ELECTRONIC TECHNICIAN

VOLUME 7

107

TEKFAX

TV-RADIO SCHEMATICS • OVER 28 MANUFACTURERS • COVERS HUNDREDS OF CHASSIS & MODEL NUMBERS

PUBLISHED BY ELECTRONIC TECHNICIAN MAGAZINE, OJIBWAY BUILDING, DULUTH, MINNESOTA 55802

VOLUME 7

ELECTRONIC TECHNICIAN 107 TV-RADIO-HI FI SCHEMATICS

TEKFAX

TELEVISION

TELEVISION

RADIO

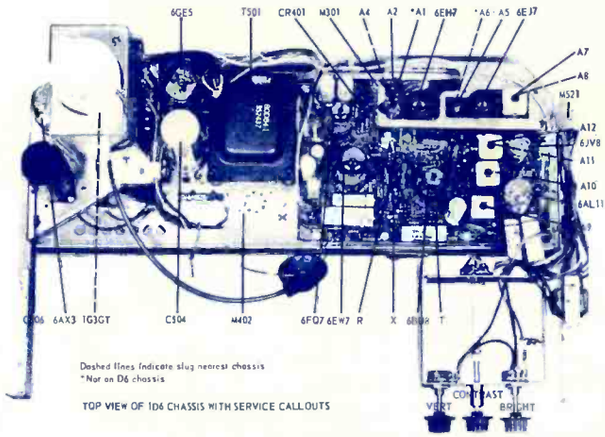
MISCELLANEOUS

ELECTRONIC TECHNICIAN OJIBWAY BUILDING, DULUTH, MINNESOTA 55802

ELECTRONIC TECHNICIAN

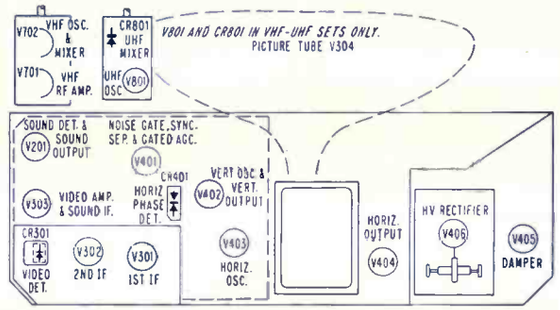
TEKFAX

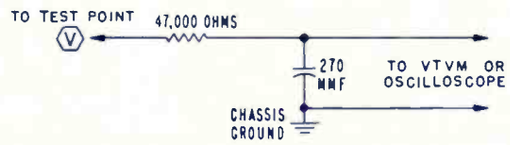
ADMIRAL
TV Chassis 1D611-1, 2, 3, 4,; 1D610-1, 2,; 1D61-1 and 4D6

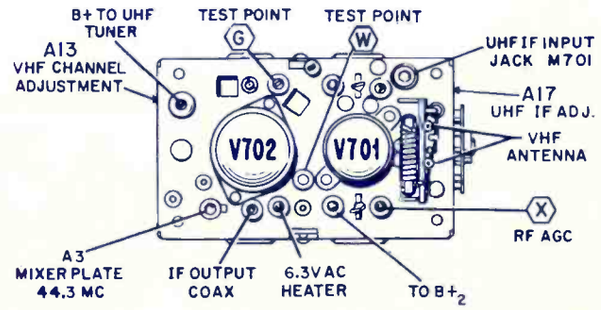


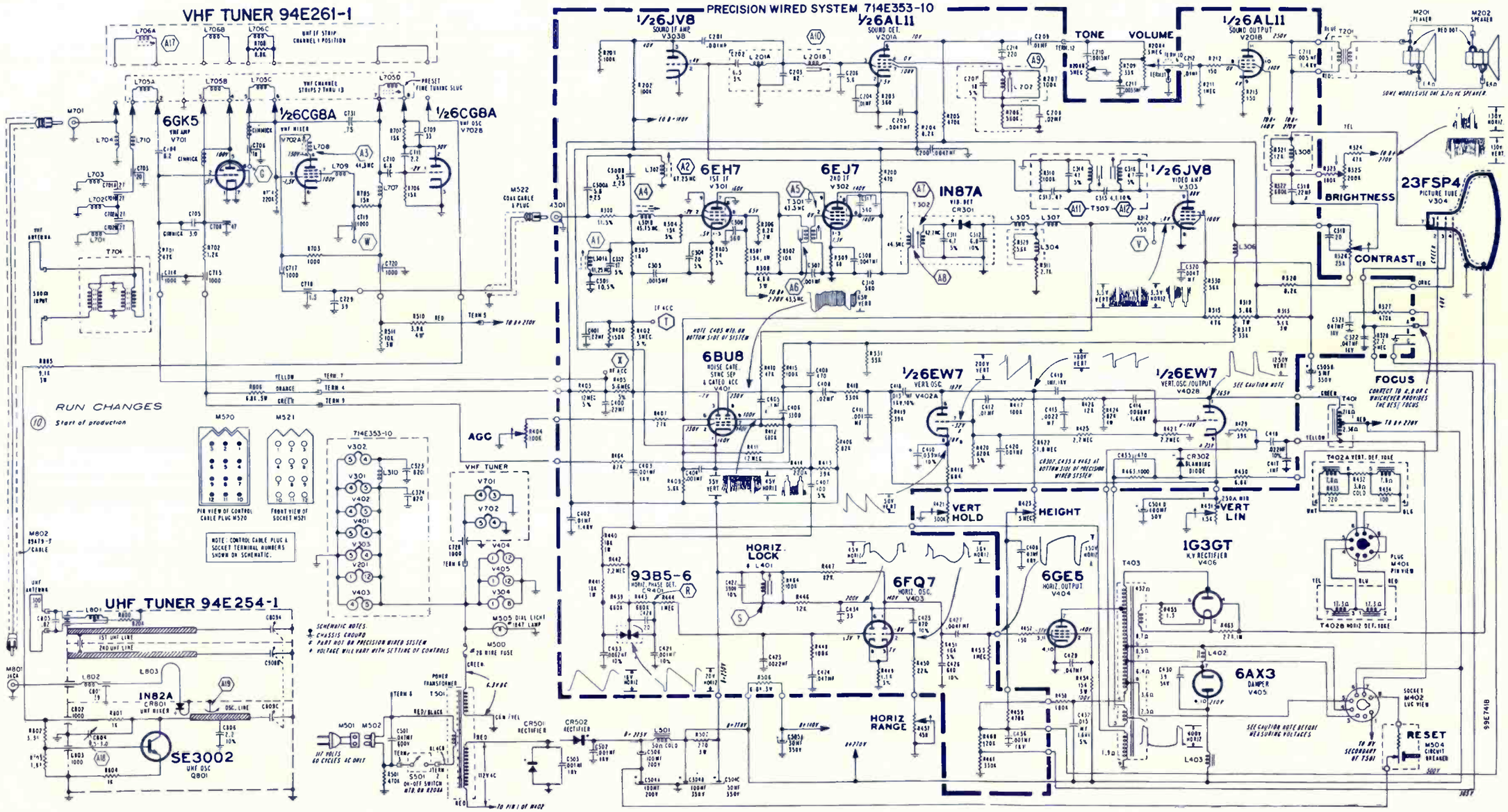
Dashed lines indicate slug nearest chassis
*Not on D6 chassis

TOP VIEW OF 1D6 CHASSIS WITH SERVICE CALLOUTS





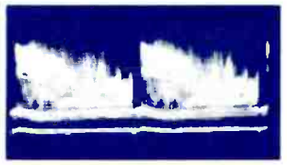




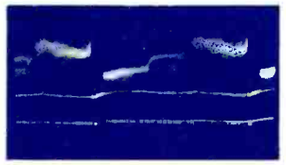
ELECTRONIC TECHNICIAN
TEKFAX

ADMIRAL
TV Chassis
D11, 1D11, 2D11,
3D11 and 4D11

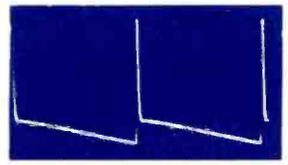
1—Pin 4 of Picture Tube. 100 Volts, Vert. Contrast and Brightness ¾ Turn CW.



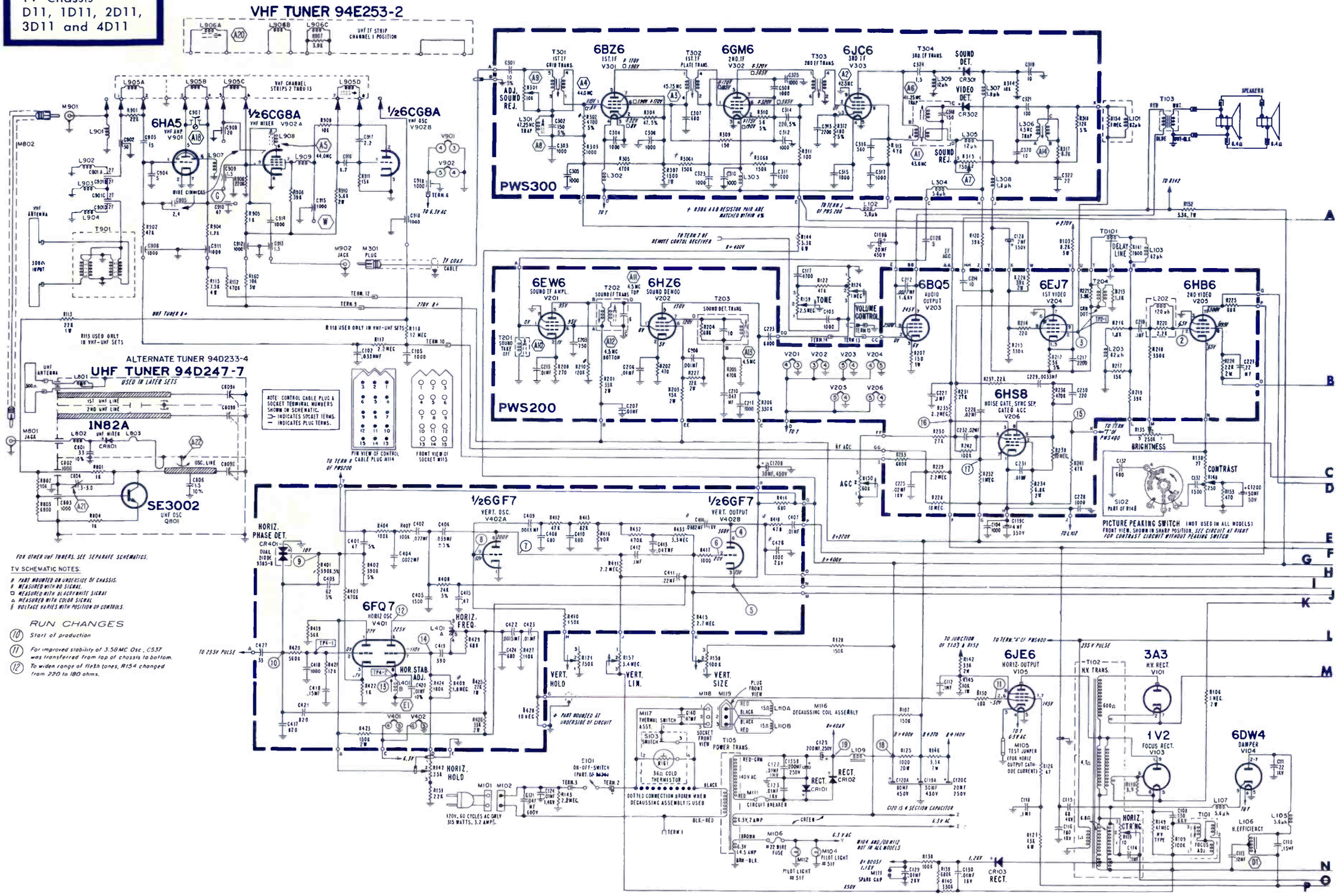
2—Pin 2 of 2nd Video V205. 7 Volts, Vert. Negative Sync.



3—Pin 2 of 1st Video V204. 10 Volts, Vert. Negative Sync.

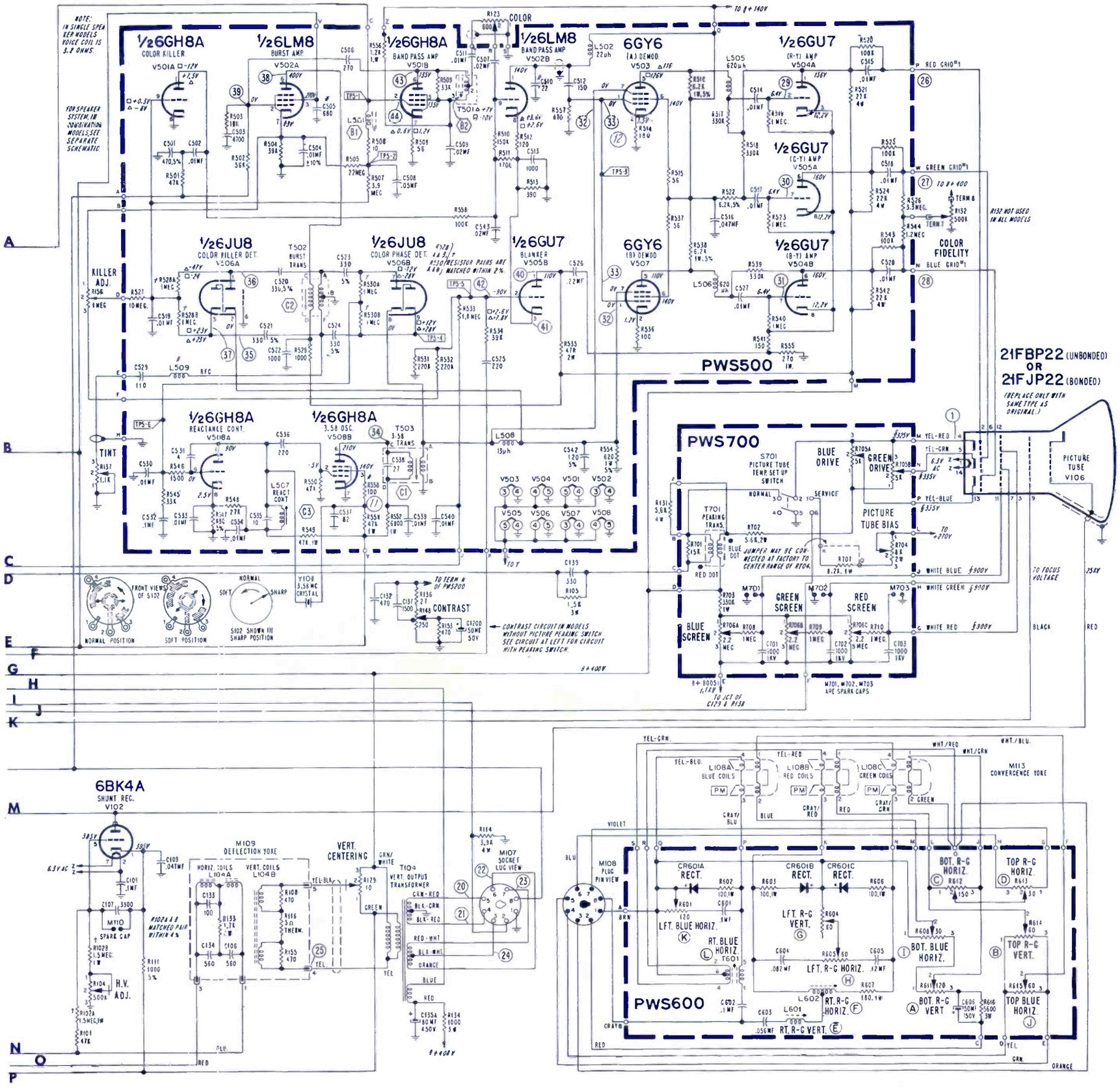


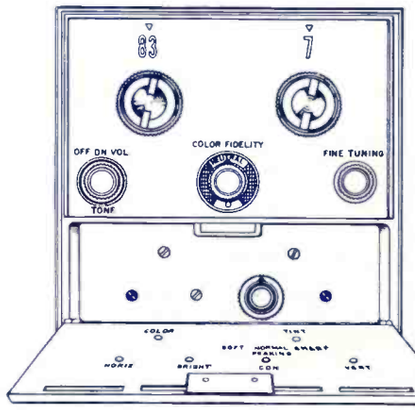
4—Pin 6 of Vert. Output V402B. 1,080 Volts, Vert.

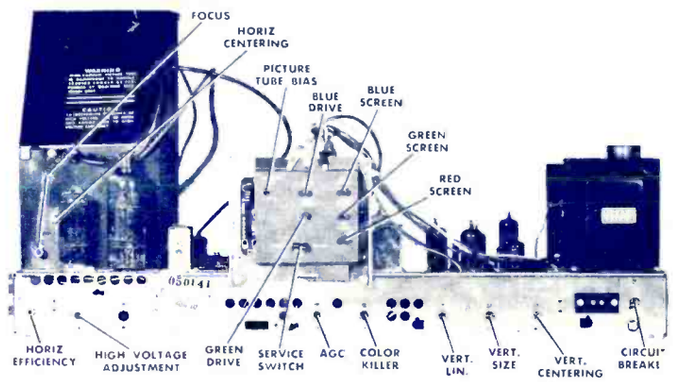


ADMIRAL
Color TV Chassis
D11, 1D11, 2D11,
3D11 and 4D11

ELECTRONIC TECHNICIAN
TEKFAX







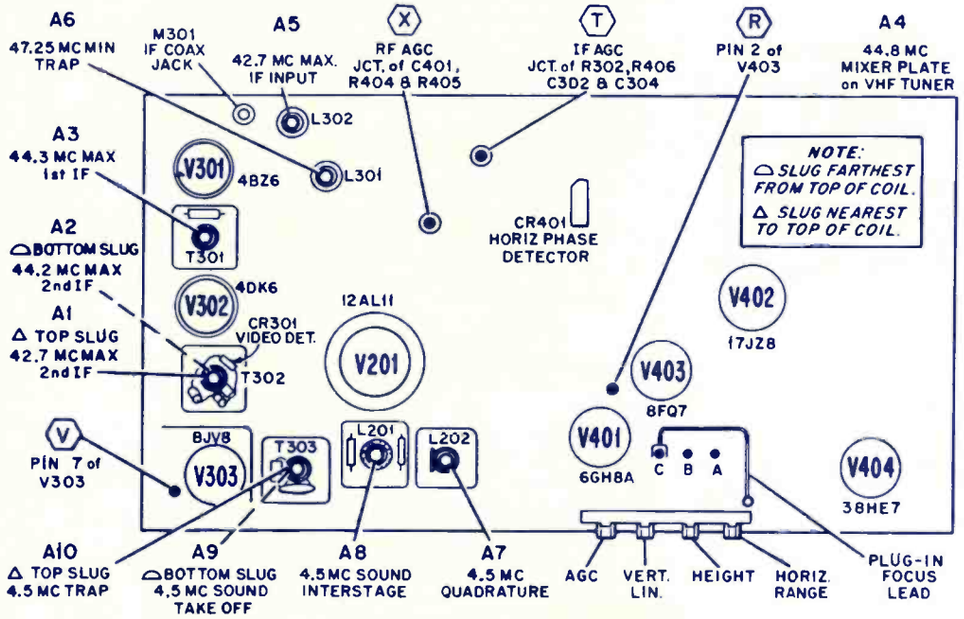
ELECTRONIC TECHNICIAN

TEKFAX

ADMIRAL
TV Chassis Run 10
7D43-1, 7D413-1

TUBE COMPLEMENT

V201—12AL11	V402—17JZ8	CR301—1N87A
V301—4BZ6	V403—8FQ7	CR401—93B5-6
V302—4DK6	V404—38HE7	CR501—93B12-1
V303—8JV8	V405—1G3GT	CR801—IN82A
V304—16BTP4	V701—3GK5	Q801—SE-3002
V401—6GH8A	V702—6CG8A	



SCHEMATIC NOTES

Numbers or letters inside hexagons indicate alignment points.

Fixed resistor values shown in ohms ± 10% tolerance, ½ watt; capacitor values shown in micro-microfarads ± 20% unless otherwise specified.

B+ Circuit Breaker: B+ supply of this receiver is equipped with a thermal type circuit breaker having a manual reset button. Allow a few minutes for circuit breaker to cool off before pressing the reset button.

VOLTAGES AND WAVEFORMS

Isolation transformer used. Line Voltage: 117. Channel Selector on unused channel. Contrast control fully clockwise; all other controls counterclockwise. Do not disturb Horizontal Hold control.

Antenna disconnected and terminals shorted.

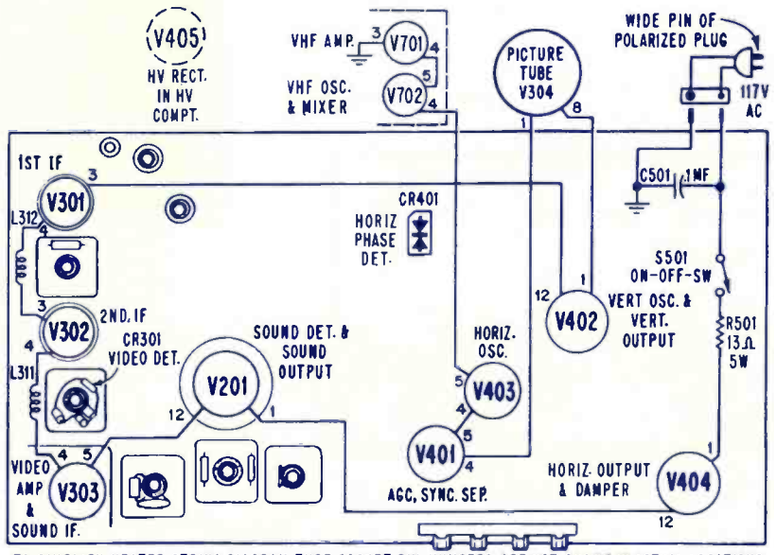
DC voltages measured with VTVM between tube socket and chassis, unless otherwise indicated.

Voltages marked (°) will vary widely with control settings.

VOLTAGE WARNING

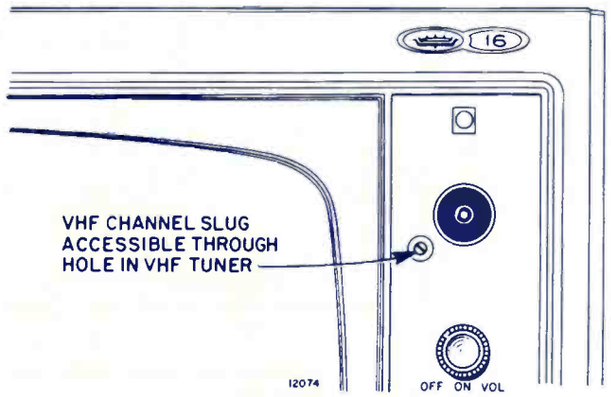
Pulsed high voltage is present at cap of V405, and pins 4 and 5 of V404. Use suitable test equipment at these points. Servicing receiver out of cabinet involves a shock hazard. Use polarized line (cheater) cord and plug, part number 89C 121-2.

Important: To prevent possibility of static discharge, bronze contact strip M303 (at top of cabinet), should only make contact with steel band around face plate of picture tube. Do not connect steel band to picture tube dag or chassis ground.



Tube Locations and Heater String.

MODEL IDENTIFICATION CHART					
Model	Chassis	Model	Chassis	Model	Chassis
P6200	7D43-1	UP6201	7D413-1	UP6204	7D413-1
UP6200	7D413-1	P6203	7D43-1	P6209	7D43-1
P6201	7D43-1	UP6203	7D413-1	UP6209	7D413-1
		P6204	7D43-1		



Front View of Escutcheon, Channel Selector and Fine Tuning Knobs Removed.

VHF CHANNEL ADJUSTMENT

These sets are provided with a channel adjustment slug for each channel, see illustration. Adjust as follows:

1. Turn receiver on and allow 15 minutes warm up.
2. Set Channel Selector at highest channel to be adjusted. Set Fine Tuning control at center of tuning range, by rotating it one third turn counter-clockwise from full clockwise rotation. See other tuning controls for normal picture and sound.
3. Remove Channel Selector and Fine Tuning knobs.
4. Using a non-metallic alignment tool with 3/32" blade (part number 98B30-22), carefully adjust channel slug for best picture. Note: Sound may not be loudest at this point. Repeat procedure for each channel to be adjusted.

AGC CONTROL ADJUSTMENT

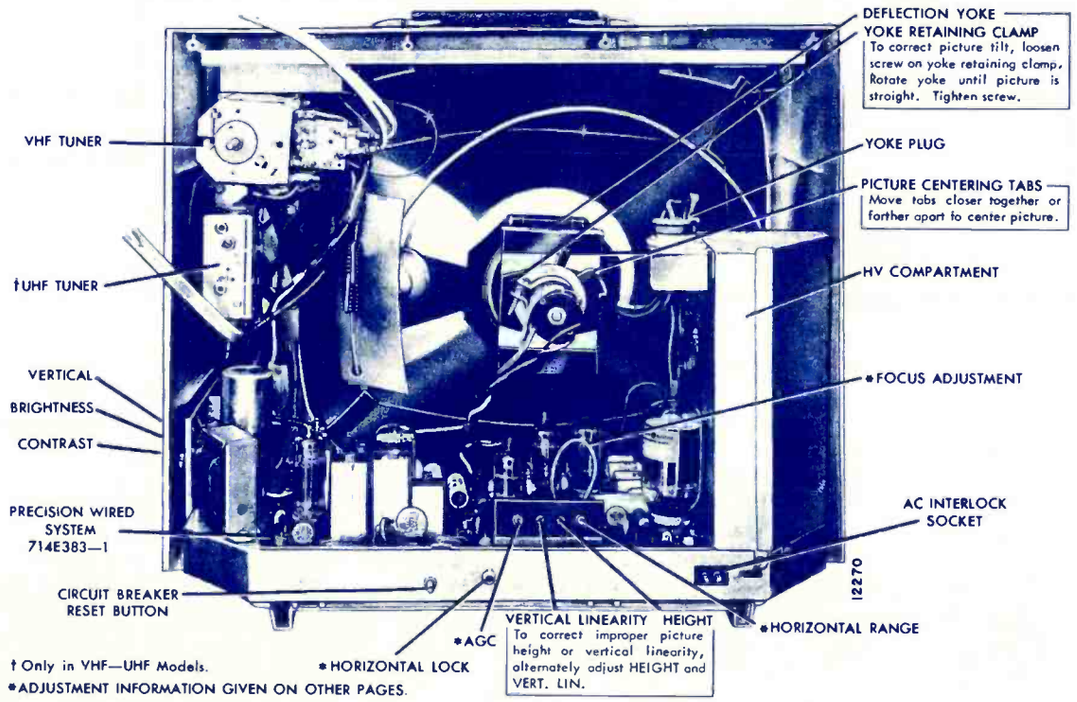
The AGC control is an AGC threshold control which is used solely to adjust the receiver for optimum operation under all signal conditions.

Note: This control is set at the factory and will not normally require field readjustment.

Improper AGC control adjustment can result in picture bending, tearing (overloading) or buzz in the sound. However, these same conditibns can also be caused by other troubles in the set.

If adjustment is required, it should be made exactly as in structed.

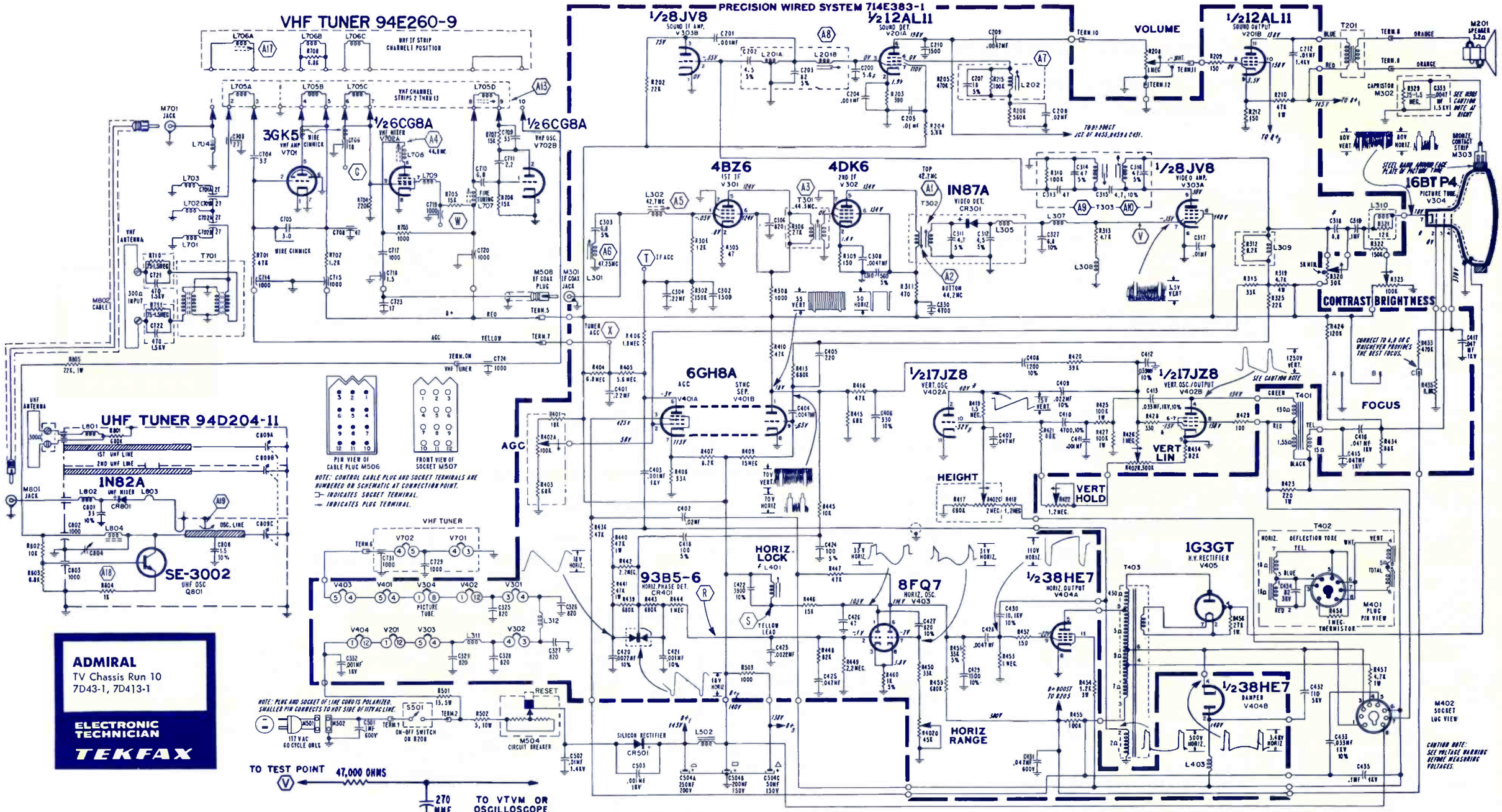
1. Turn set on and allow 15 minutes to warm up.

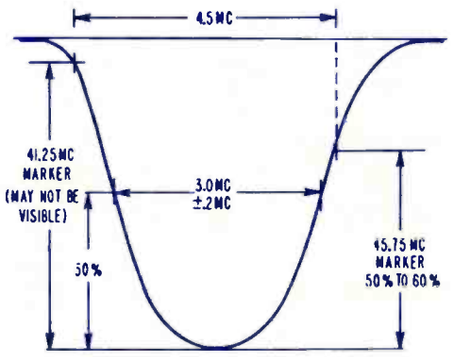


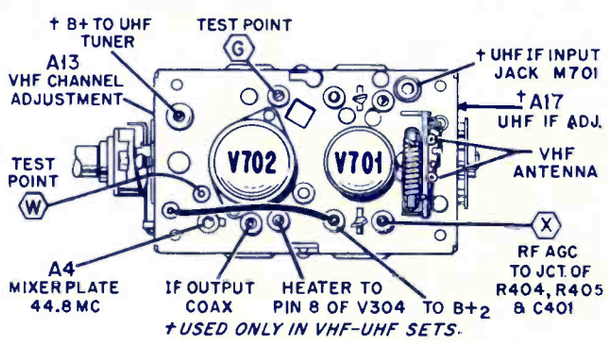
† Only in VHF—UHF Models. *HORIZONTAL LOCK

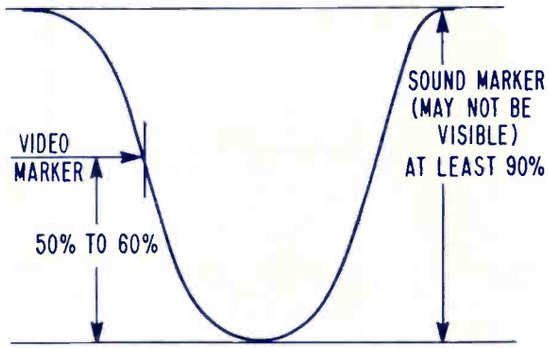
*ADJUSTMENT INFORMATION GIVEN ON OTHER PAGES.

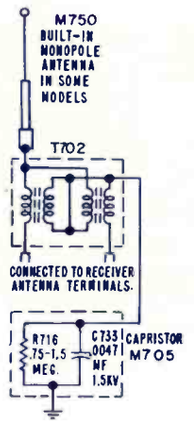
Rear View of Chassis Showing Adjustment Locations (UHF Tuner in 7D413-1 Chassis).

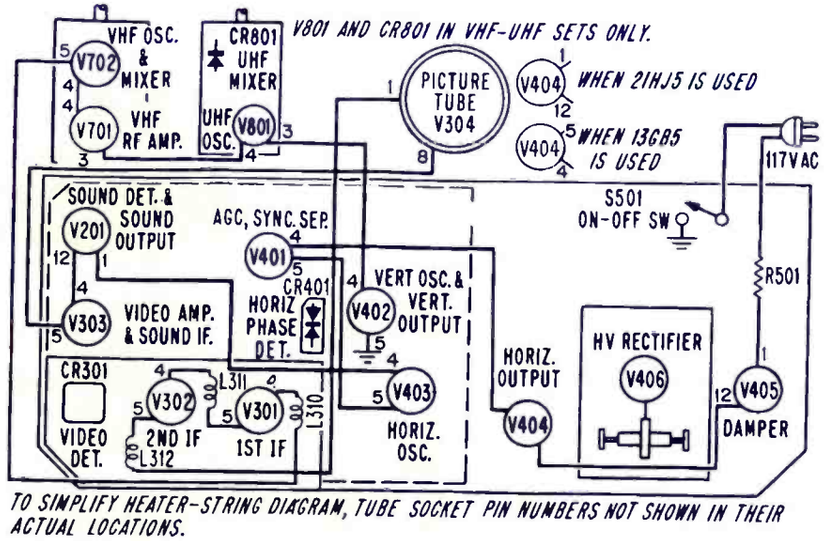

VHF TUNER 94E260-9
PRECISION WIRED SYSTEM 714E383-1
UHF TUNER 94D204-11
1N82A
SE-3002
UHF OSC Q801
3GK5
1/2 6CG8A
1/2 6CG8A
4BZ6
4DK6
1/2 8JV8
1/2 12AL11
1/2 12AL11
IN87A
1/2 8JV8
16BT P4
6GH8A
1/2 17JZ8
1/2 17JZ8
93B5-6
8FQ7
1/2 38HE7
1G3GT
1/2 38HE7
VERT LIN
VERT HOLD
HEIGHT
HORIZ LOCK
HORIZ RANGE
CONTRAST
BRIGHTNESS
FOCUS
VOLUME
ADMIRAL
TV Chassis Run 10
7D43-1, 7D413-1
ELECTRONIC TECHNICIAN
TEKFAX
TO TEST POINT
47,000 OHMS
270 MMF
TO VTVM OR OSCILLOSCOPE
CHASSIS GROUND

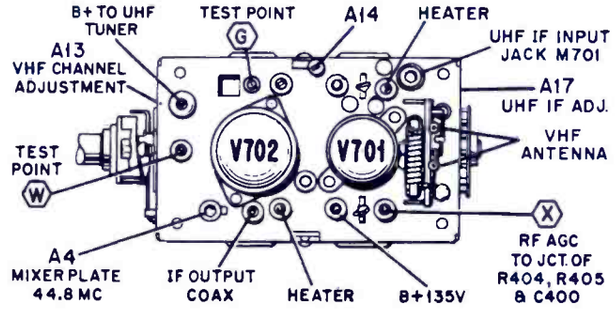

4.5 MC
41.25 MC MARKER (MAY NOT BE VISIBLE)
3.0 MC ±.2 MC
50%
45.75 MC MARKER 50% TO 60%

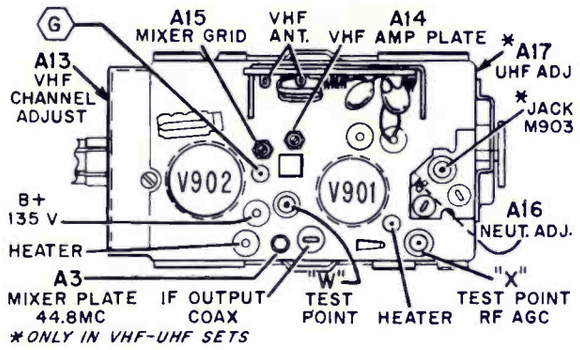

† B+ TO UHF TUNER
TEST POINT
A13 VHF CHANNEL ADJUSTMENT
† UHF IF INPUT JACK M701
† A17 UHF IF ADJ.
VHF ANTENNA
TEST POINT
V702
V701
A4 MIXER PLATE 44.8 MC
IF OUTPUT COAX
HEATER TO PIN 8 OF V304
TO B+2
RF AGC TO JCT OF R404, R405 & C401
† USED ONLY IN VHF-UHF SETS.

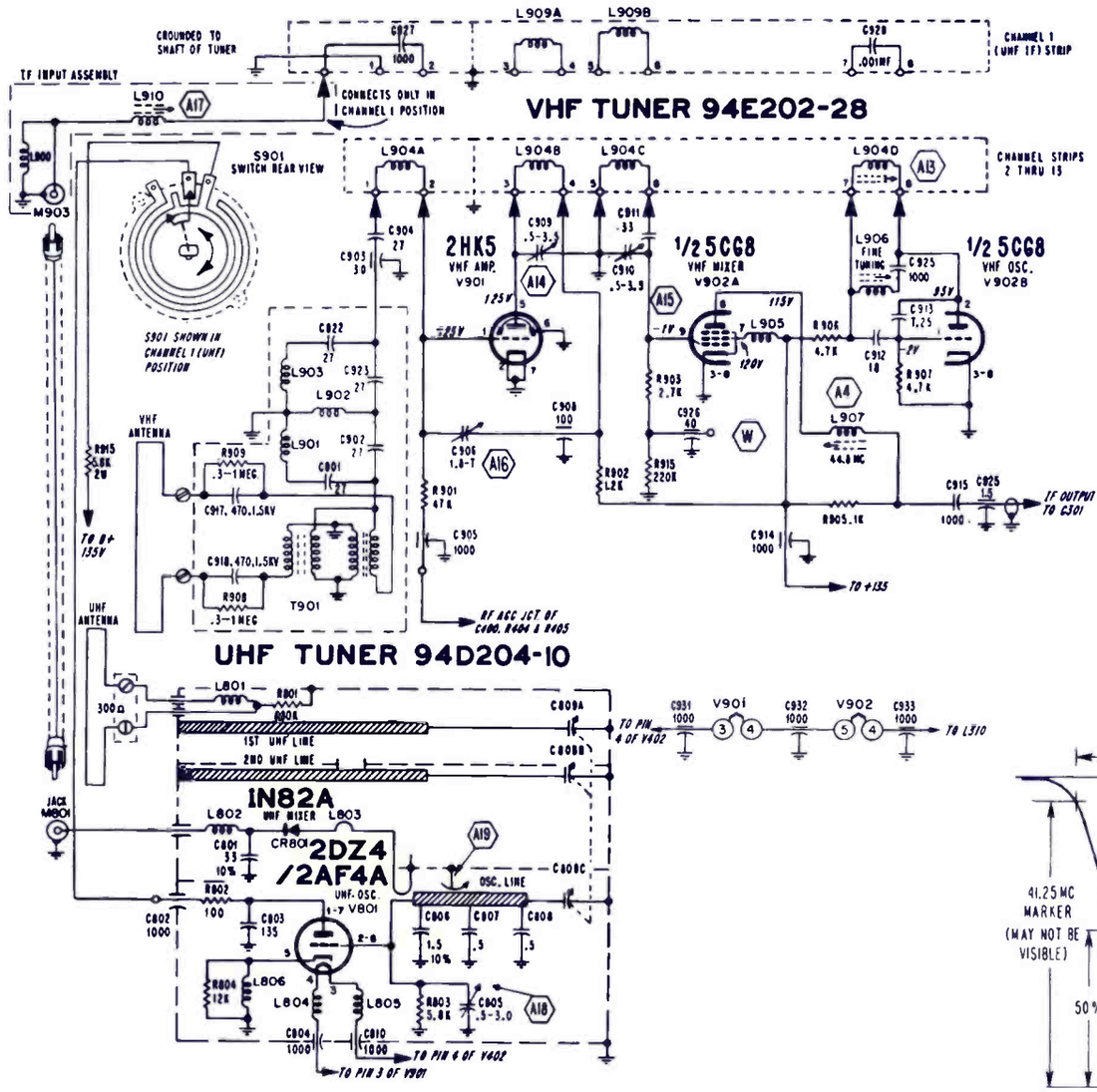

VIDEO MARKER
50% TO 60%
SOUND MARKER (MAY NOT BE VISIBLE) AT LEAST 90%

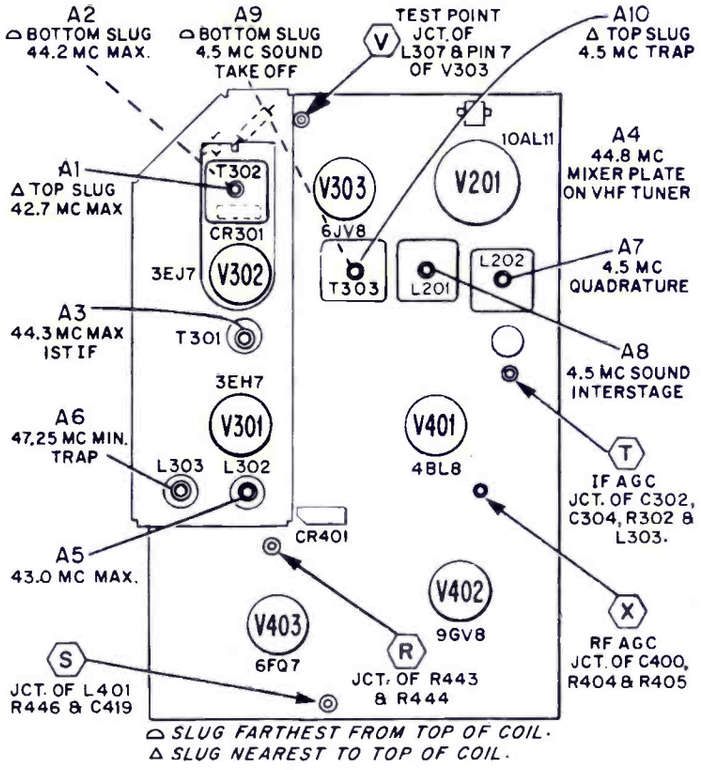

M750 BUILT-IN MONOPOLE ANTENNA IN SOME MODELS
T702
CONNECTED TO RECEIVER ANTENNA TERMINALS.
R716 .75-1.5 MEG.
C733 .0047 MF 1.5KV
CAPRISTOR M705

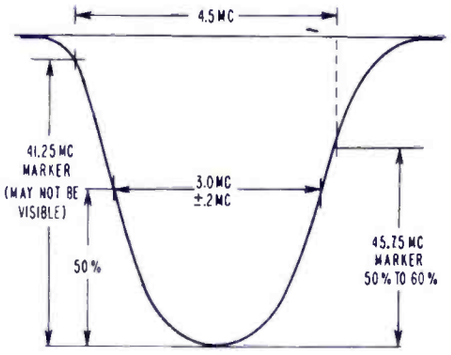












ADMIRAL
TV Chassis
16A4D, -C, UA4D, -C, -B4C, UB4C

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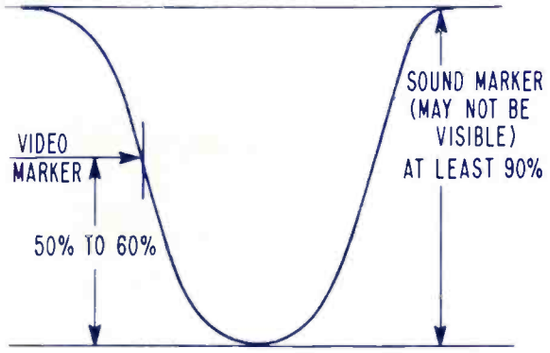
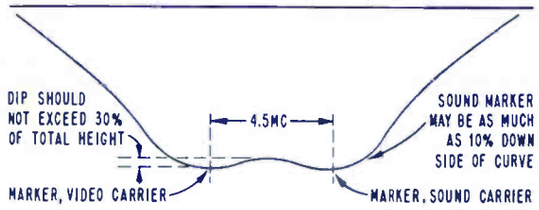
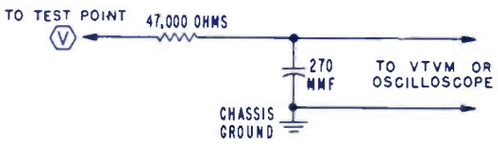
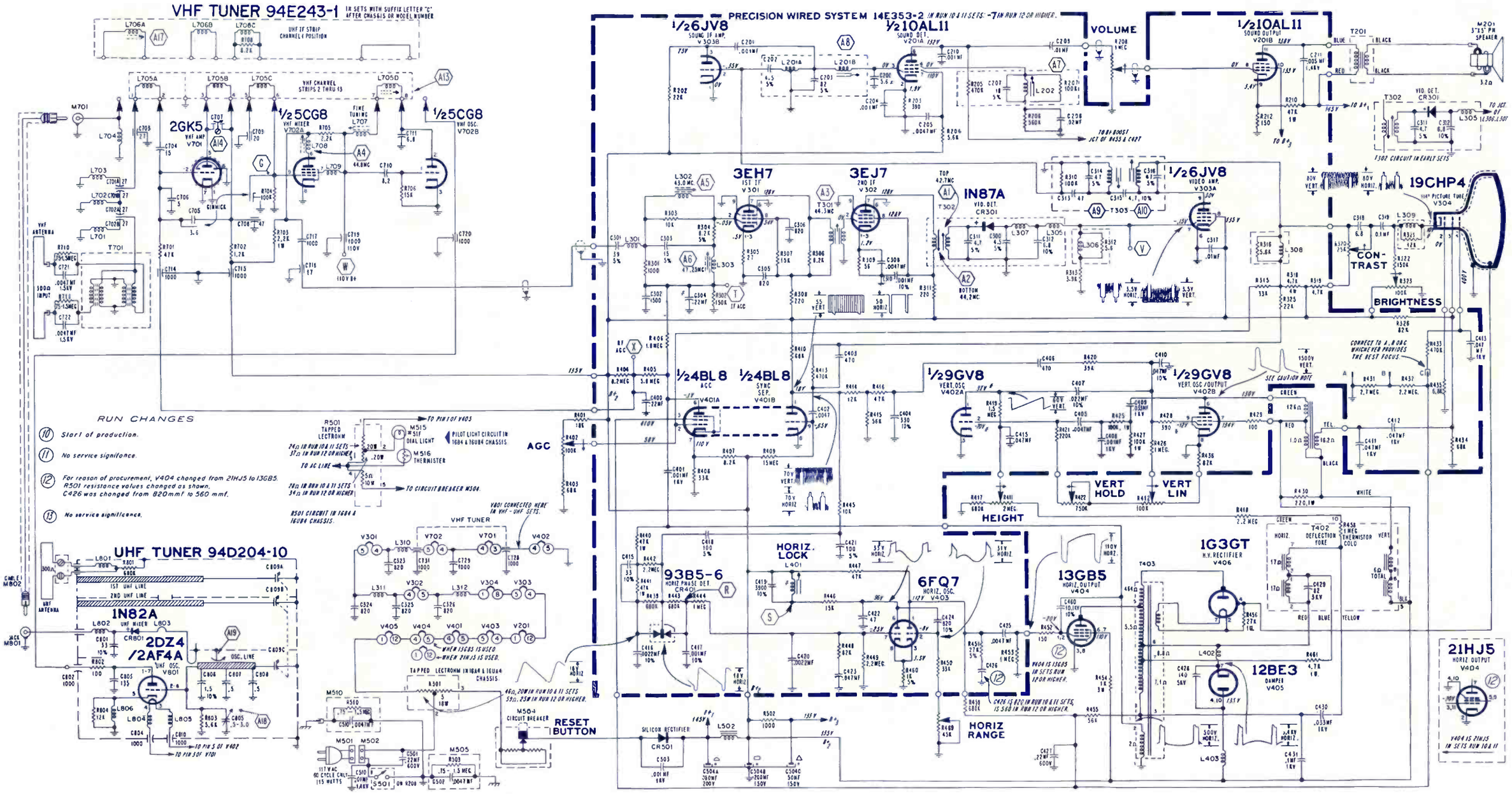
TEKFAX

ADMIRAL
TV Chassis
16A4D, -C, UA4D, -C, -B4C, UB4C



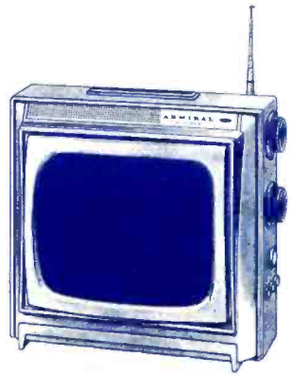




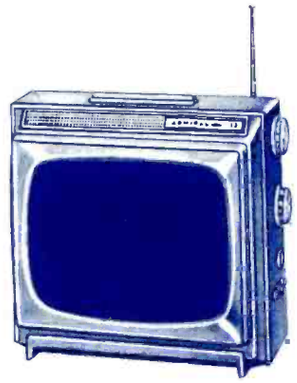


ADMIRAL
TV Chassis
C21B12-1, 13-1,
C21C12-1, 13-1,
15-1

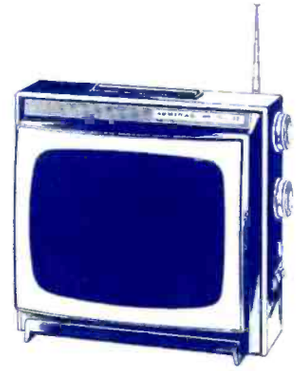
TO TEST POINT (V) — 47,000 OHMS — 270 MMF — TO VTVM OR OSCILLOSCOPE
CHASSIS GROUND



PD1124 &
PD1130 SERIES



PD1304



PD1310 SERIES

VHF TUNER 94D260-3

UHF TUNER 94D256-1

DIFFERENT TUNERS USED
VHF & UHF TUNERS SHOWN ARE USED IN MODELS WITH C21B12-1S & C21C12-1 CHASSIS.

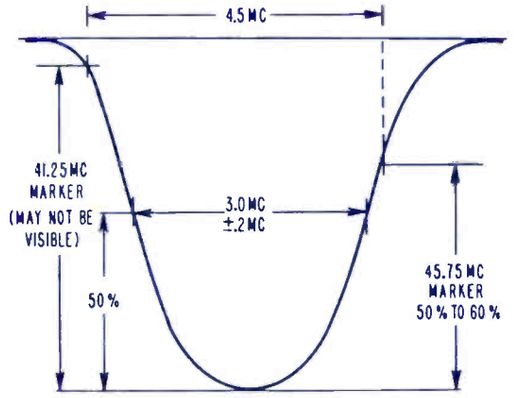
PRECISION WIRED SYSTEM 714E376-2

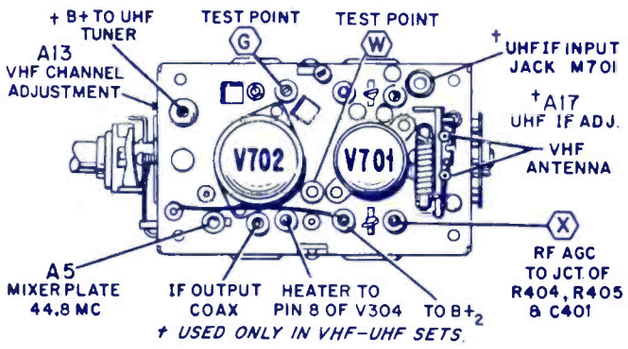
RUN CHANGES

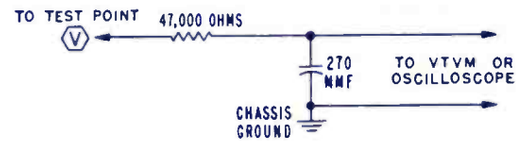
(10) Start of production.

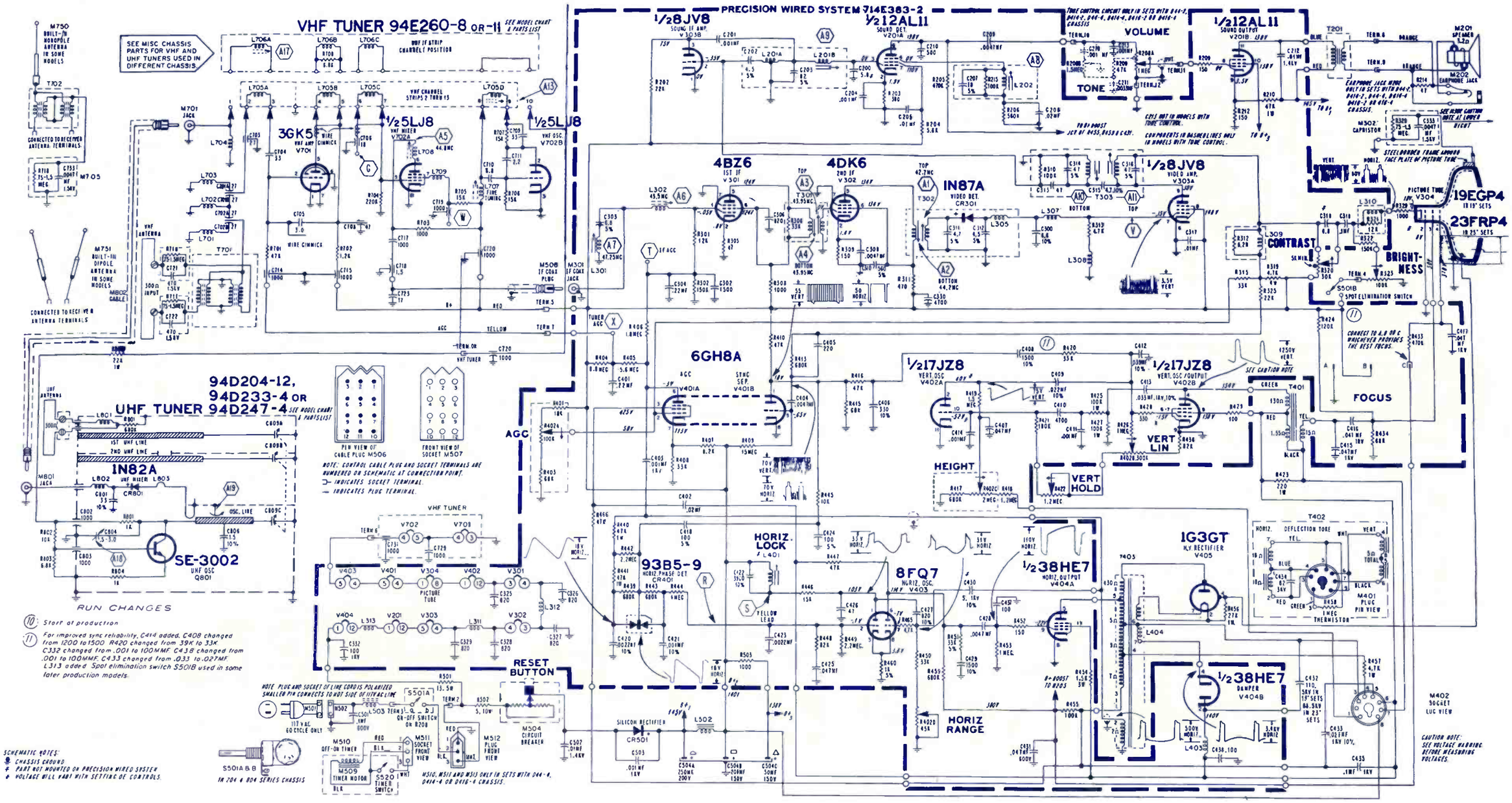
SCHEMATIC NOTES:
- ⏚ CHASSIS GROUND.
- ‡ PART NOT MOUNTED ON PRECISION WIRED SYSTEM.
- * VOLTAGE WILL VARY WITH SETTING OF CONTROLS.

ADMIRAL
TV Chassis
D4, 1D4, 2D4 and 8D4









ELECTRONIC TECHNICIAN
TEKFAX

ADMIRAL
TV Chassis
D61-1, -2, -4
D610-1, -2, -4

SCHEMATIC NOTES

Numbers or letters inside hexagons indicate alignment points.

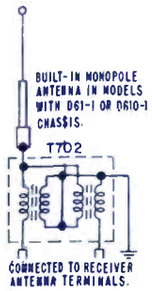
Fixed resistor values shown in ohms ±10% tolerance. ½ watt; capacitor values shown in micro-microfarads ±20% unless otherwise specified.

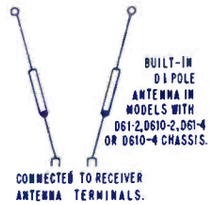
VOLTAGE WARNING

High AC voltages are present at terminals of wafer switch S902 and at terminals of dialescent panel.

Exercise normal high voltage precautions when servicing wafer switch or rear of dialescent panel.

Pulsed high voltage is present at cap of V406, and pin 7 of V404 and V405. Use suitable test equipment at these points.



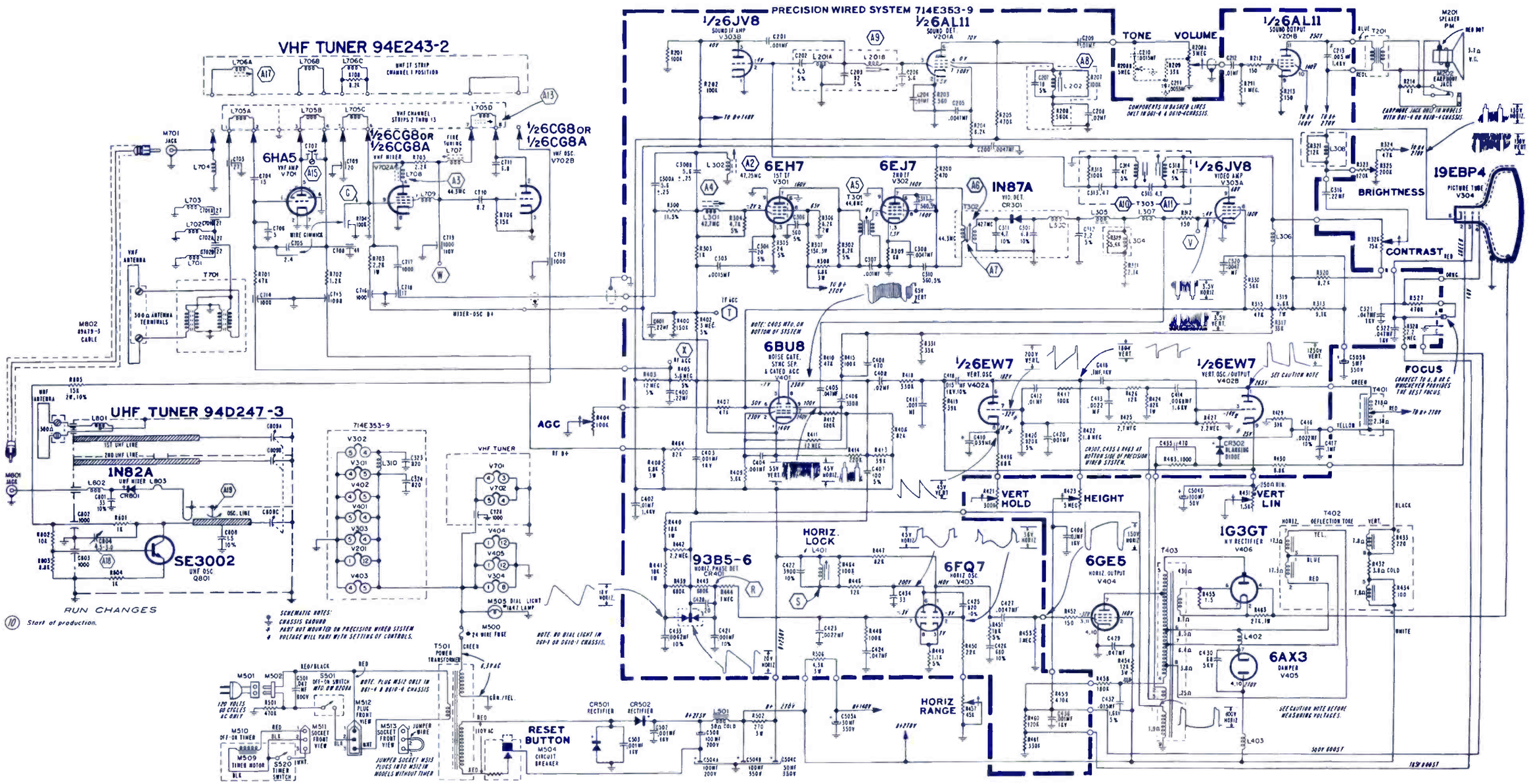


VOLTAGES AND WAVEFORMS

Line Voltage: 117.
Channel Selector on unused channel. Contrast control fully clockwise; all other controls counterclockwise. Do not disturb Horizontal Hold control.
Antenna disconnected and terminals shorted.
DC voltages measured with VTVM between tube socket and chassis, unless otherwise indicated.
Voltages marked (*) will vary widely with control settings.
Waveforms taken with transmitted signal input. For waveforms, controls set for normal picture. Peak-to-peak voltages may vary slightly.

B+ Circuit Breaker: B+ supply of this receiver is equipped with a thermal type circuit breaker having a manual reset button. Allow a few minutes for circuit breaker to cool off before pressing the reset button.

Heater Fuse: A one inch length of number 26 gauge bare annealed copper wire is used. Fuse wire is located at underside of chassis.



OPERATING AUTOMATIC OFF-ON TIMER

Some models are equipped with an automatic OFF-ON timer. The OFF-ON timer (at side of cabinet) can be set to turn television receiver "OFF" after a pre-selected time period, up to ten hours. The timer can also be set to turn receiver "ON" after a pre-selected time period, up to twelve hours. Models having an automatic OFF-ON timer, are listed in Model Identification Chart on front page.

IMPORTANT: Push-pull ON-OFF switch (at front of set) must be "ON" (pulled out) and timer must be in "ON" detent position for set to operate. Dial light is lit, when set is turned on.

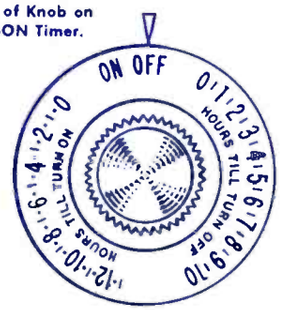
Turning Receiver "OFF" Automatically

With television receiver operating, turn timer knob counter-clockwise until time interval marking on knob, is opposite indicator pointer. Receiver will continue to operate for time period indicated on knob, then automatically turn itself off.

Turning Receiver "ON" Automatically

For turning receiver "ON" automatically, set timer knob to "ON" detent position. Turn television receiver "ON" with push-pull ON-OFF switch at front of set. Tune in wanted channel and set volume control for desired volume level. Then, without disturbing receiver controls, turn timer knob clockwise until interval marking on knob is opposite indicator pointer. Set will turn off. However, when indicated time interval has elapsed, television receiver will automatically turn itself "ON". Sound (from television program), will be heard as indication that interval has elapsed and receiver is operating.

View of Knob on OFF-ON Timer.



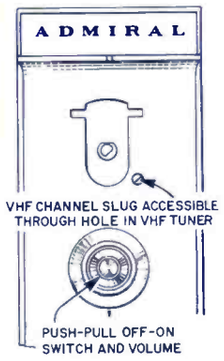
ADMIRAL
TV Chassis
D61-1, -2, -4
D610-1, -2, -4

ELECTRONIC TECHNICIAN TEKFAX

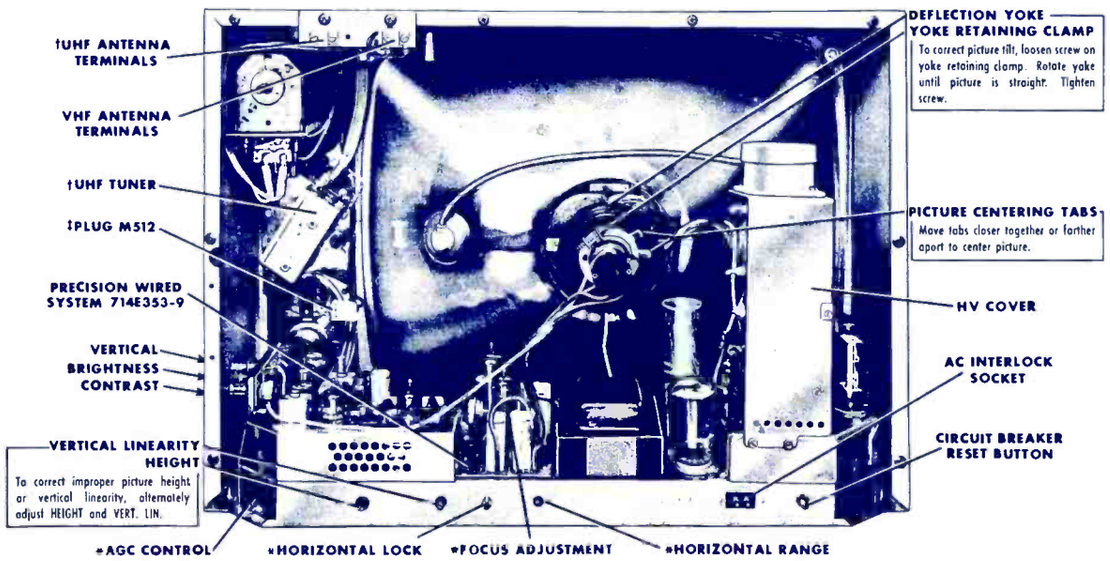
MODEL IDENTIFICATION CHART

Model	Chassis	Model	Chassis	Model	Chassis
¶P9731	D61-2	§P9741	D61-4	♦P9751	D61-4
¶UP9731	D610-2	§UP9741	D610-4	♦UP9751	D610-4
¶P9734	D61-2	§P9749	D61-4	♦P9752	D61-4
¶UP9734	D610-2	§UP9749	D610-4	♦UP9752	D610-4
¶P9739	D61-2			‡T9728	D61-1
¶UP9739	D610-2			‡TU9728	D610-1

§ Model has dial light, tone control, earphone jack, carrying handle and built-in dipole antenna.
♦ Model has dial light, tone control, earphone jack, carrying handle, timer clock and built-in dipole antenna.
¶ Model has dial light, carrying handle, and built-in dipole antenna. Does not have tone control or earphone jack.
‡ Model has built-in monopole antenna. Does not have dial light, tone control, carrying handle or earphone jack.



Front View of Escutcheon, Channel Selector and Fine Tuning Knobs Removed.



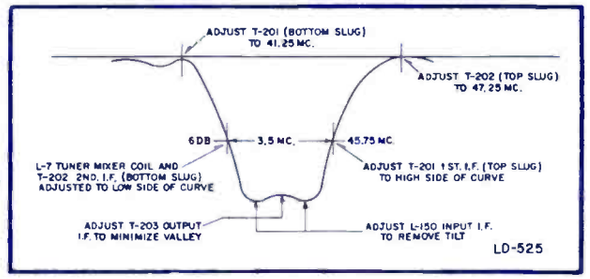
- ADJUSTMENT INFORMATION GIVEN ON OTHER PAGES.

†ONLY IN VHF-UHF CHASSIS.

‡ONLY IN D61-4 & D610-4 CHASSIS.

Rear View of Chassis Showing Adjustment Locations (UHF Tuner in D610-1, -2 and -4 Chassis).

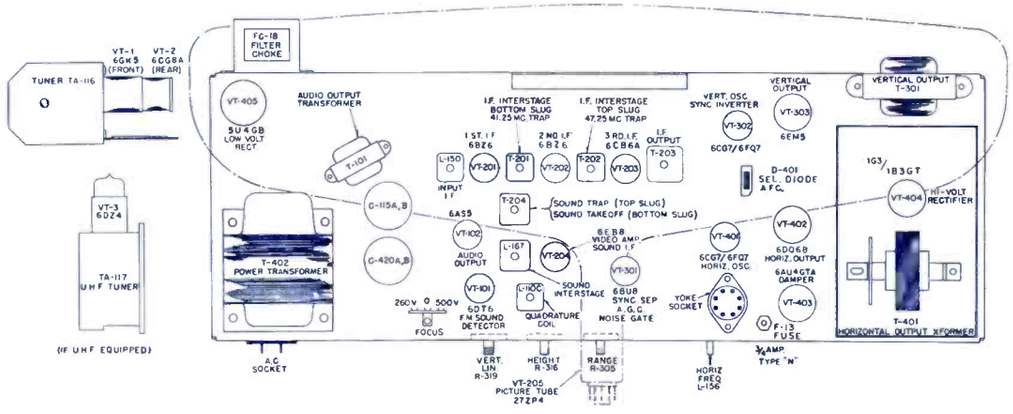
ELECTRONIC TECHNICIAN TEKFAX

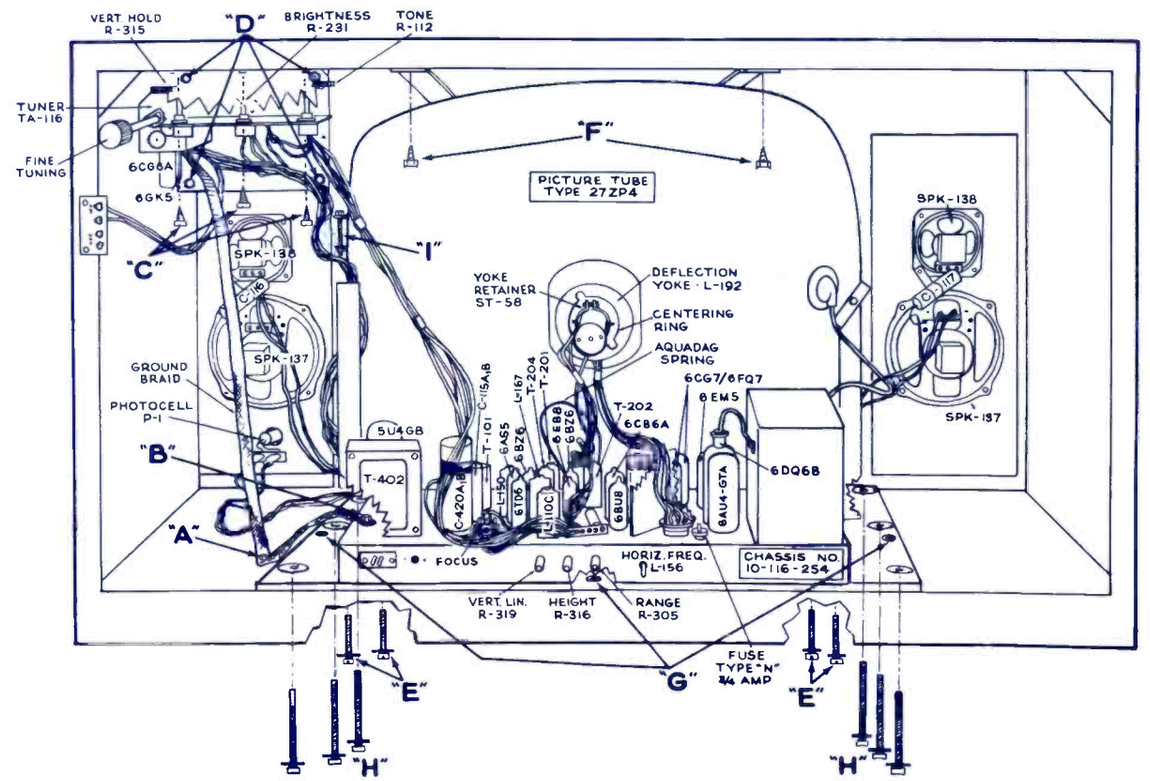


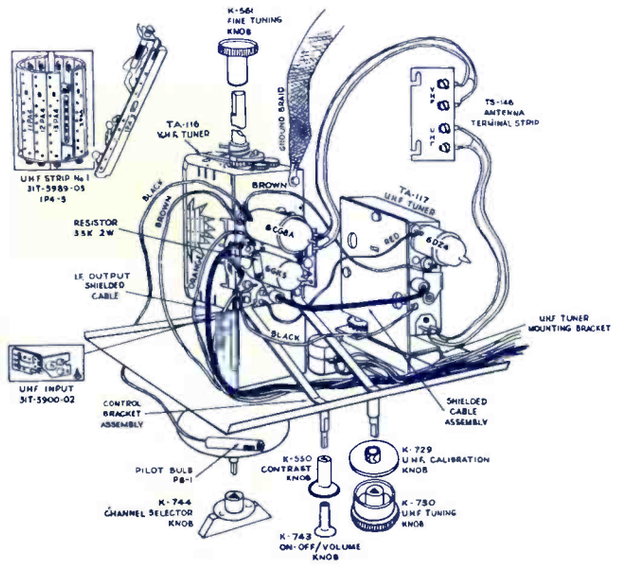
AIRLINE
TV Chassis
10-116-254 and -254U
Models GTC-3914A, -44A, -54A, GTC-4914A, -44A and -54A

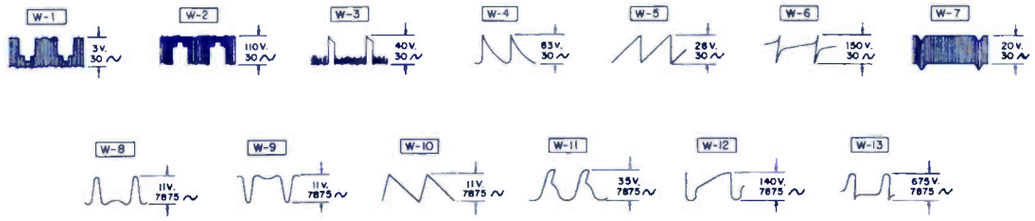
CHASSIS NO. 10-116-254
10-116-254U

More Data on Reverse Side



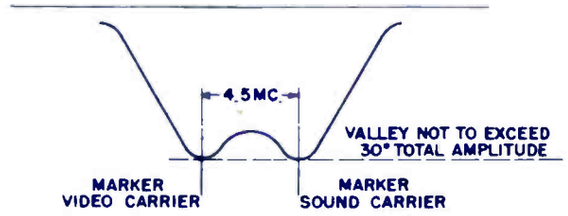




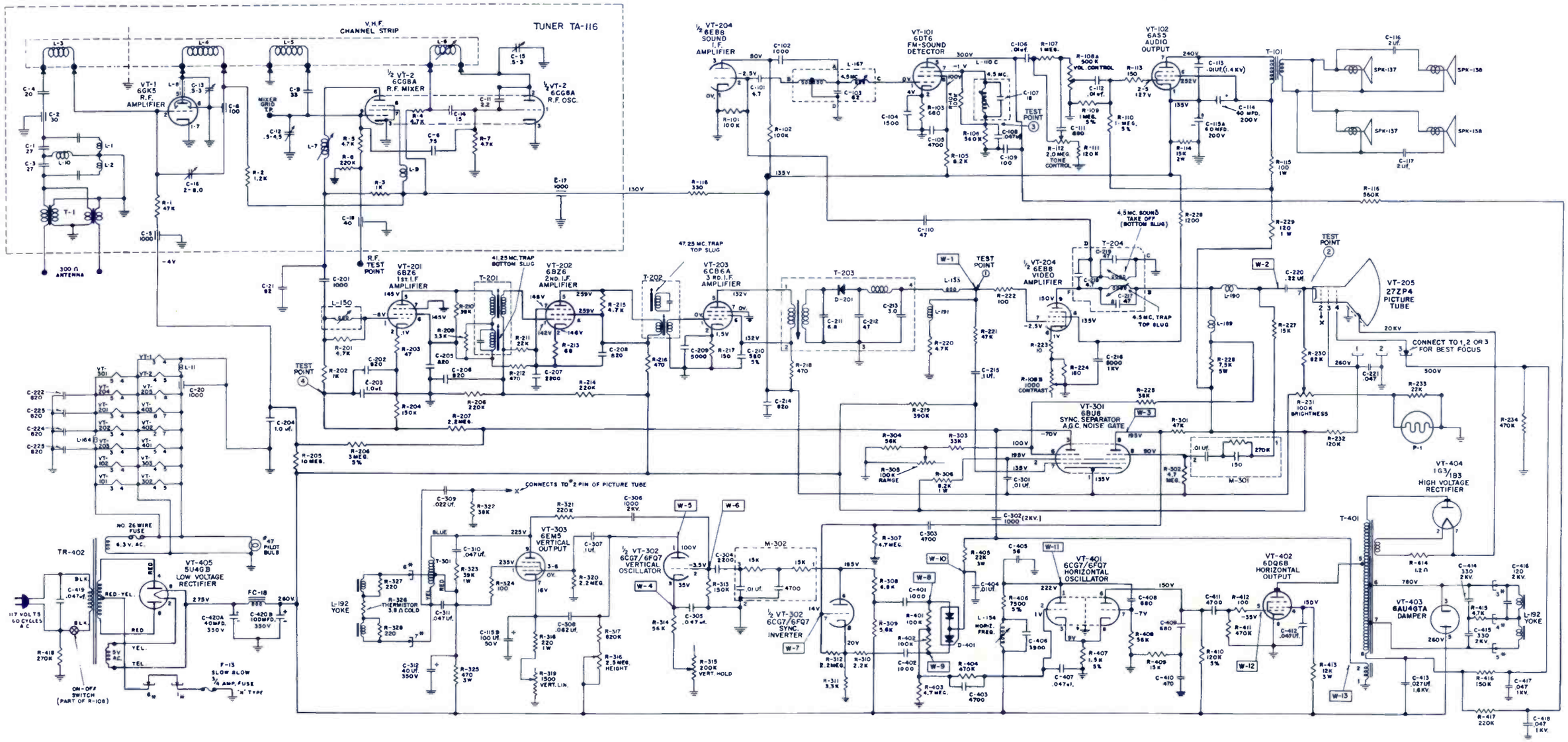


AIRLINE
TV Chassis 10-116-254 and-2540
Models GTC-3914A, -44A-54A, GTC 4914A, -44A -54A

ELECTRONIC TECHNICIAN
TEKFAX

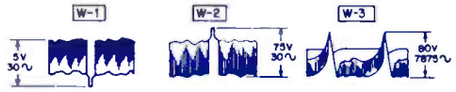


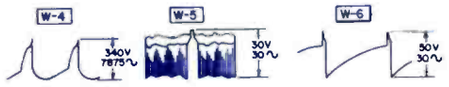
– VOLTAGE MEASUREMENT CONDITIONS –
1 – LINE VOLTAGE 117 VOLTS A.C., 60 CYCLES.
2 – D.C. VOLTAGES MEASURED WITH A V.T.V.M. FROM CHASSIS TO SOCKET TERMINALS.
3 – VOLTAGE READINGS TAKEN WITH NORMAL SIGNAL INPUT, USING A V.T.V.M.
4 – RANGE CONTROL SET FULLY COUNTER CLOCKWISE, AND ALL OTHER CONTROLS SET FOR NORMAL OPERATION.

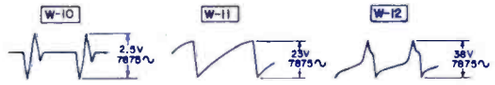


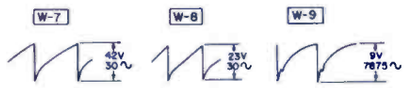
NOTE:
* REFER TO YOKE PLUG AND SOCKET PIN NUMBERS

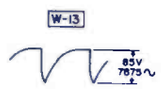
AIRLINE
TV Chassis 12-124-24U and 12-124-34U

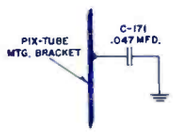










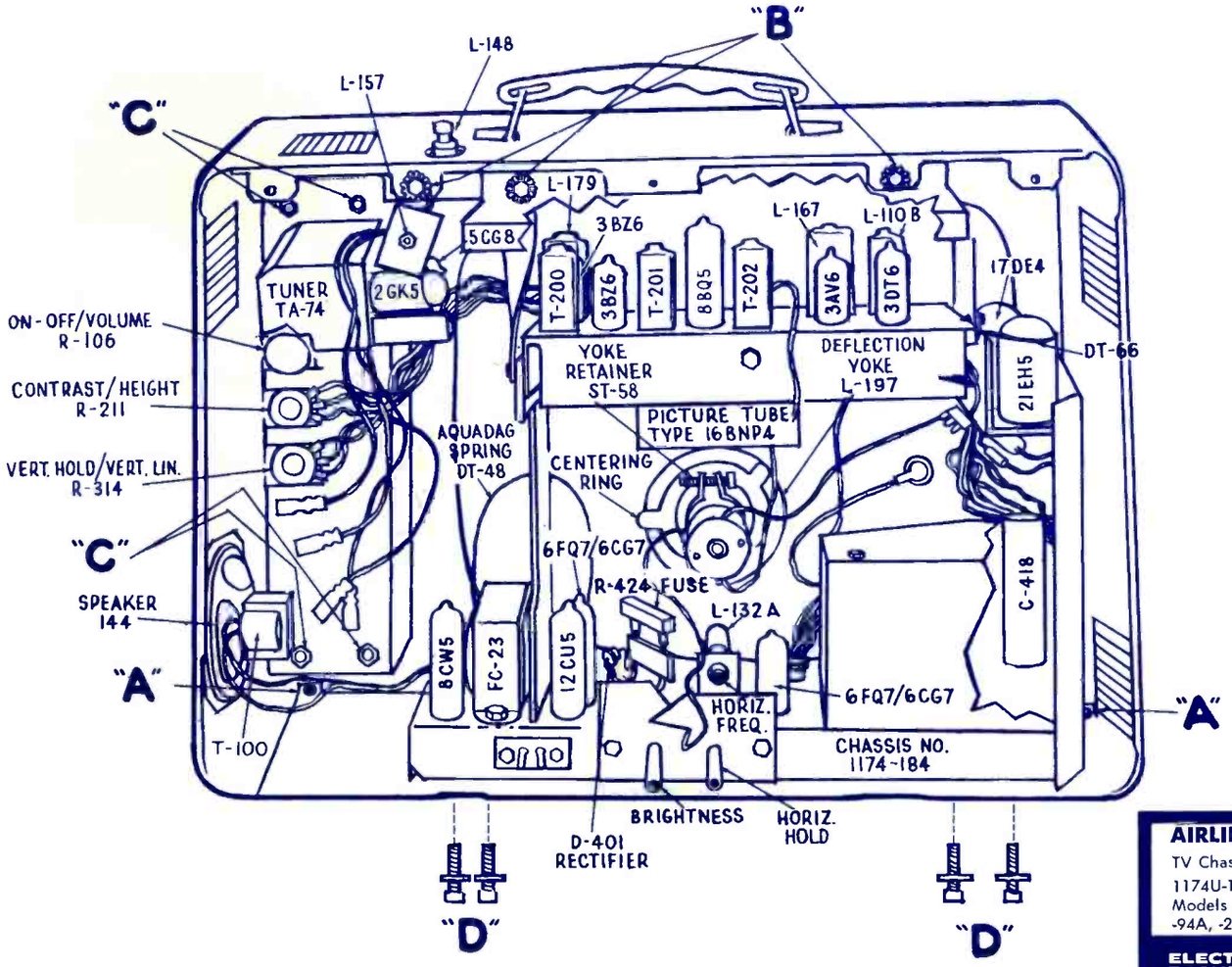


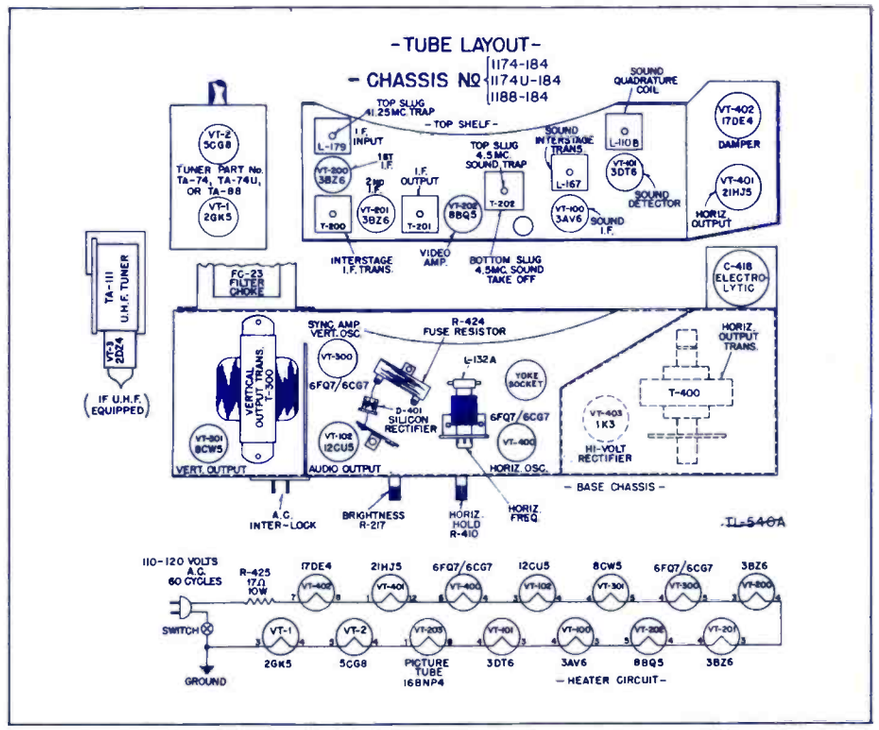
— SCHEMATIC NOTES —

7- C-52, 820MMF. IN EARLY PRODUCTION MODELS.
8- R-64, 560K 1/2W. IN EARLY PRODUCTION MODELS.
9- R-122, 56K 1/2W. IN EARLY PRODUCTION MODELS.

— VOLTAGES & WAVEFORMS —

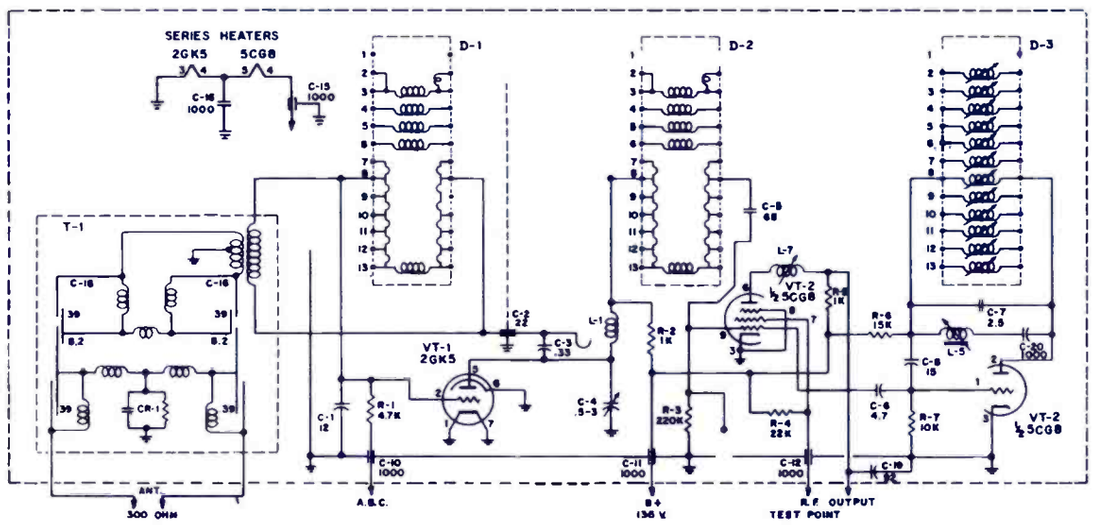
1- LINE VOLTAGE 115 A.C. THROUGH ISOLATION TRANSFORMER.
2- ALL VOLTAGES SHOWN ON SCHEMATIC ARE D.C. READINGS.
3- VOLTAGE READINGS TAKEN WITH NORMAL SIGNAL INPUT USING A V.T.V.M.
4- CONTROLS SET FOR NORMAL OPERATION.
5- WAVEFORMS TAKEN WITH NORMAL SIGNAL INPUT.
6- ALL WAVEFORM VOLTAGES SHOWN ON SCHEMATIC ARE PEAK TO PEAK READINGS.

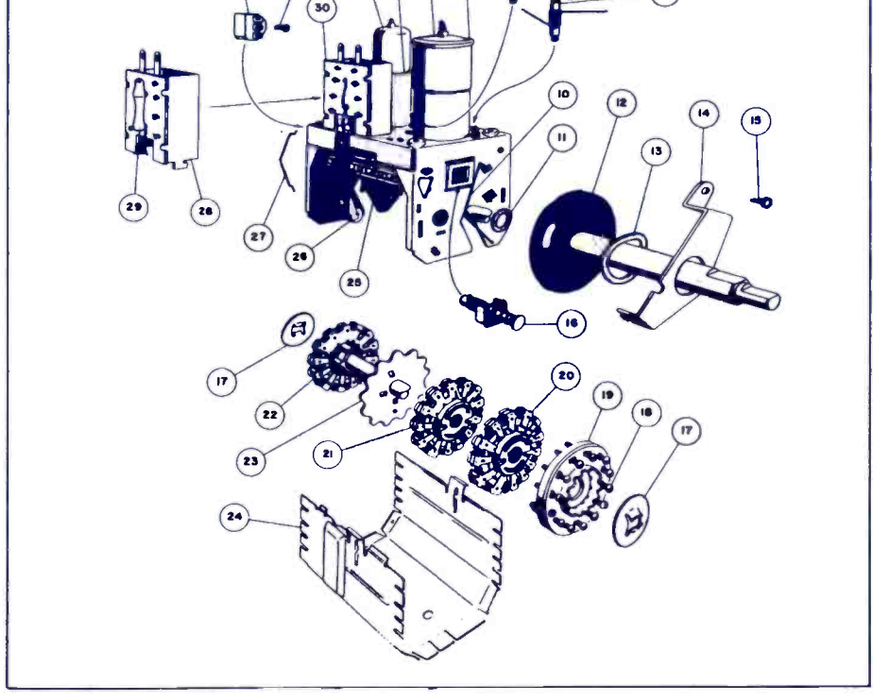




AIRLINE
TV Chassis 1174-184, 1174U-184, 1188-184
Models GTC—1684A, -94A, -2684A

ELECTRONIC TECHNICIAN TEKFAX



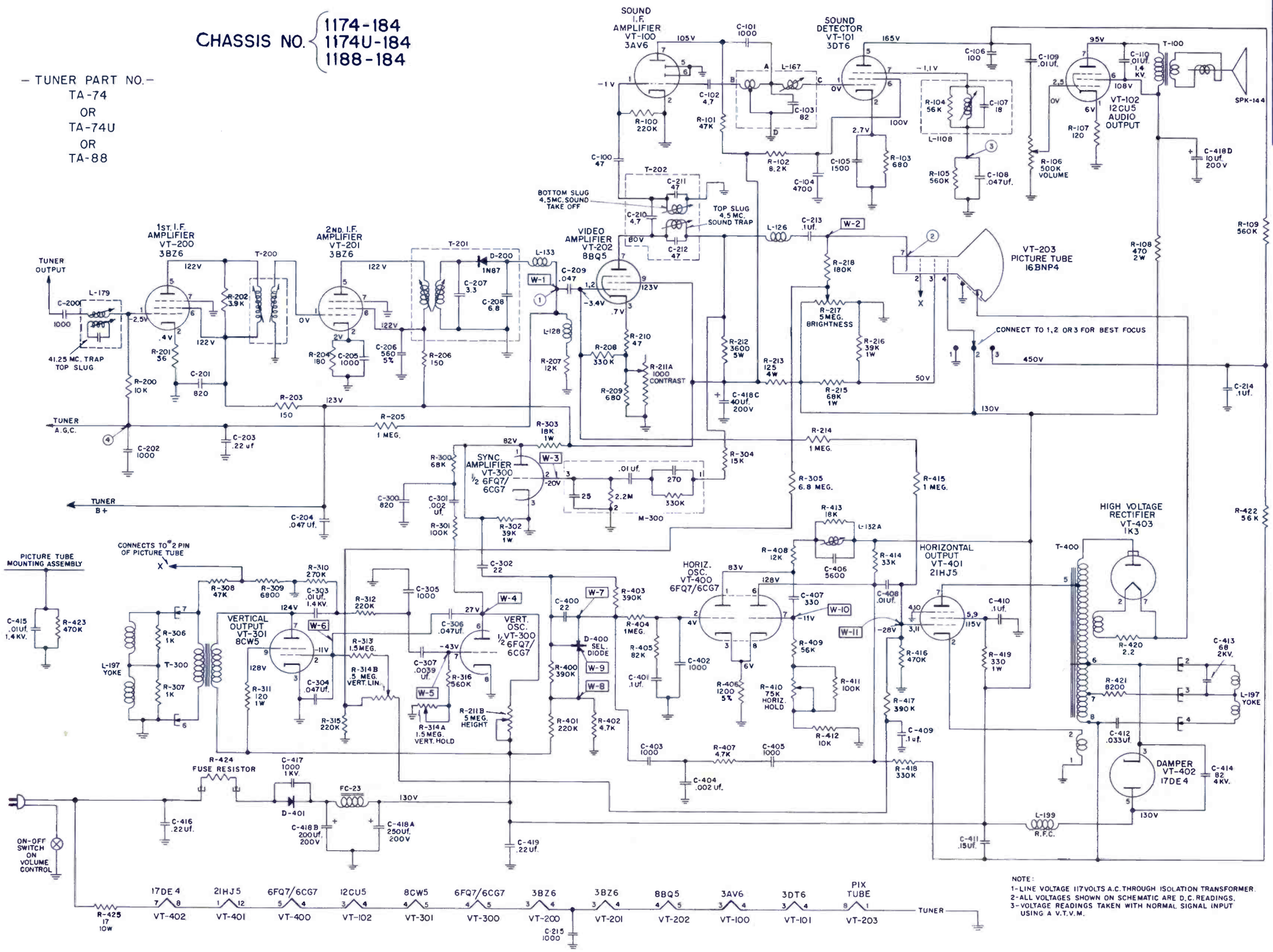


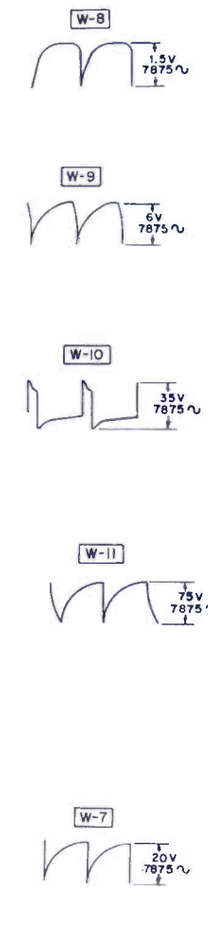
AIRLINE

TV Chassis
1174-184,
1174U-184,
1188-184
Models
GTC-1684A,
-94A, -2684A

CHASSIS NO. 1174-184
1174U-184
1188-184

– TUNER PART NO. –
TA-74
OR
TA-74U
OR
TA-88



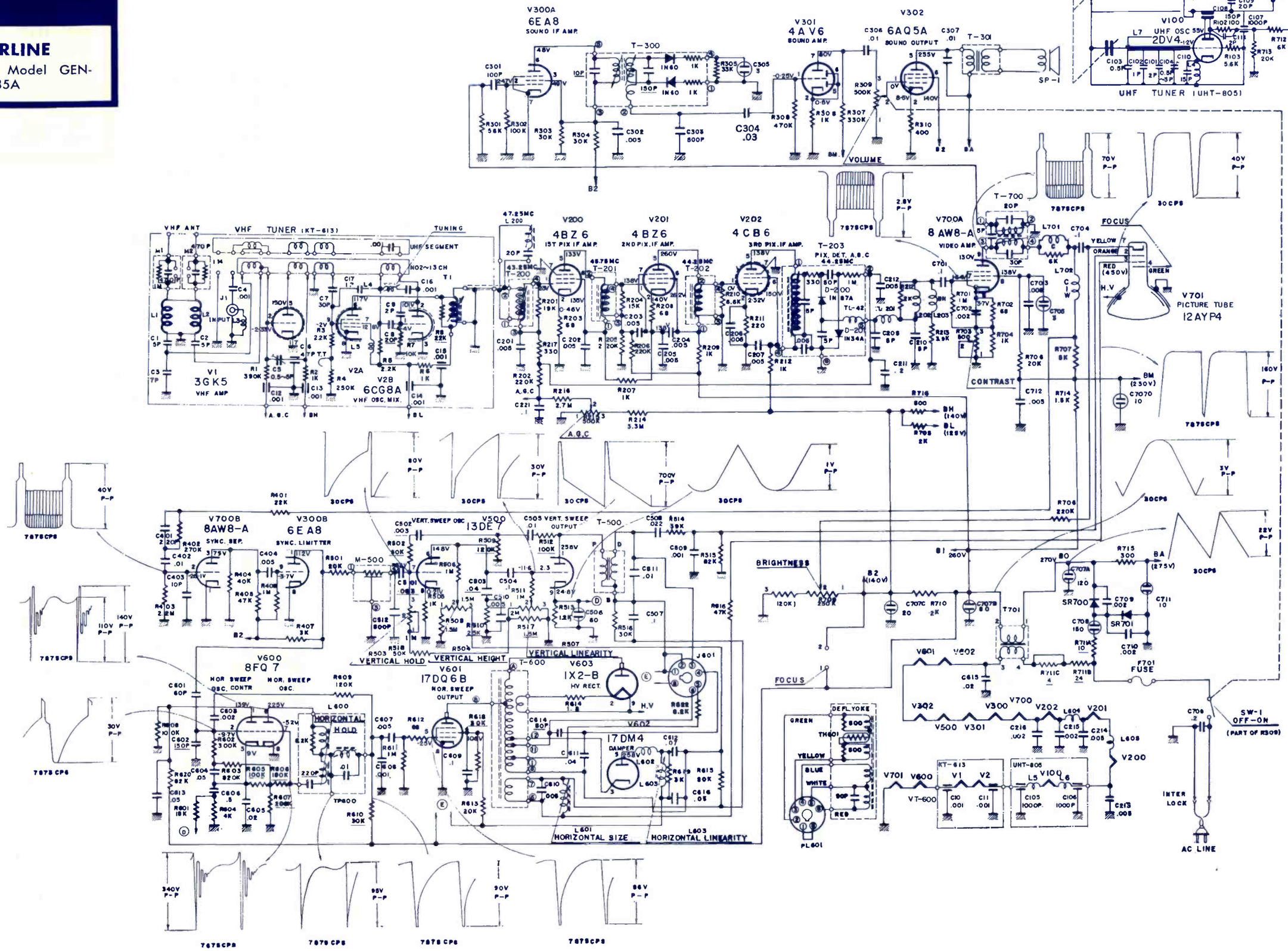


NOTE:
1- LINE VOLTAGE 117VOLTS A.C. THROUGH ISOLATION TRANSFORMER.
2- ALL VOLTAGES SHOWN ON SCHEMATIC ARE D.C. READINGS.
3- VOLTAGE READINGS TAKEN WITH NORMAL SIGNAL INPUT USING A V.T.V.M.

