

**CABINET—REAR VIEW**

## DISASSEMBLY INSTRUCTIONS

### CHASSIS REMOVAL

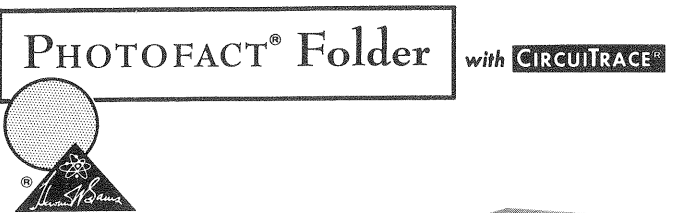
1. Remove rear cover and the control knobs from front of cabinet.
2. Disconnect speaker wires from output transformer, high voltage anode lead, convergence board power plug, picture tube socket, yoke wires, and antenna leads from antenna terminal board.
3. Remove 4 chassis screws from bottom of cabinet, and remove 3 lock nuts from the front of the vertical, horizontal and contrast controls.
4. Remove 5 screws from tuner mounting bracket and remove chassis and tuner assembly.

### PICTURE TUBE REMOVAL

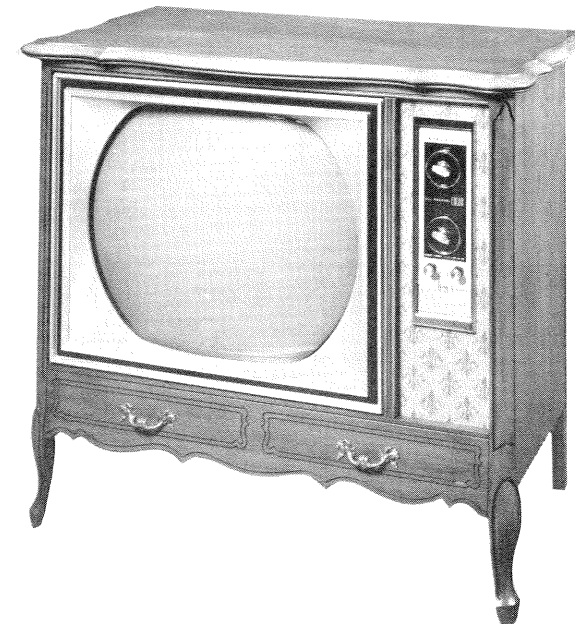
1. Follow "Chassis Removal" instructions and remove convergence board and components from picture tube neck.
2. Lay cabinet face down on soft protective surface and remove picture tube shielding mask.
3. Remove nut from each corner of picture tube mounting bracket and remove picture tube.

SET 766 FOLDER 4

PHILCO  
CHASSIS 15M91



**PHILCO  
CHASSIS 15M91**



MODEL UN5434CH

TRADE NAME	PHILCO	Models	Chassis
		UN5428MB/WA, UN5430SMA/SMB/SWA, UN5432MA/WA, UN5433MA/MB/WA, UN5434CH/MA/MB/WA, UN5436WA, UN5440MA/WA .....	15M91
SUPPLIER	For current address, see Master Index.		
TYPE SET	Color Television Receiver		
TUBES	VHF - Twenty-Six, UHF - One Transistor		
POWER SUPPLY	110-120 Volts AC, 60 Cycle		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Inter-carrier)		
		RATING	320 Watts, 3.1 Amps. @ 117 Volts AC

## SERVICING IN THE FIELD

### SAFETY GLASS

The safety glass is an integral part of the picture tube.

### FUSE OR FUSE DEVICE

A 2" length of fuse wire is used for filament protection. (For location, see M1 in photo "Chassis - Bottom View".)

### VHF OSCILLATOR ADJUSTMENT

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

### AGC

The AGC may be varied by means of an AGC Control. (See "Tube Placement Chart" for location.)

### HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the horizontal hold is accomplished

by the proper setting of the Horizontal Oscillator and Wave-form Coil. (See "Tube Placement Chart" for location.)

### SYNC STABILITY

Sync stability may be varied by means of a Noise Control. (See "Tube Placement Chart" for location.)

### CENTERING

Centering is accomplished by a Horizontal and Vertical centering control at rear of chassis.

### HORIZONTAL LINEARITY

The linearity may be varied by a Horizontal Efficiency Coil.

### FOCUS

The focus may be varied by means of a Focus Control. (See "Tube Placement Chart" for location.)

**HOWARD W. SAMS & CO., INC.** Indianapolis 6, Indiana

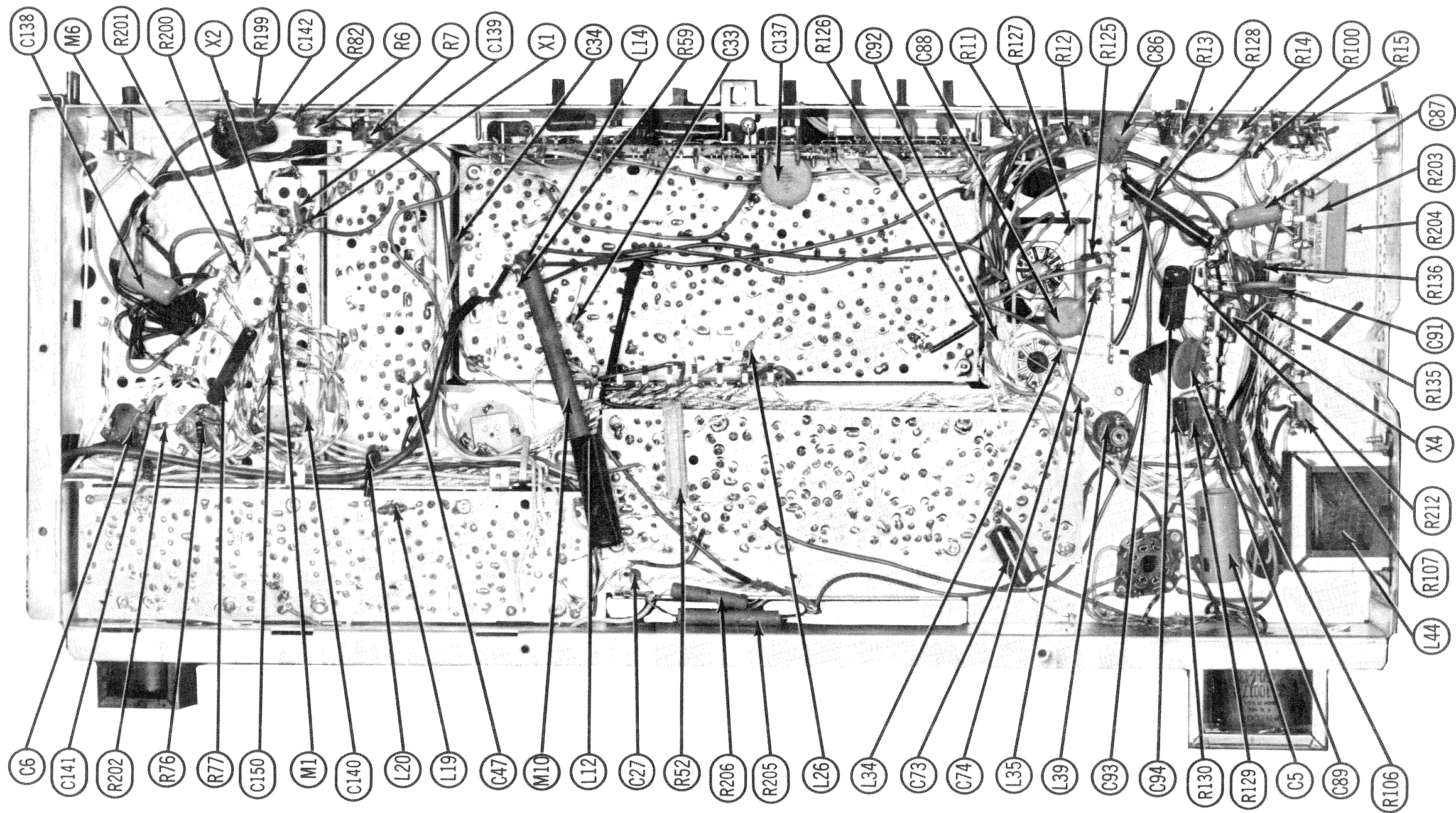


The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. NB346

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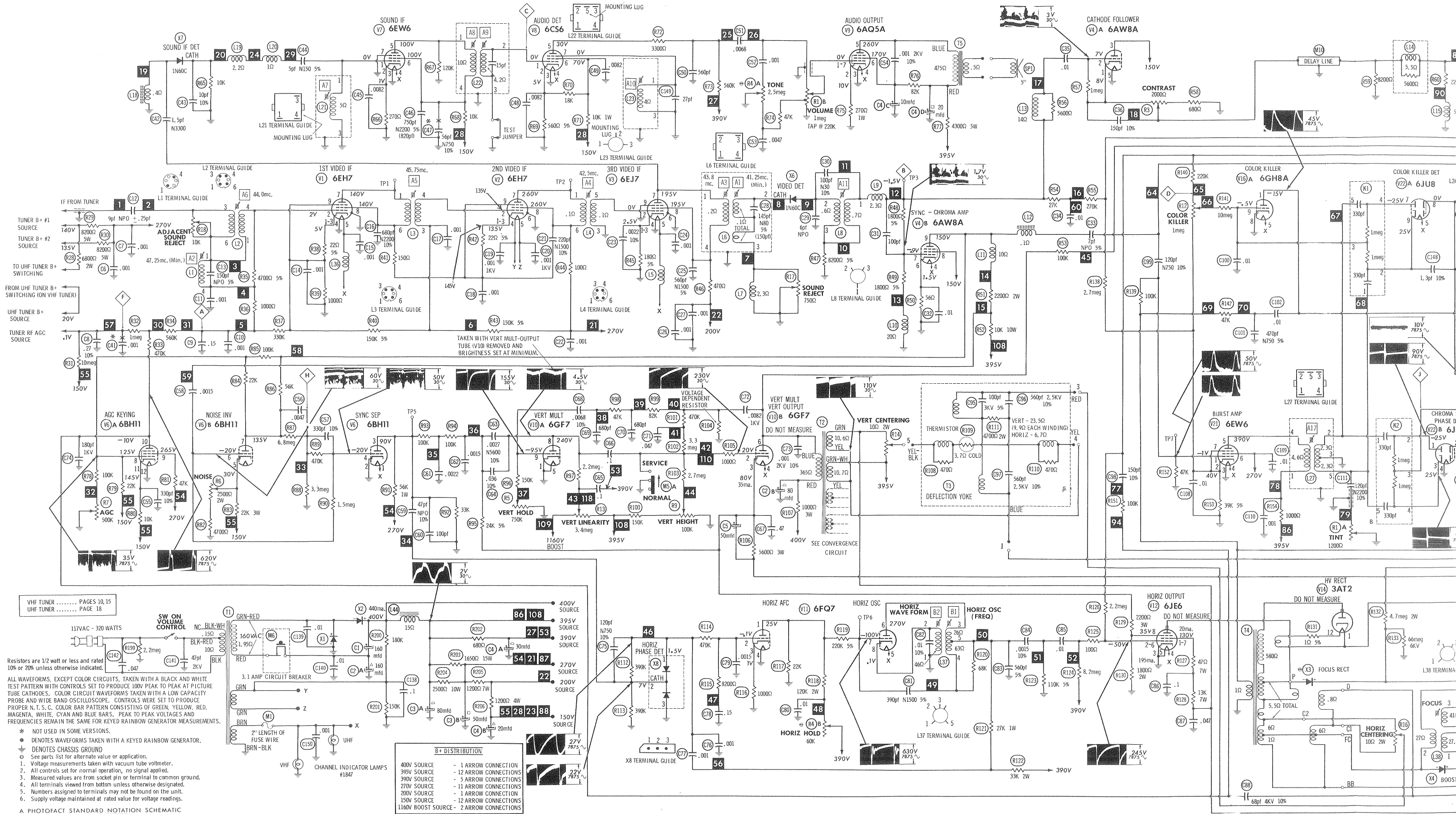
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CHASSIS — BOTTOM VIEW

