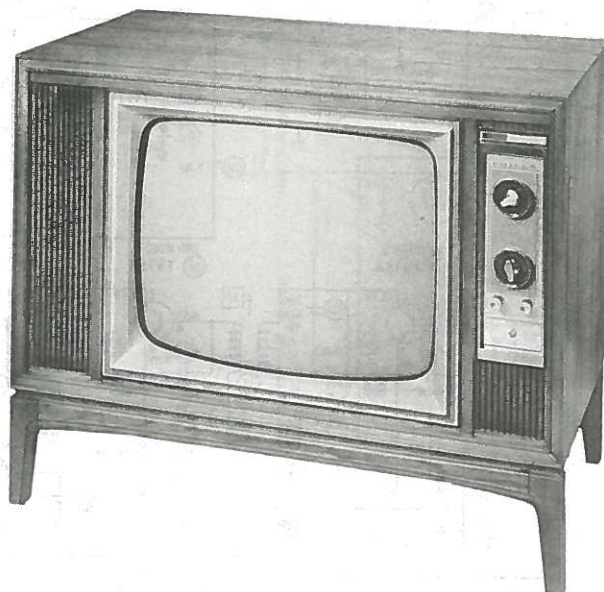


PHOTOFACT® Folder

with CIRCUITRACE™

PHILCO CHASSIS
17NT82, 17QT85A

COLOR TV



MODEL Q6020EWA

Q6922MA

TRADE NAME	Philco	Models	Chassis
		Q6010EAW, Q6012EEA, Q6020EWA	17NT82
		Q6420WA, Q6436PC, Q6438MA	17QT85A
		Q6440CH, Q6444WA, Q6446MA	17QT85A
		Q6456LCH, Q6458SP, Q6470PC	17QT85A
		Q6920WA, Q6922MA, Q6924PC, Q6926LCH, Q6934PC ..	17QT85A, Combination Models
SUPPLIER	For current address, see Annual Index.		
TYPE SET	Color Television Receiver		
TUBES	Twenty	TRANSISTORS	Ten
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	230 Watts, 2.3 Amps. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS

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

FUSE OR FUSE DEVICE

A 3½" length of fuse wire is used for filament protection. (For location, see F2 in photo "Chassis - Bottom View".)

A Circuit Breaker is used for low voltage power supply protection and may be reset by depressing the reset button. (See "Cabinet - Rear View" photo for location.)

VHF OSCILLATOR ADJUSTMENT

The Fine Tuning mechanically engages oscillator slug for adjustment (one slug for each channel).

AGC

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

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal hold is accomplished by the proper setting of the Horizontal Hold control and Horizontal Oscillator coil.

FOCUS

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

CENTERING

Vertical centering is accomplished by a switch located on rear of chassis. (See "Cabinet - Rear View" for location.)

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

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. SB220

Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1967 Howard W. Sams & Co., Inc., Indianapolis, Indiana 46206. Printed in U. S. of America

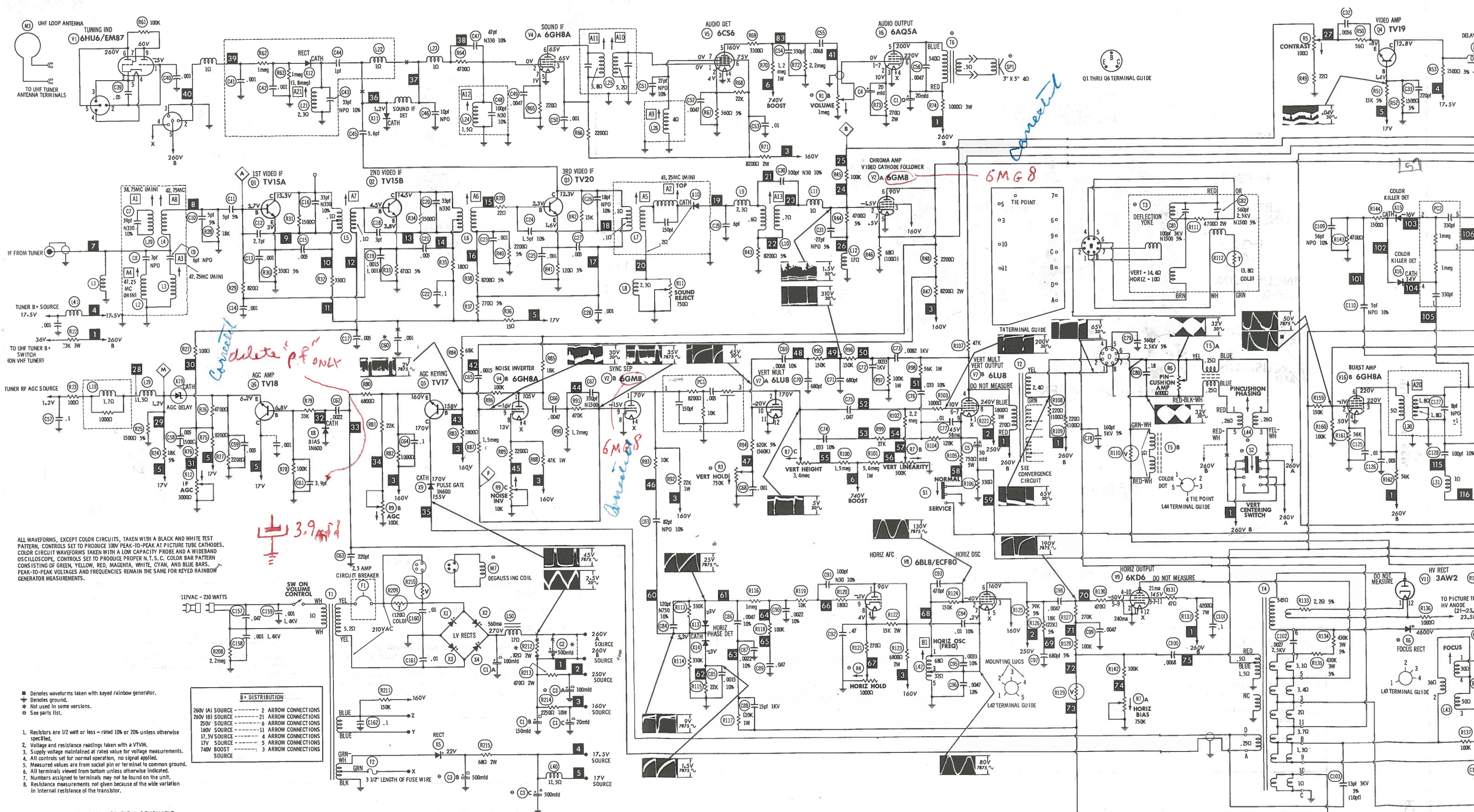
DATE 7-67

SET 899 FOLDER 2

PHILCO CHASSIS
17NT82, 17QT85A

SET 899 FOLDER 2



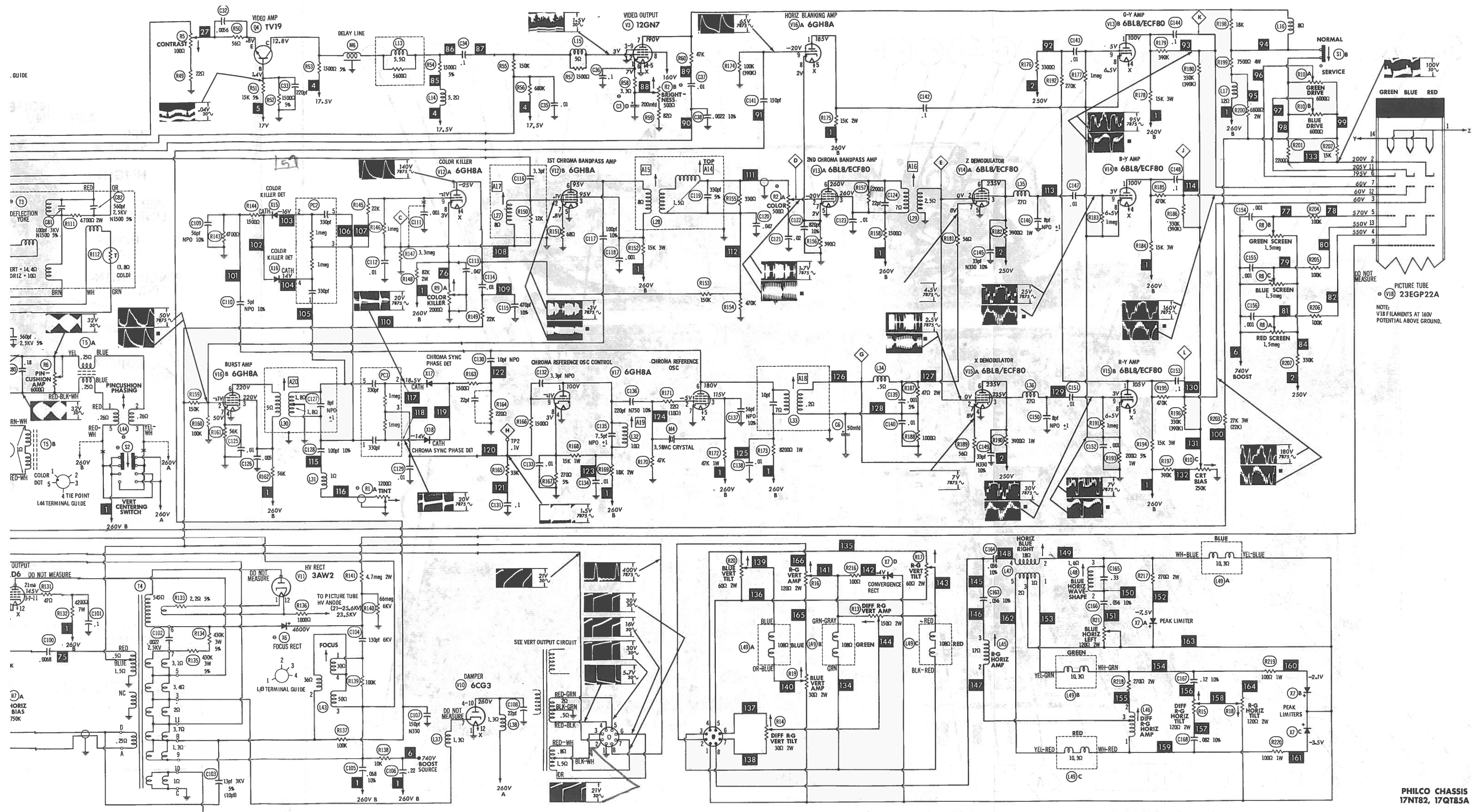


ALL WAVEFORMS, EXCEPT COLOR CIRCUITS, TAKEN WITH A BLACK AND WHITE TEST PATTERN. CONTROLS SET TO PRODUCE 100V PEAK-TO-PEAK AT PICTURE TUBE CATHODES. COLOR CIRCUIT WAVEFORMS TAKEN WITH A LOW CAPACITY PROBE AND A WIDEBAND OSCILLOSCOPE. CONTROLS SET TO PRODUCE PROPER N.T.S.C. COLOR BAR PATTERN CONSISTING OF GREEN, YELLOW, RED, MAGENTA, WHITE, CYAN, AND BLUE BARS. PEAK-TO-PEAK VOLTAGES AND FREQUENCIES REMAIN THE SAME FOR KEYED RAINBOW GENERATOR MEASUREMENTS.

- Denotes waveforms taken with keyed rainbow generator.
 - ⊕ Denotes ground.
 - * Not used in some versions.
 - ⊙ See parts list.
1. Resistors are 1/2 watt or less - rated 10% or 20% unless otherwise specified.
 2. Voltage and resistance readings taken with a VTVM.
 3. Supply voltage maintained at rated value for voltage measurements.
 4. All controls set for normal operation, no signal applied.
 5. Measured values are from socket pin or terminal to common ground.
 6. All terminals viewed from bottom unless otherwise indicated.
 7. Numbers assigned to terminals may not be found on the unit.
 8. Resistance measurements not given because of the wide variation in internal resistance of the transistor.

B+ DISTRIBUTION

260V (A) SOURCE	2 ARROW CONNECTIONS
260V (B) SOURCE	21 ARROW CONNECTIONS
250V SOURCE	6 ARROW CONNECTIONS
160V SOURCE	11 ARROW CONNECTIONS
17.5V SOURCE	4 ARROW CONNECTIONS
17V SOURCE	5 ARROW CONNECTIONS
740V BOOST SOURCE	3 ARROW CONNECTIONS

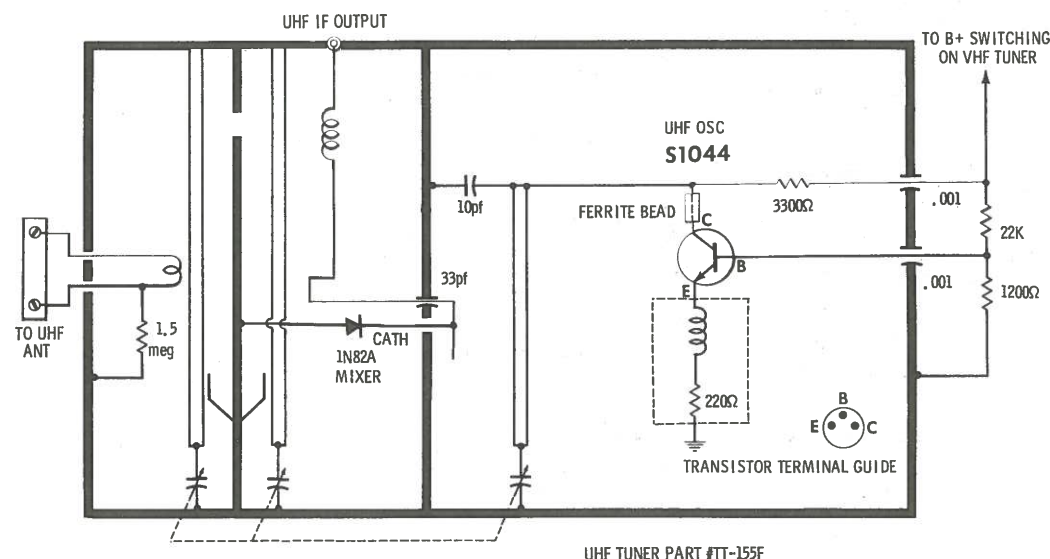


RESISTANCE MEASUREMENTS

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	6HU6/EM87	1.5meg	NC	0Ω	FIL	FIL	17Ω †	100K †	NC	100K			
V2	6GM8	15K †	1200Ω	2200Ω †	FIL	FIL	11.5K †	47Ω	0Ω	1.8meg			
V3	12GN7	120Ω	240K	NC	FIL	FIL	FIL	4300Ω †	2100Ω †	NC			
V4	6GH8A	26K †	1.5Ω	11K †	FIL	FIL	11K †	220Ω	5000Ω †	3.3meg			
V5	6CS6	5.6Ω	560Ω	FIL	FIL	900K †	8200Ω †	3.2Ω					
V6	6AQ5A	250K	270Ω	FIL	FIL	1700Ω	1120Ω †	NC					
V7	6LU8	FIL	2.2meg †	NC	290Ω †	NC	2.6meg	2.6meg	2500Ω †	900Ω	940K	0Ω	FIL
V8	6BL8/ECF80	7600Ω †	175K	2200Ω †	FIL	FIL	44K †	32Ω	2800Ω †	1.8meg			
V9	6KD6	FIL	0Ω	4500Ω †	0Ω	640K	NC	NC	NC	640K	0Ω	4500Ω	FIL
V10	6CG3	FIL	NC	NC	19Ω †	NC	NC	680K	NC	NC	19Ω †	NC	FIL
V11	3AW2	PINS 1 THRU 8 HAVE INFINITE RESISTANCE											TOP CAP 4.9Ω †
V12	6GH8A	790K	2meg	15K †	FIL	FIL	15K †	68Ω	1000Ω	1.1meg			
V13	6BL8/ECF80	15K †	470K	1750Ω †	FIL	FIL	1750Ω †	390Ω	200Ω	1meg			
V14	6BL8/ECF80	15K †	3Ω	4700Ω †	FIL	FIL	4700Ω †	1100Ω	200Ω	1meg			
V15	6BL8/ECF80	15K †	3Ω	4700Ω †	FIL	FIL	4700Ω †	1100Ω	200Ω	1meg			
V16	6GH8A	15K †	67K	56K †	FIL	FIL	56K †	56K	390Ω	100K			
V17	6GH8A	11K †	47K	47K †	FIL	FIL	8900Ω †	0Ω	270Ω	2.3meg			
V18	23EGP 22A	FIL	6200Ω †	250K †	1meg †	900K †	4700Ω †	210K †	NC	71meg	NC	5400Ω †	240K †
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

