

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove all knobs and the rear cover held by 6 screws.
2. Disconnect picture tube socket, HV anode lead, speaker leads, VHF antenna leads, and convergence cable plug.
3. Remove 4 chassis bolts from bottom of cabinet.

4. Remove 1 screw holding the tuner bracket and loosen 4 screws holding the tuner assembly.
5. Remove tuner assembly by lifting up and out of cabinet, and remove cabinet.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove the chassis.

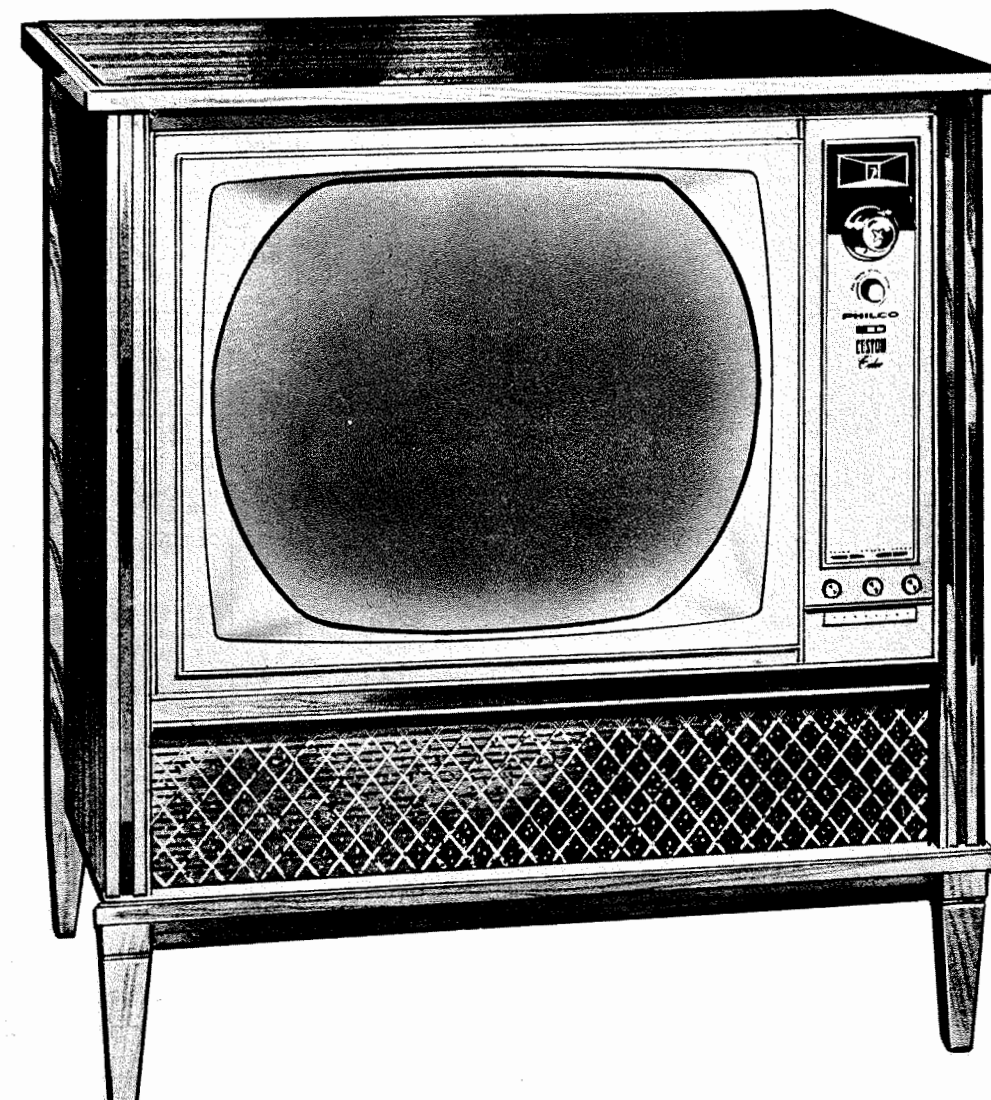
SET 683 FOLDER 2

PHILCO
CHASSIS 13L80/U

PHOTOFACT® Folder

with CIRCUITRACE®

PHILCO
CHASSIS 13L80/U



PHILCO
CHASSIS 13L80/U

TRADE NAME	PHILCO	Models	Chassis
		L-5212MR/WA, L-5414MB/WA, L-5416MB/WA/MA, L-5418CH	13L80
		UL-5212MR/WA, UL-5415MB/WA, UL-5416MB/WA/MA, UL-5418CH	13L80U
SUPPLIER	Philco Corp., A Subsidiary of Ford Motor Co., Tioga & "C" Streets, Philadelphia, Pennsylvania		
TYPE SET	Color Television Receiver with Remote Control in some models		
TUBES	VHF - Twenty-Seven, UHF - Twenty-Eight		
POWER SUPPLY	110-120 Volts AC, 60 Cycles		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD-----PAGE 3
MISC. ADJUSTMENTS-----PAGE 7
BLOCK DIAGRAM-----PAGE 22

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. MB022R

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DATE 3-64 SET 683 FOLDER 2

⊕ DENOTES CHASSIS GROUND

* TAKEN WITH LOW CAPACITY PROBE (WIDEBAND SCOPE)

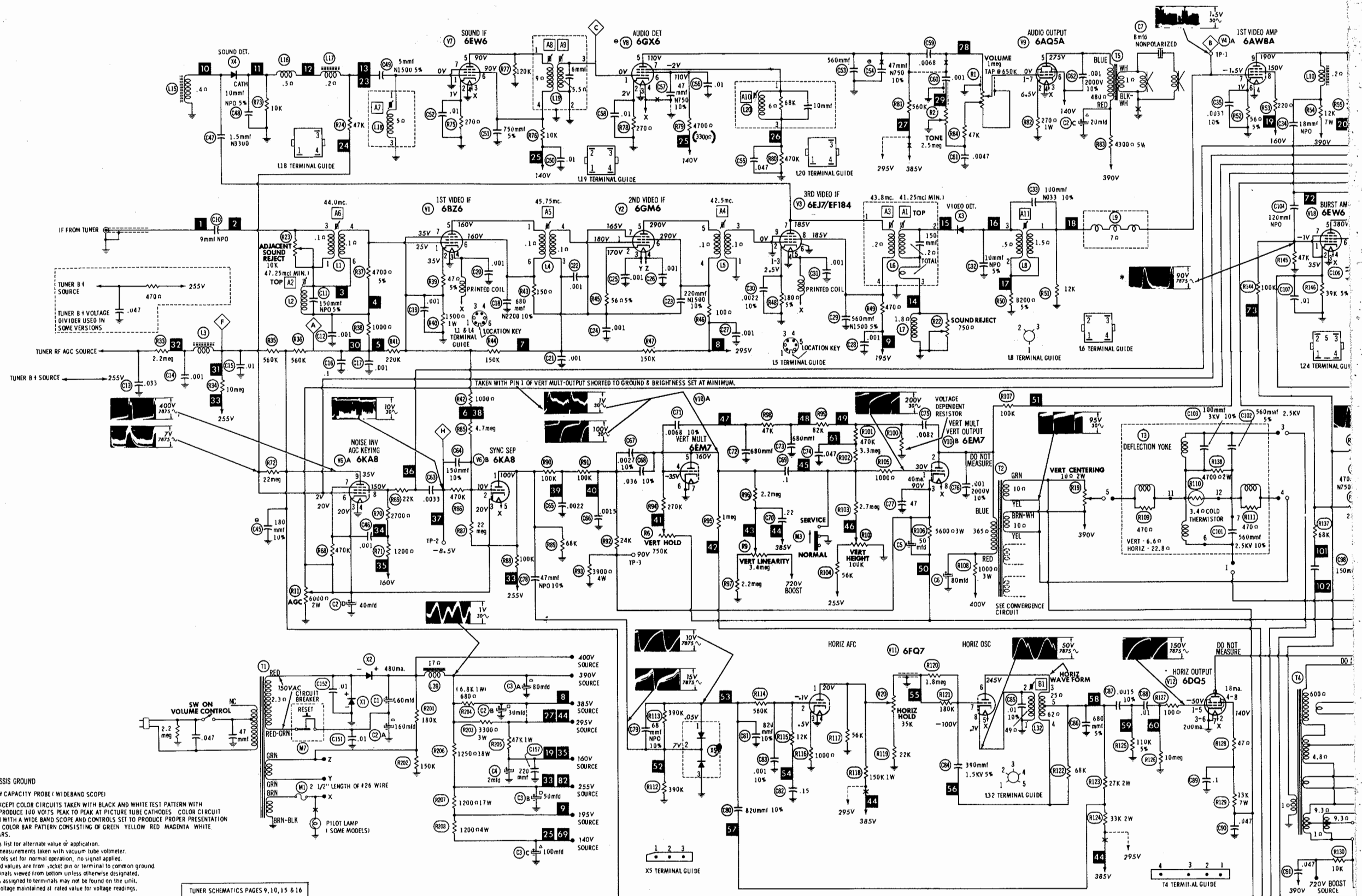
ALL WAVEFORMS EXCEPT COLOR CIRCUITS TAKEN WITH BLACK AND WHITE TEST PATTERN WITH CONTROLS SET TO PRODUCE 100 VOLTS PEAK TO PEAK AT PICTURE TUBE CATHODES. COLOR CIRCUIT WAVEFORMS TAKEN WITH A WIDE BAND SCOPE AND CONTROLS SET TO PRODUCE PROPER PRESENTATION FROM AN N.T.S.C. COLOR BAR PATTERN CONSISTING OF GREEN, YELLOW, RED, MAGENTA, WHITE, CYAN AND BLUE BARS.

1. See parts list for alternate value or application.
2. Voltage measurements taken with vacuum tube voltmeter.
3. All controls set for normal operation, no signal applied.
4. Measured values are from socket pin or terminal to common ground.
5. All terminals viewed from bottom unless otherwise designated.
6. Numbers assigned to terminals may not be found on the unit.
7. Supply voltage maintained at rated value for voltage readings.

TUNER SCHEMATICS PAGES 9, 10, 15 & 16

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with **CircuitTrace**

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V25
21FJP22
PICTURE TUBE

CONVERGENCE SOCKET

V16 6BK4

V14 3A3 HV RECT

HV REGULATOR

FOCUS RECT

V15 1V2

DAMPED

V13 6DW4

HORIZ OUTPUT

V12 6DQ5

DIODE HORIZ PHASE DET

V10 6EM7

HORIZ OSC

V11 6FD7

V9 6AQ5A AUDIO OUTPUT

VERT MULT-VERT OUTPUT

HORIZ AFC HORIZ OSC

SOUND REJECT

V4 6AN8A

DIODE (VIDEO DET)

3RD VIDEO IF AMP

V3 6XJ1 8P184

2ND VIDEO IF AMP

V2 6GM6

1ST VIDEO IF AMP

V1 6BE6

DIODE (SOUND DET)

C1

C6

C2

C3

"X" DEMODULATOR

V23 6GY6

"Z" DEMODULATOR

V21 6GY6

CHROMA SYNC PHASE DET-COLOR KILLER DET

V19 6J08

CHROMA BANDPASS AMP-COLOR KILLER

V17 6EAB (UG181)

B-Y AMP - R-Y AMP

V24 6FD7

V22 6FD7

3.58mc CRYSTAL

CHROMA REF OSC CONTROL: CHROMA REF OSC

V20 6GH8

CHROMA REF OSC

V18 6EW6

BURST AMP

V5 12BY7A VIDEO OUTPUT

HORIZ BLANKING AMP-G-Y AMP

NOISE INVERTER-AGC KEYING-SYNC SEP

V7 6EW6

SOUND IF AMP

V8 6XK8 (H12B1)

AUDIO DET

V6 6KAB

DIODES (RECT)

