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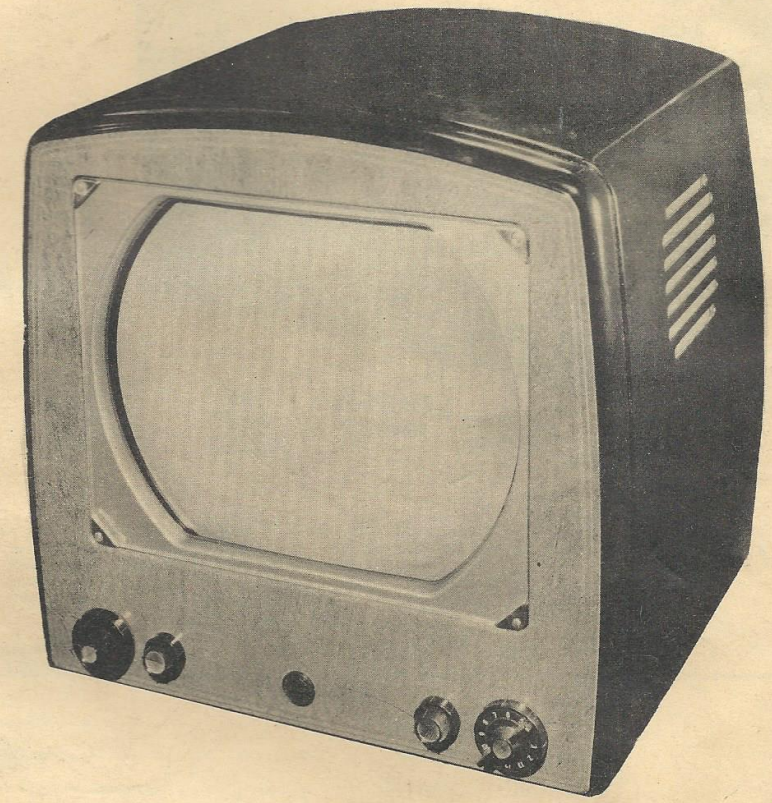

MODEL 51-T1601

PHILCO MODELS 51-T1601, T, 51-T1602, 51-T1607 (Codes 121, 122), 51-T1634 (Codes 123, 124)

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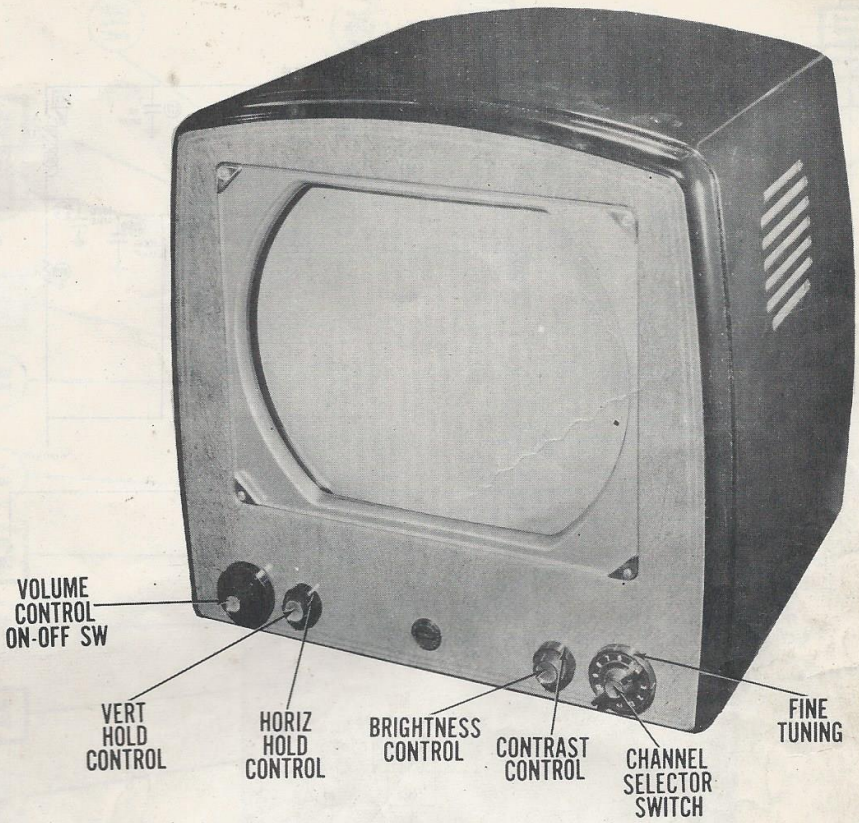

PHILCO MODELS 51-T1601, T, 51-T1602, 51-T1607 (Codes 121, 122), 51-T1634 (Codes 123, 124)

PHILCO MODEL 51-T1601

TRADE NAME	Philco, Models 51-T1601, 51-T1601T, 51-T1602, 51-T1607 (All Codes 121 & 122), 51-T1634 (Codes 123 & 124)
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	Television Receiver
TUBES	Twenty-three
POWER SUPPLY	110-120 Volts AC-60Cycle — RATING 2.4 Amp. @ 117 Volts AC
TUNING RANGE- CHANNELS	2 thru 13

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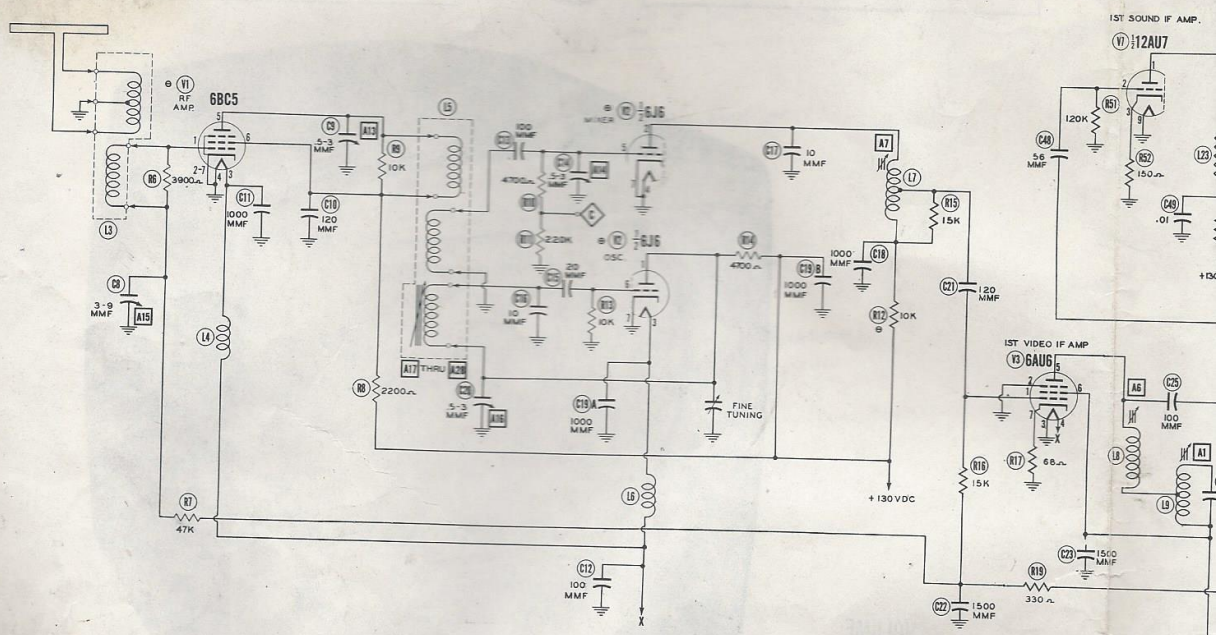
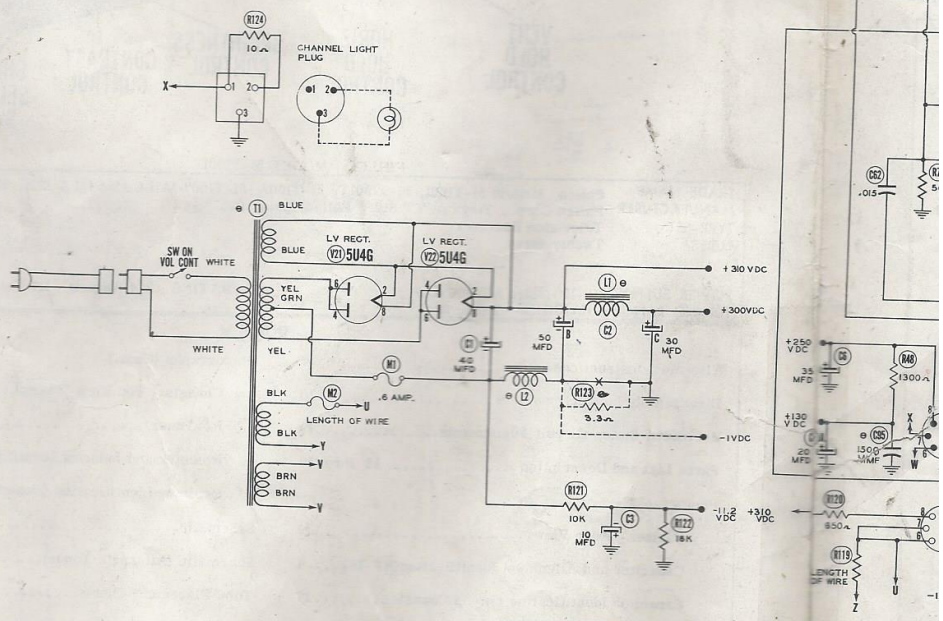