• READING DEPENDS ON POLARITY OF METER CONNECTIONS.
NC NO CONNECTION

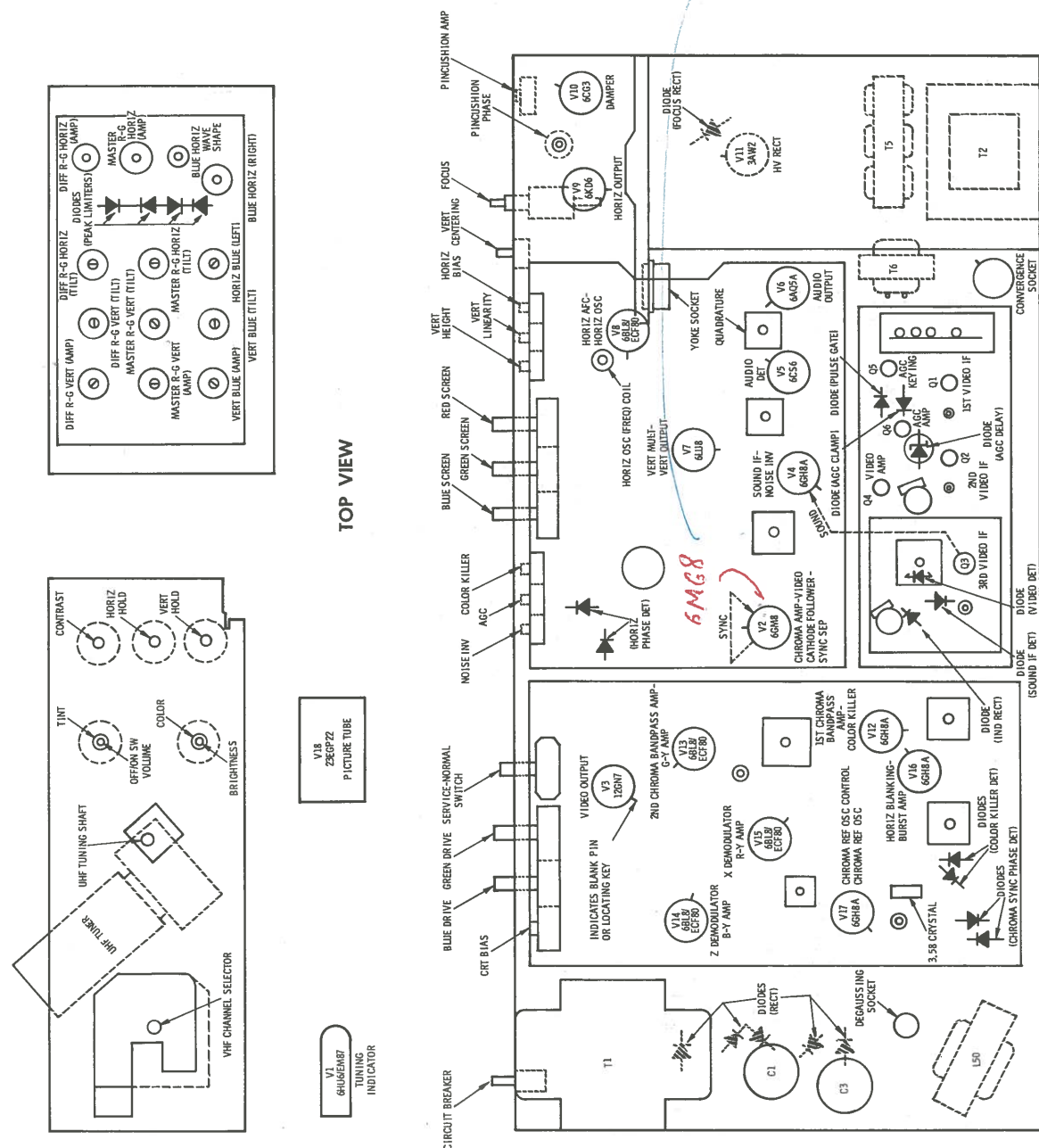
† MEASURED FROM OUTPUT OF X2 AND X4.
‡ MEASURED FROM PIN 7 OF V10.



A PHOTOFACIT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1967

UHF TUNER TT-155F

TUBE PLACEMENT CHART



PHILCO CHASSIS
17N182, 17Q185A

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 A13, Mixer Collector Coil, A14 thru A17:
GENERAL CEMENT #8608, 8869, 9302 ... WALSCO #2511, 2543, 2588

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.
Disable Horizontal Sweep section by opening ground connection to cathode pin #2 of Horizontal Output Tube, V9. Set normal-service switch to "Service" position. Connect a variable bias supply to the IF AGC line (point \diamond) and negative lead to ground. Adjust to obtain a response curve which shows no indication of overload. Set the Channel Selector to UHF position.

INDICATOR	GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
1. Connect DC probe of a VTVM thru a 47K resistor to point \diamond . Common to ground.	Connect high side thru a .001 capacitor to UHF IF Input Jack on UHF tuner. Low side to ground.		38.75MC 41.25MC 47.25MC	A1, A2, R11 A3, A4	Adjust for MINIMUM. Keep all cores at coil end away from board.
2. Connect DC probe of a VTVM thru a 47K resistor to point \diamond . Common to ground.	"		44.0MC 42.75MC 45.5MC	A5, A6, A7, A8, Mixer Plate Coil	Adjust for maximum. Use peak with core at top end of coils.
3. Connect vertical input of a scope to point \diamond . Low side to ground.	"	44MC (10MC Sweep)	38.75MC 41.25MC 42.75MC 44.0MC 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 A5, A6, A7, A8 and Mixer Plate Coil.

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 A13 for MINIMUM beat interference.

SOUND IF ALIGNMENT

Tune in a station and adjust A9 for fully out position clockwise to second peak for maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce signal while aligning for undistorted output by adjusting A10, A11, and A12.

CHROMA BANDPASS ALIGNMENT

The following alignment will require the use of an RF Modulator (RCA WG304A or equivalent). Disable Horizontal Sweep section by removing ground connection from cathode, pin 2 of Horizontal Output Tube, V9. Set Normal-Service switch to "Service" position. Set Color control to maximum. Connect approximately +12VDC bias to point \diamond . Connect a -5VDC bias to point \diamond (off pin 9 of V12).

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4. High side thru .1mfd to grid of 1st Chroma Band-pass Amp. (pin 2), V12. Low side to ground.	3.58MC (3-5MC)	3.08MC 4.08MC		Vert. Amp. thru detector probe to point \diamond , Grid (pin 2) of 2nd Chroma Band-pass Amp., V13. Low side to ground.	A14, A15	Adjust for response curve similar to Fig. 2.
5. A-Connect high side of sweep generator to Video Sweep input of RF modulator. Low side to ground. B-Connect high side of signal generator (set @ 45.75MC) to picture carrier input. Low side to ground. C-Output of RF modulator to UHF tuner jack on VHF tuner. Set VHF-UHF switch to UHF position. Low side to ground.	Sweep Generator to 3MC (6MC Sweep)			Vert. Amp. thru detector probe to point \diamond . Low side to ground.	A16, A17	Adjust for response curve similar to Fig. 3. If necessary, retouch A14 to flatten top of response curve.

TUNING EYE ADJUSTMENT

Tune in a TV station broadcasting a color program. Adjust all controls for normal operation. Turn Fine Tuning counterclockwise until picture distorts. Back Fine Tuning clockwise for best picture, color, and sound. Adjust A21, if necessary, for maximum deflection on tuning eye.

HORIZONTAL SHAPING COIL ADJUSTMENT

Connect the vertical input of a scope to junction of R217, C165, and L48 (Circuit Trace 149), low side to ground. Adjust Blue Horizontal Shaping Coil slug until harmonic bump is at 50% point in the sine wave slope. See Fig. 4.

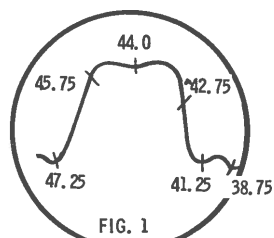


FIG. 1

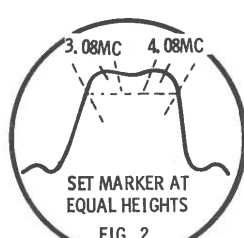


FIG. 2

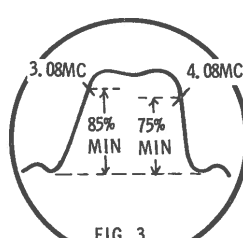


FIG. 3

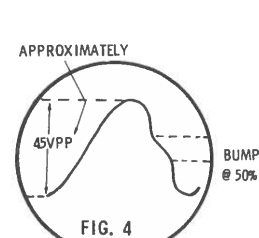


FIG. 4

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENT

Connect a VTVM through a high voltage probe to picture tube anode connector. Connect a clip lead from point \diamond to ground.

Tune in a TV station and set all controls for normal operation. Set the Horizontal Hold control to center of its range. Adjust Horizontal Oscillator coil, L42 slug, B1, until picture "floats" horizontally. Remove clip lead from point \diamond .

Set Brightness control to MINIMUM. Adjust Horizontal Bias control, R7A, for 26KV on VTVM. Remove VTVM.

Adjust Focus, Height and Vertical Linearity controls.

AGC ADJUSTMENT

Tune in a strong TV station and advance the AGC control, R9B, 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 correct AGC action.

AGC DISTRIBUTION CONTROL

This control is adjusted at the factory and should not require readjustment. If it is necessary to readjust the AGC Distribution control, R12, tune in a strong TV station. Connect the vertical input of a scope to point \diamond and adjust the AGC control, R9B, for 2 volts peak-to-peak on scope. Remove scope. Connect DC probe of VTVM to point \diamond . Adjust AGC Distribution control for 1.55 volts DC on VTVM. Remove VTVM.

NOISE INVERTER ADJUSTMENT

Tune in a strong TV station and set all controls for normal operation. Connect DC probe of a VTVM to pin 8, cathode of Noise Inverter, V4B, common to ground. Adjust Noise control, R9C, for approximately 15 VDC on VTVM. Remove VTVM.

COLOR AFC ALIGNMENT

Suggested Alignment Tools: A18, A19, A20 GENERAL CEMENT #8608, 8869, 9302 WALSCO #2511, 2543, 2588

Set Color Killer control to fully counterclockwise. Set Tint control to center of its range. Connect a color bar generator to the antenna terminals. Adjust the receiver for normal color reception. Short pin 2 of Burst Amp., V16, to ground.

Connect DC probe of VTVM through a 470K to point \diamond , common to ground. Adjust A18 for maximum deflection on VTVM. If no reading is obtained, oscillator is not operating. Adjust A19 to start oscillator, then adjust A18 for maximum. Remove short from pin 2 of Burst Amp. Adjust A20 for maximum deflection on VTVM. Make sure the oscillator is running and locked in. Remove VTVM and short point \diamond to ground.

CONVERGENCE ADJUSTMENTS

Step	Control	Use to Converge (or Straighten)	Remarks
1.			Perform Center Dot Convergence using convergence magnets. If more range is required, reverse magnets 180° in holder. Fig. A.
2.	R-G Vertical Tilt (Vert. Lines) - R17	Red and Green Vertical bars at top of screen.	Touch up both controls for best convergence from top to bottom along vertical center line (Fig. B).
3.	R-G Vertical Amp. (Vert. Lines) - R16	Red and Green Vertical bars at bottom of screen.	
4.	Differential R-G Vert. Tilt (Horiz. Lines) - R14	Red and Green Horizontal bars at top of screen.	Touch up both controls for best convergence of horizontal bars along vertical center line (Fig. B).
5.	Differential R-G Vert. Amp. (Horiz. Lines) - R13	Red and Green Horizontal bars at bottom of screen.	
6.	Blue Vertical Tilt (Horiz. Lines) - R20	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 Vertical Amp. (Horiz. Lines) - R19	Blue Horizontal bars at bottom of screen.	
8.			Perform Center Dot Static Convergence (Fig. A).
9.	Blue Horizontal Lines Right - L47	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 - R21	Blue Horizontal bars at left side of screen.	
11.	R-G Horizontal Amp. (Vert. Lines) - L45	Red and Green bars at right side of screen.	Touch up both controls for best convergence of vertical red and green bars at right and left sides of screen (Fig. E).
12.	R-G Horizontal Tilt (Vert. Lines) - R18	Red and Green bars at left side of screen.	
13.	Differential R-G Horiz. Amp. (Horiz. Lines) - L46	Red and Green bars at right side of screen.	Use control to converge red and green horizontal bar at right side of screen (Fig. E).
14.	Differential R-G Horiz. Tilt (Horiz. Lines) - R15	Red and Green bars at left side of screen.	Use control to converge red and green horizontal bar at left side of screen (Fig. E).

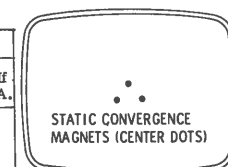


FIG. A

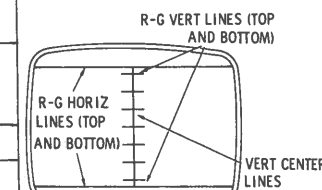


FIG. B
(RED AND GREEN ONLY)

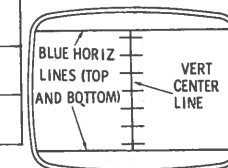


FIG. C
(BLUE BARS)

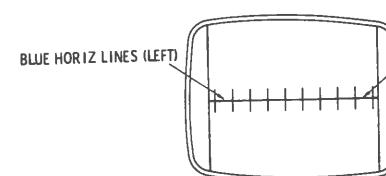


FIG. D
(BLUE BARS)

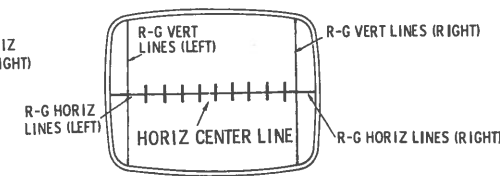
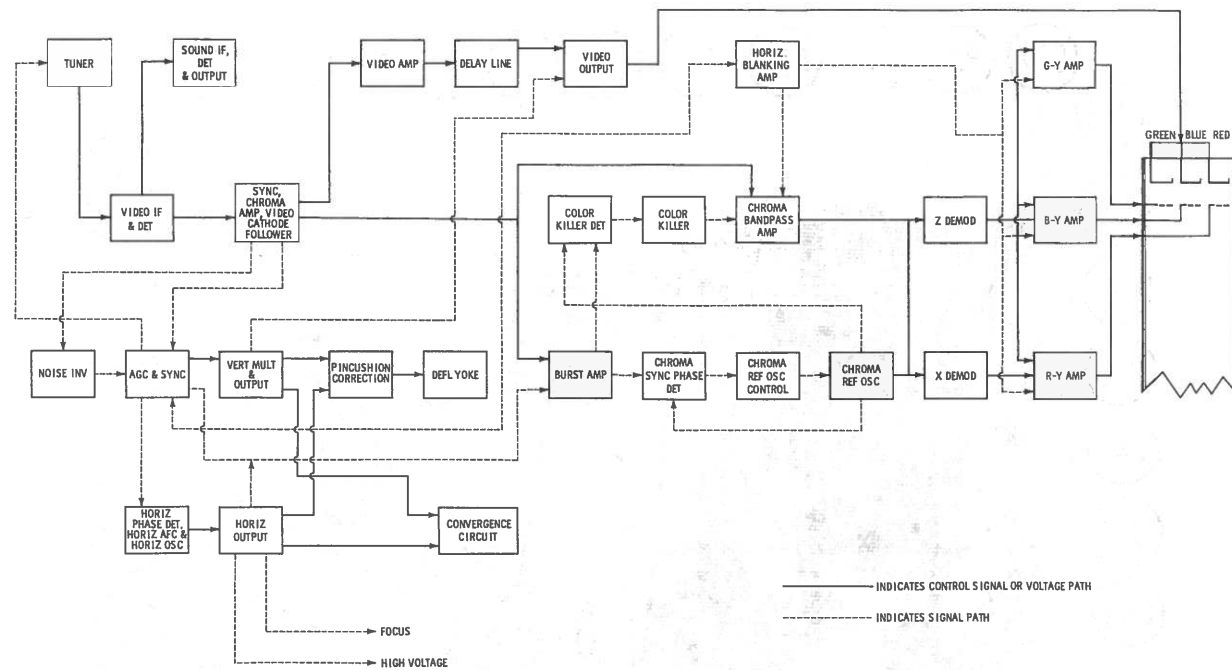