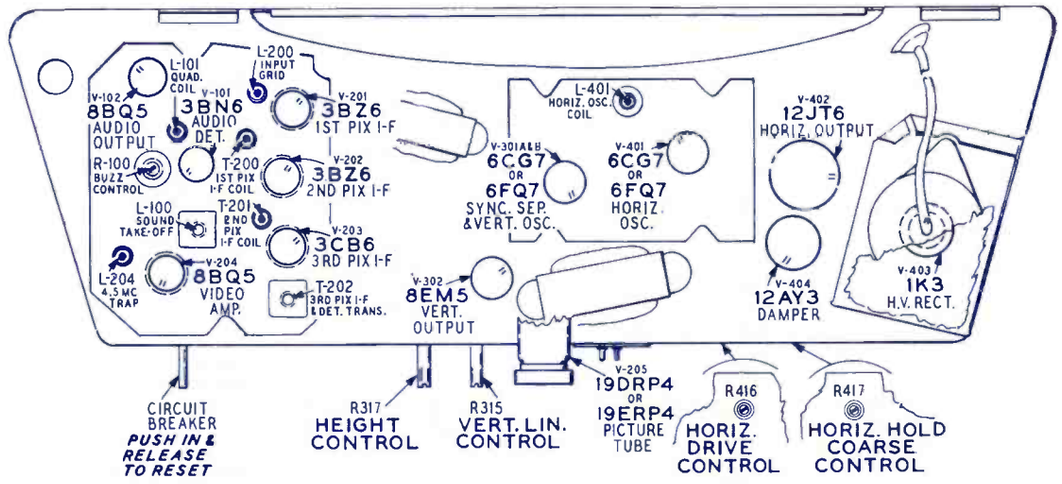
ELECTRONIC TECHNICIAN

TEKFAX

AIRLINE
TV Model GEN-2485A

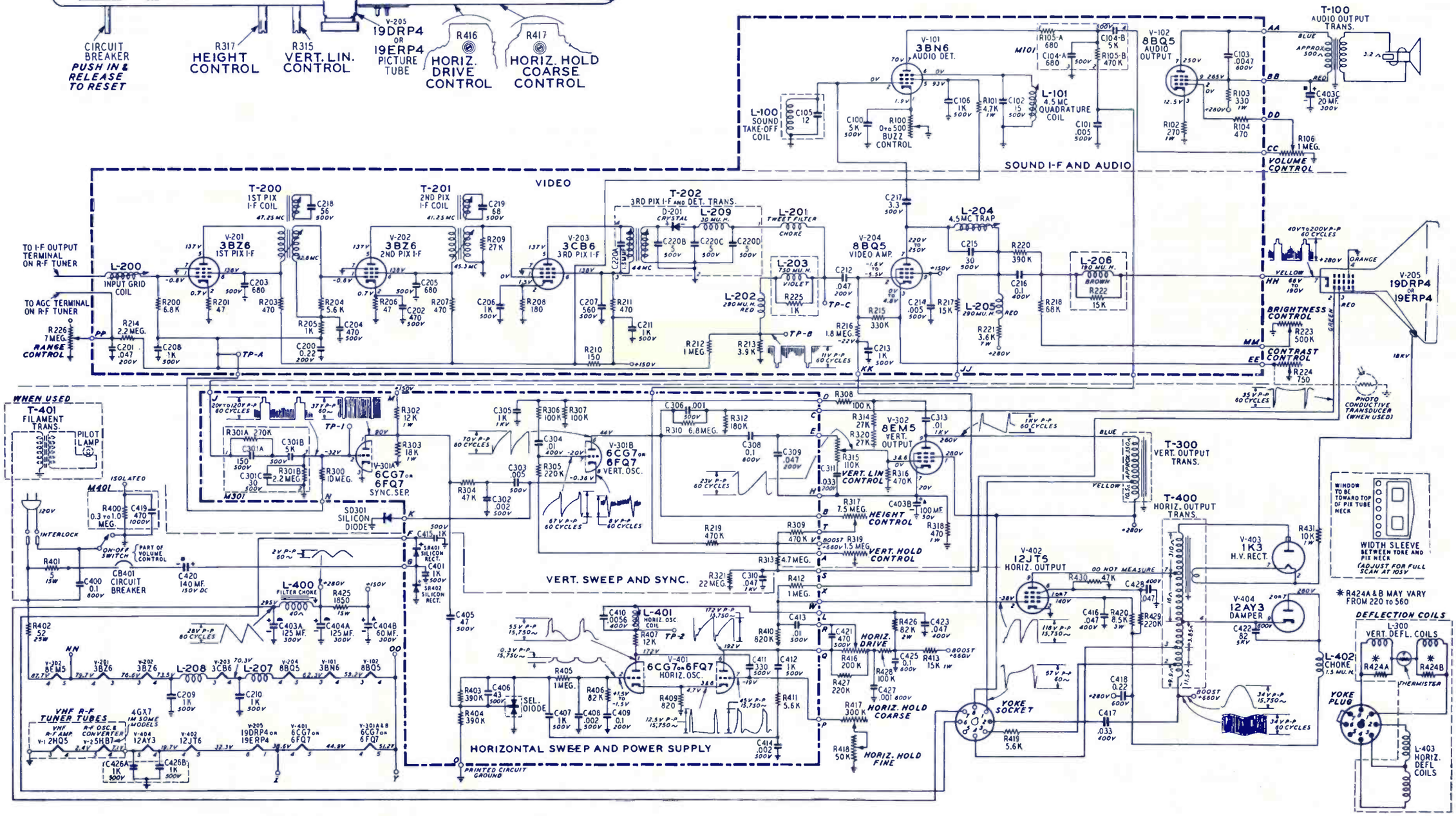


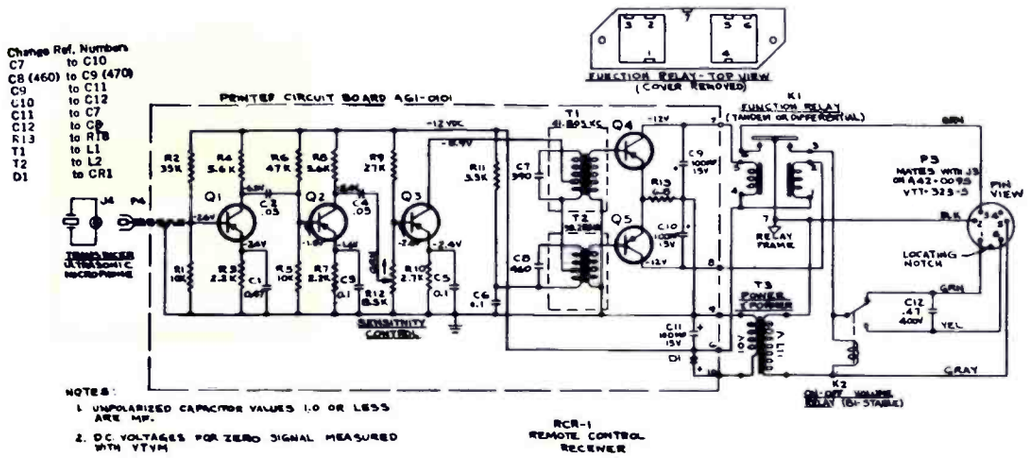
AIRLINE
TV Model
WG-2785A



DC SOCKET VOLTAGES

All DC socket voltages shown on the schematic are measured with a high impedance VTVM and under zero signal conditions.





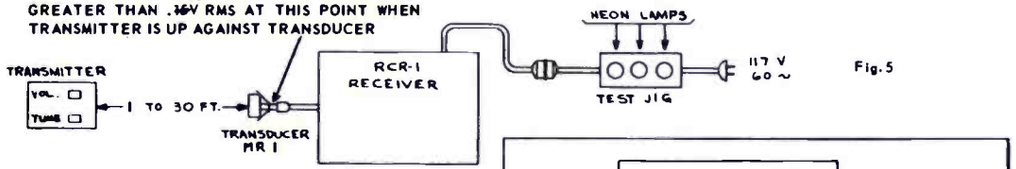
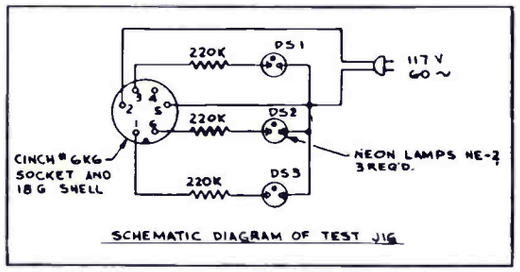


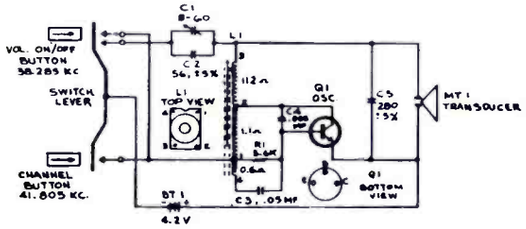
Fig. 5

The remote control receiver may be tested without the television chassis by connecting it as shown in Fig. 5. A test jig Fig. 5 should be made up and connected to the remote control receiver. With the test jig plugged into 117V 60 cycles adjust the sensitivity control on the remote control receiver to maximum sensitivity (clockwise). With the Transducer MR-1 connected to the remote control receiver place the transmitter a short distance in front of it. Pressing the VOLUME button on the transmitter should cause either neon lamp DS-2 or DS-3 to light up. Pressing the same button a second time should reverse the light up of DS-2 or DS-3. That is, if DS-2 lit up on the first pressing of the volume button, the second pressing of the same button should light up DS-3. Pressing the TUNE button should cause the neon lamp DS-1 to light. Failure of any neon lamp to light up is an indication that the system requires trouble shooting.



SCHEMATIC DIAGRAM OF TEST JIG

At distances of less than 12 inches the Remote Control System may not operate due to the High Sensitivity of the Receiver. This is a normal condition.



SCHEMATIC DIAGRAM OF TRANSMITTER ASSEMBLY

REPLACING BATTERY IN THE TRANSMITTER

Should the system lose sensitivity after a year's use it is advisable to test the battery in the transmitter.

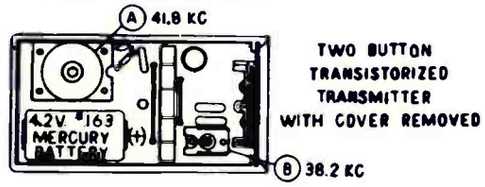
The transmitter contains a 4.2 volt Mercury battery. (Mallory TR 163H or equivalent)

Replace only with similar type.

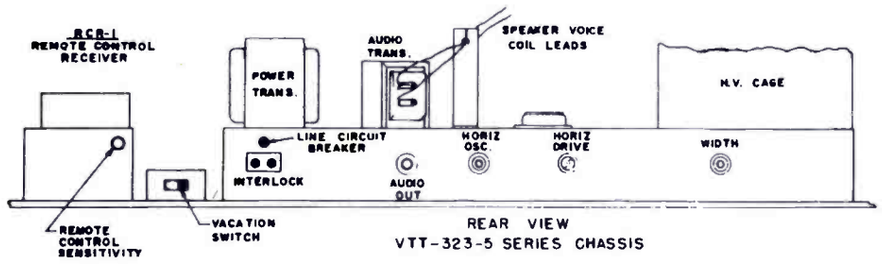
Observe Polarity when replacing the battery.

Be sure to insert the new battery in the same position as the one removed. Failure to do so may cause damage to the unit.

To replace the battery first remove the screw on the bottom cover and lift the cover off the unit.



TWO BUTTON TRANSISTORIZED TRANSMITTER WITH COVER REMOVED



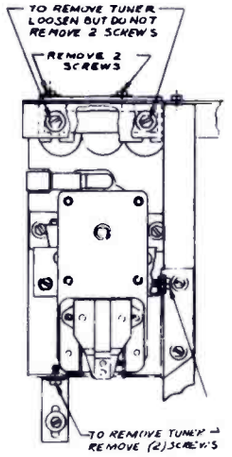
REAR VIEW
VTT-323-5 SERIES CHASSIS

TO REMOVE CHASSIS FROM MOUNTING BOARD FIRST REMOVE TUNER AS FOLLOWS:

(1) Remove knobs.
(2) Disconnect leads from antenna terminal board.
(3) Loosen or remove screws as shown in Fig. 1.
(4) Lift Tuner upward and away from mounting board.
(5) Disconnect yoke plug from socket.
(6) Disconnect socket from tube base.
(7) Remove high voltage clip from picture tube.
(8) Disconnect speaker wires at audio output transformer.
(9) Remove five (5) chassis bolts from underside of mounting board and remove chassis.

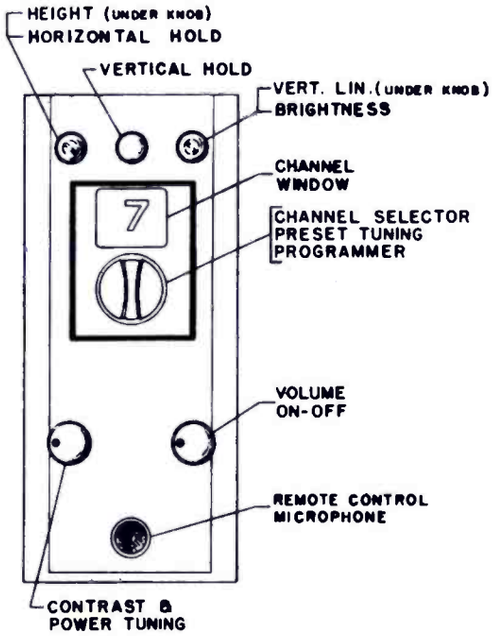
NOTE: It is important that the speaker wires and yellow picture tube wire be placed in the supporting bracket when the chassis is remounted on the mounting board.

It is also important to dress the deflection coil wires away from the tubes. This can easily be done by giving the deflection coil cable one full twist in a counter-clockwise direction.



REAR VIEW

Fig. 1



FRONT PANEL CONTROLS

ANDREA
TV Chassis
VTT-323-5

ELECTRONIC TECHNICIAN TEKFAX

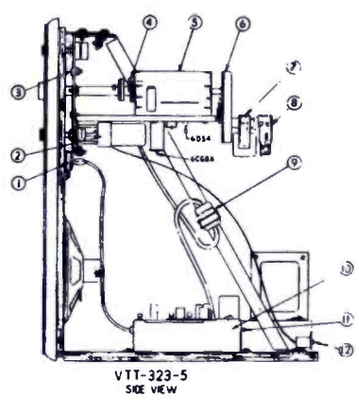
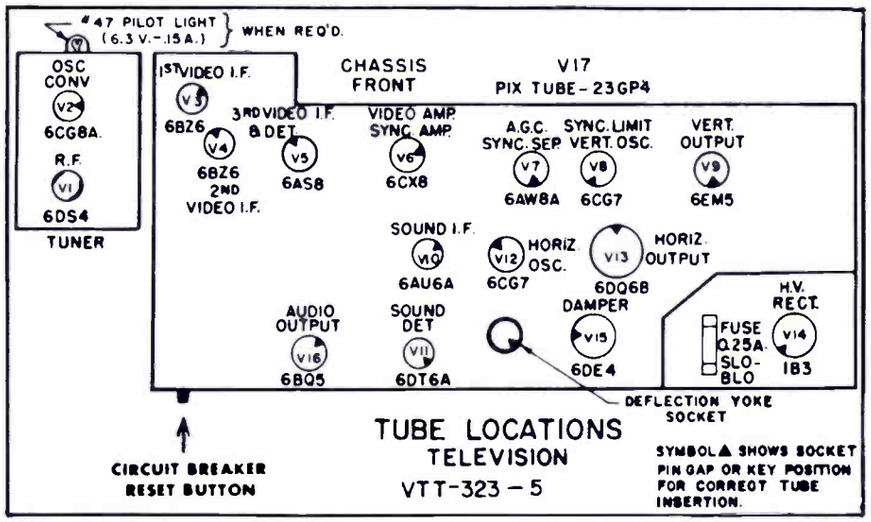
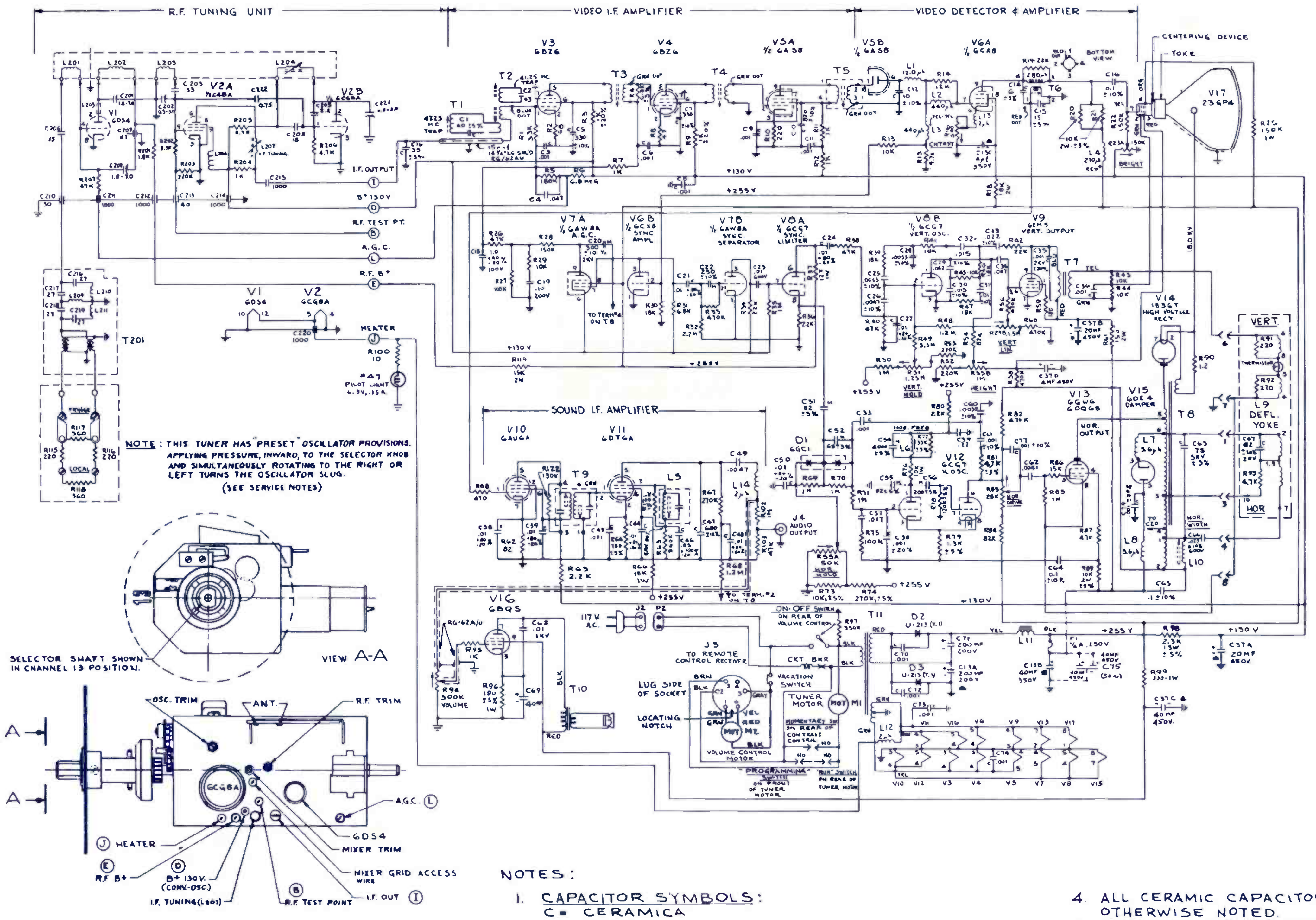


Fig. 2

(1) Transducer MR-1
(2) Motorized vol. control & sw.
(3) #47 pilot lamp
(4) Programming switch
(5) Tuner
(6, 7, 8) Gear motor
(9) Remote control connecting plug & socket
(10) Remote control amplifier
(11) R.C. amplifier sensitivity control
(12) Vacation switch



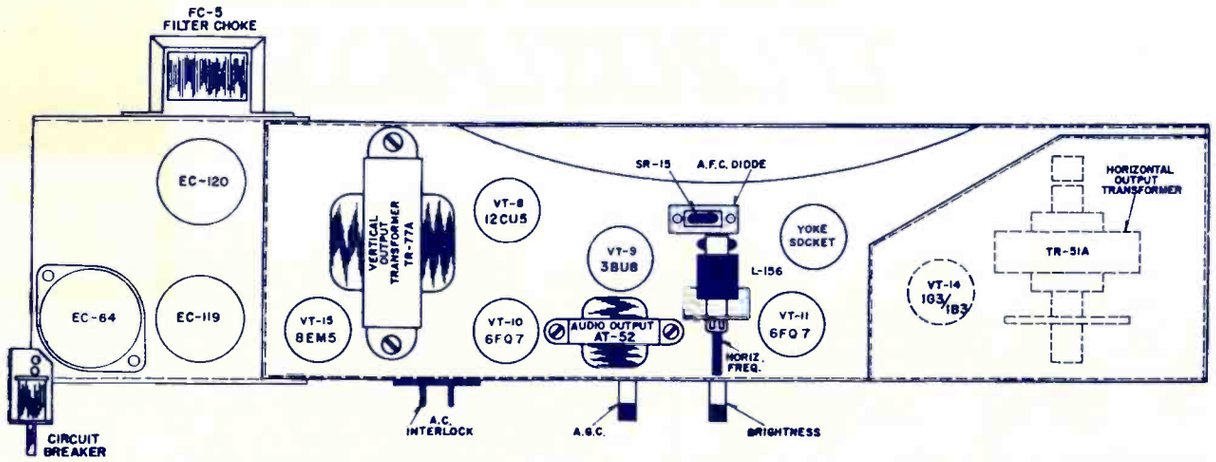
ANDREA
TV Chassis
VTT-323-5



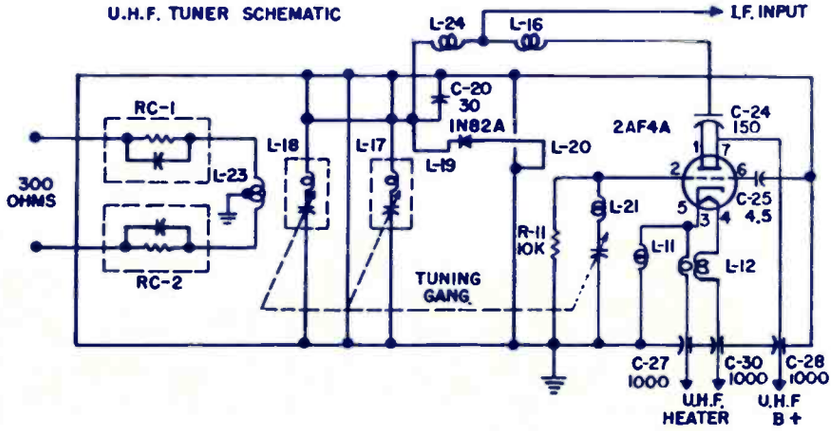
TUNER-TERMINAL LOCATIONS

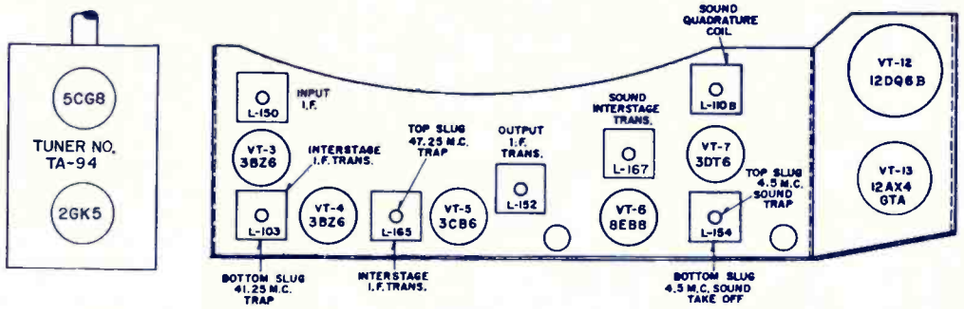
NOTES:

1. CAPACITOR SYMBOLS:
   C - CERAMICA
   M - MICA
2. UNPOLARIZED CAPACITOR VALUES LARGER THAN (1.0) ARE MMF., (1.0) OR LESS ARE MF.
3. ARROWS ON CONTROLS INDICATE C.W. ROTATION.
4. ALL CERAMIC CAPACITORS ARE GMV UNLESS OTHERWISE NOTED.
5. UNMARKED AND NON-POLARIZED CAPACITORS ARE PAPER, ± 20 %, 400 V, EXCEPT AS NOTED.
6. RESISTORS ARE 1/2 W, ± 10 %, EXCEPT AS NOTED.



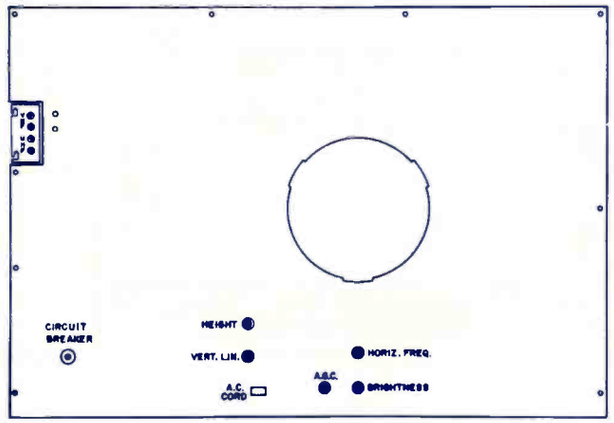
TA-64
U.H.F. TUNER SCHEMATIC

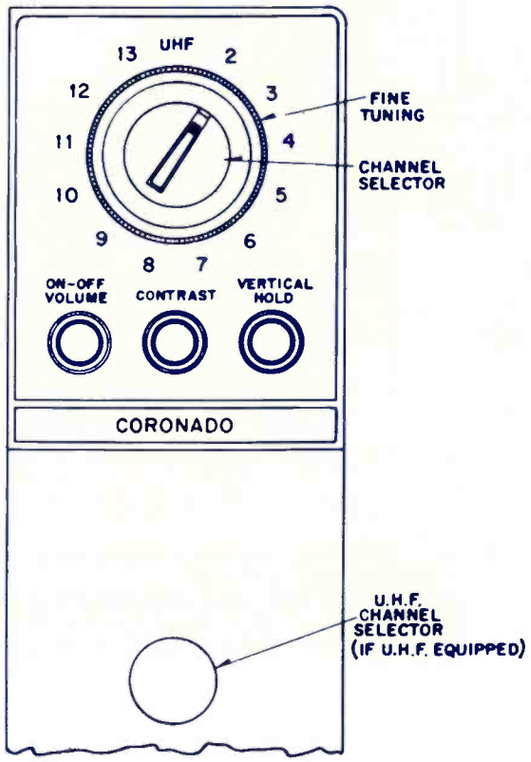


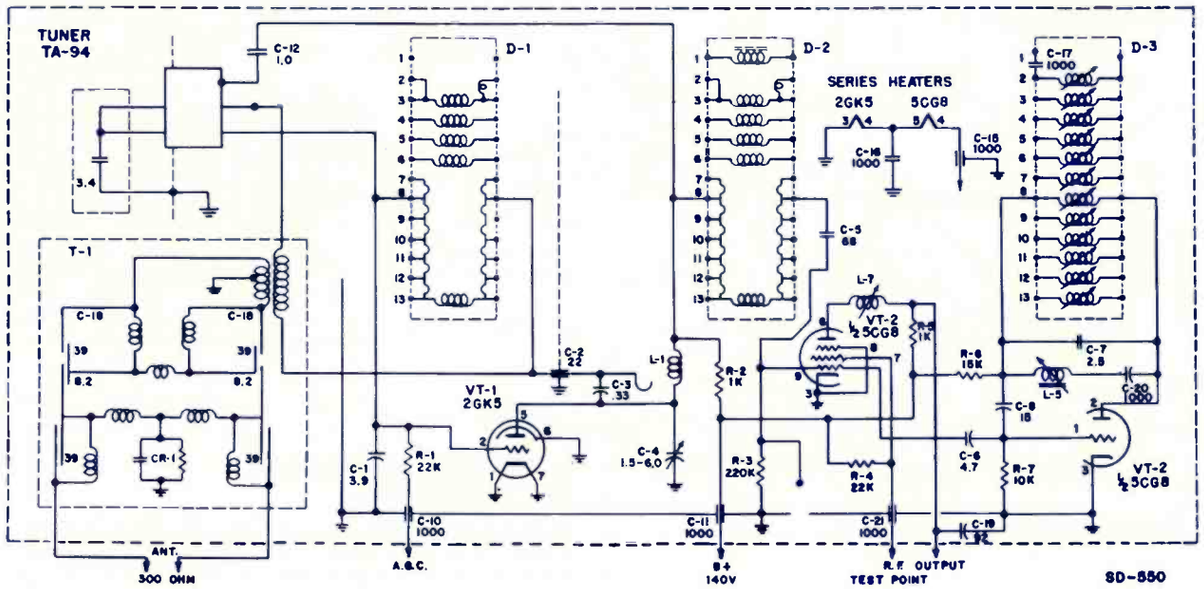


Coronado
Chassis 1197-153
Model TV 17-9386A

ELECTRONIC TECHNICIAN
TEKFAX







Coronado
Chassis 1197-153
Model TV17-9386A

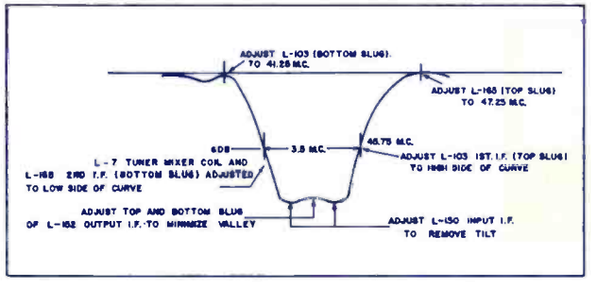


Figure 6 Video I.F. Phased Pattern

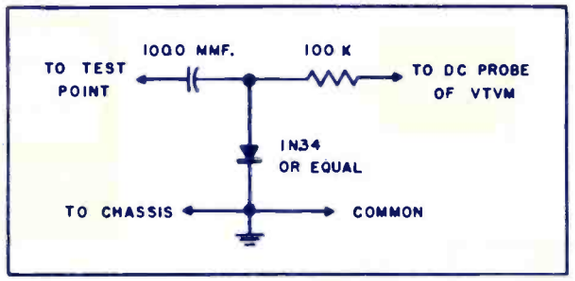
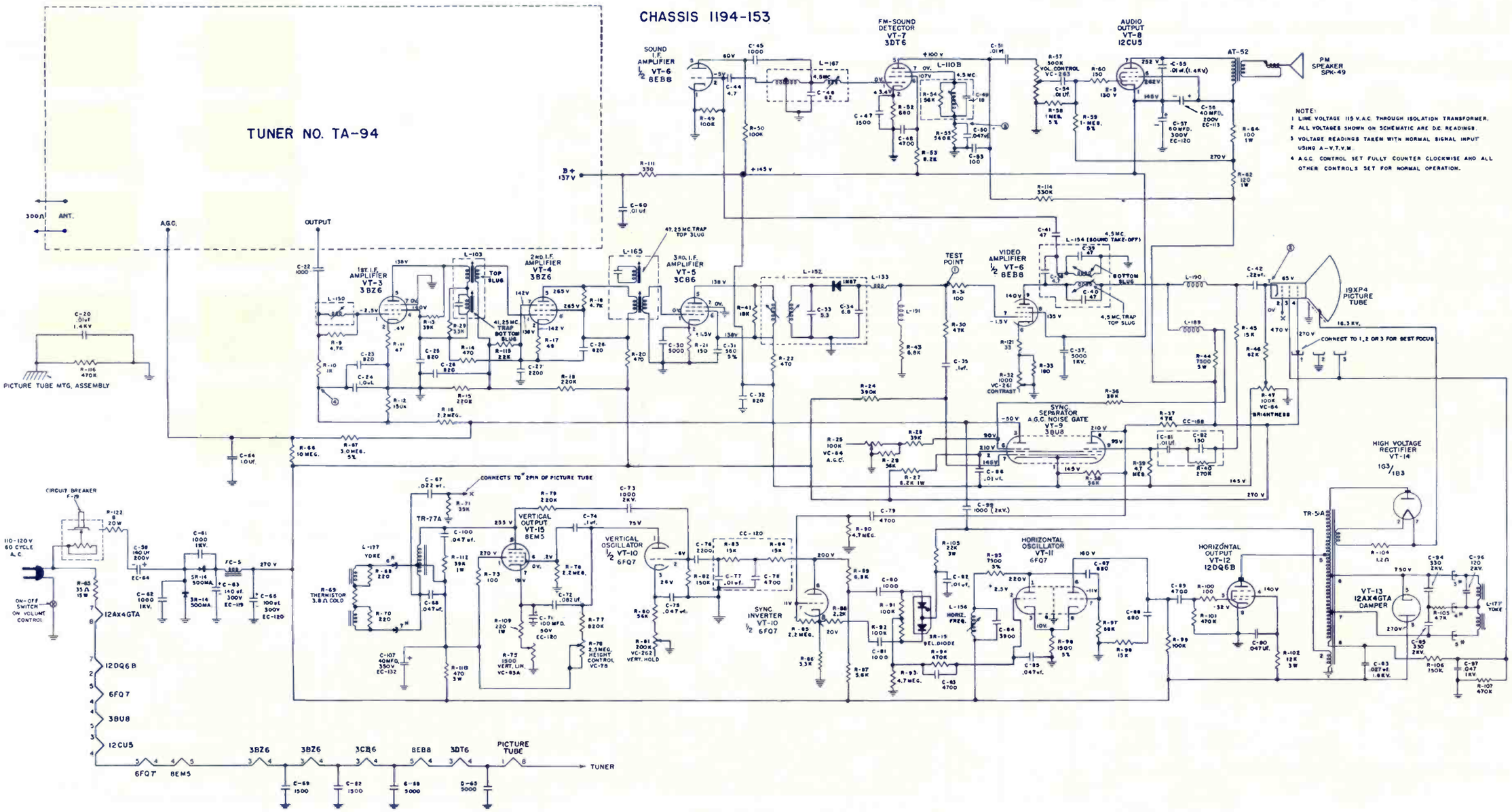


Figure 5 Diode Detector Detail



BALLOONS ①②, ETC., SHOWN ON SCHEMATIC INDICATE POINTS OF OBSERVATION OF THE WAVEFORMS.

USE LOW-CAPACITY PROBE WHEN OBSERVING WAVEFORMS

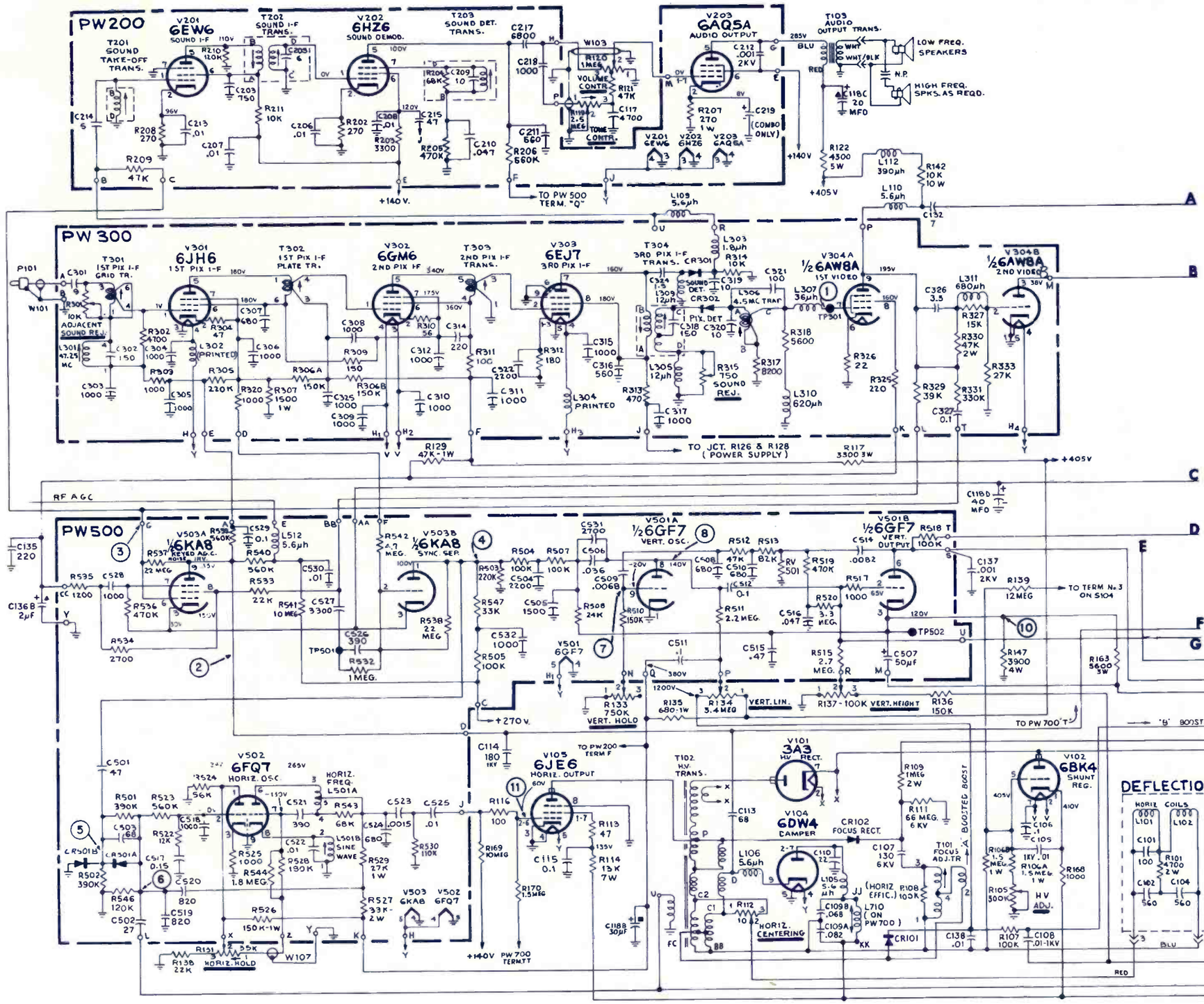
①

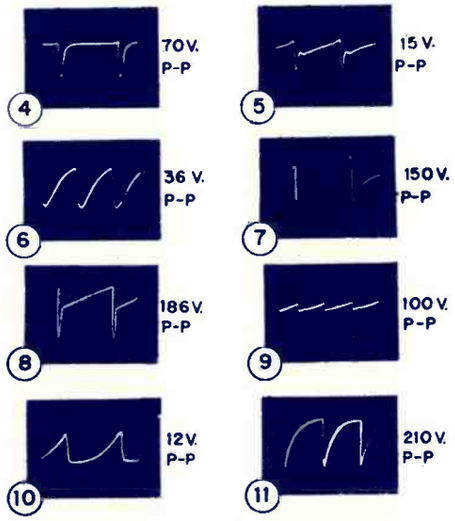
②

③

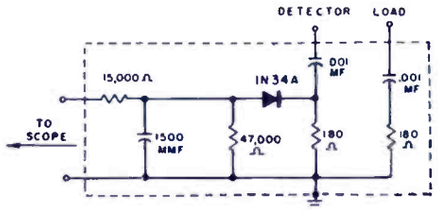
DUMONT
Color TV Chassis
120699 and 120722

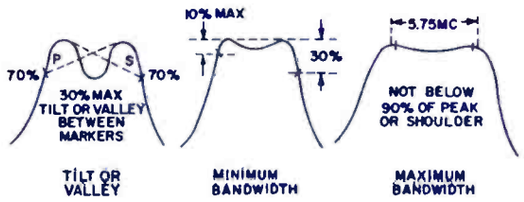
ELECTRONIC TECHNICIAN
TEKFAX

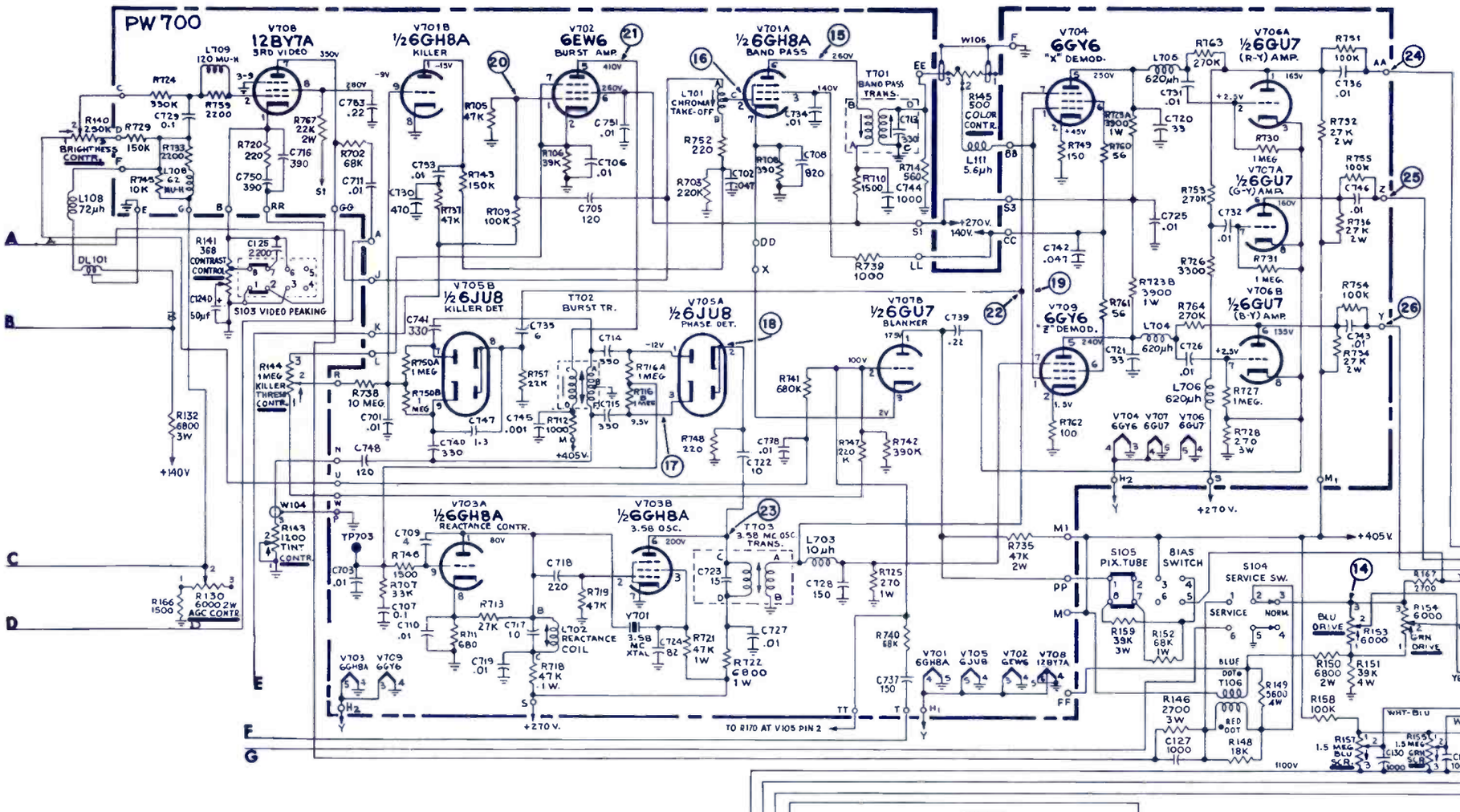


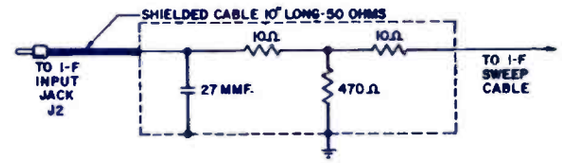


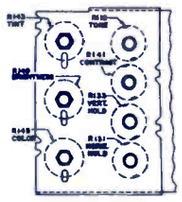
DUMONT
Color TV Chassis
120699 and
120722

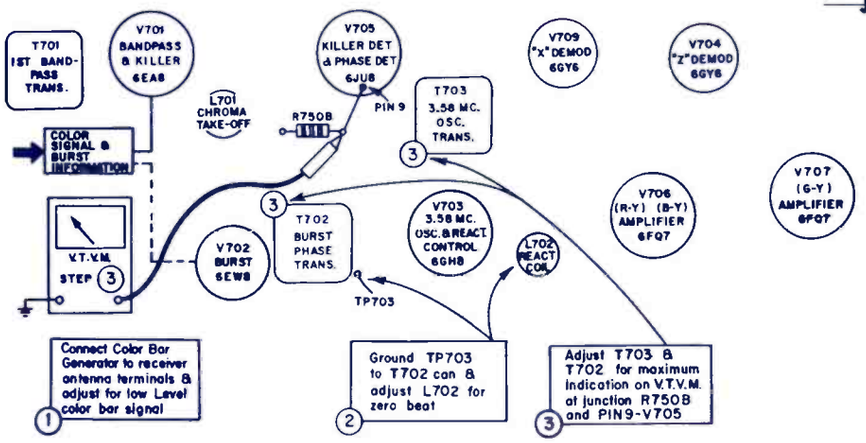


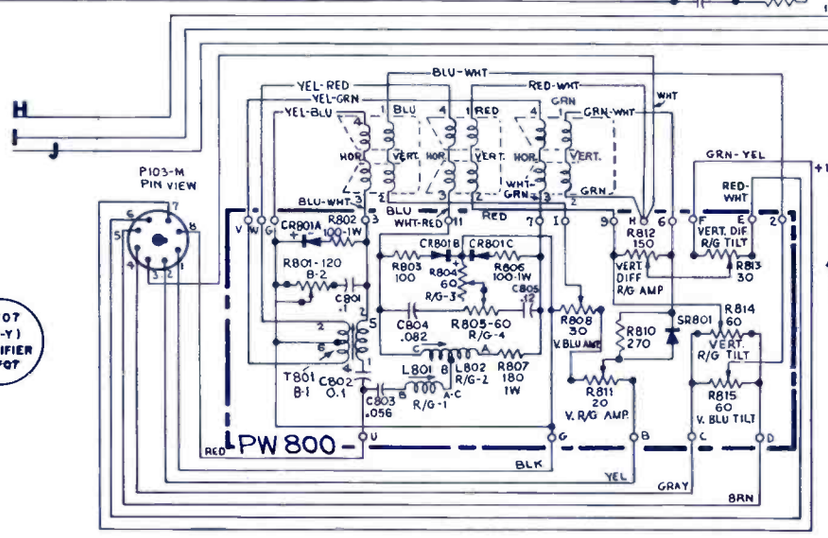


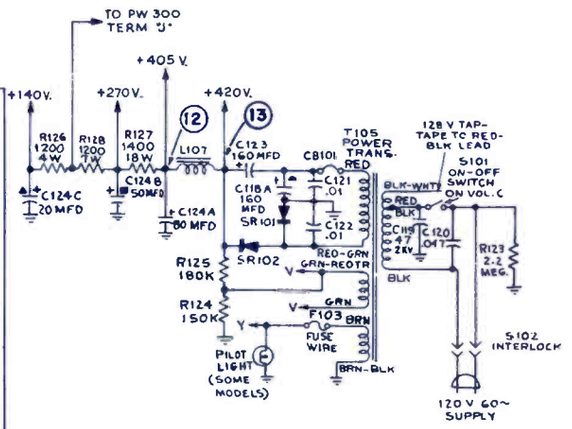










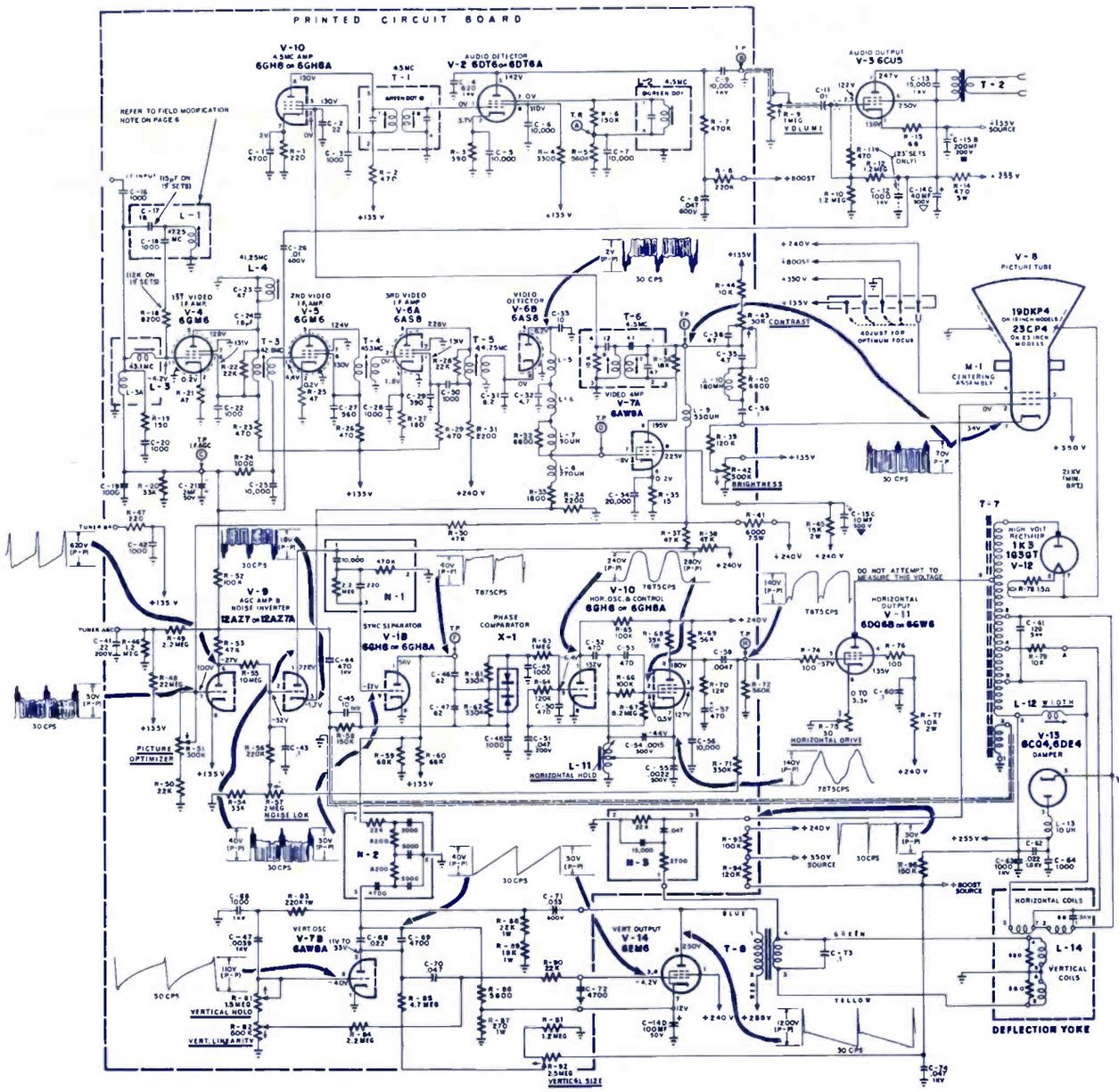


ELECTRONIC TECHNICIAN

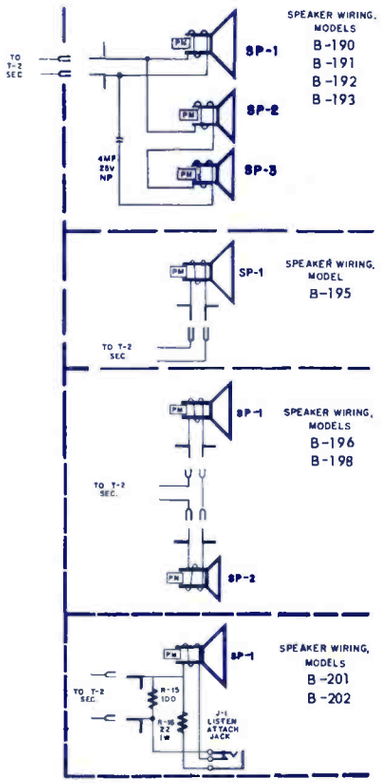
TEKFAX

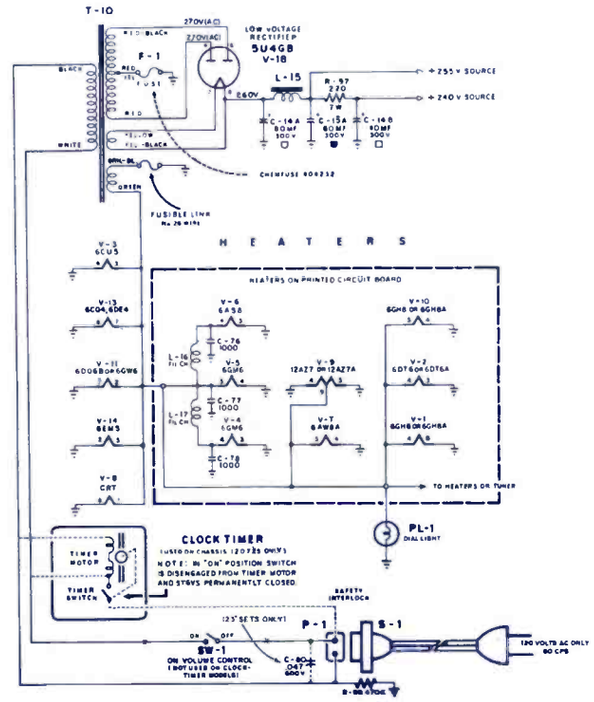
DUMONT
TV Chassis
120708, 712, 725

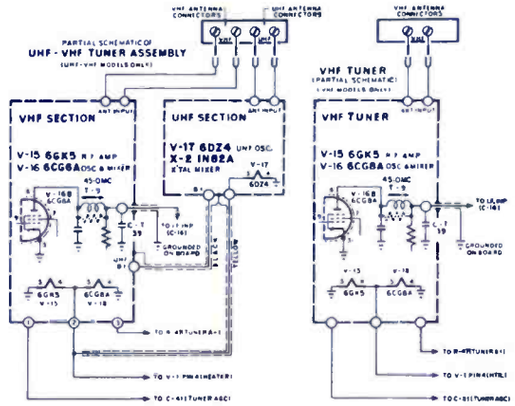
= CERAMIC OR MICA CAPACITORS, CAPACITY IN PICOFARADS (pF)
= TUBULAR CAPACITORS, CAPACITY IN MICROFARADS (MF)
RESISTORS IN OHMS (K = 1000) AND ½ WATT UNLESS OTHERWISE SPECIFIED
ALL CERAMICS AND MICAS 500V, ALL TUBULARS 400 V UNLESS NOTED
T INDICATES TOP CORE B INDICATES BOTTOM CORE IN DOUBLE TUNED TRANSFORMERS
ARROWS AT CONTROLS INDICATE CLOCKWISE ROTATION



CHASSIS No. 120708, 712, 725.



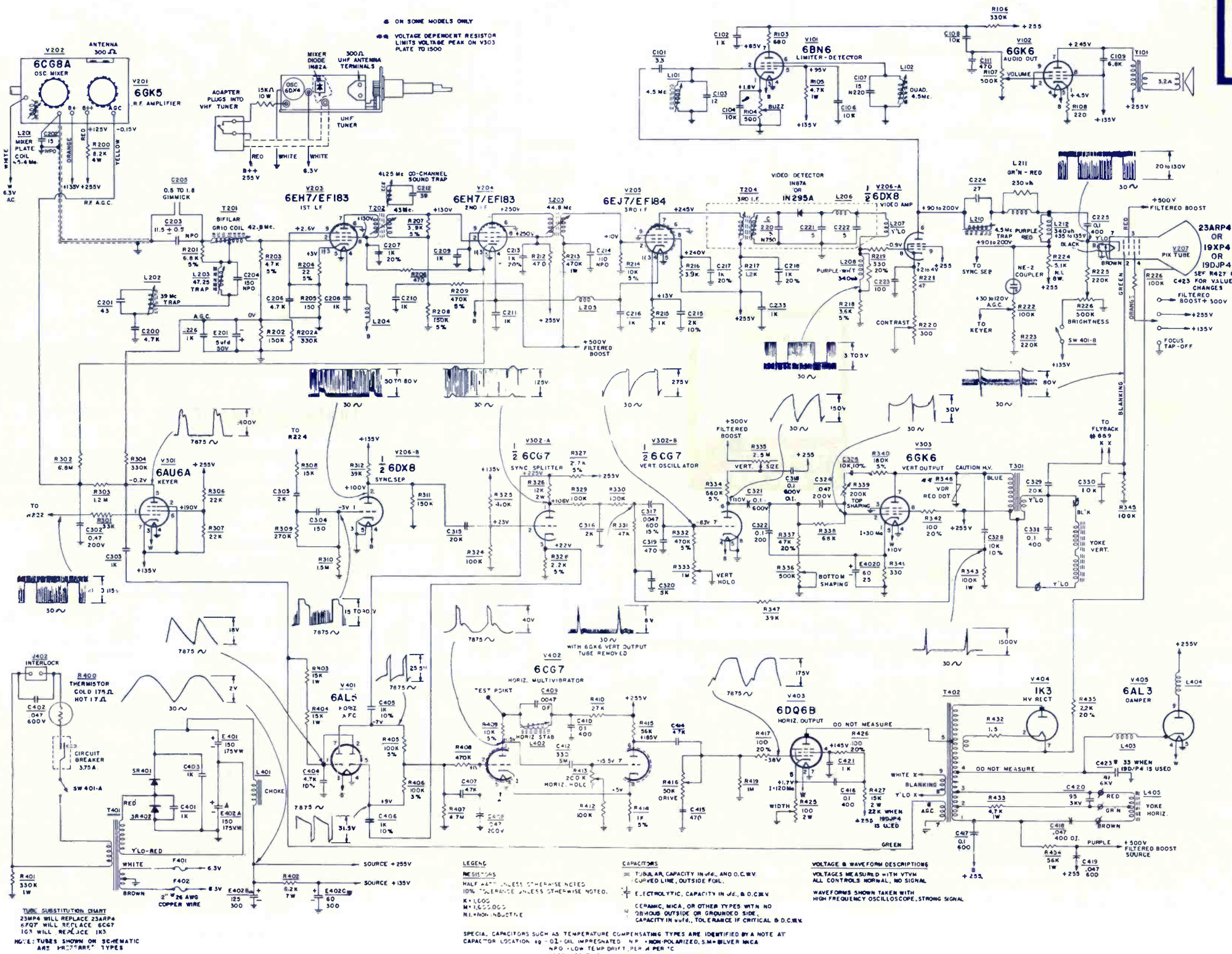




NOTES:
1—PROPER PHASING OF MULTIPLE SPEAKERS MUST BE OBSERVED.

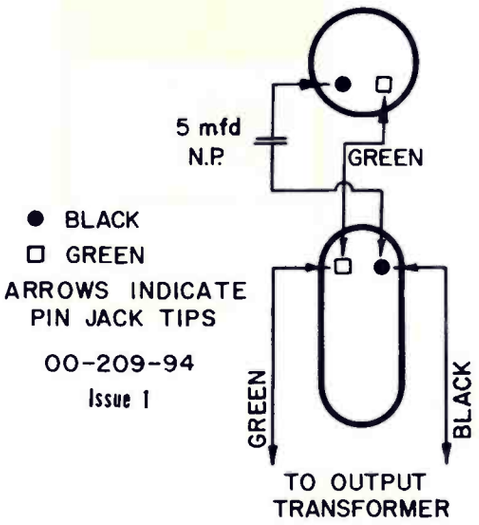
2—PART NUMBERS FOR SPEAKERS, LISTENING ATTACHMENT JACKS AND ASSOCIATED ITEMS ARE CONTAINED IN THE CABINET PARTS LISTS.

ELECTRO-HOME
Chasiss SAFARI U

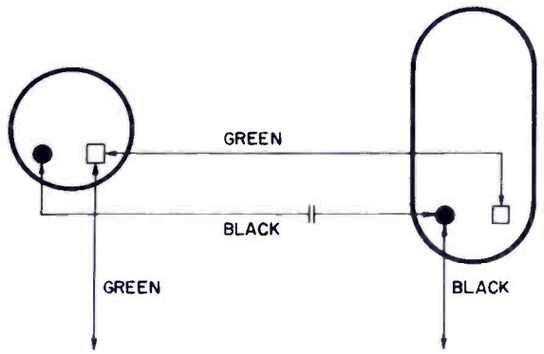


SPEAKER CONNECTIONS

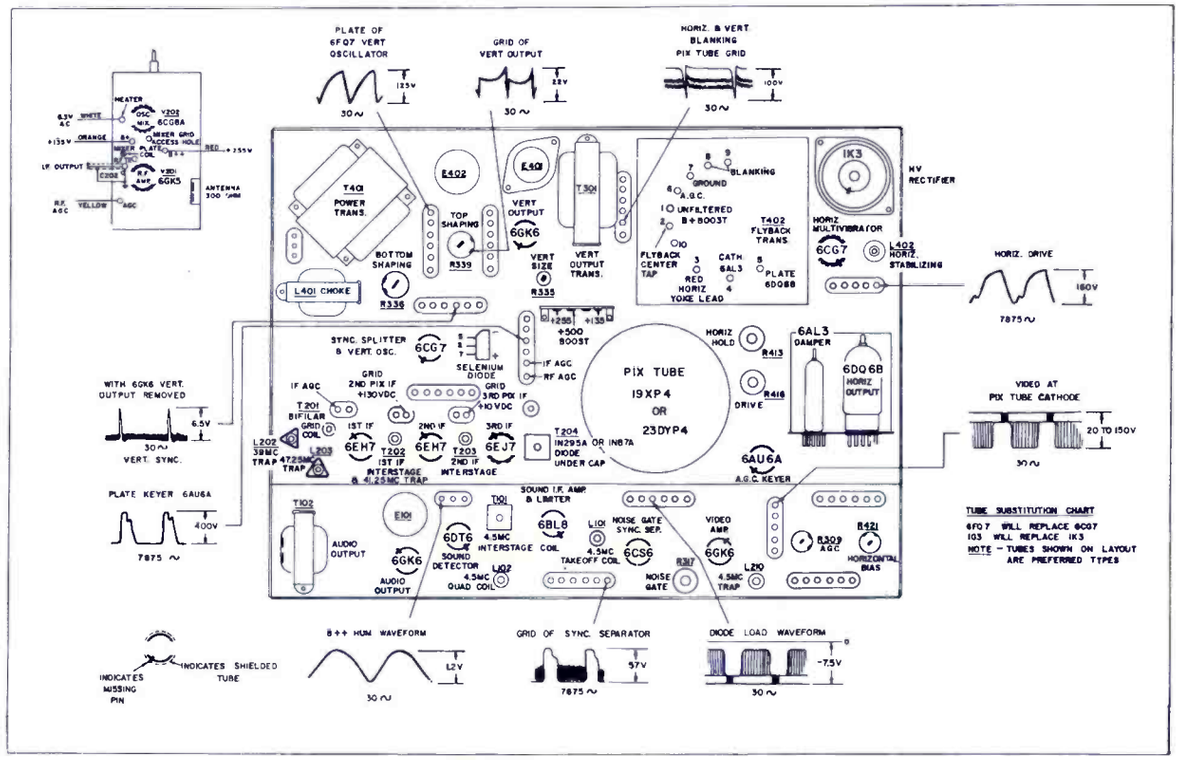
CHANCELLOR TV



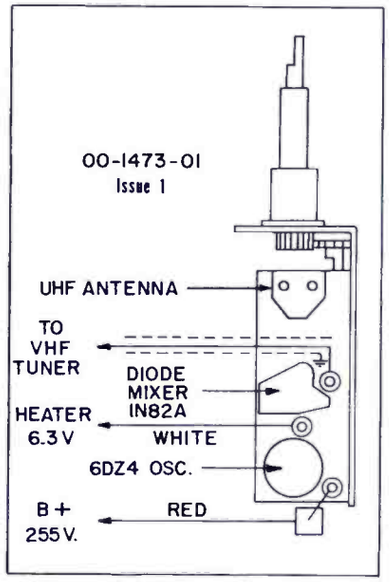
VERMONT MK II BEACOURT MK II



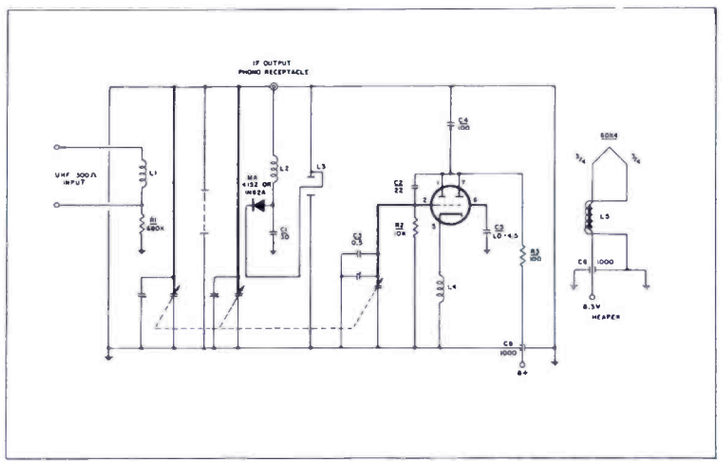
TOP CHASSIS VIEW



UHF TUNER LAYOUT



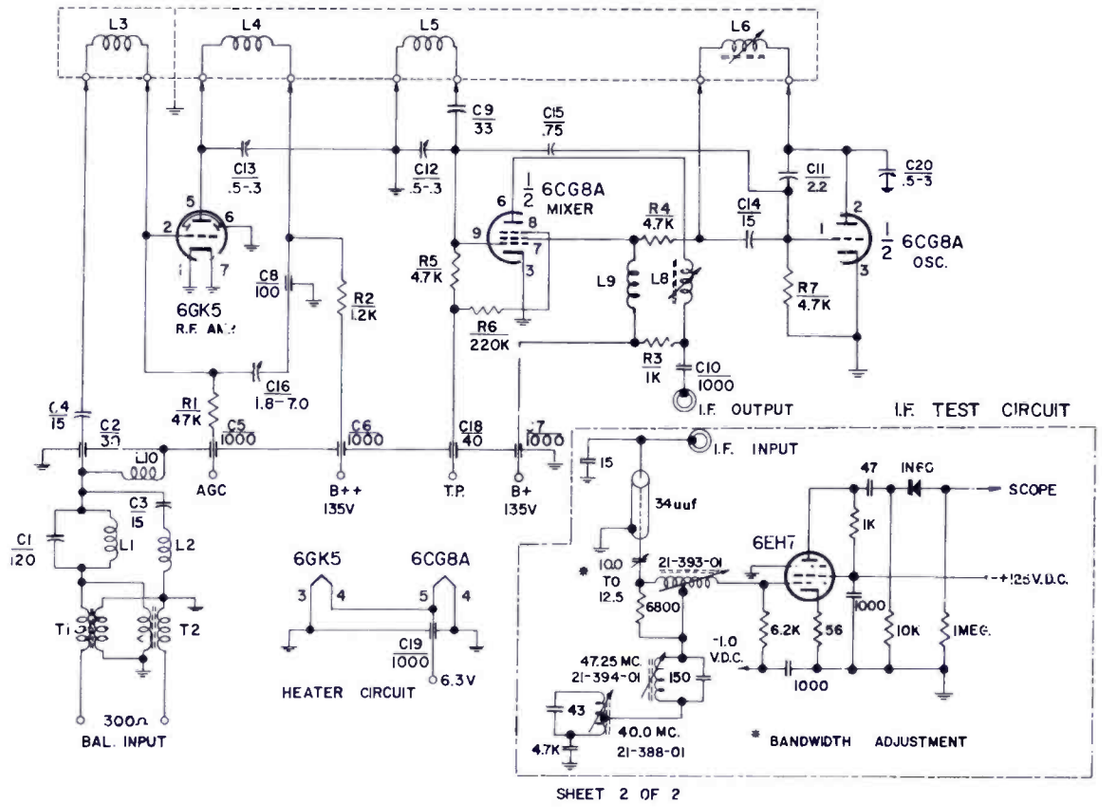
UHF TUNER SCHEMATIC



ELECTROHOME
TV Chassis
Models Chancellor TV, TVU, TVCU, Vermont MKII, MKIIU, MKCU, Beaucourt MKII, MKIIU, MKIICU.

ELECTRONIC TECHNICIAN
TEKFAX

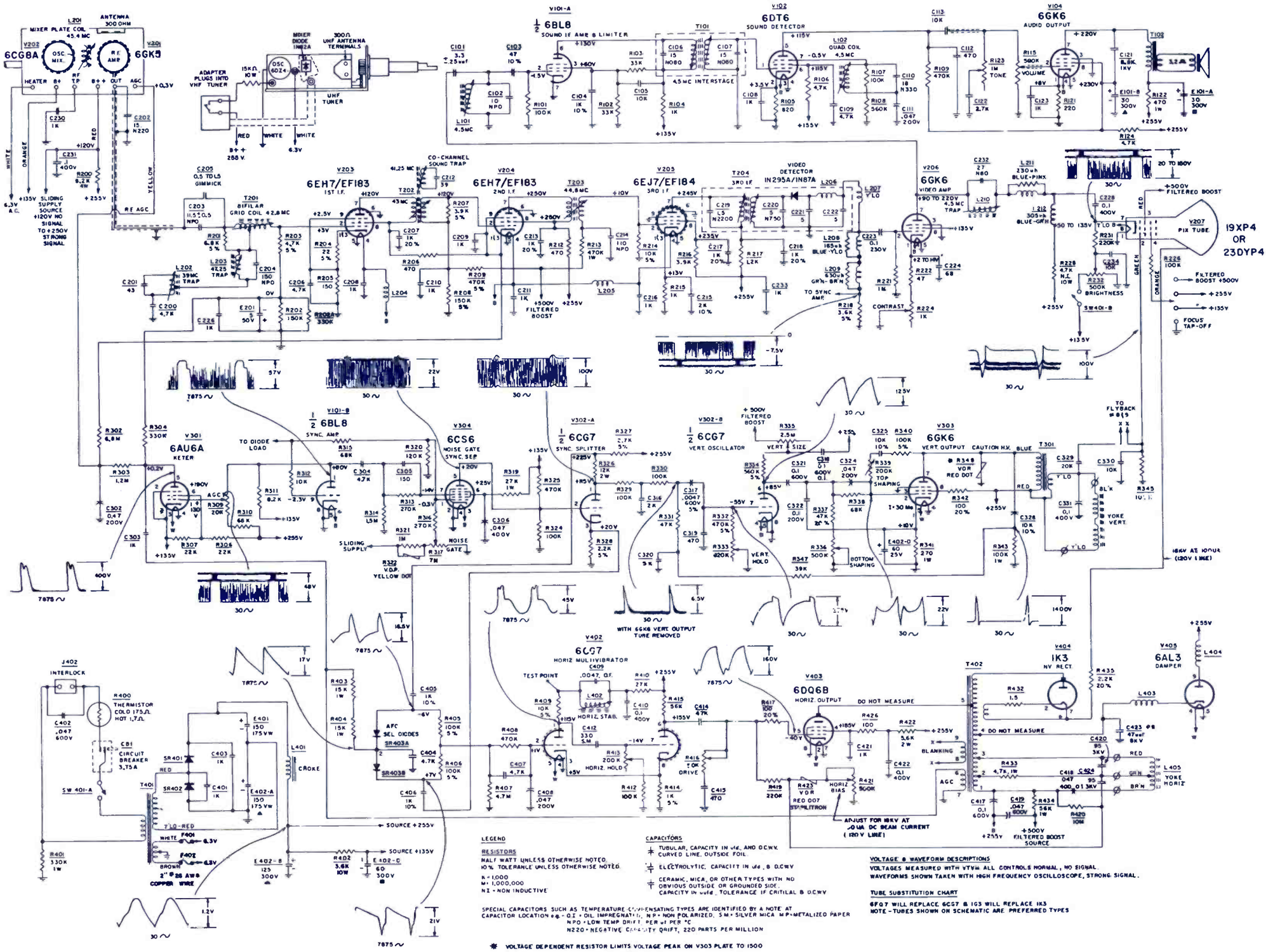
TUNER SCHEMATIC



SHEET 2 OF 2

ELECTRO-HOME

TV Chassis
Models Chancellor TV, TV U, TV CU, Vermont MKII, MKIIU, MKCU, Beaucourt MKII, MKIIU, MKIICU.



LEGEND

RESISTORS
HALF WATT UNLESS NOTED.
10% TOLERANCE UNLESS OTHERWISE NOTED.
K = 1,000
M = 1,000,000
NI = NON INDUCTIVE

CAPACITORS
TUBULAR, CAPACITY IN mfd. AND D.C.W.V. CURVED LINE, OUTSIDE FOIL.
ELECTROLYTIC, CAPACITY IN mfd., & D.C.W.V.
CERAMIC, MICA, OR OTHER TYPES WITH NO OBVIOUS OUTSIDE OR GROUNDED SIDE. CAPACITY IN mfd., TOLERANCE IF CRITICAL & D.C.W.V.

SPECIAL CAPACITORS SUCH AS TEMPERATURE COMPENSATING TYPES ARE IDENTIFIED BY A NOTE AT CAPACITOR LOCATION e.g. - O.I = OIL IMPREGNATED, N.P. = NON POLARIZED, S.M. = SILVER MICA M.P. = METALIZED PAPER
NPO = LOW TEMP. DRIFT. PER mf PER °C
N220 = NEGATIVE CAPACITY DRIFT, 220 PARTS PER MILLION

* VOLTAGE DEPENDENT RESISTOR LIMITS VOLTAGE PEAK ON V303 PLATE TO 1500

ø ø ON SOME MODELS ONLY

VOLTAGE & WAVEFORM DESCRIPTIONS
VOLTAGES MEASURED WITH VTVM. ALL CONTROLS NORMAL, NO SIGNAL.
WAVEFORMS SHOWN TAKEN WITH HIGH FREQUENCY OSCILLOSCOPE, STRONG SIGNAL.

TUBE SUBSTITUTION CHART

6FQ7	WILL REPLACE 6CG7 & 1G3 WILL REPLACE 1K3

NOTE - TUBES SHOWN ON SCHEMATIC ARE PREFERRED TYPES

ELECTRONIC TECHNICIAN

TEKFAX

ELECTRO-HOME
TV Chassis
Orlando,
Orlando U,
Orlando CU

LEGEND

RESISTORS
HALF WATT UNLESS OTHERWISE NOTED
10% TOLERANCE UNLESS OTHERWISE NOTED.
K = 1,000
M = 1,000,000
N.I. = NON INDUCTIVE

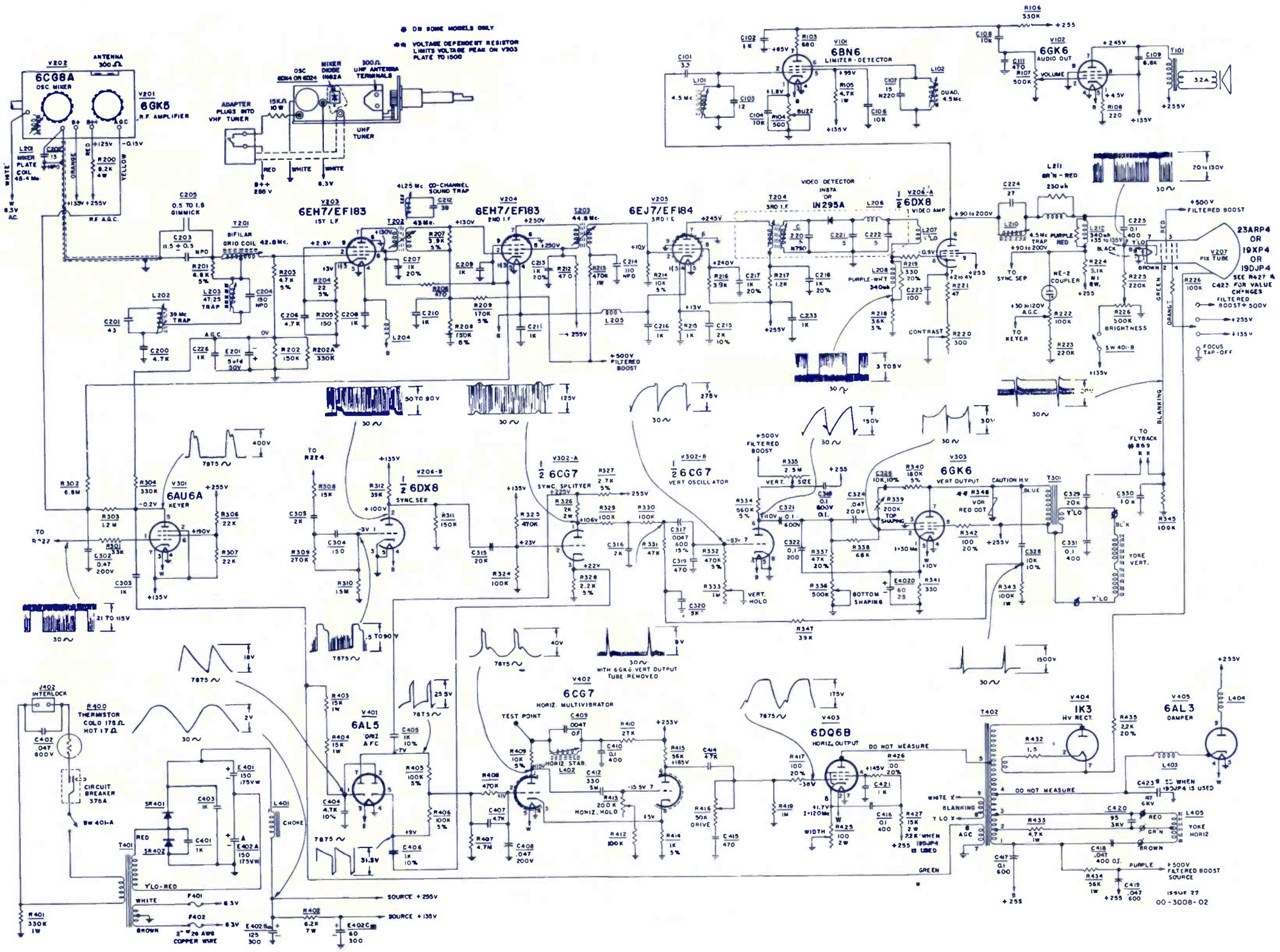
CAPACITORS
TUBULAR, CAPACITY IN ufd., AND D.C.W.V. CURVED LINE, OUTSIDE FOIL.
ELECTROLYTIC, CAPACITY IN ufd., & D.C.W.V.
CERAMIC, MICA, OR OTHER TYPES WITH NO OBVIOUS OUTSIDE OR GROUNDED SIDE. CAPACITY IN uufd., TOLERANCE IF CRITICAL & D.C.W.V.

SPECIAL CAPACITORS SUCH AS TEMPERATURE COMPENSATING TYPES ARE IDENTIFIED BY A NOTE AT CAPACITOR LOCATION. eg - OI = OIL IMPREGNATED. N.P. = NON-POLARIZED, S.M. = SILVER MICA. N.P.O. = LOW TEMP DRIFT, PER JI PER °C N220 = NEGATIVE CAPACITY DRIFT, 220 PARTS P.P.M.

VOLTAGE & WAVEFORM DESCRIPTIONS
VOLTAGES MEASURED WITH VTVM ALL CONTROLS NORMAL, NO SIGNAL.

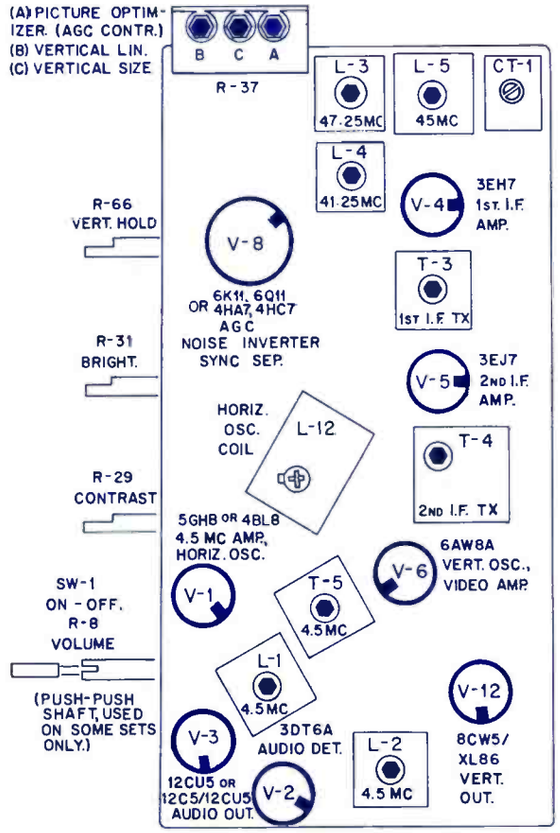
WAVEFORMS SHOWN TAKEN WITH HIGH FREQUENCY OSCILLOSCOPE, STRONG SIGNAL.

TUBE SUBSTITUTION CHART
23MP4 WILL REPLACE 23ARP4
6FQ7 WILL REPLACE 6CG7
1G3 WILL REPLACE 1K3
NOTE: TUBES/SHOWN ON SCHEMATIC ARE PREFERRED TYPES



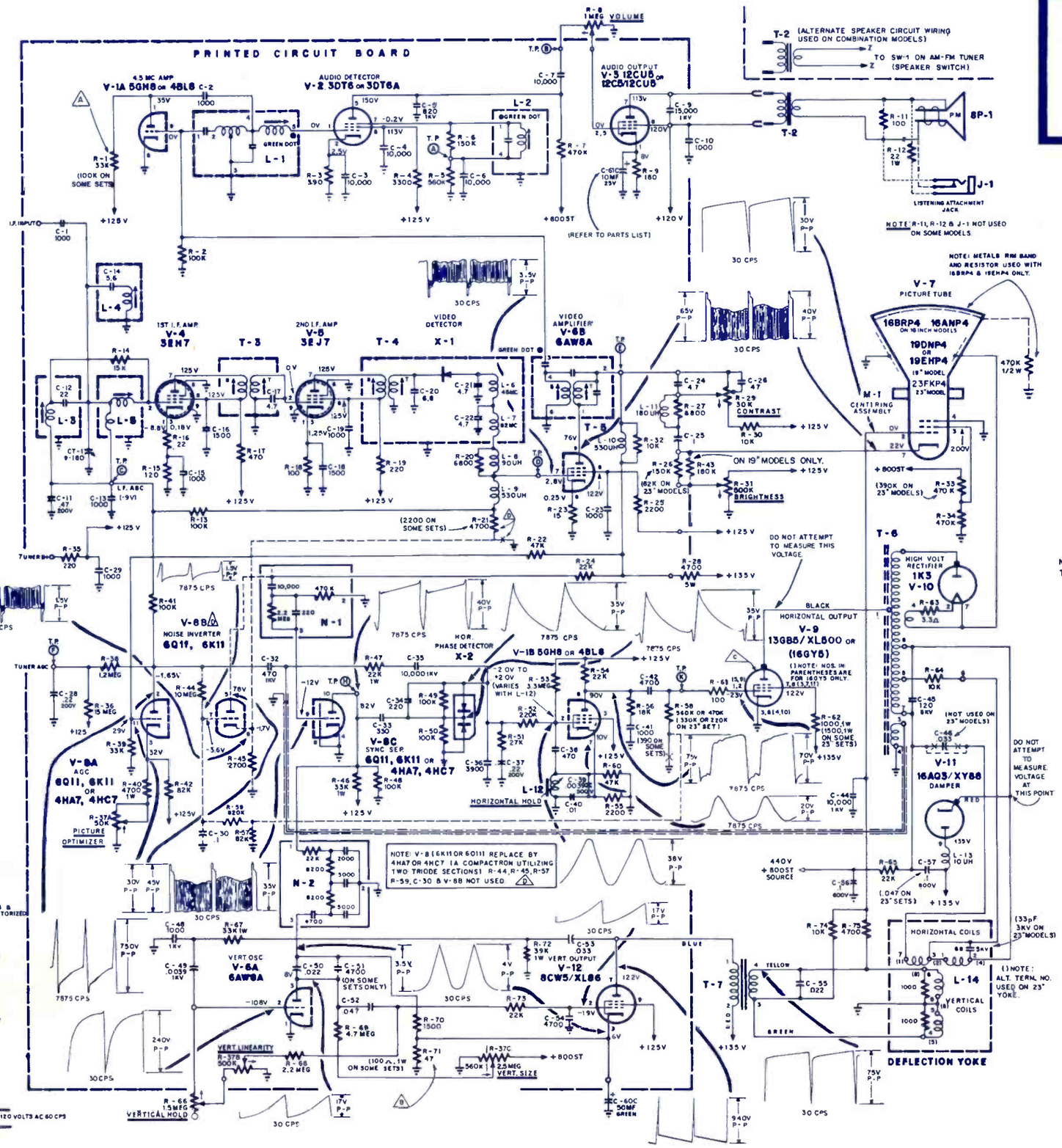
EMERSON
TV Chassis
120671, -673,
-697, -698, -702,
-740, -743, -744,
-753

(A) PICTURE OPTIMIZER. (AGC CONTR.)
(B) VERTICAL LIN.
(C) VERTICAL SIZE

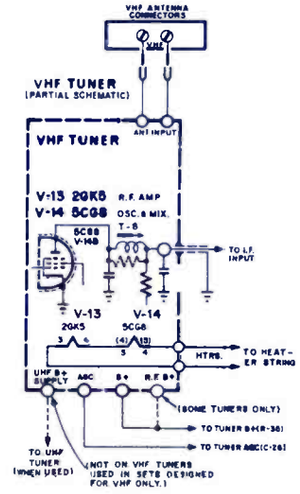


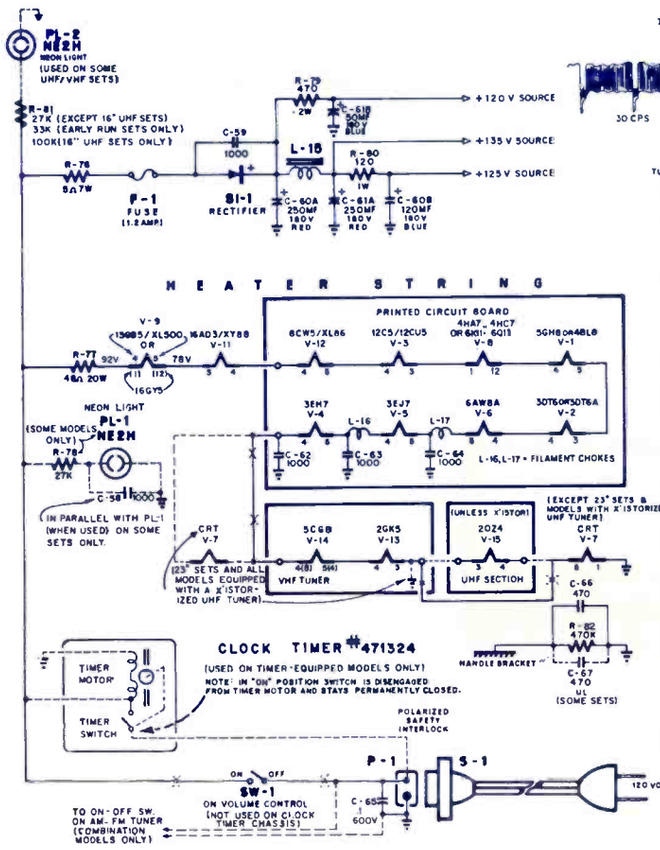
(A) PRINTED CIRCUIT CHASSIS

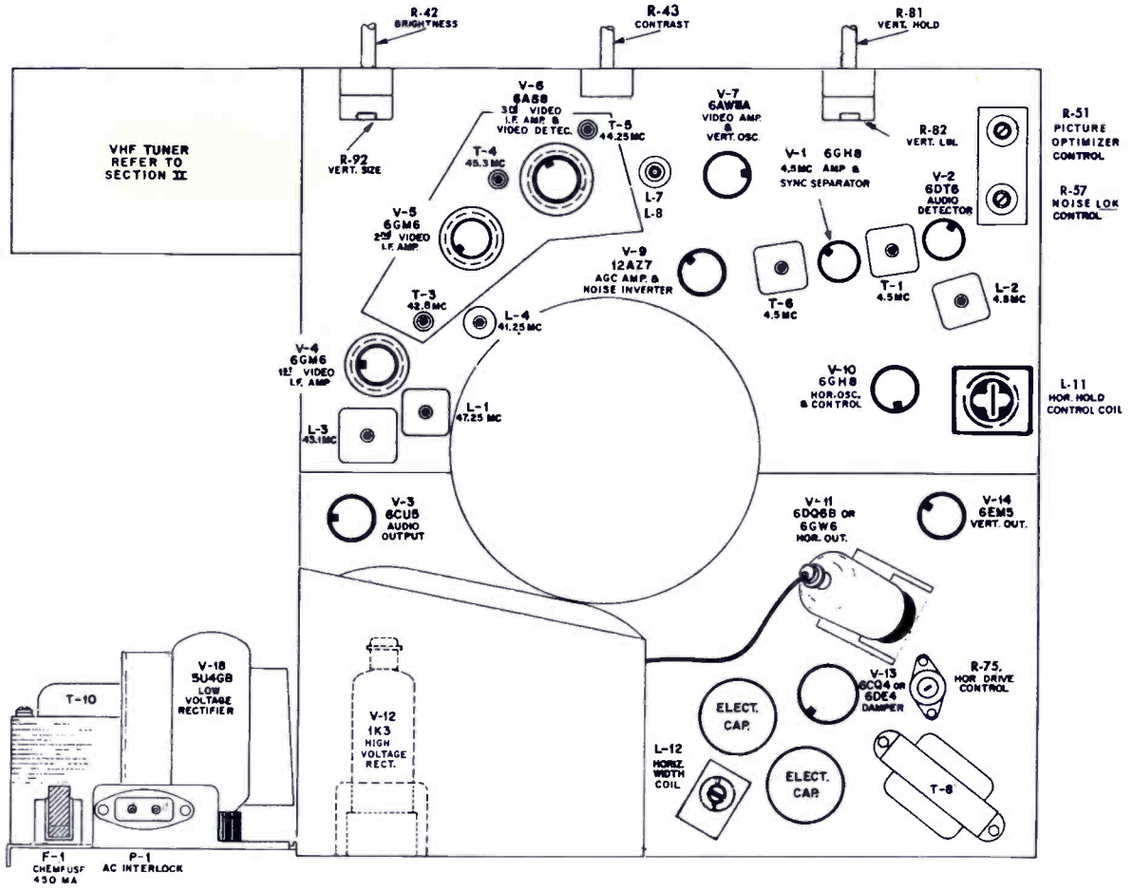
✱ CERAMIC OR MICA CAPACITORS, CAPACITY IN PICOFARADS (pF)
✱ TUBULAR CAPACITORS, CAPACITY IN MICROFARADS (MF)
RESISTORS IN OHMS (K = 1000) AND ½ WATT UNLESS OTHERWISE SPECIFIED
ALL CERAMICS AND MICAS 500V, ALL TUBULARS 400V UNLESS NOTED
T INDICATES TOP CORE B INDICATES BOTTOM CORE IN DOUBLE TUNED TRANSFORMERS
ARROWS AT CONTROLS INDICATE CLOCKWISE ROTATION
△△△△ REFER TO PRODUCTION CHANGES. FOR DETAILS, SEE PAGE 8 OF THIS SERVICE NOTE.

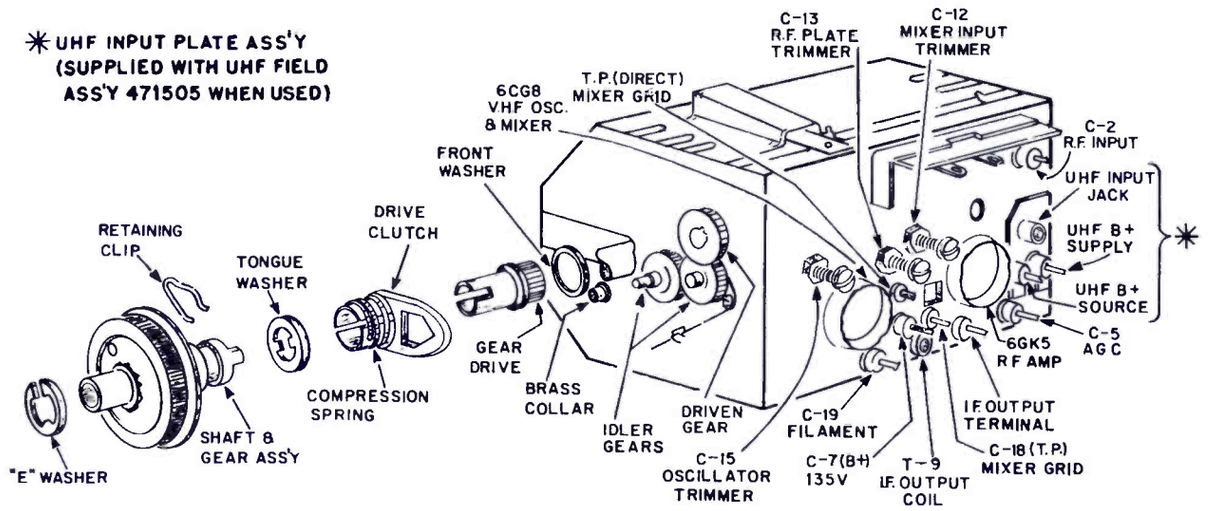


NOTE: FOR COMPLETE INFORMATION ON UHF & VHF TUNERS, REF. SECT. II, III (PAGE 9-17)









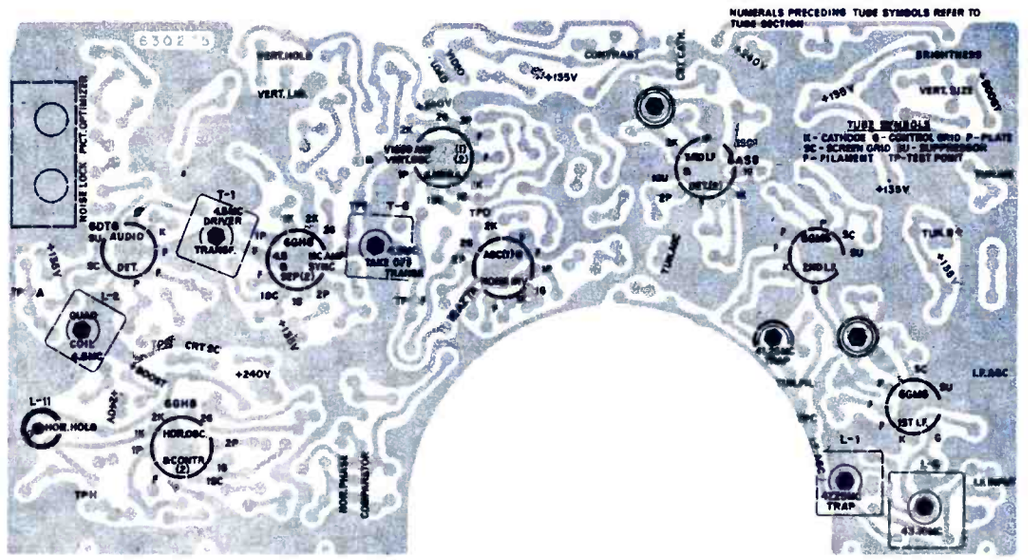
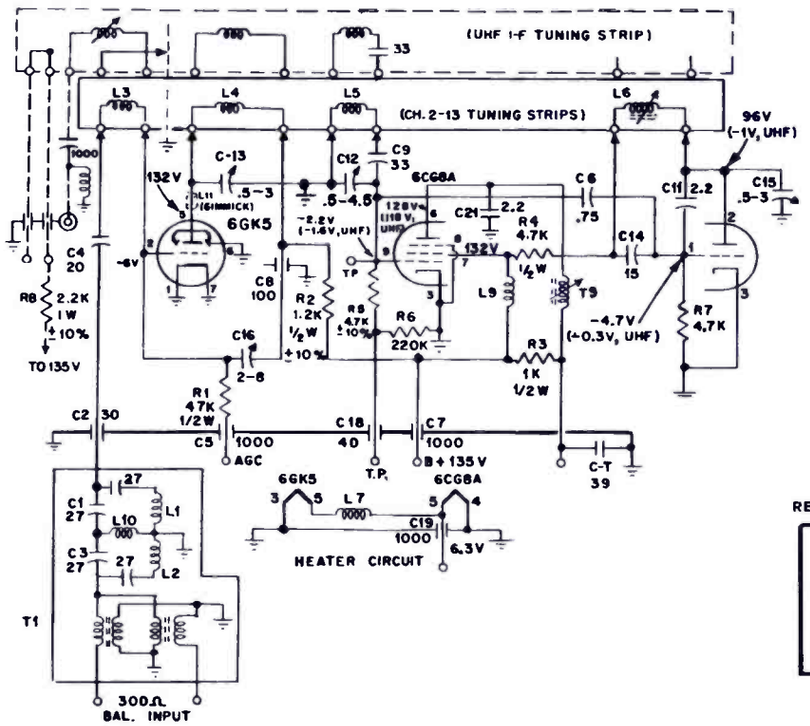


FIG. 3 – ETCHED PRINTED CIRCUIT BOARD (BOTTOM VIEW).



PIN	6GK5	6CG8A
1	0	4.7K
2	1.8M	*4.7K
3	0	0
4	.1	0
5	*1.2K	.1
6	0	*1K
7	0	*0
8	---	0
9	---	225K

NOTES:
ALL RESISTORS ARE 1/4 WATT ±20% TOLERANCE UNLESS OTHERWISE NOTED.

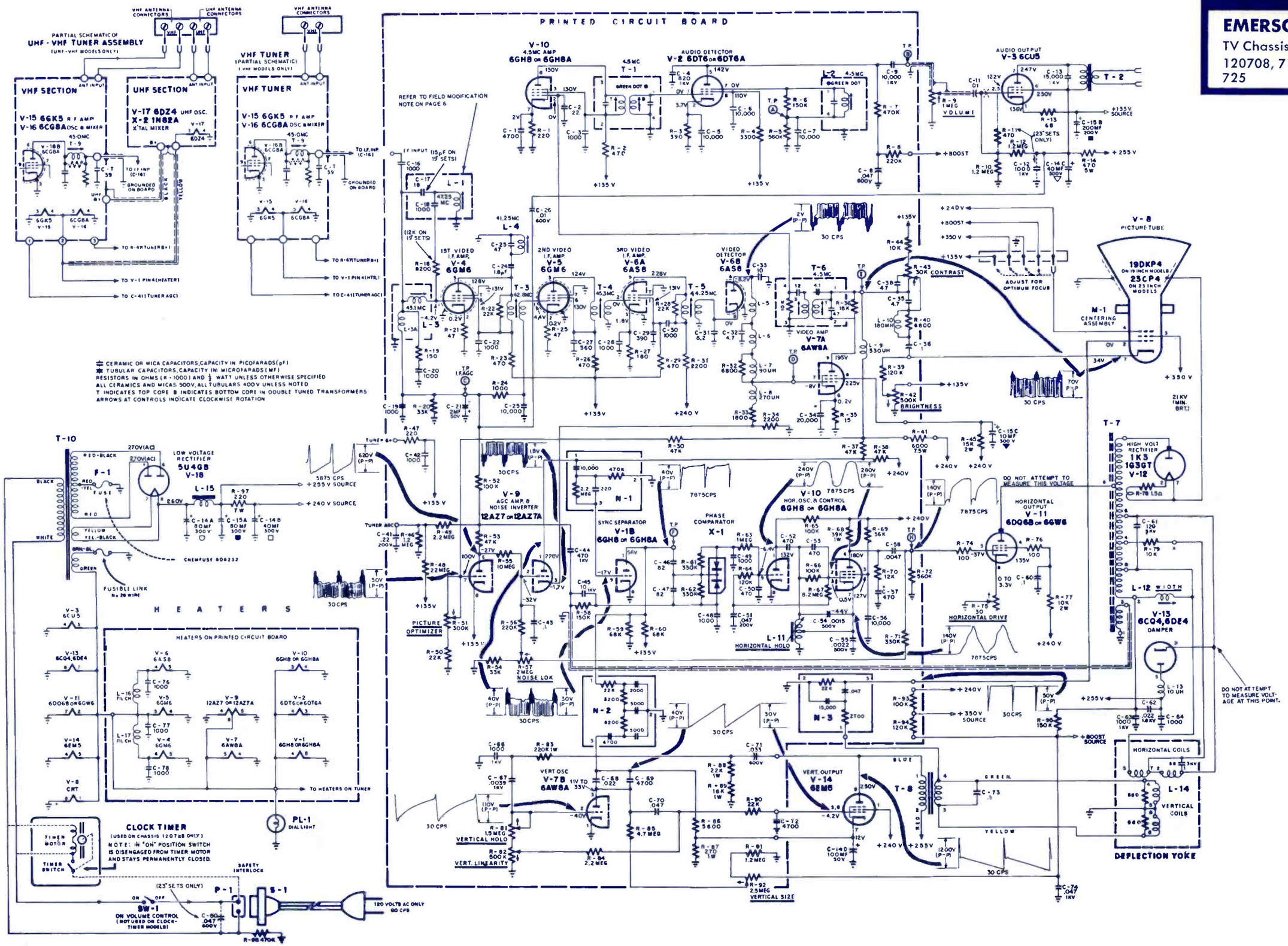
ALL CAPACITOR VALUES SHOWN ARE IN MICRO-MICROFARADS (MMF)

CIRCUIT SHOWN IN DOTTED LINES IS PART OF UHF FIELD ASS'Y 471505

REPLACEMENT ELECTRICAL ITEMS VHF TUNER 471464

Antenna Input Ass'y (T-1)	963659
I-F Output Coil (T-9)	964007
30 mmf Feed-Thru (C-2)	962849
40 mmf Feed-Thru (C-18)	964006
1,000 mmf Feed-Thru (C-5, 19)	962848
1,000 mmf Feed-Thru (C-7)	964279

EMERSON
TV Chassis
120708, 712, 725



ELECTRONIC TECHNICIAN

TEKFAX

GENERAL ELECTRIC
TV Chassis AA

1 ALL VOLTAGE MEASUREMENTS MADE WITH A VTVM WITH RESPECT TO CHASSIS GROUND. RECEIVER CONTROLS SET FOR NORMAL OPERATION. MEASUREMENTS MAY DEVIATE ± 10% AT 120V AC LINE VOLTAGE

2 WHERE ON-SIGNAL AND OFF-SIGNAL MEASUREMENTS VARY TWO VOLTAGES ARE SHOWN, ON-SIGNAL VOLTAGE APPEARS IN *ITALICS* OVER OFF-SIGNAL VOLTAGE.

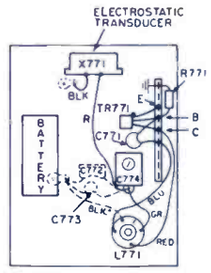
ON-SIGNAL VOLTAGES & WAVE SHAPES TAKEN WITH A NOISE FREE SIGNAL PRODUCING -2.5 TO -3.5 VOLTS AGC AT VHF TUNER.

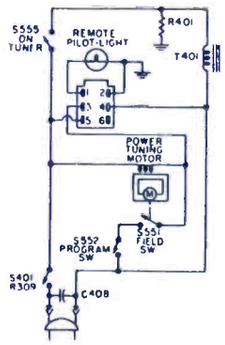
OFF-SIGNAL VOLTAGES TAKEN WITH ANTENNA DISCONNECTED & ANTENNA TERMINALS SHORTED TOGETHER ON UNUSED CHANNEL.

