

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove ten screws holding cabinet back and remove back. Disconnect speaker and antenna connectors. Remove two screws holding S.C. assembly to cabinet bottom and remove assembly from cabinet. Disconnect HV anode, CRT socket, deflection yoke connectors, degaussing coil connector and ground leads. Remove four screws holding tuning selector panel to cabinet front and remove assembly from cabinet. Remove one screw holding secondary control assembly to cabinet front and remove assembly

from cabinet. Remove one screw holding main board assembly to cabinet bottom and slide assembly out of cabinet.

CRT REMOVAL

Follow "Chassis Removal" procedure and lay set facedown on a soft protective surface. Loosen and remove CRT neck assemblies. Remove four screws holding CRT to cabinet front and lift CRT out of cabinet. Do not lift CRT by the neck.

SERVICING IN THE FIELD

CRT IMPLSION PROTECTION AND CLEANING

Implosion protection is an integral part of the picture tube, cleaning accomplished without CRT removal.

FUSE DEVICES

A 5-amp fuse is used for AC line protection. (See photo, Cabinet - Rear View.)

VHF/UHF TUNER

See Miscellaneous Adjustments.

CHANNEL TUNING

Ten numbered buttons are provided for two digit entry channel selection. Ten numbered buttons (on remote) are provided for two digit entry channel selection with channel Up and Down buttons provided for channel scanning. Add and Erase buttons are added for channel pretuning.

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the Horizontal Osc.

WIDTH

The width may be varied by adjusting the width control.

FOCUS

The focus may be varied by a focus control. (See photo, Cabinet - Rear View.)

AGC

The AGC may be varied by an AGC control. (See photo, Cabinet - Rear View.)

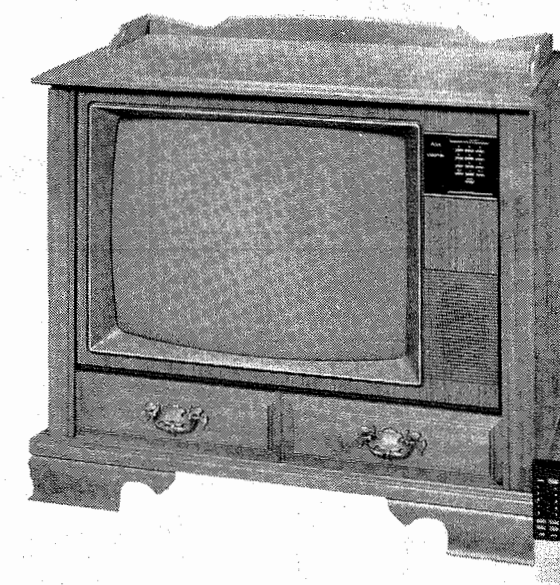
SET 2572 FOLDER 2

SAMS

PHOTOFACT

RCA MODELS FR520WR/25ER/26SR/30TR/35WR/36SR/40SR/50ER, GLR841TR/45FR/45HR/49PR(CH.CTC120DSUB1)

For Supplier Address See PHOTOFACT Index



Representative Model Using Chassis CTC120D SUB 1

SAFETY PRECAUTIONS

See Page 3

INDEX

SERVICE INFORMATION

See Page 1

	Page		Page
Alignment		Photos (Continued)	
TV	1	Pin Board	6
Convergence Adjustment	4	Remote Control Preamp MCY005A	7
Disassembly Instructions	1	Remote Control Transmitter CRK40A	4
GridTrace Location Guide		Tuner Control MTT001A	7
IF Splitter	4	Video/Audio	6
Main Board	5	Quick-Checks Troubleshooting	
On Screen Display MSD002A/B	7	CRT Module	6
Pin Board	6	Main Board	6
Remote Control Preamp MCY005A	7	Safety Precaution	3
Remote Control Transmitter CRK40A	4	Schematics	
Tuner Control MTT001A	7	Notes & Termini Guides	2
Video/Audio PW5200	6	On Screen Display MSD002A/B	7
IC Functions	2	Remote Control Preamp MCY005A	4
Miscellaneous Adjustments	4	Remote Control Transmitter CRK40A	4
Parts List	7,8,9,10	Tuner Control MTT001A	3
Photos		TV	2
Bias Board	4	Video/Audio	4
Cabinet-Rear View	1	Service Information	1
CRT Module	6	Servicing in the Field	1
CRT Neck Assembly	4	Test Equipment	1
IF Splitter	4	Test Jig Hookup	1
Main Board	5,6	Troubleshooting	1
Main Board-Shield Location	5	Troubleshooting Aid	1
On Screen Display MSD002A/B	7		

SAMS

Howard W. Sams & Co.

4300 West 62nd Street, P.O. Box 7092, Indianapolis, Indiana 46206 U.S.A.

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co. as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co. by the manufacturers of the particular type of replacement part listed.

Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein.

© 1988 Howard W. Sams & Co.

4300 West 62nd Street, P.O. Box 7092, Indianapolis, Indiana 46206 U.S.A. 87PD01481 Printed in U.S. of America

DATE 5-88

SET 2572 FOLDER 2

RCA MODELS FR520WR/25ER/26SR/30TR/35WR/36SR/40SR/50ER, GLR841TR/45FR/45HR/49PR(CH.CTC120DSUB1)

SET 2572 FOLDER 2

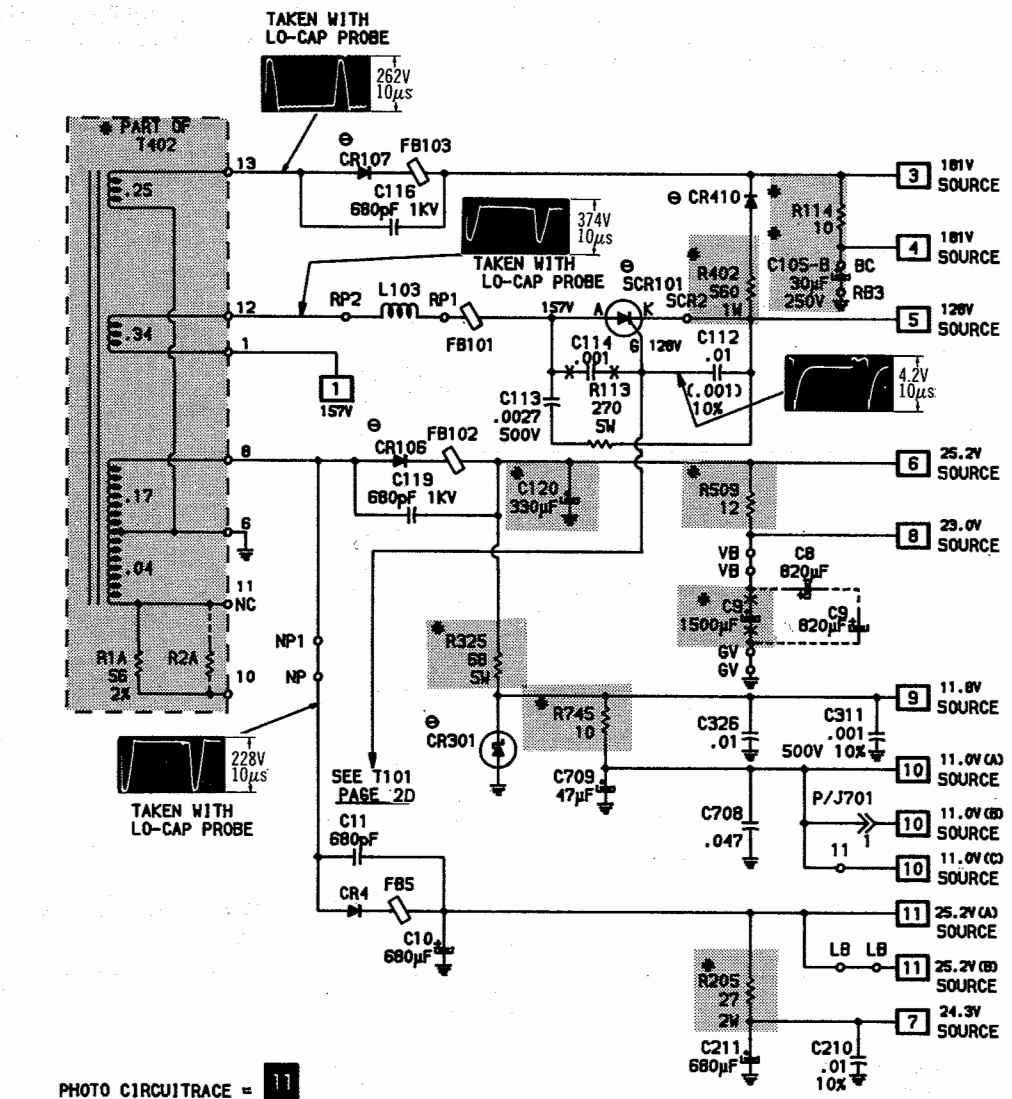
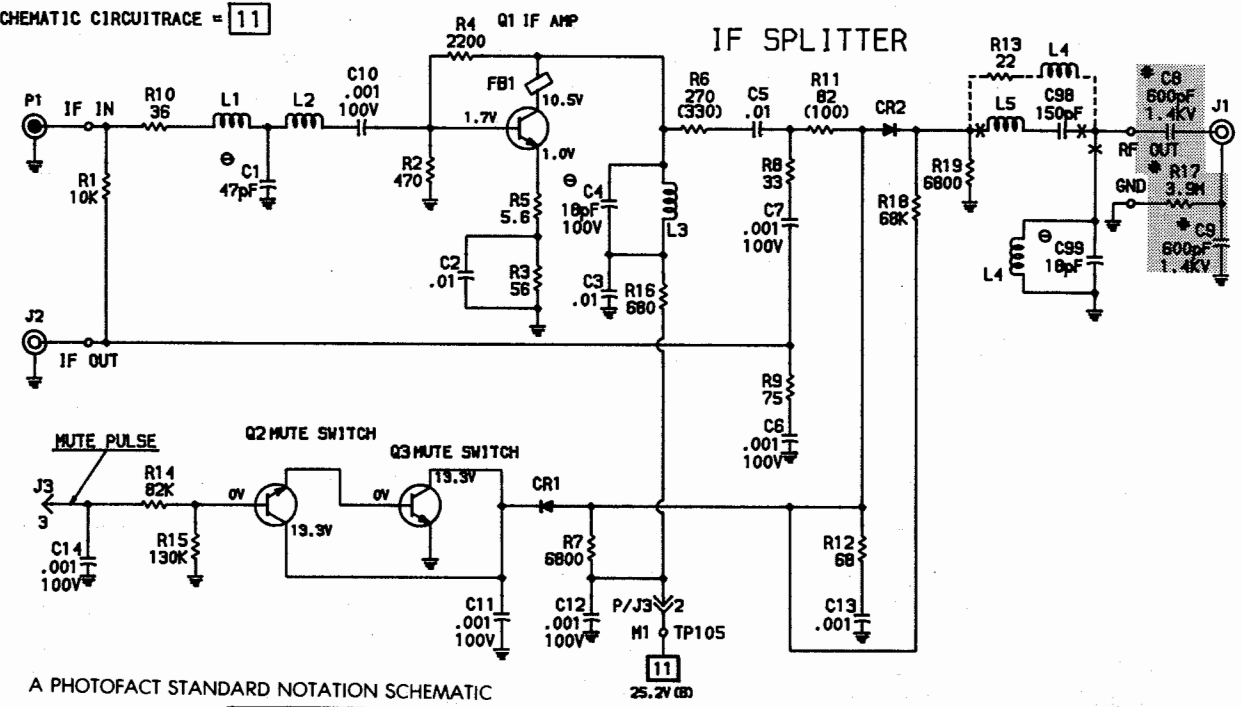


PHOTO CIRCUITRACE = 11
SCHEMATIC CIRCUITRACE = 11



A PHOTOFAC STANDARD NOTATION SCHEMATIC
WITH CIRCUITRACE

© Howard W. Sams & Co., Inc. 1988

G

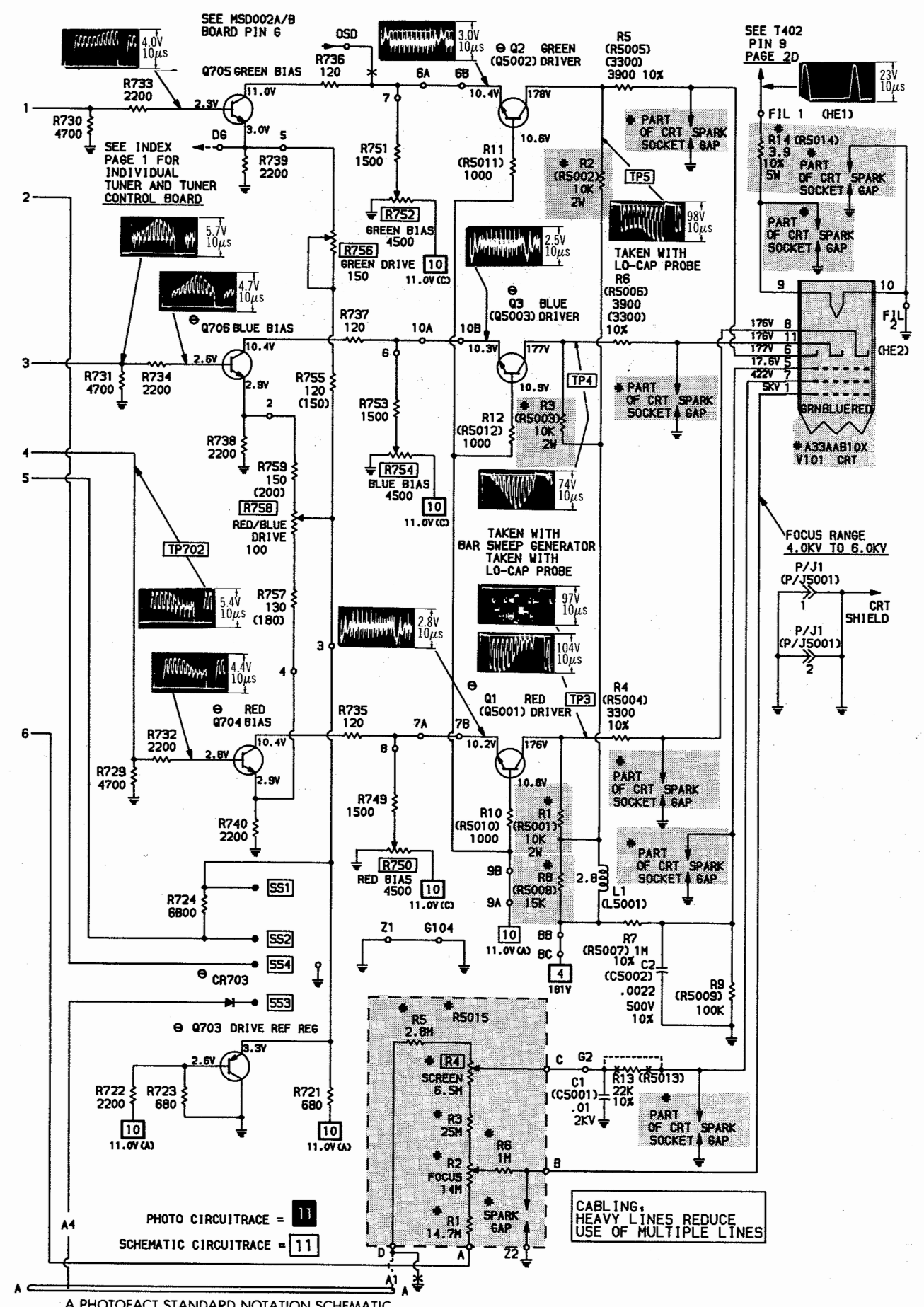


PHOTO CIRCUITRACE = 11
SCHEMATIC CIRCUITRACE = 11

A PHOTOFAC STANDARD NOTATION SCHEMATIC
WITH CIRCUITRACE

© Howard W. Sams & Co., Inc. 1988

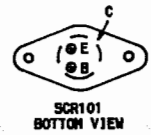
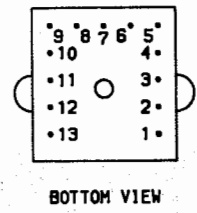
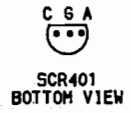
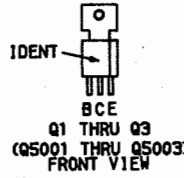
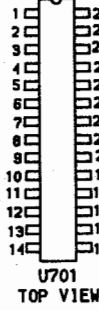
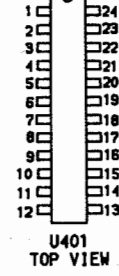
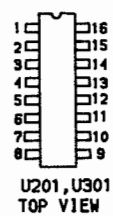
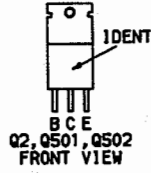
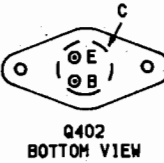
H

SET 2572 FOLDER2

RCA MODELS FR520W/R/25ER/26SR/30TR/35WR/36SR/
40SR/50ER, GLR841TR/45FR/45HR/49PR/CH.CTC120DSUB1)

Page 2

TERMINAL GUIDES



For SAFETY use only equivalent replacement part, see parts list.

— Circuitry not used in some versions

- - - Circuitry used in some versions

⊖ See parts list

⊗ Nominal value

⊕ Ground

⏏ Chassis

▽ Common tie point

Waveforms and voltages are taken from ground, unless noted otherwise.

Waveforms: triggered scope, keyed rainbow generator.

Item numbers in rectangles appear in the alignment/adjustment instructions.

Supply voltages maintained as shown at input.

Voltages measured with digital meter, no signal.

Controls adjusted for normal operation.

Terminal identification may not be found on unit.

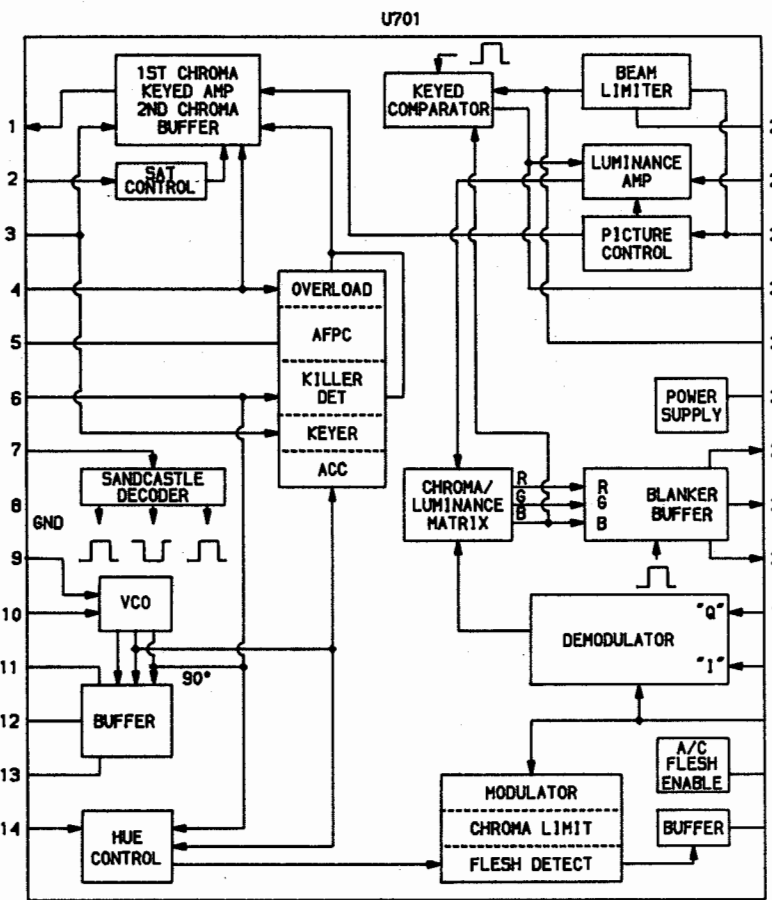
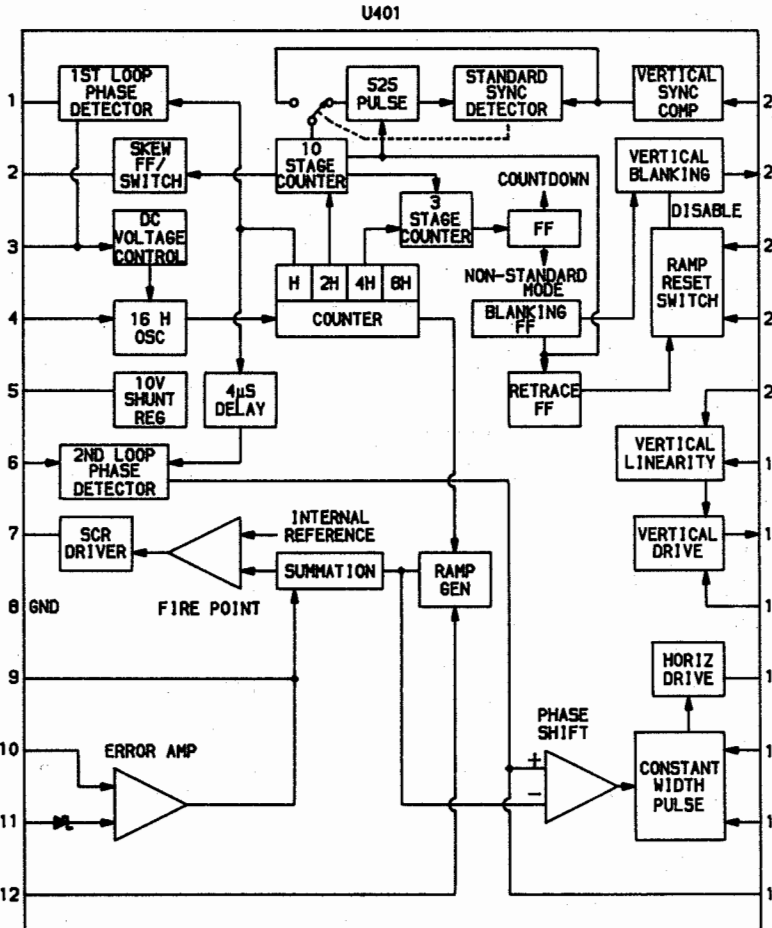
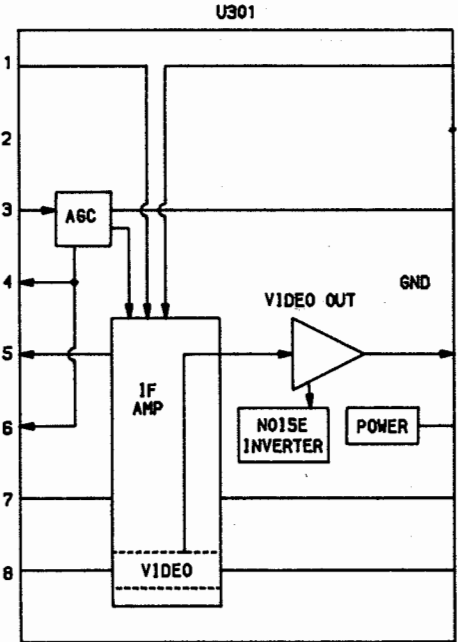
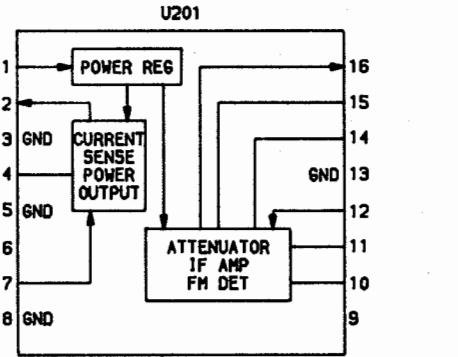
Capacitors are 50 volts or less, 5% unless noted.

Electrolytic capacitors are 50 volts or less, 20% unless noted.

Resistors are 1/2W or less, 5% unless noted.

Value in () used in some versions.

IC FUNCTIONS



TEST EQUIPMENT

Test Equipment listed by Manufacturer illustrates typical or equivalent equipment used by SAMS' Engineers to obtain measurements and is compatible with most types used by field service technicians.