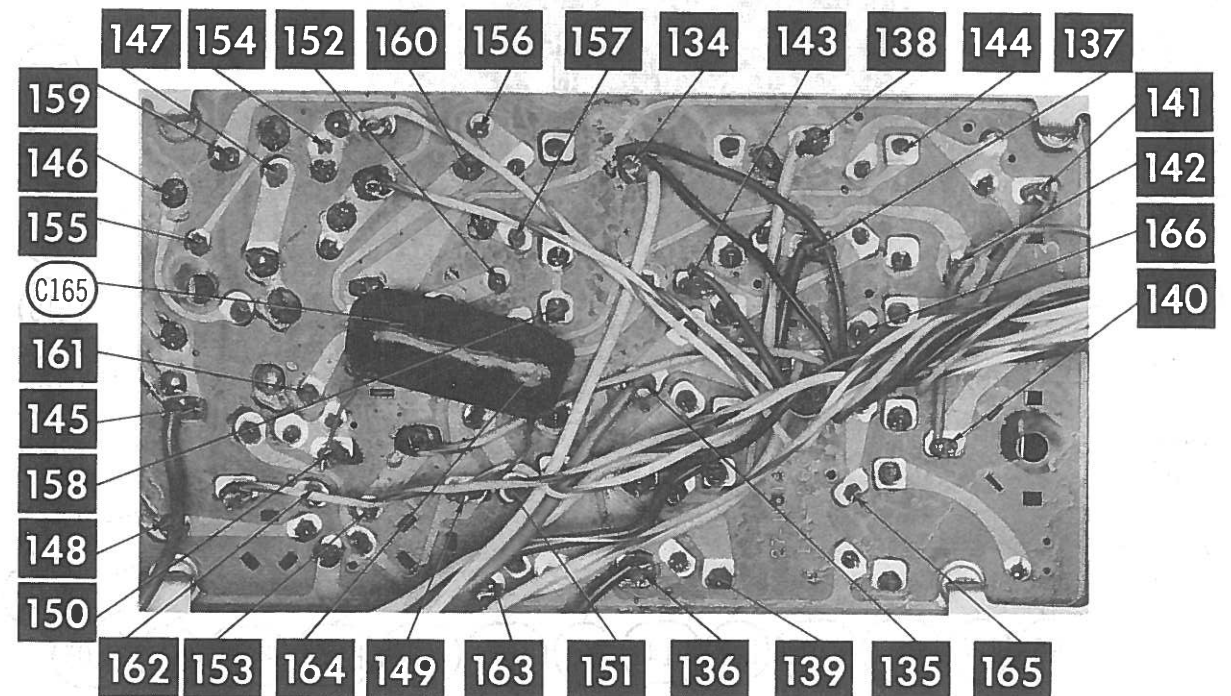
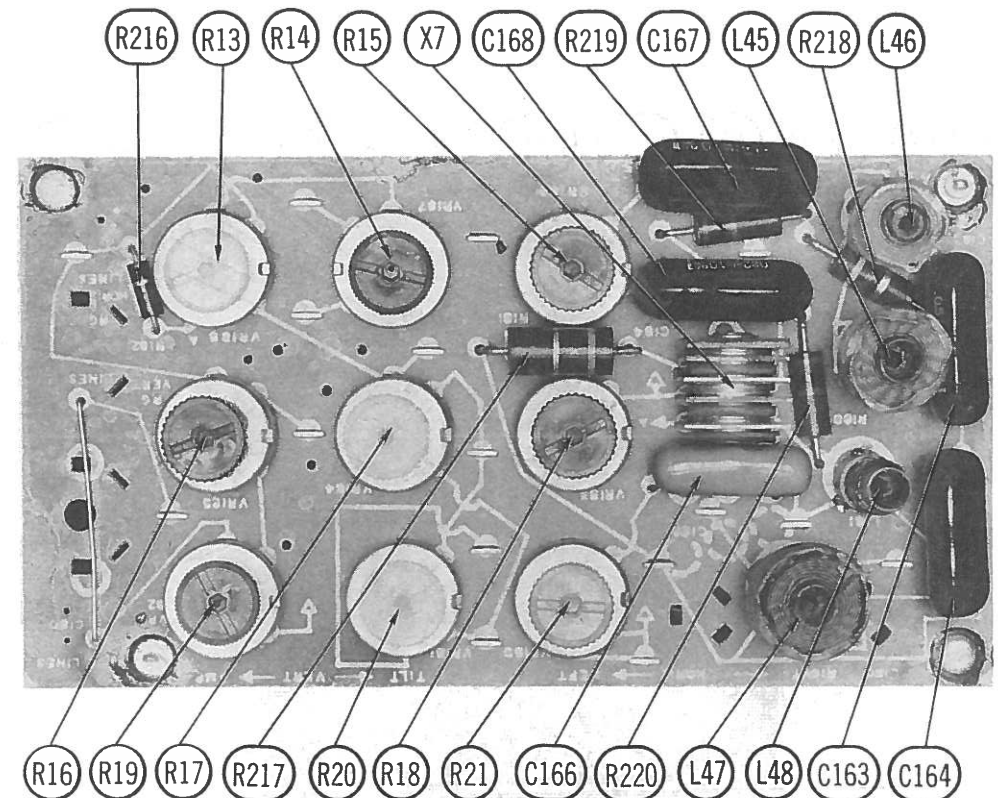
FIG. E



BLOCK DIAGRAM

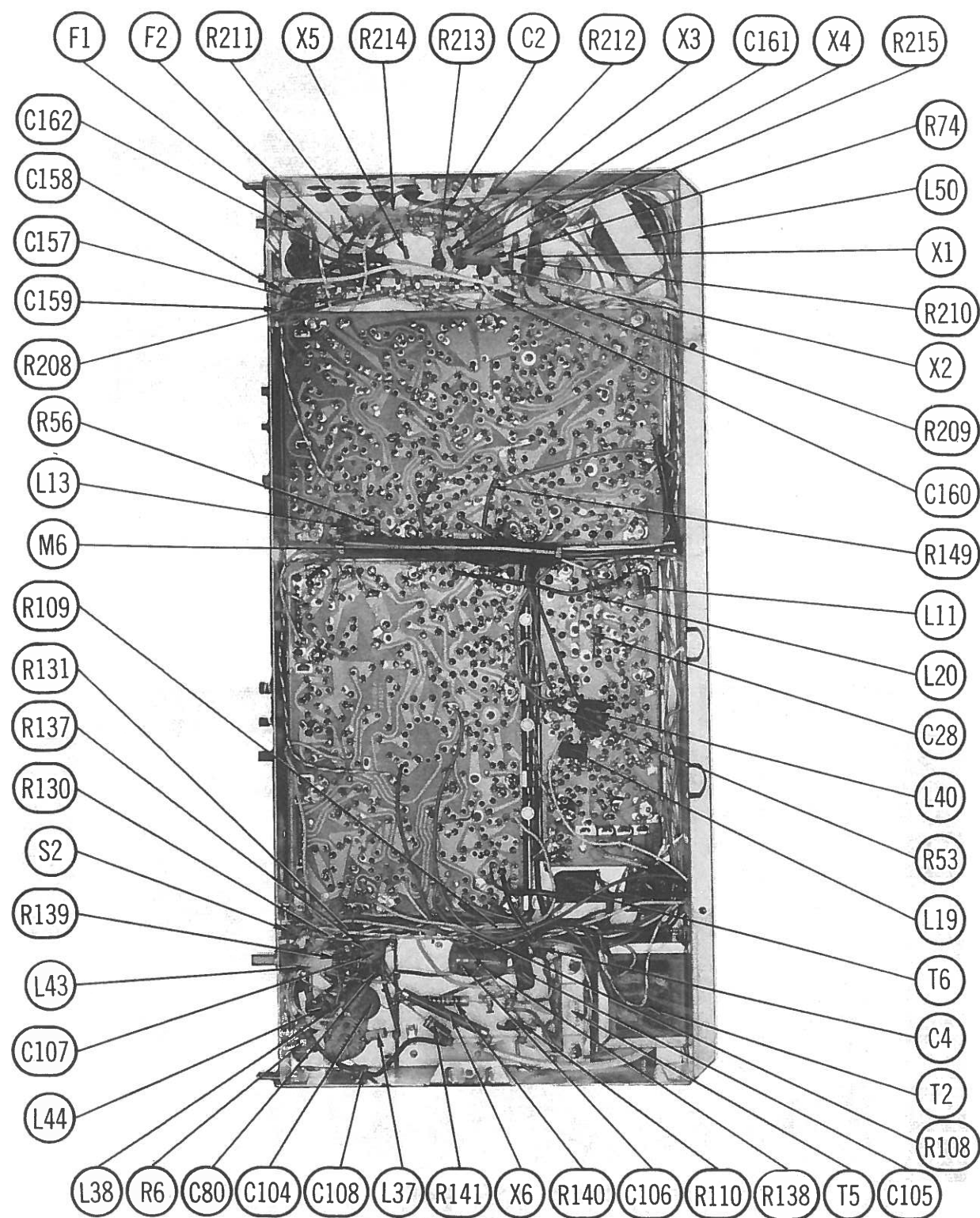
CABINETS & CABINET PARTS (When Ordering Specify Model, Chassis & Color)

ITEM	PART NO.	MODELS	Q6010EAW	Q6012EEA	Q6020EWA	Q6420WA	Q6436PC	Q6438MA	Q6440CH	Q6444WA	Q6446MA	Q6456LCH	Q6458SP	Q6470PC	Q6920WA	Q6922MA	Q6924PC	Q6926LCH	Q6924PC
Knob-UHF Channel Selector	424-8852		X	X	X														
Knob-UHF Channel Selector	28-15491-2					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-VHF Channel Selector	424-8851		X	X	X														
Knob-VHF Channel Selector	28-15452-1					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Brightness	27-11060-1					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Fine Tuning	27-10984-12		X	X	X														
Knob-On/Off/Vol., Brightness	27-10440-5		X	X	X														
Knob-On/Off/Volume	28-15476-1					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Tint, Color	27-10983-1		X	X	X														
Knob-Preset Inner	28-15476-2					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Tint, Preset Output	27-11614-1					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Knob-Vert., Horiz., Tone	424-8636					X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cabinet Back	27-11433-3		X	X															
Cabinet Back	27-11433-5				X														
Cabinet Back	27-11506-16					X													
Cabinet Back	27-11506-20						X	X											
Cabinet Back	27-11506-14								X										
Cabinet Back	27-11506-19									X									
Cabinet Back	27-11506-17										X								
Cabinet Back	27-11506-10											X							
Cabinet Back	27-11506-7												X						
Cabinet Back	27-11506-18													X					
Cabinet Back	27-11506-21														X	X			
Cabinet Back	27-11506-22																X	X	
Cabinet Back	27-11506-15																		X