KINE BIAS

BLUE DRIVE

GREEN DRIVE

CIRCUIT BREAKER

VERT CENT

VERT HEIGHT

VERT LIN

HIGH VOLT ADJUST

AGC

COLOR KILLER

NORMAL-SERVICE SW

BLUE SCREEN

GREEN SCREEN

RED SCREEN

HORIZ CENT

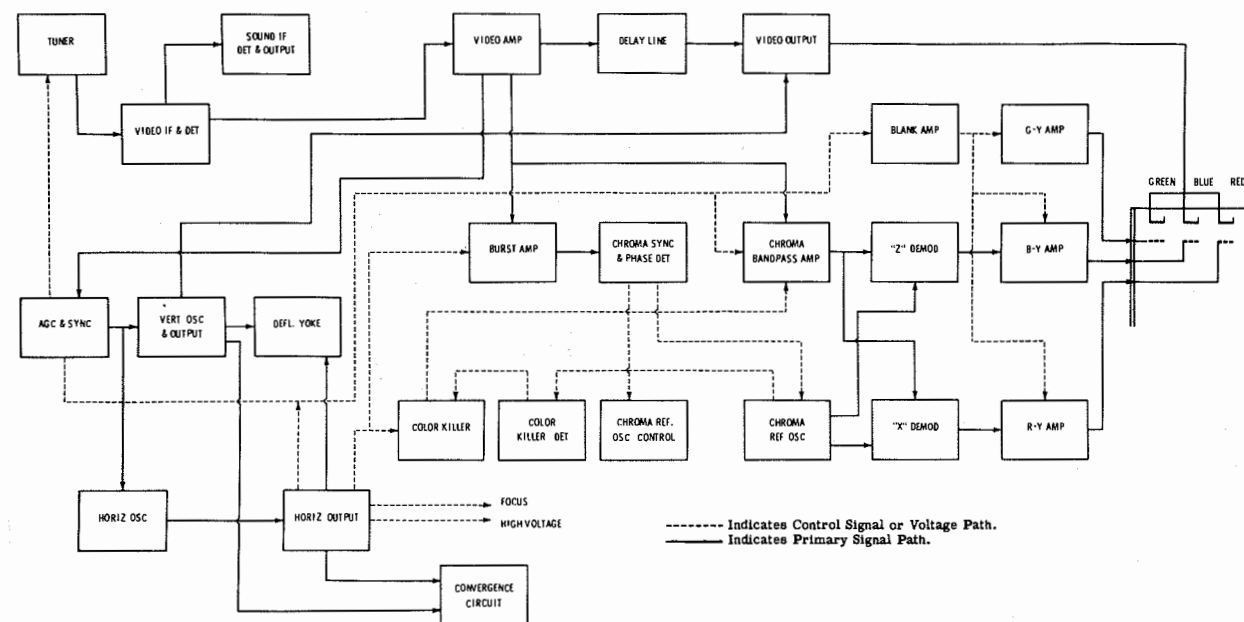
FOCUS

V25
21FJP22
PICTURE TUBE

The diagram illustrates the top view of a television receiver chassis, detailing the layout of electronic components and their interconnections. Key sections include:

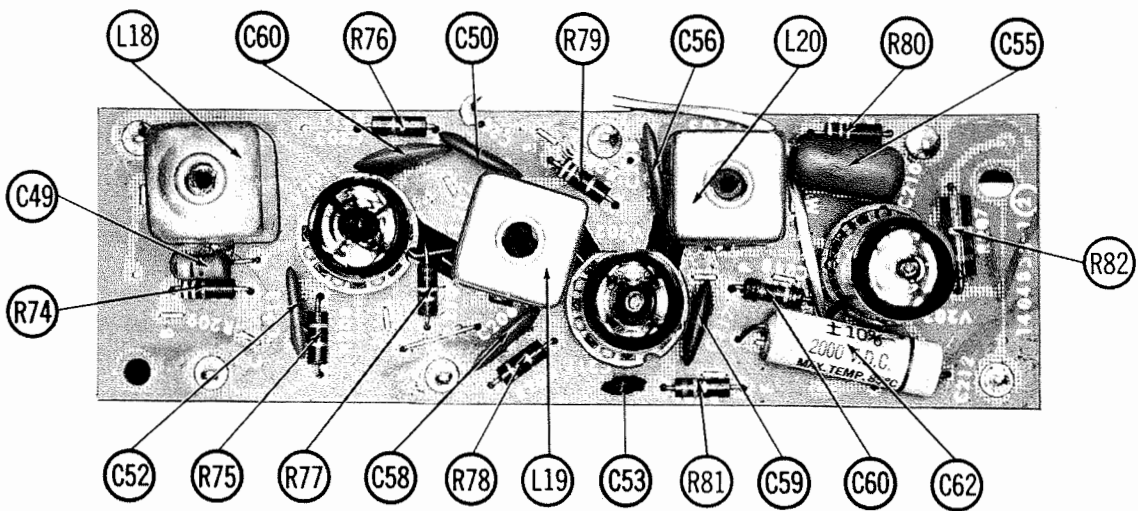
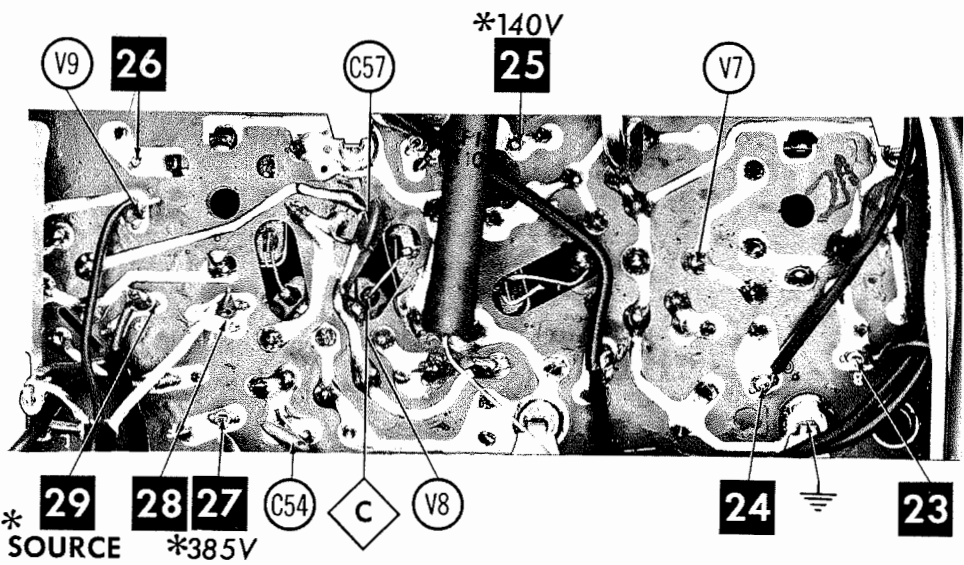
- Control Panel (Top Left):** Features a Channel Selector (Push) and Fine Tuning (Pull) knob, and a Volume (On-Off) knob.
- Top View (Top Center):** Shows the arrangement of control knobs for Color, Brightness, Tint, Horiz, Vert, Contrast, and Tone. A V75 21JP22 Picture Tube is indicated.
- Chassis Components:**
 - Mixer-Osc and RF Amp:** V20 (6AB), V201 (6DS4), #KK103K.
 - Video IF Amp:** V1 (6BZ6), V2 (6GAG), V3 (6XJ7/1F184).
 - Sound IF Amp:** V7 (6XG6), V8 (6GK6/6H6A), V9 (6KA6).
 - Audio Output:** V9 (6A05A), V11 (6F07), V10 (6MP).
 - Chroma and Color Processing:** V17 (6EAM/16GH8), V19 (6J8), V21 (6GY6), V23 (6GY6), V18 (6EW6), V20 (6G6R), V22 (6F07), V24 (6F07).
 - Demodulators:** "Z" Demodulator (V21), "X" Demodulator (V23).
 - Other Components:** V16 (6BK4), V14 (3A3), V13 (6DW6), V12 (6D05), V15 (1V2).
- Connectors and Controls:**
 - Convergence Socket:** For color convergence adjustment.
 - Focus Rect:** V15 (1V2).
 - Focus Cent:** For focus centering.
 - Red Screen, Green Screen, Blue Screen:** For color balance.
 - Horizontal and Vertical Cent:** For horizontal and vertical centering.
 - Horizontal and Vertical Lin:** For horizontal and vertical linearity.
 - High Volt Adjust:** For high voltage adjustment.
 - AGC:** Automatic Gain Control.
 - Color Killer:** For color control.
 - Normal Service SW:** For normal service switch.
 - Kine Bias:** For kine bias adjustment.
 - Blue Drive, Green Drive:** For color drive.
 - Circuit Breaker:** For power protection.

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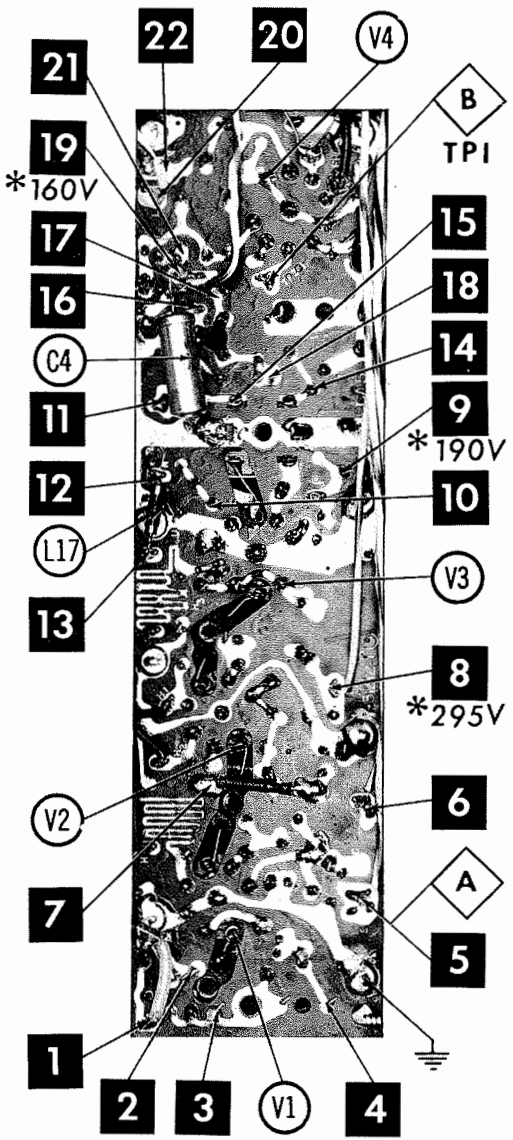
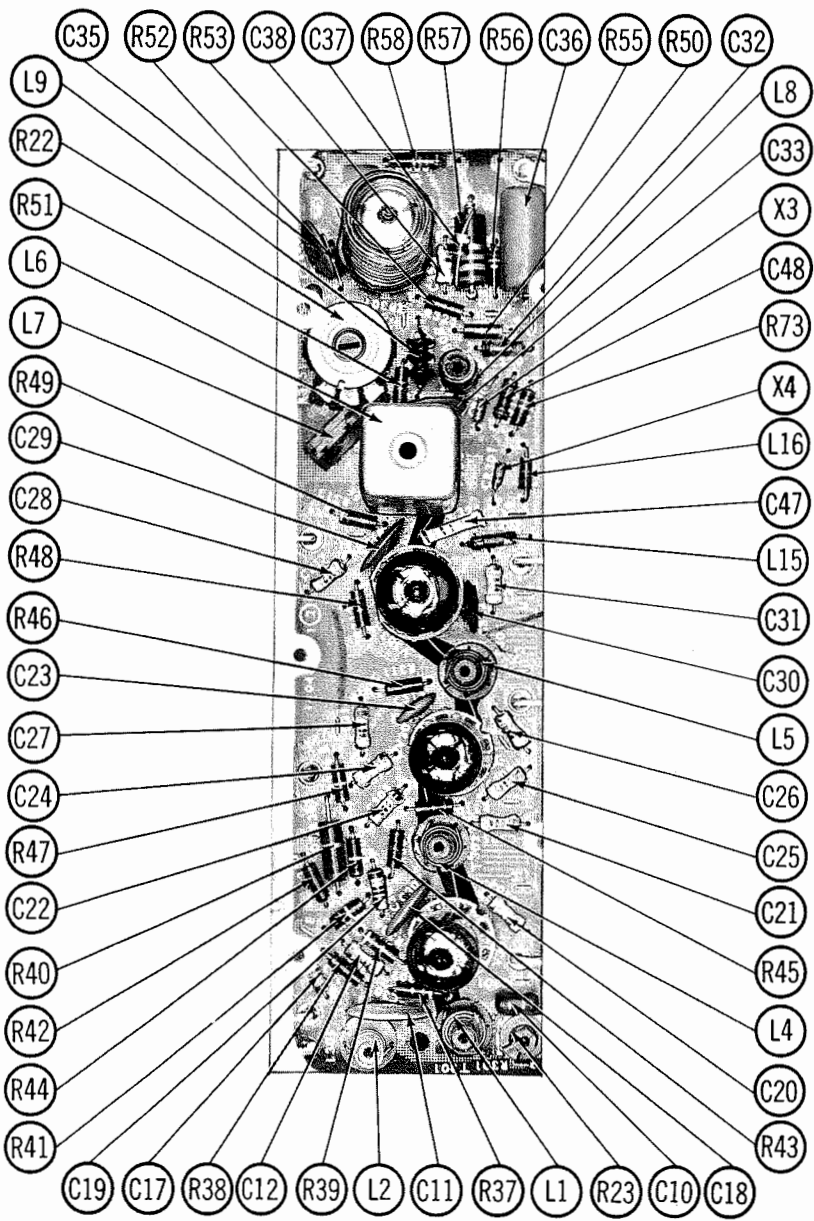


----- Indicates Control Signal or Voltage Path.
 ————— Indicates Primary Signal Path.

Centering is accomplished by 2 magnetic rings, located behind the yoke on the neck of the picture tube.