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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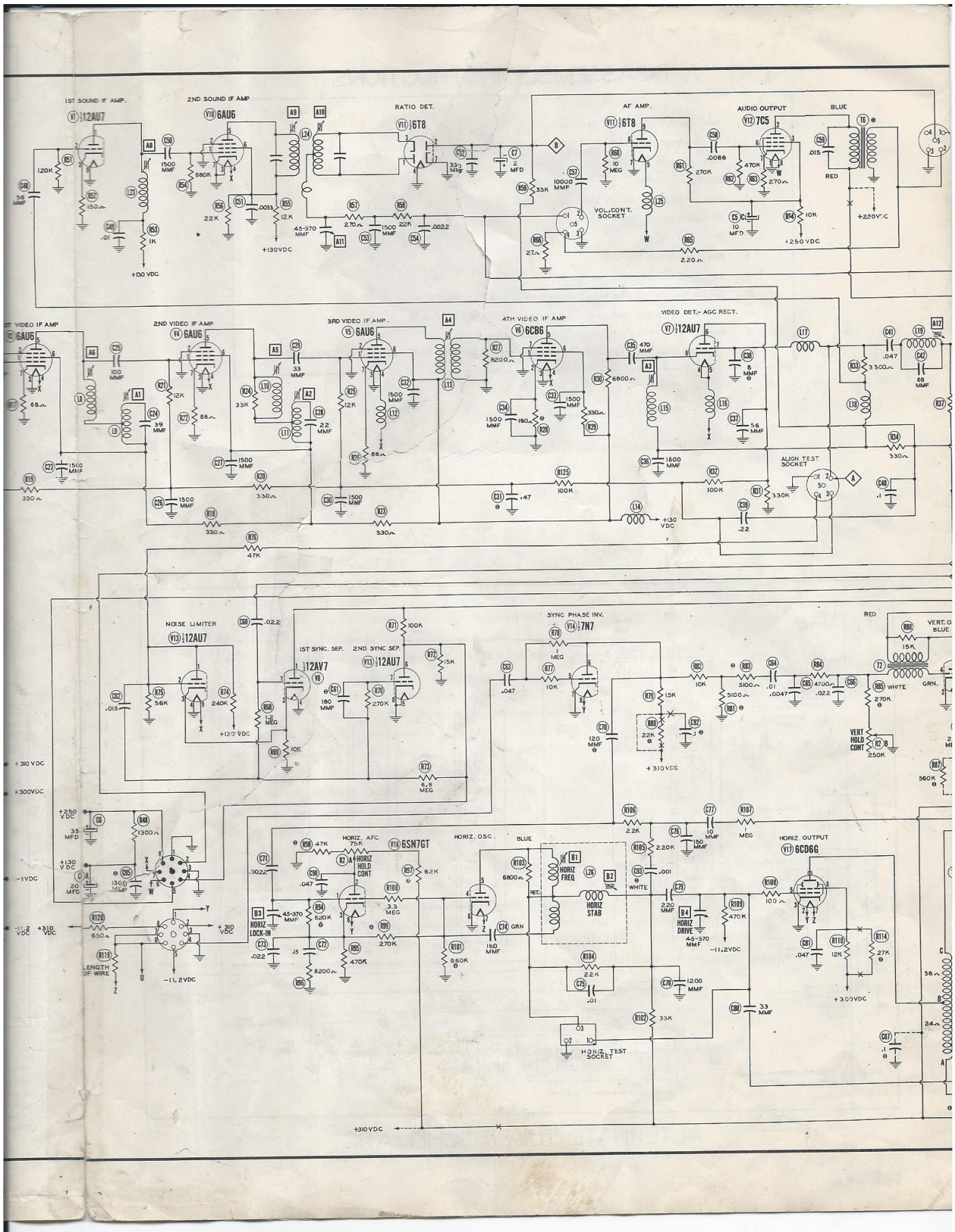
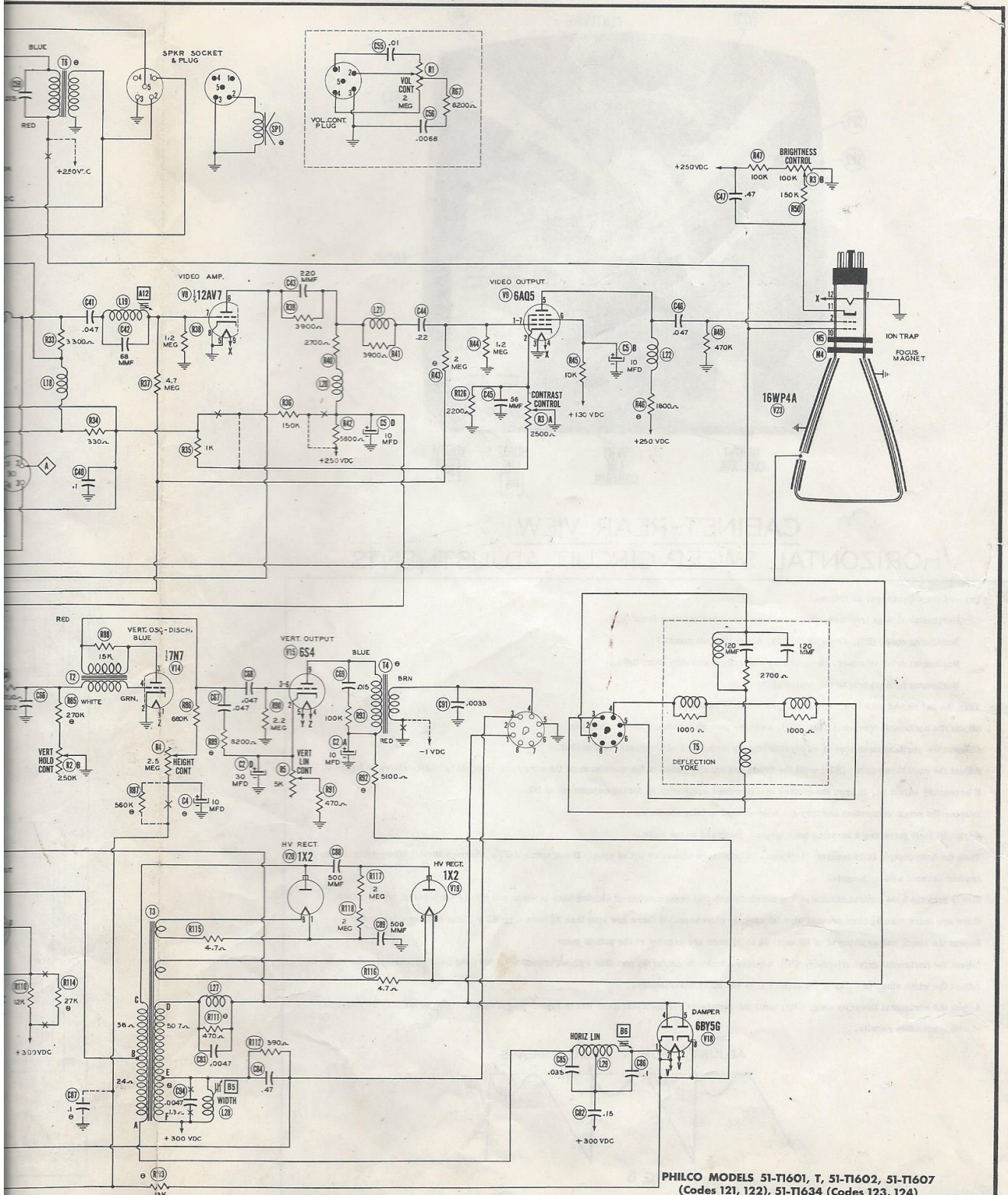
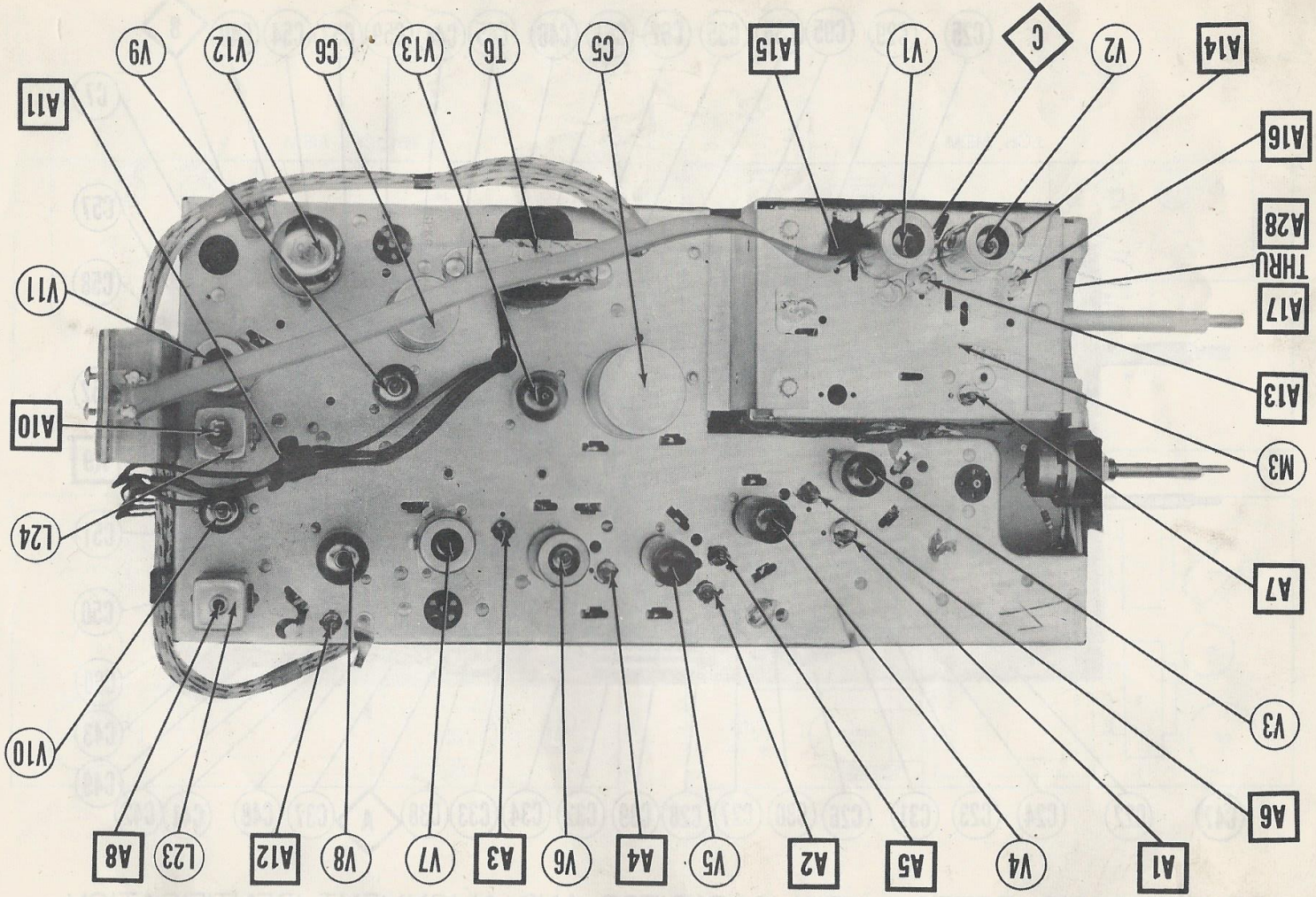