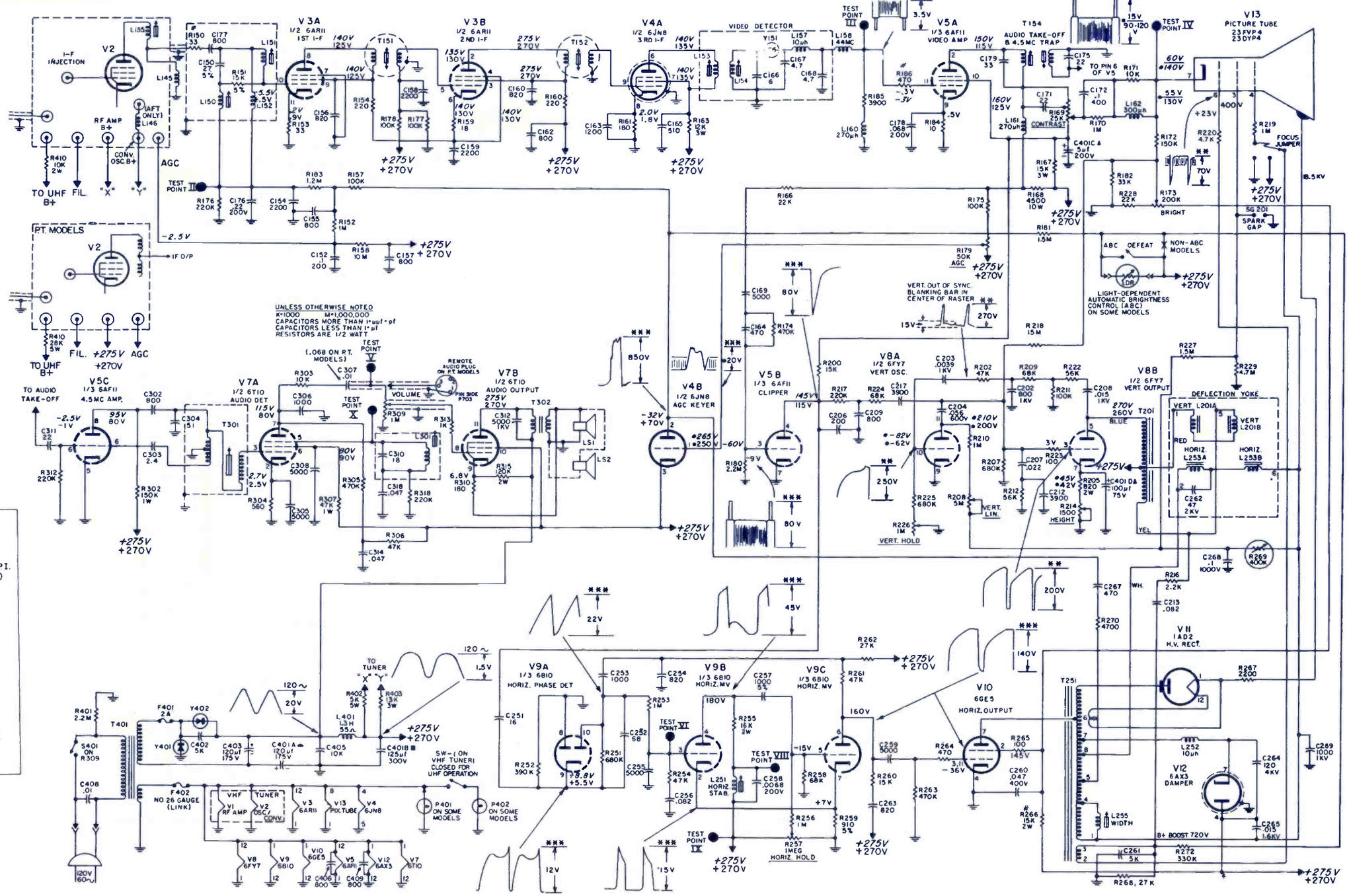
—•— INDICATES VARIATION WITH CONTROL SETTING.

** - INDICATES SCOPE SYNCHED AT 1/2 VERT. FREQ.

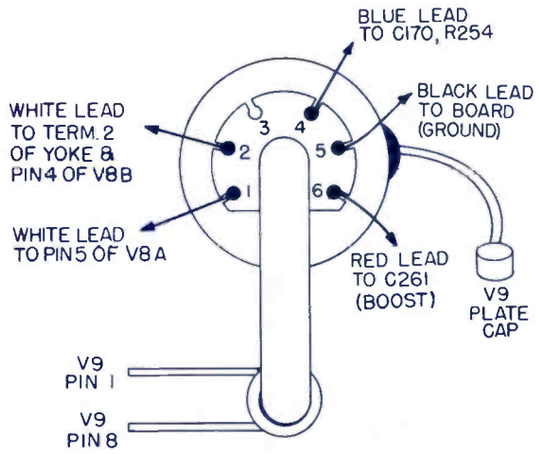
*** - INDICATES SCOPE SYNCHED AT 1/2 HORIZ. FREQ.

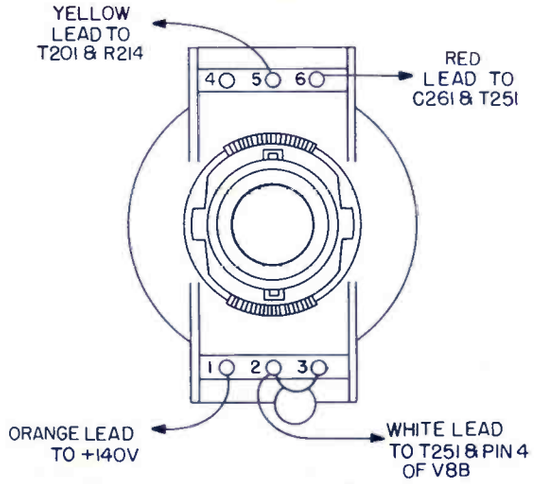






GENERAL ELECTRIC
TV Chassis SA





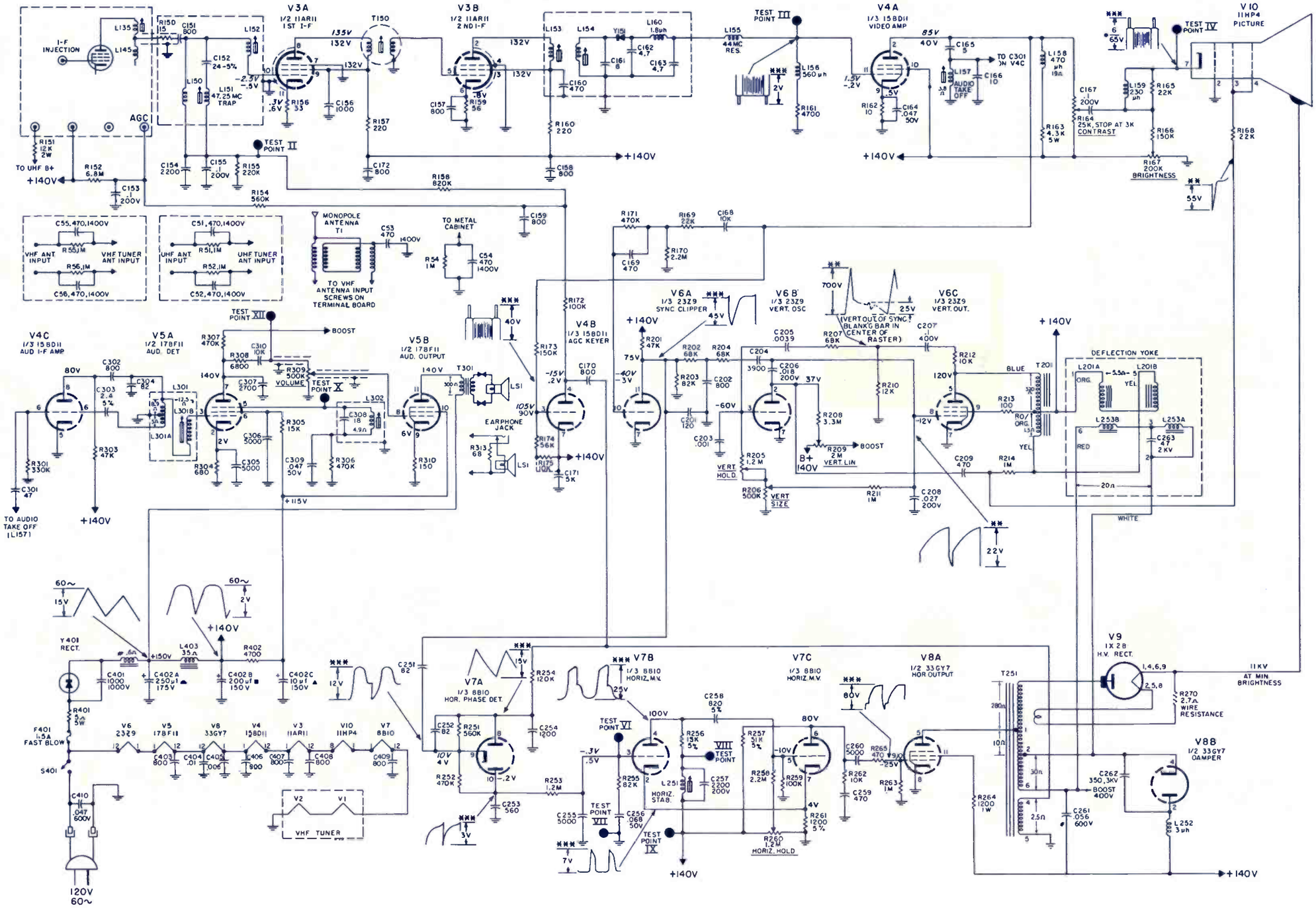
UNLESS OTHERWISE NOTED
K=1000 M=1,000,000
CAPACITORS MORE THAN 1 mmf = pf
CAPACITORS LESS THAN 1 = uf
RESISTORS ARE 1/2 WATT

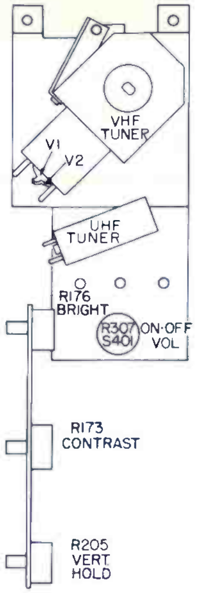
WIRE COLOR CODE
(USED IN MOST INSTANCES)
BROWN — FILAMENT
RED — B+ BOOST
ORANGE — B+
WHITE — AGC

1 ALL VOLTAGE MEASUREMENTS MADE WITH A VTVM WITH RESPECT TO CHASSIS GROUND. RECEIVER CONTROLS SET FOR NORMAL OPERATION. MEASUREMENTS MAY DEVIATE ±10% AT 120VAC LINE VOLTAGE.

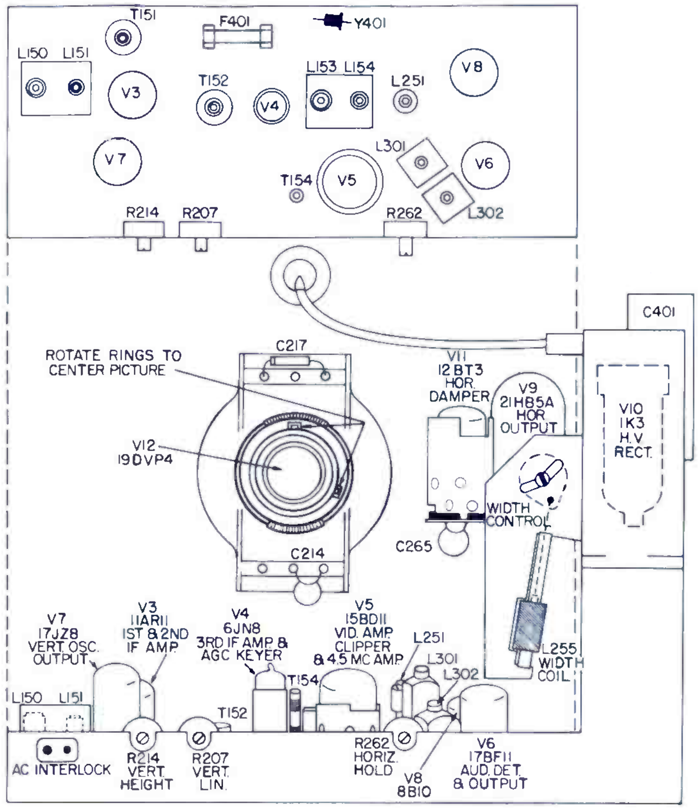
- • — INDICATES VARIATION WITH CONTROL SETTING.
- ** INDICATES SCOPE SYNCHED AT 1/2 VERTICAL FREQUENCY.
- *** INDICATES SCOPE SYNCHED AT 1/2 HORIZ FREQUENCY.
- ≠ INDICATES PRODUCTION CHANGE.

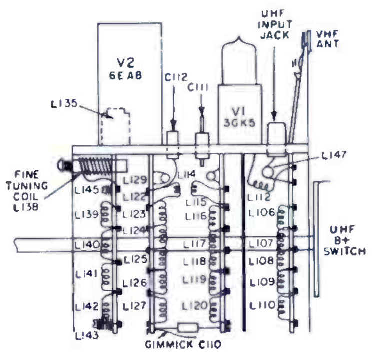
2 WHERE ON-SIGNAL AND OFF-SIGNAL MEASUREMENTS DIFFER, ON-SIGNAL IS SHOWN IN *ITALICS* OVER OFF-SIGNAL VOLTAGE. NOISE-FREE SIGNAL PRODUCING -2 TO -3V AGC AT VHF TUNER USED IN ON-SIGNAL AND WAVESHAPE MEASUREMENTS. OFF-SIGNAL VOLTAGES TAKEN WITH ANTENNA DISCONNECTED AND ANTENNA TERMINALS SHORTED.





DESIGNER CONTROL PANEL

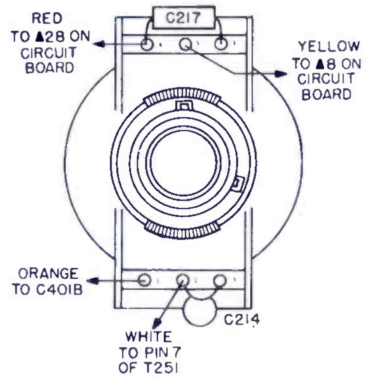




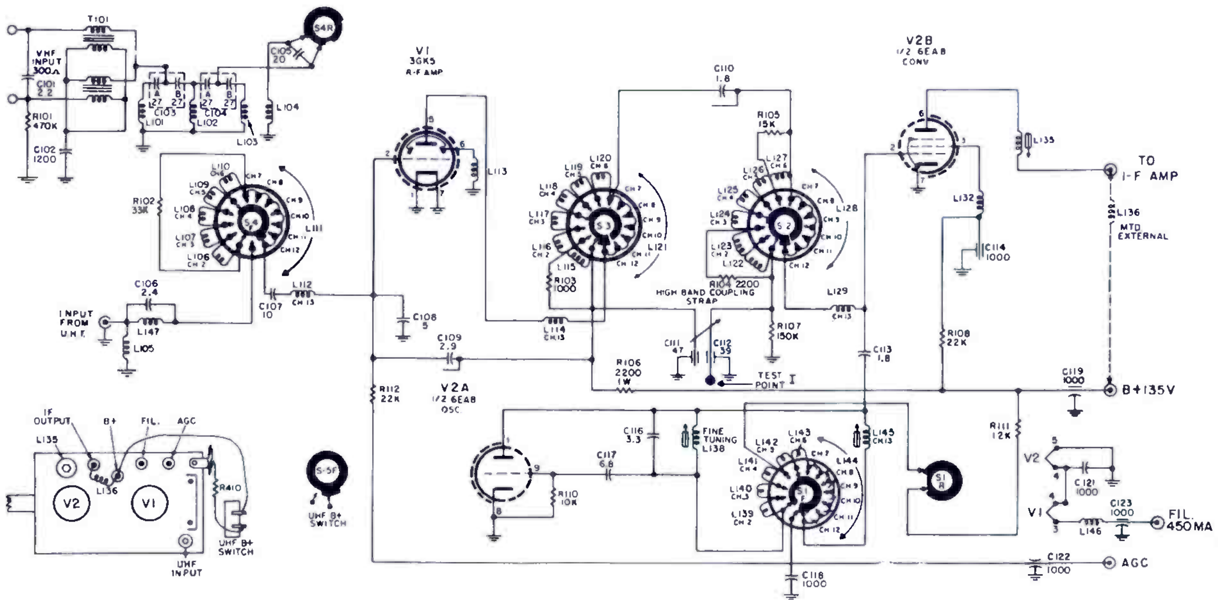
ADJUSTMENT LOCATIONS

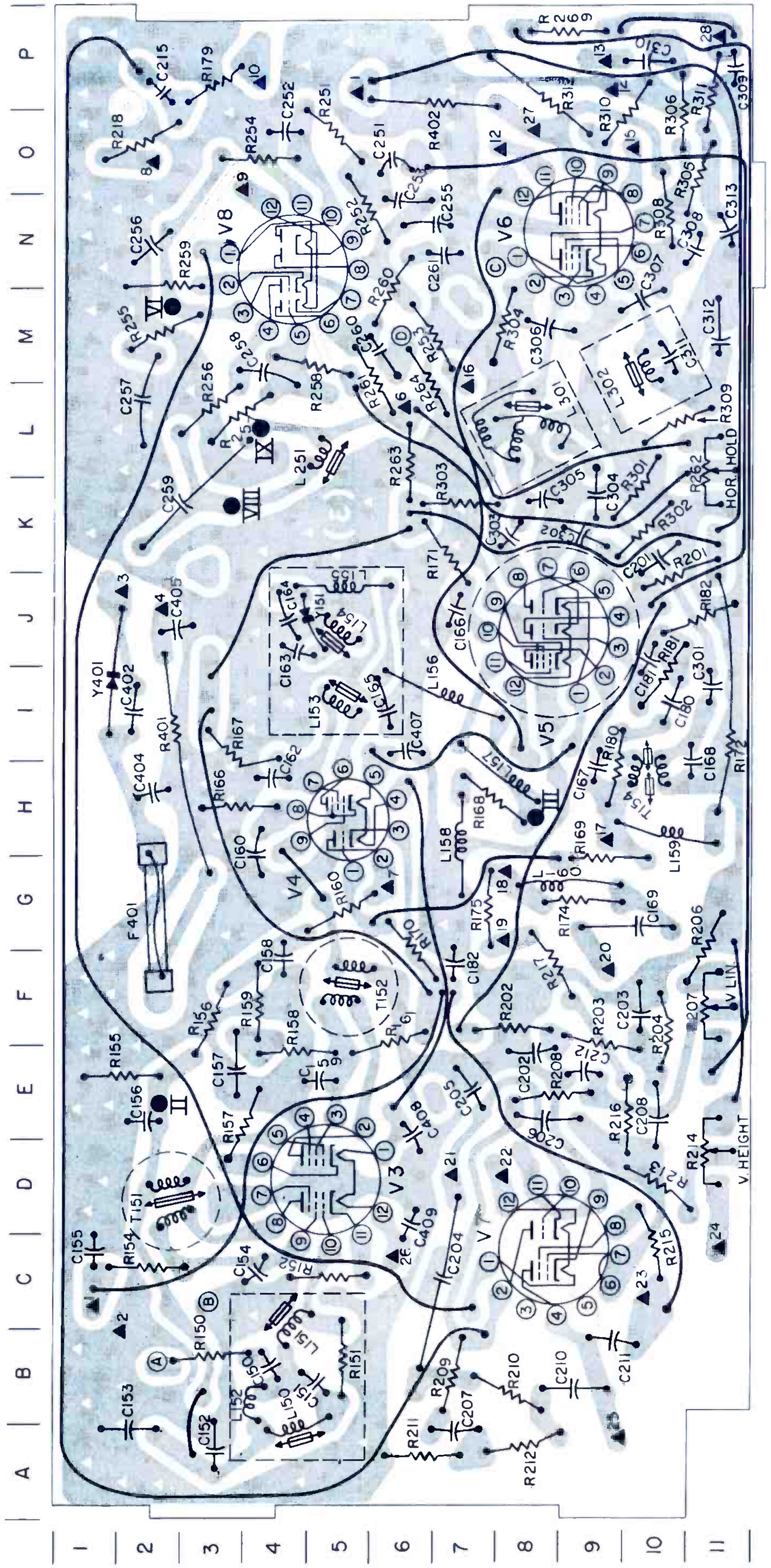
General Electric
DA Chassis

ELECTRONIC TECHNICIAN
TEKFAX



YOKE WIRING





COMPONENT VIEW OF CIRCUIT BOARD

COMPONENT LOCATION

RESISTORS

R150—B3	R171—J7	R211—A6	R260—M6
R151—B5	R172—I11	R212—A8	R261—L5
R152—C5	R174—G9	R213—D10	R263—L6
R154—C2	R175—G7	R215—C10	R264—L6
R155—E1	R179—P3	R216—E9	R269—P8
R156—F3	R180—H9	R217—F8	R301—K9
R157—D3	R181—I10	R218—O2	R302—K10
R158—E4	R182—J10	R251—O5	R303—K7
R159—F4	R201—J10	R252—N5	R304—M7
R160—G5	R202—F8	R253—M6	R305—N10
R161—E6	R203—E9	R254—O3	R306—O10
R166—H3	R204—E10	R255—M2	R308—N10
R167—H3	R206—F11	R256—L3	R309—L10
R168—H7	R208—E8	R257—L3	R310—O9
R169—G9	R209—B7	R258—L5	R311—P11
R170—F6	R210—B8	R259—M2	R312—O8

CAPACITORS

C150—B4	C167—H9	C211—B9	C304—K9
C151—B5	C168—H10	C212—E9	C305—K8
C152—A3	C169—G9	C215—O2	C306—M8
C153—A1	C180—I10	C251—O6	C307—M9
C154—C4	C181—I10	C252—O4	C308—N10
C155—C1	C182—F7	C253—N6	C309—P11
C156—E2	C201—J10	C255—N6	C310—P10
C157—E3	C202—E8	C256—N2	C311—M10
C158—F4	C203—F10	C257—L2	C312—M11
C159—E5	C204—C6	C258—L4	C313—N11
C160—G4	C205—E7	C259—K2	C402—I2
C162—H4	C206—E8	C260—M6	C404—H2
C163—I4	C207—A7	C261—N6	C405—J2
C164—J4	C208—E10	C301—I11	C407—H6
C165—I6	C209—C6	C302—K9	C408—D6
C166—J7	C210—B9	C303—K7	

COILS

L150—A4	L159—G10
L151—B5	L160—G8
L152—B4	L251—L5
L153—I5	L301—L8
L154—J5	L302—L10
L155—J5	T151—D2
L156—I7	T152—F5
L157—H7	T154—H10
L158—H7	

TEST POINTS

II —E2
III —H8
VI —M2
VIII—K3
IX —L4

MISC.

F401—G2
Y151—J4
Y401—I1
V3 —D5
V4 —H5
V5 —J8
V6 —N8
V7 —C8
V8 —N4

General Electric DA Chassis

1. ALL VOLTAGE MEASUREMENTS MADE WITH A VACUUM TUBE VOLTMETER IN RESPECT TO CHASSIS GROUND, WITH RECEIVER CONTROLS SET FOR NORMAL OPERATION.
2. WITH LINE VOLTAGE MAINTAINED AT 120VAC MEASUREMENTS SHOWN MAY DEVIATE ±10%
3. VOLTAGES SHOWN IN BLACK MADE WITH THE SELECTOR KNOB SWITCHED TO A CHANNEL WITH NO SIGNAL AND THE ANTENNA TERMINALS SHORTED.
4. WHERE VOLTAGE IN RED IS NOT SHOWN, VOLTAGE IN BLACK IS SAME EITHER ON SIGNAL OR OFF SIGNAL.

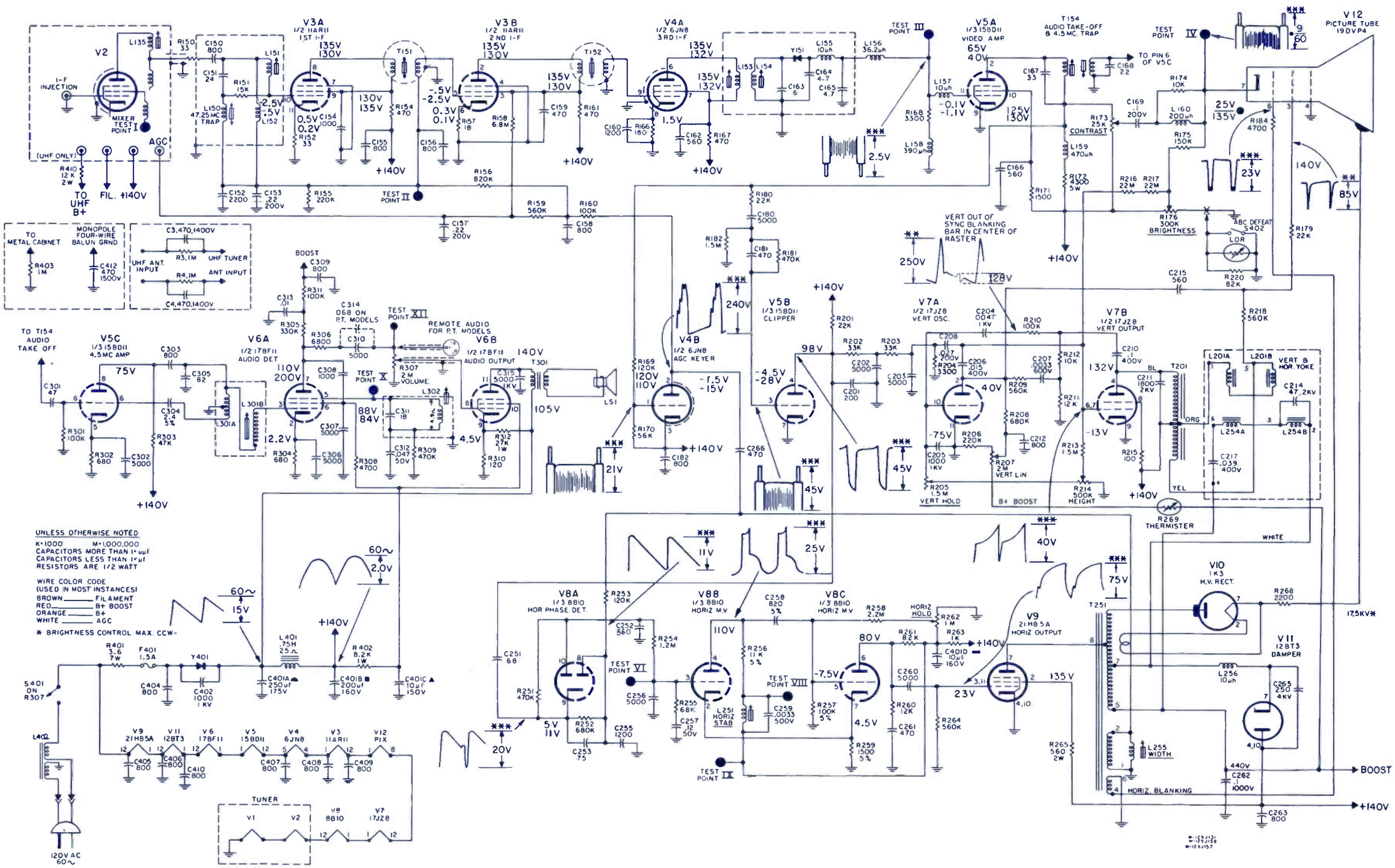
ON-SIGNAL VOLTAGE & WAVE SHAPES SHOWN IN RED TAKEN WITH A NOISE FREE SIGNAL PRODUCING-2.5 TO-3.5 VOLTS AGC AT VHF TUNER FINE TUNING CONTROL ADJUSTED FOR MAXIMUM AGC.

ALL OTHER CONTROLS ARE ADJUSTED FOR NORMAL OPERATION.

** SCOPE SYNCED AT 1/2 VERT. FREQUENCY

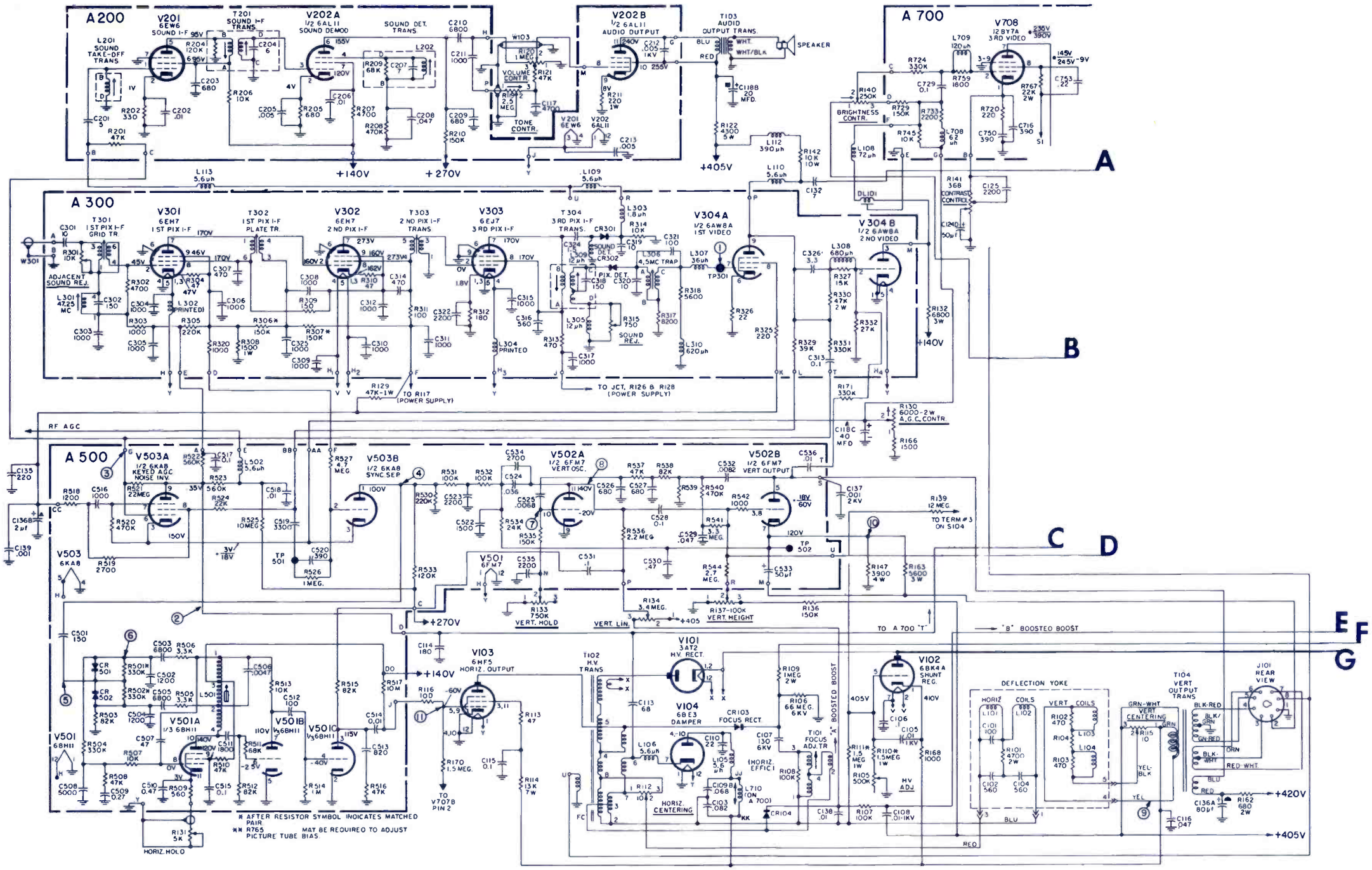
*** SCOPE SYNCED AT 1/2 HORIZ. FREQUENCY

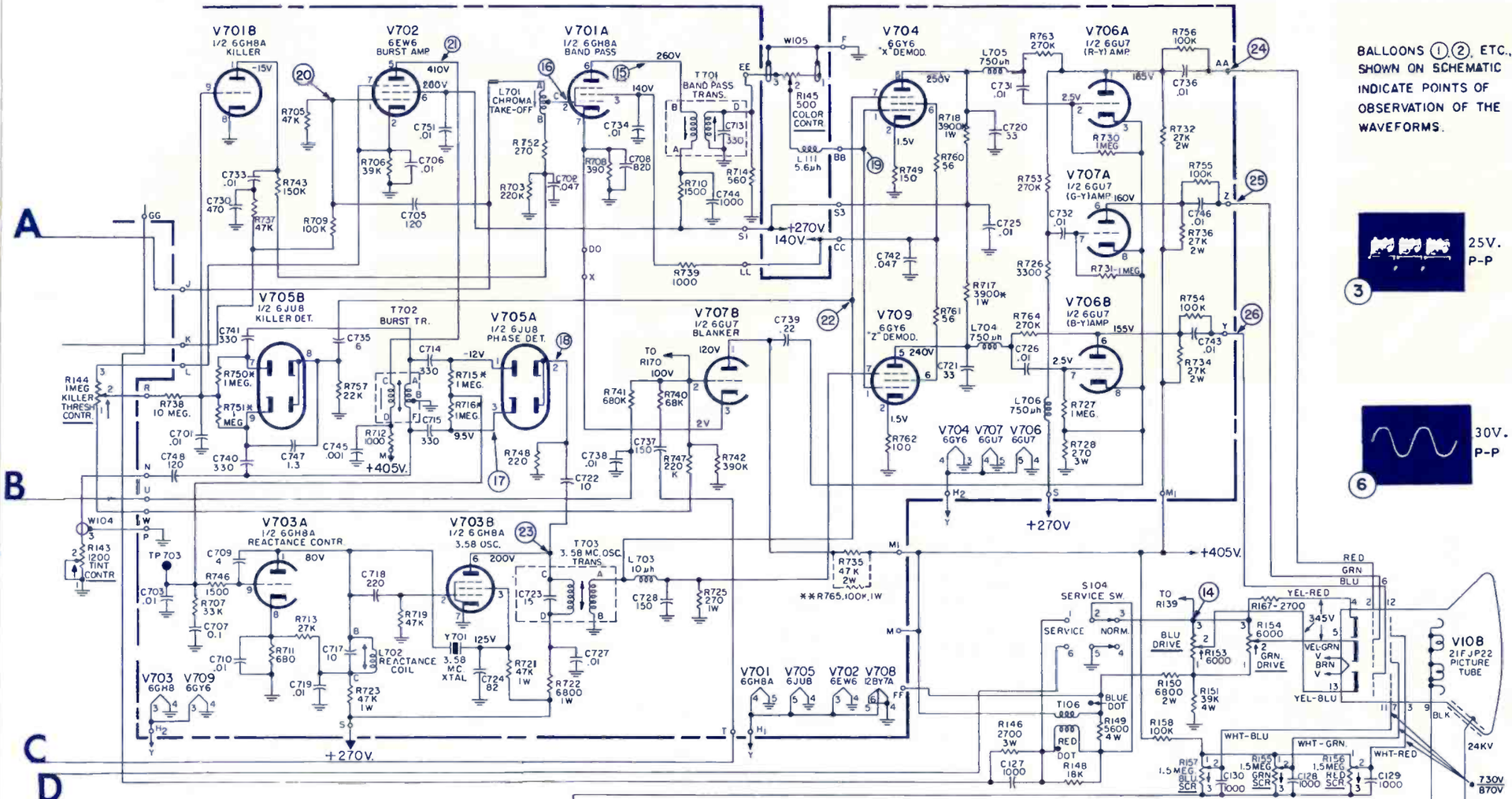
• VARIES WITH CONTROL SETTINGS
INDICATES PRODUCTION CHANGE



ELECTRONIC TECHNICIAN
TEKFAX

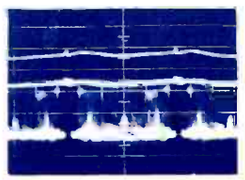
General Electric "FY" Color Chassis

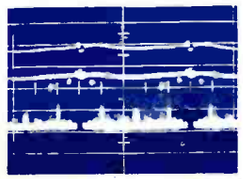


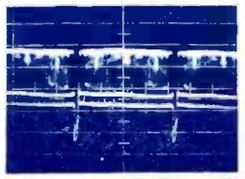


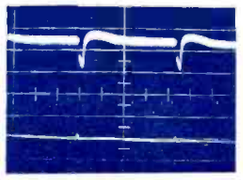
General Electric
"FY" Color Chassis

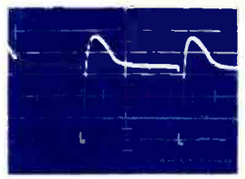
ELECTRONIC TECHNICIAN
TEKFAX

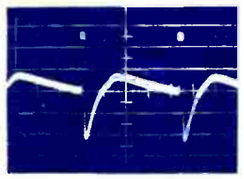


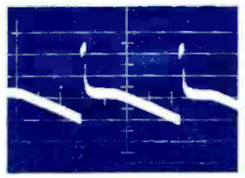


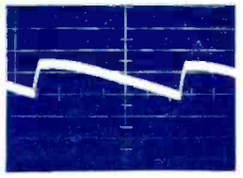


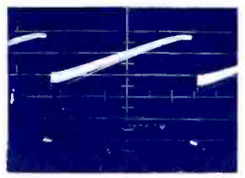


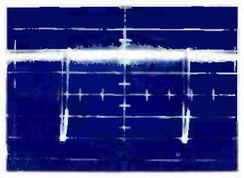


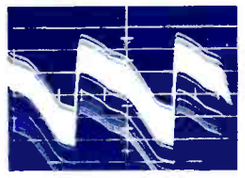


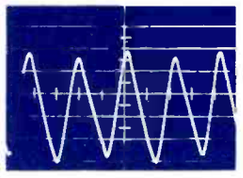




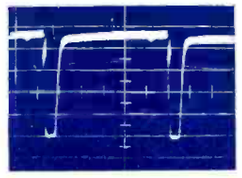


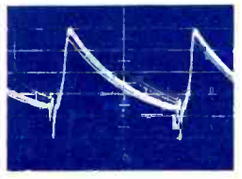


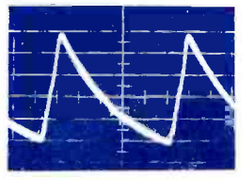


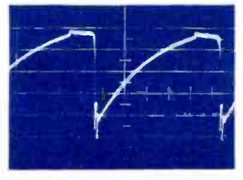


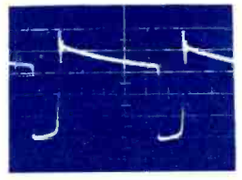
OSCILLOSCOPE AT VERTICAL RATE

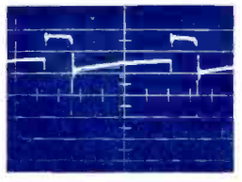


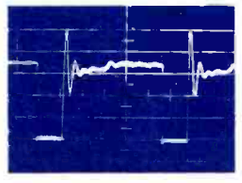


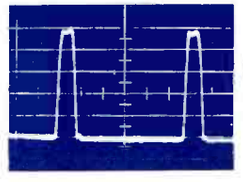


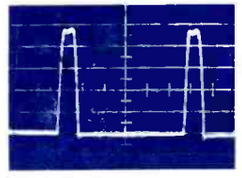


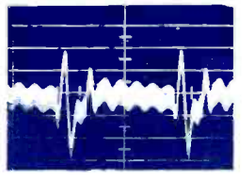


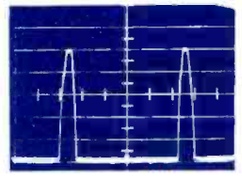








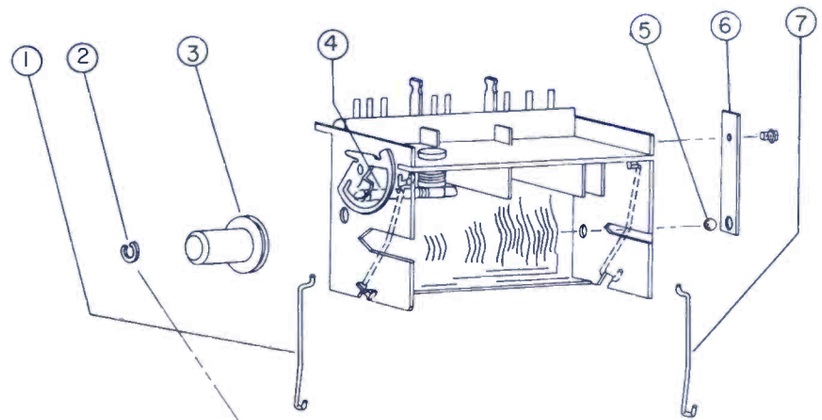


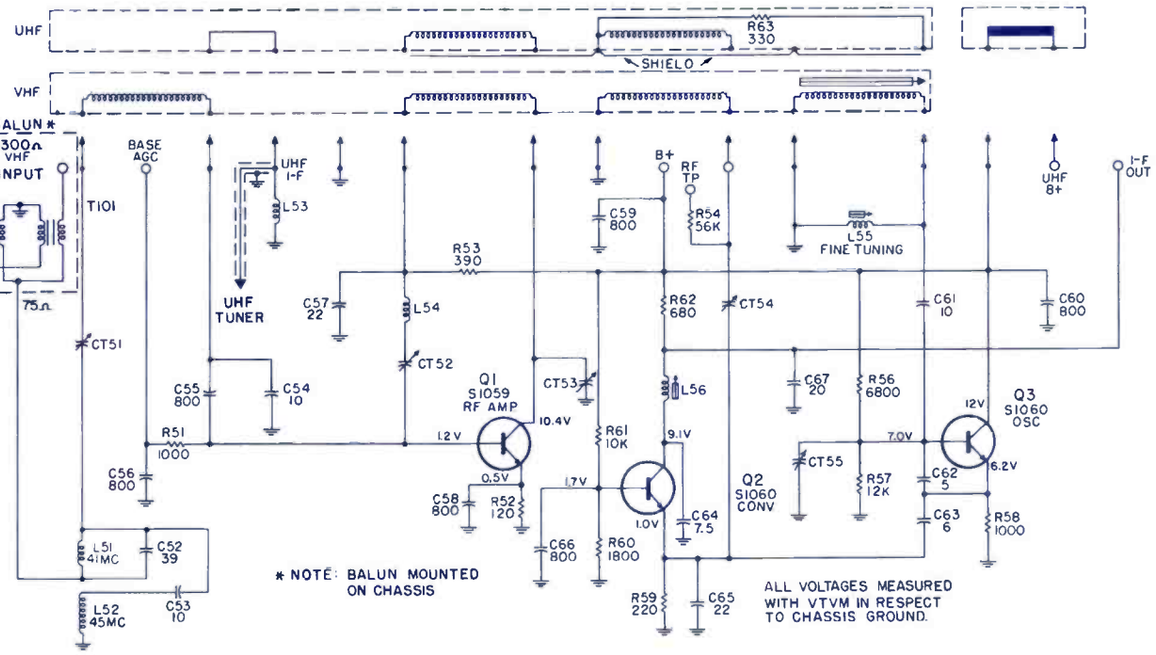


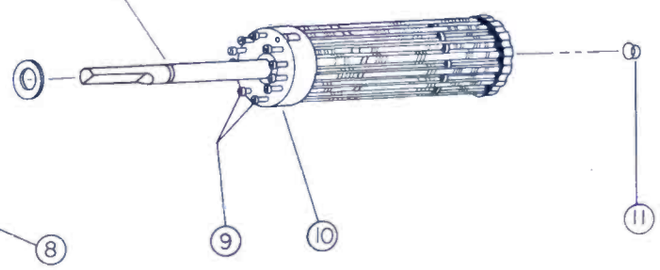
OSCILLOSCOPE AT HORIZONTAL RATE

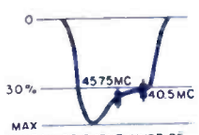
GENERAL ELECTRIC
TV Chassis TA

ELECTRONIC TECHNICIAN
TEKFAX

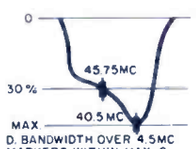




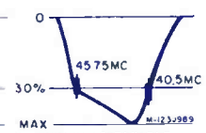




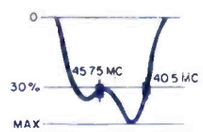
C PEAK OF CURVE MUST BE USED EVEN IF NOT BETWEEN MARKERS



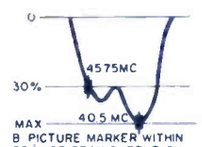
D. BANDWIDTH OVER 4.5MC MARKERS WITHIN MAX. & 30% LINE. (MAX. TILT DOES NOT APPLY SINCE LOWER PEAK IS OUTSIDE OF BANDWIDTH.)



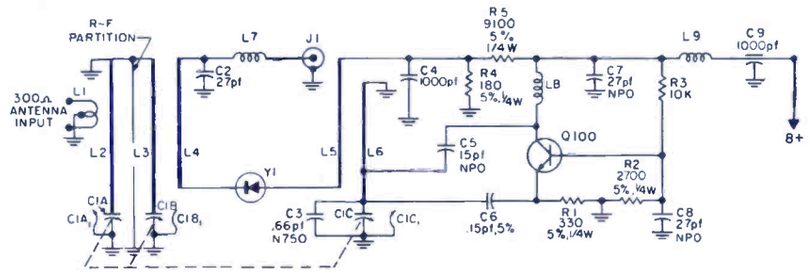
E. MINIMUM ACCEPTABLE BANDWIDTH MAXIMUM TILT.

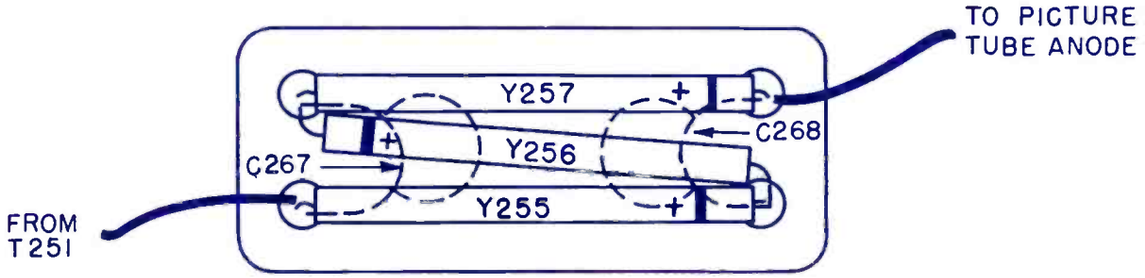


A PICTURE MARKER IN VALLEY BUT NEITHER VALLEY NOR SOUND MARKER GREATER THAN 30% BELOW PEAK



B PICTURE MARKER WITHIN 30% OF PEAK OUTPUT ON PICTURE SIDE MAXIMUM DIP

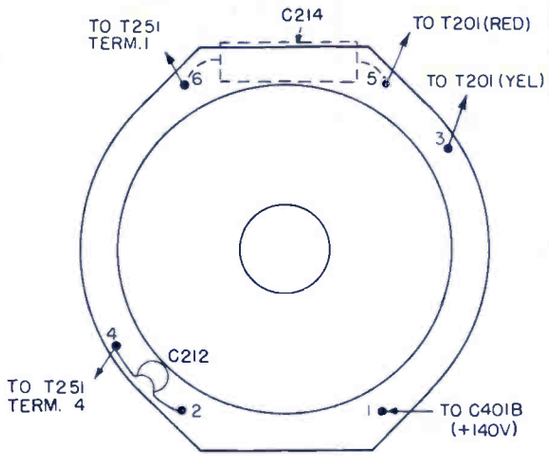




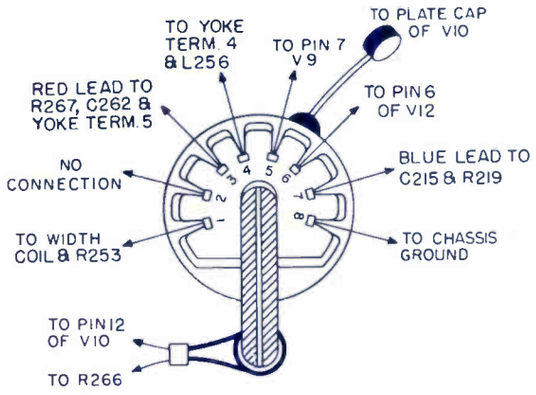
HIGH VOLTAGE DOUBLER CIRCUITRY

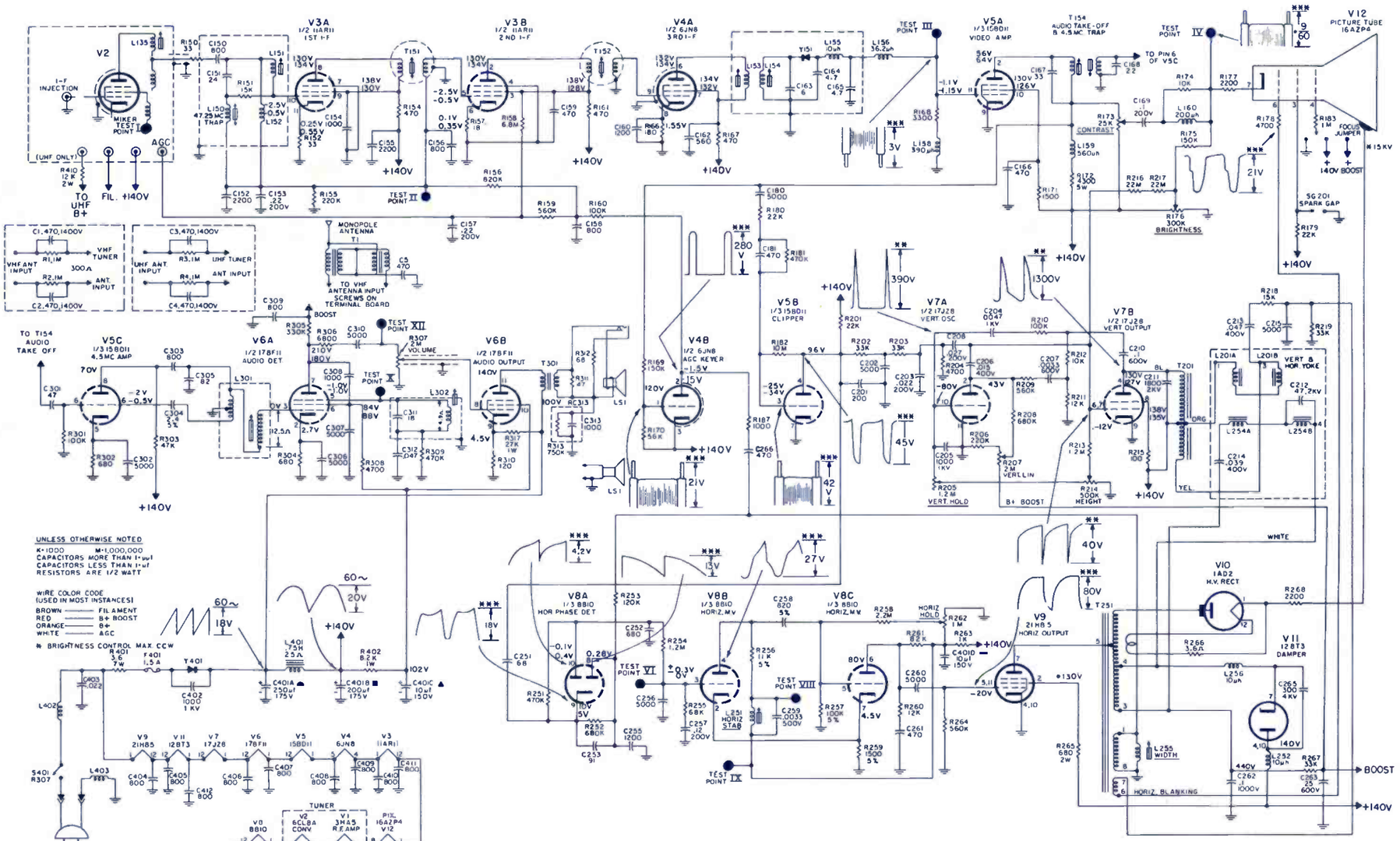
ELECTRONIC TECHNICIAN
TEKFAX
GENERAL ELECTRIC
TV Chassis TA

GENERAL ELECTRIC
TV Chassis
QY



DEFLECTION YOKE





ALL VOLTAGE MEASUREMENTS MADE WITH A VACUUM TUBE VOLTMETER IN RESPECT TO CHASSIS GROUND, WITH RECEIVER CONTROLS SET FOR NORMAL OPERATION

2 WITH LINE VOLTAGE MAINTAINED AT 120V AC MEASUREMENTS SHOWN MAY DEVIATE ±10%

3 VOLTAGES SHOWN IN BLACK MADE WITH THE SELECTOR KNOB SWITCHED TO A CHANNEL WITH NO SIGNAL AND THE ANTENNA TERMINALS SHORTED

4 WHERE VOLTAGE IN RED IS NOT SHOWN, VOLTAGE IN BLACK IS SAME EITHER ON SIGNAL OR OFF SIGNAL

• VARIES WITH CONTROL SETTINGS

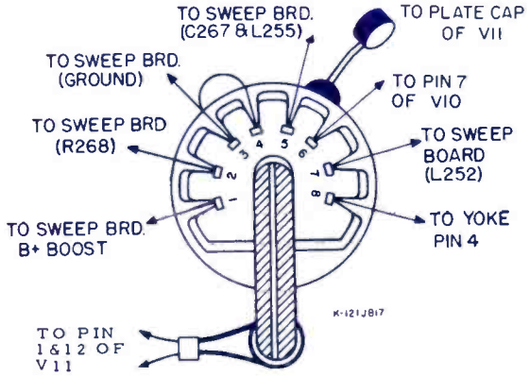
# INDICATES PRODUCTION CHANGE

ON-SIGNAL VOLTAGE & WAVE SHAPES SHOWN IN RED TAKEN WITH A NOISE FREE SIGNAL PRODUCING -2.5 TO -3.5 VOLTS AGC AT VHF TUNER FINE TUNING CONTROL ADJUSTED FOR MAXIMUM AGC

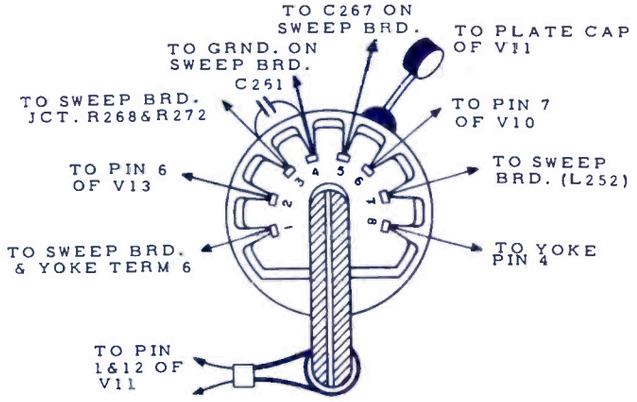
ALL OTHER CONTROLS ARE ADJUSTED FOR NORMAL OPERATION.

** SCOPE SYNCED AT 1/2 VERT. FREQUENCY

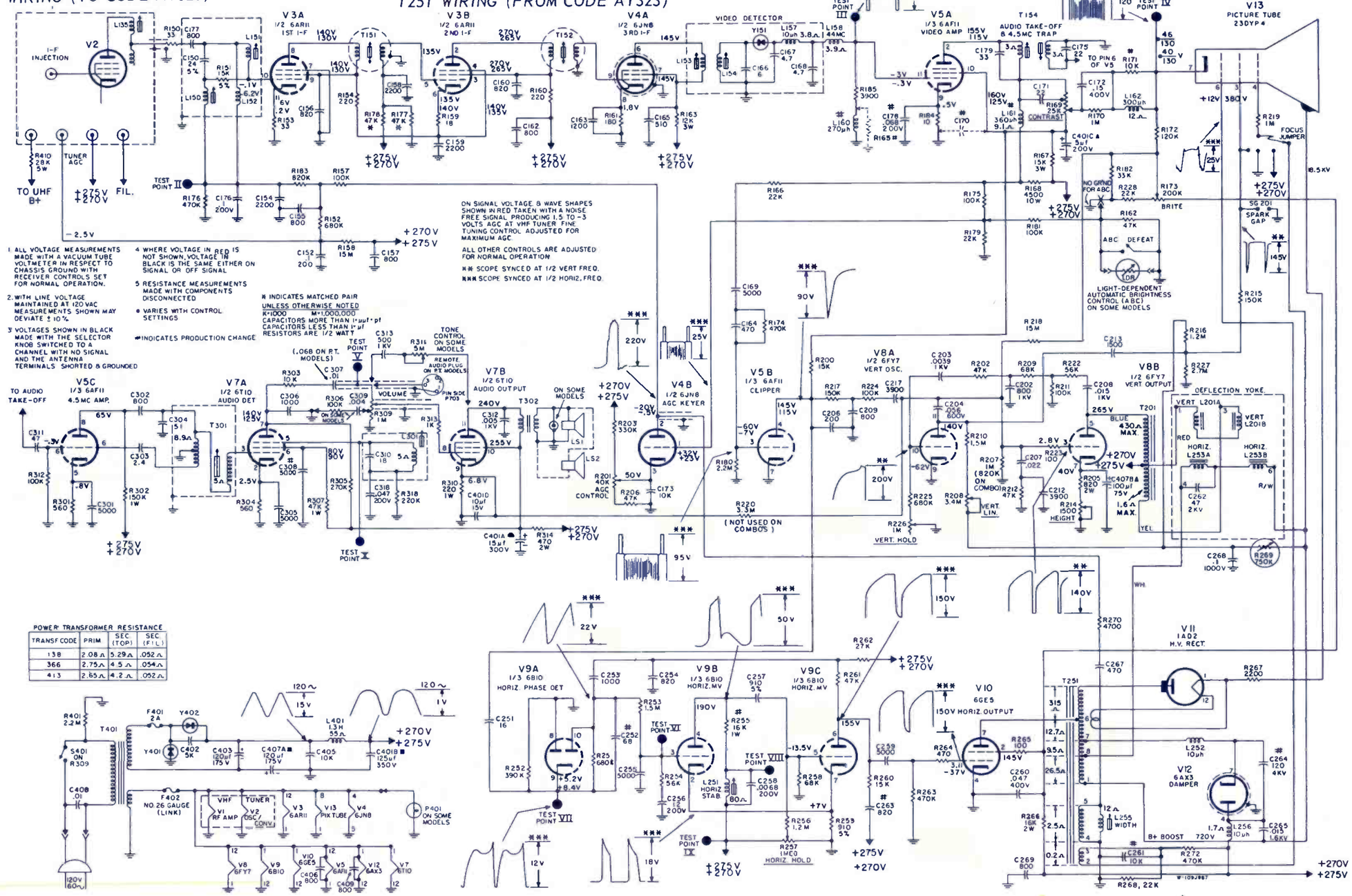
*** SCOPE SYNCED AT 1/2 HORIZ. FREQUENCY.



T251 WIRING (TO CODE AY323)



T251 WIRING (FROM CODE AY323)



POWER TRANSFORMER RESISTANCE			
TRANSF CODE	PRIM	SEC (TOP)	SEC (FIL)
138	2.08Ω	5.29Ω	.052Ω
366	2.75Ω	4.5Ω	.054Ω
413	2.85Ω	4.2Ω	.052Ω

AY CHASSIS SCHEMATIC DIAGRAM

ELECTRONIC TECHNICIAN TEKFAX

HEATHKIT
Color TV
Model GR53

THIS SYMBOL AROUND A PART NUMBER MEANS THAT THE PART IS MOUNTED ON THE CHASSIS, EVEN WHEN ITS POSITION ON THE SCHEMATIC SUGGESTS ANOTHER LOCATION.

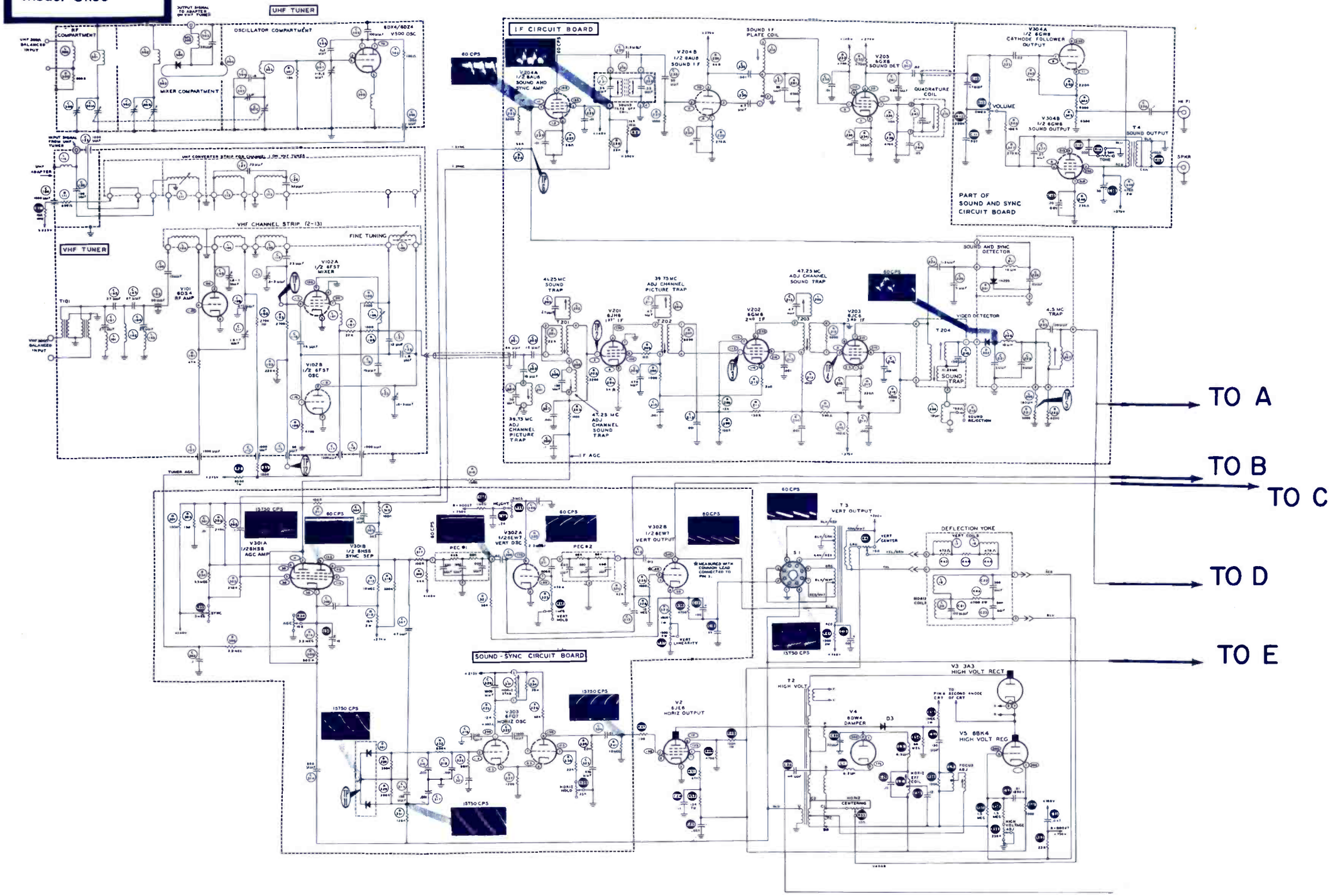
THIS SYMBOL INDICATES THE TOP COIL.

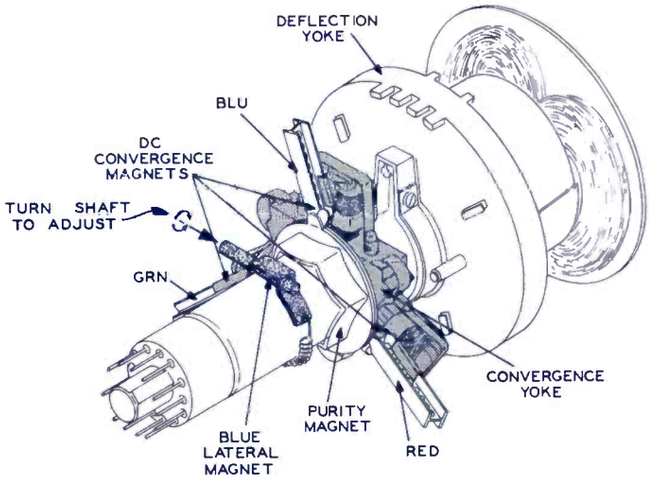
THIS SYMBOL INDICATES THE BOTTOM COIL.

NOTES:

0 - 99	PARTS MOUNTED ON THE CHASSIS
100 - 199	PARTS IN VHF TUNER
200 - 299	PARTS ON IF CIRCUIT BOARD
300 - 399	PARTS ON SOUND-SYNC CIRCUIT BOARD
400 - 499	PARTS ON COLOR CIRCUIT BOARD
500 - 599	PARTS ON UHF TUNER
800 - 899	PARTS ON CONVERGENCE BOARD

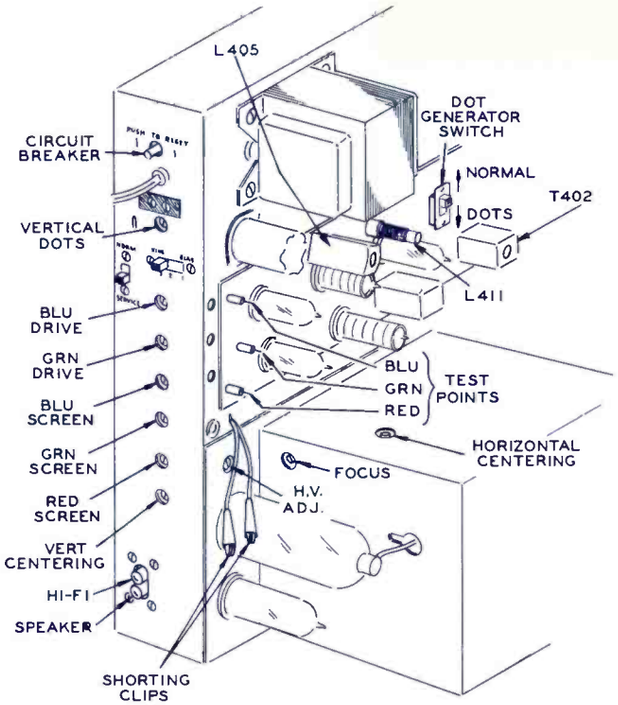
ALL RESISTOR VALUES ARE IN Ω; K = 1000, MEG = 1,000,000.
ALL RESISTORS ARE 1/2 WATT UNLESS SHOWN OTHERWISE.
ALL CAPACITOR VALUES ARE IN μfd UNLESS MARKED μμF.
INDICATES POSITIVE DC VOLTAGE MEASUREMENT, TAKEN WITH AN 11 MEGOHM VTVM, FROM POINT INDICATED TO CHASSIS GROUND.
VOLTAGE MEASUREMENTS WERE MADE WITH NO SIGNAL INPUT.

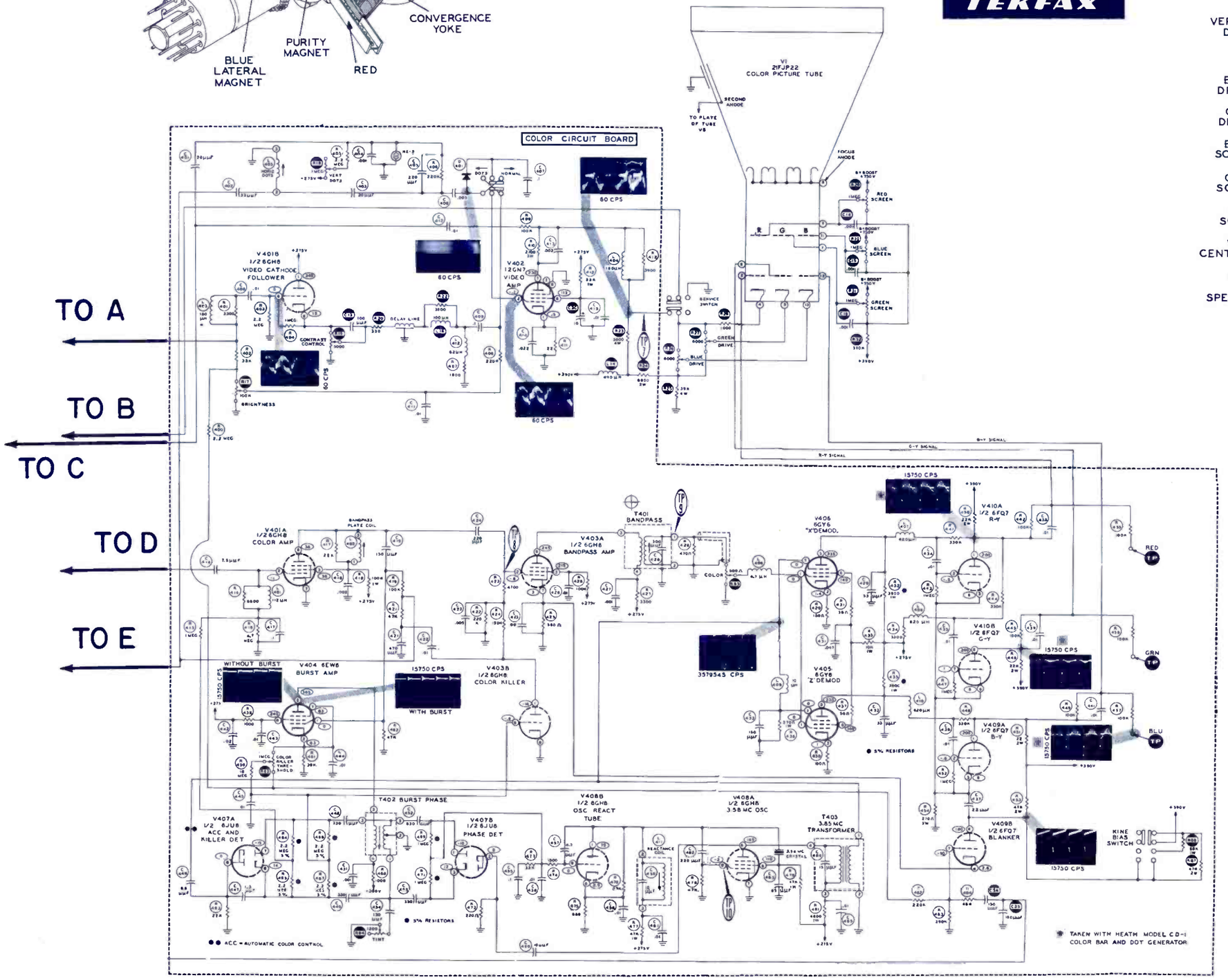


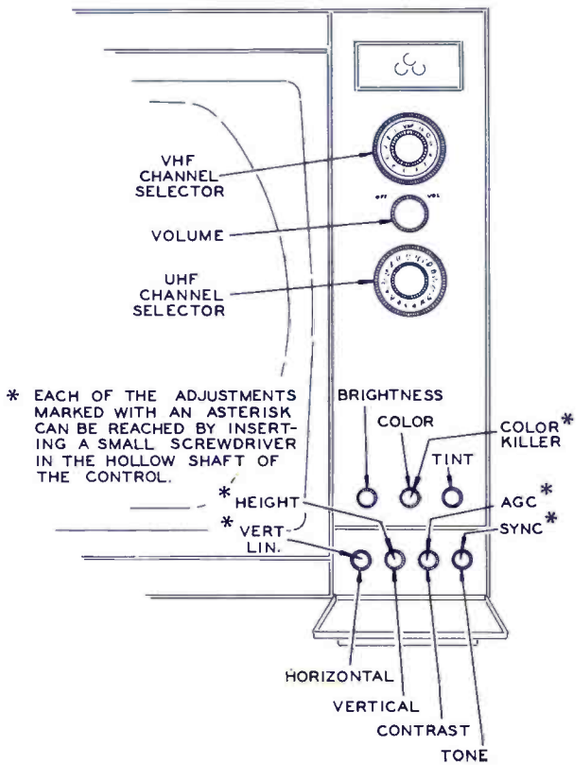


HEATHKIT
Color TV
Model GR53

ELECTRONIC TECHNICIAN
TEKFAX





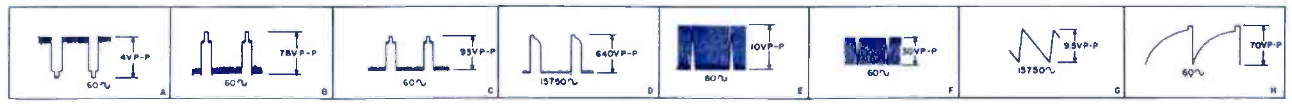


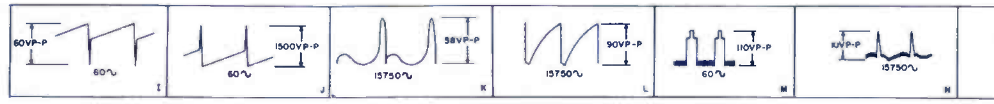
* EACH OF THE ADJUSTMENTS MARKED WITH AN ASTERISK CAN BE REACHED BY INSERTING A SMALL SCREWDRIVER IN THE HOLLOW SHAFT OF THE CONTROL.

ELECTRONIC TECHNICIAN TEKFAX

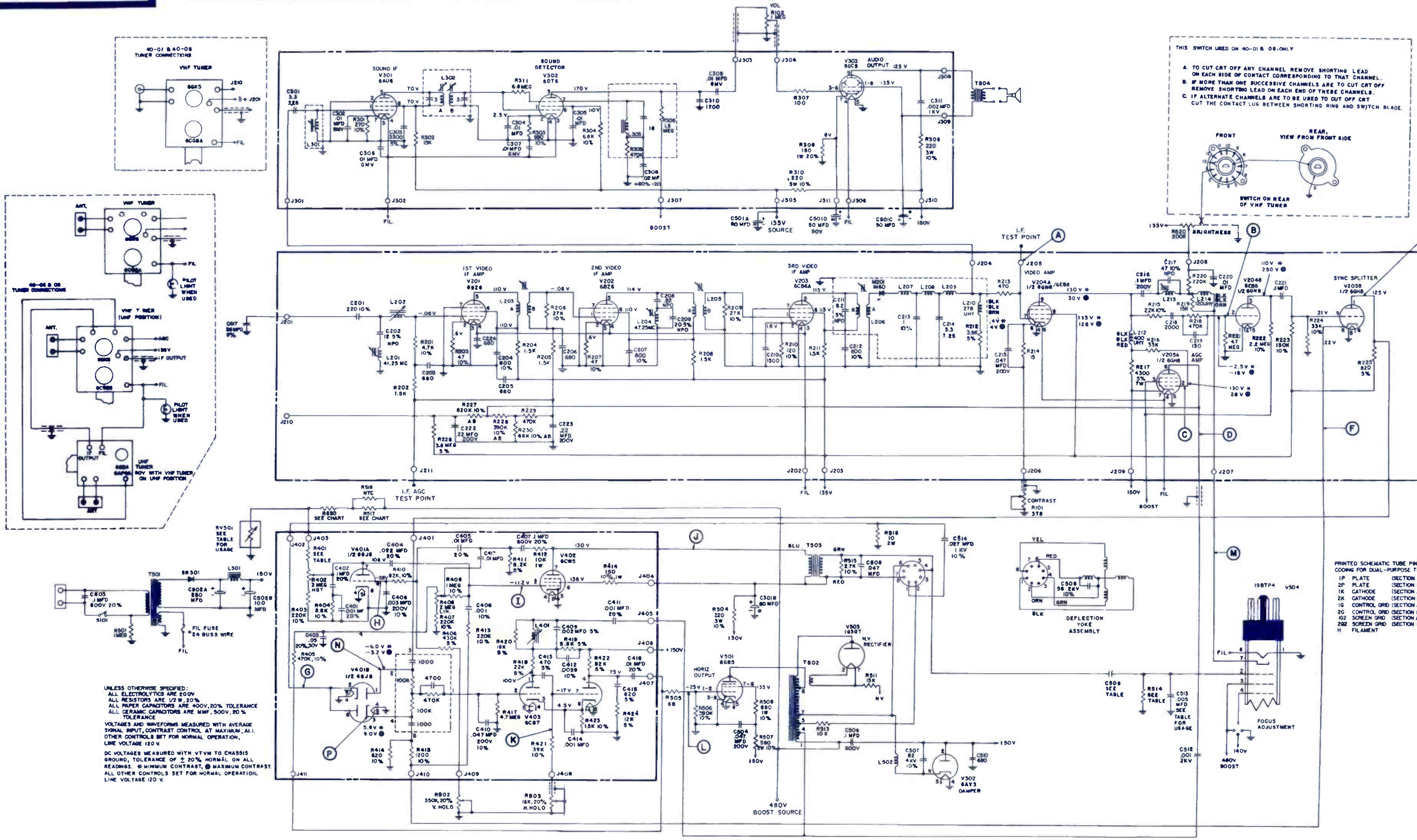
MAGNAVOX

TV Chassis 40-01-11, -01-21, -05-11, -01-21, -06-21 and -08-21





CHASSIS	VARISTOR RV501	R401	R514	C508	C513	TUNER REQUIREMENT	PILOT LIGHT	R530	R517
40-05-11	OMITTED	680K 10%	180K 10%	.01	REQUIRED	340027-1 340028-1	OMITTED	OMITTED	1.2 MEG 10%
40-05-21 FIRST PROD. RUN	REQUIRED	560K 10%	33K 10%	.068	OMITTED	340027-1 340028-1	OMITTED	OMITTED	1.2 MEG 10%
40-06-21	REQUIRED	330K 10%	33K 10%	.068	OMITTED	340027-1 340028-1	OMITTED	220K 10%	560K 10%
40-06-21	REQUIRED	330K 10%	33K 10%	.068	OMITTED	340017-1 340018-1	REQUIRED	220K 10%	560K 10%
40-08-21	REQUIRED	330K 10%	33K 10%	.068	OMITTED	340029-1	OMITTED	220K 10%	560K 10%
40-01-11	OMITTED	680K 10%	180K 10%	.01	REQUIRED	340028-1	OMITTED	OMITTED	1.2 MEG 10%
40-01-21	REQUIRED	330K 10%	10K 10%	.068	OMITTED	340028-1	OMITTED	OMITTED	1.2 MEG 10%



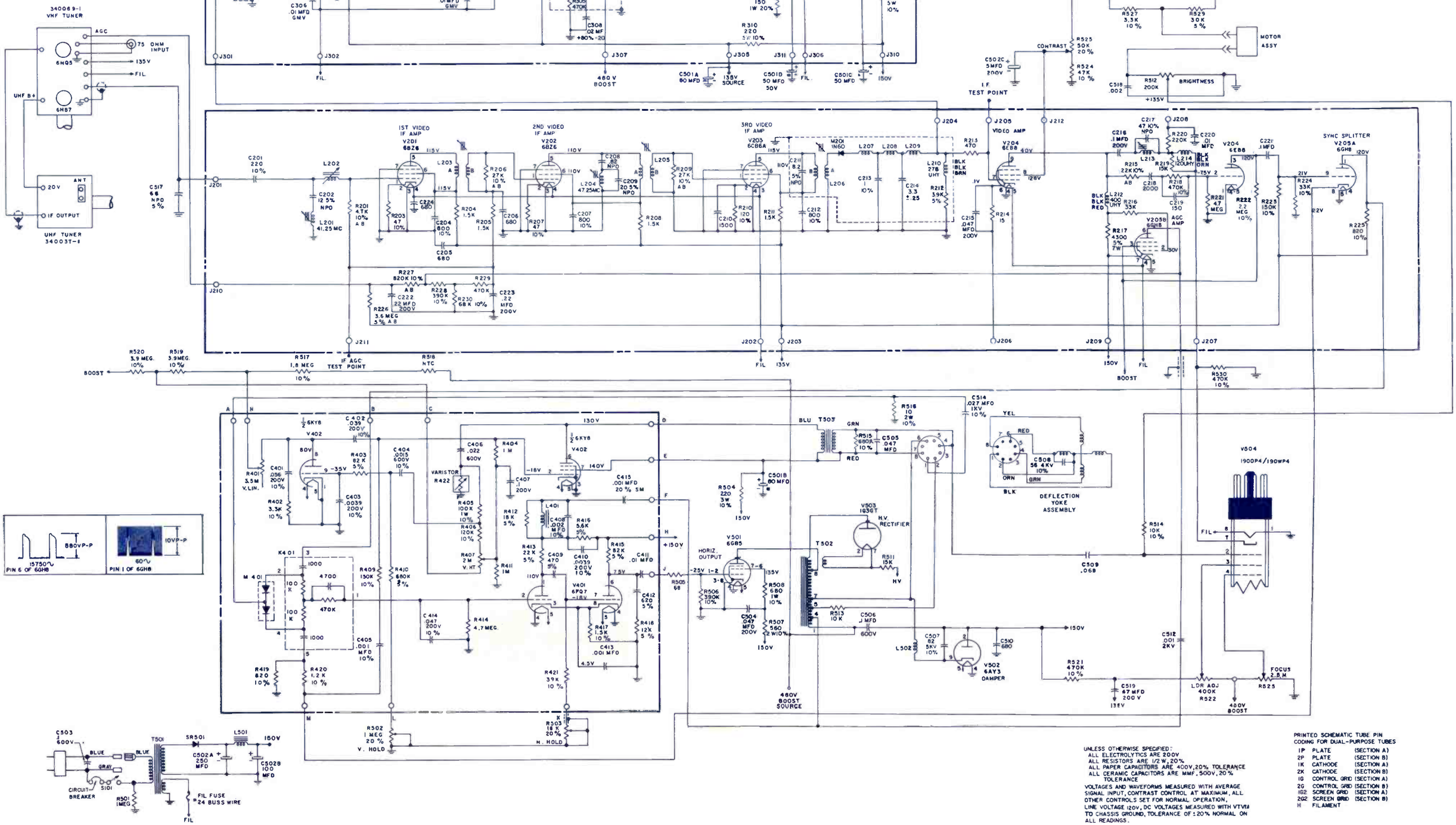
ELECTRONIC TECHNICIAN
TEKFAX

MAGNAVOX
TV Chassis
47 Series

PIN 7 OF 6CG7/6FG7 — 60VP-P, 15750~
PIN 2 OF 6GB5 — 75VP-P, 15750~
PICTURE TUBE CATHODE — 60VP-P, 60~
TERMINAL 2 OF K401 — 10VP-P, 15750~
TERMINAL 4 OF K401 — 10VP-P, 15750~
PIN 8 OF 6GH8 — 30VP-P, 60~
TERMINAL "A" ON DEFL. BOARD — 9.5VP-P, 15750~

PIN 9 OF 6KY8 — 135VP-P, 60~
PIN 2 OF 6KY8 — 48VP-P, 60~
PIN 6 OF 6KY8 — 1500VP-P, 60~
PIN 7 OF 6EB8 — 4VP-P, 60~
PIN 2 OF 6GN8/6EB8 — 70VP-P, 60~
PIN 2 OF 6GH8 — 70VP-P, 60~

PIN 6 OF 6GH8 — 880VP-P, 15750~
PIN 1 OF 6GH8 — 10VP-P, 60~

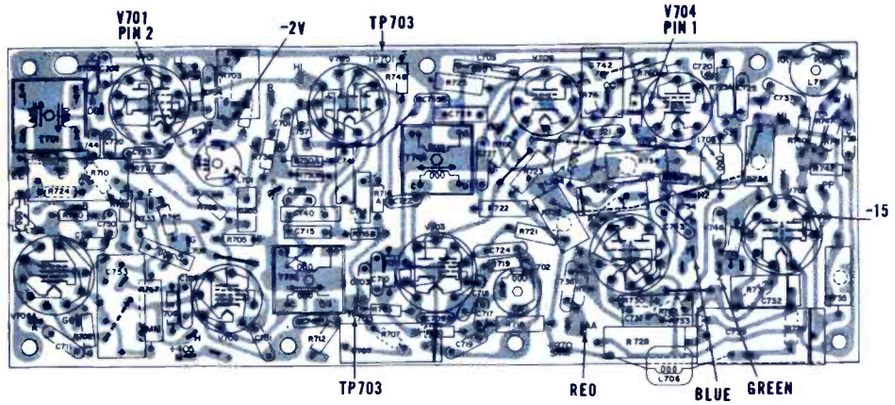


UNLESS OTHERWISE SPECIFIED:
ALL ELECTROLYTICS ARE 200V
ALL RESISTORS ARE 1/2 W, 20%
ALL PAPER CAPACITORS ARE 400V, 20% TOLERANCE
ALL CERAMIC CAPACITORS ARE MMF, 500V, 20% TOLERANCE
VOLTAGES AND WAVEFORMS MEASURED WITH AVERAGE SIGNAL INPUT, CONTRAST CONTROL AT MAXIMUM, ALL OTHER CONTROLS SET FOR NORMAL OPERATION, LINE VOLTAGE 120V, DC VOLTAGES MEASURED WITH VTVM TO CHASSIS GROUND, TOLERANCE OF ±20% NORMAL ON ALL READINGS.

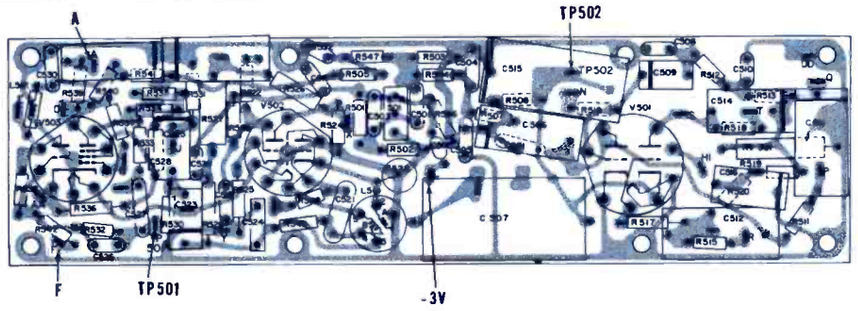
PRINTED SCHEMATIC TUBE PIN CODING FOR DUAL-PURPOSE TUBES

1P	PLATE	(SECTION A)
2P	PLATE	(SECTION B)
1K	CATHODE	(SECTION A)
2K	CATHODE	(SECTION B)
1G	CONTROL GRID	(SECTION A)
2G	CONTROL GRID	(SECTION B)
1G2	SCREEN GRID	(SECTION A)
2G2	SCREEN GRID	(SECTION B)
H	FILAMENT	

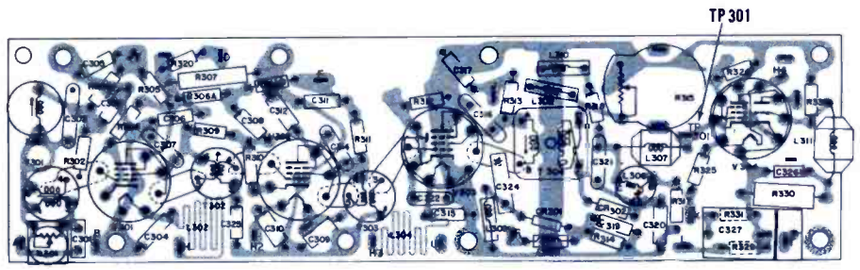
Chroma Board



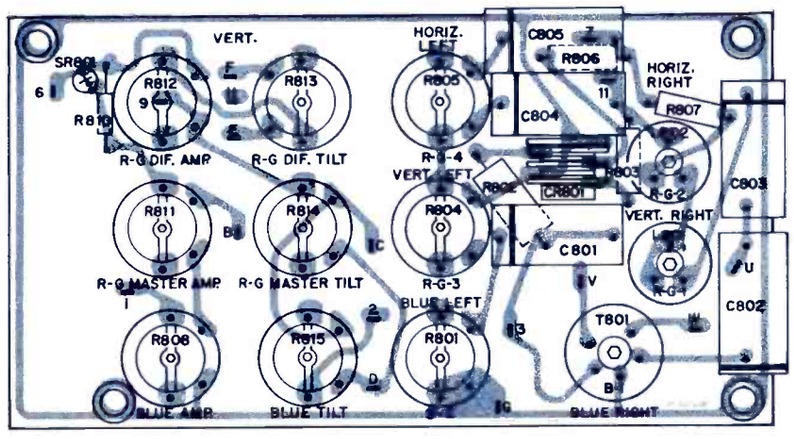
Deflection Board

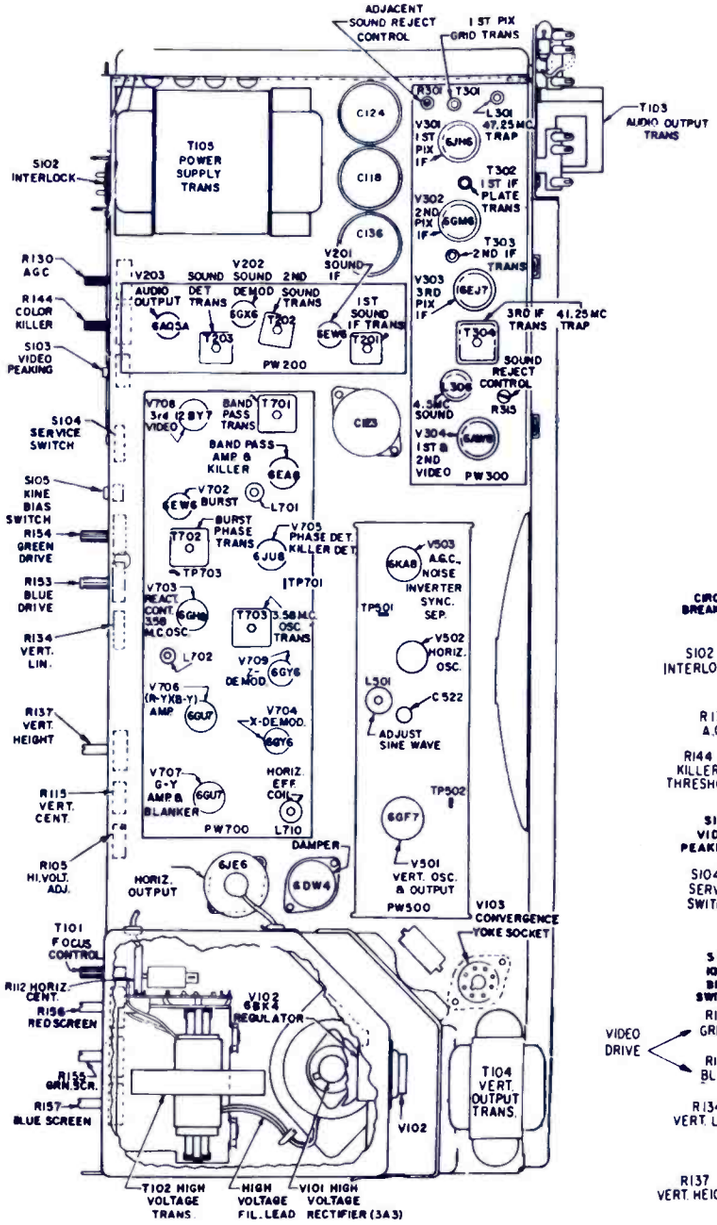


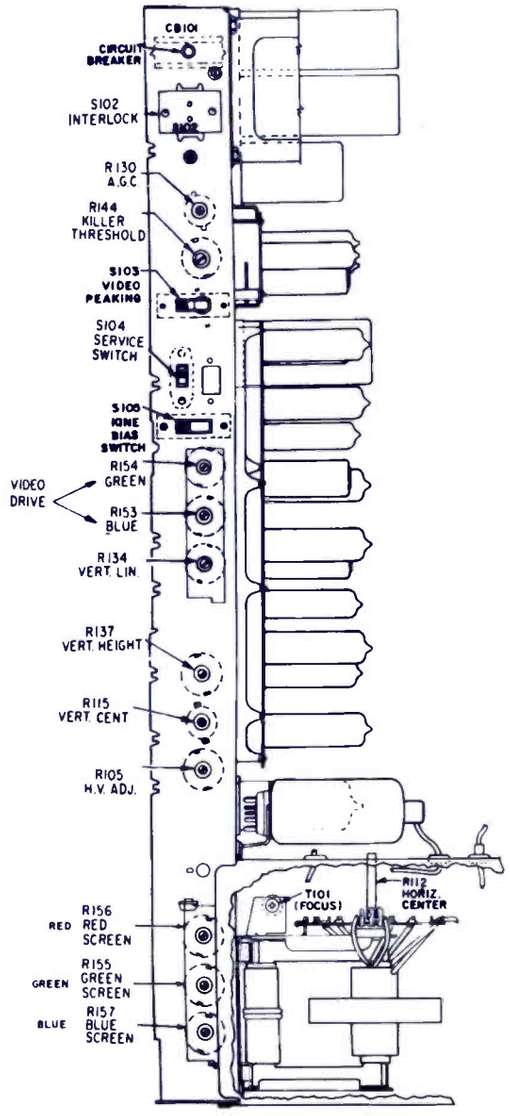
Video Board



Convergence Board







MAGNAVOX
Color TV
43 Series

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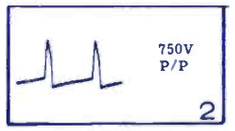
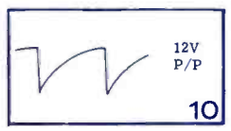
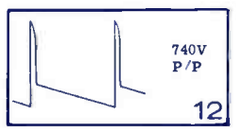
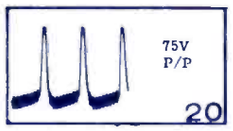
TEKFAX

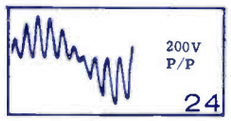
MAGNAVOX
Color TV
43 Series

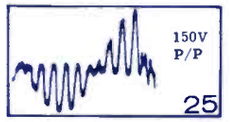






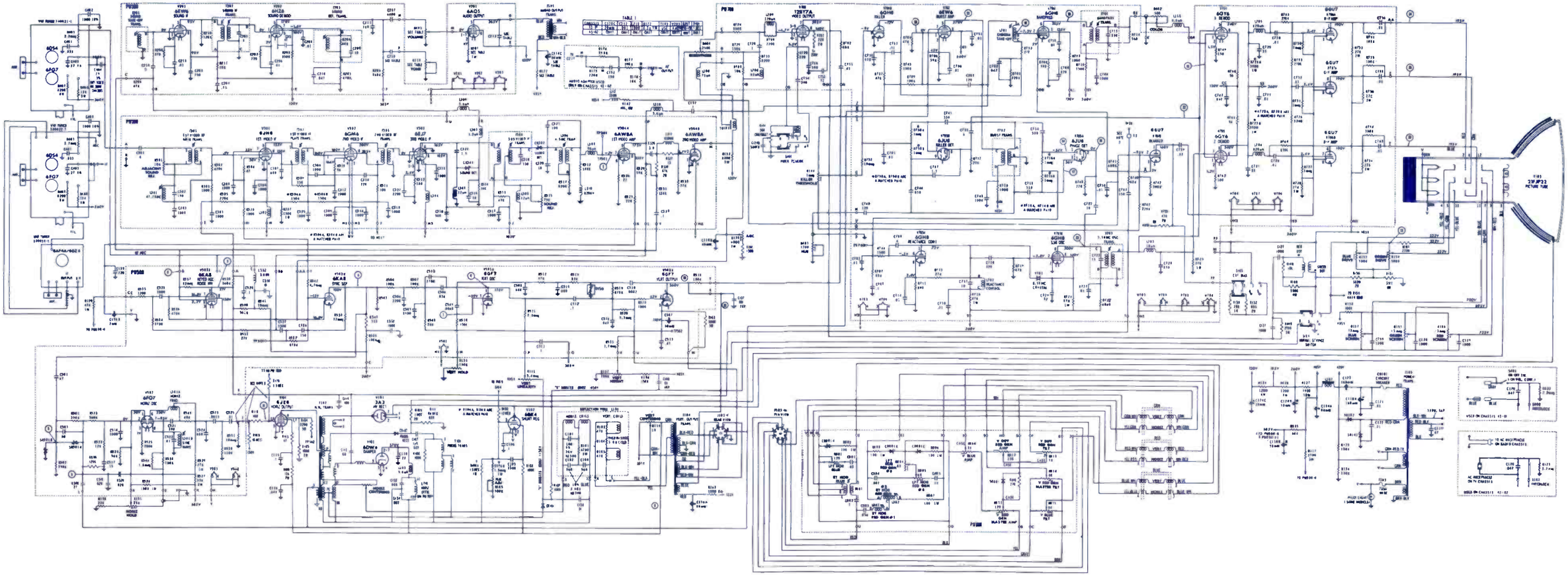






NOTES:

1. Capacitors having value of less than 1 are shown in mfd, and more than 1 in mmf.
2. All voltages measured with VTVM with no signal applied. Line voltage maintained at 120 volts AC. Voltage reading tolerance ±20%.
3. On some Chassis R531 is moved outside PW-500 and becomes R169 and is connected to 130V and R170 is added from pin 2 V104 to terminal TT on PW-700.



SECONDARY CONTROL PANEL-AT TOP REAR OF CABINET

SHARPNESS TONE HORIZ CONTRAST VERT

HOLD HOLD

BLUE DRIVE GREEN DRIVE SERVICE SWITCH

RED SCREEN

BLUE GREEN SCREEN SCREEN

CRT BIAS

VERT LIN. HEIGHT

HORIZ CENTERING

FOCUS ADJUST

AC INTERLOCK

H.V. ADJUST

HORIZ. EFFIC.

