

CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OUTPUT TUBE CURRENT

Connect a 0-500ma meter in series with the cathode of the horizontal output tube. Connect a .47mfd capacitor across the meter. Horizontal output-tube current should be approximately 250ma (should not exceed 300ma). If current is high, check High Voltage Adjustment and Grey Scale Adjustments.

HORIZONTAL HOLD ADJUSTMENT

Tune in a TV station and set all controls for normal operation. Use a low-level signal with AGC control correctly set. Disconnect antenna, if

necessary, to get a weak picture. Connect a clip lead from test point \diamond to ground. Adjust Horizontal Hold control (Oscillator Coil) for most stable picture. Remove clip lead from Point \diamond and check set with antenna connected and AGC control set properly.

HIGH VOLTAGE ADJUST

Connect high side of VTVM through a high-voltage probe to picture-tube anode connector, low side to ground. Set the Brightness control and the Contrast control to MINIMUM. Adjust the High Voltage control for a reading of 25.5KV on the VTVM. (Do not exceed 25.5KV.)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

Remove all knobs.

1. Remove 2 screws and turn 7 plastic fasteners and remove 2 spring clips holding rear cover. Disconnect antenna leads and remove back cover from the set. Remove all control knobs from the cabinet.
2. Disconnect picture-tube socket, high-voltage anode lead, deflection-yoke plug, convergence-yoke plug, tuner plug, speaker leads, ground lead, and control plug, and degaussing plug.
3. Remove 2 screws holding control bracket to the cabinet front and 4 screws holding tuner-mounting assembly to the cabinet front. Lay control bracket and tuner-mounting assembly on the chassis.
4. Remove 6 screws holding chassis to the cabinet and remove tuner-mounting assembly, control bracket, and chassis from the cabinet.

PICTURE TUBE REMOVAL

1. Follow "Chassis Removal" procedure and lay set face down on a soft protective surface.
2. Remove blue lateral and purity magnet, convergence yoke, and deflection yoke from the picture-tube neck.
3. Remove yoke-mounting bracket by removing 4 springs holding the bracket. Remove 4 screws holding degaussing shield to the cabinet front and remove shield from the cabinet.
4. Remove 8 screws from the picture-tube mounting brackets and remove picture tube from the cabinet. Do not lift picture tube by the neck of the tube.

TROUBLESHOOTING CHECK CHART

The following chart lists component failures most likely to produce indicated symptoms.

SWEEP

No raster, has sound V9, V10, V11, V12, V14, V18
No vert. deflection V8
Poor vert. lin. or foldover V8
Poor horiz. lin. or foldover V9, V10, V11
Narrow picture X1, X2, X3, X4, V9, V10, V11
Vert. off freq. V8
Horiz. off freq. V9, X10 (Horiz. AFC Diodes)

PICTURE OR SOUND

No pic, no sound, no raster F1, F2, F3, X1, X2, X3, X4
No pic, no sound, has raster V201, V202, V1, V2, V3
No pic, no sound, has snow V201, V202, V1
No pic, has sound, no raster V4, V5, V18
Has pic, has sound, has raster V4, V5, X6, V18
Has pic, no sound V4, V5, X9
Overloaded picture V7

Poor focus V13

COLOR (B/W reception operating normally.)

No color V4, V5, V15, V16, V17
Weak color V4, V5, V15, V16, V17
No color sync V4, V5, V15
No blue V17, V18
No red V17, V18
Incorrect hue (tint) V4, V5, V15, V17

SYNC

No vert. sync V7
No horiz. sync V7
No vert. or horiz. sync V7

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with CIRCUITRACE™

For Supplier Address See PHOTOFACT Index



MODEL 3L3343

MODEL	CHASSIS
3L3331	11H1273-13
3L3335	11H1273-13
3L3338	11H1273-13
3L3341	14H1273-21
3L3343	14H1273-21
3L3345	14H1273-21
3L3471	11H1273-13
3L3475	11H1273-13
3L3478	11H1273-13
* 3LS1188-M	11H1297-6
+ 3ST3488	11H1273-9 + Combination Models
+ 3ST3498	11H1273-19
* Model uses Remote Receiver 11A9N and Remote Transmitter S376AN	

SAFETY PRECAUTIONS

Make sure line voltage does not exceed rating of set. Check high-voltage regulation and adjust to correct value.

Be sure shields and rear cover are in place and secure.

Beware of shock from high voltage or AC line. Discharge high voltage to HV cage only.

Use extreme care when handling picture tube. Do not bump, scratch, or exert undue strain.

SERVICING IN THE FIELD

CRT IMPLOSION PROTECTION AND CLEANING

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

FUSE OR FUSE DEVICE

A circuit breaker is used for low-voltage power-supply protection. (See "Cabinet - Rear View" photo for location.)

No. 22 and No. 26 fuse wires are used for filament protection. (See "Chassis - Bottom View" for location.)

VHF TUNER

The fine tuning mechanically engages oscillator slug for adjustment (one slug for each channel).

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of of the horizontal hold control. (See "Cabinet - Rear View" photo for location.)

WIDTH

No provision is made to vary the width on this receiver.

FOCUS

The focus may be varied by means of a focus control. (See "Cabinet - Rear View" photo for location.)

AGC

The AGC may be varied by means of an AGC control.

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., 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., Inc., by the manufacturers of the particular type of replacement part listed. UB987 10 9 8 7 6 5 4 3 2 0

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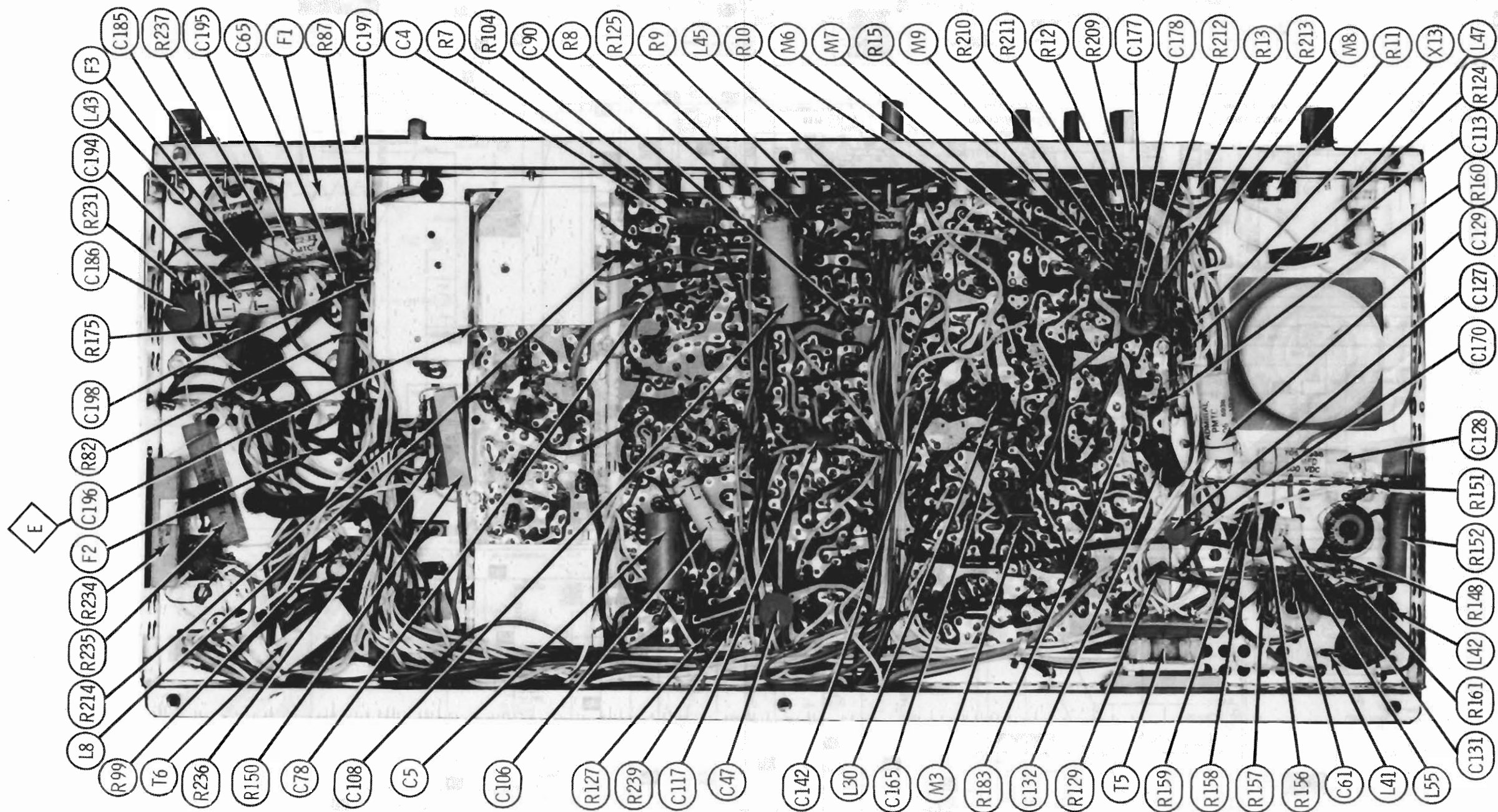
DATE 2 -71

SET 1153 FOLDER 1

11H1273-9/-13/-19, 11H1297-6, 14H1273-21

ADMIRAL CHASSIS

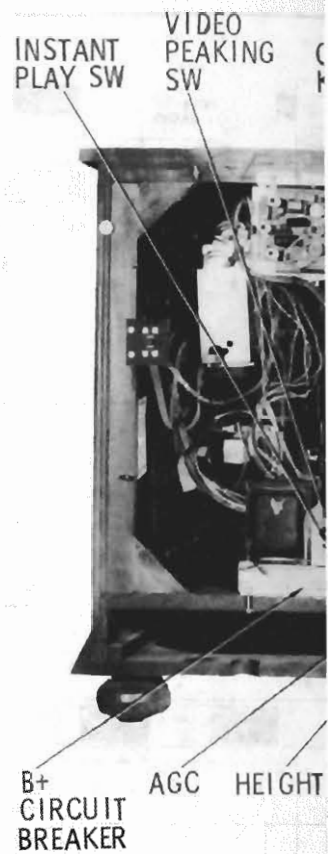
SET 1153 FOLDER 1



CHASSIS - BOTTOM VIEW

11H1273-9/-13/-19, 11H1297-6, 14H1273-21

FOLDER 1



HORIZON

HORIZONTAL OUTPUT TUBE CURRENT

Connect a 0-500ma meter in series with the output tube. Connect a .47mfd capacitor across output-tube current should be approximately 300ma. If current is high, check High Volt Scale Adjustments.

HORIZONTAL HOLD ADJUSTMENT

Tune in a TV station and set all controls for low-level signal with AGC control correctly.

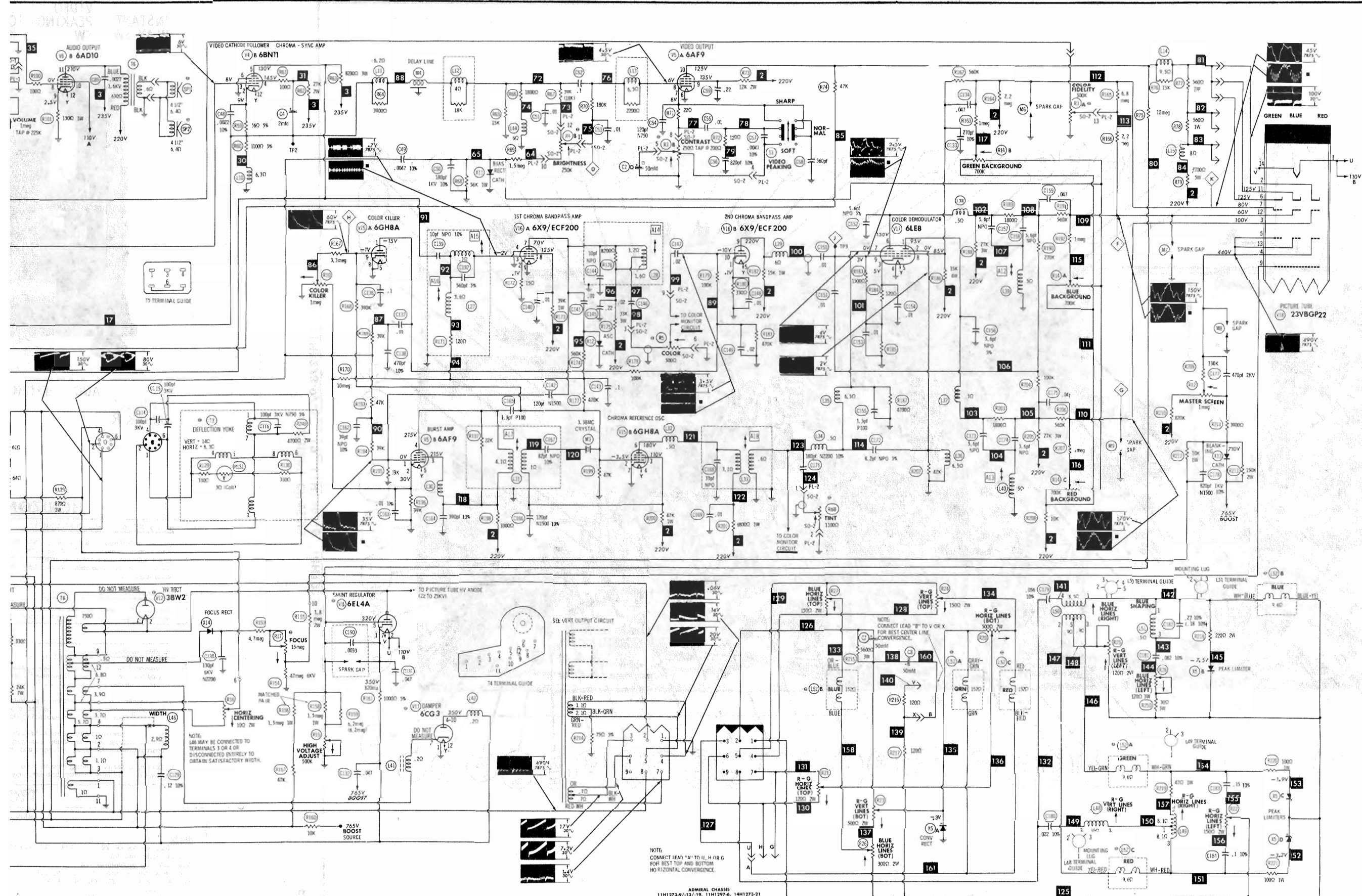
CHASSIS REMOVAL

1. Remove 2 screws and turn 7 plastic fasteners clips holding rear cover. Disconnect antenna cover from the set. Remove all control knobs.
2. Disconnect picture-tube socket, high-voltage yoke plug, convergence-yoke plug, tuner plug, and control plug, and degaussing plug.
3. Remove 2 screws holding control bracket screws holding tuner-mounting assembly control bracket and tuner-mounting assembly.
4. Remove 6 screws holding chassis to the mounting assembly, control bracket, and...

TRO

The following

SWEEP
No raster, has sound V9, V10, V11, V12, V14, V
No vert. deflection V8
Poor vert. lin. or foldover V8
Poor horiz. lin. or foldover V9, V10, V11
Narrow picture X1, X2, X3, X4, V9, V10, V11
Vert. off freq. V8
Horiz. off freq. V9, X10 (Horiz. AFC Diodes)