1ST SOUND IF AMP.
V1 ½12AU7
2ND SOUND IF AMP
V10 6AU6
RATIO DET.
V11 ½6T8
AF AMP.
V11 ½6T8
AUDIO OUTPUT
V12 7C5
BLUE
RED
VOL. CONT. SOCKET
+130 VDC
+130VDC
+250 VDC
+250VDC
2ND VIDEO IF AMP
V4 6AU6
3RD VIDEO IF AMP.
V5 6AU6
4TH VIDEO IF AMP
V6 6CB6
VIDEO DET.- AGC RECT.
V7 ½12AU7
ALIGN TEST SOCKET
NOISE LIMITER
V13 ½12AU7
1ST SYNC. SEP.
2ND SYNC SEP.
V13 ½12AU7
SYNC PHASE INV.
V14 ½7N7
VERT. O
VERT HOLD CONT
HORIZ. AFC
V16 6SN7GT
HORIZ. OSC.
HORIZ. OUTPUT
V17 6CD6G
HORIZ FREQ
HORIZ STAB
HORIZ DRIVE
HORIZ LOCK-IN
HORIZ HOLD CONT
HORIZ. TEST SOCKET
LENGTH OF WIRE
+310 VDC
+300VDC
-1VDC
-11.2 VDC
+310VDC

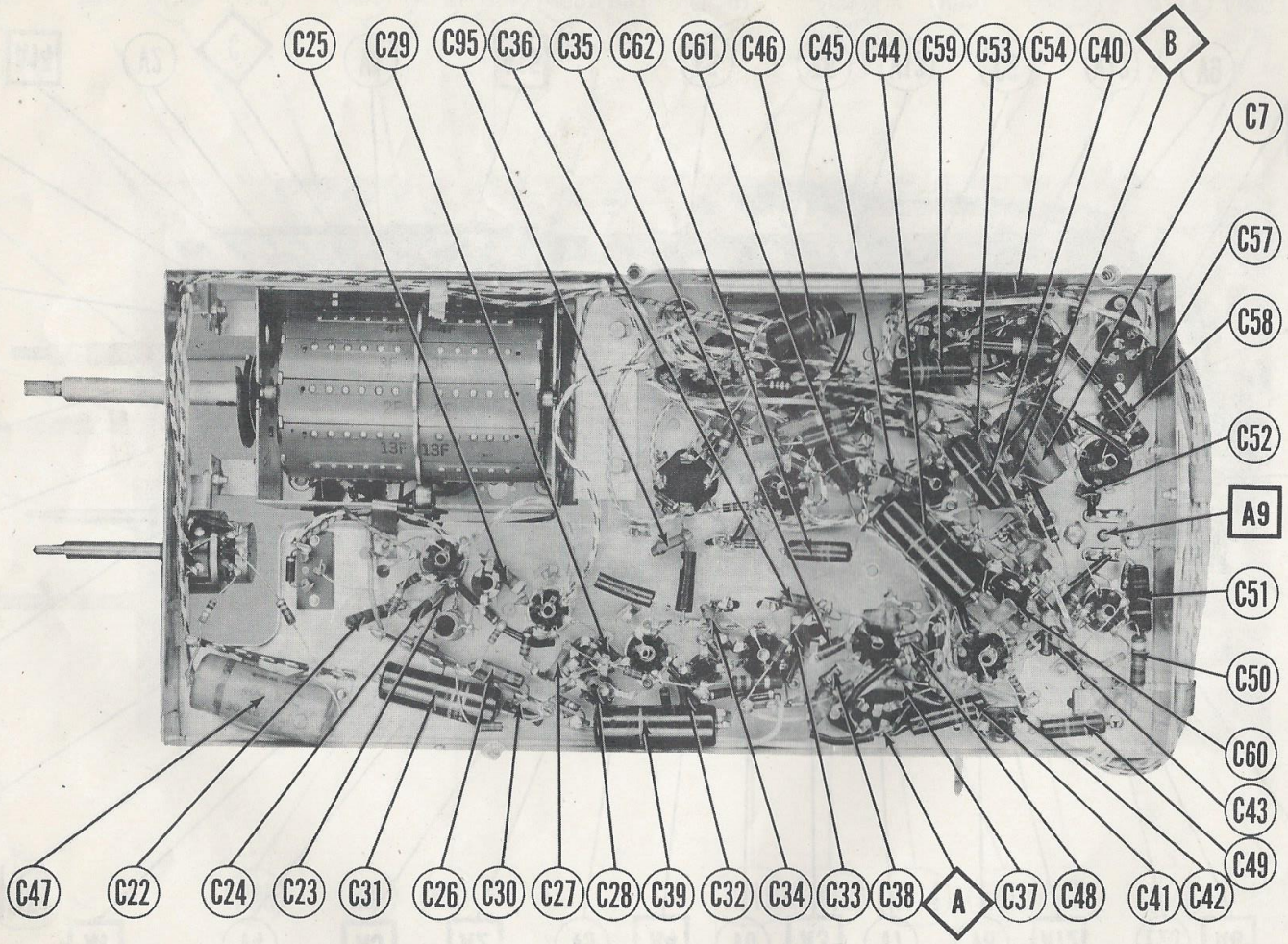


PHILCO MODELS 51-T1601, T, 51-T1602, 51-T1607
(Codes 121, 122), 51-T1634 (Codes 123, 124)

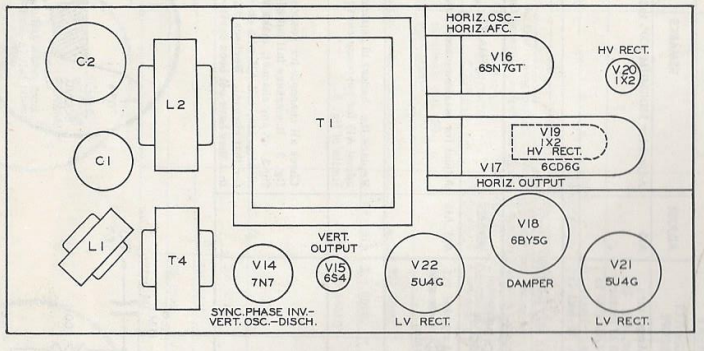
PHILCO MODELS 51-T1601, T, 51-T1602, 51-T1607
(Codes 121, 122), 51-T1634 (Codes 123, 124)

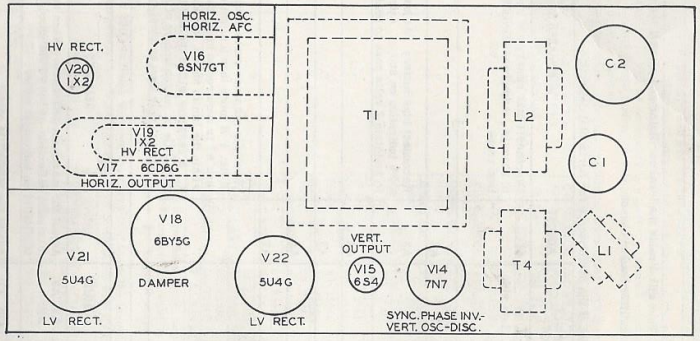
RF-IF CHASSIS-TOP VIEW

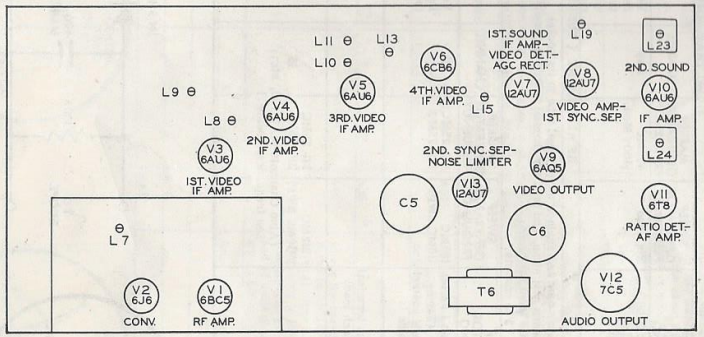




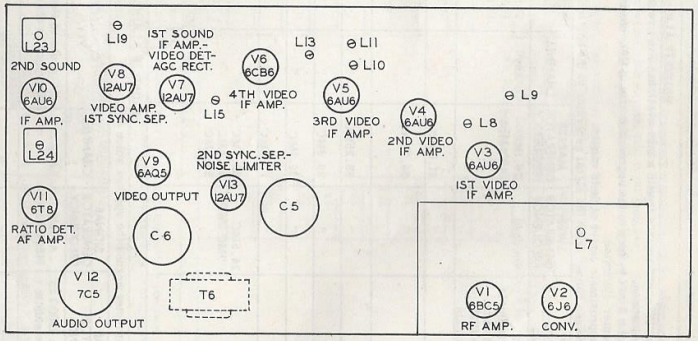
RF-IF CHASSIS-BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION







TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

PHILCO MODELS 51-T1601,T, 51-T1602, 51-T1607
(Codes 121, 122), 51-T1634 (Codes 123, 124)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), and replace it with a tube which has Pin 1 removed. This will disable the local oscillator and prevent the possiblity possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded lead of C31, connect the positive lead to chassis.
Pre-set A1 and A2 fully counter-clockwise.
Pre-set A5 and A6 to the approximate center of their ranges.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	Not used	29.1MC (400%Mod.)	Any	Vert. Amp. to Point A. Low side to chassis.	A1	Disconnect bias battery and short AGC line to chassis. Adjust for MINIMUM 400% indication scope.
2.	"	"	"	21.85MC	"	"	A2	"
3.	"	"	"	24.75MC	"	"	A3	Reconnect bias battery. Adjust for maximum 400 % indication on scope. Attenuate sig. gen. to maintain 2 volts peak to peak indication.
4.	"	"	"	26.25MC	"	"	A4	"
5.	"	"	"	26.6MC	"	"	A5	"
6.	"	"	"	23.1MC	"	"	A6	"
7.	"	"	"	23.5MC	"	"	A7	"
8.	"	"	24.5MC (10MC SWP)	22.5MC 24.5MC 26.6MC	"	"		Check for response curve within the limits of fig. 1 If more than a slight change of A3 thru A7 is required to bring the response within the limits shown, repeat steps 1 thru 7. A response within the limits of fig. 1 with little or no retouching of A3 thru A7 is more desirable than an ideal response.

SOUND IF ALIGNMENT

Connect a low range output meter across the speaker voice coil.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	2200Ω carbon resistor	High side thru 2200Ω to Point A . Low side to chassis.	4.5MC (400% AM Mod.)	Any	DC probe to Point B. Common to chassis.	A8, A9, A10	Adjust for maximum deflection. When adjusting A10, maximum deflection on the VTVM should coincide with MINIMUM on the output meter.
10.	"	"	"	"	"	A10, A11	Adjust for MINIMUM output.