HORIZ. OUTPUT TUBE CATHODE LINK

AGC

CIRCUIT BREAKER

VERT CENTERING

COLOR KILLER

MAGNAVOX
Color TV Chassis
45 Series

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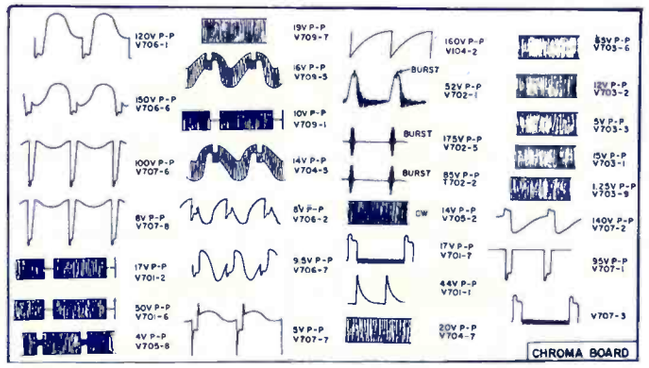
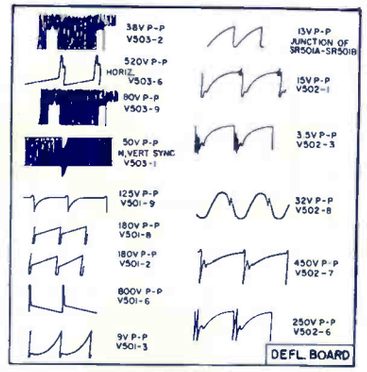
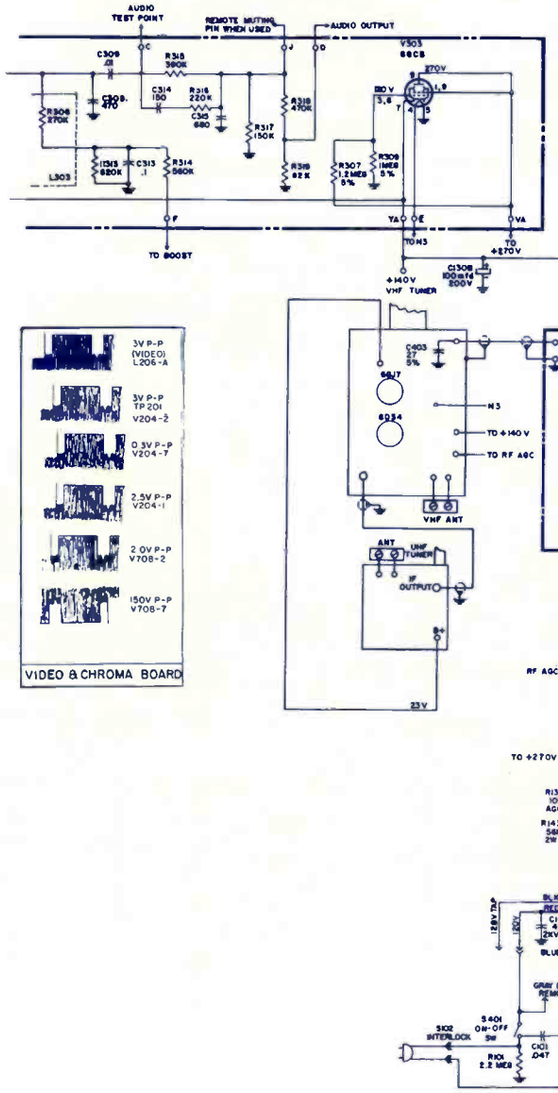
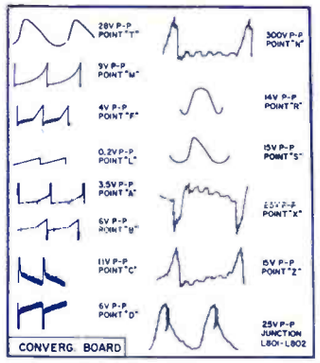






MAGNAVOX
Color TV Chassis
45 Series

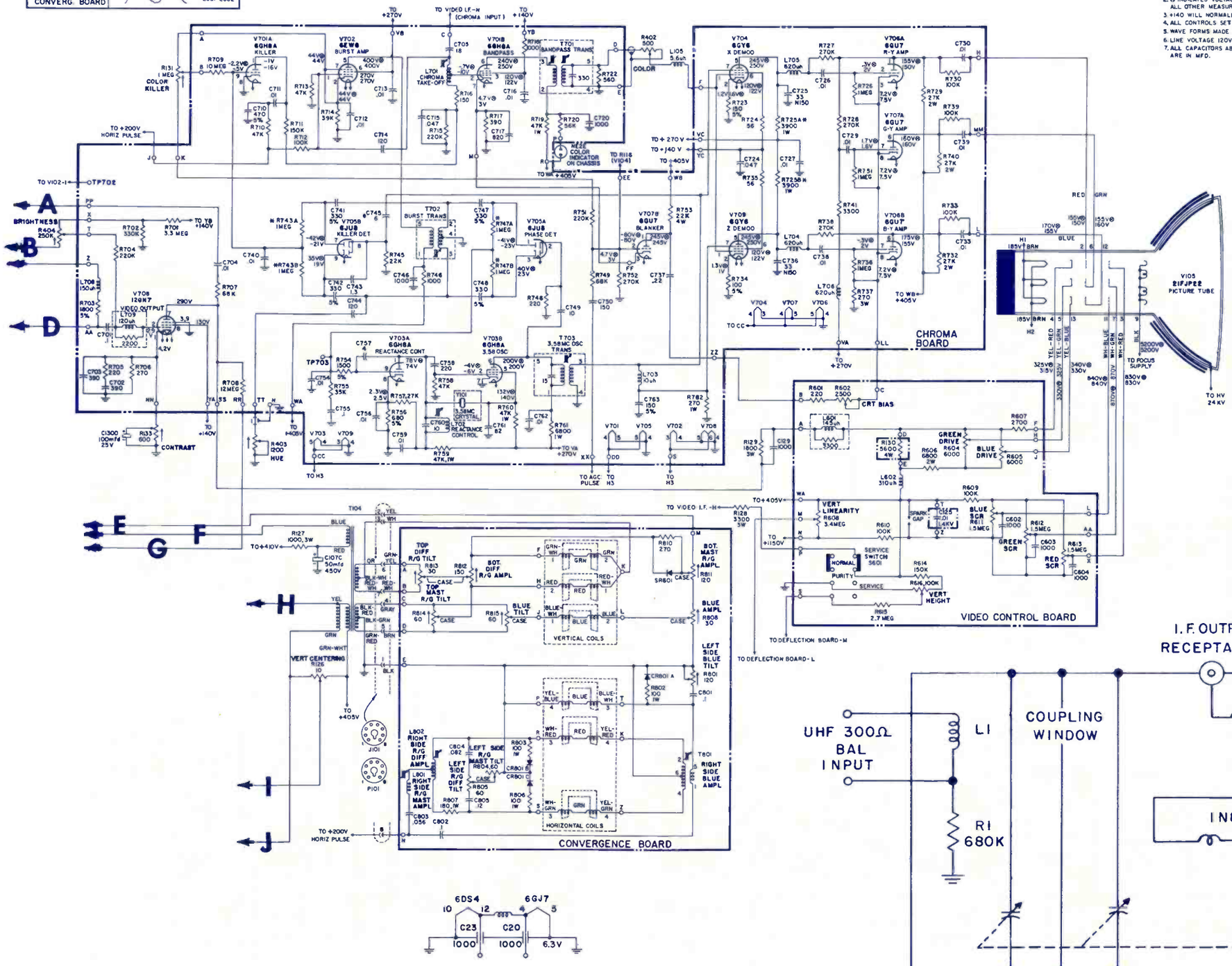


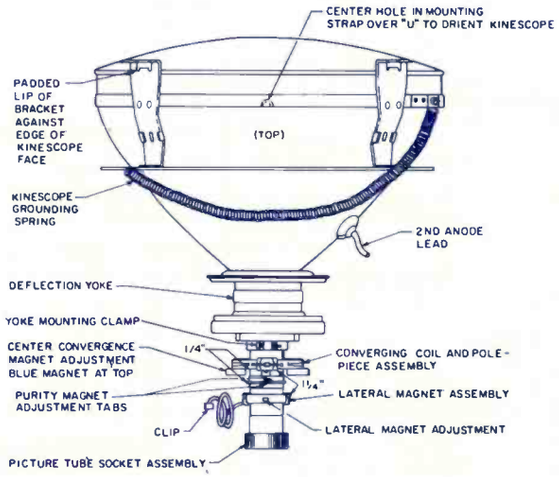
CHASSIS VERSION DIFFERENCES

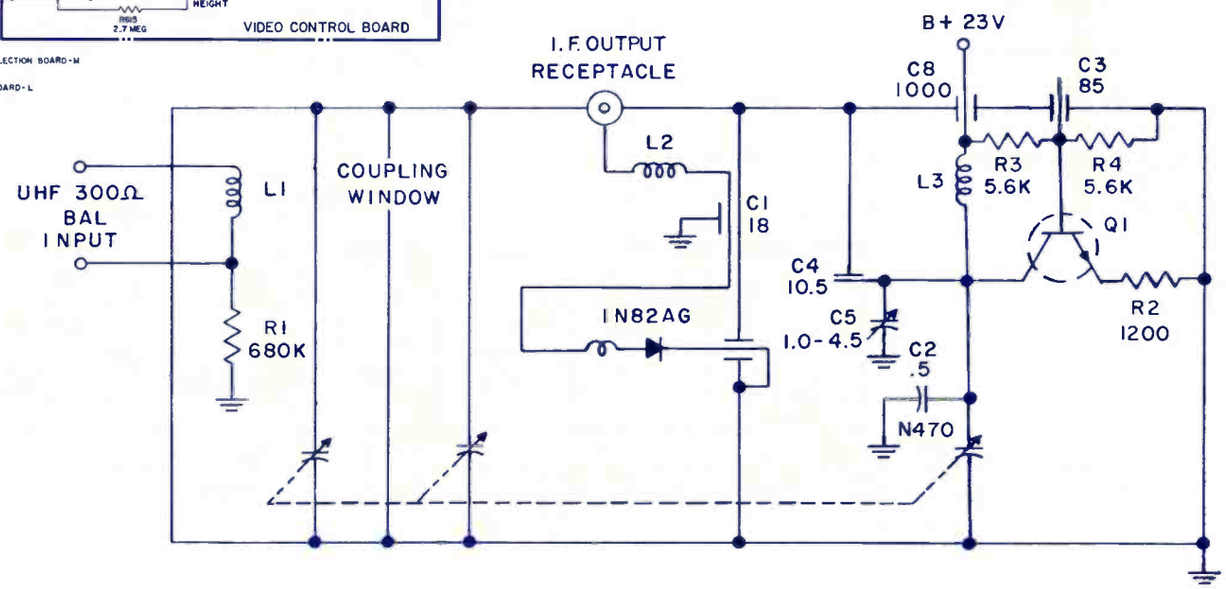
CHASSIS VERSION	SOUND BOARD	R719	R720	COLOR INDICATOR
45-01-00	USES BOARD "A"	47K	56K	USED
45-02-00	USES BOARD "B"	47K	56K	USED
45-03-00	USES BOARD "A"	NOT USED	1.5K*	NOT USED
45-04-00	USES BOARD "B"	47K	56K	USED

* R720 CONNECTED TO +270V ON 45-03-00 CHASSIS

NOTES: UNLESS OTHERWISE SPECIFIED
1. # INDICATES RESISTOR PAIR MATCHED WITHIN 2%.
2. @ INDICATES VOLTAGES MEASURED WITH COLOR BAR PATTERN APPLIED. ALL OTHER MEASUREMENTS ARE MADE WITH NO SIGNAL APPLIED.
3. +140 WILL NORMALLY READ 130V WITH NO SIGNAL.
4. ALL CONTROLS SET FOR NORMAL OPERATION.
5. WAVE FORMS MADE USING A RAINBOW GENERATOR WITH 3V AT TP501.
6. LINE VOLTAGE 120V AC.
7. ALL CAPACITORS ABOVE 1 ARE IN MMF AND ALL CAPACITORS BELOW 1 ARE IN MFD.



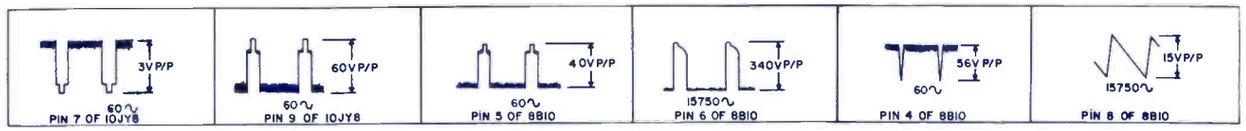


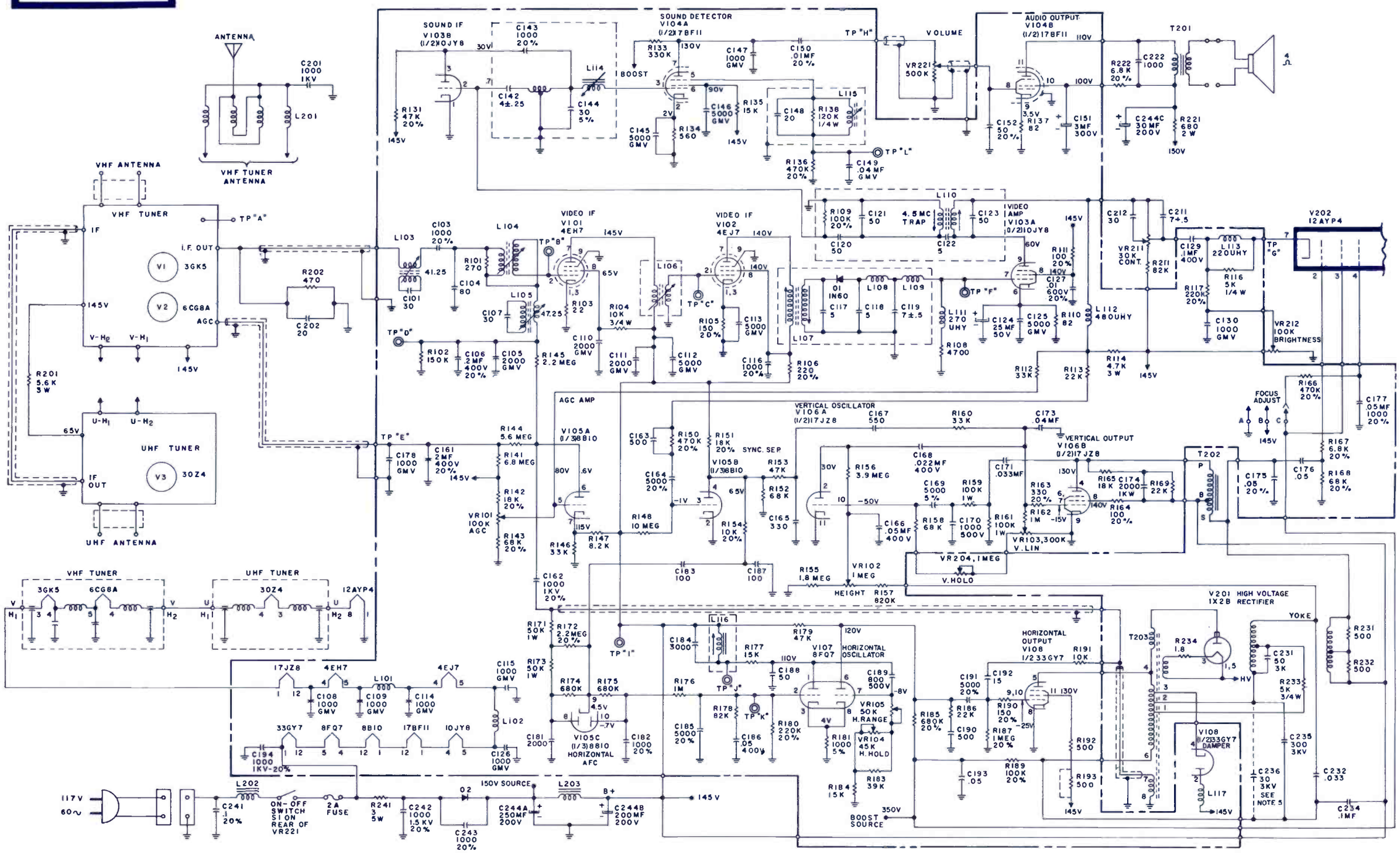


ELECTRONIC TECHNICIAN TEKFAX

MAGNAVOX
TV Chassis 48
Series

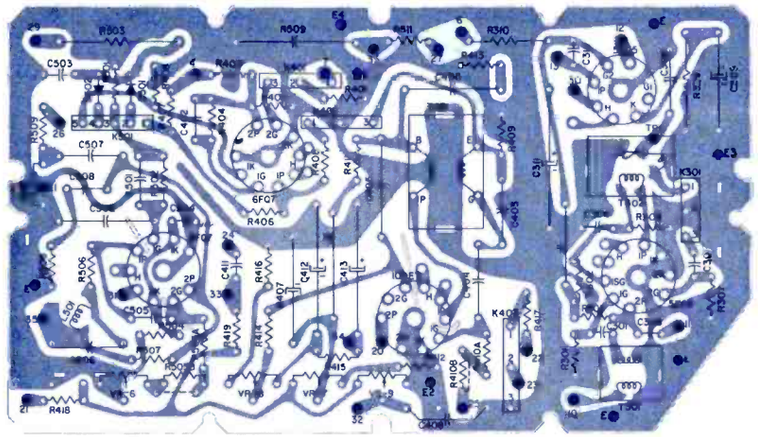
NOTES:
UNLESS OTHERWISE SPECIFIED:
1. ALL PAPER CAPACITORS ARE 600V ± 10%.
2. ALL CERAMIC CAPACITORS ARE IN MMF 500V ± 10%.
3. ALL RESISTORS 1/2 W 10%.
4. VOLTAGES MEASURED WITH NO SIGNAL CONTRAST CONTROL MAX., OTHERS FOR NORMAL SETTING
5. C236 MAY NOT BE USED ON SOME CHASSIS.

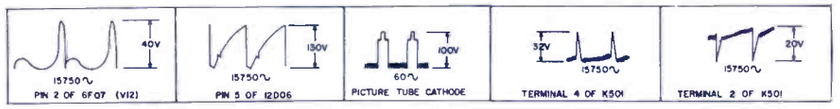


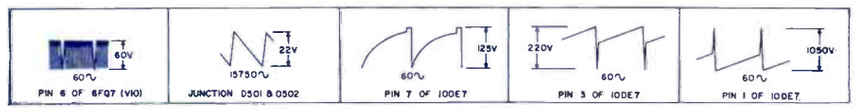


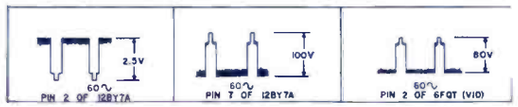
TEKFAX

MAGNAVOX
TV Chassis 49
Series

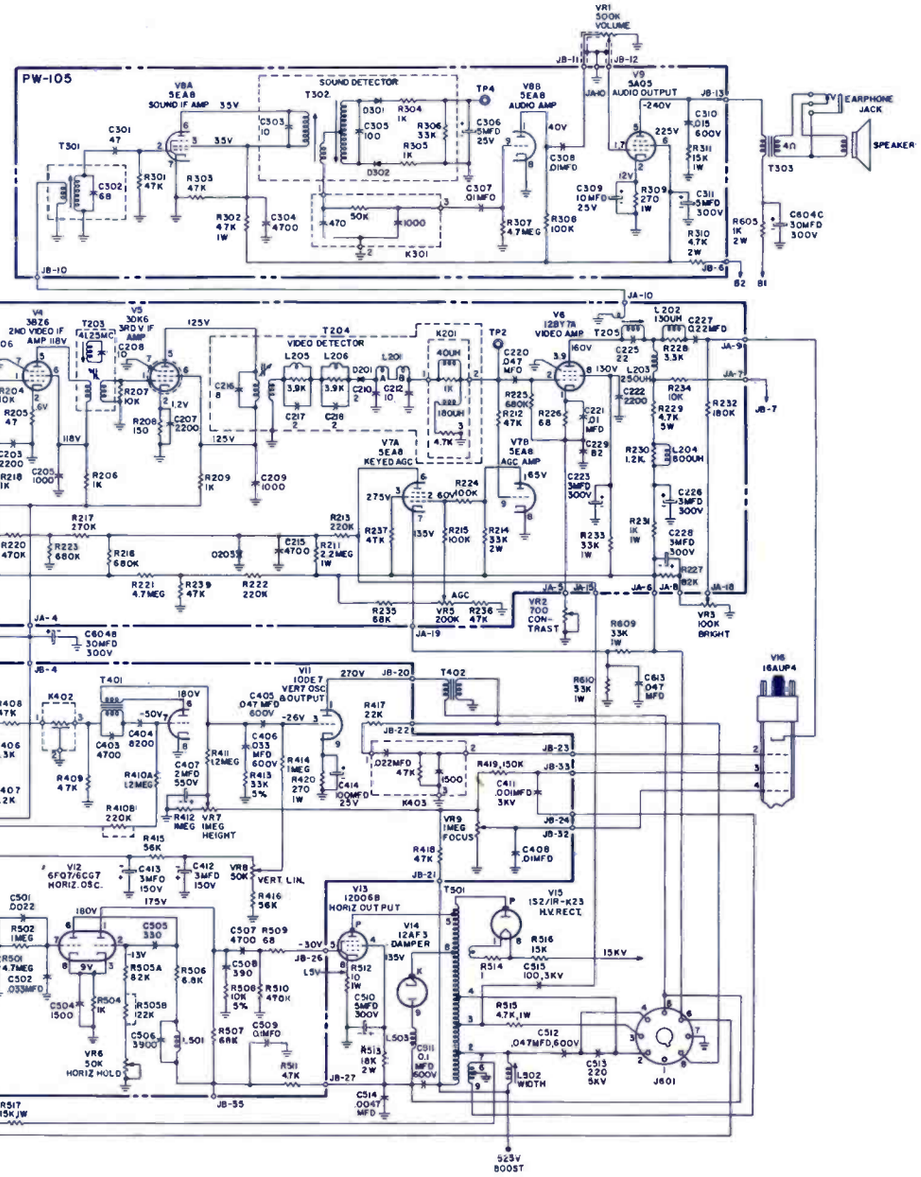


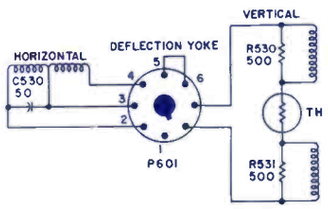






NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL CAPACITORS IN MICROMICRO FARADS.
2. ALL RESISTORS 1/2W, 10%.
3. VOLTAGES MEASURED WITH NO SIGNAL, CONTRAST SET TO MAX.-OTHER CONTROLS FOR NORMAL OPERATION.
4. WAVEFORMS TAKEN WITH CONTRAST SET TO MAX., OTHER CONTROLS NORMAL OPERATION-SIGNAL SUPPLIED.





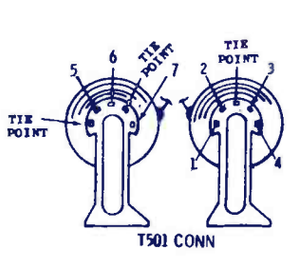
ELECTRONIC TECHNICIAN
TEKFAX

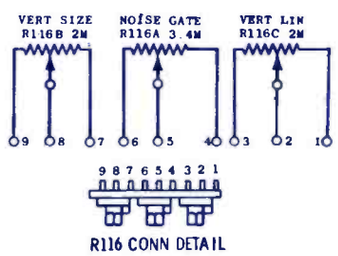
MOTOROLA
TV Chassis TS-586

NOTES:
VOLTAGE MEASUREMENTS
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A VTVM. ±20%
2. LINE VOLTAGE MAINTAINED AT 120V AC.
3. VOLTAGES INDICATED BY AN ASTERISK WILL VARY WITH ASSOCIATED CONTROL SETTINGS.
4. TAKEN WITH CONTRAST CONTROL AT MINIMUM AND ALL OTHER CONTROLS IN NORMAL OPERATING POSITION WITH NO SIGNAL INPUT.
5. TUNER ON CHANNEL 13 OR CHANNEL OF LEAST NOISE WITH ANTENNA TERMINALS SHORTED.

WAVEFORM MEASUREMENTS
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A WIDE-BAND OSCILLOSCOPE.
2. OSCILLOSCOPE SYNCED NEAR SWEEP RATE INDICATED.
3. TAKEN WITH STRONG SIGNAL, CONTRAST CONTROL AT MAXIMUM; ALL OTHER CONTROLS IN NORMAL OPERATING POSITION. CAPACITORS UNLESS OTHERWISE SPECIFIED, VALUES LESS THAN ONE IN MF; ALL OTHERS IN MMF.

** INDICATES SPECIAL COMPONENTS, SEE REPLACEMENT PARTS LIST FOR PROPER REPLACEMENT PART NUMBER





MOTOROLA
TV Chassis TS-584-05-H

NOTE: WHEN REPLACING YOKE RES-CAP, USE ORIGINAL VALUE IN CONJUNCTION WITH ASSOCIATED COMPONENTS AS LISTED BELOW

E503 RES-CAP C515 & C516	R511	C518 NOT USED IN ALL MODELS	R507
DUAL 91 MMF PART NO. 51D67056A06	INCLUDES 6.8K 1W	27 MMF	6.8K 2W
DUAL 150 MMF PART NO. 51D65239A23	EXCLUDES 6.8K 1W	82 MMF	6.8K 2W
320 MMF PART NO. 51D65239A18	EXCLUDES 6.8K 1W	- -	10K 2W

NOTES:
VOLTAGE MEASUREMENTS
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A VTVM. ±20%
2. LINE VOLTAGE MAINTAINED AT 120V AC.
3. VOLTAGES INDICATED BY AN ASTERISK WILL VARY WITH ASSOCIATED CONTROL SETTINGS.
4. TAKEN WITH CONTRAST CONTROL AT MINIMUM AND ALL OTHER CONTROLS IN NORMAL OPERATING POSITION WITH NO SIGNAL INPUT
5. TUNER ON CHANNEL 13 OR CHANNEL OF LEAST NOISE WITH ANTENNA TERMINALS SHORTED

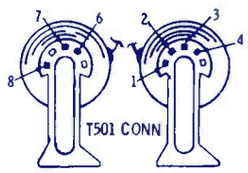
WAVEFORM MEASUREMENTS
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A WIDE-BAND OSCILLOSCOPE.
2. OSCILLOSCOPE SYNCED NEAR SWEEP RATE INDICATED
3. TAKEN WITH STRONG SIGNAL, CONTRAST CONTROL AT MAXIMUM: ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.

CAPACITORS: UNLESS OTHERWISE SPECIFIED, VALUES LESS THAN ONE IN MF; ALL OTHERS IN MMF

* INDICATES VOLTAGE VARIES WITH CONTROL SETTINGS.
** INDICATES SPECIAL COMPONENTS

NOTE: TO IDENTIFY CHASSIS, USE THE LAST 3 LETTERS PRECEEDING THE CHASSIS NUMBER ONLY.

CHASSIS	CRT	C507	C515	C516	C601	R507	R601	R805	R806	R808	R606	R804
--DTS584	19XP4 OR 19BRP4 114° DEFL	.03	320 2.5KV N1500	320 2.5KV N1500	.5MF 50V	10K 2W	470K 1/2W	15K 3W	2K 3W	2.2K 4W	VDR	10K 3W
--KTS584	23CMP4 OR 23ARP4 110° DEFL	.03	#	#	.5MF 50V	#	470K 1/2W	15K 3W	2K 3W	2.2K 4W	VDR	10K 3W
--ETS584	23AHP4 90°	.05			.3MF 50V	6.8K 2W	560K 1/2W	15K 3W	2K 3W	2.2K 4W	NOT USED	10K 3W



ELECTRONIC TECHNICIAN TEKFAX

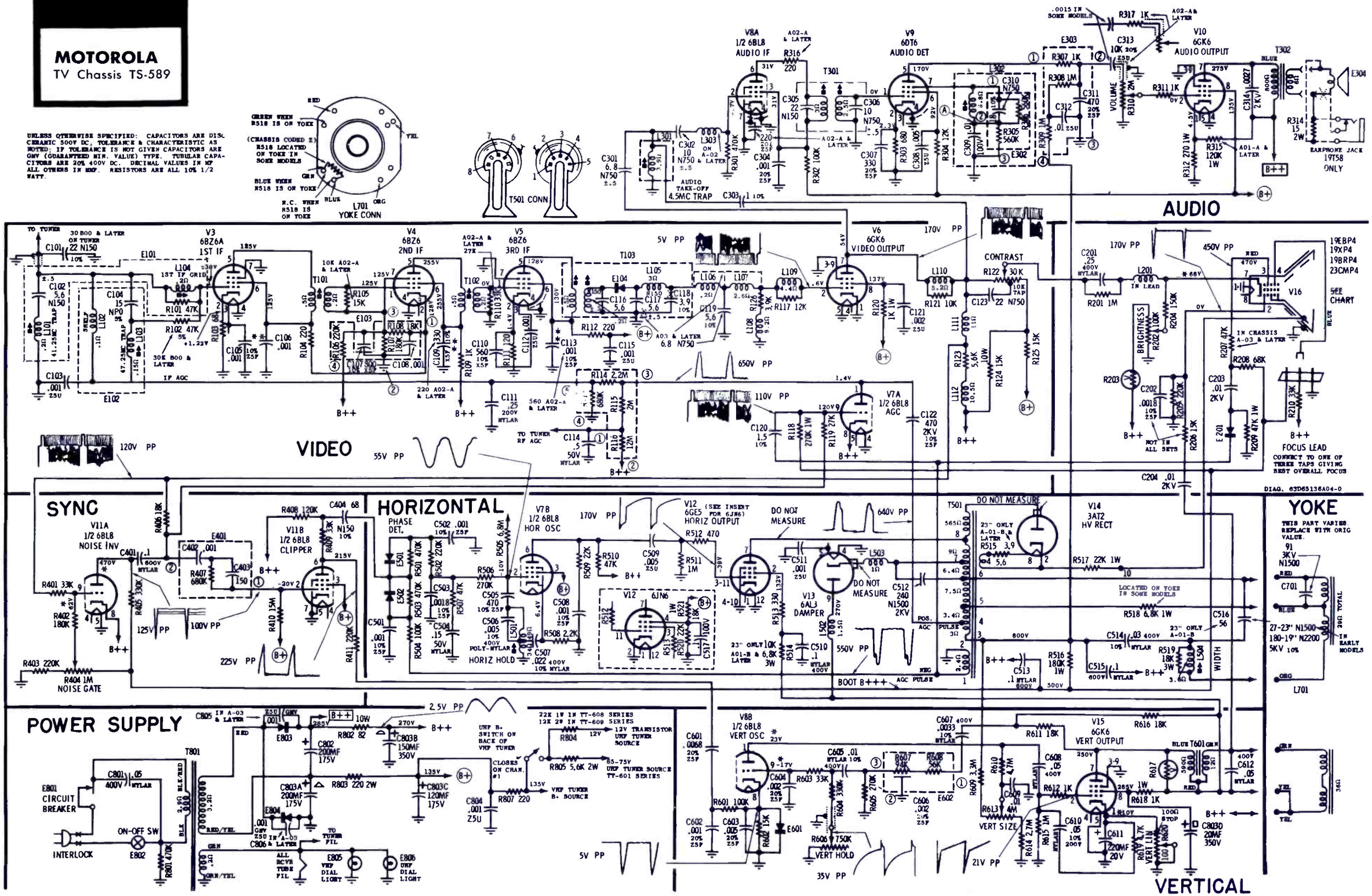
MOTOROLA
TV Chassis TS-589

UNLESS OTHERWISE SPECIFIED: CAPACITORS ARE DISC CERAMIC 500V DC, TOLERANCE & CHARACTERISTIC AS NOTED; IF TOLERANCE IS NOT GIVEN CAPACITORS ARE GMV (GUARANTEED MIN. VALUE) TYPE. TUBULAR CAPACITORS ARE 20% 400V DC. DECIMAL VALUES IN MF ALL OTHERS IN MMF. RESISTORS ARE ALL 10% 1/2 WATT.

NOTES:
VOLTAGE MEASUREMENTS
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A VTVM. ±20%
2. LINE VOLTAGE MAINTAINED AT 120V AC.
3. TAKEN WITH CONTRAST CONTROL AS MINIMUM AND ALL OTHER CONTROLS IN NORMAL OPERATING POSITION WITH NO SIGNAL INPUT.
4. TUNER ON CHANNEL 13 OR CHANNEL OF LEAST NOISE WITH ANTENNA TERMINALS SHORTED.

WAVEFORM MEASUREMENTS
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A WIDE-BAND OSCILLOSCOPE.
2. OSCILLOSCOPE SYNCED NEAR SWEEP RATE INDICATED.
3. TAKEN WITH STRONG SIGNAL, CONTRAST CONTROL AT MAXIMUM; ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.

* INDICATES VOLTAGE VARIES WITH CONTROL SETTINGS.
** INDICATES SPECIAL COMPONENTS, SEE REPLACEMENT PARTS LIST FOR PROPER REPLACEMENT PART NUMBER.



MOTOROLA
Color TV Chassis
TS-912A

NOTES:

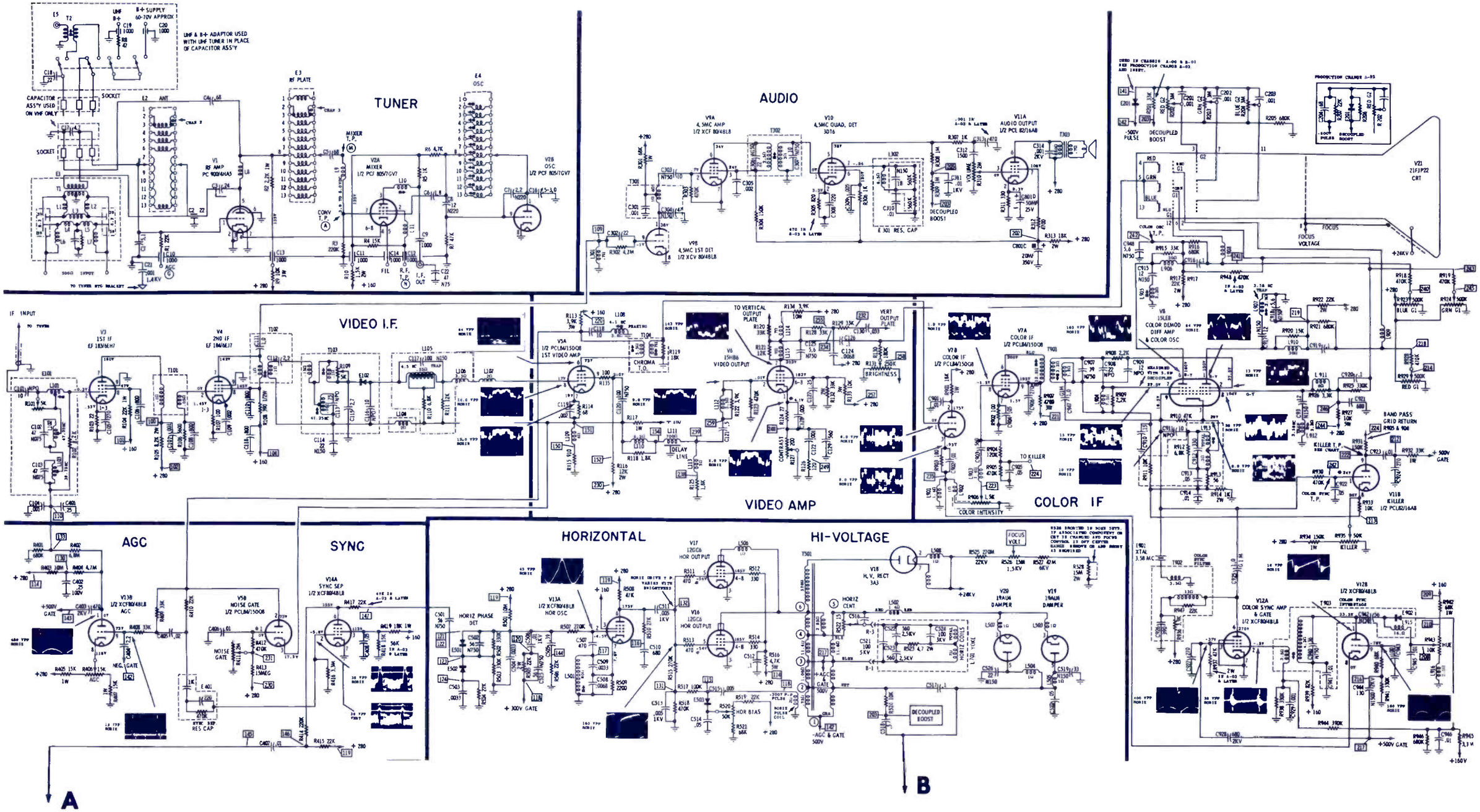
VOLTAGE AND RESISTANCE MEASUREMENTS: SEE CHART

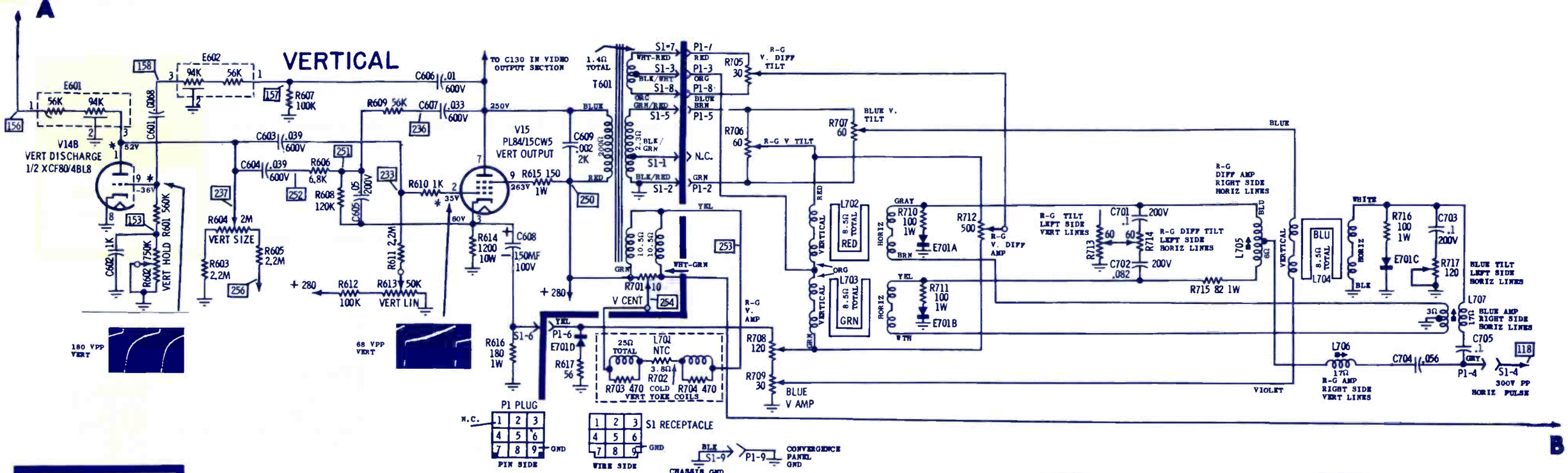
1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A VTVM+ 20%.
2. LINE VOLTAGE MAINTAINED AT 120V AC.
3. VOLTAGES INDICATED BY AN ASTERISK WILL VARY WITH ASSOCIATED CONTROL SETTINGS.
4. TAKEN WITH CONTRAST CONTROL AT MINIMUM AND ALL OTHER CONTROLS IN NORMAL OPERATING POSITION WITH NO SIGNAL INPUT.
5. TUNER ON CHANNEL 13 OR CHANNEL OF LEAST NOISE WITH ANTENNA TERMINALS SHORTED.

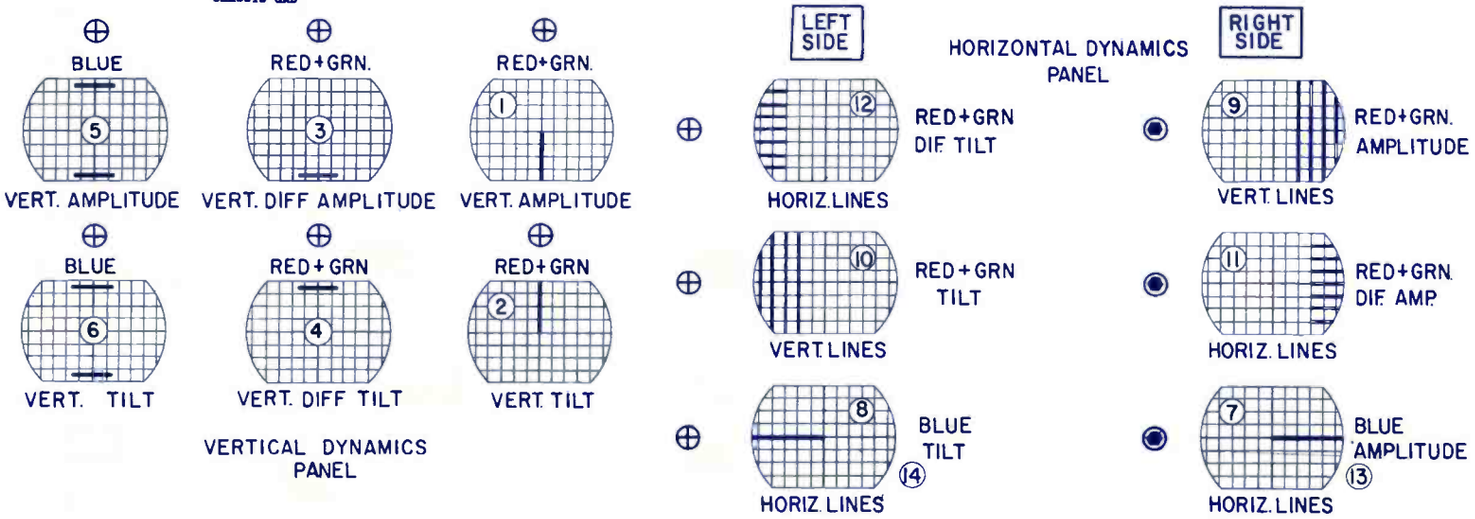
WAVEFORM MEASUREMENTS

1. TAKEN FROM POINT INDICATED TO CHASSIS WITH A WIDE-BAND OSCILLOSCOPE.
2. OSCILLOSCOPE SYNCED NEAR SWEEP RATE INDICATED.
3. TAKEN WITH STRONG SIGNAL. CONTRAST CONTROL AT MAXIMUM; ALL OTHER CONTROLS IN NORMAL OPERATING POSITION.

More Data on Reverse Side







MOTOROLA
Color TV Chassis
TS-912A

ELECTRONIC TECHNICIAN
TEKFAX

DYNAMIC CONVERGENCE

Vertical Dynamics

Obtain a red-green raster by turning blue G-2 to minimum. Use Figure 5, the convergence panel diagram, and observe the effect as illustrated at each control.

1. Adjust R-G vertical amp to converge the center vertical lines at bottom of screen (Step 1).

2. Adjust R-G vertical tilt to converge the center vertical lines at top of screen (Step 2).

Alternately repeat Steps 2 and 3 for best convergence at top and bottom of center vertical line. Best convergence is obtained by super-imposing the lines from the center outward. However, the proper adjustment of these controls may result in the red and green lines being parallel. If this condition exists, converge the lines by using the disc magnets.

3. Adjust the R-G vertical differential amp control to converge the center portion of the horizontal lines at the bottom of the screen (Step 3).

4. Adjust the R-G vertical differential tilt to converge the center portion of the horizontal lines at the top of the screen (Step 4).

If the horizontal lines in the center of the screen are misconverged, repeat Steps #3 & 4 for equally spaced horizontal lines from top to bottom of screen. Re-adjust disc magnets if necessary. Re-adjust the R-G vertical amp and tilt controls (Steps 1 and 2) for center vertical lines, if necessary.

5. Turn up the blue G-2 control. Adjust the blue vertical amp to produce displacement in the same direction of the blue horizontal lines at top and bottom of the screen (Step 5).

6. Adjust the blue vertical tilt control to produce equal displacement in the same direction of the blue horizontal lines with respect to red and green from the top to the bottom of screen (Step 6).

Alternately repeat Steps 5 and 6 for satisfactory convergence of the blue horizontal lines from top to bottom of screen along the center of screen, or for equal displacement to permit convergence with the disc magnets.

Horizonfal Dynomics

7. Adjust the right blue horizontal line control to make the blue line at the right-hand center of the screen a straight line (Step 7).

8. Adjust the left blue horizontal line control for a straight blue line from the center to the left side of the screen (Step 8).

Turn off the blue G-2 leaving the red and green fields on the screen.

9. Adjust the right-side R-G vertical line control to make the vertical lines from the center to the right side converge (Step 9).

10. Adjust the left-side R-G vertical line control to make the vertical lines from the center to the left side converge (Step 10).

Re-touch the right and left R-G vertical line controls for best overall convergence of the vertical lines or for an error that lends itself to correction by the disc magnets.

11. Adjust the right side R-G horizontal line control to make the horizontal red and green lines at the right side converge (Step 11).

12. Adjust the left side R-G horizontal line control to make the red and green horizontal lines at the left side of the screen converge (Step 12).

It may be necessary to touch-up Steps 9 and 10 above to compensate for any inter-action.

13. Turn up the blue G-2. Re-adjust the right side blue horizontal line control to make the horizontal blue lines on the right side of the screen converge with the red and green lines (Step 13).

14. Re-adjust the left side blue horizontal line control to make the horizontal blue lines on the left side of the screen converge with the red and green lines (Step 14).

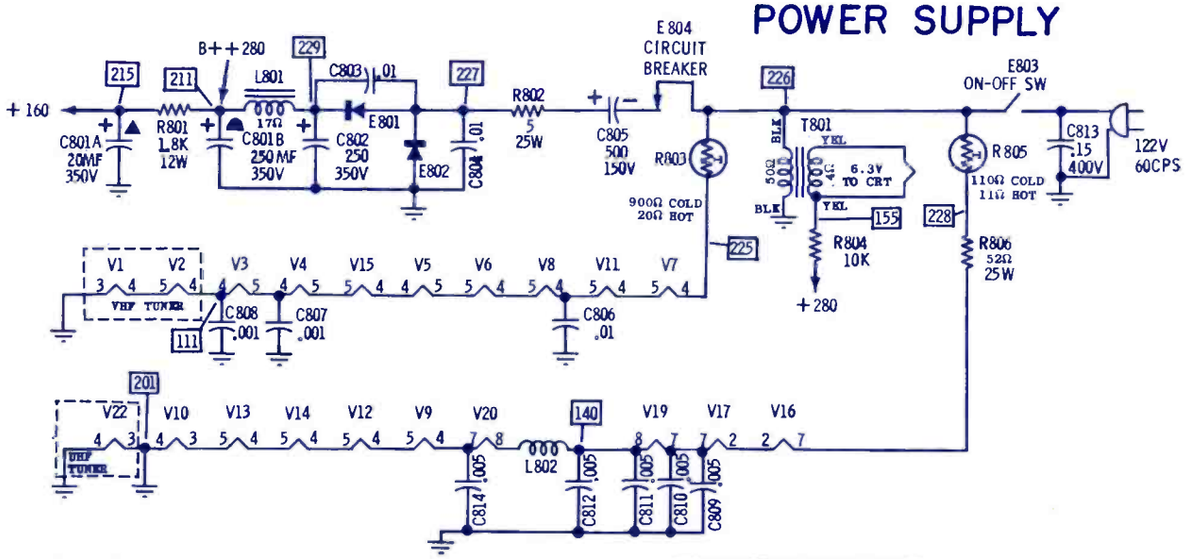
Due to inter-action, it may be necessary to re-touch Steps 11 and 12 above.

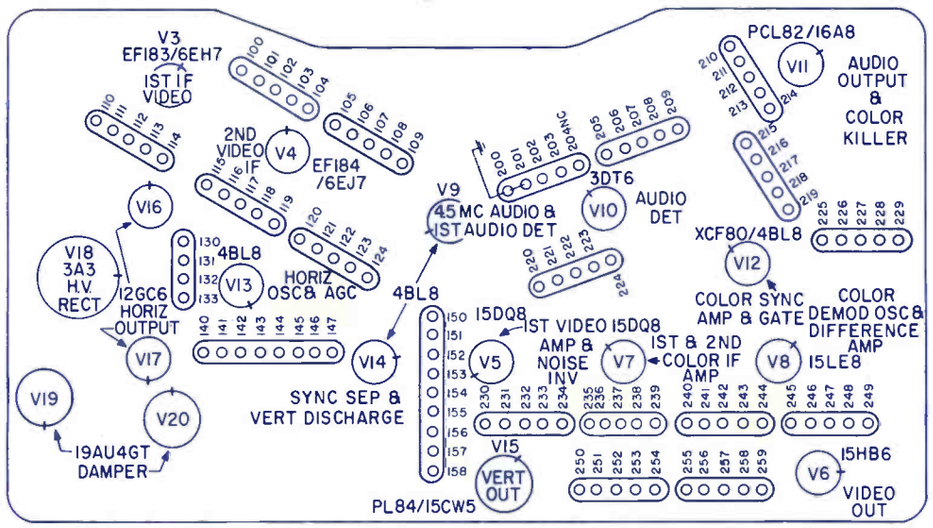
15. (FOR TYPE B BLUE LATERAL MAGNET ASSEMBLY ONLY) - Adjust Dynamic Blue Lateral Size Adjustment until the blue is converged on the R-G along the vertical lines on the left and right edges of the screen.

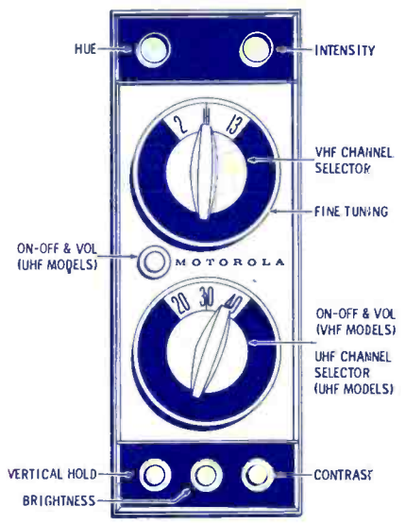
The G-2 controls should now be reset for a white background. Generally, since the blue G-2 is the only one distrubed, it is possible to set this control at its proper adjustment at normal brightness while observing a local station.

OLYMPIC
TV Chassis
NB and NBU

POWER SUPPLY

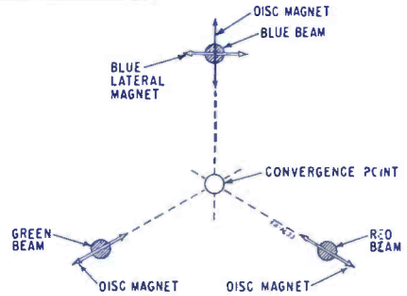






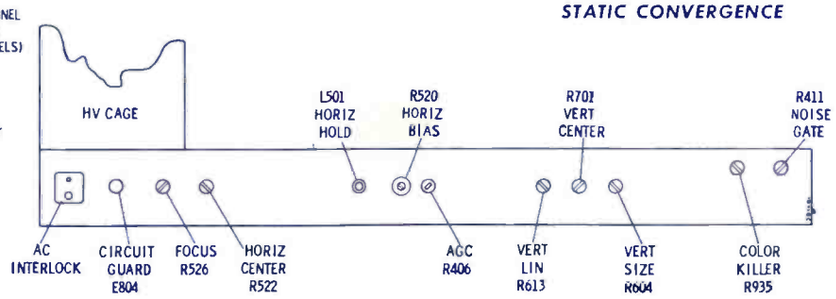
MOTOROLA
Color TV Chassis
TS-912A

ELECTRONIC TECHNICIAN TEKFAX

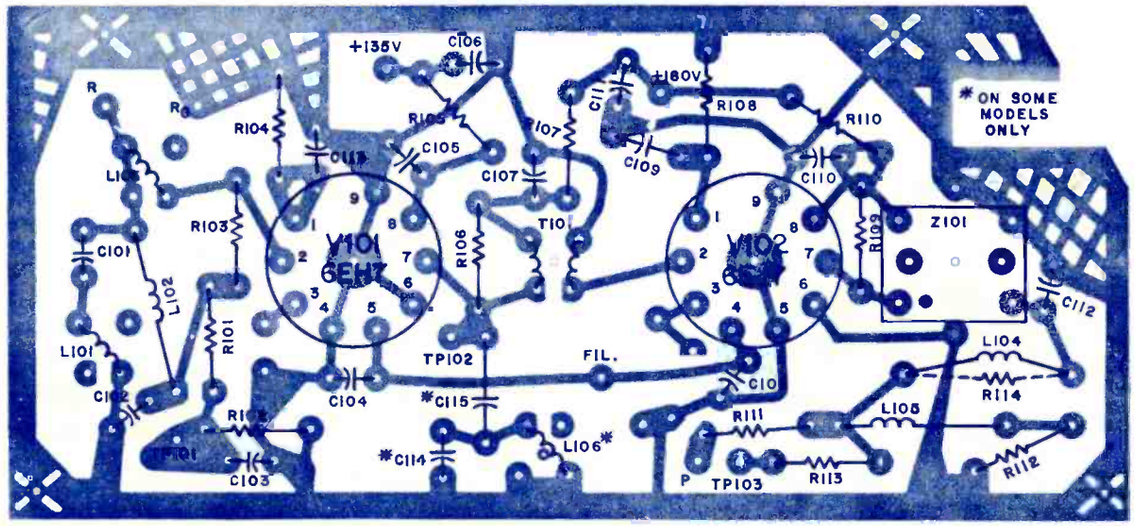


(VIEW FROM REAR OF TUBE)

STATIC CONVERGENCE

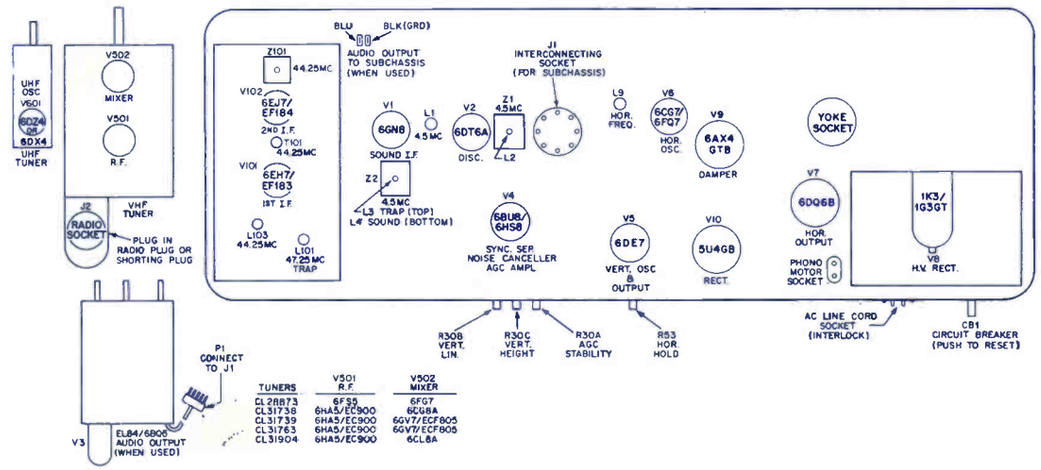


PRINTED IF BOARD - NB & NBU CHASSIS



PRINTED BOARD - 306 CHASSIS

TUBE & TRIMMER LAYOUT - NB & NBU CHASSIS



OLYMPIC
TV Chassis
NB and NBU

ELECTRONIC TECHNICIAN
TEKFAX

TV SCHEMATIC - NB & NBU CHASSIS

NOTES:

ALL RESISTOR VALUES ARE IN OHMS UNLESS OTHERWISE NOTED.

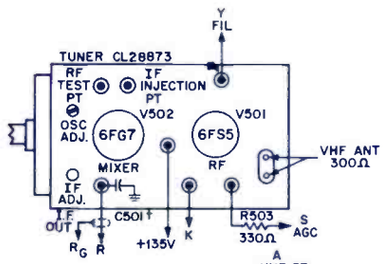
ALL CAPACITOR VALUES LESS THAN 1.0 ARE IN MICROFARADS AND GREATER THAN 1.0 ARE IN MICRO-MICROFARADS UNLESS OTHERWISE NOTED.

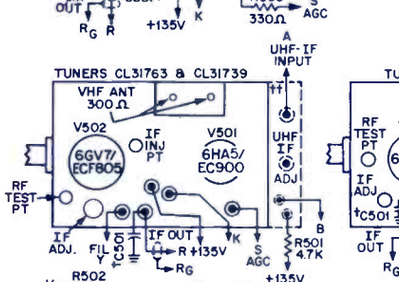
ALL VOLTAGES ±15%, MEASURED WITH A VTVM, BETWEEN INDICATED POINTS AND GROUND WITH AN INPUT VOLTAGE OF 117V, 60∿ AND NORMAL SIGNAL INPUT WITH CONTRAST CONTROL SET TO PRODUCE 90V, P-P AT KINESCOPE.

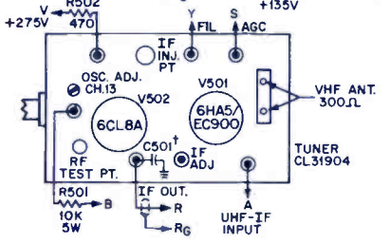
† SOME SETS HAVE A 5μμf OR A 10μμf CAPACITOR OR BOTH IN PARALLEL.

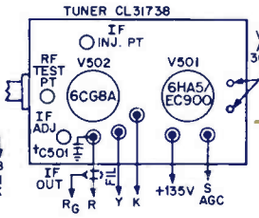
†† SECTION SHOWN ----- OMITTED IN CL31739.

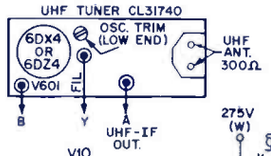
§ R64 - NOT USED WITH CL31904
1K, 2W WITH CL28873
6.8K, 4W WITH CL31738, CL31739 & CL31763











PACKARD BELL
TV Chassis 88-16

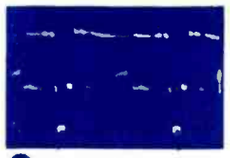
NOTES:
1.- UNLESS NOTED TO THE CONTRARY, D.C. VOLTAGES WERE MEASURED WITH NO SIGNAL, CONTROLS WERE SET FOR NORMAL PICTURE RECEPTION, AND THEN SIGNAL WAS REMOVED. LINE VOLTAGE: 120V.
2.- 23KV MEASURED WITH 120 VOLT LINE, NORMAL SIGNAL, & ZERO BEAM CURRENT.
3.- A LETTER AFTER THE REFERENCE SYMBOL (R265) INDICATES THAT THE COMPONENT IS PART OF P.E.C.
4.- ALL RESISTORS ½ W. & 10% UNLESS SPECIFIED. EXCEPTION: P.E.C. UNITS ARE ½ W. & 20%.
5.- SWEEP FREQUENCY: (HZ. OR VT.) & PK. TO PK. VOLTAGE IS INDICATED BESIDE EACH WAVE FORM.

* W CONNECTED TO Z AND X CONNECTED TO Y UNLESS A CORD REMOTE IS USED IF SO W AND X ARE CONNECTED TO BRIGHTNESS CONTROL ON THE CORD REMOTE.

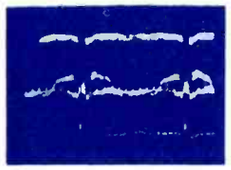
† L4 COIL HAS ADJUSTMENT AT CHASSIS S-6 END OF COIL & S-5 AT OTHER END. L8 AT CHASSIS END OF L6.

OSCILLOSCOPE WAVEFORM PATTERNS

These waveforms were taken with the receiver adjusted for an approximate output of 3.5 volts p/p at the video detector. Voltage readings taken with raster just filling screen and all controls set for normal picture viewing. The voltages are given approximate peak-to-peak values. The frequencies shown are those of the waveforms—not the sweep rate of the oscilloscope. All readings taken with Model ES-550B "Precision Oscilloscope."



1. 3.5 volts p/p, 15,750 cps (max. contrast)

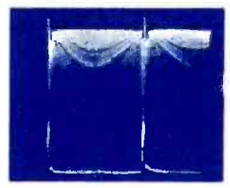


2. 3.5 volts p/p, 60 cps (max. contrast)

3. 85 volts p/p, 15,750 cps (max. contrast)

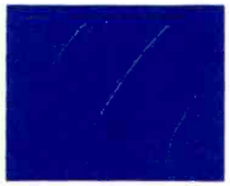
4. 70 volts p/p, 15,750 cps

5. 70 volts p/p, 60 cps

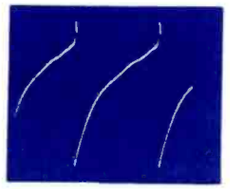


6. 45 volts p/p, 60 cps

7. 45 volts p/p, 15,750 cps

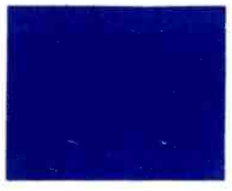


8. 40 volts p/p, 60 cps

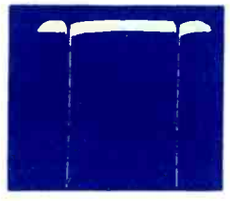


9. 50 volts p/p, 60 cps

10. 40 volts p/p, 60 cps



11. 1000 volts p/p, sawtooth, 150 volts p/p, 60 cps

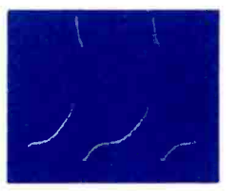


12. 35 volts p/p, 60 cps

13. 10 volts p/p, 15,750 cps

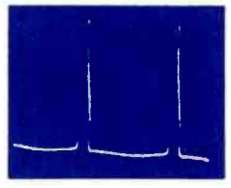
14. 7 volts p/p, 15,750 cps

15. 30 volts p/p, 15,750 cps



16. 25 volts p/p, 15,750 cps

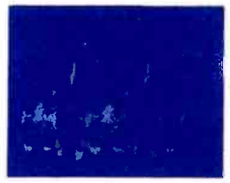
17. 9 volts p/p, 15,750 cps



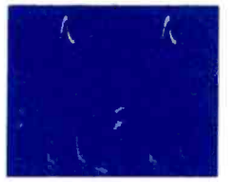
18. 8 volts p/p, 15,750 cps

19. 100 volts p/p, 15,750 cps

20. 470 volts p/p, 15,750 cps



21. 50 volts p/p, 15,750 cps



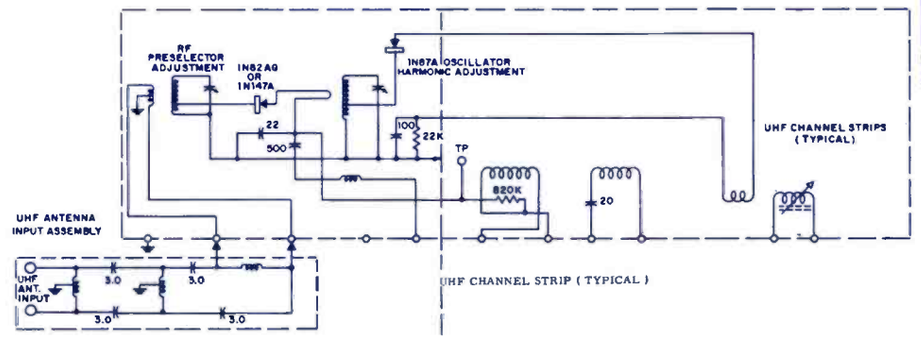
22. 15 volts p/p, 15,750 cps

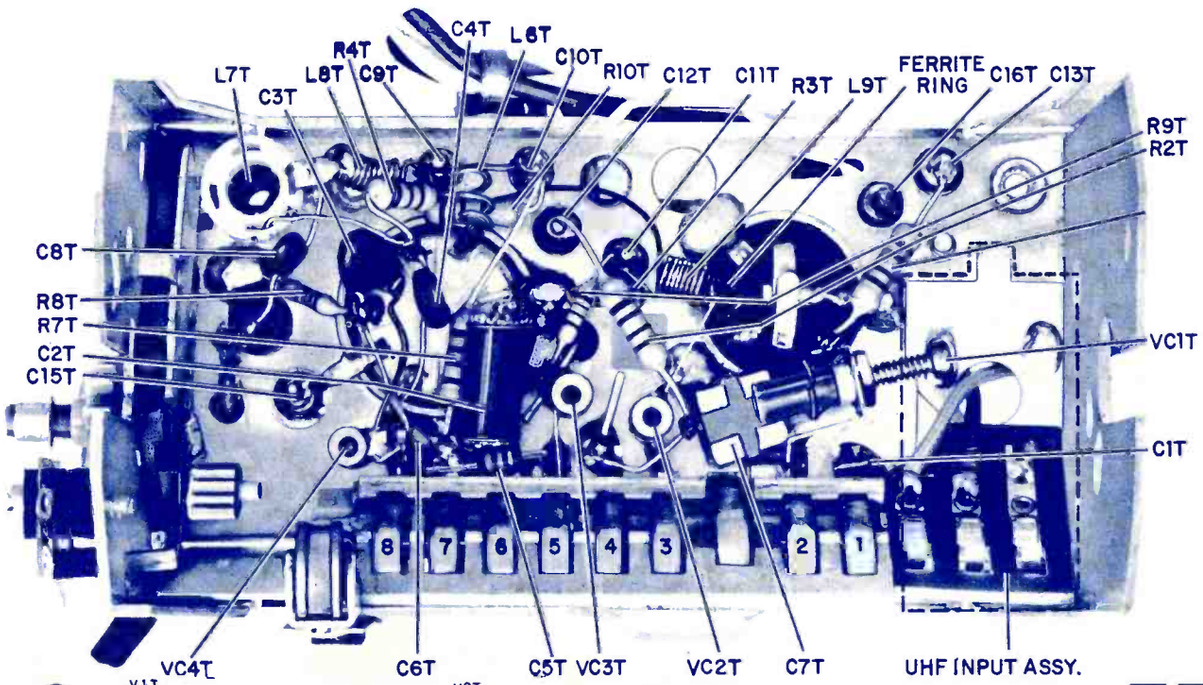
PHILCO
TV Chassis
14N30 and VHF
Tuner TT-83 Data

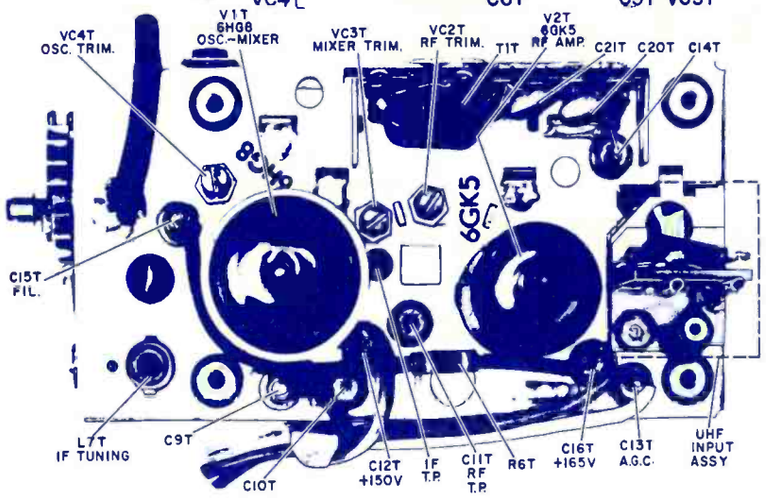
ELECTRONIC TECHNICIAN
TEKFAX

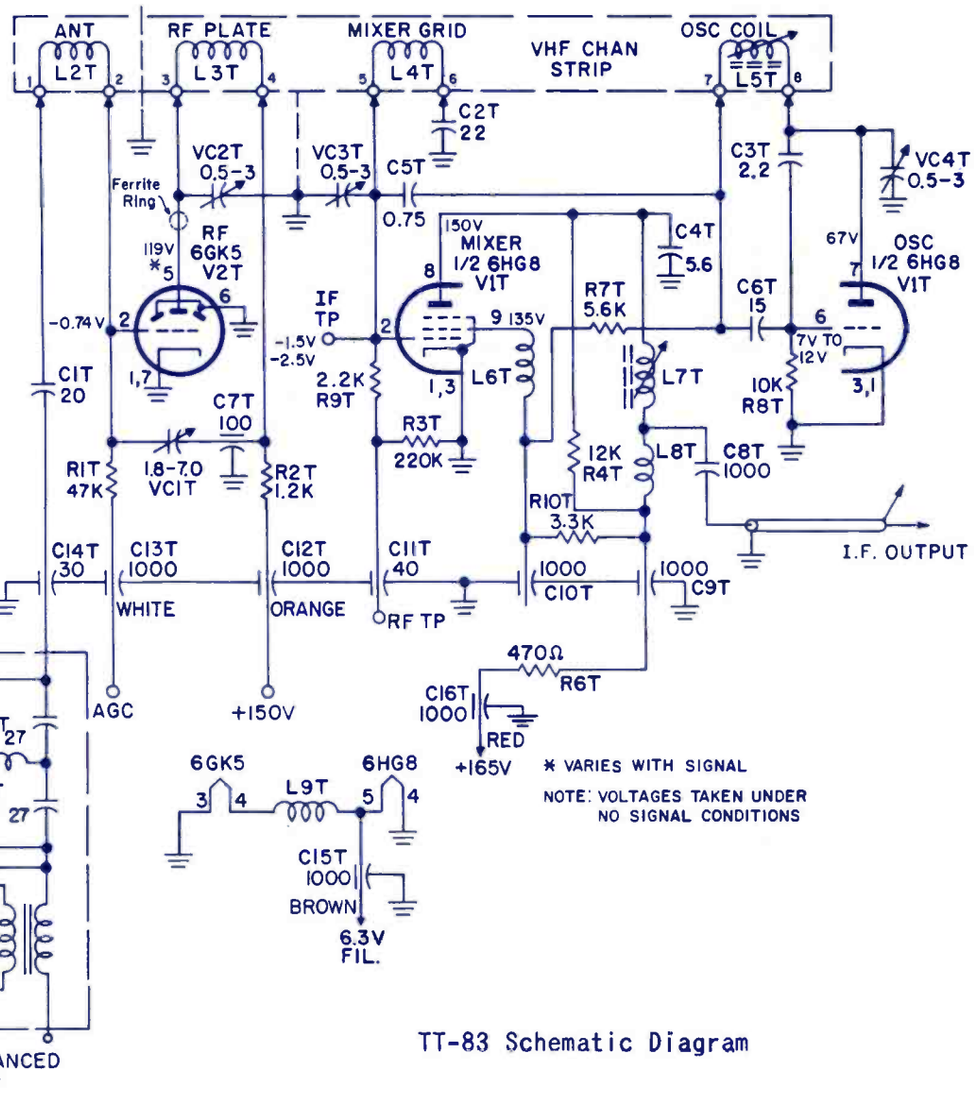
PHILCO
TV Chassis
14N30 and VHF
Tuner TT-83 Data

PIN NUMBERS													
TUBE	USE	1	2	3	4	5	6	7	8	9	10	11	12
V6 17JZ8	Vert. Osc. & Vert. Out.	FIL.	2.5MΩ	INF.	10KΩ	INF.	1.4MΩ	1.4MΩ	10KΩ	GND.	150KΩ	GND.	FIL.
V7 21GY5	Horz. Out.	FIL.	INF.	10KΩ	GND.	280KΩ	10KΩ	10KΩ	10KΩ	280KΩ	GND.	10KΩ	FIL.
V8 8FQ7	Horz. Osc.	10KΩ	1.8MΩ	620Ω	FIL.	FIL.	45KΩ	95KΩ	620Ω	GND.			
V9 4EH7	1st Vid. I-F	20Ω	500KΩ	20Ω	FIL.	FIL.	GND.	10KΩ	10KΩ	GND.			
V10 4EJ7	2nd Vid. I-F	100Ω	0.2Ω	100Ω	FIL.	FIL.	GND.	10KΩ	10KΩ	GND.			









TT-83 Schematic Diagram

LEGEND FOR PERMA-CIRCUIT PANEL

- HORIZONTAL CIRCUITS
- SOUND I.F. DETECTOR AND AUDIO CIRCUITS
- VIDEO AND AGC CIRCUITS
- VIDEO I.F. CIRCUITS
- VERTICAL CIRCUITS
- SYNC SEPARATOR AND NOISE INVERTER CIRCUITS

Philco
Chassis 14N50

ELECTRONIC TECHNICIAN
TEKFAX

RESISTANCE CHART - 14N50

		PIN NUMBERS											
TUBE	USE	1	2	3	4	5	6	7	8	9	10	11	12
V1 6JZ8	Audio Out AGC Gate	FIL.	1.1 MEGΩ	10KΩ	11KΩ	11KΩ	200K	200K	14K	390Ω	28K	10K	FIL.
V2 6FQ7	Horz. Osc.	26KΩ	1.8MΩ	820Ω	FIL.	FIL.	39K	90K	820Ω				
V3 6EH7	1st VIF	24Ω	310KΩ	24Ω	FIL.	FIL.	GND.	11KΩ	30KΩ	GND.			
V4 6CS6	Sound Disc	5.5Ω	560Ω	FIL.	FIL.	800KΩ	11K	3.5Ω					
V5 6JZ8	Vert. Osc. Vert. Out.	0Ω	2.6 MEGΩ	INF.	10KΩ	FIL.	1.3 MEGΩ	1.3 MEGΩ	11KΩ	GND.	250KΩ	GND.	FIL.

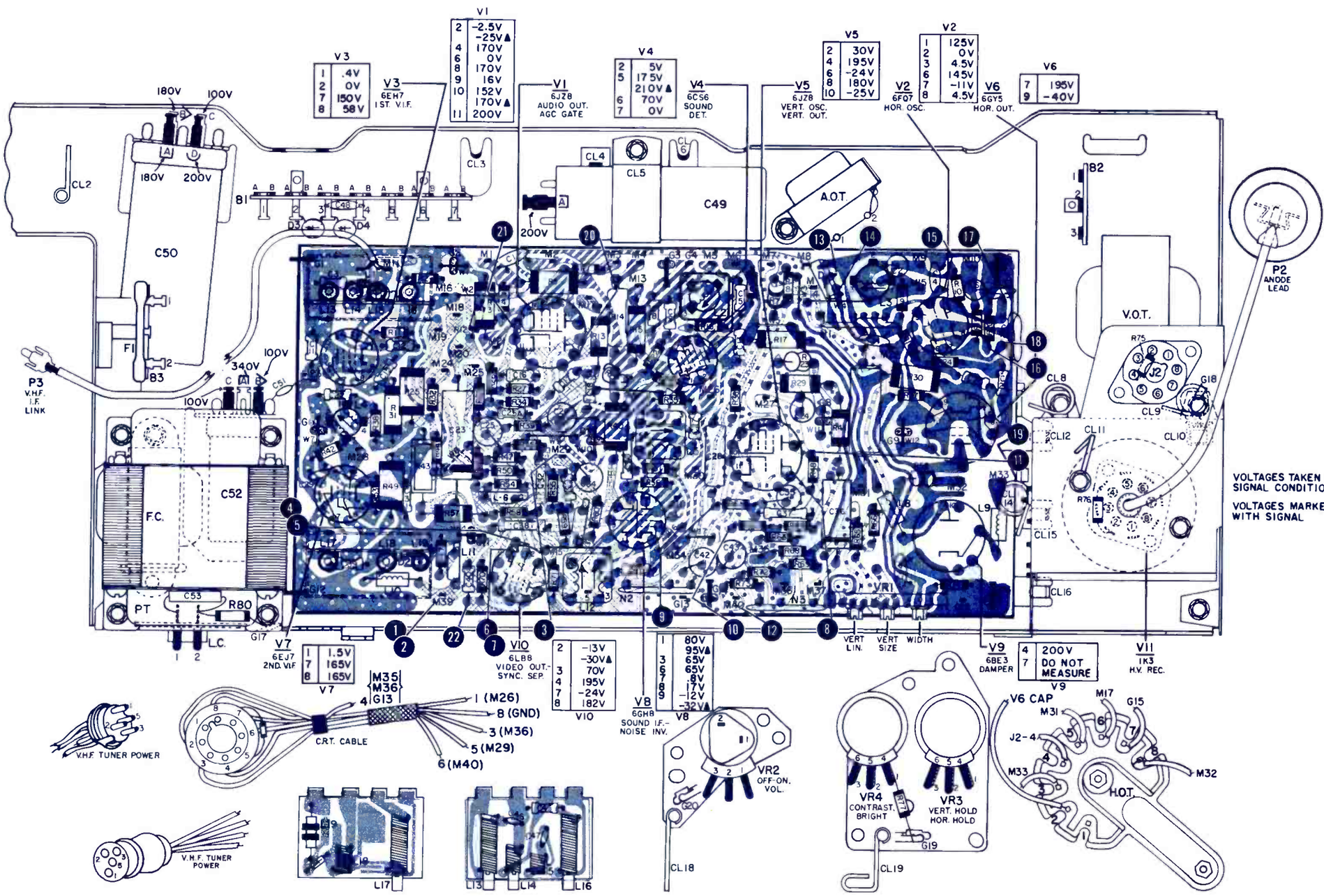
		PIN NUMBERS											
TUBE	USE	1	2	3	4	5	6	7	8	9	10	11	12
V6 6GY5	Horz. Out.	FIL.	INF.	10.5KΩ	GND.	INF.	10.5KΩ	10.5KΩ	10.5KΩ	680KΩ	GND.	10.5KΩ	FIL.
V7 6EJ7	2nd VIF	100Ω		100Ω	FIL.	FIL.	GND.			GND.			
V8 6GH8	Sound IF & N.I.	37KΩ	0Ω	13KΩ	FIL.	FIL.	13KΩ	220Ω	3.6KΩ	2.6MΩ			
V9 6BE3	Damper	FIL.		0Ω	10K	INF.				10K			FIL.
V10 6LB8	Video Out. Sync Sep.	GND.	1.7 MEGΩ	12KΩ	FIL.	FIL.	GND.	90Ω	29KΩ	15KΩ			

PANEL LUG CONNECTIONS - 14N50

M1 RED LEAD TO A.O.T.
M2 BLUE LEAD TO A.O.T.
M3 GREEN LEAD TO VOL. CONT. C.T.
M4 LEAD TO TUNER PWR. PLUG
M5 BLUE LEAD TO VOL. CONT.
M6 LEAD TO C52A
M7 LEAD TO VERT. HOLD CONT.
M8 RED LEAD FROM V.O.T. LEAD TO PIN 6 OF YOKE SOCKET
M9 HORZ. OSC. TEST POINT
M10 LEAD TO HORZ. HOLD CONT.
M11 I-F INPUT CABLE
M13 LEAD TO TUNER PWR. PLUG
M14 SYNC TEST POINT
M15 LEAD TO C50A
M16 LEAD TO C50D
M17 LEAD TO PIN 6 H.O.T.
M18 LEAD TO CONTRAST CONTROL C.T. - LEAD TO C52B
M19 LEAD TO BRIGHTNESS CONTROL C.T.
M20 I-F TEST POINT
M21 LEAD TO C52C
M22 LEAD TO M26
M23 LEAD TO B1-7
M24 LEAD TO CONTRAST CONT.
M25 LEAD TO TUNER PWR. PLUG
M26 LEAD TO M22 - LEAD TO B1-7
M27 BLUE LEAD FROM V.O.T.
M28 2ND VIF TEST POINT
M29 LEAD TO CRT CATHODE
M30 LEAD TO GND. G10
M31 LEAD TO PIN 5 H.O.T.
M32 LEAD TO PIN 8 H.O.T.
M33 LEAD TO PIN 3 H.O.T.
M34 LEAD TO CRT FILAMENT
M35 LEAD TO CRT FOCUS GRID
M36 LEAD TO CRT G2
M37 LEAD TO VERT. HOLD CONT. C.T.
M39 2ND DET. TEST POINT
M40 LEAD TO CRT G1

LEADS PART OF PANEL

M19 TO R65
R41 TO VR1 (VERT. SIZE)
PIN 3 OF V10 TO N2



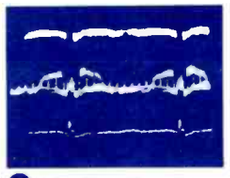
NOTES:

1. ALL VOLTAGES TAKEN UNDER NO SIGNAL CONDITIONS. ANTENNA REMOVED AND TUNER OFF CHANNEL.
2. VOLTAGES MEASURED WITH A 'PRECISION MODEL 88' VTVM FROM POINT INDICATED TO CHASSIS GROUND.
3. VOLTAGES MARKED ▲ WERE TAKEN UNDER AVERAGE SIGNAL CONDITIONS. ANTENNA CONNECTED, TUNER ON ACTIVE CHANNEL AND ALL CONTROLS SET FOR NORMAL PICTURE VIEWING.
4. COIL RESISTANCES READ WITH COIL IN CIRCUIT EXCEPT FOR: A.O.T. SECONDARY, HORZ. AND VERT. YOKE WHERE THE COMPONENTS WERE DISCONNECTED AND MEASURED INDIVIDUALLY.
5. BALLOONS (1), (2), ETC. SHOWN ON SCHEMATIC INDICATE WAVEFORM TEST POINTS.
6. CONTROL SETTINGS
   VOLUME - MINIMUM
   CONTRAST - MID-RANGE
   BRIGHTNESS - MID-RANGE
   ALL OTHER CONTROLS SET FOR NORMAL OPERATION.

ELECTRONIC TECHNICIAN TEKFAX

Philco
Chassis 14N50

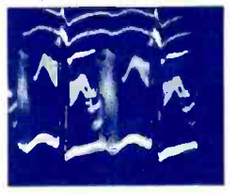
1 2.5 volts p/p, 15,750 c.p.s. (max. contrast)



2 2.5 volts p/p, 60 c.p.s. (max. contrast)

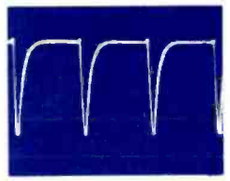
3 100 volts p/p, 15,750 c.p.s.

4 60 volts p/p, 15,750 c.p.s.



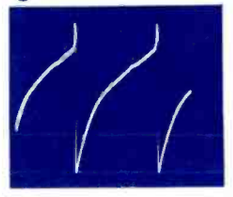
5 60 volts p/p, 60 c.p.s.

6 43 volts p/p, 60 c.p.s.



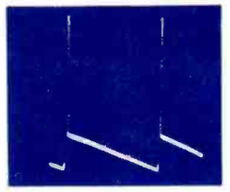
7 43 volts p/p, 15,750 c.p.s.

8 45 volts p/p, 60 c.p.s.

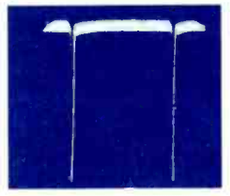


9 80 volts p/p, 60 c.p.s.

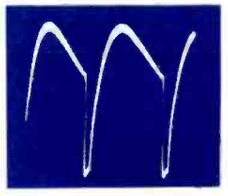
10 45 volts p/p, 60 c.p.s.



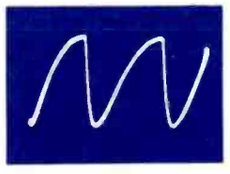
11 1000 volts p/p, 60 c.p.s. total - sawtooth 220 volts p/p



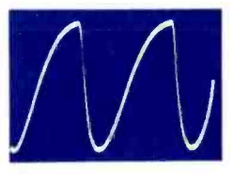
12 62 volts p/p, 60 c.p.s.



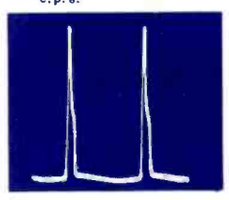
13 15 volts p/p, 15,750 c.p.s.



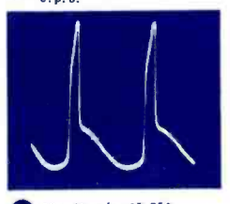
14 18 volts p/p, 15,750 c.p.s.



15 20 volts p/p, 15,750 c.p.s.

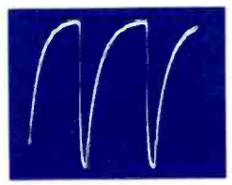


16 4.5 volts p/p, 15,750 c.p.s.

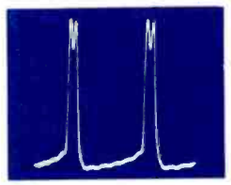


17 50 volts p/p, 15,750 c.p.s.

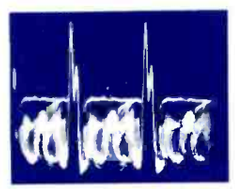
18 50 volts p/p, 15,750 c.p.s.



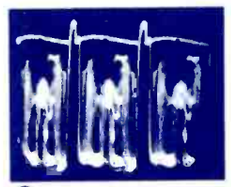
19 91 volts p/p, 15,750 c.p.s.



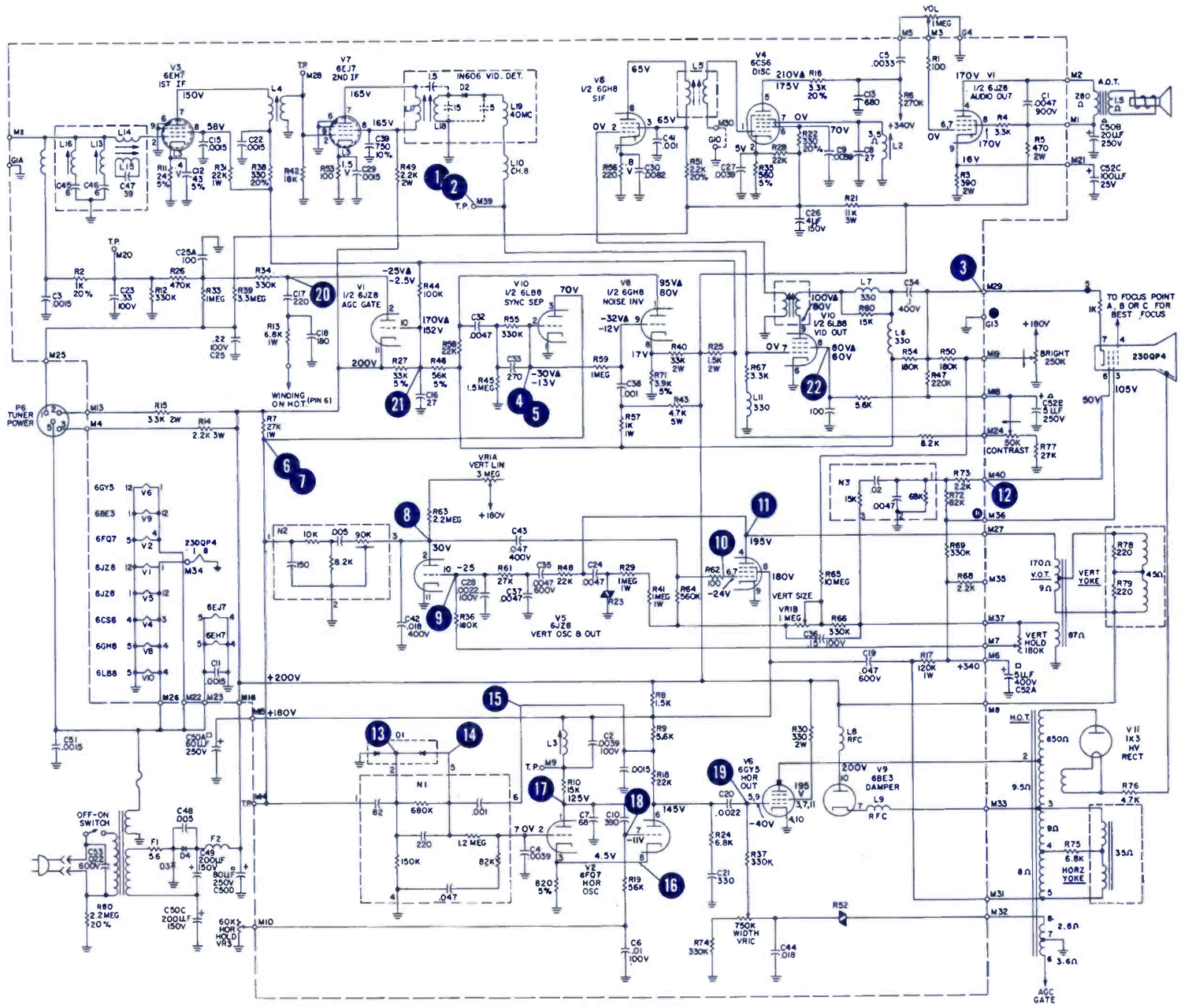
20 560 volts p/p, 15,750 c.p.s.

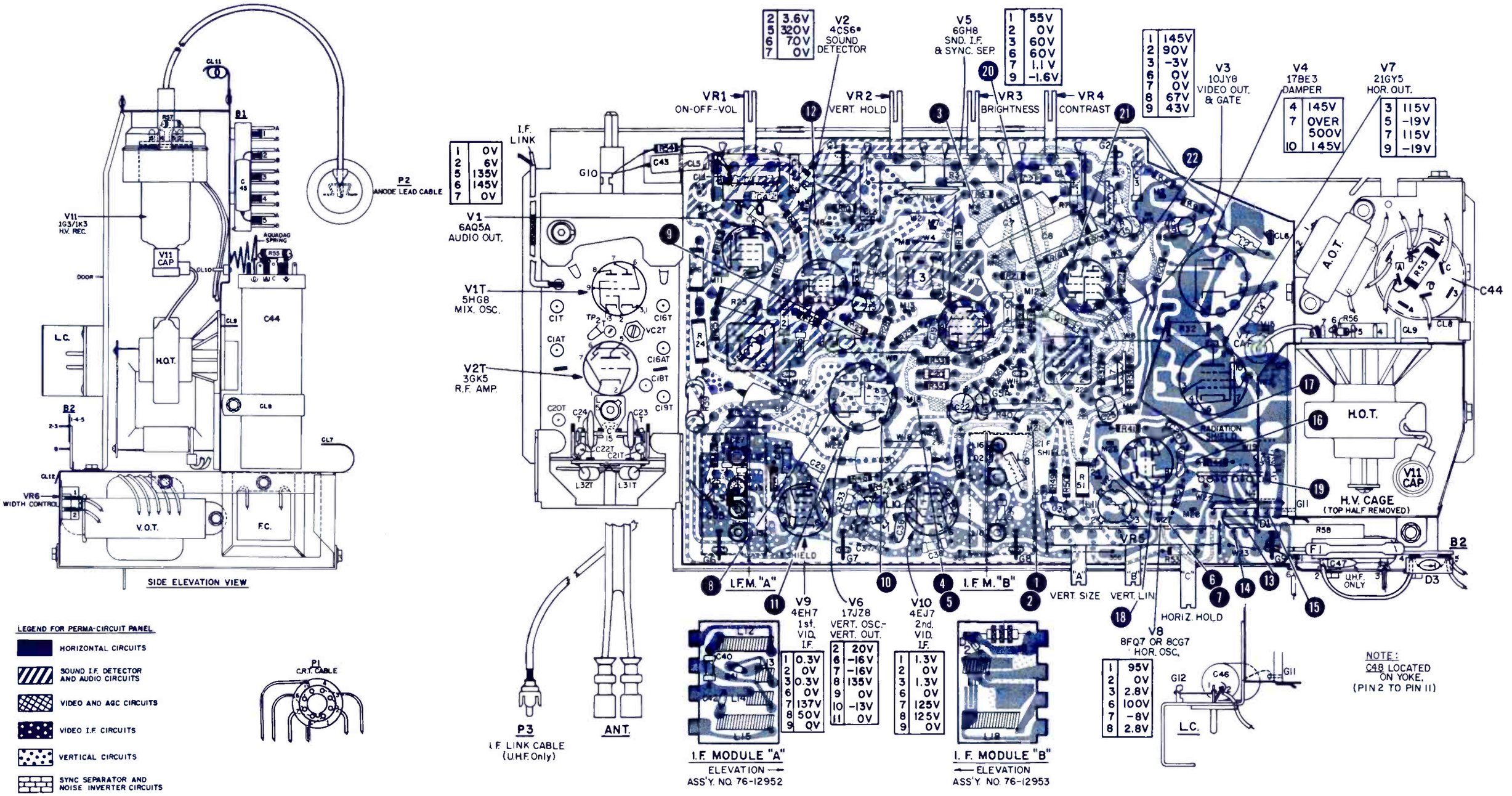


21 36 volts p/p, 15,750 c.p.s.



22 20 volts p/p, 15,750 c.p.s.





1	0V
2	6V
5	135V
6	145V
7	0V

2	3.6V
5	320V
6	70V
7	0V

1	55V
2	0V
3	60V
6	60V
7	1.1V
9	-1.6V

1	145V
2	90V
3	-3V
6	0V
7	0V
8	67V
9	43V

4	145V
7	OVER 500V
10	145V

3	115V
5	-19V
7	115V
9	-19V

1	0.3V
2	0V
3	0.3V
6	0V
7	137V
8	50V
9	0V

2	20V
6	-16V
7	-16V
8	135V
9	0V
10	-13V
11	0V

1	1.3V
2	0V
3	1.3V
6	0V
7	125V
8	125V
9	0V

1	95V
2	0V
3	2.8V
6	100V
7	-8V
8	2.8V

PANEL LUG CONNECTIONS

Lug	Connection
M1	Audio Test Point
M2	White Lead to B1-2
M3	Blue Lead to A. O. T.
M4	Video Output, Yellow/White lead to Pin 7 of C. R. T.
M5	Red/White Lead to B1-5, 145V B-plus
M6	Green/White Lead to Pin 6 of CRT
M7	Orange/White Lead to B1-3, vertical retrace suppression
M8	Sound Det. Test Point, Ground Link
M9	Brown/White Lead to B2-1, start of filament chain
M10	White Lead, Tuner AGC
M11	Yellow Lead, Tuner B-plus
M12	Blue/White Lead to Yoke, AGC Gate Pulse
M13	Red/White Lead of V. O. T., Vertical Feedback
M14	Blue/White Lead to VR6-1, Width Control
M15	Red Lead to H. O. T. Pin 7
M16	AGC Test Point
M18	Orange/White Leads to M28 and to C44B, 135V B-plus
M19	Orange/White Lead to Pin 4 of CRT, 300V, optional focus connection
M20	Green/White Lead to C44C, 100V B-plus, optional focus connection
M21	Video 2nd detector test point
M22	Blue/White Lead of V. O. T., vertical output plate
M23	Brown/White Lead to Pin 1 of CRT, filament
M24	Horizontal Oscillator Test Point
M25	I-F Input, center conductor of shielded tuner I-F link
M27	Sync Test Point
M28	Orange/White Lead to M18, 135V B-plus

RESISTANCE CHART

TUBE	USE	PIN NUMBERS 1	2	3	4	5	6	7	8	9	10	11	12
V1 6AQ5A	Audio Output	60K*	270Ω	17Ω	19Ω	16K	16K	60K*					
V2 4CS6	Sound Det.	6Ω	560Ω	22Ω	19Ω	9 MEG	13K	3.5Ω					
V3 10JY8	Vid. Output	15K	38K	1.7 MEG	24Ω	27Ω	0Ω	3K	23K	13K			
	AGC Gate												
V4 17BE3	Damper	33Ω	33Ω	33Ω	16K	INF.	INF.	8.5 MEG	INF.	INF.	16K	INF.	40Ω
V5 6GH8	Sound I-F												
	Sync Sep.	28K	2.5Ω	16K	24Ω	22Ω	16K	470Ω	0Ω	1.6 MEG			
V6 17JZ8	Vert. Osc.												
	Output	11Ω	2.6 MEG	INF.	18K	INF.	1.5 MEG	1.5 MEG	16K	0Ω	130K	0Ω	17Ω

*VARIES WITH VOLUME CONTROL SETTING

TUBE	USE	PIN NUMBERS 1	2	3	4	5	6	7	8	9	10	11	12
V7 21GY5	Hor. Output	27Ω	INF.	19K	0Ω	330K	19K	19K	19K	330K	0Ω	19K	33Ω
V8 8FQ7 8CG7	Hor. Osc.	24K	1.7 MEG	750Ω	5Ω	8Ω	45K	95K	750Ω	0Ω			
V9 4EH7	1st VIF	22Ω	430K	22Ω	11Ω	10Ω	0Ω	16K	22K	0Ω			
V10 4EJ7	2nd VIF	68Ω	0.1Ω	68Ω	10Ω	8Ω	0Ω	16.5K	16.5K	0Ω			
CRT 16ASP4		5Ω	18K	6M	0Ω 25K** 6 MEG	INF.	18K	165K	3Ω				

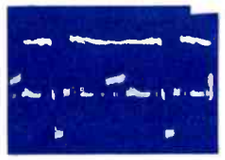
**DEPENDS ON FOCUS CONNECTION

PHILCO
Chassis 14G20

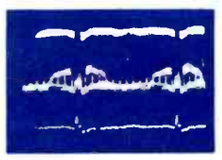
ELECTRONIC TECHNICIAN
TEKFAX

OSCILLOSCOPE WAVEFORM PATTERNS

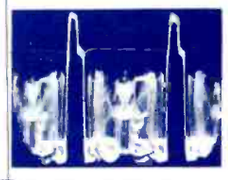
These waveforms were taken with the receiver adjusted for an approximate peak-to-peak output of 3.5 volts at the video detector. Voltage readings taken with raster just filling screen and all controls set for normal picture viewing. The voltages given are approximate peak-to-peak values. The frequencies shown are those of the waveforms—not the sweep rate of the oscilloscope. All readings were taken with a Model ES-550B Precision oscilloscope.



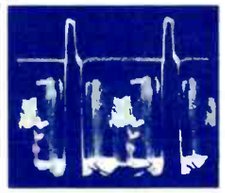
1 3.5 volts p/p, 15,750 c.p.s.



2 3.5 volts p/p, 60 c.p.s.

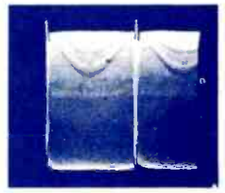


3 100 volts, p/p, 15,750 c.p.s.



4 80 volts p/p, 15,750 c.p.s.

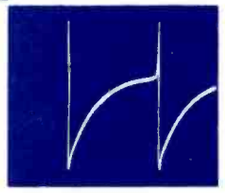
5 80 volts p/p, 60 c.p.s.



6 50 volts p/p, 60 c.p.s.

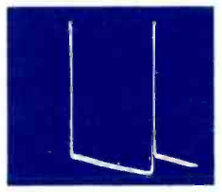
7 50 volts p/p, 15,750 c.p.s.

8 40 volts p/p, 60 c.p.s.



9 60 volts p/p, 60 c.p.s.

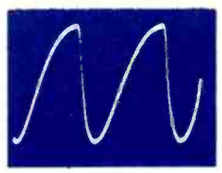
10 40 volts p/p, 60 c.p.s.



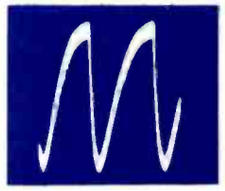
11 1150 volts p/p, 60 c.p.s.

12 60 volts p/p, 60 c.p.s.

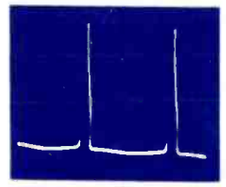
13 8 volts p/p, 15,750 c.p.s.



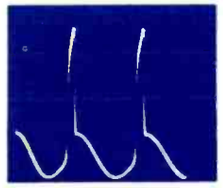
14 12 volts p/p, 15,750 c.p.s.



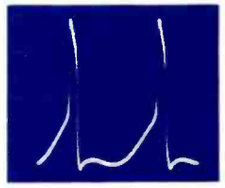
15 15 volts p/p, 15,750 c.p.s.



16 8 volts p/p, 15,750 c.p.s.

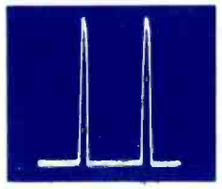


17 30 volts p/p, 15,750 c.p.s.

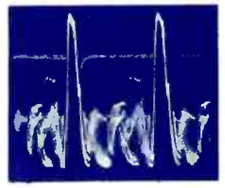


18 25 volts p/p, 15,750 c.p.s.

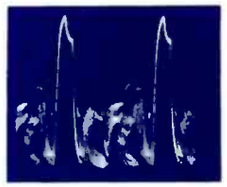
19 90 volts p/p, 15,750 c.p.s.



20 350 volts p/p, 15,750 c.p.s.



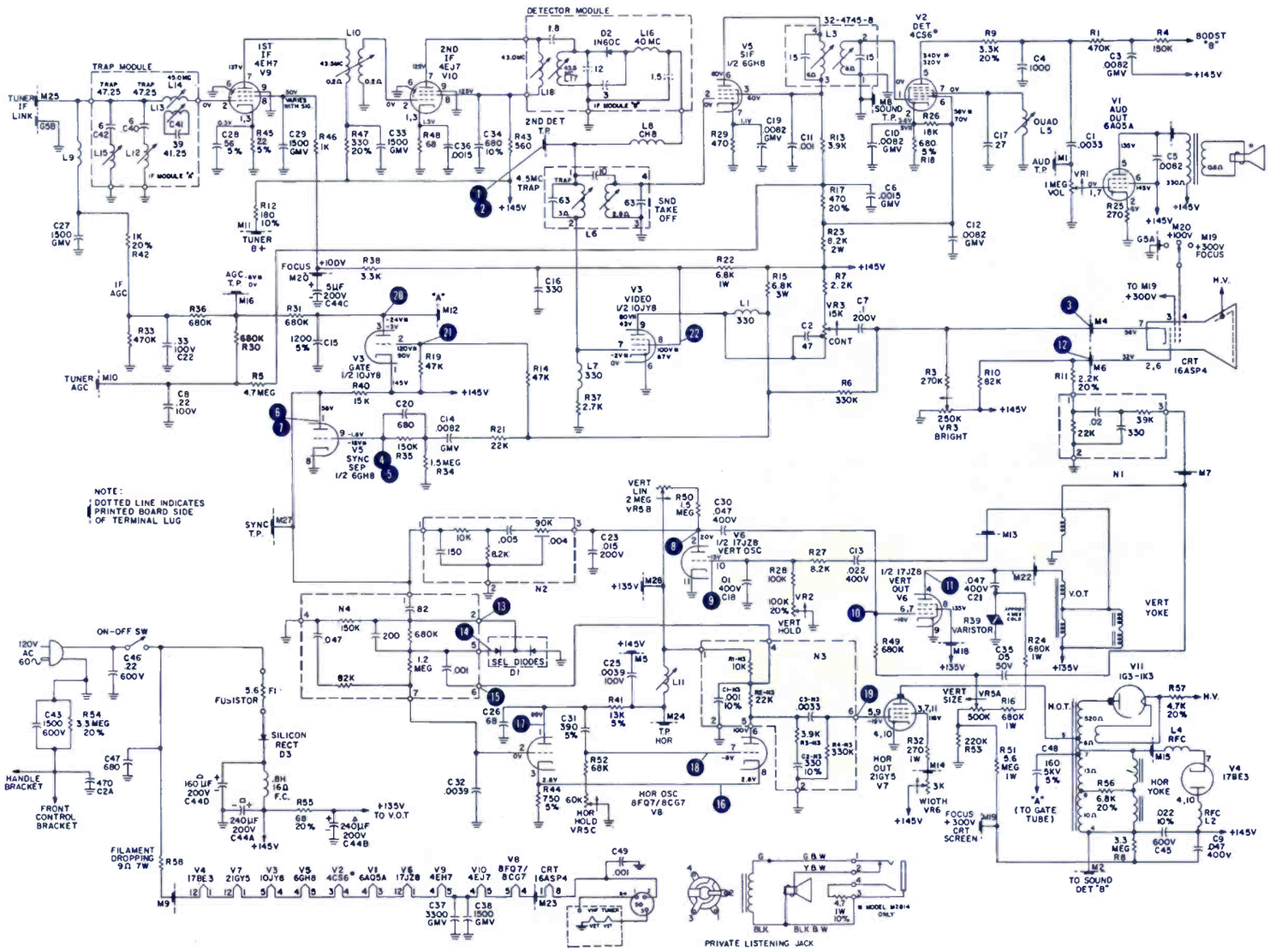
21 60 volts p/p, 15,750 c.p.s.



22 16 volts p/p, 15,750 c.p.s.

ELECTRONIC TECHNICIAN TEKFAX

PHILCO
Chassis 14G20



NOTE:
DOTTED LINE INDICATES PRINTED BOARD SIDE OF TERMINAL LUG

NOTES:

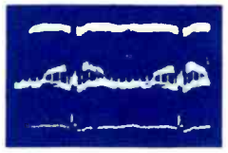
1. ALL VOLTAGES TAKEN UNDER NO SIGNAL CONDITIONS. ANTENNA REMOVED AND TUNER OFF CHANNEL.
2. VOLTAGES MEASURED WITH A "PRECISION MODEL 88, V.T.V.M.", FROM POINT INDICATED TO CHASSIS GROUND.
3. VOLTAGES MARKED ● WERE TAKEN UNDER AVERAGE SIGNAL CONDITIONS. ANTENNA CONNECTED, TUNER ON AN ACTIVE CHANNEL AND CONTROLS ADJUSTED FOR A NORMAL PICTURE.
4. COIL RESISTANCES READ WITH COIL IN CIRCUIT EXCEPT FOR -
   A.O.T. SEC. AND SPEAKER V.C.
   H.O.T. AND HOR. YOKE
   WHERE THE COMPONENTS WERE DISCONNECTED AND MEASURED INDIVIDUALLY.
5. BALLOONS (1), (2), ETC. SHOWN ON SCHEMATIC, INDICATE WAVEFORM TEST POINTS.
6. CONTROL SETTINGS:
   VOLUME - MINIMUM
   CONTRAST - MID-RANGE
   BRIGHTNESS - MID-RANGE
   ALL OTHER CONTROLS SET FOR NORMAL OPERATION.

TEKFAX

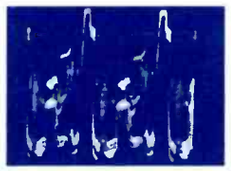
PHILCO
TV Chassis
15J27

1. ALL VOLTAGES TAKEN UNDER NO SIGNAL CONDITIONS. ANTENNA REMOVED AND TUNER OFF CHANNEL.
2. VOLTAGES MEASURED WITH A PRECISION MODEL 88 V.T.V.M. FROM POINT INDICATED TO CHASSIS GROUND.
3. ALL COIL RESISTANCES READ WITH COIL IN CIRCUIT.
4. BALLOONS (8), (9), ETC., SHOWN ON SCHEMATIC, INDICATE WAVEFORM TEST POINTS.

