

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove five screws holding cabinet back and remove back. Disconnect HV anode, CRT socket, Deflection Yoke connectors, Degaussing coil connectors, Speaker connectors, Ground leads, and all other required cabling. Remove the Strain relief (AC Cord) Assembly, and Release one (two on some models) latches holding main board assembly to cabinet bottom and slide board assembly from cabinet.

CRT REMOVAL

(Caution: Some sets employ a CRT with neck assemblies permanently bonded to CRT. DO NOT attempt to remove these assemblies.)

Follow chassis removal procedure and lay set face down on a soft protective surface. Loosen and remove CRT neck assemblies. (See Caution). Remove four screws holding CRT to cabinet front and lift CRT out of cabinet. DO NOT LIFT CRT BY 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 1.0 Amp fuse is used for low-voltage power supply protection. (See photo, Main Board - Top View.)

A 4.0 Amp fuse is used for AC line protection. (See photo, Cabinet - Rear View.)

VHF/UHF TUNER

See Miscellaneous Adjustments for channel pre-tuning.

CHANNEL TUNING

Channel Up and Down buttons are provided for channel scanning with ten numbered buttons (on Remote Transmitter) provided for one or two-digit entry direct access channel selection. Fine tuning is automatic.

HIGH VOLTAGE

For high voltage procedure, refer to Miscellaneous Adjustments.

FOCUS

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

AGC

The RF AGC may be varied by an RF AGC Control. (See photo, Chassis - Top View.)

FOLDER 2
SET 2746

SAMS

PHOTOFACT®

For Supplier Address See PHOTOFACT Index

RCA
CHASSIS CTC145B/D/E/F/FC/G/H/C



X13135EBF03

SAFETY PRECAUTIONS

See Page 1A

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SAMS

Howard W. Sams & Company

2647 Waterfront Parkway, East Drive, Suite 300, Indianapolis, Indiana 46214 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.

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SET 2746 FOLDER 2

CHASSIS CTC145B/D/E/F/FC/G/H/C

SET 2746 FOLDER 2

SAFETY PRECAUTIONS

SERVICE WARNING

Service work should be performed only by qualified service technicians who are familiar with safety checks and guide lines.

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.

SERVICING HIGH VOLTAGE AND PICTURE TUBE

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

1. Discharge static High Voltage by connecting a 10 kohms resistor in series with a test lead between chassis and anode lead of picture tube.
2. Wear shatter-proof eye protection (goggles) when handling the picture tube in case of implosion.
3. DO NOT lift picture tube by the neck.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Service personnel should be aware of the procedures and instructions covering x-ray radiation. The only potential source of x-ray in present day solid state receivers and monitors is the picture tube.

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.
2. An accurate High Voltage meter should be available at all times. Meter calibration should be checked periodically.
3. High Voltage should be kept at rated value - NO HIGHER. Higher voltages may cause x-ray radiation or failure of other associated components. DO NOT depend on protection circuit to keep voltages at rated value.
4. Every time a chassis is serviced, High Voltage should be checked at various brightness levels to be sure it is regulating properly.
5. While troubleshooting a set with excessive High Voltage, avoid being close to picture tube. DO NOT operate longer than it is necessary to locate the cause of excessive High Voltage. Use a variable AC transformer to regulate voltage.
6. Many components, electrical and mechanical, in present chassis have safety related characteristics which are not evident with visual inspection. When these components are known, they are identified with a # on the schematic and in the parts list. When replacing these components, for SAFETY, use only an equivalent replacement part.

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.

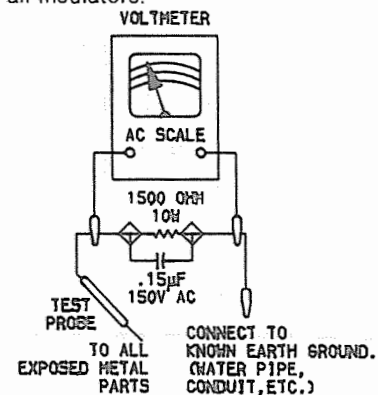
Leakage Current Hot Check

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.



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 (T4402). Refer to "Troubleshooting" Power Supply and Horizontal circuits.

NO PIC, NO SOUND, HAS RASTER: Check IF-AGC and source voltages from Horizontal Output Transformer (T4402). Refer to "Troubleshooting" IF-AGC and Horizontal circuits.

NO PIC, HAS SOUND, NO RASTER: Check Horizontal Output Transformer (T4402) 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 (T4402). 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.

TROUBLESHOOTING

POWER SUPPLY

Check the AC Fuse F4101 and DC Fuse F4102. If Fuse F4101 is open, check Bridge Rectifier Diodes CR4101 thru CR4104, Capacitors C4102 thru C4105, C4120 and Electrolytic C4106. If Fuse F4102 is open, check 140V Regulator (Q4102) and Horizontal Output Transistor Q4402. Apply 120V and check for 160V at the cathode of CR4103. If 160V is missing at the cathode of CR4103, check Line Filter L4101 and Resistor (R4101). If 160V is present at the cathode of CR4103, check for 140V at TP4110. If this voltage is missing, check voltages and components associated with Q4102 and the Horizontal Output Transistor (Q4402). If the proper voltage is present at TP4110, refer to the "Horizontal" section of this Troubleshooting guide. If the voltage at TP4110 is 160V and there is a ticking sound, the set may be in shutdown. Refer to the "High Voltage" shutdown section of the Troubleshooting guide.

AUDIO

Select an active TV channel and check for an audio waveform at pin 28 of the IF/SIF/CHROMA/VERT/HORIZ/AFT IC (U1001). If there is no audio, check the voltages, waveforms and components associated with pins 28 thru 40 of U1001. If audio is present at pin 28, check for audio at speaker (SP1). If audio is missing, check the voltages, waveforms and components associated with Audio Amp Transistor Q1201 and the Audio Output Transistors (Q1202, Q1203). Check the voltage at pin 30 of U1001.

VIDEO

Inject a video signal at TP2307 and check for video on the CRT. If video is present, refer to the "IF-AGC" section of this Troubleshooting guide. If there is no video on the CRT, check for a video waveform at pin 53 of the IF/Chroma/Luma Process/Deflection IC (U1001). If video is missing at pin 53 of U1001, check the voltages, waveforms and components associated with pin 53. If video is present at pin 53 of U1001, check for a video waveform at pin 13 of U1001. If the waveform is missing, check the voltages, waveforms and components associated with pins 8, 13 thru 18, 51, 52, 53 of U1001. If the waveform is present at pin 5, check the voltages, waveforms and components associated with Output Transistors (Q5001, Q5002, Q5003) and the Luminance Buffer Transistor (Q2901). If the brightness is inadequate or cannot be controlled, check the voltages, waveforms and components associated with pin 17 of U1001.

IF-AGC

Inject a video IF signal at the IF Input and check for video on the CRT. If video is present, check Tuner, Tuner Control and Tuner AFC circuits. If there is no video on the CRT, check for a video waveform at TP2307. If video is present at TP2307, refer to the "Video" section of this Troubleshooting guide. If

there is no video at TP2307, apply AGC bias to pin 22 of the IF/Chroma/Luma Process/Deflection IC (U1001). If video is now present at TP2307, check the voltages, waveforms and components associated with pins 18, 22 and 46 of U1001. If there is still no video at TP2307, check the voltages, waveforms and components associated with pins 18 thru 24, 42 thru 47 of U1001, IF Transistor (Q2301) and the Video Amp Transistor (Q2302). A defective AGC circuit can cause an overloaded picture, excessive snow or loss of audio and video. See the AGC Voltage Chart for AGC voltages with signal.

AGC VOLTAGE CHART

U1001	
Pin 18	2.0V
Pin 22	5.2V
Pin 46	6.2V

CHROMA

Check for a chroma waveform at pin 49 of the IF/Chroma/Luma Process/Deflection IC (U1001). If the waveform is missing, check the components associated with pin 49. If a chroma waveform is present at pin 49 of U1001, check for the proper waveforms at pins 9, 10, 11 of U1001. If these waveforms are missing, check the voltages, waveforms and components associated with pins 2 thru 7, 9 thru 12, 47, 48 and 49 of U1001. Check the 3.58MHz oscillator at pins 4 and 6 of U1001. Check the voltages and components associated with the color control and pin 3 of U1001, it should be 0.28V at MINIMUM and 0.4V at Maximum. If there is inadequate tint range, check the voltages, waveforms and components associated with the tint control and pin 2 of U1001. If the proper waveforms are present at pins 9, 10, 11 of U1001, refer to the "Raster" section of this Troubleshooting guide.

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, inject a horizontal signal at the base of the Horizontal Output Transistor (Q4402). If horizontal deflection is now present, check the voltages, waveforms and components associated with pins 58 thru 64 of the IF/SIF/CHROMA/VERT/HORIZ/AFT IC (U1001), and Horizontal Drive Transistor (Q4401). If there is still no horizontal sweep, check the voltages, waveforms and components associated with Horizontal Output Transistor (Q4402) and Horizontal Driver Transformer (T4401). Check the voltages and components associated with Diodes CR4120, CR4121, CR4122 for defects. The High Voltage Rectifier is part of Transformer T4402 and if defective will affect the performance of the horizontal circuits. If the Horizontal Oscillator is off frequency, check the voltages, waveforms and components associated with pins 61, 62 and 63 of U1001. Horizontal linearity or foldover problems may be caused by Capacitors C4415, thru C4418 being defective.

TROUBLESHOOTING (Continued)

HIGH VOLTAGE SHUTDOWN

The high voltage is monitored by Diode CR4401, rectifying pulses from the Horizontal Output Transformer (T4402). Should the high voltage increase the rectified voltage at the cathode of Diode CR4401 will also increase and trigger Zener Diode CR4404 into conduction shutting down the set. After 2 seconds the set will reset and turn on again. If the fault is still present, the high voltage will increase until shutdown again occurs. This process will continue until the fault is removed or the set is turned off. To troubleshoot, remove CR4401 from the circuit and use a variac for AC power. Start at 90VAC and increase as necessary until the defect is located and repaired. Return CR4401 to the circuit. NOTE: Care should be taken in defeating the high voltage shutdown circuit, as this may cause excessive X-radiation and damage to the CRT, Transformer T4402 and associated components. Monitor the high voltage and troubleshoot.

Voltages Taken with TV in Shutdown

U1001	
Pin 1	0V
TP110	164V

HIGH VOLTAGE SHUTDOWN TEST

Apply 120VAC, turn set On, set all customer controls for normal operation and momentarily short XRP4001 to XRP4002. Set should lose raster and sound for about 2 seconds, then the set should resume normal operation. If set does not lose raster and sound the shutdown circuit should be repaired. To resume normal operation, remove AC Power and wait 2 seconds then turn set On.

VERTICAL

Inject a vertical deflection signal at pin 54 of the IF/Chroma/Luma Process/Deflection IC (U1001). If vertical deflection is now present, check the voltages, waveforms and components associated with pin 54 of U1001. If there is still no vertical sweep, check the voltages, waveforms and components associated with OSD Sync Transistor (Q4501) and the Vertical Output IC (U4501). Vertical linearity or foldover problems may be caused by vertical feedback and bias circuits, check Electrolytics C4501, C4503, C4504, C4505, C4510 and C4511 for defects.

SYNC

If there is no vertical or horizontal sync, check the voltages, waveforms and components associated with pins 56 and 57 of the IF/Chroma/Luma Process/Deflection IC (U1001). If there is no vertical sync, check the voltages, waveforms and components associated with pins 54, 55, 56 of U1001. If there is no horizontal sync, check the voltages and components associated with pin 56 and 64 of U1001.

RASTER

Check the CRT and CRT voltages. If there is no Red, check the voltages and components associated with pin 9 of the IF/Chroma/Luma Process/Deflection IC (U1001) and Red Output Transistor (Q5001). If there is no Green, check the voltages and components associated with pin 10 of U1001 and Green Output Transistor (Q5002). If there is no Blue, check the voltages and components associated with pin 11 of U1001 and Blue Output Transistor (Q5003). If the raster has a keystone shape, check the Deflection Yoke (L501). If the raster has height or width problems, refer to the "Vertical", "Horizontal" and "Power Supply" sections of this Troubleshooting guide.

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	1541A, 2120, 2125, 2160	SC61	
GENERATORS			
RGB	1249, 1260	RG67	
MULTIBURST SIGNAL	1251, 1260	VA62A	
COLOR BAR	1211A, 1249, 1251, 1260	VA62A, CG25, NT64	
ANALOG VOM	114, 117, 177, 214		
DIGITAL VOM	388HD, 2900 SERIES	DVM37, DVM56A, SC61	
FREQUENCY METER	1803, 1804, 1805	FC71, SC61	
HI-VOLTAGE PROBE	HV-44	HP200	
VOM/DMM		TP212	
Accessory probes	PR-28(HV)		
ISOLATION TRANSFORMER	TR110, 1604, 1653, 1655	PR57	
CAPACITANCE ANALYZER	820, 810, 830	LC76, LC101, LC102	
CRT ANALYZER	467, 470, 480, 490	CR70	
TEMPERATURE PROBE	TP-28, TP-30		
AC LEAKAGE TESTER	1655	PR57	
LOGIC PROBE	DP51, DP21		
LOGIC PULSER	DP101, DP31		
INDUCTANCE ANALYZER	875A	LC76, LC101, LC102	
FLYBACK YOKE TESTER	875A	VA62A, LC76, LC101, LC102	
TV STEREO GENERATOR	2009	ST65, ST66	
TV STEREO POWER MONITOR		SR68	
FIELD STRENGTH METER		FS73, FS74	
TRANSISTOR TESTER		TF46	
VIDEO ANALYZER		VA62A	

TV ALIGNMENT INSTRUCTIONS

Use an isolation transformer and observe power supply polarity. Maintain line voltage at 120V AC. Allow a 20-minute warm-up period for receiver and test equipment.
Suggested Alignment Tools: GC-THORSEN

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 5.5V -6.0V Bias to TP2305.

SOUND IF ALIGNMENT

Tune in a station and adjust L1201 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 L1201.

TV ALIGNMENT INSTRUCTIONS (Continued)

VIDEO IF ALIGNMENT (SWEEP MARKER GENERATOR)

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
TP2307	TP1221	44MHz (10MHz Sweep)	45.75MHz	Adjust L2304 for best overall symmetry and position of marker as shown in Figure 1.

VIDEO IF ALIGNMENT (BAR SWEEP GENERATOR)

BAR SWEEP GENERATOR	SCOPE INPUT	REMARKS
Antenna Terminal	TP1221	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 6.0V Bias to TP2305.
Set AFT R2323 fully clockwise, perform instructions below.
Adjust R2323 for 1.0VDC at TP2342 after L2303 has been adjusted.

DIRECT PROBE FROM SWEEP/MARKER GENERATOR	SWEEP GENERATOR OUTPUT	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	REMARKS
TP2342	TP1221	44MHz (10MHz Sweep)	45.75MHz	Adjust L2303 to place 45.75MHz marker at crossover. See Figure 3.