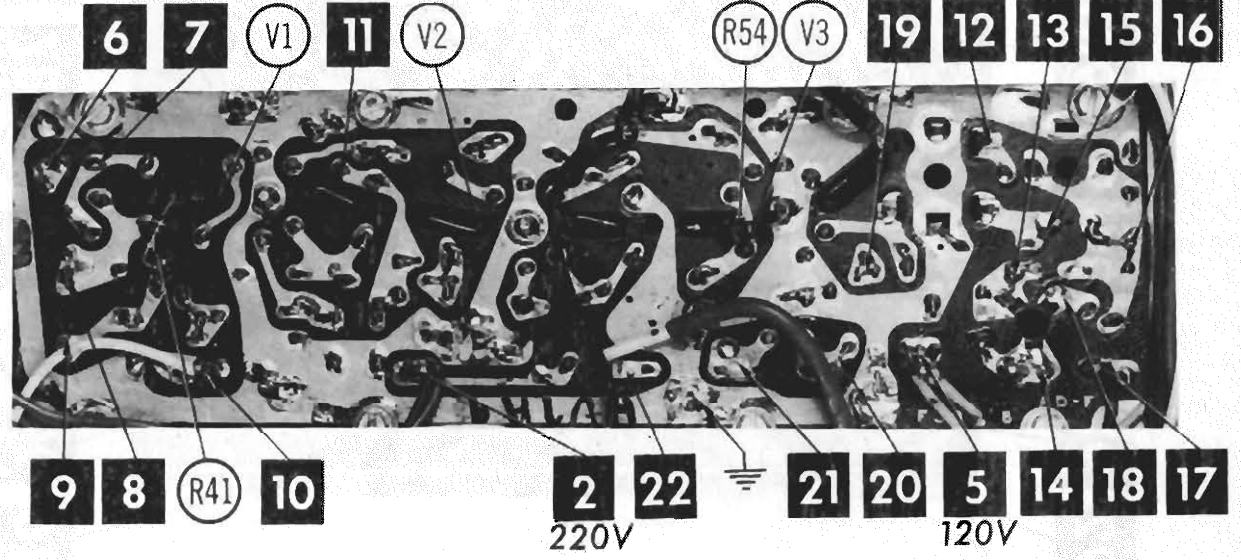
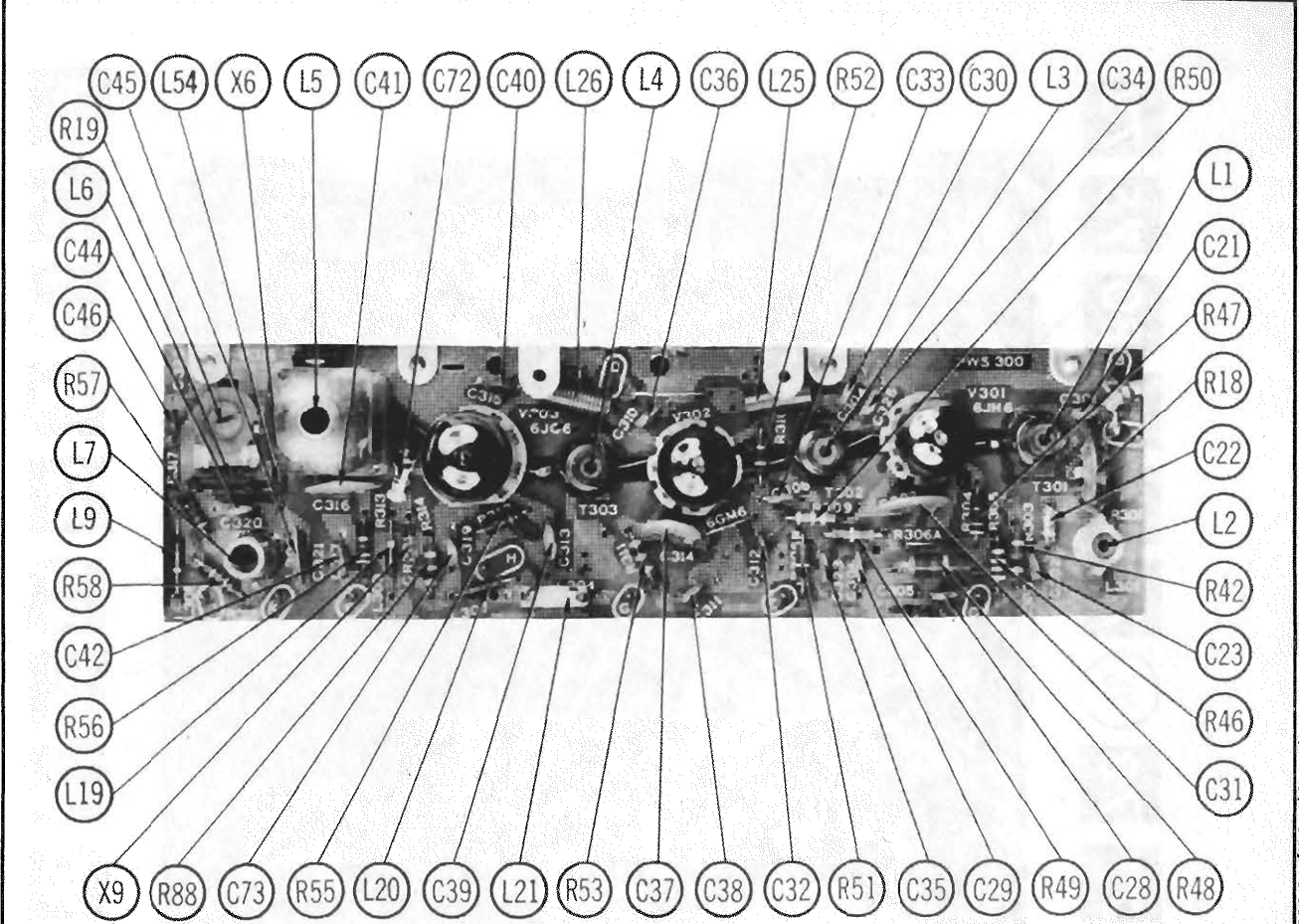
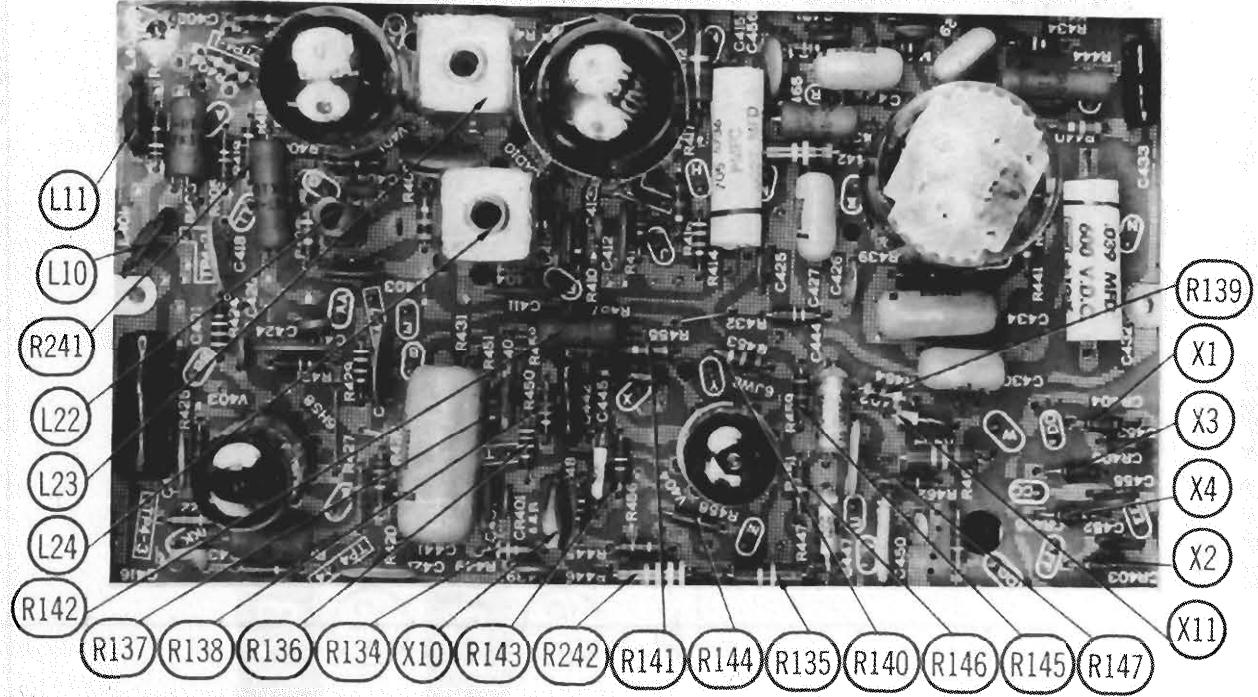
ADMIRAL CHASSIS
11H1273-9/-13/-19. 11H1297-6. 14H1273-2

RESISTANCE MEASUREMENTS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 12	TOP CAP
V1	6JH6	470K	1550Ω	FIL	FIL	200Ω▲	200Ω▲	1500Ω						
V2	6GM6	85K	INFINITE	FIL	FIL	1120Ω†	1120Ω†	56Ω▲						
V3	6JC6A	180Ω	0Ω	180Ω	FIL	FIL	0Ω	470Ω■	470Ω■	0Ω				
V4	6BN11	FIL	800Ω	2000Ω●	28K†	9400Ω†	0Ω	6.5Ω	270Ω	16K	0Ω	16K†	FIL	
V5	6AF9	26K	39K	2000Ω†	2000Ω†	FIL	FIL	275Ω	220K	14K†	4700Ω†			
V6	6AD10	FIL	270Ω	4.5Ω	0Ω	470K	11.7K†	380K†	250K	150Ω	6300Ω†	1800Ω†	FIL	
V7	6HS8	INFINITE	8000Ω†	2.5meg	FIL	FIL	120K†	650K†	50K†	10meg†				
V8	6LU8	FIL	4.8meg†	NC	1400Ω†	NC	2.6meg	2.6meg	15K†	1300Ω	100K	150K	FIL	
V9	6JW8/ECF802	8100Ω†	120K	9600Ω†	FIL	FIL	90K†	0Ω	1000Ω	1.35meg				
V10	6KD6	FIL	0Ω	18K†	8500Ω	2.2meg	NC	NC	NC	NC	8500Ω	NC	FIL	17Ω†
V11	6CG3	FIL	NC	NC	25Ω†	NC	NC	1meg	NC	NC	25Ω†	NC	FIL	
V12	3BW2				PINS 1 THRU 12 HAVE INFINITE RESISTANCE									860Ω†
V13	2AV2	NC	NC	NC	52meg	52meg	NC	NC	NC	15.2Ω†				
V14	6EL4	1100Ω†	FIL	NC	NC	1.5meg	NC	FIL	NC					INFINITE
V15	6GH8A	580K	47K	48K†	FIL	FIL	8000Ω†	0Ω	0Ω	450K				
V16	6X9/ECF200	330Ω	15Ω	300K	0Ω	FIL	FIL	35K†	41K†	16K†	580K			
V17	6LE8	30K†	6.8Ω	340Ω	FIL	FIL	29K†	8.4Ω	17K†	1700Ω				
V18	25SP22	FIL	4000Ω†	440K†	1meg†	1meg†	4000Ω†	330K†	NC	49meg	NC	4000Ω†	350K	
												PIN 13 1meg†	PIN 14 FIL	
V201	6HA5	6meg	0Ω	FIL	FIL	9500Ω†	0Ω	0Ω						
V202	6LJ8	5600Ω	11.5K†	0Ω	FIL	FIL	7200Ω†	26K†	0Ω	220K				
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 12	TOP CAP

● READING DEPENDS ON POLARITY OF METER CONNECTIONS.
† MEASURED FROM CATHODES OF X3 AND X4.
NC NO CONNECTION

▲ MEASURED FROM PIN 2 OF V2.
■ MEASURED FROM PIN 1 OF V7.
† MEASURED FROM PIN 7 OF V11.



ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED VIDEO PRINTED BOARD A Howard W. Sams CIRCUITRACE® Photo



CHROMA BOARD

ARROWS INDICATING TUBE LOCATIONS ARE
POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

MONITOR PARTS LIST AND DESCRIPTION
(When ordering parts, state Model, Part Number, and Description.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q201	2N5134	Yellow Gate	57A136-12	GE-20	TR-21	HEP736	SK3024	ECG 123A
Q202		Red Gate	57A136-12	GE-20	TR-21	HEP736	SK3024	ECG 123A
Q203		3.58MC Switch	57A166-12	GE-11	TR-22	HEP724	SK3018	ECG 108
Q204		2nd Chroma Amp	57A137-12	GE-22	TR-19	HEP52	SK3024	ECG 106
Q205		1st Chroma Amp	57A105-12	GE-20	TR-21	HEP736	SK3024	ECG 123A

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT DATA				NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RCA PART No.	SYLVANIA PART No.	
CR201	93A60-5	GEZD-20			ECG 177	Zener
CR202	93A60-5				ECG 177	
CR203	93A39-15					

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	.01 500V	#65A10-121 #65A10-388	GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C202	.01 500V		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C203	.01 500V		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C204	47pf,NPO,500V,10%		NPO-D1 47	DTZ-47	NP047	CCT0-470	CN047	10TC0-Q47
C205	20pf,NPO,500V,10%		NPO-D1 20	DTZ-20	NP020	CCT0-200	CN0420	10TC0-Q20
C206	.01 500V		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C207	18pf,NPO 5%			TCZ-18	NP018	CCD-103	CN0418	10TCC-Q18
C208	17pf,NPO,500V,5%							
C209	20pf,NPO,500V,10%		NPO-D1 20	DTZ-20	NP020	CCT0-200	CN0420	10TCC-Q20
C210	.01 500V		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C211	.01 500V		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C212	.01 500V		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C213	220pf 500V		GPD X5F221K	DD-221	GP220	CC0-221	GP322	10TS-T22
C214	.01 500V		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10
C215	.01 500V		GPD X5S103K	DD-103	GP10000	CCD-103	JF110	10TS-S10

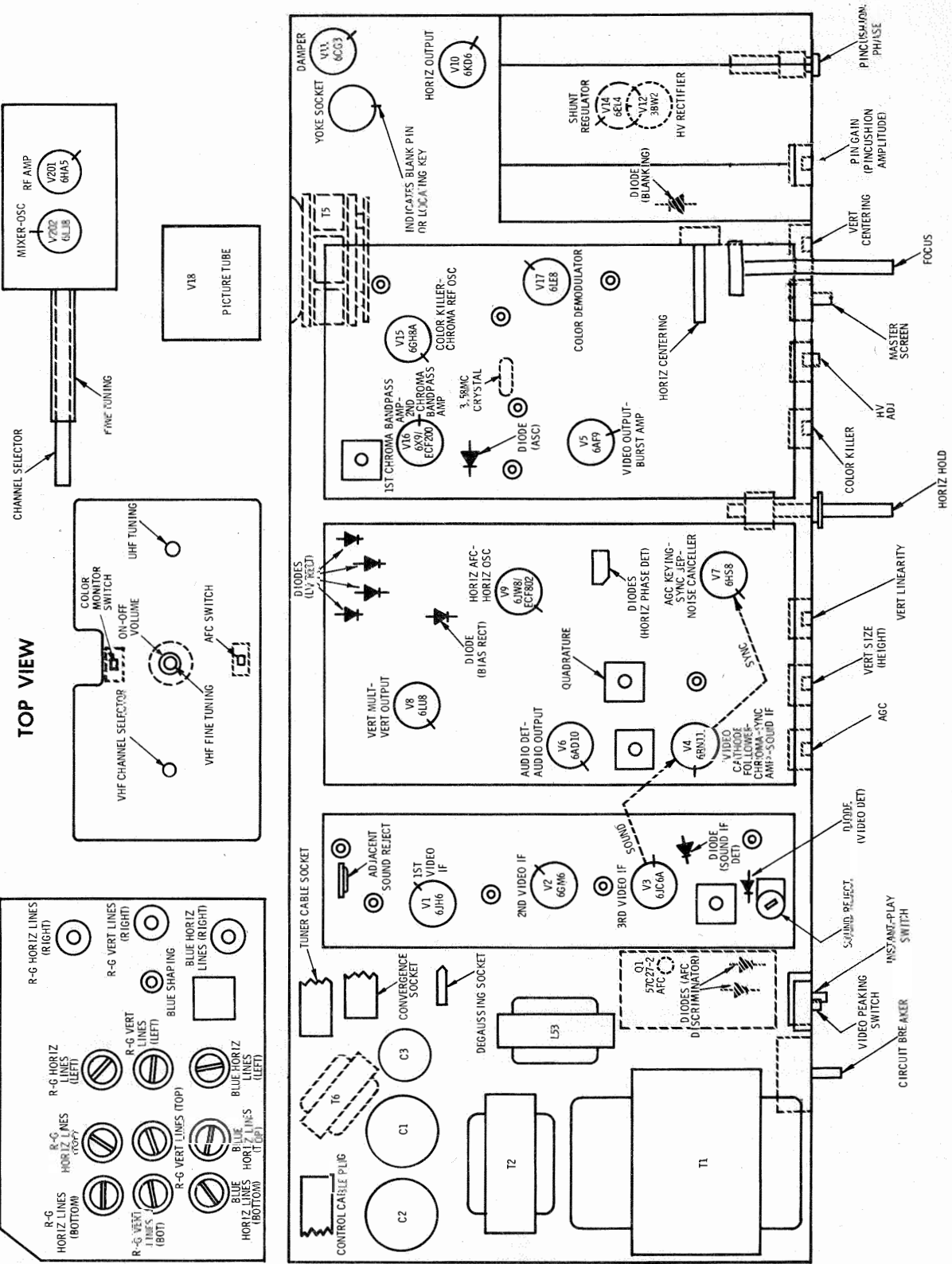
COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L201	RF Choke (56uh)	73A55-42	19-1013	74F565A1	T962
L202	RF Choke (27uh)	73A55-43		74F275A1	
L203	RF Choke (3.9uh)	73A55-44	19-2012	74F396AP	T818
L204	RF Choke (120uh)	73A55-26		72F124AP	T307
L205	RF Choke (56uh)	73A55-42	19-1013	74F565A1	T962
L206	RF Choke (27uh)	73A55-43		74F275A1	

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
S253	Monitor Switch	77A154-1	

TUBE PLACEMENT CHART



ALIGNMENT INSTRUCTIONS

Use an isolation transformer and maintain voltage at 117 volts. Allow a 20-minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1 thru A16 GENERAL CEMENT #8606, 8606L, 8869 ... WALSCO #2543, 2544, 2588
Mixer Plate Coil ... GENERAL CEMENT #9296, 9297, 9300 ... WALSCO #2510, 2546, 2547

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use only enough generator output to provide a usable indication. Note: Response may vary slightly from those shown. Connect a variable bias supply to the IF AGC line (point \diamond) and adjust to obtain a response curve which shows no indication of overload. Disable Oscillator section of Mixer-Osc. Set the Channel Selector to any non-interfering channel.

INDICATOR	GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
1.	Connect DC probe of a VTVM thru a 47K resistor to point \diamond . Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		41.25MC 47.25MC	A1, R19 A2, R18 Adjust for MINIMUM.
2.	Connect DC probe of a VTVM thru a 47K resistor to point \diamond . Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		43.8MC 42.5MC 45.75MC 44MC	A3 A4 A5 A6, Mixer Plate Coil Adjust for maximum.
3.	Connect vertical input of a scope to point \diamond . Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44MC (10MC Sweep)	41.25MC 42.17MC 44MC 45.75MC 47.25MC	Adjust for maximum gain and symmetry of response with markers as shown in Figure 1. In order to obtain a proper response, it may be necessary to slightly retouch A3, A4, A5, A6 and Mixer Plate Coil.

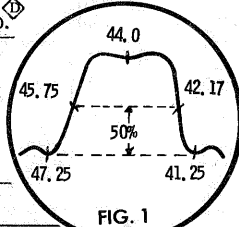
SOUND IF ALIGNMENT

Tune in a station and adjust A7 for maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce signal while aligning for undistorted output by adjusting A8, A9, and A10.

4.5MC TRAP ALIGNMENT

To align 4.5MC trap, the Chroma Input Bandpass Amp. must be detuned. Realign Chroma Bandpass after 4.5MC trap alignment. Connect a jumper from point \diamond to ground. Connect a -15 volt supply to point \diamond (RF AGC). Connect a -15 volt supply to point \diamond (off pin 8 of Video Output). Positive of supplies to ground. Disable Horizontal Sweep by removing horizontal output tube V10.

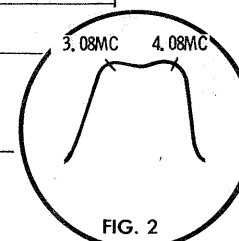
SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	High side to Mixer Grid test point on tuner. Low side to ground.	45.75MC (Crystal Calibrated) 4.5MC (Modulation)	High side thru a detector probe to point \diamond . Low side to ground.	A11	Adjust for MINIMUM.



3.58MC TRAP ALIGNMENT

Detune the Chroma Input Bandpass Amp. Connect a jumper from point \diamond to ground. Connect a -15 volt supply to point \diamond (RF AGC). Connect a -15 volt supply to point \diamond (off pin 8 of Video Output). Positive of supplies to ground. Disable horizontal sweep by removing horizontal output tube V10.