1 2.5 volts p/p, 15,750 cps (max. contrast)



2 2.5 volts p/p, 60 cps (max. contrast)



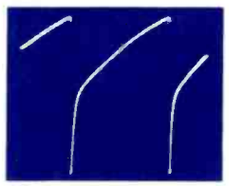
3 75 volts p/p, 15,750 cps (max. contrast)

4 60 volts p/p, 15,750 cps

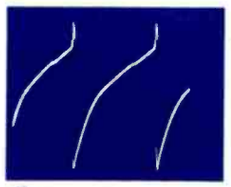
5 60 volts p/p, 60 cps

6 40 volts p/p, 60 cps

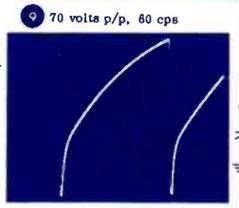
7 40 volts p/p, 15,750 cps



8 36 volts p/p, 60 cps



9 70 volts p/p, 60 cps



10 38 volts p/p, 60 cps

OSCILLOSCOPE WAVEFORM PATTERNS

These waveforms were taken with the receiver adjusted for an approximate peak-to-peak output of 2.5 volts at the video detector. Voltage readings taken with raster just filling screen and all controls set for normal picture viewing except photos 1, 2 and 3 where contrast was set for maximum. The voltages given are approximate peak-to-peak values. The frequencies shown are those of the waveforms... not the sweep rate of the oscilloscope. All readings were taken with a Model ES-550B Precision Oscilloscope.

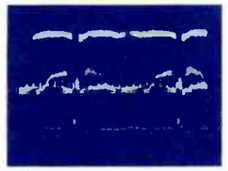
PHILCO
TV Chassis 15G20

February 1965

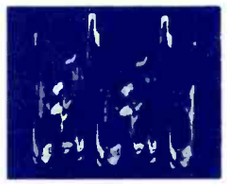
OSCILLOSCOPE WAVEFORM PATTERNS - 15G20

These waveforms were taken with the receiver adjusted for an approximate peak-to-peak output of 3.5 volts at the video detector. Voltage readings taken with the raster just filling screen and all controls set for normal picture viewing, except photos one and two where contrast control was set for maximum. The voltages given are approximate peak-to-peak values. The frequencies shown are those of the waveforms.....not the sweep rate of the oscilloscope. All readings were taken with a Model ES-550B Precision Oscilloscope.


1. 3.5 volts p/p, 15,750 cps (maximum contrast)

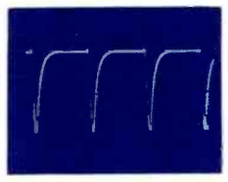

2. 3.5 volts p/p, 60 cps (maximum contrast)


3. 100 volts p/p, 15,750 cps

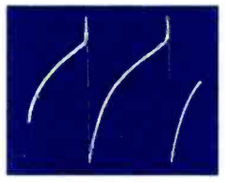

4. 80 volts p/p, 15,750 cps


5. 80 volts p/p, 60 cps

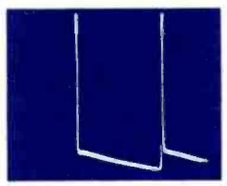

6. 50 volts p/p, 60 cps

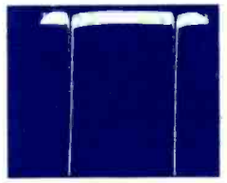

7. 50 volts p/p, 15,750 cps


8. 40 volts p/p, 60 cps

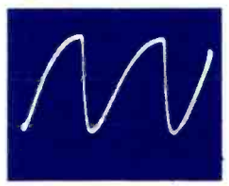

9. 60 volts p/p, 60 cps

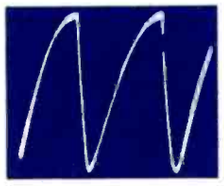

10. 40 volts p/p, 60 cps

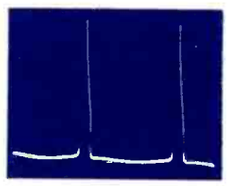

11. 1150 volts p/p, 60 cps

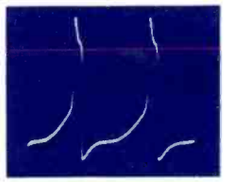

12. 60 volts p/p, 60 cps


13. 8 volts p/p, 15,750 cps

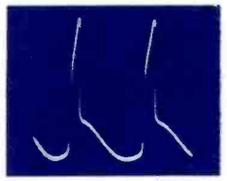

14. 12 volts p/p, 15,750 cps


15. 15 volts p/p, 15,750 cps


16. 8 volts p/p, 15,750 cps


18. 25 volts p/p, 15,750 cps


19. 90 volts p/p, 15,750 cps


17. 30 volts p/p, 15,750 cps

NOTES:

1. ALL VOLTAGES TAKEN UNDER NO SIGNAL CONDITIONS. ANTENNA REMOVED AND TUNER OFF CHANNEL.
2. VOLTAGES MEASURED WITH A "PRECISION MODEL 88, V.T.V.M.", FROM POINT INDICATED TO CHASSIS GROUND.
3. VOLTAGES MARKED ⊕ WERE TAKEN UNDER AVERAGE SIGNAL CONDITIONS, ANTENNA CONNECTED, TUNER ON AN ACTIVE CHANNEL AND CONTROLS ADJUSTED FOR A NORMAL PICTURE.
4. COIL RESISTANCES READ WITH COIL IN CIRCUIT EXCEPT FOR - A.O.T. SEC. AND SPEAKER V.C.
5. WHERE THE COMPONENTS WERE DISCONNECTED AND MEASURED INDIVIDUALLY.
5. BALLOONS (1), (2), ETC. SHOWN ON SCHEMATIC, INDICATE WAVEFORM TEST POINTS.
6. CONTROL SETTINGS:
   VOLUME - MINIMUM
   CONTRAST - MID-RANGE
   BRIGHTNESS - MID-RANGE
   ALL OTHER CONTROLS SET FOR NORMAL OPERATION.

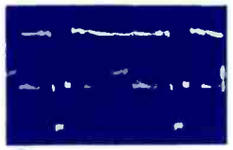
ELECTRONIC TECHNICIAN

TEKFAX

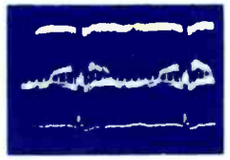
PHILCO
TV Chassis 15N30

OSCILLOSCOPE WAVEFORM PATTERNS

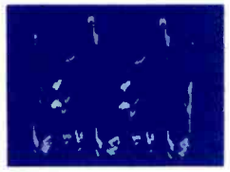
These waveforms were taken with the receiver adjusted for an approximate output of 2.5V p/p at the video detector. Voltage readings taken with raster just filling screen and all controls set for normal picture viewing except for photos 1, 2 and 3 where contrast was at maximum. The voltages given are approximate peak-to-peak values. The frequencies shown are those of the waveforms..., not the sweep rate of the oscilloscope. All readings taken with Model ES-550B Precision Oscilloscope.



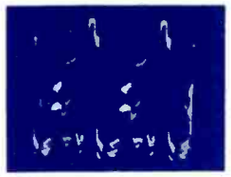
1 2.5 volts p/p, 15,750 cps (max. contrast)



2 2.5 volts p/p, 60 cps (max. contrast)

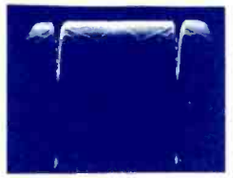


3 100 volts p/p, 15,750 cps (max. contrast)



4 70 volts p/p, 15,750 cps

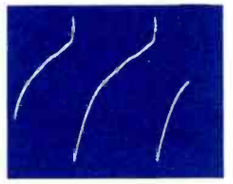
5 70 volts p/p, 60 cps



6 45 volts p/p, 60 cps

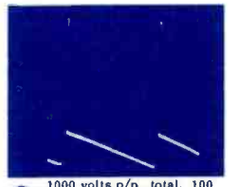
7 45 volts p/p, 15,750 cps

8 40 volts p/p, 60 cps



9 50 volts p/p, 60 cps

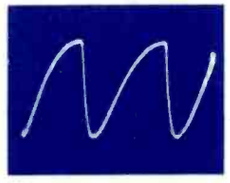
10 40 volts p/p, 60 cps



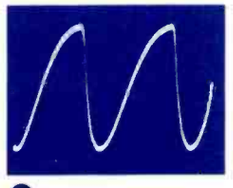
11 1000 volts p/p, total, 100 volts p/p, sawtooth, 60 cps

12 50 volts p/p, 60 cps

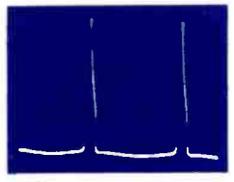
13 10 volts p/p, 15,750 cps



14 7 volts p/p, 15,750 cps



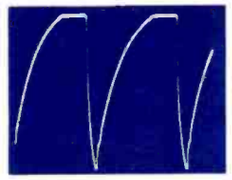
15 9 volts p/p, 15,750 cps



16 8 volts p/p, 15,750 cps

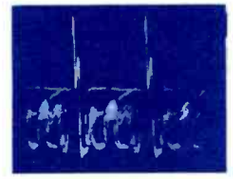
17 30 volts p/p, 15,750 cps

18 25 volts p/p, 15,750 cps



19 100 volts, 15,750 cps

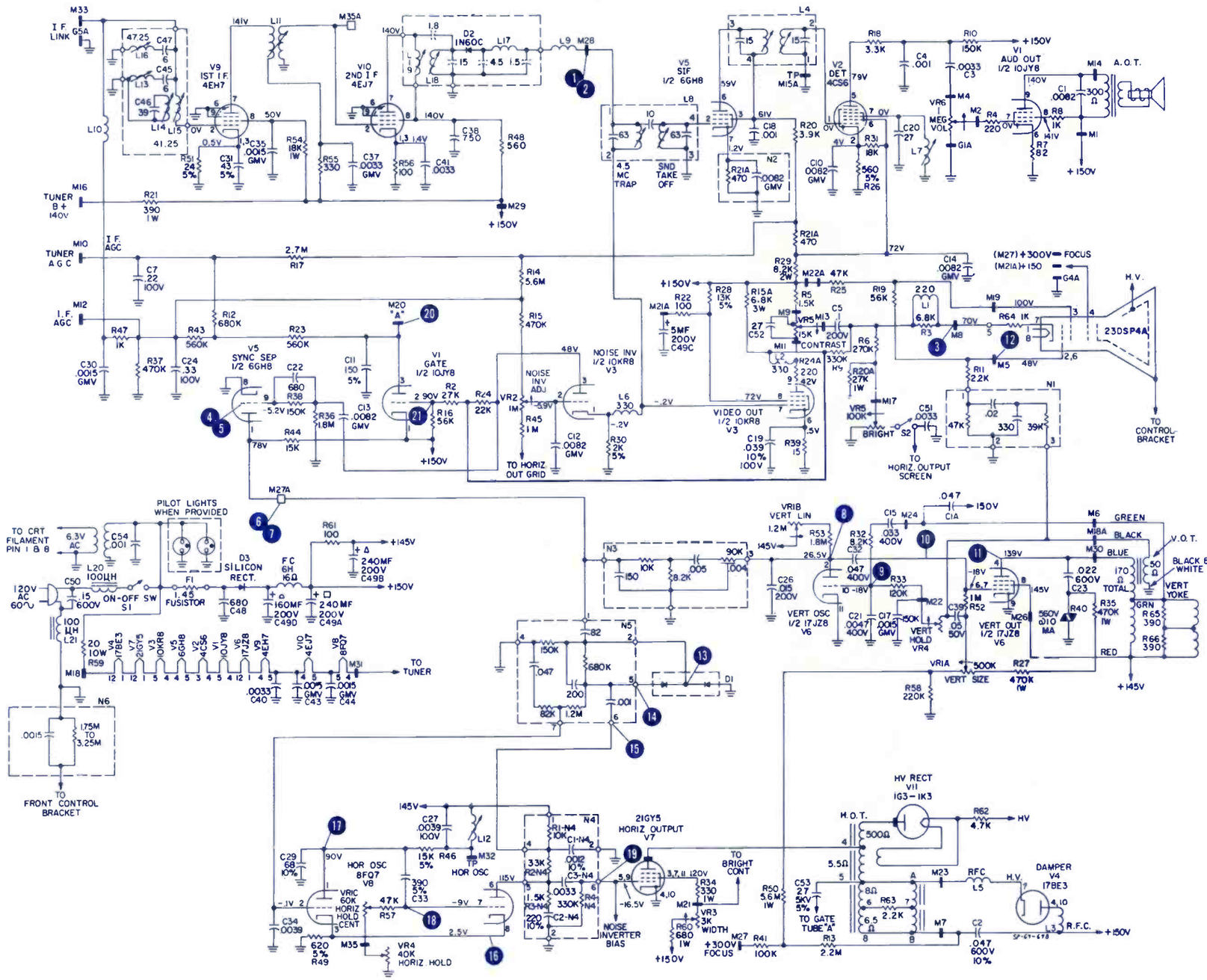
20 330 volts p/p, 15,750 cps



21 70 volts p/p, 15,750 cps

NOTES:

1. ALL VOLTAGES TAKEN UNDER NO SIGNAL CONDITIONS. ANTENNA REMOVED AND TUNER OFF CHANNEL.
2. VOLTAGES MEASURED WITH A V.T.V.M. FROM POINT INDICATED TO CHASSIS GROUND.
3. COIL RESISTANCES READ WITH COIL IN CIRCUIT.
4. BALLOONS (10) (11) ETC., SHOWN ON SCHEMATIC, INDICATE WAVEFORM TEST POINTS.
5. CONTROL SETTINGS:
   VOLUME - MINIMUM
   CONTRAST - MID-RANGE
   BRIGHTNESS - MID-RANGE
   ALL OTHER CONTROLS SET FOR NORMAL OPERATION.



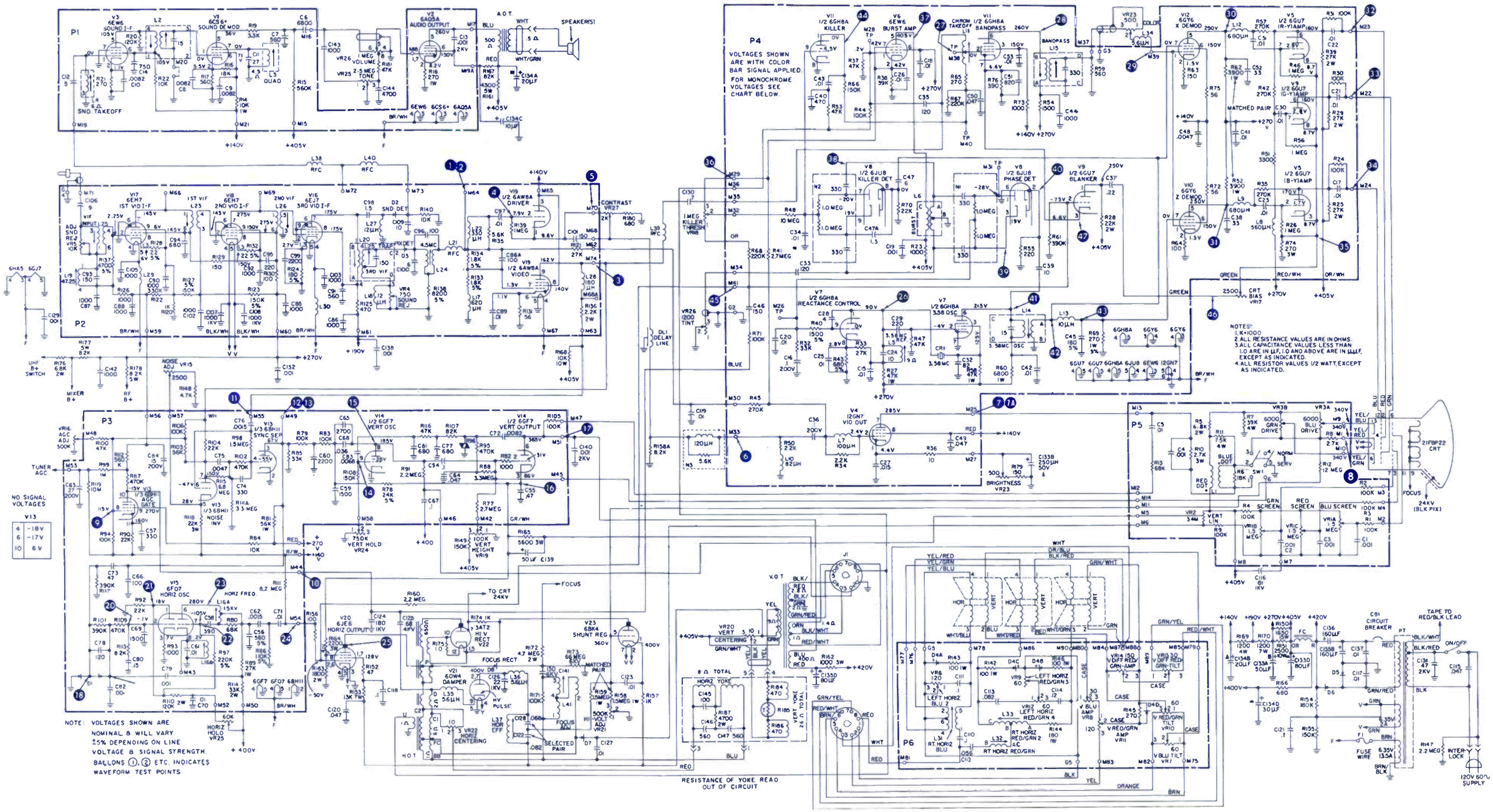
TUBE & USE	PIN NUMBERS									NO SIGNAL
	1	2	3	4	5	6	7	8	9	
V9 6GU7 (G-Y) Amp. & Blanker	250V	180V	3.8V	FIL.	FIL.	160V	2.8V	8.5V	0V	1 = 155V 3 = 8V 7 = 85V 2 = 2.5V 6 = 245V 8 = 3V
V10 6GY6 Z Demod.	0V	1.3V	FIL.	FIL.	255V	158V	0V			
V11 6GH8A Killer & Bandpass	-14.5V	-6 ms	180V	FIL.	FIL.	473V	3 ms	0V	-11.1V	
V12 6GY6 X Demod.	0V	1.5V	FIL.	FIL.	280V	160V	0V			

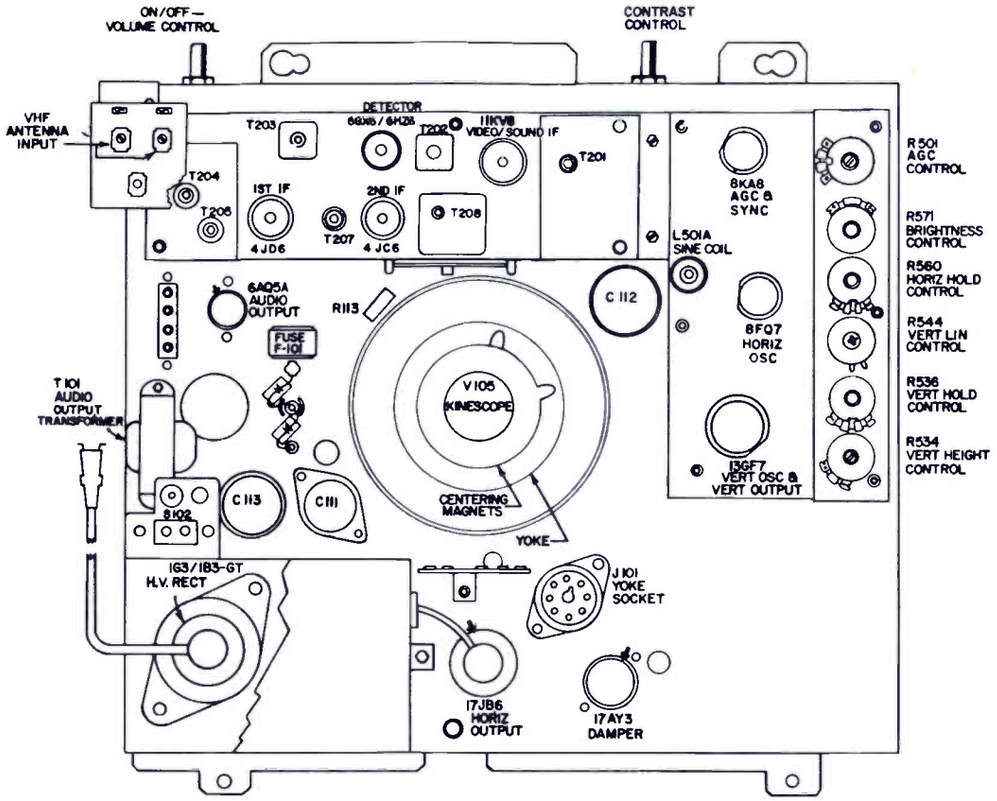
MONOCHROME VOLTAGES. (P4) CHROMA PANEL

TUBE & USE	PIN NUMBERS									NO SIGNAL
	1	2	3	4	5	6	7	8	9	
V4 12GN7 Video Out.	4.8V	2.6V	0V	FIL.	FIL.	FIL.	285V	140V	0V	1 = 6V 7 = 320V 2 = 0.3V
V5 6GU7 (R-Y) Amp. & (B-Y) Amp.	160V	2.9V	8.7V	FIL.	FIL.	160V	2.5V	8.7V	0V	
V6 6EW6 Burst Amp.	1V	84V	81V	FIL.	82V	235V	48V			
V7 6GH8A 3.58MC Osc. & React. Cont.	92V	-4.1V	127V	FIL.	FIL.	220V	0V	2.8V	0V	9 = -1.7V
V8 6JU8 Killer Det. Phase Det.	-11V	0V	11.5V	FIL.	FIL.	0V	-5.5V	0V	5.1V	1 = -53V 3 = 48V 7 = -50V

ELECTRONIC TECHNICIAN TEKFAX

PHILCO
Color TV Chassis
15M91





C502	A1	R515	A1
C522	B3	R516	A2
C523	B3	R521	B4
C524	B2	R522	B2
C526	B7	R523	B2
C532	C6	R524	A2
C533	B6	R525	A2
C534	A6	R531	C3
C535	B6	R533	C6
C536	A5	R534	C6
C537	A7	R535	B7
C539	A7	R536	C5
C551	B4	R538	A5
C552	B4	R540	A7
C553	B5	R541	A7
C554	A5	R542	C6
C555	A5	R543	B6
C556	A5	R544	C4
C557	A4	R545	B6
C558	A3	R551	B5
C559	A4	R552	B5
C560	B3	R553	B5
C561	B3	R554	A5
C562	B3	R555	A5
		R556	A4
L501	A3	R557	B4
PC502	C5	R558	B3
PC503	B7	R559	B5
R501	C1	R560	C3
R503	B2	R561	B4
R504	B1	R562	B3
R509	B3	R563	B3
R510	A3	R564	B4
R511	A3	R570	C3
R512	A2	R571	C3
R513	A1		
R514	A1	SR501	B5

PW500 LOCATION GUIDE

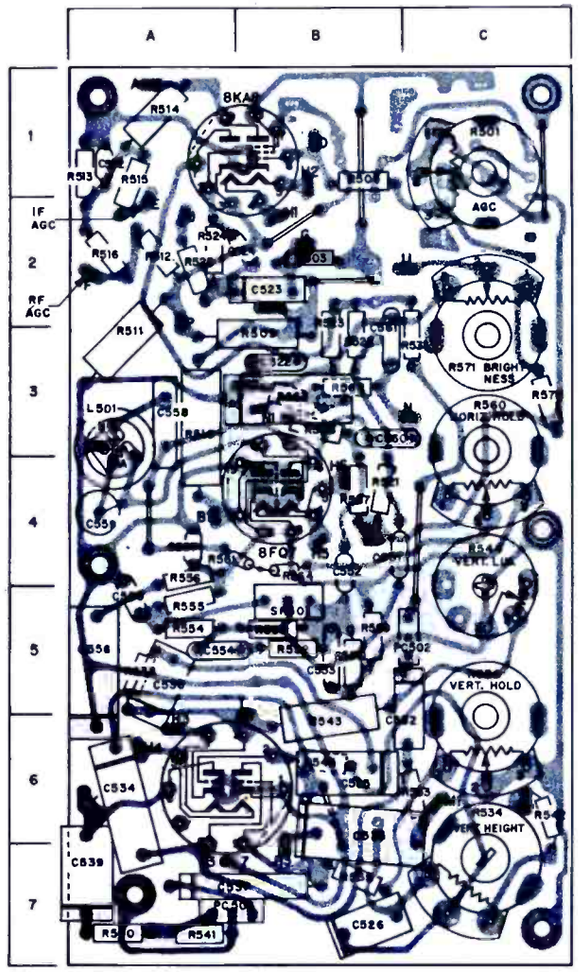
C201	F1	L210	A3
C202	G2		
C203	G2	R201	E2
C204	F1	R202	E1
C205	E2	R203	D1
C206	E1	R204	C1
C207	E2	R205	C1
C208	C1	R206	B1
C209	D1	R208	B3
C210	C1	R209	B1
C211	B1	R210	B2
C212	C1	R215	C3
C213	C1	R219	D3
C214	A3	R221	D2
C215	A2	R222	E3
C216	A2	R223	F3
C217	A1	R224	F3
*C218	B3	R225	G2
C219	B2	R227	G2
C220	B2	R228	G3
C221	B2	R229	F2
C222	D2	R230	G1
C223	D2	R231	G2
C224	E3	R232	G1
C225	E3	R235	C2
C226	F3	R236	F1
C228	B3	R237	F3
C229	D3	R242	G1
C237	F1	R243	E2
CR201	E3		
		T201	G2
L202	A1	T202	
L203	E3	T203	C1
L204	E3	T204	A2
L205	F3	T205	A3
L207	G1	T207	C3
L209	F2	T208	E3

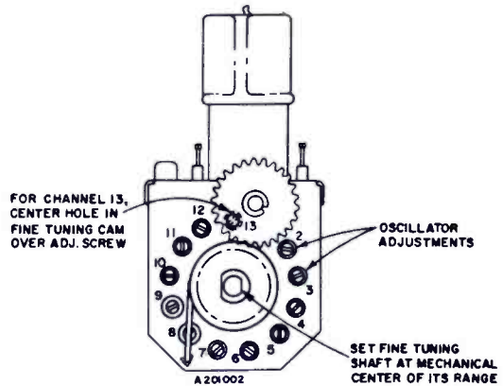
* Under Board — Not Shown

PW200 LOCATION GUIDE

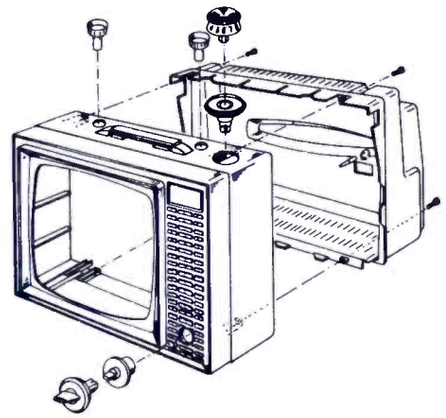
RCA VICTOR
TV Chassis
KCS 142

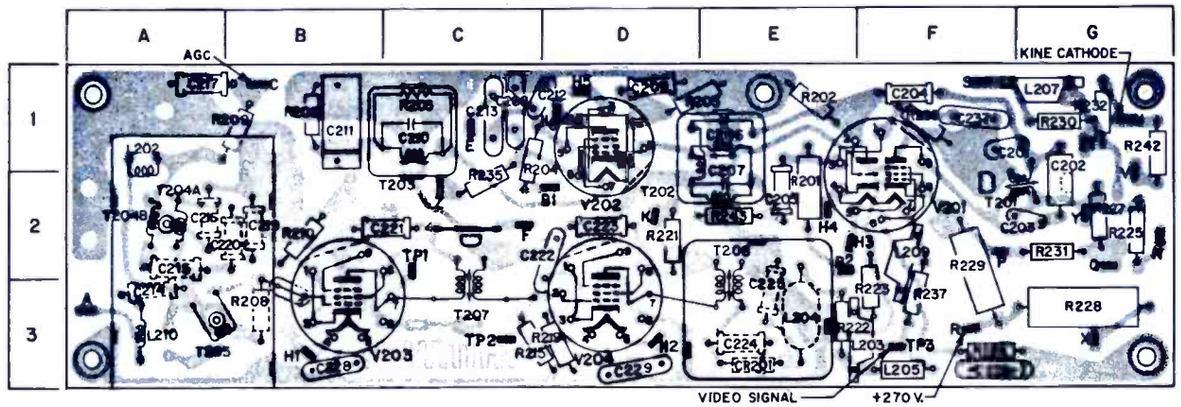
ELECTRONIC TECHNICIAN
TEKFAX



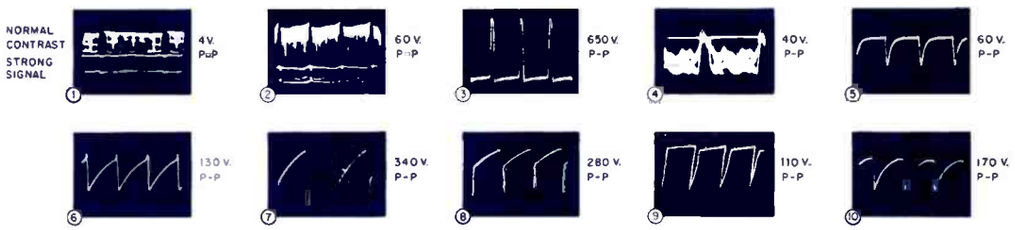


VHF Oscillator Adjustment





RCA VICTOR
TV Chassis
KCS 142



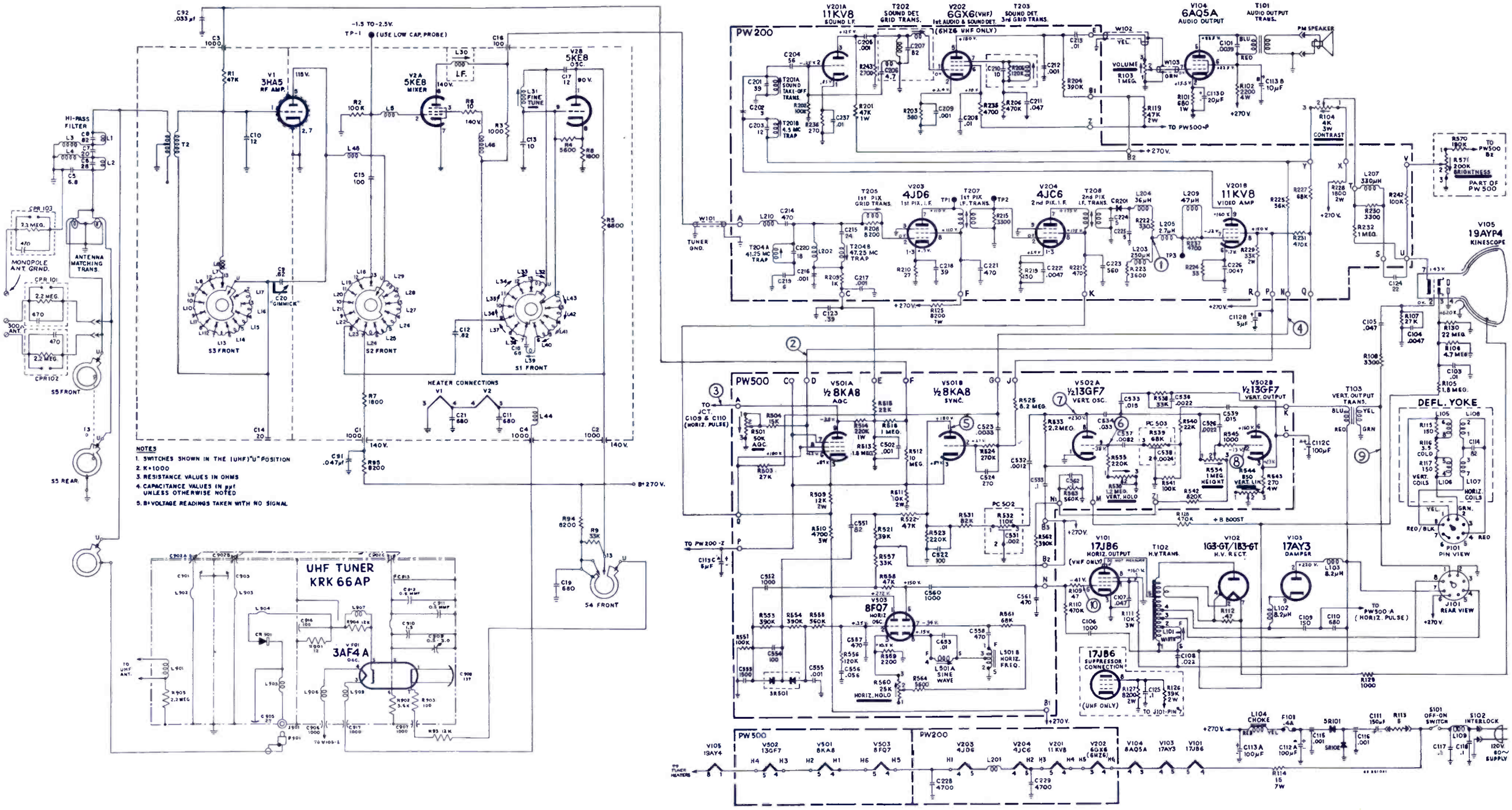
RESISTANCE VALUES IN OHMS. K=1000.

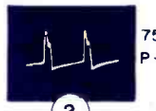
CAPACITANCE VALUES LESS THAN 1 IN MF. 1 AND ABOVE IN MMF. UNLESS OTHERWISE INDICATED.

DIRECTION OF ARROWS AT CONTROLS INDICATES CLOCKWISE ROTATION.

VOLTAGES MEASURED WITH "VOLTOHMYST" ® WITH NO SIGNAL INPUT AND SHOULD HOLD WITHIN ±20% WITH 120V AC SUPPLY.

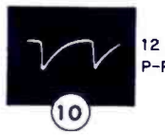
® VOLTAGES MEASURED WITH 1 MEG. ½ WATT RESISTOR IN SERIES WITH METER PROBE.

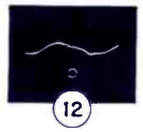


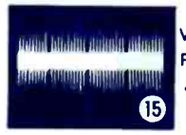


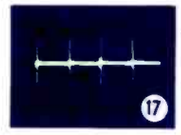
BALLOONS (1), (2), ETC., SHOWN ON SCHEMATIC INDICATE POINTS OF OBSERVATION OF THE WAVEFORMS.

USE LOW CAPACITY PROBE WHEN OBSERVING WAVEFORMS.









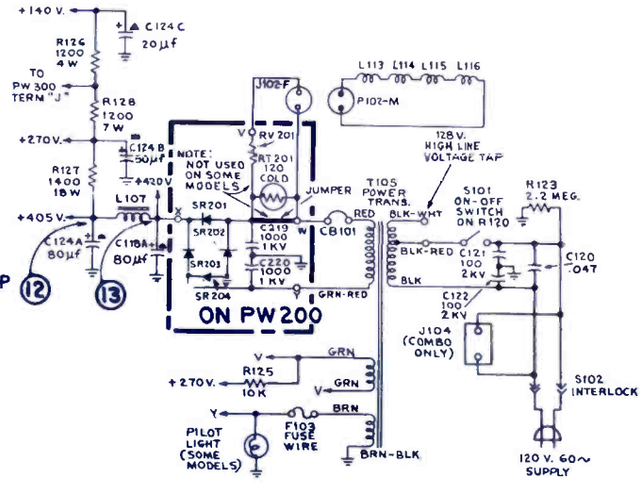
TEKFAX

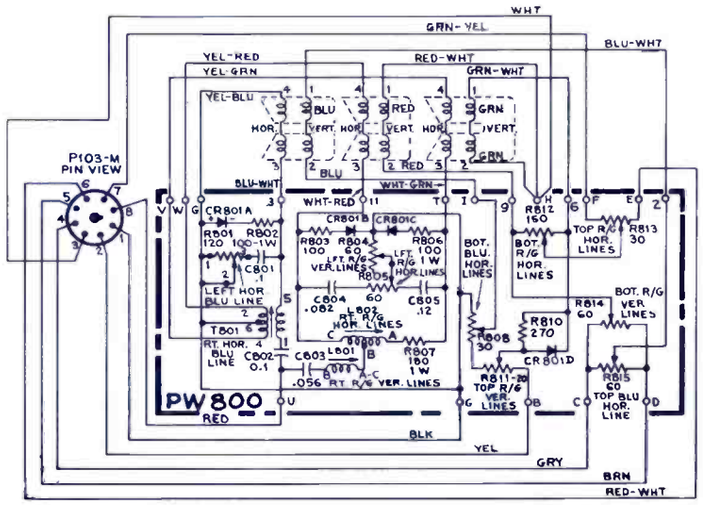
RCA VICTOR
Color TV Chassis
CTC16 Series

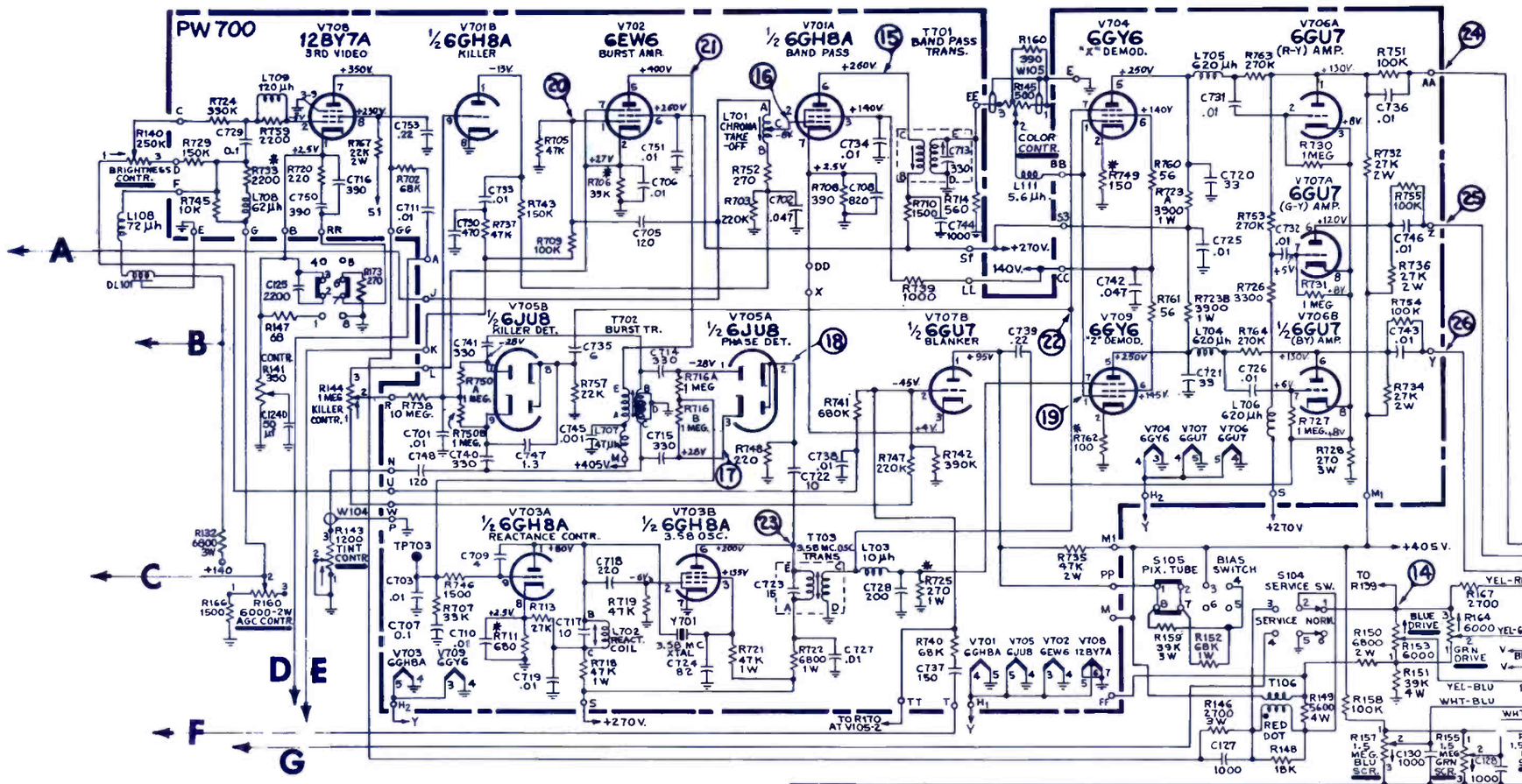
V705
PIN 2
15 V. P-P

V709
PIN 1
0-20 V. P-P
SET AT 5V. P-P
WITH R145

V702
PIN 1
65 V. P-P



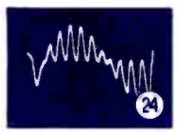




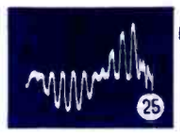
V702
PIN 5
200 V. P-P

V709
PIN 7
25V. P-P

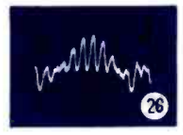
V703
PIN 6
100V. P-P



PW 700
TERM.(AA)
140 V. P-P



PW 700
TERM.(Z)
50 V. P-P



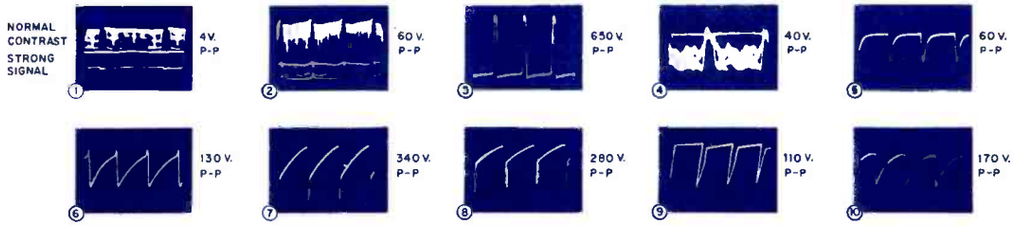
PW 700
TERM. (Y)
160 V. P-P

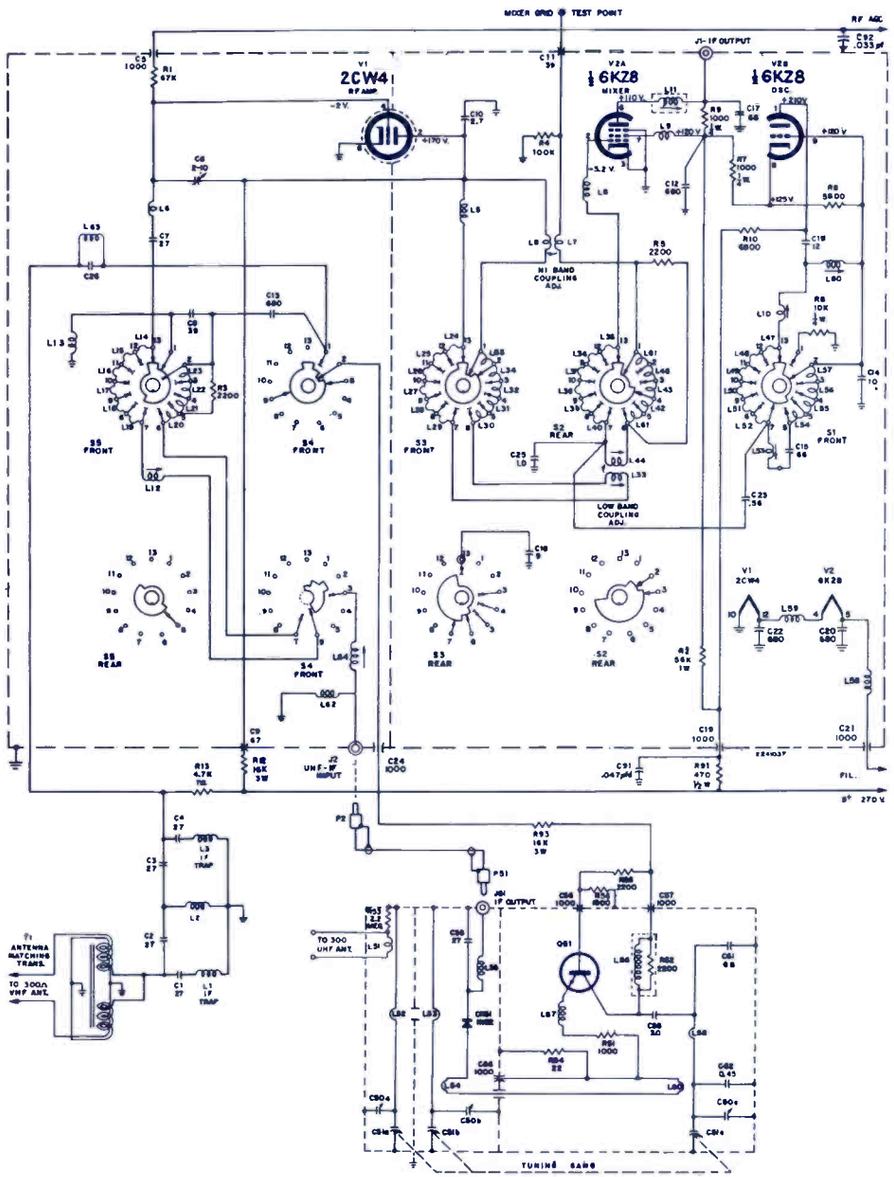
ELECTRONIC TECHNICIAN

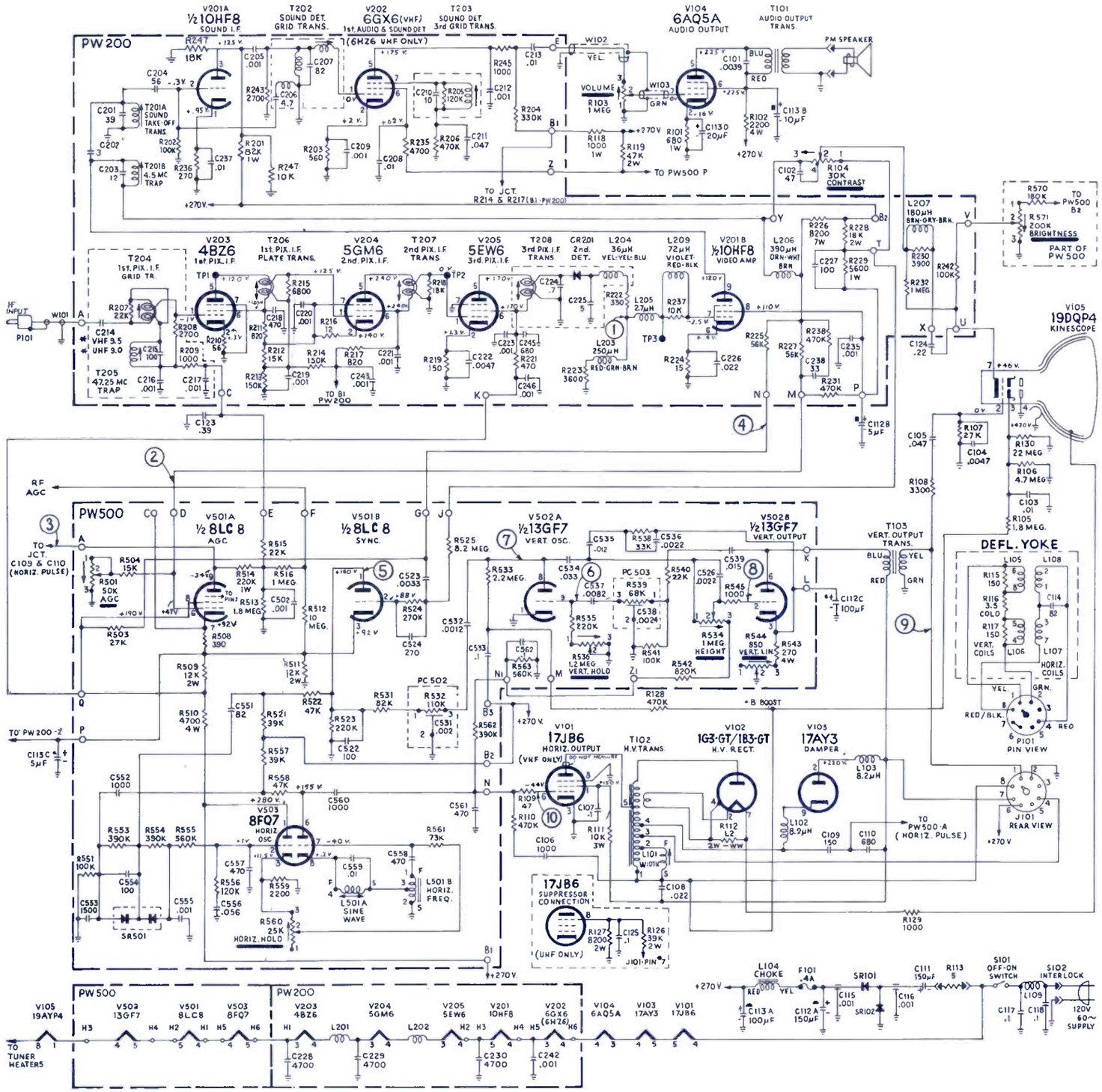
TEKFAX

RCA VICTOR
TV Chassis KCS
143F

NOTE:
K=1000
ALL RESISTANCE VALUES IN OHMS.
ALL RESISTANCE VALUES ARE ½ WATT EXCEPT AS INDICATED.
ALL CAPACITANCE VALUES ARE IN PF (puf) EXCEPT WHERE NOTED.
SWITCHES SHOWN IN CHANNEL 13 POSITION.
⌁ DENOTES THROUGH CONNECTION OF ROTOR BLADE.
—o— DENOTES CONTACT CONNECTED TO CONTACT ON OPPOSITE SIDE OF SWITCH.
—⊖— DENOTES CONTACT INSULATED FROM CONTACT ON OPPOSITE SIDE OF SWITCH.



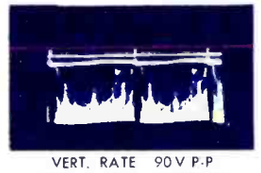




RCA VICTOR
TV Chassis KCS
152A

VERT. RATE 1.5 V P-P
SECOND DETECTOR
TP-3

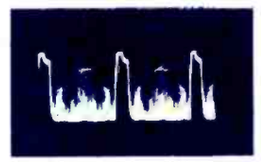
VERT. RATE 90 V P-P
V205B PIN 9
VIDEO AMPLIFIER PLATE



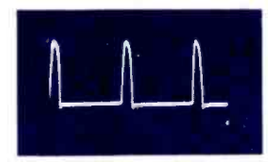
VERT. RATE 90 V P-P
V205B PIN 9
VIDEO AMPLIFIER PLATE
R224 & C246 JUNCTION
(ZONE 7A PW200 BOARD)

HORIZ. RATE 110 V P-P
V101 PINS 2 & 6
HORIZONTAL OUTPUT GRID

HORIZ. RATE 90 V P-P
V205B PIN 9
VIDEO AMPLIFIER PLATE

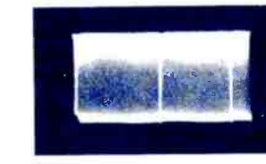


HORIZ. RATE 90 V P-P
R224 & C246 JUNCTION
(ZONE 7A PW200 BOARD)

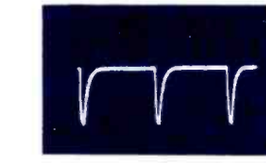


HORIZ. RATE 360 V P-P
V205A PIN 3
AGC PLATE

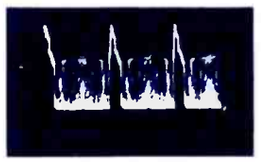
VERT. RATE 40 V P-P
V205A PIN 2
AGC GRID



VERT. RATE 65 V P-P
V201B PIN 1
SYNC PLATE



HORIZ. RATE 65 V P-P
V201B PIN 1
SYNC PLATE



HORIZ. RATE 40 V P-P
V205A PIN 2
AGC GRID

NOTE:
with Transformer T102 marked 906183-501 RCA
Stock #114498 use:
C109 114478 cap. ceram., 150 pf, 5%, 5000v, N2200
C110 cap. ceram., 0.001 pf, 5%, 500v

with Transformer T102 marked 906195-501 RCA
Stock #114714 use:
C109 114715 cap. ceram., 180 pf, 5%, 5000v, N2200
C110 114726 cap. ceram., 0.0012 mf, 5%, 500v, N3300

ALL RESISTANCE VALUES ARE IN OHMS
K = 1000
ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN µf, 1.0 AND ABOVE ARE IN µf., EXCEPT AS INDICATED.
* INDICATES 5%.
ALL RESISTORS ARE ½ WATT, EXCEPT AS INDICATED.
DIRECTION OF ARROWS AT CONTROLS INDICATES CLOCKWISE ROTATION.
ALL VOLTAGE READINGS IN VOLTS WITH VTVM, UNLESS OTHERWISE INDICATED.
ALL VOLTAGES WITH NO SIGNAL.

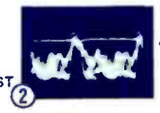
ELECTRONIC TECHNICIAN

TEKFAX

RCA VICTOR
TV Chassis
KCS 136X

ALL VOLTAGES EXCEPT PEAK-TO-PEAK VOLTAGES MEASURED UNDER NO SIGNAL CONDITIONS WITH TUNER ANTENNA TERMINALS SHORTED AT BALUN. READINGS SHOULD HOLD WITHIN ±20% WITH 120 VOLT A.C. SUPPLY.

60 V. P-P NORMAL CONTRAST



40 V. P-P

35 V. P-P

650 V. P-P

70 V. P-P (12 V. NEG. 58 V. POS. PIX. OUT OF VERT. SYNC.)

320 V. P-P

280 V. P-P

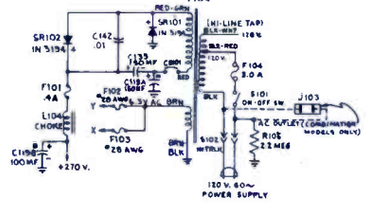
1300 V. P-P

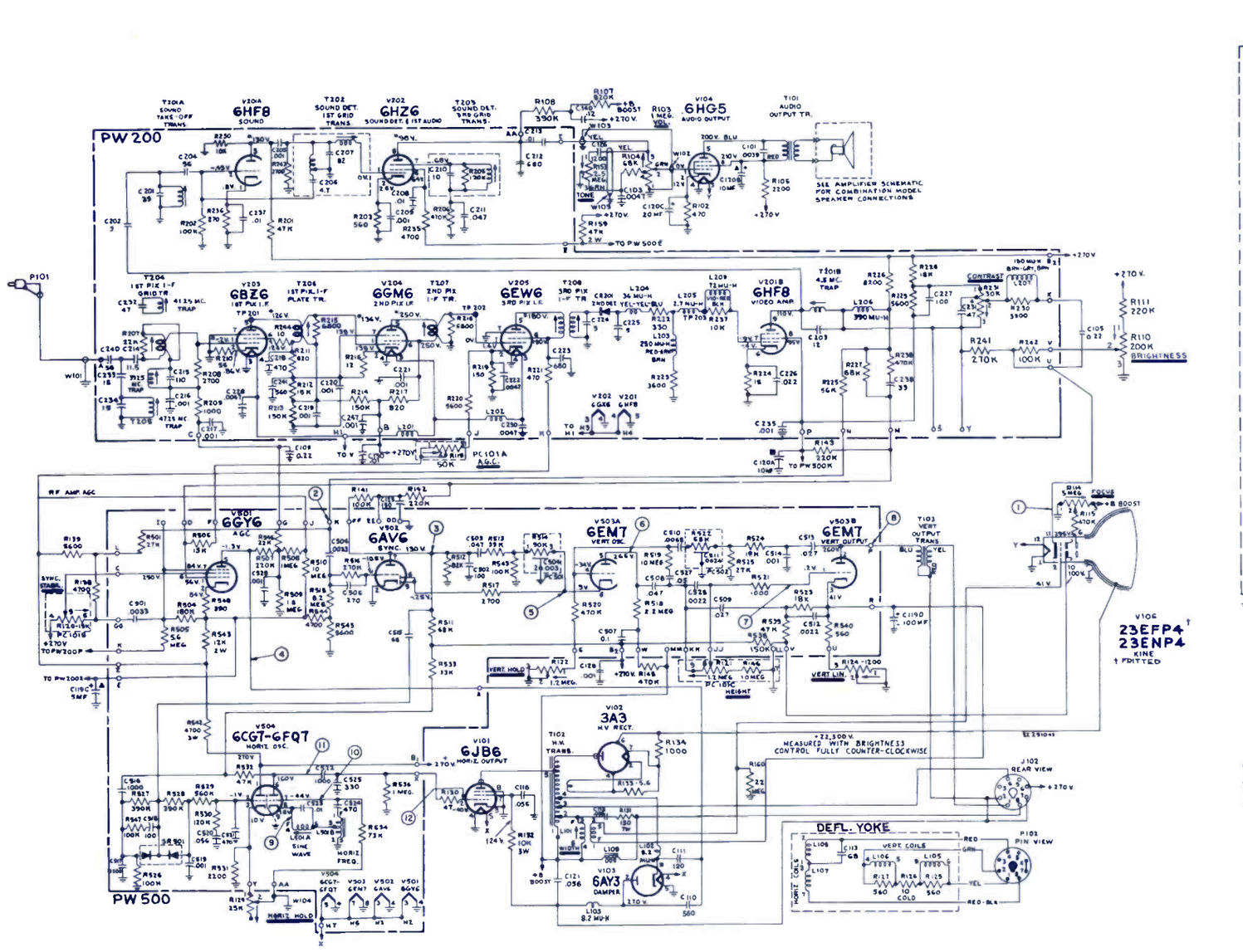
190 V. P-P

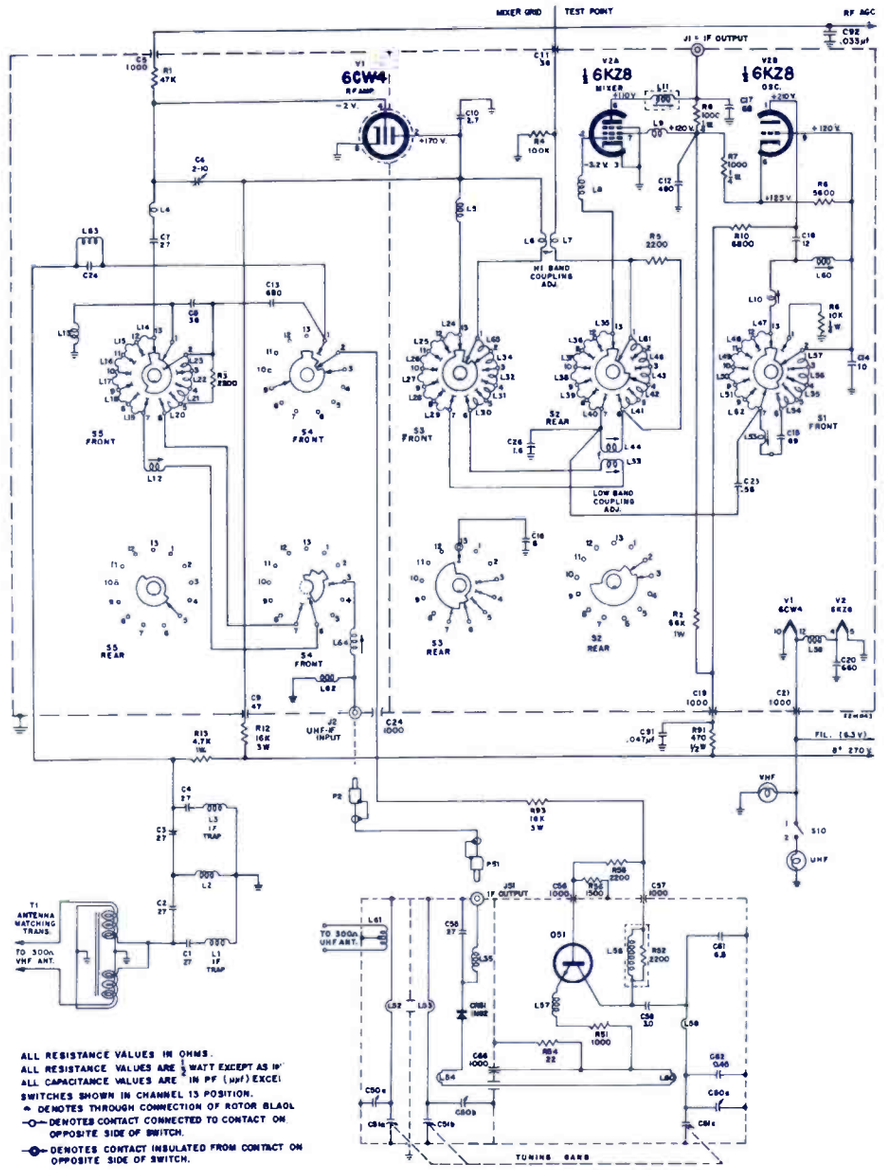
280 V. P-P

220 V. P-P

150 V. P-P





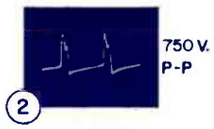


ALL RESISTANCE VALUES IN OHMS.
ALL RESISTANCE VALUES ARE ½ WATT EXCEPT AS IN
ALL CAPACITANCE VALUES ARE IN PF (μμf) EXCEPT
SWITCHES SHOWN IN CHANNEL 13 POSITION.
* DENOTES THROUGH CONNECTION OF ROTOR BLADE
—o— DENOTES CONTACT CONNECTED TO CONTACT ON OPPOSITE SIDE OF SWITCH.
—o DENOTES CONTACT INSULATED FROM CONTACT ON OPPOSITE SIDE OF SWITCH.

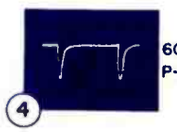
BALLOONS (1), (2), ETC., SHOWN ON SCHEMATIC INDICATE POINTS OF OBSERVATION OF THE WAVEFORMS.

USE LOW-CAPACITY PROBE WHEN OBSERVING WAVEFORMS

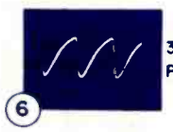

1 — 15 V. P-P

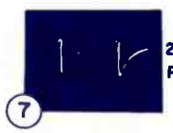

2 — 750 V. P-P


3 — 25 V. P-P


4 — 60 V. P-P

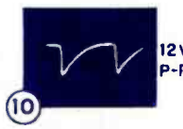

5 — 20 V. P-P

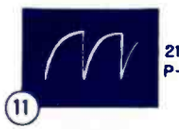

6 — 36 V. P-P

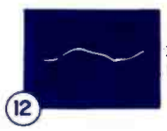

7 — 200 V. P-P

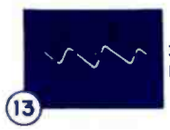

8 — 186 V. P-P

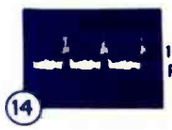

9 — 100 V. P-P


10 — 12 V. P-P


11 — 210 V. P-P

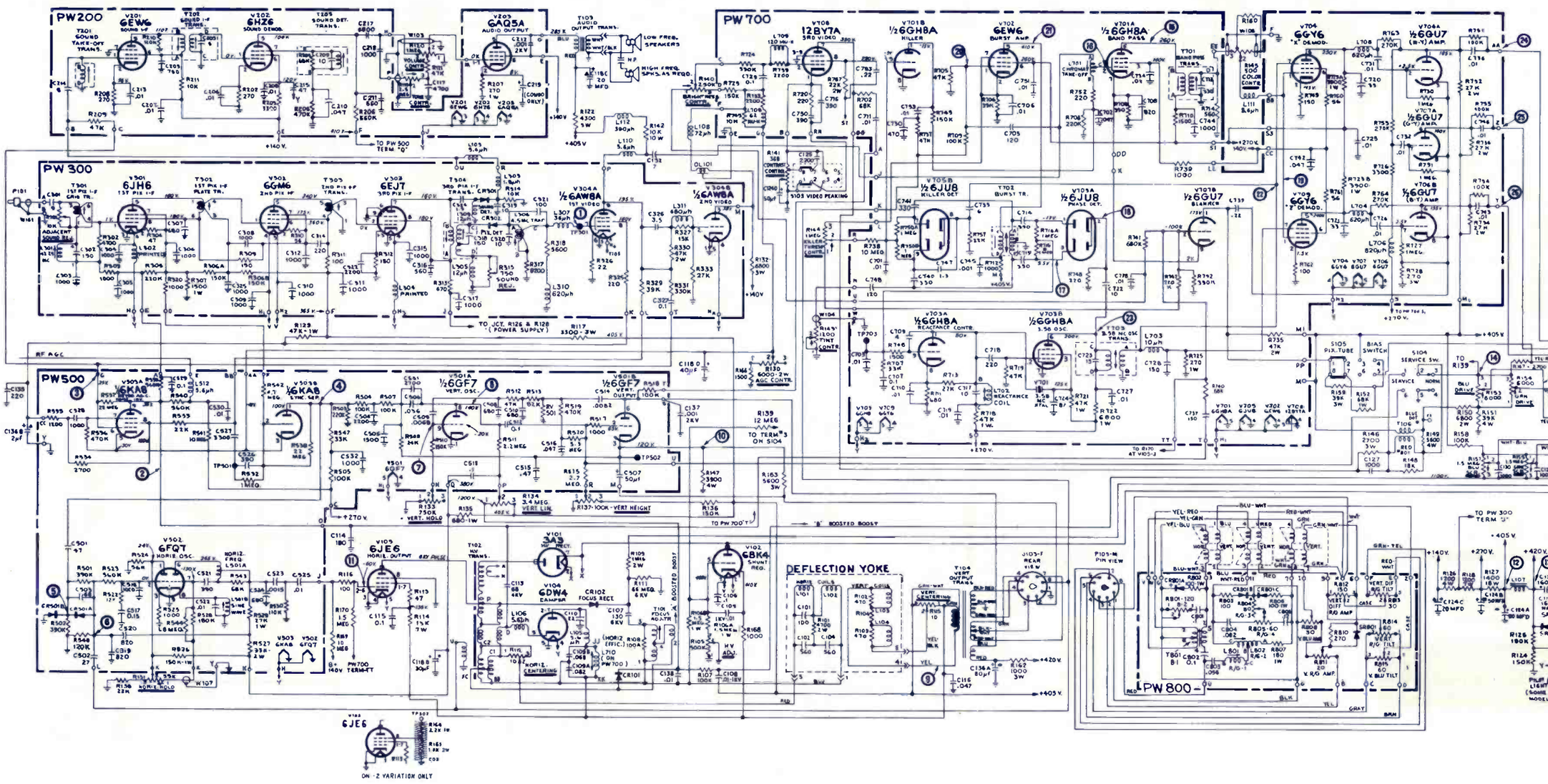

12 — 3 V. P-P

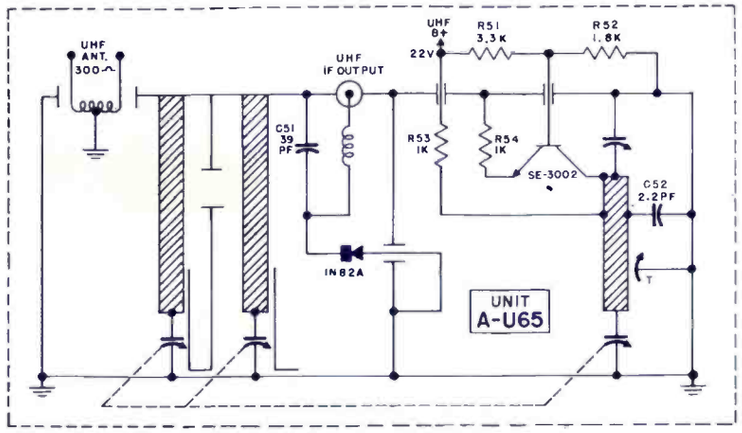

13 — 30 V. P-P

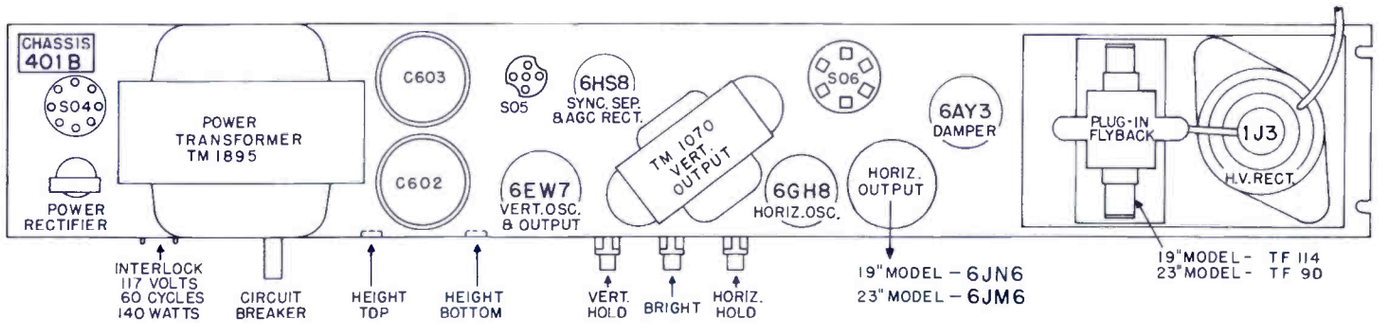

14 — 100 V. P-P

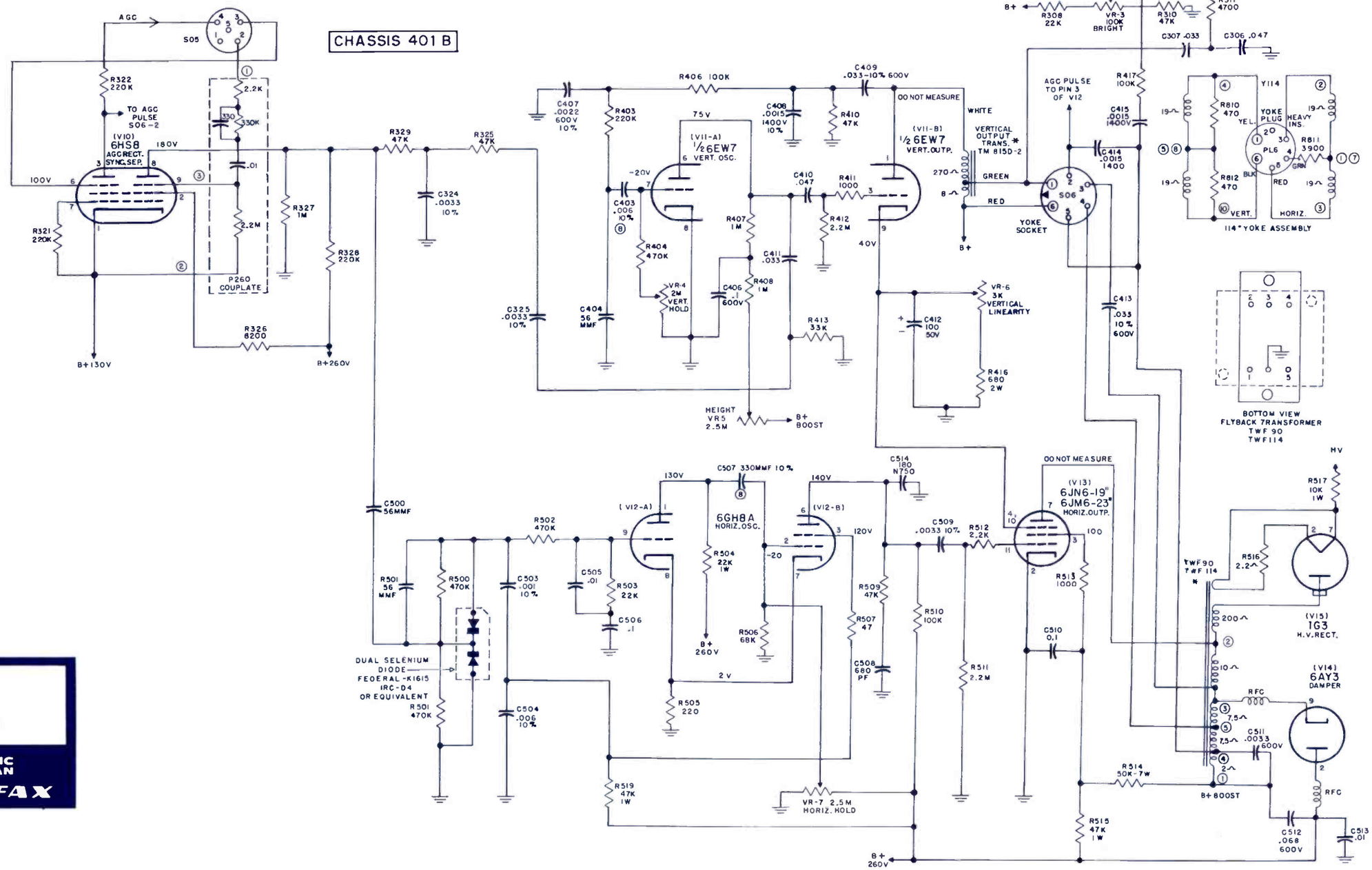
ELECTRONIC TECHNICIAN TEKFAX

SYLVANIA
Chassis 577-1-2
Models 21TC1, C2, 21LC3, LC11-1, LC12-1, LC14-1
HRDLU S

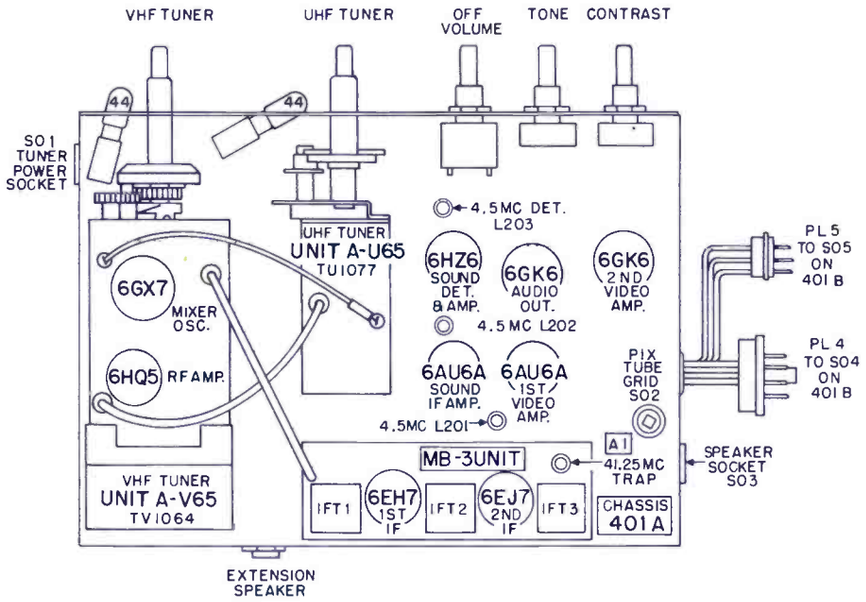


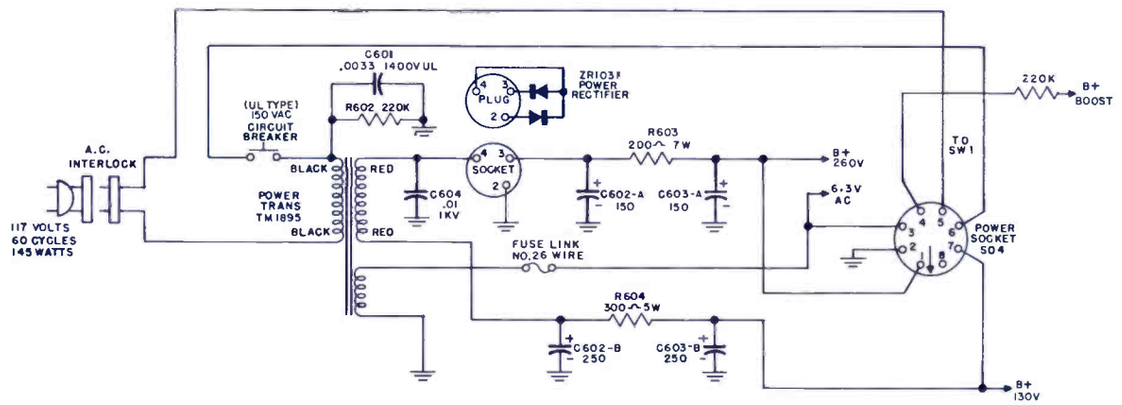

UHF ANT. 300Ω
UHF IF OUTPUT
UHF B+ 22V
R51 3.3K
R52 1.8K
R53 1K
R54 1K
C51 39 PF
C52 2.2PF
SE-3002
IN82A
UNIT A-U65

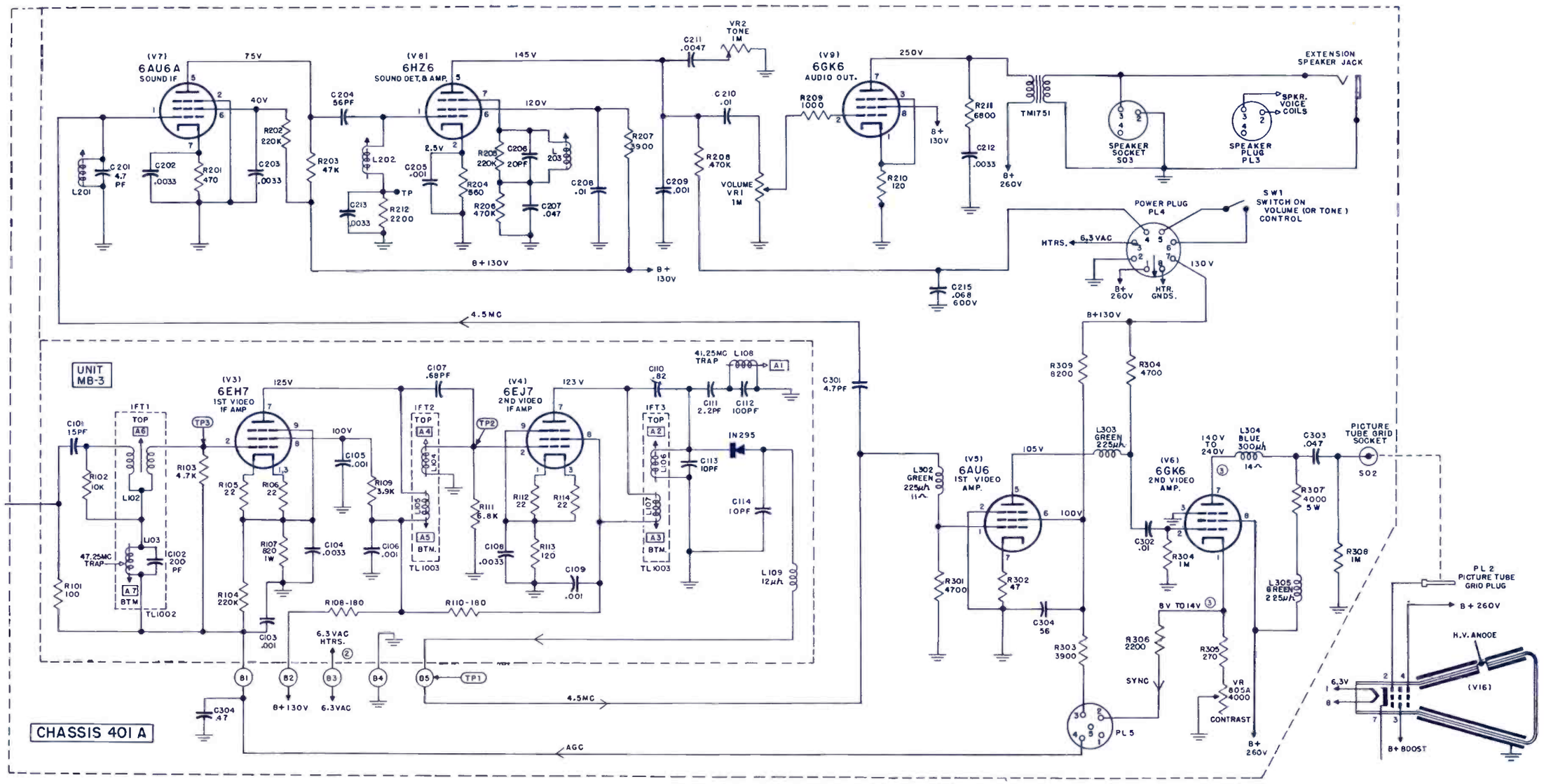

CHASSIS 401B
S040
POWER RECTIFIER
POWER TRANSFORMER TM 1895
C603
C602
S05
6HS8 SYNC. SEP. & AGC RECT.
6EW7 VERT. OSC. & OUTPUT
TM 1070 VERT. OUTPUT
S06
6GH8 HORIZ. OSC.
HORIZ. OUTPUT
6AY3 DAMPER
PLUG-IN FLYBACK
1J3 H.V. RECT.
INTERLOCK 117 VOLTS 60 CYCLES 140 WATTS
CIRCUIT BREAKER
HEIGHT TOP
HEIGHT BOTTOM
VERT. HOLD
BRIGHT
HORIZ. HOLD
19" MODEL – 6JN6
23" MODEL – 6JM6
19" MODEL – TF 114
23" MODEL – TF 90


CHASSIS 401 B
AGC
S05
R322 220K
TO AGC PULSE S06-2
(V10) 6HS8 AGC RECT. SYNC. SEP.
180V
100V
2.2K
330
330K
.01
2.2M
P260 COUPLATE
R321 220K
R327 1M
R328 220K
R329 47K
R325 47K
C324 .0033 10%
R326 6200
B+130V
B+260V
TUNER POWER SOCKET
R605 3300 5W
6.3VAC
R606 18K 2W
B+ 130V
B+ 260V
R406 100K
C407 .0022 600V 10%
R403 220K
75V
(VII-A) 1/2 6EW7 6 VERT. OSC.
C408 .0015 1400V 10%
R410 47K
C409 .033–10% 600V
DO NOT MEASURE
(VII-B) 1/2 6EW7 VERT. OUTP.
WHITE
VERTICAL OUTPUT * TRANS. * TM 815D-2
270Ω
GREEN
8Ω
RED
B+
-20V
C403 .006 10%
C410 .047
R411 1000
R404 470K
R407 1M
R412 2.2M
40V
C411 .033
VR-4 2M VERT. HOLD
C406 1 600V
R408 1M
C325 .0033 10%
C404 56 MMF
R413 33K
VR-6 3K VERTICAL LINEARITY
C412 100 50V
R416 680 2W
HEIGHT VR5 2.5M
B+ BOOST
AGC PULSE TO PIN 3 OF V12
R308 22K
VR-3 100K BRIGHT
R310 47K
R311 4700
C307 .033
C306 .047
R417 100K
C415 .0015 1400V
C414 .0015 1400
C413 .033 10% 600V
Y114
YOKE PLUG
HEAVY INS.
R810 470
R812 470
R811 3900
PL6
YEL.
BLK
RED
GRN
VERT.
HORIZ.
114° YOKE ASSEMBLY
BOTTOM VIEW FLYBACK TRANSFORMER TWF 90 TWF 114
C500 56MMF
R502 470K
(V12-A)
130V
C507 330MMF 10%
6GH8A HORIZ. OSC.
(V12-B)
140V
C514 180 N750
DO NOT MEASURE
(V13) 6JN6-19" 6JM6-23" HORIZ. OUTP.
120V
C509 .0033 10%
R512 2.2K
100
R501 56 MMF
R500 470K
C503 .001 10%
C505 .01
R503 22K
C506 .1
R504 22K 1W
R506 68K
R507 47
R509 47K
R510 100K
R513 1000
C510 0.1
C508 680 PF
R511 2.2M
B+ 260V
2V
R505 220
DUAL SELENIUM DIODE FEDERAL-K1615 IRC-D4 OR EQUIVALENT
R501 470K
C504 .006 10%
R519 47K 1W
VR-7 2.5M HORIZ. HOLD
HV
R517 10K 1W
R516 2.2
TWF90 TWF 114
(V15) 1G3 H.V. RECT.
200Ω
(V14) 6AY3 DAMPER
RFC
7.5Ω
C511 .0033 600V
R514 50K-7W
B+ BOOST
R515 47K 1W
C512 .068 600V
C513 .01
SETCHELL-CARLSON
TV Chassis 401
ELECTRONIC TECHNICIAN
TEKFAX

SETCHELL-CARLSON
TV Chassis 401



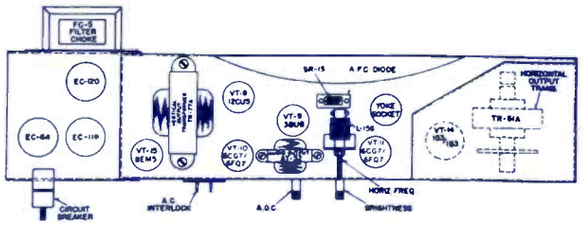


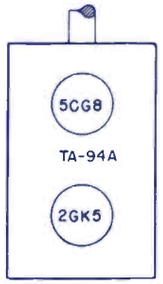


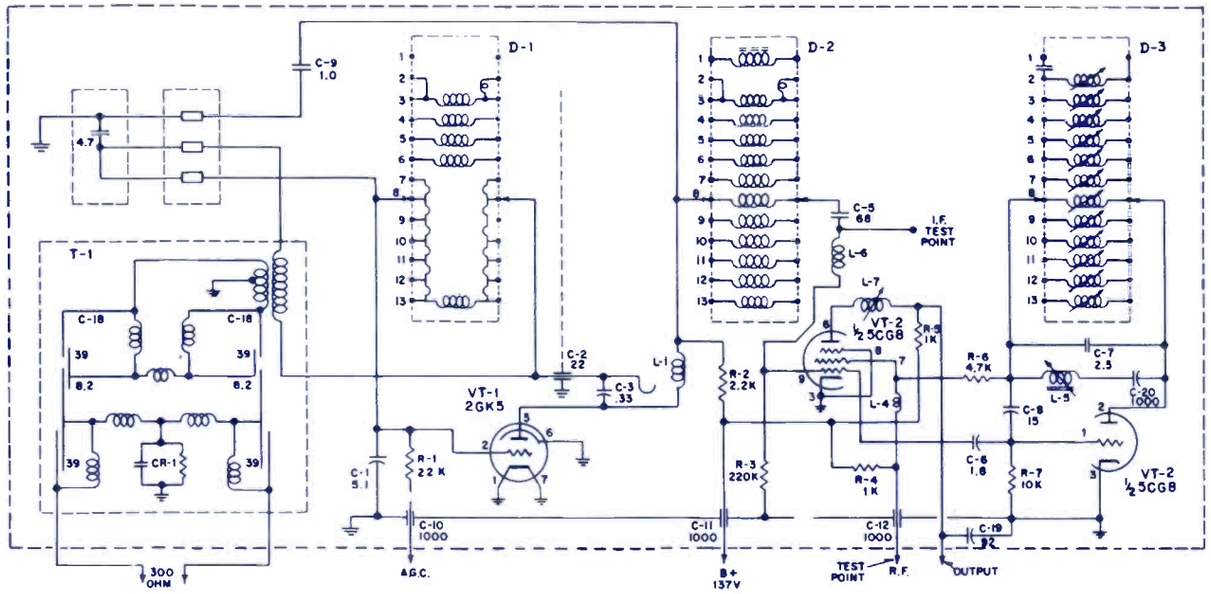
ELECTRONIC TECHNICIAN

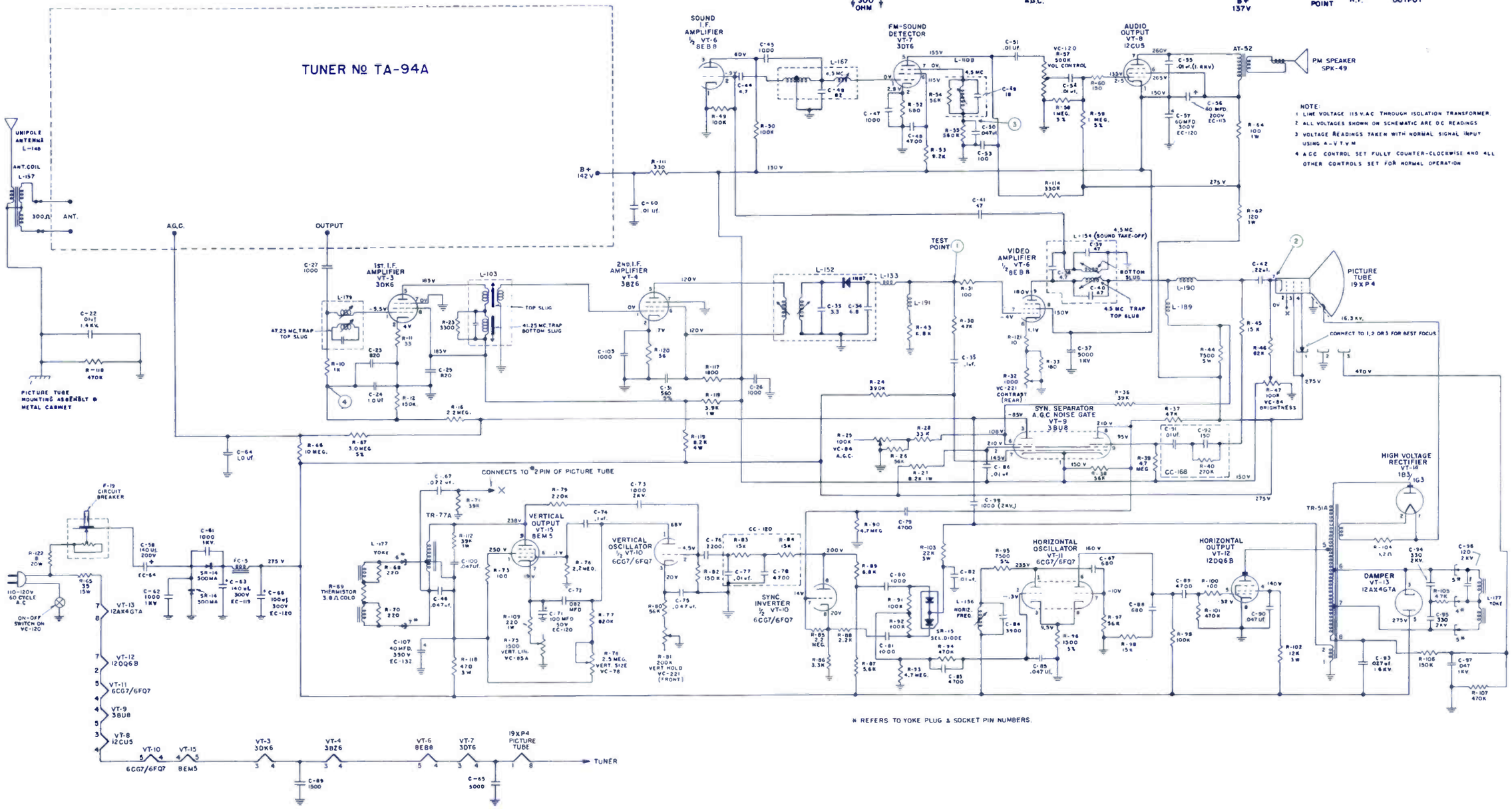
TEKFAX

SONORA
Chassis
Model 563P197





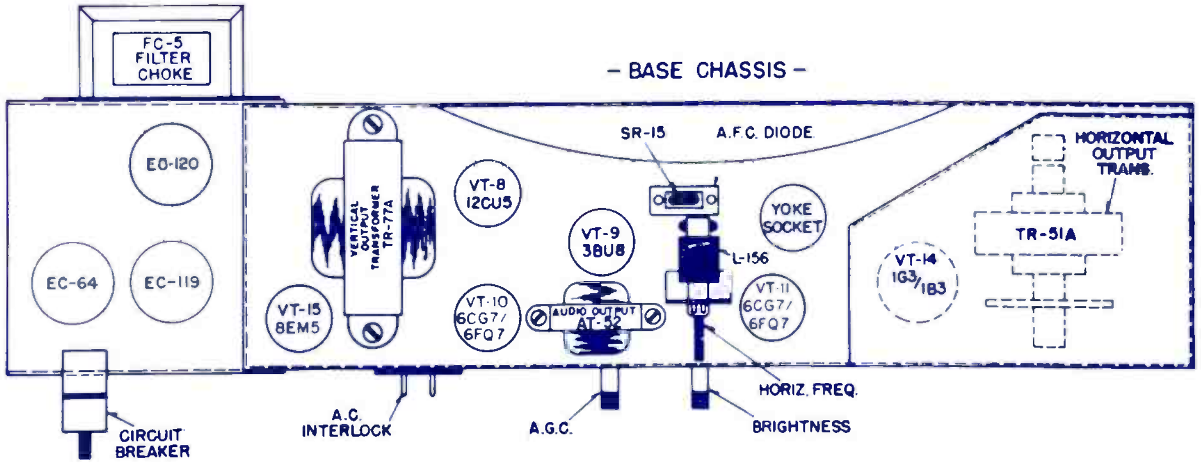


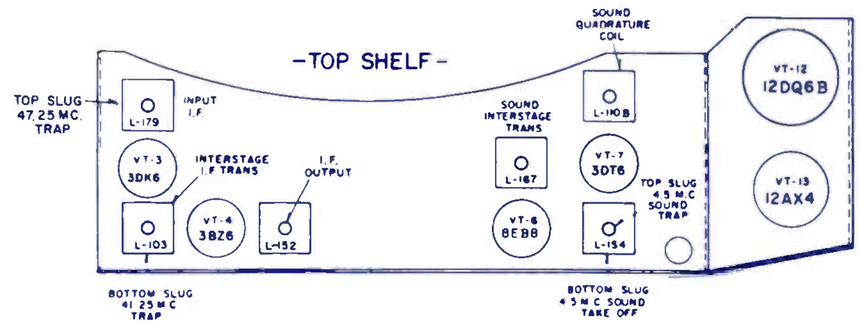


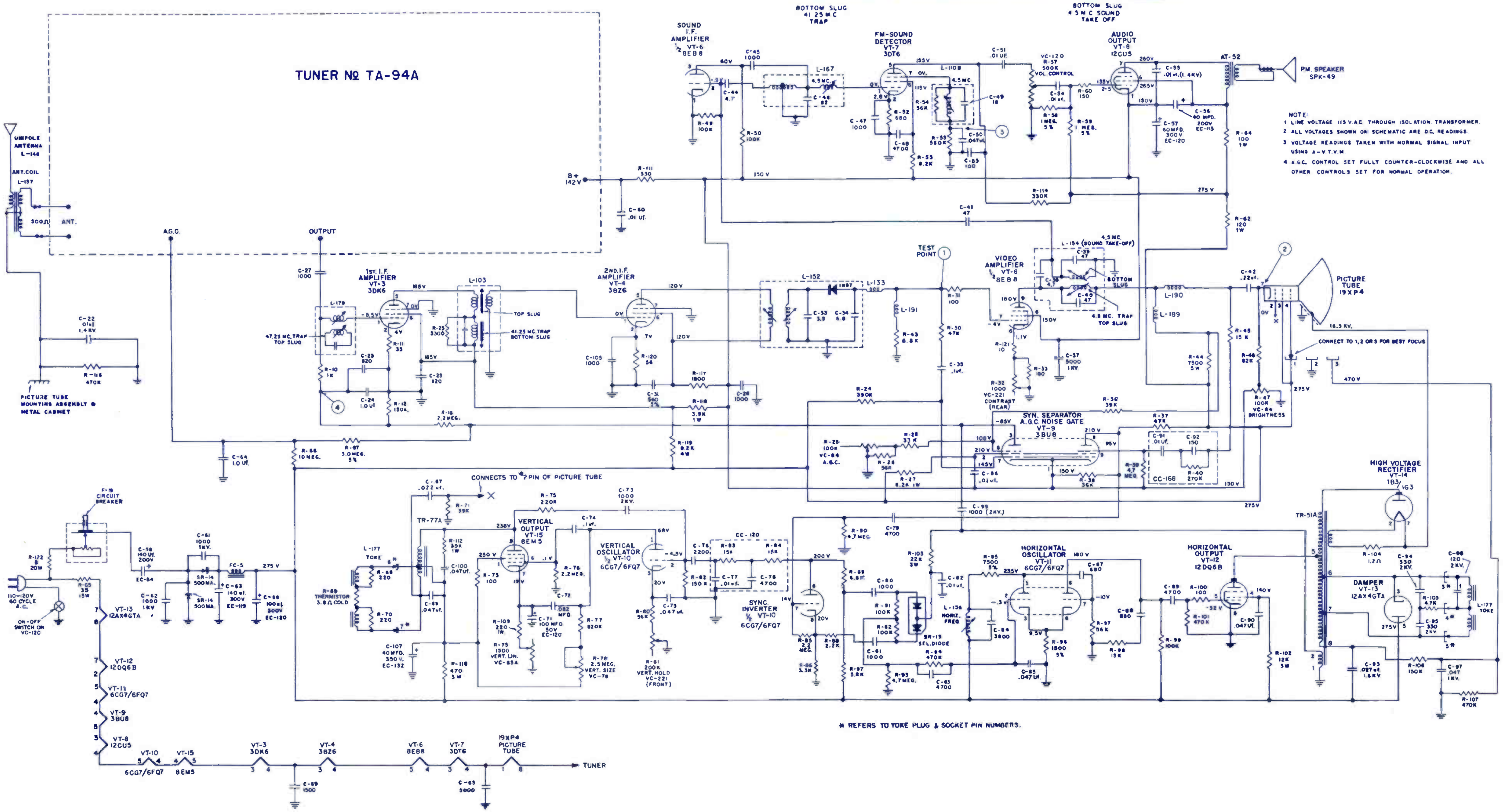
* REFERS TO YOKE PLUG & SOCKET PIN NUMBERS.

ELECTRONIC TECHNICIAN
TEKFAX

Sonora
TV Chassis
1194-194







NOTE:
1 LINE VOLTAGE 115 V.A.C. THROUGH ISOLATION TRANSFORMER.
2 ALL VOLTAGES SHOWN ON SCHEMATIC ARE D.C. READINGS.
3 VOLTAGE READINGS TAKEN WITH NORMAL SIGNAL INPUT USING A-V.T.V.M.
4 A.G.C. CONTROL SET FULLY COUNTER-CLOCKWISE AND ALL OTHER CONTROLS SET FOR NORMAL OPERATION.

ELECTRONIC TECHNICIAN
TEKFAX

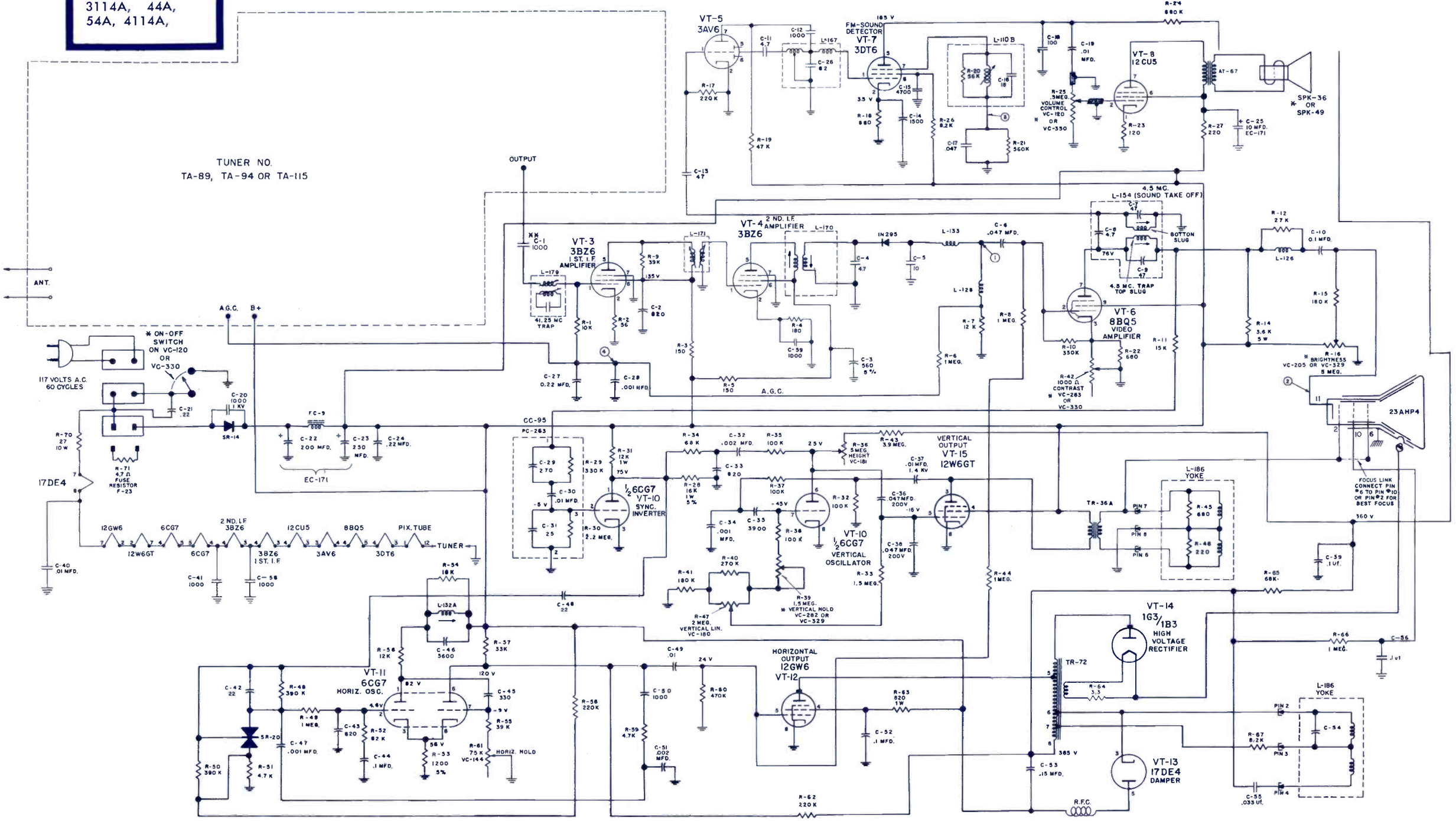
TRAVLER
TV Chassis
Models GTC-
3014A, B,
4014A,
3114A, 44A,
54A, 4114A,

CHASSIS NO'S.
1089-24, 1094-24, 1094-24U
10-115-24, 10-115-24U

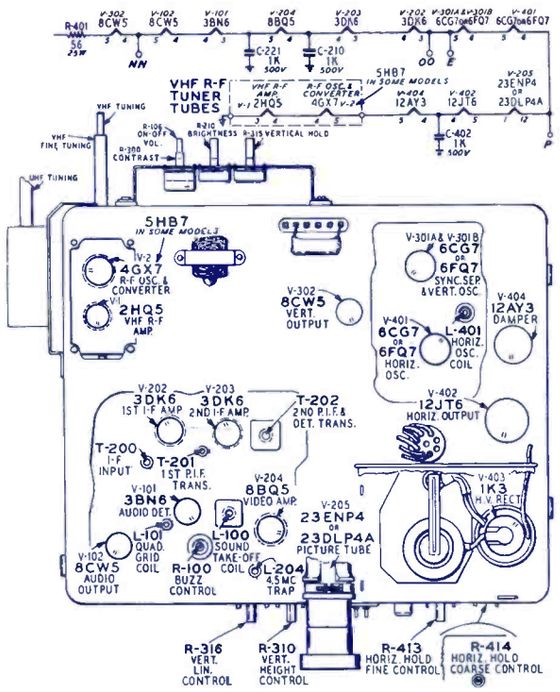
TUNER NO.
TA-89, TA-94 OR TA-115

* MODELS GTC-3014A, GTC-3014B & GTC-4014A ONLY.
SPK-49 SPEAKER
VC-120 ON-OFF-VOLUME
VC-205 BRIGHTNESS
VC-282 VERTICAL HOLD
VC-283 CONTRAST
% MODELS GTC-3114A, GTC-3144A, GTC-3154A, GTC-4114A, GTC-4144A, & GTC-4184A ONLY
SPK-36 SPEAKER
VC-329 VERTICAL HOLD-BRIGHTNESS
VC-330 ON-OFF-VOLUME-CONTRAST
*% NOT USED IN MODEL GTC-3014A

PICTURE TUBE AQUADAG
C-57 .01 14 KV.
R-72 2.2 MEG.