Equipment	B & K Precision Equipment No.	Sencore Equipment No.	Notes
OSCILLOSCOPE	1560, 1564, 1541	SC61	
GENERATORS			
RGB	1249,1260		
MULTIBURST SIGNAL	1251,1260	VA62	
COLOR BAR	1211A,1249,1251,1260	VA62,CG25	
ANALOG VOM	277,111,116		
DIGITAL VOM	2830,2806	DVM37,DVM56,SC61	
FREQUENCY METER	1803,1805	FC71,SC61	
HI-VOLTAGE PROBE	HV-44	HP200	
VOM/DMM	PR-28(HV)		
Accessory probes			
ISOLATION TRANSFORMER	TR110,1604,1653,1655	PR57	
CAPACITANCE ANALYZER	820,810,830	LC53,LC75,LC76,LC77	
CRT ANALYZER	467,470	CR70	
TEMPERATURE PROBE	TP-28,TP-30		
AC LEAKAGE TESTER	1655	PR57	
LOGIC PROBE	DP51,DP21		
LOGIC PULSER	DP101,DP31		
INDUCTANCE ANALYZER	875	LC53,LC75,LC76,LC77	
FLYBACK YOKE TESTER	875	LC53,VA62	
TV STEREO GENERATOR	2009	ST65,ST66	
FIELD STRENGTH METER		FS73,FS74	

TV ALIGNMENT INSTRUCTIONS

Use an isolation transformer, or observe polarity, and maintain line voltage at 120VAC. Allow a 20-minute warm-up period for receiver and test equipment.
Suggested Alignment Tools: GC ELECTRONICS
L201, L202, L301 Thru L304, T301..... 9440

PRELIMINARY INSTRUCTIONS

Set the channel selector to the highest unused channel. Set scope sweep to external. Connect scope vertical input to scope vertical input on sweep/marker generator. Connect scope external horizontal input to scope horizontal input on sweep/marker generator. Ground test equipment to TV chassis unless specified otherwise. Use only enough generator output to provide a usable indication.
Note: Response may vary slightly from that shown.
Connect a +8V Bias to TP 307.
Remove Tuner IF Link Cable from Tuner (P301).
Obtain Service Line (See Procedure in Miscellaneous Adjustments).
NOTE: Use Modulated Marker Frequencies.

VIDEO IF ALIGNMENT (SWEEP MARKER GENERATOR)

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
Use Detector Probe to Pin 4 of SF301.	To IF Input (TP303)		47.25MHz (Modulated)	Adjust L301 for MINIMUM.
Direct Probe To TP301	To IF Input (TP303)		45.75MHz (Modulated)	Adjust L303 for Maximum. See Figure 1.
Direct Probe To TP301	To IF Input (TP303)		44.00 MHz (Modulated)	Adjust L302 for Maximum. See Figure 1.

TV ALIGNMENT INSTRUCTIONS

4.5MHz TRAP ALIGNMENT

Tune in a strong TV signal and set the contrast at maximum. Adjust the fine tuning until a beat pattern is visible on the screen. Adjust T301 for MINIMUM beat interference.

SOUND IF ALIGNMENT

Tune in a station and adjust L201 and L202 for Maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce the signal while aligning for undistorted output by adjusting L201.

VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

BAR SWEEP GENERATOR	SCOPE INPUT	REMARKS
To IF Input (TP303)	To TP 301	Perform Video IF Adjustments per SWEEP/MARKER GENERATOR Instructions above. See Figure 2.

AUTOMATIC FINE TUNING ALIGNMENT

Connect as explained in preliminary instructions unless specified otherwise. Connect a +5V Bias to TP307.

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
To TP319 To TP318	No Signal			Adjust R332 (AFT Balance Control) for +6.5V. Adjust R333 (AFT Balance Control) for +6.5V.
Connect Direct Probe from Sweep/Marker Generator To TP319	To TP303 (IF Input)	44.00MHz (10MHz Sweep)	45.75MHz	Adjust L304 to place 45.75MHz marker at crossover as shown. See Figure 3.

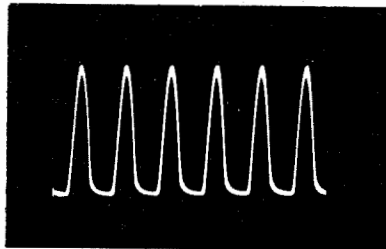


Figure 1

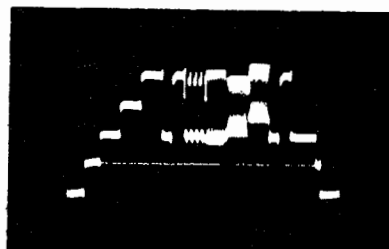


Figure 2

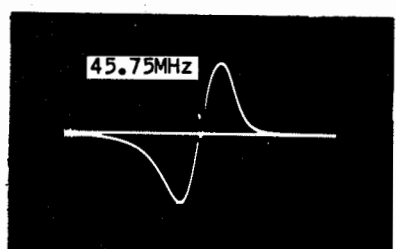
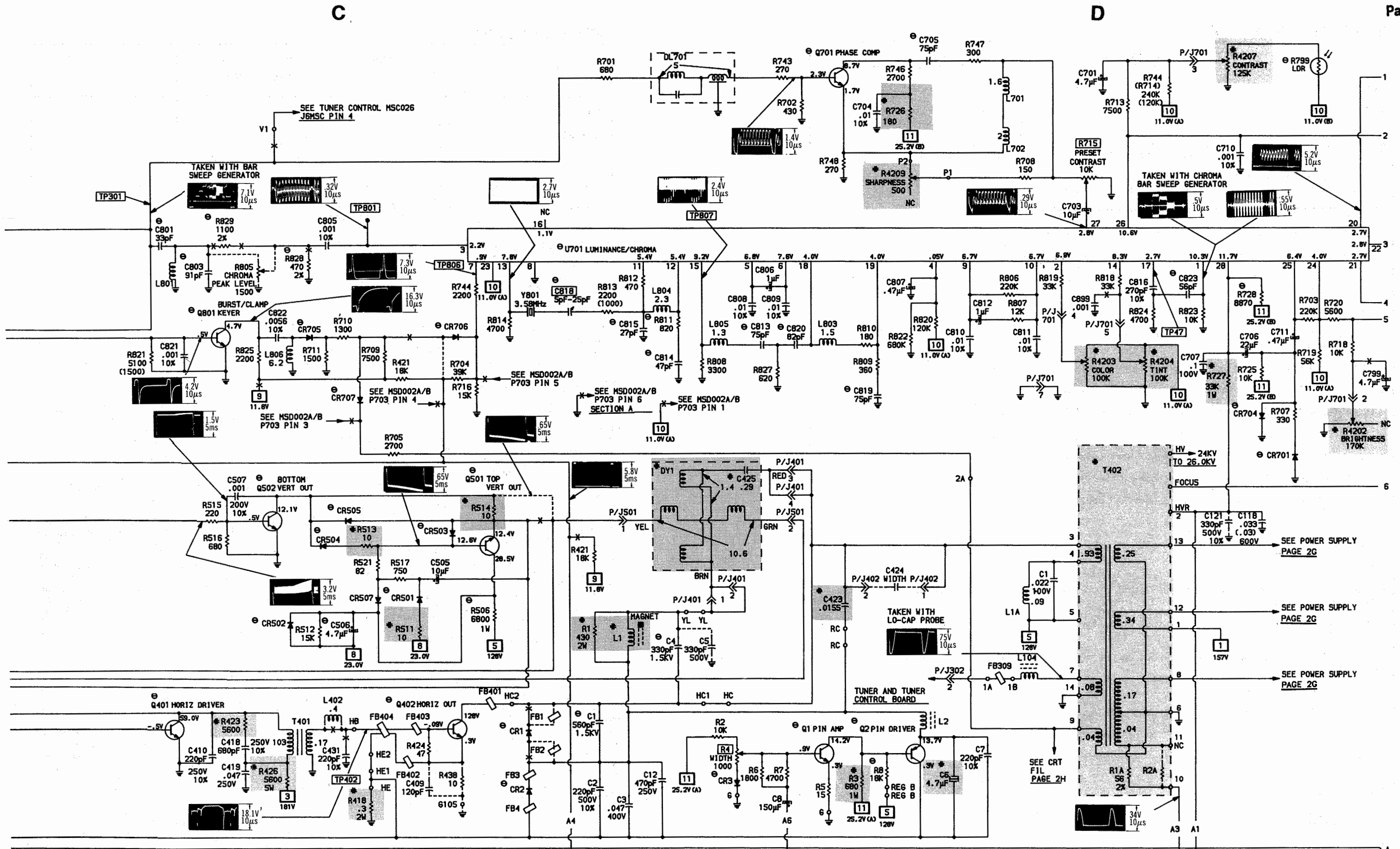


Figure 3

RCA MODELS FR520WR/25ER/26SR/30TR/35WR/36SR/
40SR/50ER, GLR841TR/45FR/45HR/49PR(CH,CTC120DSUB1)



TROUBLESHOOTING AID

Note: Waveforms taken with triggered scope, Keyed-Rainbow generator. Schematic voltages measured with digital meter, no signal. Controls adjusted for normal operation.

PICTURE or SOUND

NO PIC, NO SOUND, NO RASTER: Check AC power supply and sources generated from Horizontal Output Transformer (T402). Refer to "Troubleshooting" Power Supply and Horizontal circuits.

NO PIC, NO SOUND, HAS RASTER: Check IF-AGC and source voltages from Horizontal Output Transformer (T402). Refer to "Troubleshooting" IF-AGC and Horizontal circuits.

NO PIC, HAS SOUND, NO RASTER: Check Horizontal Output Transformer (T402) sources and Video circuit. Refer to "Troubleshooting" Horizontal and Video circuits.

NO PIC, HAS SOUND, HAS RASTER: Refer to "Troubleshooting" Video circuit.

HAS PIC, NO SOUND: Refer to "Troubleshooting" Audio circuit.

OVERLOADED PICTURE: Refer to "Troubleshooting" IF-AGC circuit.

LOW OR EXCESSIVE BRIGHTNESS: Check Video and Luminance circuits. Refer to "Troubleshooting" Video circuit.

SWEEP

NO RASTER, HAS SOUND: Check HV rectifier, Part of Horizontal Output Transformer (T402). Refer to "Troubleshooting" Horizontal circuit.

NO RASTER, NO SOUND: Refer to "Troubleshooting" Horizontal circuit.

NO VERT DEFLECTION: Refer to "Troubleshooting" Vertical circuit.

POOR VERT LIN OR FOLDOVER: Refer to "Troubleshooting" Vertical circuit.

POOR HORIZ LIN OR FOLDOVER: Refer to "Troubleshooting" Horizontal circuit.

NARROW PICTURE: Refer to "Troubleshooting" Horizontal circuit.

VERT OFF FREQUENCY: Refer to "Troubleshooting" Vertical circuit.

HORIZ OFF FREQUENCY: Refer to "Troubleshooting" Horizontal circuit.

SYNC

NO VERT/HORIZ SYNC: Refer to "Troubleshooting" Sync circuit.

RASTER

YELLOW (NO BLUE): Check Chroma and Blue Output circuits. Refer to "Troubleshooting" Raster circuit.

CYAN (NO RED): Check Chroma and Red Output circuits. Refer to "Troubleshooting" Raster circuit.

MAGENTA (NO GREEN): Check Chroma and Green Output circuits. Refer to "Troubleshooting" Raster circuit.

COLOR (B/W operating normally)

NO COLOR: Refer to "Troubleshooting" Chroma circuit.

WEAK COLOR: Refer to "Troubleshooting" Chroma circuit.

NO COLOR SYNC: Refer to "Troubleshooting" Chroma circuit.

NO GREEN: Check Chroma and Green Output circuits. Refer to "Troubleshooting" Raster circuit.

NO BLUE: Check Chroma and Blue Output circuits. Refer to "Troubleshooting" Raster circuit.

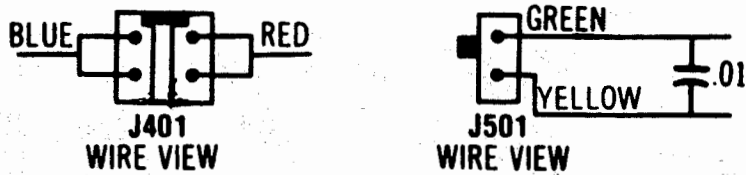
NO RED: Check Chroma and Red Output circuits. Refer to "Troubleshooting" Raster circuit.

INCORRECT HUE (TINT): Refer to "Troubleshooting" Chroma circuit.

TEST JIG HOOKUP

FUNCTION	Chek-A-Color ADAPTER NO.	RCA / TeleMatic ADAPTER NO.	
CRT YOKE YOKE SETTING	B243 D4142 (1) YP1 Focus Tap	10J667 10J760 Horiz 1.2mH Vert 8 ohm FVS-3950 Focus Voltage Supply	

- (1) If the horizontal or vertical sweep is reversed, rotate the respective connector 180 degrees.
- (2) Connect the leads according to the following diagram.



If the horizontal leads are reversed, the high voltage shutdown may be activated. The .01uF capacitor across the vertical leads (yellow-green) eliminates tearing in the vertical scan.

TROUBLESHOOTING

POWER SUPPLY

Check the AC Line Fuse (F101). If the fuse is open, check for possible shorts at the Bridge Rectifier Diodes (CR101 thru CR104), Degaussing Coil (L10), Regulator SCR (SCR101), Horizontal Output Transistor (Q402) and Vertical Output Transistors (Q501 and Q502). Apply AC power and check for 175V at the cathode of Diode CR103. If 157V is not present, check Coils L101 and L105 and Resistor R120. If the TV won't turn on, check the voltage at the junction of Resistor R117 and Plug J106 pin 5. The voltage should measure about .03V with the TV Off and 25.4V with the TV On. If the voltages aren't present, troubleshoot the Remote Receiver Board as well as the Tuner Control Board. If the voltages at Resistor R117 are correct, check the voltages and components associated with pins 4 and 5 of the Deflection IC (U401). Check for a regulated 128V at the cathode of the SCR101. If 128V is missing, check the voltage on the anode of SCR401 to determine if the TV is in shutdown. The voltage will measure about .76V with the TV in shutdown. If the TV is in shutdown, refer to the "X-Ray Protection Defect" section and the "Horizontal" section of this Troubleshooting guide. If the 128V at the cathode of SCR101 is not regulated, check the voltages, waveforms and components associated with pins 7, 9, 10, 14 and 15 of IC U401 and SCR101. Check the B+ Sources that are developed from the Horizontal Output Transformer (T402) and rectified by Diodes CR106 and CR107. If either source is missing, check the diode and components associated with the missing source.

HORIZONTAL

Determine if the TV is in shutdown, refer to the "High Voltage Shutdown" section of this

Troubleshooting guide. If the TV is not in shutdown, depress power switch and check for the proper waveform at pins 16 and 7 of the Deflection IC (U401). If the waveforms are missing, check the voltages, waveforms and components associated with pins 1 thru 16 of (U401). If the proper waveforms are present at pin 16 and 7 of U401, check the voltages, waveforms and components associated with the Horizontal Driver Transistor (Q401), Horizontal Output Transistor (Q402), Regulator SCR (SCR101) and the Horizontal Output Transformer (T402). Check Diodes CR106, CR107 and associated components for defects. The high voltage rectifier is part of T402 and if defective it will affect the operation of the horizontal circuit. If the Horizontal Oscillator is off frequency, check the adjustment of the Horizontal Oscillator Coil (L401). Horizontal linearity or width problems may be caused by Capacitors C423, C424, C425 and Coil L403 being defective.

IF-AGC

Inject an IF signal at the IF Input cable and check for a picture on the CRT. If a picture is present, check the Tuner, Tuner AFT circuit, pins 5 thru 7 of the IF/AFT IC (U301) and Tuner AGC circuit pins 3, 4 and 14 of IC U301. If a picture isn't present, check for a video waveform at the base of the Video Amp Transistor (Q301). If the proper waveform is present, refer to the "Video" section of this Troubleshooting guide. Apply AGC bias to TP307 while monitoring the base of Transistor Q304 with a scope. If the video waveform returns, check the voltages and components associated with pin 14 of IC (U301). Check the AGC circuits if the TV has an overloaded picture. See the "AGC Voltage Chart" for voltages that change with signal. If the video

TROUBLESHOOTING (Continued)

doesn't return to the base of Transistor Q304 with AGC bias applied, check the voltages and components associated with the IF Preamp Transistor (Q301) and pins 1, 2, 8, 9, 11, 12, 13, 15 and 16 of IC (U301).

AGC VOLTAGE CHART

NOTE: Voltages measured while using a Keyed-Rainbow generator signal.

ITEM	PIN 4	PIN 14
U301	7.58V	7.52V

AUDIO

If there is no sound, check the volume control voltage at pin 1 of Plug P302 while the volume is varied from MINIMUM to Maximum. The voltage should vary from about .67V at MINIMUM to 6.17V at Maximum volume. If the voltage is missing, troubleshoot the Remote Receiver Board and the Tuner Control Board. If the volume control voltage is good, inject an audio signal at pin 9 of the Audio IC (U201). If there is no sound at the speaker, check the speaker, Plug P201 and the voltages and components associated with pins 1, 2, 4, 7 and 9 of the IC U201. If sound is now present, check the voltages and components associated with pins 10, 11, 12, 14, 15, and 16 of IC U201. Also check the Sound Take-Off Transformer (T301).

VIDEO

Inject a video signal at the base of the Video Amp Transistor (Q304) and check for a picture on the CRT. If the proper picture appears on the CRT, refer to the "IF-AGC" section of this Troubleshooting guide. If no picture appears on the CRT, check for a video waveform at pin 27 of the Luminance/Chroma IC (U701). If the waveform is missing, check the voltages, waveforms and components associated with Transistor Q304 and IF Output Transistor (Q303), the Phase Comp Transistor (Q701) and pin 27 of IC U701. Check the waveforms at pins 20, 21 and 22 of the IC U701. If the luminance information is missing, check the voltages, waveforms and components associated with pins 20 thru 28 of IC U701. If the waveforms at pins 20, 21 and 22 of IC U701 are good, check the voltages, waveforms and components associated with Red, Green and Blue Bias Transistors (Q704, Q705 and Q706), the Red, Green and Blue Driver Transistors (Q1, Q2, Q3), the Drive Reference Regulator Transistor (Q703) and the CRT. If the TV has low or excessive brightness, check the voltages and components associated with pins 23 thru 28 of IC U701, Transistor Q703, Transistors Q704, Q705 and Q706, Transistors Q1, Q2, Q3 and the CRT.

SYNC

If the TV has no vertical or horizontal sync, check the vertical and horizontal waveforms at the collector of the Sync Sep Transistor (Q305). If the waveforms are missing, check the voltages and components associated with the Sync Separator Transistor (Q305). If there is no vertical sync, check the voltages, waveforms and components associated with pin

24 of the Deflection IC (U401). If there is no horizontal sync, check the voltages, waveforms and components associated with pins 1, 2 and 3 of IC U401.

VERTICAL

Inject a vertical signal at pin 18 of the Deflection IC (U401). If the vertical deflection returns, check the voltages, waveforms and components associated with pins 17 thru 22 of IC U401. If the vertical deflection doesn't return, check the voltages, waveforms and components associated with the Top and Bottom Vertical Output Transistors (Q501 and Q502) and check Diodes CR501 thru CR505, Plug P501 and Deflection Yoke (DY1). Vertical linearity or foldover problems may be caused by vertical feedback and bias circuits. Check the condition of Electrolytic Capacitors C505, C508 and C509. If the vertical is off frequency, check the voltages and components associated with pins 2, 3 and 24 of IC U401.

RASTER

Check the CRT and CRT voltages. If the raster is magenta, check the voltages, waveforms and components associated with pin 20 of the Luminance/Chroma Processor IC (U701), the Green Bias Transistor (Q705) and the Green Driver Transistor (Q2). If the raster is yellow, check the voltages, waveforms and components associated with pin 22 of IC U701, the Blue Bias Transistor (Q706) and the Blue Driver Transistor (Q3). If the raster is cyan, check the voltages, waveforms and components associated with pin 21 of IC U701, the Red Bias Transistor (Q704) and the Red Driver Transistor (Q1). If the raster has a keystone shape, check the Deflection Yoke (DY1). If the raster has height or width problems, refer to the "Vertical", "Horizontal" and "Power Supply" section of this Troubleshooting guide.

CHROMA

If there is no color or weak color, check for a color waveform at pin 3 of the Luminance/Chroma IC (U701). If the waveform is missing, check the Chroma Input Level Control (R805) and the voltage and components connected from pin 3 of IC U701 to the collector of the IF Output Transistor (Q303). Check the voltages, waveforms and components associated with the Burst/Clamp Keyed Transistor (Q801) and pins 1 thru 7, 9, 10 thru 19 and 23 of IC U701. Check the 3.58MHz oscillator at pins 11, 12 and 13 of IC U701. If there is no color sync, check the voltages, waveforms and components associated with Transistor Q801 and pin 7 of IC U701. If there is a wrong color or incorrect hue (tint), check the voltages and components associated with pin 14 of IC U701 and check the frequency of the 3.58MHz oscillator at pin 13 of IC U701. If there is no green, check the voltages, waveforms and components associated with pin 20 of IC U701, the Green Bias Transistor (Q705) and the Green Driver Transistor (Q2). If there is no blue, check the voltages, waveforms and components associated with pin 22 of U701, the Blue Bias Transistor (Q706) and the Blue Driver Transistor (Q3). If there is no red, check the voltages,

TROUBLESHOOTING (Continued)

waveforms and components associated with pin 21 of IC U701, the Red Bias Transistor (Q704) and the Red Driver Transistor (Q1). Check the CRT and CRT voltages.

X-RAY PROTECTION CIRCUIT DESCRIPTION

The X-Ray Protection Circuit HV Shutdown SCR (SCR401) monitors the high voltage by monitoring the amplitude of the horizontal pulse at pin 10 of the Horizontal Output Transformer (T402). The pulse is rectified by Diode CR409, filtered by Capacitor C411 and applied to Zener Diode (CR406) through a voltage divider consisting of Resistors R416 and R430. If the high voltage becomes excessive, the amplitude of the horizontal pulse at pin 10 of Transformer T402 will also increase and cause the voltage at the cathode of Zener Diode CR406 to increase enough to cause CR406 to conduct. When CR406 conducts, it applies a voltage to the gate of SCR401 which triggers the SCR on. When SCR401 turns on, it loads down the horizontal oscillator at pins 4 and 5 of the Deflection IC (U401) and kills the oscillator to shut down the TV. Current from the 157V source flows through Resistors R115, R116 and R414, Coil L401 and Diode CR405 to SCR401, to keep it turned on until the AC power is removed from the TV. The X-Ray Protection circuits also monitor the current flowing through the Horizontal Output Transistor (Q402) at the emitter of Transistor Q402 through Diode CR407 and Resistors R420 and R419. If the current through Transistor Q402 increases above the vider consisting of Resistors R416 and R430. If the high voltage becomes excessive, the amplitude of the horizontal pulse at pin 10 of Transformer T402 will also increase and cause

the voltage at the cathode of Zener Diode CR406 to increase enough to cause CR406 to conduct. When CR406 conducts, it applies a voltage to the gate of SCR401 which triggers the SCR on. When SCR401 turns on, it loads down the horizontal oscillator at pins 4 and 5 of the Deflection IC (U401) and kills the oscillator to shut down the TV. Current from the 157V source flows through Resistors R115, R116 and R414, Coil L401 and Diode CR405 to SCR401, to keep it turned on until the AC power is removed from the TV. The X-Ray Protection circuits also monitor the current flowing through the Horizontal Output Transistor (Q402) at the emitter of Transistor Q402 through Diode CR407 and Resistors R420 and R419. If the current through Transistor Q402 increases above the normal limits, the voltage at the emitter of Transistor Q402 will rise high enough to trigger on SCR401 and shut down the TV.

X-RAY PROTECTION DEFEAT

To defeat the X-Ray Protection Circuit, remove the HV Shutdown SCR (SCR401) from the circuit. If this doesn't defeat the shutdown, check the voltages and components associated with pins 4 and 5 of the Deflection IC (U401).

NOTE: Care should be taken in defeating the X-Ray Protection as this may cause excessive high voltage and damage to the high voltage transformer, picture or other circuits supplied B+ from the Horizontal Output Transformer. Monitor the high voltage. Use an isolation transformer for AC power supply with step down control to troubleshoot a set with excessive high voltage.