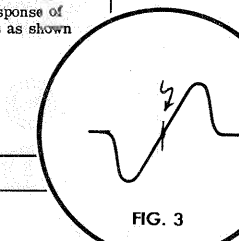
SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	High side to Mixer Grid test point on tuner. Low side to ground.	45.75MC (Crystal Calibrated) 4.5MC (Modulation)	High side thru a detector probe to point \diamond , pin 12 of picture tube. Low side to ground.	A12	Adjust for MINIMUM.
6.	"	"	High side thru a detector probe to point \diamond , pin 3 of picture tube. Low side to ground.	A13	Adjust for MINIMUM.



CHROMA BANDPASS ALIGNMENT

4.5MC and 3.58MC Trap Alignments should be done before Chroma Alignment. The following alignment requires the use of an RF Modulator (RCA WG304A or equivalent). Connect a jumper from point \diamond to ground. Connect a -15 volt supply to point \diamond (RF AGC). Connect a -15 volt supply to point \diamond (off pin 8 of Video Output). Connect a -3 volt supply to point \diamond (pin 9 of Color Killer, V15). Positive of all supplies to ground. Set Color control at 75% open. Disable Horizontal Sweep by removing horizontal output tube V10.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Connect high side of sweep generator to Video Input of RF modulator. Connect high side of signal generator (set at 45.75MC) to picture carrier input of RF modulator. Output of RF modulator to Mixer Grid test point on Tuner. Low side to ground.	3MC (6MC Sweep)	3.08MC 4.08MC	Vert. Amp. thru a detector probe to point \diamond , pin 9 of demodulator, V17. Low side to ground.	A14, A15, A16	Adjust A15 for 3.08MC side of curve and adjust A16 for 4.08MC side of curve. Adjust A14 to obtain equal response of 3.08MC and 4.08MC markers as shown in Figure 2.



AFC ALIGNMENT

INDICATOR	GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
Connect vertical amp. of scope thru 47K resistor to point \diamond . Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44MC (10MC Sweep)	45.75MC	A19, A20, A21	Adjust A19 for 45.75MC marker at crossover point similar to Fig. 3. Adjust A20 and A21 for maximum gain and symmetry of response.

MISCELLANEOUS ADJUSTMENTS

DYNAMIC PINCUSHION ADJUSTMENT

The side pincushion is a fixed correction and no adjustments are provided on this chassis. Top-Bottom Pincushion is factory adjusted and readjustment is seldom needed. If necessary, Top-Bottom Pincushion may be corrected by adjusting for straight horizontal lines at top and bottom of the screen.

Connect a crosshatch generator to the antenna terminals and adjust the set for a normal crosshatch pattern. Turn the Top-Bottom Pincushion Amp. control (R11) fully counterclockwise. Adjust Pincushion Phase to move curvature to the center of the screen. Readjust R11 for straight horizontal lines at top and bottom of the screen. Repeat if necessary.

FOCUS ADJUSTMENT

With controls set for a picture with normal contrast and brightness, adjust the Focus control, R17, for best overall definition and picture detail. Alternately adjust the Vertical Height and Linearity controls to produce a linear picture with about 1/2" overscan at top and bottom of picture.

AGC ADJUSTMENT

Tune in the strongest TV station in area and adjust the AGC control clockwise until instability appears in the picture (pulling, jitter, overload, etc.). Now, turn the control counterclockwise until the picture just becomes stable, then turn an additional 10° counterclockwise.

COLOR AFC ALIGNMENT

Suggested Alignment Tools: A17, A18 GENERAL CEMENT #8606, 8606L, 8869 WALSCO #2543, 2544, 2588

Connect a color bar generator to the antenna terminals or tune in a color program. Set the Tint and Color Fidelity controls to the center of their range. Set the Color Intensity controls to maximum. Turn the Color Killer control fully clockwise.

Attenuate the strength of the signal by adjusting the Fine Tuning control for a weak signal having a loss of Color Sync (barber poling). Adjust A17 until the color bars (if using a color bar generator) or the color portion of the picture (if observing a color program) stand still or drift slowly. A17 will peak at two different settings. The correct peak is the one with the slug nearest the chassis.

Connect a color bar generator to the antenna terminals. Set the Tint and Color Fidelity controls to the center of their range. Set the Color control for normal amount of color. Connect the vertical input of a scope to point \diamond , pin 12 of picture tube, low side to ground.

Check for proper waveform with the Color Bar generator being used. See waveform on schematic for pattern obtained from a standard NTSC signal. Check the range of the Tint control. The bars should move 30° either side of proper signal. If necessary, adjust A18 for proper range of control. A18 will peak at two separate positions. Use the peak with slug nearest the chassis. Check for proper waveform at R-Y output, point \diamond (pin 3) and G-Y output, point \diamond (pin 7) of picture tube.

CONVERGENCE ADJUSTMENTS

Step	Control	Use to Converge (or Straighten)	Remarks
1.			Perform center dot convergence using convergence magnets. See Fig. A.
2.	R-G Vertical lines, Top (R24)	Red and Green Vertical bars at top of screen.	Touch both controls for best convergence from top to bottom along vertical center line (Fig. B). See Note 1.
3.	R-G Vertical lines, Bottom (R23)	Red and Green Vertical bars at bottom of screen.	
4.	R-G Horizontal lines, Top (R21)	Red and Green Horizontal lines at top of screen.	Touch both controls for best convergence of horizontal bars along vertical line (Fig. B). See Note 2.
5.	R-G Horizontal lines, Bottom (R20)	Red and Green Horizontal lines at bottom of screen.	
6.	Blue Horizontal lines, Bottom (R26)		Adjust for displacement of horizontal blue lines from red-green at top and bottom of screen (Fig. C).
7.	Blue Horizontal lines, Top (R27)		Adjust for equal displacement of horizontal blue lines from red-green lines at center of screen. Readjust blue horizontal lines bottom control as required to maintain spacing of horizontal blue lines (Fig. C).
8.			Perform center dot static convergence (Fig. A). If necessary, readjust blue horizontal lines top and bottom controls for best vertical convergence at center of screen. (Fig. A).
9.	Blue Horizontal lines, Right side (L50)		Adjust for a straight horizontal blue line from center of screen to right side (Fig. D).
10.	Blue Horizontal lines, Left side (R28)		Adjust for a straight horizontal blue line from center of screen to left side (Fig. D).
11.	R-G Vertical lines, Right (L48)	Red and Green Vertical lines at right side of screen.	Disable blue gun by connecting a 100K resistor from the blue control grid of picture tube to ground. Touch up both controls for best convergence of red and green horizontal and vertical lines on right side of screen (Fig. E).
12.	R-G Horizontal lines, Right (L49)	Red and Green Horizontal lines at right side of screen.	
13.	R-G Vertical lines, Left (R25)	Red and Green Vertical lines at left side of screen.	Touch both controls for best convergence of red and green horizontal and vertical lines on left side of screen (Fig. E).
14.	R-G Horizontal lines, Left (R22)	Red and Green Horizontal lines at left side of screen.	
15.			Remove 100K resistor from the blue control grid of the picture tube. Check overall convergence. Any vertical or horizontal adjustments may be touched up individually for correction of any slight irregularities in convergence.

Note 1. Jumper from CircuitTrace #160 (C8) may be connected to CircuitTrace #139 or 140 to provide best center vertical line convergence.
Note 2. Jumper from CircuitTrace #161, L52A, C, may be connected to CircuitTrace #130, 127 or 131 to provide best Red and Green horizontal convergence at top and bottom of raster.

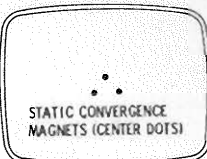


FIG. A

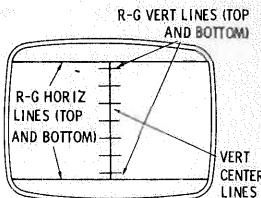


FIG. B
(RED AND GREEN ONLY)

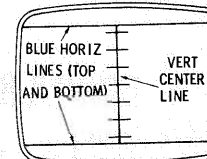


FIG. C
(BLUE BARS)

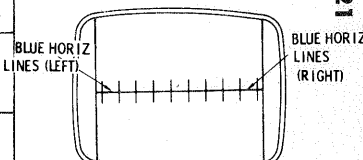


FIG. D
(BLUE BARS)

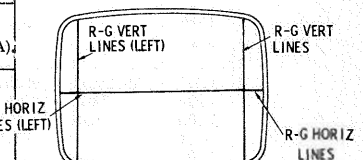
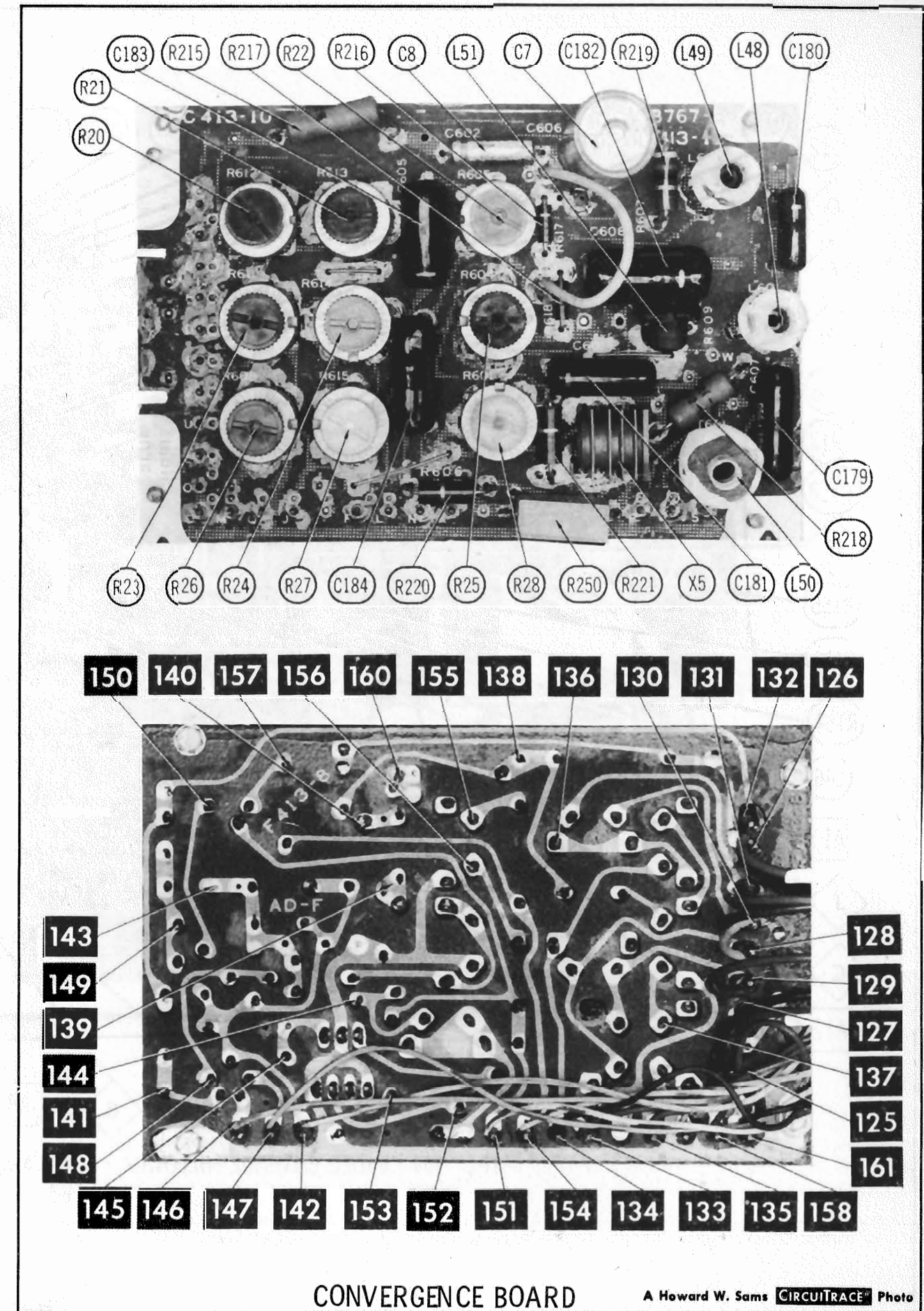
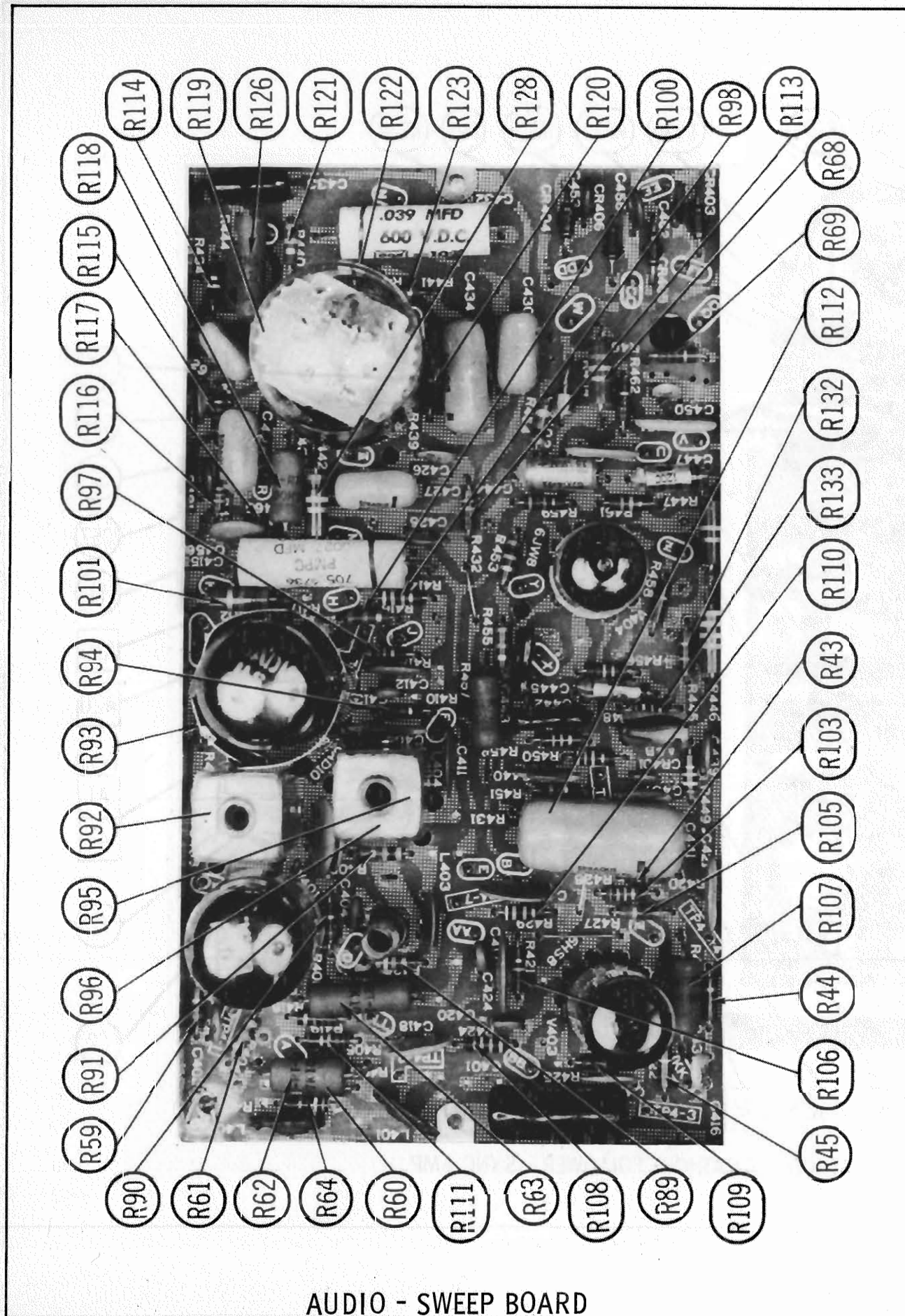
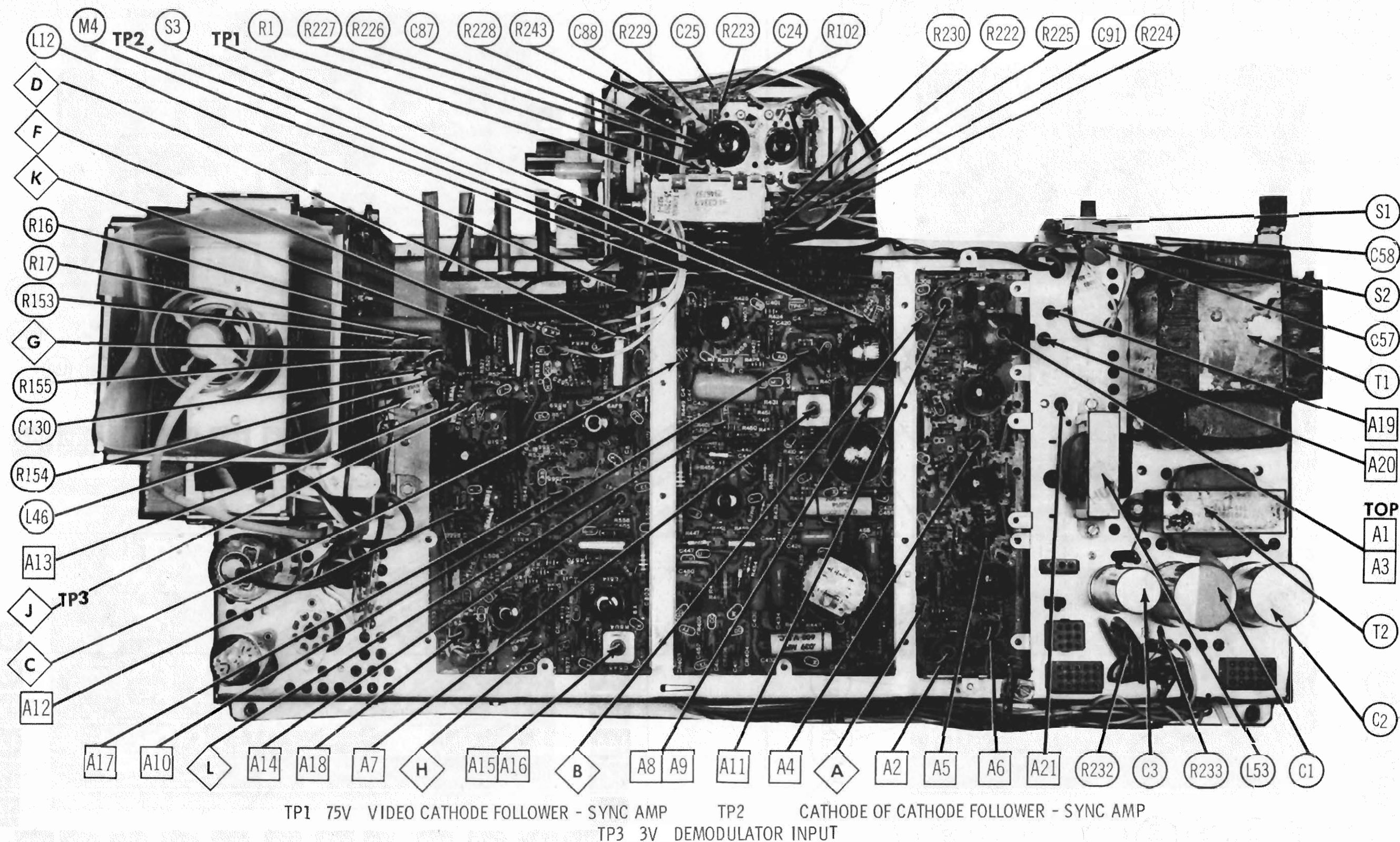
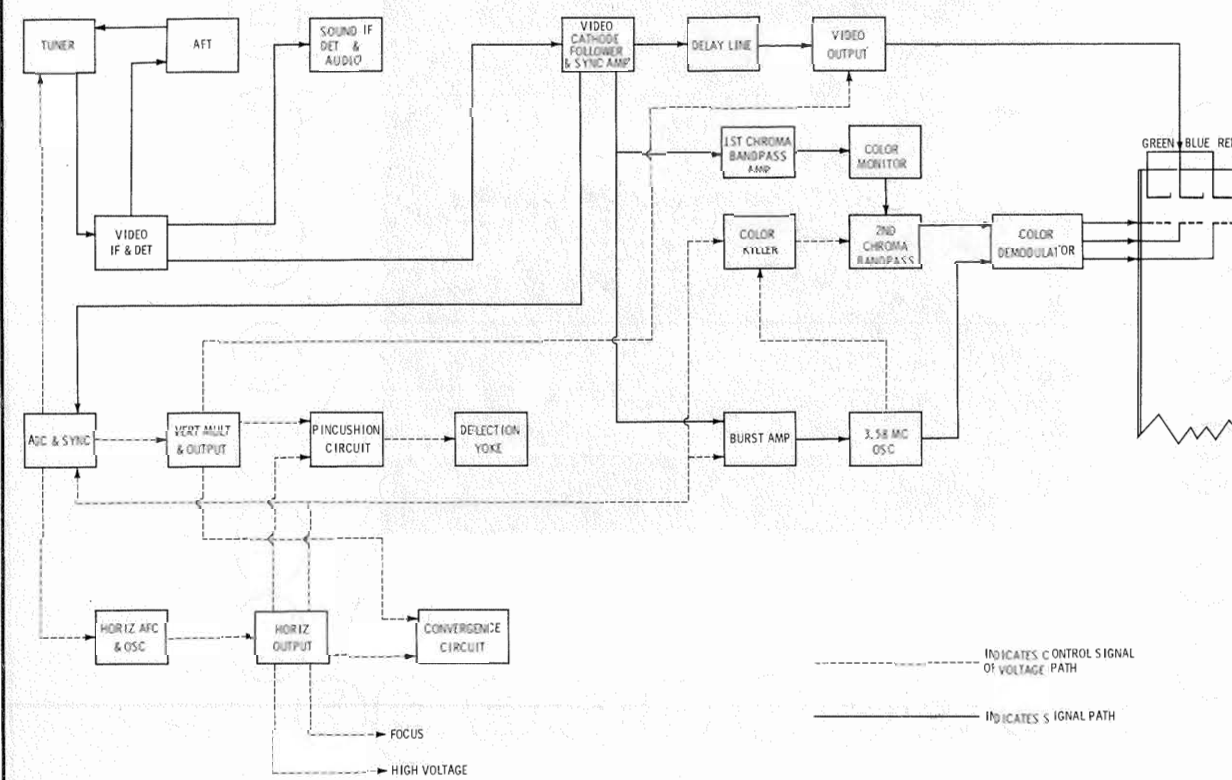
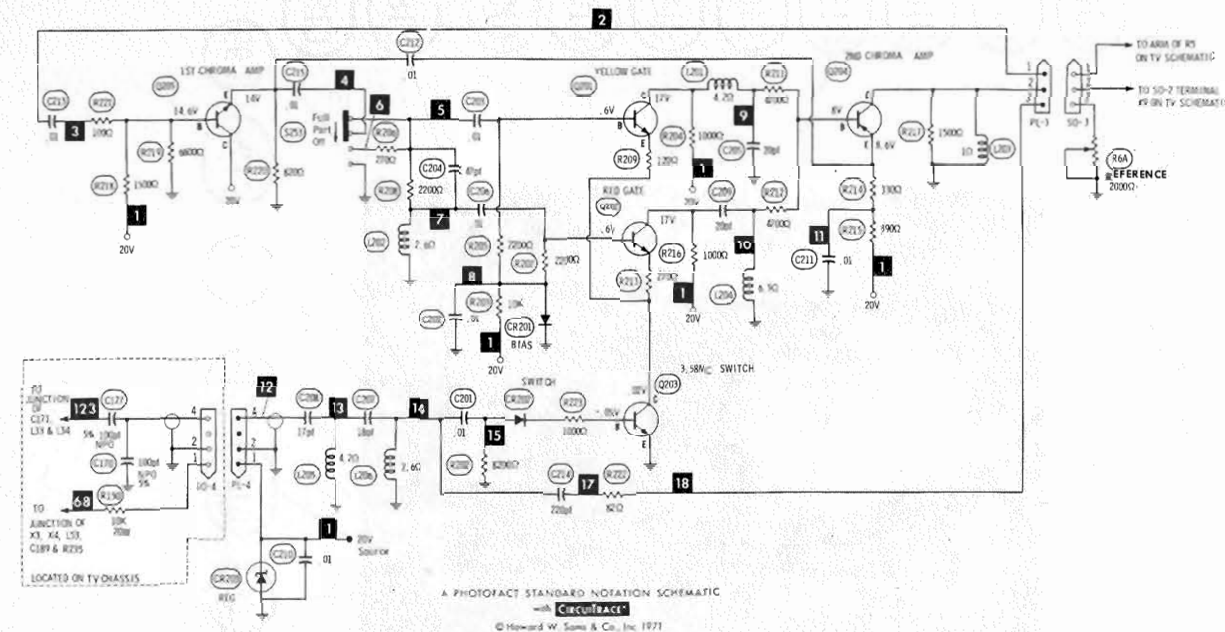