TRUETONE
TV Chassis
Models 2DC1501A
and 2DC1501B



OSCILLOSCOPE WAVEFORM PATTERNS

The waveforms shown on the schematic diagram are as observed on a Tektronix type 524D wide band television oscilloscope with the receiver tuned to a reasonably strong signal and a normal picture. The voltages shown on each waveform are the approximate peak to peak amplitudes. The frequency accompanying each waveform indicates the repetition rate of the waveform not the sweep rate of the oscilloscope. If the waveforms are observed on the oscilloscope with a poor high frequency response, the corners of the pulses will tend to be more rounded than those shown on the schematic diagram and the amplitude of any high frequency pulse will tend to be less.

DC SOCKET VOLTAGES

All DC socket voltages shown on the schematic are measured with a high impedance VTVM and under zero signal conditions.

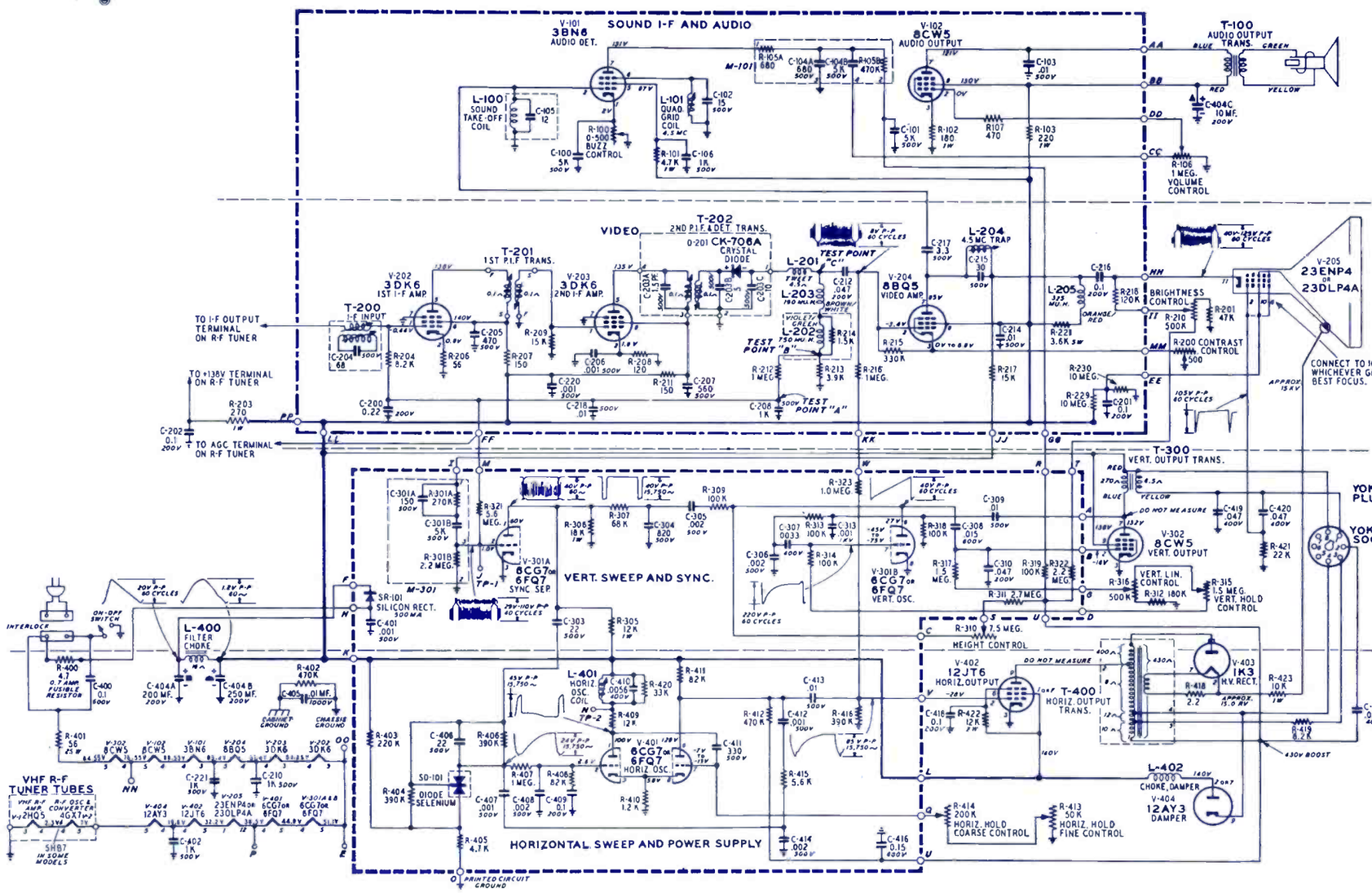
SCHEMATIC IS DIVIDED INTO FOUR SECTIONS WITH EACH SECTION HAVING ITS OWN SERIES OF REFERENCE NUMBERS.

ALL RESISTANCE VALUES IN OHMS AND HALF WATT UNLESS OTHERWISE SPECIFIED.

ALL CAPACITANCE VALUES LESS THAN 1.0 IN MF. AND ABOVE 1.0 IN PF. UNLESS OTHERWISE NOTED.

COIL RESISTANCE VALUES LESS THAN 1.0 OHM ARE NOT SHOWN.

K=1000

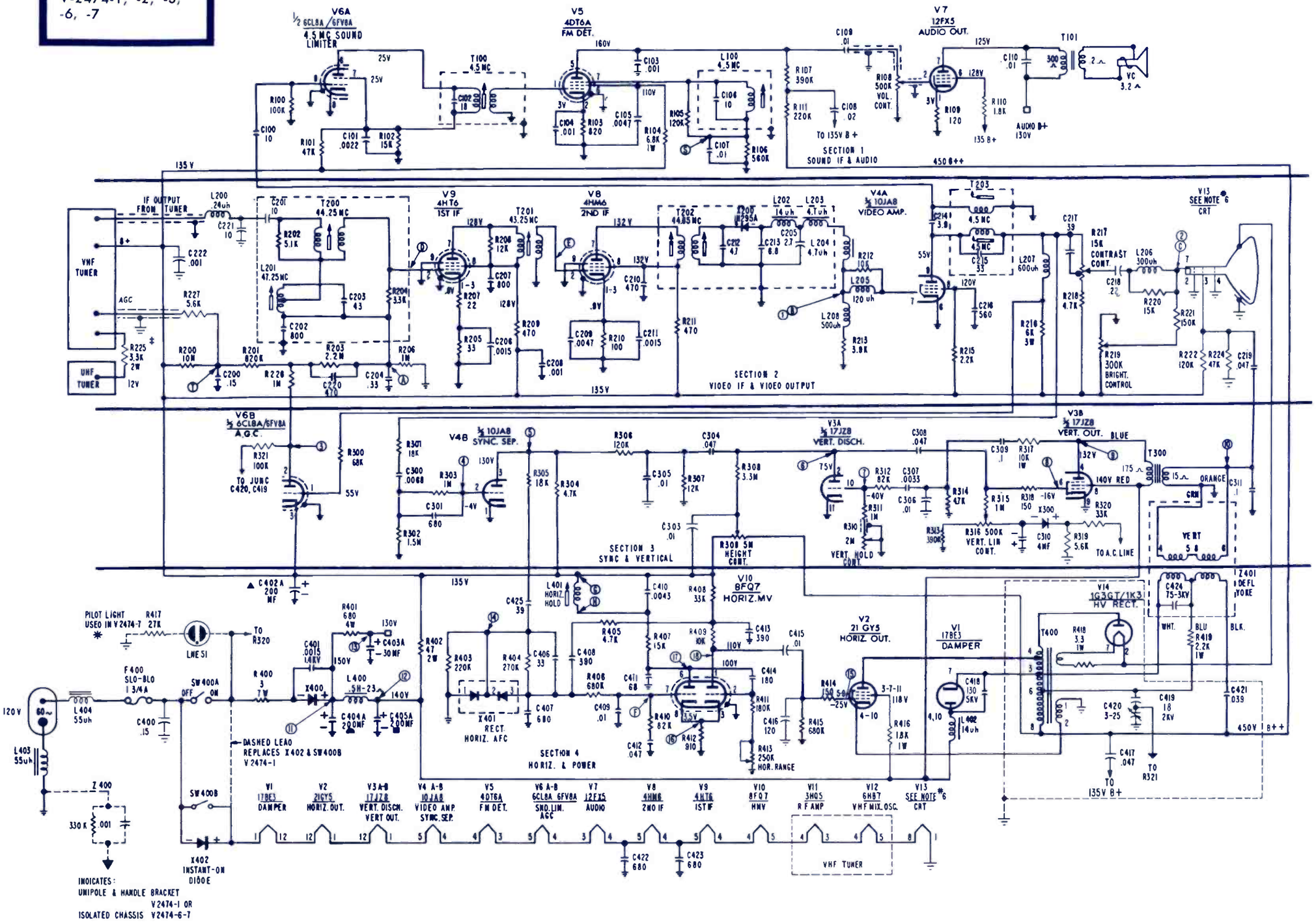


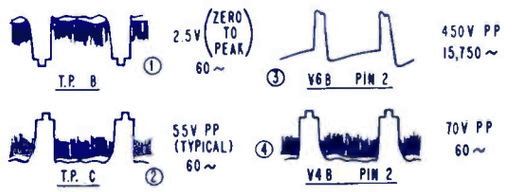
TEKFAX

WESTING-HOUSE
TV Chassis
V-2474-1, -2, -3, -6, -7

NOTES:

1. ALL CAPACITOR VALUES LESS THAN 1 ARE IN MFD, AND VALUES GREATER THAN 1 ARE IN PF(MICROMICROFARADS) ALL RESISTANCE VALUES ARE IN OHMS 1/2 WATT UNLESS OTHERWISE INDICATED.
2. DC VOLTAGES ARE MEASURED FROM POINT INDICATED TO CIRCUIT GROUND WITH A VTVM. LINE VOLTAGE AT 120 V.A.C., NO SIGNAL APPLIED.
3. WAVEFORMS WERE TAKEN WITH CONTROLS SET FOR A NORMAL PICTURE.
*4. FOR VARIATION IN V2474-3 REMOTE CHASSIS SEE SUPPLEMENTAL SCHEMATIC.
‡5. FOR V2474-3 CHASSIS R225 IS 6.8K 2W.
6. FOR V2474-1-2-3 CHASSIS V13 IS 19CMP4. V2474-6-7 CHASSIS V13 IS 19EJP4.





WESTING-HOUSE

TV Chassis V-2478-1, 2

V2478-1,2

REVISION A

REVISION B

REVISION C

TOTAL R456 APPROX 160K
TOTAL C437 APPROX 200PF

V2478-2

NOTES:

1. ALL CAPACITOR VALUES LESS THAN 1.0 ARE IN MF, AND VALUES GREATER THAN 1.0 ARE IN PF. (PICOFARADS), ALL RESISTANCE VALUES ARE IN OHMS 1/2 WATT, UNLESS OTHERWISE INDICATED.
2. DC VOLTAGES ARE MEASURED FROM POINT INDICATED TO CIRCUIT GROUND WITH A VTVM. LINE VOLTAGE AT 120 V.AC NO SIGNAL APPLIED.
3. WAVEFORMS WERE TAKEN WITH CONTROLS SET FOR A NORMAL PICTURE.
4. SWITCH MAKES CONTACT ON UHF POSITION ONLY.

* RELOCATED OFF THE P.C. BOARD.

** JUMPER REMOVED IN LATE PRODUCTION

SECTION SOUND

SECTION VIDEO IF & VIDEO OUTPUT

SECTION SYNC & VERTICAL

SECTION HORIZ. & POWER

AGC REVISION D

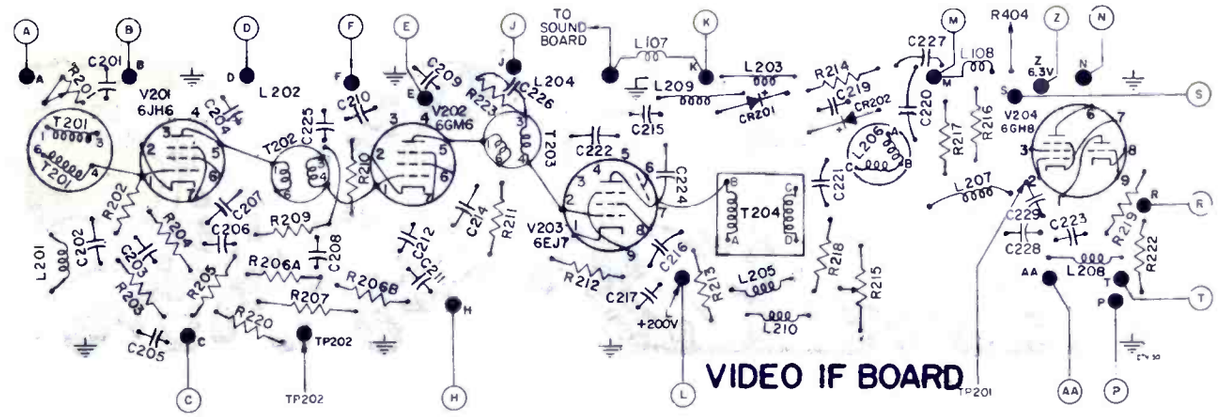
AGC REVISION E

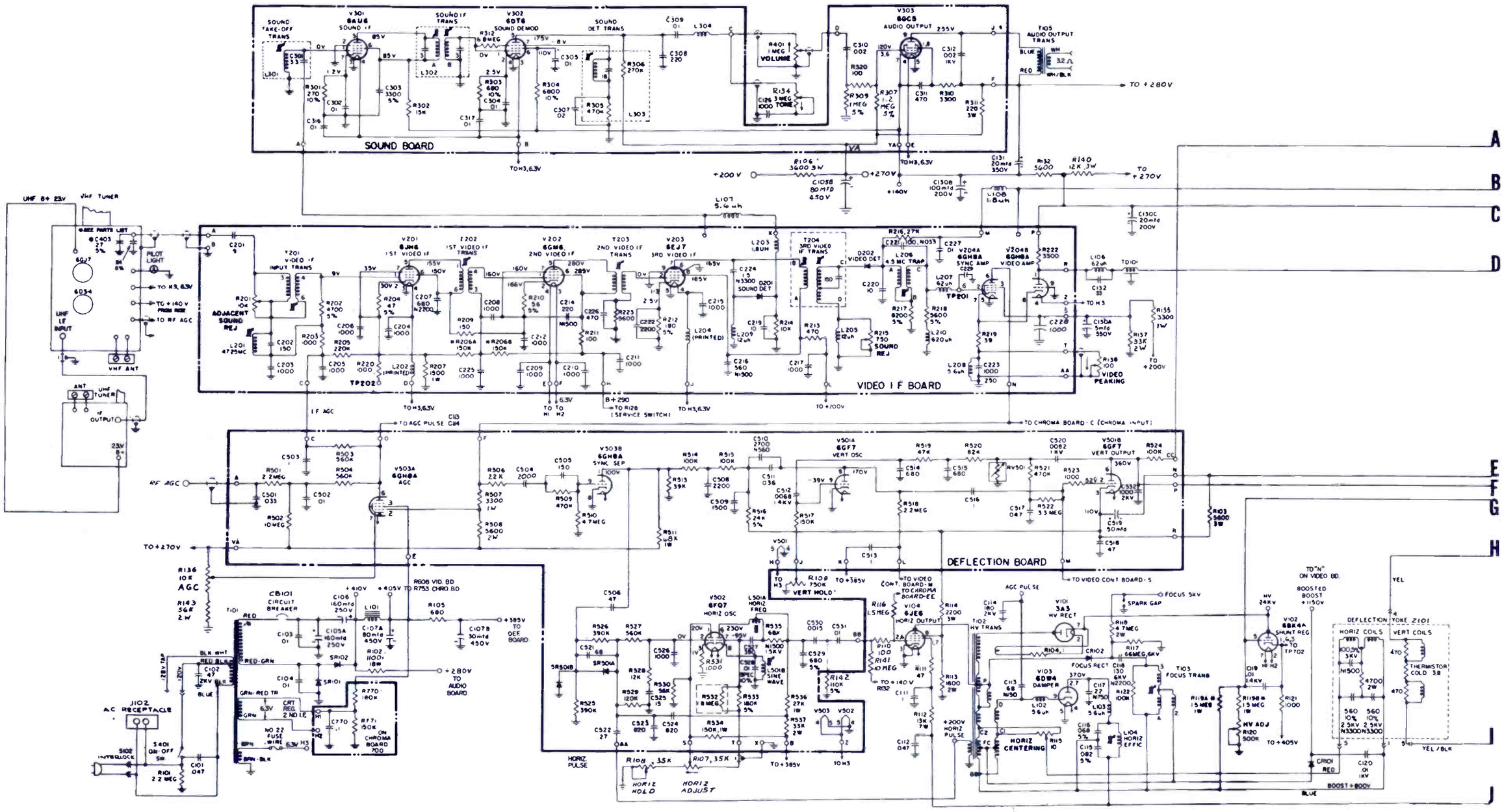
V2478-1

V403 17DQ6B HORIZ. OUT | V404 17DM4 DAMPER | V203A-B 10JA8 VIDEO AMP SYNC SEP | V401A-B 17JZ8 VERT DISCH VERT OUT | V301A-B 6CL8A SND LIM. AGC | V302 4AV6 AUDIO AMP | V303 12FX5 AUDIO | V202 4EJ7 2ND IF | V201 4EH7 1ST IF | V2 A-B 6CG8A OSC MIX | V1 3GK5 RF AMP | V3 3AF4A/B OR 3D24 OSC | V402 6CG7 HORIZ. MV. | V204 12BDP4 CRT

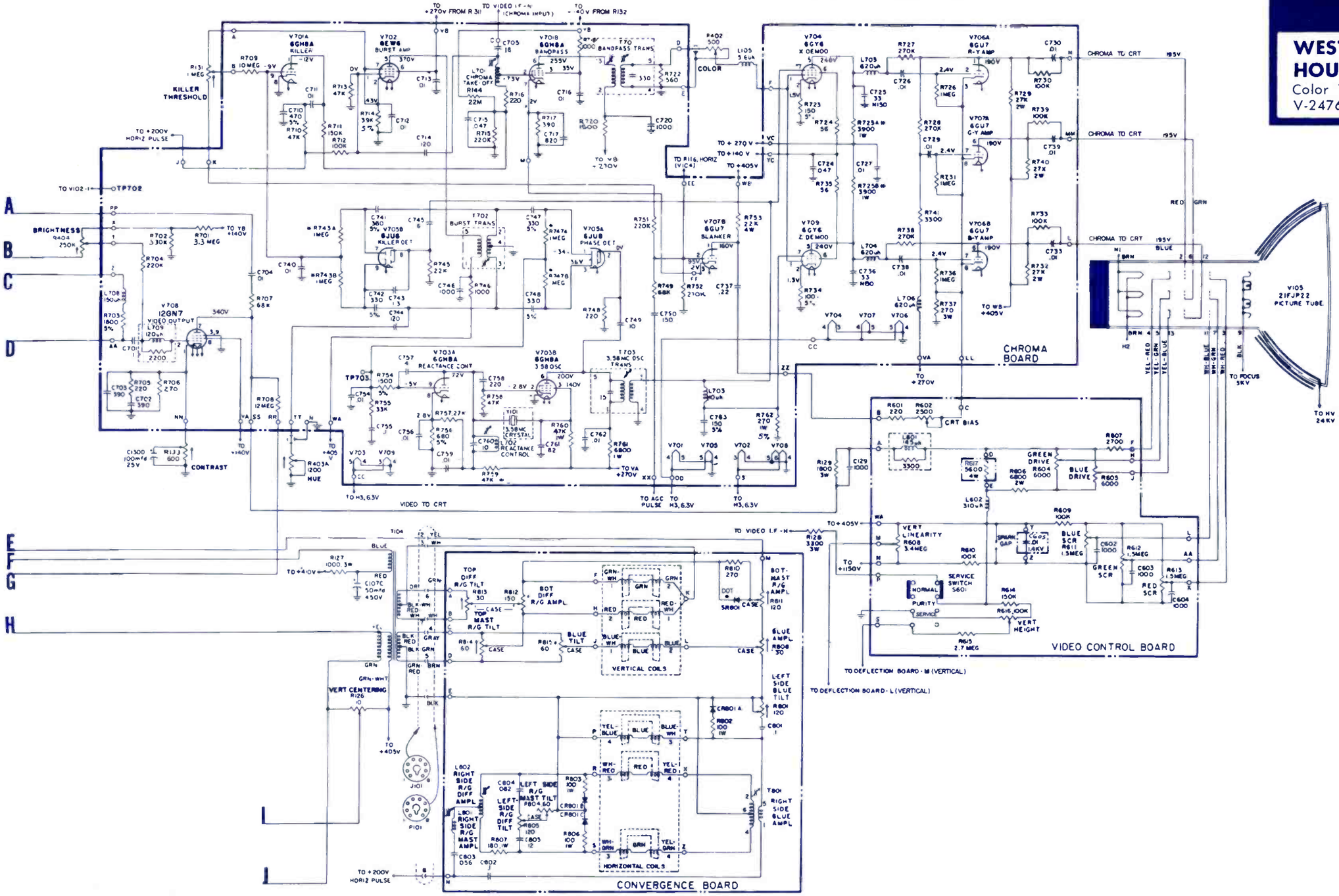
WESTINGHOUSE
Color TV Chassis

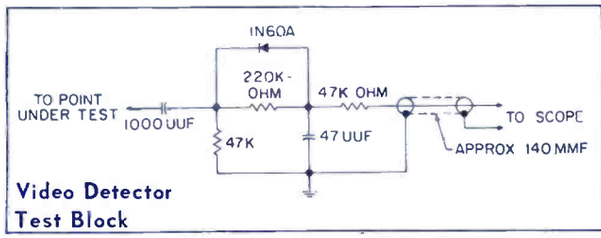
ELECTRONIC TECHNICIAN
TEKFAX



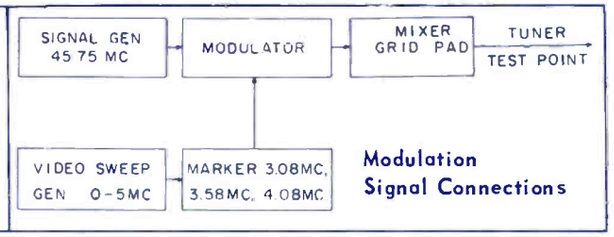


WESTING-HOUSE
Color TV Chassis
V-2476-1





Video Detector Test Block



Modulation Signal Connections

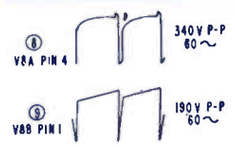
ELECTRONIC TECHNICIAN TEKFAX

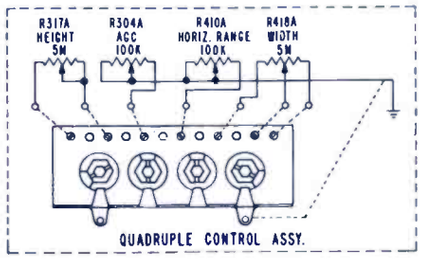
WESTING-HOUSE
TV Chassis
V-2475-1, -4

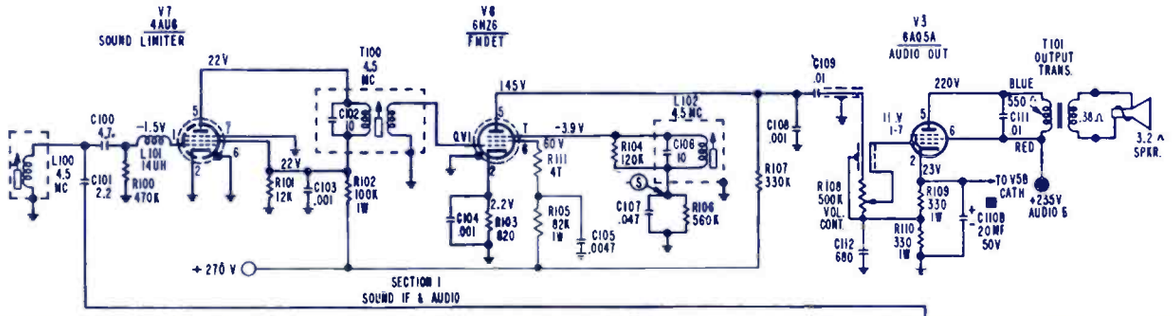
NOTES:

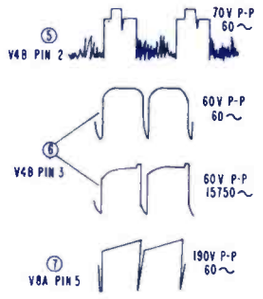
1. ALL CAPACITANCE VALUES LESS THAN 1 ARE IN MF AND VALUES GREATER THAN 1 ARE IN PF WHILE ALL RESISTANCE VALUES ARE IN OHMS, 1/2 WATT UNLESS OTHERWISE INDICATED.
2. DC VOLTAGES MEASURED FROM B- WITH A VTVM, NO SIGNAL APPLIED, LINE VOLTAGE AT 120 V.A.C.
3. WAVEFORMS WERE TAKEN WITH CONTROLS SET FOR NORMAL PICTURE
4. MAKES CONTACT ON CHAN. *1.
5. CIRCLED NUMBERS REFER TO WAVE FORMS.
6. V 2475-1 CRT IS 19 CMP4 - SAFETY GLASS SHIELD REQUIRED.
   V 2475-4 CRT IS 19 EJP4 - NO GLASS SHIELD REQUIRED.

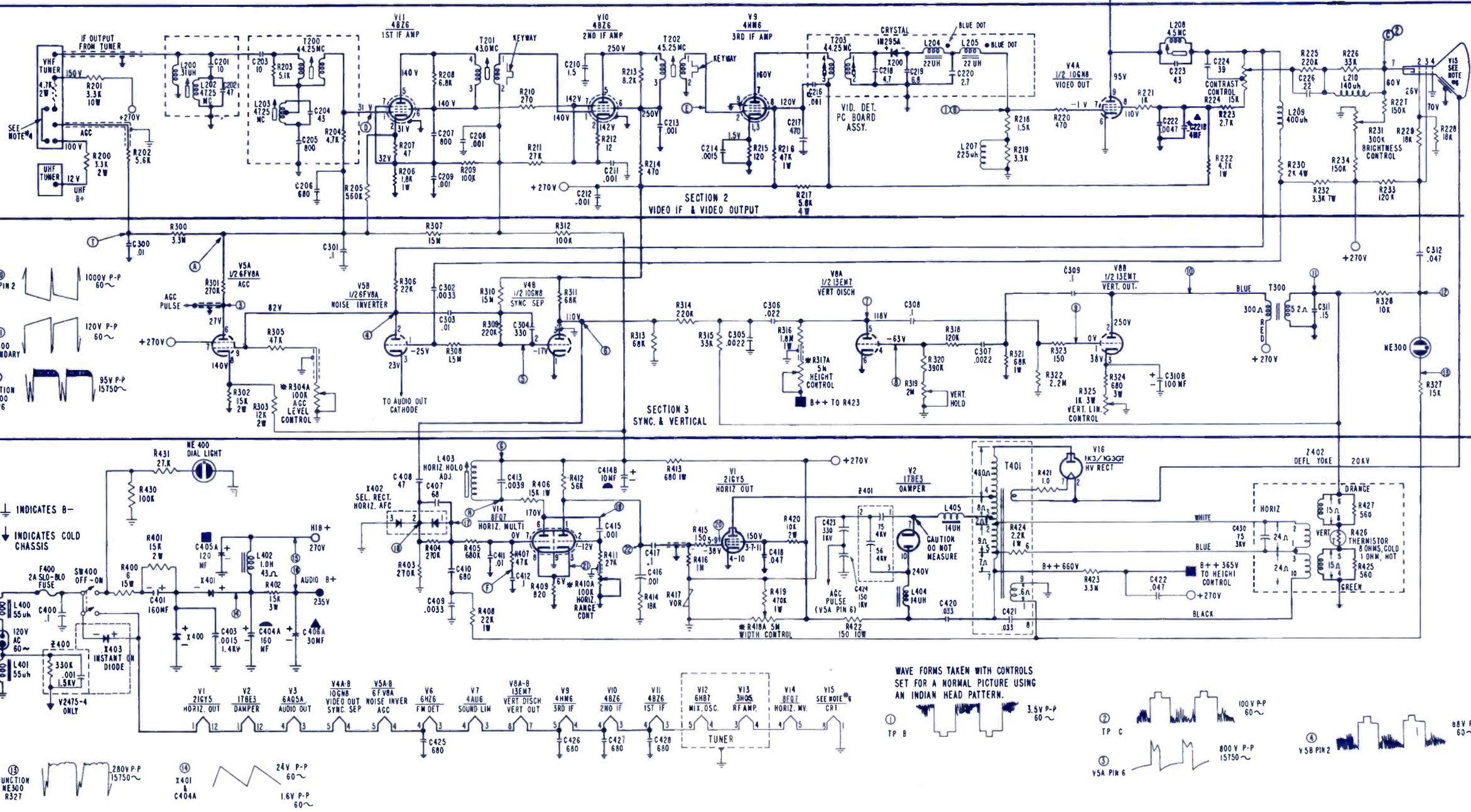
* PART OF QUADRUPLE CONTROL ASSY.







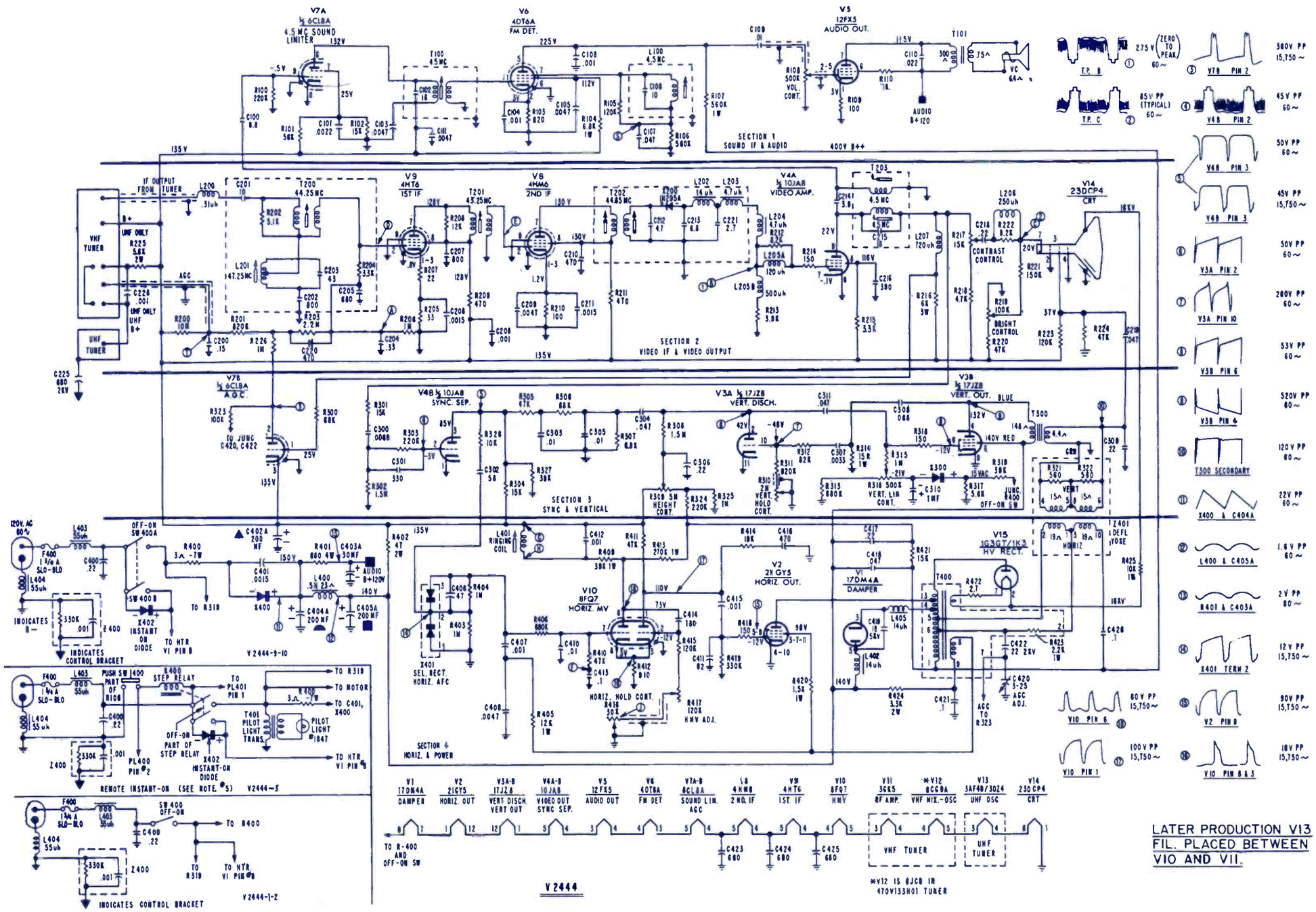




WESTING-HOUSE
TV Chassis
V-2444-1, -2, -3, -9, -10

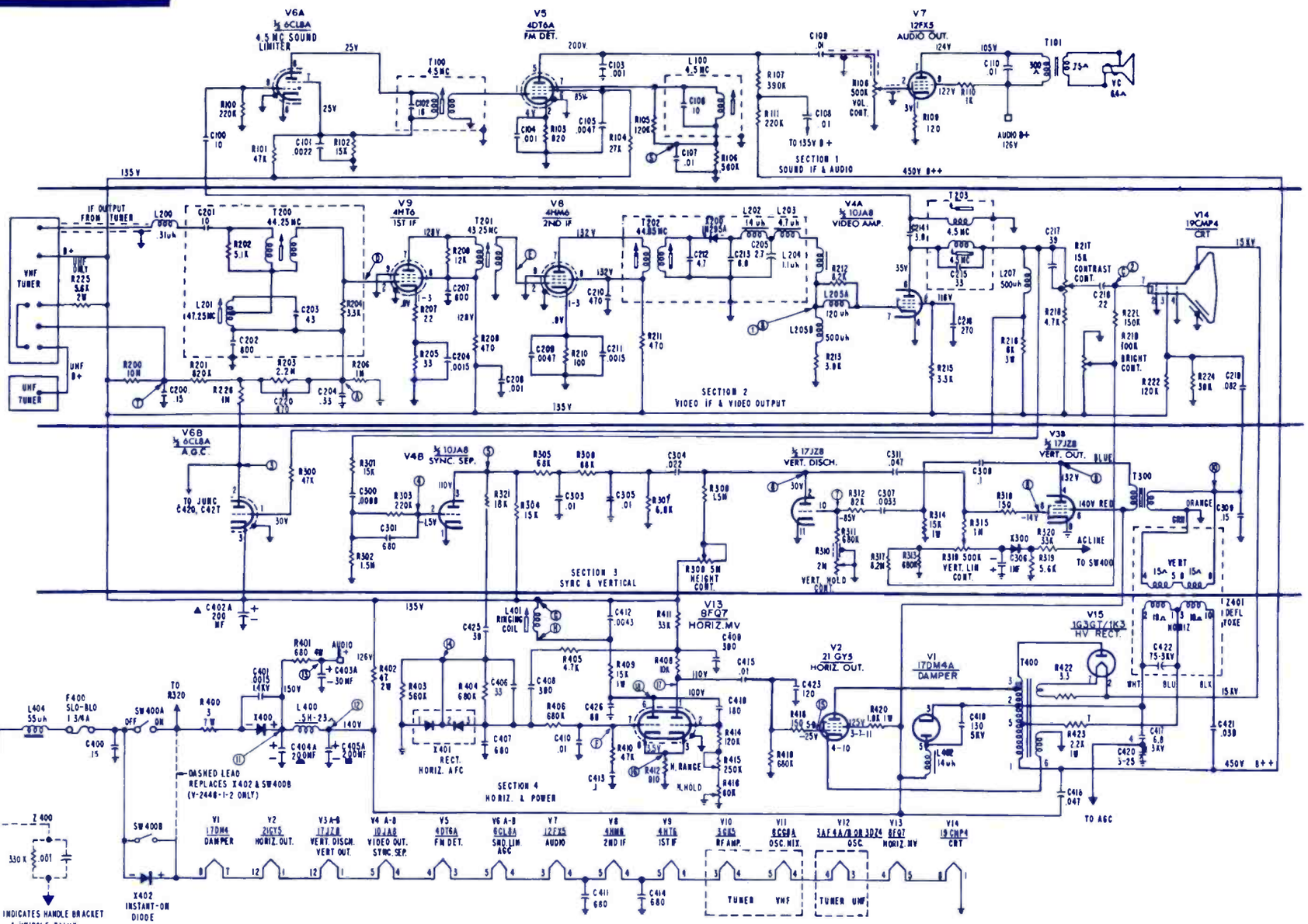
NOTES:

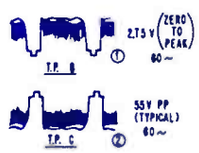
1. ALL CAPACITOR VALUES LESS THAN 1 ARE IN MFD. AND VALUES GREATER THAN 1 ARE IN PF(MICROMICROFARADS) ALL RESISTANCE VALUES ARE IN OHMS 1/2 WATT UNLESS OTHERWISE INDICATED.
2. DC VOLTAGES ARE MEASURED FROM POINT INDICATED TO CIRCUIT GROUND WITH A VTVM. LINE VOLTAGE AT 120 V.A.C., NO SIGNAL APPLIED.
3. WAVEFORMS WERE TAKEN WITH CONTROLS SET FOR A NORMAL PICTURE. C-420 WAS SET FOR 2.75V (ZERO TO PEAK) AT T.P. ①.
4. SWITCH MAKES CONTACT ON UHF POSITION ONLY.
5. FOR REMOTE OPERATION ON CHASSIS V2444-3, REFER TO THE REMOTE RECEIVER CHASSIS, V-2418-4.

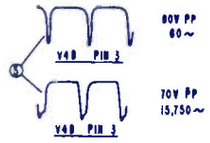


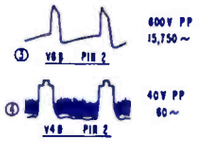
WESTING-HOUSE

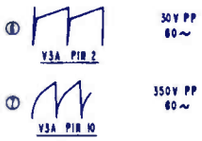
TV Chassis
V-2446-1, -2, -3, -4

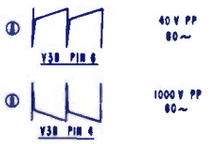


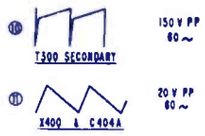


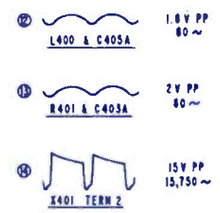


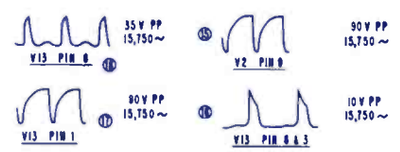






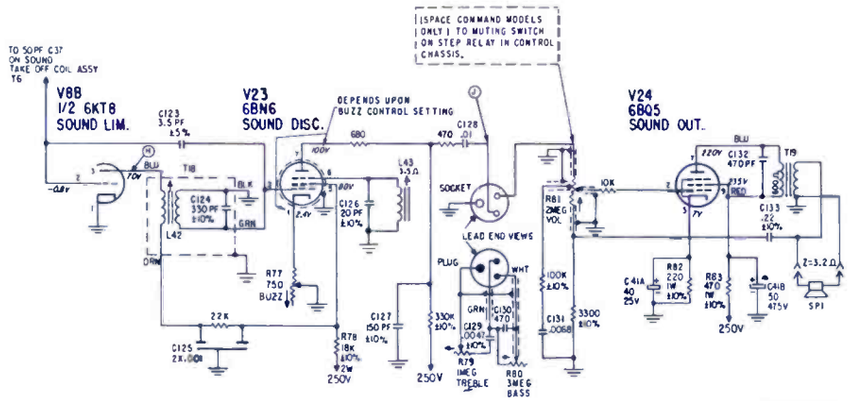


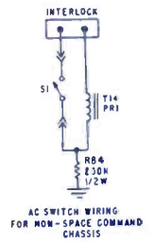


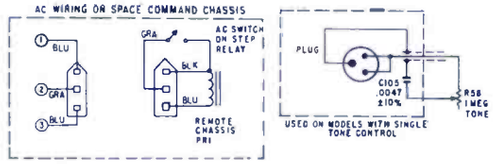


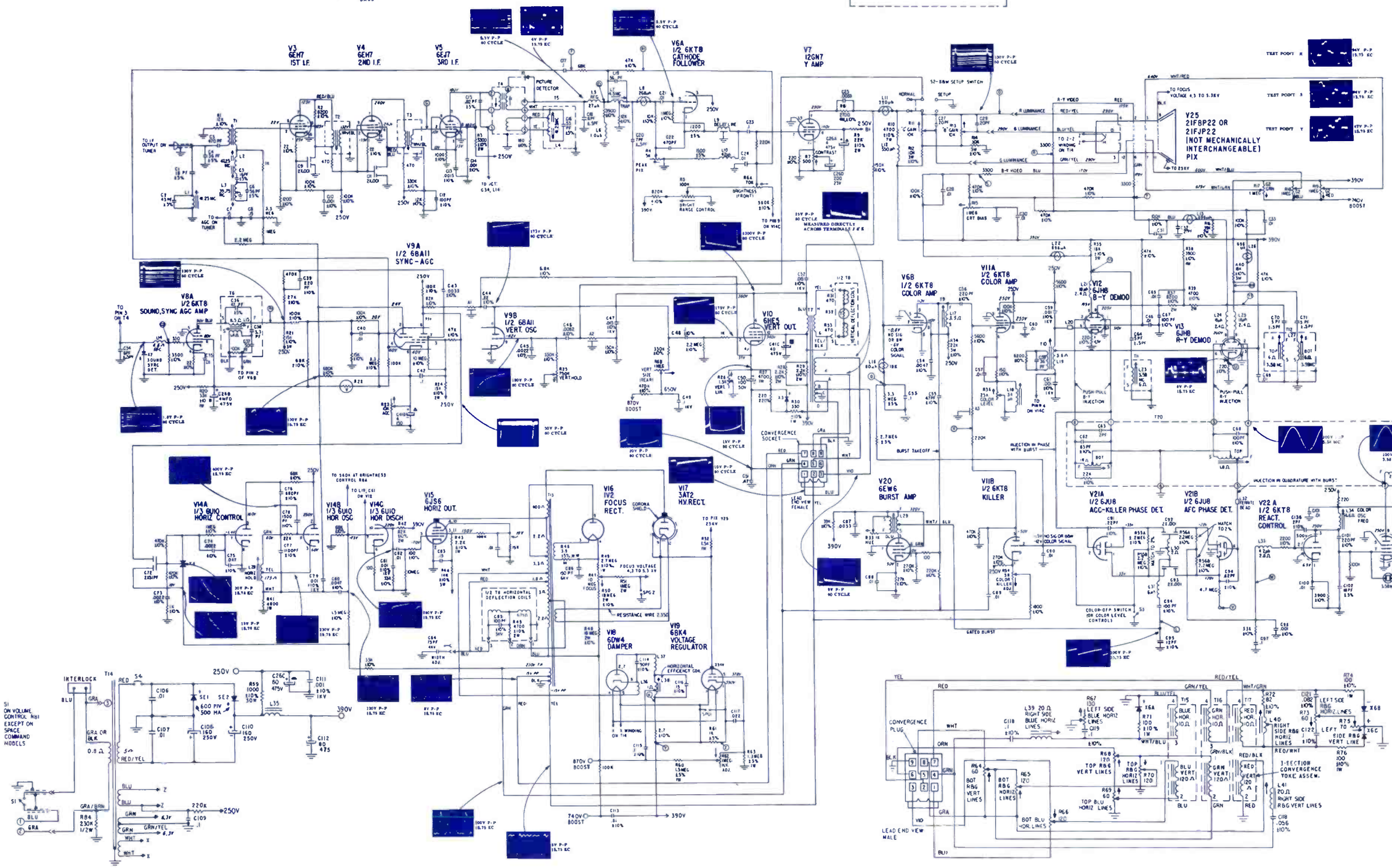
ELECTRONIC TECHNICIAN
TEKFAX

ZENITH
Color TV Chassis
25MC30 Series

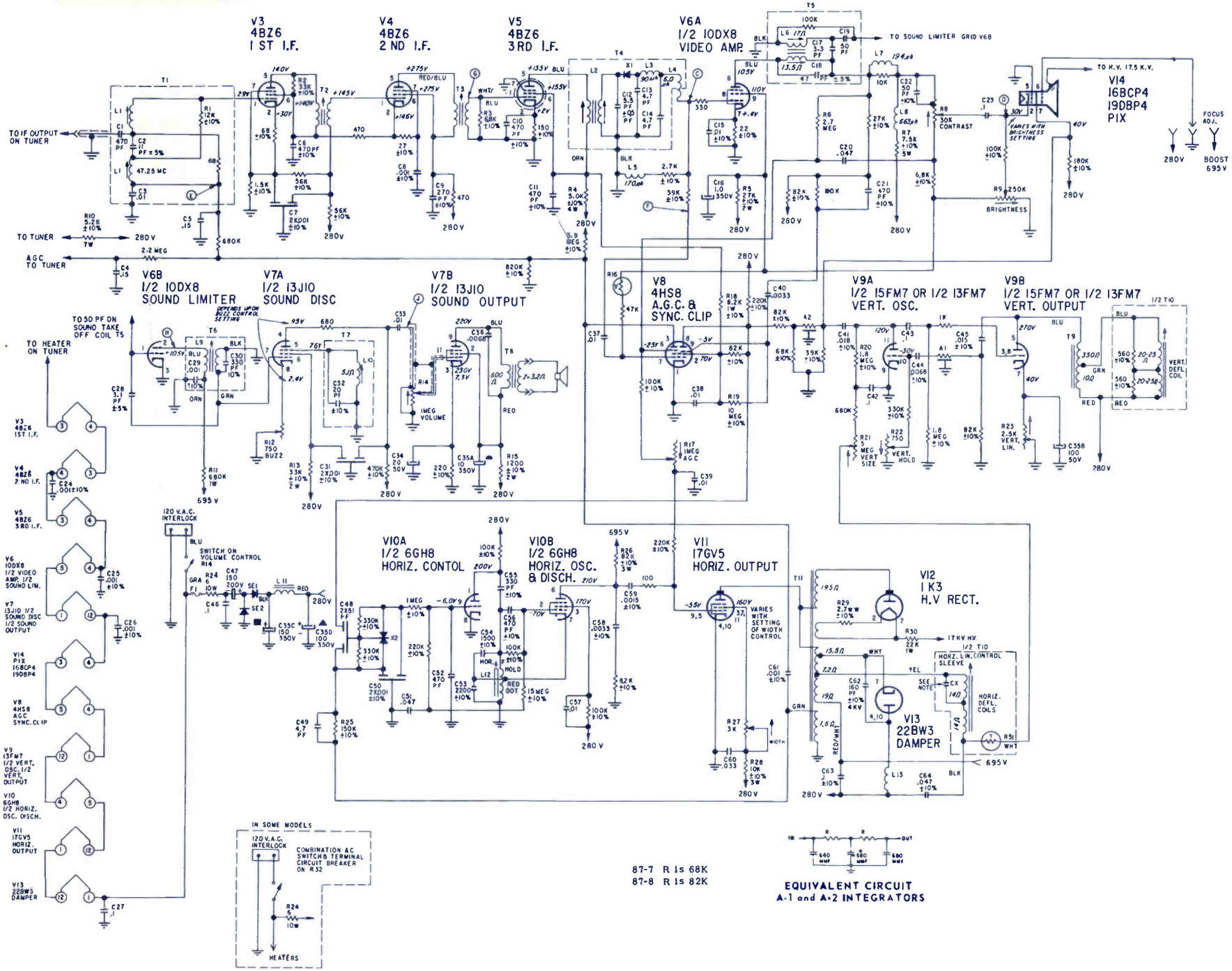




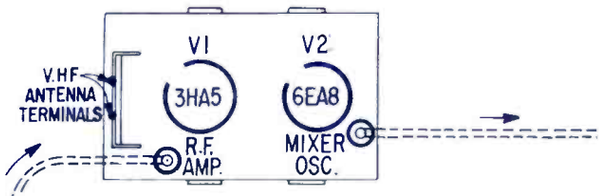




ZENITH
TV Chassis
14L20

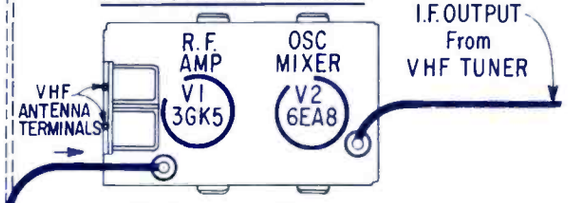


BANDSWITCH TUNER (SOME MODELS)



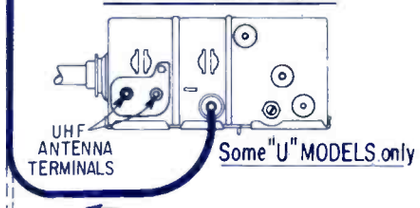
175-701 Thru 175-730 Incl.

BANDSWITCH TUNER

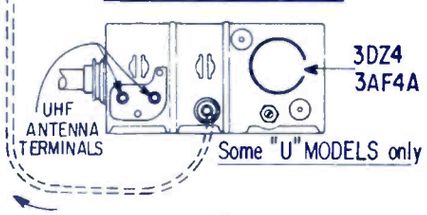


175-281 Thru 175-283 incl.
175-284

UHF TUNER 175-17

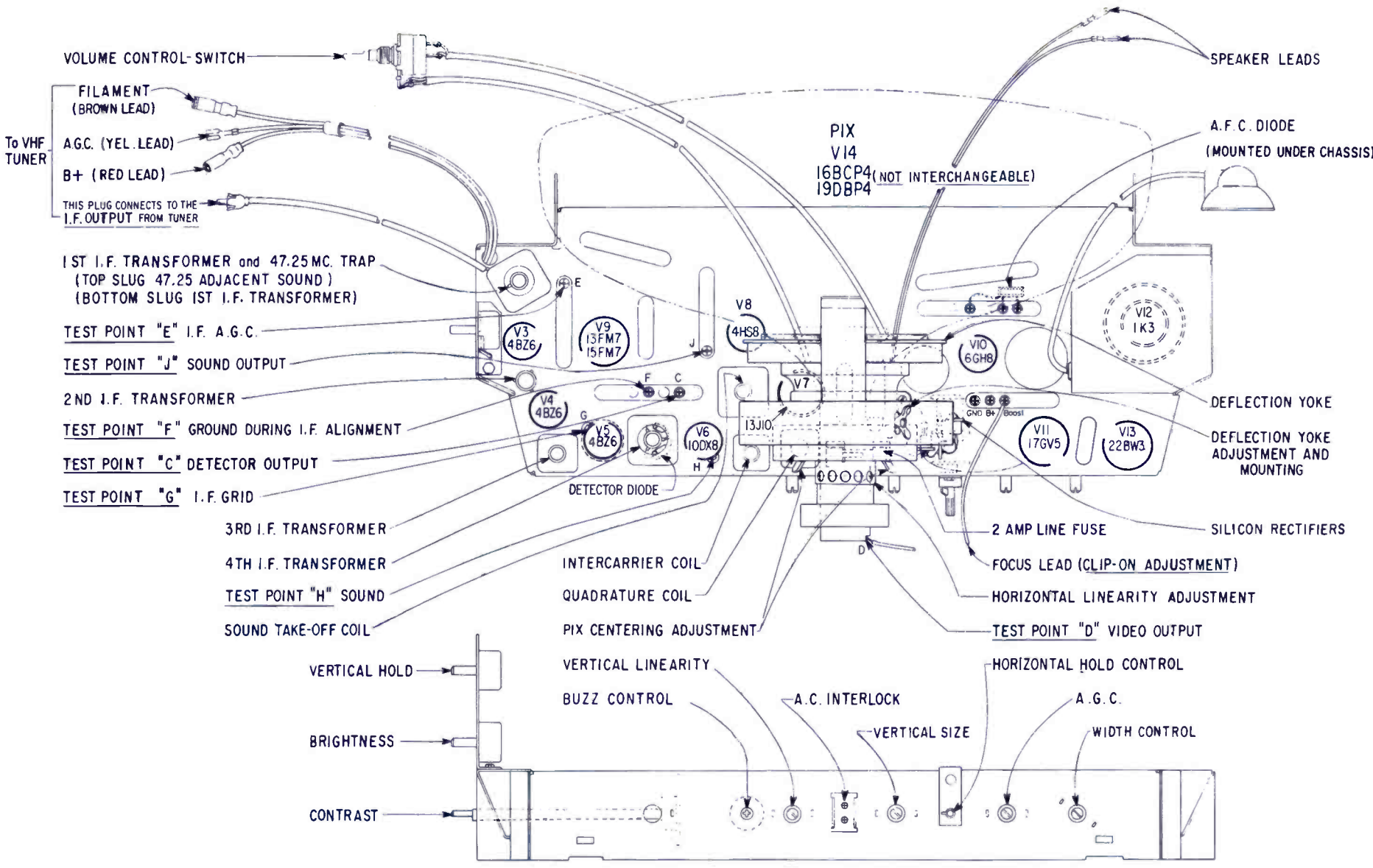


UHF TUNER 175-15



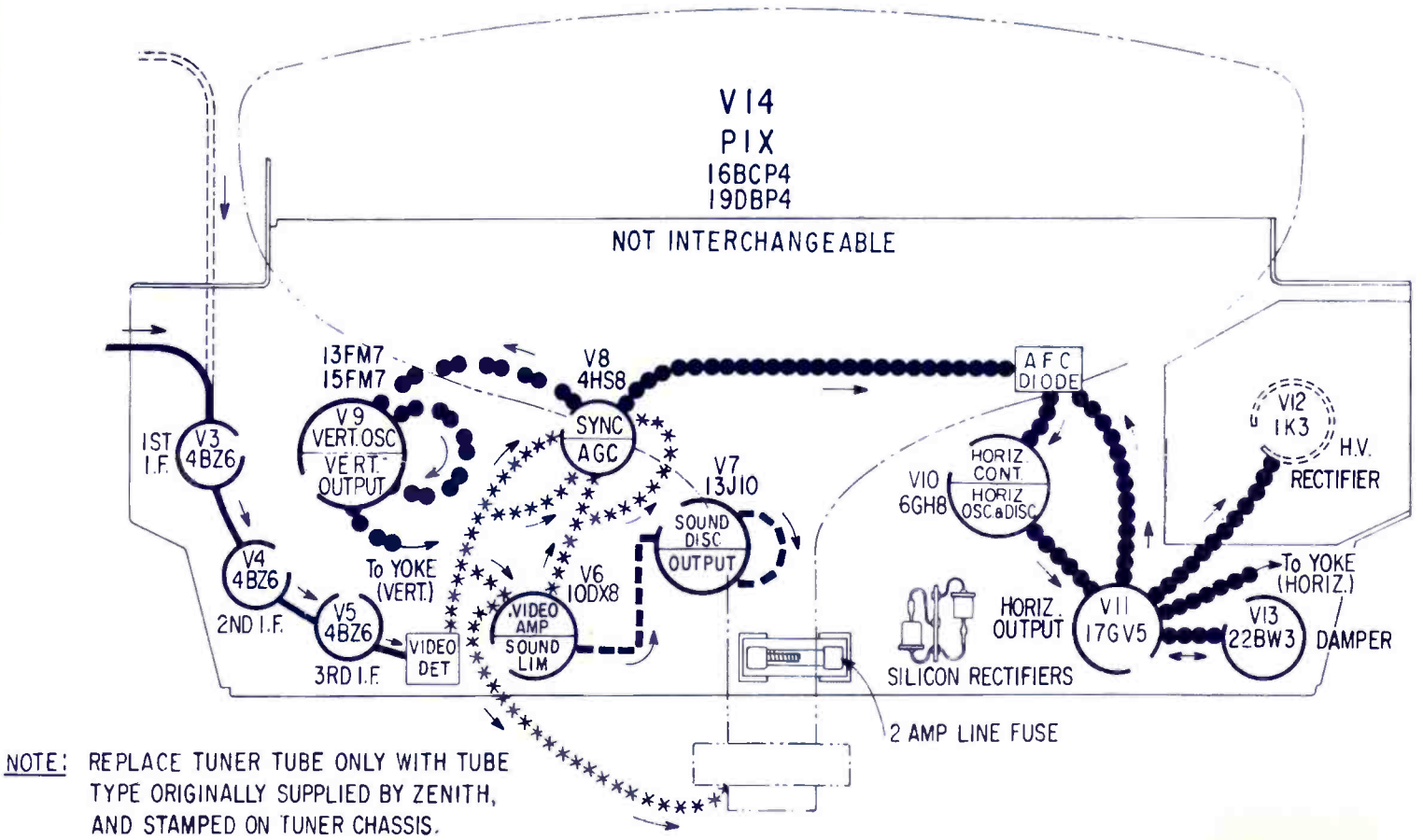
TUBE POSITIONING GUIDE
(KEYWAY)

ELECTRONIC TECHNICIAN OJIBWAY BUILDING, DULUTH, MINNESOTA 55802



ELECTRONIC TECHNICIAN TEKFAX

ZENITH
TV Chassis
14L20

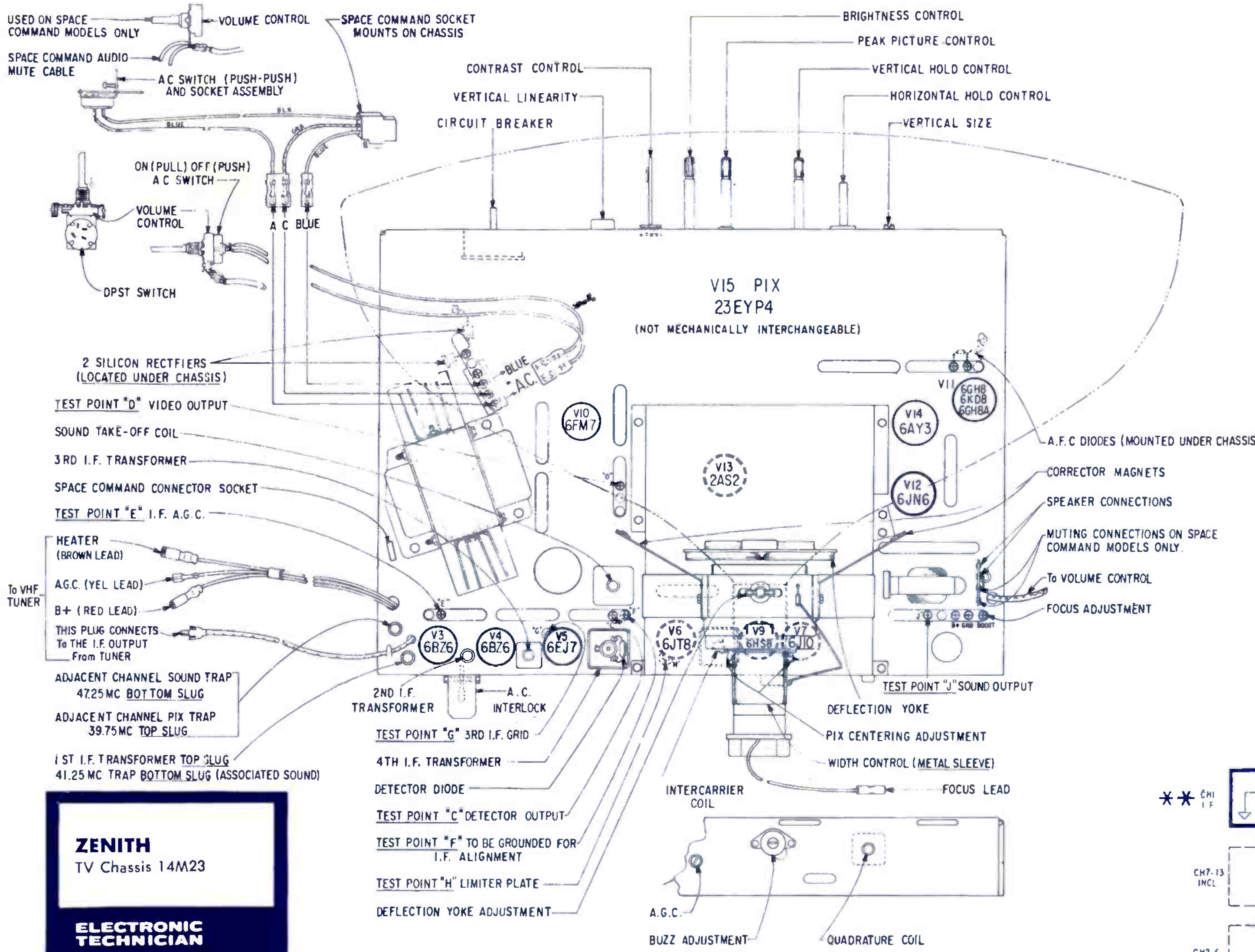


NOTE: REPLACE TUNER TUBE ONLY WITH TUBE TYPE ORIGINALLY SUPPLIED BY ZENITH, AND STAMPED ON TUNER CHASSIS.

SOUND CIRCUIT ---------
COMPOSITE VIDEO **********
CYCLES 60 120 VOLTS

VERTICAL CIRCUIT ●● ●● ●●
HORIZONTAL CIRCUIT ●●●●●●●
INTERMEDIATE FREQUENCY ——

MODEL	WATTS	AMPS
14L20	155	1.45



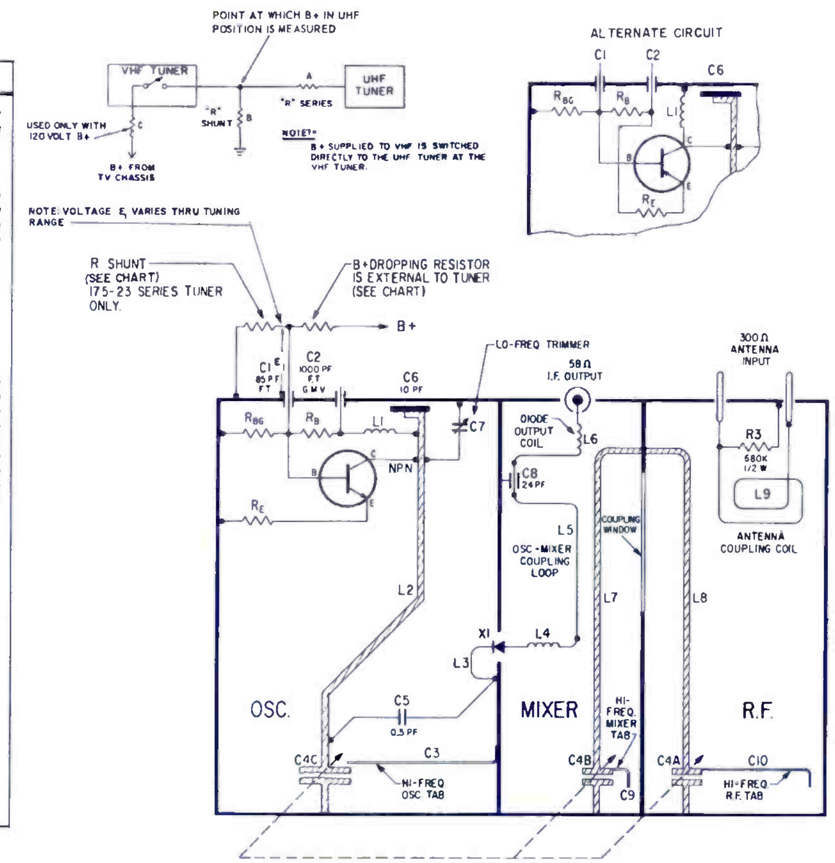
ZENITH

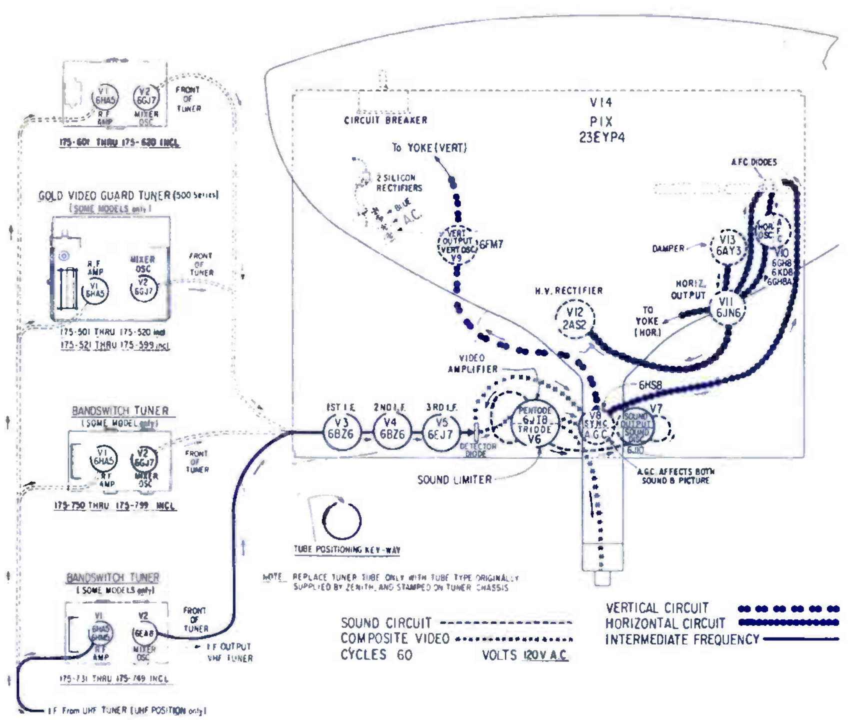
TV Chassis 14M23

ELECTRONIC TECHNICIAN

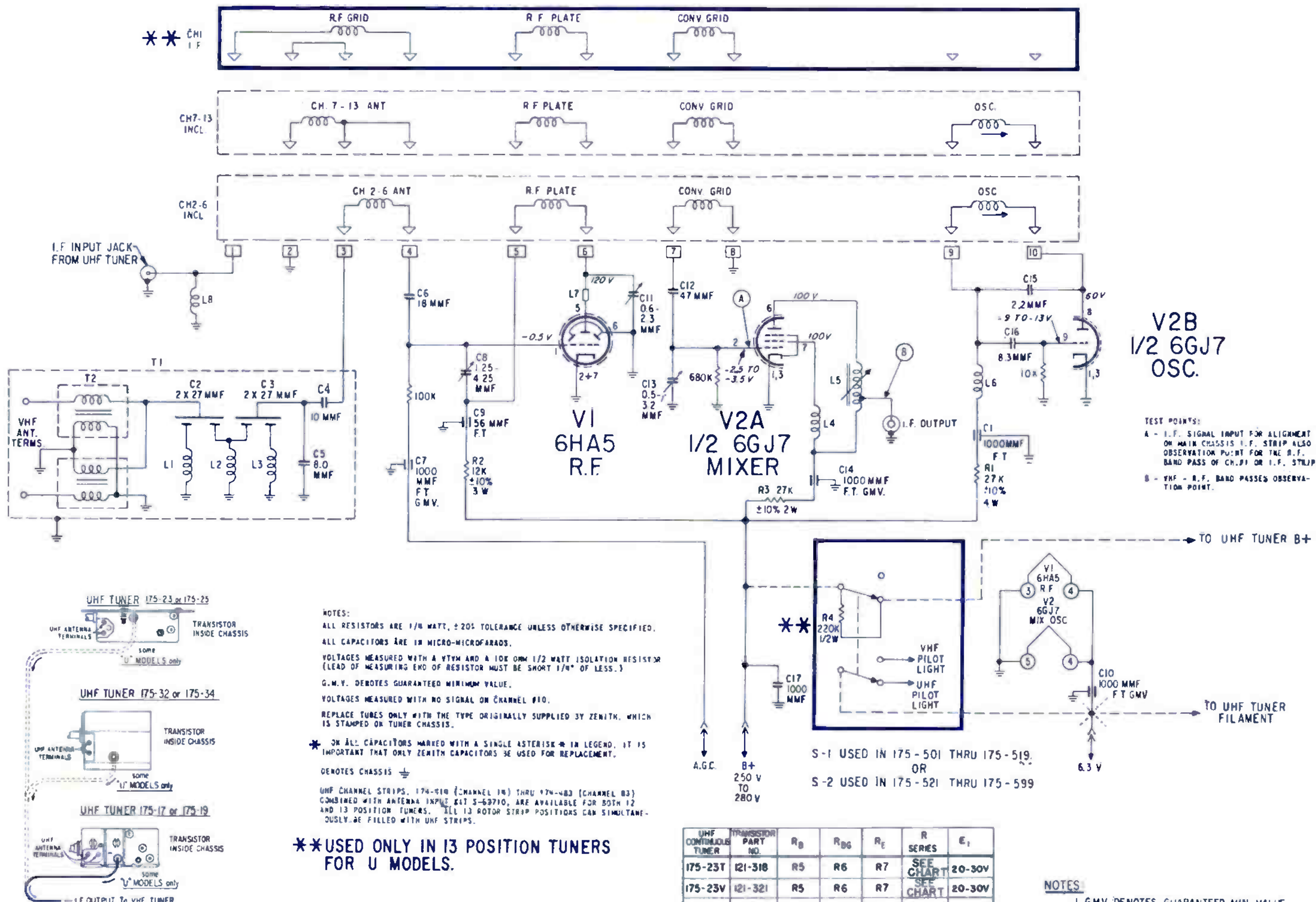
TEKFAX

ITEM NO.	PART NO.	DESCRIPTION	
C1	22-4505	85 PF F.T. ±20%	500 V
C2	22-3029	1000 PF F.T. GMV	500 V
C3		HI-FREQ. TRIMMER TAB	
C4A		ANTENNA TUNING CAP. } PART OF ROTOR ASSEMBLY	
C4B		MIXER TUNING CAP.	
C4C		OSCILLATOR TUNING CAP.	
C5	22-4506	0.5 PF N970	500 V
C6	22-4504	10 PF MICA ±5% P100	500 V
C7	22-3009	1-4.5 PF TRIMMER	500 V
C8	22-4507	24 PF DISC	500 V
C9		HI-FREQ. TRIMMER TAB	
C10		HI-FREQ. TRIMMER TAB	
R1	63-4224	8.2K OHMS ±10%	1/4 W
R2	63-1831	12K OHMS ±20%	1/2 W
R3	63-1905	680K OHMS ±20%	1/2 W
R4	63-1786	1K OHMS ±20%	1/2 W
R5	63-4217	5.6K OHMS ±10%	1/4 W
R6	63-1817	5.6K OHMS ±10%	1/2 W
R7	63-1789	1.2K OHMS ±10%	1/2 W
R8	63-5304	27K OHMS ±10%	3 W
R9	63-5740	47K OHMS ±10%	2 W
L1	20-1265	COLLECTOR CHOKE	
L2		OSCILLATOR LINE	
L3		OSCILLATOR COUPLING LOOP } PART OF X1	
L4		DIODE INDUCTANCE	
L5		MIXER COUPLING LOOP	
L6	20-1264	DIODE OUTPUT COIL	
L7		MIXER LINE	
L8		R.F. LINE	
L9	20-967	ANTENNA COUPLING COIL	
X1	103-61 OR 103-CC	MIXER DIODE IN82GA	





ITEM NO.	PART NO.	DESCRIPTION	
C1	22-3025	1000 MMF F.T. G.M.V.	500 V
C2	22-3553	2 X 27 MMF DISC ±5%	500 V
C3	22-3553	2 X 27 MMF DISC	500 V
C4	22-3817	10 MMF ±.25 MMF N220	500 V
C5	22-3816	8 MMF ±.5 MMF N220	500 V
*C6	22-3820	18 MMF ±5% N220 DISC	500 V
C7	22-3549	1000 MMF F.T. ±5%	300 V
C8	22-3814	1.25-4.25 MMF TRIMMER	500 V
C9	22-3488	56 MMF F.T. ±7 1/2 %	500 V
C10	22-3549	1000 MMF F.T. G.M.V.	300 V
C11	22-3830	0.6-2.3 MMF TRIMMER	500 V
*C12	22-2922	47 MMF DISC ±5% N470	500 V
C13	22-3829	0.5-3.2 MMF TRIMMER	500 V
C14	22-3079	1000 MMF F.T. G.M.V.	500 V
*C15	22-3821	2.2 MMF ±.1 MMF N220	500 V
*C16	22-3823	8.3 MMF ±.1 MMF N150	500 V
C17	22-17	1000 MMF G.M.V. DISC	1000 V
R1	63-5200	27 K OHM ±10%	4 W
R2	63-4882	12K OHM ±10%	3 W
R3	63-4837	27K OHM ±10%	2 W
R4	63-1884	220K OHM	1/2 W
L1	20-874 OR 20-1009	I.F. FILTER SERIES RESONANT COIL	
L2	20-799 OR 20-1007	I.F. FILTER SHUNT COIL	
L3	20-798 OR 20-1006	I.F. FILTER SERIES RESONANT COIL	
L4	20-1030	SCREEN COIL	
L5	S-53250	CONVERTER PLATE COIL	
L5	S-49738	OSCILLATOR PLATE CHOKE	
L7	149-315	IRON CORE	
L8	20-1056	CRYSTAL D.C. RETURN COIL	
S1	85-771	CHANGE-OVER SWITCH (13 POS. TUNER ONLY)	
S2	85-790	CHANGE-OVER SWITCH (13 POS. TUNER ONLY)	
T1	S-59297	ANTENNA FILTER ASSEMBLY	
T2	S-49189	ANTENNA BALUN	
CH1	174-401	I.F. UHF STRIP ASSEMBLY (13 POS TUNER ONLY)	
CH2	174-402	CH. #2 STRIP ASSEMBLY	
CH3	174-403	CH. #3 STRIP ASSEMBLY	
CH4	174-404	CH. #4 STRIP ASSEMBLY	
CH5	174-405	CH. #5 STRIP ASSEMBLY	
CH6	174-406	CH. #6 STRIP ASSEMBLY	
CH7	174-407	CH. #7 STRIP ASSEMBLY	
CH8	174-408	CH. #8 STRIP ASSEMBLY	
CH9	174-409	CH. #9 STRIP ASSEMBLY	
CH10	174-410	CH. #10 STRIP ASSEMBLY	
CH11	174-411	CH. #11 STRIP ASSEMBLY	
CH12	174-412	CH. #12 STRIP ASSEMBLY	
CH13	174-413	CH. #13 STRIP ASSEMBLY	



NOTES:

ALL RESISTORS ARE 1/4 WATT, ±20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

ALL CAPACITORS ARE IN MICRO-MICROFARADS.

VOLTAGES MEASURED WITH A VTVM AND A 10K OHM 1/2 WATT ISOLATION RESISTOR (LEAD OF MEASURING END OF RESISTOR MUST BE SHORT 1/4" OR LESS.)

G.M.V. DENOTES GUARANTEED MINIMUM VALUE.

VOLTAGES MEASURED WITH NO SIGNAL ON CHANNEL #10.

REPLACE TUBES ONLY WITH THE TYPE ORIGINALLY SUPPLIED BY ZENITH, WHICH IS STAMPED ON TUNER CHASSIS.

* ON ALL CAPACITORS MARKED WITH A SINGLE ASTERISK * IN LEGEND, IT IS IMPORTANT THAT ONLY ZENITH CAPACITORS BE USED FOR REPLACEMENT.

DENOTES CHASSIS ⏚

UHF CHANNEL STRIPS, 174-510 (CHANNEL 14) THRU 174-483 (CHANNEL 83) COMBINED WITH ANTENNA INPUT KIT S-63710, ARE AVAILABLE FOR BOTH 12 AND 13 POSITION TUNERS. ALL 13 ROTOR STRIP POSITIONS CAN SIMULTANEOUSLY BE FILLED WITH UHF STRIPS.

USED ONLY IN 13 POSITION TUNERS FOR U MODELS.

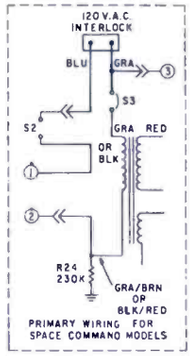
UHF CONTINUOUS TUNER	TRANSISTOR PART NO.	R_B	R_{BG}	R_E	R SERIES	E_1
175-23T	121-318	R5	R6	R7	SEE CHART	20-30V
175-23V	121-321	R5	R6	R7	SEE CHART	20-30V
175-25N	121-304	R1	R2	R4	R9	10-20V
175-25T	121-318	R5	R6	R7	R8	20-30V
175-25V	121-321	R5	R6	R7	R8	20-30V

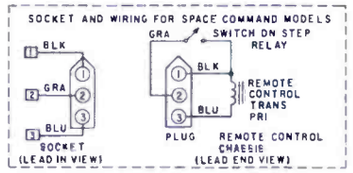
NOTES:

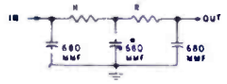
1. GMV DENOTES GUARANTEED MIN VALUE
2. DENOTES CHASSIS ——
3. FOR SERVICE TRANSISTOR REPLACEMENT, USE ONLY THE TRANSISTOR TYPE THAT WAS ORIGINALLY SUPPLIED IN TUNER

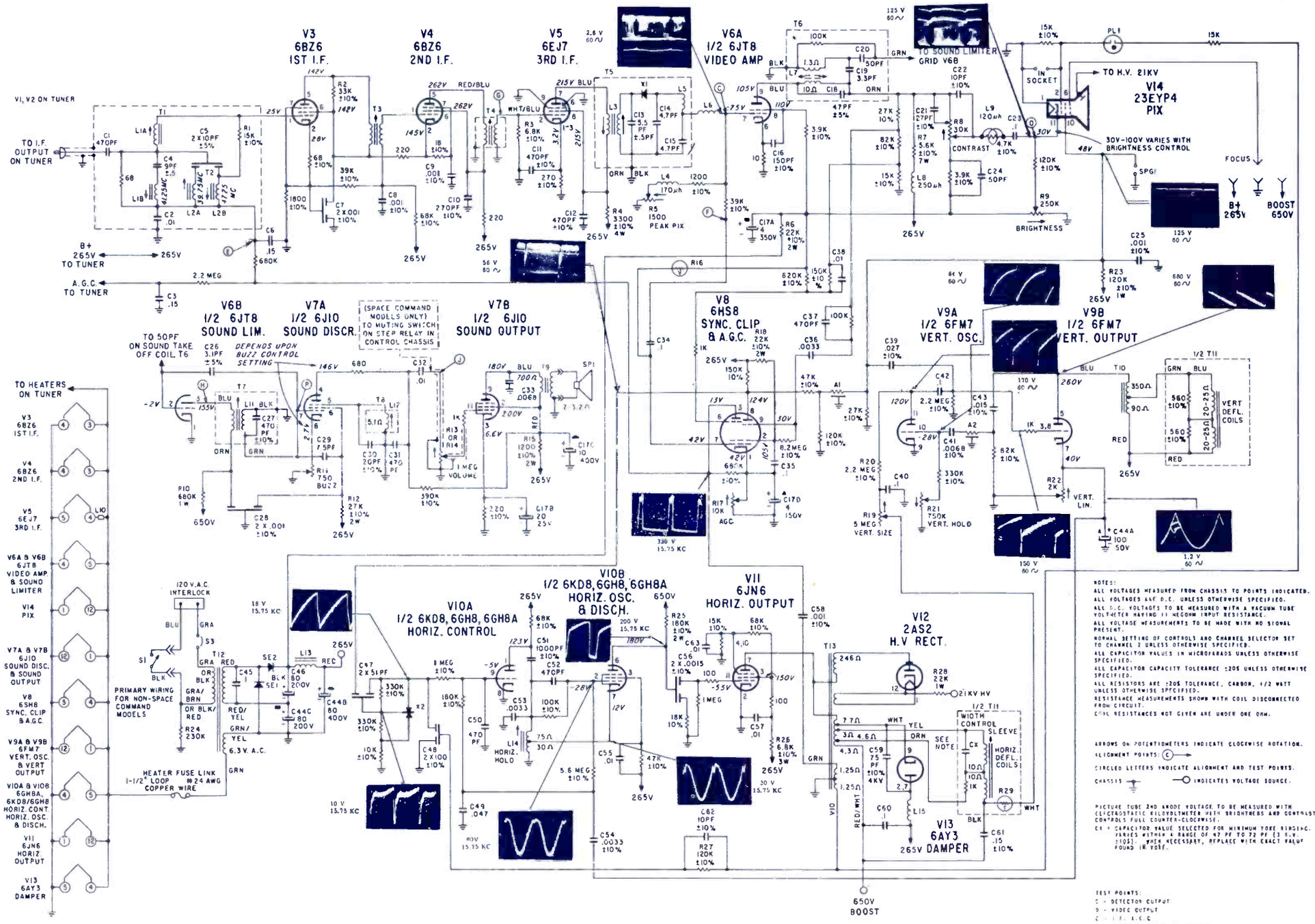
ZENITH
TV Chassis 14M23

ITEM NO.	PART NUMBER	DESCRIPTION	
C1	23-3217	470 PF DISC	500 V
C2	23-3	.01 MFD DISC	500 V
C3	23-3128	.15 MFD MOLDED	200 V
C4	23-2514	9 PF DISC ±.5 PF	500 V
C5	23-3540	2 X 10 PF ±5%	500 V
C6	23-3128	.15 MFD MOLDED	200 V
C7	23-21	2 X .001 MFD DISC ±10%	500 V
C8	23-17	.001 MFD DISC ±10%	1000 V
C9	23-17	.001 MFD DISC ±10%	1000 V
C10	23-3140	270 PF DISC CAP ±10%	500 V
C11	23-3283	470 PF DISC ±10%	500 V
C12	23-3283	470 PF DISC ±10%	500 V
C13	23-3221	5.5 PF DISC ±.5 PF	500 V
C14	23-1516	4.7 PF GIMMICK TYPE	500 V
C15	23-1516	4.7 PF GIMMICK TYPE	500 V
C16	23-5002	150 PF DISC ±10%	500 V
C17A		4 MFD ELECTROLYTIC	350 V
C17B	23-3457	20 MFD ELECTROLYTIC	25 V
C17C		10 MFD ELECTROLYTIC	400 V
C17D		4 MFD ELECTROLYTIC	150 V
C18	23-3467	47 PF ±5%	500 V
C19	23-2343	3.3 PF GIMMICK TYPE	500 V
C20	23-3515	50 PF DISC TYPE	500 V
C21	23-3530	27 PF DISC TYPE ±10%	600 V
C22	23-3250	10 PF DISC TYPE ±10%	600 V
C23	23-3238	.1 MFD MOLDED	400 V
C24	23-3515	50 PF DISC TYPE	500 V
C25	23-17	.001 MFD DISC ±10%	1000 V
C26	23-3707	3.1 PF ±5%	500 V
C27	23-3480	470 PF MICA ±10%	500 V
C28	23-21	2 X .001 MFD DISC ±10%	500 V
C29	23-2742	7.5 PF GIMMICK	500 V
C30	23-3139	30 PF ±10%	500 V
C31	23-4	470 PF DISC	1000 V
C32	23-3	.01 MFD DISC	500 V
C33	23-5081	.0068 DISC CAP	1K V
C34	23-3238	.1 MFD MOLDED	400 V
C35	23-3238	.1 MFD MOLDED	400 V
C36	23-3238	.1 MFD MOLDED	400 V
C37	23-4	.0033 MFD DISC	600 V
C38	23-3	.01 MFD DISC	500 V
C39	23-3988	.027 MFD MOLDED ±10%	400 V
C40	23-3577	.1 MFD MOLDED	400 V
C41	23-2656	.0068 MFD MOLDED ±10%	200 V
C42	23-3238	.1 MFD MOLDED	400 V
C43	23-3840	.015 MFD MOLDED ±10%	1000 V
C44A		100 MFD ELECTROLYTIC	50 V
C44B	23-3872	80 MFD ELECTROLYTIC	400 V
C44C		80 MFD ELECTROLYTIC	400 V
C45	23-3238	.1 MFD CAPACITOR MOLDED	400 V
C46	23-3657	80 MFD ELECTROLYTIC	200 V
C47	23-25	2 X 51 PF DISC	500 V
C48	23-21	2 X .001 MFD DISC ±10%	500 V
C49	23-1778	.047 MFD MOLDED	200 V
C50	23-6	470 PF DISC	1000 V
C51	23-3268	1000 PF MICA ±10%	500 V
C52	23-6	470 PF DISC	1000 V
C53	23-3671	.0033 MFD POLYSTYRENE	400 V
C54	23-11	.0033 MFD DISC ±10%	500 V
C55	23-3	.01 MFD DISC	500 V
C56	23-26	2 X .0015 MFD DISC ±10%	500 V
C57	23-3	.01 MFD DISC	500 V
C58	23-17	.001 MFD DISC ±10%	1000 V
C59	23-2354	75 PF ±10%	96 V
C60	23-3577	.1 MFD MOLDED	600 V
C61	23-3871	.15 MFD MOLDED ±10%	600 V
C62	23-3066	10 PF GIMMICK TYPE ±10%	500 V
C63	23-3	.01 MFD DISC	500 V
R1	63-2372	15K OHM ±10% A.B. ONLY	1/2 W
R2	63-4006	33K OHM ±10% A.B. ONLY	1/2 W
R3	63-3862	6.8K OHM ±10% A.B. ONLY	1/2 W
R4	63-5245	3300 OHM ±10%	4 W
R5	63-5159	1500 PEAK PIX CONTROL	
R6	63-5726	22K OHM ±10%	2 W
R7	63-3986	5.6K OHM ±10%	7 W
R8	63-5179	30K OHM CONTRAST CONTROL	
R9	63-5150	250K OHM BRIGHTNESS CONTROL	
R10	63-5188	680KOHM	1 W
R11	63-3284	750 OHM BUZZ CONTROL	
R12	63-4837	27K OHM ±10%	2 W
R13	63-5126	1 MEGOHM VOLUME CONTROL & SWITCH OR NON SPACE COMMANDS	
R14	63-5152	VOLUME CONTROL OR SPACE COMMAND MODELS	
R15	63-5873	1200 OHM ±10%	2 W
R16	63-5327	VOLTAGE DEPENDENT RESISTOR	
R17	63-4094	10K OHM A.B.C. DELAY CONTROL	
R18	63-5728	22K OHM ±10%	2 W
R19	63-4660	5 MEG VERTICAL SIZE	
R20	63-5158	2.2 MEGOHM ±10% A.B. ONLY	
R21	63-5149	750K OHM VERTICAL HOLD CONTROL	
R22	63-4784	2.0K OHM VERTICAL LINEARITY CONTROL	
R23	63-4157	120K OHM ±10%	1 W
R24	63-3607	230K OHM	1/2 W
R25	63-5726	180K OHM ±10%	2 W
R26	63-4375	6.8 OHM ±10%	3 W
R27	63-5315	120K OHM ±10% A.B.C. ONLY	1/2 W
R28	63-5725	22K OHM	1 W
R29	63-4724	THERMISTOR IN YOKE	
L1A	S-50823	1ST I.F. & 41.25 MC TRAP COIL WINDING ASSEMBLY	
L1B			
L2A	S-53072	ADJACENT CHANNEL TRAP COIL	
L2B			
L3	S-47968	4TH I.F. WINDING ASSEMBLY	
L4	20-2014	DETECTOR SHUNT PEAKING COIL	
L5	20-2013	DETECTOR SERIES PEAKING COIL	
L6	20-2004	CHOKE COIL	
L7	S-50342	SOUND TAKE-OFF WINDING ASSEMBLY	
L8	20-2012	SHUNT PEAKING COIL	
L9	20-2509	SERIES PEAKING COIL	
L10	148-333	IRON CORE	
L11	S-41892	INTERCARRIER COIL WINDING ASSEM.	
L12	S-47702	QUADRATURE COIL WINDING ASSEMBLY	
L13	95-1681	FILTER CHOKE	
L14	S-56875	HORIZONTAL OSCILLATOR COIL ASSEM	
L15	20-2005	SPOOL COIL	
T1	S-58822	1ST I.F. & 41.25 MC TRAP COIL ASSEMBLY	
T2	S-65421	ADJACENT CHANNEL TRAP COIL ASSEM	
T3	S-57623	2ND I.F. TRANSFORMER ASSEMBLY	
T4	S-58613	3RD I.F. TRANSFORMER ASSEMBLY	
T5	S-58824	4TH I.F. TRANSFORMER ASSEMBLY	
T6	S-65490	SOUND TAKE-OFF COIL & CAP ASSEM.	
T7	S-65419	INTERCARRIER COIL CAP & WIRE ASSEMBLY	
T8	S-47717	QUADRATURE COIL ASSEMBLY	
T9	95-2201	AUDIO OUTPUT TRANSFORMER	
T10	95-2104	VERTICAL OUTPUT TRANSFORMER	
T11	95-1768	DEFLECTION YOKE	
T12	95-2105	POWER TRANSFORMER	
T13	S-42379	HORIZONTAL SWEEP TRANSFORMER	
S1		SWITCH USED ON R13 VOLUME CONTROL NON-SPACE COMMAND MODELS	
S2	85-725	A.C. SWITCH ON SPACE COMMAND MODELS	
S3	85-768	2.75 AMP CIRCUIT BREAKER	
SP1		SPEAKER	
SPG1	52-957	SPARK GAP SPECIAL WIRE	
X1	103-23	CRYSTAL DIODE	
X2	103-20	SELENIUM DUAL DIODE	
X3	87-8	INTEGRATOR	
X4	87-7	INTEGRATOR	
CR		SUPPLIED WITH YOKE	
PL1	100-251	NE2H NE2H BULB	
SR1	217-27	SILICON RECTIFIER	
SR2	217-29	SILICON RECTIFIER	









NOTES:
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL D.C. VOLTAGES TO BE MEASURED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHM INPUT RESISTANCE.
ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT.
NORMAL SETTING OF CONTROLS AND CHANNEL SELECTOR SET TO CHANNEL 2 UNLESS OTHERWISE SPECIFIED.
ALL CAPACITOR VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
ALL CAPACITOR CAPACITY TOLERANCE ±20% UNLESS OTHERWISE SPECIFIED.
ALL RESISTORS ARE ±20% TOLERANCE, CARBON, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
RESISTANCE MEASUREMENTS SHOWN WITH COIL DISCONNECTED FROM CIRCUIT.
OHM RESISTANCES NOT GIVEN ARE UNDER ONE OHM.

ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.
ALIGNMENT POINTS: Ⓒ
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS.
CHASSIS ⏚ —O— INDICATES VOLTAGE SOURCE.

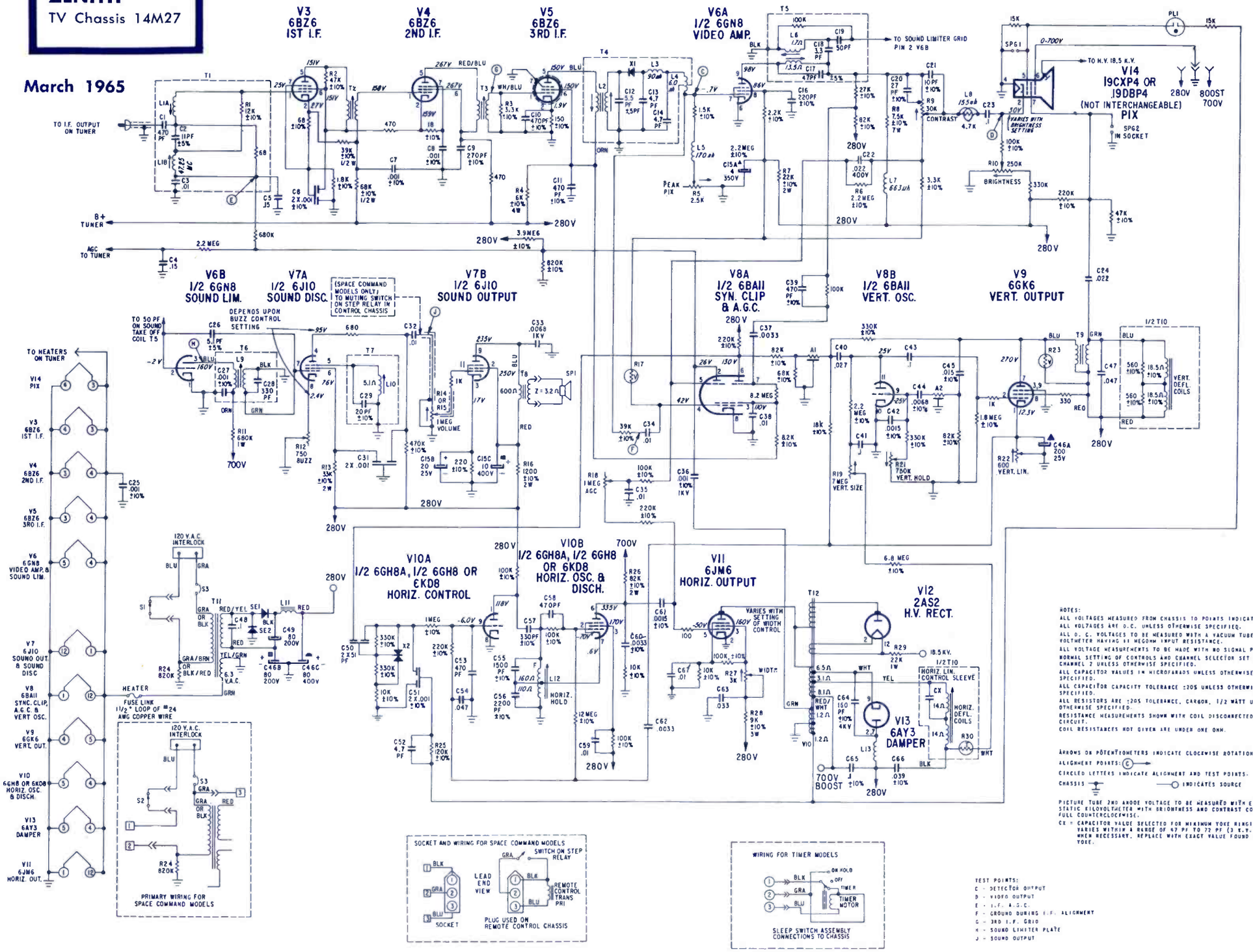
PICTURE TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC KILOVOLTMETER WITH BRIGHTNESS AND CONTRAST CONTROLS FULL COUNTER-CLOCKWISE.
CX = CAPACITOR VALUE SELECTED FOR MINIMUM YOKE RINGING. PARTS WITHIN A RANGE OF 47 PF TO 72 PF (3 E.V. ±10%). WHEN NECESSARY, REPLACE WITH EXACT VALUE FOUND IN TEST.

TEST POINTS:
C - DETECTOR OUTPUT
D - VIDEO OUTPUT
E - I.F., A.G.C.
F - GROUND FOR I.F. ALIGNMENT
G - 3RD A.F. GRID
H - SOUND LIMITER PLATE
J - SOUND OUTPUT
K - SOUND DISC. GRID

ELECTRONIC TECHNICIAN TEKFAX

ZENITH
TV Chassis 14M27

March 1965



NOTES:
ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.
ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
ALL D. C. VOLTAGES TO BE MEASURED WITH A VACUUM TUBE VOLTMETER HAVING 11 MEGOHM INPUT RESISTANCE.
ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT.
NORMAL SETTING OF CONTROLS AND CHANNEL SELECTOR SET TO CHANNEL 2 UNLESS OTHERWISE SPECIFIED.
ALL CAPACITOR VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
ALL CAPACITOR CAPACITY TOLERANCE ±20% UNLESS OTHERWISE SPECIFIED.
ALL RESISTORS ARE ±20% TOLERANCE, CARBON, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
RESISTANCE MEASUREMENTS SHOWN WITH COIL DISCONNECTED FROM CIRCUIT.
COIL RESISTANCES NOT GIVEN ARE UNDER ONE OHM.

ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.
ALIGNMENT POINTS: (C)
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS.
CHASSIS — INDICATES SOURCE

PICTURE TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC KILOVOLTMETER WITH BRIGHTNESS AND CONTRAST CONTROLS FULL COUNTERCLOCKWISE.
CX = CAPACITOR VALUE SELECTED FOR MINIMUM YOKE RINGING. VARIES WITHIN A RANGE OF 47 PF TO 72 PF (3 K.V., ±10%). WHEN NECESSARY, REPLACE WITH EXACT VALUE FOUND IN YOKE.