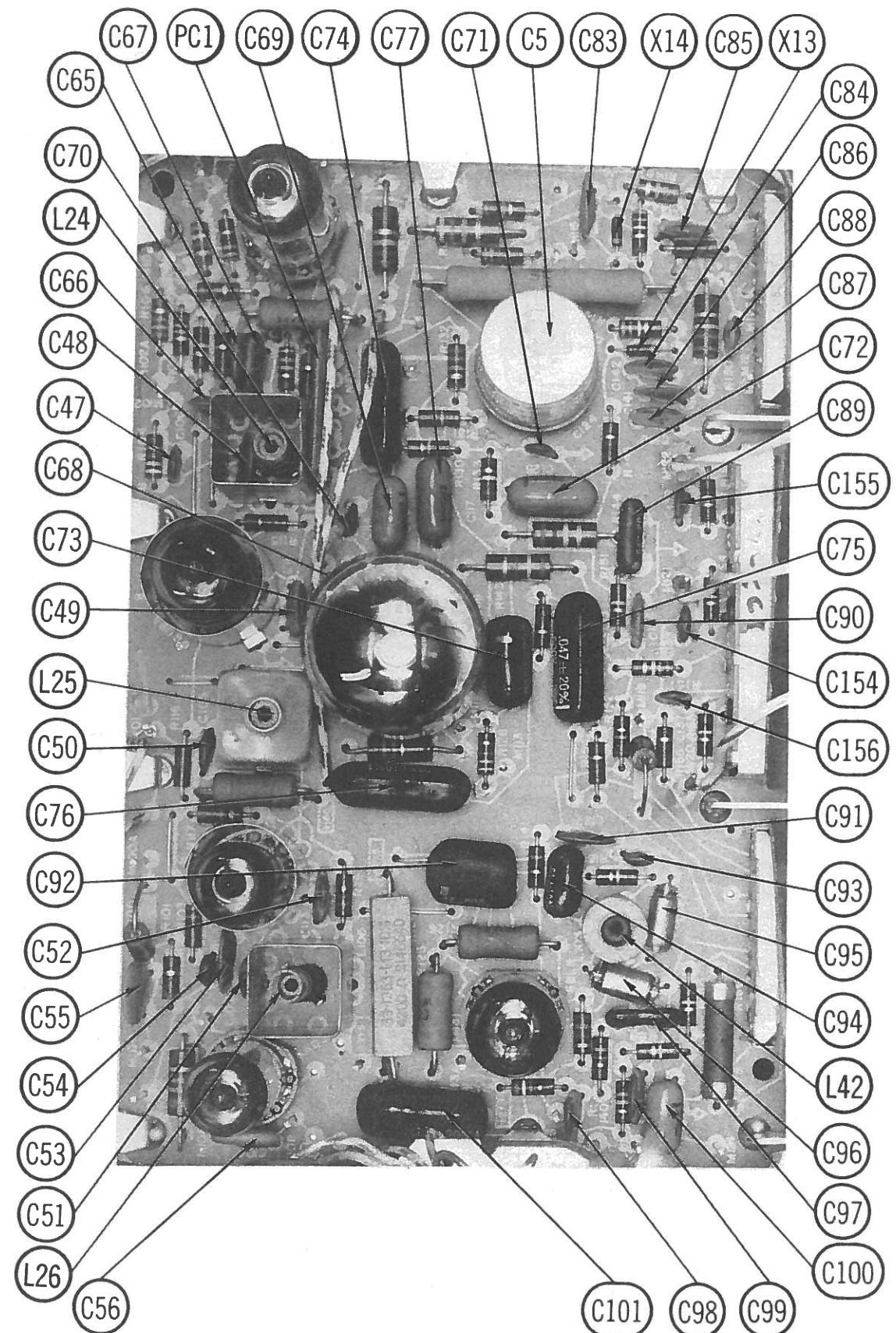


A Howard W. Sams CIRCUITRACE Photo

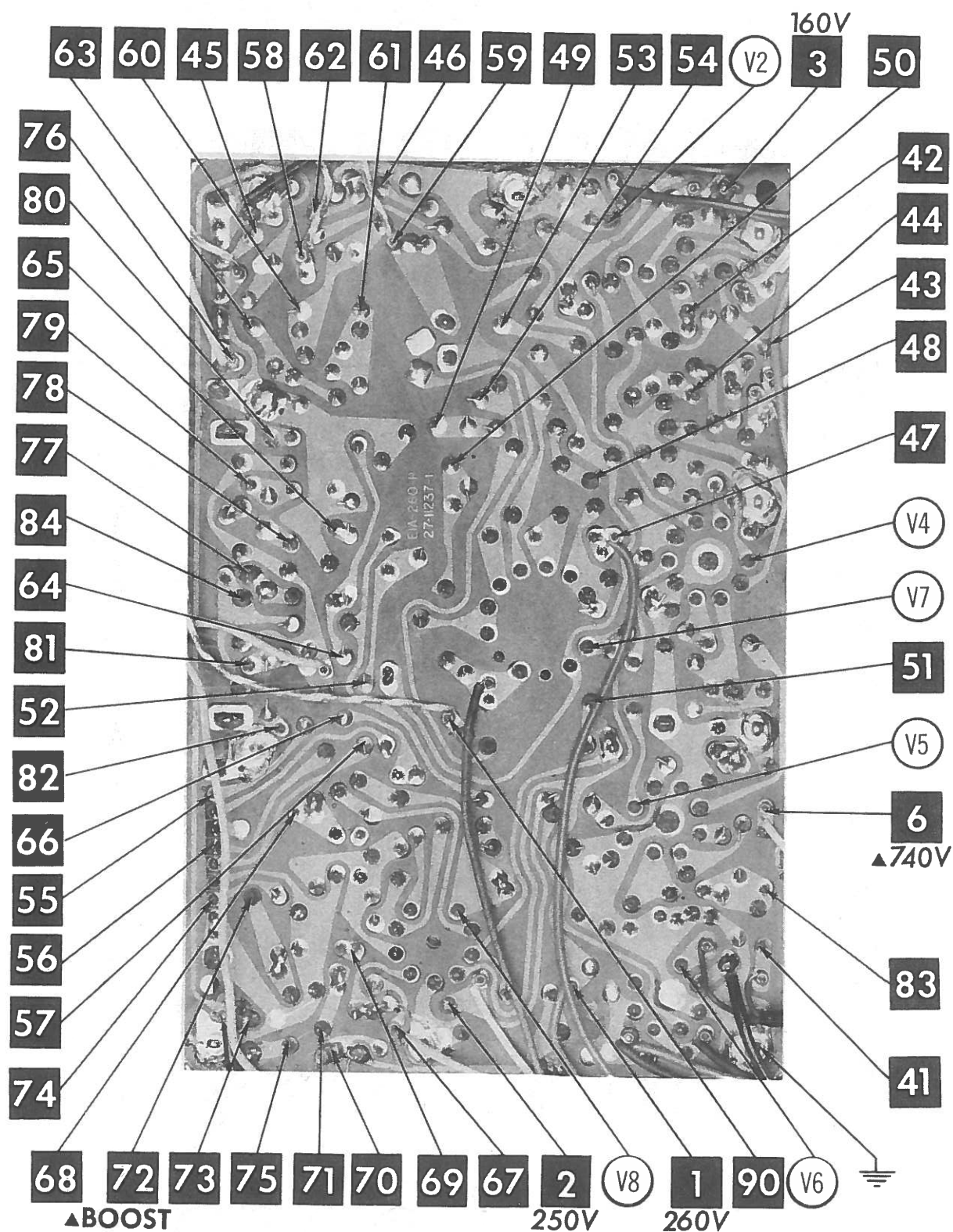
CONVERGENCE BOARD



CHASSIS - BOTTOM VIEW



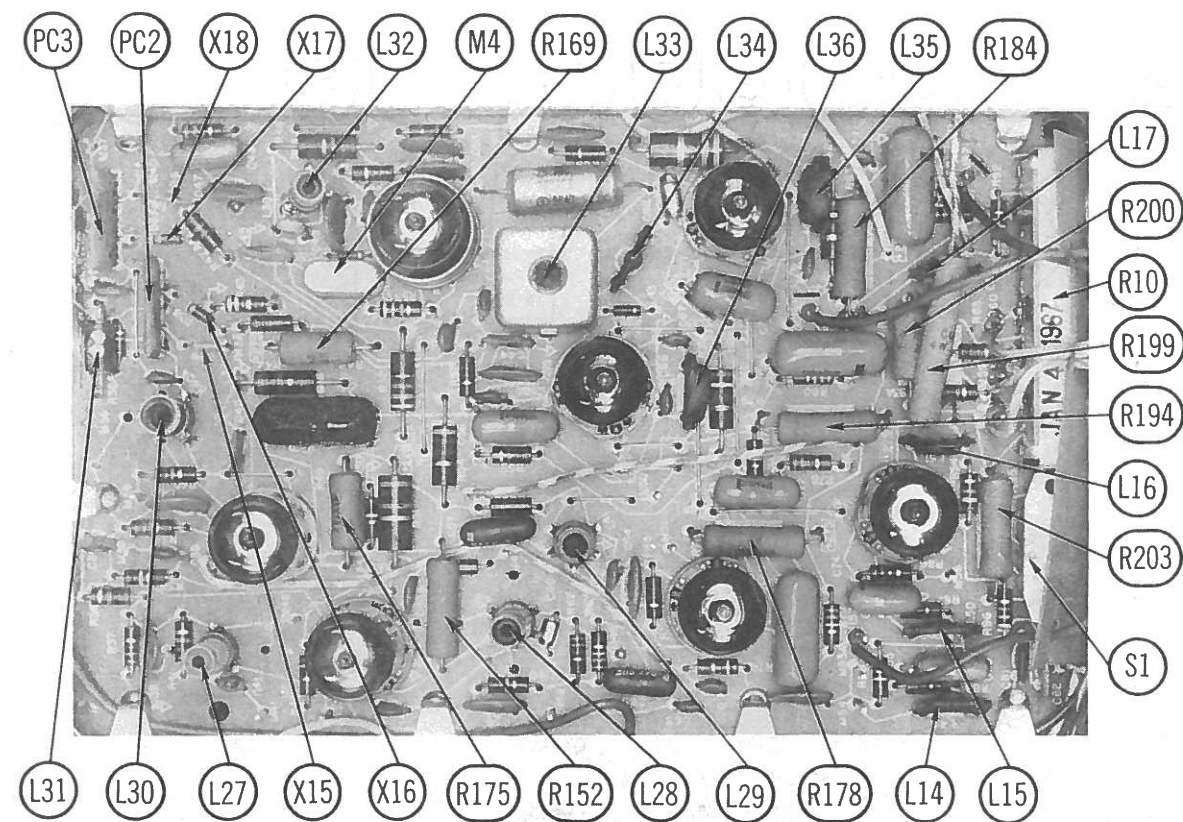
DEFLECTION - SOUND BOARD



DEFLECTION - SOUND BOARD

A Howard W. Sams CIRCUITRACE® Photo

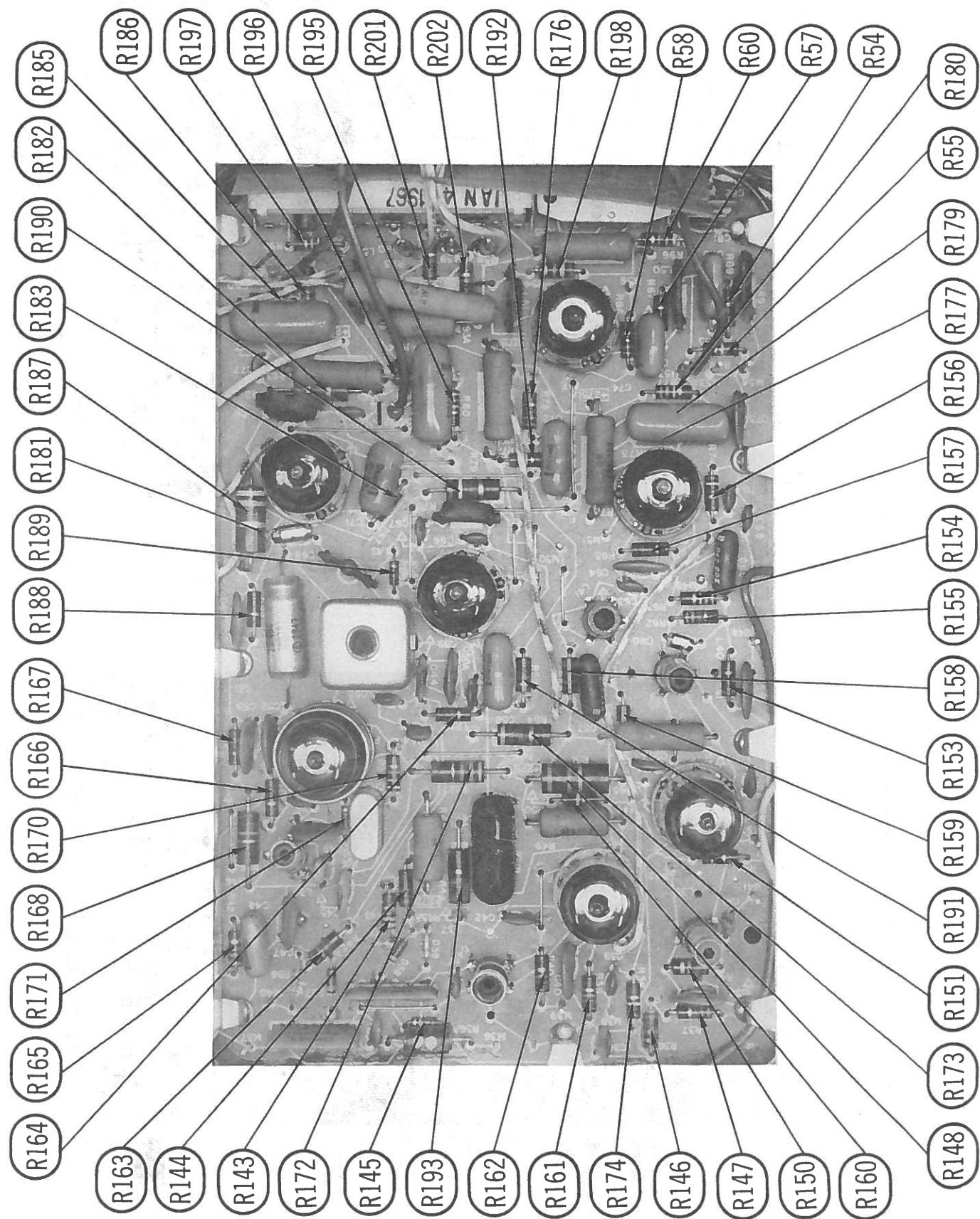
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



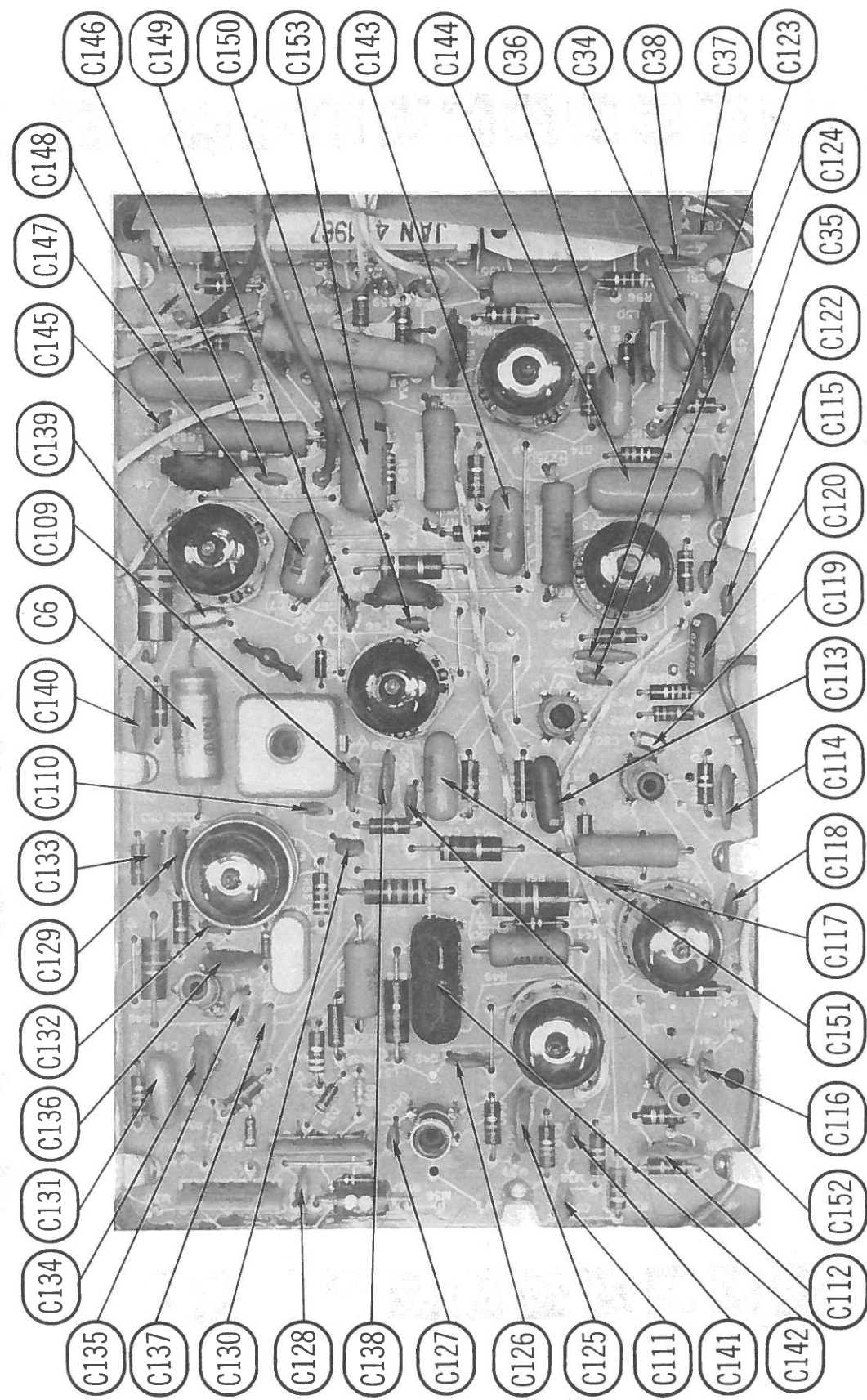
CHROMA PRINTED BOARD

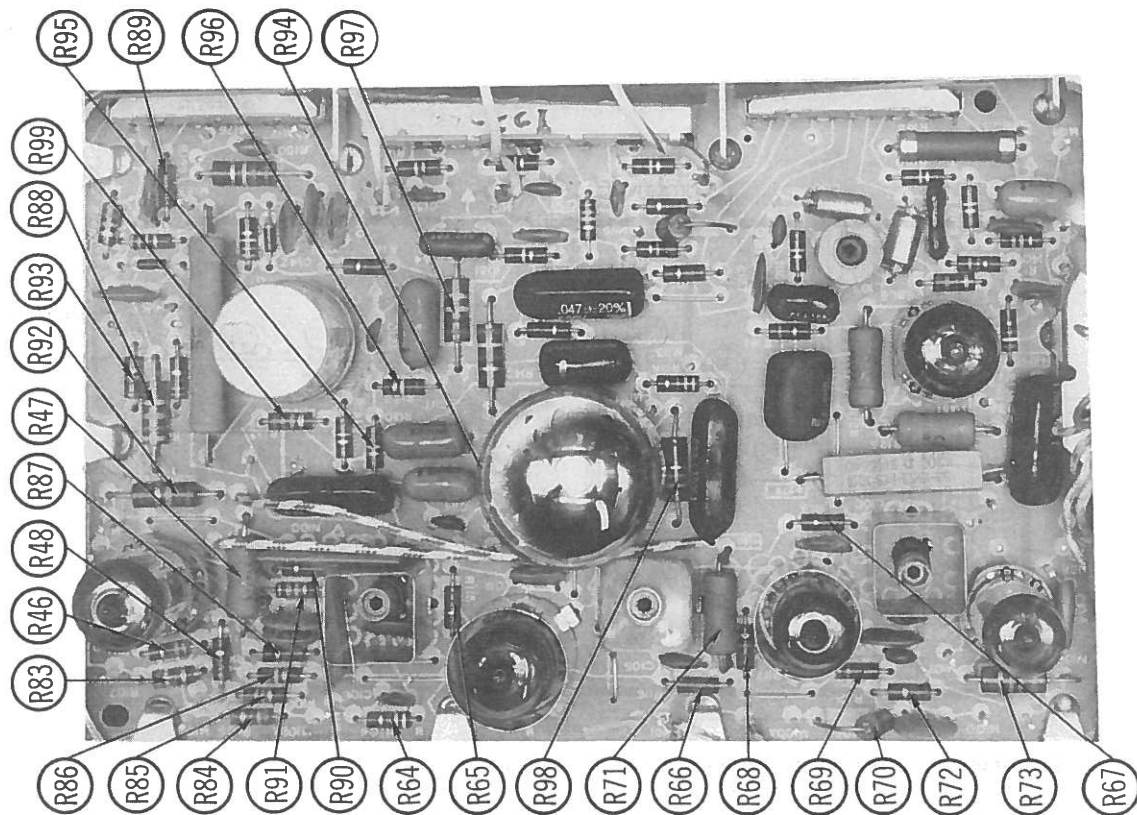
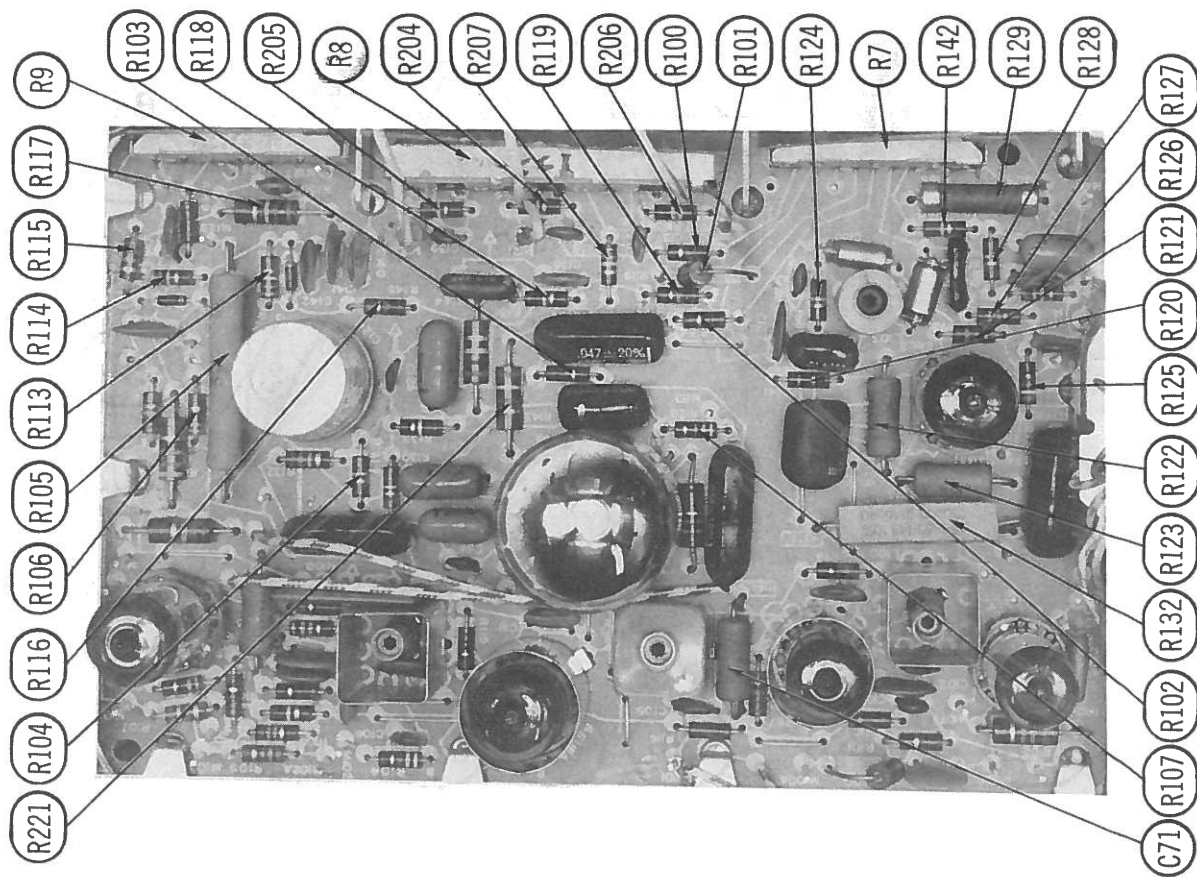
A Howard W. Sams CIRCUITRACE® Photo