FIG. E

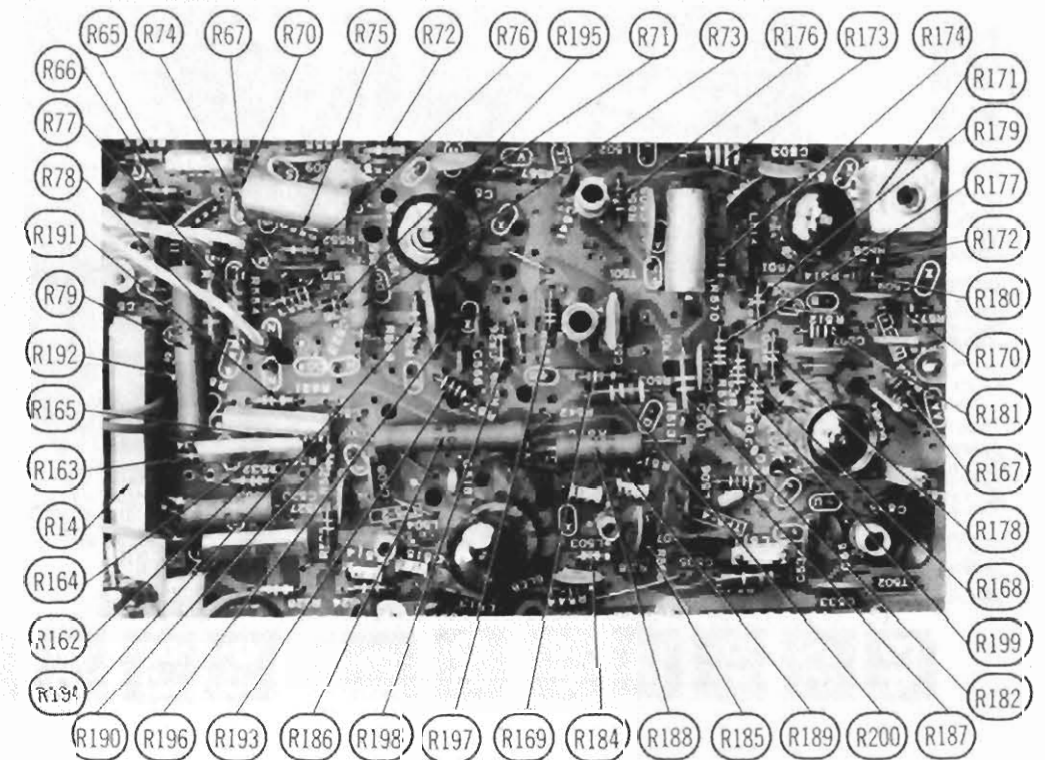
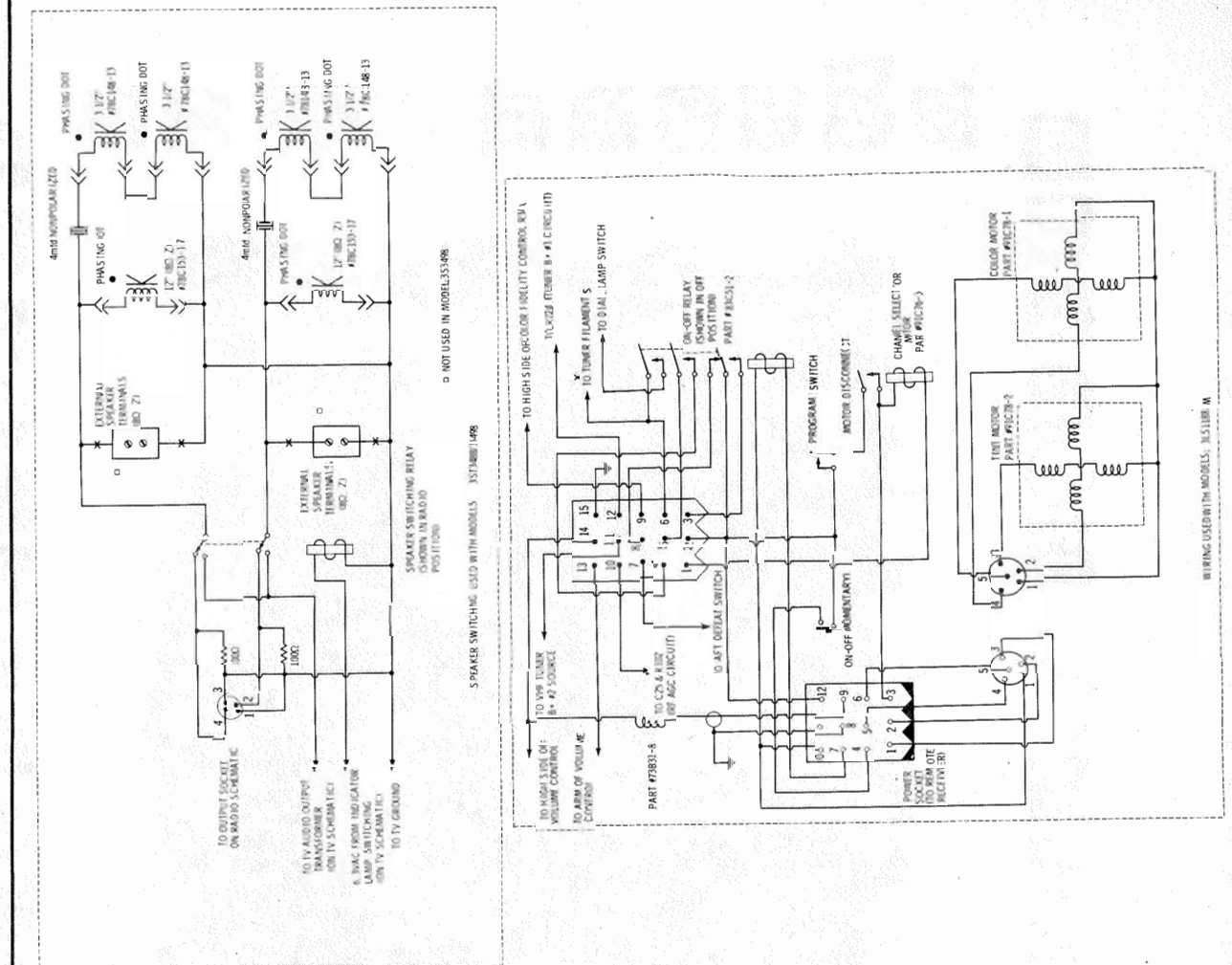




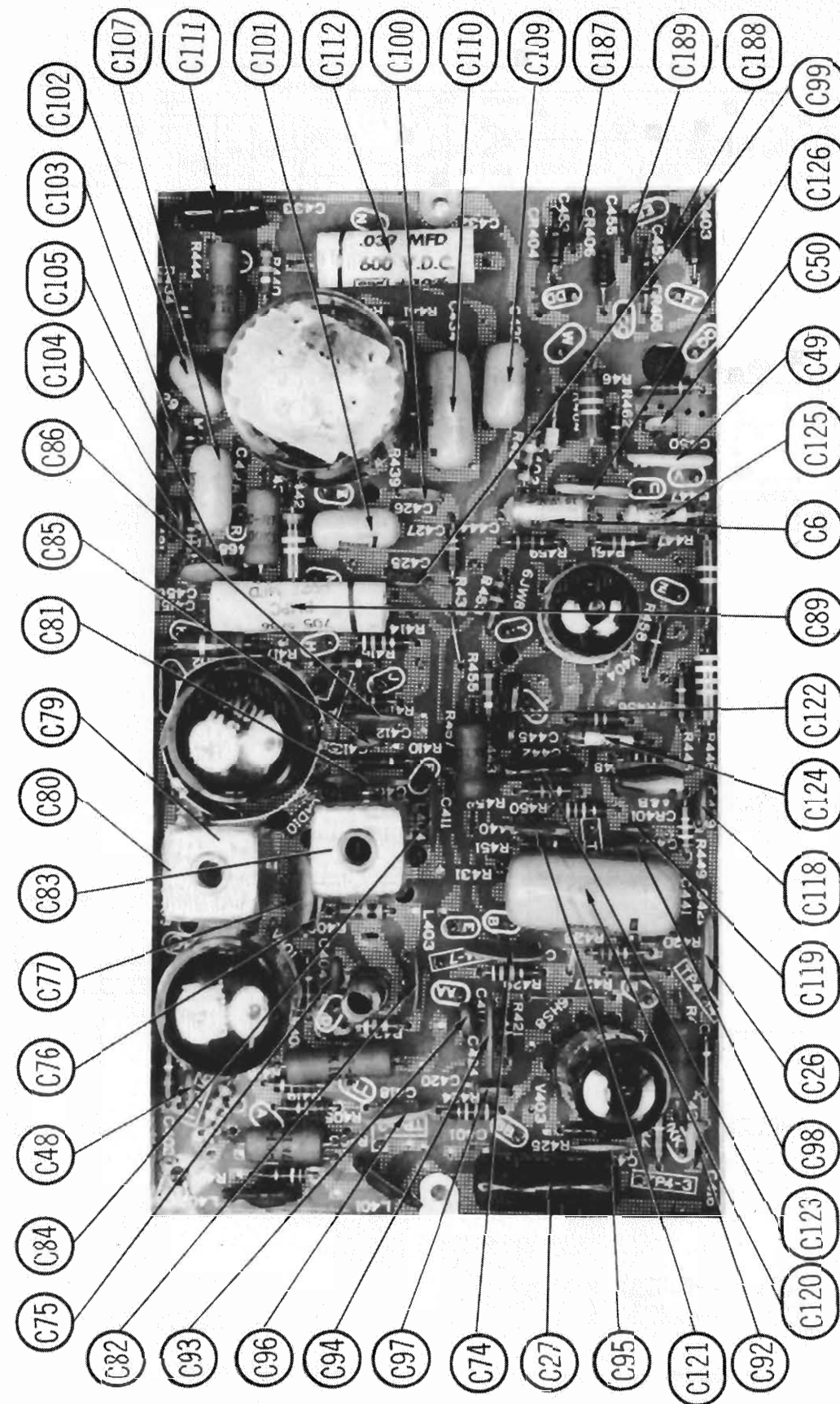
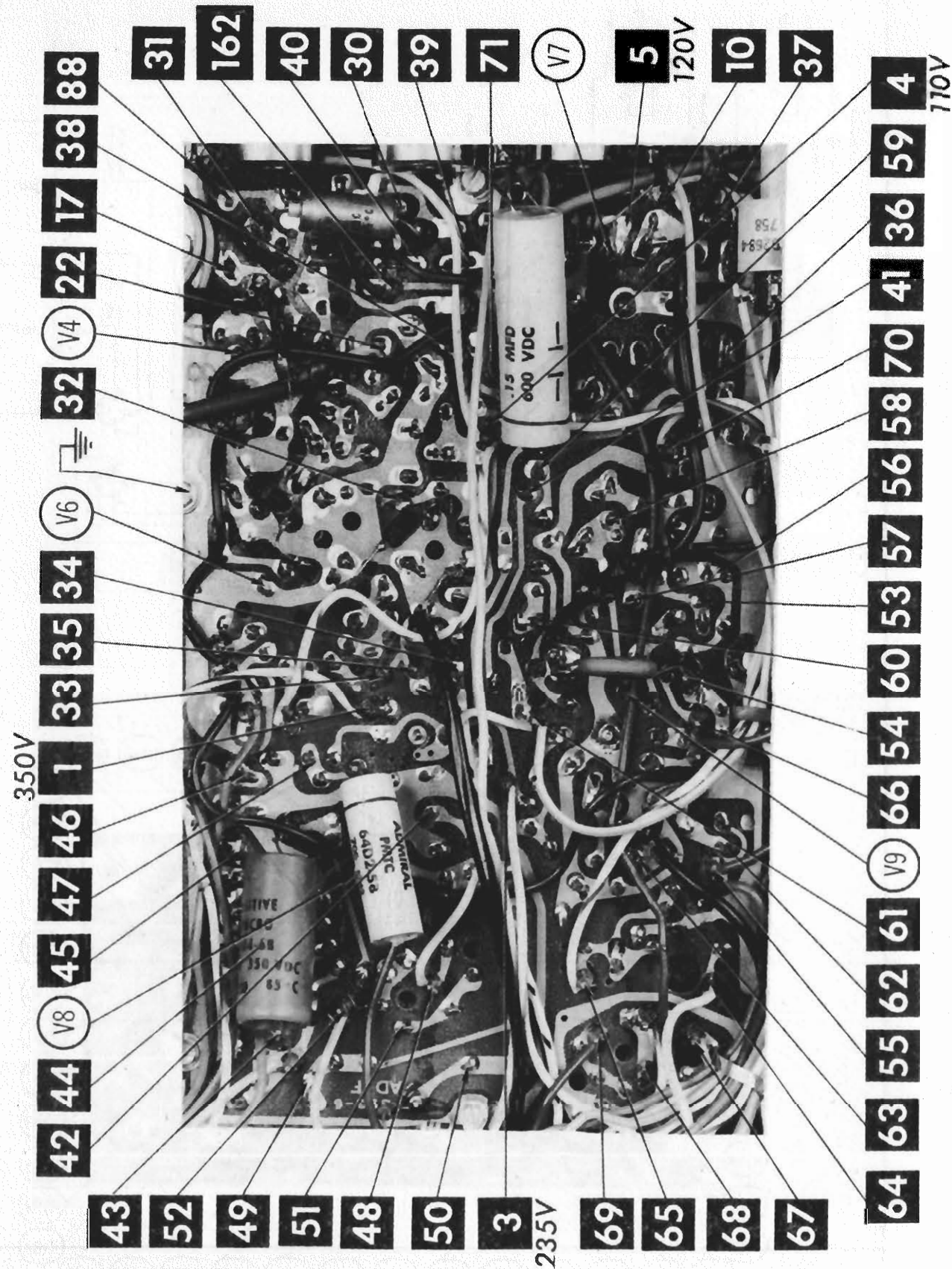
COLOR MONITOR