TEST POINTS:
C - DETECTOR OUTPUT
D - VIDEO OUTPUT
E - I.F. A.G.C.
F - GROUND DURING I.F. ALIGNMENT
G - 3RD I.F. GRID
H - SOUND LIMITER PLATE
J - SOUND OUTPUT

ITEM NO.	PART NUMBER	DESCRIPTION
C1	22-3217	470 PF DISC 500 V
C2	22-3056	11 PF DISC ±5% 500 V
C3	22-3	.01 MFD DISC 500 V
C4	22-3126	.15 MFD MOLDED 200 V
C5	22-3126	.15 MFD MOLDED 200 V
C6	22-21	2 X .001 MFD DISC ±10% 600 V
C7	22-17	.001 MFD DISC ±10% 1000 V
C8	22-17	.001 MFD DISC ±10% 1000 V
C9	22-3140	270 PF DISC ±10% 500 V
C10	22-16	470 PF DISC ±10% 500 V
C11	22-3363	470 PF DISC ±10% 500 V
C12	23-3221	5.6 PF ±.5 PF 500 V
C13	22-1516	4.7 PF CERAMICE 500 V
C14	22-1516	4.7 PF CERAMICE 500 V
C15A		4 MFD ELECTROLYTIC 350 V
C15B	22-2784	20 MFD ELECTROLYTIC 25 V
C15C		10 MFD ELECTROLYTIC 400 V
C16	22-2	220 PF DISC ±10% 500 V
C17	22-2467	47 PF DISC ±5% 500 V
C18	22-2263	3.3 PF CERAMICE 500 V
C19	22-3576	50 PF DISC 600 V
C20	22-3085	27 PF CERAMICE ±10% 500 V
C21	22-3250	10 PF DISC ±10% 500 V
C22	22-3086	.022 MOLDED ±10% 400 V
C23	22-3239	.1 MFD MOLDED 400 V
C24	22-3057	.022 MFD MOLDED 400 V
C25	22-17	.001 MFD DISC ±10% 1000 V
C26	22-3702	5.1 PF DISC ±5% 500 V
C27	22-3298	.001 MFD DISC ±10% 1000 V
C28	22-2465	330 PF MICA ±10% 500 V
C29	22-3139	20 PF DISC ±10% 500 V
C31	22-21	2 X .001 MFD DISC 1000 V
C32	22-3	.01 MFD DISC 500 V
C33	22-3021	.0068 1000 V
C34	22-3	.01 MFD DISC 500 V
C35	22-3	.01 MFD DISC 500 V
C36	22-17	.001 MFD DISC ±10% 1000 V
C37	22-11	.0033 MFD DISC 600 V
C38	22-3	.01 MFD DISC 500 V
C39	22-6	470 PF DISC 1000 V
C40	22-5103	.027 MFD MOLDED 400 V
C41	22-2577	.1 MFD MOLDED 600 V
C42	22-12	.0015 MFD DISC ±10% 500 V
C43	22-3239	.1 MFD MOLDED 400 V
C44	22-3756	.0068 MFD MOLDED ±10% 200 V
C45	22-2264	.015 PAPER MOLDED ±10% 600 V
C46A		200 MFD ELECTROLYTIC 25 V
C46B	22-3063	80 MFD ELECTROLYTIC 200 V
C46C		80 MFD ELECTROLYTIC 400 V
C47	22-3527	.047 MFD MOLDED 200 V
C48	22-3238	.1 MFD MOLDED 400 V
C49	22-3065	80 MFD ELECTROLYTIC 200 V
C50	22-25	2 X 51 PF DISC 500 V
C51	22-21	2 X .001 MFD DISC ±10% 500 V
C52	22-1516	4.7 PF CERAMICE 500 V
C53	22-6	470 PF DISC 1000 V
C54	22-3527	.047 MFD MOLDED 200 V
C55	22-3816	1500 PF POLYSTYRENE ±10% 500 V
C56	22-3060	2200 PF MOLDED ±10% 500 V
C57	22-2467	330 PF MICA ±10% 500 V
C58	22-3930	470 PF DISC 500 V
C59	22-3	.01 MFD DISC 500 V
C60	22-13	.0033 MFD DISC ±10% 500 V
C61	22-12	.0015 MFD DISC ±10% 500 V
C62	22-11	.0033 MFD DISC 600 V
C63	22-3218	.033 MFD MOLDED 400 V
C64	22-2663	150 PF ±10% 4KV
C65	22-3178	.1 MFD MOLDED ±10% 600 V
C66	22-3905	.039 MFD ±10% 600 V
C67	22-3	.01 MFD DISC 500 V
R1	63-2895	12K OHM A.B. ONLY ±10% 1/2 W
R2	63-2872	47K OHM A.B. ONLY ±10% 1/2 W
R3	63-5308	3.3K OHM A.B. ONLY ±10% 1/2 W
R4	63-3578	6K OHM ±10% 4 W
R5	63-5181	2.5K OHM VIDEO PEAK PICTURE CONTROL
R6	63-4077	2.2 MEGOHM A.B. SPEAR ±10% 1/2 W
R7	63-5726	22K OHM ±10% 2 W
R8	63-5258	7.5K OHM ±10% 7 W
R9	63-4087	30K OHM CONTRAST CONTROL
R10	63-4086	250K OHM BRIGHTNESS CONTROL
R11	63-3186	680K OHM 1 W
R12	63-3264	750 OHM BUZZ CONTROL
R13	63-5186	33K OHM ±10% 2 W
R14	63-5126	1 MEGOHM VOLUME CONTROL & SWITCH
R15	63-5156	VOLUME CONTROL ON SPACE COMMAND MODEL
R16	63-4673	1200 OHM ±10% 4 W
R17	63-5314	VOLTAGE DEPENDENT RESISTOR
R18	63-4613	1 MEGOHM AGC DELAY CONTROL
R19	63-5815	7 MEGOHM VERTICAL SIZE CONTROL
R21	63-4085	750K OHM VERTICAL HOLD CONTROL
R22	63-5127	600 OHM VERTICAL LINEARITY CONTROL
R23	63-5058	VOLTAGE DEPENDENT RESISTOR
R24	63-4667	820K OHM 1/2 W
R25	63-5315	120K OHM D.C. ONLY ±10% 1/2 W
R26	63-5750	82K OHM ±10% 2 W
R27	63-3088	3K WIDTH ADJUSTMENT
R28	63-5005	9K OHM ±10% 3 W
R29	63-6125	22K OHM 1 W
R30	63-5187	THERMAL RESISTOR MOUNTED IN YOKE
L1A	3-57621	1ST I.F. & TRAP COIL WINDING ASSEMBLY
L1B		
L2	3-55160	4TH I.F. WINDING ASSEMBLY
L3	20-2013	DETECTOR SERIES PEAKING COIL
L4	20-2004	CHOKE COIL
L5	20-2014	DETECTOR SHUNT PEAKING COIL
L6	3-56785	SOUND TAKE-OFF WINDING ASSEMBLY
L7	20-2017	VIDEO SHUNT PEAKING COIL
L8	20-2501	VIDEO SERIES PEAKING COIL
L9	3-51695	INTERCARRIER COIL WINDING ASSEM.
L10	3-45229	QUADRATURE COIL WINDING ASSEMBLY
L11	95-2188	FILTER CHOKE
L12	3-56878	HORIZONTAL OSCILLATOR COIL ASSEM.
L13	20-2005	SPOOK COIL
T1	3-63559	1ST I.F. & 47.25 MC TRAP COIL ASSEMBLY
T2	3-57623	2ND I.F. TRANSFORMER ASSEMBLY
T3	3-57624	3RD I.F. TRANSFORMER ASSEMBLY
T4	3-57825	4TH I.F. TRANSFORMER ASSEMBLY
T5	3-58035	SOUND TAKE-OFF ASSEMBLY
T6	3-50851	INTERCARRIER COIL ASSEMBLY
T7	3-45831	QUADRATURE COIL ASSEMBLY
T8	95-2142	SOUND OUTPUT TRANSFORMER
T9	95-2146	VERTICAL OUTPUT TRANSFORMER
T10	95-2207	YOKE
T11	95-2191 OR 95-2086	POWER TRANSFORMER
T12	3-63280	HORIZONTAL SWEEP TRANSFORMER
X1	103-23	DIODE CRYSTAL
X2	103-20	DUAL SELENIUM DIODE
A1	87-6	INTEGRATOR
A2	87-7	INTEGRATOR
CR		SUPPLIED WITH YOKE
PL1	100-251	NEON BULB (NE2H)
S1		SWITCH USED ON R14 VOLUME CONTROL NON-SPACE COMMAND MODELS
S2	85-797	A.C. SWITCH OR SPACE COMMAND MODELS ONLY
S3	85-763	CIRCUIT BREAKER
SE1	212-27	SILICON RECTIFIER
SE2	212-27	SILICON RECTIFIER
SPG1	52-957	SPARK GAP SPECIAL VALUE
SP1		SPEAKER

ZENITH
TV Chassis 14M20

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CATHODE RAY TUBE 2ND ANODE VOLTAGE TO BE MEASURED WITH ELECTROSTATIC OR 20K MIN. OHM PER VOLT HIGH VOLTAGE METER.
ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.
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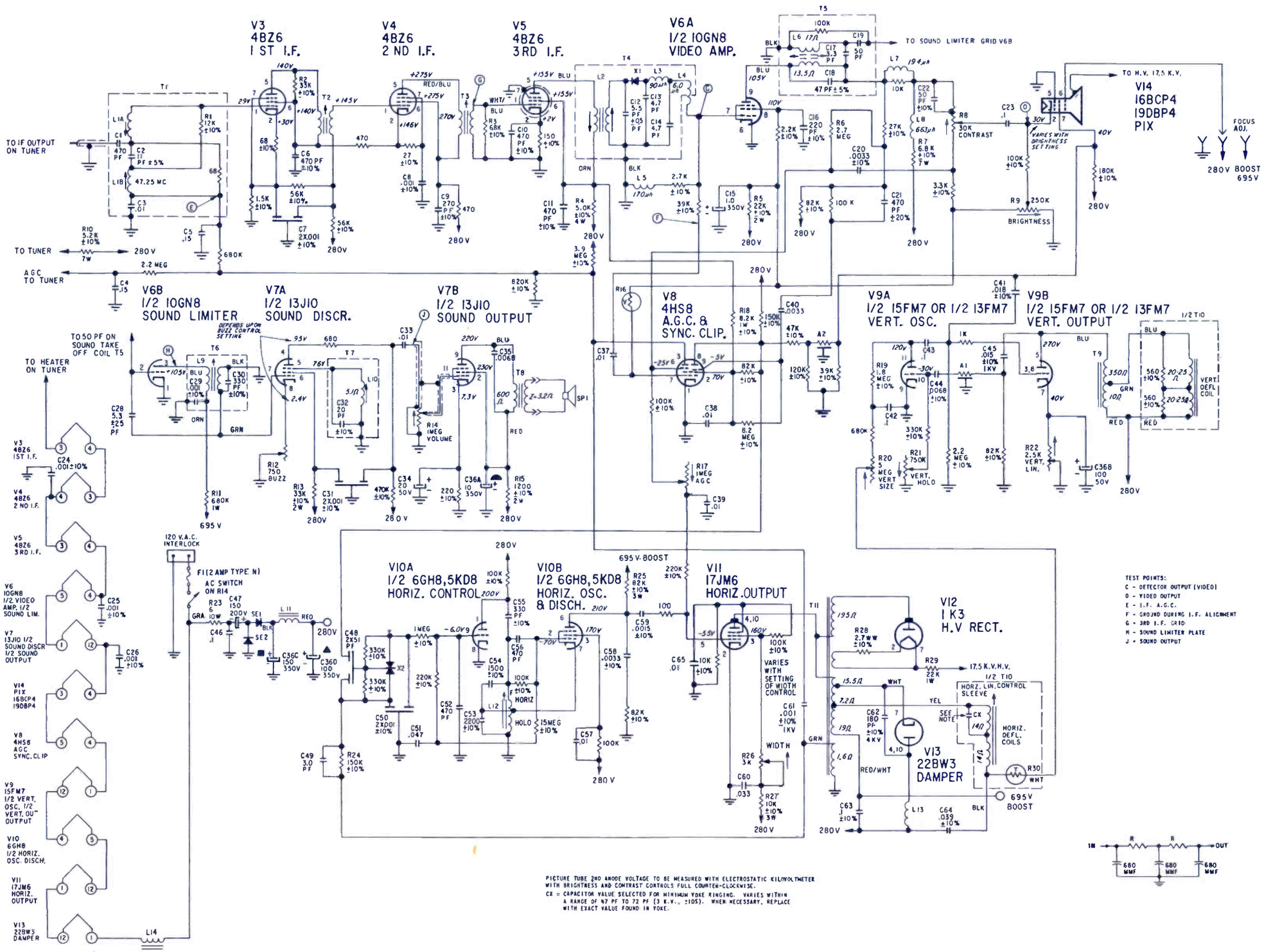

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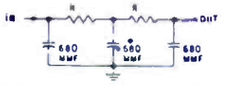
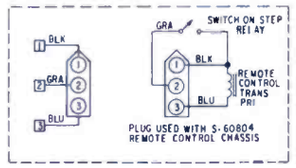
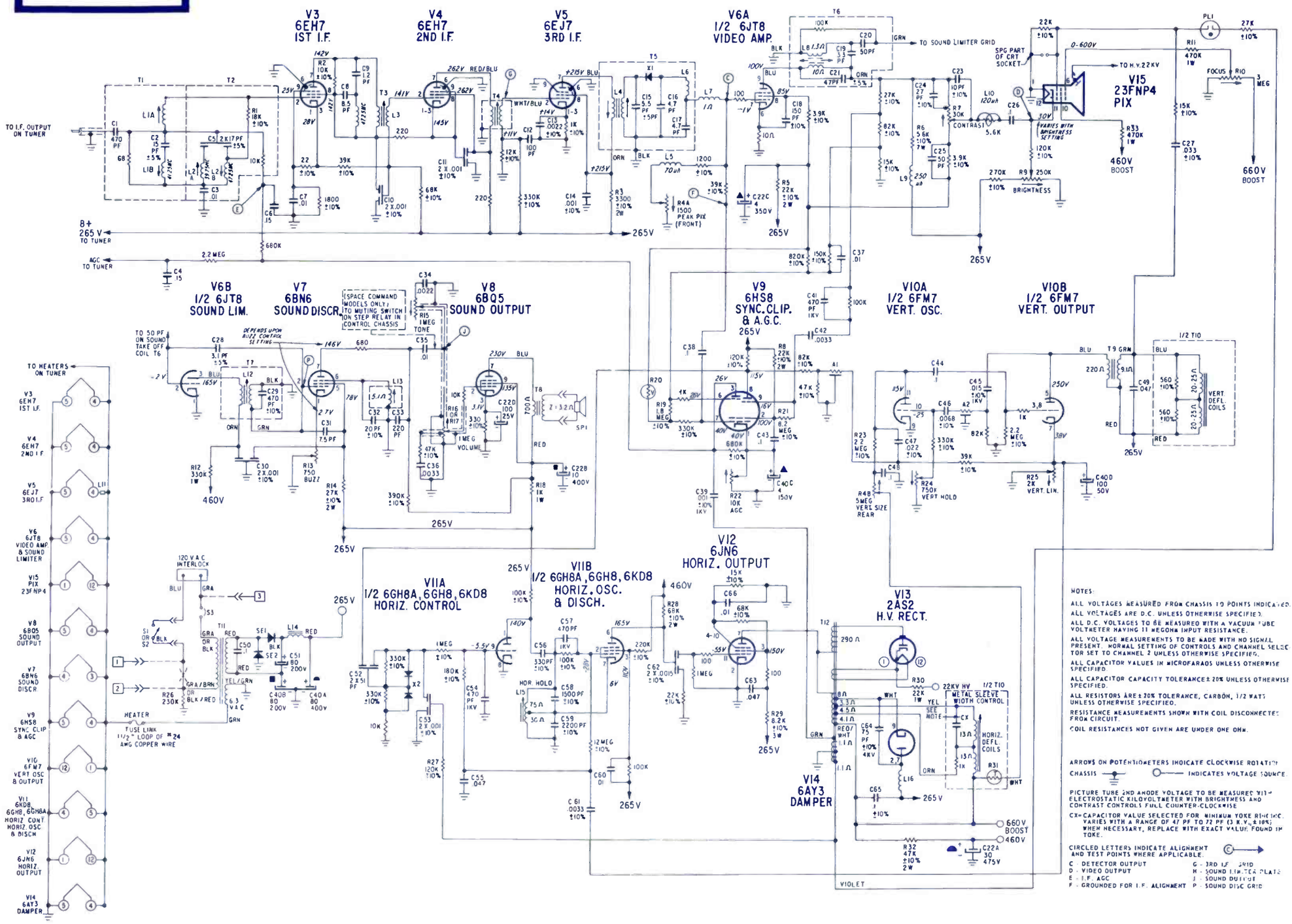
ZENITH
TV Chassis 15M22



EQUIVALENT CIRCUIT
A-1 and A-2 INTEGRATORS

SOCKET AND WIRING FOR SPACE COMMAND MODELS





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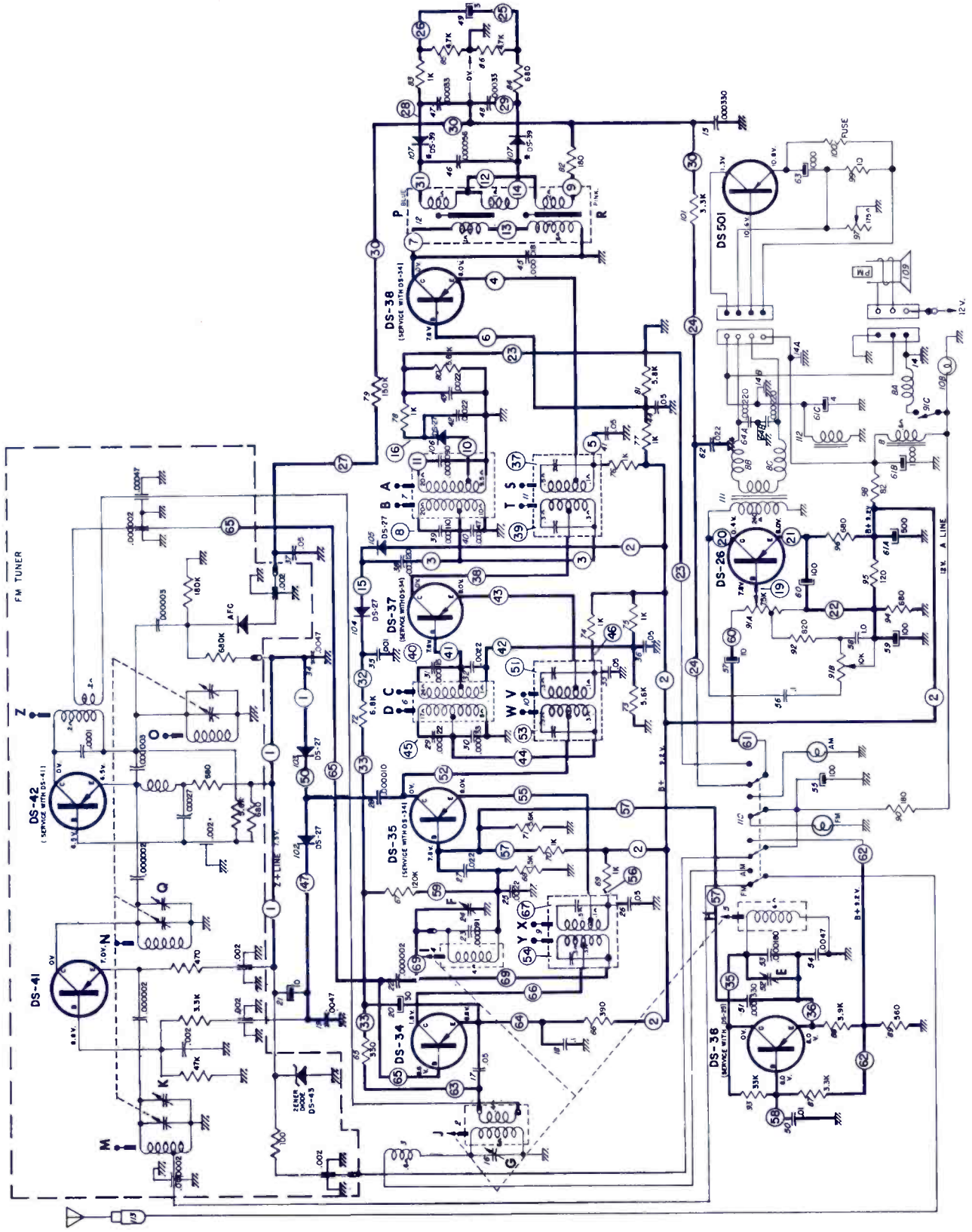
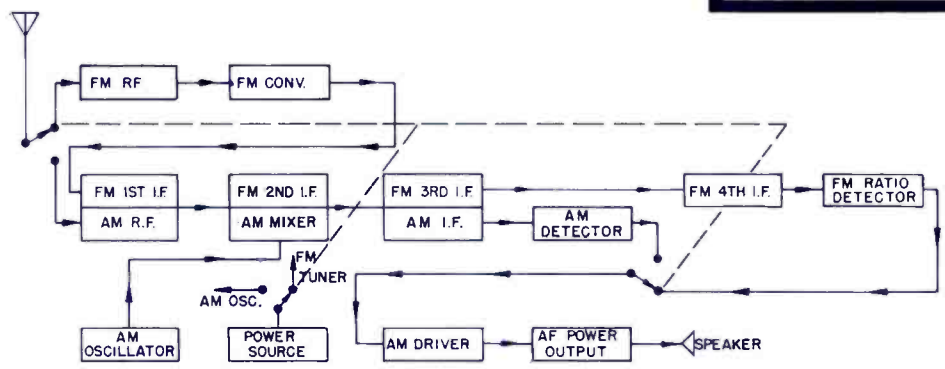
CIRCLED LETTERS INDICATE ALIGNMENT AND TEST POINTS WHERE APPLICABLE.

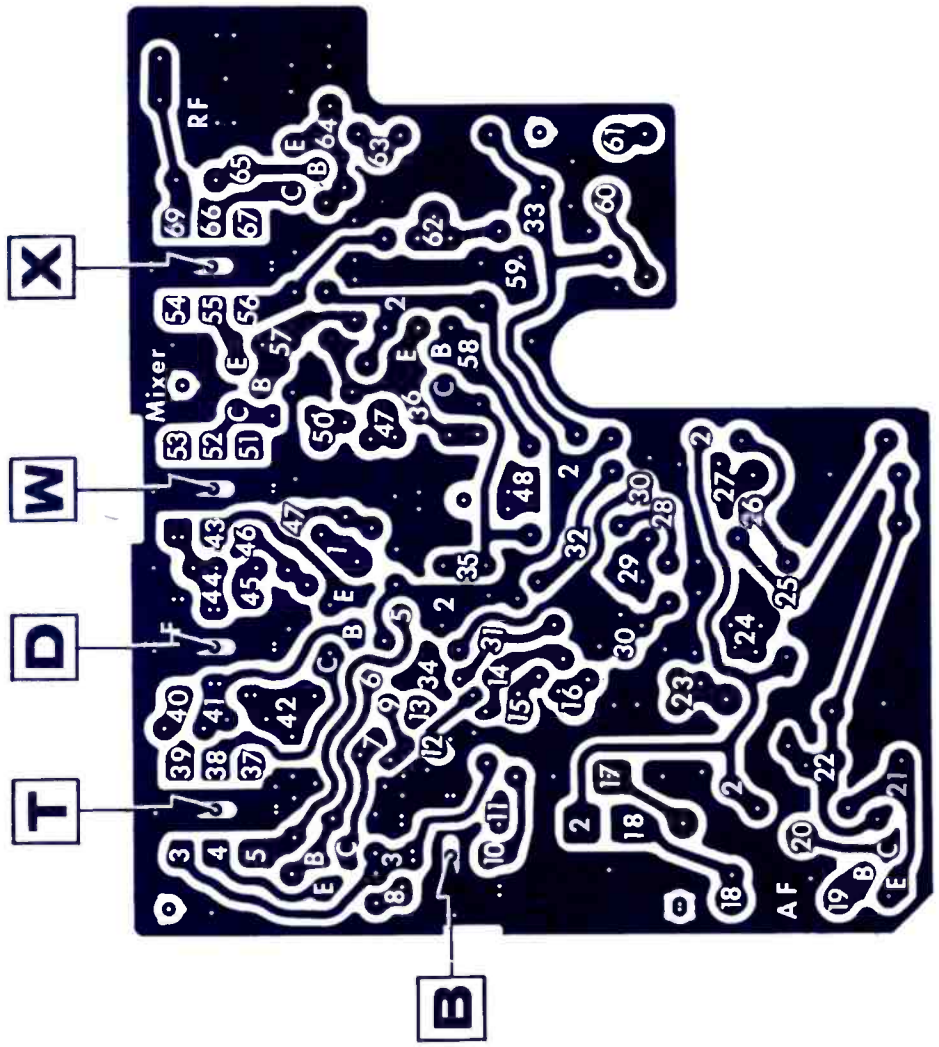
C - DETECTOR OUTPUT
D - VIDEO OUTPUT
E - I.F. AGC
F - GROUNDED FOR I.F. ALIGNMENT
G - 3RD I.F. GRID
H - SOUND LIMITER PLATE
J - SOUND OUTPUT
P - SOUND DISC GRID

ITEM NO.	PART NUMBER	DESCRIPTION	
C1	22-3217	470 PF DISC	500 V
C2	22-3482	15 PF DISC ±5%	500 V
C3	22-3	.01 MFD DISC	500 V
C4	22-3126	.15 MFD MOLDED	200 V
C5	22-3495	2 X 17 PF DISC ±5%	500 V
C6	22-3126	.15 MFD MOLDED	200 V
C7	22-3	.01 MFD DISC	500 V
C8	22-3443	8.5 PF DISC ±.5 PF	500 V
C9	22-3715	1.2 PF CERAMICE	500 V
C10	22-21	2 X .001 MFD DISC ±10%	500 V
C11	22-21	2 X .001 MFD DISC ±10%	500 V
C12	22-8	100 PF DISC	500 V
C13	22-16	.0022 MFD DISC ±10%	500 V
C14	22-17	.001 MFD DISC ±10%	1000 V
C15	22-3221	5.5 PF DISC ±0.5 PF	500 V
C16	22-1814	4.7 PF CERAMICE	500 V
C17	22-1516	4.7 PF CERAMICE	500 V
C18	22-5002	150 PF DISC ±10%	500 V
C19	22-2902	3.3 PF CERAMICE	500 V
C20	22-3515	50 PF DISC	500 V
C21	22-2467	47 PF ±5%	500 V
C22A		30 MFD ELECTROLYTIC	475 V
C22B		10 MFD ELECTROLYTIC	400 V
C22C	22-3898	4 MFD ELECTROLYTIC	350 V
C22D		100 MFD ELECTROLYTIC	25 V
C23	22-3250	10 PF DISC ±10%	500 V
C24	22-3530	27 PF DISC ±10%	500 V
C25	22-3515	50 PF DISC	500 V
C26	22-3235	.1 MFD MOLDED	400 V
C27	22-2635	.033 MFD MOLDED ±10%	400 V
C28	22-3707	3.1 PF CERAMICE ±5%	500 V
C29	22-2480	470 PF MICA ±10%	500 V
C30	22-21	2 X .001 MFD DISC ±10%	500 V
C31	22-2742	7.5 PF CERAMICE	500 V
C32	22-3139	20 PF ±10% DISC	500 V
C33	22-2	220 PF DISC	500 V
C34	22-8	.0022 MFD DISC	1000 V
C35	22-3	.01 MFD DISC	500 V
C36	22-15	.0033 MFD DISC	500 V
C37	22-3	.01 MFD DISC	500 V
C38	22-3239	.1 MFD MOLDED	400 V
C39	22-17	.001 MFD DISC ±10%	1000 V
C40A		80 MFD ELECTROLYTIC	400 V
C40B		80 MFD ELECTROLYTIC	200 V
C40C	22-3899	4 MFD ELECTROLYTIC	150 V
C40D		100 MFD ELECTROLYTIC	50 V
C41	22-8	470 PF DISC	1000 V
C42	22-11	.0033 MFD DISC	500 V
C43	22-3239	.1 MFD MOLDED	400 V
C44	22-3239	.1 MFD MOLDED	400 V
C45	22-3040	.015 MFD MOLDED ±10%	1000 V
C46	22-2654	.0068 MFD MOLDED ±10%	200 V
C47	22-3484	.022 MFD MOLDED ±10%	400 V
C48	22-3577	.1 MFD MOLDED	600 V
C49	22-3537	.047 MFD MOLDED	200 V
C50	22-3239	.1 MFD MOLDED	400 V
C51	22-3957	80 MFD ELECTROLYTIC	200 V
C52	22-25	2 X 51 PF DISC	500 V
C53	22-21	2 X .001 MFD DISC ±10%	500 V
C54	22-6	470 PF DISC	1000 V
C55	22-1778	.047 MFD MOLDED	200 V
C56	22-2667	330 PF MICA ±10%	500 V
C57	22-6	470 PF DISC	1000 V
C58	22-3946	1500 PF POLYSTYRENE ±10%	400 V
C59	22-3960	2200 PF MOLDED ±10%	400 V
C60	22-3	.01 MFD DISC	500 V
C61	22-11	.0033 MFD DISC	500 V
C62	22-26	2 X .005 MFD DISC ±10%	500 V
C63	22-1775	.047 MFD MOLDED	400 V
C64	22-2954	75 PF DISC ±10%	4K V
C65	22-3577	.1 MFD MOLDED	600 V
C66	22-3	.01 MFD DISC	500 V
R1	63-2847	18K OHM ±10% A.B. ONLY	1/2 W
R2	63-2844	10K OHM ±10% A.B. ONLY	1/2 W
R3	63-5343	3.3K OHM ±10%	2 W
R4A		5K OHM PEAK PIX (FRONT)	
R4B	63-5148	5 MEG. VERT. SIZE (REAR)	
R5	63-5726	22K OHM ±10%	2 W
R6	63-3986	5.6K OHM ±10%	7 W
R7	63-5179	30K OHM CONTRAST	
R8	63-5726	22K OHM ±10%	2 W
R9	63-5150	250K OHM BRIGHTNESS	
R10	63-4955	3 MEGOHM FOCUS	
R11	63-6181	470K OHM	1 W
R12	63-5174	330K OHM	1 W
R13	63-3284	750 OHM BUZZ	
R14	63-4837	27K OHM ±10%	2 W
R15	63-5151	1 MEGOHM TONE	
R16	63-5930	1 MEGOHM VOLUME CONTROL & SWITCH ON NON-SPACE COMMAND MODELS	
R17	63-5371	VOLUME CONTROL OF SPACE COMMAND MODELS	
R18	63-6069	1K OHM	1 W
R19	63-4905	1.8 MEGOHM A.B. ONLY 10%	1/2 W
R20	63-5184	VOLTAGE DEPENDENT RESISTOR	
R21	63-4389	8.2 MEGOHM ±10% A.B. ONLY	1/2 W
R22	63-4095	10K OHM A.G.C. DELAY	
R23	63-5158	2.2 MEGOHM ±10% A.B. ONLY	1/2 W
R24	63-5189	750K OHM VERTICAL HOLD	
R25	63-4784	2K OHM VERTICAL LINEARITY	
R26	63-3807	230K OHM	1/2 W
R27	63-5315	120K OHM ±10% I.R.C. ONLY	1/2 W
R28	63-5747	68K OHM ±10%	2 W
R29	63-4098	8.2K OHM ±10%	3 W
R30	63-4693	22K OHM A.B. OR STEPL. ONLY	1 W
R31	63-4726	THERMAL RESISTOR SUPPLIED WITH YOKE	
R32	63-5740	47K OHM ±10%	2 W
R33	63-6181	470K OHM	1 W
L1A		1ST I.F. & TRAP WINDING ASSEMBLY	
L1B	5-58725		
L2	5-53053	ADJ. CHANNEL TRAP WINDING ASSEMBLY	
L3	5-58572	2ND I.F. & TRAP COIL WINDING ASSEMBLY	
L4	5-47868	4TH I.F. WINDING ASSEMBLY	
L5	20-2014	DETECTOR SHUNT PEAKING COIL	
L6	20-2013	DETECTOR SERIES PEAKING COIL	
L7	20-2004	CHOKE COIL	
L8	5-50241	SOUND TAKE-OFF WINDING ASSEMBLY	
L9	20-2012	SHUNT PEAKING COIL	
L10	20-2504	SERIES PEAKING COIL	
L11	149-353	IRON CORE SLEEVE	
L12	5-61899	INTERCARRIER COIL WINDING ASSEMBLY	
L13	5-47702	QUADRATURE COIL ASSEMBLY	
L14	95-1682	FILTER CHOKE	
L15	5-56876	HORIZONTAL OSCILLATOR COIL ASSEMBLY	
L16	20-2005	CHOKE COIL	
T1	5-58737	1ST I.F. & TRAP COIL ASSEMBLY WIRING	
T2	5-53098	ADJACENT CHANNEL TRAP ASSEMBLY WIRING	
T3	5-63856	2ND I.F. & TRAP COIL ASSEMBLY	
T4	5-58613	3RD I.F. TRANSFORMER ASSEMBLY	
T5	5-58824	4TH I.F. TRANSFORMER ASSEMBLY	
T6	5-60985	SOUND TAKE-OFF COIL ASSEMBLY WIRING	
T7	5-56508	INTERCARRIER COIL CAP. & WIRE ASSEMBLY	
T8	95-2096	SOUND OUTPUT TRANSFORMER	
T9	95-2092	VERTICAL OUTPUT TRANSFORMER	
T10	95-2093	DEFLECTION YOKE	
T11	95-2105	POWER TRANSFORMER	
T12	5-63278	HORIZONTAL SWEEP TRANSFORMER	
S1		SWITCH USED ON R16 VOLUME CONTROL NON-SPACE COMMAND MODELS	
S2	85-725	AC SWITCH ON SPACE COMMAND MODELS	
S3	85-763	CIRCUIT BREAKER	
X1	103-23	CRYSTAL DIODE	
X2	103-20	DUAL SELENIUM DIODE	
A1	87-8	INTEGRATOR	
A2	87-7	INTEGRATOR	
CX	OR T10	SUPPLIED WITH YOKE	
PL1	100-251	NEON NEON BULB	
SE1	212-27	SILICON DIODE RECTIFIER	
SE2	212-27	SILICON DIODE RECTIFIER	
SP1		SPEAKER	

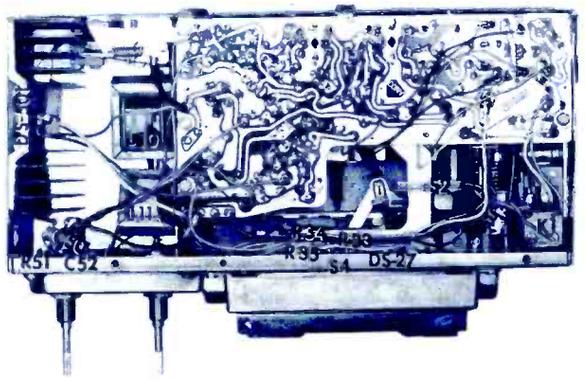
DELCO
Chevrolet Auto Radio
Model 985694

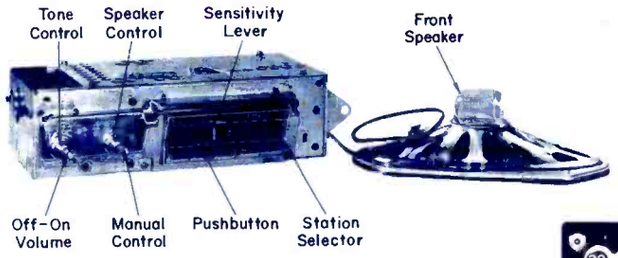


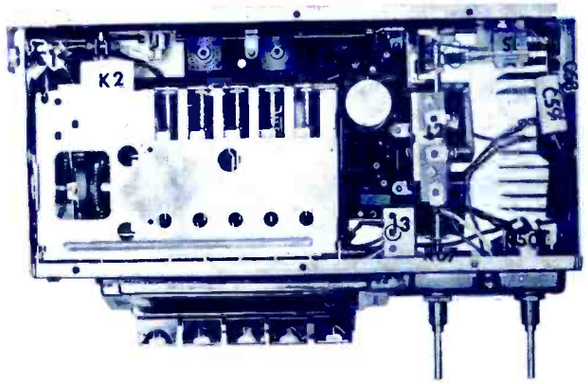


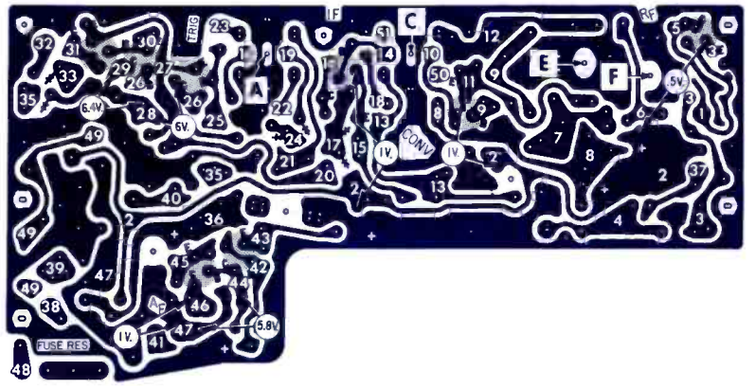


DELCO
Cadillac Auto
Radio
Model 7286315









SCHEMATIC
R. F. SECTION

NUMBERS ON PRINTED CIRCUIT BOARD CORRESPOND WITH NUMBERS IN CIRCLES ON SCHEMATIC DIAGRAM.

SCHEMATIC DATA

Voltages measured terminal to chassis with a volt-ohm meter —no signal and 12 volts applied to the radio. Use VTVM in Trigger Circuit.

Total battery drain 1.2 amps at 12 volts.

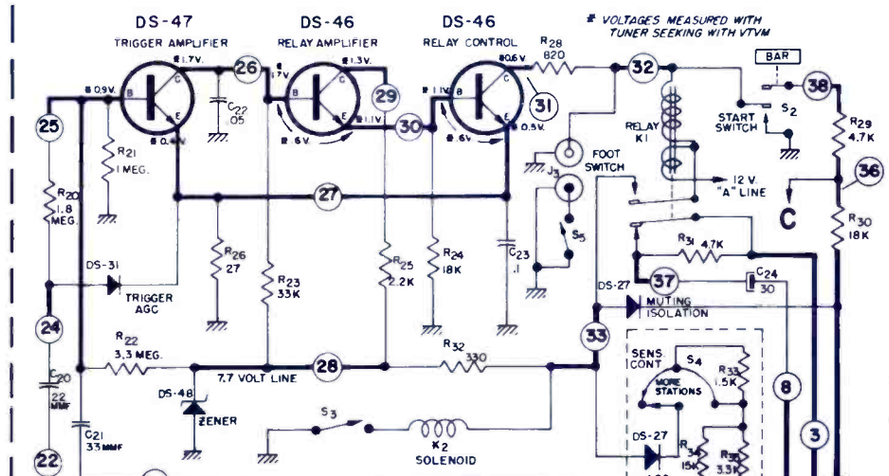
Tolerance on voltages ± 10%.

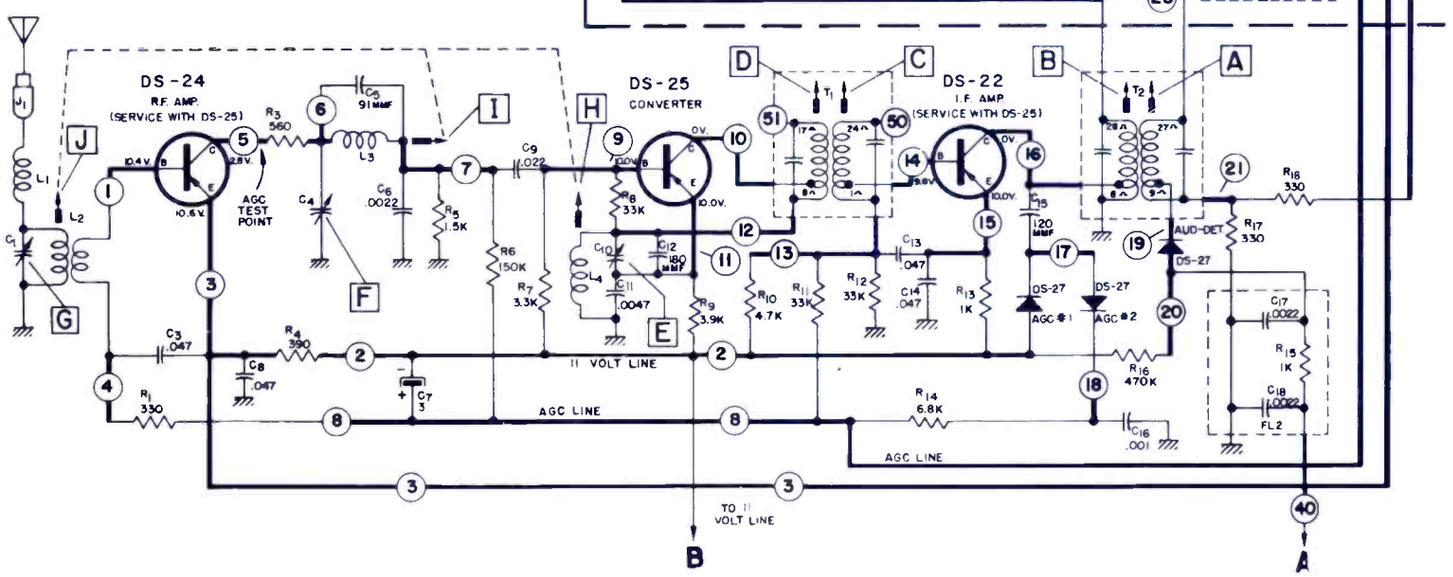
** Before measuring transistor voltage a 10 ohm speaker must be connected to the radio. If power transistor is replaced, adjust bias potentiometer to obtain proper collector voltage with 12 volts applied to radio. Voltage should be measured from power transistor case to ground.

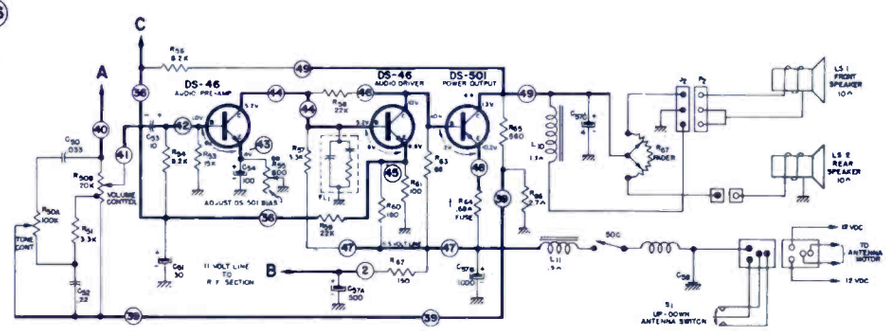
† Ill. #64 is a fuse resistor for the power transistor. Service with exact Delco service replacement.

Trigger voltages are read with a VTVM and with the tuner seeking. Use a Delco P-612 power supply or battery for proper tuner action.

TRIGGER CIRCUIT



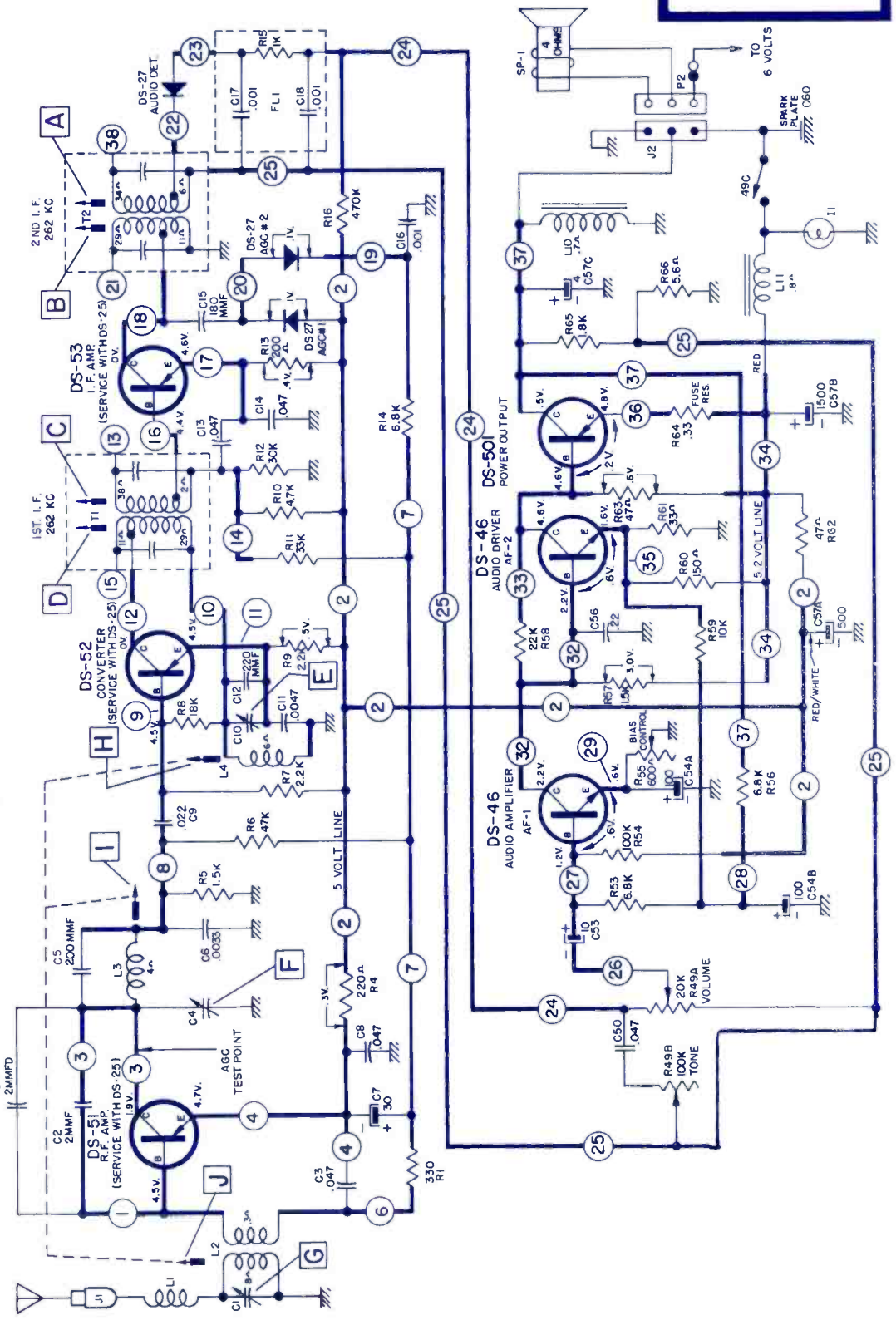




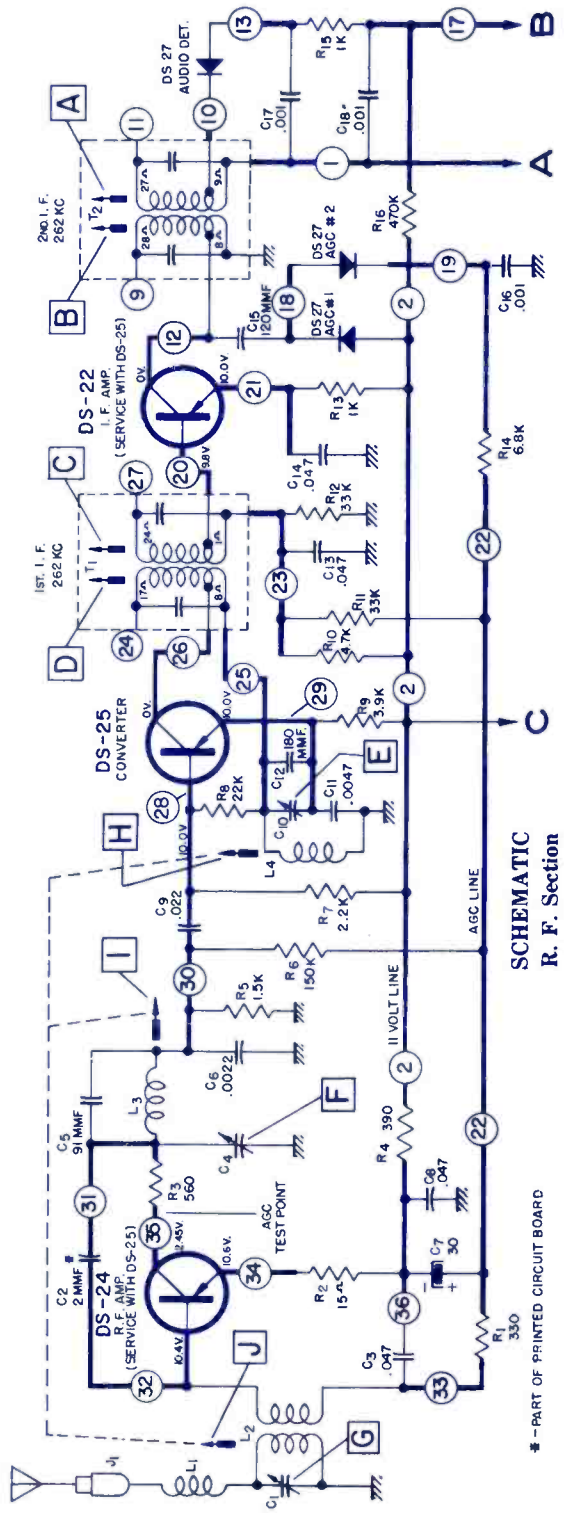
SIGNAL INJECTION

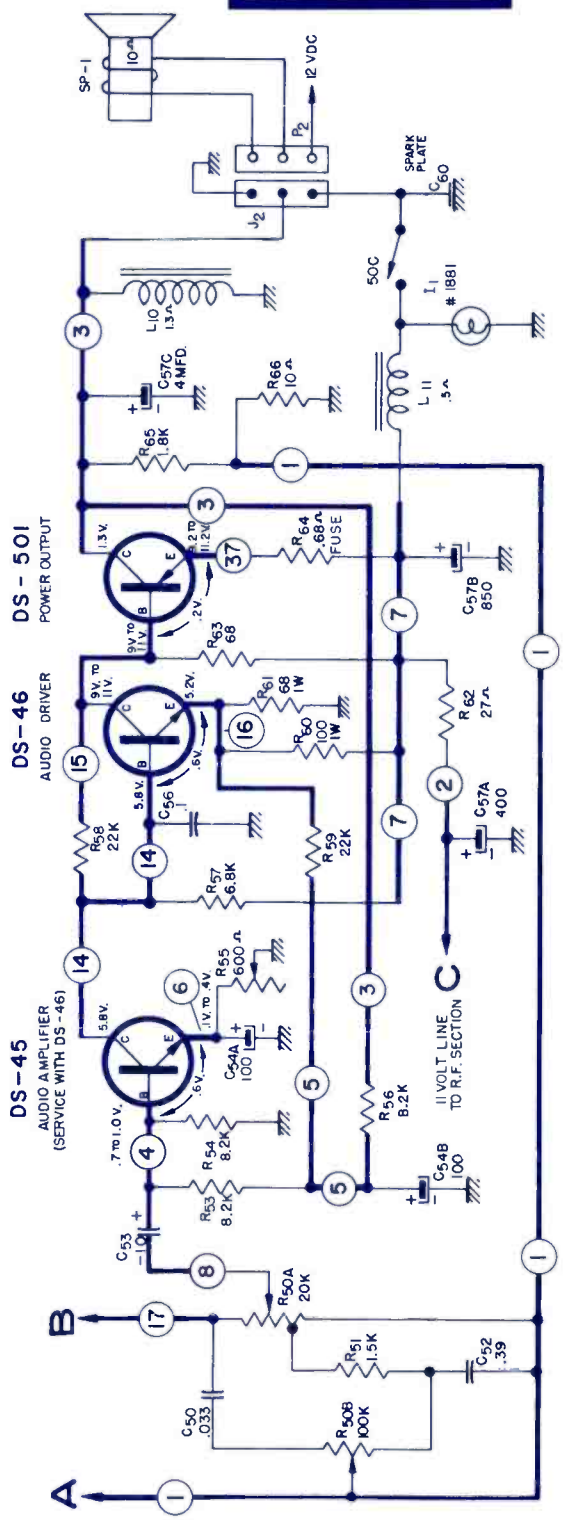
ISLAND NO.	LOCATION	OUTPUT
46	Base of DS-501	Weak
44	Base of Audio Driver	Loud
42	Base of Audio Pre Amp	Very Loud
14	Base of I.F. Amp.	Louder
9	Base of Converter	Louder
1	Base of R.F. Amplifier	Very Loud

Delco
Opel Kadett Auto Radio
Model 980886



DELCO
Buick Auto Radio
Model 980655



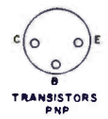


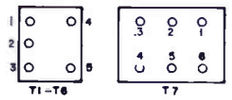
GENERAL ELECTRIC

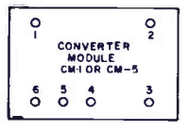
Portable AM-FM
Transistor Radio
Models 940 A, B

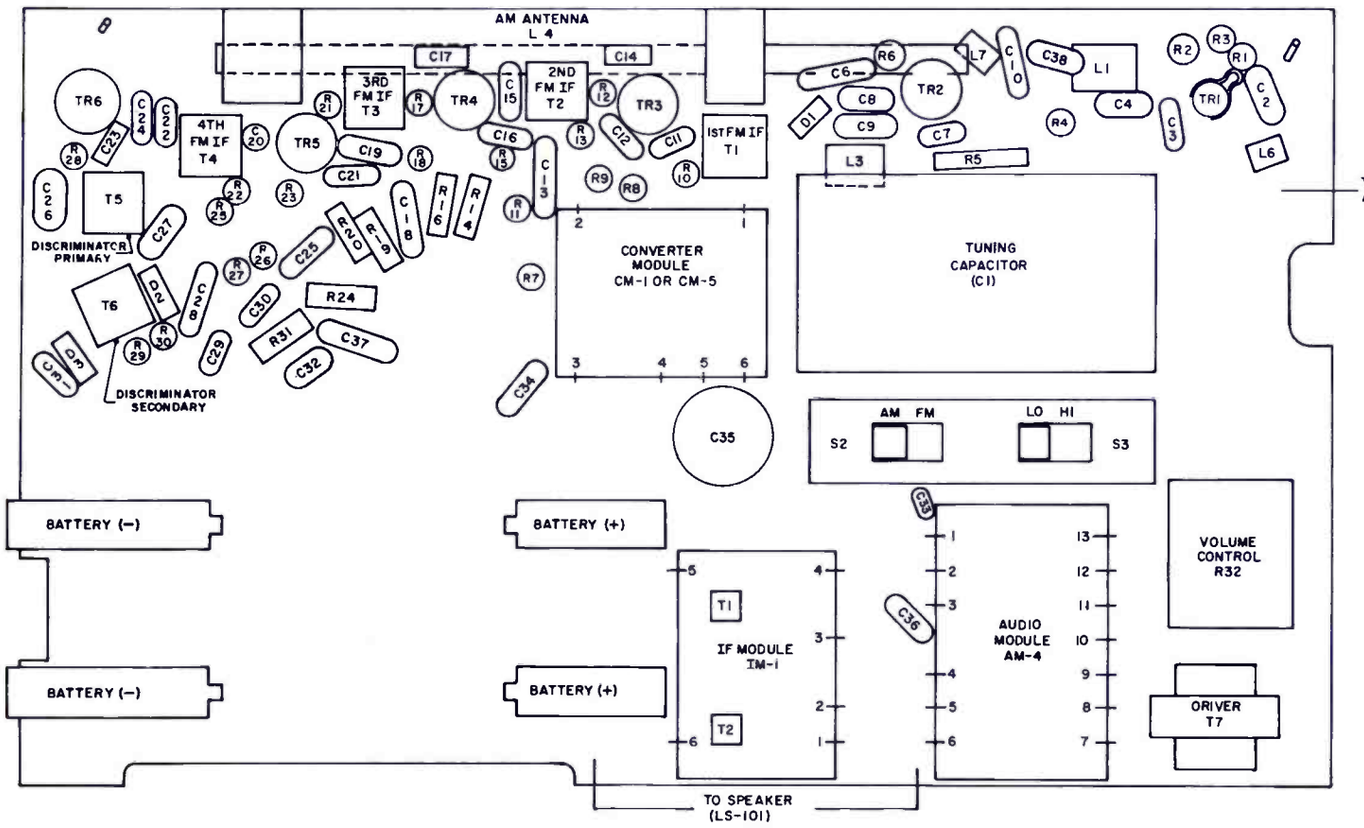
ELECTRONIC TECHNICIAN

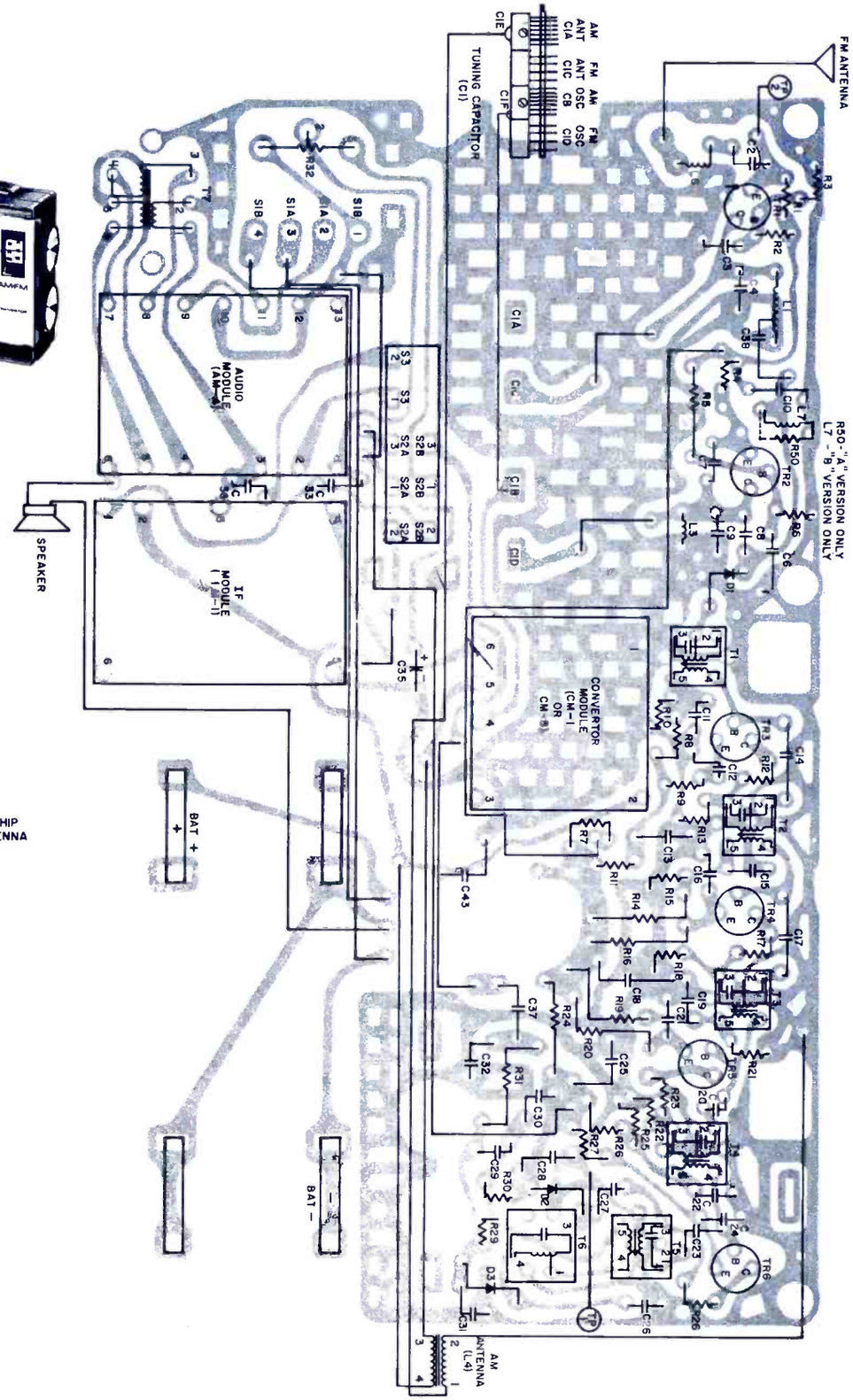
TEKFAX











ELECTRONIC TECHNICIAN

TEKFAX

GENERAL ELECTRIC
Portable AM-FM
Transistor Radio
Models 940 A, B

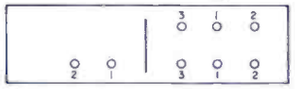
TRANSISTOR	EMITTER		BASE		COLLECT	
	FM	AM	FM	AM	FM	AM
TR1	2.3	0	1.9	0	0	0
TR2	2.2	0	2.0	^	0	0
TR3	2.2	0	1.9	0	.1	0
TR4	2.0	0	1.7	0	.2	0
TR5	2.15	0	1.8	0	.15	0
TR6	3.0	0	2.7	0	1.05	0

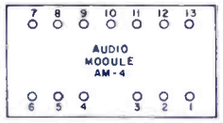
AUDIO MODULE AM-4

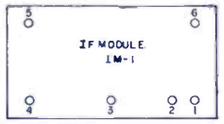
PIN NO	FM VOLTAGE	AM VOLTAGE
1	4.0	5.2
2	3.8	4.8
3	.25	.35
4	3.9	5.0
5	3.9	5.0
6	1.3	2.5
7	1.1	2.26
8	1.1	2.25
9	-1.8	-.65
10	4.0	5.2
11	0	0
12	4.0	5.2
13	4.0	5.2

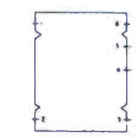
VOLTAGE	FM	AM
+B	4.0	5.2
+B	0	5.2
+B2	4.0	0
+B3	3.2	0
+B4	3.0	0
+B5	2.7	0
-B	-1.8	-.65

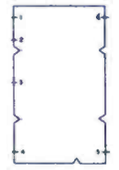
S2B

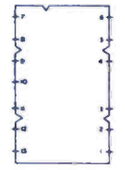






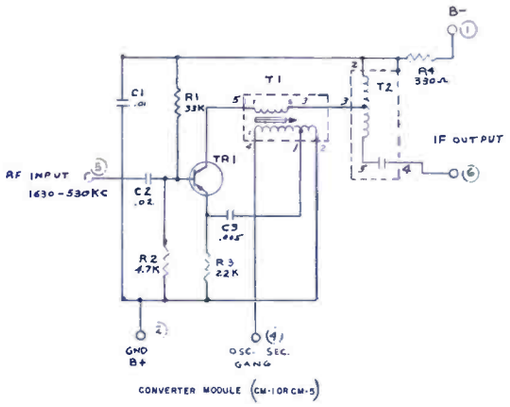

PIN CONNECTIONS FOR CONVERTER MODULE (VIEWED FROM COMPONENT SIDE)


PIN CONNECTIONS FOR IF MODULE (IM-1) (VIEWED FROM COMPONENT SIDE)

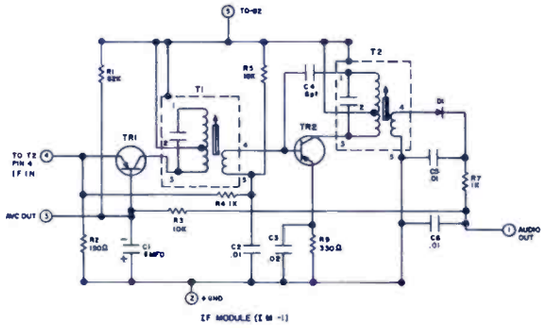

PIN CONNECTIONS FOR AUDIO MODULE (AM-4) (VIEWED FROM COMPONENT SIDE)

NOTES:

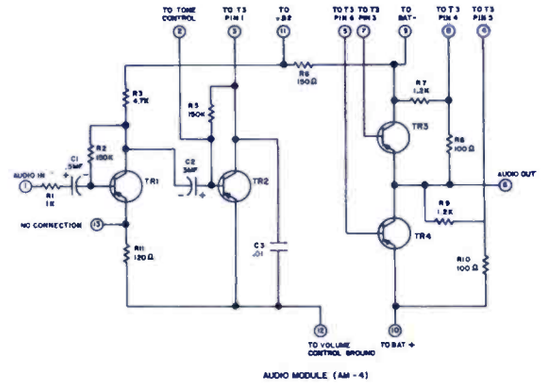
1. UNLESS OTHERWISE NOTED:
   CAPACITORS MORE THAN 1=UUF
   CAPACITORS LESS THAN 1=UF
   RESISTORS = 1/2 WATTS, K=1000
2. VOLTAGES ARE POSITIVE WITH RESPECT TO GROUND UNDER NO SIGNAL CONDITIONS & VOLUME CONTROL MINIMUM UNLESS OTHERWISE INDICATED.
3. REPLACE TRANSISTORS AS LISTED IN THE PARTS LIST.
4. CM-1 (CONVERTER MODULE IS TO BE USED IN "A" VERSION, CM-5 IS TO BE USED IN "B" VERSION, L4 (AM ANTENNA) MUST BE MATCHED TO THE CONVERTER MODULE (SEE PARTS LIST)
5. R50 USED IN A VERSION ONLY; C38 BECOMES 15pf L7 USED IN B VERSION ONLY; C38 BECOMES 9pf



CONVERTER MODULE (CM-1 OR CM-5)



IF MODULE (IM-1)



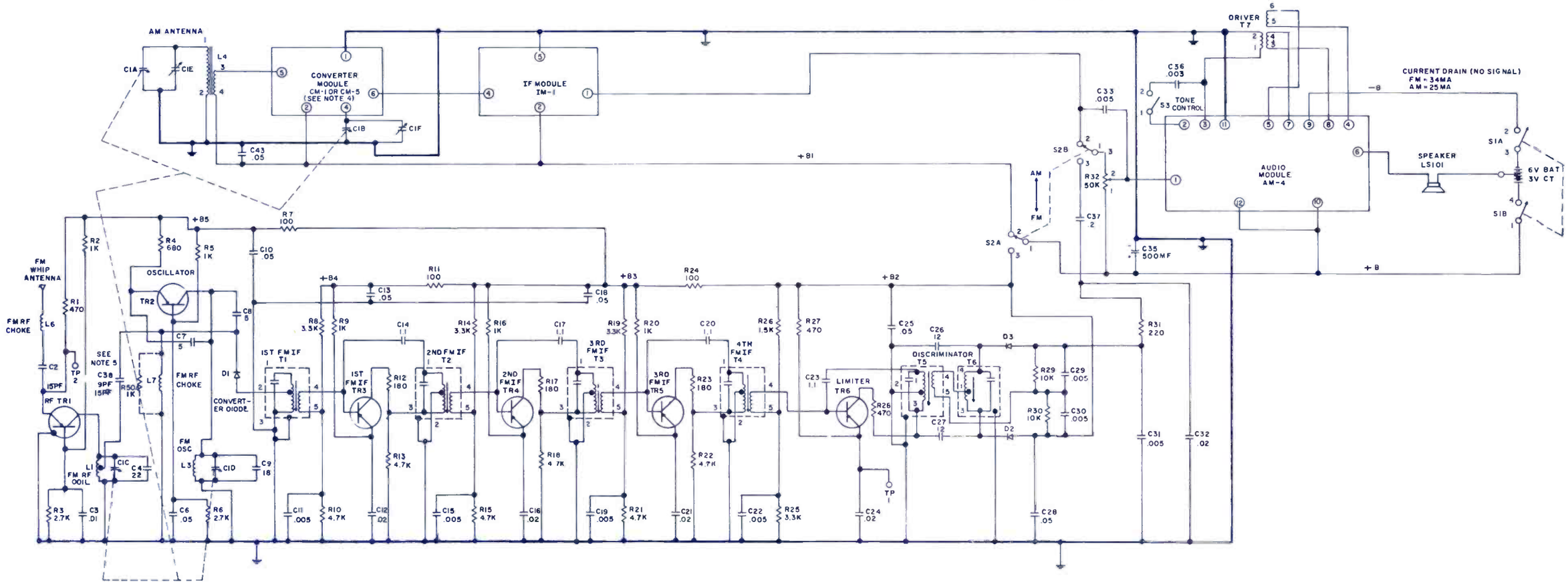
AUDIO MODULE (AM-4)

CONVERTER MODULE CM-1 OR CM-5

PIN NO	FM VOLTAGE	AM VOLTAGE
1	0	0
2	0	5.2
3	0	5.2
4	0	5.2
5	0	5.2
6	0	5.0

IF MODULE IM-1

PIN NO	FM VOLTAGE	AM VOLTAGE
1	0	5.0
2	0	5.2
3	0	4.8
4	0	5.0
5	0	0
6	0	0



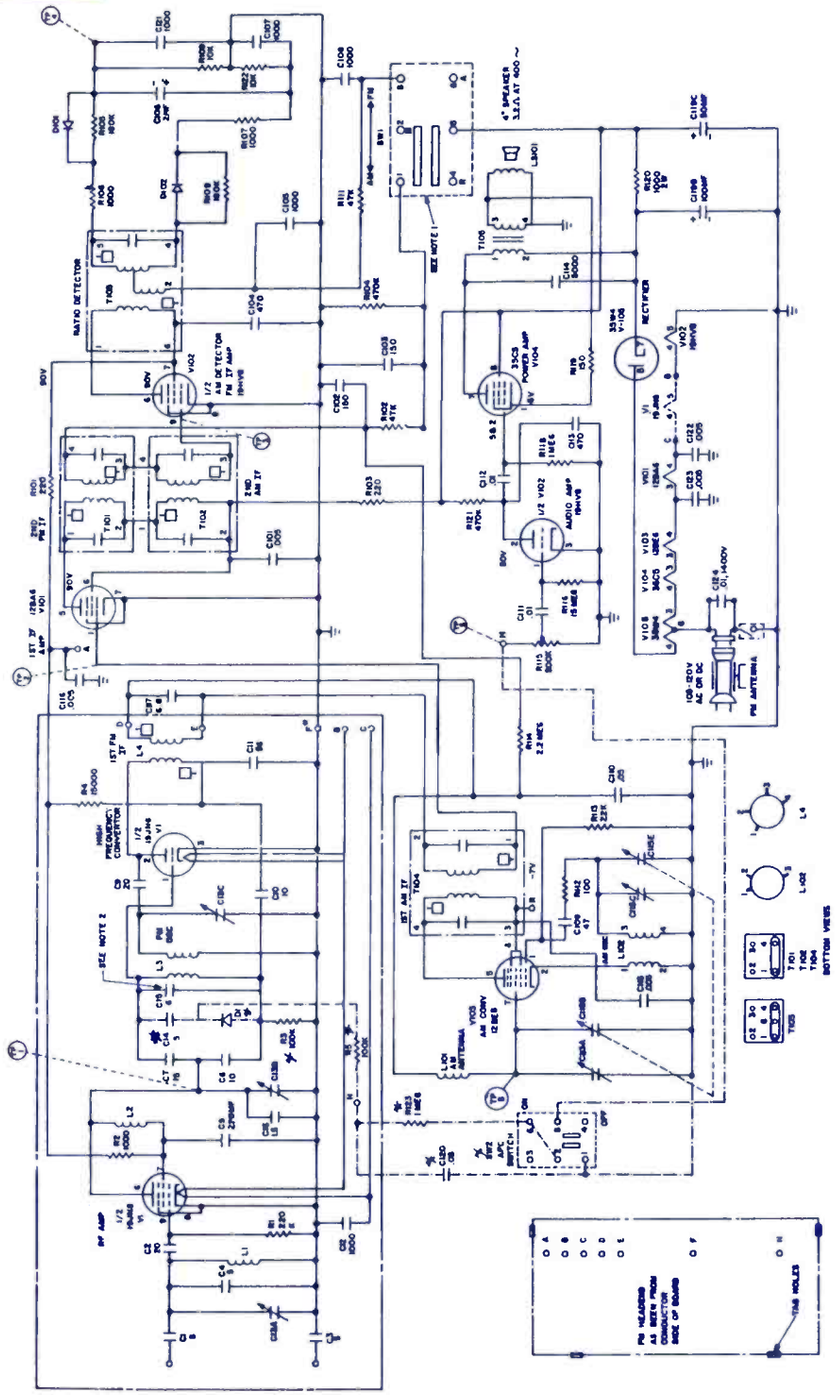
ELECTRONIC TECHNICIAN

TEKFAX

COMPLETE MANUFACTURER'S CIRCUIT DIAGRAMS
AND TECHNICAL INFORMATION FOR

GENERAL ELECTRIC
Radio
Models 11R31,
-33, T225A,
-35A and -36A

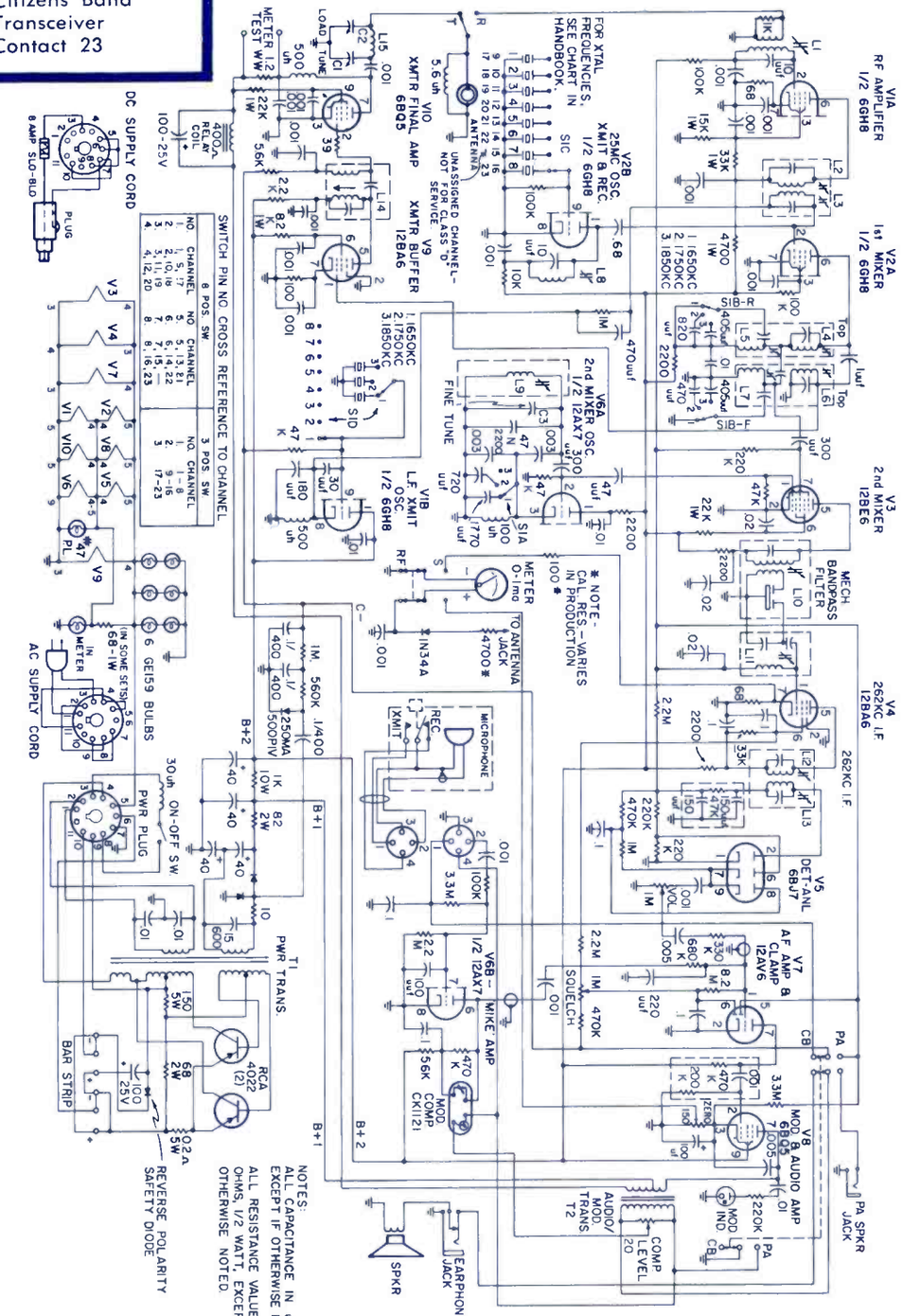
1. Band switch in AM position.
2. C15 used on models 11R33and T225A only.
* Components used on models 11R31,T235A & T236A only.



ELECTRONIC TECHNICIAN

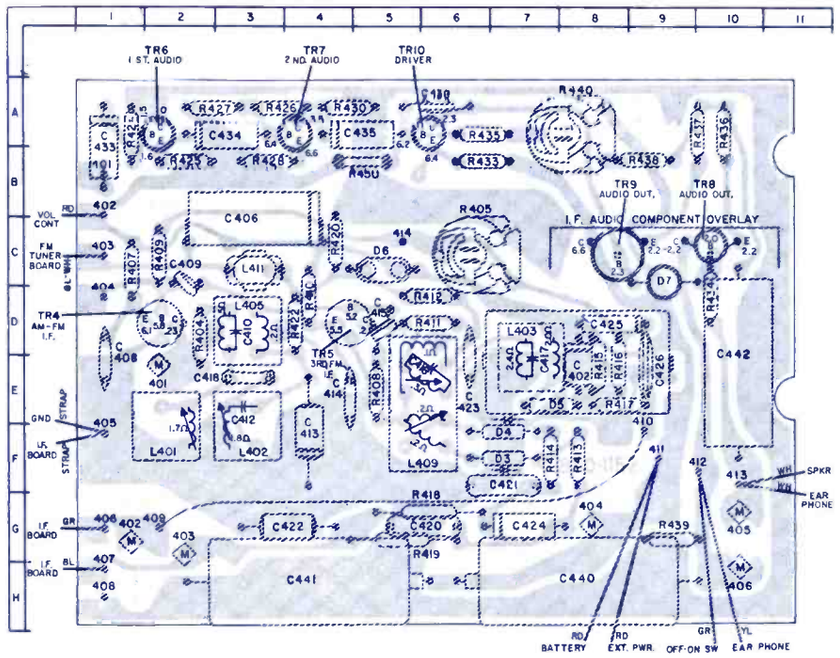
TEKFAX

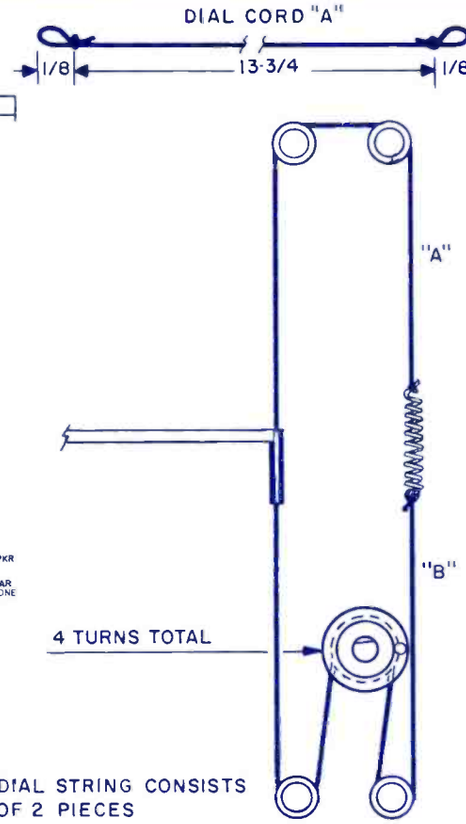
UNITED SCIENTIFIC LABS
Citizens Band
Transceiver
Contact 23

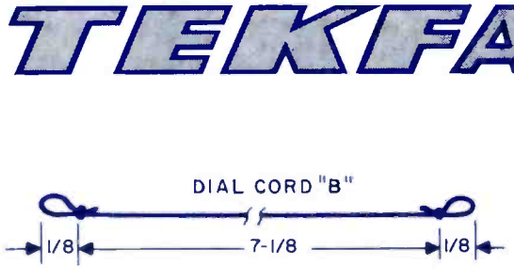


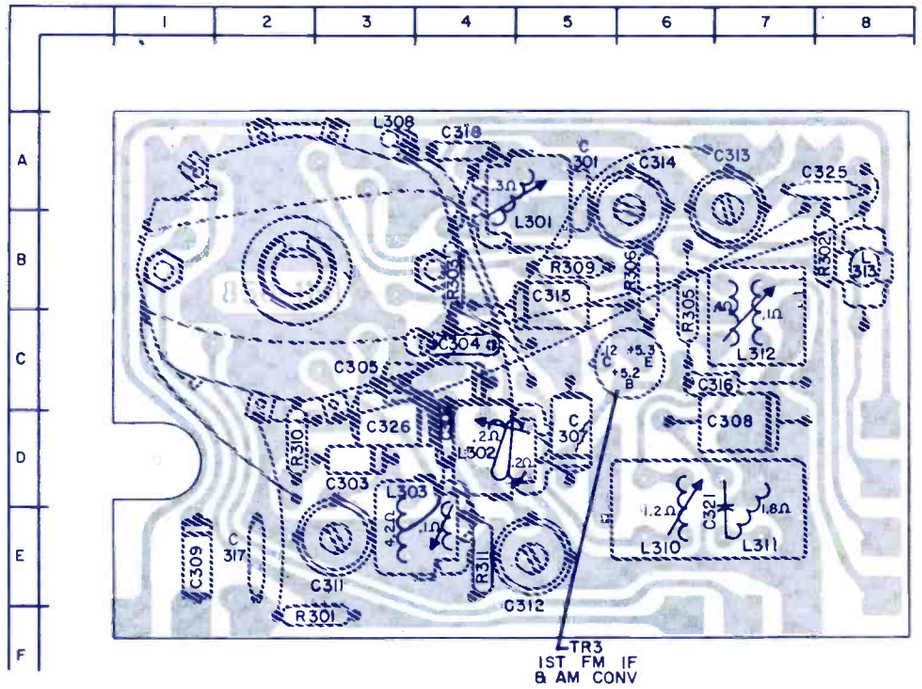
TEKFAX

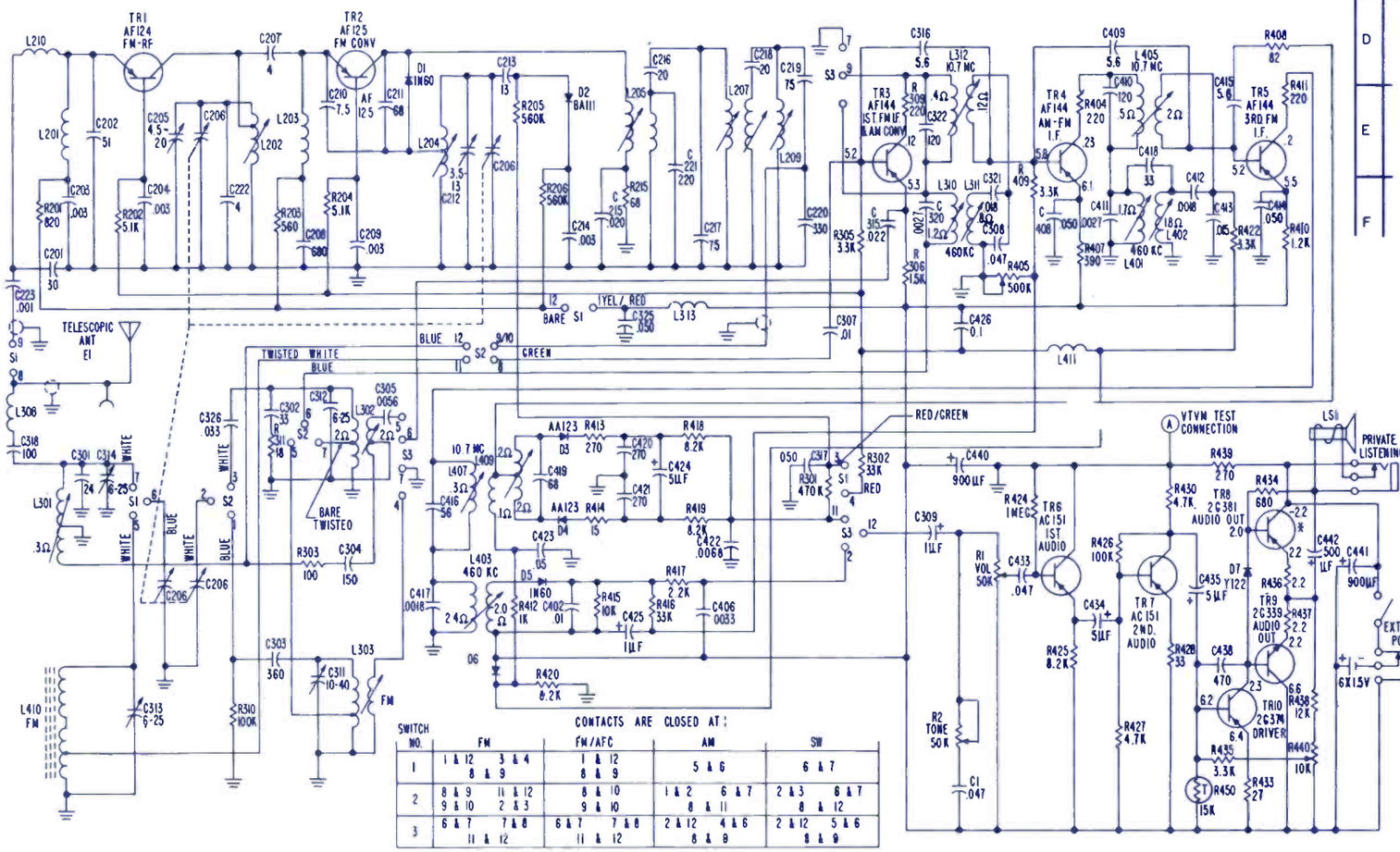
PHILCO
Transistor Radio, Portable
Model T-909



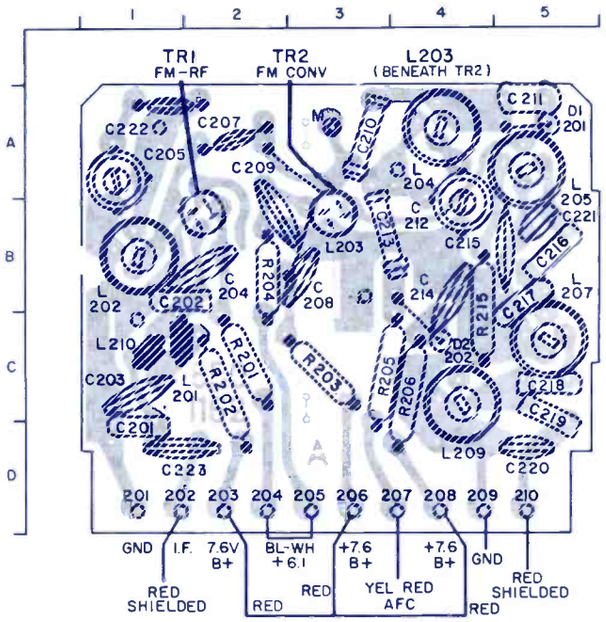




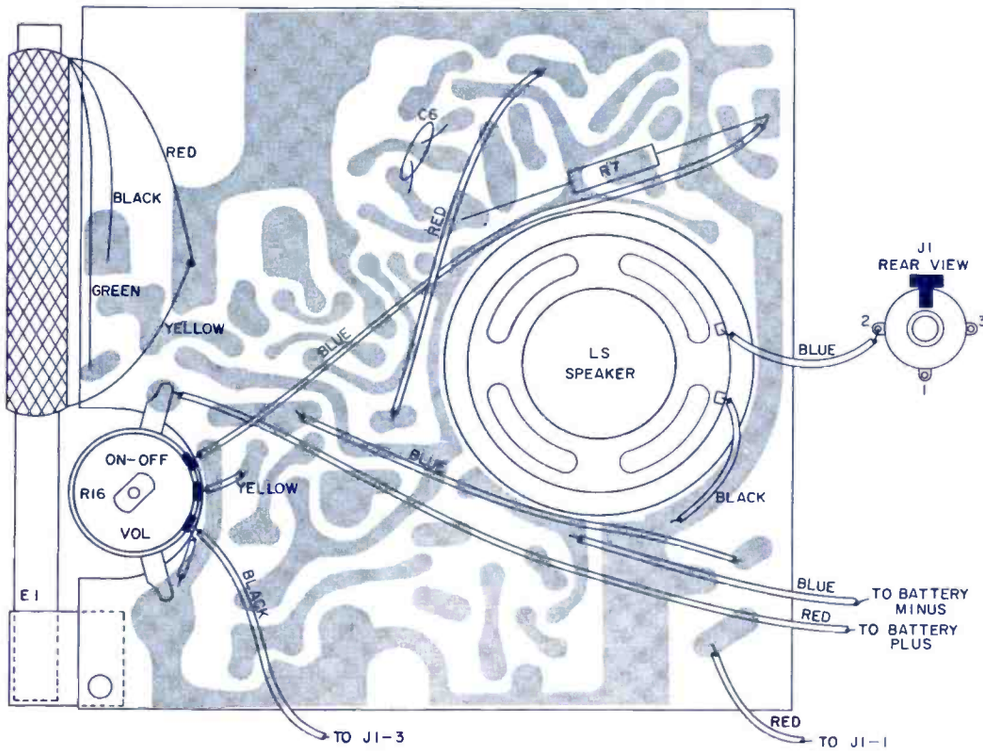


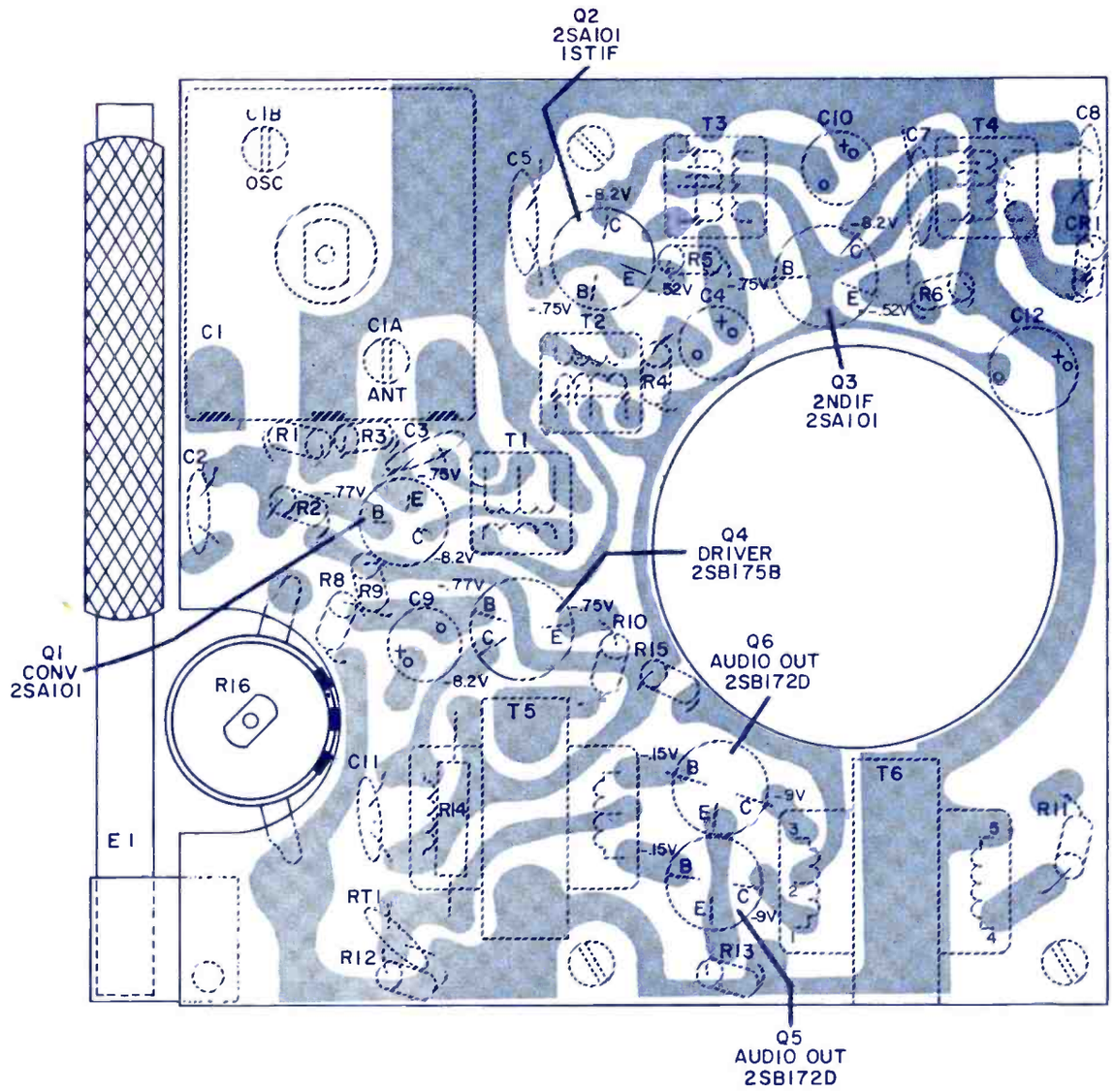


SWITCH NO.	FM	FM/AFC	AM	SW
1	1 & 12 3 & 4 8 & 9	1 & 12 8 & 9	5 & 6	6 & 7
2	8 & 9 11 & 12 9 & 10 2 & 3	8 & 10 9 & 10	1 & 2 6 & 7 8 & 11	2 & 3 8 & 7 8 & 12
3	6 & 7 7 & 8 11 & 12	6 & 7 7 & 8 11 & 12	2 & 12 4 & 6 8 & 9	2 & 12 5 & 6 8 & 9

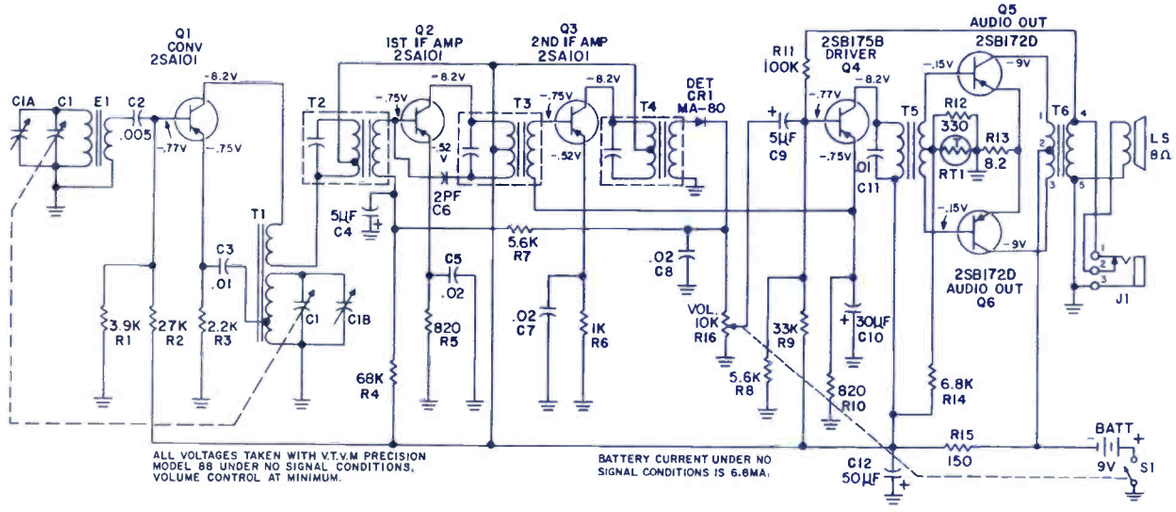


Philco
Transistor Portable
Radio
Model NT-600



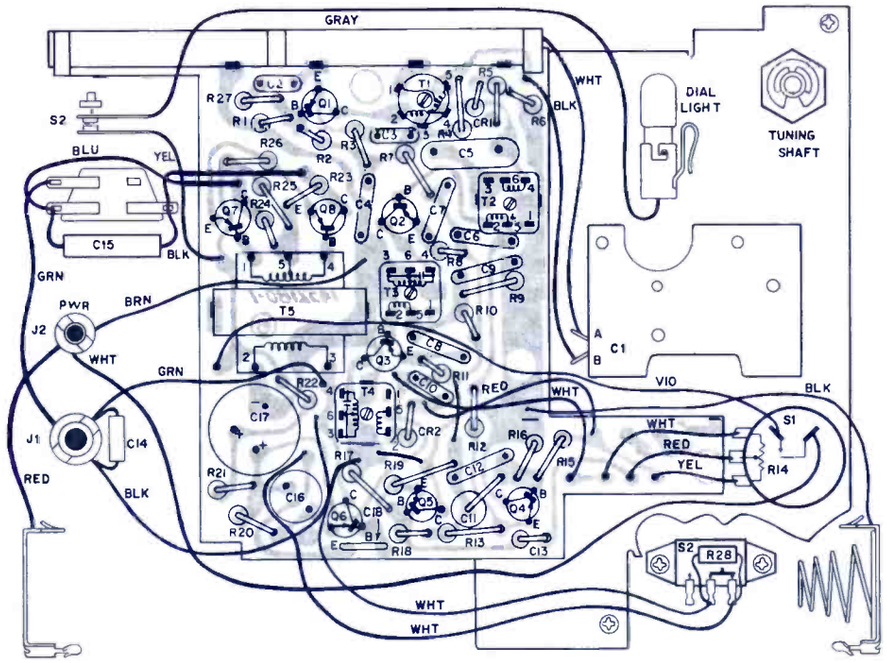


NOTE: WHEN REPLACING BATTERY, NEW BATTERY MAY READ SEVERAL TENTHS OF A VOLT HIGHER THAN ORIGINAL BATTERY. THEREFORE, VOLTAGES MAY READ SLIGHTLY HIGHER THAN THOSE INDICATED ON BASE LAYOUT.

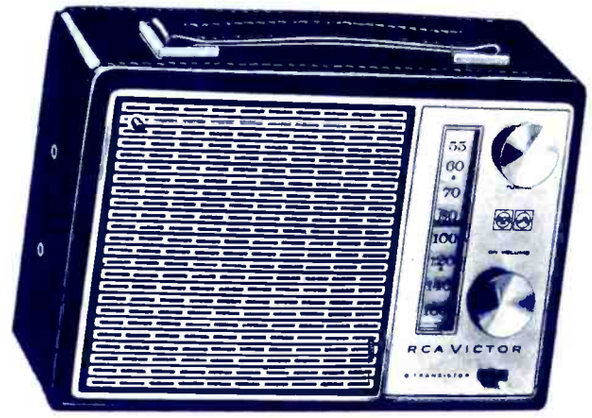


TEKFAX

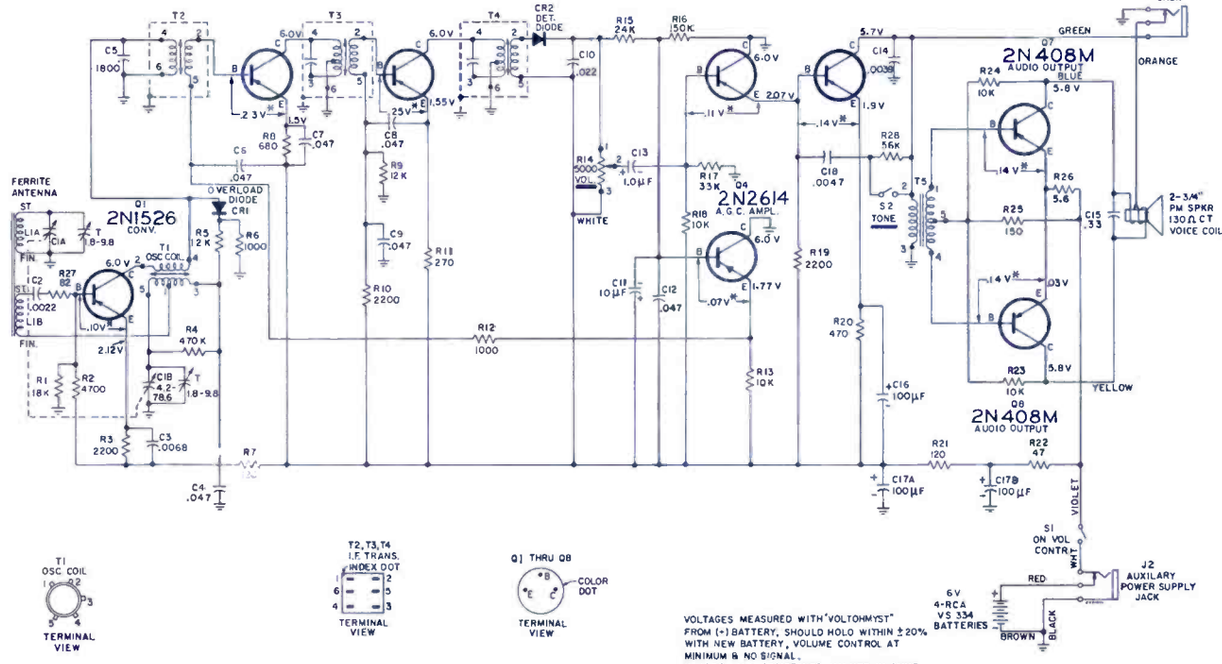
RCA
Transistor Radio
Chassis RC-1216
Model RFG35

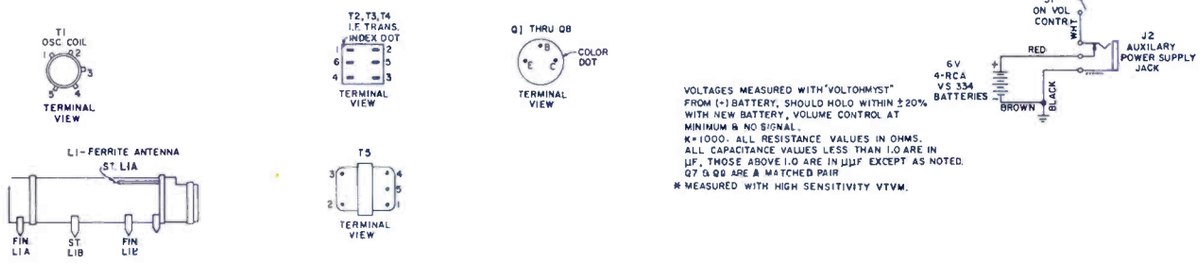


Step	Connect Signal Generator To—	Signal Gen. Output—	Dial Setting	Adjust— for maximum
1	Loop of wire placed near antenna	455 kc	Fully Open	T4 (3rd IF)
2				T3 (2nd IF)
3				T2 (1st IF)
4		Repeat steps 1, 2 and 3		
5		1620 kc	Fully open	C1B-T (ocs. trimmer)
6		1400 kc	1400 kc (Rock gang)	C1A-T (ant. trimmer)
7		600 kc	600 kc (Rock gang)	T1
8	Repeat steps 5, 6 and 7			

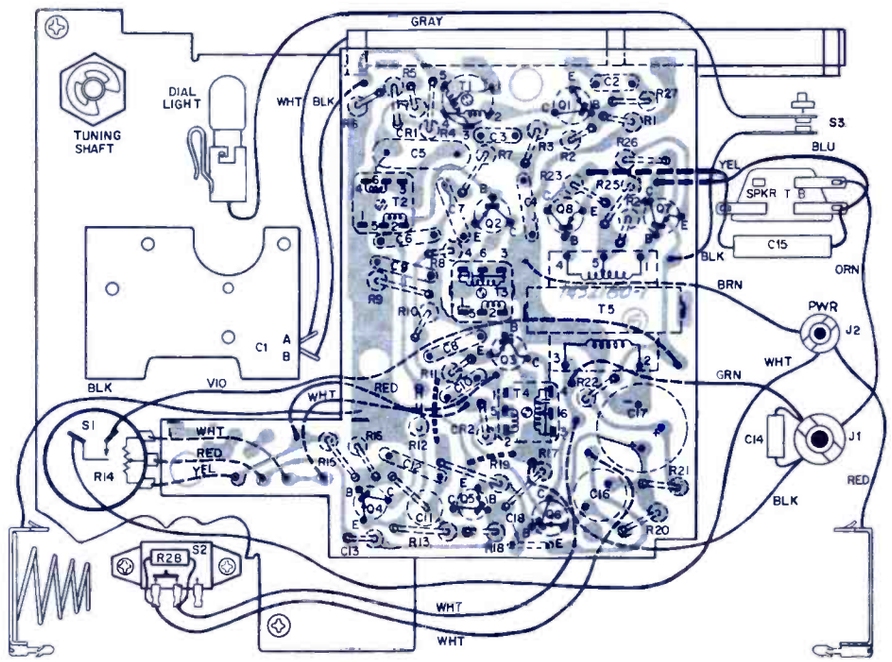


Q2 2N1524 1ST I.F. AMPL.
Q3 2N1524 2ND I.F. AMPL.
Q5 2N406 A.F. AMPL.
Q6 2N408 AUDIO DRIVER
J1 EARPHONE JACK

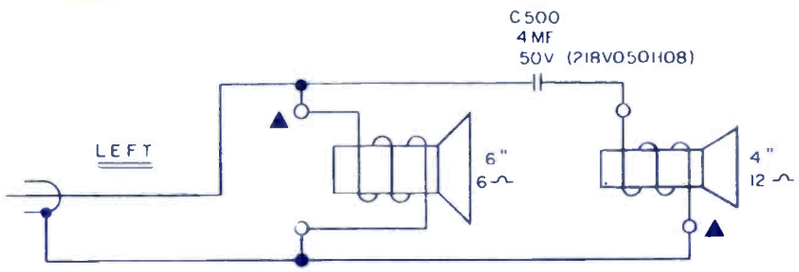


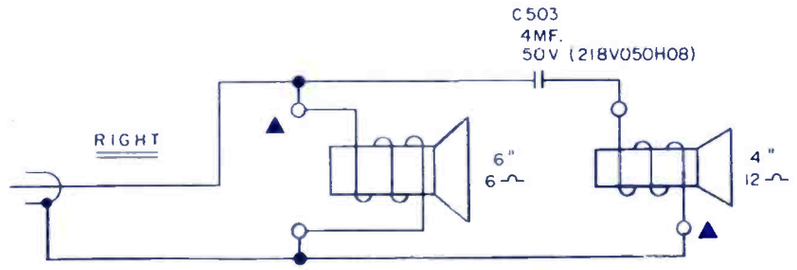


VOLTAGES MEASURED WITH "VOLTOHMYST" FROM (-) BATTERY, SHOULD HOLD WITHIN ±20% WITH NEW BATTERY, VOLUME CONTROL AT MINIMUM & NO SIGNAL.
K=1000. ALL RESISTANCE VALUES IN OHMS. ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN μF, THOSE ABOVE 1.0 ARE IN μμF EXCEPT AS NOTED.
Q7 & Q8 ARE A MATCHED PAIR
* MEASURED WITH HIGH SENSITIVITY VTVM.