After alignment is finished, restore set to original operation and tune in a local TV station. Turn the fine tuning control for a slightly fuzzy picture. Adjust A10 and A 11 for MINIMUM buzz.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	2200Ω carbon resistor	High side thru 2200Ω to Point A . Low side to chassis.	Not used	4.5MC (400% Mod.)	Any	Vert. Amp. thru detector, (fig. 2), to pin 2 of picture tube. Low side to chassis.	A12	Adjust for MINIMUM 400% indication on scope.

RF ALIGNMENT (TUNER NO. 76-5411-1)

Remove the dummy converter tube and replace the original tube in its socket.
Remove the channel 10 antenna coil strip, and turn the channel switch to channel 10.
Remove the side cover plate from the tuner.
Short the grid, (pin 1), of V3 to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	.001MFD	High side to pin 1 (Grid) of 6BC5 (V1). (Terminal 7 of the coil contact strip). Low side to chassis.	195MC (10MC SWP)	193.25MC 197.75MC	10	Vert. Amp. to Point C. Low side to chassis.	A13, A14	Adjust for maximum amplitude and symmetry.
13.	Two 120Ω carbon resistors	Across antenna terminal with 120Ω in each lead.	"	"	"	"	A15	Replace the channel 10 antenna strip and adjust A15 for response curve within the limits of fig. 3.
14.	"	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"		Check all channels for response similar to fig. 3. If markers fall out of the limits of fig.3 on any channel, make slight adjustment of A13, A14, and A15 with channel switch set for that channel. Recheck all channels to see that they have not been seriously affected.
			(Also Channels 12, 11, 10, etc., See frequencies below.)					

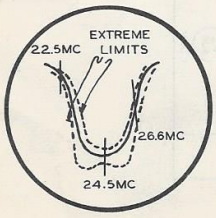


FIG.1

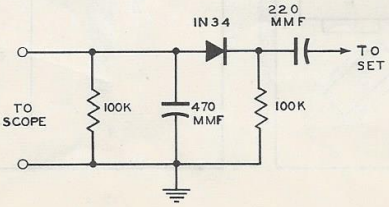


FIG.2

FIG.3

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT (TUNER NO. 76-5411-1)

Remove the short between Pin 1 of V3 and chassis.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A16. If adjustment of A16 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.76MC	13	Vert. Amp. to Point (A). Low side to chassis.	A17	Adjust to place video marker at 50% response as shown in fig. 4.
			207MC (10MC SWP)	205.25MC 209.75MC	12		A18	
			201MC (10MC SWP)	199.25MC 203.75MC	11		A19	
			195MC (10MC SWP)	193.25MC 197.75MC	10		A20	
			189MC (10MC SWP)	187.25MC 191.75MC	9		A21	
			183MC (10MC SWP)	181.25MC 185.75MC	8		A22	
			177MC (10MC SWP)	175.25MC 179.75MC	7		A23	
			85MC (10MC SWP)	83.25MC 85.75MC	6		A24	
			79MC (10MC SWP)	77.25MC 81.75MC	5		A25	
			69MC (10MC SWP)	67.25MC 71.75MC	4		A26	
			63MC (10MC SWP)	61.25MC 65.75MC	3		A27	
			57MC (10MC SWP)	55.25MC 59.75MC	2		A28	

RF ALIGNMENT (TUNER NO. 76-5747)

Remove the dummy converter tube and replace the original tube in its socket.
Unsolder the white lead from the tuner and connect the negative lead of a 1.5 volt battery to it. Connect the battery position lead to chassis.
Unsolder the red lead from the tuner and solder a 3300Ω resistor in series with it. The tuner end of the resistor is alignment Point D as shown on the schematic.
Connect a 330Ω resistor between the green lead from the tuner and chassis.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
16.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC SWP)	211.25MC 215.75MC	13	Vert. Amp. to Point (D). Low side to chassis.	A29, A30 A31	Adjust A29 for maximum curve height and symmetry. Adjust A30 and A31 for symmetrical response centered about 213MC.
17.	"	"	177MC (10MC SWP)	175.25MC 179.75MC	7	"	A32, A33	Carefully observe the response curve with respect to "tilt" and center frequency. Adjust A32 and A33 until the response is a mirror image of the original, that is, tilted, in the opposite direction with the center frequency off the same amount in the opposite direction. This is necessary to compensate for the channel 13 adjustments. See figs. 5A and 5B for example of compensation. Repeat steps 16 and 17 until proper response is obtained on both channels 7 and 13.
18.	"	"	85MC (10MC SWP)	83.25MC 87.75MC	6	"	A34, A35 A36	Adjust A34 for maximum curve height and symmetry. Adjust A35 and A36 for symmetrical response centered about 85MC.

OSCILLATOR ALIGNMENT (TUNER NO. 76-5747)

Pre-set the fine tuning control so the stop on the fine tuning cam is centered on the channel 6 oscillator adjustment screw.
The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
19.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	Not used	237.85MC (unmod.)	13	Vert. Amp. to Point (D). Low side to chassis.	A37	Adjust for zero beat indication on scope, this will be indicated by a narrow trace between two wide traces.
20.	"	"	"	225.85MC	11	"	A38	"
21.	"	"	"	213.85MC	9	"	A39	"
22.	"	"	"	207.85MC	8	"	A40	Check the oscillator frequency on channel 8. If the oscillator frequency is high turn A40 several turns clockwise. If the oscillator frequency is low turn A40 several turns counter-clockwise. Repeat steps 19, 20, 21, and 22 until channels 13, 11, 9, and 8 are within 500KC of the correct frequency.
23.	"	"	"	201.85MC	7	"	A41	Adjust for zero beat as in step 19.
24.	"	"	"	109.85MC	6	"	A42	"
25.	"	"	"	93.85MC	4	"	A42	"
26.	"	"	"	81.85MC	2	"	A44	"

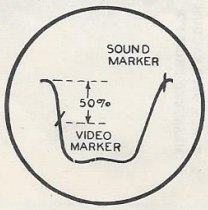


FIG. 4

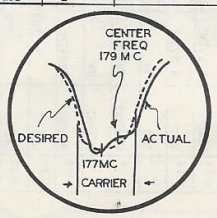


FIG.5A

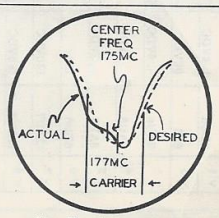


Fig. 5A Compensated

FIG.5B

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1.4VDC	0V	6.3VAC	0V	105VDC	105VDC	0V		
V 2	6J6	90VDC	110VDC	6.3VAC	0V	-1.7VDC	§-5.2VDC	0V		
V 3	6AU6	-.4VDC	0V	0V	6.3VAC	120VDC	120VDC	.6VDC		
V 4	6AU6	-.3VDC	0V	0V	6.3VAC	125VDC	125VDC	.6VDC		
V 5	6AU6	-.3VDC	0V	0V	6.3VAC	130VDC	130VDC	.8VDC		
V 6	6CB6	0V	9VDC	0V	6.3VAC	120VDC	130VDC	0V		
V 7	12AU7	120VDC	0V	1.6VDC	6.3VAC	6.3VAC	-.4VDC	1.8VDC	2.6VDC	0V
V 8	12AU7	180VDC	-.2VDC	8VDC	0V	0V	125VDC	-.6VDC	0V	6.3VAC
V 9	6AQ5	-1VDC	7.2VDC	0V	6.3VAC	230VDC	125VDC	-1VDC		
V 10	6AU6	-.6VDC	0V	0V	6.3VAC	65VDC	65VDC	0V		
V 11	6T8	-.4VDC	-.6VDC	-.4VDC	0V	6.4VAC	-1.8VDC	0V	-.6VDC	70VDC
V 12	7C5	0V	310VDC	220VDC	0V	245VDC	.1VDC	9.8VDC	6.5VAC	
V 13	12AU7	8.6VDC	8.6VDC	8.2VDC	0V	0V	21VDC	-1.3VDC	0V	6.3VAC
V 14	7N7	6.3VAC	0V	85VDC 190VDC	-32VDC	-.4VDC	53VDC	0V	0V	
V 15	6S4	0V	7VDC 40VDC	.2VDC	6.3VAC	0V	.2VDC	0V	0V	410VDC
V 16	6SN7GT	-9VDC	115VDC	-13VDC	-65VDC	310VDC	0V	6.3VAC	0V	
V 17	6CD6G	0V	0V	0V	-23VDC	-23VDC	310VDC	6.3VAC	115VDC	TOP CAP *
V 18	6BY5G	480VDC	#6.3VAC	0V	300VDC	300VDC	0V	480VDC	480VDC	
V 19	1X2	* DO NOT MEASURE								
V 20	1X2	* DO NOT MEASURE								
V 21	5U4G	0V	310VDC	0V	300VAC	0V	300VAC	0V	310VDC	
V 22	5U4G	0V	310VDC	0V	300VAC	0V	300VAC	420VDC	310VDC	
V 23	16WP4A	0V	0V	PIN 10 310VDC	PIN 11 0V	PIN 12 6.3VAC				

