VOLUME CONTROL  
CONTINUOUS 760-1300MHZ COVERAGE

KITS, KITS, KITS. We have kits for the PRO 2004, 5 & 6. Continuous coverage, squeeze improvement, 30CPS scan speed (45 for the 2006), w/scan speed select ... \$29.95 LED S'Meter ... \$79.95 SSB adapter jack ... \$14.95 Beep volume control ... \$19.95 All four ... \$139.95

NEW! Super-Hyper scan for the 2005, 60-CPS! ... \$145  
Super-Hyper scan for the 2006, 60-CPS! ... \$45 Send SASE for more info.

**LESCOMM**  
P.O. Box 5212, Jacksonville, AR 72076.

## Taxation without Representation

It was a great slogan a couple hundred years ago; oddly enough, it is once again appropriate. This time the threat comes from our own states, not from outside our shores.

Mail order is big business. An increasing number of state revenue agencies, sniffing a fresh, new source of increased revenues, are now imposing tax on sales made by their residents through the mails. Even though in 1944 (*McLeod vs. Dillworth*) the U.S. Supreme Court ruled that states could not levy sales taxes on sales made outside their boundaries, the states are attempting to collect it anyway, calling it a "use tax."

The Supreme Court has held that, in order for such a collection to be valid, the states must provide the same privileges and benefits to out-of-state vendors as they would to in-state companies, which they don't. The Court further affirms that such a tax must be uniform throughout the state; often, they aren't.

In spite of the Court's admonishments against such illegal practices, a collusion of states -- admitting its illegality -- are stepping up their nefarious collection procedures through intimidation of small mail order firms, forcing audits of their records and threatening to collect back taxes!

While the motivation behind such brazen, maverick behavior may be to bring test cases to court in an effort to have the law changed, such unconstitutional behavior could move an incensed federal court to punish the offenders, suspending their existing tax-base collection until review. The states appear willing to take that risk.

And if that doesn't work, participating states have formed a coalition of coercion to exchange names and addresses of residents gleaned from those audits who have made out-of-state purchases so that they can be harassed with additional tax collection!

### The Key

In 1967 (*Bellas Hess*) The Supreme Court ruled that mail order firms are not subject to

such taxation because they do not establish "nexus," a significant physical presence like offices, salesmen, and so forth, in other states.

The selective enforcement of the present taxation violates the states' own provisions of equity under nexus. Of seven states' cases so far brought to court as of this writing, all have been struck down in favor of the vendors.

Because the Court has not been sympathetic to the states' quest for new revenue, the states have rallied to get a law passed by Congress. Their champion is Representative Brooks (D-TX) who has sponsored a House Bill, H.R. 2230 for adoption.

The Bill would establish "economic presence" in a state as the criterion for assessing the tax; the vendor's gross receipts, however, would have to exceed \$12,500,000 per year or more than \$500,000 in a given state. The typical, small, mail order retailer does not meet that criterion.

### A Call for Action

Grove Enterprises, a North Carolina mail order firm specializing in radio receiving equipment and publications, sees no legal basis for paying a use tax to other states and has discontinued collecting this unconstitutional financial burden from their customers until directed to do so by federal law.

We recommend that other small mail order firms also refuse to collect these unlawful fees and that residents who have been charged a sales or "use" tax by out-of-state firms press their own state revenue departments, who required that collection -- and have received it from the vendor -- for a refund.

-- Bob Grove, WA4PYQ  
Publisher

*We would like to thank the Direct Marketing Association (1101 17th St. NW, Washington, DC 20036) for their contribution of background material used to prepare this editorial.*



If you order **now**, you will receive in January the 1991 edition of *World Radio TV Handbook*, acclaimed by experts and hobby listeners alike as the ultimate source book for international broadcast monitoring. *WRTVH* remains the best seller in its field, and rightfully so -- it is a giant collection of frequencies, addresses, program schedules, beam headings and other pertinent data concerning every major radio station in the world - longwave, medium wave, and shortwave.

Identify those elusive DX stations by their musical interval signals, slogans and languages shown in the exhaustive listings within its pages.