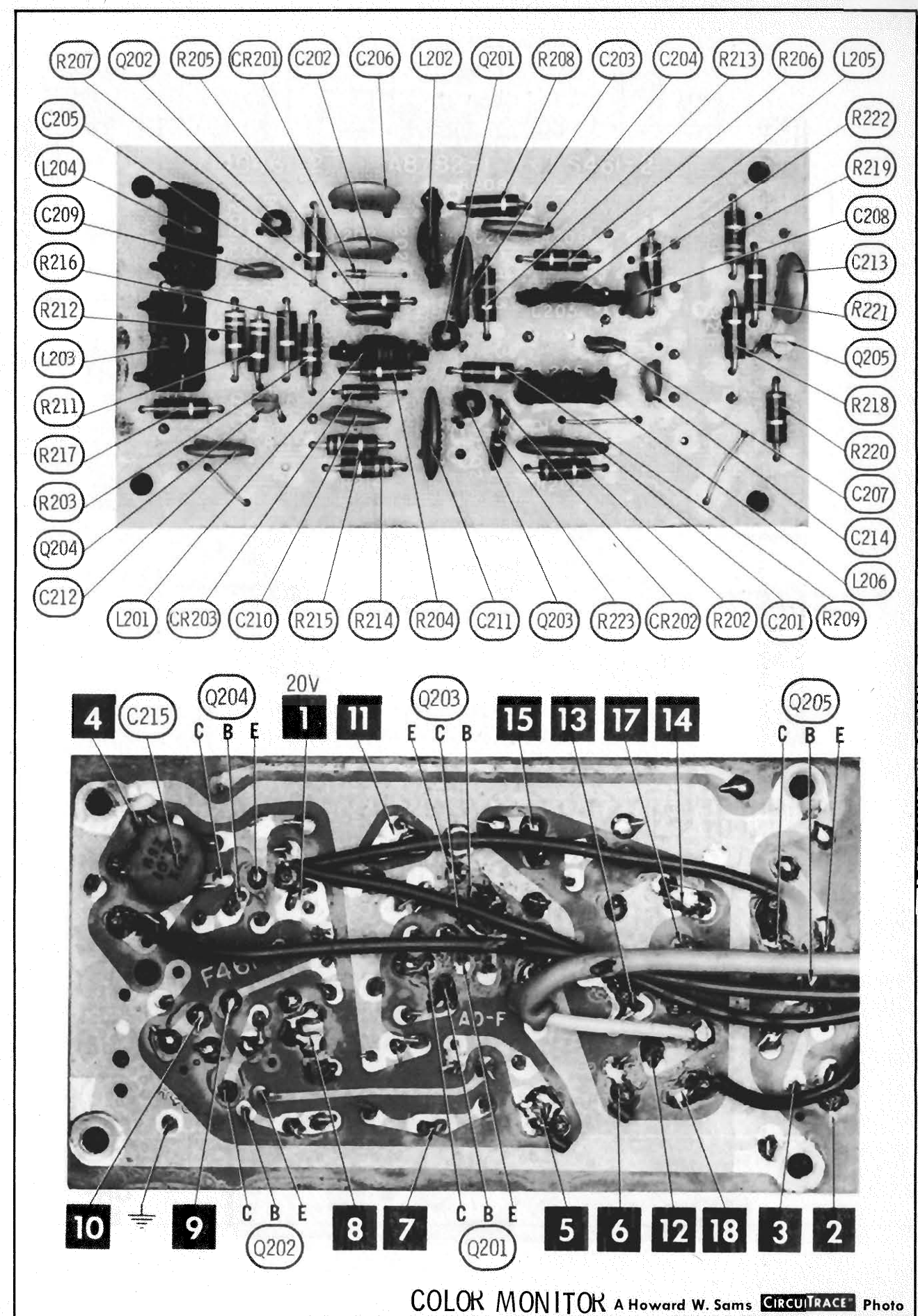
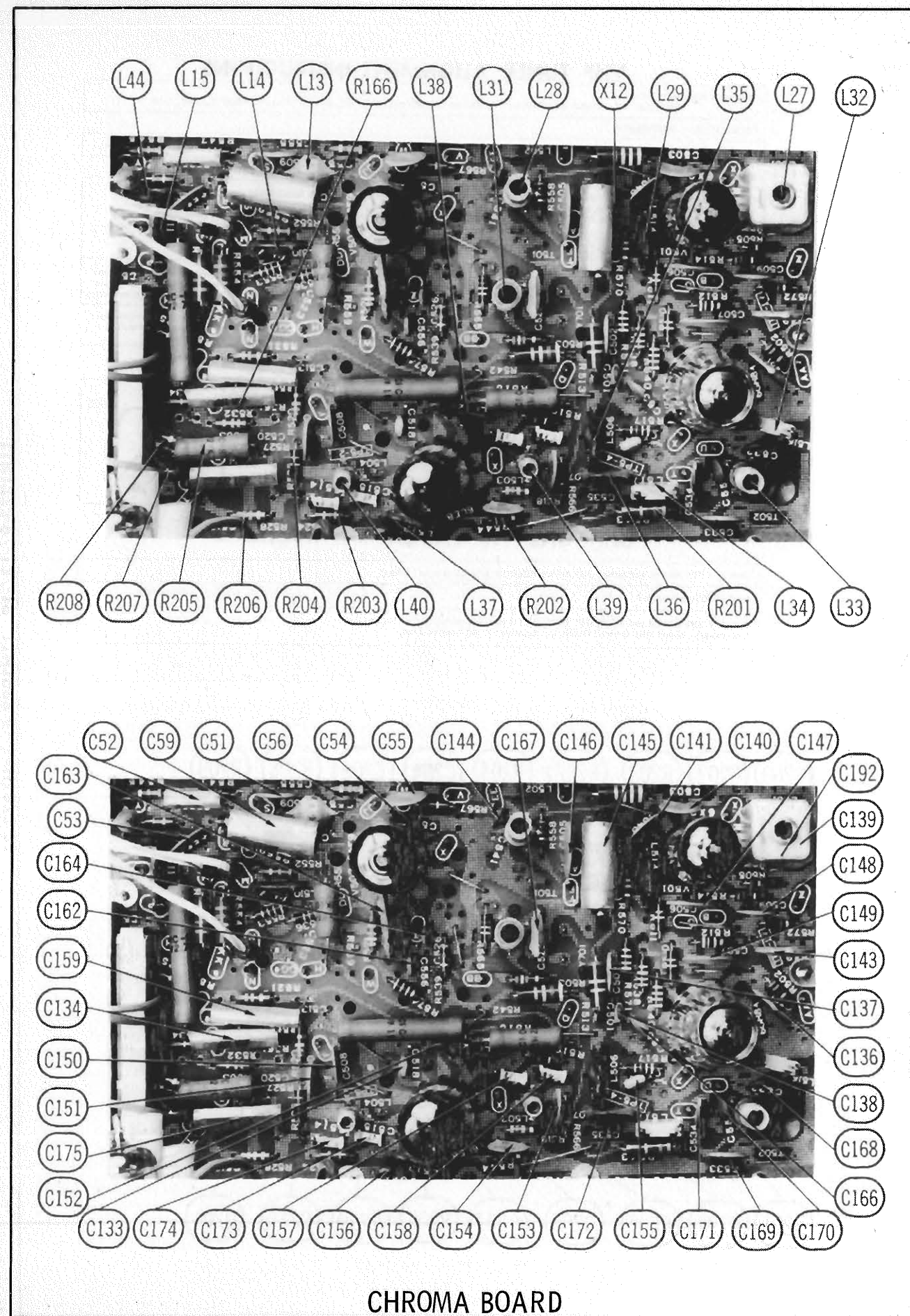


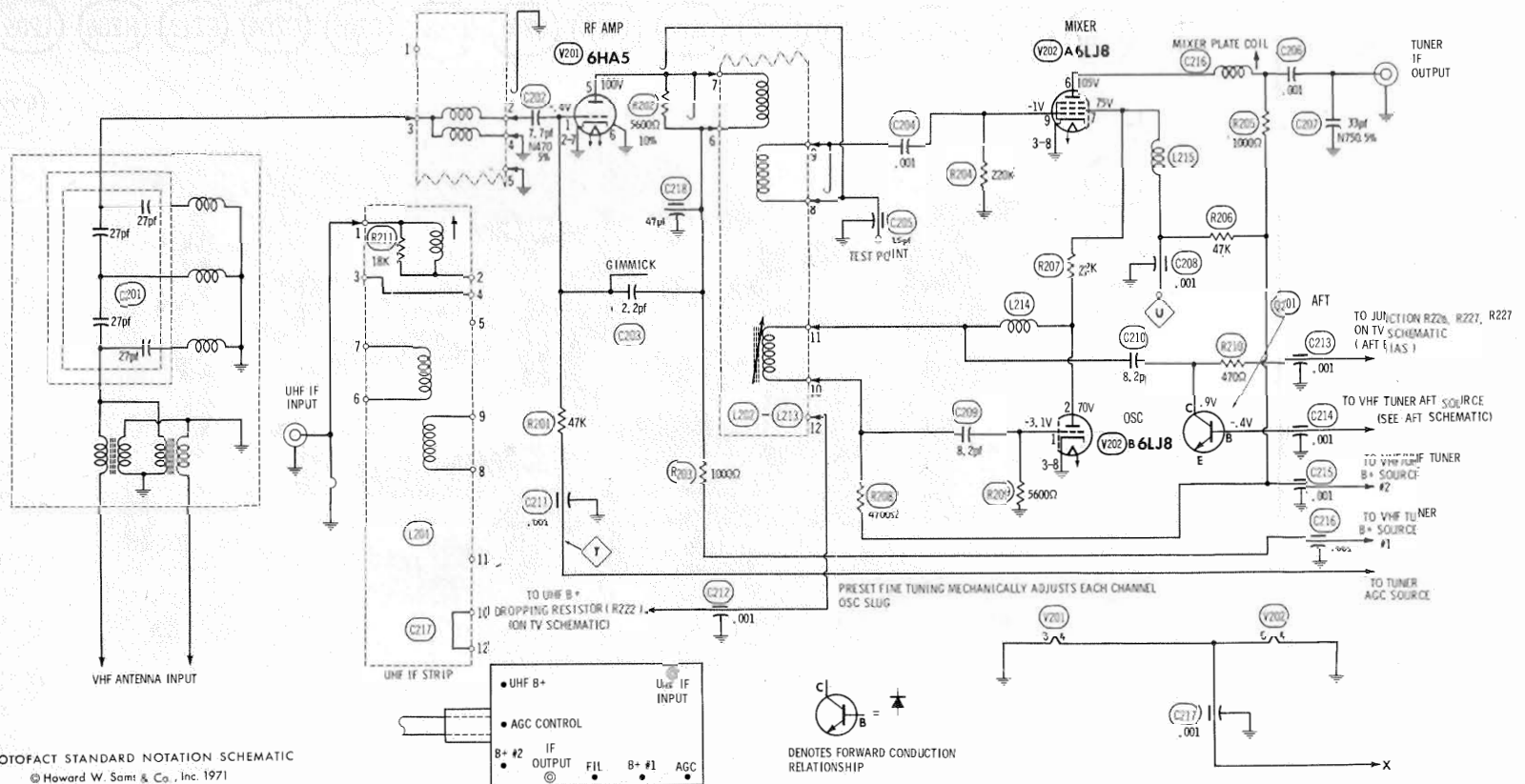
BLOCK DIAGRAM



CHROMA BOARD







A PHOTOFAC STANDARD NOTATION SCHEMATIC
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VHF TUNER ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools:
UHF Input Coil, Overall Adjustment .. GENERAL CEMENT #8868, 8967, 9089 .. WALSCO #2531-X, 2541, 2587

OSCILLATOR ADJUSTMENTS
The oscillator for each channel is preset by means of the fine tuning control. Adjust fine tuning for best picture and sound on each channel.

RF AND MIXER ALIGNMENT
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use 10MC sweep unless otherwise noted. Connect a variable bias to the RF AGC line at point (U). Adjust bias to obtain response curve which shows no indication of overloading.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CC SCOPE	ADJUST	REMARKS
1. Across antenna terminals with 120Ω in each lead	213MC	211.25MC 215.75MC	13	Vert. Input to point (U), low side to ground		Expand or compress appropriate coils for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2. "	See Chart			Input to Point (U), low side to ground.		Check all channels and make compromise adjustments by expanding or compressing appropriate coils if necessary.

CHANNEL & FREQUENCY CHART


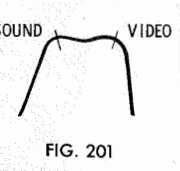
SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	<div>SOUND</div> <div>VIDEO</div> 
57MC	55.25 MC 59.75 MC	2	85MC	83.25 MC 87.75 MC	6	190MC	193.25 MC 197.75 MC	10	
63MC	61.25 MC 65.75 MC	3	177MC	175.25 MC 179.75 MC	7	201MC	199.25 MC 203.75 MC	11	
69MC	67.25 MC 71.75 MC	4	183MC	181.25 MC 185.75 MC	8	207MC	205.25 MC 209.75 MC	12	
79MC	77.25 MC 81.75 MC	5	189MC	187.25 MC 191.75 MC	9	213MC	211.25 MC 215.75 MC	13	

FIG. 201

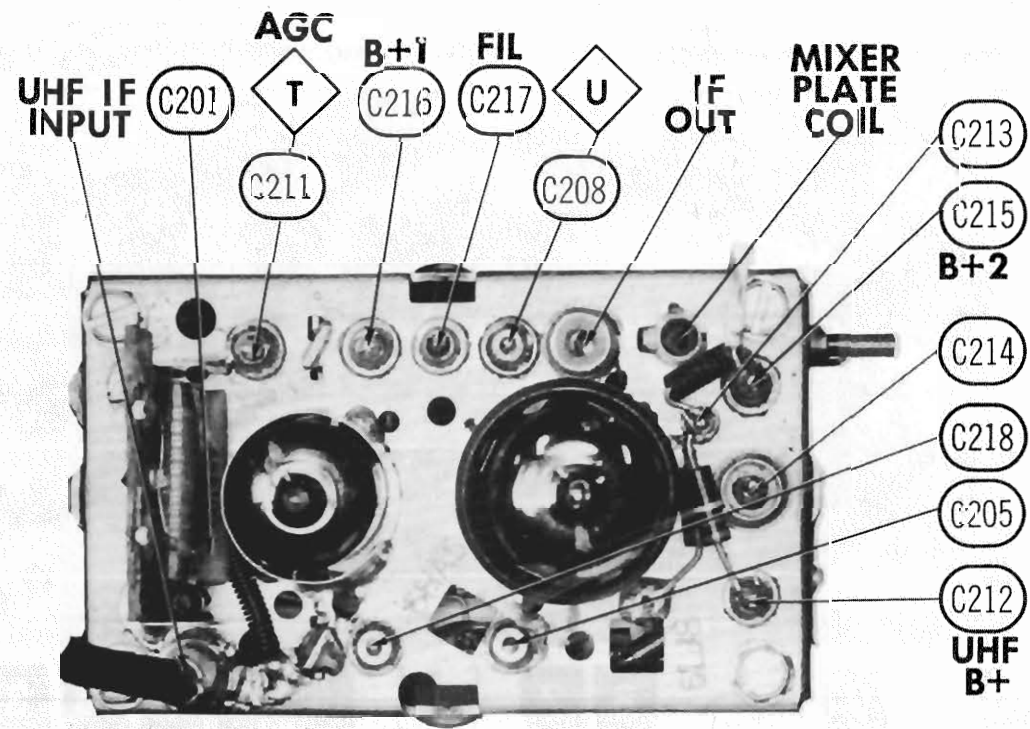


UHF TUNER ALIGNMENT INSTRUCTIONS

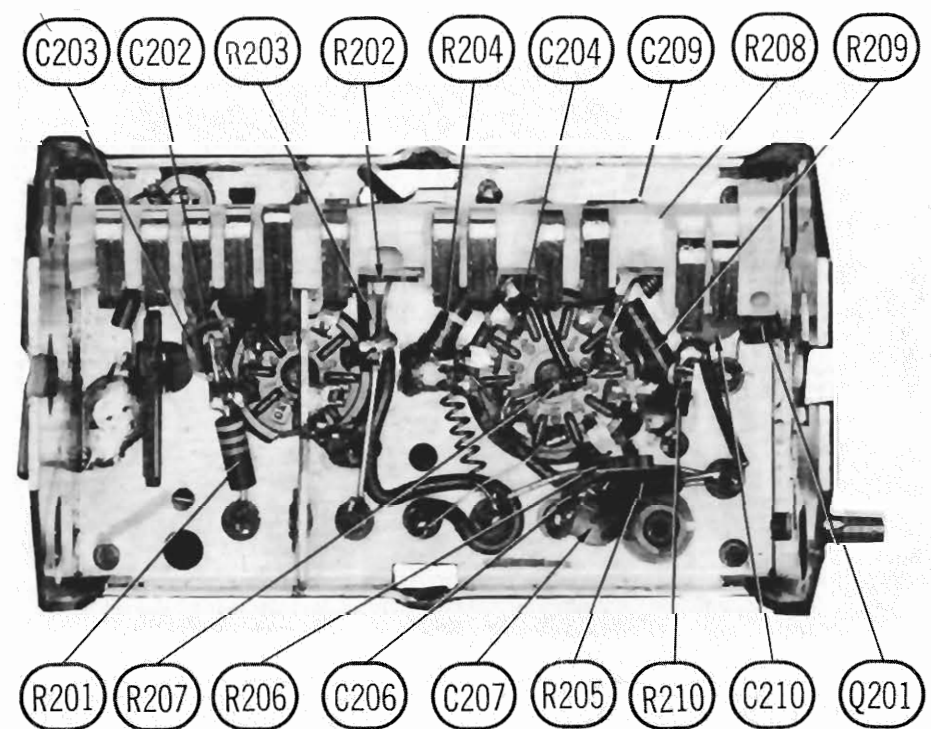
Tune to a UHF station and adjust UHF IF Input Coil for best picture and sound.