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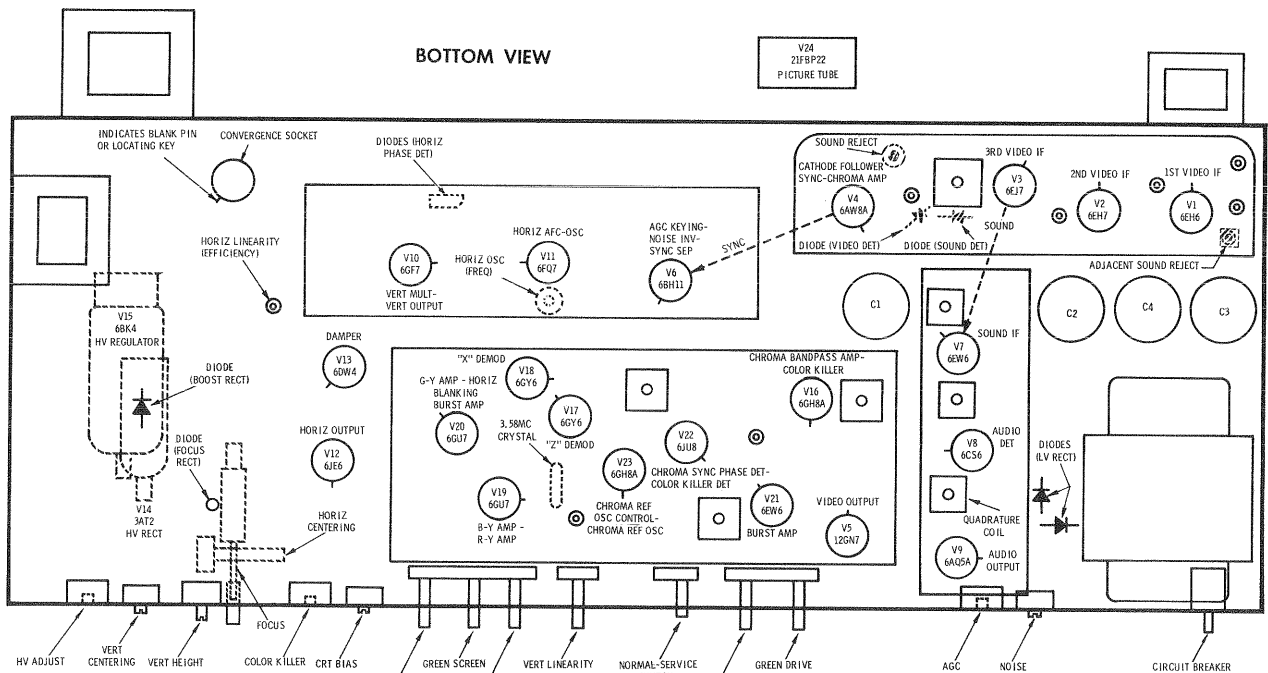




RESISTANCE MEASUREMENTS

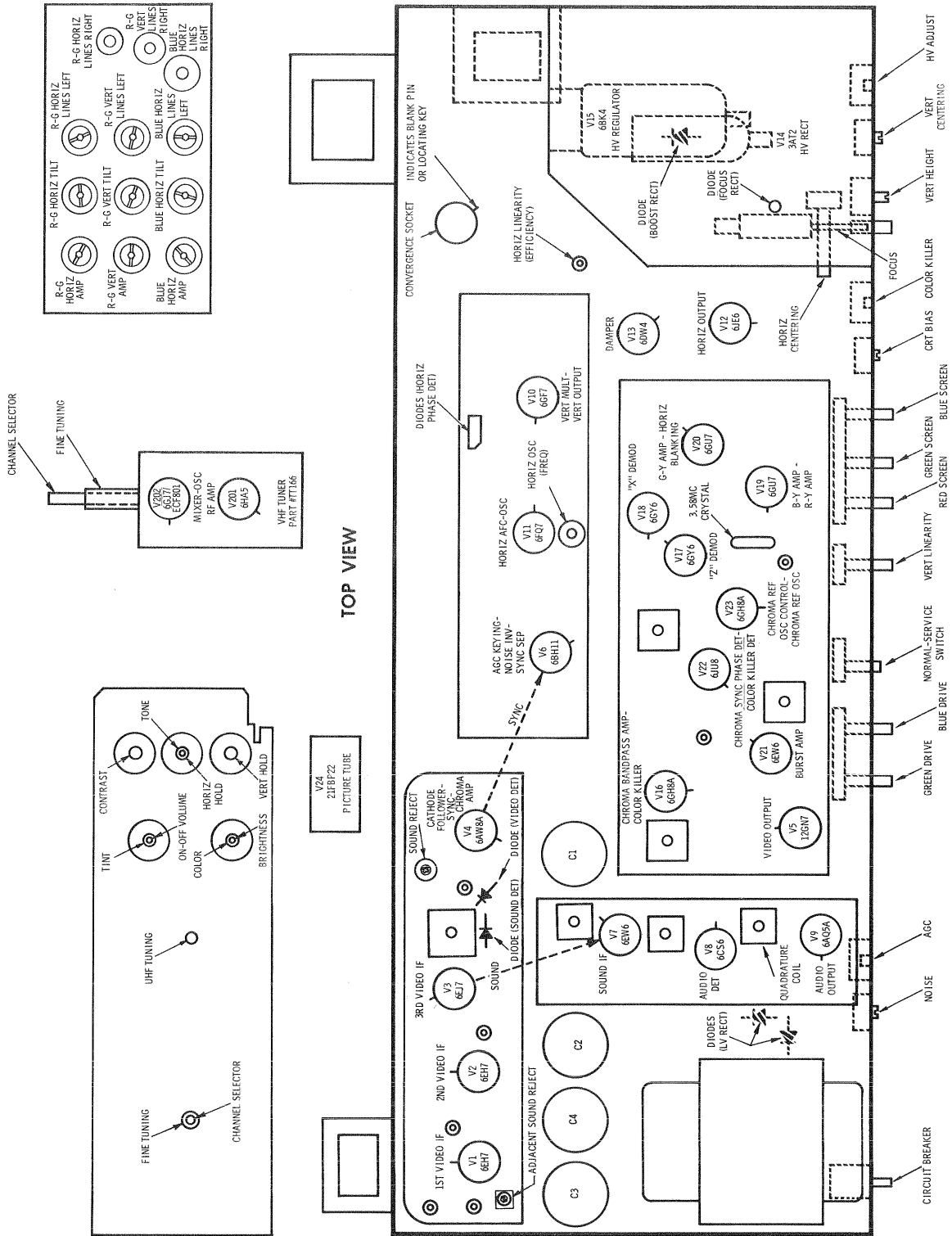
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12
V1	6EH7	1022Ω	350K	1022Ω	FIL	FIL	0Ω	172Ω	172Ω	1000Ω			
V2	6EH7	INF	80K ↑	INF	FIL	FIL	0Ω	1100Ω ↑	1100Ω ↑	22Ω			
V3	6EJ7	180Ω	0Ω	180Ω	FIL	FIL	0Ω	2685Ω ↑	2685Ω ↑	0Ω			
V4	6AW8A	1650Ω	1meg	3400Ω ↑	FIL	FIL	56Ω	1000Ω	3400Ω ↑	12K ↑			
V5	12GN7	250K	309K	0Ω	FIL	FIL	FIL	7025Ω ↑	3400Ω ↑	0Ω			
V6	6BH11	FIL	0Ω	20K	3meg	5500Ω	4.8meg	28K ↑	33K ↑	11K ↑	1.3meg	25K ↑	FIL
V7	6EW6	5Ω	270Ω	FIL	FIL	13K ↑	13K ↑	0Ω					
V8	6CS6	4.2Ω	560Ω	FIL	FIL	563K ↑	9000Ω ↑	4Ω					
V9	6AQ5A	50K	270Ω	FIL	FIL	4775Ω ↑	86K ↑	50K					
V10	6GF7	0Ω	3meg	2100Ω	FIL	FIL	1350Ω ↑	NC	2.8meg ↑	415K			
V11	6FQ7	16K	1.3meg	1000Ω	FIL	FIL	60K ↑	220K	56Ω	0Ω			
V12	6JE6	13K ↑	1.9meg	0Ω	FIL	FIL	1.9meg	13K ↑	1450Ω ↑	NC			TOP CAP 12Ω #
V13	6DW4	NC	28Ω ↑	NC	FIL	FIL	NC	28Ω ↑	NC	2.7meg			
V14	3AT2												TOP CAP 500Ω #
V15	6BK4	1000Ω ↑	FIL	NC	NC	1.5meg #	NC	FIL	NC				TOP CAP INF
V16	6GH8A	370K	270K	4400Ω ↑	FIL	FIL	3165Ω ↑	390Ω	0Ω	12meg			
V17	6GY6	33Ω	100Ω	FIL	FIL	5565Ω	3455Ω ↑	2Ω					
V18	6GY6	33Ω	150Ω	FIL	FIL	5565Ω ↑	3455Ω ↑	.1Ω					
V19	6GU7	27K ↑	1meg	270Ω	FIL	FIL	27K ↑	1meg	270Ω	0Ω			
V20	6GU7	22K ↑	300K	390Ω	FIL	FIL	27K ↑	1meg	250Ω	0Ω			
V21	6EW6	33K	39K	FIL	FIL	1015Ω ↑	1015Ω ↑	39K					
V22	6JU8	1meg ▲	220Ω	1meg ▲	FIL	FIL	0Ω	12meg	22K	12meg			
V23	6GH8A	20K ↑	47K	48K ↑	FIL	FIL	7815Ω ↑	0Ω	680Ω	INF			
V24	21FP22	FIL	130K ↑	700K	7500Ω ↑	5000Ω ↑	150K ↑	700K	NC	90meg #	NC	700K	140K ↑
						Pin 13 5000Ω ↑	Pin 14 FIL						
V201	6HA5	1.7meg	0Ω	FIL	FIL	12K ↑	0Ω	0Ω					
V202	6GJ7	0Ω	220K	0Ω	FIL	FIL	11K ↑	23K ↑	29K ↑	10K			

● READING DEPENDS ON POLARITY OF METER CONNECTIONS.  
↑ MEASURED FROM OUTPUT OF X2.  
† MEASURED FROM PIN 9 OF V13.  
NC NO CONNECTION  
# MEASURED FROM PIN 1-3 OF V2.  
▲ MEASURED FROM PIN 9 OF V23.  
+ MEASURED FROM CATHODE OF X4



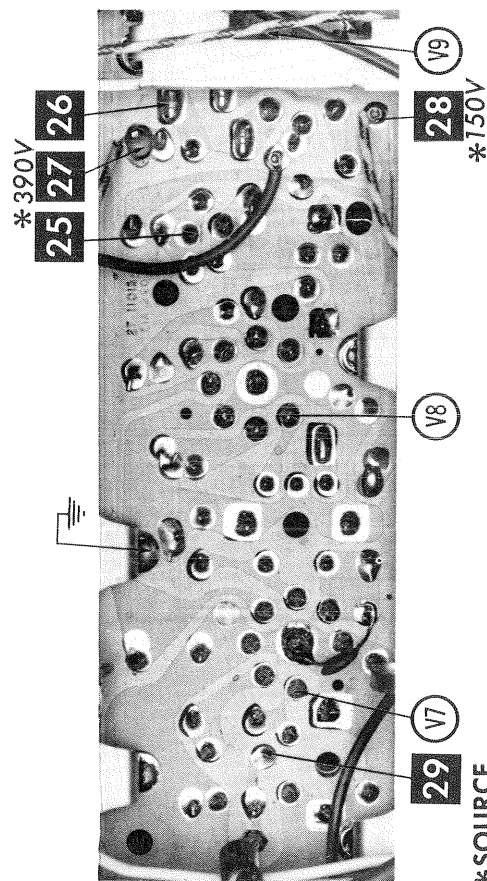
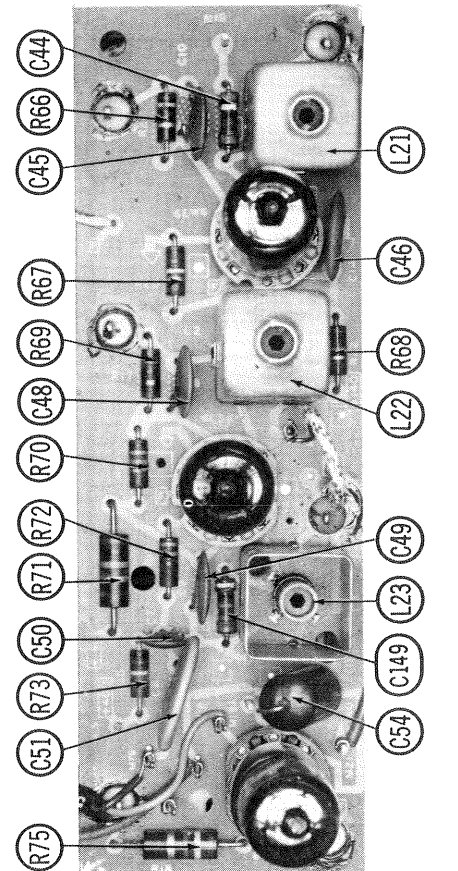
TUBE PLACEMENT CHART