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

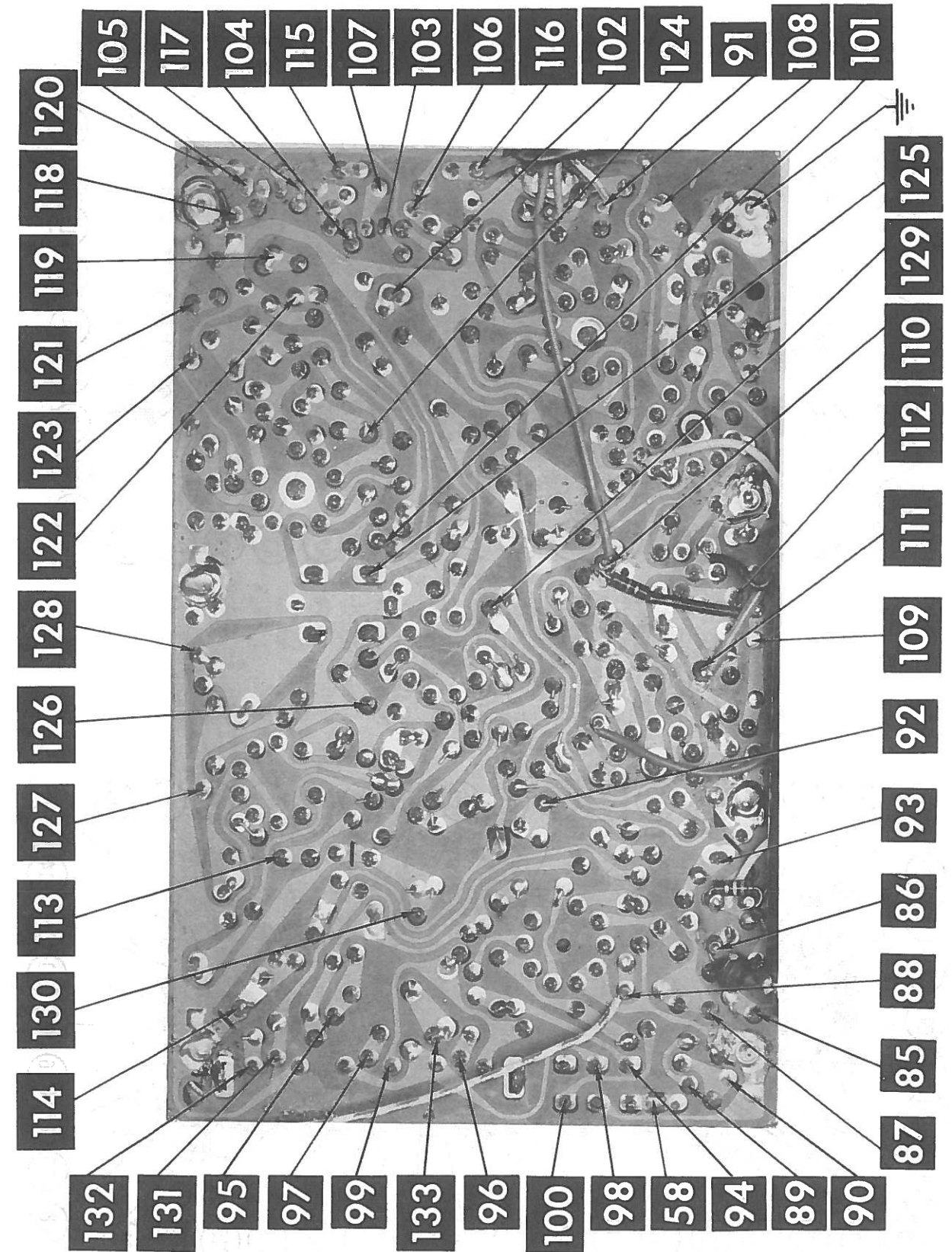


CHROMA PRINTED BOARD





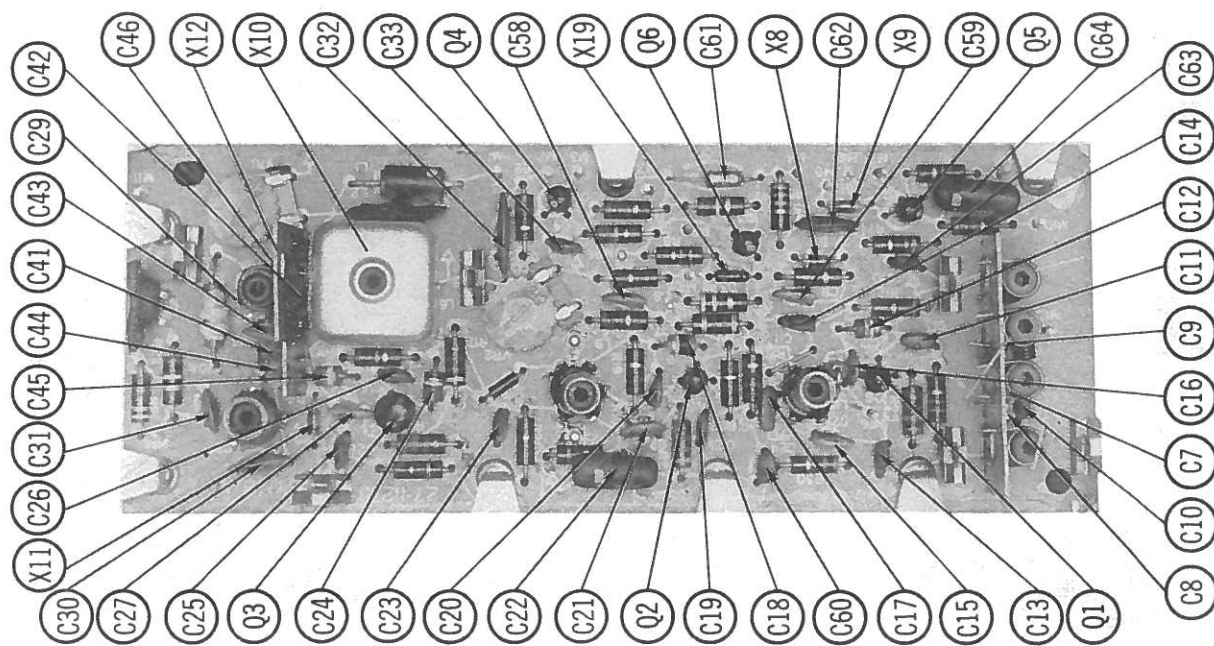
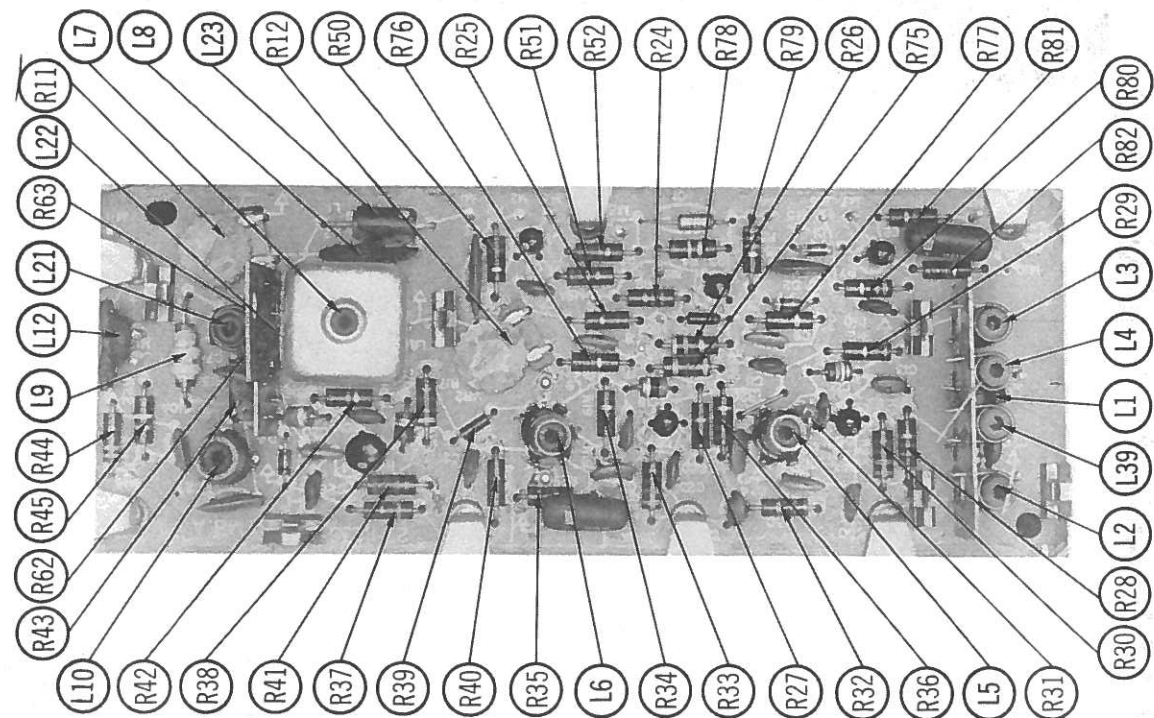
DEFLECTION - SOUND BOARD



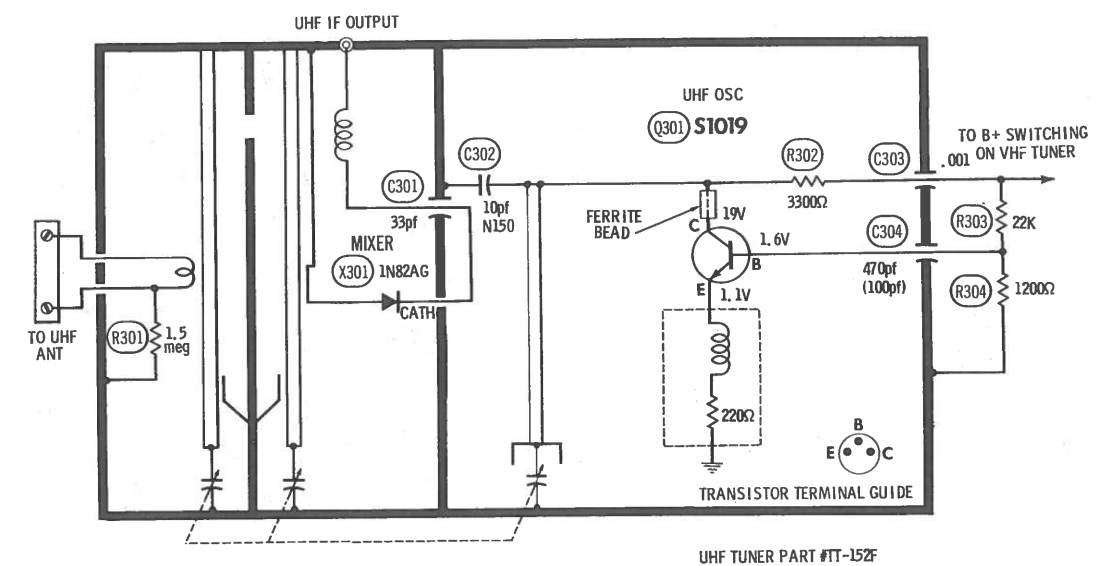
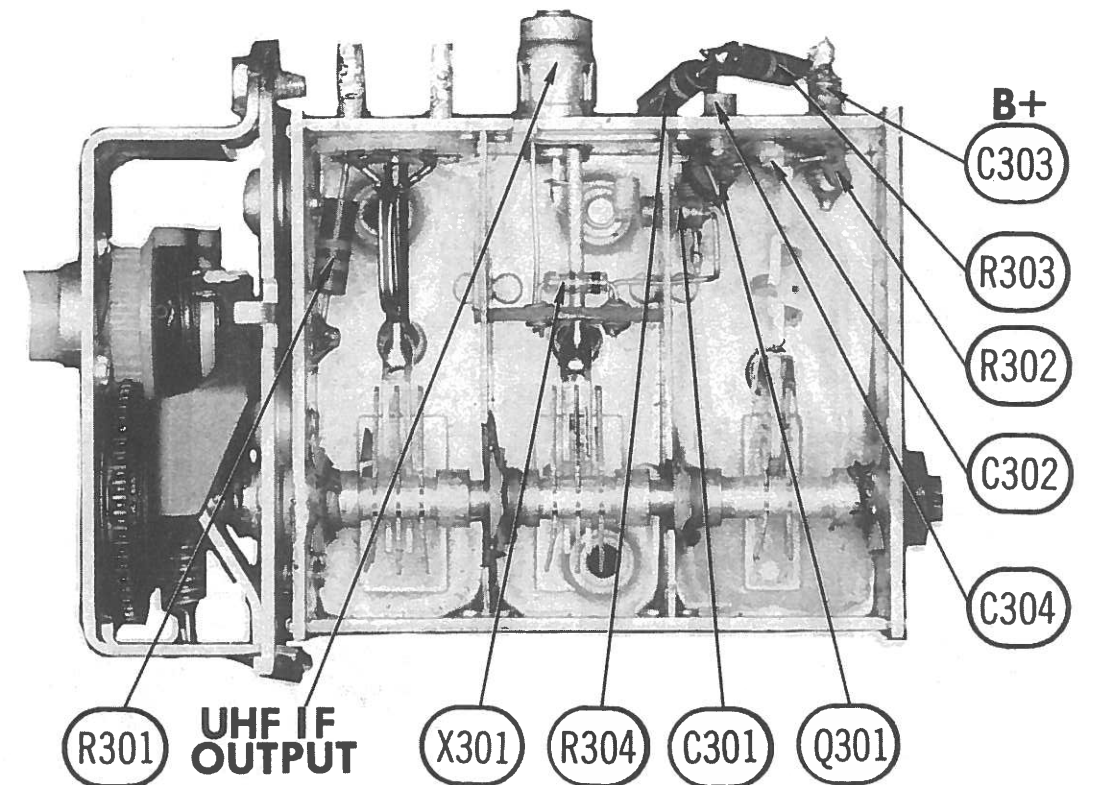
CHROMA PRINTED BOARD

A Howard W. Sams CIRCUITRACE[®] Photo

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



IF PRINTED BOARD



A PHOTOFAC STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1967

UHF TUNER TT152F

VHF TUNER PARTS LIST AND DESCRIPTION

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				PHILCO PART No.	NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RCA PART No.		
Q201	S2172 S1674 (SE5020)*	RF Amp. RF Amp.		GE-11 GE-11	TR-24 TR-24	SK-3018 SK-3018	229-0204-6 76-13866-62	NPN NPN
Q202	S1682 (SE5021)*	Mixer		GE-11	TR-24	SK-3018	229-0204-23	NPN
Q203	S1316	Oscillator		GE-11	TR-24	SK-3018	76-13866-19	NPN

* Alternate

Later Production

Early Production

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	39 N330 5%	#76-13866-36				*	*	10TCS-Q39
C202	27 N470 5%	#229-0204-26				*	*	10TCT-Q27
C203	82 5%							10TCC-Q83
C204	15 5%							10TCC-Q15
C205	8.2 NPO ±.25		NPO-DI 15	DTZ-82	CZ601CG150J	CCTO-820	CNO482	10TCC-V82
C206	5		NPO-DI 8.2	DTZ-15		CCTO-150	CNO415	10TCC-V50
C207	.001		NPO-DI 5.0	DTZ-4R7	CZ601CH5R0D	CCTO-050	CNO547	10TCC-Q10
C208	10 NPO ±.25	#229-0204-5	EF-001	MFT-1000		CCF-102	CT280A	
C209	.5-2.4	#76-13866-83	NPO-DI 10	DTZ-10	CZ601CG100J	CCTO-100	CNO410	
C210	12							
C211	4.7 10%							
C212	39 ±.25		NPO-DI 39	DTZ-4R7		CCTO-4R7	CNO547	10TCC-V47
C213	1.8 NPO	#229-0204-18		TCZ-39		CCTO-390	CNO439	10TCC-Q39
C214	12 NPO 5%							10TCC-V18
C215	6.2 N033 ±.25	#229-0204-59		TCZ-12	CZ601CG120J	CCTO-120	CNO412	10TCC-Q12
C216	15 NPO 5%		NPO-DI 15	DTZ-15	CZ601CG150J	CCTO-150	CNO415	10TCC-Q15
C217	10 ±.25		NPO-DI 10	DTZ-10	CZ601CG100J	CCTO-100	CNO410	10TCC-Q10
C218	.001		EF-001	MFT-1000		CCF-102	CT280A	
C219	.001		EF-001	MFT-1000		CCF-102	CT280A	
C220	.001		EF-001	MFT-1000		CCF-102	CT280A	
C221	36	#76-13866-30						
C222	10.5 NPO ±.25	#76-13866-38						
C223	.001		EF-001	MFT-1000		CCF-102	CT280A	
C224	1.8 5%							
C225	20	#76-13866-29						10TCC-V18
C226	150 10%		NPO-DI 150	DTZ-150		CCTO-151	CNO315	10TCC-T15
C227	100 5%	#76-13866-31						

* 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	Bahun	76-13866-63		L205	RF Choke	76-13866-22	
L202	UHF IF Input	76-13866-81		L206	RF Choke	76-13866-21	
L203	UHF IF Input	76-13866-47		L207	Overall Osc. Adj.	229-0204-42	
L204	UHF IF Shunt	76-13866-86		L208	Mixer Collector	76-13866-46	

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
	Osc. Rotor Assembly	76-13602-59	Contacts and Coils
	Osc. Stator Assembly	76-13602-16	
	Mixer Wafer Ass'y	229-0204-39	
	RF Wafer Assembly	229-0204-40	
	Ant. Wafer Ass'y	76-13866-71	
	Pilot Lite, B+ Switch	76-13866-74	
	Antenna Filter Ass'y	76-13866-75	Drive Pinion
	Detent Rotor Ass'y	229-0204-43	
	Fine Tuning Gear	229-0204-31	
	Fine Tuning Gear	229-0204-30	

UHF TUNER PARTS LIST

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES	PHILCO PART No.
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.		
Q301	S1019	UHF Oscillator		GE-11		NPN	76-13570-39