SOUND PRINTED BOARD

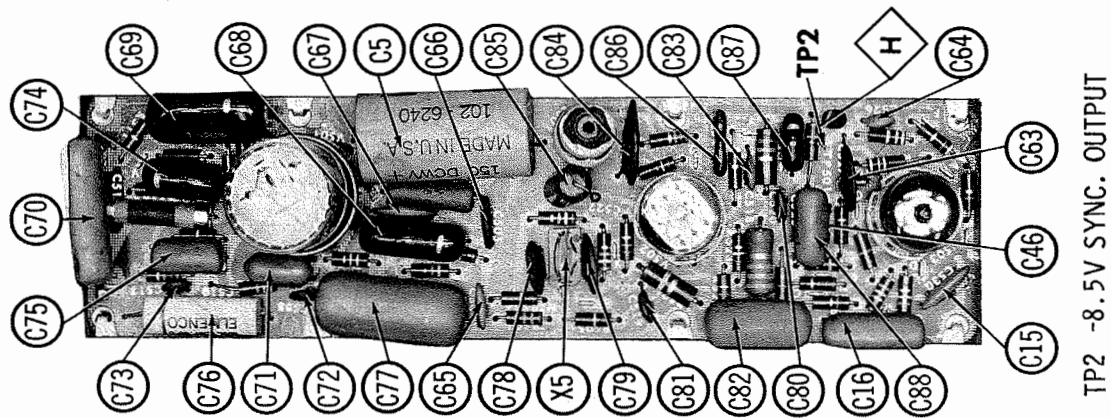
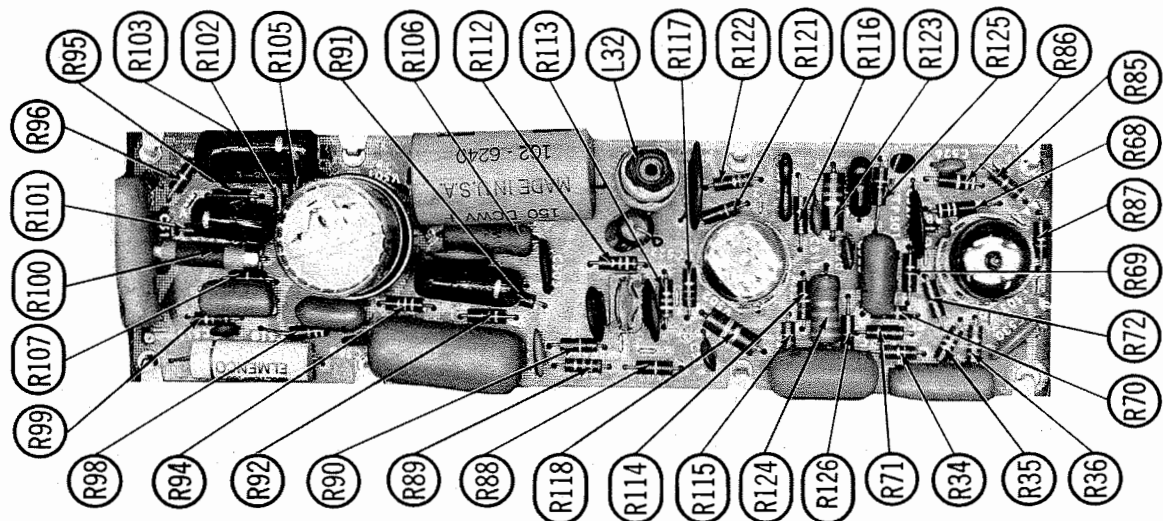


* SOURCE TP1 -1.5V VIDEO DET. OUTPUT

VIDEO IF PRINTED BOARD

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FOLDER 2



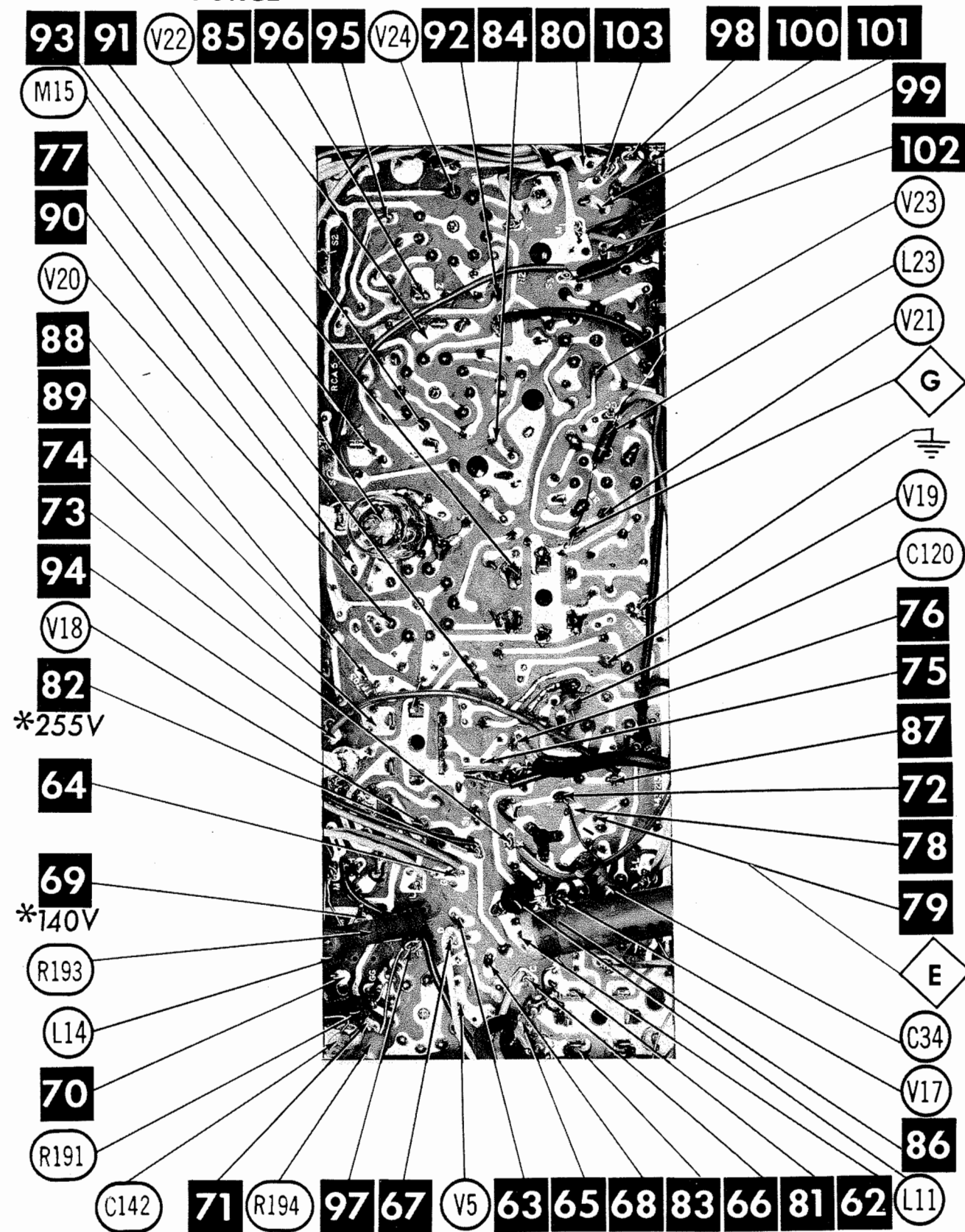
VERT, HORIZ, SWEEP PRINTED BOARD



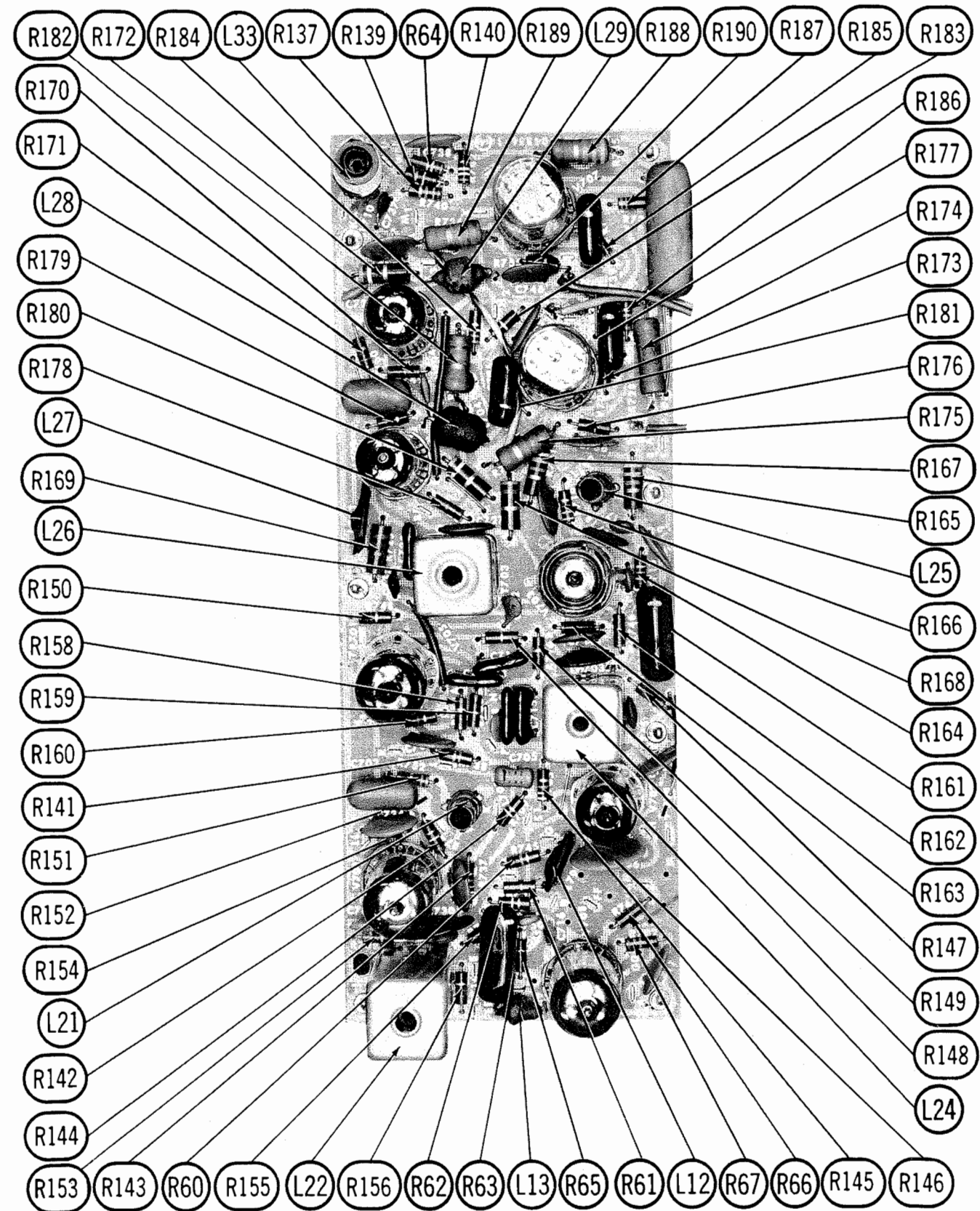
CONVERGENCE PRINTED BOARD

SET 683 FOLDER 2

*SOURCE



PRINTED BOARD (COLOR CIRCUITS)



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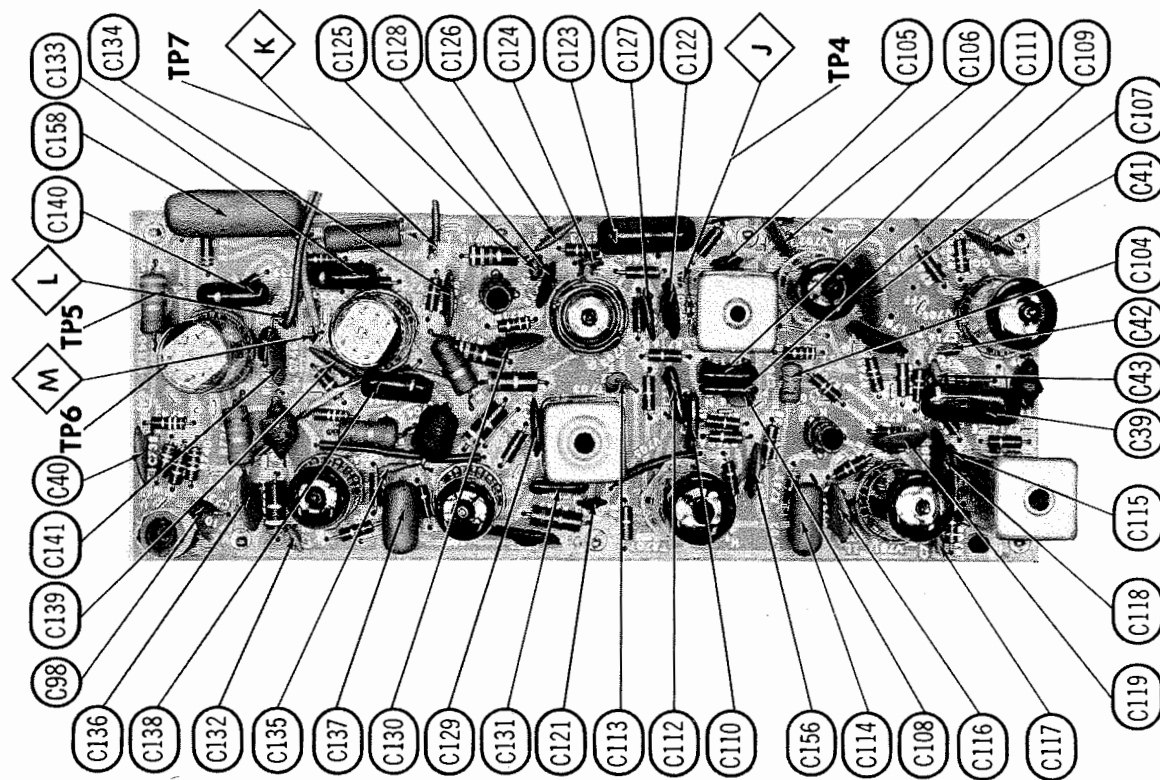
FOLDER 2