TUBE PLACEMENT CHART

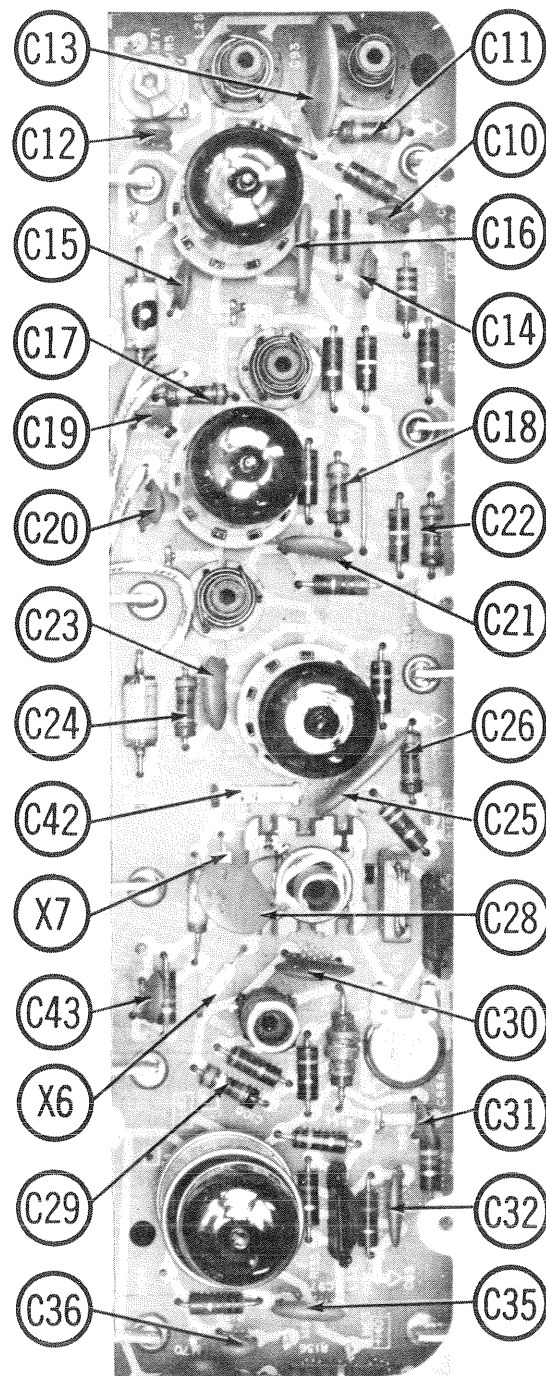
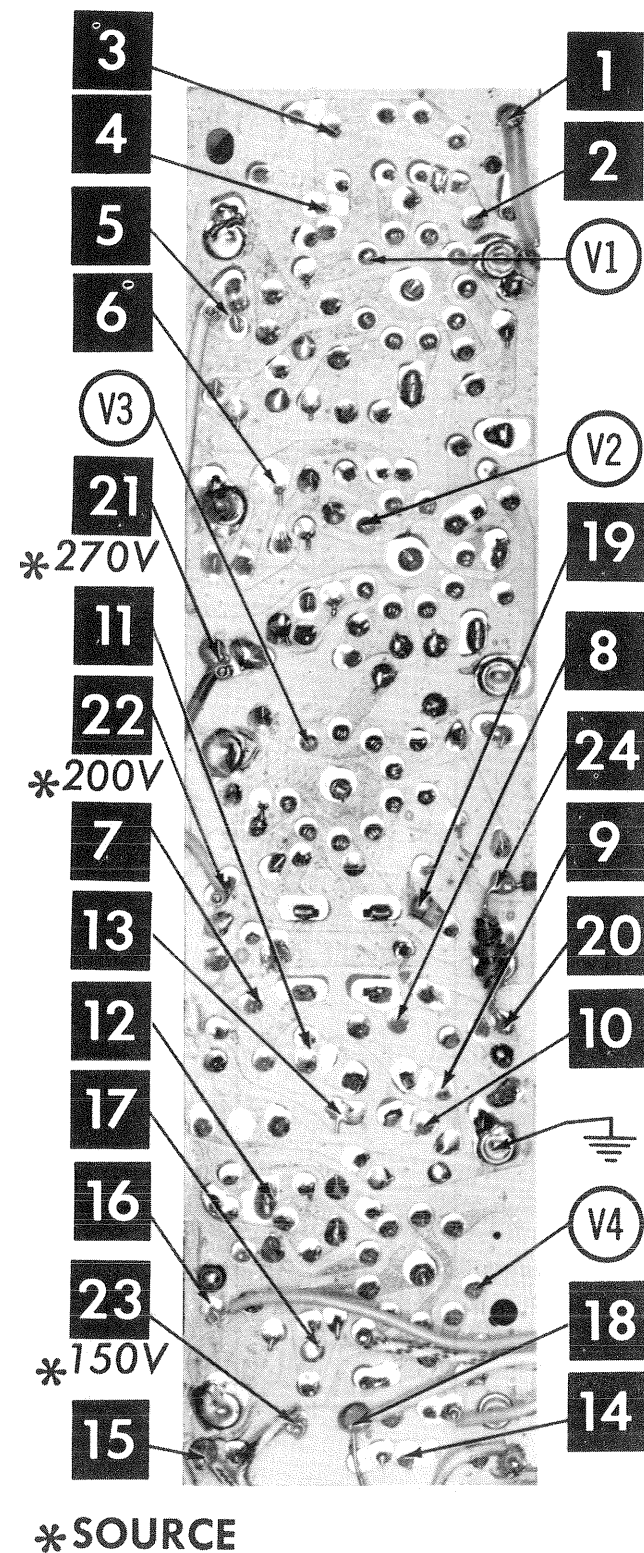


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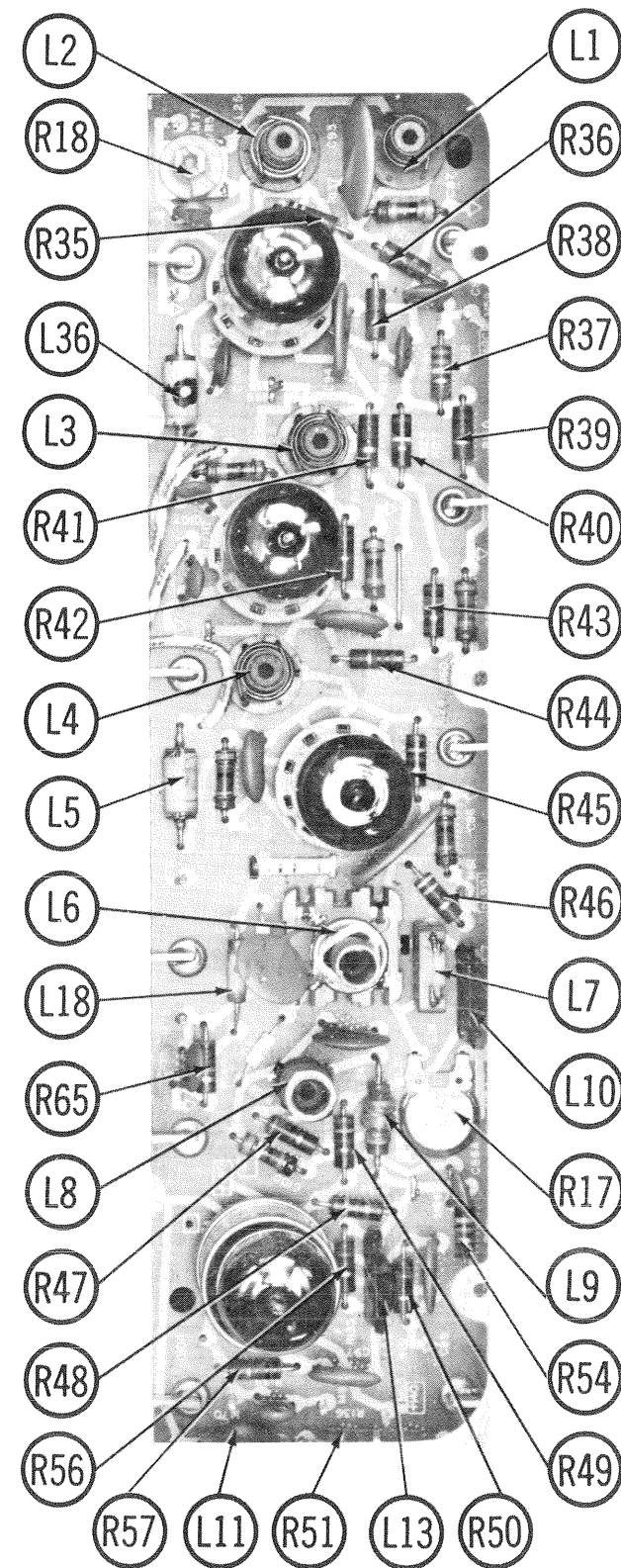
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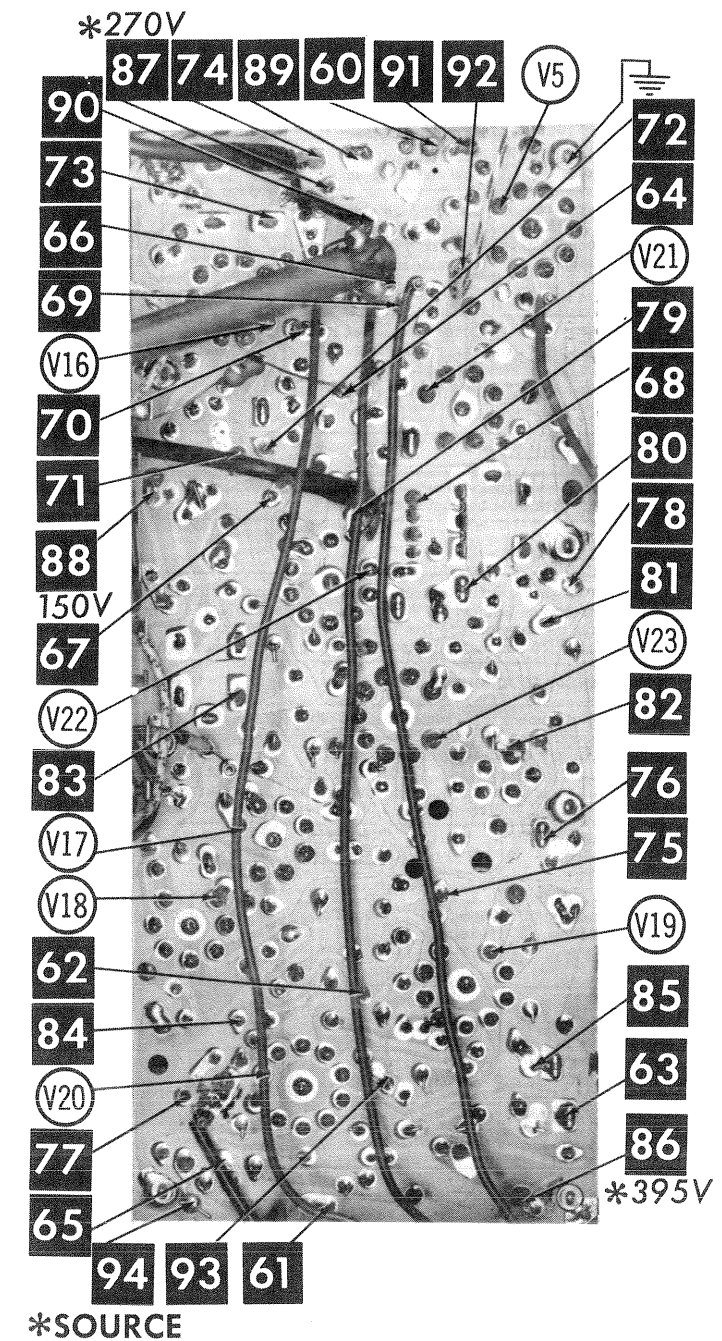
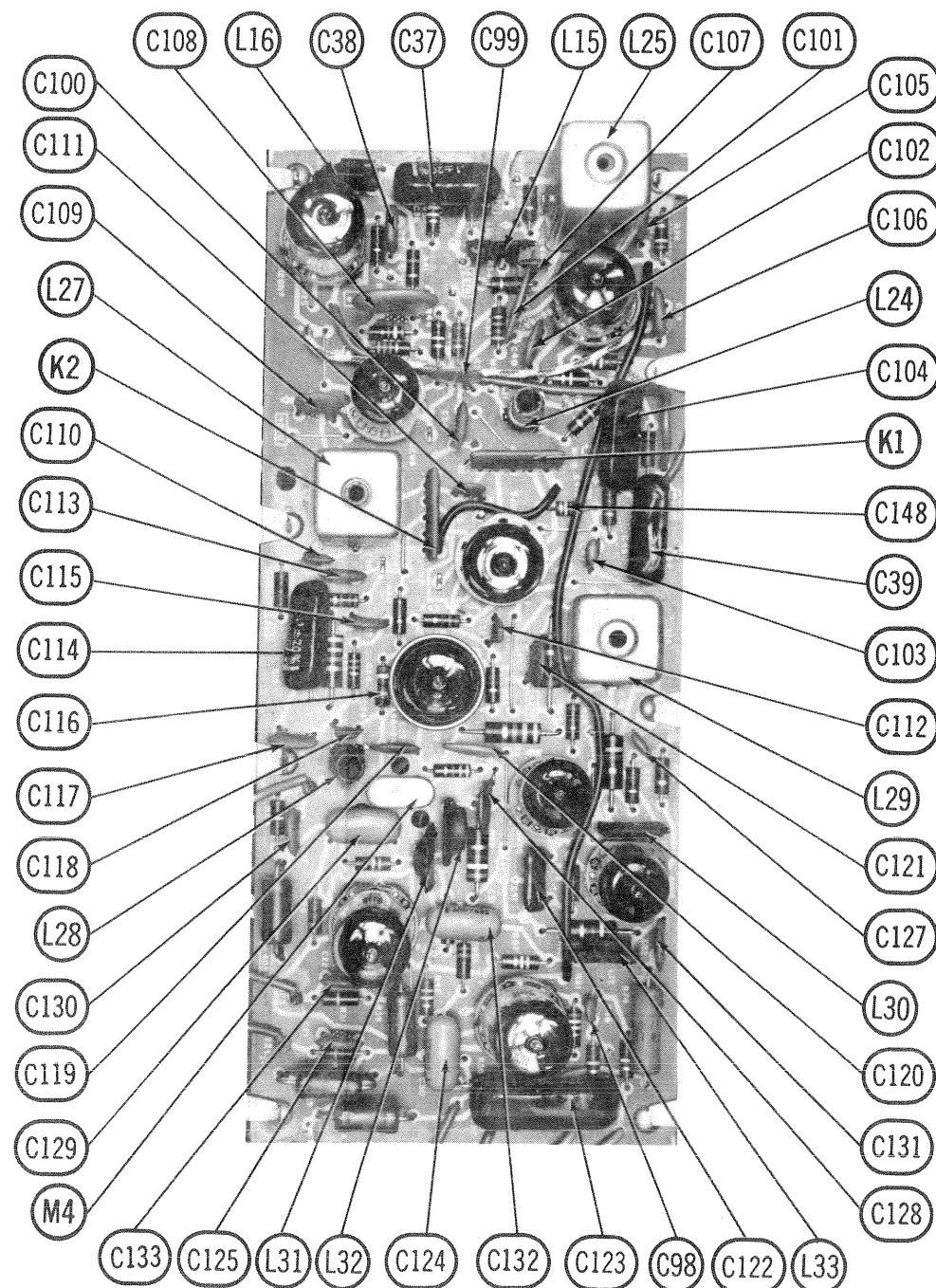
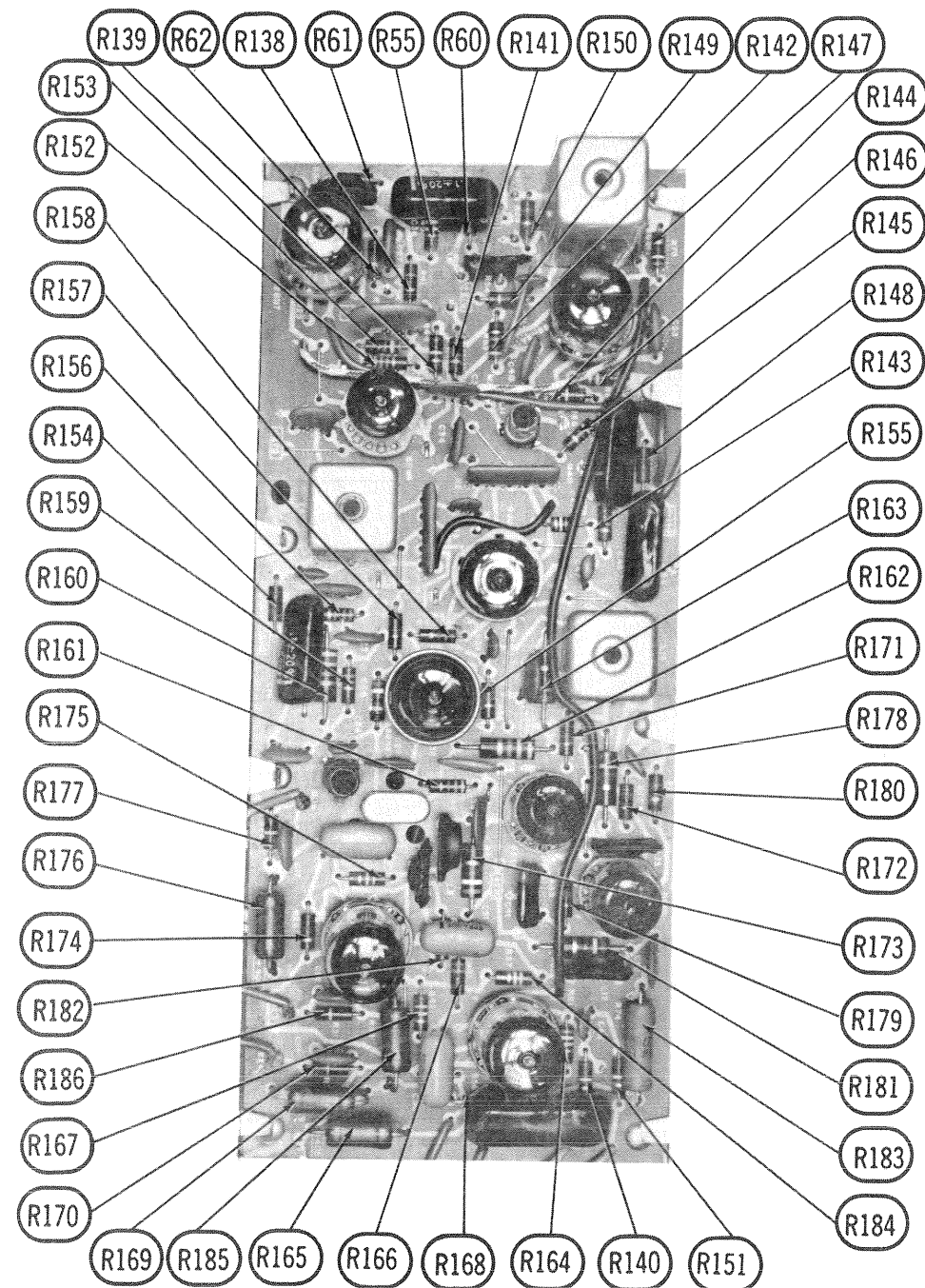
SOUND IF PRINTED BOARD