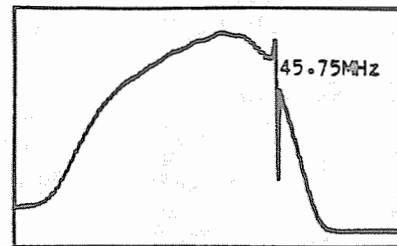


Figure 1

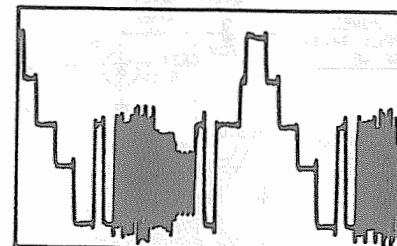


Figure 2

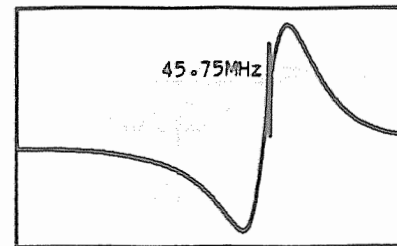

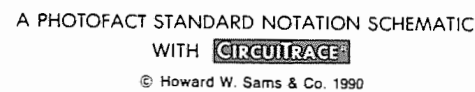
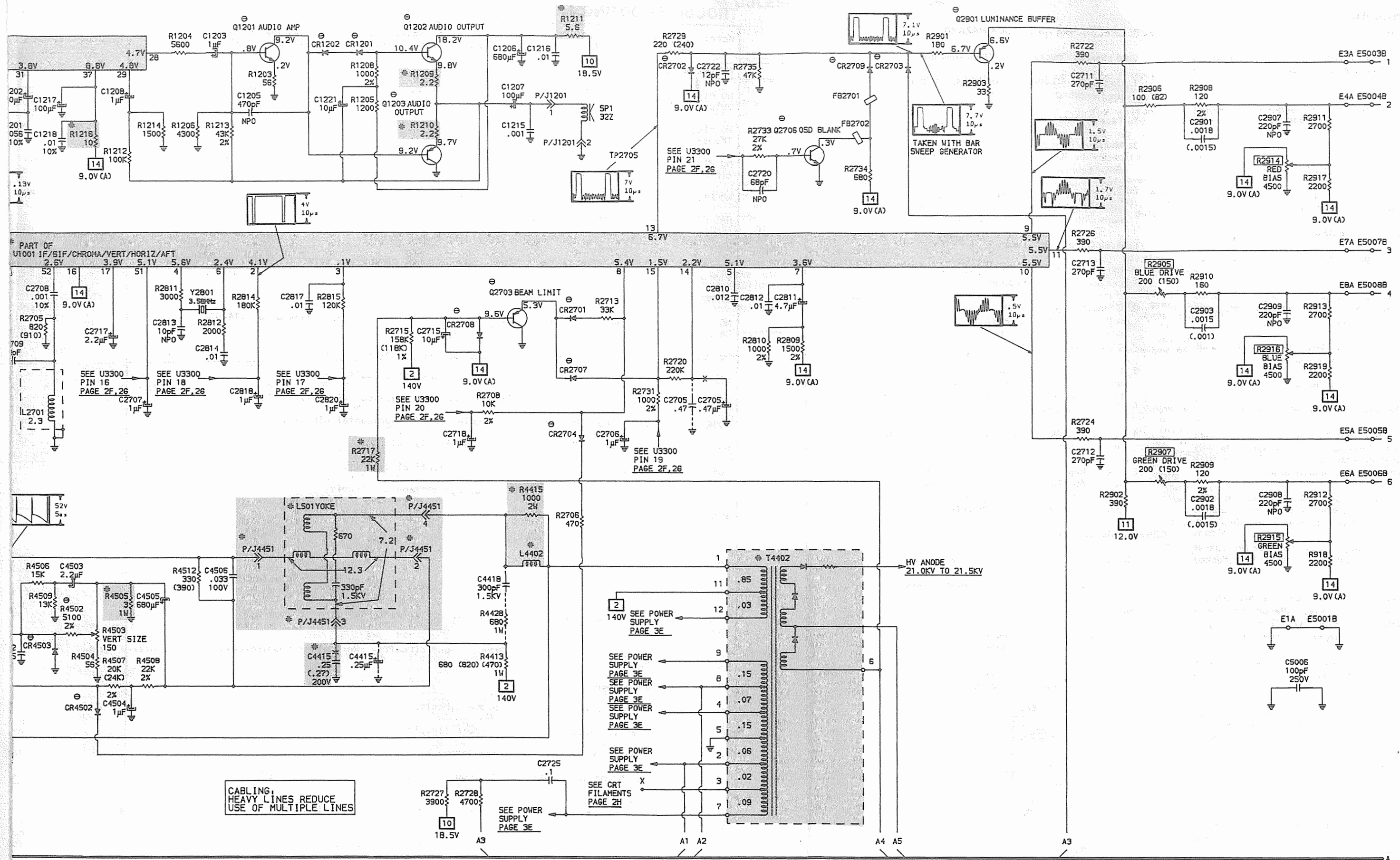


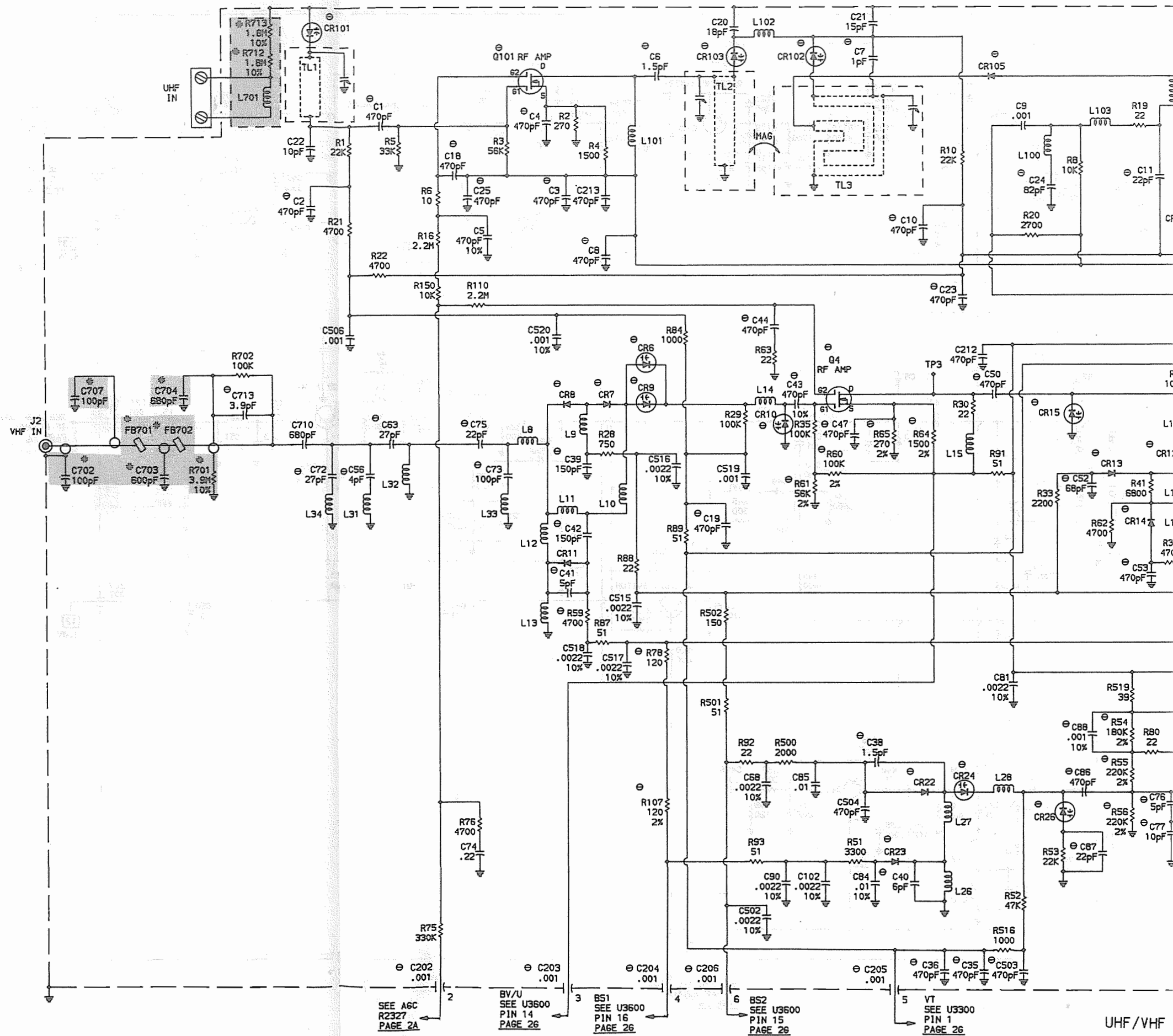
Figure 3

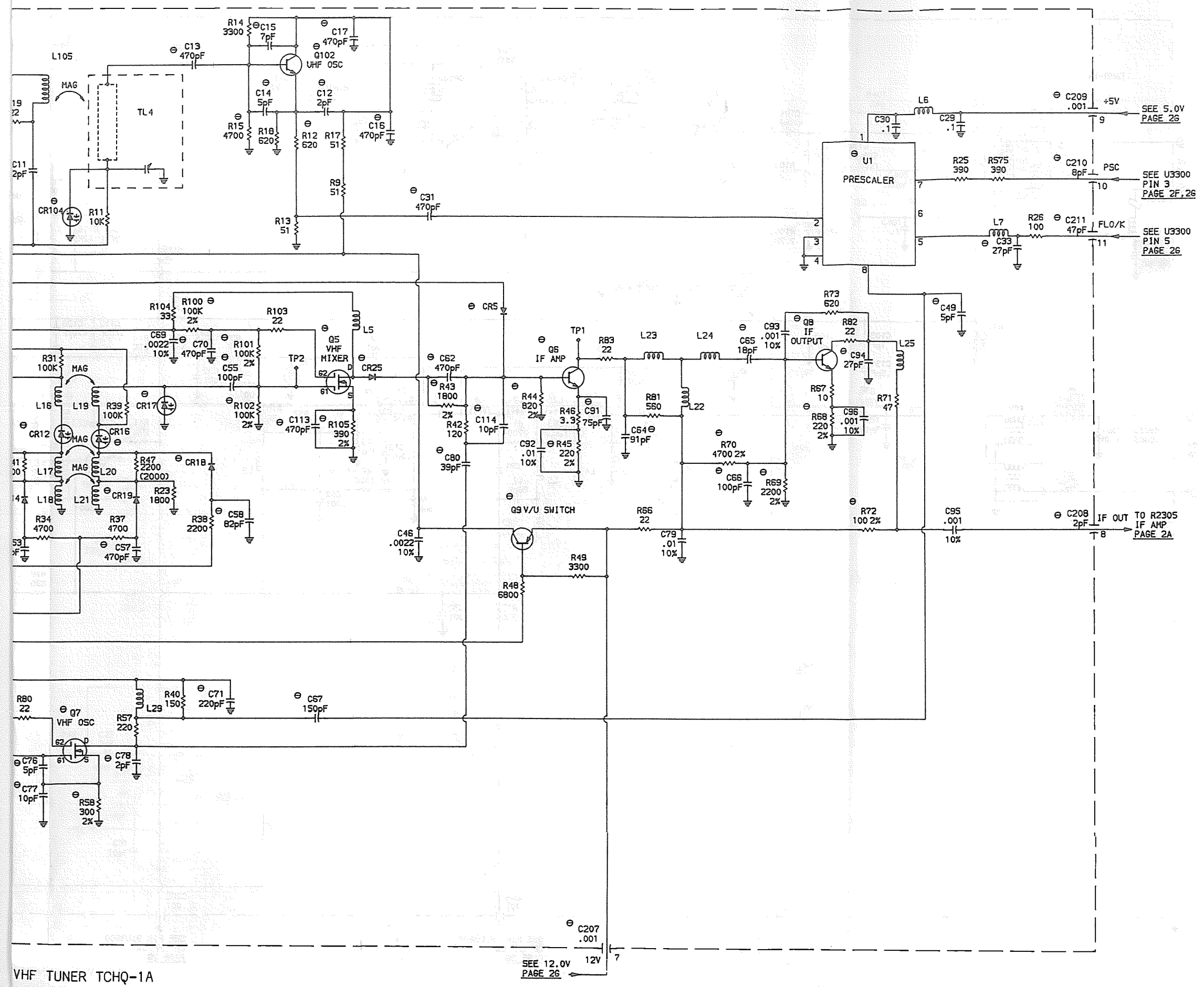
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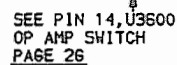


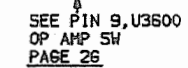




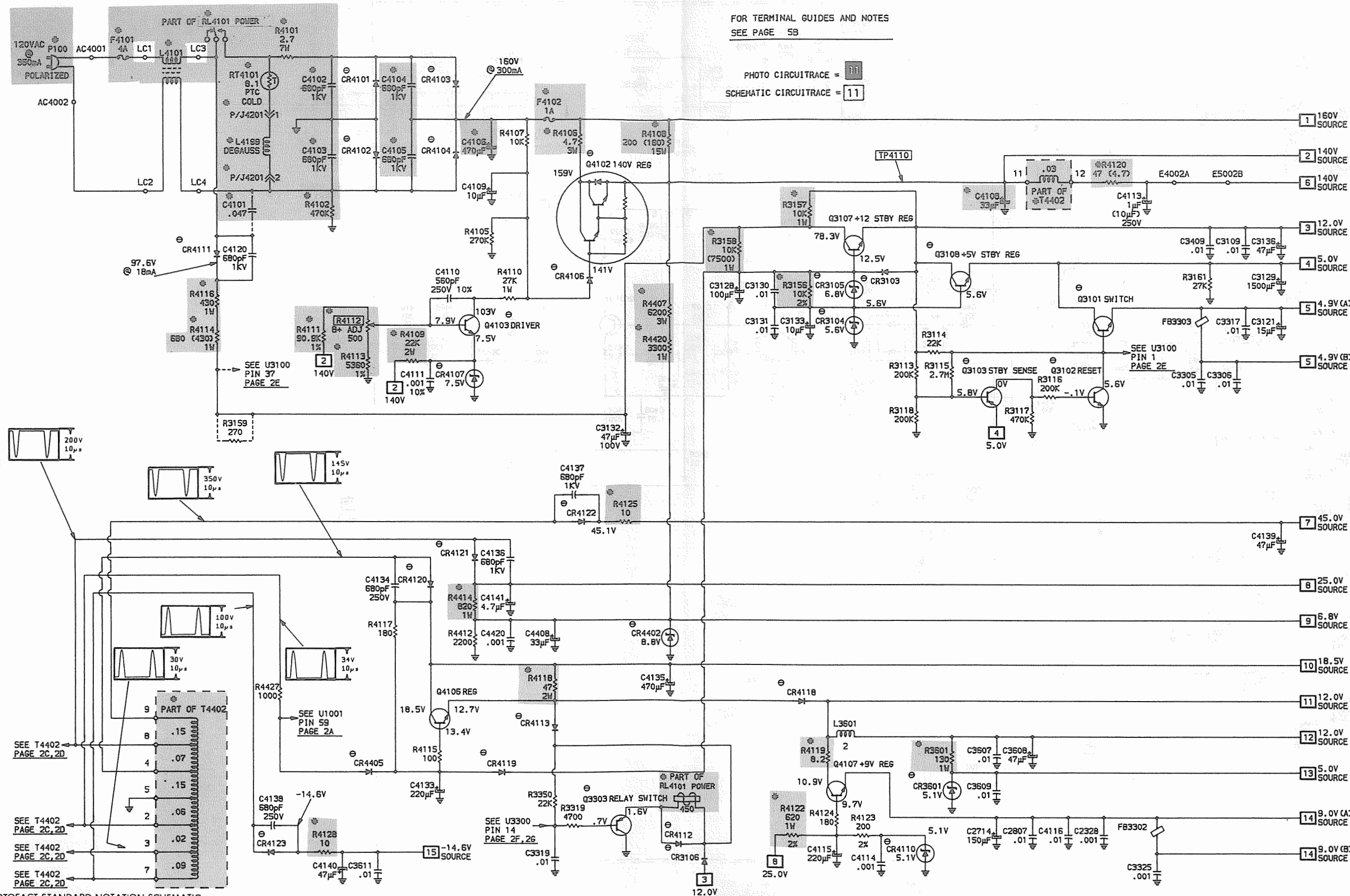








UHF/VHF



FOR TERMINAL GUIDES AND NOTES
SEE PAGE 5B

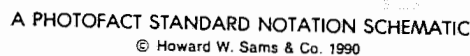
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A PHOTOFACIT STANDARD NOTATION SCHEMATIC
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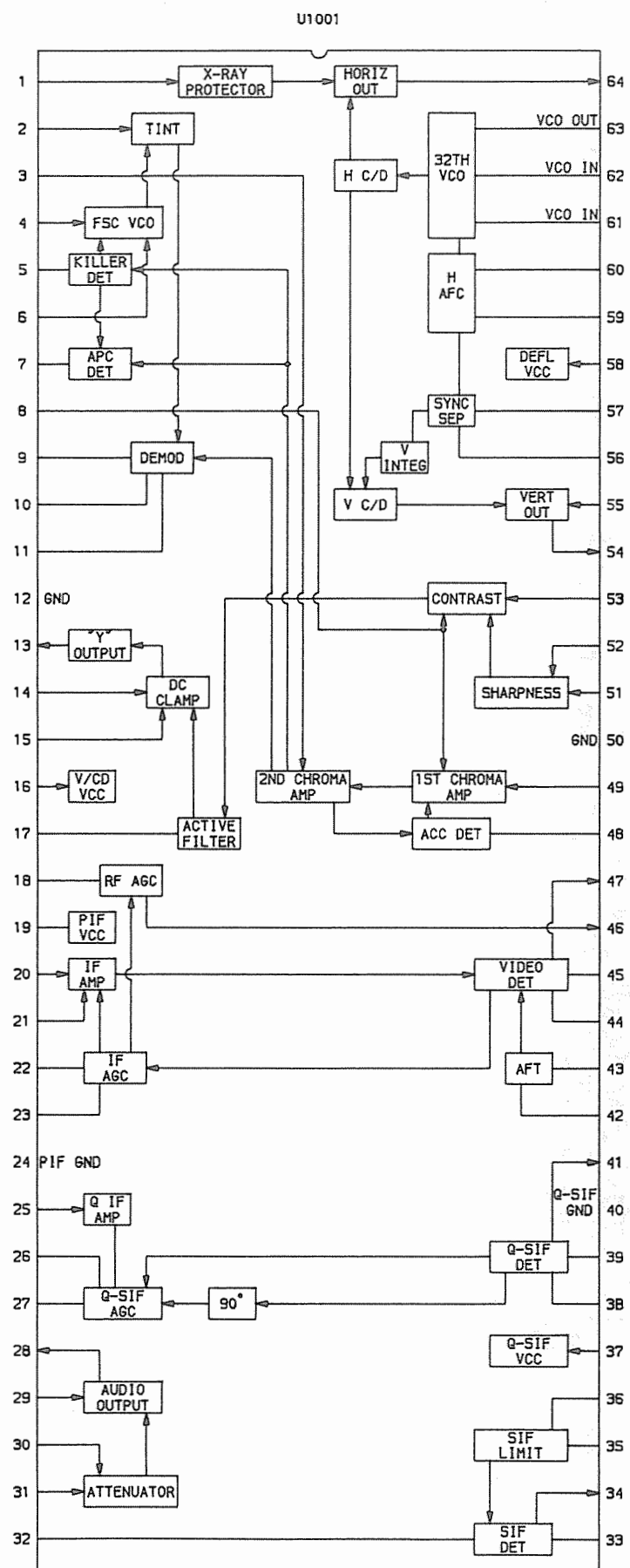
POWER SUPPLY