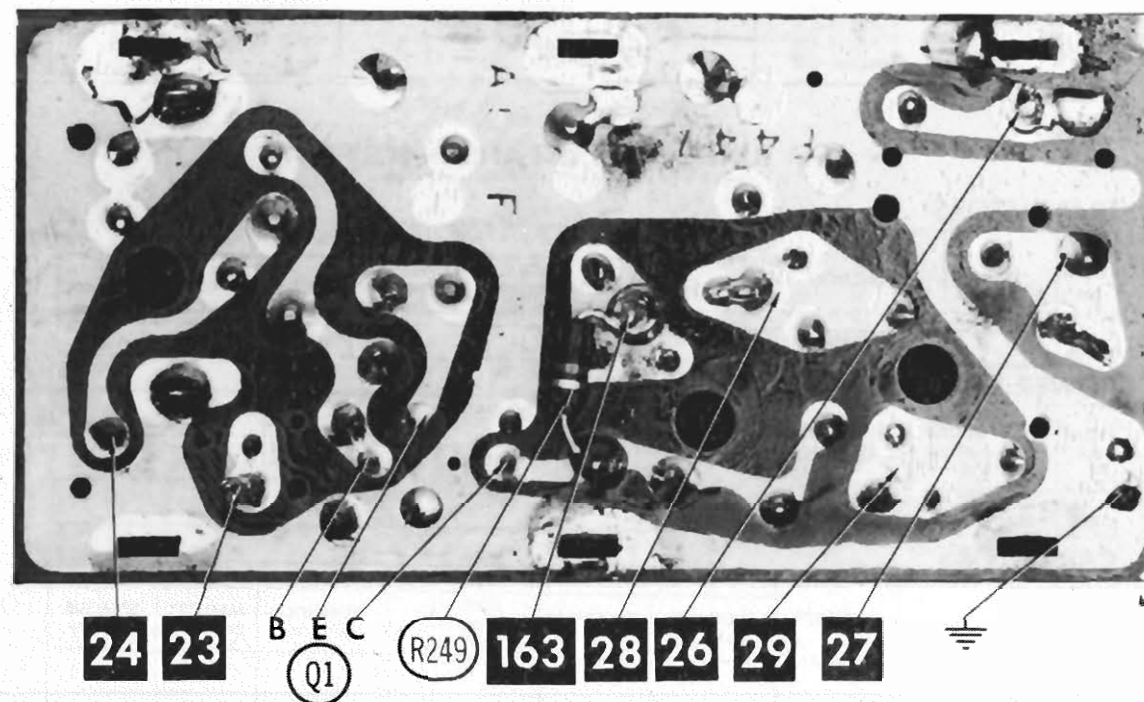
UHF TUNER #94E334-3

Tune to a UHF station and adjust UHF IF Input Coil for best picture and sound. If necessary, adjust UHF Overall Oscillator Trimmer to shift entire band.

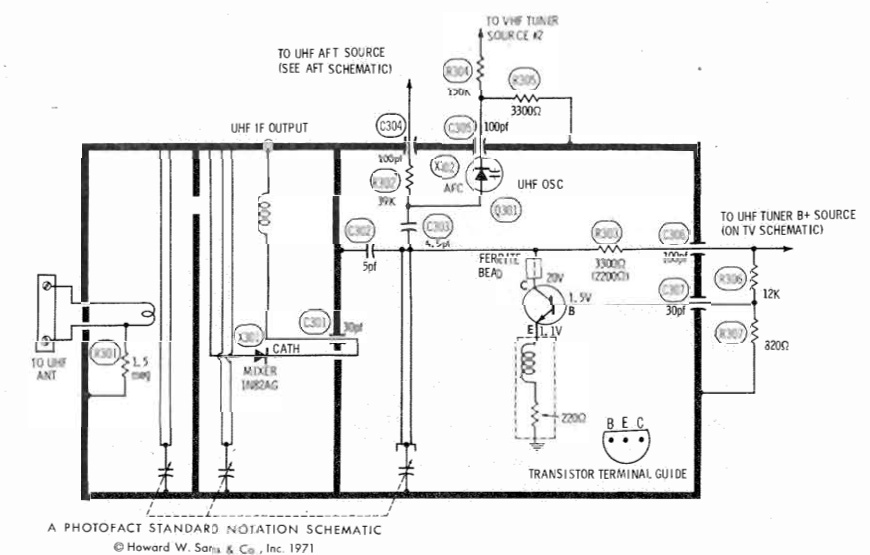
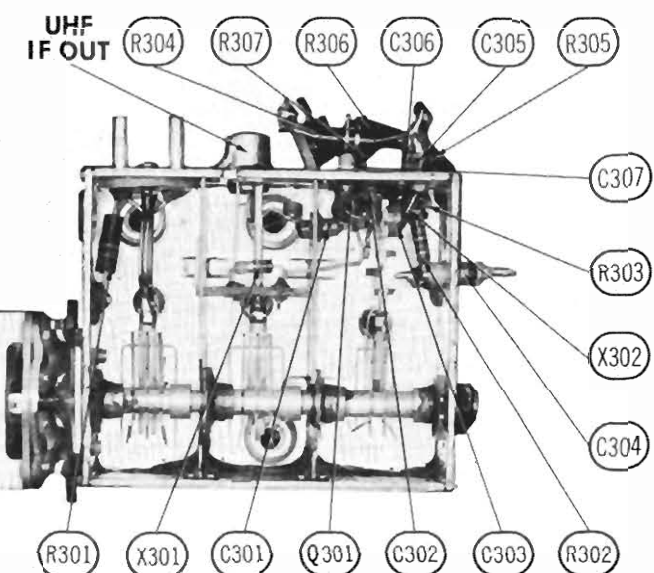


VHF TUNER





AFC BOARD



UHF TUNER 94C334-3FK, 94E334-3

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS® for the most up-to-date replacement.

WIRING DATA

High Voltage Lead	Use BELDEN No. 8868 (25KV)
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8275 (Foam Core) or 8285 (Foam Jacketed)
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

TUBES

AMPEREX			GENERAL ELECTRIC			RCA			SYLVANIA		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6HA5	V8	Vert. Mult. - Vert. Output	6LU8	V14	Shunt Regulator	6EL4A (6LH6A, 6BK4B)*	V18	UHF Oscillator	57B21-5
V202	Mixer-Oscillator	6LJ8	V9	Horiz. AFC - Horiz. Osc.	6JW8/ECF802	V15	Color Killer - Chroma Reference Osc.	* Alternate	V19	VHF AFC Diode	57D21-8
V1	1st Video IF	6JH6	V10	Horiz. Output	6KD6	V16	1st Chroma Bandpass Amp. - 2nd Chroma Bandpass Amp.	6X9/ECF200	V20	Antenna Rotor Cable	8485
V2	2nd Video IF	6GM6	V11	Damper	6CG3 (6CE3)*	V17	Color Demodulator	6LE8			
V3	3rd Video IF	6JC6A	V12	HV Rectifier	3BW2 (3BT2)*						
V4	Video Cathode Follower - Chroma Sync Amp. - Sound IF	6BN11									
V5	Video Output - Burst Amp.	6AF9									
V6	Audio Det. - Audio Output	6AD10									
V7	AGC Keying - Sync Sep. - Noise Canceller	6HS8									

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	MFGR. PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.		
V18	23VBGP22 25SP22	23VABP22 25AP22A	H23VALP22 H-23BCP22 (1) C-25BCP22 (2) H-25XP22 (3) C-25XP22/25AP22A(4) H-25BCP22 (1) C-25BCP22 (2)	XR23VANP22 23VANP22/25BGP22 25AP22A (3) SRE-25AP22A (3) RE-25AP22A (5) 23VANP22/25BGP22 25AP22A SRE-25BGP22 (5) XR23VANP22/ SRE25BGP22 (5)	(1) Hi-Lite Matrix (2) Colorama Matrix (3) Hi-Lite (4) Colorama (5) Color Bright "85"	
	25BCP22					
	23VASP22					

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA				
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	SYLVANIA PART No.
Q301		UHF Oscillator	57B21-5	GE-11	TR-22	HEP56	SK3019
Q201		VHF AFC Diode	57D21-8	GE-17	TR-22	HEP50	SK3018
Q1		AFT	57C142-4 (57C138-4)				ECG 108

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X1	93B52-1 (93C52-1)	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	① A single unit replaces X1 thru X4.
X2	93B52-1 (93C52-1)	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X3	93B52-1 (93C52-1)	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X4	93B52-1 (93C52-1)	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X5	93C53-2	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	② One (1) required. ③ Four (4) required.
X6	93C8-1 (1N87A)	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X7	93B8-1	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X8	93B8-1	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X9	93C8-1 (1N87A)	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X10	93B5-10	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X11	93A60-3	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X12	93B8-1	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X13	93B65-1	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	
X14	93A57-1	GE-504A	8D6 or 18DB6A ①	ECG 116 or ECG 117	SK3031 or SK3017A	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	80 450V	67C(A)15-384	AFH2-64-15		BB0489.5A	XC2-35	FP245.5	TVL-2779
C2A	80 450V	67C(D)15-380	AFH4-108-35		DD0825.5A	XC4-68.1	FP427.67	TVL-4714.2
C3A	80 450V	67C(D)15-381	AFH3-154-50		CC0352A	XC3 -3A	FP375.45	TVL-3774.6
C4	2 350V	67D4-59	PRS1705		WBR3-500	QTI-1	TC595	TVA-1701
C5	10 350V	67C4-68	PRS1620		WBR10-500	QTI-6	TC62A	TVA-1604
C6	20 15V	67D4-71	CRE461A	EA15-25	AL20-16	MT1-10	MTA20D30	TE-1157
C7	50 150V	67D4-91	PRS1480		WBR60-150	QTI-17	TC49A	TVA-1414
C8	50 10V	67B27-5	PRS1480		WBR60-150	QTI-17	TC49A	TVA-1414
		67D4-78	PTT45	EA15-50	AL50-16	MT1-16	MTA50E15	TL-1133

VHF TUNER PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

TUBES

AMPEREX			GENERAL ELECTRIC			RCA			SYLVANIA		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp	6HA5	V202	Mixer - Oscillator	6LJ8						

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA				
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	SYLVANIA PART No.
Q201		VHF AFC Diode	57D21-8				

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201A	27pf			DD-270	NPO27	CCD-270	GP427	10TS-Q27
B	27pf			DD-270	NPO27	CCD-270	GP427	10TS-Q27
C	27pf			DD-270	NPO27	CCD-270	GP427	10TS-Q27
D	27pf			DD-270	NPO27	CCD-270	GP427	10TS-Q27
C202	7.7pf N470 5%							
C203	2.2pf		NPO-DI 2.2	DTZ-2R2	NPO2P2	CCTO-2R2	CNO522	10TCC-V22
C204	.001		GPD X5F102K	DD-102		CCD-102	GP210	10TS-D10
C205	15pf			DD-150	NPO15	CCD-150	GP415	10TS-Q15
C206	.001		GPD X5F102K	DD-102		CCD-102	GP210	10TS-D10
C207	33pf N750 5%		N750-DI 33	DTN-33	N33	CCTN-330	CN7433	10TCU-Q33
C208	.001							
C209	8.2pf		GPD COH8R2K		NPO8P2			10TS-V82
C210	8.2pf		GPD COH8R2K		NPO8P2			10TS-V82
C211	.001							
C212	.001							
C213	.001							
C214	.001							
C215	.001							
C216	.001							
C217	.001							
C218	47pf							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

COILS (RF-IF)

ITEM No.	USE	MFGR. PART No.	NOTES	ITEM No.	USE	MFGR. PART No.	NOTES
L201	UHF Strip	73B74-536		L208	Ant., RF, Mixer, Osc.	73B81-505	IF Channel 8 Strip
L202	Ant., RF, Mixer, Osc.	73B75-505	I F Channel 2 Strip	L209	"	73B82-505	" 9 "
L203	"	73B76-505	" 3 "	L210	"	73B83-505	" 10 "
L204	"	73B77-505	" 4 "	L211	"	73B84-505	" 11 "
L205	"	73B78-505	" 5 "	L212	"	73B85-505	" 12 "
L206	"	73B79-505	" 6 "	L213	"	73B86-505	" 13 "
L207	"	73B80-505	" 7 "				

UHF TUNER PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA				
			MFGR. PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	SYLVANIA PART No.
Q301		UHF Oscillator	57B21-5	GE-11	TR-24	HEP56	SK3019

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT DATA				NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RCA PART No.	SYLVANIA PART No.	
X301	93A59-1 (1N82AG)	1N82	1N82AG		ECG 112	
X302	93A63-1					

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	30pf							
C302	5pf							
C303	4.5pf							
C304	100pf							
C305	100pf							
C306	100pf							
C307	30pf							

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

COILS (Sweep Circuits)

ITEM No.	FUNCTION	REPLACEMENT DATA					
		MFGR. PART No.		MILLER PART No.	STANCOR PART No.	THORDARSON MEISSNER PART No.	TRIAD PART No.
L45	Horiz. Hold	94D268-4 (94A268-4) 73A90-1 (73C90-1)		6333 ①		HS-7 ①	TA-10V ①
L46	Width			5219			
L47	Top-Bottom Pincushion Phase	94D373-1					
L48	Dynamic Converg. Right R/G Vert. lines (3.2mh-8.8mh)	94D305-7 (94C306-7)					
L49	Dynamic Converg. Right R/G Horiz. lines (1.8mh-3mh)	94D306-8 (94C306-8)					
L50	Dynamic Converg. Right Blue Horiz. lines (Pri. 2.5mh-9mh) (Sec. 90uh-120uh)	94D306-9					
L51	Blue Shaping	73C55-33					
L52	Conv. Yoke Ass'y.	94D303-5S					
A	Blue Section	94D303-65					
B	Green Section	94D303-64					
C	Red Section	94D303-66					
	Alt. Convergence Yoke						
A	Blue Section	94D303-81					
B	Green Section	94D303-80					
C	Red Section	94D303-82					
	Alt. Converg. Yoke						
A	Blue Section	94D303-60					
B	Green Section	94B303-59					
C	Red Section	94B303-61					

① Install plastic sleeve on adjustment screw.

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA				NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT)	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	
L63	.4A DC	15Ω	.28H	74C27-3	C-2708	26C81	C-40X

TRANSFORMER (Power)

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ 2.85A AC	305VAC @ 1.48A DC	87D88-4 (80C88-4S)	P-9003C			
	SEC. 2	SEC. 3					
	6.3VAC @ 1.4A AC	6.3VAC @ 10.8A AC					

TRANSFORMERS (Sweep Circuits)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	Vertical Output	79D134-1(A)	VO-700C	26S96	A-304X	② Remove yoke plug pin 3.
T3	Yoke (Horiz. 24mh) 590 (Vert. 11.5mh)	94D304-8 (94A304-8)	DY-93AC	Y-109	YC-312-2	④ Rotate yoke 180° (leads at top).
T4	Alternate Yoke Focus, Output	94A304-2 (94A304-2)	DY-95AC	Y-109	YC-312-2	⑤ Jumper pins 7 and 8 on socket.
T5	Horiz. Output Alternate Pincushion Corrector	79D144-1 (79D126-3(J) † 79C143-1 (79D143-1)	HO-649C		D-340 ⑥	† Horizontal Output Transformer used in Runs 29 and 30.

⑥ Remove focus tube filament lead.