SERVICE INFORMATION**X-RADIATION PROTECTION SHUTDOWN CHECK**

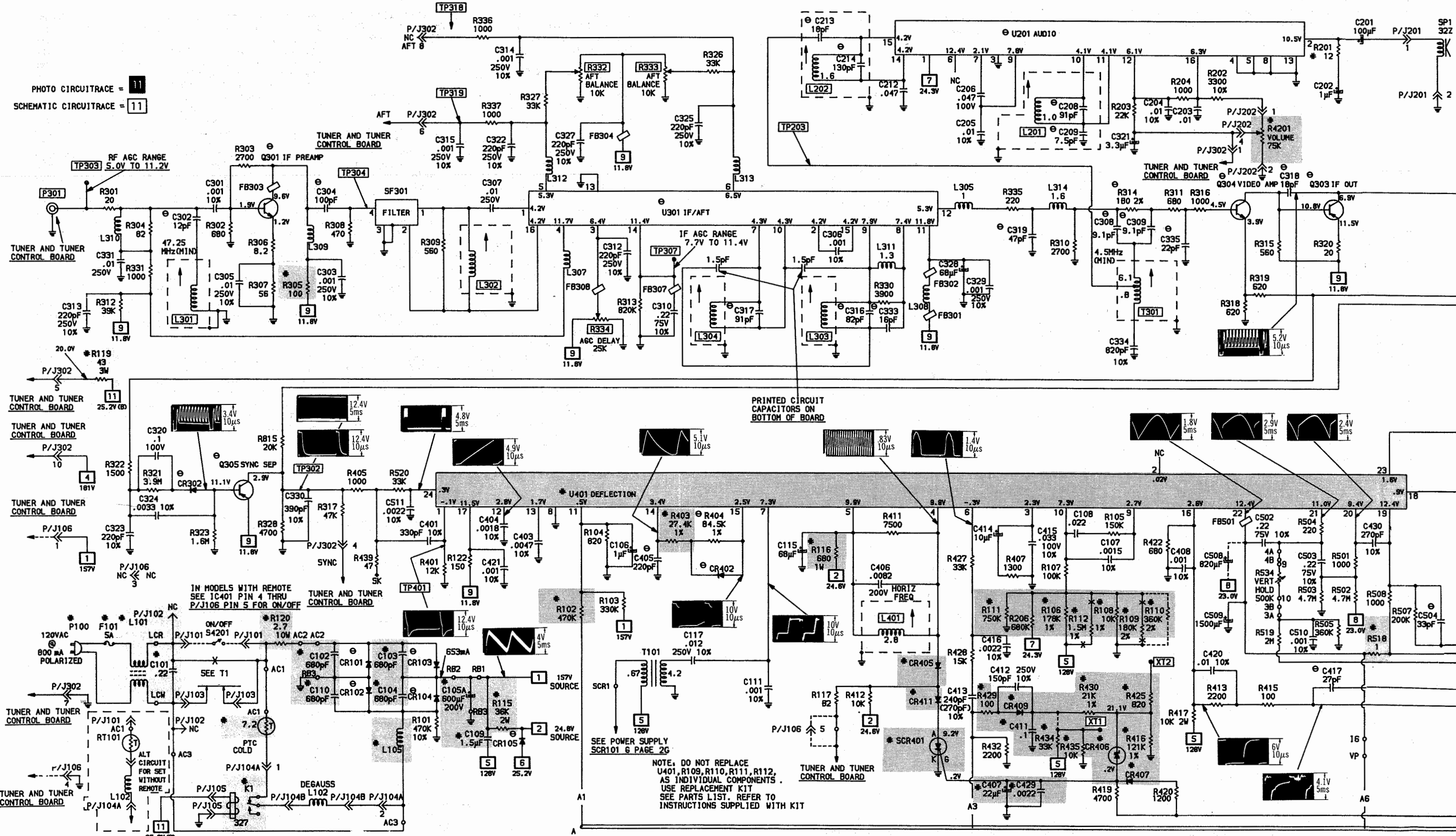
When service has been performed on Horizontal Deflection, Regulator B+ Systems, High Voltage, the X-radiation Protection Circuit should be tested for proper operation as follows:

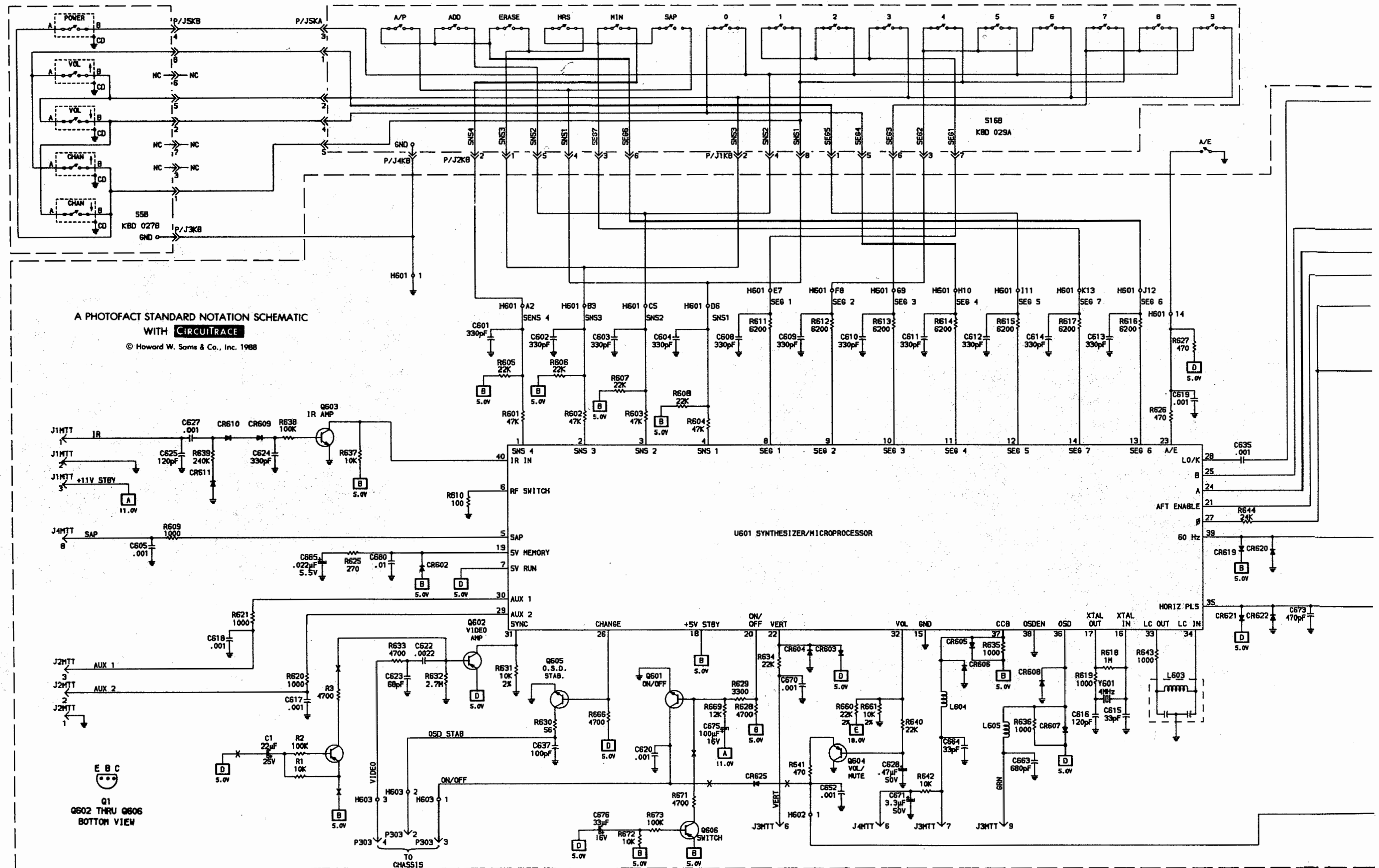
1. Using a variac transformer, apply 120V AC for input voltage.
2. Allow for normal warm-up and adjust the customer controls for normal picture.
3. Locate on the PW Horizontal output circuit board stakes marked XT1 and XT2.
4. The voltage at Stake XT2 must measure between 19V and 23.2V DC.
5. Short Stake XT1 to Stake XT2, when stakes are shorted instrument should shutdown. May try to restart and shutdown. In some instances set may stay shutdown until short is removed.
6. When test is completed and set is working properly, remove short from Stakes XT1 and XT2.

A

B

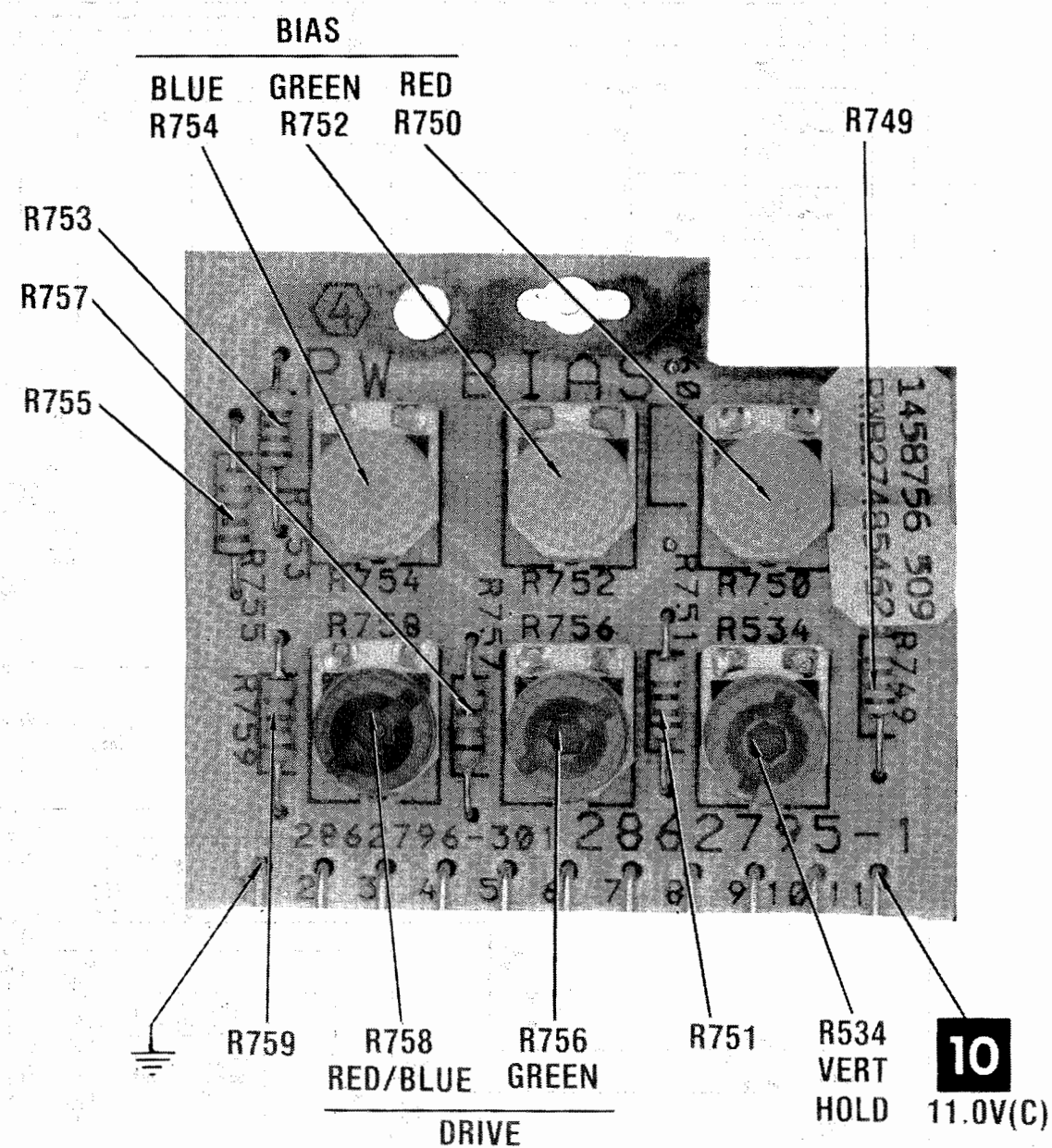
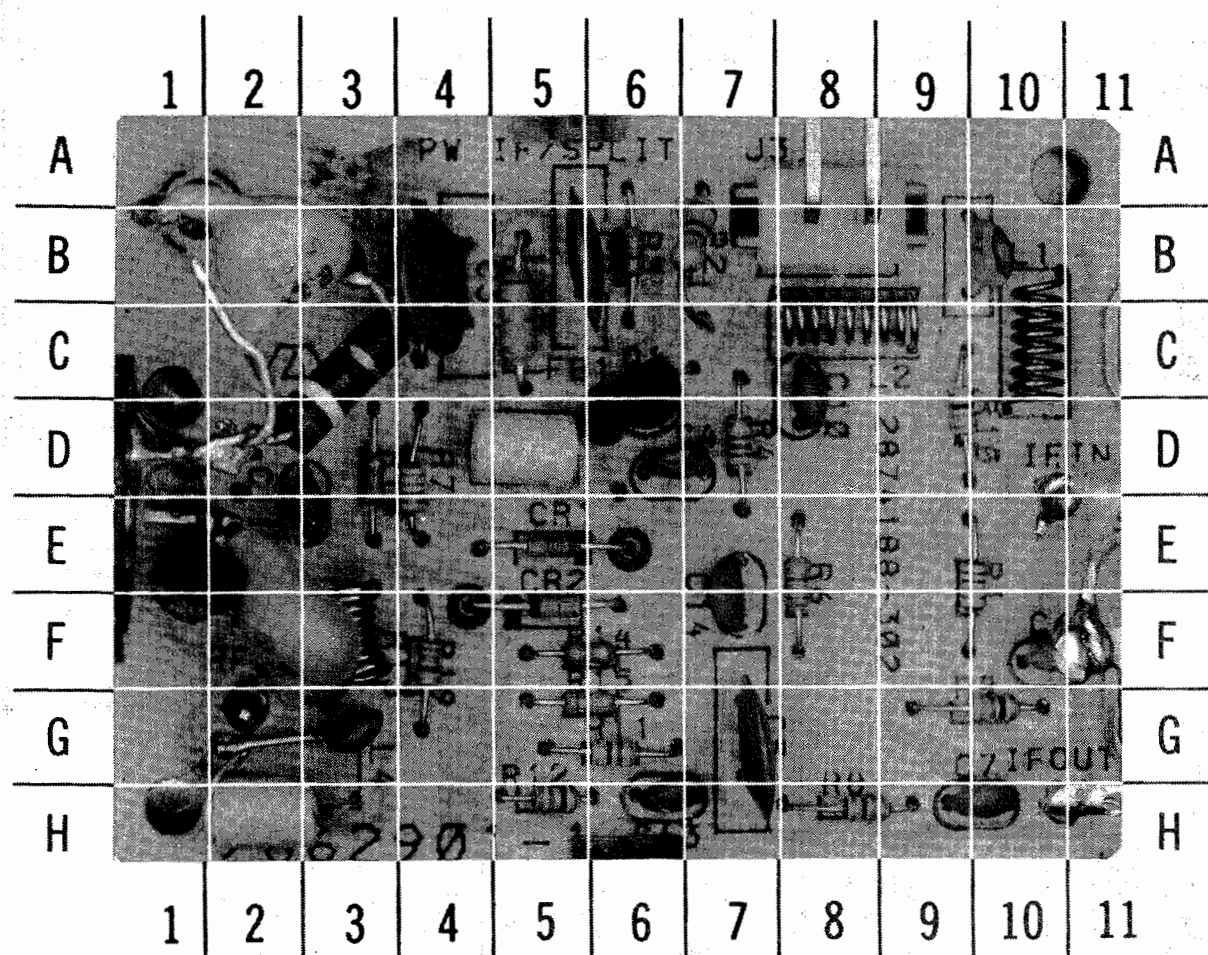
PHOTO CIRCUITRACE = 11
SCHEMATIC CIRCUITRACE = 11





IF SPLITTER-GridTrace LOCATION GUIDE

C1	B-10	C14	F-7	L4	H-2	R7	D-4
C2	B-5	C98	G-2	L5	F-3	R8	H-8
C3	B-4	C99	G-3	P1	E-11	R9	G-10
C4	D-6	CR1	E-5	Q1	C-6	R10	D-9
C5	G-7	CR2	F-5	Q2	E-2	R11	G-6
C6	F-10	FB1	D-6	Q3	E-1	R12	H-5
C7	H-10	J1	D-1	R1	E-10	R14	F-6
C8	F-2	J2	H-11	R2	B-7	R15	G-6
C9	B-2	J3	A-8	R3	B-6	R16	B-4
C10	C-8	L1	C-10	R4	D-7	R17	C-3
C11	E-3	L2	C-8	R5	C-5	R18	D-3
C12	B-3	L3	D-5	R6	E-8	R19	F-4
C13	H-6						



MISCELLANEOUS ADJUSTMENTS

PRETUNING

- 1. Connect Antenna.
- 2. Turn on TV.
- 3. Using remote unit, select desired channel to be added or erased.
- 4. Momentarily depress ADD or ERASE button.
- 5. Repeat steps 3 and 4 for additional channels to be added or erased.

HIGH VOLTAGE

No provision is made for high voltage adjustment. To check, connect a high voltage meter to the anode of the CRT. Turn Brightness and color controls to MINIMUM. High voltage should never exceed 32.0KV. At Maximum brightness and contrast high voltage should read 25KV.

AGC DELAY ADJUSTMENT

Tune in a weak local station and adjust unit for a normal picture. Adjust AGC Delay Control (R334) for MINIMUM snow without overload (pulling, jitter, tearing, etc.). Check operation on all available stations.

HORIZONTAL FREQUENCY ADJUSTMENT

Tune in a TV station and adjust for a normal picture. Connect a short jumper from TP401 to ground. Adjust Horizontal Frequency Control (L401) until picture stops or slowly floats across screen. Remove jumper.

WIDTH ADJUSTMENT

On CTC120D chassis width is accomplished by adjusting R4.

3.58MHz OSCILLATOR ADJUSTMENT

Connect a color bar generator to antenna terminals. Adjust controls for a normal color bar pattern. Connect a jumper from TP801 to ground. Connect a 270pF capacitor from TP301 to TP47. Adjust C818 until colors stop or slowly float on screen. Remove capacitor.

CONTRAST PRESET CONTROL (R715) ADJUSTMENT

Connect a color bar generator to antenna terminals and tune in a color bar pattern. Connect a scope to TP702. Contrast Control to Maximum. Adjust Contrast Preset Control (R715) for approximately 3.3V P-P signal.

SERVICE LINE/WHITE RASTER PROCEDURES

To obtain a service line, connect a jumper from Stakes SS1 to SS2. Short Stakes SS3 and SS4 to ground.

To obtain a white raster, short Stake SS4 to ground and set Color Control fully counterclockwise.

COLOR TEMPERATURE ADJUSTMENT

Tune in a picture and set Brightness and Contrast Controls to midrange. Obtain Service Line, (see Service Line/White Raster Procedure). Set Color Bias Controls (R754,

R752, R750) fully counterclockwise. Set Color Drive Controls (R758, R756) fully clockwise. Set Screen Control (R4) fully counterclockwise. Advance Screen Control clockwise until a horizontal line just appears, (either blue, green or red). Depending on the color line on the screen, advance the remaining color bias controls clockwise to just produce a horizontal white line.

NOTE: At completion of color bias control adjustment, one of the bias controls must remain fully counterclockwise. Remove jumpers from Stakes SS1 to SS2 and from SS3 to ground. Keep Stake SS4 shorted to ground (for white raster). Advance Brightness and Contrast Controls fully clockwise. Adjust Color Drive Controls for best black and white picture.

Remove jumper from Stake SS4 to ground and check for proper tracking.

CONVERGENCE ADJUSTMENT

NOTE: Magnetic tape (Beam Bender) is not adjustable and is not reusable. If CRT is replaced or adjustment is necessary an adjustable type beam bender is required, RCA Part No. 145381.

Connect a color bar generator to the antenna terminals and tune in a dot pattern. If necessary, adjust Vertical Height, Focus and Horizontal Centering before doing convergence.

Static convergence (center) is accomplished by two sets of eccentric magnets on the beam bender assembly.

Adjust the 4-pole magnets to converge blue to green at center of screen.

Adjust the 6-pole magnets to converge red to green at center of screen.

NOTE: Green is stationary. Dynamic Convergence is achieved by tilting the yoke up or down or right or left.

Loosen screws at 6 o'clock and 10 o'clock on rear of deflection yoke (DY1). Rock yoke up or down to converge right and left sides of the screen. Tighten screws at 6 o'clock. Loosen screw at 3 o'clock. Rock yoke from side to side to converge top and bottom of the screen. Tighten screws located at 3 o'clock and 10 o'clock.

PURITY ADJUSTMENT

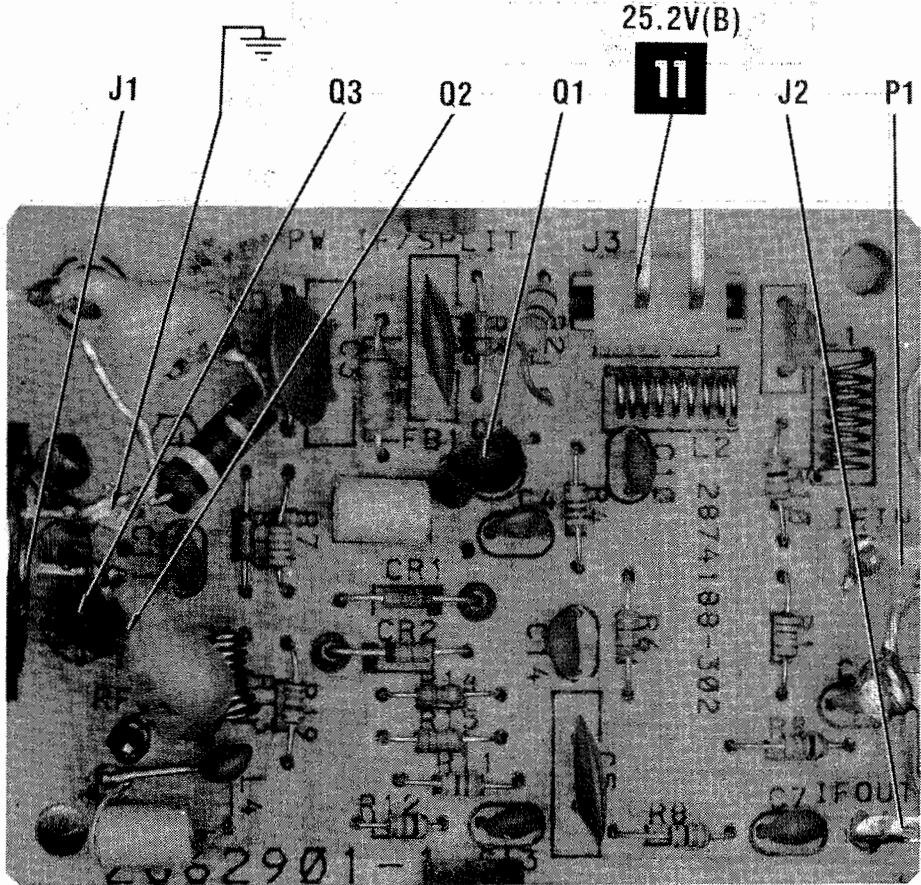
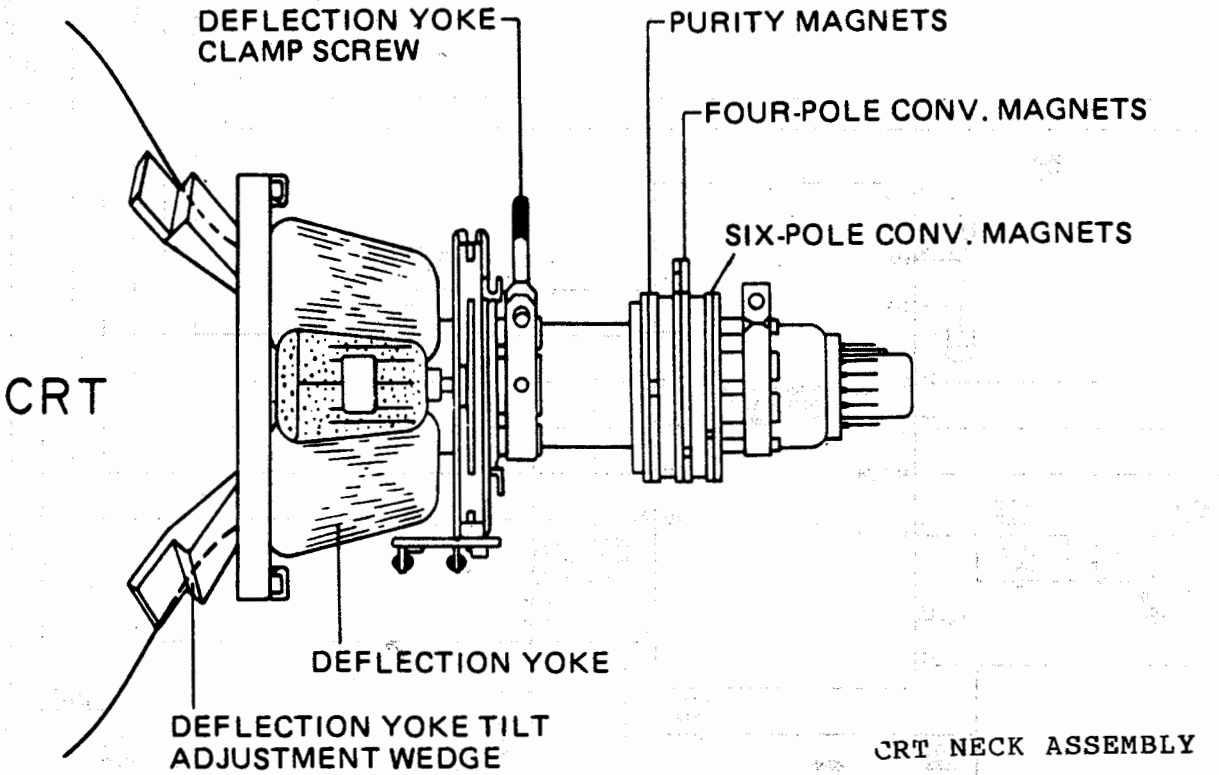
NOTE: Magnetic Tape (Beam Bender) is not adjustable and is not reusable. If CRT is replaced or adjustment is necessary, an adjustable type beam bender is required, RCA Part No. 145381.