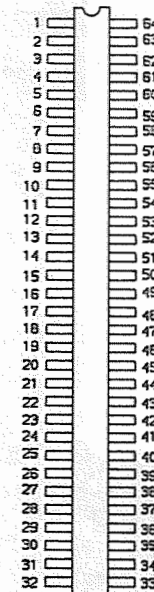
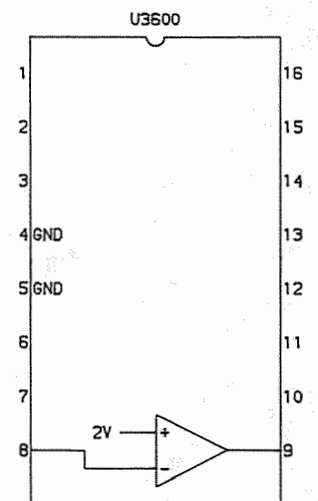
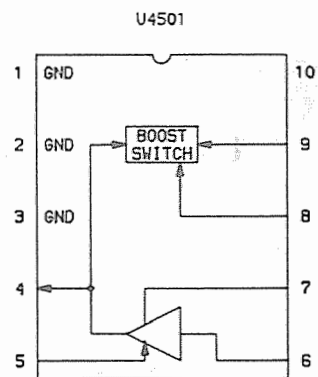
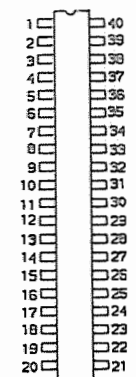
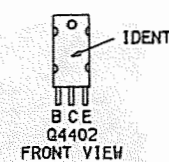
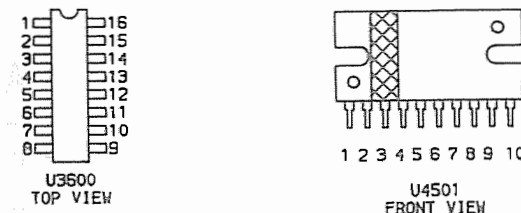
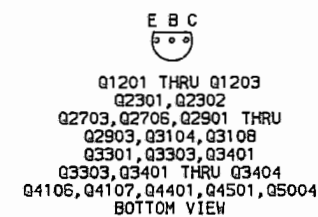
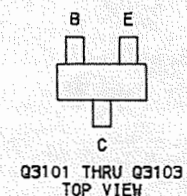
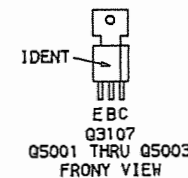
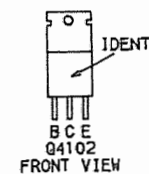
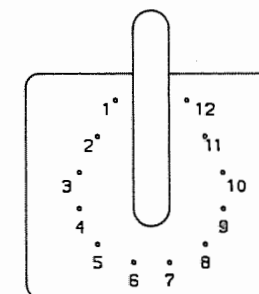
SEE PIN 14, U3600
OP AMP SWITCH
PAGE 26



REMOTE CONTROL TRANSMITTERS CRK52A,CRK53D

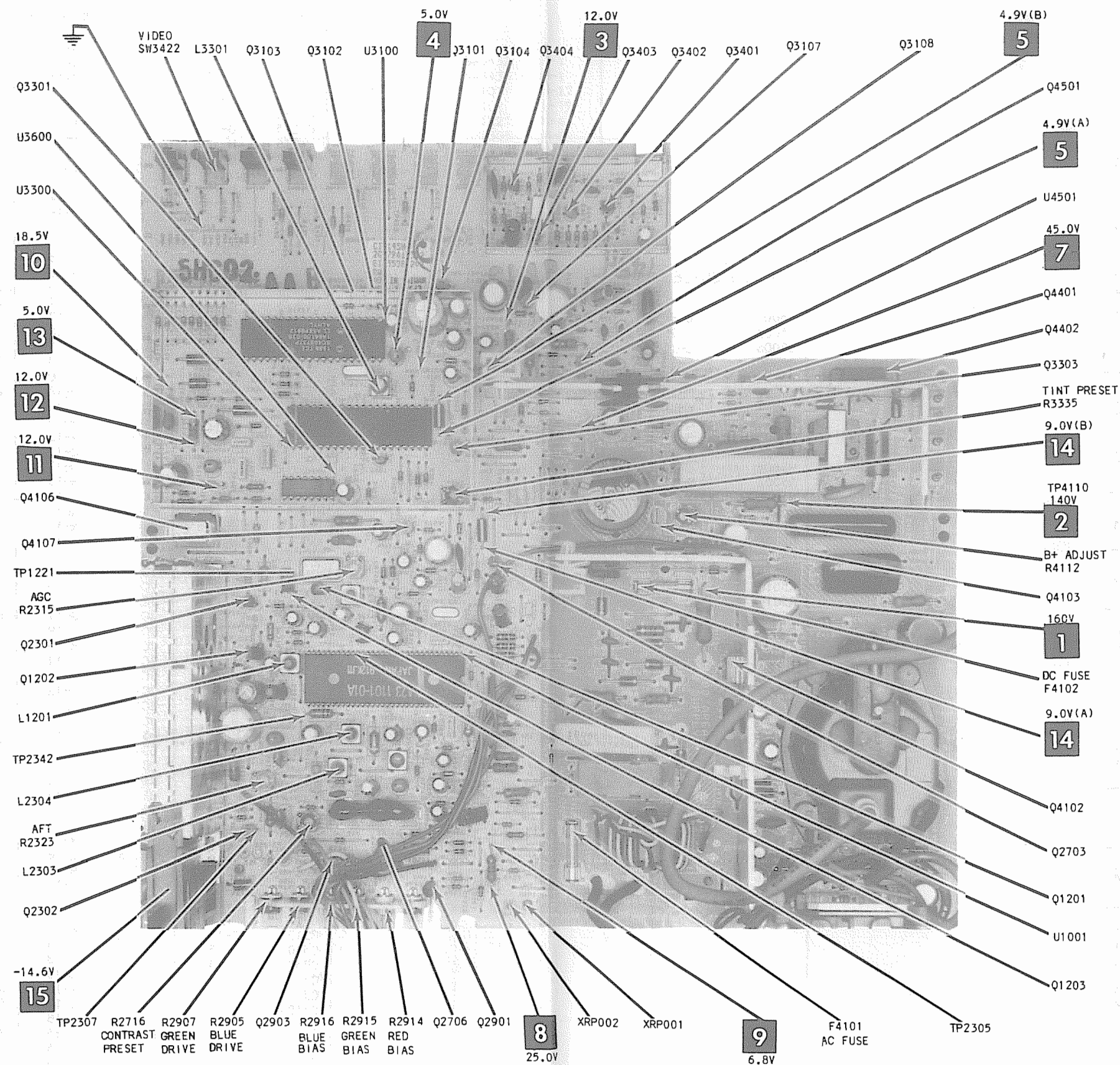


IC FUNCTIONS

U1001
TOP VIEWU3100, U3300
TOP VIEWU4402
FRONT VIEWQ1201 THRU Q1203
Q2301, Q2302
Q2703, Q2706, Q2901 THRU
Q2903, Q3104, Q3108
Q3301, Q3303, Q3401
Q3303, Q3401 THRU Q3404
Q4106, Q4107, Q4401, Q4501, Q5004
BOTTOM VIEWQ1103
BOTTOM VIEWQ3101 THRU Q3103
TOP VIEWQ5001 THRU Q5003
FRONT VIEWQ4102
FRONT VIEWT402
BOTTOM VIEW

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

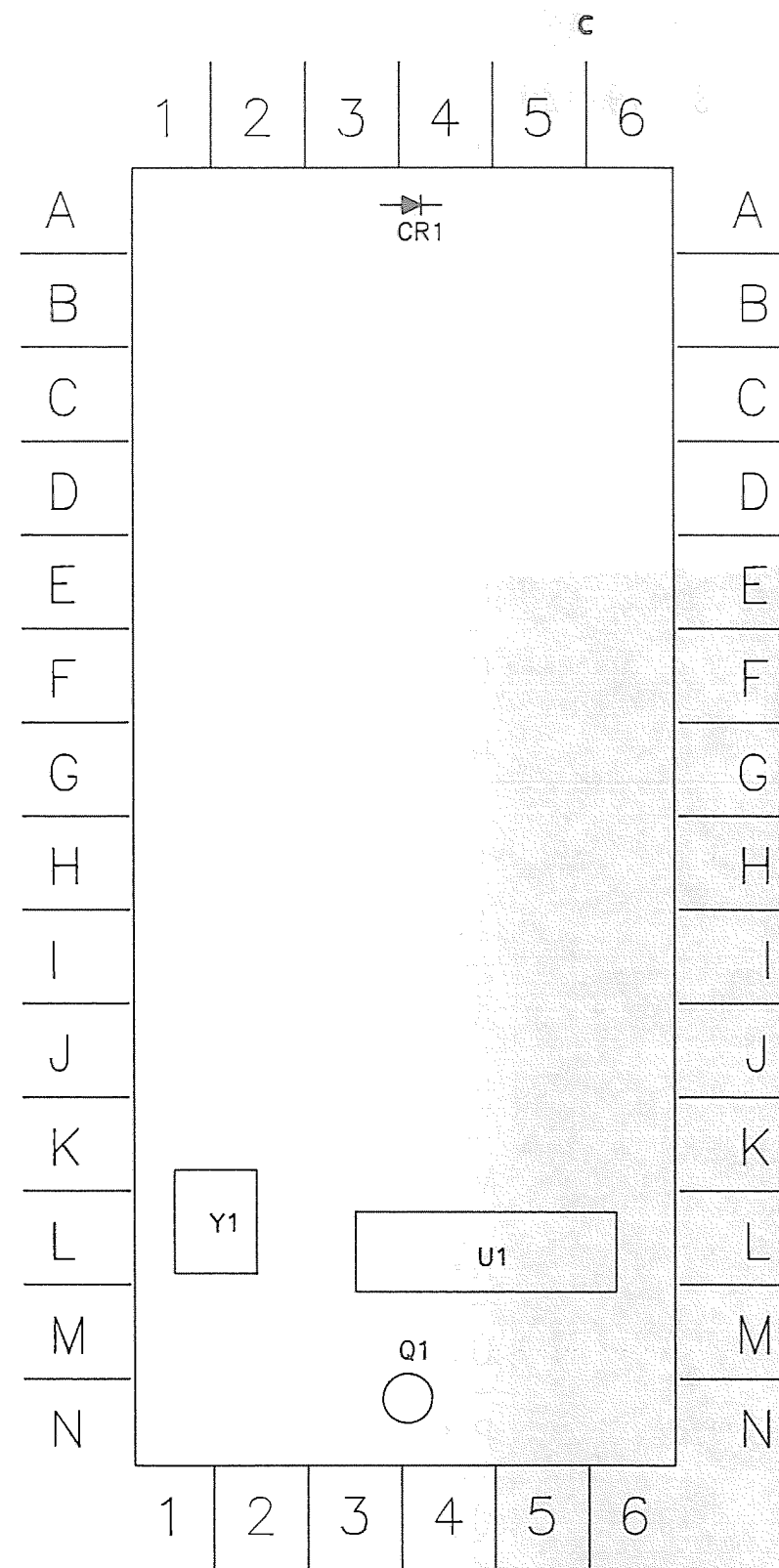
- Circuitry not used in some versions
 - - - Circuitry used in some versions
 - See Parts List
 - Nominal value
 - Ground
 - Chassis
 - Common tie point
- Waveforms and voltages are taken from ground, unless noted otherwise.
- Waveforms: triggered scope, keyed rainbow generator. Item numbers in rectangles appear in the alignment/adjustment instructions.
- Supply voltage 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% or greater unless noted.
- Electrolytic capacitors are 50 volts or less.
- 20% or greater unless noted.
- Resistors are 1/2W or less.
- 5% or greater unless noted.
- Value in () used in some versions.
- Measurements with switching as shown, unless noted