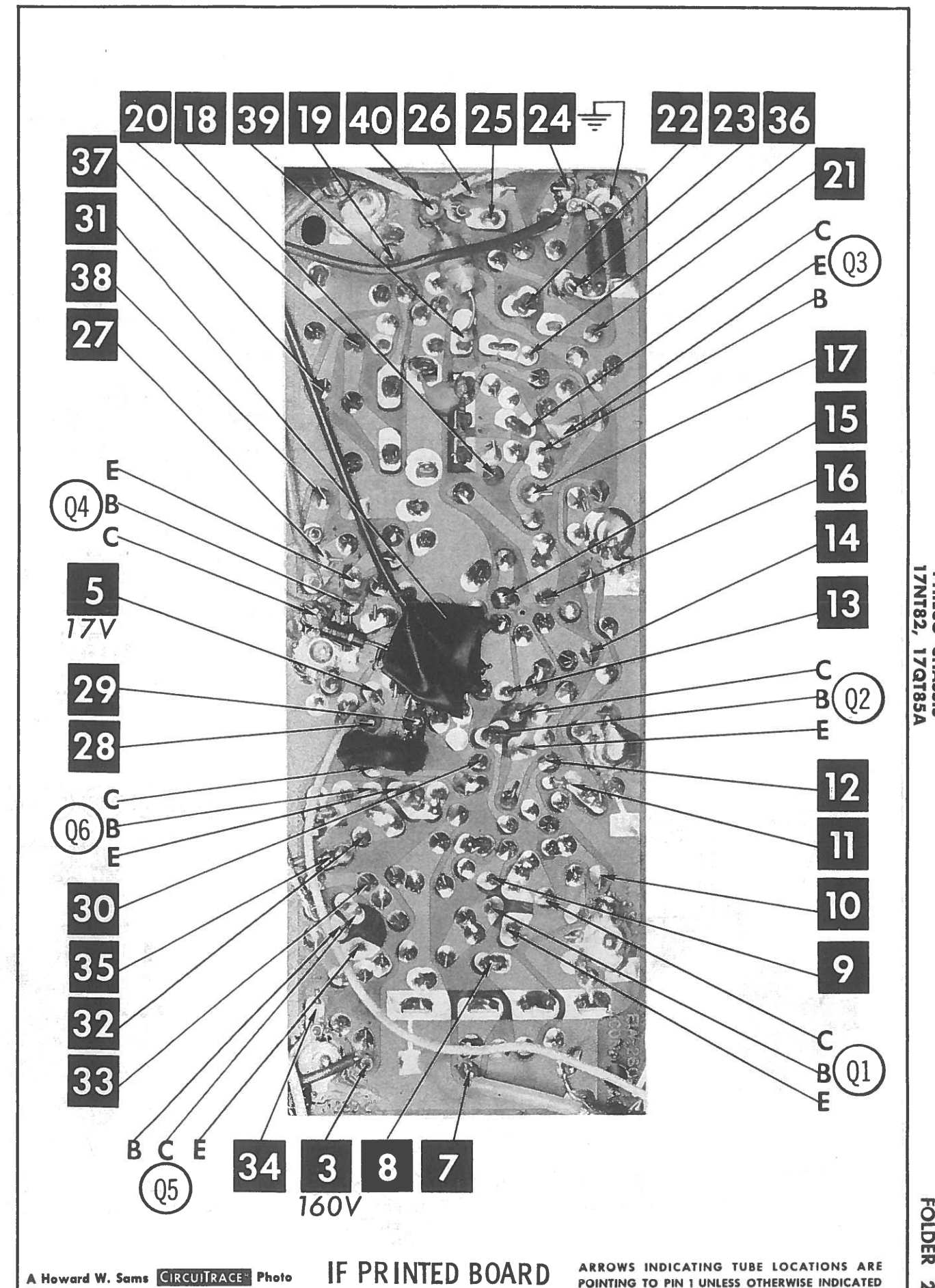
POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES		RECTIFIERS		
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X301		1N82AG (76-13848-23)	1N82A	1N82AG			

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	#76-13848-88						
C302	10 N150	#76-13848-24						
C303	.001		EF-001	MFT-1000		CCF-102	CT280A	
C304	470	(100) †						

† Alternate used in some versions.



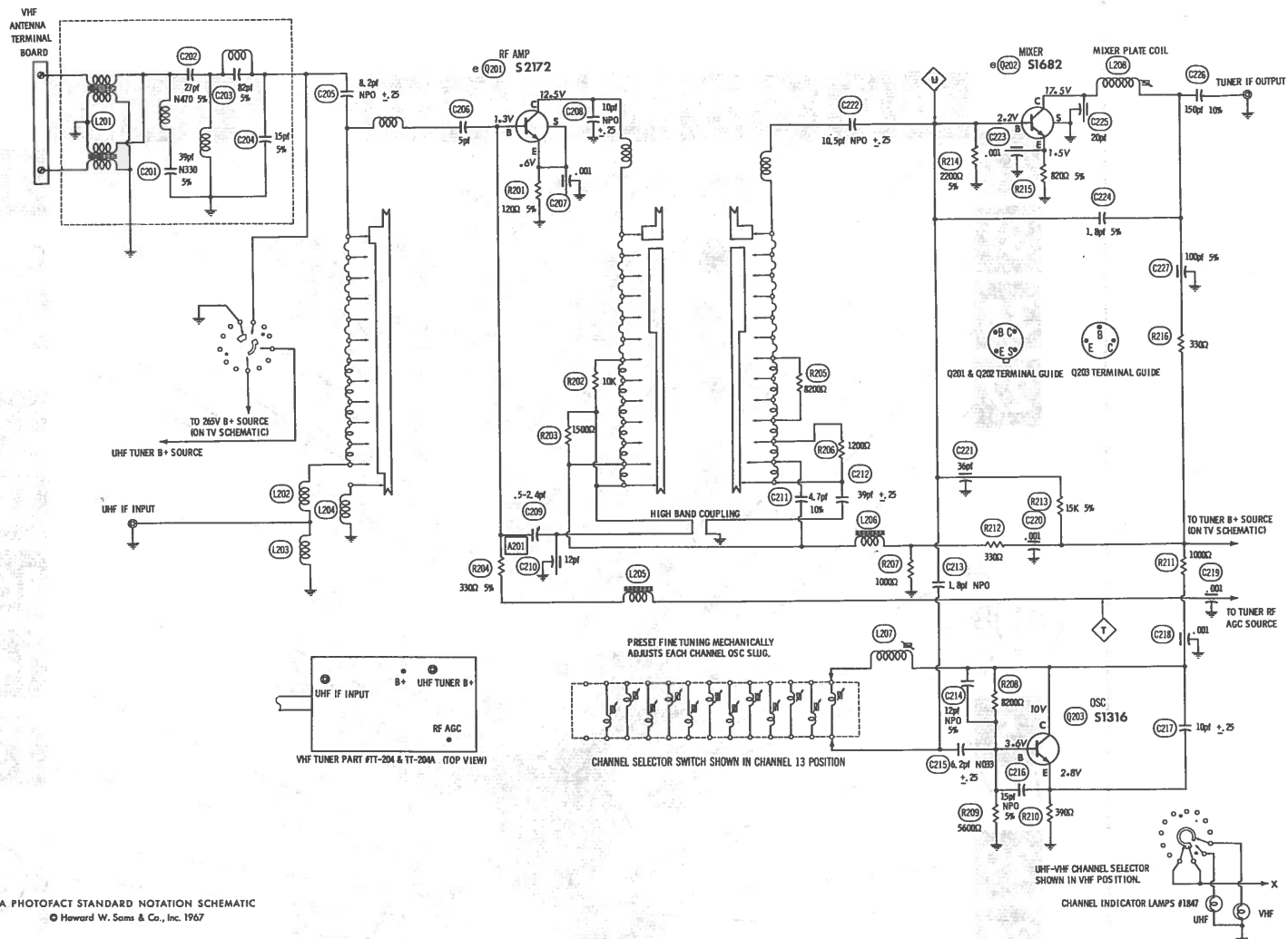
A Howard W. Sams CIRCUITRACE Photo

IF PRINTED BOARD

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

PHILCO CHASSIS
17NT82, 17QT85A

FOLDER 2



A PHOTOFAC STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1967

VHF TUNER ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: A201 ... GENERAL CEMENT #8868, 8987, 9089 ... WALSCO #2531-X, 2541, 2587

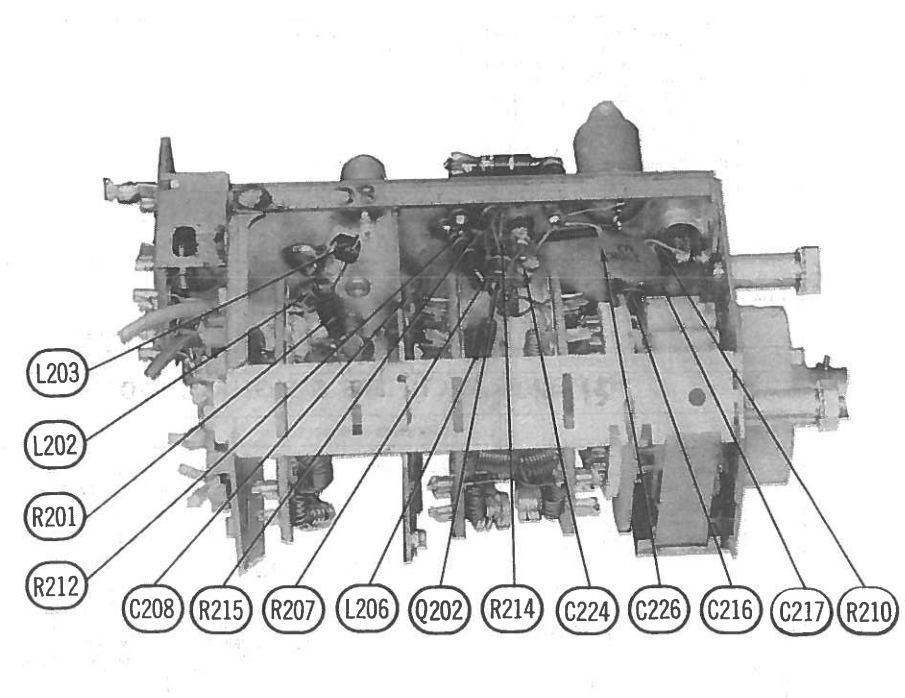
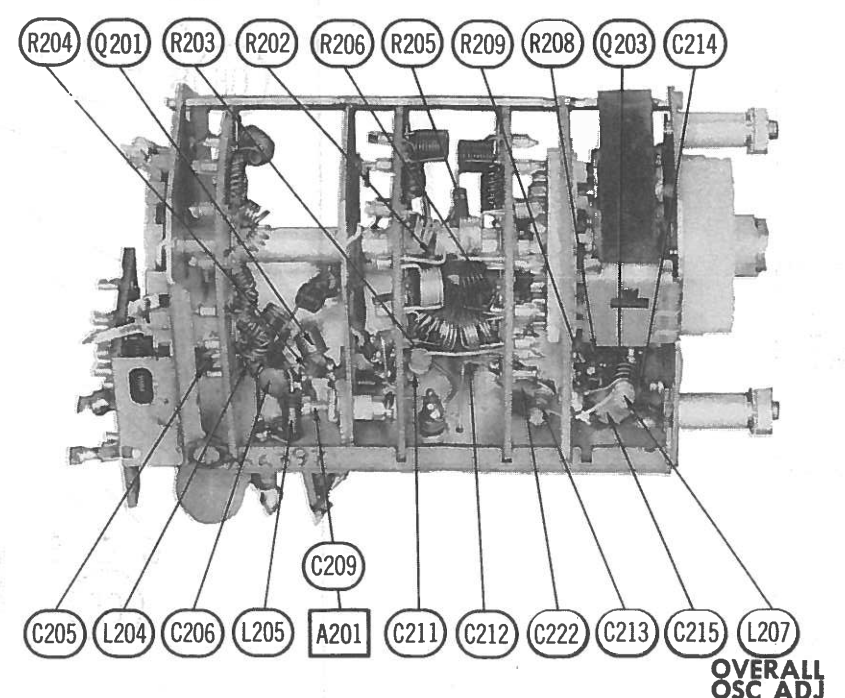
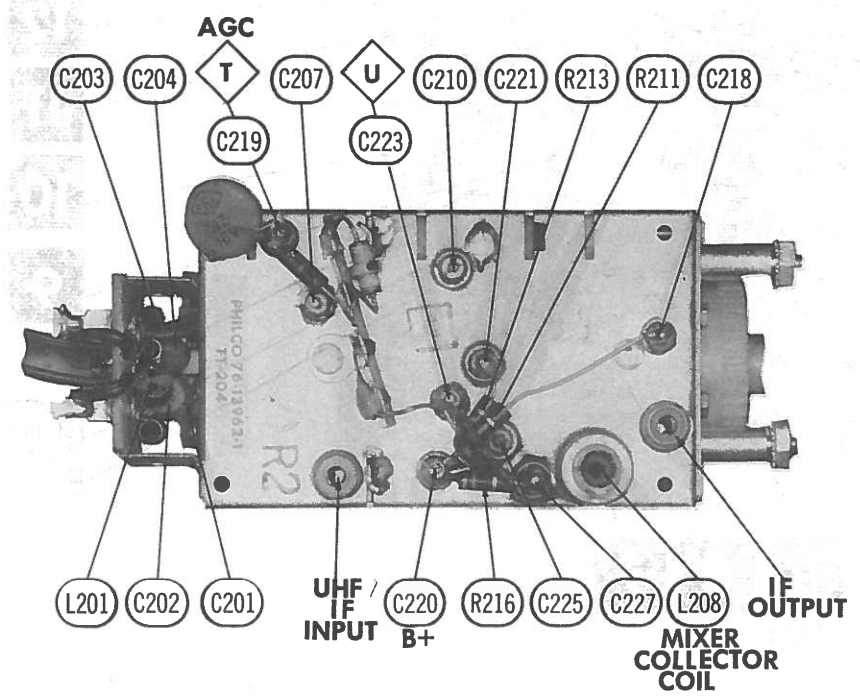
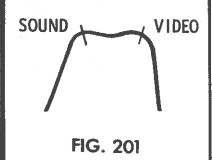
OSCILLATOR ADJUSTMENTS
The oscillator for each channel is preset by means of the fine tuning control. Adjust fine tuning for best picture and sound on each channel. If any channel cannot be properly tuned in with the fine tuning, adjust overall oscillator adjustment and recheck all available channels.

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 +1.5V bias to the RF AGC line at point (T). 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.	213MC	211.25MC 215.75MC	13	Vert. Input to Point (U), low side to ground		Expand or compress appropriate coils for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2. "	195MC	193.25MC 197.75MC	10	Across Video Det. load resistor.	A201	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
3. "	See Chart	See Chart	12 thru 2	Vert. Input to Point (U), low side to ground.		Decrease bias. Check all channels and make compromise adjustments by expanding or compressing appropriate coils.

CHANNEL & FREQUENCY CHART

SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL
57MC	55.25MC 59.75MC	2	85MC	83.25MC 87.75MC	6	195MC	193.25MC 197.75MC	10
63MC	61.25MC 65.75MC	3	177MC	175.25MC 179.75MC	7	201MC	199.25MC 203.75MC	11
69MC	67.25MC 71.75MC	4	183MC	181.25MC 185.75MC	8	207MC	205.25MC 209.75MC	12
79MC	77.25MC 81.75MC	5	189MC	187.25MC 191.75MC	9	213MC	211.25MC 215.75MC	13



VHF TUNER TT204, TT204B

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		PHILCO PART No.	MEISSNER Part No.	MERIT PART No.	MILLER PART No.	WORKMAN PART No.	
L31	RF Choke	32-4645-44	19-1004	BC-565	4610	T992	
L32	Chroma Reference Osc.	32-4877-1					
L33	3.58MC Oscillator	32-4879-3					
L34	RF Choke (2.2uh)	32-4762-28	19-2011	BC-563	74F226AP	T988	
L35	Peaking (680uh)	32-4762-14	19-3660	BC-679	72F684AP	T356	
L36	Peaking (680uh)	32-4762-14	19-3660	BC-679	72F684AP	T356	
L37	Filter Choke (9uh)	32-4112-62	19-1009	BC-566	4611	T860	
L38	Filter Choke (9uh)	32-4112-62	19-1009	BC-566	4611	T860	
L39	38.75MC Trap	32-4652-80					
L40	Filter Choke (82uh)	32-4762-27		TV-181	72F825AP	T368	
L41	Filter Choke (82uh)	32-4762-27		TV-181	72F825AP	T368	

① Wound on 5600Ω Resistor.

▲ Shunt with 5600Ω Resistor.

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		PHILCO PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	THORDARSON MEISSNER PART No.	TRIAD PART No.	WORKMAN PART No.	
L42	Horiz. Osc. (Freq.)	32-4891-1		6350 ①		FC-5 ①		TC289 ①	
L43	Focus	32-4895-1							
L44	Pincushion Phase Alternate	32-4894-2 ②							
L45	Dynamic Convergence Right R/G Vert. Lines (3.4mh-7.3mh)	32-4881-1 ③		6347				T149	
L46	Dynamic Convergence Right R/G Horiz. Lines (1.2mh-4.6mh)	32-4881-3		6348					
L47	Dynamic Convergence Right Blue Horiz. Lines (Pri. 3.5mh-11mh) (Sec. .12mh-.2mh)	32-4881-2		H-102					
L48	Blue Horiz. Shape	32-4881-4							
L49	Convergence Yoke Assembly	76-13911-1							
A	Blue Section								
B	Green Section								
C	Red Section								

① Connect Terminal #1 and #2 same as original. Connect new Terminal #4 same as old Terminal #3.

Connect a 100K Resistor across new Terminals #3 and #1.

② Used in Chassis 17NT82.

③ Used in Chassis 17QT85A.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000-1)	PHILCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L50	.56ADC	17Ω	.35 H	32-10044-1	C-4133	C-2708	26C81	C-40X	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	PHILCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ 2.3A	210VAC @ .56A	6.3VAC @ 1.25A	32-10048-1					
		SEC. 3							
	18VAC @ .065A DC		Tapped @ 6.3VAC @ 9.6A						

* 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	32-10050-1					
T3	Yoke (Horiz. 13.2mh) 90° (Vert. 25.5mh) Alternate Yoke	76-13910-1 ②				YC-312-2 ①	① Use original 560pf, 2.5KV, 3300 capacitor and connect across terminals #3 and #10.
T4	Horiz. Output	32-10042-1				YC-312-2 ①	② Used in Ch. 17NT82.
T5	Pincushion (Top and Bottom)	32-10049-1					③ Used in Ch. 17QT85A.