If the CRT appears to be magnetized, use a degaussing coil to demagnetize CRT. Perform center convergence. Obtain a white raster by shorting Stake SS4 to ground. Turn Screen Control (R4) clockwise to obtain a bright raster. Turn Blue Bias (R754) and Red Bias (R750) fully counterclockwise. Turn Green Bias (R752) clockwise to obtain green raster.

MISCELLANEOUS ADJUSTMENTS (Continued)

Loosen Deflection Yoke (DY1) clamp and slide yoke back as close as possible to beam bender assembly. Rotate beam bender purity tabs to center vertical green raster on the screen.

Slide deflection yoke forward until best overall green raster is obtained. Tighten deflection yoke retaining screw and beam bender locking ring. Remove jumper from Stake SS4 to ground.



SERVICE WARNING

1. For continued safety, no modification of any circuit should be attempted unless recommended by manufacturer.
2. Disconnect power source before replacing parts as some parts may be electrostatic sensitive.
3. Use an isolation transformer between the line cord and power receptacle, when servicing chassis.

When servicing the High Voltage circuits, extreme caution should be used.

- ### X-RAY RADIATION AND HIGH VOLTAGE LIMITS

1. It is only when High Voltage is excessive that x-ray radiation is capable of being emitted from shell of picture tube. Be sure the High Voltage is set at specified level.

- ### SAFETY CHECKS-FIRE AND SHOCK HAZARD

Cold Leakage Checks (Sets with isolated ground.)

1. Unplug the AC cord and connect a jumper across the two prongs on the plug.
2. Turn on power switch.
3. Measure the resistance, with an Ohm meter, between the jumpered AC plug and any exposed metal cabinet parts on the set such as: antenna screw heads, control shafts, handle brackets. Exposed metal parts that have a return path should measure between 200 kohms and 5 megohm. Parts without a return path must measure infinity.

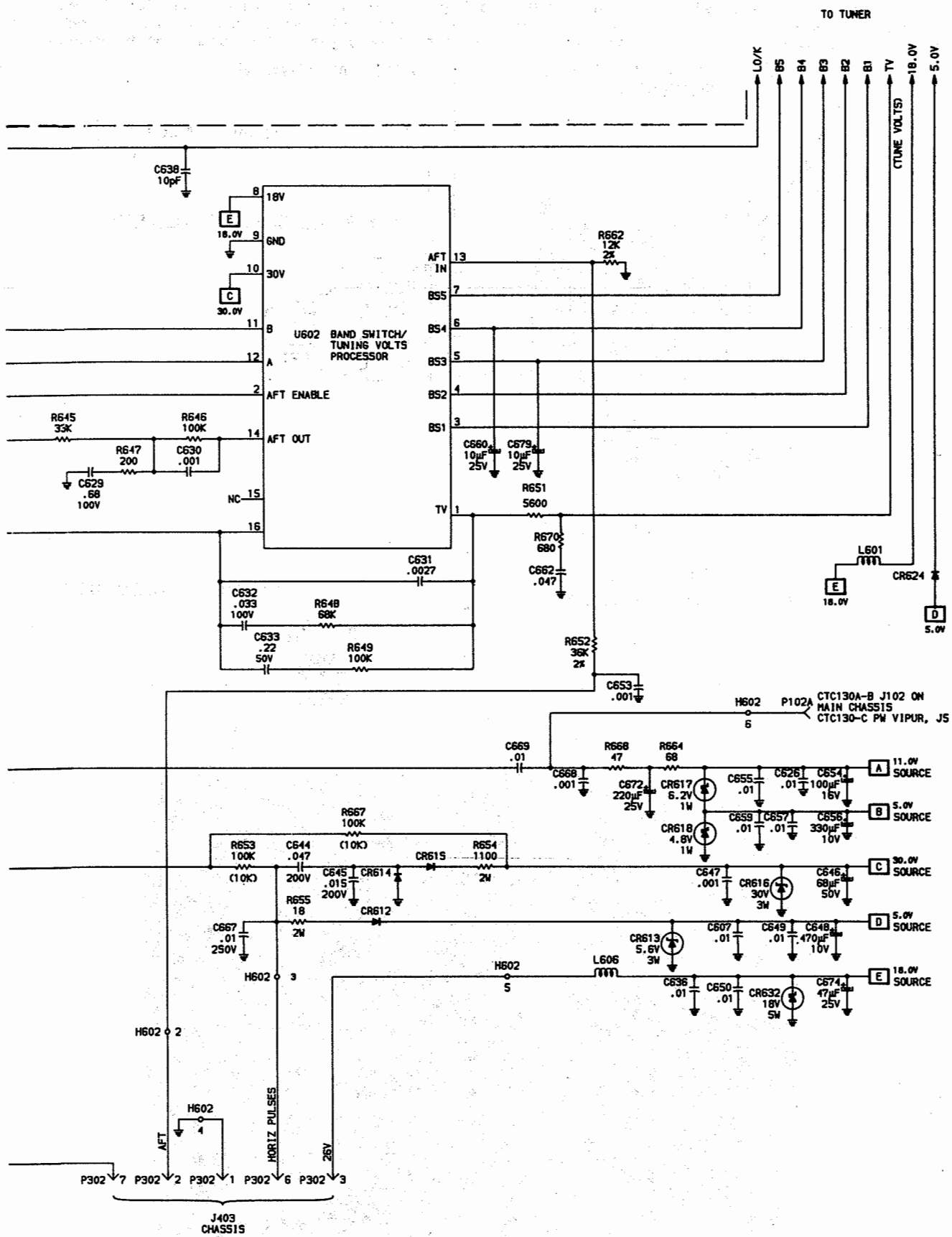
Leakage Current Hot Check

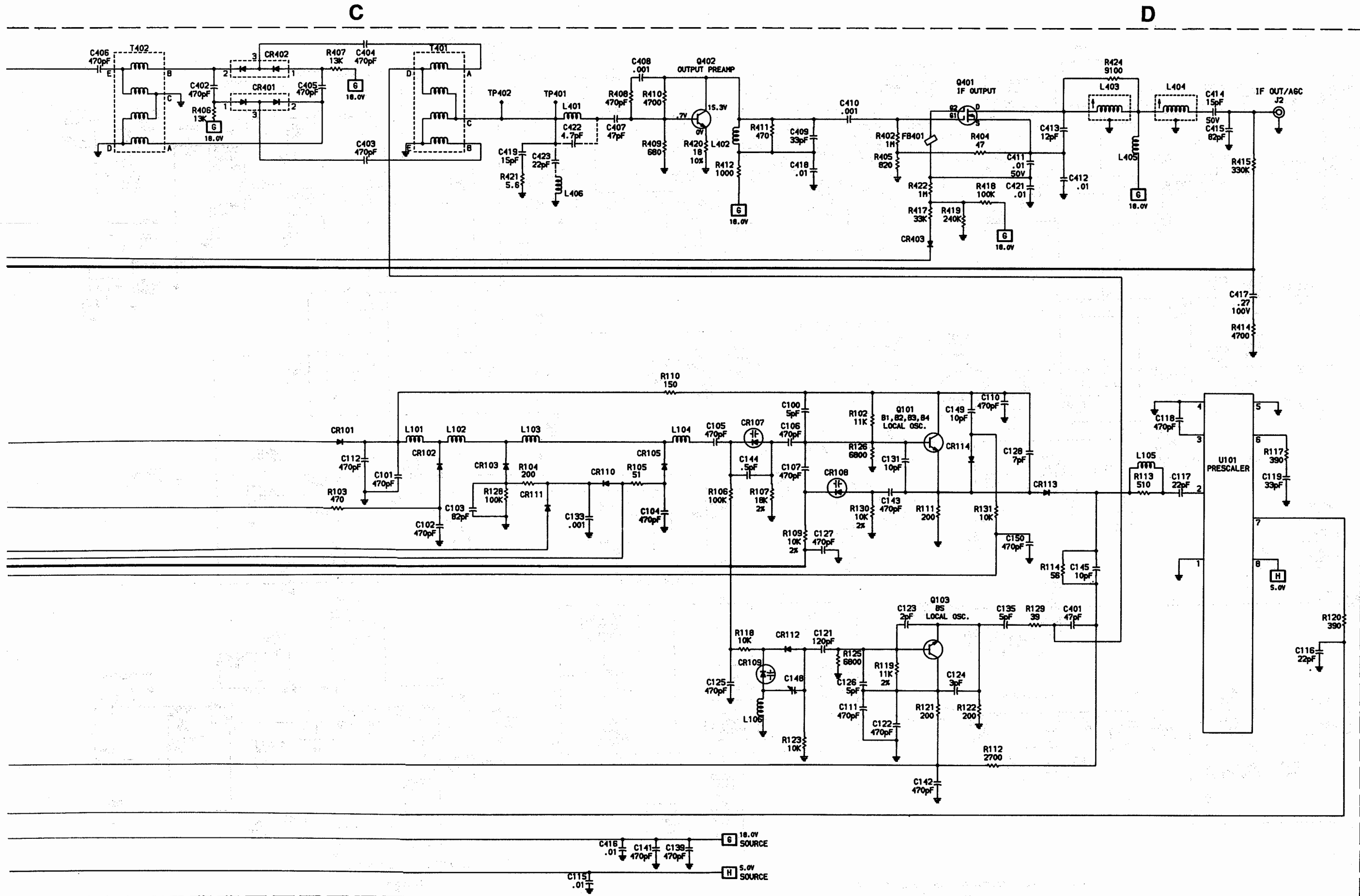
1. Plug the AC cord directly into AC outlet. DO NOT use an isolation transformer.
2. Connect a 1500 Ohm 10 watt resistor, in parallel with a .15 μ F 150V AC capacitor, between any exposed metal parts on the set and a good earth ground such as a water pipe. (See Figure below.)
3. Using an AC volt meter, with 1000 Ohms per volt or more sensitivity, measure the voltage across the resistor. Check each exposed part and measure voltage at each point.
4. Reverse the AC plug and repeat voltage measurement at each point.
5. The voltage at any point should not exceed .75 volts RMS. This corresponds to .5 milliamps AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected.

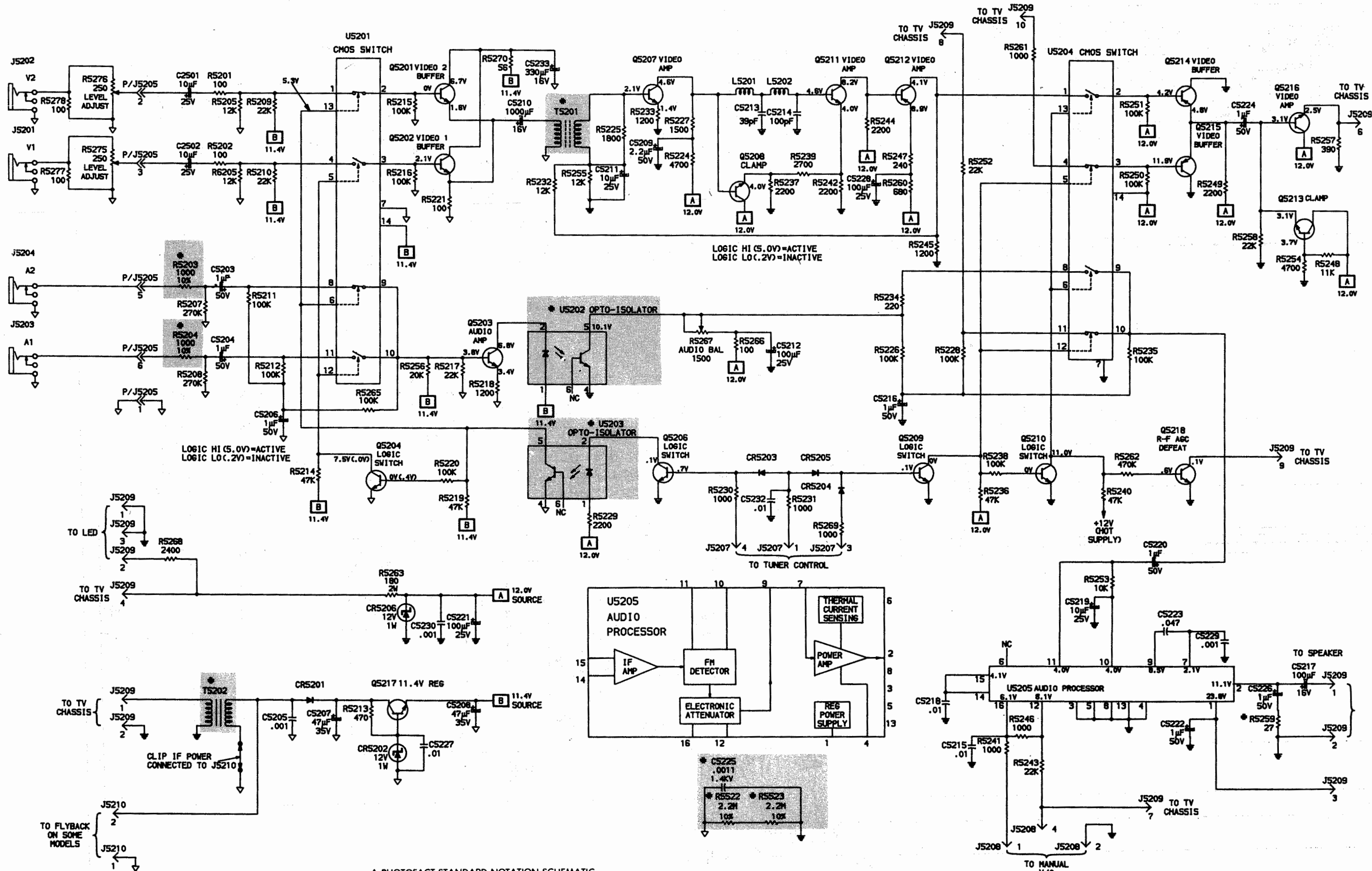
GENERAL GUIDE LINES

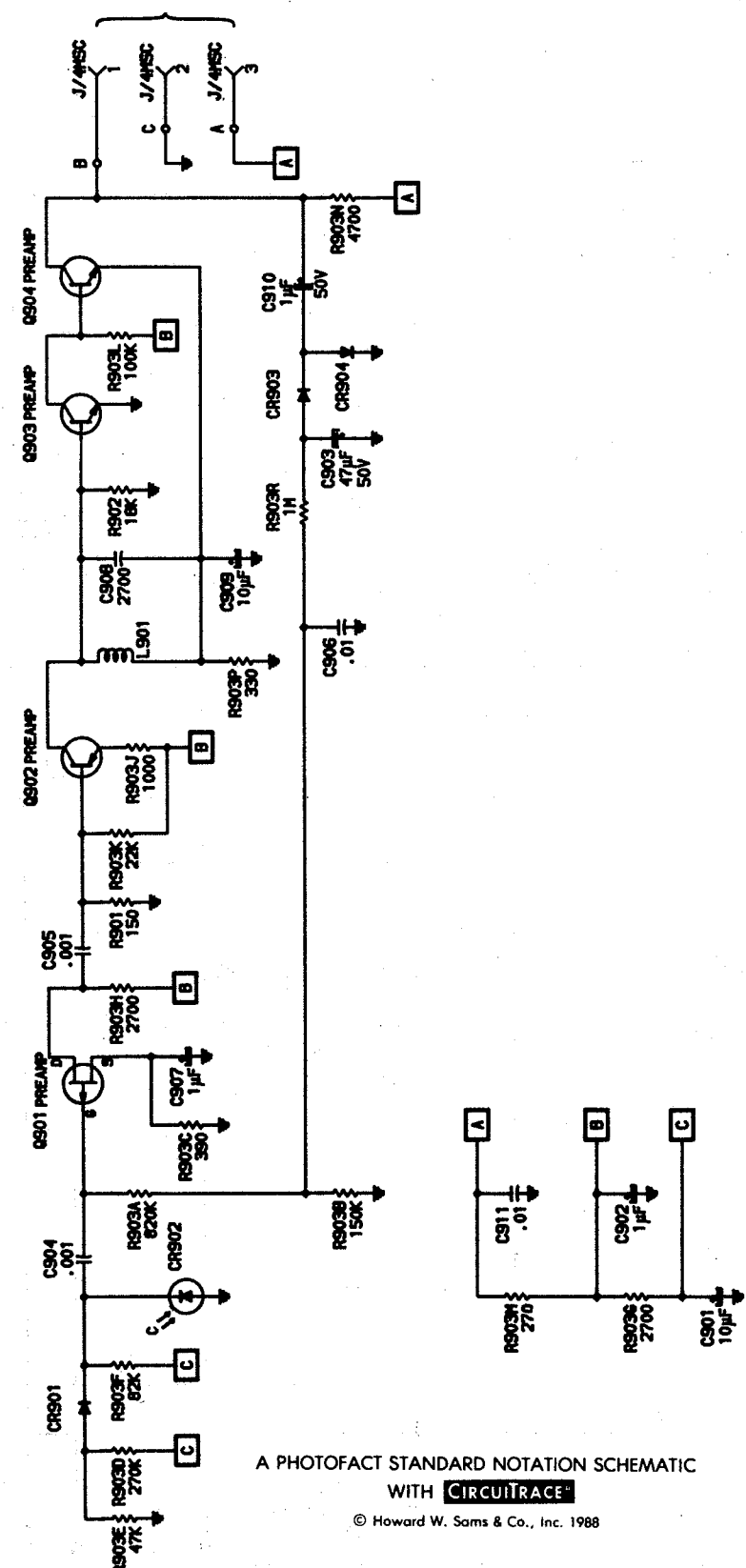
A final SAFETY check before returning the set to customer.

1. Check area repaired for poorly soldered or de-soldered connections. Check entire circuit board surface for solder splashes.
2. Check interboard wiring for pinched wires or wires contacting any high-wattage resistors.
3. Check that all control knobs, shields, covers, grounds and mounting hardware have been replaced. Be sure to replace all insulators.





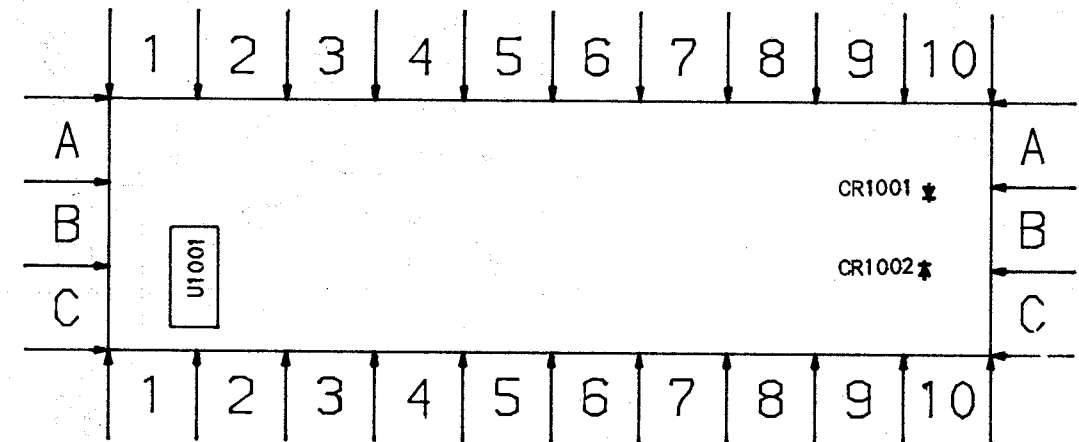




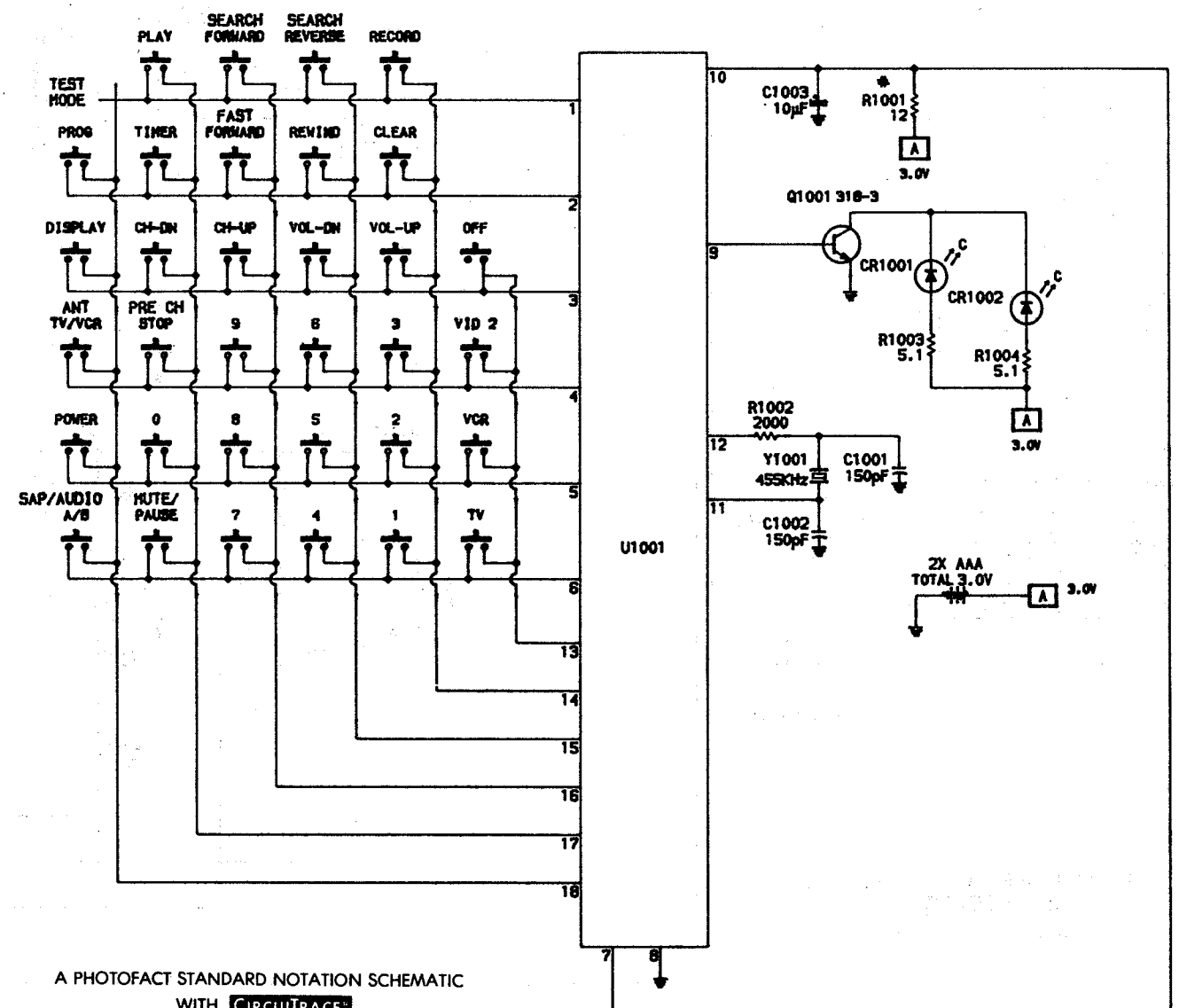
REMOTE CONTROL PREAMP MCY005A

REMOTE CONTROL TRANSMITTER CRK40A-GridTrace LOCATION GUIDE

C1001	A-1	CR1001	B-10	R1001	A-1	R1004	C-9
C1002	B-2	CR1002	B-10	R1002	B-1	U1001	C-2
C1003	A-2	Q1001	A-2	R1003	A-9	Y1001	B-2