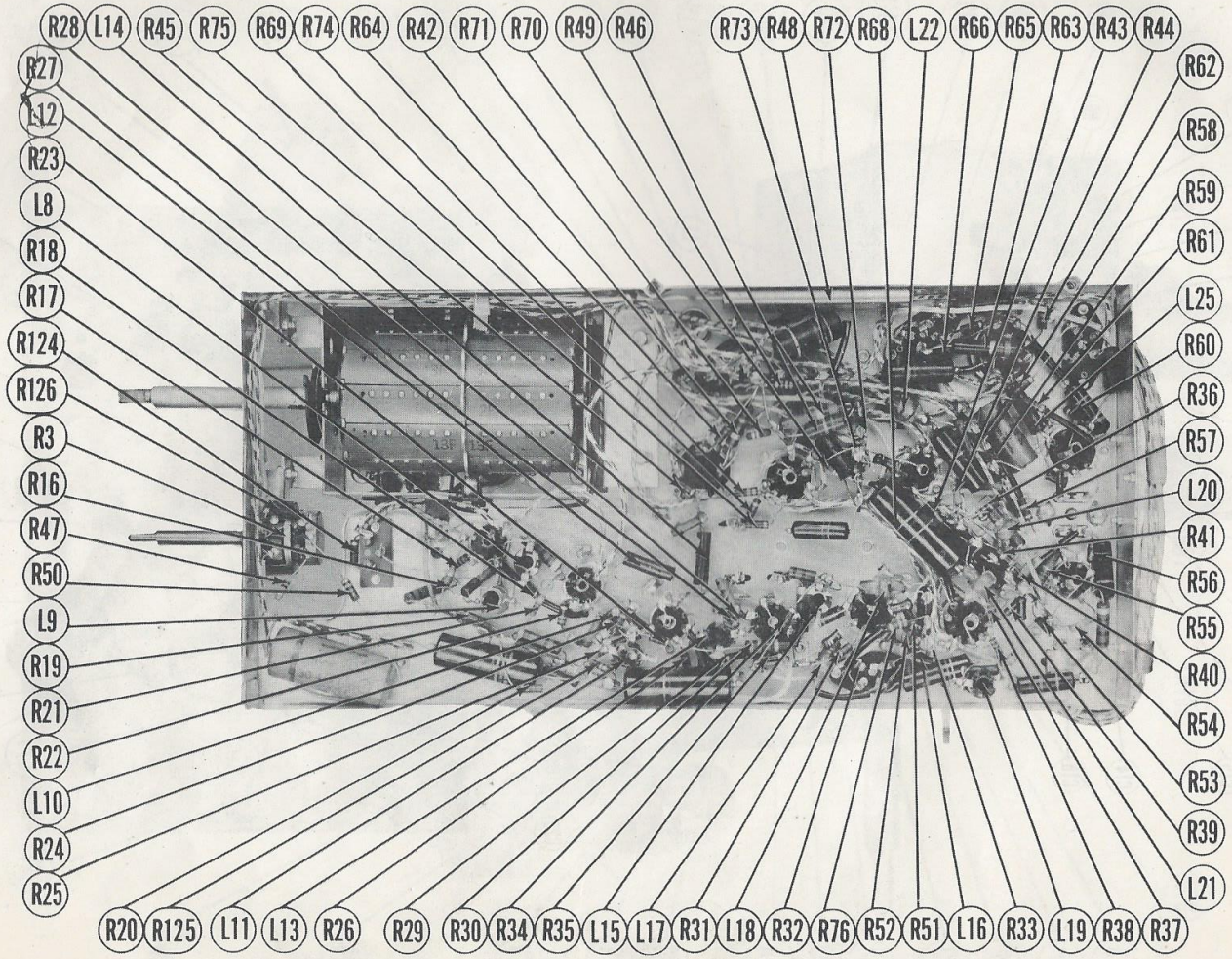
ALL MEASUREMENTS ARE TAKEN WITH PICTURE TUBE REMOVED
* DO NOT MEASURE
§ TAKEN WITH VACUUM TUBE VOLTMETER
\# MEASURED FROM PIN 7 OF V18

RESISTANCE READINGS

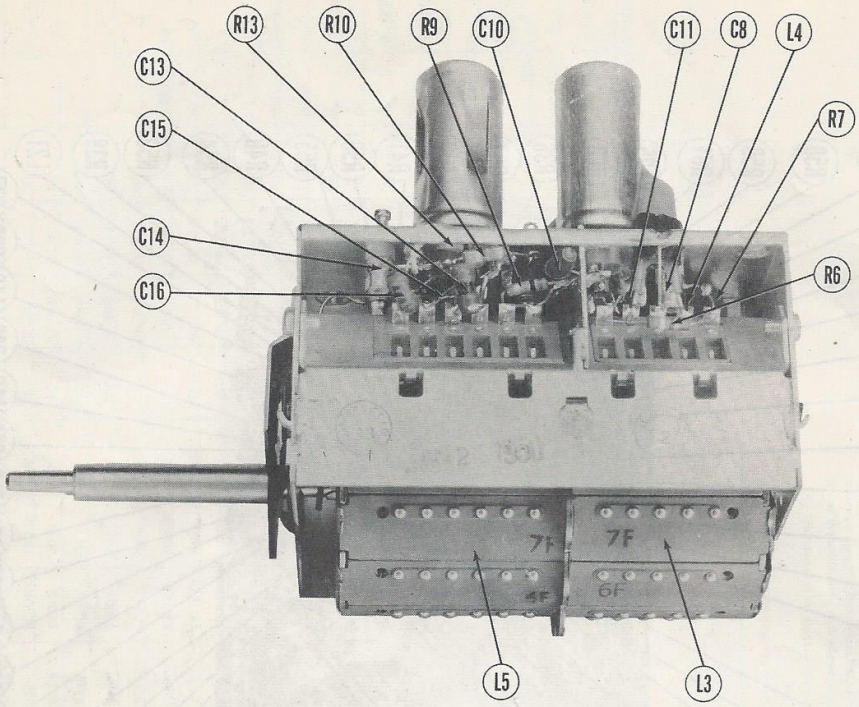
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	578KΩ	0Ω	.2Ω	0Ω	†4.1KΩ	†4.1KΩ	0Ω		
V 2	6J6	†6.8KΩ	†12KΩ	.2Ω	0Ω	224KΩ	10KΩ	0Ω		
V 3	6AU6	545KΩ	0Ω	0Ω	.1Ω	†2.6KΩ	†2.6KΩ	68Ω		
V 4	6AU6	540KΩ	0Ω	0Ω	.1Ω	†2.3KΩ	†2.3KΩ	68Ω		
V 5	6AU6	540KΩ	0Ω	0Ω	.2Ω	†1.9KΩ	†1.9KΩ	68Ω		
V 6	6CB6	.2Ω	180Ω	0Ω	.2Ω	†8.7KΩ	†2.3KΩ	0Ω		
V 7	12AU7	†2.9KΩ	120KΩ	150Ω	.2Ω	.2Ω	330KΩ	4.8KΩ	1.4KΩ	0Ω
V 8	12AU7	†6.2KΩ	8Meg	10KΩ	0Ω	0Ω	†12.8KΩ	900KΩ	0Ω	.1Ω
V 9	6AQ5	725KΩ	1.3KΩ	0Ω	.3Ω	†2.4KΩ	†11.9KΩ	725KΩ		
V 10	6AU6	680KΩ	0Ω	0Ω	.1Ω	†10.5KΩ	†10.5KΩ	0Ω		
V 11	6T8	Inf.	32KΩ	Inf.	0Ω	.2Ω	Inf.	0Ω	10Meg	†280KΩ
V 12	7C5	0Ω	†650Ω	†10KΩ	0Ω	†650Ω	470KΩ	270Ω	.1Ω	
V 13	12AU7	56KΩ	56KΩ	10KΩ	0Ω	0Ω	15KΩ	7Meg	0Ω	.1Ω
V 14	7N7	.1Ω	0Ω	#3.2Meg #700KΩ	520KΩ	1Meg	13KΩ	0Ω	0Ω	
V 15	6S4	Inf.	5.4KΩ 470Ω	2.2Meg	.1Ω	0Ω	2.2Meg	Inf.	Inf.	#5.1KΩ
V 16	6SN7GT	950KΩ	47KΩ	300KΩ	350KΩ	#50KΩ	0Ω	.1Ω	0Ω	
V 17	6CD6G	Inf.	0Ω	0Ω	488KΩ	488KΩ	#50KΩ	.1Ω	†9KΩ	TOP CAP #35Ω
V 18	6BY5G	100KΩ	#.1Ω	Inf.	†780Ω	†780Ω	Inf.	#0Ω	100KΩ	
V 19	1X2	PINS 1 THRU 9 INFINITE RESISTANCE								TOP CAP # 92Ω
V 20	1X2	PINS 1 THRU 9 INFINITE RESISTANCE								TOP CAP Inf.
V 21	5U4G	Inf.	14KΩ	Inf.	65Ω	Inf.	65Ω	Inf.	14KΩ	
V 22	5U4G	Inf.	14KΩ	Inf.	62Ω	Inf.	62Ω	#5KΩ	14KΩ	
V 23	16WP4A	0Ω	470KΩ	PIN 10 †0Ω	PIN 11 230KΩ	PIN 12 .1Ω				

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED
† MEASURED FROM PIN 8 OF V22
\# MEASURED FROM PINS 1 AND 8 OF V18

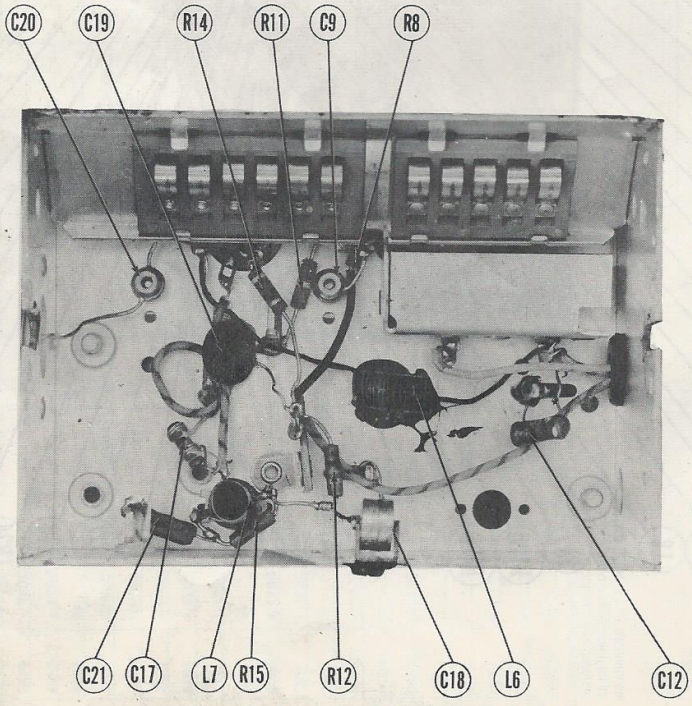
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