* COMPONENT CONNECTION DATA

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

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.	
T6	12, 300Ω	6-8Ω	32-10058-1					Used in Chassis 17NT82. Used in Chassis 17QT85A.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA			NOTES
		PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	3" x 5" PM 4" x 8" PM	36-1706-5 ① 36-1710-4 ②*	P3X5X3	35A05	* Alternate for Model Q8020EWA. ① Models Q8020EWA/10EAW/12EEA, and Q8470PC. ② Models Q8020EWA, Q8444WA/46MA, Q8456LCH/58SP/70PC, Q8920WA/22MA. ③ Models Q8920WA/22MA. ④ Models Q8926LCH/34PC. ⑤ Models Q8934PC. ⑥ Models Q8438MA/40CH and Q8924PC/26LCH/34PC. ⑦ Models Q8920WA/22MA/24PC, Q8926LCH/34PC.
	12" PM 10" PM 8" x 9" PM 4" x 6" PM 4" PM 2 3/4" PM	36-1713-7 ③ 36-1701-6 ④ 36-1712-3 ⑤ 36-1710-3 ⑥ 36-1073-35 ⑦ 36-1714-1 ⑦	P4X6X3	46A2C 4A05Z32	

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
		DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER
F1	Circuit Breaker, 2.5A	42-2136-6				81502.5	
F2	3 1/2" length of fuse wire						FA2.5

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA
PC1	Vertical Integrator	8200Ω, 10K, 150pf, .005	30-6030-13	
PC2	Phase Detector Network	1meg, 1meg, 330pf, 330pf	30-6055-1	
PC3	Phase Detector Network	1meg, 1meg, 330pf, 330pf	30-6055-1	

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M1	VHF Tuner	TT204B	Used in Chassis 17NT82.
M2	VHF Tuner	TT204	Used in Chassis 17QT85A.
M3	UHF Tuner	TT155F	Used in Chassis 17NT82.
M4	UHF Tuner	TT152F	Used in Chassis 17QT85A.
M5	UHF Antenna	76-13797-1	JFD Replacement (TA432)
M6	Crystal	34-8043-4	3.58MC
M7	Magnet	76-13912-2	Lateral and Purity Assembly
M8	Delay Line	32-4839-2	
M9	Degaussing Coil	32-4896-3	Chassis 17NT82
M10	Degaussing Coil	32-4896-1	Chassis 17QT85A
S1	Switch	42-2075-25	Normal-Service
S2	Switch	42-2075-27	Vert. Centering (Used in Chassis 17NT82)
	Printed Circuit Board	38-10236	Chroma (With Components)
	Printed Circuit Board	27-11236-2	Chroma (Less Components)
	Printed Circuit Board	38-10238	IF (With Components)
	Printed Circuit Board	27-11235-2	IF (Less Components)
	Printed Circuit Board	38-10171	IF Trap (With Components)
	Printed Circuit Board	27-10501-7	IF Trap (Less Components)
	Printed Circuit Board	38-10172	Deflection and Sound (With Components)
	Printed Circuit Board	27-11237-1	Deflection and Sound (Less Components)
	Printed Circuit Board	38-10175	Convergence (With Components)
	Printed Circuit Board	27-11014-2	Convergence (Less Components)
	Printed Circuit Board	38-10240	Tuning Indicator (With Components)

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869 (17KV) or 8868 (25KV)
Shielded Hook-up Wire	Use BELDEN No. 8886 (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

Correct

PARTS LIST AND DESCRIPTION

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

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

TUBES

AMPEREX			GENERAL ELECTRIC			RCA			SYLVANIA		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Tuning Indicator	6HU6/EM87	V10	Damper	6CG3	V11	1st Chroma Bandpass Amp.	6CG3	V12	1st Chroma Bandpass Amp.	3AW2
V2	Chroma Amp. - Sync Sep. - Video Cathode Follower	6GM8 - 6MG8	V13	2nd Chroma Bandpass Amp. - G-Y Amp.	6GH8A	V14	Z Demod. - B-Y Amp.	6BL8/ECF80	V15	X Demod. - R-Y Amp.	6BL8/ECF80
V3	Video Output	12GN7	V16	Horiz. Blanking - Burst Amp.	6GH8A	V17	Chroma Ref. Osc. Control - Chroma Reference Osc.	6GH8A			
V4	Sound IF - Noise Inverter	6GH8A									
V5	Audio Detector	6CS8									
V6	Audio Output	6AQ5A									
V7	Vert. Mult. - Vert. Output	6LU8									
V8	Horiz. AFC - Horiz. Oscillator	6BL8/ECF80									
V9	Horiz. Output	6KD6									

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	PHILCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V18	23EGP22 ① 25AP22A ②	23EGP22 25AP22A †	25AP22A †	RE25AP22A *	† Aluminized * Color Bright "85"

① Used in Chassis 17NT82.

② Used in Chassis 17QT85A.

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES	PHILCO PART No.
			DELCO PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	RCA PART No.		
Q301	SI019 *	UHF Oscillator		GE-11	TR-24	SK-3018	NPN	78-13570-39
Q201	S2172	RF Amp.		GE-11	TR-24	SK-3018	NPN	229-0204-6
Q202	S1682	Mixer		GE-11	TR-24	SK-3018	NPN	229-0204-23
Q203	SI316	Oscillator		GE-11	TR-24	SK-3018	NPN	78-13866-19
Q1	TV15A	1st Video IF	DS-81	GE-11	TR-22	SK-3018	NPN	34-6000-69
Q2	TV15B	2nd Video IF	DS-81	GE-11	TR-22	SK-3018	NPN	34-6000-70
Q3	TV20	3rd Video IF	DS-81	GE-11	TR-22	SK-3018	NPN	34-6000-72
Q4	TV19	Video Amp.	DS-74	GE-11	TR-21	SK-3018	NPN	34-6001-65
Q5	TV17	AGC Keying	DS-66	GE-10	TR-21		NPN	34-6001-63
Q6	TV18	AGC Amp.	DS-66	GE-10	TR-21		NPN	34-6001-64

* Alternate Original Type #SI044 is used in Tuner TT-155F, Part #78-13570-59.

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES		RECTIFIERS		
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.230A	34-8054-7	GE-504A	8D4 or 18DB6A ①	1N2070 or FW600 ①	SK-3016 or SK-3017A	40C or S-5959-2 ①
X2	.230A	34-8054-7	GE-504A	8D4 or 18DB6A ①	1N2070 or FW600 ①	SK-3016 or SK-3017A	40C or S-5959-2 ①
X3	.230A	34-8054-7	GE-504A	8D4 or 18DB6A ①	1N2070 or FW600 ①	SK-3016 or SK-3017A	40C or S-5959-2 ①
X4	.230A	34-8054-7	GE-504A	8D4 or 18DB6A ①	1N2070 or FW600 ①	SK-3016 or SK-3017A	40C or S-5959-2 ①
X5	.115A	34-8054-7	GE-504A	8D4 or 18DB6A ①	1N2070 or FW600 ①	SK-3016 or SK-3017A	40C or S-5959-2 ①
X6		34-8053-4 (34-8053-3) *	GE-504A ②	8D4 ② or 5A4-D ②	A50 ② or 1N536 ②	SK-3016 ② or SK-3017A ②	40C ② or S-5462
X7		34-8053-4 (34-8053-3) *	GE-504A ②	8D4 ② or 5A4-D ②	A50 ② or 1N536 ②	SK-3016 ② or SK-3017A ②	40C ② or S-5462
X8		34-8022-7 (1N60D)	1N60	1N60			
X9		34-8022-6 (1N60C)	1N60	1N60			
X10		34-8022-6 (1N60C)	1N60	1N60			
X11		34-8022-6 (1N60C)	1N60	1N60			
X12		34-8057-8	1N34AS	1N34A			
X13		34-8057-8	1N34AS	1N34A			
X14		34-8057-8	1N34AS	1N34A			
X15		34-8057-8	1N34AS	1N34A			
X16		34-8057-8	1N34AS	1N34A			
X17		34-8057-8	1N34AS	1N34A			
X18		34-8057-8	1N34AS	1N34A			
X19		34-8057-9 ③ (1N712)		12M8.2T10 or Z-1010	ZA8.2A or ZT8.2A		.25T8.2 or .4T8.2A

① A single unit replaces X1 thru X4.

② Four (4) required.

③ 8.2 Volt Zener Diode.

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
C120	.047 100V		DBE2S47	DD-203	DMF1S47	1DP-2-473	PVC1147	225P47391
C121	.02		BPD-02	DD-203	BYT601ZU203Z	CCD-203	GP120	10TS-D10
C122	.820	10%	DI-820	DD-821	JBY601YF821K	CCD-821	GP382	10TS-T82
C123	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C124	.22	10%	DI-22	DD-220		CCD-220	GP422	10TS-Q22
C125	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C126	.005		DI-5000	DD-502	JBT601YP502K	CCD-502	GP250	10TS-D50
C127	8 NPO ±1	#30-1293-52						
C128	100	10%		DD-101	JBZ601YP101K	CCD-101	GP310	10TS-T10
C129	.01			DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C130	10 NPO			DTZ-10	CZ601CH5R0D	CCD-100	CNO410	10TCC-Q10
C131	.1 100V				DMF1P1	1DP-2-104	PVC101	2PS-P10
C132	3.3 NPO			DTZ-3R3		CCD-102	CNO418	10TCC-Q18
C133	.01			DD-103	BYX601ZU103M	CCD-103	GP250	10TS-D50
C134	.01			DD-103	BYX601ZU103M	CCD-103	GP210	10TS-D10
C135	7.5 NPO ±1	#30-1293-78						
C136	220 N750 10%							
C137	56 NPO 10%							
C138	.01							
C139	.001	5%						
C140	.01							
C141	150							
C142	.1 400V							
C143	.01 600V							
C144	.1 200V							
C145	33 N330 10%	#30-1251-54						
C146	8 NPO ±1	#30-1293-52						
C147	.01 600V							
C148	.1 200V							
C149	33 N330 10%	#30-1251-54						
C150	8 NPO ±1	#30-1293-52						
C151	.01 600V							
C152	.001							
C153	.1 200V							
C154	.001							
C155	.001							
C156	.001							
C157	.047 400V							
C158	.001 1.4KV							
C159	.001 1.4KV							
C160	.01							
C161	.01							
C162	.1 600V							
C163	.056 400V 10%							
C164	.056 400V 10%							
C165	.33 200V							
C166	.056 200V 10%							
C167	.12 200V 10%							
C168	.082 200V 10%							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer. Ⓢ Spark Gap.
† Alternate Value 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.	
R1A	Tint Volume/Switch	1200Ω 1meg	33-5604-29	F5-1500, R12-1meg Ⓢ, FFS102, RP 113, KR-8	NP-1200-V, NRFI-1meg Ⓢ, UPC-B-102, URP-G-113, PPAR, NWG-18	† QJ-1650	▲ UE4466S	
R2A	Tint Volume/Switch Color	1200Ω 1meg	33-5618-28	F1-500, R1-500, FFS102, RFS110		†† QJ-1904	■ UE4601	
R3	Brightness Tone	500Ω 2.5meg 500Ω	33-5618-27	F1-750K, SSK100	A47-750K-S, KSS-3 or (NP-750K-S U.P.-C-400)	Q11-136 or (BU1, CF64, SSI, DC1) *	UA16L, SK1000 or (RU754L, SL38, SK1000) or (U54)	
R4	Brightness Vert. Hold	750K	33-5605-12	F1-750K, SSK100		# QJ-2325	• UE4701	
R5	Vert. Hold Color	750K 500Ω	33-5618-22	F1-750K, R1-500, FFS104, RFS112	A47-1000-S, KSS-3 or (NP-1000-S, U.P.-C-400)	Q11-108 or (BU1, CF6, SSI, DC1) *	UA13L, SK1000 or (RU13L, SL38, SK1000) or (U4)	
R6	Horiz. Hold	1000Ω	33-5623-9	F1-1000, SSK100		## QJ-2326	• UE4702	
R7	Horiz. Contrast	1000Ω 100Ω	33-5618-25	F1-1000, R1-100, FFS104, RFS112				
R8	Contrast	100Ω	33-5619-14	F1-1000, SSK100				
R9	Pincushion Amp.	6000Ω	33-5619-2	F1-7500, SNK010	A47-7500-S, RN-3, TT-2 or (NP-7000-S, NML-A-300, TT-2)	B11-084, SK1 or (BU1, CF1, SSI, DC1) *	UA12L, SK1000 or (RU12L, SL38, SK1000) or (U1)	

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.
R7A	Horiz. Bias	750K	33-5600-11				
R8	Vert. Linearity	500K					
R9A	Vert. Height	3.4meg					
R10A	Red Screen	1.5meg	33-5595-13				
R11	Green Screen	1.5meg					
R12	Blue Screen	1.5meg					
R13	Color Killer	2000Ω	33-5600-12				
R14	AGC	10K					
R15	Noise Inverter	6000Ω					
R16	Green Drive	6000Ω					
R17	Blue Drive	250K					
R18	CRT Bias	750Ω	33-5613-2	TH-750 Ⓢ		U201R102B	MTC751L4
R19	Sound Reject	3000Ω	33-5613-3	TH-2500 Ⓢ		U201R252B	MTC331A
R20	IF AGC	150Ω	33-5609-6	V-150	U39-150	110C150	MRC150P
R21	Diff. R/G Vert. Amp.	2W					
R22	(R/G Horiz. Amp.)	30Ω	33-5609-3	V-30	U39-50	110C30	MRC30P
R23	Diff. R/G Vert. Tilt	2W					
R24	(R/G Horiz. Tilt)	120Ω	33-5609-5	V-120	U39-125	110C120	MRC120P
R25	Diff. R/G Horiz. Tilt (Left)	2W					
R26	R/G Vert. Amp.	120Ω	33-5609-5	V-120	U39-125	110C120	MRC120P
R27	R/G Vert. Tilt	60Ω	33-5609-4	V-60	U39-75	110C60	MRC60P
R28	R/G Horiz. Tilt (Left)	120Ω	33-5609-5	V-120	U39-125	110C120	MRC120P
R29	(R/G Vert. Lines)	2W					
R30	Vert. Blue Amp.	30Ω	33-5609-3	V-30	U39-50	110C30	MRC30P
R31	(Blue Horiz. Lines)	2W					
R32	Vert. Blue Tilt	60Ω	33-5609-4	V-60	U39-75	110C60	MRC60P
R33	(Blue Horiz. (Left))	120Ω	33-5609-10	V-120	U39-125	110C120	MRC120P

† "CONCENTRIKIT" Equivalent: K-16 Kit with Base Elements and Shafts: B17-208, P22-103 (Panel), B13-137X Ⓢ, CR32T Ⓢ, SR96 Ⓢ, K. * "SNAPTROL"
†† "CONCENTRIKIT" Equivalent: K-6 Kit with Base Elements and Shafts: B11-103, P22-103 (Panel), B11-103, R16-118 (Rear).
"SNAPTROL" Equivalent: BU5, CF4, CR41, SF7, SR43, DC1.
"CONCENTRIKIT" Equivalent: K-6 Kit with Base Elements and Shafts: B11-136, P22-109 (Panel), B11-103, R26-121 (Rear).
"SNAPTROL" Equivalent: BU5, CF64, CR41, SF9, SR44, DC1.
"CONCENTRIKIT" Equivalent: K-15 Kit with Base Elements and Shafts: B11-108, P22-109 (Panel), B11-084, R26-121 (Rear).
"SNAPTROL" Equivalent: BU4, CF6, CR1, SF9, SR44, DC1.
▲ "STA-LOC" Equivalent: FA152R, RUP16T254 Ⓢ, OS1125. Ⓢ Cut and slot shaft to required length.
■ "STA-LOC" Equivalent: FA52L, RU52L, OS1125, IS1625. Ⓢ Alternate Part, used in Chassis 17QT85A.
● "STA-LOC" Equivalent: FA754L, RU52L, OS1250A, IS1750. Ⓢ Cut off studs and bend terminals to duplicate original wiring.
Ⓢ "STA-LOC" Equivalent: FA13L, RU12L, OS1250A, IS1750.
Ⓢ Tie point incorporated in the original Volume control should be provided for in another manner.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	PHILCO PART No.			IRC PART No.	WORKMAN PART No.	PHILCO PART No.
R22	33K 3W		5G-33K	33-1363-146	R178	15K 3W		3G-15K	33-1363-135
R74	1000Ω 3W	PW5-1000	3G-1K	33-1363-131	R184	15K 3W		3G-15K	33-1363-135
R105	750Ω 5W	PW5-750	5W-SQ-750	33-1363-144	R194	15K 3W		3G-15K	33-1363-135
R110	V.D.R. Ⓢ			33-1379-3	R199	7500Ω 4W		4G-7.5K	33-3461-1
R112	Thermistor (22K * 3W)		FR-3.8	Part of Yoke	R203	27K 3W		4G-27K	
R129	V.D.R. Ⓢ			33-1379-2	R209	Thermistor (120Ω Cold)		FR-922	33-1376-3
R132	4200Ω 7W	PW10-4000	10W-SQ-4K	33-1363-143	R210	V.D.R. Ⓢ		FR-066	33-1379-1
R134	430K 3W			33-1363-145	R212	.82Ω 2W	BWH-.82	WS-.82	
R135	430K 3W			33-1363-145	R214	2250Ω 10W 1/3/4A	-2250	10W-SQ-	33-1363-147
R140	66meg, 6KV	MV-66M	66M	33-1352-10					
R152	15K 3W		3G-15K	33-1363-135					