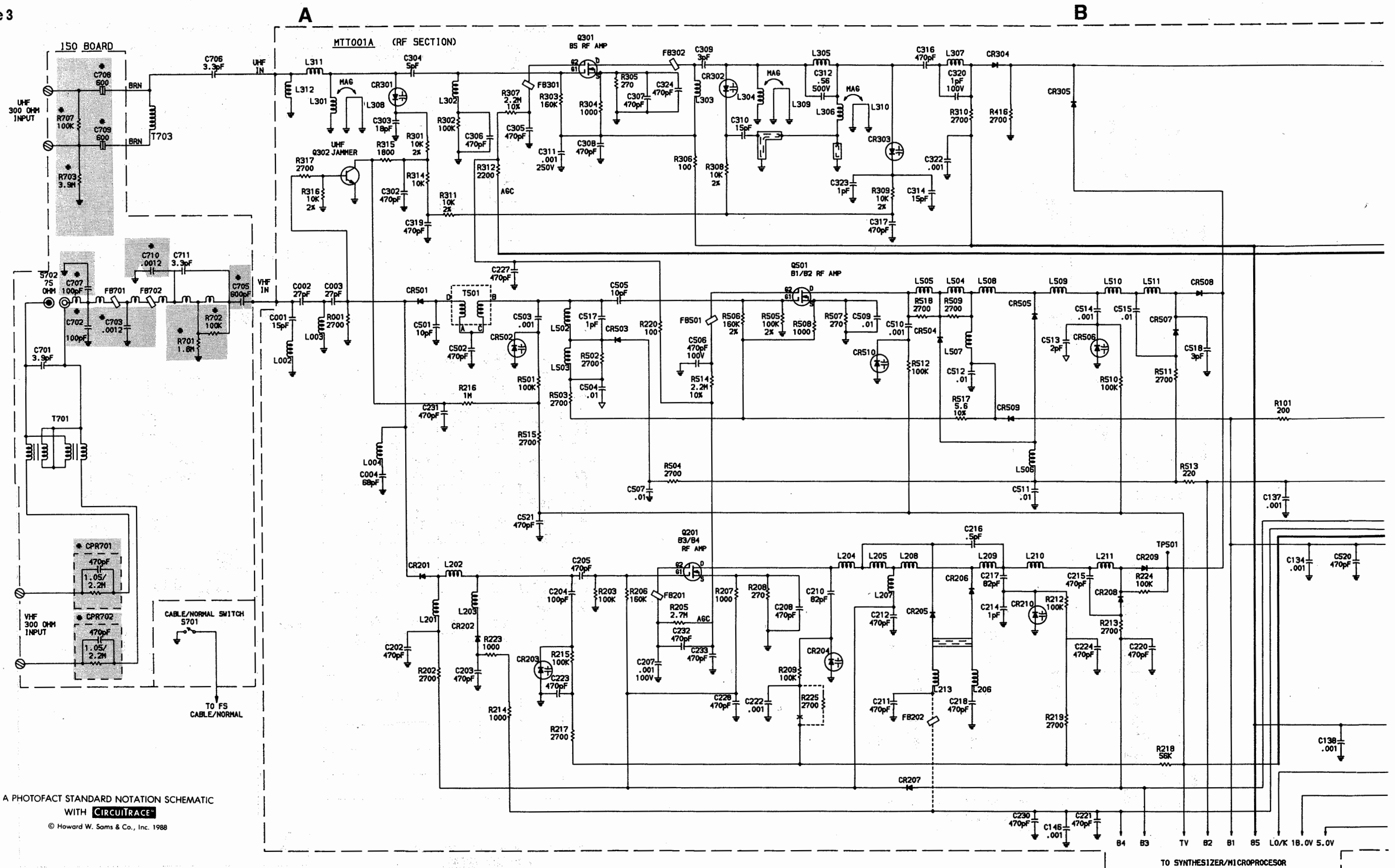


A Howard W. Sams GRIDTRACE™ Photo



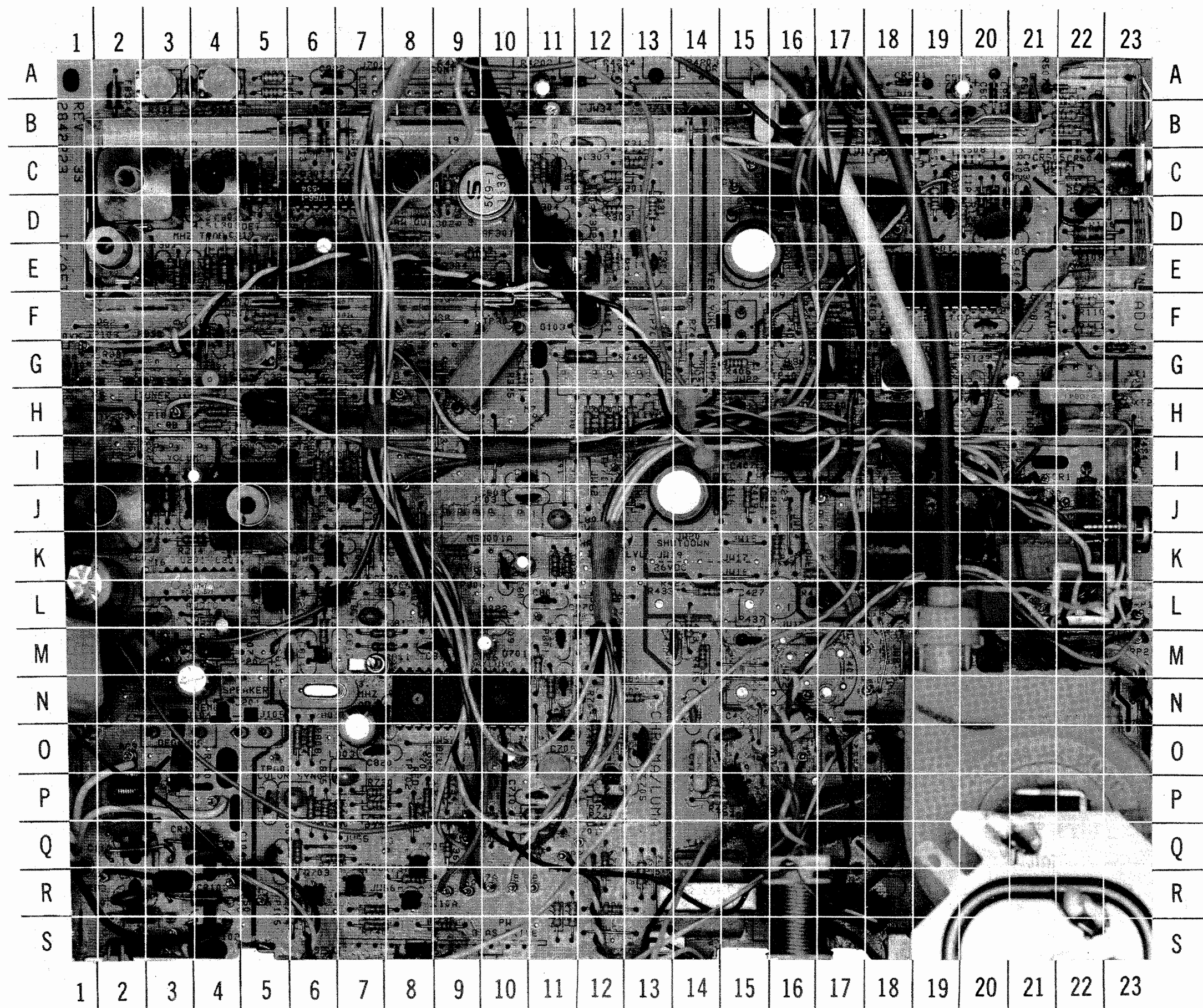
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE

© Howard W. Sams & Co., Inc. 1988 CRK40A TRANSMITTER



A PHOTOFAC STANDARD NOTATION SCHEMATIC
WITH **CIRCUITRACE**

© Howard W. Sams & Co., Inc. 1988



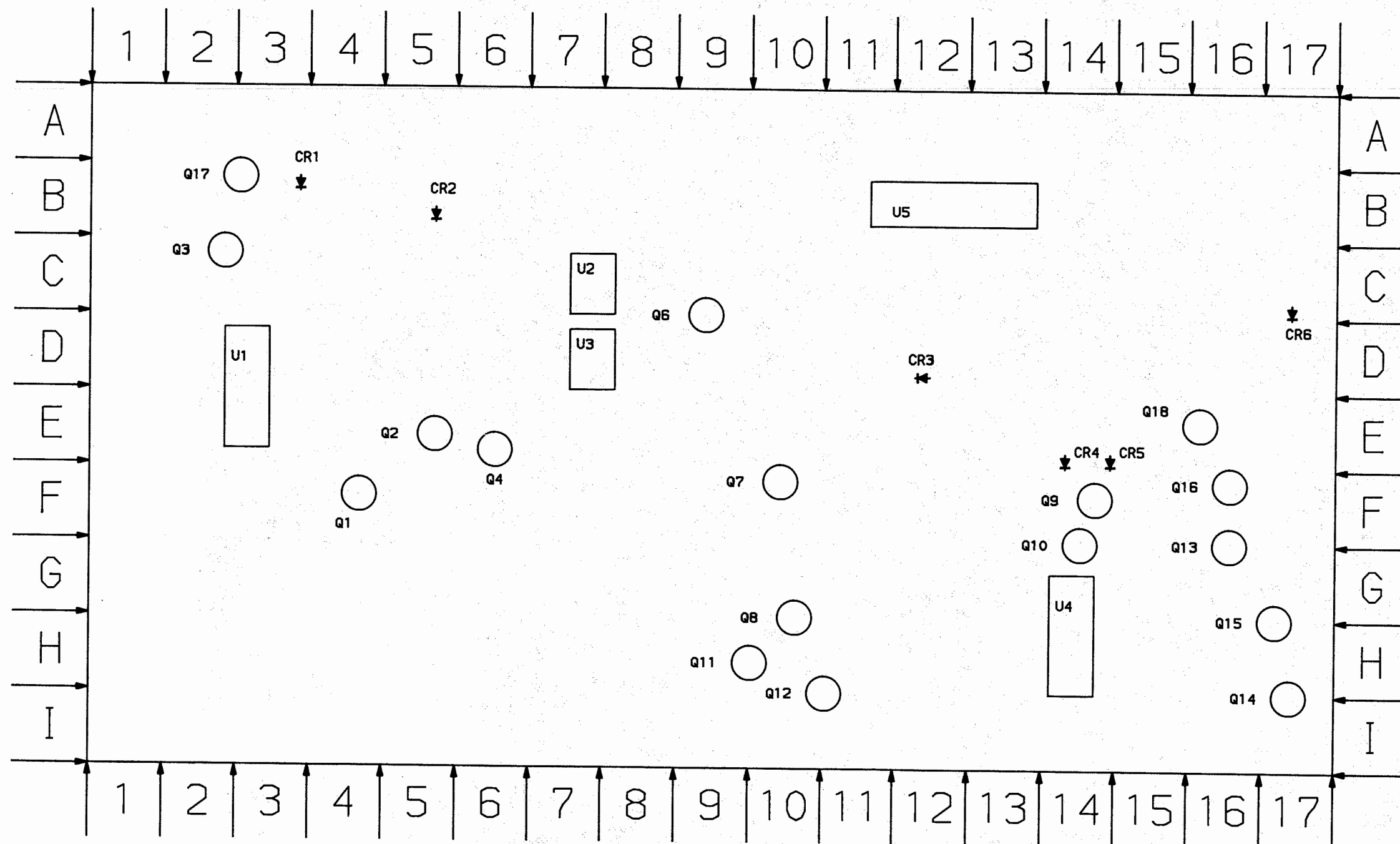
MAIN BOARD

A Howard W. Sams GRIDTRACE™ Photo

MAIN BOARD

PW5200 VIDEO/AUDIO BOARD-GridTrace LOCATION GUIDE

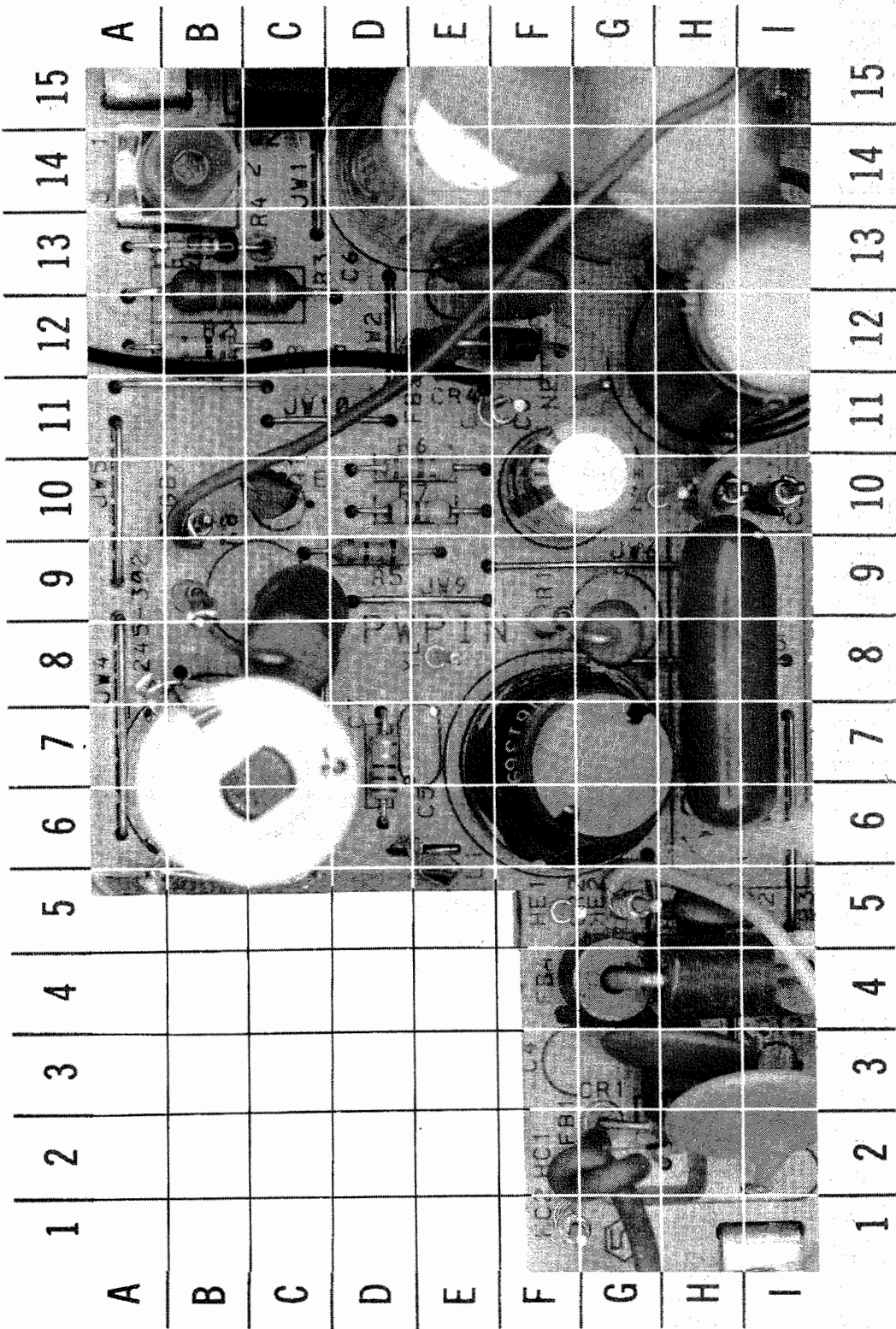
C1	I-4	C11	D-8	C21	F-11	C32	E-15	J7	E-13	JW6	A-15	JW16	C-1	Q9	F-14	R1	H-4
C2	I-3	C12	E-12	C22	A-14	C33	D-5	J8	C-15	JW7	D-10	L1	H-9	Q10	F-14	R2	H-3
C3	F-2	C13	H-8	C23	B-10	CR1	B-3	J9	B-16	JW8	C-10	L2	H-8	Q11	H-9	R3	H-2
C4	G-2	C14	I-8	C24	H-16	CR2	B-5	J10	A-1	JW9	E-4	Q1	F-4	Q12	I-11	R4	G-4
C5	A-6	C15	C-13	C25	I-6	CR3	D-12	J11	B-15	JW10	E-4	Q2	E-5	Q13	F-16	R5	H-2
C6	D-4	C16	G-11	C26	A-13	CR4	E-14	JW1	G-16	JW11	D-7	Q3	C-2	Q14	I-17	R6	G-1
C7	A-4	C17	B-9	C27	B-13	CR5	E-14	JW2	H-15	JW12	C-6	Q4	E-6	Q15	H-17	R7	F-1
C8	C-4	C18	D-12	C28	I-12	CR6	C-17	JW3	I-14	JW13	C-6	Q6	C-9	Q16	F-16	R8	F-3
C9	D-9	C19	C-10	C29	A-10	J5	H-4	JW4	G-13	JW14	C-3	Q7	F-10	Q17	B-3	R9	G-1
C10	F-10	C20	C-11	C30	D-17	J6	C-9	JW5	I-12	JW15	C-2	Q8	H-10	Q18	E-16	R10	G-1



R11	F-3	H-7
R12	F-3	H-7
R13	B-5	E-10
R14	C-5	E-10
R15	F-4	F-12
R16	D-4	F-11
R17	C-1	G-12
R18	B-1	D-9
R19	C-5	E-12
R20	D-6	D-14
R21	Q-6	G-10
R22	H-6	F-10
R23	H-7	F-12
R24	F-10	G-12
R25	E-10	H-13
R26	F-12	G-10
R27	F-11	F-14
R28	G-12	H-10
R29	D-9	H-12
R30	E-12	C-14
R31	D-14	I-9
R32	G-10	C-12
R33	F-10	H-11
R34	F-12	I-13
R35	G-12	C-13
R36	H-13	H-11
R37	G-10	F-16
R38	F-14	H-16
R39	H-10	H-15
R40	H-12	H-15
R41	C-14	E-15
R42	I-9	C-11
R43	C-12	G-16
R44	H-11	E-9
R45	I-13	C-3
R46	C-13	C-14
R47	H-11	G-16
R48	F-16	A-11
R49	H-16	H-12
R50	H-15	F-15
R51	H-15	F-15
R52	E-15	F-17
R53	C-11	D-4
R54	G-16	G-12
R55	E-9	D-11
R56	C-3	C-16
R57	C-14	D-14
R58	G-16	C-5
R59	A-11	D-3
R60	H-12	C-7
R61	F-15	D-7
R62	F-15	G-14
R63	F-17	B-12
R64	D-4	
R65	G-12	
R66	D-11	
R67	C-16	
R68	D-14	
R69	C-5	
R70	D-3	
U1	C-7	
U2	D-7	
U3	G-14	
U4	B-12	
U5		

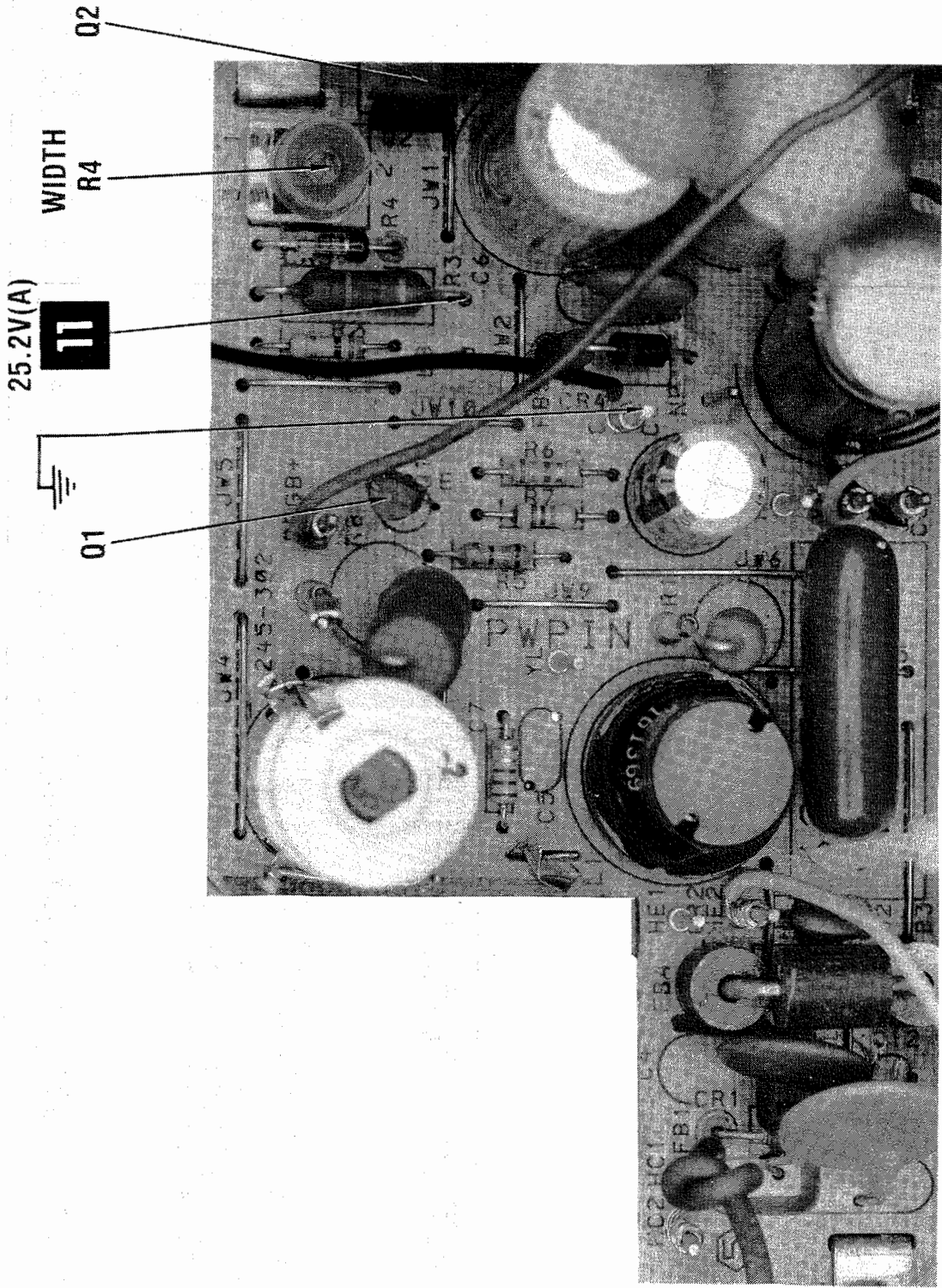
RCA MODELS FR520WR/25ER/26SR/30TR/35WR/36SR/
40SR/50ER, GLR841TR/45FR/45HR/49PR(CH, CTC120DSUB1)

PIN BOARD- GridTrace LOCATION GUIDE																	
			C1	C2	C3	C4	C6	C7	C8	C9	C10	C11	C12	CR1	CR2	CR3	CR4
			H-2	H-5	H-8	H-3	H-14	D-7	G-10	I-12	H-14	F-13	I-3	H-2	H-4	B-13	F-12
			L1	L2	Q1	Q2	R1	R2	R3	R4	R5	R6	R7	R8	B-12	B-13	B-14
															D-9	E-10	C-8



A Howard W. Sams **GRIDTRACE™** Photo

PIN BOARD



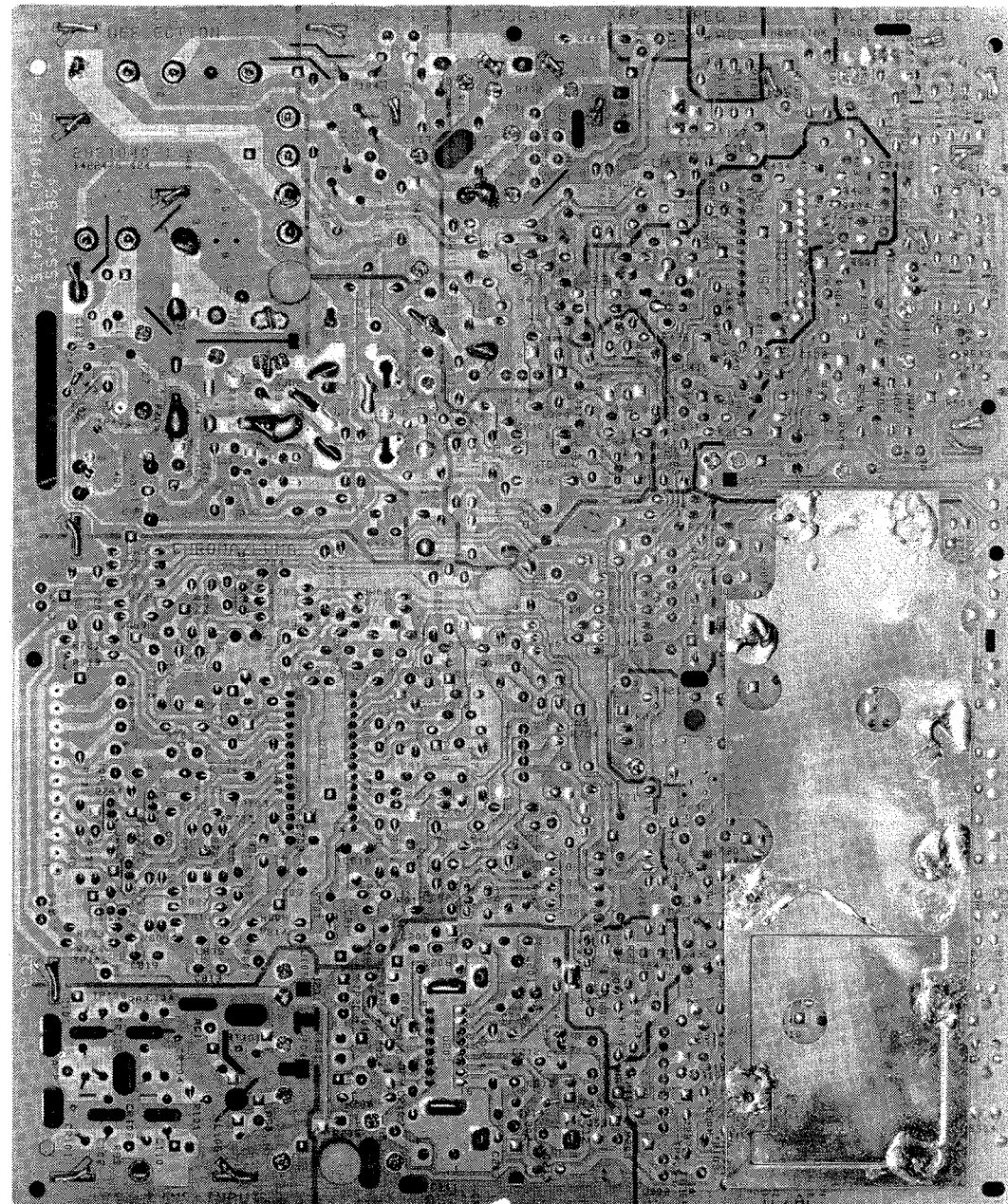
A Howard W. Sams **CIRCUITTRACE™** Photo