VIDEO IF PRINTED BOARD







VIDEO OUTPUT, COLOR CIRCUIT PRINTED BOARD

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FOLDER 4



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 A11, Mixer Plate Coil ..GENERAL CEMENT #8606, 8606L, 8869 ..WALSCO #2543, 2544, 2583

VIDEO IF ALIGNMENT

Connect a 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 A ) and adjust for approximately -7 VDC to obtain a response curve which shown no indication of overload. Disable Oscillator section of Mixer-Osc. Remove jumper from pin 3, Horizontal Output Tube (V12). 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 B . Common to ground.	Connect high side to Mixer Grid Test Point on Tuner. Low side to ground.		41.25MC 47.25MC	A1, R17 A2, R18	Adjust for MINIMUM. Keep cores of L6 (A1) and L1 (A2) at coil end away from board.
2.	Connect DC probe of a VTVM thru a 47K resistor to point C . Common to ground.	Connect high side to Mixer Grid Test Point on Tuner. Low side to ground.		43.8MC 42.5MC 45.75MC 44.0MC	A3 A4 A5 A8, Mixer Plate Coil	Adjust for maximum with cores nearest top of coils.
3.	Connect vertical input of a scope to point D . Low side to ground.	Connect high side to Mixer Grid Test Point on Tuner. Low side to ground.	44MC (10MC Sweep)	41.25MC 42.17MC 42.75MC 45.0MC 45.75MC 47.25MC	A3, A4, A5, A6, Mixer Plate Coil	Adjust for maximum amplitude and MINIMUM tilt with markers as shown in Figure 1.

4.5 MC TRAP ALIGNMENT

Tune in a strong TV signal and set the Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible on the screen. Adjust A11 for MINIMUM beat interference.

SOUND IF ALIGNMENT

Connect a VTVM thru a detector probe to point E , pin 1 Audio Detector (V8) . Tune in a TV station and adjust A7, A7 and A9 for maximum deflection. Remove VTVM. Reduce the signal at the antenna terminals until distortion occurs in the sound. Adjust A10 clockwise from the fully out position to the second peak for maximum sound. Continue to reduce the signal and adjust A10 for MINIMUM distortion and maximum sound until no further improvement can be made.

CHROMA BANDPASS ALIGNMENT

The following alignment will require the use of an RF Modulator (RCA WG304A or equivalent). Connect a -15 volt supply to pin 2 of Horizontal Blanking Amp. (V20). Connect a -15 volt supply to point F , off pin 9 Color Killer (V16). Connect a -2 volt supply to point G , off pin 2 Chroma Bandpass Amp. (V16). Connect a -3 volt supply to point H , off pin 10 Noise Inverter & AGC Keying (V6), positive of all supplies to ground. Connect a jumper from point I , off pin 2, 1st Video IF Amp. (V1) to ground. Open Cathode curcuit of Horizontal Output Tube (V12). Turn Color Intensity to maximum. Suggested Alignment Tools: A12, A13, A14 ... GENERAL CEMENT #8606, 8606L, 8869 ... WALSCO #2543, 2544, 2588

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .1mfd to grid of Bandpass Amp. (V16). Low side to ground.	3.58MC (3-5MC Sweep)	3.08MC 4.08MC		Vert. Amp. thru Detector Probe to Pin 1 of demodulators point I , low side to ground.	A12, A13	Adjust for response curve similar to Fig. 2.
5.	High side of sweep gen. to Video Sweep Input of RF Modulator. High side of signal gen. (set at 45.75MC) to picture carrier input of RF Mod. to Mixer grid test point on tuner. Low side to ground.	Sweep generator to 3MC (6MC Sweep)	"		"	A14	Adjust for response curve similar to Fig. 3. If necessary, retouch A12 (Top slug) to flatten top of response.

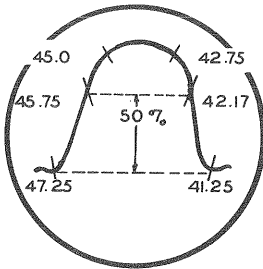


FIG. 1

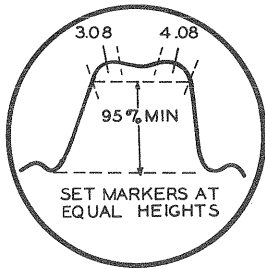


FIG. 2

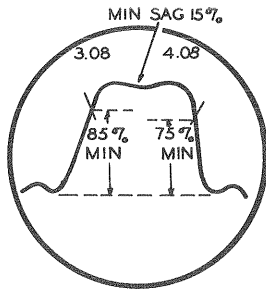
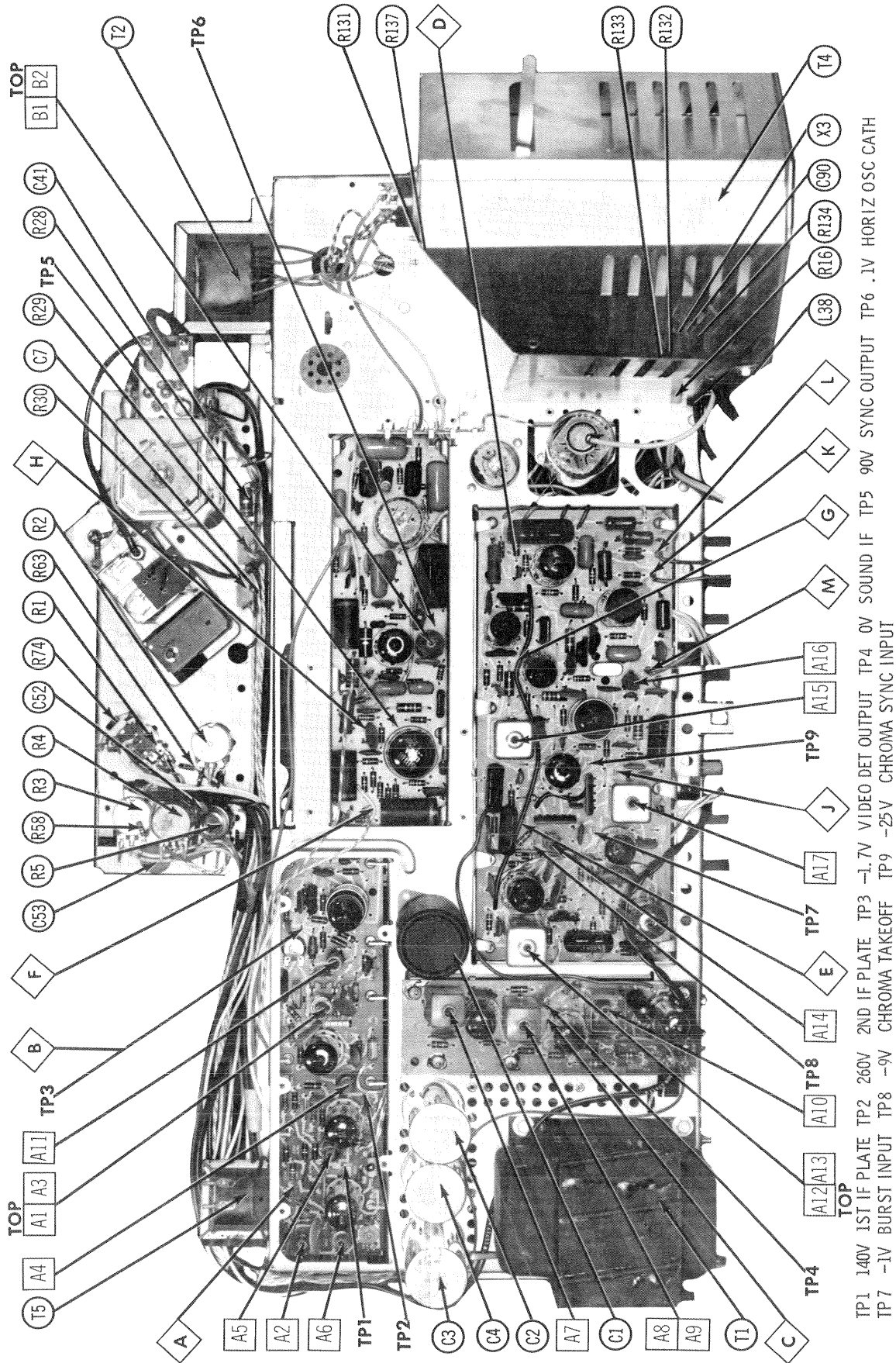