* COMPONENT CONNECTION DATA

ORIGINAL →	HV TRANSFORMER		VERTICAL OUTPUT		YOKE	
	Original Connections		Original Connections		Original Connections	
REPLACEMENT ↓						
					1 2 3 4 5 6 7 8	
STANCOR	CONNECT SAME AS ORIGINAL		EXACT REPLACEMENT		EXACT REPLACEMENT	
THORDARSON			EXACT REPLACEMENT		EXACT REPLACEMENT	
TRIAD	CONNECT SAME AS ORIGINAL		EXACT REPLACEMENT		EXACT REPLACEMENT	

TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PK.	SEC.	MFGR. PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T6	9500Ω	3-4Ω	79D33-102	A-3879	24S98	S-17X	

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	4 1/2" PM	78C248-2 (78A248-2)		Models 3L3341, 3L3343, 3L3345
SP2	4 1/2" PM	78C248-2 (78A248-2)		
	4" PM	78A216-3		Models 3L3331, 3L3335, 3L3338
	3 1/2" PM	78A216-4		Models 3L3188-M, 3L3471, 3L3475, 3L3478
	12" PM	78C148-13 78C153-17		4 Used - Models 3ST3498, 3ST3488 2 Used - Models 3ST3498, 3ST3488

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA			
		PART No.		BUSS PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER
F1	Circuit Breaker Hold Current 1 Amp Break Current 1.54 Amp	84C(D)17-9		8151.75	FA1.5
F2	2" length #22 fuse wire				
F3	2 1/4" to 3 1/4" #26 wire				

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M3	VHF Tuner	94C(E)330-3	
M4	VHF Tuner	94E331-3	
M5	UHF Tuner	94C334-3FK	
	UHF Tuner	94C(E)333-3	
	UHF Tuner	94E334-3	
	Crystal (3.58MC)	93B22-3	
	Delay Line	72D217-3	
	Degaussing Coil	700D625-6	
	Degaussing Coil	(700C625-6)	
	Purity and Blue	94C287-4	
	Lateral Assembly	(94D287-4)	
M6	Spark Gap	62A2-2	
M7	Spark Gap	62A2-2	
M8	Spark Gap	62A2-2	
M9	Spark Gap	62A2-2	
S1	Switch	77C1-69	Vid. Peaking
S2	Switch	77C1-70	Instant Play
S3	AFT Switch	77B161-6 (77C161-6)	

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

KNOB	MODELS: 3L3331/35/38	PART No.	KNOB	MODELS: 3L3341/43/45	PART No.
UHF/VHF Channel Selector		33A1177-4	UHF/VHF Channel Selector		33A1177-4
Fine Tuning		33A933-6	Fine Tuning		33A933-6
On/Off, Volume		20A63-38	On/Off, Volume		20A63-38
AFC (Bar)		33A929-3	On/Off, Color Monitor		33A1345-1
Tone & Color Fidelity		33A912-1	AFC (Bar)		33A929-3
Indicator Disk, VHF		33A1045-13	Color Fidelity, Tone, Preference		33A912-1
Indicator Disk, UHF		33A1046-10	Indicator Disk, VHF		33A1045-13
Control Door Assembly		799A3010	Indicator Disk, UHF		33A1046-10
UHF/VHF Channel Selector	MODELS: 3L3471/75/78	33A1177-3	Control Door Assembly		799A3033
Fine Tuning		33A933-6	UHF/VHF Channel Selector	MODELS: 3L3188-M	33A1177-3
On/Off, Volume		20A63-38	Fine Tuning		33A933-6
AFC (Bar)		33A929-3	On/Off, Volume		20A63-38
Color Intensity		33A1012-4	AFC		33A929-3
Tint		33A1012-3	Color Intensity		33A895-4
Color Fidelity, Tone		33A912-1	Tint		33A895-3
Indicator Disk, VHF		33A1045-8	Color Fidelity, Tone		33A912-1
Indicator Disk, UHF		33A1046-6	Indicator Disk, VHF		33A1045-8
Control Door Assembly		799A2895	Indicator Disk, UHF		33A1046-6
UHF/VHF Channel Selector	MODELS: 3ST3488	33A933-6	Control Door Assembly		799A2896
Fine Tuning/UHF Tuning		33C1177-3	UHF/VHF Channel Selector		33C933-6
On/Off, Volume		20A63-38	Fine Tuning/UHF Tuning		33C1177-3
AFC		33C929-3	VHF Channel Selector		20C63-38
Color Fidelity & Tone		33A912-1	On/Off, Volume		33C929-3
Indicator Disk, VHF		33A1045-8	AFC		33C912-1
Indicator Disk, UHF		33A1046-6	Color Fidelity & Tone		33C1045-8
Radio Tuning		33A702-21	Indicator Disk, VHF		33C1046-6
Radio Control		33A702-20	Indicator Disk, UHF		33C928-9
Slide Switch		33A929-4	Radio Tuning		33C928-9
Control Door Assembly		799A2948	Radio Control		33C928-4
			Radio Push Button		799A2948
			Control Door Assembly		

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AERCOVOC PART No.	CENTRALAB PART No.	CCRNELL-DILLIER PART No.	ELMENCEO PART No.	MALLORY PART No.	SPRAGUE PART No.
C21	9.5 NPO	#65D10-380						
C22	150 125V 5%			CPR-150J		DM-15-151J	SX315	424MC1500
C23	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C24	.033 200V		V1612833		GP1000	1DP-2-33	PVC2133	4PS-833
C25	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C26	.02		GPDX5F102K	DD-203		CCD-203	GP210	10TS-D10
C27	.22 200V		V1612P22		DPMS-2P22	1DP-4-22	4PS-P22	4PS-P22
C28	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C29	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C30	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C31	680 N2200 10%	#65D10-293						
C32	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C33	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C34	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C35	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C36	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C37	220 N2200 5%	#65D10-330						
C38	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C39	.0022	(.0015) †	GPDX5F222K	DD-222	GP1000	CCD-222	GP210	10TS-D10
C40	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C41	750 N2200 5%	#65C10-368						
C42	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C43	20 NPO	10%	NP-1 20	DTZ-20	NPO20	CCD-20	CNO420	10TCQ-Q20
C44	5 N150	#65D10-299						
C45	100 N33	10%						
C46	.22 N150	#65D10-300						
C47	.01							
C48	.0022 10%		GPDX5F103K	DD-103	GP10000	CCD-103	GP140	10TS-D10
C49	.0047 10%		GPDX5F222K	DD-222	GP2200	CCD-222	GP220	10TS-D10
C50	180 1KV 10%		GPDX5F472K	DD-472	GP247	CCD-472	GP247	10TS-D10
C51	.01		GPDX5F181K	DD-181	GP100	CCD-181	GP318	5GA-T18
C52	.1 200V		GPDX5F103K	DD-103	GP10000	CCD-103	GP110	10TS-D10
C53	.01		DBE2P1		DPMS-2P1	2DP-3-10	PVC201	2PS-P10
C54	120 N750		GPDX5F103K	DD-103	GP10000	CCD-103	GP110	10TS-D10
C55	.01		GPDX5F103K	DD-103	GP10000	CCD-103	GP110	10TS-D10
C56	820 10%		GPDX5F821K	DD-821	GP820	CCD-821	GP382	10TS-D10
C57	.0047 10%		GPDX5F472K	DD-472	GP4700	CCD-472	GP247	10TS-D10
C58	560 400V		GPDX5F561K	DD-561	GP560	CCD-561	GP356	10TS-D10
C59	.22 400V	10%			DPMS-2P22	4DP-5-224	PVC402	4PS-P22
C60	.56							
C61	.1 200V 10%		DBE2P1		DPMS2P1	1DP-2-104	PVC101	2PS-P104
C62	.1 NPO 10%		NPO-DI 20	DTZ-20	NPO20	CCD-20	CNO420	10TCQ-Q20
C63	.220		GPDX5F21K	DD-221	GP220	CCD-221	GP322	10TS-D10
C64	.0015		GPDX5F152K	DD-152	GP1500	CCD-152	GP215	10TS-D10
C65	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C66	.0015		GPDX5F152K	DD-152	GP1500	CCD-152	GP215	10TS-D10
C67	27 NPO 5%				NPO27	CCD-270	CNO427	10TCQ-Q27
C68	27 NPO 5%				NPO27	CCD-270	CNO427	10TCQ-Q27
C69	2.2 N750							
C70	.01		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C71	1.5 N3300	#65D6-173	GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C72	10 N150							
C73	.02		GPDX5F203P	DD-203	GP203	CCD-203	GP120	10TS-D10
C74	5 N750 10%		GPDX5F103K	DD-103	GP10000	CCD-103	GP110	10TS-D10
C75	.01							
C76	560 N1500 5%	#65D10-296						
C77	.75pF	#65D41-119						
C78	8 N220 5%							
C79	.0012 10%		GPDX5F122K	DD-122	GP1200	CCD-122	GP212	10TS-D10
C80	.0047 10%		GPDX5R472K	DD-472G	GP4700	CCD-472	GP247	10TS-D10
C81	.0047		GPDX5F103K	DD-103	GP10000	CCD-103	GP110	10TS-D10
C82	.01							
C83	10 N330 10%		GPDX5F561K	DD-561	GP560	CCD-561	GP356	10TS-D10
C84	.01 50V		GPDX5R682K	DD-682	GP680	CCD-682	GP382	10TS-D10
C85	.0068		GPDX5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D10
C86	.0022		GPDX5R392K	DD-392	GP390	CCD-392	GP239	10TS-D10
C87	.0039							
C88	.0039							
C89	.0027 1.6KV		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C90	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C91	1.1 100V		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C92	.001 1KV		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C93	.2 1KV							
C94	.02		GPDX5F203P	DD-203	GP203	CCD-203	GP120	10TS-D10
C95	.01		GPDX5F103K	DD-103	GP10000	CCD-103	GP110	10TS-D10
C96	.0033 10%		GPDX5R32K	DD-332	GP3300	CCD-332	GP233	10TS-D10
C97	.220		GPDX5F21K	DD-221	GP220	CCD-221	GP322	10TS-D10
C98	47 NPO	10%	NP-1 47	DTZ-47	NPO47	CCD-470	CNO447	10TCQ-Q47
C99	.0022		GPDX5F22K	DD-222	GP2200	CCD-222	GP222	10TS-D10
C100	.0015		GPDX5F152K	DD-152	GP1500	CCD-152	GP215	10TS-D10
C101	.015 600V 10%		DBE6S15		DPMS-6S15	6DP-5-154	PVC615	6PS-S15
C102	.01 600V 10%		DBE6S1		DPMS-6S1	6DP-2-223	PVC612	6PS-S12
C103	.0022		GPDX5F22K	DD-222	GP2200	CCD-222	GP222	10TS-D10
C104	.0015 1KV 10%		GPDX5F152K	DD-152	GP1500	CCD-152	GP215	10TS-D10
C105	.0022 1KV 10%		GPDX5F152K	DD-152	GP1500	CCD-152	GP215	10TS-D10
C106	.0022 1KV 10%		GPDX5F152K	DD-152	GP1500	CCD-152	GP215	10TS-D10
C107	.047 200V 10%		V1612833		DPMS-6P15	6DP-5-154	PVC615	6PS-S15
C108	.015 600V		DBE6P15		DPMS-6P15	6DP-2-223	PVC612	6PS-S12
C109	.022 600V 10%		DBE6S22		DPMS-6S22	6DP-3-393	PVC613	6PS-S39
C110	.039 600V 10%		DBE6S39		DPMS-6S39	6DP-3-408	PVC613	6PS-S39
C111	.039 200V 10%		DBE6S39		DPMS-6S39	6DP-3-408	PVC613	6PS-S39
C112	.039 600V 10%		DBE6S39		DPMS-6S39	6DP-3-408	PVC613	6PS-S39
C113	.18 200V 10%							
C114	100 N1500/3KV/10%	#65D10-77						
C115	100 N1500/3KV/10%	#65D10-47						
C116	100 N750/3KV/5%	#65D10-47						
C117	100 N1500/4KV/10%	#65D10-275						
C118	.001		GPDX5F152K	DD-152	GP1500	CCD-152	GP215	10TS-D10
C119	.001		GPDX5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C120	.47 200V		DBE2P47		DPMS-2P47	2DP-3-47	PVC2047	2PS-P47
C121	.0033 10%		GPDX5R332K	DD-332	GP3300	CCD-332	GP233	10TS-D10
C122	.001 500V 10%		ADM-19-32	CPR-1000J	CD19F102J500	DM-19-32J	SX210	MS-21
C123	.0033 500V 10%		ADM-20-821	CPR-8200J	CD19F332J500	DM-19-821J	SX233	MS-233
C124	820 500V 10%		ADM-20-122	CPR-8200J	CD19F821J500	DM-19-821J	SX282	424ME820K
C125	.0022 500V 5%			CPR-2200J	CD19F111J500	DM-19-222J	SX222	424ME220K
C126	.0047		GPDX5R472K	DD-472	GP4700	CCD-472	GP247	10TS-D10

CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.
C127	100 NPO 5%		DBE6P1	DTZ-100	DPMS-6P1	6DP-4-104	CNO310 PVC601
C128	.1 600V						6PS-P10
C129	.12 600V 10%	#64C24-202					
C130	.130 600V 10%	#65D10-270					
C131	.047 600V		DBE6S47		DPMS-6S47	6DP-3-473	PVC6147
C132	.047 600V		DBE6S47		DPMS-6S47	6DP-3-473	PVC6147
C133	.270 10%		GPDX3F271K	DD-271	GP270	10TS-27	GP270
C134	.047 400V		V1614S47			4DP-3-473	PVC4147
C136	.1 200V		DBE2P1		DPMS-2P1	2DP-3-104	PVC201
C137	.01 600V		GPDX5S103K	DD-103	GP10000	10TS-S10	GP110
C138	.470 10%		GPDX5F471K	DD-471	GP470	10TS-T47	GP347
C139	10 NPO 10%		NPO-DI 10	DTZ-10	NPO10	10TCC-Q10	CNO410
C140	.01 600V		GPDX5S103K	DD-103	GP10000	10TS-S10	GP110
C141	.01 600V		GPDX5S103K	DD-103	GP10000	10TS-S10	GP110
C142	120 N1500						2HV312
C143	.1 200V		DBE2P1		DPMS-2P1	2DP-3-104	PVC201
C144	10 NPO 10%		NPO-DI 10	DTZ-10	NPO10	10TCC-Q10	CNO410
C145	.22 400V		V1614P22		DPMS-4P22	4DP-5-224	PVC4022
C146	.02 600V		GPDX5S203P	DD-203	GP203	10TS-S20	GP120
C147	.02 600V		GPDX5S203P	DD-203	GP203	10TS-S20	GP120
C148	.01 600V		GPDX5S103K	DD-103	GP10000	10TS-S10	GP110
C149	.02 600V		GPDX5S203P	DD-203	GP203	10TS-S20	GP120
C150	.01 600V		GPDX5S103K	DD-103	GP10000	10TS-S10	GP110
C151	.01 600V		GPDX5S103K	DD-103	GP10000	10TS-S10	GP110
C152	5.6 NPO 5%	#65D10-365					
C153	.01 600V		GPDX5S103K	DD-103	GP10000	10TS-S10	GP110
C154	.01 600V		GPDX5S103K	DD-103	GP10000	10TS-S10	GP110
C155	1.5 P100	#65D10-24					
C156	5.6 NPO 5%	#65D10-365					
C157	5.6 NPO 5%	#65D6-170					
C158	5.6 NPO	#65D6-170					
C159	.047 400V		V1614S47			4DP-3-473	PVC4147
C162	.30 NPO 10%		NPO-DI 30	TCZ-30	GP10000	10TS-S10	CNO439
C163	.01 600V		GPDX5S103K	DD-103	GP390	10TS-T39	GP339
C164	.300 10%		GPDX5F391K	DD-391	GP390	10TS-T39	GP339
C165	1.5 P100	#65D10-24					
C166	120 N1500 10%	#65D10-136					
C167	.82 NPO 10%			DTZ-82	NPO82	10TCC-Q82	CNO482
C168	.33 NPO 10%		NPO-DI 33	DTZ-33	NPO33	10TCC-Q33	CNO433
C169	.01 600V		GPDX5S103K	DD-103	GP10000	10TS-S10	GP110
C170	100 NPO 5%			DTZ-100			CNO310
C171	180 N2200 10%	#65D10-344					
C172	8.2 NPO 5%						
C173	5.6 NPO	#65D6-170					
C174	5.6 NPO	#65D6-170					
C175	.047 400V		V1614S47			4DP-3-473	PVC4147
C177	470 2KV		HVD-30470	DD30-471	HV3-470	3CCD-471	30GA-T47
C178	820 N1500/1KV 10%						
C179	.056 400V 10%		DBE6S56		DPMS-6S56	6DP-3-563	PVC4056
C180	.022 400V 10%		V1614S22		DPMS-6S22	6DP-2-223	PVC6122
C181	.082 300V 10%		DBE6S82		DPMS-6S82	6DP-4-823	6PS-S82
C182	.27 200V 10%		V1612P15		DPMS-2P15	2DP-3-154	PVC2015
C183	.15 200V 10%		DBE2P1		DPMS-2P1	2DP-3-104	PVC201
C184	.1 200V 10%						
C185	.015 150VAC						
C186	.01 1.4KV			DD16-103			
C187	.001 1.4KV		HVD-15-1000	DD30-102	HV3-1000	3CCD-102	UAC210
C188	.001 1.4KV		HVD-15-1000	DD30-102	HV3-1000	3CCD-102	UAC210
C189	.001 1.4KV		HVD-15-1000	DD30-102	HV3-1000	3CCD-102	UAC210
C190	.0033 2KV	#65A139-3		DD30-332			3HV233
C192	560 160V 5%		ADM-19-561	CPR-560J	CD19F561J500	DM16-561J	SX356
C194	.1 600V		DBE6P1		DPMS-6P1	6DP-4-104	PVC601
C195	.047 600V		DBE6S47		DPMS-6S47	6DP-3-473	PVC6147
C196	.2 600V						
C197	.001 600V						
C198	.001 600V						

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Admiral Part Number. † Alternate Value.