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	250K	1547Ω	FIL	FIL	200Ω	200Ω	1500Ω		
V2	6GM6	65K	INF	FIL	FIL	3400Ω	3400Ω	INF		
V3	6EJ7	180Ω	.1Ω	180Ω	FIL	FIL	0Ω	12800Ω	12800Ω	0Ω
V4	6AW8A	0Ω	27K	10K	FIL	FIL	56Ω	5000Ω	500Ω	19600Ω
V5	12BY7A	320Ω	540K	0Ω	FIL	FIL	FIL	16000Ω	16000Ω	0Ω
V6	6KA8	135K	3.8meg	2400Ω	FIL	FIL	55K	470K	470K	1750K
V7	6EW6	4.5Ω	270Ω	FIL	FIL	13K	13K	0Ω		
V8	6GX6	5.5Ω	270Ω	FIL	FIL	1560K	17900Ω	470K		
V9	6A05A	800K	270Ω	FIL	FIL	14800Ω	13600Ω	NC		
V10	6EM7	2.8meg	1300Ω	2200Ω	510K	13.2meg	0Ω	FIL	FIL	
V11	6FQ7	122K	1.3meg	1000Ω	FIL	FIL	160K	200K	49Ω	0Ω
V12	6D05	10meg	FIL	0Ω	12K	10meg	0Ω	FIL	12K	TOP CAP 14Ω
V13	6DW4	NC	130Ω	NC	FIL	FIL	NC	130Ω	NC	450K
V14	3A3									TOP CAP 15Ω
V15	1V2									TOP CAP 15Ω
V16	6BK4	30Ω	FIL	NC	NC	1860K	NC	FIL	NC	TOP CAP INF
V17	6EA8	1400K	220K	14000Ω	FIL	FIL	12800Ω	390Ω	0Ω	10meg
V18	6EW6	30K	39K	FIL	FIL	1000Ω	11200Ω	39K		
V19	6JU8	INF	220Ω	INF	INF	FIL	0Ω	11meg	22K	11meg
V20	6GH8	119K	47K	147K	FIL	FIL	17800Ω	0Ω	680Ω	INF
V21	6GY6	1.9Ω	100Ω	FIL	FIL	14800Ω	13600Ω	1.9Ω		
V22	6FQ7	119K	1meg	270Ω	FIL	FIL	119K	1meg	270Ω	0Ω
V23	6GY6	1.9Ω	150Ω	FIL	FIL	14800Ω	13600Ω	14Ω		
V24	6FQ7	147K	220K	390Ω	FIL	FIL	122K	1meg	270Ω	0Ω
V25	21FJ22	FIL	1120K	1470K	13800Ω	13800Ω	1120K	1470K	NC	50meg
V201	6DS4			116K	3.5meg				Pin 10 FIL	Pin 12 FIL
V202	6EA8	19500Ω	100K	2200Ω	FIL	FIL	3200Ω	0Ω	INF	5600Ω

MEASURED FROM PIN 2 OF V2.
MEASURED FROM PIN 8 OF V202.
NO CONNECTION

MEASURED FROM OUTPUT OF X2.
MEASURED FROM PIN 9 OF V13.
VHF TUNER KRK103KRVB.

TP4 .2V CHROMA REF. OSC. CONTROL GRID
TP5 185V G-Y AMP. OUTPUT
TP6 185V B-Y AMP. OUTPUT
TP7 185V R-Y AMP. OUTPUT



MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect:
A 0-500MA meter in series with cathode lead of horizontal output tube.
A .47mfd capacitor across meter.
A 0-1500 microammeter in series with the cathode lead of the HV regulator tube.
A VTVM thru a high voltage probe to picture tube anode connector.
Point Ⓢ to ground.
A short across horizontal oscillator cathode coil (pin 8 to ground).

Tune in a TV station and adjust the Horizontal Hold control until the picture "floats" with the blanking bars vertical. Remove the short from the Horizontal Oscillator Cathode and adjust B1 until the picture "floats" horizontally. Remove the short from point Ⓢ. Adjust the Horizontal Linearity coil for MINIMUM current in the horizontal output tube (should not exceed 210MA).

Adjust the High Voltage control for 23KV on picture tube anode. Check the High Voltage Regulator current. The current should not be less than 850 microamperes. If current is less than 850 microamperes, turn the Horizontal Linearity slug one-half turn clockwise. Check to see that horizontal output current does not exceed 210MA. If foldover occurs in picture, adjust Horizontal Linearity clockwise to eliminate foldover while checking to make sure horizontal output current does not exceed 210MA.

Adjust Focus, Height and Vertical Linearity controls.

AGC ADJUSTMENT

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

COLOR AFC ALIGNMENT

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 color reception. Short pin 1 of Burst Amp. (V18) to ground.

Connect DC probe of VTVM thru 470K to pin 1 of Phase Detector (V19). 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 Ⓢ 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 Ⓢ. 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, retouch A17 for proper range of control.

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

PURITY ADJUSTMENTS

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

Connect the blue and green grids of the picture tube through individual 100K resistors 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, 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.

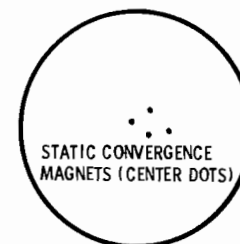


FIG. A

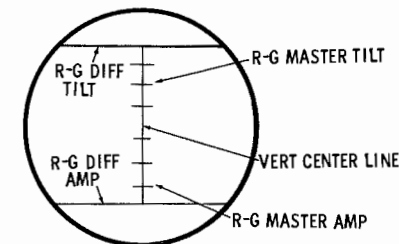
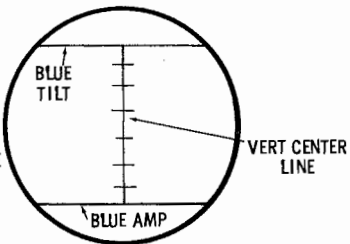
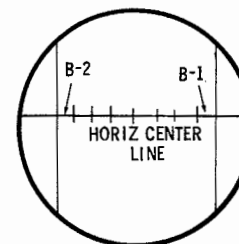
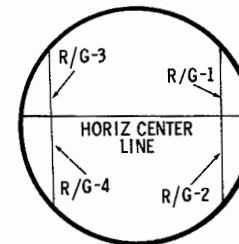
FIG. B
(RED & GREEN ONLY)FIG. C
(BLUE BARS)FIG. D
(BLUE BARS)

FIG. E

GRAY SCALE ADJUSTMENTS

Tune in a black and white picture, or a color picture with the color control set to MINIMUM. Turn the Kine bias control to fully counterclockwise. Turn the red, blue, and green screen controls fully counterclockwise. Move the "Normal-Service" switch to "Service". 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 two controls back to MINIMUM. Advance the Kine bias control until a barely visible line appears. Advance the remaining controls one at a time to produce a barely visible line. Return the Normal-Service switch to "Normal". Adjust the blue and green drive 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 Master Tilt	Red and Green vertical bars at top of screen.	Touch up both controls for best convergence from top to bottom along vertical centerline (Fig. B).
3.	R-G Master Amplitude	Red and Green vertical bars at bottom of screen.	
4.	R-G Difference Tilt	Red and Green horizontal bars top of screen.	Touch up both controls for best convergence of horizontal bars along vertical center line (Fig. B).
5.	R-G Difference Amp.	Red and Green horizontal bars at bottom of screen.	
6.	Blue 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 Amp.	Blue horizontal bars at bottom of screen.	
8.			Perform center dot static convergence (Fig. A).
9.	B-1	Blue horizontal bars at right side of screen.	Touch up both controls for best convergence along horizontal center line (Fig. D).
10.	B-2	Blue horizontal bars at left side of screen.	
11.	R/G-1	Red and Green vertical lines at right side of screen.	(Fig. E)
12.	R/G-2	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-3	Red and Green vertical bars at left side of screen.	(Fig. E)
14.	R/G-4	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).

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CHASSIS 13L80/U

FOLDER 2

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 A10 GENERAL CEMENT #9302, 8808L, 8889 ... WALSCO #2511, 2544, 2588
Mixer Plate Coil .. GENERAL CEMENT #9302, 9296, 9297 WALSCO #2511, 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 A) 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 B. Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		41.25MC 47.25MC	A1, A2, R22 (Sound Reject Control)	Adjust for MINIMUM.
2.	Connect DC probe of a VTVM thru a 47K resistor to point B. Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44MC (10MC Sweep)	43.8MC 42.5MC 45.75MC 44.0MC	A3, A4, A5, A6, Mixer Plate Coil	Adjust for maximum amplitude.
3.	Connect vertical input of a scope to point B. Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44MC (10MC Sweep)	41.25MC 42.2MC 45.75MC 45.0MC 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 for optimum response.

SOUND ALIGNMENT

Connect a VTVM thru a detector probe to point C. Tune in a TV station and adjust A7, A8, and A9 for maximum deflection. Remove the 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. Continue to reduce the signal and adjust A10 for MINIMUM distortion until no further improvement can be made.

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.

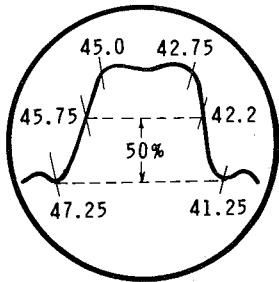


FIG. 1

ALIGNMENT CONTINUED PAGE 17

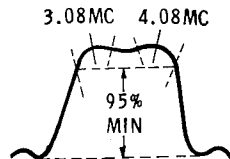
ALIGNMENT INSTRUCTIONS (cont)

CHROMA BANDPASS ALIGNMENT

The following alignment will require the use of an RF Modulator (RCA WG304A or equivalent). Connect a -15 volt supply to point D. Connect a -2 volt supply to point E. Connect a -15 volt supply to point F. Positive of all supplies to ground. Connect a jumper from point A to ground. Turn the color intensity to maximum. Remove the Horizontal Output tube and connect a 2000Ω 100W resistor from Source "B" to ground.

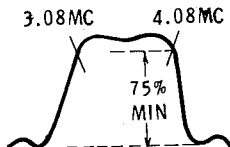
	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .1mfd to grid of Bandpass Amp. (V17). Low side to ground.	3.58MC (3-5MC Sweep)	3.08MC 4.08MC		Vert. Amp. to pin 1 of demodulators, point G. Low side to ground.	A12, A13	Adjust for response curve similar to Fig. 2.
5.	High side of sweep gen. to Video Sweep Input of RF demodulator. High side of signal gen. to picture carrier input. Output of RF modulator to mixer grid test point on tuner. Low side to ground.	Sweep generator to 3MC (6MC Sweep)	45.75MC		"	A14	Adjust for response curve similar to Fig. 3. If necessary retouch A12 to flatten top of response.

FIG. 2



SET MARKERS AT
EQUAL HEIGHTS

FIG. 3



VHF TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 GENERAL CEMENT #9728, 8275, 8195 ... WALSCO #2531X, 2541, 2526
A202, A203, A204 .. GENERAL CEMENT #9302, 9296, 9297 WALSCO #2511, 2546, 2547

VHF OSCILLATOR ALIGNMENT (TUNER KRK103)

Starting with the highest available channel in the area, check to see that all high band channels (7-13) can be tuned in with the fine tuning control. If any channels cannot be tuned in with the fine tuning, switch to channel 13 and adjust the oscillator slug (accessible through a hole in the indicator drive gear) and recheck all high band channels. Check all available low band channels to see if they are well within the range of the fine tuning. If not, switch to channel 6 and adjust the channel 6 slug and recheck all low band channels.

VHF OSCILLATOR ALIGNMENT (TUNER KRK104)

Starting with the highest available channel, check to see that each channel can be tuned in well within the range of the fine tuning. If any channel cannot be tuned in, adjust the oscillator on that channel.