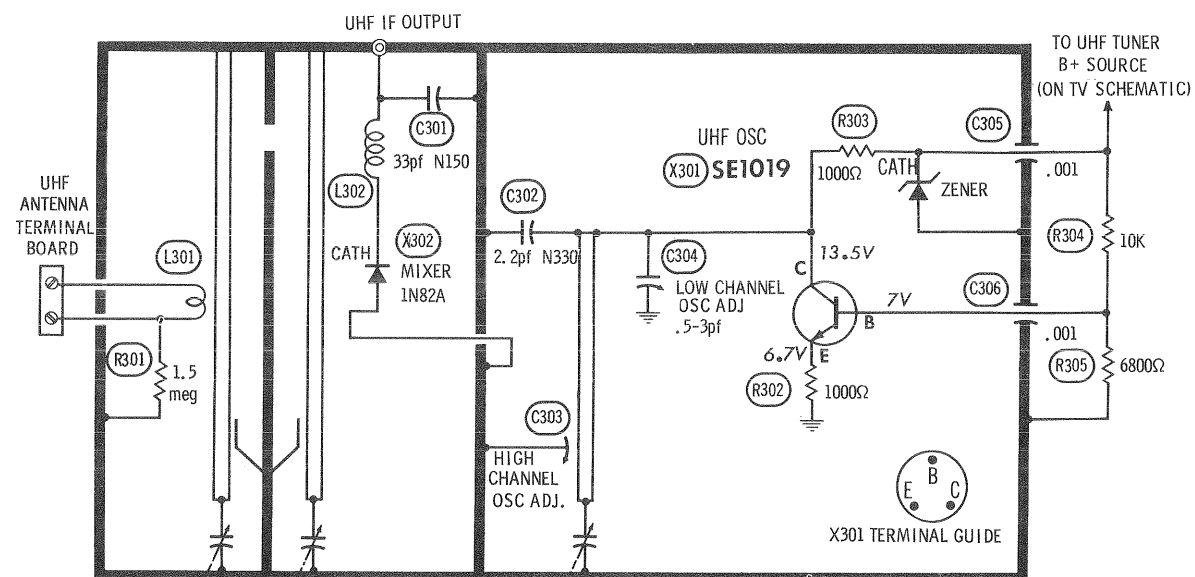
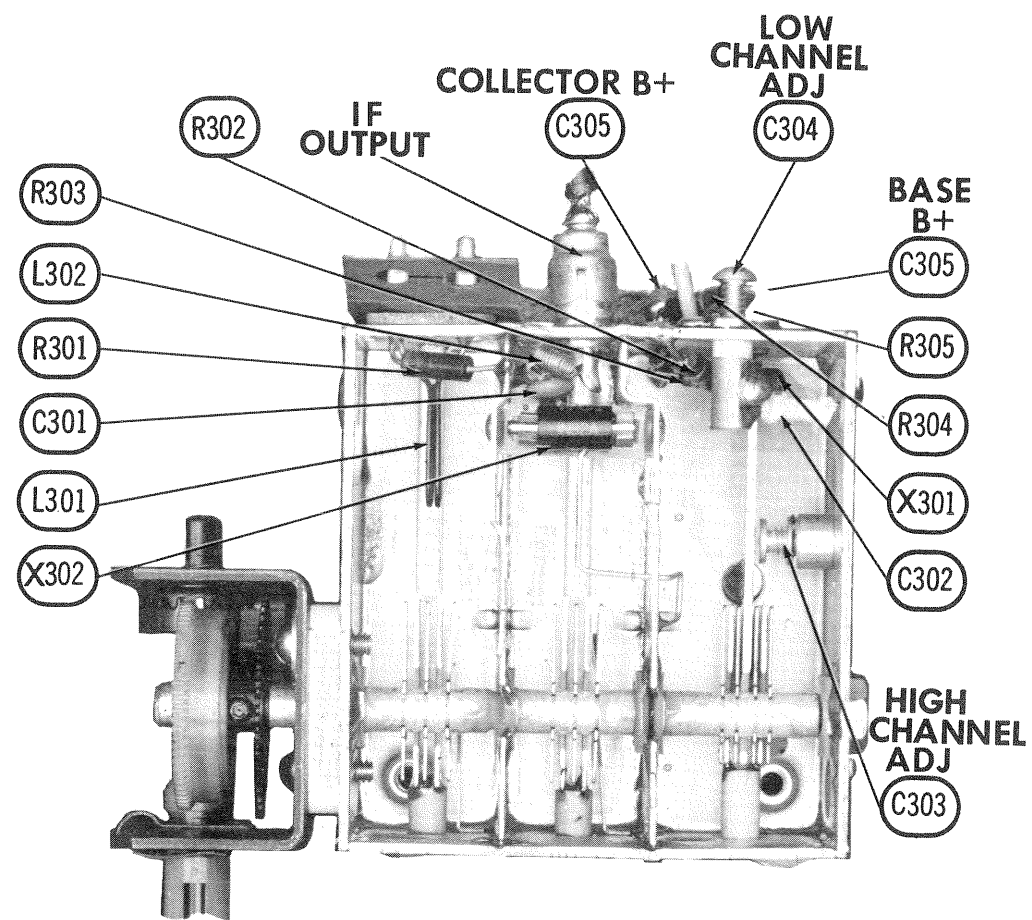
FIG. 3



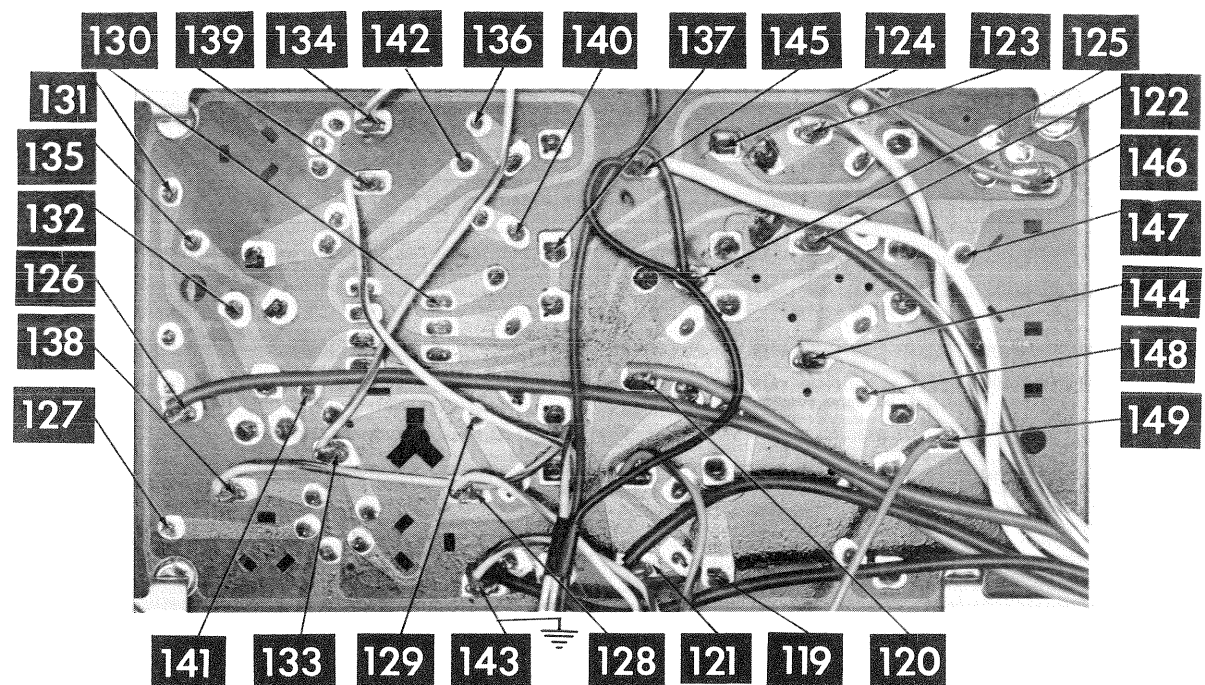
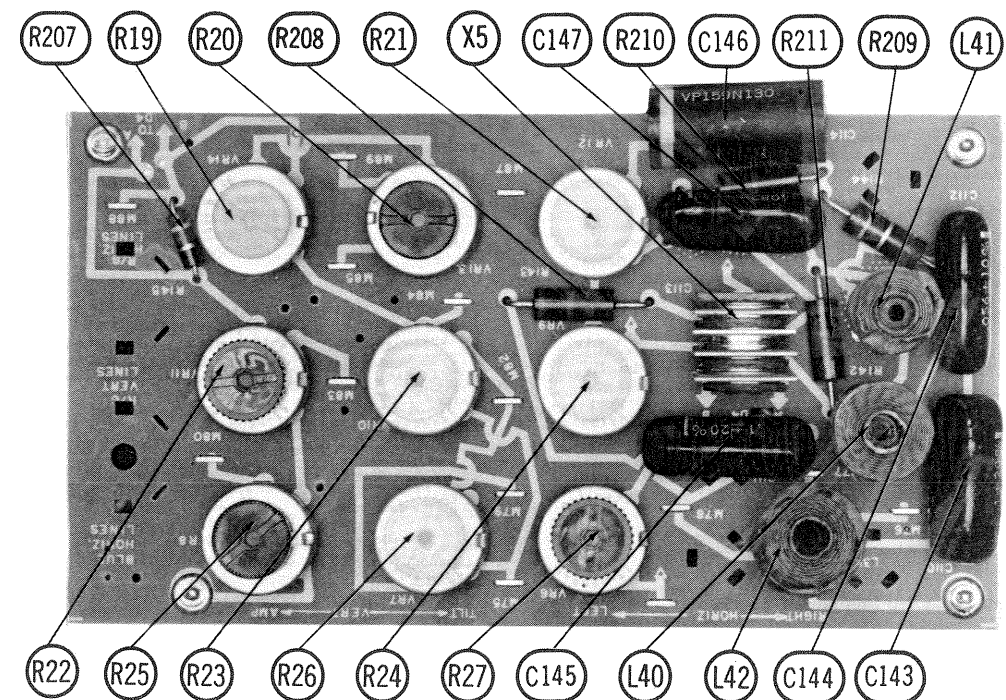
TP1 140V 1ST IF PLATE TP2 260V 2ND IF PLATE TP3 -L7V VIDEO DET OUTPUT TP4 0V SOUND IF TP5 90V SYNC OUTPUT TP6 .1V HORIZ OSC CATH  
TP7 -IV BURST INPUT TP8 -9V CHROMA TAKEOFF TP9 -25V CHROMA SYNC INPUT

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FOLDER 4



UHF TUNER TT-155C (76-13588-4)



CONVERGENCE PANEL

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

CONNECT:

A 0-500 MA meter in series with cathode lead of horizontal output tube.  
A .47 mfd capacitor across meter.  
A VTVM across HV Regulator Tube (6BK5A) cathode resistor, R212 (1000Ω).  
A VTVM thru a High Voltage probe to picture tube anode connector, point ⬢, pin 4 Sync Separator (V6) to ground.  
A short across Horizontal Oscillator cathode coil (pin 8 to ground).

Tune in a TV station and set all controls for normal operation. Set the Horizontal Hold control to the center of its range. Adjust B1 until the picture floats with blanking bars vertical. Remove the short from the Horizontal Oscillator cathode and adjust B2 until the picture floats horizontally. Remove the short from point ⬢. Adjust the Horizontal Linearity Coil for MINIMUM current in the Horizontal Output Tube. (Current should not exceed 210MA.)

Adjust the High Voltage control for 24KV on picture tube anode with normal brightness. Check the voltage on the VTVM across the HV Regulator Tube cathode resistor. This voltage should be at least 1 volt with MINIMUM brightness. If voltage is less than 1 volt, turn Horizontal Linearity slug one-half turn clockwise. Check to see that the Horizontal Output current does not exceed 210 MA. If foldover occurs in picture, adjust Horizontal Linearity clockwise to eliminate foldover while checking to make sure horizontal output current does not exceed 210 MA.

Adjust Focus, Height and Vertical Linearity controls.

AGC ADJUSTMENT

Tune in a strong TV station and advance AGC control until instability appears in the picture (pulling, jitter, overload, etc.). Reduce control to the point just below the instability and check all available stations for proper AGC action.

COLOR AFC ALIGNMENT

Suggested Alignment Tools:

A15, A16, A17 ..... GENERAL CEMENT #8606, 8606L, 8869  
WALSICO #2543, 2544, 2583

Set the Killer Threshold control to fully counterclockwise. Set the Tint control to the center of its range.

Connect a Color Bar generator to the antenna terminals. Adjust receiver for normal reception. Short pin 1 of Burst Amp. (V21, TP7) to ground.

Connect DC probe of VTVM thru 470K to pin 1 of Phase Detector (V22, TP9). Adjust A15 for maximum deflection on VTVM. If no reading is obtained, oscillator is not operating. Adjust A16 to start oscillator,

then adjust A15 for maximum. Remove the short from pin 1 of Burst Amp. Adjust A17 for maximum deflection on VTVM. Make sure the oscillator is running and locked in.

Short point ⬢, off pin 9 Chroma Reference Oscillator control (V23) to ground. Remove VTVM. Adjust A16 until color bars stand still or drift slowly. Remove the short from point ⬢ and check to see that the color bars will "sync" with a low level input signal. If necessary, retouch A16 for best hold.

Connect the Vertical Input of a Scope to point ⬢, pin 2 of picture tube. Check for proper waveform with the Color Bar generator being used. See waveform on schematic for pattern obtained from a standard N.T.S.C. signal. Check range of the Tint control. The bars should move 30° either side of proper signal. If necessary, retouch A17 for proper range of control.

Check for proper waveform at G-Y and B-Y outputs (point ⬢, pin 6 of picture tube and point ⬢, pin 12 of picture tube. Tune in a weak signal or reduce the signal at the antenna terminals to obtain a snowy picture. Adjust Killer Threshold control to eliminate color in the snow. Check with a color signal to make sure the killer is not eliminating picture coloring.