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume/Switch	1meg	75D127-14 (75C127-14)				
R2	Volume/Switch Vert. Hold	100K	75A118-3 (75D118-3) (75C118-3)	F1-100K, SNK108	A47-100K-S, RN-3, TT-2 or (NP-100K-S, NML-A-300, TT-2)	B11-128, TM4 or (BU11, CF13, S86) *	RUI15L, SL37, SN2000 or (UA15L, SN2000) or PTAI5L ①
	Vert. Hold	100K	75A139-1 (75C139-1)	F1-100K, SNK209	A47-100K-S, RN-3, TT-2 or (NP-100K-S, NML-A-300, TT-2)	B11-128, TM5 or (BU11, CF13, S86, DC1) *	RUI15L, SL37, SN2000 or (UA15L, SN2000) or PTAI5L ①
R3a	Color Fidelity Contrast	500K	75A118-19 (75D118-19) (75C118-19)			† QJ-2610	
	Color Fidelity Contrast	500K	75A139-2 (75C139-2)			† QJ-2614	

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)
Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R4a	Tone Brightness	2.5meg	75A118-13 (75C118-13) (75D118-13)	F2-3meg, NR-250K, UPC-B-015, UR-D-104	NP-3meg-Z, NR-250K-S, UPC-B-015, UR-D-114	QJ-2357	P36A, 3014, RU254L, OX937A, RK1250
	Tone Brightness	2.5meg	75A139-3 (75C139-3)	F1-2.5meg, NR-250K-S, UPC-B-015, UR-D-114	NP-2.5meg-S, NR-250K-S, UPC-B-015, UR-D-114	QJ-2615	P255L, 3014, RU254L, OX1562A, RK1875
R5	Color	500Ω	75A118-1 (75C118-1) (75D118-1)	F1-500, SNK108	A47-500-S, RN-3, TT-2 or (NP-500-S, NML-A-300, TT-2)	B11-103, TM4 or (BU11, CF4, S86) *	RU52L, SL37, SN2000 or (UA52L, SN2000) or PTAS2L ①
	Color	500Ω	75D118-10 ⑧	TT-4 or (F1-500, SNK108)	B47-500-S or (NP-500-S, NML-A-300, TT-2)	B11-103, TM4 or (BU11, CF4, S86) *	RU52L, SL37, SN1000 or (UA52L, SN1000)
R6a	Color (Motor Driven) Preference Tint	500Ω	91C78-51 ⑥	F5-2500, RS-1500, FFS109, RK104		QJ-2699	P23R, 3014, RU122R, OX937A, RK1250
	Tint	1100Ω	75D118-2 ③				
	Tint	1100Ω	75C118-11 ③	F5-1500, SNK108	NP-1200-V, NML-A-300, TT-2	B17-208, TM4 or (BU11, CF53, S86) *	RU122R, SL37, SN1000 or (UA152R, SN1000) or U5
R7	Tint (Motor Driven) AGC	1100Ω	91C78-52 ⑥				
R8	Height	3.4meg	75C96-8	TT-31 or (F1-500K, SNK108)	B47-500K-S or (NP-500K-S, NML-A-300, TT-2)	B11-123, TM4 or (BU11, CF12, S86) *	PTA54L or (RU54L, SL37, SN281) or (UA54L, SN281)
R9	Vert. Linearity	300K	75C110-1 (75B110-1)	TT-59 or (F1-250K, SNK108)	B47-250K-S or (NP-250K-S, NML-A-300, TT-2)	B11-131, TM4 or (BU11, CF15, S86) *	RU35L, SL37, SN281 or (UA35L, SN281) or PTAS3L
R10	Color Killer	1meg	75C110-2 (75B110-2)	TT-69 or (F1-1meg, SNK108)	B47-1meg-S or (NP-1meg-S, NML-A-300, TT-2)	B11-137, TM4 or (BU11, CF17, S86) *	PTAI254L or (RU16L, SL37) or (UA16L, SN281)
R11	Top-Bottom Pin cushion Amp.	500Ω	75C110-12	TT-4 or (F1-500, SNK108)	B47-500-S or (NP-500-S, NML-A-300, TT-2)	B11-103, TM4 or (BU11, CF4, S86) *	PTAS2L or (RU52L, SL37, SN281) or (UA52L, SN281)
R12	Master Screen	1meg	75C136-1	F1-1meg ②, SNK102		B11-137, TM4 ②	RU52L, SL37, SN1000 or (UA16L ②, SN1000)
R13	Vert. Centering	10Ω 2W	75C64-17 (75D64-17)	WT-10 or (NPW-10, V-10 ③)	U39-15 ③ or (NPW-10, V-10 ③) or (BU1, WF16, S86) *	P115R100A or (P115-010, SK5) or (BU1, WF16, S86) *	MR10T or MR10B or VW10
R14a	Blue Background	700K	75C95-9				
R15	Green Background	700K	75C135-23	TT-59 or (F1-500K, SNK108)	B47-500K-S or (NP-500K-S, NML-A-300, TT-2)	B11-133, TM4 or (BU11, CF16, S86) *	PTAS5L or (RU55L, SL37, SN1000) or (UA55L, SN1000)
	Red Background	700K					
	HV Adjust	500K	75C96-11 ①	TT-59 or (F1-500K, SNK108, AK-38)	B47-500K-S or (NP-500K-S, NML-A-300, TT-2)	B11-133, TM4 or (BU11, CF16, S86) *	PTAS5L or (RU55L, SL37, SN281)
R16	Horiz. Centering	10Ω 2W	75D64-30 (1470827-1)	WT-10, WSK104		P115R100A, P115-117-1 or (BU11, WF16, S86) *	MR10T, MR51250
R17	Focus	15meg	75C108-2	FTT-15meg			
R18	Focus	15meg	75C108-3 ①	FTT-15meg			
R19	Adjacent Sound Reject	10K	75B101-2 (75C101-2)	TSV-10K or T-10K		X201R103B	FC1156L, MTC141L
R20	Sound Reject	750Ω	75B101-3 (75C101-3)	TSV-1K ⑤ or T-750 ⑤		U201R102B	MTCT51L4
R21	R/G Horiz. Lines (Top)	500Ω 2W	75C64-31 (75D64-31)	WP-600, WSK104 or V-500	U39-500	110-600	MR600P, MRS1250
R22	R/G Horiz. Lines (Left)	120Ω 2W	75C94-5	WCP-120 or V-120	U39-125	110C120	MRC120P
R23	R/G Horiz. Lines (Bottom)	150Ω 2W	75C64-7 (75D64-7)	WCP-150 or V-150	U39-150	110C150	MRC150P
		500Ω 2W	75C64-31 (75D64-31)	WP-600, WSK104 or V-500	U39-500	110-600	MR600P, MRS1250

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA				
			MFG. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R24	R/G Vert. Lines (Top)	150Ω 2W	75C64-7 (75D64-7)	WCP-150 or V-150	U39-150	110C150	MRC150P
R25	R/G Vert. Lines (Left)	120Ω 2W	75C64-5 (75D64-5)	WCP-120 or V-120	U39-125	110C120	MRC120P
R26	Blue Horiz. Lines (Bottom)	300Ω 2W	75C64-33 (75D64-33)	V-300	U39-300	110-300	
R27	Blue Horiz. Lines (Top)	150Ω 2W	75C64-7 (75D64-7)	WCP-150 or V-150	U39-150	110C150	MRC150P
R28	Blue Horiz. Lines (Left)	120Ω 3W	75C64-39 (75D64-39)	WP-100, WSK104			MRI00P, MRS1250

† "SNAPTROL" Equivalent: BU4, CF16, CR66T, SF5, SR67, DC1.*
 ▲ "SNAPTROL" Equivalent: BU4, CF16, CR66T, SF12, SR70, DC1.*
 ● "CONCENTRIKIT" Equivalent: K-15 Kit with base elements and shafts: B13-140, P23-100 (Panel), B11-130, R11-108 (Rear).
 ■ "SNAPTROL" Equivalent: BU4, CF28, CR10, SF5, SR67, DC1.
 ● "CONCENTRIKIT" Equivalent: K-15 Kit with base elements and shafts: B11-239, P17-118 (Panel), B11-130, R11-124 (Rear).
 ◆ "CONCENTRIKIT" Equivalent: K-15 Kit with base elements and shafts: B17-110, P23-100 (Panel), B17-208, R11-108 (Rear).
 ① Use portion of original shaft to obtain desired length.
 ② Use original nylon tab mount.
 ③ Insulate control from chassis and solder original center terminal lead to metal case of control.
 ④ To establish section identification of side-by-side controls, view controls with shaft ends facing you, terminals down.
 On 3-section controls, left-hand section is A, middle section is B, right-hand section is C.
 On 2-section controls, left-hand section is A, right-hand section is B.
 ⑤ For horizontal control, bend the two outside terminals to fit PC board. Use jumper to connect center terminal to PC board.
 ⑥ Alternate Part, used in Model 31S1188M.
 ⑦ Alternate Part, used in Models: 313471/75/78 and 31S1188M.
 ⑧ Alternate Part, used in Models: 313471/75/78.
 ⑨ Alternate Part, used in Models: 313331/35/38, 38T3488/96.
 ⑩ Alternate Part, may be used in some versions.
 ⑪ Alternate Part, used in Models using Chassis 11H12, Run 31.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFG. PART No.			WORKMAN PART No.	MFG. PART No.
R63	8200Ω 3W			R205	27K 3W	30-27K	61C24-359
R79	2700Ω 5W	3G-8.2K	61C24-347	R215	5600Ω 3W	3G-5.6K	61C24-343
R82	22K 5W	5G-2.2K	61C24-535	R225	7400Ω 4W	4G-7.5K	61C24-446
R126	1400Ω 3W	3G-22K	61C24-557	R232	V.D.R. 1		61B46-8
R131	Thermistor (3.70 Cold)	FR-3.5	61C24-380	R233	Thermistor (1200 Cold)		61B49-3
R150	10K 20W	20W-SQ-10K	61C20-106	R234	1200Ω 20W		61C20-104
R152	17K 7W	7G-16K ①	61C24-779	R235	1200Ω 20W		61C20-104
R154	47meg, 6KV		60B30-4	R236	5100Ω 5W	5G-5.1K	61C24-542
R175	33K 3W	3G-33K	61C24-361				
R186	15K 4W	4G-15K	61C24-453				

REMOTE CONTROL RECEIVER

Suggested Alignment Tools: A1 thru A14 ... GENERAL CEMENT #8868, 8987, 9089 ... WALSCO #2531-X, 2541, 2587
Use an isolation transformer and maintain line voltage at 117VAC. Turn Distance Selector control to MINIMUM (counterclockwise). An S376AN Transmitter known to be operating correctly may be substituted for signal generator.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Connect high side thru .1 mfd to point \diamond , low side to chassis.	41KC	Color-Max. (Up)	-DC probe to point \diamond , low side to chassis.	A1	Check for MINIMUM voltage on VTVM. Adjust if necessary.
2.	"	35KC	Channel Selector	-DC probe to point \diamond , low side to point \diamond .	A2	Adjust for maximum indication on VTVM.
3.	"	36.5KC	Tint-CCW (Down)	-DC probe to point \diamond , low side to point \diamond .	A3	"
4.	"	38KC	Tint-CW (Up)	-DC probe to point \diamond , low side to point \diamond .	A4	"
5.	"	39.5KC	Color-Min. (Down)	-DC probe to point \diamond , low side to point \diamond .	A5	"
6.	"	41KC	Color-Max. (Up)	-DC probe to point \diamond , low side to point \diamond .	A6	"
7.	"	42.5KC	On-Off	-DC probe to point \diamond , low side to point \diamond .	A7	"
8.	"	44KC	Volume	-DC probe to point \diamond , low side to point \diamond .	A8	"

NOTE: Readjust Distance Selector control for proper sensitivity with a transmitter known to operate correctly. Fifteen-Twenty feet is normal operating distance.

REMOTE CONTROL TRANSMITTER

Use a fresh battery in Transmitter. Use an 11A9N receiver known to be aligned correctly and operating properly. Turn Receiver Distance Selector control to MINIMUM (counterclockwise). Test points given are on receiver. Maintain VTVM low side to Point \diamond .

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
				ON RECEIVER	Transmitter	
1.	Maintain distance between transmitter and receiver, or tape over microphone so receiver is not saturated.	35KC	Channel Selector	-DC probe to point \diamond . Maintain low side of VTVM to receiver point \diamond on all adjustments.	A9	Adjust A9 for maximum indication on VTVM.
2.	"	36.5KC	Tint-CCW (Down)	-DC probe to point \diamond .	A10	Adjust for maximum indication on VTVM.
3.	"	38KC	Tint-CW (Up)	-DC probe to point \diamond .	A11	"
4.	"	39.5KC	Color-Min. (Down)	-DC probe to point \diamond .	A12	"
5.	"	41KC	Color-Max. (Up)	-DC probe to point \diamond .	A13	"
6.	"	42.5KC	On-Off	-DC probe to point \diamond .	A14	"
7.	"	44KC	Volume	-DC probe to point \diamond .	A15	"

NOTE: Readjust Distance Selector control so that Transmitter will operate Receiver from 15 to 20 feet away.

PHOTOFACT® Folder

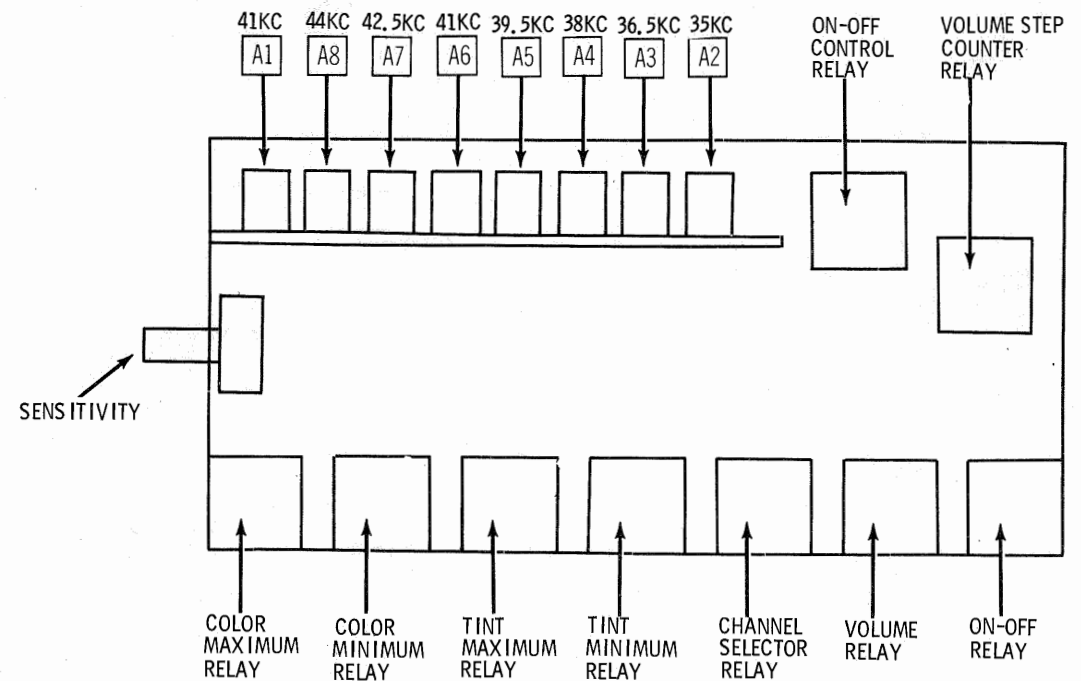
ADMIRAL REMOTE CONTROL
RECEIVER 11A9N, TRANSMITTER S376AN

IMPORTANT FILING NOTICE

This PHOTOFACT Folder covers equipment used with the TV chassis covered in PHOTOFACT SET 1153 FOLDER 1. File this Folder with the TV Folder in the yellow filing jacket provided.

SET 1153 FOLDER 1-A

ADMIRAL REMOTE CONTROL
RECEIVER 11A9N, TRANSMITTER S376AN



TRADE NAME	Admiral
SUPPLIER	For current address, see Annual Index.
TYPE SET	Remote Receiver Chassis 11A9N (Preamp Chassis 3A9N and Relay Unit Chassis 8A9N), Remote Transmitter S376AN
TRANSISTORS	Twelve
POWER SUPPLY	110-120 Volts AC, 60 Cycles

ADMIRAL REMOTE CONTROL
RECEIVER 11A9N, TRANSMITTER S376AN

REMEMBER TO ASK— "What else needs fixing?"

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206



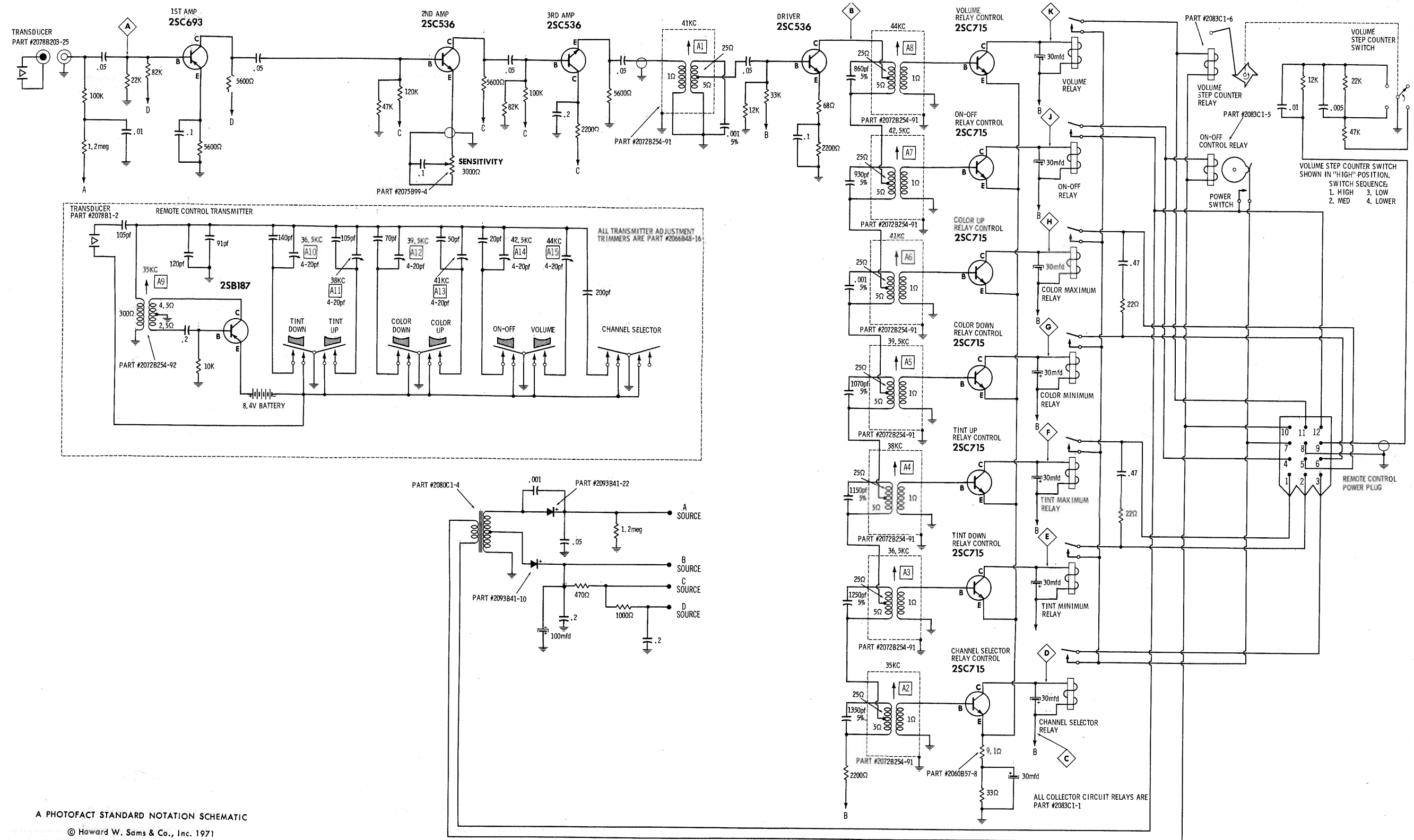
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SET 1153 FOLDER 1-A

SET 1153 FOLDER 1-A



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ADMIRAL REMOTE CONTROL
RECEIVER 11A9N, TRANSMITTER S376AN

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