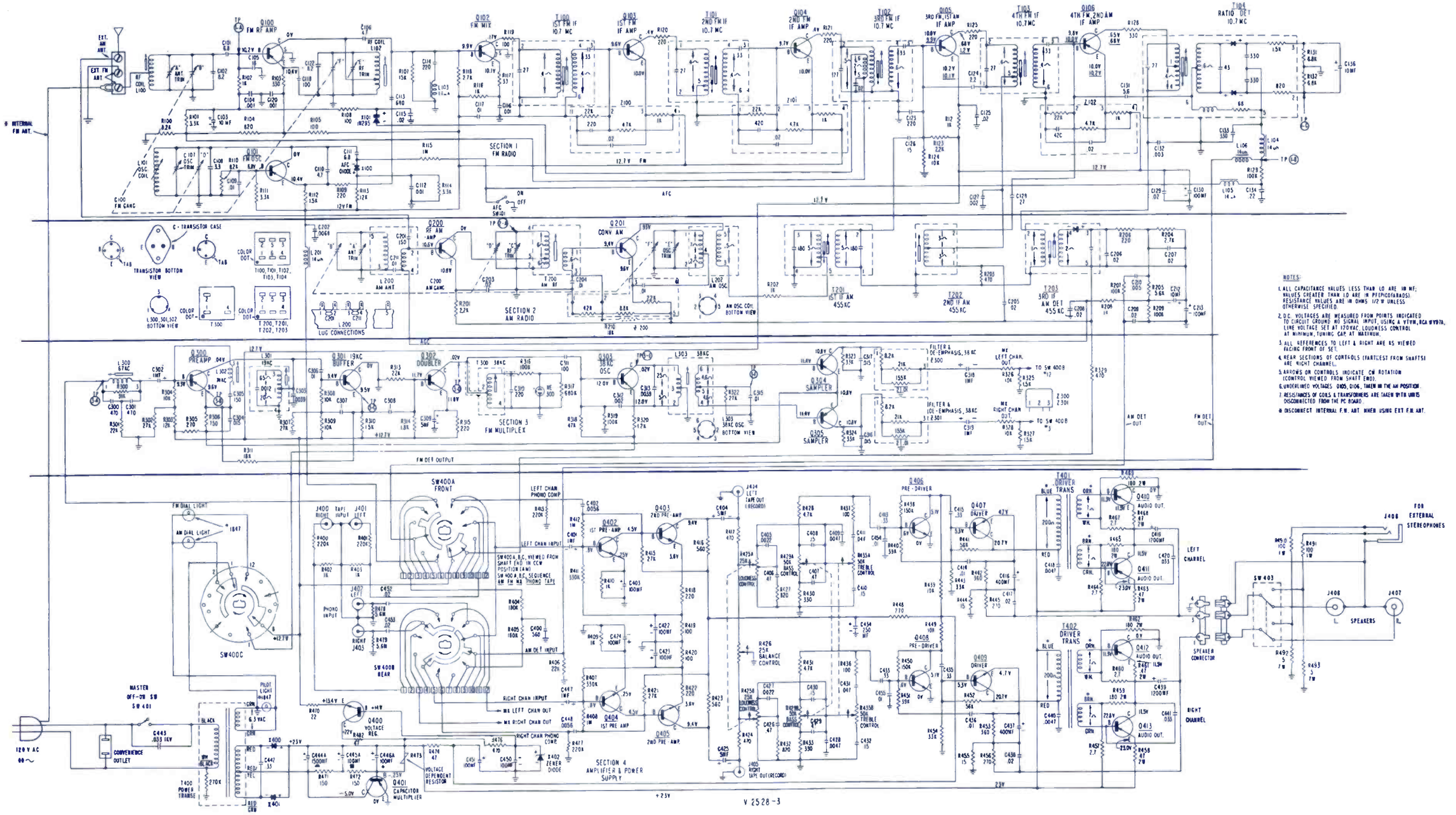


WESTING-HOUSE
Radio Chassis
V-2528-3
Model H-883N29



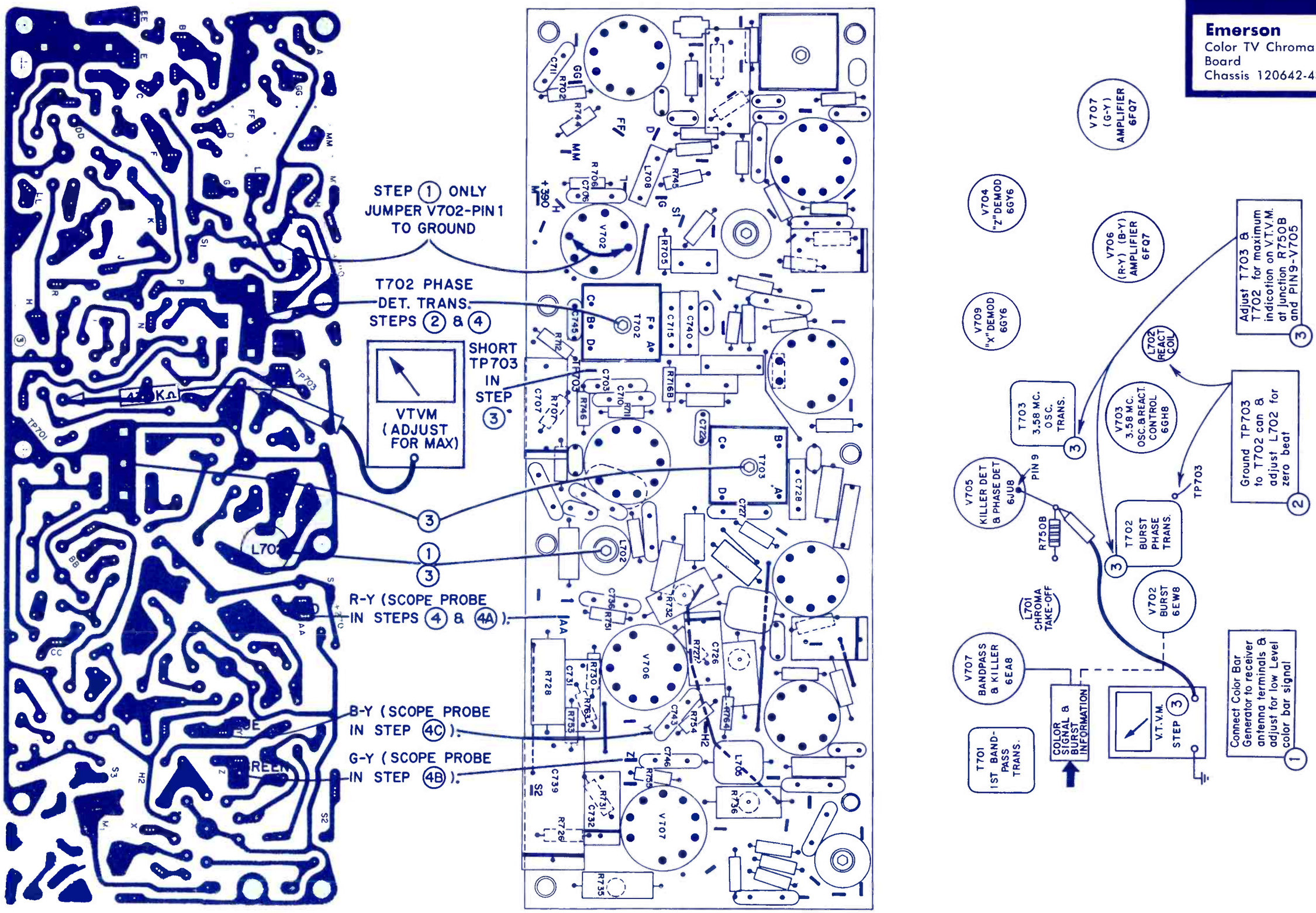


NOTE:
▲ TERMINAL NEAREST COLOR DOT



NOTES:
1. ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN MF; VALUES GREATER THAN 1.0 ARE IN PF(PICOFARADS). RESISTANCE VALUES ARE IN OHMS 1/2 W UNLESS OTHERWISE SPECIFIED.
2. D.C. VOLTAGES ARE MEASURED FROM POINTS INDICATED TO CIRCUIT GROUND NO SIGNAL INPUT, USING A VTVM, RCA WV97A. LINE VOLTAGE SET AT 120VAC. LOUDNESS CONTROL AT MINIMUM, TUNING CAP. AT MAXIMUM.
3. ALL REFERENCES TO LEFT & RIGHT ARE AS VIEWED FACING FRONT OF SET.
4. REAR SECTIONS OF CONTROLS (FARTHEST FROM SHAFTS) ARE RIGHT CHANNEL.
5. ARROWS ON CONTROLS INDICATE CW ROTATION (CONTROL VIEWED FROM SHAFT END).
6. UNDERLINED VOLTAGES: Q105, Q106, TAKEN IN THE AM POSITION.
7. RESISTANCES OF COILS & TRANSFORMERS ARE TAKEN WITH UNITS DISCONNECTED FROM THE PC BOARD.
8. DISCONNECT INTERNAL F.M. ANT. WHEN USING EXT F.M. ANT.

Emerson
Color TV Chroma Board
Chassis 120642-43



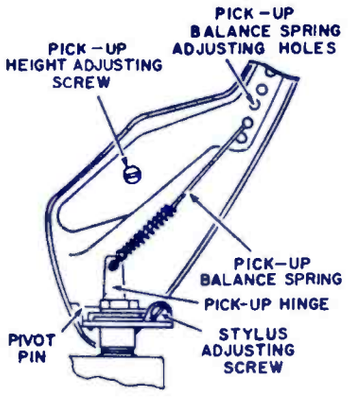
ELECTRONIC TECHNICIAN

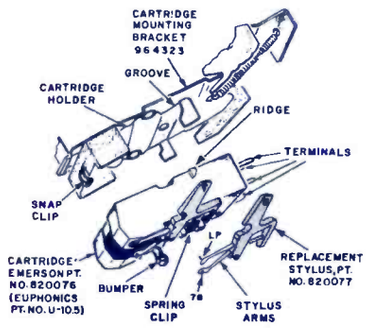
TEKFAX

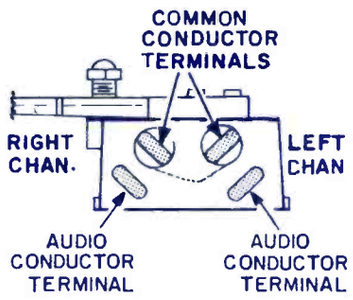
EMERSON
AM/FM Tuner
Chassis 120732
5 watt amplifier
Chassis 120716

NOTES:
(1) PROPER PHASING OF SPEAKERS MUST BE OBSERVED
(2)* SP-3 & SP-6 USED ON MODEL P-1937A ONLY
(3) R-71 & R-72 USED IN MODEL P-1936A. MODEL P-1937A UTILIZES TWO 4 MFD. NON-POLARIZED CAPACITORS (NO. 925391) IN PLACE OF THESE RESISTORS TO PROVIDE HIGH-FREQUENCY CROSSOVER.

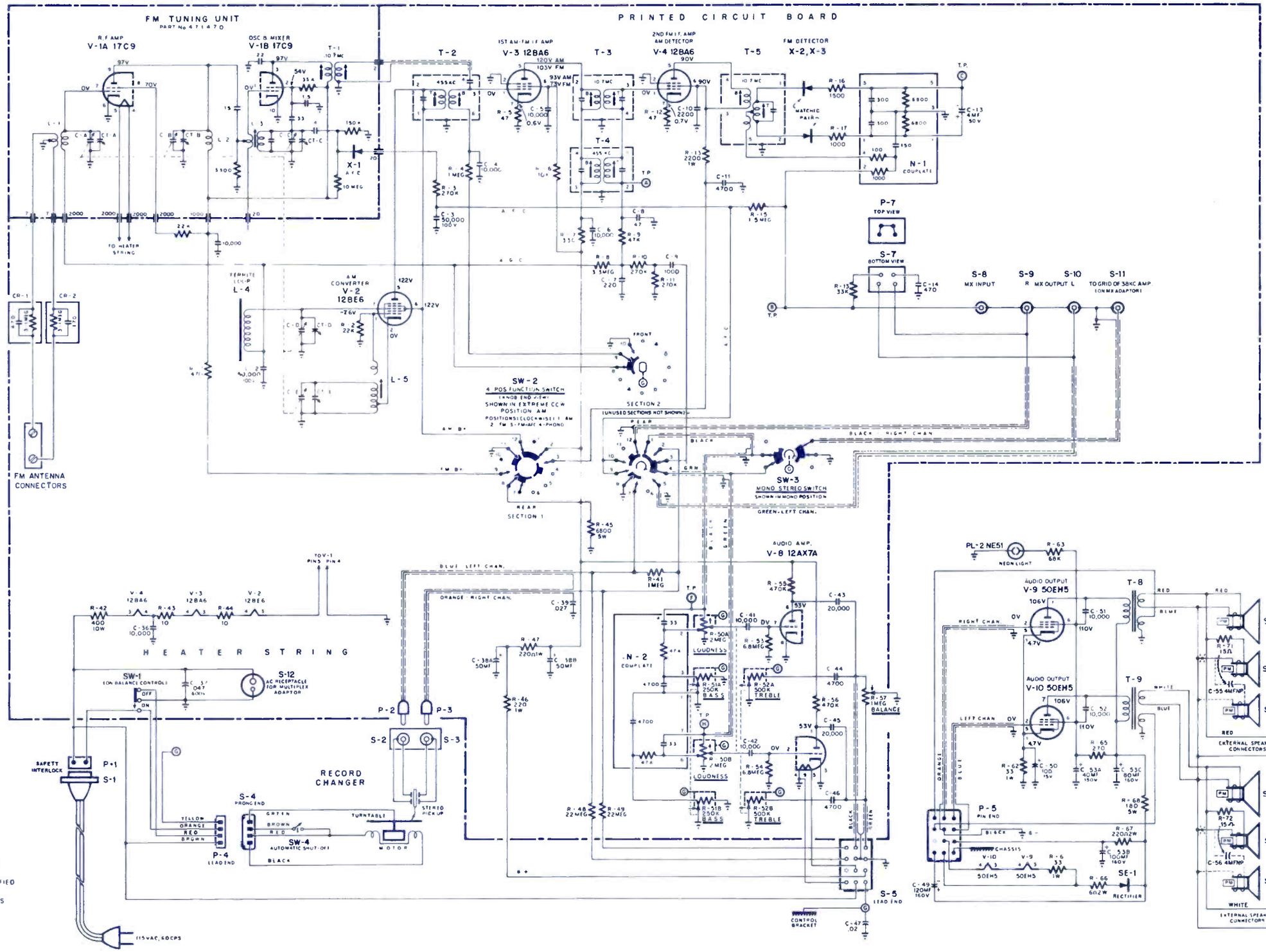
VOLTAGE READINGS
V-1,4 – SW-2 IN FM POS.
V-2 – SW-2 IN AM POS.
V-3 – SW-2 AS INDICATED.
V-8,9,10 – SW-2 IN AM OR FM POS.
(SEE ALSO CONDITIONS FOR READINGS SHOWN ON PAGE 2 OF THIS SERVICE NOTE.)







CERAMIC CAPACITORS, CAPACITY IN PICOFARADS (pF) 1 pF = 1MMF
TUBULAR CAPACITORS, CAPACITY IN MICROFARADS (MF)
ALL CERAMICS 500V, ALL TUBULARS 400V UNLESS OTHERWISE SPECIFIED
RESISTORS IN OHMS (K = 1000) AND ½ WATT UNLESS NOTED
T - TOP CORE, B - BOTTOM CORE IN DOUBLE TUNED TRANSFORMERS
ARROWS AT CONTROLS INDICATE CLOCKWISE ROTATION
ALL ⏚ POINTS ARE TIED TO CONTROL BRACKET



GENERAL ELECTRIC
Stereo Receiver
Models T-3000A, B

ADAPTER WAVE FORMS

1. Composite signal. Modulation (1,000~) appearing in left channel only. The sum signal (L+R) is equal to the difference signal (L-R).

4. Amplified composite signal with difference signal pre-emphasis.

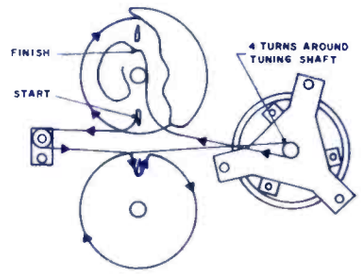
5. 19 KC Pilot voltage.

6. Reconstituted 38 KC sub-carrier (without modulation).

7. Addition of 38 KC sub-carrier (waveform 4) to "L" voltage peaks on composite signal (waveform 2) [with modulation]

8. Right channel output (unmodulated).

9. Modulated left channel output.



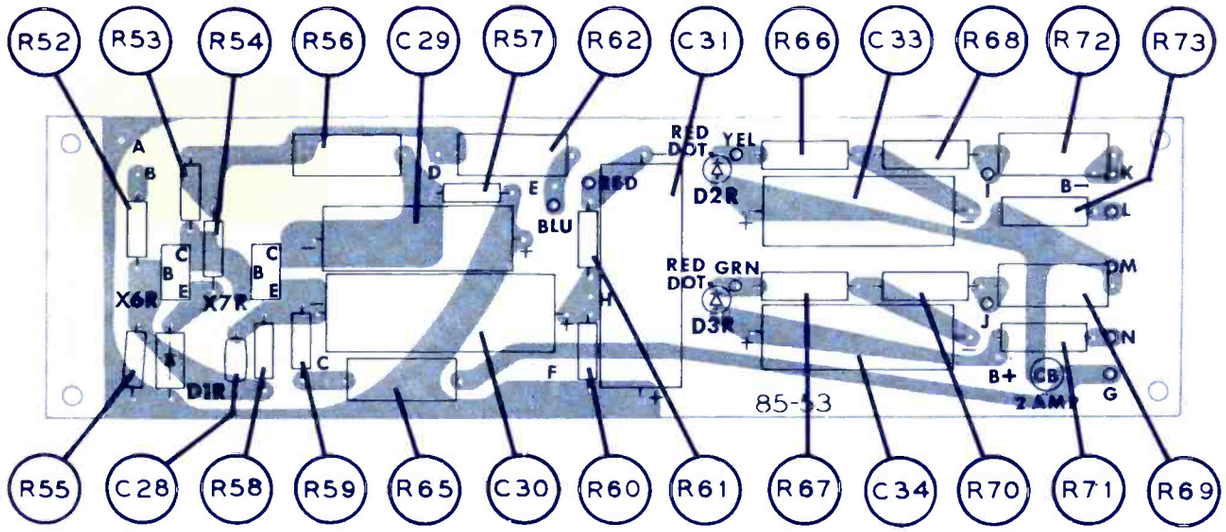
STRINGING DIAGRAM
(VIEW OF LOWER LEFT CABINET WITH FRONT PANEL REMOVED)

POWER TRANSISTOR PIN DIAGRAM

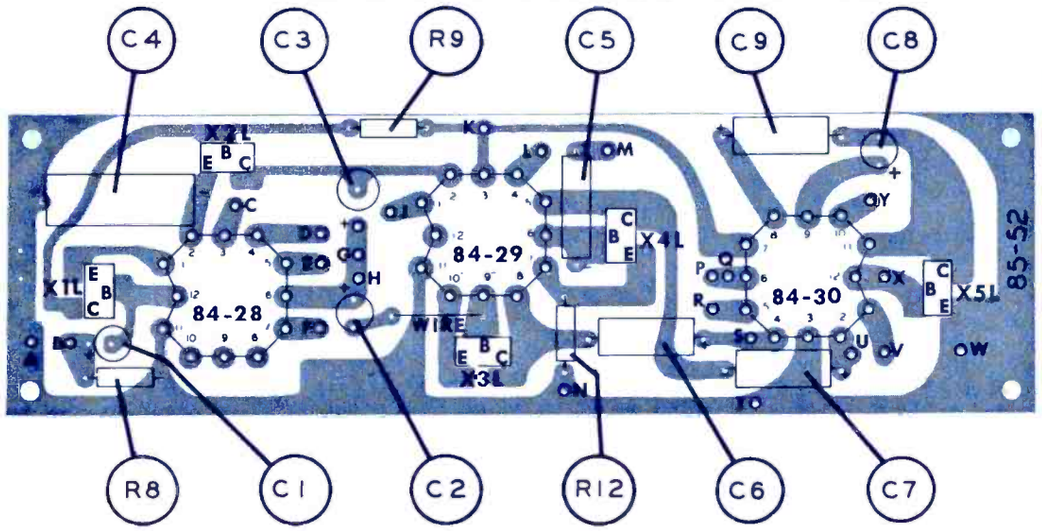
NOTE:
1. ⊕ DC VOLTAGES TAKEN IN FM POSITION.
2. & 1KC RMS. AUDIO VOLTAGE READINGS (ASSUMING .2V RMS AT 1KC INPUT SIGNAL TO PINS 2 & 7 OF V8).
3. ⊠ FM IF VOLTAGE READINGS (ASSUMING TYPICALLY 550 μ V. RMS AT 10.7 MC UNMODULATED INPUT TEST SIGNAL TO PIN 1 OF V3).
4. UNLESS OTHERWISE NOTED, CAP. MORE THAN 1 MMF AND CAP. LESS THAN 1 MF.
5. ALL TRANSISTORS MUST BE MATCHED, USE EITHER ALL RS-3858-1 OR ALL RS-3858-2 TYPES.

REAR VIEW OF COMPOSITE S1 & SW1 SWITCHES. IN SCHEMATIC, CIRCLED NOS. REFER TO POSITION & UNCIRCLED NOS. REFER TO SWITCH PINS.

BOTTOM VIEW



RIGHT POWER AMPLIFIER

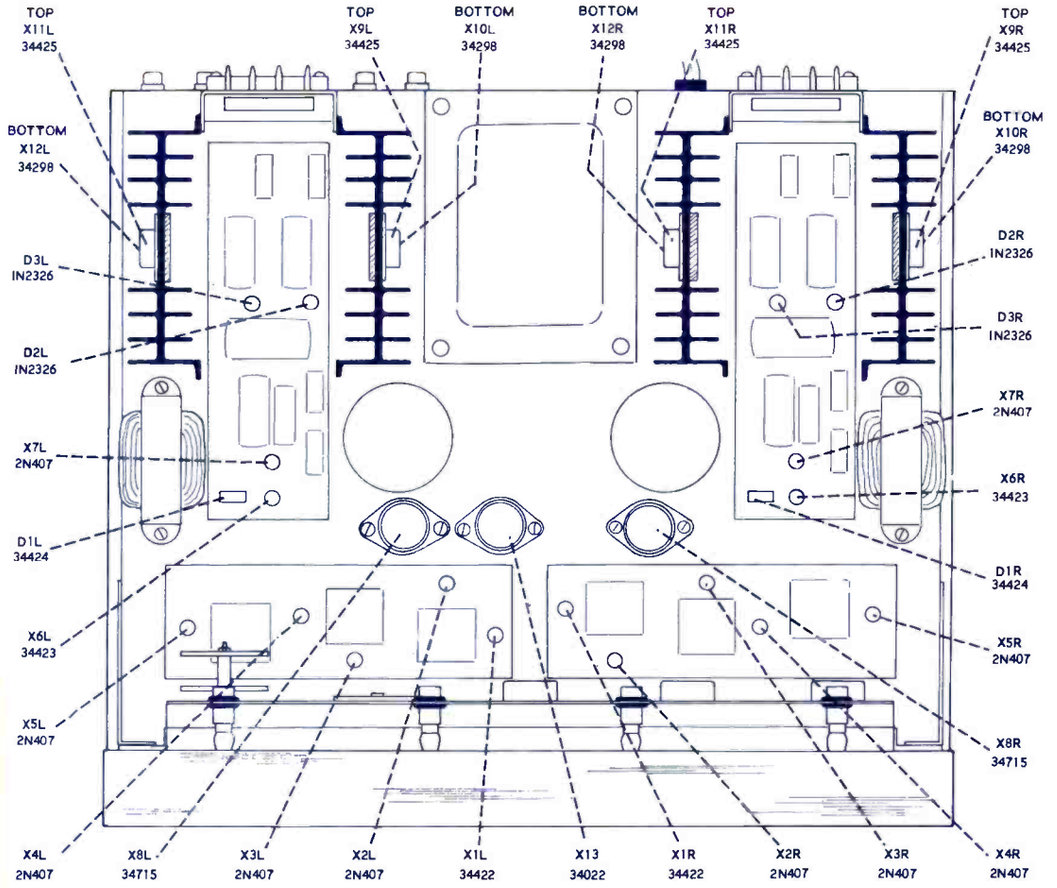


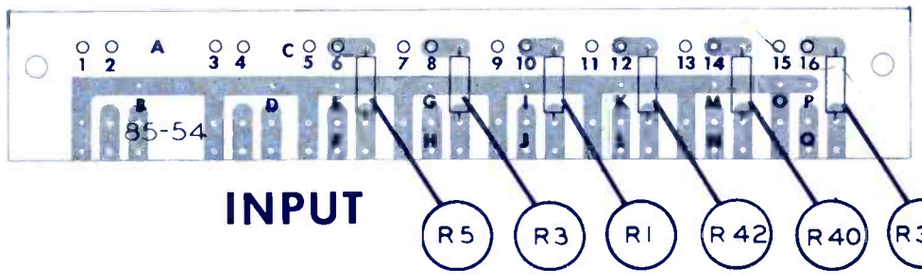
LEFT PREAMPLIFIER

RIGHT PREAMPLIFIER

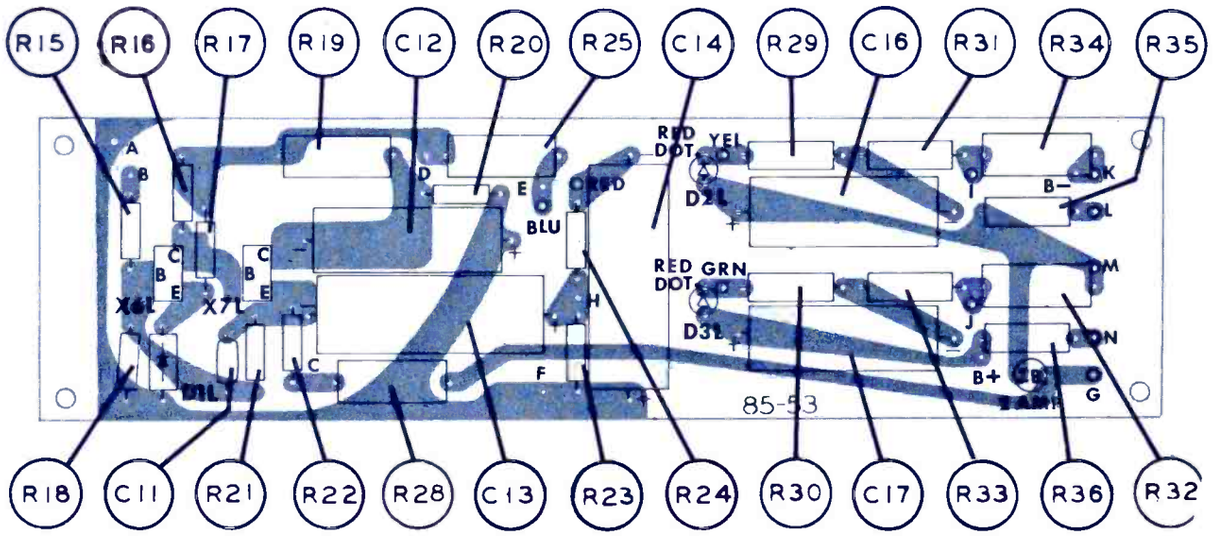
HEATHKIT
Stereo Amplifier
Model AA-21

ELECTRONIC TECHNICIAN
TEKFAX



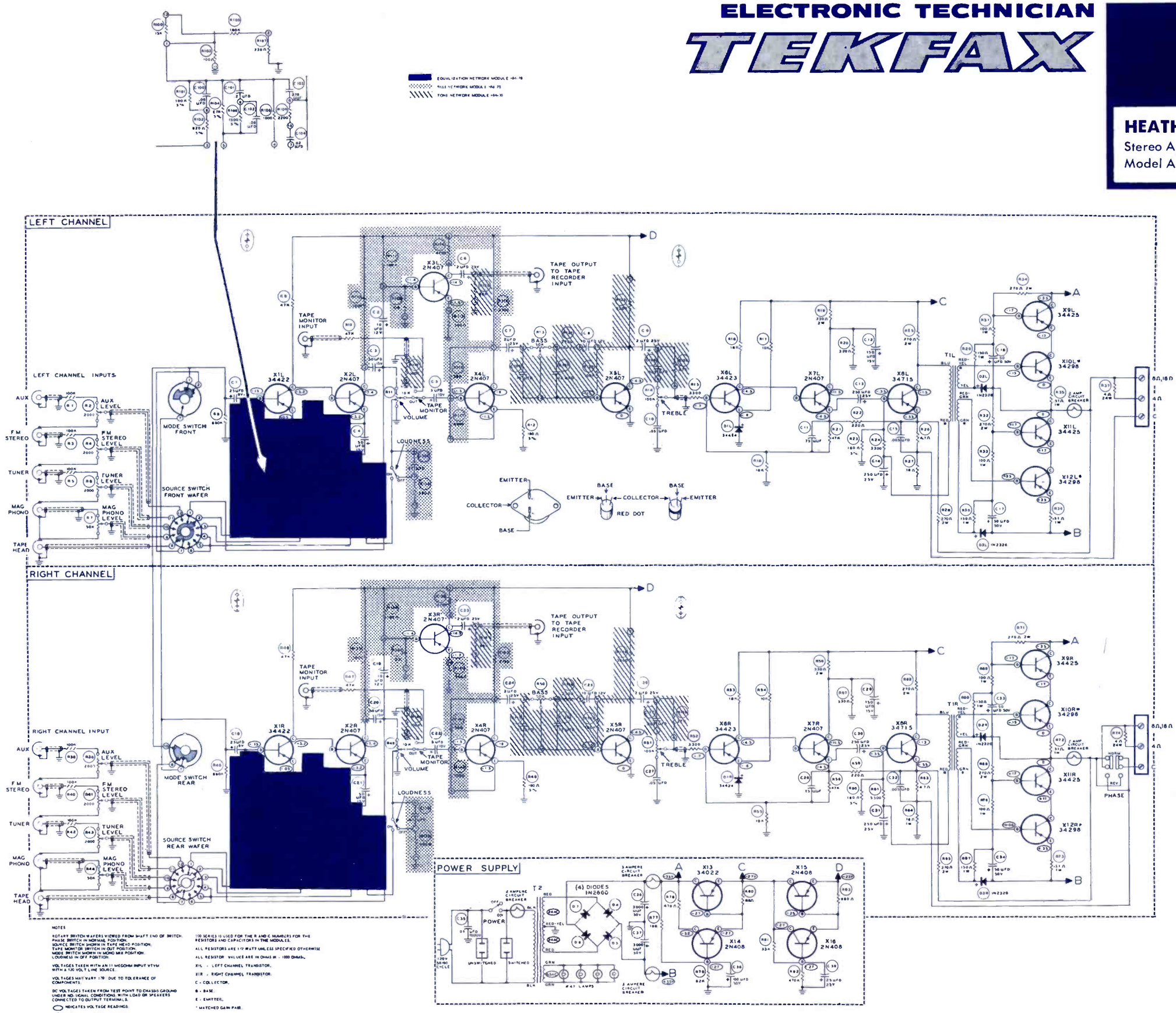


INPUT



LEFT POWER AMPLIFIER

HEATHKIT
Stereo Amplifier
Model AA-21



NOTES

ROTARY SWITCH WAFERS VIEWED FROM SHAFT END OF SWITCH.
PHASE SWITCH IN NORMAL POSITION.
SOURCE SWITCH SHOWN IN TAPE HEAD POSITION.
TAPE MONITOR SWITCH IN OUT POSITION.
MODE SWITCH SHOWN IN MONO MR POSITION.
LOUDNESS IN OFF POSITION.

VOLTAGES TAKEN WITH AN 11 MEGOHM INPUT VTVM WITH A 120 VOLT LINE SOURCE.

VOLTAGES MAY VARY ±10% DUE TO TOLERANCE OF COMPONENTS.

DC VOLTAGES TAKEN FROM TEST POINT TO CHASSIS GROUND UNDER NO SIGNAL CONDITIONS WITH LOAD OR SPEAKERS CONNECTED TO OUTPUT TERMINALS.

⬭ INDICATES VOLTAGE READINGS.
⏚ INDICATES CHASSIS GROUND.

100 SERIES IS USED FOR THE R AND C NUMBERS FOR THE RESISTORS AND CAPACITORS IN THE MODULES.

ALL RESISTORS ARE 1/2 WATT UNLESS SPECIFIED OTHERWISE

ALL RESISTOR VALUES ARE IN OHMS (R = 1000 OHMS).

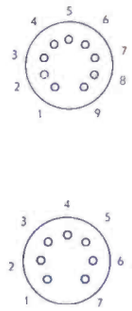
2L - LEFT CHANNEL TRANSISTOR.
2R - RIGHT CHANNEL TRANSISTOR.
C - COLLECTOR.
B - BASE.
E - EMITTER.
* MATCHED GAIN PAIR.

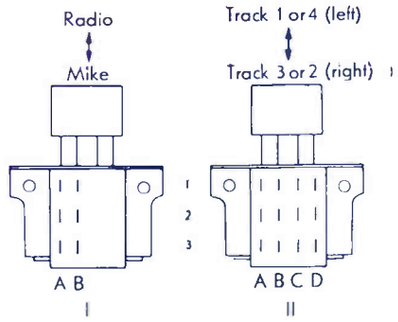
ELECTRONIC TECHNICIAN

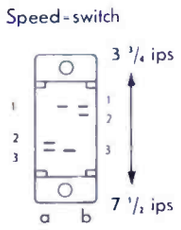
TEKFAX

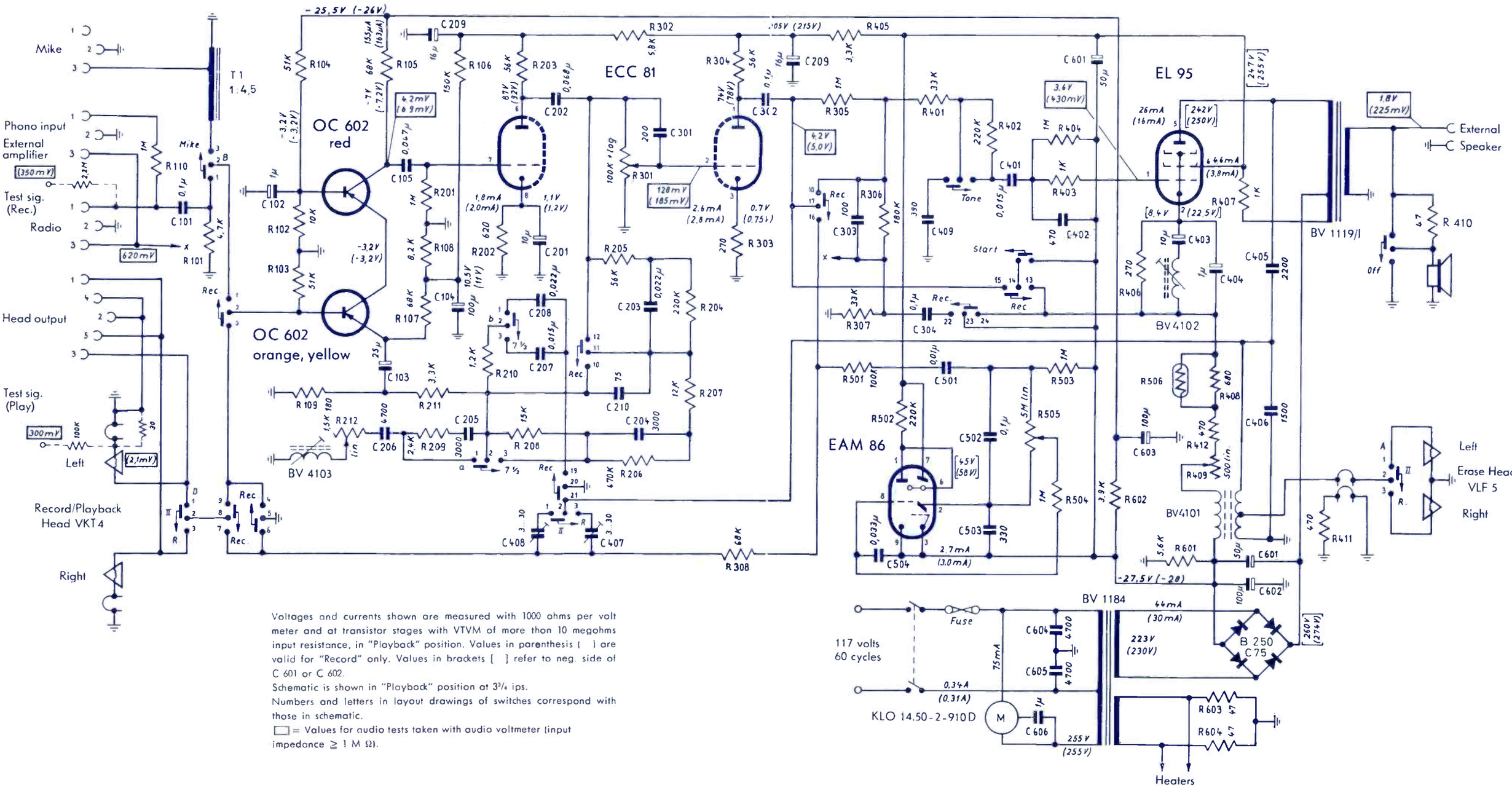
COMPLETE MANUFACTURER'S CIRCUIT DIAGRAMS
AND TECHNICAL INFORMATION FOR SEVEN NEW SETS

Korting
Tape Recorder
Models MT 2233,
2243





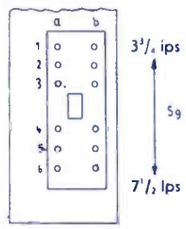


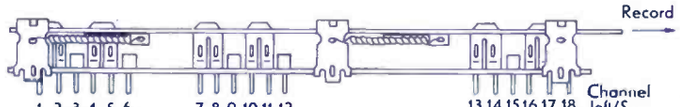


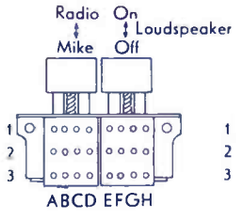
Voltages and currents shown are measured with 1000 ohms per volt meter and at transistor stages with VTVM of more than 10 megohms input resistance, in "Playback" position. Values in parenthesis ( ) are valid for "Record" only. Values in brackets [ ] refer to neg. side of C 601 or C 602.
Schematic is shown in "Playback" position at 3¾ ips.
Numbers and letters in layout drawings of switches correspond with those in schematic.
□ = Values for audio tests taken with audio voltmeter (input impedance ≥ 1 M Ω).

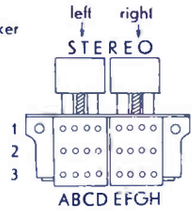
KORTING
Stereo Tape Recorder
Model MT 3643/3633

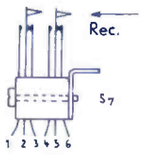
Speed-switch









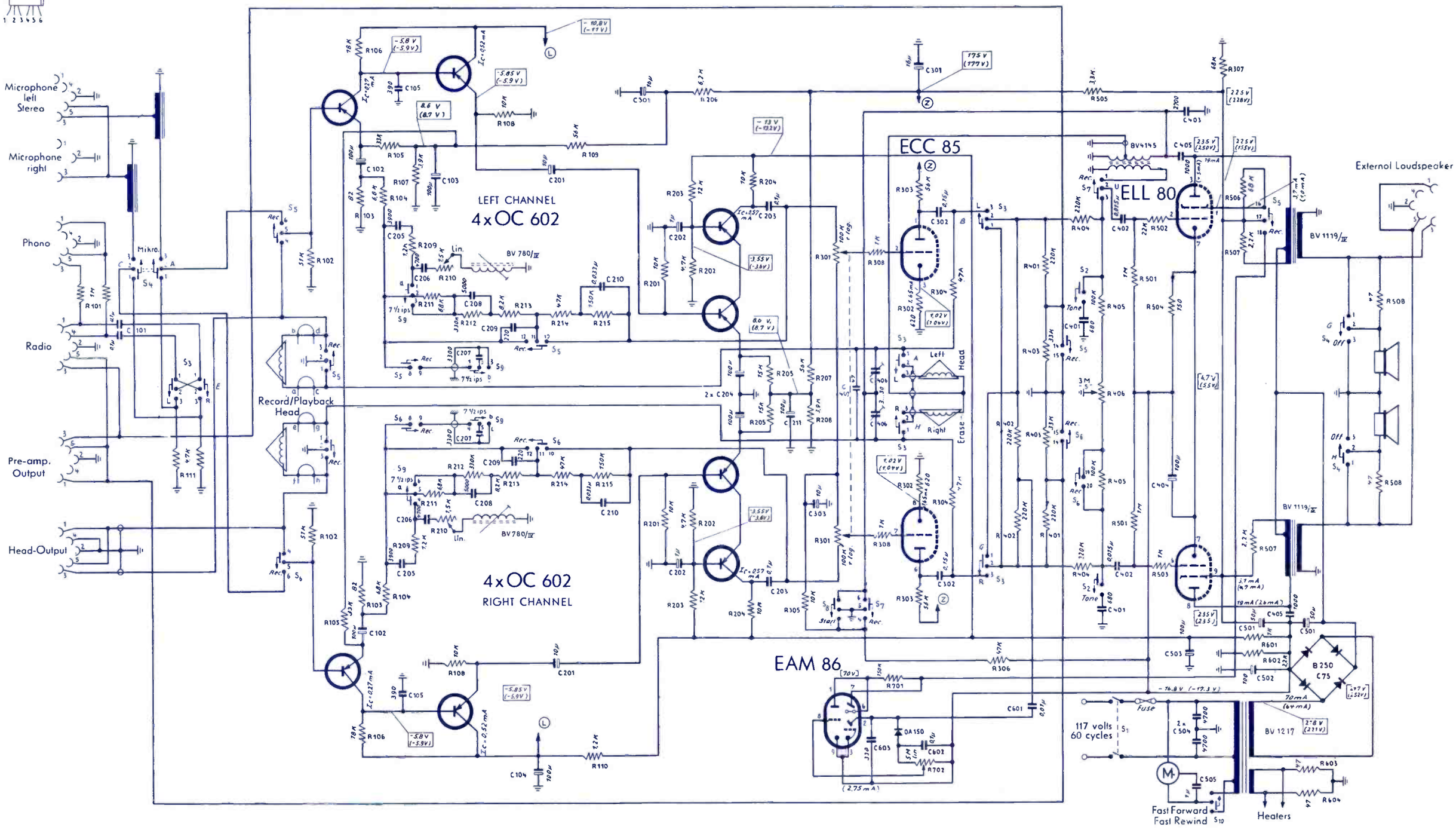


Tube sockets from below

top view of head plug

Voltages and currents shown are measured with 1000 ohms per volt meter and at transistor stages with VTVM at more than 10 megohms input resistance, in "Playback" position. Values in brackets ( ) are valid for "Record" only. Values in brackets | | refer to neg. side of C 501 or C 502.

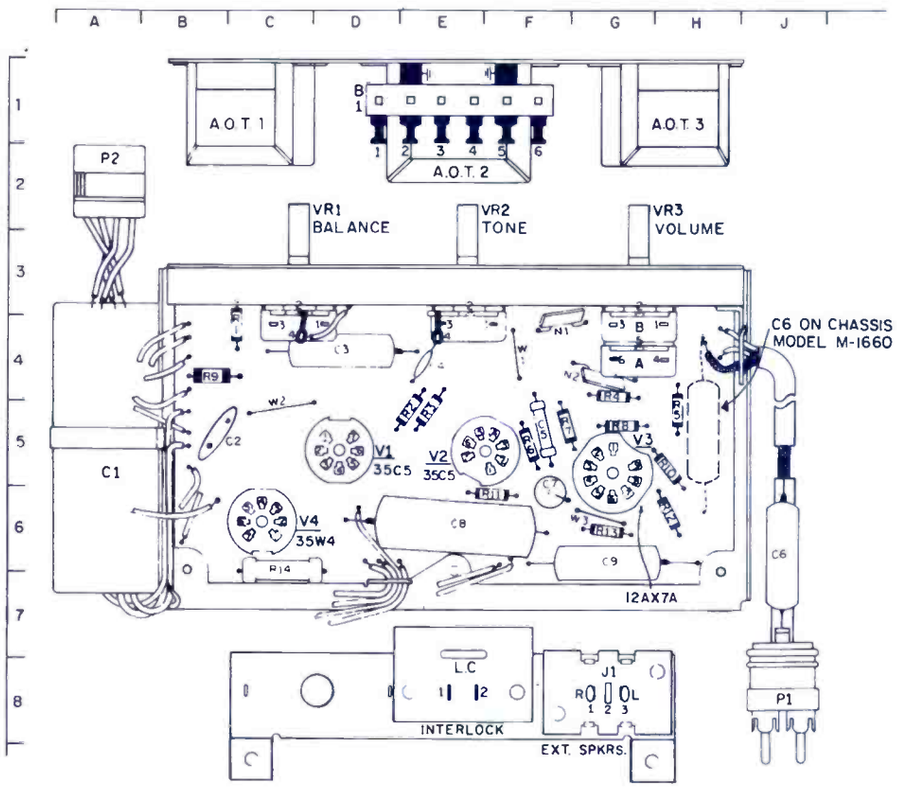
Schematic is shown in "Playback" position at 3¾ ips. Numbers and letters in layout drawings of switches correspond with those in schematic.

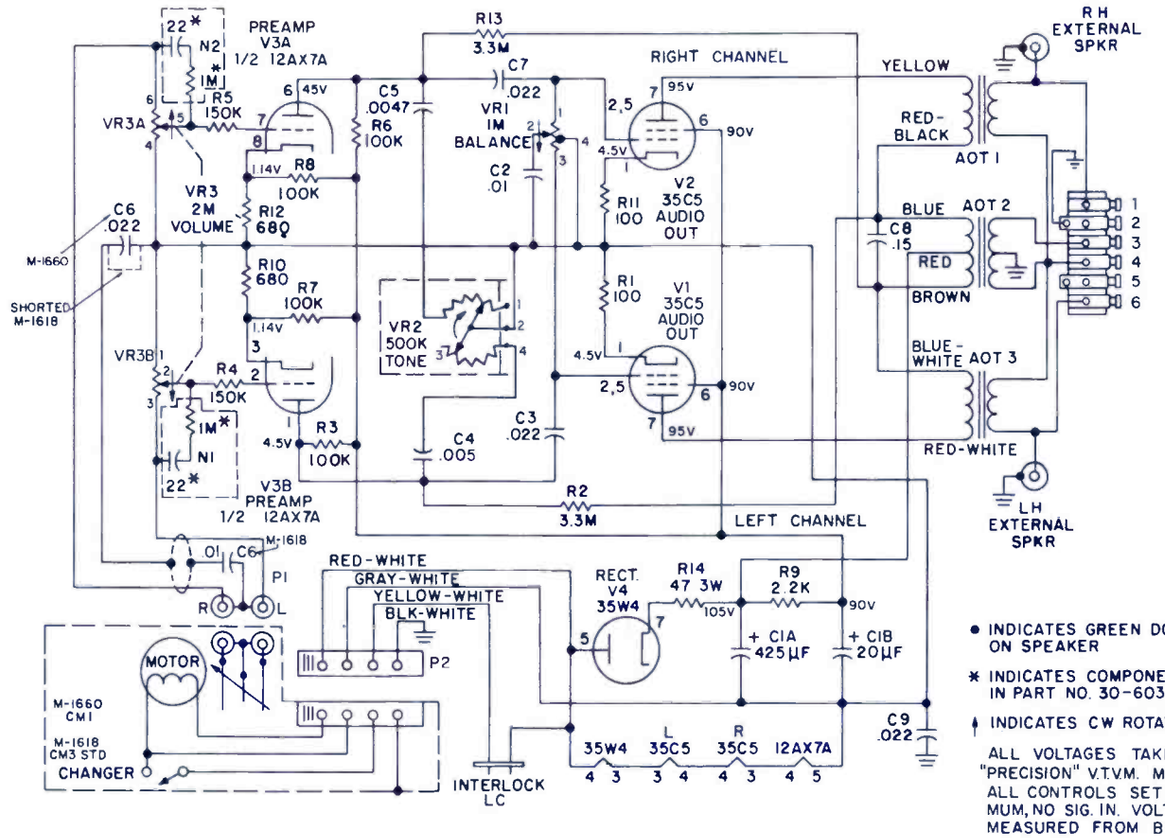


ELECTRONIC TECHNICIAN

TEKFAX

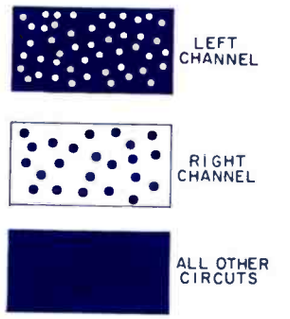
PHILCO
Stereo Phonograph
Models M-1618
and M-1660

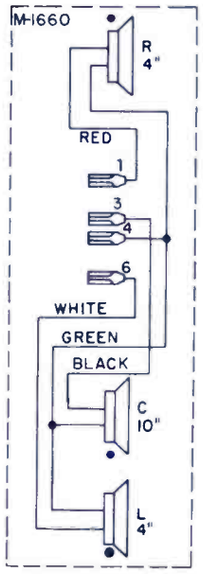


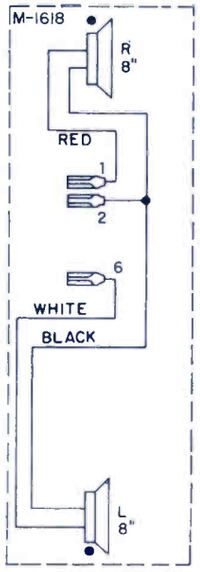


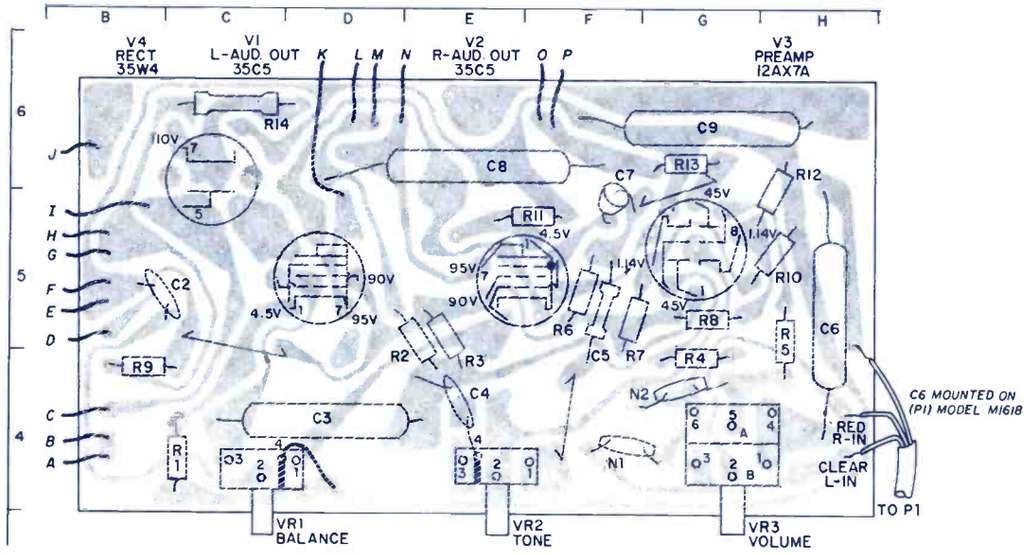
- ● INDICATES GREEN DOT ON SPEAKER
- * INDICATES COMPONENTS IN PART NO. 30-6039-8
- ↑ INDICATES CW ROTATION

ALL VOLTAGES TAKEN WITH "PRECISION" V.T.V.M. MODEL "88" ALL CONTROLS SET AT MINIMUM, NO SIG. IN. VOLTAGES MEASURED FROM B−.

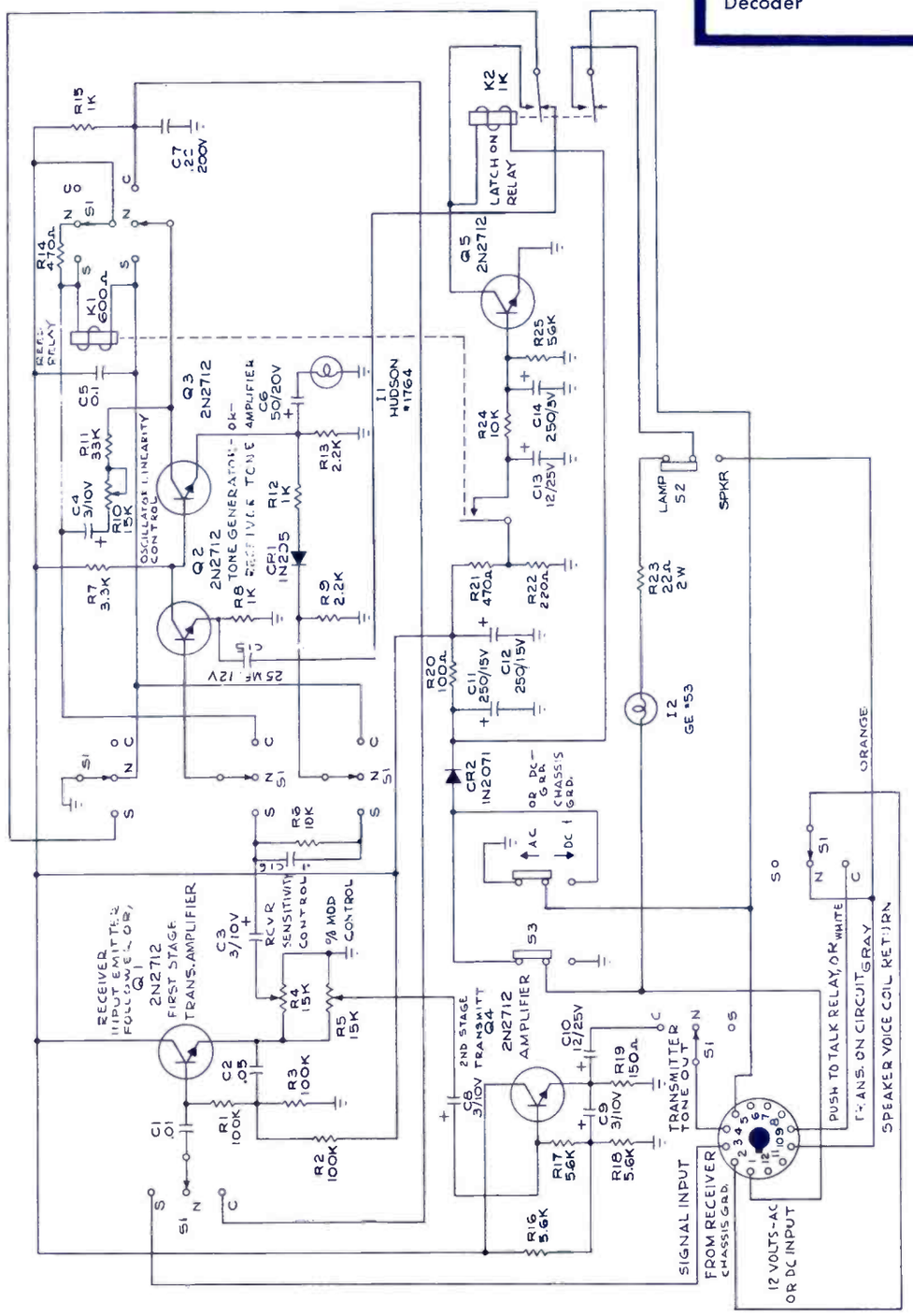






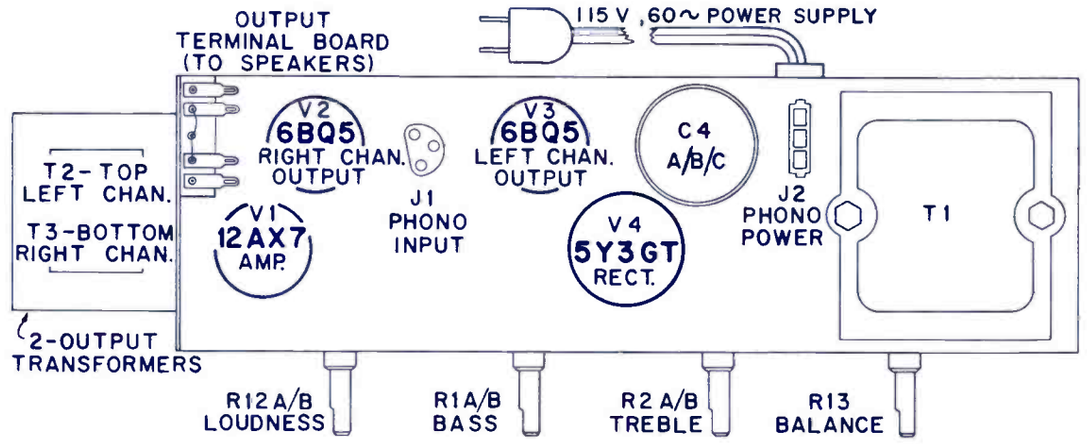


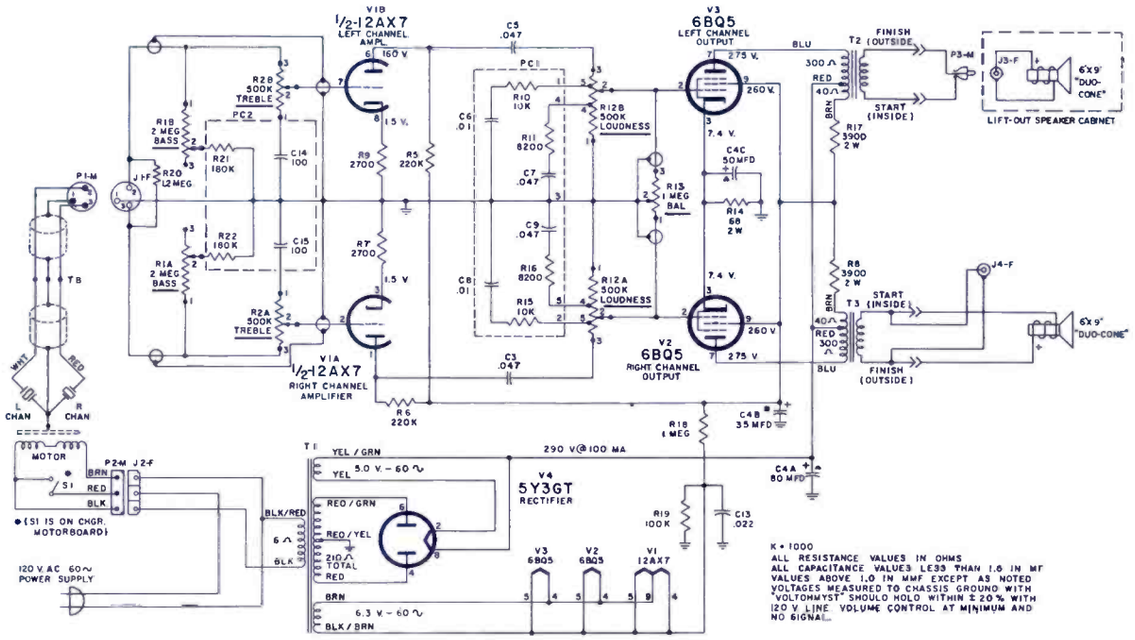
RAYTHEON
Two-way Encoder/
Decoder

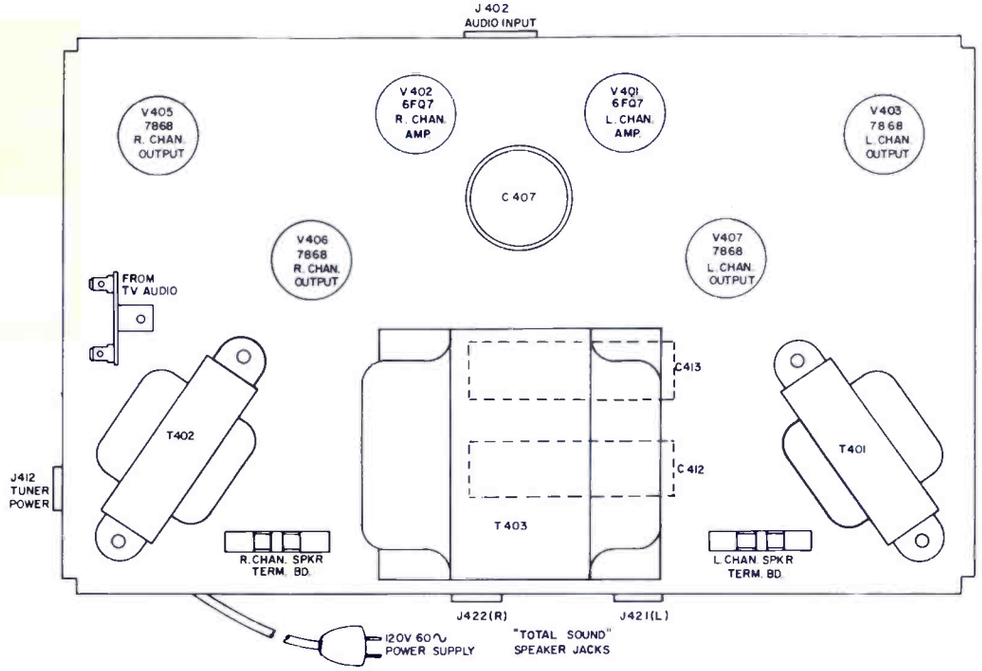


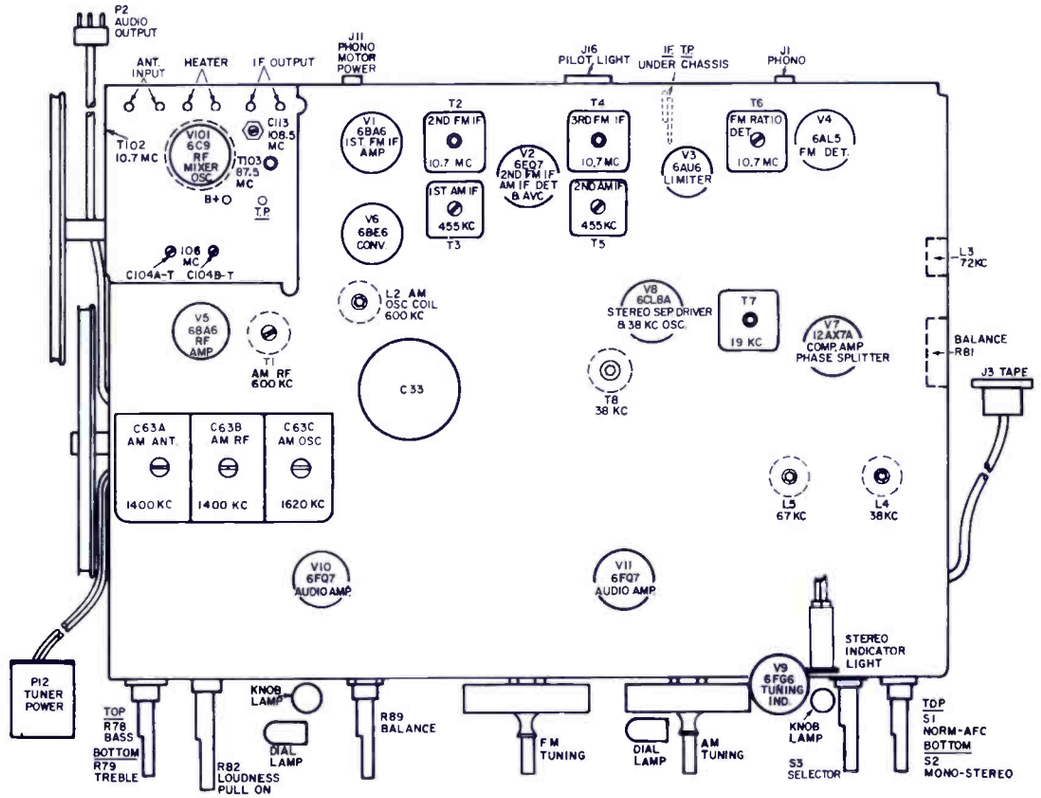
COMPLETE MANUFACTURERS' CIRCUIT DIAGRAMS
AND TECHNICAL INFORMATION FOR SEVEN NEW SETS

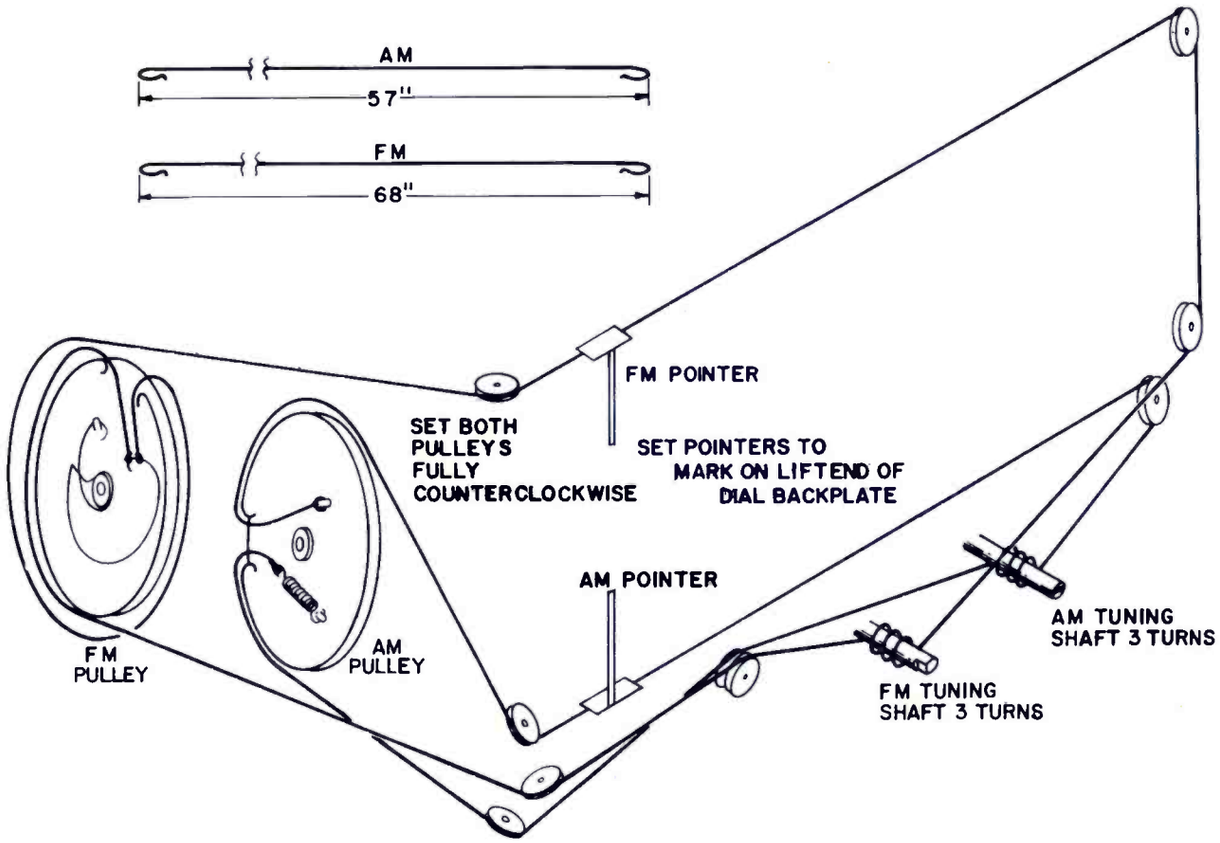
RCA
Record Player
RP-215-C1











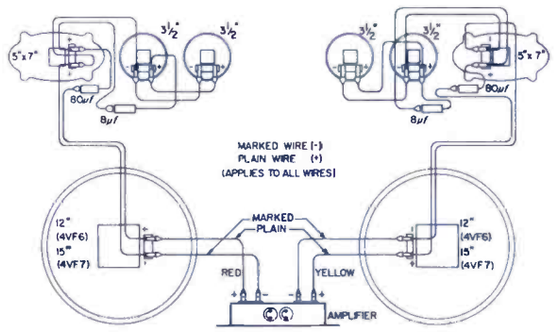
RCA
Stereo Hi Fi
Models 4VF606 &
4VF705

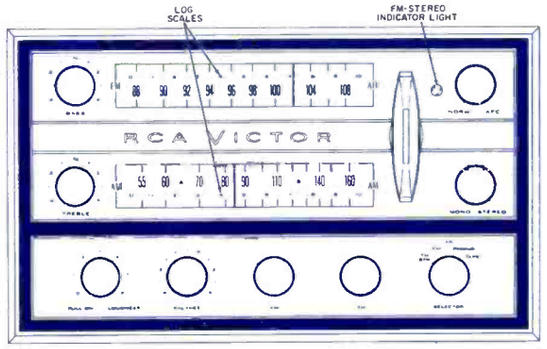
ELECTRONIC TECHNICIAN
TEKFAX

RESISTANCE VALUES ARE IN OHMS. K=1000
CAPACITANCE VALUES LESS THAN 1.0 ARE IN µf
VALUE 1.0 & ABOVE ARE IN µµf, EXCEPTIONS NOTED
VOLTAGES ARE WITH NO SIGNAL; THEY ARE MEASURED
TO CHASSIS GROUND WITH A "VOLTOHMYST" & SHOULD HOLD WITHIN ± 20% AT 120V POWER SOURCE.
FM READINGS ARE TAKEN IN FM-STR POSITION AM READING ARE TAKEN IN THE AM POSITION.

GENERAL ALIGNMENT CONDITIONS

1. Connect low side of signal source and output indicator to chassis ground unless otherwise specified. Ground connection should be kept close to high side connection.
2. Signal input should be kept as low as possible to avoid AVC action. (Set output indicator to highest sensitivity.)
3. Markers should be accurate (crystal controlled or checked against a crystal calibrator). The 10.7 mc marker used in each section of the FM alignment should be the same (generator dial should not be changed).
4. Marker insertion and amplitude should not distort the oscilloscope trace.
5. Standard Modulation is 400 sycles at 30% amplitude.
6. Volume or loudness control should be turned to maximum and tone controls to mid-position when they are between signal source and output indicator. AFC switch OFF.
7. Place dial Escutcheon on chassis.
8. Set function switch to band being aligned.





ELECTRONIC TECHNICIAN TEKFAX

RCA
Stereo Hi Fi
Models 4VF606 & 4VF705

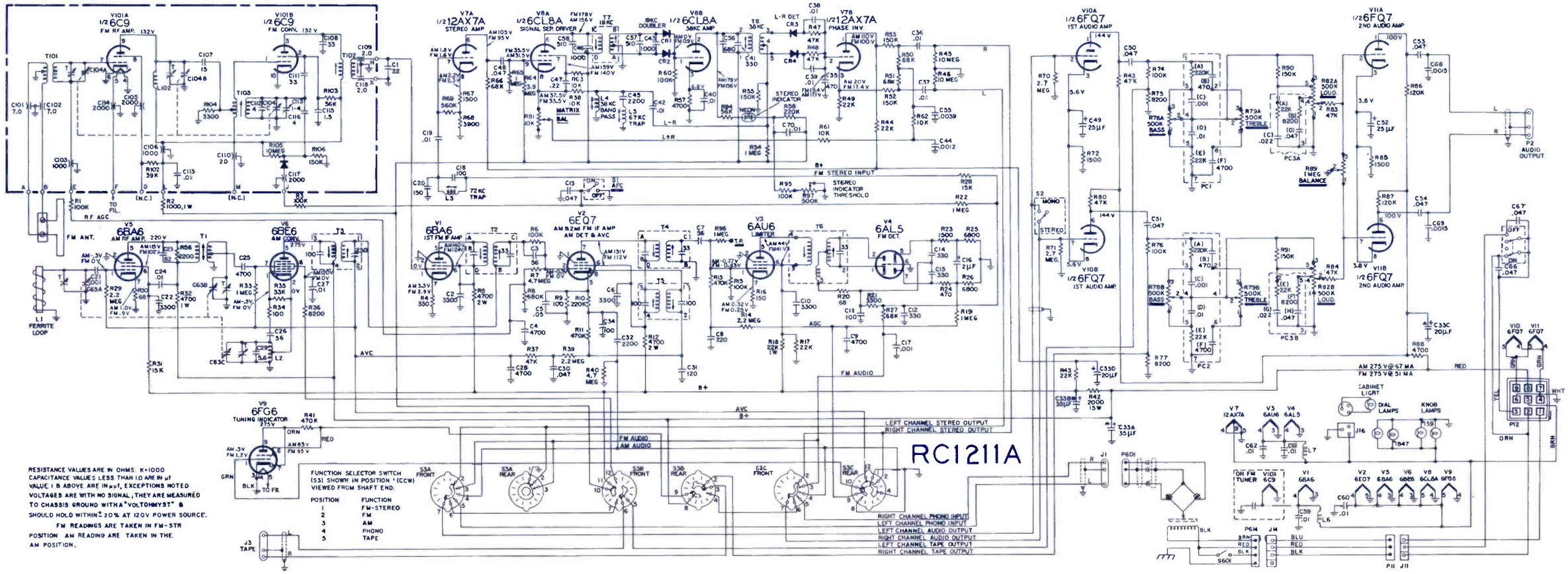
CRITICAL LEAD DRESS

RC-1211A

1. C66-C67 (.047 caps. across S4 switch contacts) must be dressed with bodies as far as possible away from and perpendicular to white wire on V11A pin 2.
2. R42, R12, R5 to be dressed up and away from chassis as far as possible for maximum circulation of air.
3. Wires from V11 pins 2 & 7 to terms. 3 & 1 of balance control R89, should be dressed to form an arc from the tube grids to the balance control for minimum distributed capacity.
4. All audio wires to and from function switch must be dressed down against chassis.
5. Green wire from top of matrix control to C47 must be dressed in an arc as far away from adjacent parts as possible.
6. Lead from AM gang C63C to AM oscillator coil L2 should be dressed close to chassis bottom surface.
7. R32 should be dressed away from oscillator coil L2 and other adjacent parts for best air circulation.
8. Keep all filament leads as flat against chassis as possible.
9. R96, 1 meg resistor from V3 pin 1 to test point, must be dressed vertical to chassis bottom.
10. Blue and yellow leads from tone controls to terminal board must be routed between terminal board and adjacent ground lance and toward apron away from V11.
11. Black wire from T4 term. D to T5 term. 3 must be routed away from T4 term. A and away from alignment hole of T4.
12. Blue wire from V2 pin 8 to T5 term. 1 must be dressed away from Black wire of item 11 and alignment hole of T5.
13. All resistors one watt and greater, should be dressed away from adjacent parts for best air circulation.
14. Black and red wires from J11 to S4 switch contacts shall be dressed away from PC3.

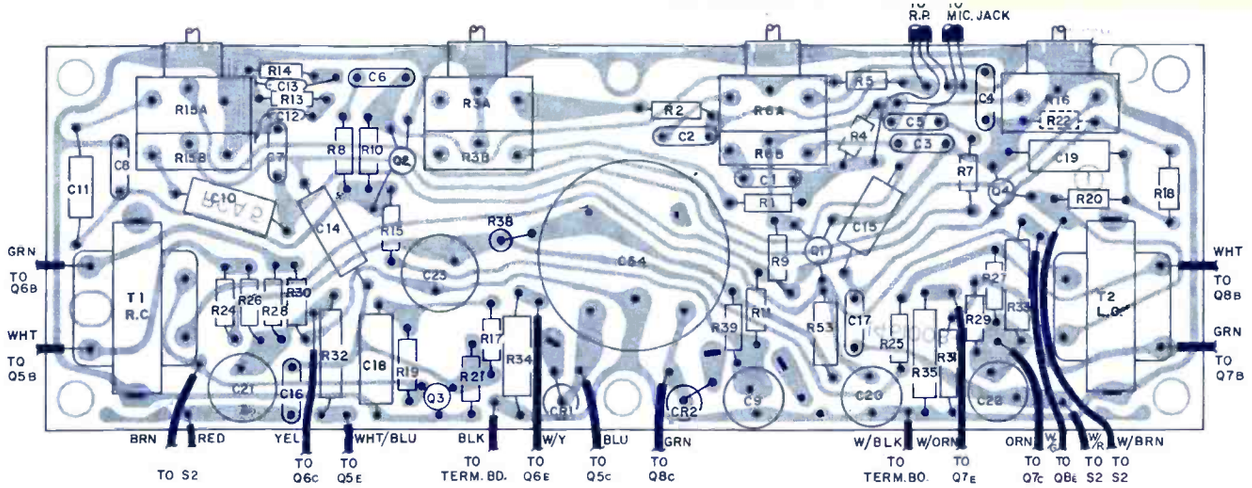
RS-204A

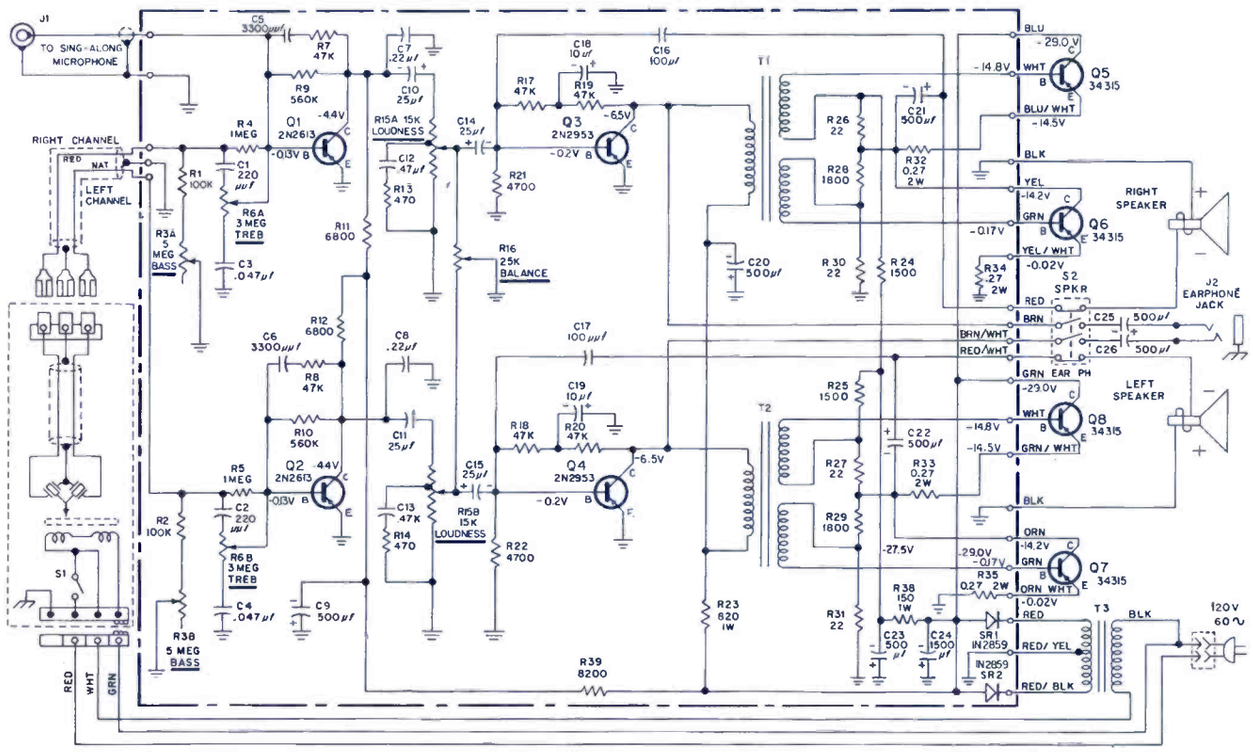
1. Dress all heater leads flat along bottom of chassis.
2. Dress R402 as far away from pins 4 and 5 of V404 as possible.
3. Dress all power resistors (R401 thru R406) away from all leads.
4. Dress C414 and C415 away from SR401 and SR402.

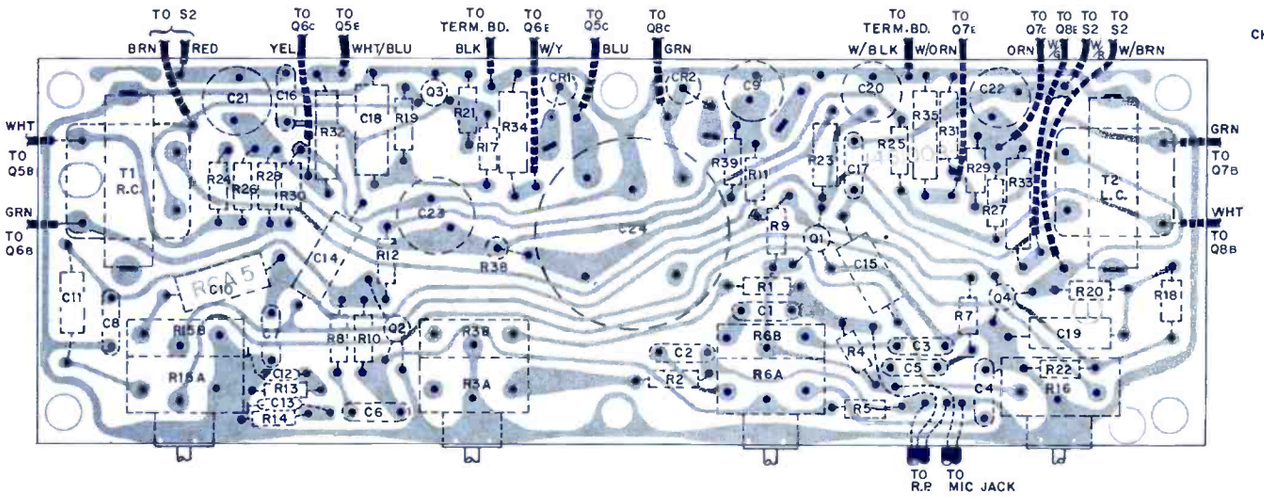


ELECTRONIC TECHNICIAN
TEKFAX

RCA
Portable Record Changer
Chassis RS-206-A







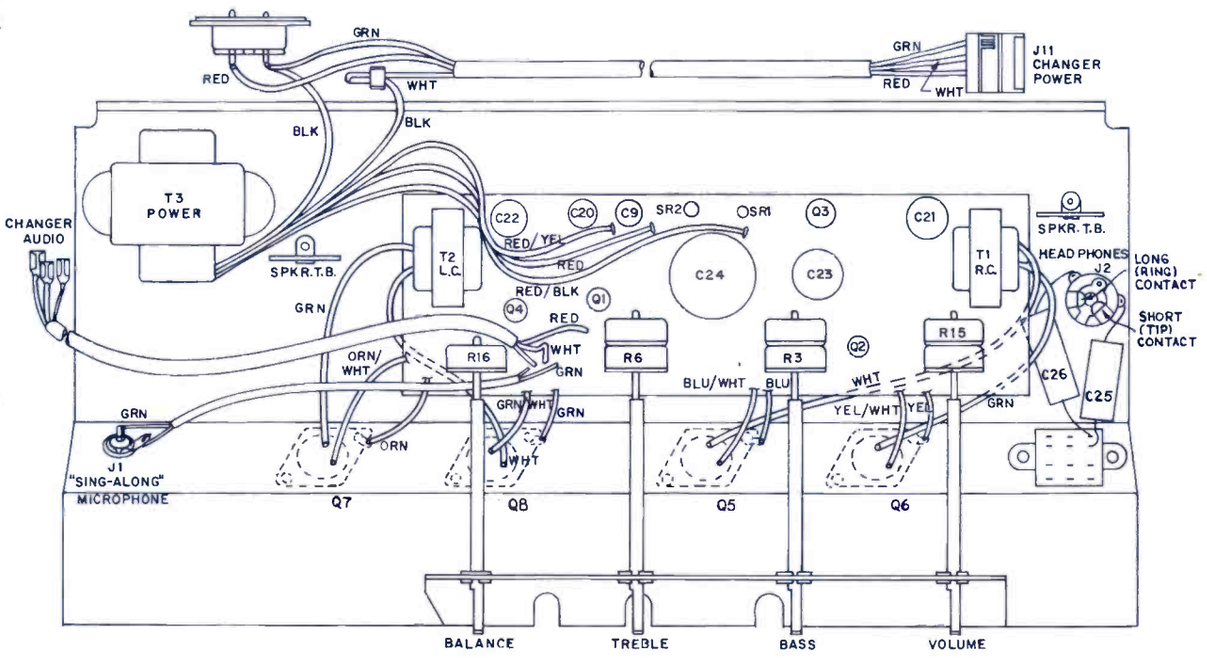
CHASSIS REMOVAL

The top of the record changer compartment comprises the complete chassis. It rests on and is secured to a ledge at the front and is held by screws at the rear. The recommended procedure for its removal is as follows:

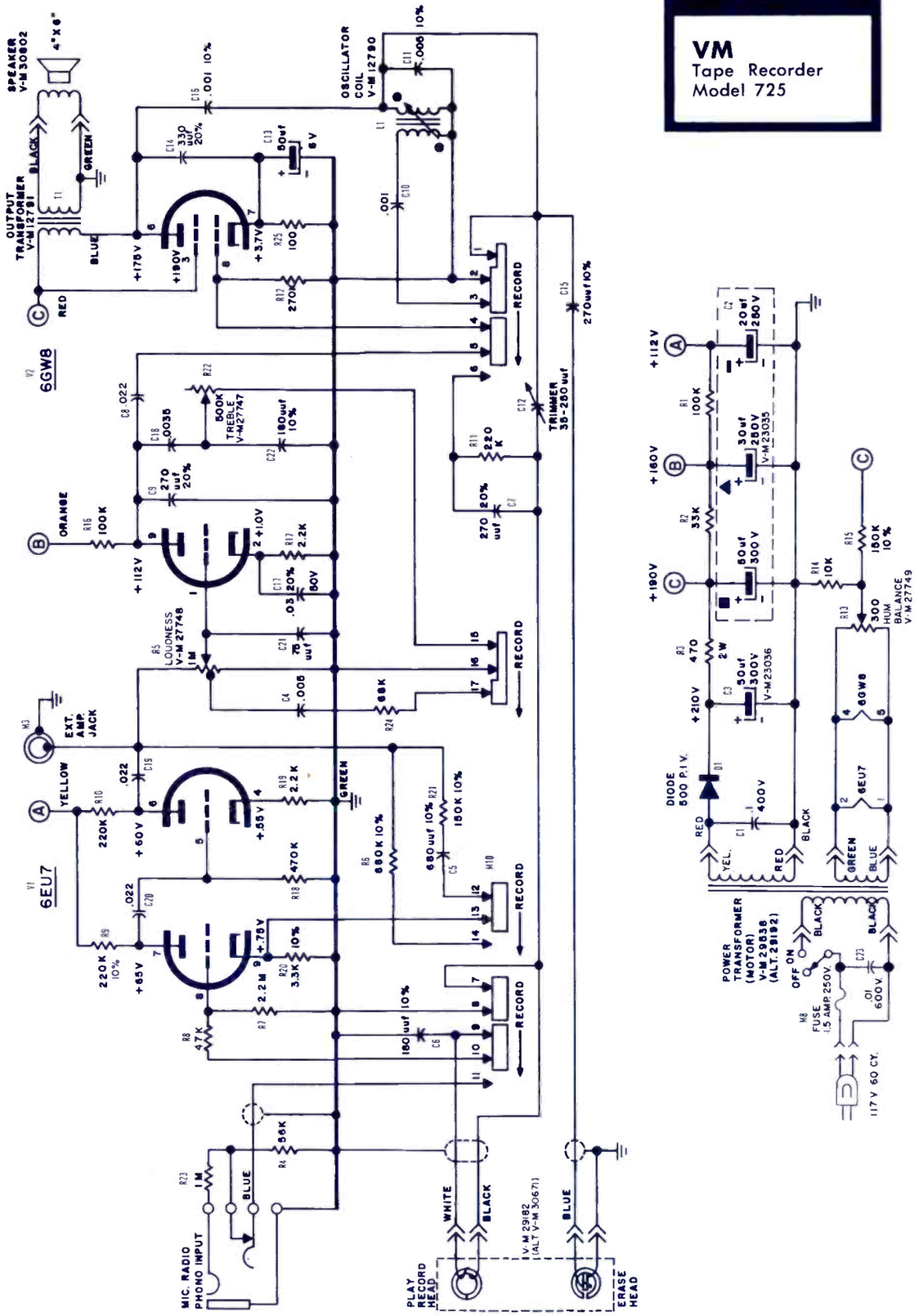
1. Remove knobs.
2. Open small access panel as described in "Access to Chassis."
3. Position two (2) holes in access panel over screws holding power cord interlock.
4. Remove two (2) *machine screws* holding interlock.
5. Pull record changer drawer down.

If it is not desired to remove chassis completely, omit Steps 6 and 7.

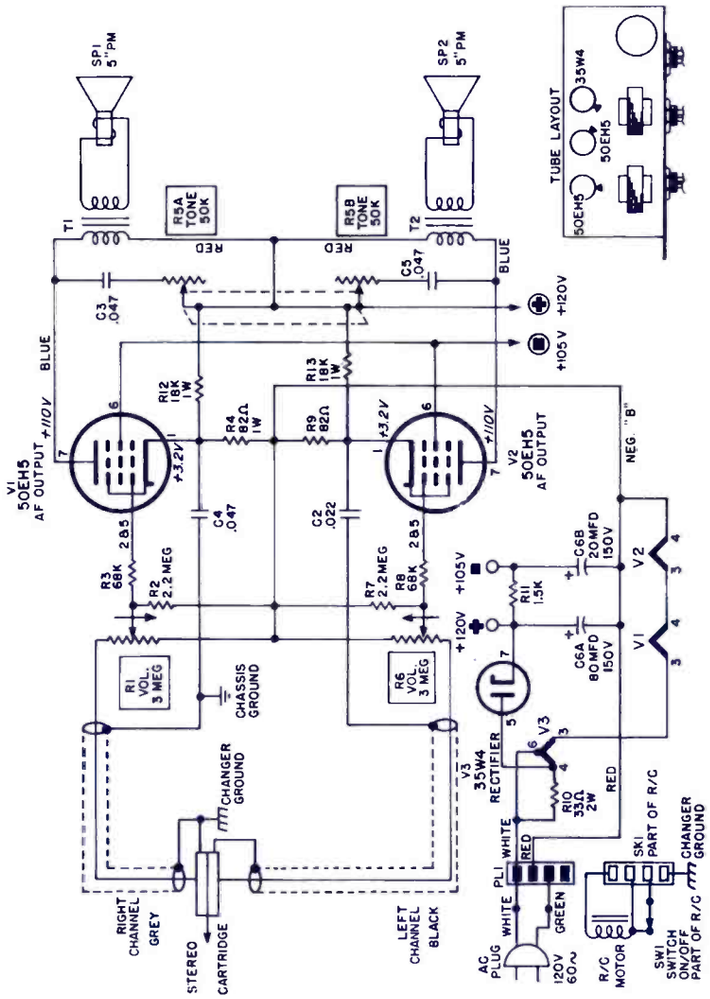
6. Unscrew two (2) bolts securing record changer in drawer. (Lift mat of turntable and reach bolts through access holes in turntable, one at front and one at rear.) DO NOT ATTEMPT TO REMOVE RECORD CHANGER DRAWER.
7. Lift up changer and disconnect cables.
8. Remove four (4) *plated screws* holding front of chassis to horizontal ledge located inside of compartment at front of top.
9. Remove wires, running down each back corner of compartment, from holding clips.
10. Remove four (4) *painted screws* holding rear of chassis to rear of instrument—just below the access panel. (Hold chassis —top of compartment—to prevent its falling.)
11. Chassis may then be lowered and removed.
12. Disconnect speaker cables from transformers and lift chassis out of case.

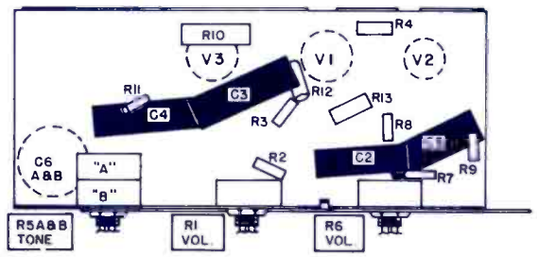


VM
Tape Recorder
Model 725



Sylvania
Stereo Hi Fi
Chassis 406-3
Model 45P36





TO REMOVE AND REPLACE THE TURNTABLE

To remove the turntable, slide off turntable clip and lift the turntable with equal pressure on opposite sides.

LUBRICATION

The motor, turntable and idler wheel bearings are of the oil-retaining type and rarely need lubricating. When the need for oil is apparent, remove the turntable and lubricate these bearings with a fine grade of machine oil. Carefully remove all traces of surplus oil--especially from the motor pulley, idler wheel tire and inside of turntable rim.

TONE ARM HEIGHT

The tone arm height is adjusted by turning screw (4) located at the rear of the tone arm. The height should be adjusted so that the stylus point is 27/32" above the turntable mat surface at the outside edge position of a 7" record as the tone arm returns to its rest.

RECORD SPINDLE ASSEMBLY

Place the record spindle in position and rotate it until location is felt, then press firmly downwards to secure in turntable clip.

STYLUS SET-DOWN POSITION

To adjust the stylus set-down position lift the tone arm to gain access to stylus set-down adjustment screw (16). To move the tone arm away from the center of the record, turn screw (16) counterclockwise; to move the tone arm toward the center of the record, turn screw (16) clockwise.

STYLUS PRESSURE

The stylus pressure should be 5 grams ± 1 gram. It is recommended that a periodical check be made to see that the correct pressure is maintained. To adjust the stylus pressure, turn adjusting nut (9) clockwise to decrease and counterclockwise to increase stylus pressure.

MOTOR PULLEY AND IDLER WHEEL HEIGHT

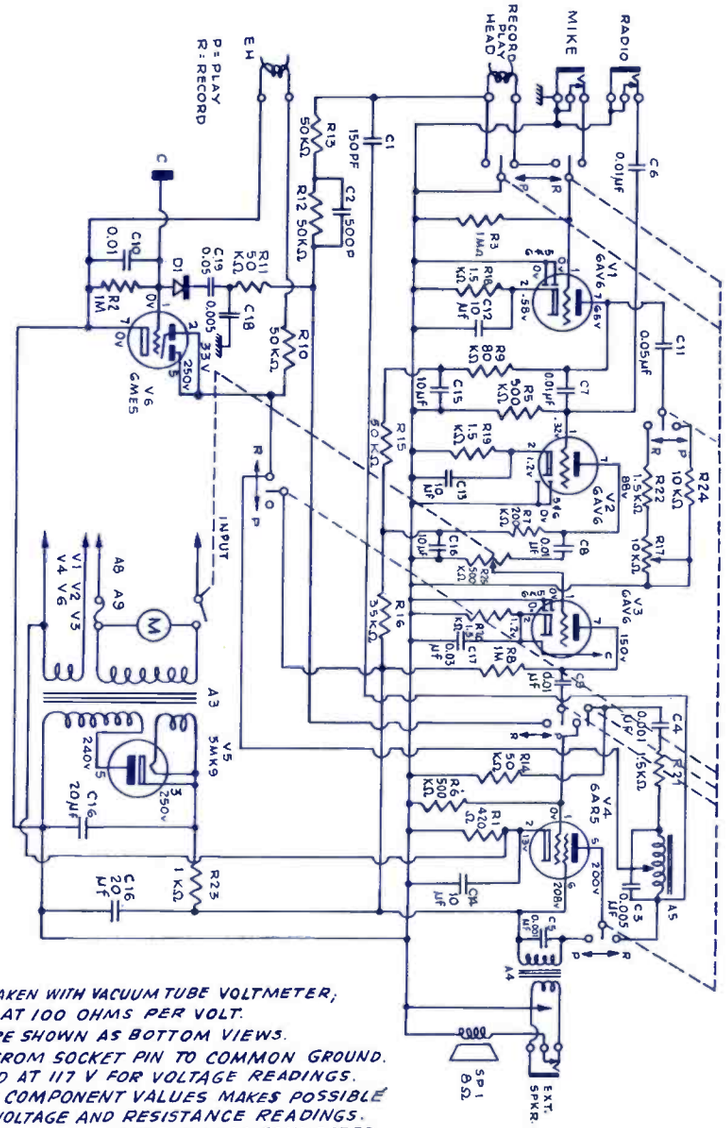
The relative height of the motor pulley and idler wheel (32) must be such that, when they are in contact on either the 16, 33 or 45 rpm steps, the lower face of idler wheel (32) is about 1/64" clear of the adjacent pulley step.

WESTERN AUTO
Tape Recorder
Stock No.
4DC7260A

BIAS VOLTAGE 72 V.A.C.
Measured in Record Position

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7
V1	6A V6	380	1.8K	450	450	0	0	∞
V2	6A V6	500K	1.5K	450	450	0	0	0
V3	6A V6	8	1.6K	450	450	1MEG	1MEG	∞
V4	6A R5	500K	450	450	450	∞	∞	∞
V5	5M K9	∞	∞	∞	∞	500	∞	∞
V6	6M E5	1MEG	∞	500	500	∞	∞	0

RESISTANCE IN OHMS UNLESS OTHERWISE INDICATED. ALL MEASUREMENTS MADE IN "PLAY" POSITION.



1. DC VOLTAGE MEASUREMENTS TAKEN WITH VACUUM TUBE VOLTMETER; AC VOLTAGES MEASURED AT 100 OHMS PER VOLT.
2. SOCKET CONNECTIONS ARE SHOWN AS BOTTOM VIEWS.
3. MEASURED VALUES ARE FROM SOCKET PIN TO COMMON GROUND.
4. LINE VOLTAGE MAINTAINED AT 117 V FOR VOLTAGE READINGS.
5. NOMINAL TOLERANCE OF COMPONENT VALUES MAKES POSSIBLE A VARIATION OF ± 15% IN VOLTAGE AND RESISTANCE READINGS.
6. ALL CONTROLS AT MINIMUM, PROPER OUTPUT LOAD CONNECTED, NO SIGNAL APPLIED.

ELECTRICAL TROUBLE CHART

SYMPTON	POSSIBLE CAUSE	REMEDY
Eye Tube does not indicate Record/Playback level.	Defective tube. (V-6).	Replace.
	Cold solder connection at slide switch.	Reheat solder connection.
	Defective Diode. (D-1).	Replace.
No output from Internal Speaker-Extension Speaker normal.	Extension Speaker Jack open at all times.	Check breaker contact to make sure contact is being made when no plug is inserted in jack. Replace if necessary.
Distortion. (Not contributed to Wow.)	Defective 6AV6. (V-1)	Test and replace if necessary.
	Defective 6AR5.	Test and replace if necessary.
	Defective Oscillator.	Check for proper voltage.
	Defective Play/Record Head.	Check signal at Head using signal tracer. Replace if necessary.
	Play/Record Head dirty.	Clean with alcohol.
	Play/Record Head magnatized.	Demagmatize with Head Demagnatizer.
Low Output.	Defective Microphone.	Check microphone and replace if necessary.
	Insufficient Bias.	Check output of oscillator coil.
	Pressure pads not making Sufficient contact.	Check felt pads, replace if worn. If insufficient tension, bend arm slightly until proper contact is obtained.
Loss of High Frequency	Mid-alignment of Head.	See "Adjustments".
No Erase.	Defective Erase Head.	Check with ohmmeter.
	Defective Slide Switch.	Check with ohmmeter.
	No B-plus Voltage.	Check all tubes, replace any found defective.
	Open 50K Resistor (R-10).	Check with ohmmeter.
Excessive hiss on Record and Playback.	Noisy 6AV6.	Substitute and check for noise.
	Magnatized Play/Record Head.	Demagnatize with Head Demagnatizer.
Playback but will not Record.	Defective Oscillator.	Test and replace if necessary.
	Defective Slide Switch.	Check circuit with ohmmeter.
Tubes will not light.	Defective interlock.	Check for proper contact.
	Defective fuse (A-9).	Check and replace if necessary.
	Defective Switch (R-25).	Check and replace if necessary.
No Playback or Record – No B-Plus.	Defective 5MK9.	Test and replace if necessary.
Loud Hum with volumn at minimum.	Defective filter capacitor.	Check and replace if necessary.

MECHANICAL TROUBLE CHART

SYMPTON	POSSIBLE CAUSE	REMEDY
Function Control does not lock.	Set screw loose.	Tighten locking nut (M-42).
Tape spillage when Stop Button is depressed.	Brake lining worn.	Replace (See Adjustments).
Take-up Reel does not revolve in forward drive position.	Broken spring (M-111).	Replace
	Motor loose on shaft.	Reposition and tighten mounting screw (M-50). (See Fig. 4).
	Capstan Drive Idler loose.	Check position and tighten set screws.
	Take-up belt broken (M-24).	Replace
Supply Reel does not revolve in Rewind position.	Defective Rewind Belt (M-25).	Replace.
Record Safety Lock inoperative.	Broken selector shaft Spring (M-83).	Replace.