PIN BOARD

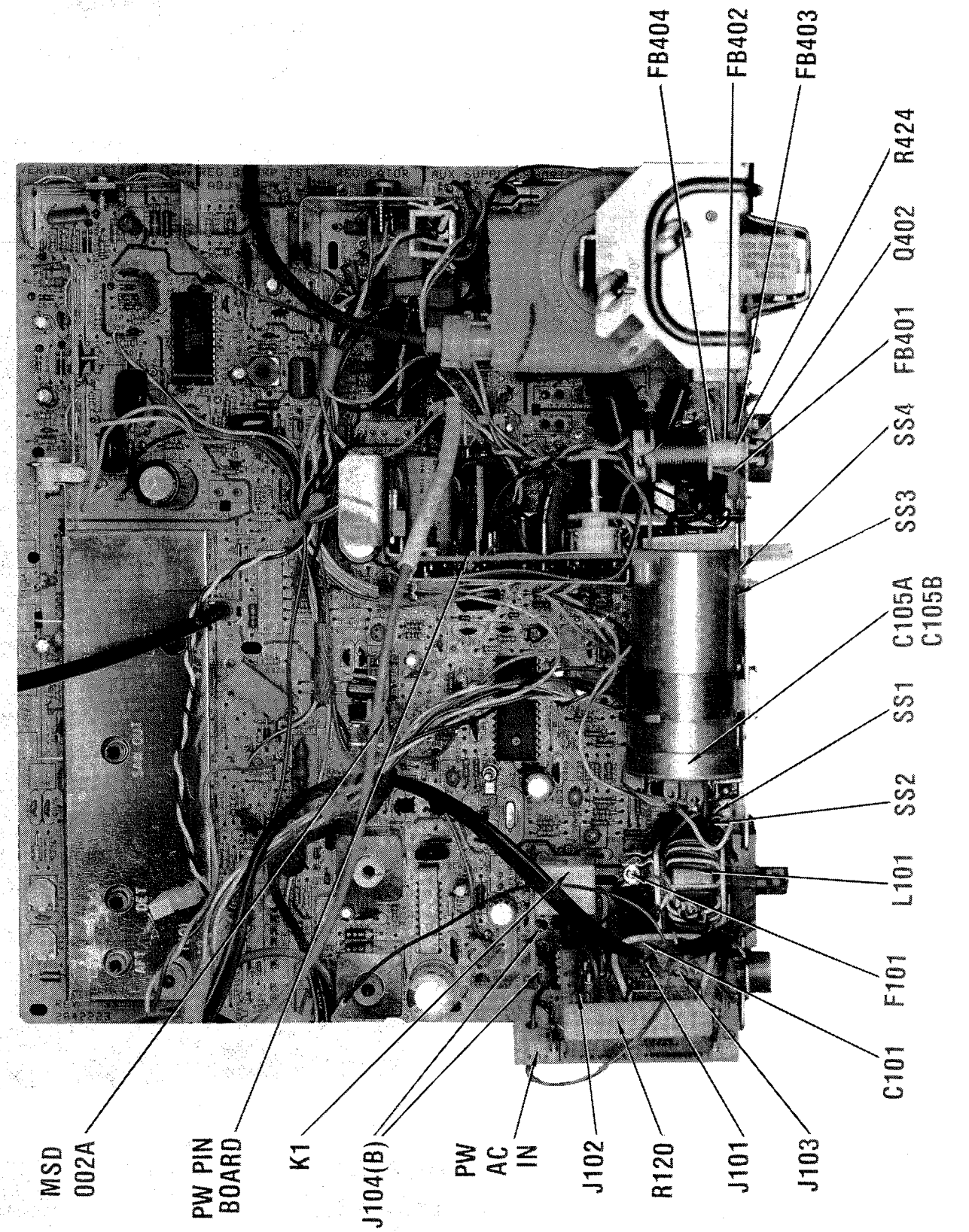
MAIN BOARD-GridTrace LOCATION GUIDE

C102	R-2	C411	I-16	CR503	A-20	R103	K-16	R423	J-15	R806	L-8
C103	S-4	C412	H-16	CR504	B-22	R104	J-19	R425	I-20	R807	L-8
C104	Q-4	C413	I-19	CR505	B-22	R105	F-20	R426	L-20	R808	Q-6
C106	G-21	C414	F-18	CR507	A-22	R106	D-22	R427	G-19	R809	Q-6
C107	F-20	C415	G-17	CR701	M-12	R107	F-21	R428	H-19	R810	P-6
C108	F-21	C416	H-20	CR704	N-12	R108	E-22	R429	I-17	R811	M-7
C109	K-18	C417	P-15	CR705	K-7	R109	F-22	R430	H-16	R812	M-7
C110	Q-2	C418	N-14	CR706	L-8	R111	F-22	R432	J-19	R813	M-6
C111	G-19	C419	O-14	CR707	J-8	R112	G-23	R434	I-23	R814	Q-6
C112	J-23	C420	M-14	DL701	H-6	R113	K-21	R435	G-17	R815	I-7
C113	K-22	C421	E-18	FB101	L-22	R114	J-21	R439	F-16	R818	H-12
C114	K-23	C423	P-17	FB102	M-20	R115	L-18	R501	D-19	R819	H-12
C115	I-20	C429	H-15	FB103	M-21	R116	J-18	R502	B-17	R820	L-12
C116	N-23	C430	D-19	FB301	E-6	R117	I-17	R503	A-17	R821	I-6
C117	G-21	C431	S-16	FB302	D-6	R119	M-1	R504	D-18	R822	L-10
C118	R-17	C502	C-16	FB303	D-12	R122	D-20	R505	A-16	R823	M-11
C119	M-20	C503	C-18	FB304	A-2	R201	M-4	R506	D-22	R824	N-11
C120	J-14	C504	B-20	FB306	C-2	R202	J-3	R507	B-20	R825	I-7
C201	N-4	C505	A-20	FB307	D-7	R203	J-4	R508	C-20	R827	P-6
C202	L-4	C506	A-17	FB308	G-2	R204	K-4	R509	D-15	R828	K-11
C203	J-2	C507	B-22	FB309	G-3	R205	M-3	R511	C-17	R829	K-11
C204	J-5	C509	E-15	FB501	D-18	R206	M-3	R512	B-18	RT101	Q-3
C205	L-5	C510	A-17	L103	S-16	R301	F-13	R513	B-22	SCR101	J-23
C206	L-5	C511	E-17	L104	M-19	R302	E-12	R514	B-22	SCR401	H-15
C208	J-4	C701	B-11	L105	P-5	R303	D-12	R515	C-21	SF301	C-10
C209	J-5	C703	O-10	L201	J-5	R304	E-12	R516	C-22	SS1	S-6
C210	L-2	C704	O-13	L202	J-2	R305	C-13	R517	A-21	SS2	S-6
C211	L-1	C705	P-12	L301	E-11	R306	C-12	R518	D-16	SS3	S-12
C212	J-3	C706	O-11	L302	C-8	R307	C-11	R519	E-16	SS4	S-12
C213	J-2	C707	M-12	L303	C-4	R308	C-11	R520	F-15	T101	H-22
C214	J-2	C708	N-7	L304	C-2	R309	C-9	R521	B-22	T301	E-2
C301	E-13	C709	O-7	L305	E-5	R310	E-4	R701	H-6	T401	R-14
C302	E-12	C710	P-11	L307	B-7	R311	F-5	R702	O-12	T402	P-21
C303	B-12	C711	P-10	L308	E-6	R312	C-13	R703	Q-10	TP47	Q-8
C304	D-11	C799	A-11	L309	C-12	R313	D-8	R704	I-10	TP203	H-2
C305	C-11	C801	I-10	L310	E-13	R314	E-3	R705	J-8	TP301	Q-8
C306	C-7	C803	J-10	L311	C-5	R315	F-8	R707	M-12	TP302	H-13
C307	C-7	C805	L-11	L312	B-6	R316	F-6	R708	Q-11	TP303	F-13
C308	E-3	C806	M-10	L313	B-6	R317	H-4	R709	I-7	TP304	F-9
C309	E-3	C807	K-10	L314	E-4	R318	E-8	R710	K-7	TP307	F-8
C310	E-7	C808	K-10	L401	G-18	R319	E-9	R711	J-7	TP318	G-4
C311	E-6	C809	L-10	L701	Q-11	R320	E-8	R713	H-12	TP319	G-2
C312	B-7	C810	L-9	L702	P-11	R321	H-5	R715	O-11	TP401	F-18
C313	B-9	C811	M-8	L801	J-11	R322	G-6	R716	L-6	TP402	R-15
C314	F-4	C812	K-9	L803	P-7	R323	H-4	R718	H-13	TP702	P-8
C315	F-3	C813	P-5	L804	L-7	R325	G-10	R719	R-11	TP801	L-11
C316	C-3	C814	M-6	L805	P-6	R326	A-5	R720	R-12	TP806	K-9
C317	C-2	C815	M-6	L806	J-7	R327	A-5	R721	R-11	TP807	Q-5
C318	E-9	C816	N-11	P/J104A	Q-3	R328	I-6	R722	P-7	U201	L-3
C319	E-5	C818	M-7	P/J105A	Q-5	R330	C-5	R723	R-6	U301	C-7
C320	H-5	C819	Q-5	P/J201	N-4	R331	D-13	R724	R-6	U401	E-19
C321	I-4	C820	O-7	P/J301	F-12	R332	A-3	R725	N-13	U701	N-10
C322	A-6	C821	K-6	P/J302	G-3	R333	A-4	R726	Q-12	XT1	G-23
C323	G-5	C822	L-6	P/J401	P-17	R334	G-5	R727	Q-16	XT2	H-23
C324	H-5	C823	M-11	P/J402	Q-17	R335	E-5	R728	R-13	Y801	N-6
C325	A-6	C899	A-13	P/J501	F-15	R336	F-4	R729	P-7		
C326	G-6	CR101	S-2	P/J701	G-12	R337	G-2	R730	P-7		
C327	A-3	CR102	Q-2	P/J703	J-9	R401	F-17	R731	Q-7		
C328	E-6	CR103	R-4	Q301	C-12	R402	J-22	R732	P-8		
C329	D-6	CR104	Q-4	Q303	E-9	R403	D-20	R733	P-8		
C330	I-4	CR105	K-18	Q304	E-9	R404	D-20	R734	P-9		
C331	D-11	CR106	M-21	Q305	I-5	R405	G-15	R735	S-9		
C333	C-4	CR107	M-22	Q401	P-15	R407	F-17	R736	Q-9		
C334	F-2	CR301	G-8	Q501	B-19	R411	H-18	R737	R-8		
C335	G-6	CR302	I-5	Q502	C-23	R412	J-18	R738	Q-6		
C401	F-16	CR402	D-20	Q701	P-12	R413	L-14	R739	R-7		
C402	J-21	CR405	I-18	Q703	R-6	R415	M-14	R740	S-7		
C403	D-21	CR406	H-17	Q704	R-8	R416	J-14	R741	G-14		
C404	E-20	CR407	J-15	Q705	R-8	R417	L-17	R743	O-12		
C405	D-20	CR409	H-15	Q706	R-7	R418	O-16	R744	K-9		
C406	H-18	CR410	K-20	Q801	K-6	R419	J-15	R745	G-12		
C407	I-15	CR411	I-17	R1	P-23	R420	K-16	R746	Q-12		
C408	F-17	CR501	A-18	R101	P-2	R421	G-10	R747	P-12		
C410	O-15	CR502	B-18	R102	R-16	R422	L-14	R748	Q-12		

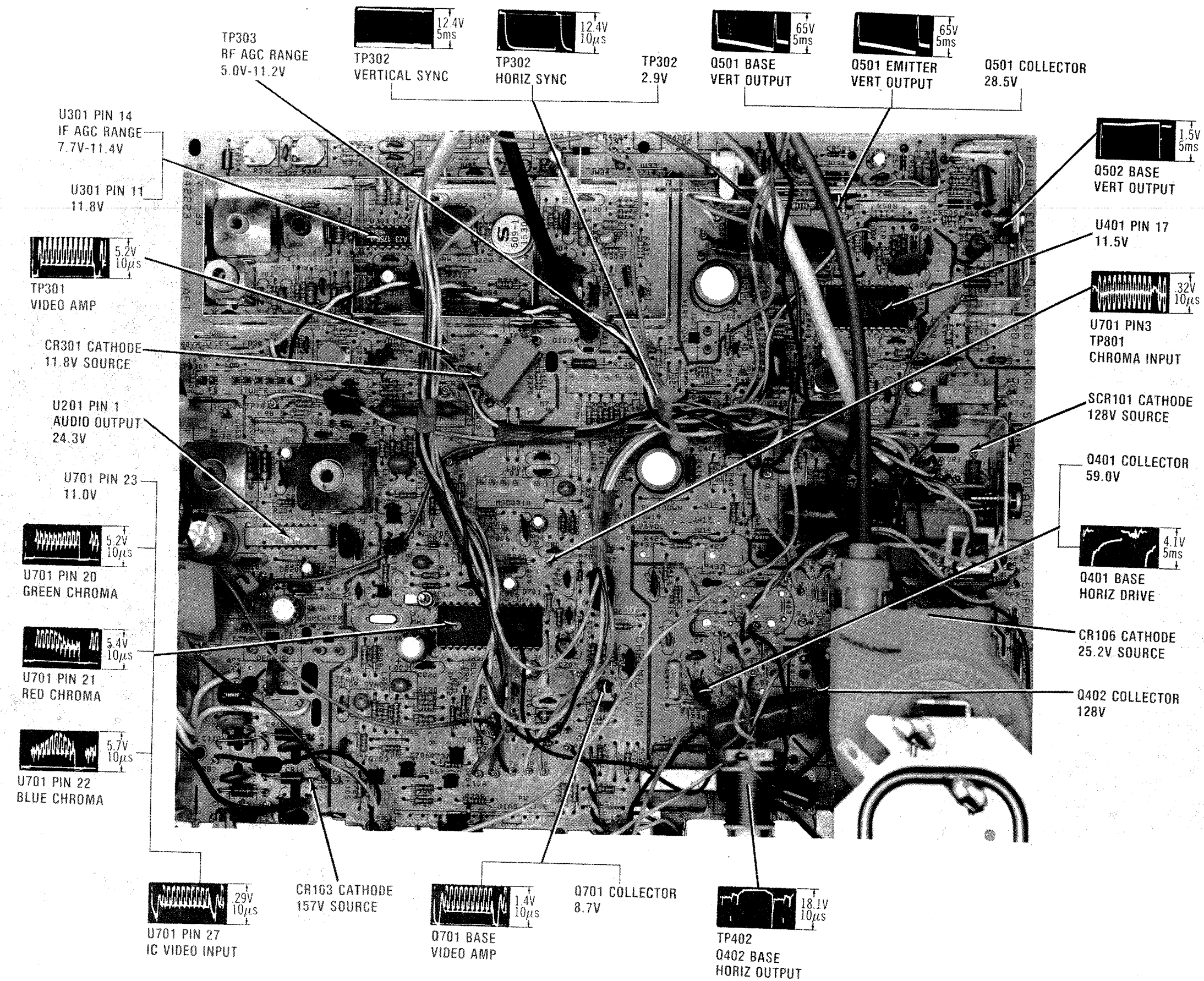
RCA MODELS FR520WR/25ER/26SR/30TR/35WR/36SR/
40SR/50ER, GLR841TR/45FR/45HR/49PR(CH, CTC120DSUB1)

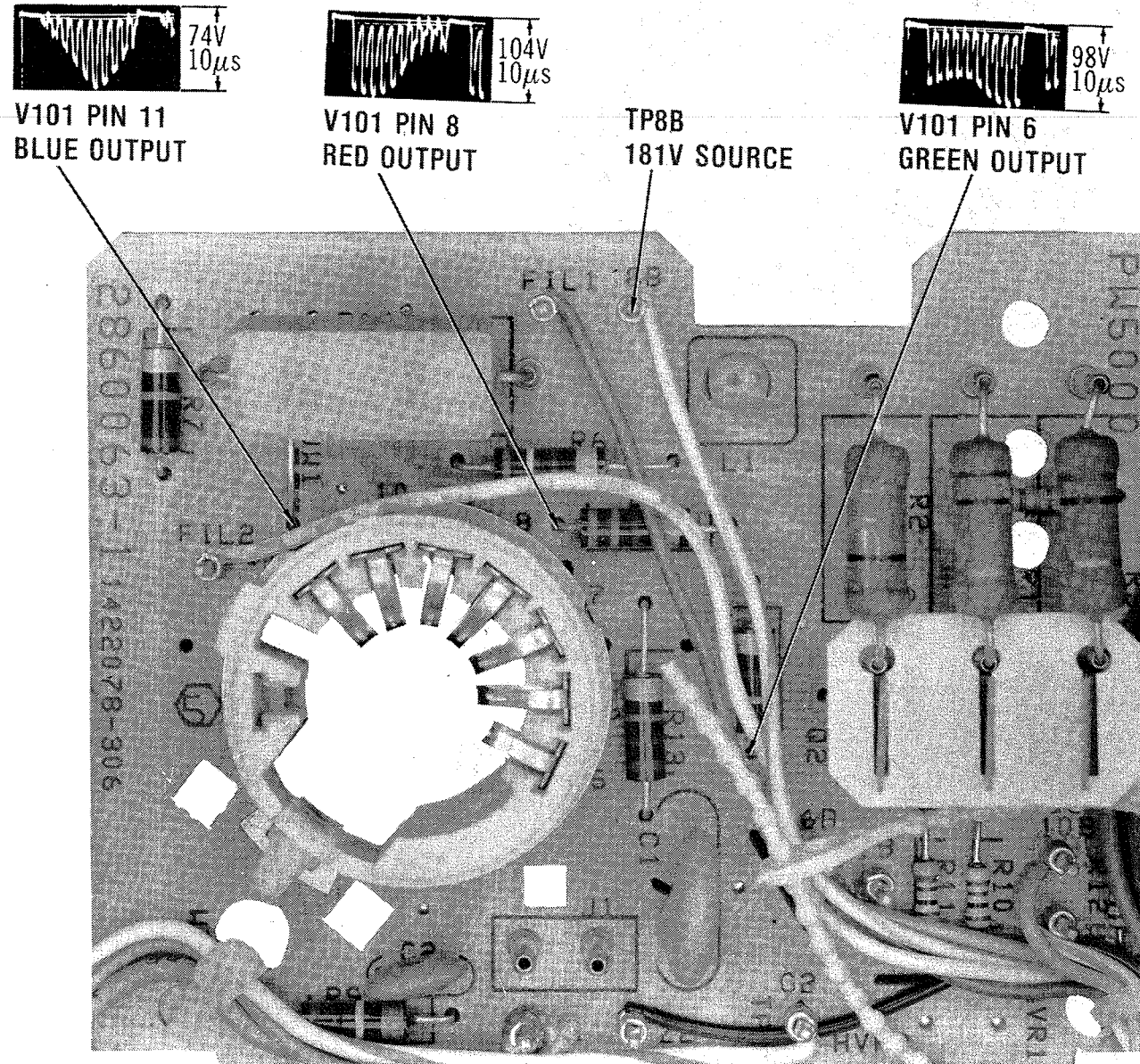


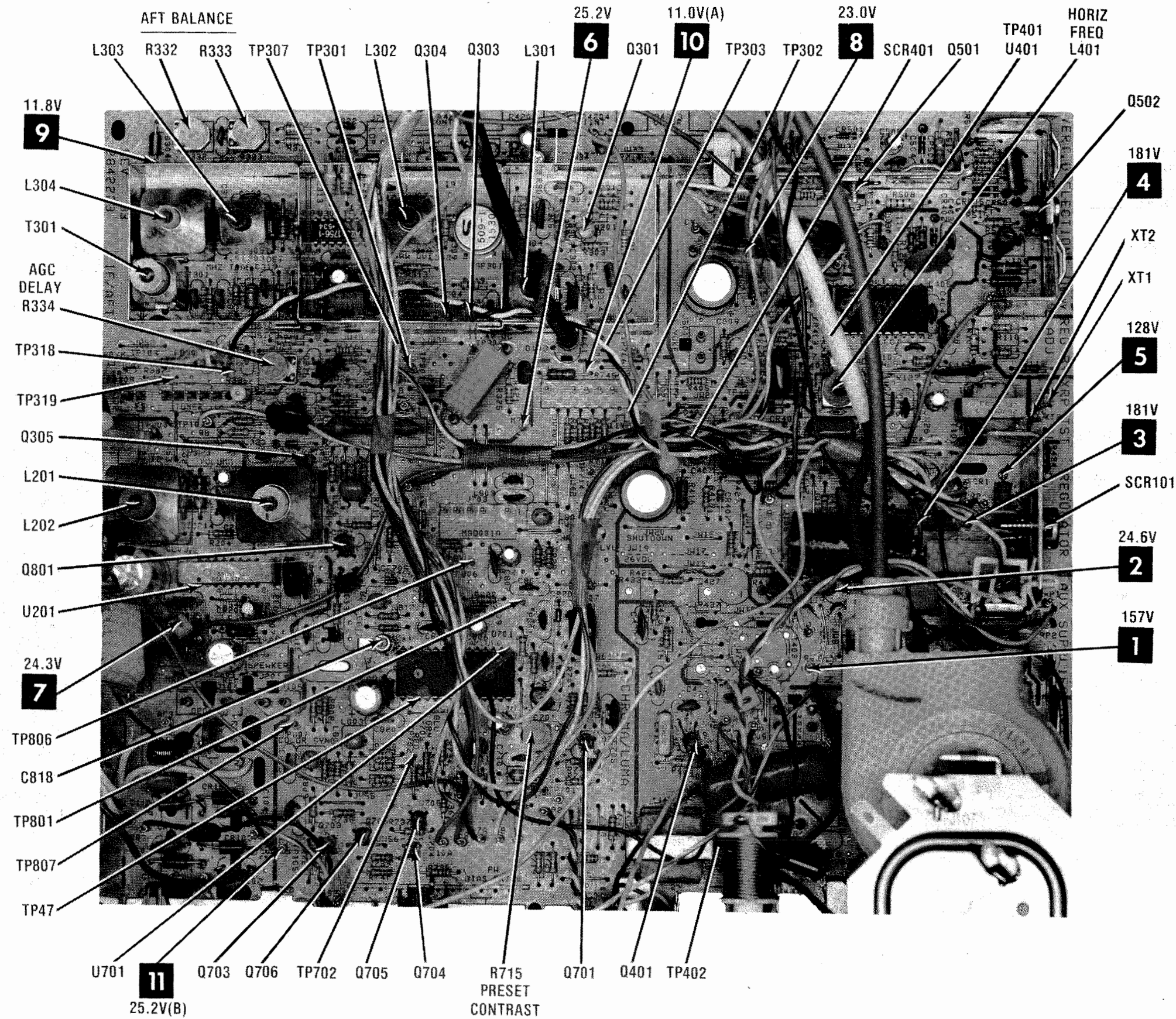
MAIN BOARD-SHIELD LOCATION (BOTTOM)



MAIN BOARD







PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	TYPE No.	MFGR. PART No.	REPLACEMENT DATA				NOTES
			NTE PART No.	ECG PART No.	RCA PART No.	ZENITH PART No.	
CR1 CR2 CR3	PW PIN BOARD	146316	NTE525	ECG525	SK3925/525	212-Z9010	
		146137	NTE552	ECG552	SK9000/552	103-287	
		156317	NTE109	ECG109	SK3090/109	103-Z9001	
		149730	NTE109	ECG109	SK3090/109	103-Z9001	
CR4 Q1 Q2		142569	NTE506	ECG506	SK3130	103-287	
		146847	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
		153350	NTE153	ECG153	SK3274/153	121-988-03	

For SAFETY use only equivalent replacement part#.