RF AND MIXER ALIGNMENT (BOTH TUNERS)

Use only enough generator output to provide a usable indication. Use 10MC sweep unless otherwise noted. Connect variable bias to RF AGC line at point H. Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals with 120Ω in each lead.	195MC		10	Vert. Input to point I. Low side to ground.	A201	Increase bias to -15 volts. Adjust for MINIMUM response.
2.	"	213MC	211.25MC 215.75MC	13	"	A202	Adjust for response curve similar to Fig. 201 with markers as shown. If necessary spread or compress RF Amp plate coil and high band coupling for best response.
3.	"	85MC	83.25MC 87.75MC	6	"	A203, A204, A205	Adjust for response curve similar to Fig. 201. If necessary, adjust low band coupling for best response.
4.	"	207MC 201MC 195MC 189MC 183MC 177MC 79MC 69MC 63MC 57MC	205.25MC 207.75MC 199.25MC 203.75MC 193.25MC 197.75MC 187.25MC 191.75MC 181.25MC 185.75MC 175.25MC 179.75MC 77.25MC 81.75MC 67.25MC 71.75MC 61.25MC 65.75MC 55.25MC 59.75MC	12 11 10 9 8 7 5 4 3 2	"		Check all channels for response similar to Fig. 201. If necessary, spread or compress the coils on each channel for optimum response.

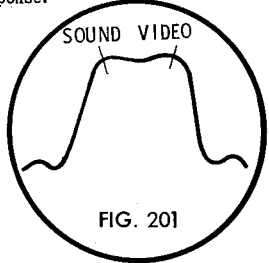
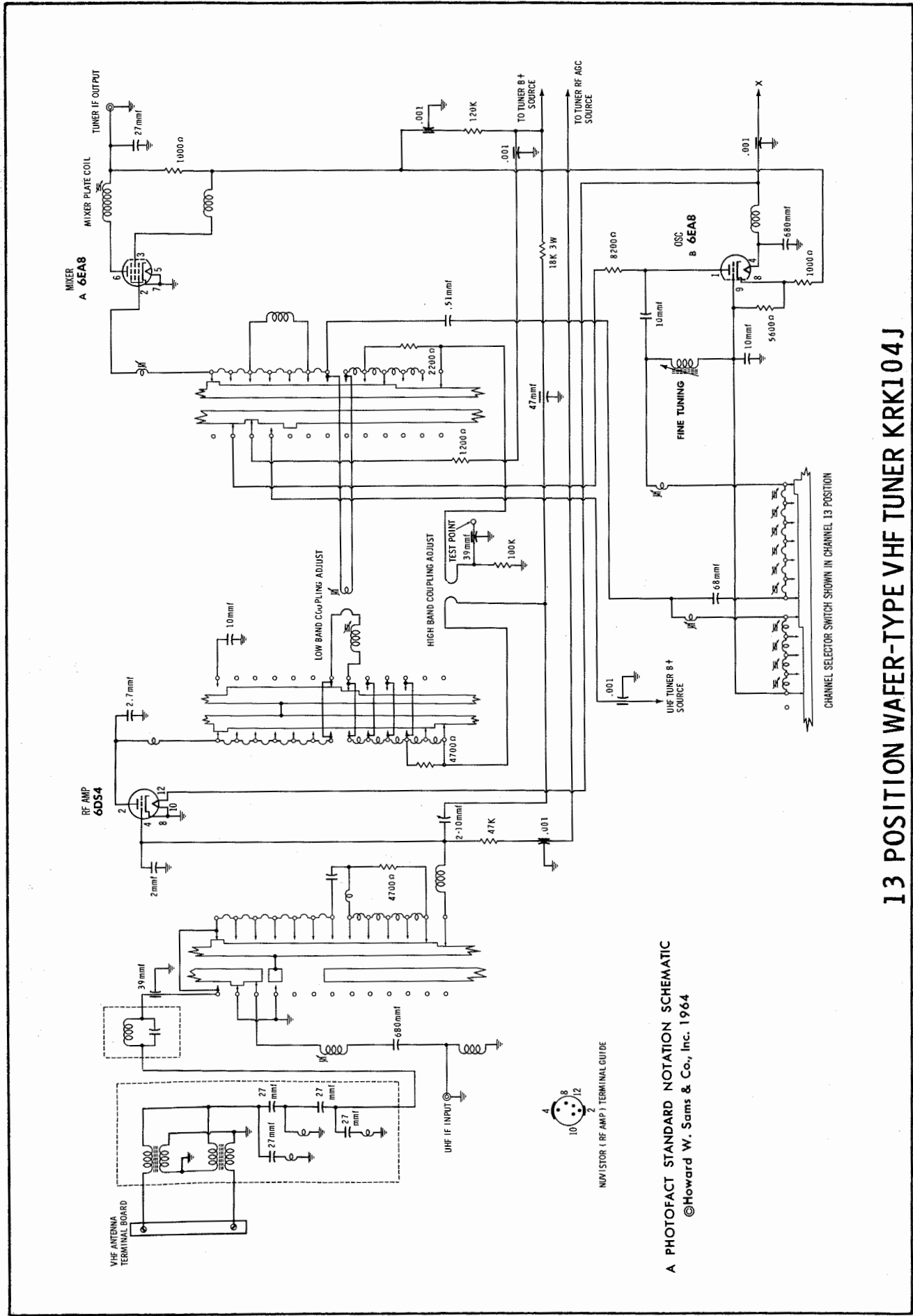


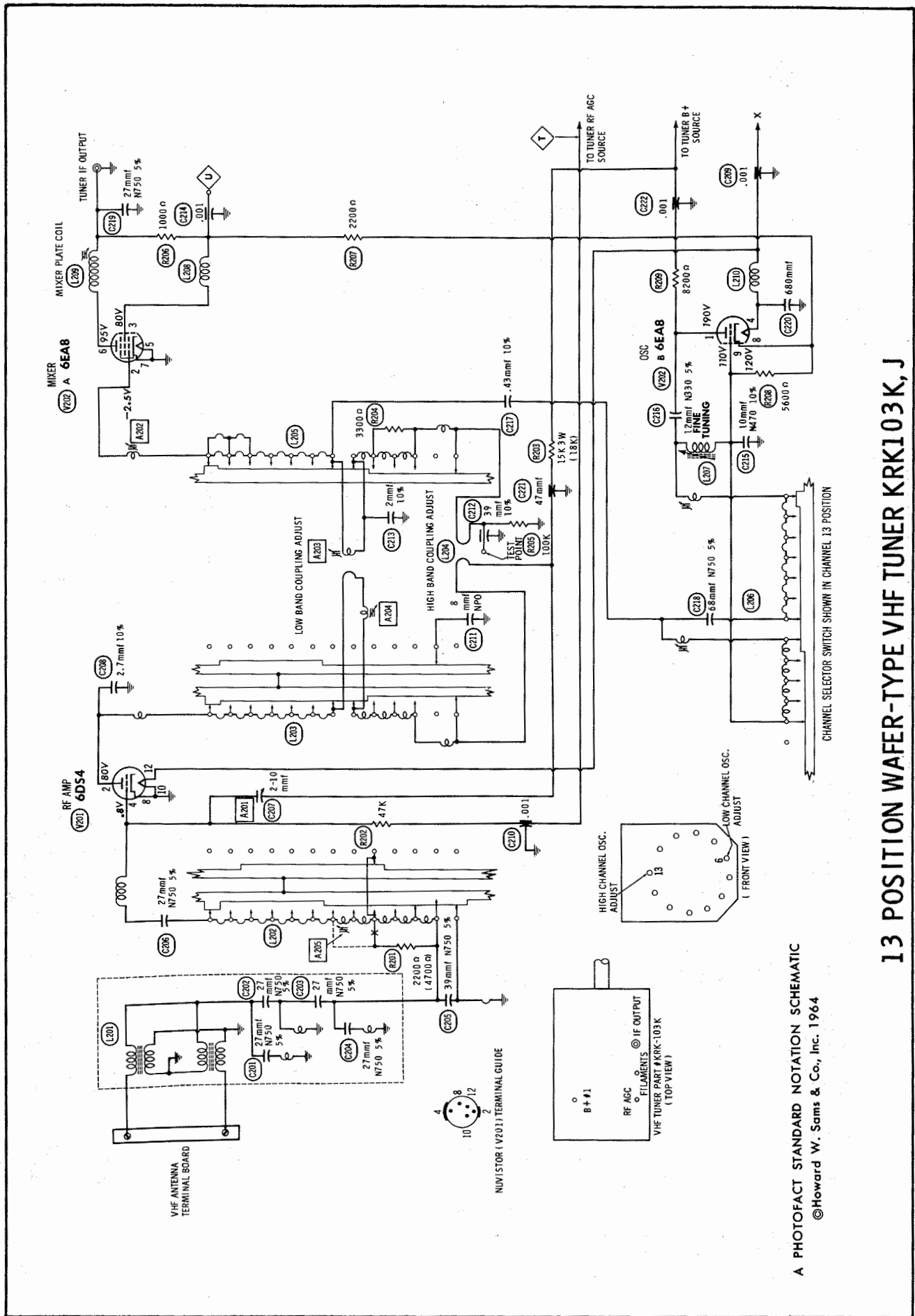
FIG. 201

PHILCO
CHASSIS 13180/U

FOLDER 2

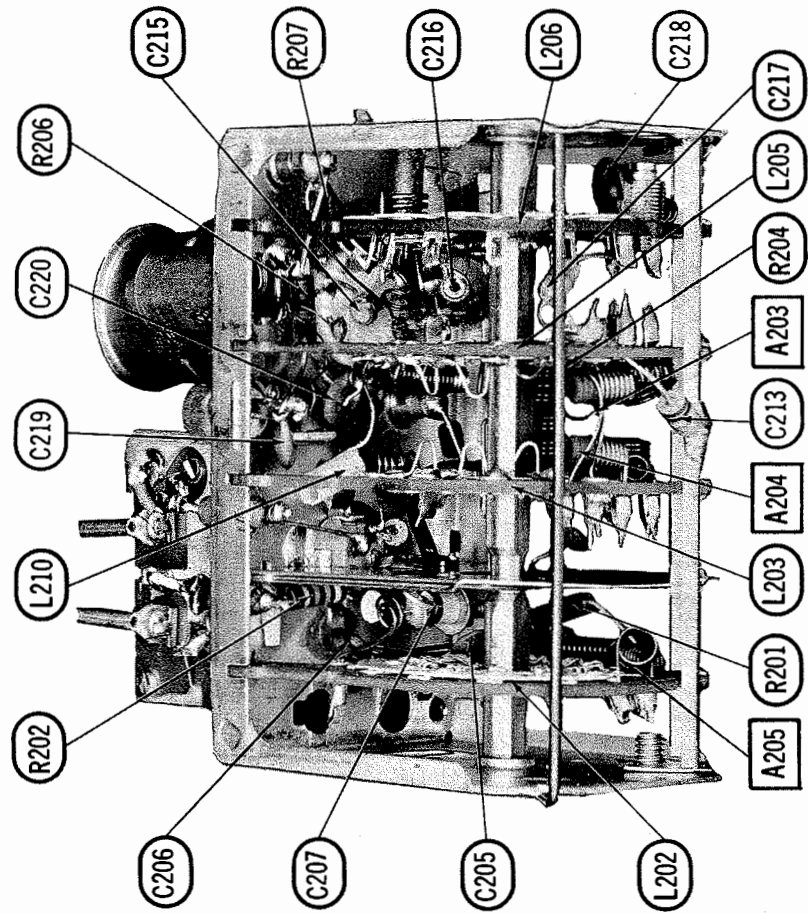


13 POSITION WAFER-TYPE VHF TUNER KRK104J

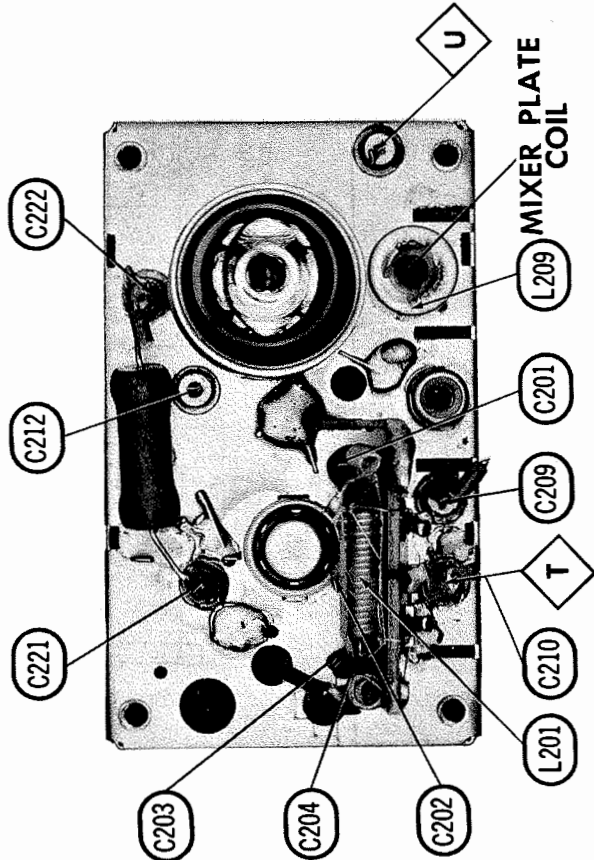


13 POSITION WAFER-TYPE VHF TUNER KRK103K, J

PHILCO
CHASSIS 13L80/U



VHF TUNER KRK103K



VHF TUNER KRK103K

VHF TUNER PARTS LIST
KRK103K

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6DS4	V202	Mixer - Osc.	6EA8

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELIMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C202	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C203	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C204	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C205	39 N750 5%			TCN-39	C10Q39U		CN7-439	10TCU-Q39
C206	27 N750 5%			TCN-27	C10Q27U		CN7-427	10TCU-Q27
C207	2-10 N750 5%	#12038		829-10				
C208	2-7 10%	#76443						
C209	.001 NPO	#107594	EF-001	MFT-001		CCF-102	CT280A	
C210	8 10%	#12040	EF-001	MFT-001		CCF-102	CT280A	
C211	39 10%	#112041						
C212	2.0 10%							
C213	.001 N470 10%	#76350	EF-001	MFT-001		CCF-102	CT280A	
C214	10 N350 5%	#120420						
C215	12 N350 5%	#109550						
C216	.43 N750 5%							
C217	88 N750 5%							
C218	27 N750 5%							
C219	880		BFD-00088	TCN-27	C10Q27U	CCD-681	CN7-427	10TCU-Q27
C220	47			DD-681	BYA10T68		B-368	10TS-T68
C221	.001	#112039	EF-001	MFT-001		CCF-102	CT280A	
C222	.001							