PURITY ADJUSTMENTS

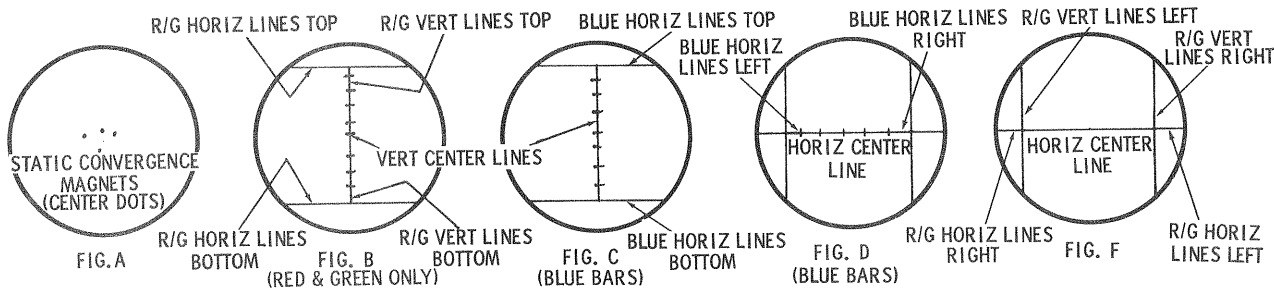
Perform step 1 of Convergence Adjustments. If the picture tube appears to be magnetized, use a degaussing coil to demagnetize tube and mounting brackets.

Shunt point ⬢, pin 6 picture tube and point ⬢, pin 12 picture tube to ground. Loosen the deflection yoke and move it rearward until it is against the convergence yoke assembly.

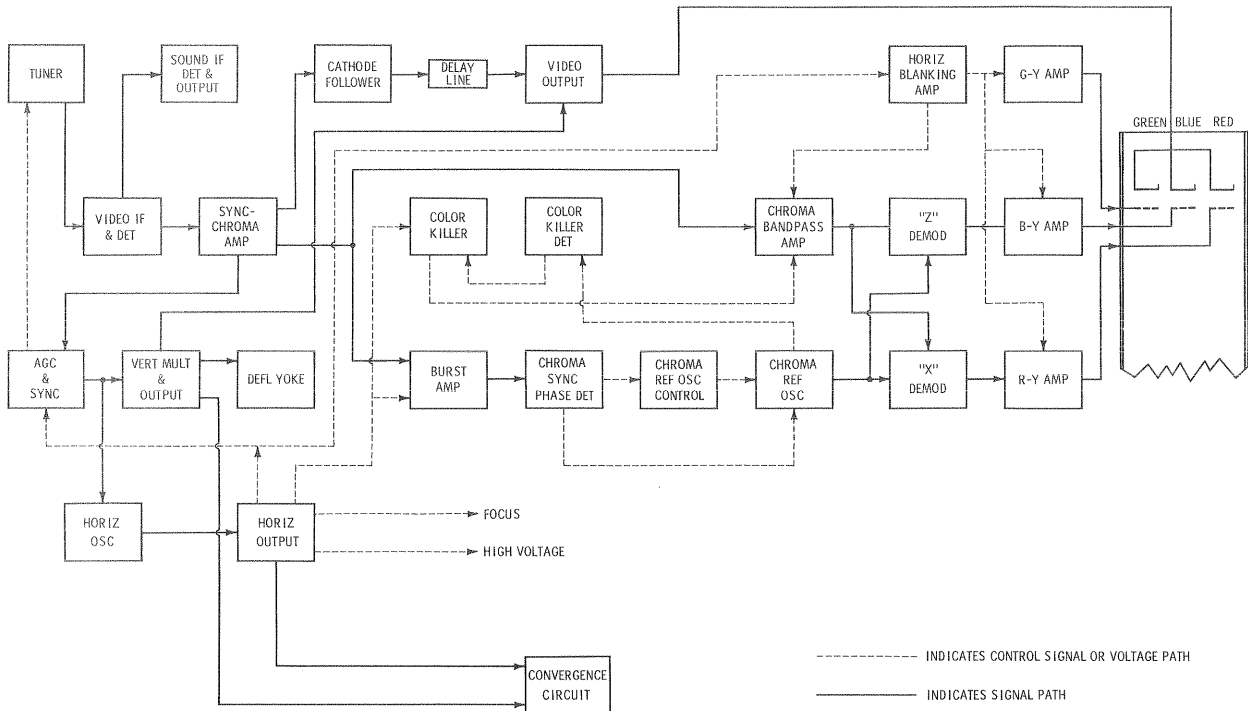
Adjust the tabs on the purity magnet ring, and rotate the assembly until a red spot appears at the center of the picture tube. Slide the deflection yoke forward to obtain a uniform red over entire picture tube face. A low power microscope is useful to observe the beam landings.

GRAY SCALE ADJUSTMENTS

Tune in a black and white picture or color picture with the Color control set at MINIMUM. Set the Brightness and Contrast controls to mid-range. Adjust the CRT Bias control fully counterclockwise. Move the "Normal-Service" switch to "Service" position. Advance the screen controls one at a time until each produces a barely visible line on the screen. If any control fails to produce a line, leave that control at "Maximum" and turn the other 2 controls back to MINIMUM. Advance the CRT Bias control until a barely visible line appears. Advance the remaining 2 controls one at a time until a barely visible line appears. Return the "Normal-Service" switch to "Normal". Adjust the Blue and Green Gain controls to eliminate coloring in the dark and bright areas of the picture.



CONVERGENCE ADJUSTMENTS			
Step	Control	Use to Converge (or Straighten)	Remarks
1.			Perform center dot convergence using convergence magnets. If more range is needed, reverse magnet holder in clip. See Fig. A.
2.	R-G Vertical Amp.	Red and Green vertical bars at bottom of screen.	Touch up both controls for best convergence from top to bottom along vertical center line (Fig. B).
3.	R-G Vertical Tilt	Red and Green vertical bars at top of screen.	
4.	R-G Horizontal Amp.	Red and Green horizontal bars at bottom of screen.	Touch up both controls for best convergence of horizontal bars along vertical center line (Fig. B).
5.	R-G Horizontal Tilt	Red and Green horizontal bars at top of screen.	
6.	Blue Horizontal Tilt	Blue horizontal bars at top of screen.	Touch up both controls for best convergence of horizontal bars along vertical center line (Fig. C).
7.	Blue Horizontal Amp.	Blue horizontal bars at bottom of screen.	
8.			Perform center dot static convergence (Fig. A).
9.	Blue Horizontal lines, Right	Blue horizontal bars at right side of screen.	Touch up both controls for best convergence along horizontal center line (Fig. D).
10.	Blue Horizontal lines, Left	Blue horizontal bars at left side of screen.	
11.	R-G Vertical lines, Right	Red and Green vertical lines at right side of screen.	(Fig. E).
12.	R-G Horizontal lines, Right	Red and Green horizontal bars at right side of screen.	Use control to converge blue bar with red and green bars on right side of screen (Fig. E).
13.	R-G Vertical lines, Left	Red and Green vertical bars at left side of screen.	(Fig. E).
14.	R-G Horizontal lines, Left	Red and Green horizontal bars at left side of screen.	Use control to converge blue bar with red and green bars at left side of screen (Fig. E).