NOTE: ARROWS ON IC'S INDICATE PIN 1 UNLESS NOTED
 NOTE: ARROWS ON TRANSISTORS INDICATE BASE UNLESS NOTED

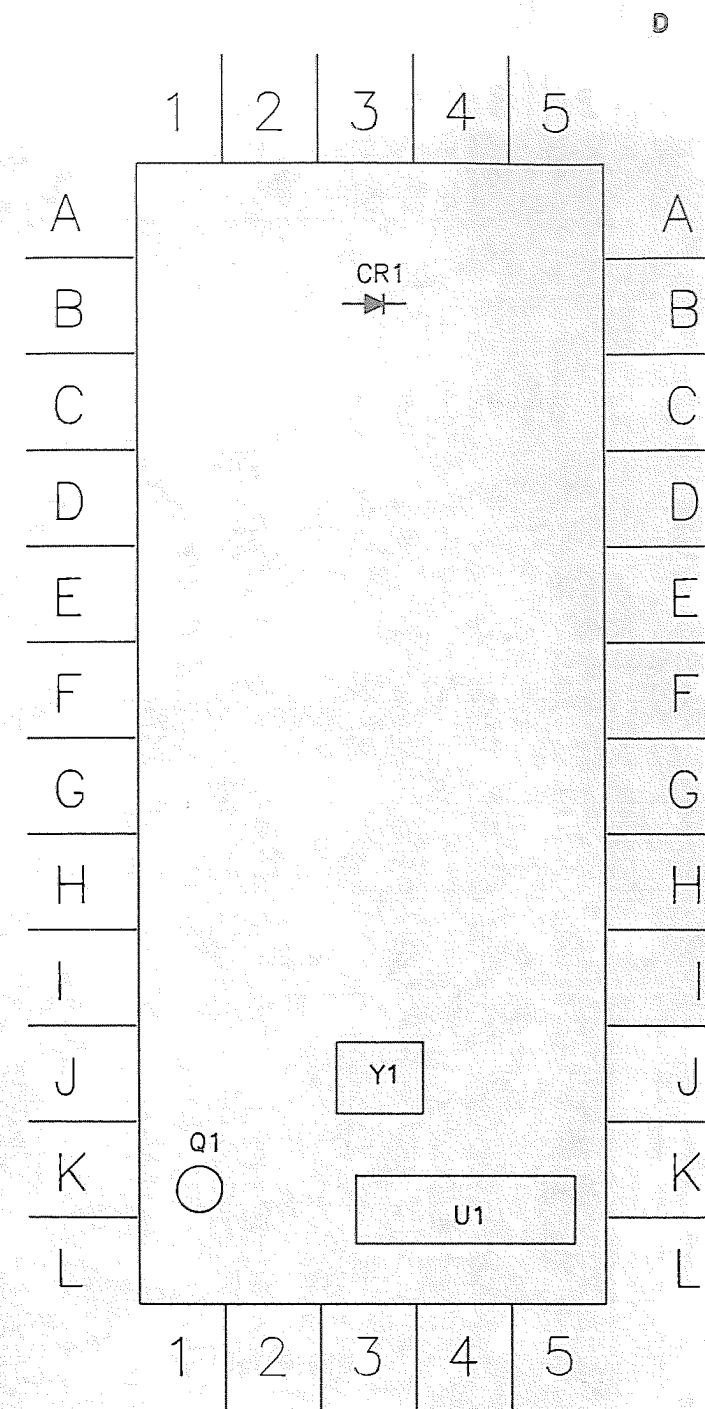
A Howard W. Sams **CIRCUITRACE** Photo

MAIN BOARD-TOP VIEW



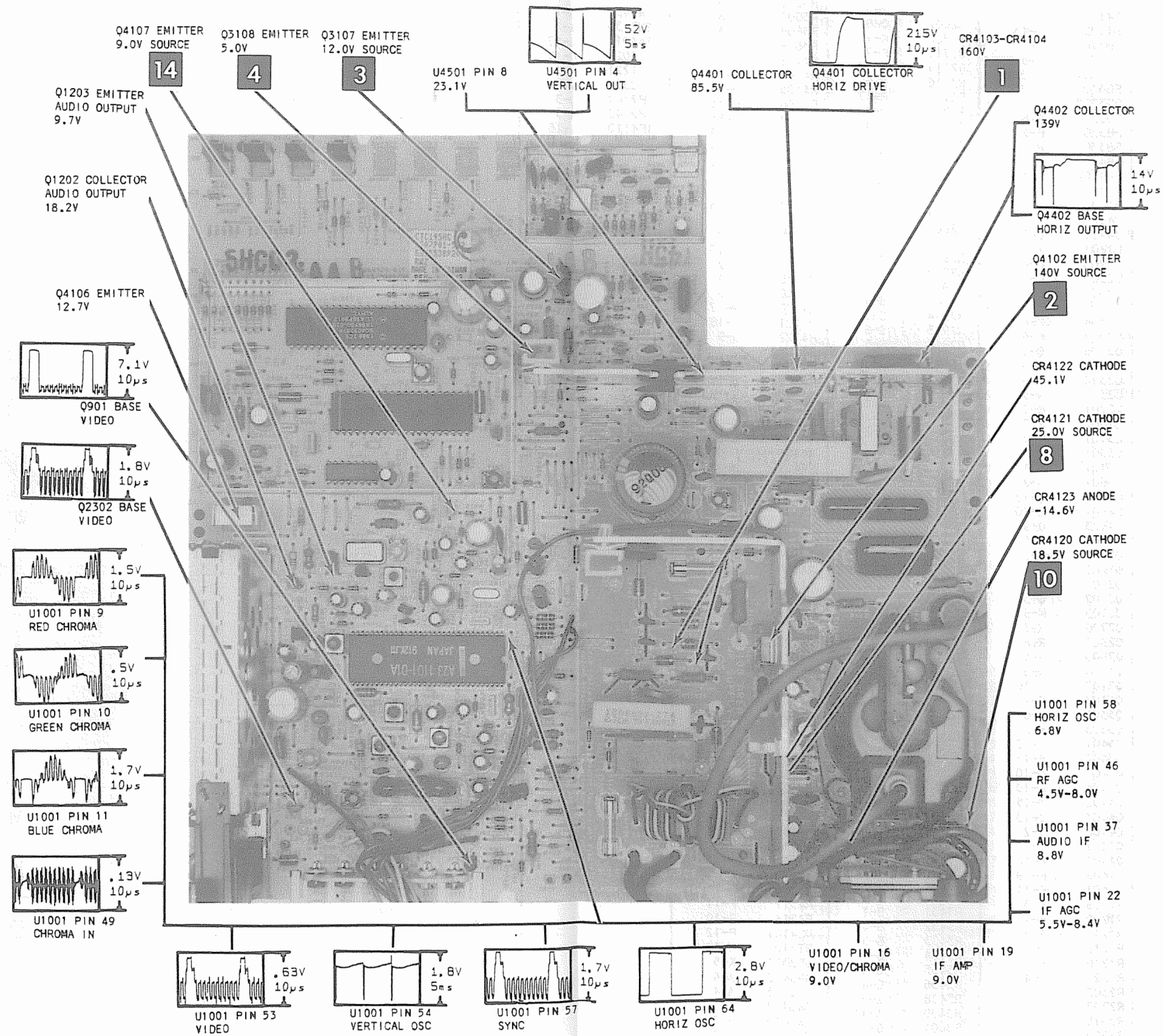
REMOTE CONTROL
TRANSMITTER
CRK52A-GridTrace
LOCATION GUIDE

0	I-3
1	E-2
2	E-3
3	E-4
4	F-2
5	F-3
6	F-4
7	G-2
8	G-3
9	G-4
AUDIO	J-2
C1	N-5
C2	M-5
C3	N-2
CH-DN	F-6
CH-UP	E-6
CLEAR	C-3
CR1	A-4
MUTE	J-6
OFF	B-4
ON/DSPY	B-6
PC	C-6
Q1	N-4
R1	M-1
R2	K-3
R3	B-2
RESET	C-4
SAP	C-2
SETUP	J-4
U1	L-4
VIDEO	J-3
VOL-DN	I-6
VOL-UP	H-6
Y1	L-2
-	I-2
+	I-4

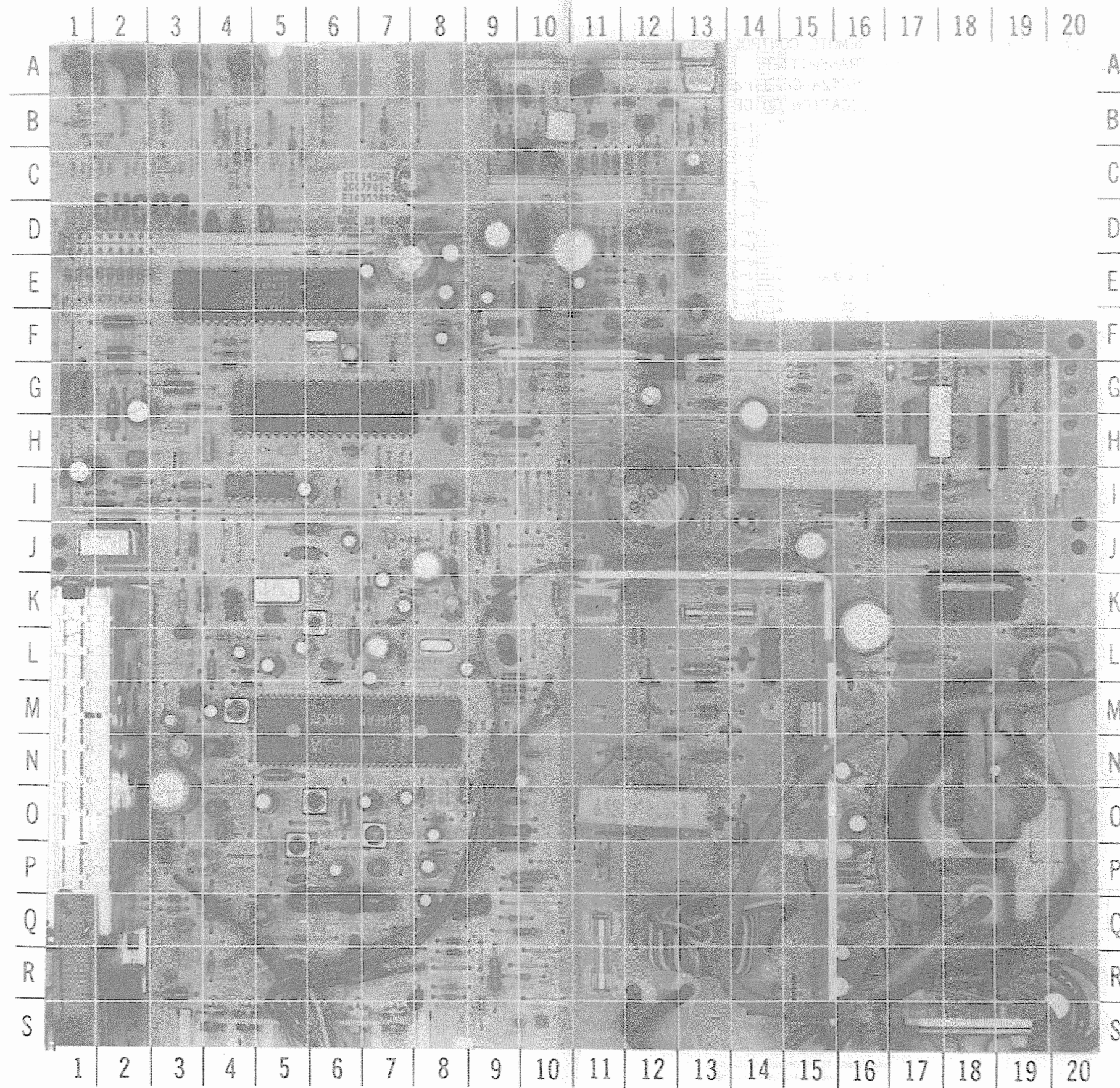


REMOTE CONTROL
TRANSMITTER
CRK53D-GridTrace
LOCATION GUIDE

0	H-2
1	E-1
2	E-2
3	E-4
4	F-1
5	F-2
6	F-4
7	G-1
8	G-2
9	G-4
ANT	D-3
AUDIO	I-2
C1	J-2
C2	J-2
C3	K-2
CH-DN	F-5
CH-UP	E-5
CLEAR	D-5
CR1	B-3
DISPLAY	C-4
MUTE	I-5
OFF	C-1
ON	C-2
PC	C-5
Q1	K-1
R1	K-2
R2	K-3
R3	B-2
RESET	D-4
SAP	D-1
SET	I-4
U1	K-4
VIDEO	I-1
VOL-DN	H-5
VOL-UP	G-5
Y1	J-3
+	H-4
-	H-1