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

* Philco Part Number

RESISTORS (Power and Special)

ITEM No.	RATING	REMARKS	IRC PART No.	WORKMAN PART No.	REMARKS
R203	15 K 3W				

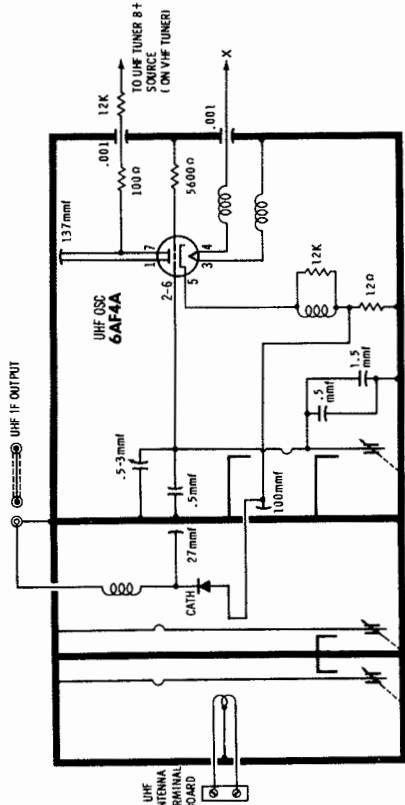
* Alternate Value

COILS (RF-IF)

ITEM No.	USE	PHILCO PART No.	NOTES
L201	Ant. Assembly	112050	
L202	Ant. Wafer	112049	Channels 2 - 13
L203	RF Wafer	112048	Channels 2 - 13
L204	H1 Band Coupling		
L205	Mixer Wafer	112047	Channels 2 - 13

ITEM No.	USE	PHILCO PART No.	NOTES
L206	Osc. Wafer	112046	Channels 2 - 13
L207	Fine Tuning	112333	
L208	RF Choke		
L209	Mixer Plate	112809	
L210	Fil. Choke		

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UHF TUNER KRK66 AM

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.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
			PHILCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
	PRI.	SEC.						
T5	7000Ω	3-4Ω	322-0162	A-3020	A-8092	25S48	S-9Z	

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PHILCO PART No.	QUAM PART No.	
	4" x 6" PM 3-4Ω	36-1696-2R		Model L-5414 (2 used)
	4" x 6" PM 3-4Ω	36-1696-5R		Model L-5212
	3 1/2" PM 3-4Ω	36-1696-4R		Model L-5418 (2 used)
	5" x 7" PM 3-4Ω	36-1696-7R		Model L-5416 (2 used)
	6" x 9" PM 3-4Ω	36-1696-3R		Model L-5418 (2 used)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			PHILCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	2 1/2"	#28	wire 324-0013					

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M2	VHF Tuner	KRK103K	
	VHF Tuner	KRK103J	
	VHF Tuner	KRK104J	
M3	UHF Tuner	KRK66AM	
M4	Switch	42-1795-1	Normal-Service
	Magnet	322-0090	Convergence Assembly Complete
	Magnet	228-0169	Lateral Assembly Complete
M5	Magnet		Lateral Magnets
M7	Delay Line	322-0132	
M15	Circuit Breaker	422-0038	
	Crystal	324-0012	3.58MC
	Printed Board	328-0213	Sound, less Tubes
	Printed Board	328-0214	Video, less Tubes
	Printed Board	328-0215	Deflection, less Tubes
	Printed Board	328-0216	Chroma, less Tubes
	Printed Board	227-0090	Convergence, less Tubes

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Mask	28-14466-1R	Cabinet, Model L-5418CH	76-12934-11R
Knob, Channel Selector	424-8552	Cabinet, Model L-5416MA	76-12934-5R
Knob, Fine Tuning	424-8551	Cabinet, Model L-5212WA	76-12934-7R
Knob, On-Off, Volume	424-8550	Cabinet, Model L-5414WA	76-12934-4R
Knob, Color, Brightness, Tint	424-8549	Cabinet, Model L-5416WA	76-12934-10R
Knob, Horiz. Hold, Vert. Hold, Tone, Contrast	424-8548	Cabinet, Model L-5414MB	76-12934-3R
Knob, UHF Selector	424-8547	Cabinet, Model L-5416MB	76-12934-6R
		Cabinet, Model L-5212MR	76-12934-1R

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869 (17KV) or 8868 (25KV)
Shielded Hook-up Wire	Use BELDEN No. 8865 (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)
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) - 6 Conductor

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 for the most up-to-date replacement.

TUBES

AMPEREX		GENERAL ELECTRIC		RCA		RAYTHEON		SYLVANIA	
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE		ITEM No.	USE
V1	1st Video IF Amp.	6BZ6		V15	Focus Rectifier	1V2			
V2	2nd Video IF Amp.	6GM6		V16	HV Regulator	6BK4			
V3	3rd Video IF Amp.	6EJ7/EF184		V17	Chroma Bandpass Amp. - Color Killer	6EA8 (6GH8) *			
V4	1st & 2nd Video Amp.	6AW8A		V18	Burst Amp.	6EW6			
V5	Video Output	12BY7A		V19	Chroma Sync Phase Det. - Color Killer Detector	6JU8			
V6	Noise Inverter - AGC Keying - Sync Sep.	6KA8		V20	Chroma Ref. Osc. Control - Chroma Ref. Osc.	6GH8			
V7	Sound IF Amp.	6EW6		V21	"Z" Demodulator	6GY6			
V8	Audio Detector	6GX8 (6HZ8) *		V22	B-Y Amp. - R-Y Amp.	6FQ7			
V9	Audio Output	6AQ5A		V23	"X" Demodulator	6GY6			
V10	Vert. Mult. - Vert. Output	6EM7		V24	Horiz. Blanking Amp. - G-Y Amp.	6FQ7			
V11	Horiz. AFC - Horiz. Osc.	6GQ7							
V12	Horiz. Output	6DQ5							
V13	Damper	6DW4							
V14	HV Rectifier	3A5							

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	PHILCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V25	21FJP22		21FJP22 ①			① Aluminized

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS			NOTES
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	
X1		34-8048-2	1N1095	1N3195	F8	Rectifier (Silicon)
X2		34-8048-2	1N1095	1N3195	F8	Rectifier (Silicon)
X3		324-0037				Video Detector
X4		324-0037				Sound IF Detector (Crystal)
X5		324-0011				Horiz. AFC (Dual Selenium)
X6		324-0015	A50 ①	1N2858 ①	2F4 ①	Convergence, Triple Section (Selenium) ① 3 Required

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1	150	250	320-0029	AFH4-31-75 ①	XA0315 ①	XCI-19 ①	WP131.5 ①	TMS-1480 ①	TVL-1540 ①
C2A	160	250	320-0063	AFH4-108-38	CO330	XCS-29	FP376.9	TMT-3739	TVL84714.4*
B	30	450			BR200-250	TC692		TD-200-309	
C	20	450							
D	40	150							
C3A	80	450	320-0064	AFH4-108-35			FP420.95		TVL84714.5*
B	50	450					TC495		
C	100	250							
D	250	50							
C4	2	350	320-0038	PR81705	BR2-450	QTI-1	TC595	TD-2-450	TVA-1701
C5	50	150	320-0008	PR81480	BR-50-150	QTI-17	TC49	TD-50-150	TVA-1414
C6	80	450	30-2607-1R	AFH1-55	A0510	XCI-8	FPI49	TMS-1800	TVL-1735
C7	8	10NP		PR86200	BER8-150	NPQT-1	TCN108		TVANS112*

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Use insulating sleeve.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C10	9	NPO						
C11	150	NPO 5%						
C12	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C13	.003	200V	P288N-033	DD-303	CUB6533	4DP-2-333	GEM-4133	4TM-533
C14	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.1	200V	P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-2P1	2TM-P10
C17	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C18	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C19	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C20	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C21	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C22	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C23	220	N1500 10%						
C24	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C25	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C26	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C27	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C28	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C29	560	N1500 5%						
C30	.0022	10%	DI-2200	CPR-2200J	IR5D22	CCD-222	GP222	10TS-D22
C31	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C32	10	NPO 5%		TCZ-10	C10Q1C		CNO-410	10TCC-Q10
C33	100	N033 10%						
C34	18	NPO	NPO-S218	TCZ-18	C10Q18C	CCO-180	CNO-418	10TCC-Q18
C35	.0033	10%	DI-3300	CPR-3300J	IR5D33	CCD-332		10TS-D33