WIRING DATA

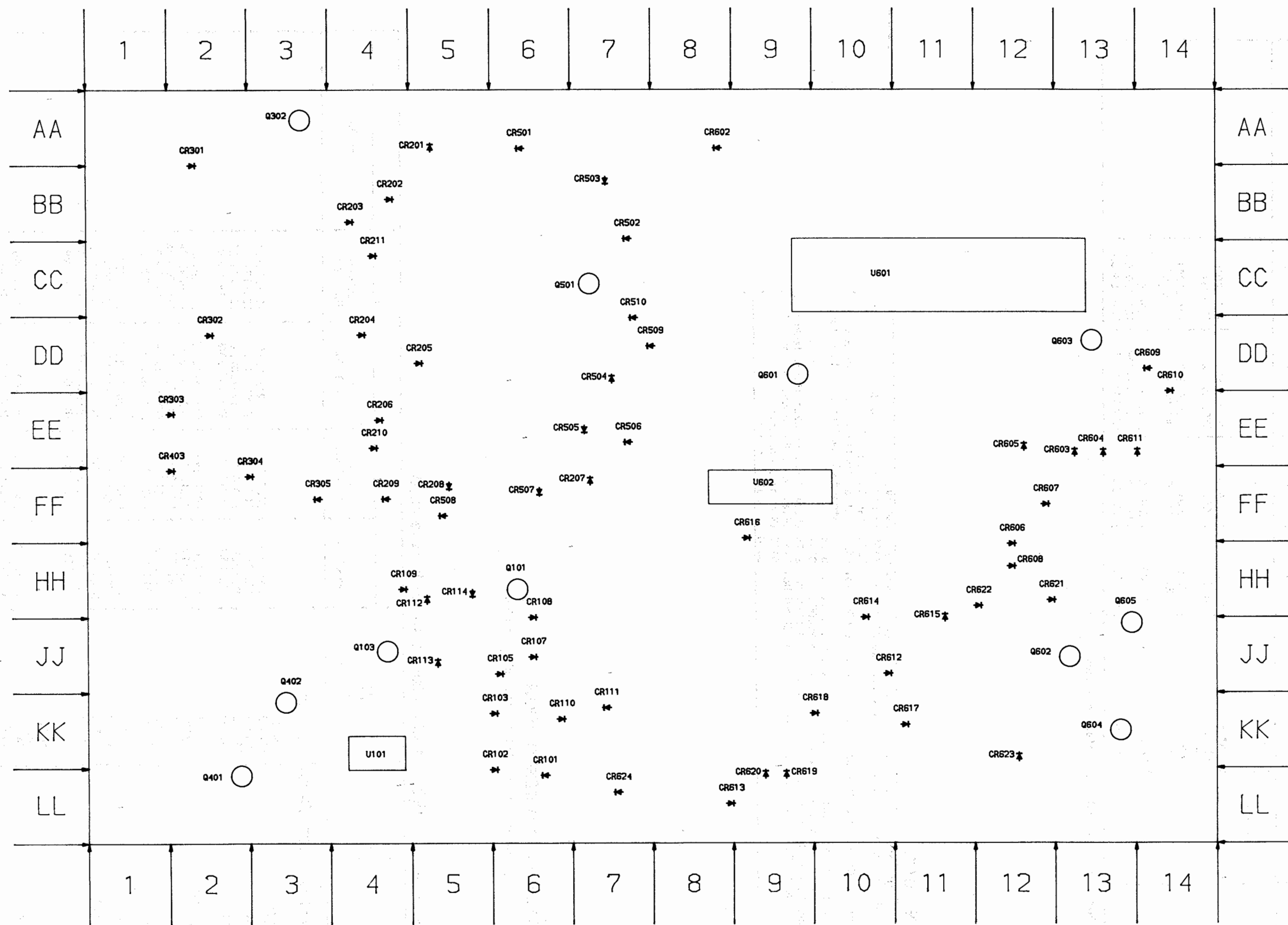
High Voltage Lead	Use BELDEN No. 9867 (30 KV)
Shielded Hook-up Wire	Use BELDEN No. 8401 or 8421 (Single-Conductor)
	8208 (Two-Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8529 (Solid) Available in 13 Colors
	8522 (Stranded) Available in 13 Colors
300-Ohm Tuner Input Lead	Use BELDEN No. 8225
75-Ohm Tuner Input Lead	Use BELDEN No. 8241
300-Ohm Antenna Lead-In	Use BELDEN No. 8275 (Foam Core) or 8285 (Foam Jacketed)
Antenna Rotor Cable	8464 (Flat) or 8484 (Round) 4-Conductor
	8485 (Round) 5-Conductor
	8488 (Round) 8-Conductor

PARTS LIST AND DESCRIPTION

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	MFGR. PART No./ TYPE No.					NOTES
		NTE PART No.	ECG PART No.	RCA PART No.	ZENITH PART No.	
PW5200 VIDEO/AUDIO BOARD						
CR5201	159649	NTE5021A	ECG5021A	SK12A/5021A	103-279-21	
CR5202	141873	NTE177	ECG177	SK9091/177	103-131	
CR5203, 4, 5	164874	NTE5021A	ECG5021A	SK12A/5021A	103-279-21	
CR5206	141873	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
Q5201, 2	143793					
Q5203, 4, 6	142711	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
Q5207, 8	143793	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
Q5209, 10	142711	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
Q5211	143793	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
Q5212	143802	NTE159	ECG159	SK3466/159	121-Z9003	
Q5213	143793	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
Q5214, 5	143802	NTE159	ECG159	SK3466/159	121-Z9003	
Q5216, 7	143793	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
Q5218	146847	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
U5201	154027	NTE4016B	ECG4016B	SK4016B	HE-442-99	
U5202	154224	NTE4016B NTE1175	ECG4016B ECG1175	SK4016B SK3212/1175	HE-442-99 221-Z9056	
U5203	154223					
U5204	154027					
U5205	153684					



PARTS LIST AND DESCRIPTION

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	MFGR. PART No./ TYPE No.	NTE PART No.	ECG PART No.	RCA PART No.	ZENITH PART No.	NOTES
CRK40A TRANSMITTER Q1 U1 MCY005A REMOTE PREAMP CR901 CR902 CR903, 4 Q901 Q902 Q903, 4	148996 175219	NTE123AP	ECG123AP	SK3854/123AP	121-Z9000A	
	164874 150711 164874	NTE177	ECG177	SK9091/177	103-131	
		NTE177	ECG177	SK9091/177	103-131	
	148070 145410 148061	NTE451 NTE159	ECG451 ECG159	SK9164/451 SK3466/159	121-Z9003	
						MATCHED SET INCLUDES CR108, CR203, CR204, CR210, CR502, CR502, CR506, CR510 USE CR107 MATCHED SET MATCHED SET INCLUDES CR112, CR301, CR302, CR303
MSD002A/B ON SCREEN DISPLAY BOARD CR1, 2 Q1	164717 143806	NTE519 NTE159	ECG519 ECG159	SK3100/519 SK3466/159	103-131 121-Z9003	
MTT001A TUNER CONTROL BOARD CR101 CR102, 3 CR105 CR107 CR108 CR109	164717 174378 129095 174449	NTE519 NTE553	ECG519 ECG553	SK3100/519 SK3322	103-131	
	174450					

PARTS LIST AND DESCRIPTION (Continued)

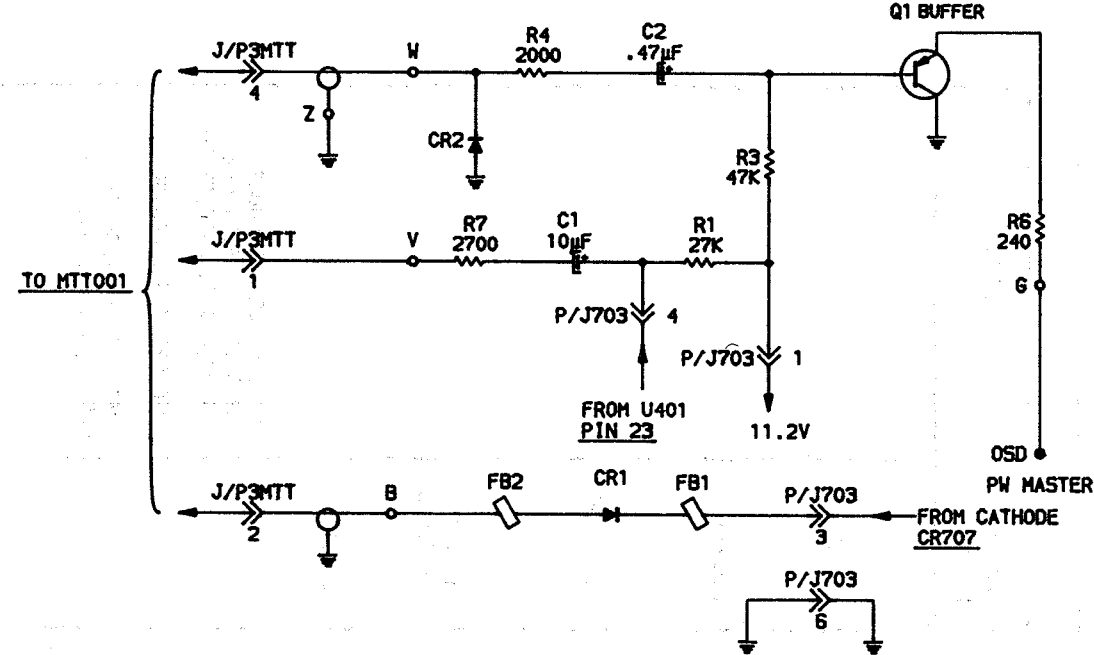
When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

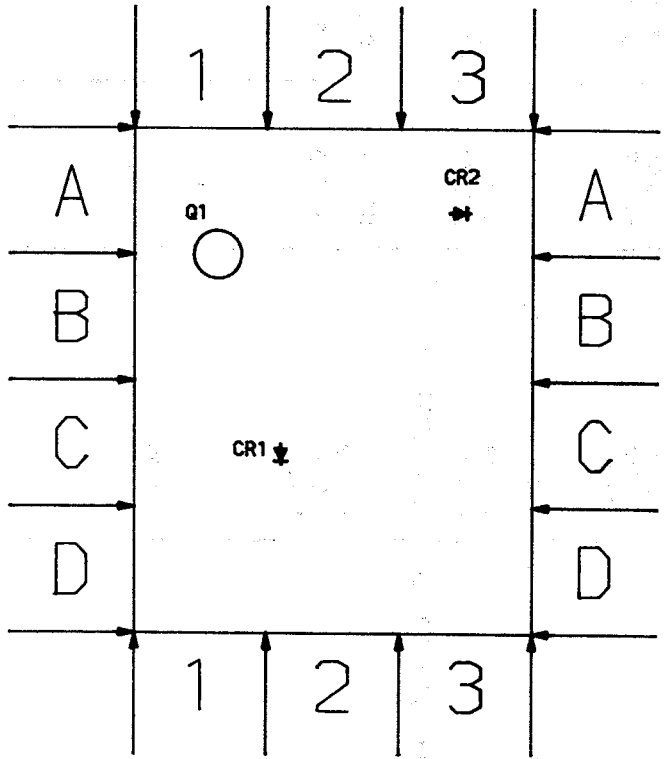
ITEM No.	MFGR. PART No./ TYPE No.	NTE PART No.	ECG PART No.	RCA PART No.	ZENITH PART No.	NOTES
CR110, 111 CR112 CR113, 4, 5 CR201, 2 CR203, 4 CR205, 6 CR207 CR208, 9 CR210 CR211 CR212 CR301, 2, 3 CR304, 5 CR401, 2 CR403 CR501 CR502 CR503, 4, 5 CR506 CR507, 8 CR509 CR510 CR602 CR603 THRU CR608 CR609, 10, 11 CR612 CR613 CR614, 5	164717 129095 129095	NTE519 NTE553 NTE553	ECG519 ECG553 ECG553	SK3100/519 SK3322 SK3322	103-131	USE CR109 MATCHED SET USE CR107 MATCHED SET
	129095 164717 129095	NTE553 NTE519 NTE553	ECG553 ECG519 ECG553	SK3322 SK3100/519 SK3322	103-131	USE CR107 MATCHED SET
	129095 164717 129095	NTE519 NTE553 NTE553	ECG519 ECG553 ECG553	SK3100/519 SK3100/519 SK3322	103-131 103-131	USE CR107 MATCHED SET USE CR109 MATCHED SET
	164717 129095 129095	NTE519 NTE553 NTE553	ECG519 ECG553 ECG553	SK3100/519 SK3322 SK3322	103-131	USE CR107 MATCHED SET USE CR107 MATCHED SET
	129095 129095 164717	NTE553 NTE553 NTE519	ECG553 ECG553 ECG519	SK3322 SK3322 SK3100/519	103-131	USE CR107 MATCHED SET USE CR107 MATCHED SET
	164874	NTE177	ECG177	SK9091/177	103-131	USE CR107 MATCHED SET
	164717 164874 137652 174431 139706	NTE519 NTE177 NTE116 NTE177	ECG519 ECG177 ECG116 ECG177	SK3100/519 SK9091/177 SK3313/116 SK9091/177	103-131 103-131 212-76-02 103-131	

TUNER CONTROL MTT001A (BOTTOM VIEW)-GridTrace LOCATION GUIDE

C1	A-11	C314	E-14	C657	L-5	R509	D-8
C2	A-10	C316	F-14	C659	C-5	R511	E-9
C3	A-10	C317	D-13	C662	C-7	R512	D-8
C4	A-9	C319	C-14	C663	H-1	R515	C-9
C100	H-9	C322	E-12	C664	H-1	R517	D-8
C101	L-10	C323	E-14	C668	L-3	R518	D-9
C102	L-10	C401	J-12	C669	L-4	R605	A-2
C103	K-10	C403	H-13	C670	F-1	R606	A-2
C104	J-10	C404	H-12	C673	D-3	R607	A-3
C105	J-9	C405	H-12	CR401	H-13	R608	A-3
C106	J-9	C406	F-12	CR402	H-13	R609	B-6
C107	H-9	C407	K-12	CR407	K-12	R618	C-5
C109	F-10	C408	K-13	R102	L-10	R619	B-6
C110	H-10	C412	K-13	R107	J-10	R620	C-1
C111	J-11	C413	L-13	R109	J-9	R621	C-1
C115	L-11	C415	J-14	R111	H-10	R625	B-7
C116	C-8	C416	K-14	R113	K-11	R627	B-6
C117	K-11	C418	L-12	R115	J-8	R628	B-6
C118	K-11	C419	J-13	R117	L-11	R630	J-2
C119	L-11	C420	J-1	R119	J-11	R631	J-2
C121	J-10	C421	L-14	R120	L-11	R632	K-1
C122	J-11	C501	A-8	R122	J-11	R633	J-1
C123	J-11	C502	B-9	R123	J-10	R635	E-2
C124	J-11	C503	B-8	R126	J-10	R636	H-3
C125	H-11	C504	B-8	R128	K-10	R637	D-2
C126	J-11	C505	B-8	R129	J-11	R639	E-1
C127	J-8	C507	A-8	R130	J-10	R640	K-2
C128	H-9	C509	C-8	R145	K-11	R641	L-1
C131	H-9	C510	C-8	R202	C-9	R643	D-3
C133	K-8	C511	E-8	R203	C-11	R645	D-7
C134	L-8	C512	D-8	R205	D-10	R646	D-6
C135	K-11	C513	E-8	R206	C-2	R647	D-7
C137	K-8	C514	E-9	R208	C-11	R648	D-6
C139	H-8	C515	E-9	R209	D-11	R649	E-6
C141	H-12	C516	B-9	R212	E-11	R652	K-3
C142	H-11	C517	B-8	R213	E-10	R660	J-3
C143	H-10	C518	F-10	R214	D-10	R661	K-2
C144	J-9	C521	D-9	R215	C-11	R662	K-2
C146	J-8	C601	A-2	R217	D-10	R666	E-2
C147	K-10	C602	A-2	R219	D-10	R667	H-4
C149	H-9	C603	A-3	R221	B-11	R670	C-7
C150	H-8	C604	A-3	R222	B-11		
C202	B-11	C605	B-1	R301	A-13		
C203	B-11	C607	C-3	R302	B-13		
C204	B-11	C608	A-3	R303	B-14		
C205	C-11	C609	A-4	R304	C-13		
C206	C-5	C610	A-4	R305	B-13		
C208	C-11	C611	A-4	R308	D-14		
C210	D-11	C612	A-4	R309	D-14		
C211	D-11	C613	A-5	R310	F-13		
C212	D-11	C614	A-5	R311	D-14		
C214	E-11	C615	C-5	R314	B-14		
C215	E-10	C616	B-5	R317	A-12		
C216	E-10	C617	D-1	R402	L-10		
C217	E-11	C618	D-1	R403	K-13		
C218	E-12	C619	A-5	R404	K-13		
C219	B-11	C620	J-1	R405	K-13		
C220	F-10	C622	J-2	R406	H-13		
C221	F-10	C623	K-2	R407	H-12		
C223	C-11	C624	D-1	R408	K-13		
C224	E-11	C625	E-1	R409	K-12		
C227	C-12	C626	F-1	R411	K-12		
C228	C-2	C627	E-1	R412	K-12		
C229	B-11	C630	D-6	R417	F-14		
C302	A-13	C631	E-6	R418	J-13		
C303	A-13	C634	F-7	R420	K-12		
C304	B-14	C635	K-6	R421	J-13		
C305	B-14	C636	H-5	R423	K-13		
C306	B-13	C637	J-1	R501	B-9		
C307	B-13	C638	K-7	R502	B-8		
C308	C-13	C649	L-7	R503	C-9		
C309	C-13	C650	L-3	R504	C-9		
C310	D-13	C652	L-1	R505	C-8		
C313	E-13	C653	L-2	R506	C-9		



A PHOTOFACT STANDARD NOTATION SCHEMATIC
WITH CIRCUITTRACE
© Howard W. Sams & Co., Inc. 1988



ON SCREEN DISPLAY
MSD002A/B-GridTrace
LOCATION GUIDE

C1	C-2
C2	B-2
CR1	C-2
CR2	A-3
FB1	C-1
FB2	B-2
Q1	B-1
R1	C-1
R2	B-3
R3	C-1
R4	B-3
R6	A-2
R7	B-3

ON SCREEN DISPLAY MSD002A/B

A Howard W. Sams GRIDTRACE™ Photo

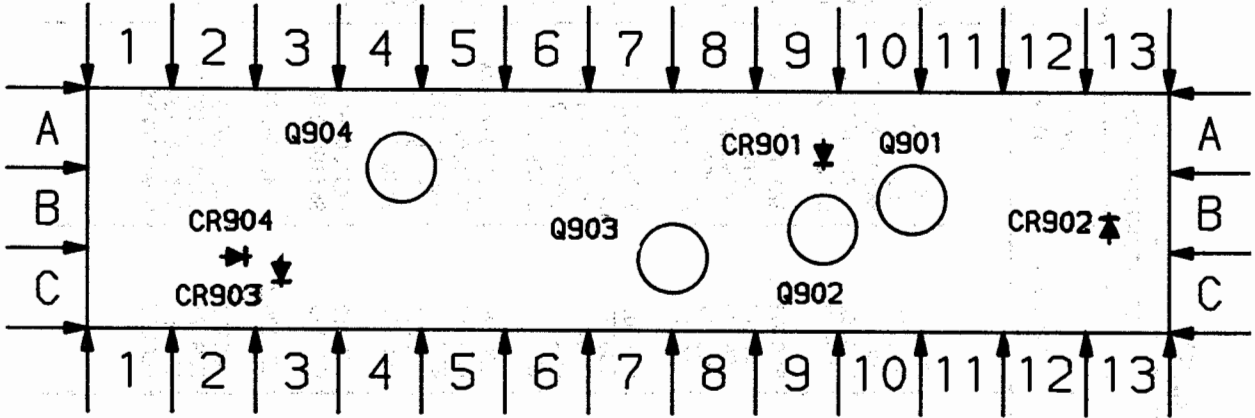
RCA MODELS FR520W/R/25ER/26SR/30T/R/35WR/36SR/
40SR/50ER, GLR841T/R/45FR/45HR/49PR(CH, CTC120DSUB1)

TUNER CONTROL MTT001A (TOP VIEW)-GridTrace LOCATION GUIDE

C148	HH-4	FB401	LL-2	R106	JJ-7
C207	CC-4	FB501	CC-6	R110	HH-6
C209	EE-6	L1	AA-4	R112	JJ-3
C222	DD-4	L2	AA-5	R118	HH-4
C225	BB-5	L3	AA-6	R121	JJ-4
C226	EE-5	L101	LL-6	R124	KK-4
C311	AA-1	L102	KK-6	R131	HH-6
C312	DD-1	L103	KK-6	R207	LL-4
C320	FF-2	L104	JJ-6	R211	DD-5
C411	LL-2	L105	KK-4	R216	EE-3
C414	HH-1	L106	HH-4	R218	DD-6
C417	FF-1	L201	AA-4	R220	CC-4
C506	CC-2	L202	BB-5	R223	FF-4
C519	BB-6	L203	BB-5	R306	CC-2
C628	KK-14	L204	DD-5	R307	BB-2
C629	DD-8	L205	DD-4	R312	DD-3
C632	DD-9	L206	DD-4	R315	AA-2
C633	EE-9	L207	DD-4	R316	AA-2
C644	JJ-11	L208	EE-4	R414	HH-1
C645	HH-10	L209	EE-4	R415	HH-1
C646	FF-10	L210	EE-5	R416	FF-3
C647	FF-8	L211	FF-5	R419	HH-2
C648	LL-8	L212	BB-4	R422	KK-2
C654	LL-11	L213	DD-4	R507	CC-7
C656	LL-10	L301	BB-2	R508	CC-7
C665	BB-8	L302	BB-2	R513	FF-7
C667	LL-13	L303	CC-2	R514	CC-6
C671	BB-13	L304	DD-2	R601	BB-13
C672	LL-11	L305	DD-1	R602	BB-13
C674	JJ-9	L306	EE-1	R603	BB-12
C675	FF-11	L307	FF-2	R604	BB-12
CR101	LL-6	L308	BB-2	R610	BB-13
CR102	LL-5	L309	CC-2	R611	BB-12
CR103	KK-5	L310	EE-1	R612	BB-12
CR105	JJ-5	L311	AA-1	R613	BB-11
CR107	JJ-6	L312	AA-2	R614	BB-11
CR108	JJ-6	L401	JJ-2	R615	BB-11
CR109	HH-4	L402	LL-5	R616	BB-11
CR110	KK-6	L403	LL-1	R617	BB-10
CR111	KK-6	L404	JJ-1	R626	CC-9
CR112	HH-5	L405	KK-1	R629	CC-9
CR113	JJ-5	L502	BB-7	R634	FF-13
CR114	HH-5	L503	BB-7	R638	DD-13
CR201	AA-5	L504	DD-7	R642	CC-14
CR202	BB-4	L505	DD-6	R644	CC-8
CR203	BB-4	L506	EE-7	R651	EE-8
CR204	DD-4	L507	DD-7	R653	JJ-11
CR205	DD-4	L508	DD-6	R654	HH-10
CR206	EE-4	L509	EE-6	R655	JJ-10
CR207	FF-7	L510	EE-6	R664	KK-11
CR208	FF-5	L511	FF-6	R668	LL-11
CR209	FF-4	L601	HH-9	R669	EE-10
CR210	EE-4	L603	DD-12	T401	JJ-3
CR211	CC-4	L604	HH-13	T402	FF-2
CR212	EE-5	L605	HH-13	T501	AA-6
CR301	AA-2	L606	KK-13	U101	KK-4
CR302	DD-2	Q101	HH-6	U601	CC-11
CR303	EE-1	Q103	JJ-4	U602	FF-9
CR304	FF-2	Q201	CC-4	Y601	BB-10
CR305	FF-3	Q301	CC-1		
CR403	FF-1	Q302	AA-3		
CR501	AA-6	Q401	LL-2		
CR502	BB-7	Q402	KK-3		
CR503	AA-7	Q501	CC-7		
CR504	DD-7	Q601	DD-9		
CR505	EE-7	Q602	JJ-13		
CR506	EE-7	Q603	DD-13		
CR507	FF-6	Q604	KK-13		
CR508	FF-5	Q605	JJ-14		
CR509	DD-8	R1	AA-5		
CR510	CC-7	R101	KK-6		
FB201	CC-5	R103	KK-6		
FB301	BB-1	R104	KK-6		
FB302	BB-2	R105	KK-6		

MCY005A REMOTE CONTROL PREAMP-GridTrace LOCATION GUIDE

C901	A-12	C907	C-12	CR902	B-12	Q903	C-8
C902	B-6	C908	C-7	CR903	C-2	Q904	B-4
C903	B-1	C909	C-5	CR904	C-3	R901	C-10
C904	B-11	C910	B-4	L901	C-6	R902	C-8
C905	B-8	C911	A-2	Q901	B-10	R903	A-7
C906	B-2	CR901	A-9	Q902	C-9	R904	B-2



A Howard W. Sams GRIDTRACE™ Photo

PARTS LIST

ITEM No.	DESCRIPTION	MFGR. PART No.	NOTES
MCY005A REMOTE PREAMP			
L901	COILS Peaking 3mH	157642	
R903	RESISTORS Resistor Network	157643	



PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	MFGR. PART No./TYPE No.	NTE PART No.	ECG PART No.	RCA PART No.	ZENITH PART No.	NOTES
CR616 CR617 CR618 CR619 THRU CR622 CR623	156313 174370 164594 164717 142417	NTE5141A NTE5069A NTE519 NTE5077A	ECG5141A ECG5069A ECG519 ECG5077A	SK30X/5141A SK4V7/5069A SK3100/519 SK18V/5077A	103-Z9006 103-131 103-Z9022 103-131	
CR624,5 Q101 Q103 Q201 Q301	164717 174373 174374 174372 174372	NTE519	ECG519	SK3100/519	103-131	
Q302 Q401 Q402 Q501 Q601 Q602	143794 148085 146848 148085 146847 143802	NTE123AP NTE222 NTE229 NTE222 NTE123AP NTE159	ECG123AP ECG222 ECG229 ECG222 ECG123AP ECG159	SK3854/123AP SK3065/222 SK3246A/229 SK3065/222 SK3854/123AP SK3466/159	121-Z9000A 121-826 121-Z9021 121-826 121-Z9000A 121-Z9003	
Q603 Q604 Q605 Q606	146847 145410 146847 157808	NTE123AP NTE159 NTE123AP NTE159	ECG123AP ECG159 ECG123AP ECG159	SK3854/123AP SK3466/159 SK3854/123AP SK3466/159	121-Z9000A 121-Z9003 121-Z9000A 121-Z9003	
U101 U601 U602	174377 174375 174376					

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
FB201 FB202 FB301 FB302 FB401 FB501 J2 Y601	TUNER CONTROL MT001A Ferrite Bead Ferrite Bead Ferrite Bead Ferrite Bead Ferrite Bead Jack Crystal	152124 157346 152124 152124 152124 152124 131222 158618	IF Out/AGC 4MHz

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	MFGR. PART No.	ITEM No.	RATING	MFGR. PART No.
# C6 # C9	PW PIN 4.7 35V NP 1500 35V	163970 146219	# C105B # C120 # C407 C506	30 250V 30 250V 330 35V 22 25V 4.7 100V 10% 3.3 100V 10%	153671 173245 141602 153991 151238 153992 147640
# C105A	MAIN BOARD 600 200V 820 200V	153671 173245	# C508	820 25V	

For SAFETY use only equivalent replacement part.
Items Not Listed Are Normally Available At Local Distributors.