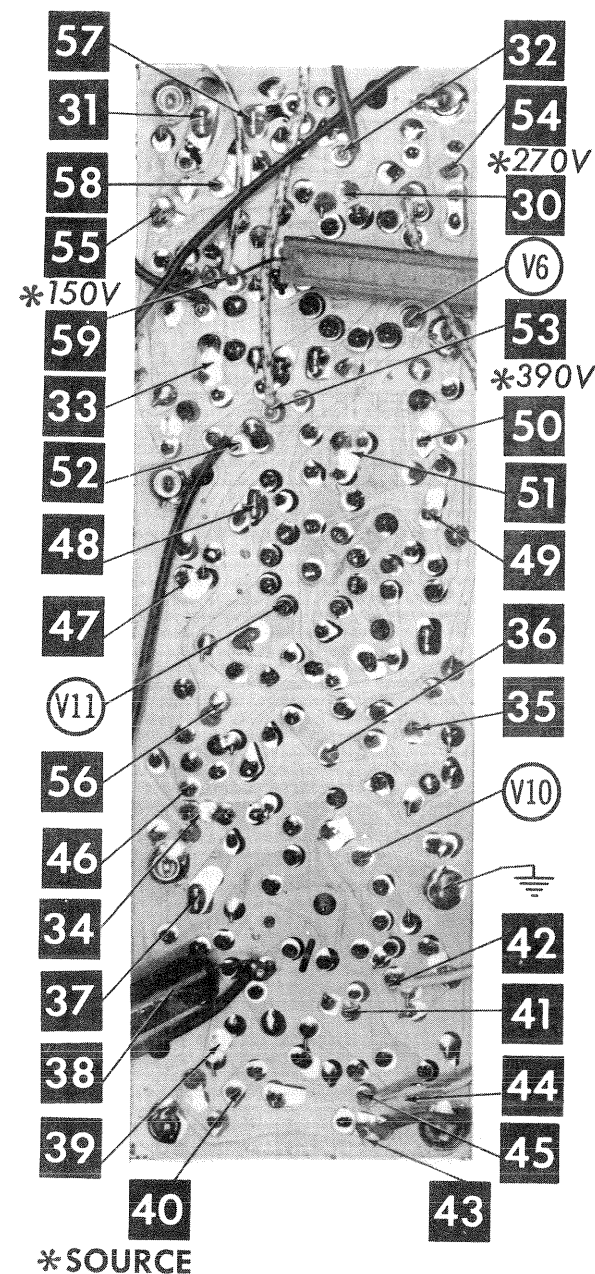


BLOCK DIAGRAM

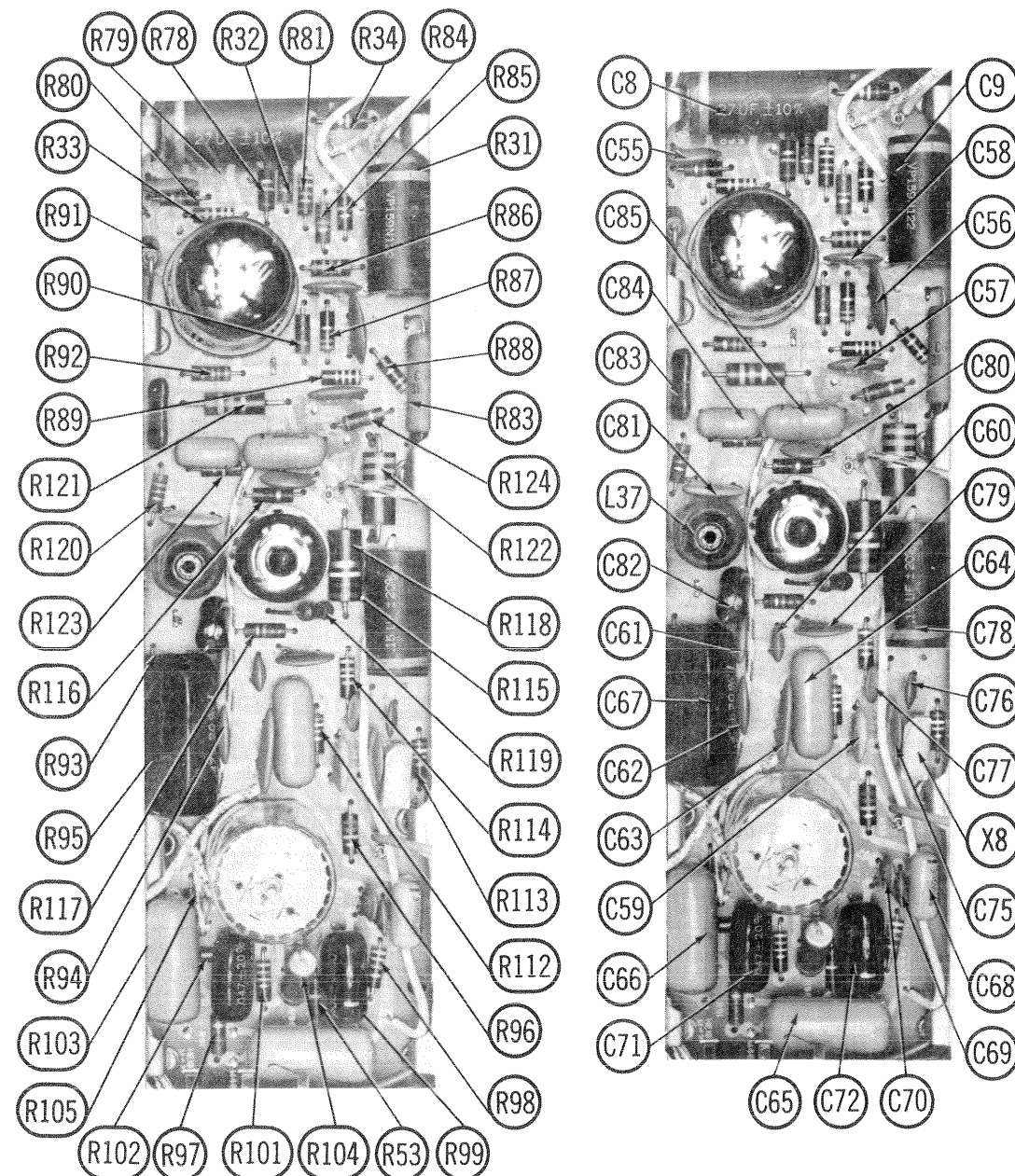
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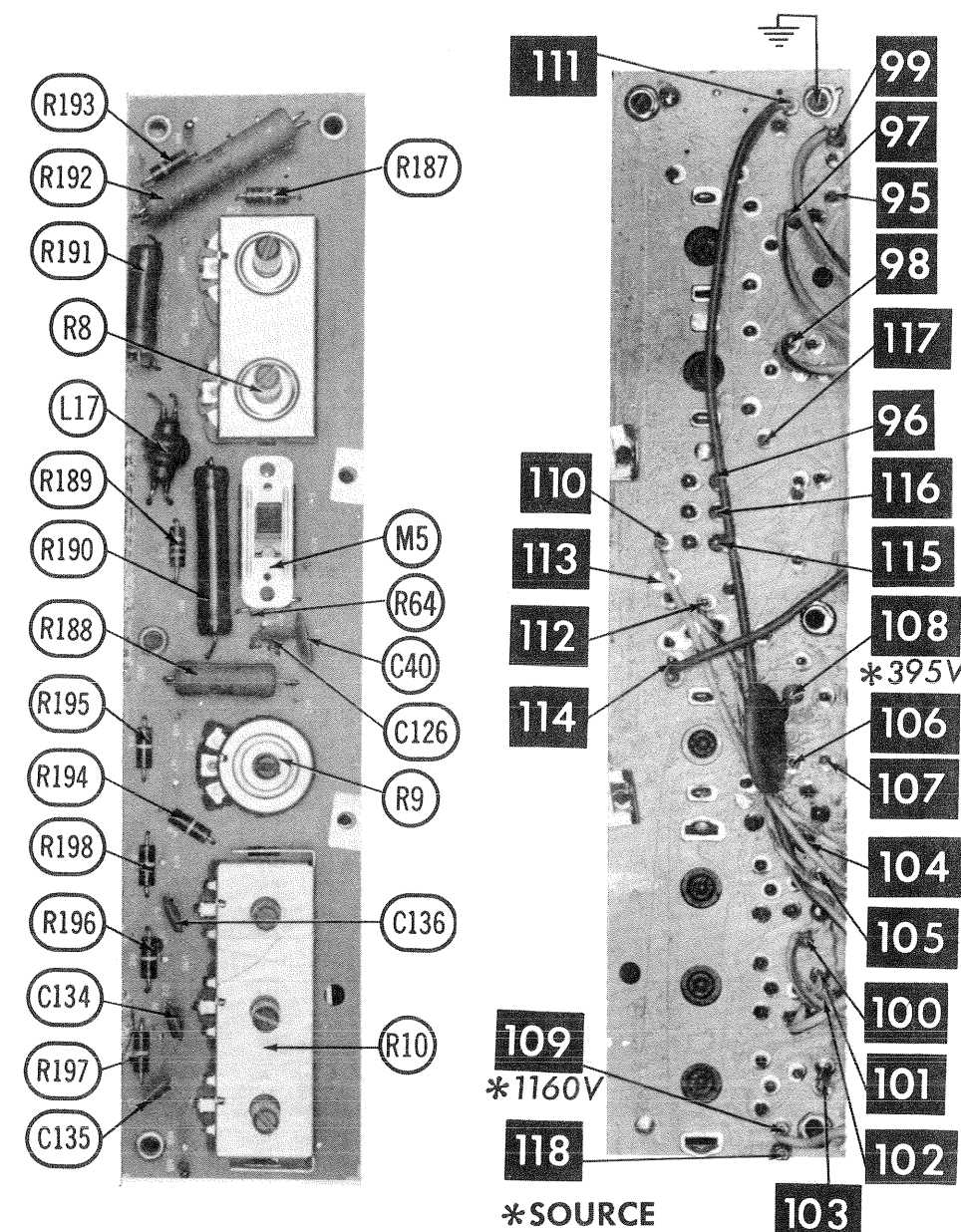




SYNC, AGC, SWEEP PRINTED BOARD



CONTROL PANEL PRINTED BOARD



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FOLDER 4



## 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. If any channel cannot be properly tuned in with the fine tuning, adjust overall oscillator adjustment and recheck all available channels.

## RF AND MIXER ALIGNMENT

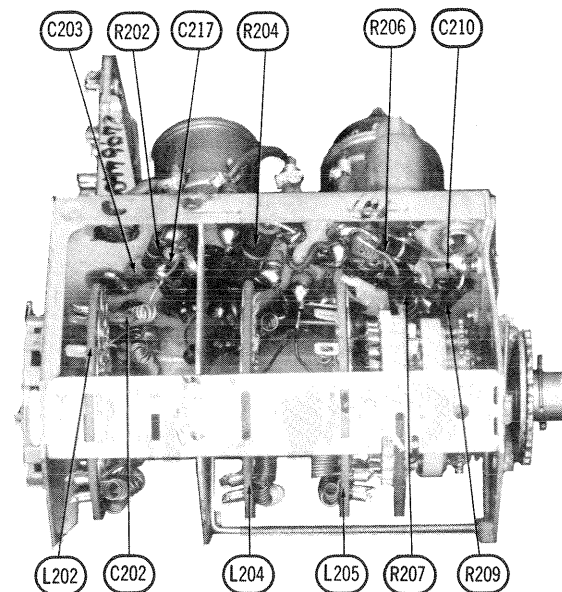
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use 10MC sweep unless otherwise noted.

Connect a variable bias to the RF AGC line at point  $\diamond T_1$ . Adjust bias to obtain response curve which shows no indication of overloading.

## CHANNEL & FREQUENCY CHART

## UHF TUNER ALIGNMENT INSTRUCTIONS

Tune UHF Channel Selector to the lowest UHF channel (low end of dial) operating in the area. Adjust UHF Low Channel Oscillator Trimmer for best picture and sound. Tune to the highest UHF channel (high end of dial) in the area and adjust UHF High Channel Oscillator Trimmer for best picture and sound. Repeat above steps until no further improvement can be made.



PARTS LIST AND DESCRIPTION (CONTINUED)

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

\*TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PHILCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	Vert. Output Yoke (Horiz. 12.4MH)	32-10017-3		VO-700C	26S86	A-305X	① Remove two (2) 270Ω resistors from vert. damping network. ② Remove two (2) 560Ω resistors from vert. damping network.
T3	Yoke (Horiz. 12.4MH)	322-0106		DY-90AC ①	Y-107	YC-300-1 ②	
T4	70° (Vert. 39MH)	(76-13258-1)					
	Horiz. Output	32-10023-1				D-304	

\*COMPONENT CONNECTION DATA

ORIGINAL →	HV TRANSFORMER						VERTICAL OUTPUT												YOKE												
REPLACEMENT ↓	Original Connections						Original Connections												Original Connections												
	P	D	C1	C2	F0B8	51	Blue	Red	Grn	Yel	Whl	Blk	Red	Bk	Grn	Grn	Red	Org	Bk	Whl	Whl	Red	Whl	1	3	4	5				
MERIT																															
STANCOR							Blue	Red	Grn	Yel	Whl	Blk	Red	Bk	Grn	Grn	Red	Org	Bk	Whl	Whl	Red	Whl	1	3	4	5				
THORDARSON																															
TRIAD	P	D	C1	C2	F0B8	51	Blue	Red	Grn	Yel	Whl	Blk	Red	Bk	Grn	Grn	Red	Org	Bk	Whl	Whl	Red	Whl	1	3	4	5				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRL	SEC.	PHILCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T5	16000Ω	3-4Ω	32-10016-2	A-2902	A-3832	24S06	S-53X	

SPEAKER

ITEM No.	TYPE		REPLACEMENT DATA		NOTES
			PHILCO PART No.	QUAM PART No.	
SP1	5"	PM 3-4Ω	36-1707-1	52A1	Used in Models UN5428MB/WA, UN5430MB/SMA/SWA. Used in Model UN5436WA. Used in Models UN5432MA/WA, UN5434CH/MA/MB/WA. Used in Models UN5440MA/WA.
	4"	PM 3-4Ω	36-1673-32		
	4"	PM 3-4Ω	36-1709-1		
	5 1/4"	PM 3-4Ω	36-1669-27	52A1	
	5 1/4"	PM 6-8Ω	36-1569-15	52A1Z6.4	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART NO.	REPLACEMENT DATA
K1	Color Killer Det. Network	1meg, 1meg, 330pf, 330pf	30-6055-1	
K2	Phase Detector Network	1meg, 1meg, 330pf, 330pf	30-6055-1	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA			
			PHILCO PART No.	LITTELFUSE PART No.	BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER
M1	2"	length of wire				

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M2	VHF Tuner	TT166 (76-13587-2)	STANDARD KOLLSMAN REPLACEMENT 41P13
M3	UHF Tuner	TT155C (76-13588-4)	
M4	Crystal	34-8043-4	
M5	Switch	42-2075-22	3.58MC Oscillator Normal-Service 3.1 Amp. Blue Lateral Convergence Purity Ring Video IF Sound Deflection Chroma Control Panel Convergence
M6	Circuit Breaker	42-2136-4	
M7	Magnet Assembly	76-9652-4	
M8	Magnet Assembly	76-13607-1	
M9	Magnet	220-0170	
M10	Delay Line	32-4839-2	
	Printed Circuit Board	27-11087-1	
	Printed Circuit Board	27-11015-1	
	Printed Circuit Board	27-11068-1	
	Printed Circuit Board	27-11018-1	
	Printed Circuit Board	27-11019-1	
	Printed Circuit Board	27-10000	

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Knob - UHF, VHF Channel Selector Models UN5428MB/WA, UN5430SMA/SMB/SWA and UN5432MA/WA.	424-8707	Knob - On/Off/Volume, Brightness Knob - Color, Tint Knob - Tone Knob - Focus Mask - Picture Tube Models UN5428MB/WA, UN5430SMA/SMB/SWA, UN5432MA/WA	424-8487 27-10983-1 424-8636 27-11055-1 27-10702-3
Knob - UHF, VHF Fine Tuning Same Models as above Chan. Sel.	27-10984-5	Mask - Picture Tube Models UN5433MA/MB/WA, UN5434CH/MA/MB/WA, UN5440MA/WA.	27-10702-4
Knob - VHF Channel Selector Models UN5433MA/MB/WA, UN5434CH/MA/MB/WA, UN5440MA/WA.	424-8732		
Knob - UHF, VHF Fine Tuning Same Models as above Chan. Sel.	27-10984-6		
Knob - UHF Channel Selector Same Models as above Chan. Sel.	424-8733		

VHF TUNER PARTS LIST AND DESCRIPTION

TUBES

* AMPEREX *		GENERAL ELECTRIC		RCA		SYLVANIA	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE	
V201	RF Amp.	6HA5		V202	Mixer - Osc.	6GJ7/ECF801	

FIXED 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	20	5%	#30-1251-6 #30-1251-32 #76-13602-28 #76-13602-29 #76-13602-79 #76-13602-77 #76-13602-70	DTZ-20	C10Q2C	*	CNO420	10TCC-Q20 10TCR-Q10 10TCC-V50					
C202	10	N220 ±.5p											
C203	5	NPO ±.25p											
C204	47												
C205	39												
C206	1						CNO647						
C207	18	N220 10%					EF-001		MFT-1000	C10Q27C	CCF-102		10TCR-Q18 10TCC-V56
C208	5.8	NPO											
C209	.001												
C210	27	5%											
C211	.001		CCF-102	CNO427	10TCC-Q27								
C212	.001					EF-001	MFT-1000						
C213	.001					EF-001	MFT-1000						
C214	.001					EF-001	MFT-1000						
C215	.001					EF-001	MFT-1000						
C216	3		#30-1221-28 #76-13602-71 #76-13602-25	MFT-1000		CCF-102	CT280A						
C217	2.4												
C218	1.6												

\* Not normally in distributor's stock. Available thru distributor on order to manufacturer.  
# Philco Part Number

COILS (RF-IF)

ITEM No.	USE	PHILCO PART No.	NOTES	ITEM No.	USE	PHILCO PART No.	NOTES
L201	Ant. Input Ass'y	76-13602-46	Chan. 2 thru 13	L206	Mixer Plate	76-13602-75	Chan. 2 thru 13
L202	Ant. Wafer	76-13602-73		L207	Osc. Wafer	76-13602-49	
L203	RF Choke		Chan. 2 thru 13	L208	Overall Osc. Adj.	76-13602-72	
L204	RF Wafer	76-13602-52		L209	UHF IF Input		
L205	Mixer Wafer	76-13602-51	Chan. 2 thru 13	L210	UHF RF Choke		

UHF TUNER PARTS LIST AND DESCRIPTION

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X301	SE-1019	UHF Oscillator				NPN PHILCO Part #76-13570-39

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	
X302		34-8027					1N82A

FIXED 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	33 N150		EF-001	829-3		*		10TCP-Q33
C302	2.2 N330							
C303								
C304	.5-3							
C305	.001							
C306	.001		EF-001	MFT-1000		CV-1	CT565	
				MFT-1000		CCF-102	CT280A	
						CCF-102	CT280A	

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

COILS (RF-IF)

ITEM No.	USE	PHILCO PART No.	NOTES	ITEM No.	USE	PHILCO PART No.	NOTES
L301	UHF Ant. Input	76-12482-18	Part of Antenna Board Assembly	L302	UHF IF Output	57-0590-3	