PHILCO
CHASSIS 13180/U

FOLDER 2

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.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.
C36 .1	400V	①	P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C37 2	NPO		NPO-S12.0		C10V2C	10TCC-050		10TCC-V50
C38 5	NPO		NPO-S15.0		C10V5C	2DP-3-104	GEM-201	2TM-P10
C39 .1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	B-110	5HK-S10
C40 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42 390	10%		DI-390	DD-391	L10T39	CCD-391	GP339	10TS-T39
C43 390	10%		DI-390	DD-391	L10T39	CCD-391	GP339	10TS-T39
C44 .0015			BPD-0015	DD-152	L10D15	CCD-152	B-215	10TS-D15
C45 180	10%		DI-180	DD-181	L10T18	CCD-181	GP318	10TS-T18
C46 .001		#320-0031	SI 1000	DD-102	L10D1	CCD-102	GP210	10TS-D10
C47 1.5	N3300			TCZ-10	C10Q1C		CNO-410	10TCC-Q10
C48 10	NPO							
C49 5	N1500							
C50 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C51 750	5%			CPR-750J	5R5T75	CM-20B-75J	B-110	5HK-S10
C52 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C53 580			DI-580	DD-581	L10T58	CCD-581	GP358	10TS-T58
C54 47	N750		N750-D147	DD-503	C10Q47U	CTCN-470	CNT-447	10TCU-Q47
C55 .047	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-2147	2TM-S47
C56 .01		#320-0082	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C57 47	N750		N750-D147	DD-103	C10Q47U	CTCN-470	CNT-447	10TCU-Q47
C58 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C59 .0088			DI-6800	DD-682	L10D68	CCD-682	B-268	10TS-D68
C60 .001			SI 1000	DD-102	L10D1	CCD-102	B-210	10TS-D10
C61 .0047			BPD-0047	DD-472	BYA10D47	CCD-472	B-247	5HK-D47
C62 .001	2000V							
C63 .0033	10%		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C64 150	10%		DI-150	DD-151	L10T15	CCD-151	GP315	10TS-T15
C65 .0022			BPD-0022	DD-222	L10D22	CCD-222	B-222	10TS-D22
C66 .005		#320-0025	BPD-0015	DD-152	L10D15	CCD-152	B-215	10TS-D15
C67 .0027	10%		DI-2700	CPR-2700J	IR5D27	CCD-272		10TS-D27
C68 .036	600V							
C69 .1	600V		P488N-22	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C70 .22	400V		BE6D68	CRP-6800J	PM6D68	6DP-1-682	PVC4268	6PS-D68
C71 .0068	400V		BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C72 680			BPD-0068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C73 680			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-2147	2TM-S47
C74 .047	200V							
C75 .0082	400V	#320-0010		CPR-8200J				
C76 .001	2000V		P288N-47	DTZ-47	C10Q47C	CTCO-470	CNO-447	10TCC-Q47
C77 .47	200V		NPO-D147	DTZ-47	C10Q47C	CTCO-470	CNO-447	10TCC-Q47
C78 47	NPO		NPO-D147	DTZ-47	C10Q47C	CTCO-470	CNO-447	10TCC-Q47
C79 68	NPO		DI-820	CPR-820J	SR5T82	CCD-821	GP382	10TS-T82
C80 820	10%		DI-820	CPR-820J	SR5T82	CCD-821	GP382	10TS-T82
C81 820	10%		P288N-15	LD-102	CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C82 .15	200V		DI-1000	LD-102	SR5D1	CCD-102	GP210	10TS-D10
C83 .001	10%							
C84 380	1.5KV	#320-0014	BE481	CPR-10000J	PM4S1	4DP-1-103	PVC411	4PS-S10
C85 .01	400V		1469-00068	CPR-680J	5R5T68	CM-20B-68J	MS-358	6PS-D68
C86 680	600V		BE6D15	DD-152	PM6D15	6DP-1-152	PVC6215	6PS-D15
C87 .0015	600V		P688N-01	DD-103	CUB6S1	6DP-2-103	GEM-601	6TM-P10
C88 .01	600V		P688N-1	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C89 .1	800V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C90 .047	600V							
C91 .047	600V							
C92 68	4KV							
C93 .1	200V	#320-0010	P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C94 130	6KV							
C95 22	200V		DI-22	DD-220	L10Q22	CCD-220	GP422	10TS-Q22
C96 .15	200V		BE2P15	DD-220	PM2P15	2DP-3-154	PVC2015	2PS-P15
C97 12	600V							
C98 150	10%		DI-150	DD-332	L10T15	CCD-151	GP315	10TS-T15
C99 .0033			BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C100 .1	600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C101 560	2.5KV	#320-0014						
C102 560	2.5KV							
C103 100	3KV							
C104 120	NPO		NPO-S1 120	TCZ-120	NPO-D1 120	CTCO-120	CNO-312	10TCC-T12
C105 .001			BPD-001	DD-103	BYA10D1	CCD-102	B-210	5HK-D10
C106 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C107 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C108 120	10%		DI-120	DD-121	L10T12	CCD-121	GP312	10TS-T12
C109 330	5%		1469-00033	CPR-330J	5R5T33	CM-20B-33J	MS-333	6PS-D33
C110 330	5%		1469-00033	CPR-330J	5R5T33	CM-20B-33J	MS-333	6PS-D33
C111 330	5%	#320-0027	1469-00033	CPR-330J	5R5T33	CM-20B-33J	MS-333	6PS-D33
C112 330	5%		DI-10	DD-100	L10Q1	CCD-100	GP410	10TS-Q10
C113 10	200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-2147	2TM-S47
C114 .047	200V		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C115 .001			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C116 .01			DI-820	DD-821	5R5T82	CCD-821		10TS-T82
C117 820	10%							
C118 470	N750							
C119 .01	5%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C120 1.3mmf		#320-0014						
C121 6	NPO		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C122 .01	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C123 .1	NPO							
C124 4	NPO		NPO-D1 10	DTZ-10	C10V1	CTCO-100	CNO-410	10TCC-Q10
C125 10	NPO		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C126 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C127 .01			N750-D1220	DTN-220	C10T22U	CTCN-221	CNT-322	10TCU-T22
C128 220	N750		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C129 .01			DI-82	DD-820	L10Q82	CCD-820	GP482	10TS-Q82
C130 82	10%	#320-0014	1469-00015	CPR-150J	22R5T15	CM-20B-15J	MS-315	6PS-D15
C131 150	5%							
C132 33	N150		P688N-01	DD-103	CUB6S1	6DP-2-102	GEM-611	6TM-S10
C133 .01	600V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C134 .01								
C135 33	N150		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C136 .01			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-2147	2TM-S47
C137 .047	200V		P688N-01	DD-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C138 .01	600V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C139 .01			P688N-01	DD-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C140 .01	600V	#320-0014	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C141 .01			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C142 .001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C143 .001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C144 .001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C145 .001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.
C146 .12	200V	10%						
C147 .082	200V	10%						
C148 .1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C149 .1	400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C150 .056	400V	10%	BE6856	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C151 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C152 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C156 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C157 220			DI-220	DD-221	L10T22	CCD-221	GP322	10TS-T22
C158 .22	400V		P488N-22	DD-221	CUB4P22	4DP-5-224	GEM-4022	4TM-P22

① Used in late production versions.
② Not used in some versions.

Philco Part Number

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume	1meg, 650K Tap	323-0106				
R2	Tone	2.5meg	323-0075	AB-76, AK-33 or (F2-2meg, SFS212, AK-38)	A47-2meg-Z, RS-3/16	B13-139, TM8 or (BU1, CF27, SS4, DC1) *	TA26A, DS37 or (RU26A, SL37, SD3500) or (UA26A, SD3500)
R3	Color	750Ω, 520Ω Tap					
R4	Tint	1200Ω	323-0089				
R5	Brightness	250K	323-0086	AB-50, AK-33 or (F1-250K, SFS212)	A47-250K-S, RS-3/16	B11-130, SK9 or (BU2, CF15, SS4, DC1) *	UA254L, SD3500 or (RU254L, SD3500, SL38, or (U46, DS37, TA16L, DS37 or (RU754L, SL37, SD3500) or (UA16L, SD3500)
R6	Vert. Hold	750K	323-0083	AB-86, AK-33 or (F1-750K, SFS212, AK-38)	A47-750K-S, RS-3/16	B11-136, TM8	PTA1254L or (RU16L, SL37, SN1000) or (UA16L, SN1000)
R7	Color Killer	1meg	323-0090	TT-69 or (F1-1meg, SN010, AK-38)	B47-1meg-S	B11-137, TM4 or (BU1, CF17, SS6) *	PTA1254L or (RU16L, SL37, SN1000) or (UA16L, SN1000)
R8	Contrast	500Ω, 280Ω Tap	323-0087			† B17-103X TM8	
R9	Vertical Linearity	3.4meg	323-0084	TT-84 or (F1-3meg, SN010, AK-38)	B47-3meg-S	B11-130, TM4 or (BU1, CF17, SS6) *	PTA355L or (RU36L, SL37, SN1000) or (UA36L, SN1000)
R10	Vertical Height	100K	323-0085	TT-40 or (F1-100K, SN010, AK-38)	B47-100K-S	B11-128, TM4 or (BU1, CF13, SS6) *	PTA151L or (RU15L, SL37, SN1000) or (C8MP or VW5K
R11	AGC	6000Ω 2W	323-0081	WN-502 or WW-502	A43-5000, FKS-1/2	W11-214, SK5	C8MP or VW5K
R12	Kine Bias	6000Ω 2W	323-0093	WN-502 or WW-502	A43-5000, FKS-1/2	W11-214, SK5	C8MP or VW5K
R13	Blue Drive	5000Ω	323-0094	TT-10 or (F1-5000, SN010, AK-38)	B47-5000-S	B11-114, TM4 or (BU1, CF8, SS6) *	PTA53L or (RU53L, SL37, SN1000) or (UA53L, SN1000)
R14	Green Drive	5000Ω	323-0095	TT-10 or (F1-5000, SN010, AK-38)	B47-5000-S	B11-114, TM4 or (BU1, CF8, SS6) *	PTA53L or (RU53L, SL37, SN1000) or (UA53L, SN1000)
R15	Red Screen	1meg	323-0097	TT-69 or (F1-1meg, SN010, AK-38)	B47-1meg-S	B11-137, TM4 or (BU1, CF17, SS6) *	PTA1254L or (RU16L, SL37, SN1000) or (UA16L, SN1000)
R16	Blue Screen	1meg	323-0098	TT-69 or (F1-1meg, SN010, AK-38)	B47-1meg-S	B11-137, TM4 or (BU1, CF17, SS6) *	PTA1254L or (RU16L, SL37, SN1000) or (UA16L, SN1000)
R17	Green Screen	1meg	323-0096	TT-69 or (F1-1meg, SN010, AK-38)	B47-1meg-S	B11-137, TM4 or (BU1, CF17, SS6) *	PTA1254L or (RU16L, SL37, SN1000) or (UA16L, SN1000)
R18	Horizontal Centering	10Ω 2W	323-0073				
R19	Vertical Centering	10Ω 2W	323-0054				
R20	Horizontal Hold	35K	323-0082	AB-31, AK-33 or (F1-50K, SFS212, AK-38)	A47-40K-S RS-3/16	B11-122, SK9	TA54L, D637 or (RU54L, SL37, SD3500) or (UA54L, SD3500)
R21	Hi-Voltage Adjustment	500K	323-0071	TT-59 or (F1-500K, SN010, AK-38)	B47-500K-S	B11-133, TM4 or (BU1, CF16, SS6) *	PTA55L or (RU55L, SL37, SN1000) or (UA55L, SN1000)
R22	Sound Reject	750Ω	323-0031				
R23	Adjacent Sound Reject	10K	323-0036				
R24	Vert. R-G Diff. Amp.	150Ω 1W	323-0021			110C150	PFL150PA
R25	Vert. R-G Master Tilt	60Ω 1W	323-0027			110C60	PFL60A
R26	Vert. Blue Tilt	60Ω 1W	323-0027			110C60	PFL60A
R27	Vert. R-G Master Amp.	120Ω 1W	323-0033			110C120	PFL120PA
R28	Vert. Blue Amp.	30Ω 1W	323-0034			110C30	PFL30PA
R29	Vert. R-G Diff. Tilt	30Ω 1W	323-0034			110C30	PFL30PA
R30	Horiz. Left R-G-3	60Ω 1W	323-0027			110C60	PFL60A
R31	Horiz. Left R-G-4	60Ω 1W	323-0027			110C60	PFL60A
R32	Horiz. Left B-2	120Ω 1W	323-0033			110C120	PFL120PA

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.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	PHILCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T5	7000Ω	3-4Ω	322-0162	A-3020	A-8092	26548	S-9Z	

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PHILCO PART No.	QUAM PART No.	
	4" x 6" PM 3-4Ω	36-1696-2R		Model L-5414 (2 used)
	4" x 6" PM 3-4Ω	36-1696-5R		Model L-5212
	3 1/2" PM 3-4Ω	36-1696-4R		Model L-5418 (2 used)
	5" x 7" PM 3-4Ω	36-1696-7R		Model L-5416 (2 used)
	6" x 9" PM 3-4Ω	36-1696-3R		Model L-5418 (2 used)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				NOTES
			PHILCO PART No.	LITTELFUSE PART No.	8USS PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	2 1/2"	#26	wire 324-0013				

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M2	VHF Tuner	KRK103K	
	VHF Tuner	KRK103J	
	VHF Tuner	KRK104J	
M3	UHF Tuner	KRK66AM	
M4	Switch	42-1795-1	Normal-Service
	Magnet	322-0090	Convergence Assembly Complete
	Magnet	228-0169	Lateral Assembly Complete
M5	Magnet	322-0132	Lateral Magnets
M7	Delay Line	422-0038	
M15	Circuit Breaker	324-0012	3.58MC
	Crystal	328-0213	Sound, less Tubes
	Printed Board	328-0214	Video, less Tubes
	Printed Board	328-0215	Deflection, less Tubes
	Printed Board	328-0216	Chroma, less Tubes
	Printed Board	227-0090	Convergence, less Tubes

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.	ITEM	PART No.
Mask	28-14466-1R	Cabinet, Model L-5418CH	76-12934-11R
Knob, Channel Selector	424-8552	Cabinet, Model L-5416MA	76-12934-5R
Knob, Fine Tuning	424-8551	Cabinet, Model L-5212WA	76-12934-7R
Knob, On-Off, Volume	424-8550	Cabinet, Model L-5414WA	76-12934-4R
Knob, Color, Brightness, Tint	424-8549	Cabinet, Model L-5416WA	76-12934-10R
Knob, Horiz. Hold, Vert. Hold, Tone, Contrast	424-8548	Cabinet, Model L-5414MB	76-12934-3R
Knob, UHF Selector	424-8547	Cabinet, Model L-5416MB	76-12934-6R
		Cabinet, Model L-5212MR	76-12934-1R

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869 (17KV) or 8888 (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)
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

PARTS LIST AND DESCRIPTION

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Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