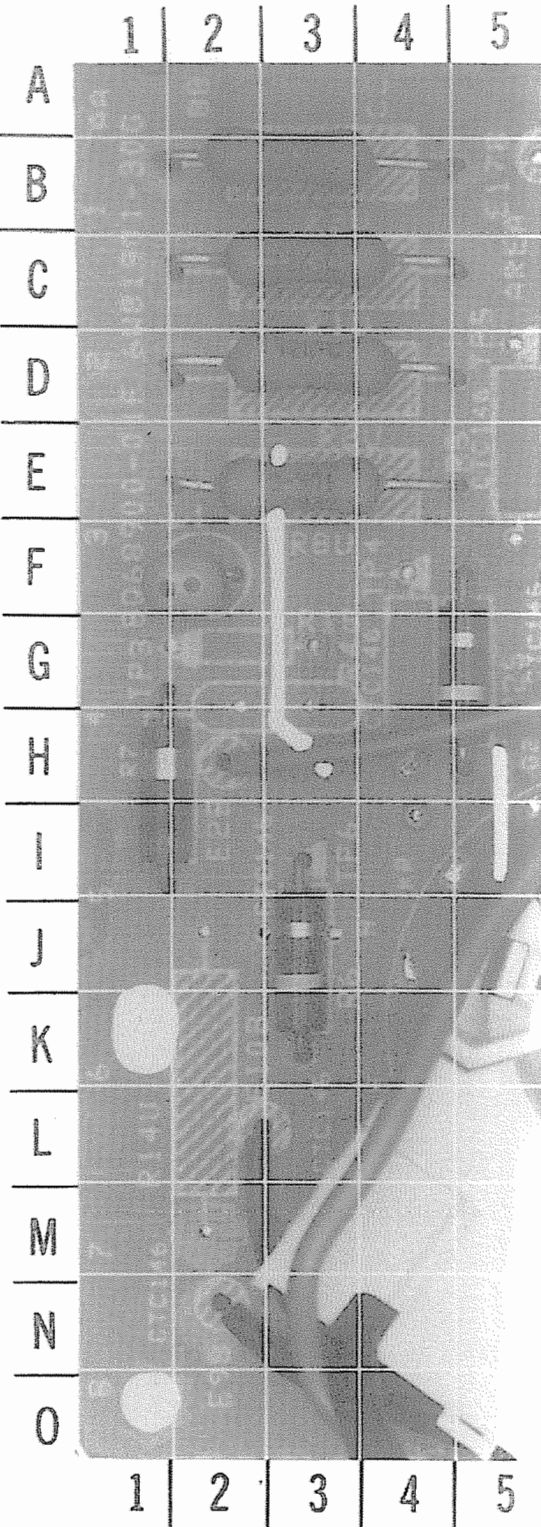


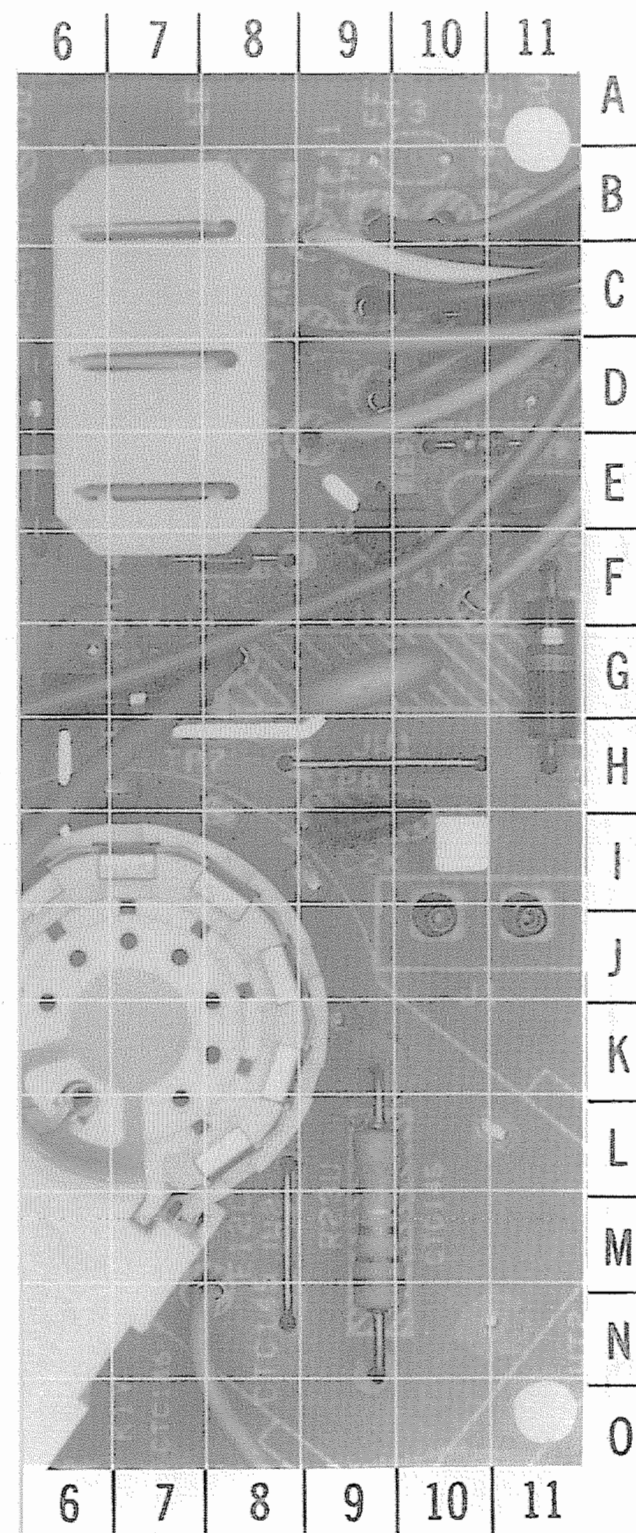
MAIN BOARD-TOP VIEW



MAIN BOARD-TOP VIEW-GridTrace LOCATION GUIDE

C1202	N-4	C4408	P-8	F4101	Q-11	R2327	P-5	R3606	I-3	SW3432	A-1
C1203	L-5	C4410	G-15	F4102	K-13	R2602	Q-8	R3607	J-6	SW3433	A-1
C1206	O-3	C4413	G-16	FB2701	R-7	R2706	K-10	R3608	I-3	T4401	H-17
C1207	N-3	C4415	J-18	FB2702	Q-6	R2711	P-7	R3609	I-3	T4402	O-19
C1208	L-4	C4416	I-18	FB3101	F-2	R2715	H-15	R4101	O-12	TP1221	K-4
C1217	O-5	C4417	K-18	FB3301	G-3	R2716	Q-5	R4102	L-13	TP2305	M-6
C1219	M-4	C4421	O-9	FB3302	J-9	R2717	R-17	R4105	J-15	TP2307	Q-3
C1221	M-3	C4425	N-9	FB3303	G-8	R2719	Q-5	R4106	L-14	TP2342	N-5
C2304	K-4	C4501	D-12	FB3304	F-2	R2722	L-9	R4107	J-14	TP4110	I-16
C2307	L-5	C4502	D-12	FB3305	R-3	R2724	M-9	R4108	I-15	U1001	M-8
C2313	L-6	C4503	E-11	FB4401	G-19	R2726	M-9	R4109	I-16	U3100	E-6
C2316	P-5	C4504	E-13	FB4402	G-17	R2727	R-18	R4110	J-14	U3300	H-4
C2601	Q-9	C4505	D-11	FB4403	H-19	R2728	S-16	R4111	I-15	U3600	I-5
C2603	Q-8	C4506	D-13	J1201	N-4	R2729	N-9	R4112	J-14	U4501	F-13
C2701	Q-7	C4507	G-12	J4201	R-14	R2734	Q-5	R4113	J-15	XRP4001	S-10
C2705	K-7	C4508	F-12	J4451	G-20	R2809	K-9	R4114	N-12	XRP4002	S-9
C2706	K-7	C4510	H-14	L1201	M-4	R2901	R-8	R4115	I-2	Y2801	L-8
C2707	O-7	C4511	G-12	L1202	O-4	R2902	R-4	R4116	N-13	Y3301	F-6
C2714	L-7	C4512	E-12	L2301	K-4	R2903	R-8	R4117	I-2	Y4401	N-9
C2715	J-6	C4513	E-12	L2302	K-6	R2905	S-4	R4118	G-1		
C2717	L-7	C4514	G-13	L2303	P-5	R2907	S-4	R4119	J-6		
C2718	K-9	CF1201	O-4	L2304	O-6	R2914	S-7	R4120	M-17		
C2725	S-17	CF2301	Q-4	L2305	O-6	R2915	S-6	R4121	S-18		
C2809	P-6	CR1201	L-4	L2306	Q-4	R2916	S-5	R4122	H-9		
C2810	M-8	CR1202	L-5	L2307	L-6	R2919	R-5	R4123	J-7		
C2811	K-8	CR2601	P-8	L2310	L-6	R2920	R-5	R4124	J-8		
C2818	L-9	CR2701	K-7	L2312	N-5	R3101	E-3	R4125	O-16		
C2820	L-9	CR2702	Q-7	L2701	O-7	R3102	E-2	R4128	R-18		
C2905	R-16	CR2703	Q-8	L2802	P-7	R3103	E-2	R4401	P-9		
C3121	F-8	CR2704	L-7	L3101	F-7	R3104	E-2	R4402	O-9		
C3125	E-7	CR2707	K-7	L3301	F-6	R3105	E-2	R4405	O-8		
C3128	E-8	CR2708	K-6	L3401	B-10	R3106	E-2	R4406	P-9		
C3129	E-7	CR2709	R-8	L3601	H-2	R3107	E-1	R4407	H-15		
C3132	B-9	CR3101	D-6	L4101	Q-13	R3108	E-1	R4409	G-15		
C3133	E-9	CR3103	E-10	L4402	L-20	R3122	D-6	R4410	F-16		
C3136	D-8	CR3104	F-8	L4403	O-9	R3134	F-4	R4411	H-16		
C3401	C-13	CR3105	F-9	Q1201	K-5	R3136	Q-9	R4412	Q-9		
C3402	B-12	CR3106	G-10	Q1202	M-3	R3157	E-10	R4413	L-17		
C3403	B-12	CR3301	F-4	Q1203	K-4	R3158	F-10	R4414	R-9		
C3406	A-11	CR3302	G-3	Q2301	L-3	R3303	I-6	R4415	L-19		
C3407	C-10	CR3303	G-8	Q2302	Q-3	R3321	I-9	R4418	Q-10		
C3409	A-9	CR3304	I-7	Q2703	K-9	R3326	I-7	R4419	R-19		
C3601	H-3	CR3305	G-2	Q2706	R-6	R3329	I-7	R4420	P-10		
C3602	H-3	CR3306	G-10	Q2901	R-8	R3335	I-8	R4421	S-20		
C3603	H-4	CR3401	B-13	Q2903	R-5	R3352	F-7	R4422	O-9		
C3606	G-2	CR3404	A-13	Q3104	D-8	R3401	B-13	R4423	R-10		
C3608	I-6	CR3601	G-3	Q3107	D-10	R3402	C-11	R4424	M-9		
C4102	M-12	CR4101	L-12	Q3108	F-9	R3403	B-13	R4426	O-8		
C4103	L-14	CR4102	M-13	Q3301	H-6	R3404	C-12	R4427	R-16		
C4104	M-12	CR4103	N-12	Q3303	H-8	R3405	C-11	R4501	E-11		
C4105	M-14	CR4104	M-13	Q3401	B-12	R3406	C-12	R4502	D-11		
C4106	I-12	CR4106	K-15	Q3402	B-11	R3407	A-11	R4503	S-7		
C4108	K-16	CR4107	H-13	Q3403	C-10	R3408	C-11	R4504	I-11		
C4109	J-15	CR4110	K-8	Q3404	A-10	R3409	C-11	R4505	E-11		
C4110	I-13	CR4111	O-14	Q4102	M-15	R3410	A-10	R4506	D-11		
C4111	H-14	CR4112	P-11	Q4103	J-13	R3411	B-10	R4507	E-12		
C4113	N-16	CR4113	O-11	Q4106	J-2	R3412	B-9	R4508	F-14		
C4115	J-8	CR4118	I-2	Q4107	J-7	R3413	B-9	R4509	E-11		
C4116	J-8	CR4119	J-8	Q4401	F-16	R3414	A-9	R4512	F-14		
C4120	O-13	CR4120	R-20	Q4402	F-19	R3415	A-10	R4513	H-15		
C4126	R-18	CR4121	P-16	Q4501	F-11	R3429	C-12	R4514	F-11		
C4133	I-1	CR4122	P-16	R1209	M-3	R3430	A-12	R4515	H-15		
C4134	R-19	CR4123	R-17	R1210	L-4	R3431	B-1	R4517	F-11		
C4135	S-20	CR4124	S-18	R1211	P-3	R3432	B-4	R4518	G-10		
C4136	Q-16	CR4401	S-9	R1213	L-4	R3433	B-5	RL4101	P-12		
C4137	P-16	CR4402	P-8	R1216	P-5	R3434	B-7	RT4101	N-12		
C4138	R-18	CR4404	N-10	R1221	M-4	R3435	C-4	SF2301	K-5		
C4139	O-16	CR4405	P-10	R2302	J-3	R3436	C-4	SW3402	A-4		
C4140	R-16	CR4501	G-13	R2307	K-3	R3438	E-5	SW3403	A-4		
C4141	R-16	CR4502	F-11	R2315	K-6	R3439	A-11	SW3412	A-3		
C4401	O-9	CR4503	D-12	R2320	Q-3	R3601	G-2	SW3413	A-3		
C4403	O-8	CR4506	G-10	R2321	Q-3	R3602	N-3	SW3422	A-2		
C4404	O-8	DL2701	Q-5	R2323	P-4	R3603	N-3	SW3423	A-2		





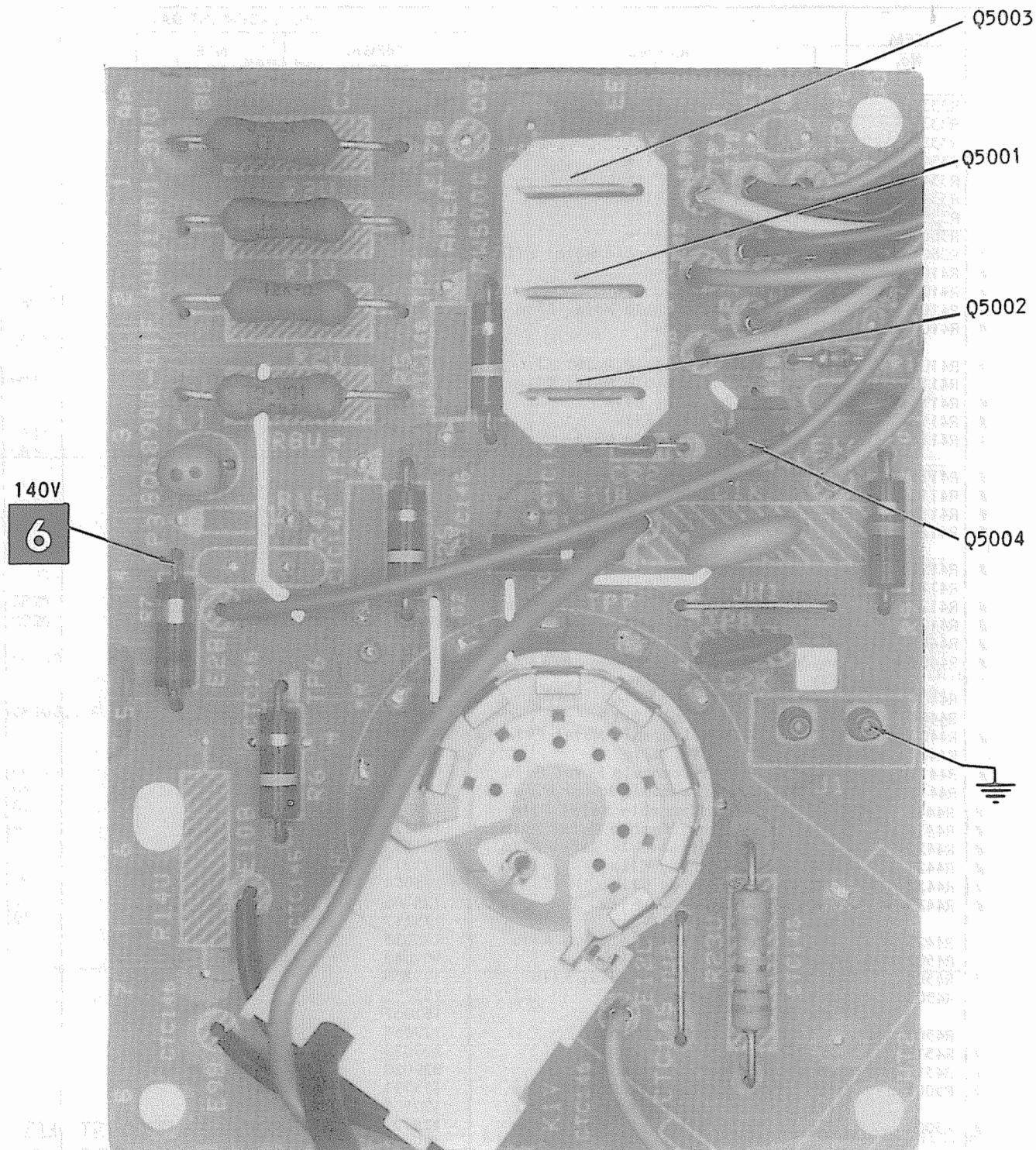
CRT BOARD

CRT BOARD-
GridTrace
LOCATION GUIDE

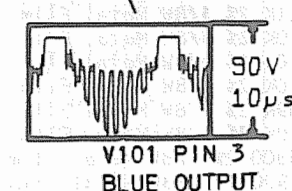
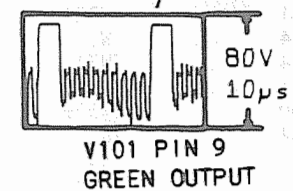
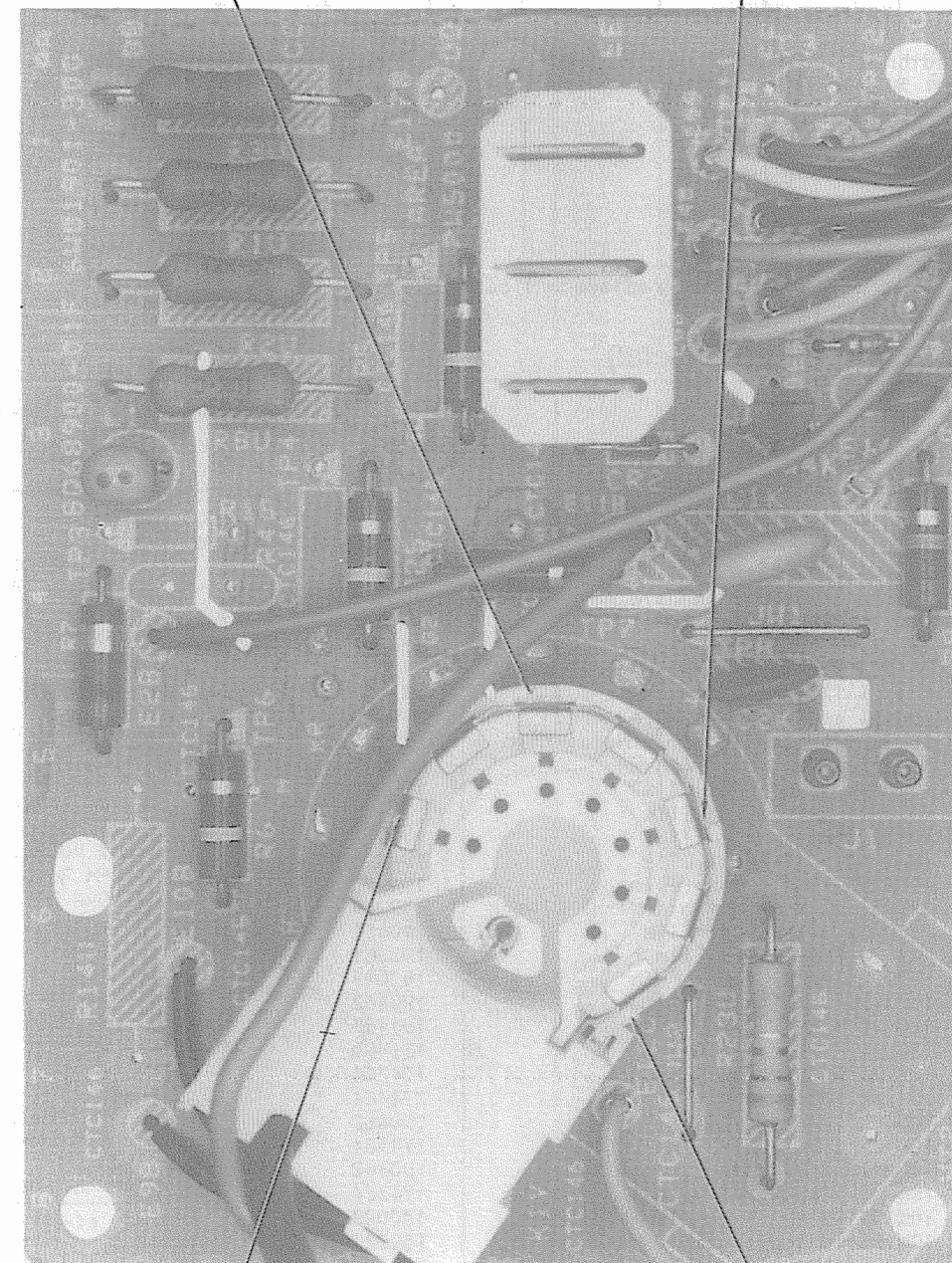
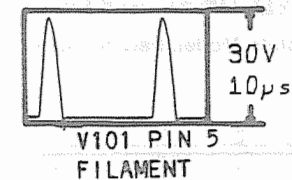
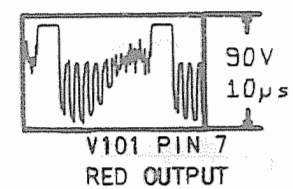
C5001	G-9
C5002	I-9
C5006	E-11
CR5002	F-8
J1	J-10
L5001	F-2
Q5001	C-7
Q5002	E-7
Q5003	B-7
Q5004	E-9
R5001	C-3
R5002	D-3
R5003	B-3
R5006	J-3
R5007	H-1
R5008	E-3
R5009	G-11
R5013	G-7
R5018	E-10
R5019	C-11
R5020	C-11
R5021	C-11
R5023	M-9
R5024	E-6
R5025	G-5