*Order before Dec 15, 1990, and pay only \$16.95 -- SAVE \$4.00*  
*Orders placed after Dec 15, \$17.95 plus \$3 UPS in US*

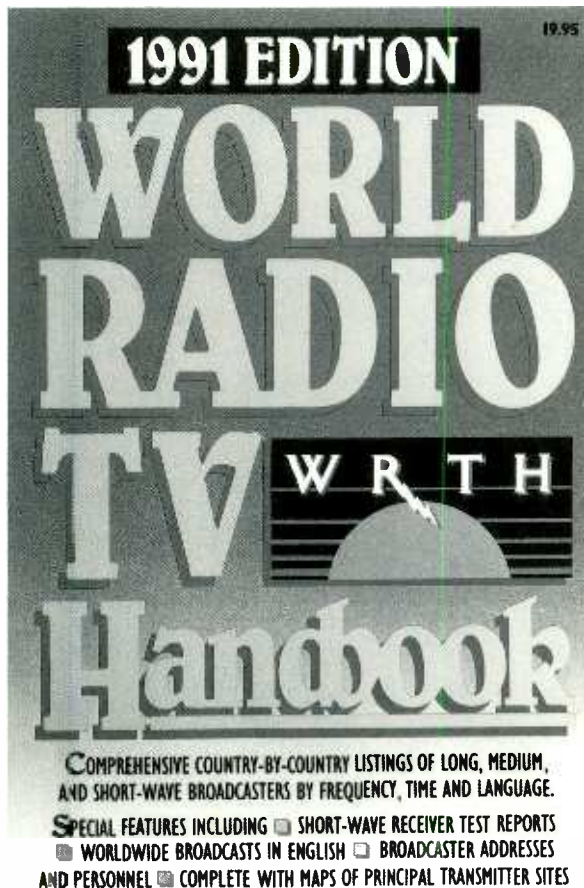
*Special  
Pre-Publication  
Offer*

Additional chapters provide expert guidance in selecting equipment and accessories for listening.

This 600-page standard reference should be on the bookshelf of every shortwave listener. Reserve your copy at a special pre-publication discount -- only \$16.95 (a \$20.95 value). We will prepay shipping in the U.S.! **But you must order now -- before Dec 15, 1989.**

Call 1-800-438-8155 for \*VISA, MasterCard or send a check or money order to Grove Enterprises, P.O. Box 98, Brasstown, NC 28902.

## **The 1991 World Radio TV Handbook 45th Edition**



\* Payment will be processed at time of order. For foreign surface mail add \$6.00 (Europe); foreign air mail add \$5.50 (Canada) or \$20 (Europe).



# THE BEST OF BOTH WORLDS.

The pace-setting IC-R9000 truly reflects ICOM's long-term commitment to excellence. This single-cabinet receiver covers both local area VHF/UHF and worldwide MF/HF bands. It's a natural first choice for elaborate communications centers, professional service facilities and serious home setups alike. Test-tune ICOM's IC-R9000 and experience a totally new dimension in top-of-the-line receiver performance!

**Complete Communications Receiver.** Covers 100KHz to 1999.8MHz, all modes, all frequencies! The general coverage IC-R9000 receiver uses 11 separate bandpass filters in the 100KHz to 30MHz range and precision-tuned bandpass filters with low noise GaAsFETs in VHF and upper frequency bands. Exceptionally high sensitivity, intermod immunity and frequency stability in all ranges.

**Multi-Function Five Inch CRT.** Displays frequencies, modes, memory contents,

operator-entered notes and function menus. Features a subdisplay area for printed modes such as RTTY, SITOR and PACKET (external T.U. required).

**Spectrum Scope.** Indicates all signal activities within a +/-25, 50 or 100KHz range of your tuned frequency. It's ideal for spotting random signals that pass unnoticed with ordinary monitoring receivers.

**1000 Multi-Function Memories.** Store frequencies, modes, and tuning steps. Includes an editor for moving contents between memories, plus an on-screen notepad for all memory locations.

**Eight Scanning Modes.** Includes programmable limits, automatic frequency and time-mark storage of scanned signals, full, restricted or mode-selected memory scanning, priority channel watch, voice-sense scanning and scanning a selectable width around your tuned frequency. Absolutely the last word in full spectrum monitoring.

**Professional Quality Throughout.** The revolutionary IC-R9000 features IF Shift, IF Notch, a fully adjustable noise blanker, and more. The Direct Digital Synthesizer assures the widest dynamic range, lowest noise and rapid scanning. Designed for dependable long-term performance. Backed by a full one-year warranty at any one of ICOM's four North American Service Centers!



## ICOM

**First in Communications**

ICOM America, Inc. 2380-116th Ave. N.E., Bellevue, WA 98004  
**Customer Service Hotline (206) 454-7619**  
 3150 Premier Drive, Suite 126, Irving, TX 75063 /  
 1777 Phoenix Parkway, Suite 201, Atlanta, GA 30349  
 ICOM CANADA, A Division of ICOM America, Inc.,  
 3071 - #5 Road, Jnit 9, Richmond, B.C. V6X 2T4 Canada

All stated specifications are subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions. 9000489