TUBES

* AMPEREX *		* GENERAL ELECTRIC *		* RCA *		* RAYTHEON *		* SYLVANIA *	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.
V1	1st Video IF Amp.	6BZ8	V15	Focus Rectifier	1V2				
V2	2nd Video IF Amp.	6GM6	V16	HV Regulator	6BK4				
V3	3rd Video IF Amp.	6EJ7/EF184	V17	Chroma Bandpass Amp. -					
V4	1st & 2nd Video Amp.	6AW8A		Color Killer	8EA8 (6GH8) *				
V5	Video Output	12BY7A	V18	Burst Amp.	6EW6				
V6	Noise Inverter -		V19	Chroma Sync Phase Det. -					
V7	AGC Keying - Sync Sep.	6KA8		Color Killer Detector	6JU8				
V8	Sound IF Amp.	6EW8	V20	Chroma Ref. Osc. Control -					
V9	Audio Detector	6GX6 (6HZ8) *		Chroma Ref. Osc.	6GH8				
V10	Vert. Mult. - Vert. Output	6AQ5A	V21	"Z" Demodulator	8GY6				
V11	Horiz. AFC - Horiz. Osc.	6EM7	V22	B-Y Amp. - R-Y Amp.	6FQ7				
V12	Horiz. Output	6FQ7 (6CG7)*	V23	"X" Demodulator	6GY6				
V13	Damper	6DQ5	V24	Horiz. Blanking Amp. -					
V14	HV Rectifier	6DW4		G-Y Amp.	6FQ7				
		3A3							

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	PHILCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V25	21FJP22		21FJP22 ①			① Aluminized

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS			NOTES
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	
X1		34-8048-2	1N1085	1N2863 *	F8 or 60H	Rectifier (Silicon)
X2		34-8048-3	1N1095	1N2863 *	F8 or 60H	Rectifier (Silicon)
X3		324-0037				Video Detector
X4		324-0037				Sound IF Detector (Crystal)
X5		324-0011				Horiz. AFC (Dual Selenium)
X6		324-0015	A50 or D50 ①	1N2858 ①	F1 or 10H ①	Convergence, Triple Section (Selenium)

* Or 1N3195

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	160	250	320-0029	AFH1-31-75 ①	XA0315 ①	XC1-19 ①	TMS-1480 ①	WP131.5 ①	TVL-1540 ①
C2A	160	250	320-0063	AFH4-108-38	C0330	XC3-29	TMT-3739	FP376.9	TVL84714.4*
B	30	450			BR200-250	QT1-26	TD-200-300	TC692	
C	20	450							
D	40	150							
C3A	80	450	320-0064	AFH4-108-35	C0370	XC3-30	TMT-3763	FP427.68	TVL84714.6*
B	50	450			BR50-50	QT1-15	TD-50-50		
C	20	250							
D	50	50							
C4	2	350	320-0038	PRS1705	BR2-450	QT1-1	TD-2-450	TC595	TVA-1701
C5	50	150	320-0008	PRS1480	BR-50-150	QT1-17	TD-50-150	TC49	TVA-1414
C6	80	450		AFH1-55	A0510	XC1-8	TMS-1800	FP149	TVL-1735
C7	8	10NP	30-2607-1R	PRS6200	BBR8-150	NPQT-3		TCN-108	TVANS1112*

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Use insulating sleeve and mounting washer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
C10	9	NPO						
C11	150	NPO 5%						
C12	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C13	.033	200V	P288N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	4TM-533
C14	.001		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	.1	200V	P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-2P1	2TM-P10
C17	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C18	.680							
C19	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C20	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C21	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C22	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C23	220	N1500 10%						
C24	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C25	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C26	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C27	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C28	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C29	560							
C30	.0022		DI-2200	CPR-2200J	IRSD22	CCD-222	GP222	10TS-D22
C31	.001		SI 1000	D6-102	L10D1	CCD-102	GP210	10TS-D10
C32	10	NPO 5%		TCZ-10	C10Q1C		CNO-410	10TCC-Q10
C33	100	N033 10%						
C34	18	NPO	NPO-SZ18	TCZ-18	C10Q18C			
C35	.0033	10%	DI-3300	CPR-3300J	IRSD33	CCD-332	CNO-418	10TCC-Q18

SET 683 FOLDER 2

PHILCO
CHASSIS 13L80/U

FOLDER 2

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.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.
C36 .1	400V	①	P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C37 2	NPO		NPO-S12.0		C10V2C			
C38 5	NPO		NPO-S15.0		C10V5C			
C39 .1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C40 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C41 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42 390	10%		BPD-01	DD-391	LIOT39	CCD-391	GP339	10TS-T39
C43 390	10%		BPD-01	DD-391	LIOT39	CCD-391	GP339	10TS-T39
C44 .0015			BPD-0015	DD-152	LIOT18	CCD-152	B-215	10TS-D15
C45 180	10%		SI 1000	DD-181	LIOT18	CCD-181	GP318	10TS-T18
C46 .001		#320-0031	TCZ-10		C10Q1C		CNO-410	10TCC-Q10
C47 1.5	N3300							
C48 10	NPO 5%							
C49 5	N1500 5%							
C50 .01			BPD-01	DD-103	5R5T75	CCD-103	B-110	5HK-S10
C51 750	5%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C52 .01			DI-560	DD-561	LIOT56	CCD-561	GP356	10TS-T56
C53 560			N750-D147	DTN-47	C10Q47U	CCTN-470	CNT-447	10TCU-Q47
C54 47	N750 10%		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-2147	2TM-S47
C55 .047	200V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C56 .01	N750 10%	②	N750-D147	DTN-47	C10Q47U	CCTN-470	CNT-447	10TCU-Q47
C57 47			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C58 .01			DI-6800	DD-682	LIOT18	CCD-682	B-268	10TS-D18
C59 .0068			SI 1000	DD-102	LIOT18	CCD-102	B-210	10TS-D10
C60 .001			BPD-0047	DD-472	BYA10D47	CCD-472	B-247	5HK-D47
C61 .0047								
C62 .001	2000V 10%		BPD-0033	DD-332	LIOT15	CCD-332	B-233	5HK-D33
C63 .0033			DI-150	DD-151	LIOT15	CCD-151	GP315	10TS-T15
C64 150	10%		BPD-0022	DD-222	LIOT22	CCD-222	B-222	10TS-D22
C65 .0022			BPD-0015	DD-152	LIOT15	CCD-152	B-215	10TS-D15
C66 .005		#320-0082	DI-2700	CPR-2700J	IR5D27	CCD-272		10TS-D27
C67 .0027	10%							
C68 .036	600V 10%		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C69 .1	600V		P688N-22	CRP-6800J	PMSD68	6DP-1-682	GEM-4022	4TM-P22
C70 .22	400V		BPD-0068	DD-681	BYA10T68	CCD-681	B-368	6PS-D68
C71 .0068	400V 10%		BPD-0068	DD-681	BYA10T68	CCD-681	B-368	6PS-D68
C72 680			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-2147	2TM-S47
C73 680								
C74 .047	200V							
C75 .0082	400V	#320-0025						
C76 .001	2000V 10%		P288N-47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C77 .47	NPO 10%		NPO-D147	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C78 47	NPO 10%		DI-820	CPR-820J	5R5T82	CCD-821	GP382	10TS-T82
C79 68	NPO 10%		DI-820	CPR-820J	5R5T82	CCD-821	GP382	10TS-T82
C80 820	10%		P288N-15	LD-100	CUB2P15	2DP-3-154	GEM-2015	2TM-P15
C81 820	10%				5R5D1	CCD-102	GP210	10TS-D10
C82 .15	200V							
C83 .001	1.5KV 5%	#30-1238-7	BE4S1	CPR-10000J	PMA51	4DP-1-103	PVC41U	4PS-S10
C84 390	1.5KV 5%		1469-00068	CPR-680J	5R5T68	CM-20B-68U	PVC6215	MS-368
C85 .01	400V 10%		BE6D15	DD-152	PME6D15	6DP-1-152	GEM-611	6PS-D15
C86 680	10%		P688N-01	DD-103	CUB6S1	6DP-2-103	GEM-601	6TM-P10
C87 .0015	600V		P688N-1	DD-104	CUB6P1	6DP-4-104	GEM-6147	6TM-S47
C88 .01	600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C89 .1	600V		P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47
C90 .047	600V							
C91 .047	600V							
C92 68	4KV 10%	#320-0010	P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C93 .1	200V							
C94 130	6KV		DI-22	DD-220	LIOT22	CCD-220	GP422	10TS-Q22
C95 22			BE2P15		PME2P15	2DP-3-154	PVC2015	2PS-P15
C96 .15	200V 10%							
C97 12	600V 10%		DI-150	DD-151	LIOT15	CCD-151	GP315	10TS-T15
C98 150	10%		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C99 .0033			P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10
C100 .1	600V							
C101 560	2.5KV 10%	#320-0014	NPO-S1 120	TCZ-120	NPO-D120	CCTO-120	CNO-312	10TCC-T12
C102 560	2.5KV 10%		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C103 100	3KV 5%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C104 120	NPO		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C105 .001			DI-120	DD-121	LIOT12	CCD-121	GP312	10TS-T12
C106 .01			1469-00033	CPR-330J	5R5T33	CM-20B-33U	MS-333	MS-333
C107 120	10%		1469-00033	CPR-330J	5R5T33	CM-20B-33U	MS-333	MS-333
C108 330	5%		1469-00033	CPR-330J	5R5T33	CM-20B-33U	MS-333	MS-333
C109 330	5%		1469-00033	CPR-330J	5R5T33	CM-20B-33U	MS-333	MS-333
C110 330	5%		DI-10	DD-100	LIOT10	CCD-410	GP410	10TS-Q10
C111 330	5%	#320-0014	P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-2147	2TM-S47
C112 330	5%		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C113 10	10%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C114 .047	200V		DI-820	DD-821	5R5T82	CCD-821		10TS-T82
C115 .001								
C116 .01								
C117 820	N750 5%							
C118 470								
C119 .01								
C120 1.3mmf		#320-0027	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C121 6	NPO 5%							
C122 .01			BPD-01	DD-103	C10V6C	CCD-103	B-110	5HK-S10
C123 .1	200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C124 4	NPO							
C125 10	NPO 10%		NPO-D1 10	DTZ-10	C10VQ1	CCTO-100	CNO-410	10TCC-Q10
C126 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C127 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C128 220	N750 10%		N750-D1220	DTN-220	C10T22U	CCTN-221	CNT-322	10TCU-T22
C129 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C130 82	10%	#320-0014	DI-82	DD-820	LIOT82	CCD-820	GP482	10TS-Q82
C131 150	5%		1469-00015	CPR-150J	22R5T15	CM-20B-15U	MS-315	MS-315
C132 33	N150		P688N-01	D6-103	CUB6S1	6DP-2-102	GEM-611	6TM-S10
C133 .01	600V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C134 .01								
C135 33	N150		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C136 .01			BPD-01	DD-103	CUB2S47	4DP-3-473	GEM-2147	2TM-S47
C137 .047	200V		P288N-047	DD-503	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C138 .01	600V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C139 .01			P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C140 .01	600V	#320-0014	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C141 .01			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C142 .001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C143 .001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C144 .001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C145 .001			BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOPART No.	MALLORY PART No.	SPRAGUE PART No.
C146 .12	200V 10%		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C147 .082	200V 10%		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C148 .1	200V		BE6S56					
C149 .1	400V		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C150 .056	400V 10%		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C151 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C152 .01			BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C156 .01			DI-220	DD-221	LIOT22	CCD-221	GP322	10TS-T22
C157 220			P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C158 .22	400V							

① Used in late production versions.

② Not used in some versions.

* Philco Part Number

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume	1meg, 650K Tap	323-0106				
R2	Tone	2.5meg	323-0075	F2-2meg, SFS212 or (AB-76, AK-33)	A47-2meg-Z, RS-3/16	B13-139, TMB or (BU11, CF27, S84, DC1) *	TA26A, DS37 or (RU26A, SL37, SD3500) or (UA26A, SD3500)
R3	Color ①	750Ω, 520Ω Tap					
R4	Tint	1200Ω	323-0089	F1-250K, SFS212 or (AB-50, AK-33)	A47-250K-S, RS-3/16	B11-130, SK9 or (BU2, CF15, S84, DC1) *	UA254L, SD3500 or (RU254L, SD3500)
R5	Brightness	250K	323-0086				
R6	Vert. Hold	750K	323-0089	F1-750K, SFS212 or (AB-56, AK-33)	A47-750K-S, RS-3/16	B11-136, TMB or (BU11, CF64, S86) *	UA16L, DS37 or (RU754L, SL37, SD3500) or (UA16L, SD3500)
R7	Color Killer	1meg	323-0090	TT-69 or (F1-1meg, SN010)	B47-1meg-S	B11-137, TM4 or (BU11, CF17, S86) *	PTA1254L or (RU16L, SL37, SN1000) or (UA16L, SN1000)
R8	Contrast	500Ω, 280Ω Tap	323-0087	F51-750, SFS212			
R9	Vertical Linearity	3.4meg	323-0084	TT-84 or (F1-3meg, SN010)	B47-3meg-S	B11-140, TM4 or (BU11, CF21, S86) *	PTA355L or (RU36L, SL37, SN1000) or (UA36L, SN1000)
R10	Vertical Height	100K	323-0085	TT-40 or (F1-100K, SN010)	B47-100K-S	B11-128, TM4 or (BU11, CF15, S86) *	PTA15L or (RU