† Voltage Dependent Resistor

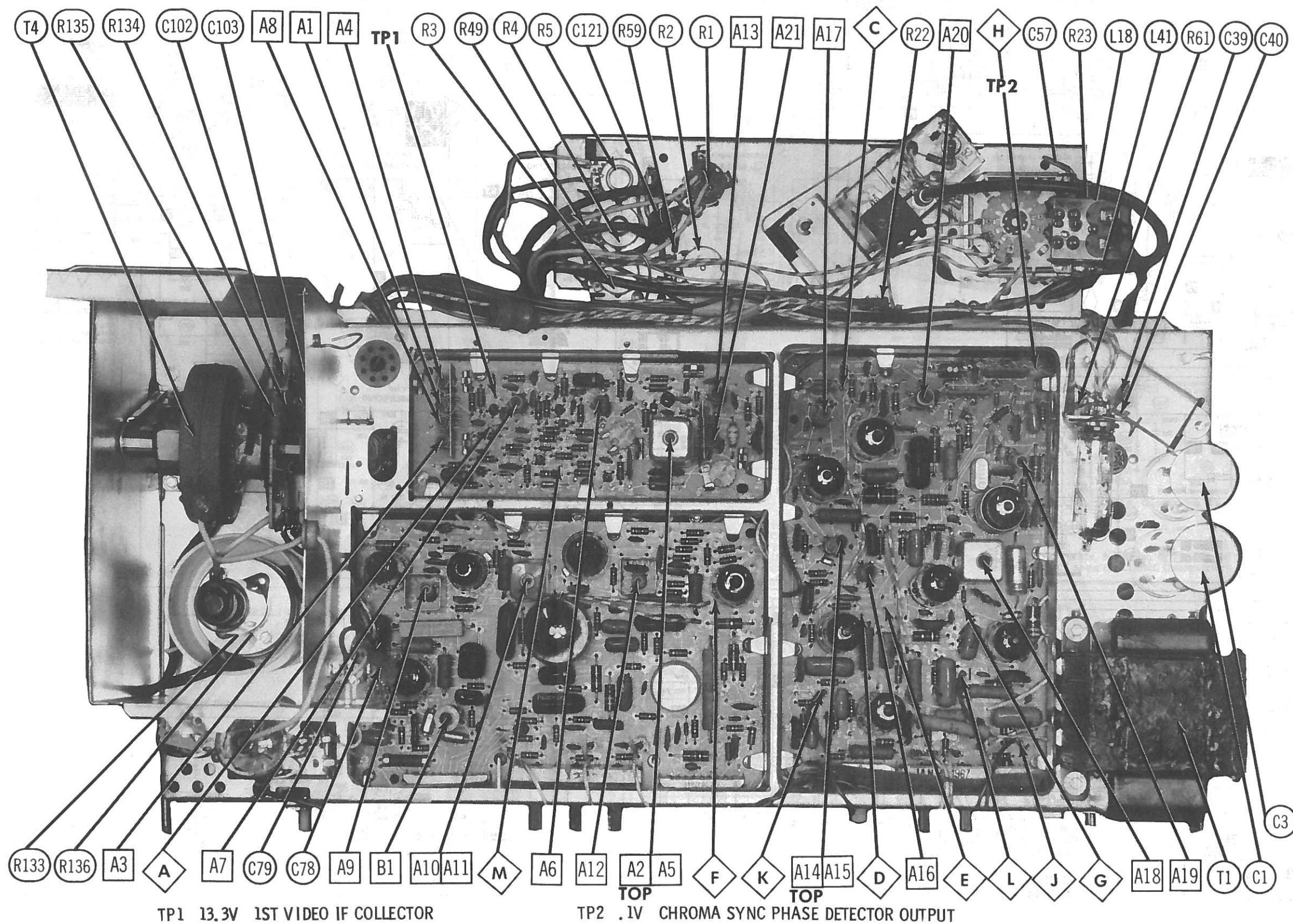
* Alternate

COILS (RF-IF)

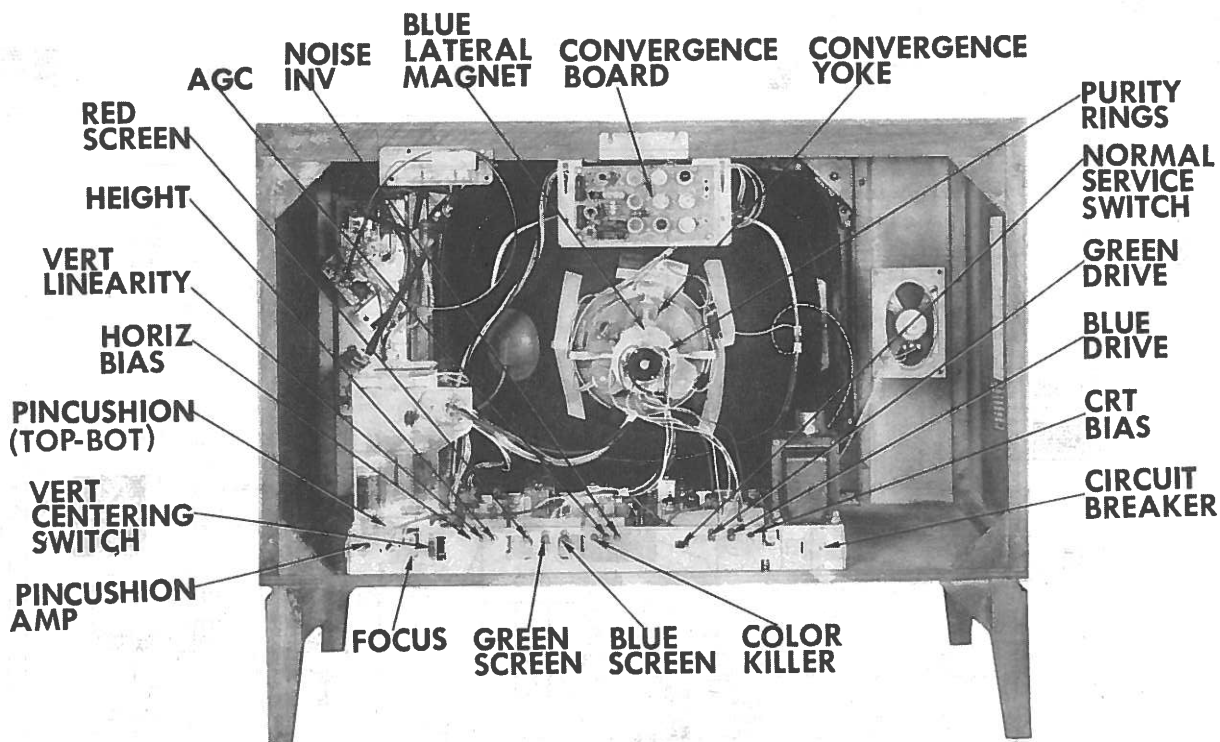
ITEM No.	USE	REPLACEMENT DATA				
		PHILCO PART No.	MEISSNER Part No.	MERIT PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke (8 turns)	32-4652-66				
L2	47.25MC Trap	32-4652-78				
L3	47.25MC Trap	32-4652-78				
L4	1st Video IF	32-4652-79				
L5	2nd Video IF	32-4653-1				
L6	3rd Video IF	32-4653-2				
L7	4th Video IF/Video Det.	32-4653-3				
L8	RF Choke (12uh)	32-4652-23				
L9	RF Choke (22uh)	32-4652-1				
L10	4.5MC Trap	32-4653-1				
L11	RF Choke (6uh)	32-4645-44				
L12	Peaking (560uh)	32-4652-13				
L13	Peaking (120uh)	32-4652-2 Ⓢ				
L14	Peaking (82uh)	32-4652-3				
L15	Peaking (42uh)	32-4652-1				
L16	Peaking (120uh)	32-4652-5				
L17	Peaking (270uh)	32-4652-9				
L18	RF Choke (12uh)	32-4652-1				
L19	Peaking (82uh)	32-4652-27				
L20	RF Choke (6uh)	32-4645-44				
L21	Tuning Indicator Adjust	32-4652-80				
L22	RF Choke (22uh)	32-4652-1				
L23	RF Choke (6uh)	32-4645-44				
L24	1st Sound IF	32-4653-1				
L25	2nd Sound IF	32-4645-12				
L26	Quadrature	32-4653-1				
L27	Chroma Takeoff	32-4653-1				
L28	Chroma Bandpass	32-4653-1				
L29	Bandpass Amp.	32-4653-1				
L30	Burst Amp.	32-4653-1				

PHILCO CHASSIS
17N182, 17Q185A

FOLDER 2



CHASSIS - TOP VIEW



CABINET-REAR VIEW

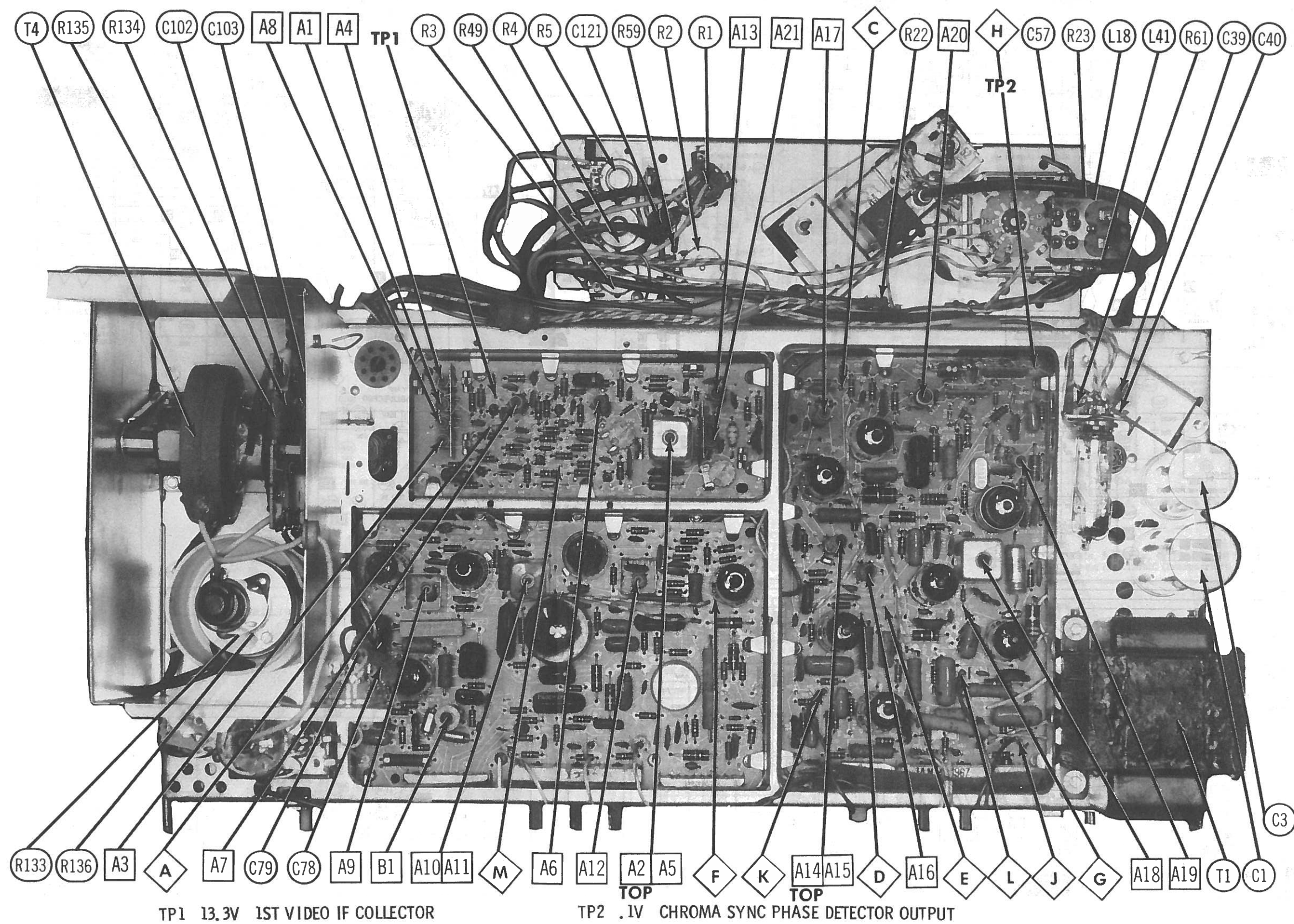
DISASSEMBLY INSTRUCTIONS

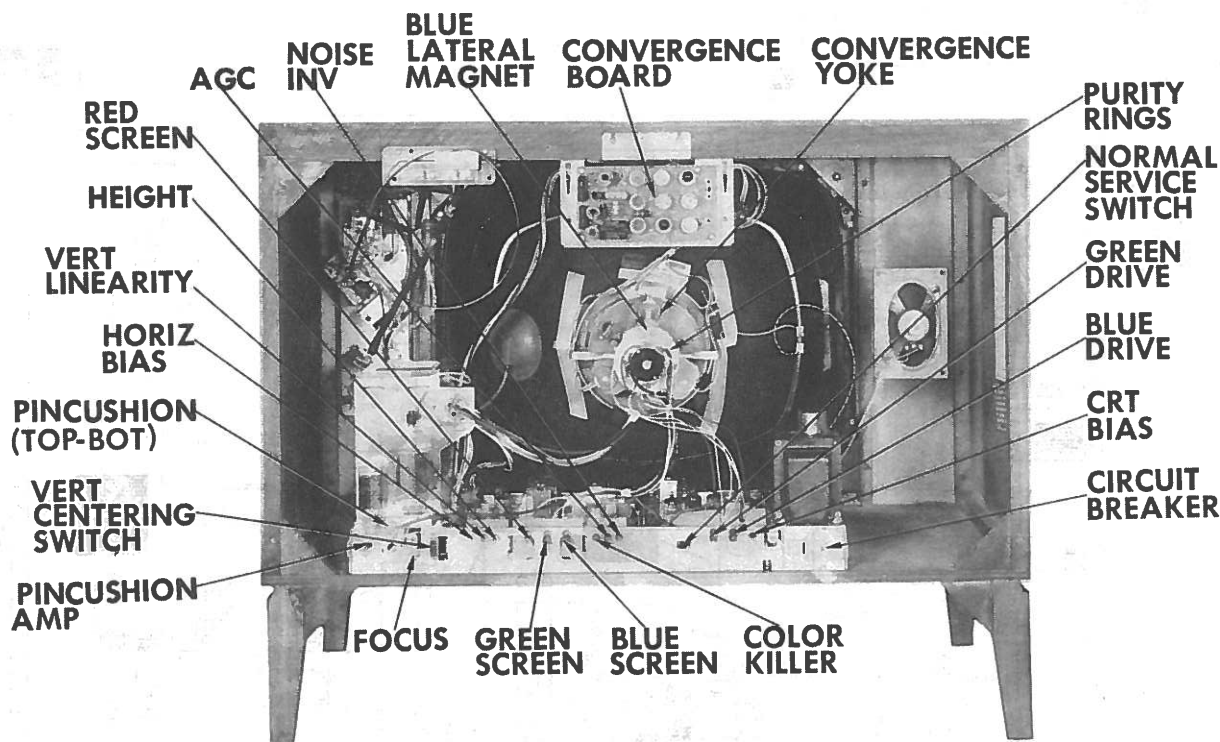
TV CHASSIS REMOVAL

1. Remove 10 screws holding back cover and remove back cover. Disconnect antenna leads and remove all knobs.
2. Disconnect yoke plug, high voltage anode lead, picture tube socket, speaker leads, and convergence yoke plug.
3. Remove 4 screws holding chassis and 5 screws holding tuner and controls.
4. Lift out chassis and tuner.

PICTURE TUBE REMOVAL

1. Follow "Chassis Removal" procedure. Lay set face down on a soft protective surface.
2. Remove lateral magnet and purity assembly, convergence magnet assembly and deflection yoke assembly from picture tube neck. Remove ground from yoke clamp.
3. Remove picture tube mask ground lead from picture tube mounting bracket. Remove 8 screws securing the mask to cabinet and remove mask from the cabinet.
4. Remove 4 picture tube mounting screws from the front of cabinet holding picture tube. Remove picture tube from front of cabinet.





CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

TV CHASSIS REMOVAL

1. Remove 10 screws holding back cover and remove back cover. Disconnect antenna leads and remove all knobs.
2. Disconnect yoke plug, high voltage anode lead, picture tube socket, speaker leads, and convergence yoke plug.
3. Remove 4 screws holding chassis and 5 screws holding tuner and controls.
4. Lift out chassis and tuner.

PICTURE TUBE REMOVAL

1. Follow "Chassis Removal" procedure. Lay set face down on a soft protective surface.
2. Remove lateral magnet and purity assembly, convergence magnet assembly and deflection yoke assembly from picture tube neck. Remove ground from yoke clamp.
3. Remove picture tube mask ground lead from picture tube mounting bracket. Remove 8 screws securing the mask to cabinet and remove mask from the cabinet.
4. Remove 4 picture tube mounting screws from the front of cabinet holding picture tube. Remove picture tube from front of cabinet.