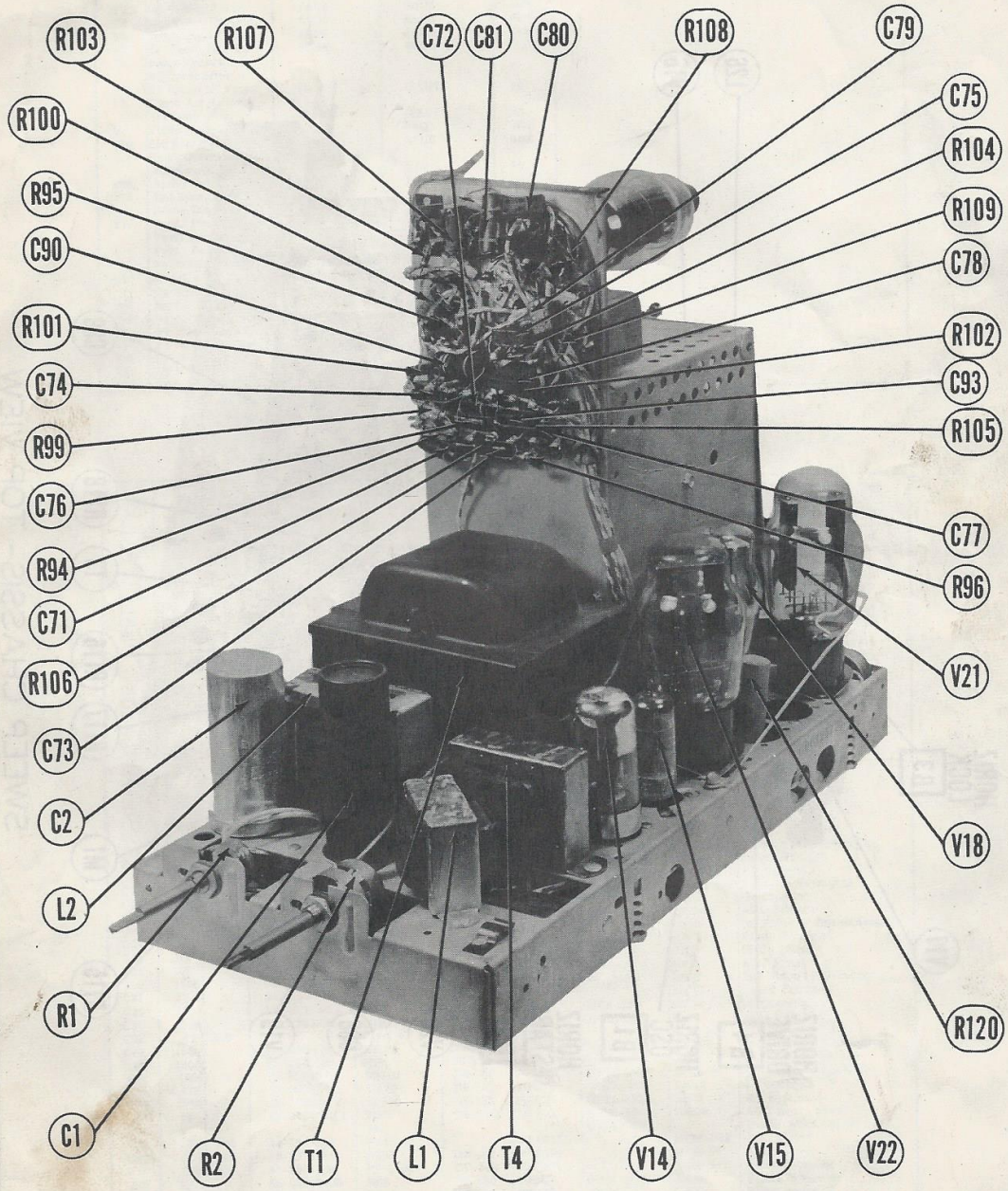
RF-IF CHASSIS-BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



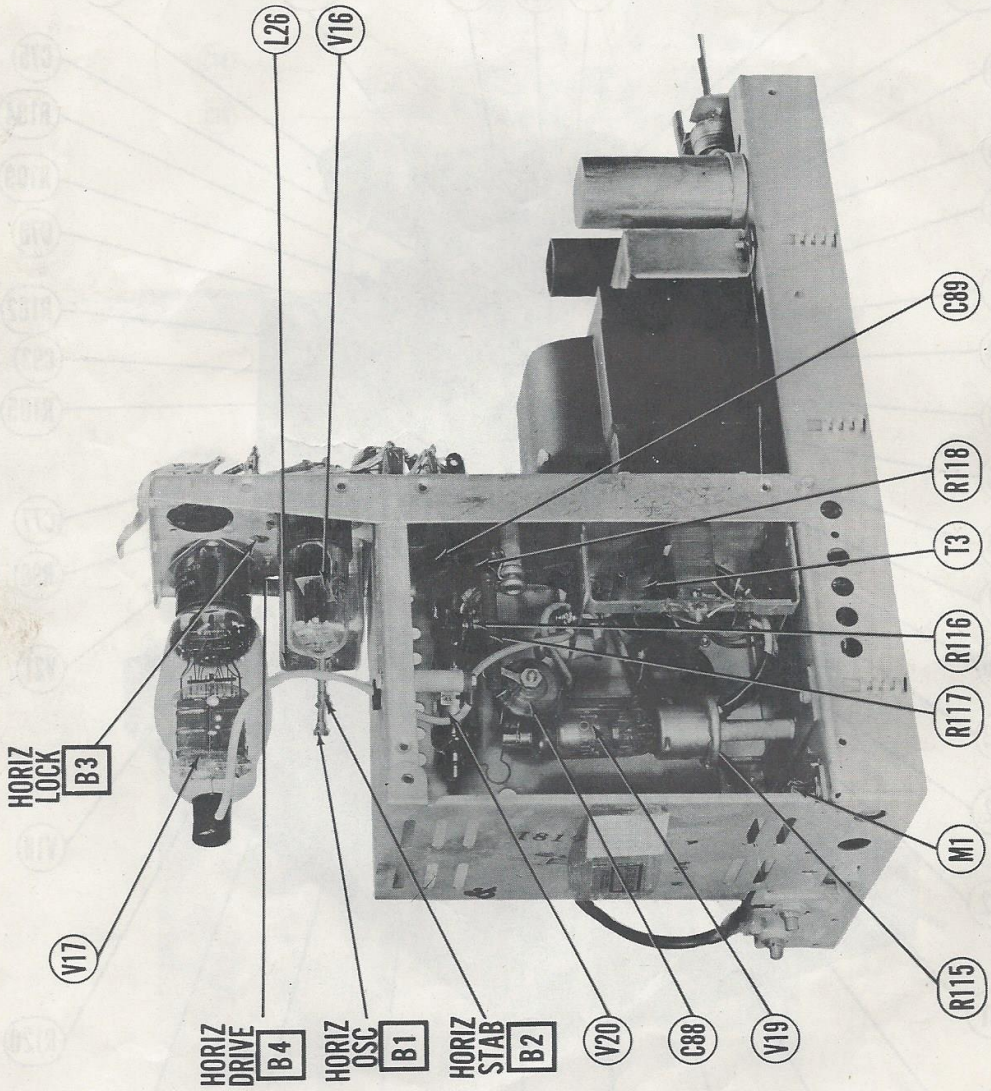
RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



SWEEP CHASSIS-TOP VIEW



SWEEP CHASSIS- TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BC5	6BC5	7BD	
B	RF Amplifier	6CB6	6CB6	7CM	
V2A	Converter	6J6	6J6	7BF	
B	Converter	12AV7	12AV7	9A	
V3	1st Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd Video IF Amp.	6AU6	6AU6	7BK	
V6	4th Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Detector - AGC Rectifier - 1st Sound IF Amp.	12AU7	12AU7	9A	
V8	Video Amplifier - 1st Sync. Sep.	12AV7	12AV7	9A	
V9	Video Output	6AQ5	6AQ5	7BZ	
V10	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V11	Ratio Detector - AF Amplifier	6T8	6T8	9E	
V12	Audio Output	7C5	7C5	6AA	
V13	2nd Sync. Sep. - Noise Limiter	12AU7	12AU7	9A	
V14	Sync. Phase Inv. - Vert. Oscillator - Vert. Discharge	7N7	7N7	8AC	
V15	Vertical Output	6S4	6S4	9AC	
V16	Horiz. AFC - Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V17	Horiz. Output	6CD6G	6CD6G	5BT	
V18	Damper	6BY5G	6BY5G	6CN	
V19	HV Rectifier	1X2	1X2	7CB	
V20	HV Rectifier	1X2	1X2	7CB	
V21	LV Rectifier	5U4G	5U4G	5T	
V22	LV Rectifier	5U4G	5U4G	5T	
V23	Picture Tube	16WP4A	16WP4A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	40	450	30-2568-5	AFH8J		UPT-4045T		TVL-1725	Filter
C2A	10	475	30-2570-62						▲ Vert. Output Decoupling
B	50	450							■ Filter
C	30	450							▲ Filter
D	30	25							Vert. Output Cathode
C3	10	25	30-2417-8	PRS25/10		BR102A		TVA-1204	Bias Filter
C4	10	475		PRS500/10		BR850A		TVA-1802	Vert. Osc. Decoupling †
C5A	20	450	30-2570-65	AF407		UPT2111145		TVL-4766	▲ Decoupling
B	10	450							■ Video Output Screen
C	10	450							▲ Audio Output Screen
D	10	450							Decoupling
C6	35	450	30-2570-25	AFH144		UPT4045		TVL-1725	Filter
C7	2	50	30-2417-7	E26E6		BBR2-50T		TVA-1301	Stabilizing Cap
C8	3-9								Variable Trimmer
C9	.5-3		45-1696						Variable Trimmer
C10	120		30-1224-69	SI120	D6-121		GP2K-121	19C29	RF Amp. Decoupling
C11	1000		62-210001011	SI1000	D6-102		GP2L-102	19C1	RF Amp. Fil.
C12	100		30-1224-1	SI100	D6-101		GP1K-101	19C11	Fil. Bypass
C13	100		30-1224-1	SI100N750	TCN-100		N750L-101		RF Coupling
C14	.5-3		45-1696						Variable Trimmer
C15	20		30-1224-43	SI20NPO	TCZ-20		NPOK-200		Osc. Grid Cap
C16	10		30-1224-51	SI10NPO	TCZ-10		NPOK-100	19C3	Fixed Trimmer
C17	10		30-1224-51	SI10NPO	TCZ-10		NPOK-100	19C3	Fixed Trimmer
C18	1000		62-210001011	BPD-005	DD-502		811-005	29C1	Mixer Plate Decoupling
C19A	1000		62-210001011	BPD-2X001	DD-2-102		812-001	29C7	Conv. Fil.
B	1000		62-210001011						RF Bypass
C20	.5-3		45-1697						Variable Trimmer
C21	120	500	30-1224-69	SI120	D6-121		GP2K-121	19C29	IF Coupling
C22	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	AGC Filter
C23	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	1st Video IF Decoupling
C24	39		62-039409011	SI39	D6-390	5R5Q4	GP1K-390	MS-44	Fixed Trimmer
C25	100		62-110009001	SI100	D6-101	5W5T1	GP1K-101	19C11	IF Coupling
C26	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	AGC Filter
C27	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	2nd Video IF Decoupling
C28	22		62-022009001		TCZ-22			29C12	Fixed Trimmer
C29	33		62-033009001	SI33	D6-330	5W5Q4	GP1K-330	19C24	IF Coupling
C30	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	AGC Filter
C31	.47	200		P288-47		GT2P5		2TM-P47	AGC Filter ‡
C32	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	3rd Video IF Decoupling
C33	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	4th Video IF Screen
C34	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	4th Video IF Cathode
C35	470		62-147001001	SI470	D6-471	5W5T5	GP2L-471	19C15	IF Coupling
C36	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	RF Bypass
C37	56		62-056409001	SI56	D6-560	5W5Q5	GP1K-560	19C28	AGC Rect. Plate
C38	8			SI5			GP1K-050		Diode Load Filter *
C39	.22	200	45-3505-49	P488-22		GT4P25		2TM-P22	AGC Filter
C40	.1	200	45-3505-47	P288-1	DF-104	PTE4P1		2TM-P1	AGC Filter
C41	.047	200	45-3505-62	P288-047	DF-503	PTE4S5		2TM-S47	Video Coupling
C42	68		62-068409011	SI68	D6-680	5W5Q7	GP1K-680	19C10	Fixed Trimmer
C43	220		30-1224-20	SI220	D6-221	5W5T2	GP2K-221	19C13	Video Coupling
C44	.22	400	45-3505-48	P488-22		GT4P25		4TM-P22	Video Coupling
C45	56		62-056409001	SI56	D6-560	5W5Q5	GP1K-560	19C28	Video Output Cathode
C46	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Video Coupling
C47	.47	400	45-3500-4	684-5		GT4P5		4TM-P5	Picture Tube Cathode
C48	56		62-056409001	SI56	D6-560	5W5Q5	GP1K-560	19C28	Sound IF Coupling
C49	.01	400	45-3505-58	P488-01	D6-103	PTE4S1	821-01	4TM-S1	1st Sound IF Decoupling
C50	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	Sound IF Coupling
C51	.0033	400	45-3505-55	P488-0033	D6-332	PTE6D3	GP2-333-332	6TM-D3	2nd Sound IF Decoupling
C52	330		60-10335407	SI330	D6-331	5W5T3	GP2K-331	19C14	RF Bypass
C53	1500		62-215001011	SI1500	D6-152	1W5D15	GP2L-152	29C8	RF Bypass