MAIN BOARD-BOTTOM VIEW-GridTrace LOCATION GUIDE

C1201	N-17	C3314	G-18	R2318	P-16	R3320	H-13
C1205	L-16	C3316	H-16	R2319	O-14	R3322	I-13
C1211	N-16	C3317	G-13	R2322	O-16	R3323	H-13
C1212	P-16	C3318	G-13	R2324	P-17	R3324	I-12
C1214	O-17	C3319	H-14	R2326	Q-17	R3325	I-13
C1215	O-17	C3320	I-13	R2601	Q-14	R3327	I-14
C1216	N-18	C3321	I-13	R2603	Q-12	R3330	I-13
C1218	N-16	C3322	I-13	R2705	P-14	R3331	I-12
C1220	D-17	C3323	I-14	R2707	Q-16	R3332	I-14
C1222	N-17	C3324	I-15	R2708	R-13	R3333	I-14
C2301	L-18	C3325	I-14	R2712	P-13	R3336	I-14
C2302	K-18	C3326	G-16	R2713	L-14	R3337	H-14
C2303	K-17	C3328	H-16	R2720	L-14	R3338	G-14
C2305	L-15	C3330	G-14	R2731	K-14	R3339	H-17
C2308	M-14	C3331	G-15	R2733	R-15	R3340	H-16
C2309	M-15	C3332	G-12	R2735	R-12	R3341	H-15
C2311	O-16	C3334	G-13	R2808	P-15	R3342	H-15
C2312	M-15	C3335	G-14	R2810	L-12	R3343	H-16
C2315	O-17	C3604	I-17	R2811	L-13	R3344	H-16
C2318	O-15	C3605	I-18	R2812	L-18	R3347	H-12
C2327	N-15	C3607	I-15	R2813	P-14	R3349	G-12
C2328	L-14	C3609	G-18	R2814	L-12	R3350	H-13
C2329	K-15	C3611	O-20	R2815	L-13	R3351	G-13
C2602	N-13	C3612	O-18	R2906	R-13	R3355	G-14
C2708	O-14	C4114	K-13	R2908	R-14	R3604	H-17
C2709	O-14	C4402	N-13	R2909	R-17	R3605	H-18
C2711	M-11	C4405	N-13	R2910	R-16	R3611	I-18
C2712	M-12	C4406	O-13	R2911	R-14	R4403	N-13
C2713	M-11	C4407	P-13	R2912	R-15	R4404	O-13
C2720	R-15	C4409	N-13	R2913	R-15	R4408	O-12
C2722	O-11	C4411	P-12	R2917	R-14	R4416	P-12
C2803	P-14	C4420	N-13	R2918	S-15	R4417	P-12
C2805	O-14	C4422	N-11	R3110	E-16		
C2807	M-14	C4509	N-14	R3111	G-19		
C2812	L-13	JC1	E-17	R3112	F-19		
C2813	L-12	JC3	E-14	R3113	E-14		
C2814	L-13	JC4	E-13	R3114	E-14		
C2816	P-14	JC6	F-13	R3115	D-14		
C2817	L-12	JC9	G-11	R3116	D-15		
C2901	R-14	JC12	N-19	R3117	D-14		
C2902	R-17	JC13	M-16	R3118	D-14		
C2903	R-16	JC14	M-14	R3119	E-15		
C2907	R-14	JC15	O-16	R3123	F-16		
C2908	R-15	JC16	Q-12	R3124	F-16		
C2909	R-15	JC17	K-19	R3125	F-18		
C3101	E-18	JC18	G-13	R3126	F-18		
C3102	D-18	Q3101	E-14	R3127	F-18		
C3103	E-18	Q3102	D-15	R3128	F-17		
C3104	E-19	Q3103	D-14	R3130	D-17		
C3105	E-19	R1201	N-16	R3132	E-15		
C3106	E-20	R1202	N-16	R3133	D-15		
C3107	E-20	R1203	L-16	R3135	D-13		
C3108	E-20	R1204	M-16	R3138	E-17		
C3109	D-17	R1205	N-18	R3148	E-18		
C3111	E-18	R1206	L-16	R3149	D-19		
C3112	F-15	R1208	M-18	R3150	E-19		
C3116	D-15	R1212	M-17	R3151	E-19		
C3126	F-19	R1214	L-17	R3152	G-15		
C3130	E-12	R1215	M-16	R3153	E-17		
C3131	F-13	R1217	P-17	R3154	F-16		
C3301	I-15	R2301	L-18	R3155	F-16		
C3302	I-15	R2303	L-18	R3156	E-12		
C3303	I-15	R2304	L-18	R3161	E-13		
C3304	G-19	R2305	M-18	R3301	G-18		
C3305	G-13	R2308	K-18	R3302	G-16		
C3306	H-16	R2309	K-16	R3304	I-15		
C3307	G-15	R2310	M-15	R3305	H-15		
C3308	G-16	R2311	K-15	R3307	E-17		
C3309	G-15	R2312	L-15	R3308	G-15		
C3310	G-16	R2313	N-15	R3313	G-17		
C3311	F-15	R2314	P-15	R3314	G-17		
C3312	F-15	R2316	M-15	R3318	G-14		
C3313	G-17	R2317	N-15	R3319	H-13		



NOTE: ARROWS ON TRANSISTORS INDICATE BASE UNLESS NOTED



MISCELLANEOUS ADJUSTMENTS

PRETUNING

Note: All procedures require an antenna connected and power applied to the set. Select TV/CATV.

Auto Memory

- 1. Press the Set-up button until Autoprogram is displayed.
- 2. Press the Volume (+) button. Available channels are scanned and stored in memory.

Add Channel

- 1. Press the Set-up button until Channel Memory is displayed.
- 2. Select channel to be added to memory.
- 3. Press the Volume (+) button to add channel.
- 4. Repeat step two and three to add other channels.

Delete Channel

- 1. Press the Set-up button until Channel Memory is displayed.
- 2. Select channel to be removed from memory.
- 3. Press the Volume (-) button to erase channel.
- 4. Repeat step two and three to erase other channels.

This set employs Digital Customer Controls. Use Video Button (SW3422) to select video function to be altered, use Set-up Button (SW3423) to select Set-up function to be altered, use Volume up (+) button (SW3413) to increase setting, Volume down (-) button (SW3412) to decrease setting. Use reset value for all adjustments unless otherwise indicated.

B+ ADJUSTMENT

Tune in a picture. Set Brightness, Contrast, and Color to MINIMUM. Connect a DC Voltmeter to TP4110, Low side to Ground. With 120 VAC line input, adjust B+ Control (R4112) for 140VDC.

HIGH VOLTAGE CHECK

Tune in a picture. Set Brightness, Color, and Contrast Controls to MINIMUM. Connect a High Voltage probe to CRT anode High Voltage must measure 21.0KV to 21.5KV. High Voltage must never exceed 22.0KV.

RF AGC ADJUSTMENT

Tune in a picture. Adjust RF AGC Control (R2315) Clockwise until snow (noise) appears in picture and then Counterclockwise until snow disappears.

CONTRAST PRESET ADJUSTMENT

Tune in a picture. Set Brightness, and Color to MINIMUM, Contrast to Midrange. Adjust Contrast Preset Control (R2716) to a point where highlights are just visible.

DISPLAY POSITION ADJUSTMENT

Tune in a picture. Press the Video button (SW3422). Adjust OSD Oscillator (L3301) to Center the display.

COLOR PURITY ADJUSTMENT

Tune in a crosshatch pattern. Operate the receiver for 20 minutes. Use a degaussing coil to demagnetize the CRT. Set Color, and Contrast controls to MINIMUM, Brightness for a visible raster. Adjust Red (R2914), Blue (R2916) and Green (R2915) Bias Controls to obtain a green raster. Loosen the Deflection Yoke clamp screw and slide the Deflection Yoke backward to obtain a vertical green band. Rotate and spread the tabs of the purity magnets until the green band is centered on the screen. Move the Deflection Yoke forward until a uniform green screen is obtained. Check Red and Blue purity.

TINT PRESET ADJUSTMENT

Tune in a Color Bar pattern. Connect an Oscilloscope to the Red Cathode, Low side to Ground. Adjust Tint Preset Control (R3335) to balance the 2nd and 4th bars of waveform.

COLOR TEMPERATURE ADJUSTMENT (B/W TRACKING)

Tune in a Crosshatch pattern. Set Color, Contrast, Red Bias (R2914), Green Bias (R2915), Blue Bias (R2916), and Screen (R4210B) to MINIMUM, Blue/Green Drive (R2907), Blue Drive (R2905) and Brightness to Midrange. Advance screen control until lines of one predominant color are just visible. Adjust 2 remaining Bias controls to obtain white lines. Set Brightness and Contrast Controls to Maximum. Adjust the Blue/Green and Blue Drive Controls for best Black and White picture. Check tracking at low and high brightness.

CONVERGENCE ADJUSTMENTS

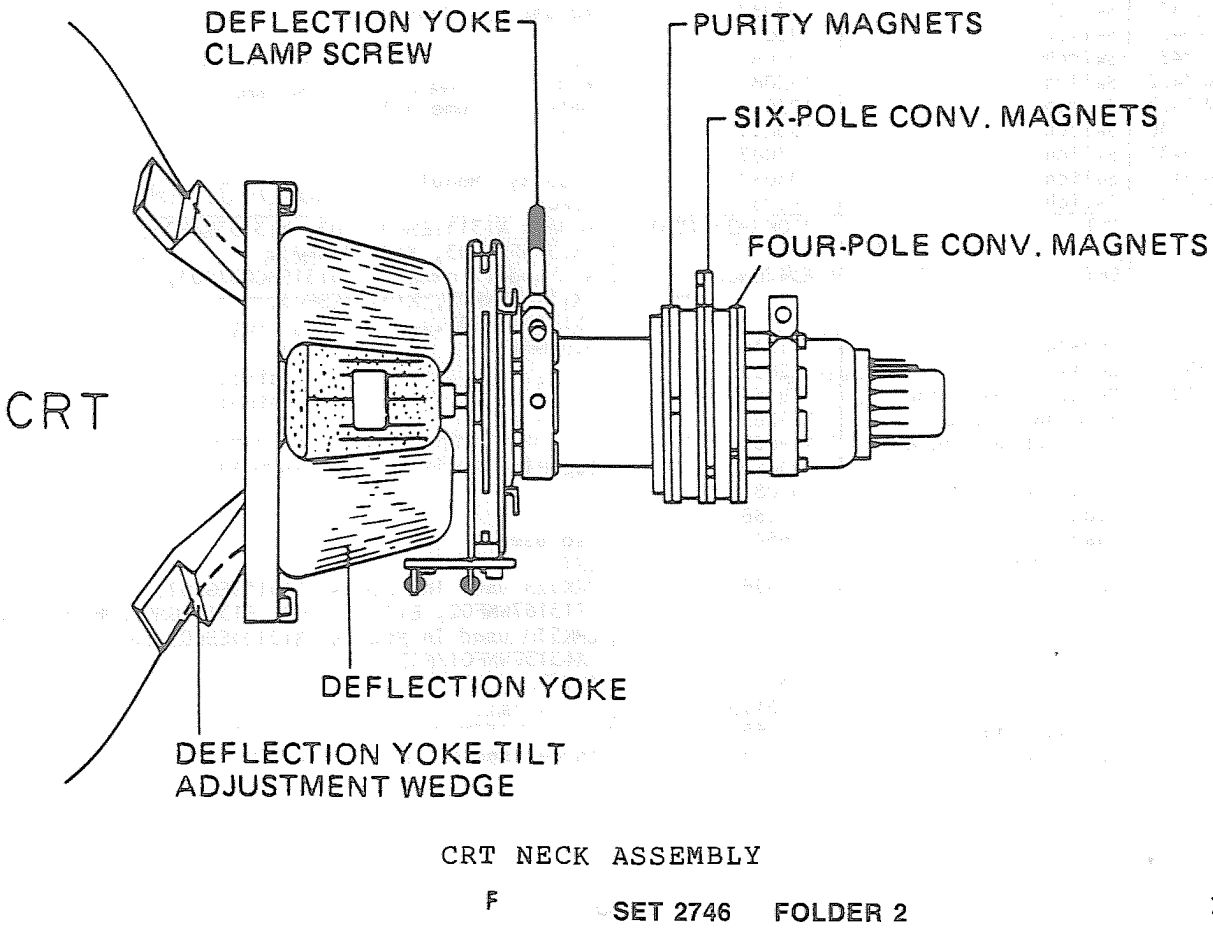
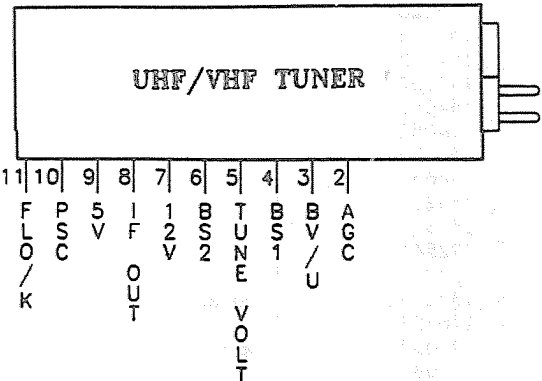
Operate the receiver for 20 minutes. Connect a color bar generator to the antenna terminals and tune in a dot pattern. Adjust the 4-pole magnet tabs to converge the red and blue dots at the center of the screen. Adjust the 6-pole magnet tabs to converge the red, blue dots over the green dots at the center of the screen. NOTE: Rotate the two tabs of each set of magnets equally and opposite to converge horizontally and rotate both tabs in the same direction to converge vertically. Four and six pole magnets interact, repeat adjustment until center convergence is correct. Remove the rubber wedges from the CRT. Tilt the Deflection Yoke up or down to converge the Vertical lines at top and bottom of screen and the Horizontal lines at the right and left sides of the screen. Tilt the Deflection Yoke right or left to converge Horizontal lines at top and bottom of screen and the Vertical lines at the right and left sides of the screen. Apply adhesive to wedges and carefully replace on CRT. Tighten Deflection Yoke clamp screw.

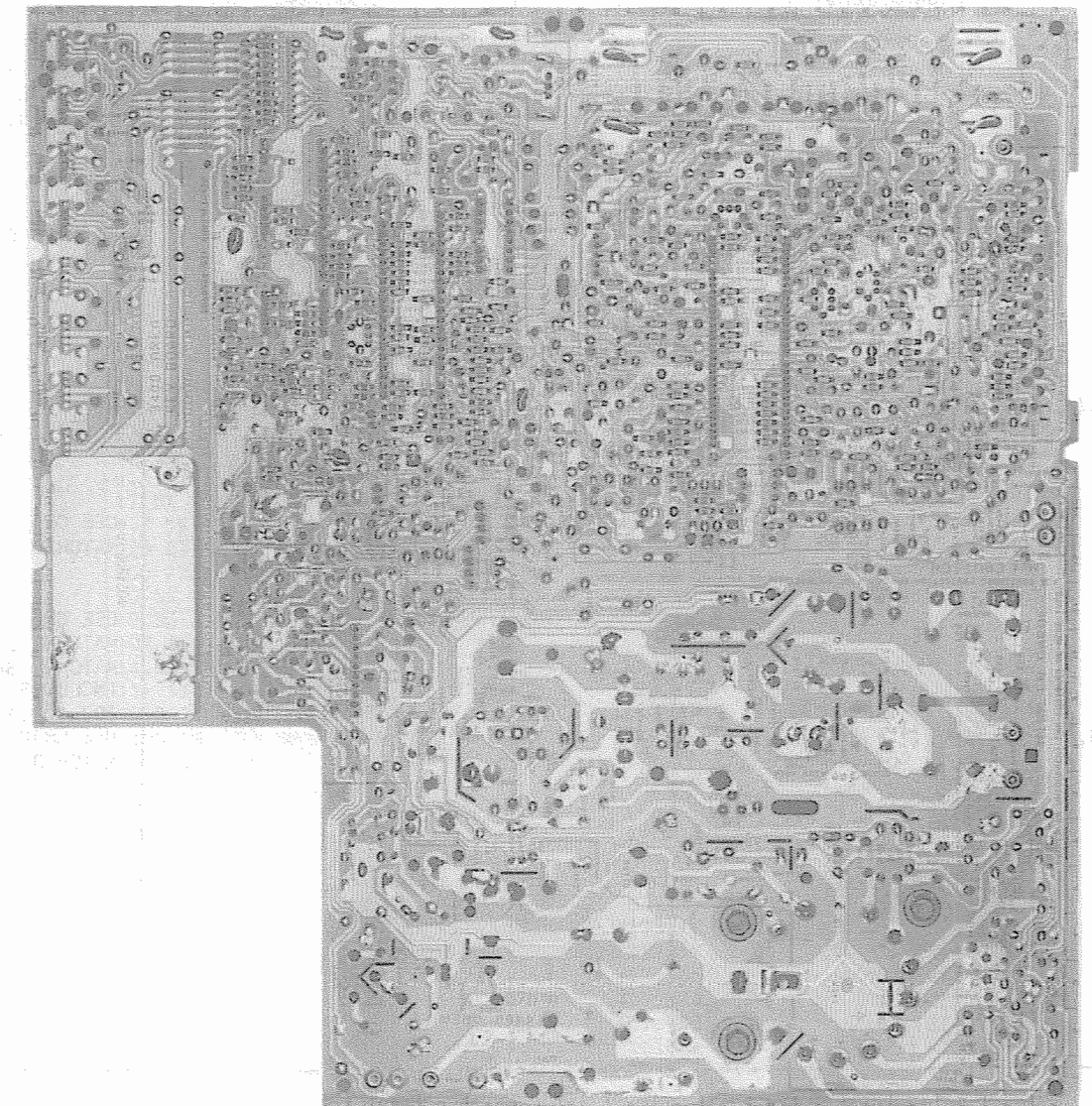
TUNER VOLTAGE CHART

	FLO/K	PSC	+5VDC	12VDC	BS2	TUNE VOLT	BS1	BV/U	AGC
VHF Low Band	3.5V	.06V	5.0V	12.0V	-14.9V	3.2V	-14.9V	11.1V	8.0V
VHF High Band	3.5V	.09V	5.0V	12.0V	-12.1V	12.0V	11.0V	11.0V	8.0V
UHF Band	3.5V	.06V	5.0V	12.0V	-12.1V	4.2V	11.0V	11.0V	8.0V

NOTE: VHF Low Band voltages taken on channel 2. VHF High Band voltages taken on channel 7. UHF Band voltages taken on channel 14.