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	ITEM No.	RATING	MFGR. PART No.
C1 C4	PW PIN 560 N1500 1.5KV 5% 330 N1500 1.5KV 5%	154268 146822	C304 C308 C309 C316 C317 C318 C319 C333 C335 C405 C411 C413 C417 C423	100 NPO 250V 5% 9.1 NPO 250V ±.5pF 9.1 NPO 250V ±.5pF 82 NPO 250V 5% 91 NPO 250V 5% 18 NPO 50V 5% 47 NPO 250V 5% 16 NPO 250V 5% 22 NPO 50V 5% 220 NPO 250V ±2% .1 100V 20% 240 N750 50V 5% 27 NPO 250V 5% .0155 1.2KV 2% .0095 1.2KV 2%	153973 153971 153971 145376 142336 146538 145382 147628 150821 153234 153925 146250 143755 161372 151585
# C101	PW AC .22 600V 20%	145613	# C429 C504 C705 C801 C803 C813 C814 C815 C818 C819 C820 C823	.0022 50V 10% 33 NPO 250V 10% 75 NPO 50V 5% 33 NPO 50V 5% 91 NPO 50V 5% 75 NPO 50V 5% 47 NPO 50V 5% 150 NPO 50V 5% 27 NPO 50V 5% 100 NPO 50V 5% 5-25pF Trimmer 75 NPO 50V 5% 82 NPO 50V 5% 56 NPO 50V 5%	143881 153993 149774 146833 146254 149774 143867 143874 143866 143871 138701 149774 143869 145316

For SAFETY use only equivalent replacement part.
Items Not Listed Are Normally Available At Local Distributors.

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM NO.	FUNCTION	RESISTANCE	MFGR. PART NO.	NOTES
R4	PW PIN Width MAIN BOARD	1000	147615	
R332 R333 R334	AFT Balance AFT Balance AGC Delay	1.2K 10K 25K	159929 159929 151297	

RCA MODELS FR520WR/25ER/26SR/30TR/35WR/36SR/
40SR/50ER, GLR841TR/45FR/45HR/49PR(CH, CTC120DSUB1)

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

COILS (RF-IF)

ITEM No.	FUNCTION	MFGR. PART No.	ITEM No.	FUNCTION	MFGR. PART No.
	CHASSIS				
DL701	Delay Line	153674	L314	Peaking (3.3uH)	154048)
L1	RF Choke (180uH)	164892 (1)	L401	Horizontal Frequency	160969
L101	Line Choke	154301	L402	RF Choke (3.8uH)	153986
L103	RF Choke	152803	L403	Horizontal Linearity	159831
L104	RF Choke (68uH)	153987	L701	Peaking (18uH)	159258
L105	RF Choke (3.8uH)	153986	L702	Peaking (18uH)	159258
L201	Quadrature	143834	L801	RF Choke (12uH)	149175
L202	Sound IF	153985	L803	Peaking (39uH)	154050
L301	47.25MHz Trap	173368	L804	Peaking (27uH)	160517
L302	Video IF	146200		Peaking (56uH)	161090
L303	Video IF	143899	L805	Peaking (27uH)	160517
L304	AFT	143831	L806	RF Choke (470uH)	154040
L305	Peaking (2.2uH)	143893	T301	4.5MHz Trap	154041
L307	Peaking (1uH)	147637			
L308	RF Choke (2.2uH)	143893		PW PIN	
L309	RF Choke (.82uH)	148420			
L310	Peaking				
L311	Peaking (15uH)	157133	L1	Horizontal	161369
L312	AFT (1.2uH)	154047		Linearity	
L313	AFT (1.2uH)	154047	L2	Pincushion Choke	159304

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS (Sweep Circuits)

ITEM No.	FUNCTION	MFGR. PART No.	OTHER IDENTIFICATION	NOTES
DY1	Yoke Horiz 1.17mH 100° Vert 23.8mH	163417 (1)		
T1	Yoke Power	161303 (2)		
T101	Regulator	160185	1466469-10	
T401	Horizontal Driver	159346	2870941-7	
T402	Horizontal Output	160372	1467974-2	
	Horizontal Output	160311	1455876-501	
			1455860-502	

For SAFETY use only equivalent replacement part.

(1) Used In Models FLR520WR/25ER/26SR/50ER, FLR530TR/35WR/36SR/40SR.

(2) Used In Models GLR841TR/45FR/45HR/49PR.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	2 1/4" X 3 1/2" PM 32 Ohms	164001		Used In Models FLR520WR/25ER/26SR/50ER Used In Models FLR530TR/35WR/36SR/40SR Used In Models GLR841TR/45FR/
	2 1/4" X 5" PM 32 Ohms	163427		
	3" X 8" PM 32 Ohms	173314		

FUSE DEVICES

ITEM NO.	DESCRIPTION	MFGR. PART NO.		NOTES
		DEVICE	HOLDER	
F101	5 Amp @ 250VAC Fast Acting	154521		

For SAFETY use only equivalent replacement part.

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

MODULES (PLUG-IN BOARDS)

ITEM No.	PART NAME	REPLACEMENT DATA		NOTES
		MFGR. PART No.	PTS PART No.	
MTT001A	Tuner/Tuner Control	164137		Tuning System
CRK40	Remote Transmitter	163982		
MCY005A	Remote Preamp	156387		
	IF Splitter	163985		
PW5200	Video/Audio In	163959		

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
FB101	Ferrite Bead	152102	On/Off Used In Models FLR520WR/25ER/26SR/50ER, FLR530TR/35WR/36SR/40SR Used In Models GLR841TR, GLR845FR/HR, GLR849PR
FB102	Ferrite Bead	152102	
FB103	Ferrite Bead	152102	
FB301	Ferrite Bead	152102	
FB302	Ferrite Bead	152102	
FB303	Ferrite Bead	152103	
FB304	Ferrite Bead	154052	
FB306	Ferrite Bead	154052	
FB307	Ferrite Bead	152102	
FB308	Ferrite Bead	154052	
FB309	Ferrite Bead	154052	
FB401	Ferrite Bead	156475	
FB402	Ferrite Bead	154322	
FB403	Ferrite Bead	154322	
FB404	Ferrite Bead	161238	
FB405	Ferrite Bead	154052	
FB501	Ferrite Bead	154052	
K1	Relay	147696	
L102	Degaussing Coil	157872	
	Degaussing Coil	164121	
P100	AC Power Cord	154300	Used In Models FLR520WR/25ER/26SR/50ER, FLR530TR/35WR/36SR/40SR Used In Models GLR841TR, GLR845FR/HR, GLR849PR 3.58MHz RUSSELL Replacement BOW-4H RUSSELL Replacement Assembly POR-12H RUSSELL Replacement Rod Assembly SIM-4H Beam Bender Aux Control Circuit Yoke Converter Circuit Used In Models FLR520WR/25ER/26SR/50ER, GLR841TR/45FR/45HR/49PR FLR530TR/35WR/36SR/40SR Keyboard Used In Models FLR530TR/35WR/36SR/40SR Keyboard Used In Models FLR520WR/25ER/26SR/50ER Keyboard Used In Models GLR841TR/45FR/45HR/49PR Program/Time Set Used In Models GLR841TR/45FR/45HR/49PR Clock/Program Used In Models FLR520WR/25ER/26SR/50ER, FLR530TR/35WR/36SR/40SR Yoke (3 used) Used In Models GLR841TR/45FR/45HR/49PR Yoke (3 used) Used In Models FLR520WR/25ER/26SR/50ER, FLR530TR/35WR/36SR/40SR
SF301	SAW Filter	147639	
V101	CRT	A51ABU10X	
	CRT	A66ABU10X	
Y801	Crystal	161235	
	Antenna UHF	10E0113	
	Antenna VHF	156265	
	Magnet	158699	
	P.C. Board	164898	
	P.C. Board	164890	
	Resistor Light Detector	151414	
	Resistor Light Detector	164909	
	Switch	160950	
	Switch	160734	
	Switch	162790	
	Switch	160673	
	Switch	160674	
	Wedges	164921	
	Wedges	149903	

For SAFETY use only equivalent replacement part.

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM NO.	FUNCTION	RESISTANCE	MFGR. PART NO.	NOTES
R805	Chroma Peaker Level	1500		
	PW BIAS/DRIVE			
R534	Vertical Size	500K	147618	
R750	Red Bias	4500	147617	
R752	Green Bias	4500	147617	
R754	Blue Bias	4500	147617	
R756	Green Drive	150	147619	
R758	Red/Blue Drive	100	147616	
# R4201	CHASSIS Volume/Switch	75K	143924	
	Volume/Switch	75K		
# R4202	Brightness	170K	164893	
# R4203	Color	100K	164894	
# R4204	Tint	100K	164894	
# R4207	Contrast	125K	161401	
# R4209	Sharpness	500	153681	
R5275	Video Level		155635	
R5276	Video Level		155635	
	CRT BOARD			
R5015	Focus/Screen		162418	

For SAFETY use only equivalent replacement part.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NTE PART No.	WORKMAN PART No.
	CRT BOARD			
# R1 (5001)	10K 5% 2W Metal Film	832310	2W310	22-4120
# R2 (5002)	10K 5% 2W Metal Film	832310	2W310	22-4120
# R3 (5003)	10K 5% 2W Metal Film	832310	2W310	22-4120
# R8 (5008)	15K 5% 1/4W Flame Proof Carbon Film	829315	QW315	22-1124
# R14 (5014)	3.9 10% 5W WW	161096	5W3D9	
	PW PIN			
# R1 R3 R8	430 5% 2W Flame Proof Metal Film	832143	2W143	
	680 5% 1W Flame Proof Metal Film	831168	1W168	22-3092
	18K 10% 3W Flame Proof Metal Film	164018	3W318	
	IF SPLITTER			
# R17	3.9M 10% 1/2W Carbon Composition	502539	HW539	22-2182
	MAIN BOARD			
# R102	470K 5% 1/2W Flame Proof Carbon Film	830447	HW447	22-2160
# R106	178K 1% 1/2W Metal Film	159263		
	196K 1% 1/2W Metal Film	154264		
# R108	10K 1% 1/2W Metal Film	160155		
# R109	180K 2% 1/4W Metal Film	(1)	QW418	

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NTE PART No.	WORKMAN PART No.
# R110	360K 2% 1/4W Carbon Film	(1)	QW436	
# R111	750K 5% 1/4W Carbon Film	(1)	QW475	
# R112	1.5M 1% 1/4W Carbon Film	(1)		
	1.5M-1.6M 1% 1/4W Carbon Film			
R113	270 10% 5W WW	115166	5W127	
R114	10 5% 1/2W Flame Proof Carbon Film		HW010	22-2048
	4.7 5% 1/2W Flame Proof Carbon Film	830A47	HW4D7	22-2040
R115	36K 5% 2W Flame Proof Metal Film	832336	2W336	
# R116	680 5% 1W Flame Proof Metal Film	831168	1W168	22-3092
# R119	43 5% 3W WW	176279	3W043	
# R201	12 5% 1/2W Flame Proof Carbon Film	830012	HW012	22-2050
# R205	27 5% 2W WW	176339		
# R305	100 5% 1/4W Flame Proof Carbon Film	829110	QW110	22-1072
# R314	180 2% 1/4W Carbon Film	829118	QW118	
# R325	68 5% 5W WW	136358	5W068	
# R402	560 5% 1W Flame Proof Metal Film	831156	1W156	22-3090
# R403	27.4K 1% 1/4W Metal Film	151883		
# R404	84.5K 1% 1/4W Metal Film	154258		
# R416	121K 1% 1/2W Metal Film	153978		
# R418	.30 5% 2W WW	163394		
	.39 5% 2W WW	139154		WS-39
# R423	5600 5% 1/2W Carbon Film	830256	HW256	22-2114
# R425	820 5% 1/4W Carbon Film	829182	QW182	22-1094
# R426	5600 5% 5W	176284	5W256	
# R429	100 5% 1/4W Flame Proof Carbon Film	829110	QW110	22-1072
# R430	21K 1% 1/2W Metal Film	152597		
	23.2K 1% 1/2W Metal Film	161295		
# R434	33K 5% 1/2W Flame Proof Carbon Film	830333	HW333	22-2132
# R435	10K 5% 1/2W Flame Proof Carbon Film	830310	HW310	22-2120
R506	6800 5% 2W Flame Proof Metal Film	832268	2W268	22-4116
	15K 5% 1W Flame Proof Metal Film	141819	1W315	22-3124
# R509	12 5% 1/2W Flame Proof Carbon Film	830012	HW012	22-2050
# R511	10 5% 1/4W Carbon Film	829010	QW010	22-1048
# R513	10 5% 1/4W Flame Proof Carbon Film	829010	QW010	22-1048
# R514	10 5% 1/4W Flame Proof Carbon Film	829010	QW010	22-1048
# R518	1 5% 1/2W Flame Proof Carbon Film	830A10	HW1D0	
# R726	180 5% 1/4W Flame Proof Carbon Film	829118	QW118	22-1078
# R727	33K 5% 1W Flame Proof Metal Film	831333	1W333	22-3060
# R728	8870 1% 1/4W Metal Film	161098		
# R745	10 5% 1/2W Flame Proof Carbon Film	830010	HW010	22-2048
R811	820 2% 1/4W Carbon Film	829182	QW182	
R828	470 2% 1/4W Carbon Film	829211	QW147	
R829	1100 2% 1/4W Carbon Film	149397	QW211	
# RT101	PTC 7.2 Cold	149680		FR605
	PW AC			
# R120	2.7 10% 15W WW	160238		
	3.9 5% 10W WW	153664	10W3D9	
	CHASSIS			
R799	LDR			

For SAFETY use only equivalent replacement part.
(1) Part of Deflection Kit.

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NTE PART No.	WORKMAN PART No.
	MTT001A TUNER CONTROL BOARD			
R115	18K 2% 1/8W Metal Film	174366	EW318	
	11K 5% 1/8W Metal Film	176822	EW311	
R119	30K 2% 1/8W Metal Film	174368	EW330	
	11K 5% 1/8W Metal Film	176822	EW311	
R123	10K 2% 1/8W Metal Film	174364	EW310	
R130	10K 2% 1/8W Metal Film	174364	EW310	
	11K 5% 1/8W Metal Film	176822	EW311	
R203	100K 2% 1/8W Metal Film	176817	EW410	
	120K 5% 1/8W Metal Film	174357	EW412	
R206	160K 2% 1/8W Metal Film	176815	EW416	
	160K 5% 1/8W Metal Film	174358	EW416	
R207	1000 2% 1/4W Carbon Film	829210	QW210	
	1500 5% 1/8W Carbon Film	173922	EW215	
R208	270 2% 1/4W Carbon Film	175420	QW127	
	390 5% 1/8W Metal Film	174345	EW139	
R301	10K 2% 1/8W Metal Film	174364	EW310	
R302	100K 2% 1/8W Metal Film	176816	EW410	
	120K 5% 1/8W Metal Film	174357	EW412	
R303	160K 2% 1/8W Metal Film	176815	EW416	
R304	1000 2% 1/4W Carbon Film	175055	QW210	
	1500 5% 1/8W Metal Film	162001	EW215	
R305	270 2% 1/4W Carbon Film	175055	QW127	
	390 5% 1/8W Metal Film	174345	EW139	
R308	10K 2% 1/8W Metal Film	174364	EW310	
R309	10K 2% 1/8W Metal Film	174364	EW310	
R311	10K 2% 1/8W Metal Film	174364	EW310	
R405	820 2% 1/8W Metal Film	176814	EW182	
	390 5% 1/8W Metal Film	174345	EW139	
R407	13K 2% 1/8W Carbon Film	157334	EW313	
	13K 5% 1/8W Metal Film	174352	EW313	
R417	33K 2% 1/8W Metal Film	176813	EW333	
	180K 5% 1/8W Metal Film	174359	EW418	
R418	100K 2% 1/8W Metal Film	176816	EW410	
	100K 5% 1/8W Metal Film	174356	EW410	
R419	240K 2% 1/4W Carbon Film	829424	QW424	
R505	100K 2% 1/8W Metal Film	174356	EW410	
	120K 5% 1/8W Metal Film	174357	EW412	
R506	160K 2% 1/8W Metal Film	176815	EW416	
R507	270 2% 1/4W Carbon Film	175420	QW127	
	390 5% 1/8W Carbon Film	173069	EW139	
R508	1000 2% 1/4W Carbon Film	175055	QW210	
	1500 5% 1/8W Carbon Film	173922	EW215	
R605	22K 2% 1/8W Metal Film	174367	EW322	
R606	22K 2% 1/8W Metal Film	174367	EW322	
R607	22K 2% 1/8W Metal Film	174367	EW322	
R608	22K 2% 1/8W Metal Film	174367	EW322	
R631	10K 2% 1/8W Metal Film	174364	EW310	
R652	36K 2% 1/8W Metal Film	174369	EW336	
R660	22K 2% 1/8W Metal Film	174367	EW322	
R661	22K 2% 1/8W Metal Film	174367	EW322	
R662	22K 2% 1/8W Metal Film	174367	EW322	

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		MFGR. PART No.	NTE PART No.	WORKMAN PART No.
PW5200 VIDEO/AUDIO BOARD				
R5203	1000 10% 1/2W Carbon Film	502210	HW210	22-2096
R5204	1000 10% 1/2W Carbon Film	502210	HW210	22-2096
R5222	1.5M 10% 1/2W Carbon Film	135231	HW515	22-2172
R5223	2.7M 10% 1/2W Carbon Film	120998	HW527	22-2178
R5259	27 5% 1/2W Carbon Film	830027	HW027	20-2058

For SAFETY use only equivalent replacement part.

PARTS LIST

ITEM No.	DESCRIPTION	MFGR. PART No.	NOTES
PW5200 VIDEO/AUDIO BOARD			
CAPS			
C5213	39pF NPO 50V	149151	
C5214	100pF NPO 50V	143871	
# C5225	1100pF 1.4KV	154327	
COILS			
L5201	Peaking (47uH)	139482	
L5202	Peaking (100uH)	159648	
CONTROLS			
R5267	Audio Balance 1500	154266	
TRANSFORMERS			
# T5201	Video ISO	154221	
# T5202	Cold Supply ISO	174336	
MCR015 A/B			
COILS			
L1	Peaking (10mH)	150713	

For SAFETY use only equivalent replacement part.

RCA MODELS FR520W/R/25E/R/26S/R/30T/R/35W/R/36S/R/
40SR/50E/R, GLR841T/R/45F/R/45H/R/49P/R(CH, CTC120DSUB1)

PARTS LIST AND DESCRIPTION (Continued)

When ordering parts, state Model, Part Number, and Description

CABINETS & CABINET PARTS (When ordering specify model, chassis & color)

ITEM	PART No.	ITEM	PART No.
Models: FLR520WR, FLR525ER, FLR526SR, FLR550ER		Models: FLR530TR, FLR535WR, FLR536SR, FLR540SR	
# Cabinet Front (Mask) FLR520WR	MK0221	# Cabinet Front (Mask) FLR530TR	MK0315
# Cabinet Front (Mask) FLR525ER	MK0224	# Cabinet Front (Mask) FLR535WR	MK0334
# Cabinet Front (Mask) FLR526SR	MK0222	# Cabinet Front (Mask) FLR536SR	MK0353
# Cabinet Front (Mask) FLR550ER	MK0223	# Cabinet Front (Mask) FLR540SR	MK0352
# Cabinet Back FLR520WR, FLR525ER, FLR526SR	BK0225	# Cabinet Back FLR530TR, FLR535WR, FLR536SR	BK0220
# Cabinet Back FLR550ER	BK0226	# Cabinet Back FLR540SR	BK0303
Door-Aux Control FLR520WR	164899	Door-Aux Control FLR530TR, FLR535WR, FLR540SR	164910
Door-Aux Control FLR525ER	164902	Door-Aux Control FLR536SR	176132
Door-Aux Control FLR526SR	164900	Glass-CRT Windows FLR540SR	176119
Door-Aux Control FLR550ER	164901	Door-Latch	161908
Door-Latch	161908	Lens-IR Preamp	160938
Lens-IR Preamp	160938	Magnet-Beam Bender	158699
Magnet-Beam Bender	158699	Overlay-KeyBoard FLR530TR, FLR535WR, FLR536SR	164911
Overlay-Speaker FLR520WR	164903	Overlay-KeyBoard FLR540SR	176120
Overlay-Speaker FLR525ER	164906	Overlay-Speaker FLR530TR, FLR535WR, FLR540SR	164912
Overlay-Speaker FLR526SR	164904	Overlay-Speaker FLR536SR	176133
Overlay-Speaker FLR550ER	164905		
Window-CRT Darkening FLR550ER	164907		
Models: GLR841TR, GLR845FR, GLR845HR, GLR849PR			
# Cabinet Front (Mask) GLR841TR	MK0267		
# Cabinet Front (Mask) GLR845FR	MK0269		
# Cabinet Front (Mask) GLR845HR	MK0268		
# Cabinet Front (Mask) GLR849PR	MK0306		
# Cabinet Back Cover GLR841TR	BK0270		
# Cabinet Back Cover GLR845FR/HR	BK0271		
# Cabinet Back Cover GLR849PR	BK0307		
CRT Cover (Cap)	164920		
Door-Aux Control	173311		
Magnet-Beam Bender	158699		
Overlay-Door	173312		
Overlay-Speaker	173313		
Pull-Decorative GLR845FR/HR	174264		
Pull-Decorative GLR849PR	174177		
Caster	128573		

For SAFETY use only equivalent replacement part.

NOTES

RCA MODELS FR520WR/25ER/26SR/30TR/35WR/36SR/40SR/50ER, GLR841TR/45FR/45HR/49PR(CH.CTC120DSUB1)