PARTS LIST AND DESCRIPTI

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C54	.0022	400	45-3505-54	P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	De-emphasis
C55	.01	400	45-3505-58	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C56	.0068	400	45-3505-40	P488-0068	D6-682		GP2-333-682	6TM-D68	Tone Comp.
C57	10000	500	45-3505-58	1467-01	D6-103	1D3S1	GP2-333-103	1FM-11	Audio Coupling
C58	.0068	400	45-3505-40	P488-0068	D6-682		GP2-333-682	6TM-D68	Audio Coupling
C59	.015	600	45-3500-59	P688-015		PTE6S15		6TM-S15	Audio Output Plate
C60	.022	400	45-3505-60	P488-022	DF-203	PTE6S2		4TM-S22	Sync. Coupling
C61	180	500		1469-0002	D6-181	5R5T2	GP2K-181	MS-32	Sync. Coupling ††
C62	.015	200	45-3505-59	P288-015		PTE6S15		6TM-S15	Sync. Coupling
C63	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Sync. Coupling
C64	.01	400	45-3505-58	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Vert. Sync. Coupling
C65	.0047	600	45-3505-56	P688-0047	D6-472	PTE6D5	GP2-333-472	6TM-D47	Integrator Net
C66	.022	200	45-3505-43	P488-022	DF-203	PTE4S2		4TM-S22	Integrator Net
C67	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Vert. Discharge
C68	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Vert. Sweep Coupling
C69	.015	400	45-3505-59	P488-015		PTE6S15		6TM-S15	Vert. Output Plate
C70	120	500		1468-0001	D6-121	5W5T1	GP2K-121	1FM-31	Horiz. Sync. Coupling ††
C71	.0022	400	45-3505-54	P688-0022	D6-222	PTE6D2	GP2-333-222	6TM-D22	Horiz. Sync. Coupling ††
C72	.15	200	45-3505-48	P288-15				2TM-P15	AFC Filter
C73	.022	200	45-3505-43	P488-222	DF-203	PTE4S2		4TM-S22	AFC Filter
C74	180	1000	30-1244-5	1469-HV-0002					Horiz. Osc. Grid
C75	10000	500	60-30103404	1467-01	D6-103	1D3-S1	GP2-333-103	1FM-11	Fixed Trimmer
C76	150	500	60-10155407	1468-00015	D6-151	5W5T15	GP2K-151	1FM-315	Voltage Divider
C77	10	1000	30-1244						Horiz. Feedback
C78	1200	500	60-20125404	1464-001		1R5D5		MS-21	Horiz. Discharge
C79	220	500	62-12200100l	1469-00025	D6-221	5R5T25	GP2K-221	1FM-325	Horiz. Sweep. Coupling
C80	33	1000	60-00305307						Horiz. Feedback
C81	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Horiz. Output Screen
C82	.15	400	45-3505-48	P488-15				4TM-P15	Damper Filter
C83	.0047	600	45-3505-56	P688-0047	DF-472	PTE6D5	GP2-333-472	6TM-D47	Fixed Trimmer
C84	.47	200	45-3505-34	P288-47		GT2P5		2TM-P47	Horiz. Sweep Coupling
C85	.033	200	45-3501-61	P488-033					Damper Filter
C86	.1	200	45-3505-47	P288-1	DF-104	PTE4P1		2TM-P1	Damper Filter
C87	.1	200	45-3505-47	P288-1	DF-104	PTE4P1		2TM-P1	Damper Filter ♦
C88	500	20000	30-1229-4	HV20C	TV3-502				Voltage Divider
C89	500	20000	30-1229-4	HV20C	TV3-502				HV Filter
C90	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Horiz. AFC Plate
C91	.0033	400	45-3505-55	P488-0033	D6-332	PTE6D3	GP2-333-332	6TM-D3	Fixed Trimmer
C92	.1	400		P488-1	DF-104	PTE4P1		4TM-P1	Decoupling ♦
C93	.001	400		P688-001	D6-102	PTE6D1	GP2L-102	19C1	Horiz. Feedback ♦
C94	.0047	600	45-3505-56	P688-0047	DF-472	PTE6D5	GP2-333-472	6TM-D47	Fixed Trimmer ♦
C95	1500		62-21500101l	S11500	D6-152	1W5D15	GP2L-152	29C8	RF Bypass ♦

† Some models use .1MFD Mfgrs. Part # 45-3505-47 in this application.
† Some models use .22MFD Mfgrs. Part # 45-3505-49 in this application.
* Some models use 5MMFD Mfgrs. Part # 30-1224-5 in this application.
♦ Not used in all models.
†† Some models use 120MMFD Mfgrs. Part # 60-10135237 in this application.
‡‡ Some models use 82MMFD Mfgrs. Part # 60-00825237 in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	INSTALLATION NOTES
R1A	2 Meg	½	33-5564-10	Q18-139X	AT-116	BT-78-S	Volume Control - Tapped @ 1Meg
B	Shaft		Not req.	Not req.	FS-3	Not req.	Attach to R1A Per Instructions
C	Switch		Not req.	76-1	SW-A	Not req.	Attach to R1A Per Instructions
R2A	75KΩ	½	33-5563-26		RTV-241	SBB-651	Horizontal Hold Control - Front
B	250KΩ	½					Vertical Hold Control - Rear
R3A	2500Ω	2	33-5563-27		RTV-242		Contrast Control - Wire Wound - Front
B	100KΩ	½					Brightness Control - Rear
R4A	2.5Meg	½	33-5565-10	Q11-239	AM-84-S	AN-83	Height Control
B	Shaft		Not req.	RQ	FKS-1/4	AK-1	Attach to R4A Per Instructions
R5	5000Ω	2	33-5546-10	W-5000 ø	43-5000 ø	VK-135	Vertical Linearity Control - Wire Wound

ø Fashion shaft to duplicate original.

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHILCO PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHER WISE SPECIFIED
R6	3900Ω	½	66-2398340	BTS-3900	Antenna Coil Shunt
R7	47KΩ 20%	½	66-3478340	BTS-47K	AGC Network
R8	2200Ω 20%	½	66-2228340	BTS-2200	Decoupling
R9	10KΩ 20%	½	66-3108340	BTS-10K	RF Coil Shunt
R10	4700Ω 20%	½	66-2478340	BTS-4700	Mixer Grid
R11	220KΩ 20%	½	66-4228340	BTS-220K	Mixer Grid
R12	10KΩ	½	66-3108340	BTS-10K	Mixer Plate Decoupling - See Note 2
R13	10KΩ	½	66-3108340	BTS-10K	Oscillator Grid
R14	4700Ω	½	66-2478340	BTS-4700	Oscillator Plate
R15	15KΩ 20%	½	66-3158340	BTS-15K	1st Video IF Transformer Shunt
R16	15KΩ	½	66-3158340	BTS-15K	1st Video IF Amp. Grid
R17	68Ω	½	66-0688340		1st Video IF Amp. Cathode
R18	330Ω	½	66-1338340	BTS-330	1st Video IF Amp. Decoupling
R19	330Ω	½	66-1338340	BTS-330	AGC Network
R20	330Ω	½	66-1338340	BTS-330	AGC Network
R21	12KΩ	½	66-3128340	BTS-12K	2nd Video IF Amp. Grid
R22	68Ω	½	66-0688340		2nd Video IF Amp. Cathode
R23	330Ω	½	66-1338340	BTS-330	Decoupling
R24	33KΩ	½	66-3338340		3rd Video IF Transformer Shunt
R25	12KΩ	½	66-3128340	BTS-12K	3rd Video IF Amp. Grid
R26	68Ω	½	66-0688340		3rd Video IF Amp. Cathode
R27	8200Ω	½	66-2828340		4th Video IF Transformer Shunt
R28	180Ω	½	66-1188340	BTS-180	4th Video IF Amp. Cathode - See Note 3
R29	330Ω	½	66-1338340	BTS-330	4th Video IF Amp. Screen
R30	6800Ω	1	66-2688340	BTA-6800	4th Video IF Amp. Plate
R31	330KΩ	½	66-4338340	BTS-330K	AGC Load
R32	100KΩ	½	66-4108340	BTS-100K	AGC Network
R33	3300Ω	½	66-2338340	BTS-3300	Video Det. Diode Load
R34	330Ω	½	66-1338340	BTS-330	Isolation
R35	1000Ω	½	66-2108340	BTS-1000	Voltage Divider
R36	150KΩ	½	66-4158340	BTS-150K	Voltage Divider
R37	4.7Meg 20%	½	66-5478340	BTS-4.7Meg	Bias Network
R38	1.2Meg 20%	½	66-5128340	BTS-1.2Meg	Video Amp. Grid