TUNER TERMINAL GUIDE





PARTS LIST AND DESCRIPTION

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

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	MFR. PART No./ TYPE No.				
		NTE PART No.	ECG PART No.	TCE PART No.	NOTES
CR1201,2	164874	NTE177	ECG177	SK9091/177	
CR2601	164874	NTE177	ECG177	SK9091/177	
CR2701,2,3,4,7,8,9	164717	NTE519	ECG519	SK3100/519	
CR3101	164874	NTE177	ECG177	SK9091/177	
CR3102	146320	NTE135A	ECG135A	SK5V1/135A	SOME VERSIONS
CR3103	164717	NTE519	ECG519	SK3100/519	
CR3104	176746	NTE5011A	ECG5011A	SK5A6/5011A	
CR3105	132616	NTE5071A	ECG5071A	SK6V8/5071A	
CR3106	164717	NTE519	ECG519	SK3100/519	
CR3301,2,3,4,5,6	164874	NTE177	ECG177	SK9091/177	
CR3401	164874	NTE177	ECG177	SK9091/177	
CR3404	164874	NTE177	ECG177	SK9091/177	
CR3601	146320	NTE135A	ECG135A	SK5V1/135A	
CR4101,2,3,4	147993	NTE125	ECG125	SK3033A	
CR4106	139706	NTE177	ECG177	SK9091/177	
CR4107	180338				
CR4110	146320	NTE135A	ECG135A	SK5V1/135A	
CR4111	147993	NTE125	ECG125	SK3033A	
CR4112,3	164717	NTE519	ECG519	SK3100/519	
CR4118	147015	NTE125	ECG125	SK5010A/117A	
CR4119	164874	NTE177	ECG177	SK9091/177	
CR4120,1,2,3	176296	NTE552	ECG552	SK9000/552	
CR4124	164717	NTE519	ECG519	SK3100/519	
CR4401	157301	NTE177	ECG177	SK9091/177	
CR4402	132616	NTE5071A	ECG5071A	SK6V8/5071A	
CR4404	159429	NTE5019T1	ECG5019T1		
CR4405	164717	NTE519	ECG519	SK3100/519	
CR4501	147015	NTE125	ECG125	SK5010A/117A	
CR4502,3,6	164717	NTE519	ECG519	SK3100/519	
CR5001	139706	NTE177	ECG177	SK9091/177	SOME VERSIONS
CR5002	139706	NTE177	ECG177	SK9091/177	
Q1201	146847	NTE123AP	ECG123AP	SK3854/123AP	
Q1202	177788	NTE31	ECG31	SK3866A/31	
Q1203	177789	NTE32	ECG32	SK3867A/32	

PARTS LIST AND DESCRIPTION (Continued)

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

SEMICONDUCTORS (Select replacement for best results)

ITEM No.	MFR. PART No./ TYPE No.				
		NTE PART No.	ECG PART No.	TCE PART No.	NOTES
Q2301	146848	NTE229	ECG229	SK3246A/229	
Q2302	146847	NTE123AP	ECG123AP	SK3854/123AP	
Q2703	143806	NTE159	ECG159	SK3466/159	
Q2706	146847	NTE123AP	ECG123AP	SK3854/123AP	
Q2901,3	143806	NTE159	ECG159	SK3466/159	
Q3101,2	179740	NTE2406	ECG2406		SOME VERSIONS
Q3103	179741	NTE2407	ECG2407		
Q3104	146847	NTE123AP	ECG123AP	SK3854/123AP	
Q3107	146826	NTE171	ECG171	SK3201/171	
Q3108	146847	NTE123AP	ECG123AP	SK3854/123AP	
Q3301	143802	NTE159	ECG159	SK3466/159	
Q3303	146850	NTE159	ECG159	SK3466/159	
Q3401	148061	NTE123AP	ECG123AP	SK3854/123AP	
Q3402	145410	NTE159	ECG159	SK3466/159	
Q3403,4	148061	NTE123AP	ECG123AP	SK3854/123AP	
Q4102	193057				
Q4103	193058				
Q4106	146849	NTE210	ECG210	SK3202/210	
Q4107	177788	NTE31	ECG31	SK3866A/31	
Q4401	146851	NTE287	ECG287	SK3433/287	
Q4402	177791	NTE2302	ECG2302	SK9422	
Q4501	146847	NTE123AP	ECG123AP	SK3854/123AP	
Q5001,2,3	146826	NTE171	ECG171	SK3201/171	
Q5004	146851	NTE287	ECG287	SK3433/287	
U1001	A23-1101-01A 193082				
U3100	SC403737P 196129				
U3300	179732				
U3600	179733				
U4501	LA7831 176853	NTE1797	ECG1797	SK9753	
		NTE1797	ECG1797	SK9753	
	REMOTE CONTROL				
	TRANSMITTER				
	CRK52A, CRK53D				
	148996				
	181040				
Q1		NTE123AP	ECG123AP	SK3854/123AP	
U1					

RCA CHASSIS CT145B/D/E/F/FC/G/H/C

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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.				NOTES
		NTE PART No.	ECG PART No.	TCE PART No.	
CR5 CR6	TUNER TCHQ-1A				
	129095 192062	NTE553	ECG553	SK3322	MATCHED SET INCLUDES CR6,9, 10,12,15,16,17, 24,26
CR7,8 CR9,10	181466				USE CR6 MATCHED SET
CR11	129095	NTE553	ECG553	SK3322	
CR12					USE CR6 MATCHED SET
CR13 CR14 CR15,6,7	181466 129095	NTE553	ECG553	SK3322	USE CR6 MATCHED SET
CR18,9 CR22,3 CR24	129095 129095	NTE553 NTE553	ECG553 ECG553	SK3322 SK3322	USE CR6 MATCHED SET
CR25 CR26	181466				USE CR6 MATCHED SET
CR101	192063				MATCHED SET INCLUDES CR101, 102,103,104 USE CR101 MATCHED SET
CR102,3,4					
CR105 Q4,5 Q6 Q7 Q8	192064 192066 192067 192068 192067				
Q9 Q101 Q102 U1	179741 192069 192067 181498	NTE2407	ECG2407		

For SAFETY use only equivalent replacement part.

ELECTROLYTIC CAPACITORS

Items Not Listed Are Normally Available At Local Distributors.

ITEM No.	RATING	MFGR. PART No.
# C4106	470 200V	179809
# C4108	33 200V	193038
# C4425	10 50V 20%	179229

For SAFETY use only equivalent replacement part.

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PARTS LIST AND DESCRIPTION (Continued)

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

CAPACITORS

Items Not Listed Are Normally Available At Local Distributors.

ITEM No.	RATING	MFGR. PART No.	ITEM No.	RATING	MFGR. PART No.
C1205	470pF NPO 50V 10%	174416	C13	470 NPO 50V 10%	174416
C1212	33pF NPO 50V 5%	174408	C14	5 NPO 50V $\pm 0.25\mu\text{F}$	192044
C1214	18pF NPO 50V 5%	174405	C15	7 NPO 50V $\pm 0.5\mu\text{F}$	192045
C1220	33pF NPO 50V 5%	174408	C16	470 NPO 50V 10%	192040
C1222	10pF NPO 50V 1%	174402	C17	470 NPO 50V 10%	192040
C2311	33pF NPO 50V 5%	174408	C18	470 NPO 50V 10%	192040
C2313	22pF NPO 50V 5%	157199	C19	470 NPO 50V 10%	174416
C2318	22pF NPO 50V 5%	174406	C23	470 NPO 50V 10%	192040
C2709	68pF NPO 50V 5%	174410	C24	82 NPO 50V 5%	192049
C2720	68pF NPO 50V 5%	174410	C25	470 NPO 50V 10%	192040
C2722	12pF NPO 50V 5%	174403	C31	470 NPO 50V 10%	174416
C2803	56pF NPO 50V 5%	190542	C33	27 NPO 50V 10%	192050
C2805	15pF NPO 50V 5%	174404	C35	470 NPO 50V 10%	192040
C2813	10pF NPO 50V 1%	174402	C36	470 NPO 50V 10%	192040
C2816	120pF NPO 50V 10%	193033	C38	1.5 NPO 50V $\pm 0.5\mu\text{F}$	192051
C2907	220pF NPO 50V 5%	178188	C39	150 NPO 50V 10%	192056
C2908	220pF NPO 50V 5%	178188	C40	6 NPO 50V $\pm 0.5\mu\text{F}$	181452
C2909	220pF NPO 50V 5%	178188	C41	5 NPO 50V $\pm 0.25\mu\text{F}$	192044
C3111	100pF NPO 50V 5%	174412	C42	150 NPO 50V 10%	192056
C3308	100pF NPO 50V 5%	174412	C43	470 NPO 50V 10%	192040
C3309	100pF NPO 50V 5%	174412	C44	470 NPO 50V 10%	174416
C3310	100pF NPO 50V 5%	174412	C47	470 NPO 50V 10%	192040
C3311	56pF NPO 50V 5%	190542	C49	5 NPO 50V $\pm 0.25\mu\text{F}$	192044
C3312	56pF NPO 50V 5%	190542	C50	470 NPO 50V 10%	174416
C3316	220pF NPO 50V 5%	178188	C52	68 NPO 50V 5%	193339
C3318	39pF NPO 50V 5%	181090	C53	470 NPO 50V 10%	174416
C3330	33pF NPO 50V 5%	174408	C55	100 NPO 50V 10%	175399
C3331	33pF NPO 50V 5%	174408	C56	4 NPO 50V $\pm 0.5\mu\text{F}$	192058
C3332	12pF NPO 50V 5%	174403	C57	470 NPO 50V 10%	192040
# C4102	680pF 1KV 20%	190538	C58	82 NPO 50V 5%	192049
# C4103	680pF 1KV 20%	190538	C62	470 NPO 50V 10%	174416
# C4104	680pF 1KV 20%	190538	C63	27 NPO 50V 10%	192050
# C4105	680pF 1KV 20%	190538	C64	91 NPO 50V 5%	192057
# C4120	680pF 1KV 20%	190538	C65	18 NPO 50V 10%	193337
# C4401	.1 50V 10%	159640	C66	100 NPO 50V 10%	175399
C4409	100pF NPO 50V 5%	174412	C67	150 NPO 50V 10%	192056
C4410	27pF NPO 150V 5%	143755	C70	470 NPO 50V 10%	192040
# C4415	.25 200V 5%		C71	220 NPO 50V 10%	192052
	.27 200V 5%	193047	C72	27 NPO 50V 10%	192050
	.35 250V 5%	193048	C73	100 NPO 50V 5%	193340
# C4416	680pF 1.5KV 5%	194445	C75	22 NPO 50V 10%	192042
	180pF 1.5KV 5%	146814	C76	5 NPO 50V $\pm 0.25\mu\text{F}$	192044
	330pF 1.5KV 5%	146822	C77	10 NPO 50V 1%	174402
# C4417	.0058 1.6KV	194032	C78	2 NPO 50V $\pm 0.5\mu\text{F}$	192043
	.0073 1.6KV	193879	C80	39 NPO 50V 5%	181090
# C4421	.001 50V 10%	143879	C86	470 NPO 50V 10%	174416
# C4422	.001 50V 10%	181460	C87	22 NPO 50V 10%	192042
			C91	75 NPO 50V 5%	192061
			C94	27 NPO 50V 10%	192050
			C113	470 NPO 50V 10%	192040
			C114	10 NPO 50V 1%	174402
			C202	.001 50V	181511
C1	470 NPO 50V 10%	174416		Feedthru	
C2	470 NPO 50V 10%	192040	C203	.001 50V	181511
C3	470 NPO 50V 10%	192040		Feedthru	
C4	470 NPO 50V 10%	192040	C204	.001 50V	181511
C5	470 NPO 50V 10%	192040		Feedthru	
C6	1.5 NPO 50V $\pm 0.5\mu\text{F}$	192051	C205	.001 50V	181511
C7	1 NPO 50V $\pm 0.5\mu\text{F}$	181457		Feedthru	
C8	470 NPO 50V 10%	174416	C206	.001 50V	181511
C10	470 NPO 50V 10%	174416		Feedthru	
C11	22 NPO 50V 10%	192042	C207	.001 50V	181511
C12	2 NPO 50V $\pm 0.5\mu\text{F}$	192043		Feedthru	

For SAFETY use only equivalent replacement part.
(1) Used in some models.

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.	
	UHF/VHF TUNER TCHQ-1A			
R43	1800 2% 1/8W Chip Metal Film	181484		
R44	820 2% 1/10W Chip Metal Film	192088		
R45	220 2% 1/10W Chip Metal Film	192089		
R54	180K 2% 1/10W Chip Metal Film	192092		
R55	220K 2% 1/10W Chip Metal Film	192093		
R56	220K 2% 1/10W Chip Metal Film	192093		
R58	300 2% 1/8W Chip Metal Film	181055		
R60	100K 2% 1/10W Chip Metal Film	192094		
R61	56K 2% 1/10W Chip Metal Film	192095		
R64	1500 2% 1/8W Chip Metal Film	181482		
R65	270 2% 1/8W Chip Metal Film	181481		
R68	220 2% 1/10W Chip Metal Film	192089		
R69	2200 2% 1/10W Chip Metal Film	192096		
R70	4700 2% 1/10W Chip Metal Film	192097		
R72	100 2% 1/10W Chip Metal Film	192099		
R100	100K 2% 1/10W Chip Metal Film	192094		
R101	100K 2% 1/10W Chip Metal Film	192094		
R102	100K 2% 1/10W Chip Metal Film	192094		
R105	390 2% 1/10W Chip Metal Film	192102		
R107	120 2% 1/8W Chip Metal Film	181485		
R701	3.9M 5% 1/2W Carbon Comp	182843	HW539	
R702	100K 10% 1/2W Carbon Comp	174380	HW410	
R712	1.8M 10% 1/2W Carbon Comp	179996	HW518	
R713	1.8M 10% 1/2W Carbon Comp	179996	HW518	
	REMOTE CONTROL			
	TRANSMITTER			
	CRK52A, CRK53D			
R2	2000 5% 1/8W Carbon Film	173221		
R3	5.1 2% 1/4W Metal Film	829A51	QW5D1	

For SAFETY use only equivalent replacement part.