PARTS LIST AND DESCRIPTION

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

WIRING DATA

High Voltage Lead .....	Use BELDEN No. 8869 (17KV) or 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
Power Cord (Interlock Type) .....	Use BELDEN No. 8874 (Rubber) or 8895 (Plastic)
3000Ω Tuner Input Lead .....	Use BELDEN No. 8225
3000Ω 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	
V1	1st Video IF	6EH7		V13	Damper	6DW4	
V2	2nd Video IF	6EH7		V14	HV Rectifier	3AT2	
V3	3rd Video IF	6EJ7		V15	HV Regulator	6BK4	
V4	Cathode Follower - Sync - Chroma Amp.	6AW8A		V16	Chroma Bandpass Amp. - Color Killer	6GH8A	
V5	Video Output	12GN7		V17	"Z" Demodulator	6GY6	
V6	AGC Keying - Sync Sep. - Noise Inverter	6BH11		V18	"X" Demodulator	6GY6	
V7	Sound IF	6EW6		V19	B-Y Amp. - R-Y Amp.	6GU7	
V8	Audio Detector	6C56		V20	G-Y Amp. - Horiz. Blanking	6GU7	
V9	Audio Output	6AQ5A		V21	Burst Amp.	6EW6	
V10	Vert. Mult. - Vert. Output	6GF7		V22	Chroma Sync Phase Det. - Color Killer Detector	6JU8	
V11	Horiz. Osc.	6FQ7		V23	Chroma Ref. Osc. Control	6GH8A	
V12	Horiz. Output	6JE6					

PICTURE TUBE

ITEM No.	IMPEDANCE		REPLACEMENT DATA				NOTES
	PRL	SEC.	PHILCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V24	16000Ω	3-4Ω	32-10016-2	21FBP22 ①	21FBP22 ①	21FBP22 ② RE21FBP22 ③	① Aluminized ② Silver Screen "85" ③ Color Bright "85"

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLOY PART No.	RCA PART No.	SARKES PARZIAN PART No.	GENERAL ELECTRIC PART No.
X1	.440A	34-8054-6	1N1697	1N1095 or A500 ②	1N1764 or 1N2864	60H or F-6 ③	
X2	.440A	34-8054-6	1N1697	1N1095 or A500 ②	1N1764 or 1N2864	60H or F-6 ③	
X3	.0015A 24MA 12MA 20MA 5MA	34-8053-3 ①	GECR-1		CR208	PG33-140H-Q	
X4		34-8056-1	GECR-2		CR203	PG33-18H-Q	
X5A		34-8058-1	1N91 or 1N1692	A50 or D50	1N2856	S-689	
B			1N91 or 1N1692	A50 or D50	1N2858	S-689	
C			1N91 or 1N1692	A50 or D50	1N2858	S-689	
D			1N91 or 1N1692	A50 or D50	1N2858	S-689	
X6		34-8022-6					1N60
X7		34-8022-6					1N60
X8		34-8037-1					6GC1



## PARTS LIST AND DESCRIPTION (CONTINUED)

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.

## FIXED CAPACITORS (cont)

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.
C28 .001			SI 1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C27 .001			BPD-001	DD-102	BYA10D1	* CCD-102	B210	5HK-D10
C28 .145	N80 5%	(150) †						
C29 6	NPO	#30-1287-12						
C30 100	N30 10%	#320-0024						
C31 100			BPD-00001	DD-101	LA10T1-S3	CCD-101	GP310	5GA-T10
C32 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C33 7	NPO 5%				C10V68C	10TCC-V68	CNO568	
C34 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C35 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C36 150		10%	DI-150	DD-151	LA10T15-S3	CCD-151	GP315	10TS-T15
C37 .1	200V		P288N-1	DF-104	PKM2P1	2DP-3-104	GEM201	2TM-P10
C38 .015	50V			DD-153	BYA10S15	CCD-153	GP115	5HK-S15
C39 .047	400V		P488N-047	DD-503	PM4S47	4DP-3-473	GEM4147	4TM-S47
C40 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C41 .001		①	BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C42 1.5	N3300	#320-0018						
C43 10	N330 10%		DI-10	DD-100	LA10Q1-SL	CCD-100	GP410	10TS-Q10
C44 5	N150 5%	#320-0031						
C45 .0082			DI-7500	DD-822		CCD-822	B282	30GA-D82
C46 750	N2200 5%	#30-1293-18 (820) †						
C47 56	N750 10%	①		TCZ-56		CCTN-560	CN7456	10TCU-Q56
C48 .0082			DI-7500	DD-822		CCD-822	B282	30GA-D82
C49 .0082			DI-7500	DD-822		CCD-822	B282	30GA-D82
C50 560			DI-560	DD-561	LA10T56-C4	CCD-561	B356	5GA-T56
C51 .0098			BPD-0068	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C52 .001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C53 .0047			BPD-0047	DD-472	BYA10D47	CCD-472	B247	5HK-D47
C54 .001	2KV 10%	#30-4651-51						
C55 330		10%	DI-330	DD-331	LA10T33-C4	CCD-331	GP333	10TS-T33
C56 .0047			BPD-00047	DD-472	BYA10D47	CCD-472	B247	5HK-D47
C57 330		10%	DI-330	DD-331	LA10T33-C4	CCD-331	GP333	10TS-T33
C58 .0015			BPD-0015	DD-152	LA10D15-C4	CCD-152	B215	10TS-D15
C59 47	NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO447	10TCC-Q47
C60 100			BPD-0001	DD-101	LA10T1-S3	CCD-101	GP310	5GA-T10
C61 .0022			BPD-0022	DD-222	LA10D22-C4	CCD-222	B222	10TS-D22
C62 .0015			BPD-0015	DD-152	LA10D15-C4	CCD-152	B215	10TS-D15
C63 .0027	N5600 10%	#30-1293-17						
C64 .036	600V 10%							
C65 .1	600V							
C66 .1	600V							
C67 .47	200V		P288N-47	DF-104	PM2P47	2DP-5-474	PVC2047	2TM-P47
C68 .0068	400V 10%		BE6D68	CPR-6800J	PKM4D68	6DP-1-682	PVC4268	6PS-D68
C69 680			BPD-00068	DD-681	BYA10T68	CCD-681	B368	10TS-T68
C70 680			BPD-00068	DD-681	BYA10T68	CCD-681	B368	10TS-T68
C71 .047	200V		P288N-047	DD-503	PM2S47	4DP-3-473	GEM2147	4TM-S47
C72 .0082	1KV		P1088N-008			16DP-3-802	GEM1628	MB-D8
C73 .001	2KV 10%							
C74 180	NKV		DI-180	DD-181	LA10T18-S3	CCD-181	GP318	10TS-T18
C75 120	N750 10%			TCN-120	C10T13U	CCTN-121	CN7312	10TCU-T12
C76 .001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C77 .001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C78 .15	200V		P288N-15	DD-102	PM2P15	2DP-3-154	PVC2015	2TM-P15
C79 .0015			BPD-0015	DD-152	LA10D15-C4	CCD-152	B215	10TS-D15
C80 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C81 390	N1500 5%	#30-1293-16						
C82 .01	400V 10%							
C83 560		5%						
C84 .0015	600V 10%		BE451	CPR-10000J	PM4S1	4DP-1-103	PVC411	4PS-S10
C85 .01	600V		BE6D15	CPR-560J	CD19F561J	DM-19-561J	PVC6215	6PS-D15
C86 .01	600V		P688N-01	DD-103	PM6S1	6DP-2-103	GEM611	6TM-S10
C87 .047	600V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM601	6TM-P10
C88 68	4KV 10%	#320-0062	P688N-047	DD-503	PM6S47	6DP-3-473	GEM6147	6TM-S47
C89 .01	1.4KV		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC110	BL-S10
C90 130	6KV		HVD-60-120	DD60-121	6HV312	6CDD-121	6HV312	60GA-T12
C91 .01	1.4KV		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC110	BL-S10
C92 22	1KV		BPD-000022	DD-220	LA10Q22-SL	CCD-220	GP422	10TS-Q22
C93 .068	600V 10%	#30-4700-273						
C94 .082	600V 10%	#30-4700-278						
C95 100	3KV 5%							
C96 560	2.5KV 10%							
C97 560	2.5KV 10%							
C98 150	N750 10%	#30-1257-10						
C99 120	N750 10%	#30-1263-5						
C100 .01			BPD-01	TCN-121	BYA10S1	CCD-103	B110	5HK-S10
C101 470	N750 5%	#30-1262-18						
C102 .01			BPD-01	TCN-471	BYA10S1	CCD-103	B110	5HK-S10
C103 6	NPO ±.5pF	#320-0084						
C104 .047	400V 10%							
C105 820			DI-820	DD-821	LA10T82-C4	CCD-821	B382	10TS-T82
C106 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C107 .001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C108 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C109 .001			BPD-001	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C110 .001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C111 120	N2200 10%	#30-1263-5						
C112 10	NPO 1%	#30-1263-11						
C113 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C114 .1	200V		P288N-1	DF-104	PKM2P1	2DP-3-104	GEM201	2TM-P10
C115 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C116 4	NPO 5%	#30-1287-28						
C117 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C118 10	NPO 1%	#30-1263-11						
C119 220	N750 10%		N750-DI 220	DTN-220	C10T22U	CN7-221	CN7322	10TCU-T22
C120 82	NPO 10%			DTZ-82		CCD-820	CNO482	10TCC-Q82
C121 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C122 180	500V 5%		ADM-15-181	CPR-180J	CD19F181J	DM-19-181J	CNO318	MS-318
C123 .22	400V		P488N-22	DD-103	PM4P22	4DP-4-224	PVC4022	4TM-P22
C124 .01	600V		P688N-01	DD-103	PM6S1	6DP-2-103	PVC611	6PS-S10
C125 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C126 .001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C127 .0047			BPD-0047	DD-472	BYA10D47	CCD-472	B247	5HK-D47
C128 33	N150	#30-1251-54						
C129 .01	600V		P688N-01	DD-103	PM6S1	6DP-2-103	PVC611	6PS-S10
C130 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C131 33	N150	#30-1251-54						
C132 .01	600V		P688N-01	DD-103	PM6S1	6DP-2-103	PVC611	6PS-S10
C133 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10

## FIXED CAPACITORS (cont)

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.
C134 .001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C135 .001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C136 .001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C137 .01	1.4KV		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC110	BL-S10
C138 .1	600V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM601	6TM-P10
C139 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C140 .01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C141 47	2KV		HVD-3047	DD30-470	DD30-470	3CCD-470	2DY447	30GA-Q47
C142 .047	600V		P688N-047	DD-503	PM6S47	6DP-3-473	GEM6147	6TM-S47
C143 .1	400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM401	4TM-P10
C144 .056	400V 10%		BE6S56		PKM2P1	6DP-3-393	PVC4156	4PS-S56
C145 .1	200V	#30-4705-76	P288N-1	DF-104	PM4P12	2DP-3-104	GEM201	2TM-P10
C146 .12	200V 10%							
C147 .082	200V 10%							
C148 1.3	10%	#30-1221-36						
C149 27								
C150 .001								

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

① Not used in some versions.

② Selected Pair.

## CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
RIA B	Tint Volume, Switch	1200Ω 1meg, 220K Tap	33-5604-29	F5-1500, R12-1meg, FFS102, RP113, K1-8		† QJ-1650	* UE44668
R2A B	Color Brightness Contrast	500Ω 500Ω 2000Ω	33-5604-45	F1-500, R1-500, FFS102, RFS110		* QJ-1904	
R3			33-5605-44	F5-2500, SSK100 or (B-705)		Q17-110 or (BU1, CF13, S86) *	UA252R, SK1000 or (RU23R, SL38, SK1000) or (U7)
RAA B	Tone Horiz. Hold	2.5meg 60K	33-5618-2 ①	F1-2.5meg, R1-75K, FFS009, FK101		* QJ-1905	
R5	Vert. Hold	750K	33-5605-12	F1-750K, SSK100 or (B-66)	A47-750K-S KSS-3	Q11-136 or (BU1, CF64, S81, DC1) *	UA161L, SK1000 or (RU754L, SL38, SK1000) or (U54)
R6	Noise	2500Ω (2W)	33-5609-7	V-3000 or (WN-232)	U39-3000	110-3000 or (WPS2500) or (BU1, W6, S86) *	MR2500T or (R2500L) or (PTA1254L or (RU16L, SL37, SN1000) or (UA16L, SN1000)
R7	AGC	500K	33-5605-13	TT-59 or (F1-500K, SNK010)	B47-500K-S	B11-133, TM4 or (BU11, CF16, S86) *	PTA55L or (RU55L, SL37, SN1000) or (UA55L, SN1000)
R8A B	Green Drive Blue Drive	6000Ω 6000Ω	33-5595-11			B11-140 ②, TM9 or (BU11, CF21, S86, DC2) *	TRS36L
R9	Vert. Linearity	3.4meg	33-5605-39	F1-3meg, SNK100, AK-40			
R10A B	Red Screen Green Screen Blue Screen	1.5meg 1.5meg 1.5meg	33-5595-10				
R11	CRT Bias	2500Ω (2W)	33-5609-7	V-3000 or (WN-252)	U39-3000	110-3000 or (WPS2500) or (BU1, W6, S86) *	MR2500T or (VW2P5K) or (R2500L)
R12	Color Killer	1meg	33-5605-16	TT-69 or (F1-1meg, SNK010)	B47-1meg-S	B11-137, TM4 or (BU11, CF17, S86) *	PTA1254L or (RU16L, SL37, SN1000) or (UA16L, SN1000