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

ITEM NO.	FUNCTION	RESISTANCE	MFGR. PART NO.	NOTES
R2315	RF AGC	25K	193059	# For SAFETY use only equivalent replacement part. (1) Part of Focus Pack Part Number 193074.
R2323	AFT	25K	193059	
	AFT	15K	193060	
R2716	Contrast Preset	300	190525	
R2905	Blue Drive	200	193063	
	Blue Drive	150	193062	
R2907	Green Drive	200	193063	
	Green Drive	150	193062	
R2914	Red Bias	4500	190533	
R2915	Green Bias	4500	190533	
R2916	Blue Bias	4500	190533	
R3335	Tint Preset	10K	181107	
R4112	B+ Adjust	500	181112	
R4210A	Focus	(1)	(1)	
R4210B	Screen	(1)	(1)	
R4503	Vertical Size	150	193062	

For SAFETY use only equivalent replacement part.

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.
L1201	Sound IF	190504	L9	Peaking	181473
L1202	Peaking (18uH)	194934	L10	Peaking	
	Peaking (28uH)	161245	L11	Peaking	
L2301	RF Choke (.82uH)	193051	L12	Peaking	
L2302	Peaking	193052	L13	RF Choke	
L2303	AFT	190506	L14	Peaking	
L2304	Video Detector	190503	L15	Peaking (1uH)	
L2305	Peaking (1.8uH)	160143	L16	Peaking	
L2306	Peaking (8.2uH)	181472	L17	Peaking	
L2307	Peaking		L18	RF Choke	
L2310	RF Choke (2.2uH)	143893	L19	Peaking	
L2312	Peaking (2.2uH)	143893	L20	Peaking	
L2701	Peaking	149167	L21	RF Choke	
L2802	Peaking	149170	L22	RF Choke	
L3101	RF Choke	160518	L23	Peaking	
L3301	OSD	190505	L24	Peaking	
L3401	Peaking	181240	L25	Peaking	
L3601	Peaking	161243	L26	RF Choke	
L4101	Line Filter	193053	L27	RF Choke	
L4402	Linearity	193054	L28	Peaking	
	Linearity	196126	L29	Peaking	
L4403	Peaking	193056	L31	RF Choke	L100 L101 L102 L103 L105 L701
L5001	RF Choke	189987	L32	RF Choke	
		176622	L33	RF Choke	
			L34	RF Choke	
	TUNER TCHQ-1A			RF Choke	
L5	Peaking			Peaking	
L6	RF Choke (4.7uH)	158726		Peaking	
L7	Peaking (8.2uH)	181472		Oscillator	
L8	Peaking			Balun	

For SAFETY use only equivalent replacement part.

COILS & TRANSFORMERS

ITEM No.	FUNCTION	MFGR. PART No.	OTHER IDENTIFICATION	NOTES
L501	Yoke 90° Horiz 4.15mh Vert 22.1mh	196284	1C57900-01A (1)	
T4401	Horizontal Drive	196128	1C62104-01A	
T4402	Horizontal Output	193080	2G25002-501	

For SAFETY use only equivalent replacement part.

(1) Number on unit.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	1 1/2" x 3" 32 Ohm	183160		

PARTS LIST AND DESCRIPTION (Continued)

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

CAPACITORS

ITEM No.	RATING	MFGR. PART No.	ITEM No.	RATING	MFGR. PART No.
C208	2 50V \pm .5pF Feedthru	181512	C503	470 NPO 50V 10%	192040
C209	.001 50V Feedthru	181511	C504	470 NPO 50V 10%	192040
C210	8 50V 1% Feedthru	181513	C702	100 1.4KV 20%	193341
C211	47 50V Feedthru	181514	C703	600 1.4KV 20%	147918
			C704	600 1.4KV 20%	147918
			C707	100 1.4KV 20%	193341
			C710	600 1.4KV 20%	147918
			C713	3.9 NPO 100V \pm .25pF	193336

For SAFETY use only equivalent replacement part.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA	
		MFGR. PART No.	NTE PART No.
R1208	1000 2% 1/8W Carbon Film	190462	EW210
R1209	2.2 5% 1/4W Carbon Film	152829	QW2D2
R1210	2.2 5% 1/4W Carbon Film	152829	QW2D2
R1211	5.6 5% 1/2W Nonflammable Metal Film	830A56	HW5D6
R1213	43K 2% 1/8W Carbon Film	161038	EW343
R1215	10K 2% 1/8W Metal Film	174363	EW310
R1216	10 5% 1/4W Nonflammable Metal Film	829010	QW010
R2301	120 2% 1/8W Metal Film	181485	EW112
R2302	100 5% 1/4W Nonflammable Carbon Film	829110	QW010
R2307	10 5% 1/4W Nonflammable Metal Film	829010	QW010
R2314	39K 2% 1/8W Metal Film	161030	EW339
R2319	1000 2% 1/8W Metal Film	190462	EW210
R2326	1000 2% 1/8W Metal Film	190462	EW210
R2708	10K 2% 1/8W Metal Film	174364	EW310
R2715	158K 1% 1/4W Metal Film	194893	
	118K 1% 1/4W Carbon Film	194892	
R2717	22K 5% 1W Nonflammable Metal Film	179259	1W322
R2731	1000 2% 1/8W Metal Film	190462	EW210
R2733	27K 2% 1/8W Metal Film	193061	EW327
R2809	1500 2% 1/8W Carbon Film	161041	EW215
R2810	1000 2% 1/8W Metal Film	190462	EW210
R2908	120 2% 1/8W Metal Film	181485	EW112
R2909	120 2% 1/8W Metal Film	181485	EW112
R3110	10K 2% 1/8W Metal Film	174364	EW310
R3120	10K 2% 1/8W Metal Film	174364	EW310
R3129	1000 2% 1/8W Metal Film	190462	EW210
R3133	10K 2% 1/8W Metal Film	174364	EW310
R3135	1000 2% 1/8W Metal Film	190462	EW210
R3156	10K 2% 1/8W Metal Film	174364	EW310
R3157	10K 5% 1W Nonflammable Metal Film	180029	1W310
R3158	10K 5% 1W Nonflammable Metal Film	180029	1W310
	7500 5% 1W Nonflammable Metal Film	831275	1W275
R3301	24K 2% 1/8W Metal Film	181061	EW324
R3305	24K 2% 1/8W Metal Film	181061	EW324
R3307	10K 2% 1/8W Metal Film	174364	EW310
R3313	10K 2% 1/8W Metal Film	174364	EW310
R3314	10K 2% 1/8W Metal Film	174364	EW310
R3320	39K 2% 1/8W Metal Film	161030	EW339
R3322	10K 2% 1/8W Metal Film	174364	EW310
R3323	6800 2% 1/8W Metal Film	178281	EW268
R3324	3900 2% 1/8W Metal Film	157377	EW239
R3325	820 2% 1/8W Metal Film	176814	EW182
R3327	10K 2% 1/8W Metal Film	174364	EW310
R3331	15K 2% 1/8W Metal Film	192835	EW315
R3332	27K 2% 1/8W Metal Film	193061	EW327
R3333	12K 2% 1/8W Metal Film	174365	EW312

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.
R3336	24K 2% 1/8W Metal Film	181061	EW324
R3337	1000 2% 1/8W Metal Film	190462	EW210
R3338	10K 2% 1/8W Metal Film	174364	EW310
R3341	24K 2% 1/8W Metal Film	181061	EW324
R3342	24K 2% 1/8W Metal Film	181061	EW324
R3347	10K 2% 1/8W Metal Film	174364	EW310
R3355	10K 2% 1/8W Metal Film	174364	EW310
R3601	130 5% 1W Nonflammable	175783	1W113
R3607	820 5% 1/2W Nonflammable Metal Film	193065	HW182
R4101	2.7 10% 7W Wirewound	194300	
R4102	470K 10% 1/2W Carbon Film	180243	HW447
R4106	4.7 5% 3W Nonflammable Metal Film	193068	3W4D7
R4108	200 5% 15W Wirewound	193070	
	160 5% 15W Wirewound	193069	
R4109	22K 5% 2W Nonflammable Metal Film	179956	2W322
R4110	27K 5% 1W Nonflammable Metal Film	831327	1W327
R4111	90.9K 1% 1/2W Metal Film	193071	
R4113	5360 1% 1/4W Metal Film	193072	
R4114	680 5% 2W Nonflammable Metal Film	194895	2W168
	430 5% 1W Nonflammable Metal Film	831143	1W143
R4116	430 5% 1W Nonflammable Metal Film	831143	1W143
R4118	47 5% 2W Nonflammable Metal Film	176806	2W047
R4119	8.2 5% 1/2W Nonflammable Metal Film	120595	HW8D2
R4120	47 5% 1/4W Nonflammable Metal Film	829047	QW047
	4.7 5% 1/2W Nonflammable Metal Film	830A47	HW4D7
R4122	620 2% 1W Nonflammable Metal Film	193092	1W162
R4123	200 2% 1/4W Carbon Film	175363	QW120
R4125	10 5% 1/4W Nonflammable Metal Film	829010	QW010
R4128	10 5% 1/4W Nonflammable Metal Film	829010	QW010
R4401	10K 1% 1/2W Metal Film	160155	
R4402	14.3K 1% 1/2W Metal Film	179247	
	11k 1% 1/2W Metal Film	193076	
R4403	1000 2% 1/8W Metal Film	190462	EW210
R4404	2400 2% 1/8W Metal Film	192829	EW224
R4407	6200 5% 3W Nonflammable Metal Film	179249	3W262
R4408	620 2% 1/8W Metal Film	181493	EW162
R4411	4700 5% 3W Nonflammable Metal Film	175368	3W247
R4413	680 5% 1W Nonflammable Metal Film	176653	1W168
R4414	820 5% 1W Nonflammable Metal Film	175349	1W182
R4415	1000 5% 2W Nonflammable Metal Film	180175	2W210
R4420	3300 5% 1W Nonflammable Metal Film	831A33	1W233
R4421	100 5% 1/2W Carbon Film	175317	HW110
R4422	22K 2% 1/4W Carbon Film	175054	QW322
R4423	8200 5% 1/4W Carbon Film	175366	QW282
	10K 5% 1/4W Carbon Film	175317	QW310
R4428	680 5% 1W Nonflammable Metal Film	176653	1W168
R4502	5100 2% 1/8W Carbon Film	161042	EW251
R4505	3 5% 1W Nonflammable Metal Film	179256	1W3D0
R4507	20K 2% 1/8W Carbon Film	157783	EW320
	20K 2% 1/8W Carbon Film	161032	EW320
R4508	22K 2% 1/4W Carbon Film	175054	QW322
R4513	20 2% 1/4W Carbon Film	829020	QW020
R4515	20 2% 1/4W Carbon Film	829020	QW020
R5001	12K 5% 2W Nonflammable Metal Film	175791	2W312
	15K 5% 2W Nonflammable Metal Film	179236	2W315
R5002	12K 5% 2W Nonflammable Metal Film	175791	2W312
	15K 5% 2W Nonflammable Metal Film	179236	2W315
R5003	12K 5% 2W Nonflammable Metal Film	175791	2W312
	15K 5% 2W Nonflammable Metal Film	179236	2W315
R5008	10K 5% 2W Nonflammable Metal Film	176656	2W310
R5014	.22 10% 2W Wirewound	193108	
R5023	7.5 10% 2W Metal Oxide		2W7D5
	6.8 10% 2W Wirewound	193109	
R5026	3.3M 10% 1/2W Carbon Comp	181986	HW533
RT4101	8.1 PTC Cold	149680	
	8.1 PTC Cold	190002	

PARTS LIST AND DESCRIPTION (Continued)

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

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
CF1201	Ceramic Filter	160139	
CF2301	Ceramic Filter	160140	
CR3404	Photo Diode	150711	
DL2701	Delay Line	177795	
F4101	Fuse 4 Amp @ 125V	177793	
F4102	Fuse 1 Amp @ 250V	193050	
FB2701	Ferrite Bead	154052	
FB2702	Ferrite Bead	152102	
FB3101	Ferrite Bead	153328	
FB3301	Ferrite Bead	153328	
FB3302	Ferrite Bead	153328	
FB3303	Ferrite Bead	153328	
FB3304	Ferrite Bead	154052	
FB3305	Ferrite Bead	154052	
FB4401	Ferrite Bead	154052	
FB4402	Ferrite Bead	154052	
FB4403	Ferrite Bead	154053	
L4201	Degaussing Coil	158253	
P4201	Degaussing Connector	158677	
P4451	Yoke Connector	192541	
RL4101	Power Relay	193078	
P100	AC Cord	182239	Polarized
SF2301	SAW Filter	176852	
SW3400	Switch	193087	(5)
SW3401	Switch	193087	(0)
SW3402	Switch	193087	Channel Down (9)
SW3403	Switch	193087	Channel Up (4)
SW3410	Switch	193087	(6)
SW3411	Switch	193087	(1)
SW3412	Switch	193087	Volume Down (Channel Down)
SW3413	Switch	193087	Volume Up (Channel Up)
SW3420	Switch	193087	(7)
SW3421	Switch	193087	(2)
SW3422	Switch	193087	Video (Volume Down)
SW3423	Switch	193087	Setup (Volume Up)
SW3430	Switch	193087	(8)
SW3431	Switch	193087	(3)
SW3432	Switch	193087	Display (Menu)
SW3433	Switch	193087	Power
V101	CRT	370KSB22 (YB)	Models X13131EBC03/F03, X13133WNF03, X13135EBF03, X13137WNF03.
	CRT	A34 JLN60X	All models except X13131EBC03/F03, X13133WNF03, X13135EBF03, X13137WNF03.
Y2801	Crystal	161235	3.58MHz
Y3301	Crystal	182839	
Y4401	Ceramic Resonator	179267	
	Antenna Adapter	189263	
	Beam Bender Magnet	179805	
	Connector	193085	Two Pin
	Focus Box	193086	
	Focus Cover	193088	
	Fuse Clip	176642	Two used.
	Printed Circuit Board	193105	CRT
	Remote Control	187976	CRK52A used in Models: E13159EGF02, E13167WNF02, E13168NGF02, E13169GMC02/F02
	Transmitter		CRK53D used in Models: X13135EBC01/F01/F03, X13137WNF01/F03
	Remote Control Transmitter	192108	CRT
	Socket	193110	
	UHF Antenna	10E0113	
	VHF Antenna	156265	
	Yoke Wedge	149903	Three used.

PARTS LIST AND DESCRIPTION (Continued)

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

MISCELLANEOUS

ITEM No.	PART NAME	MFGR. PART No.	NOTES
CR1	REMOTE CONTROL		
	TRANSMITTER		
	CRK52A, CRK53D		
	LED	153342	CRK52A
	Printed Circuit Board Complete	192039	
	Printed Circuit Board Complete	191564	CRK53D

For SAFETY use only equivalent replacement part.

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

ITEM	PART No.	PART No.	PART No.	PART No.
MODEL	E13159EGF02	E13164GMC01, E13164GMF02	E13165FWC01	E13167WNF02
Cabinet Back	BK0865	BK0919	BK0852	BK0881
Mask, Cabinet Front	MK0864	MK0920	MK0851	MK0882
MODEL	E13168NGF02	E13169GMC02, E13169GMF02	X13131EBC01, X13131EBC03, X13131EBF01, X13131EBF03	X13133WNC01, X13133WNF01, X13133WNF03
Cabinet Back	BK0863	BK0854	BK0963	BK0963
Mask, Cabinet Front	MK0862	MK0853	MK0964	MK0965
MODEL	X13135EBC01, X13135EBF01, X13135EBF03	X13137WNF01, X13137WNF03		
Cabinet Back	BK0963	BK0963		
Mask, Cabinet Front	MK0966	MK0977		
REMOTE CONTROL TRANSMITTER				
MODEL	CRK52A (1)	CRK53D (2)		
Battery Contact, Dual	173214	173214		
Battery Contact, Negative	192036	173215		
Battery Contact, Positive	192037	173216		
Buttons	192035	192558		
Case, Bottom	192033	191568		
Case, Top	192034	191567		
Door, Battery	192038	191570		
Window, Infrared		191569		

- (1) Used with models: E13159EGF02, E13164GMC01, E13164GMF02, E13165FWC01, E13167WNF02, E13168NGF02, E13169GMC02, E13169GMF02.
- (2) Used with models: X13131EBC01, X13131EBC03, X13131EBF01, X13131EBF03, X13133WNC01, X13133WNF01, X13133WNF03, X13135EBC01, X13135EBF01, X13135EBF03, X13137WNF01, X13137WNF03.

RCA CHASSIS CTC145B/D/E/F/G/H/C