RESISTORS (CON

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHILCO PART No.	IRC PART No.	
R39	3900Ω	½	66-2398340	BTS-3900	Video
R40	2700Ω	½	66-2728340	BTS-2700	Video
R41	3900Ω	½	66-2398340	BTS-3900	Video
R42	5600Ω	1	66-2568340	BTA-5600	Decou
R43	2 Meg 5%	½			Bias N
R44	1.2Meg 20%	½	66-5128340	BTS-1.2Meg	Video
R45	10KΩ	½	66-3108340	BTS-10K	Video
R46	1800Ω	2	66-2184340	BTB-1800	Video
R47	100KΩ	½	66-4108340	BTS-100K	Voltag
R48	1300Ω	10	33-3435-31	1 3/4A-1250	Decou
R49	470KΩ	½	66-4478340	BTS-470K	Pictur
R50	150KΩ	½	66-4158340	BTS-150K	Pictur
R51	120KΩ	½	66-4128340	BTS-120K	1st Sou
R52	150Ω	½	66-1158340	BTS-150	1st Sou
R53	1000Ω	½	66-2108340	BTS-1000	1st Sou
R54	680KΩ	½	66-4688340	BTS-680K	2nd So
R55	12KΩ	1	66-3124340	BTA-12K	2nd So
R56	22KΩ	½	66-3228340	BTS-22K	Voltag
R57	270Ω	½	66-1278340	BTS-270	Balanc
R58	22KΩ	½	66-3228340	BTS-22K	De-em
R59	33KΩ	½	66-3338340	BTS-33K	AVC N
R60	10Meg	½	66-6108340	BTS-10Meg	AF Am
R61	270KΩ	½	66-4278340	BTS-270K	AF Am
R62	470KΩ	½	66-4478340	BTS-470K	Output
R63	270Ω	1	66-1274340	BW-1-270	Output
R64	10KΩ	½	66-3108340	BTS-10K	Decou
R65	220Ω	½	66-1228340	BTS-220	Feedba
R66	27Ω	½	66-0273340	BW-½-27	Feedba
R67	8200Ω	½	66-2828340	BTS-8200	Tone C
R68	1.2Meg 20%	½	66-5128340	BTS-1.2Meg	1st Syn
R69	10KΩ	½	66-3108340	BTS-10K	1st Syn
R70	270KΩ	½	66-4278340	BTS-270K	2nd Syn
R71	100KΩ	½	66-4108340	BTS-100K	2nd Syn
R72	15KΩ	½	66-3158340	BTS-15K	Voltage
R73	6.8Meg	½	66-5688340	BTS-6.8 Meg	Voltage
R74	240KΩ 5%	½	66-4228340		Voltage
R75	56KΩ 5%	½	66-3568340	BTS-56K-5%	Noise L
R76	47KΩ	½	66-3478340	BTS-47K	Series
R77	10KΩ	½	66-3108340	BTS-10K	Sync. P
R78	1Meg	½	66-5108340	BTS-1Meg	Sync.
R79	15KΩ	2	66-3155340	BTB-15K	Sync. P
R80	22KΩ	2	66-3225340	BTB-22K	Sync. P
R81	5100Ω 5%	½			Voltage
R82	10KΩ	½	66-3108340	BTS-10K	Integrat
R83	5100Ω 5%	½			Integrat
R84	4700Ω	½	66-2478340	BTS-4700	Integrat
R85	270KΩ	½	66-4278340	BTS-270K	Vertical
R86	680KΩ	½	66-4688340	BTS-680K	Vertica
R87	560KΩ	½	66-4568340	BTS-560K	Vertica
R88	15KΩ	½	66-3158340	BTS-15K	Vertica
R89	8200Ω	½	66-2828340	BTS-8200	Vertica
R90	2.2Meg	½	66-5228340	BTS-2.2Meg	Vertica
R91	470Ω	1	66-1474340	BTA-470	Vertica
R92	5100Ω	5	33-1335-18	1 3/4A-5000	Vertica
R93	100KΩ 20%	½	66-4108340	BTS-100K	Dampin
R94	820KΩ	1	66-4824240	BTA-820K	Horizon
R95	470KΩ	½	66-4478340	BTS-470K	Horizon
R96	8200Ω	½	66-2828340	BTS-8200	Horizon
R97	82KΩ	1	66-3824340	BTA-82K	Horizon
R98	47KΩ	½	66-3478340	BTS-47K	Voltage
R99	270KΩ	½	66-4278340	BTS-270K	Voltage
R100	3.3Meg 5%	1	66-5334240	BTA-3.3Meg-5%	Voltage
R101	680KΩ 20%	1		BTA-680K	Horizon
R102	33KΩ	1	66-3334340	BTA-33K	Horizon
R103	6800Ω	½	66-2688340	BTS-6800	Horizon
R104	22KΩ	½	66-3228340	BTS-22KΩ	Horizon
R105	220KΩ	½	66-4228340	BTS-220K	Horizon
R106	22KΩ	½	66-3228340	BTS-22K	Horizon
R107	1Meg 20%	1	66-5104340	BTA-1Meg	Horizon
R108	100Ω 20%	½	66-1104340		Parasiti
R109	470KΩ	½	66-4478340	BTS-470K	Horizon
R110	12KΩ	5	33-1335-103	1 3/4A-12K	Horizon
R111	470Ω	½	66-1478340	BTS-470	Anti-Rin
R112	390Ω	½	66-1398340	BTS-390	Centerin
R113	18KΩ	2		BTB-18K	Decoupli
R114	27KΩ	1		BTA-27K	Horizon
R115	4.7Ω	½	66-9474360	BW-½-4.7	HV Rect
R116	4.7Ω	½	66-9474360	BW-½-4.7	HV Rect
R117	2 Meg	2	33-1346		HV Rect
R118	2Meg	2	33-1346		HV Rect
R119	Length of Wire		41-4025		Filament
R120	650Ω	10	33-3445-2		Filter -
R121	10KΩ	½	66-3108340	BTS-10K	Bias Net
R122	18KΩ	½	66-3188340	BTS-18K	Bias Net
R123	3.3Ω	½	66-9334360		Bias Net
R124	10Ω	½	66-0104340	BW-½-10	Series P
R125	100KΩ	½	66-4108340	BTS-100K	AGC Net
R126	2200Ω 20%	½	66-2228340	BTS-2200	Contrast

Note 1. Not used in all models.
Note 2. Some models use 15KΩ resistor in this application.
Note 3. Some models use 150Ω resistor in this application.
Note 4. Some models use 1.8 meg resistor in this application.
Note 5. Some models use 4700Ω resistor in this application.
Note 6. Some models use 180KΩ resistor in this application.
Note 7. Some models use 3300Ω resistor in this application.
Note 8. Some models use 4200Ω resistor in this application.
Note 9. Some models use 47KΩ resistor in this application.
Note 10. Some models use 33KΩ resistor in this application.
Note 11. Some models use 560KΩ resistor in this application.
Note 12. Some models use 4200Ω 5 watt resistor in this application
Note 13. Some models use parallel resistors in this application to

DESCRIPTIONS (Continued)

RESISTORS (CONT.)

MENT DATA	
IRC PART No.	IDENTIFICATION CODES
BTS-3900	Video Amp. Plate
BTS-2700	Video Amp. Plate
BTS-3900	Video Peaking Coil Shunt
BTA-5600	Decoupling
	Bias Network - See Note 4
BTS-1.2Meg	Video Output Grid
BTS-10K	Video Output Screen
BTB-1800	Video Output Plate - See Note 13
BTS-100K	Voltage Divider
1 3/4A-1250	Decoupling - Wire Wound
BTS-470K	Picture Tube Grid
BTS-150K	Picture Tube Cathode
BTS-120K	1st Sound IF Amp. Grid
BTS-150	1st Sound IF Amp. Cathode
BTS-1000	1st Sound IF Amp. Plate Decoupling
BTS-680K	2nd Sound IF Amp. Grid
BTA-12K	2nd Sound IF Amp. Decoupling
BTS-22K	Voltage Divider
BTS-270	Balancing
BTS-22K	De-emphasis
BTS-33K	AVC Network
BTS-10Meg	AF Amp. Grid
BTS-270K	AF Amp. Plate
BTS-470K	Output Grid
BW-1-270	Output Cathode - Wire Wound
BTS-10K	Decoupling
BTS-220	Feedback Network
BW-½-27	Feedback Network - Wire Wound
BTS-8200	Tone Compensation
BTS-1.2Meg	1st Sync. Sep. Grid
BTS-10K	1st Sync. Sep. Cathode
BTS-270K	2nd Sync. Sep. Grid
BTS-100K	2nd Sync. Sep. Plate
BTS-15K	Voltage Divider
BTS-6.8 Meg	Voltage Divider
	Voltage Divider
BTS-56K-5%	Noise Limiter Load
BTS-47K	Series Test Jack
BTS-10K	Sync. Phase Inv. Grid
BTS-1Meg	Sync. Phase Inv. Grid
BTB-15K	Sync. Phase Inv. Plate
BTB-22K	Sync. Phase Inv. Plate Decoupling - See Note 1
	Voltage Divider - See Note 5
BTS-10K	Integrator
	Integrator - See Note 5
BTS-4700	Integrator
BTS-270K	Vertical Osc. Grid - See Note 6
BTS-680K	Vertical Oscillator Plate
BTS-560K	Vertical Oscillator Plate Decoupling See Note 1
BTS-15K	Vertical Oscillator Transformer Shunt
BTS-8200	Vertical Peaking - See Note 7
BTS-2.2Meg	Vertical Output Grid
BTA-470	Vertical Output Cathode
1 3/4A-5000	Vertical Output Decoupling - See Note 8
BTS-100K	Damping
BTA-820K	Horizontal AFC Grid - See Note 13
BTS-470K	Horizontal AFC Cathode
BTS-8200	Horizontal AFC Filter
BTA-82K	Horizontal AFC Plate - See Note 9
BTS-47K	Voltage Divider - See Note 10
BTS-270K	Voltage Divider - See Note 13
BTA-3.3Meg-5%	Voltage Divider
BTA-680K	Horizontal Osc. Grid - See Note 11
BTA-33K	Horizontal Osc. Plate
BTS-6800	Horizontal Osc. Coil Shunt
BTS-22KΩ	Horizontal Osc. Coil Shunt
BTS-220K	Horizontal Feedback Network
BTS-22K	Horizontal Feedback Network
BTA-1Meg	Horizontal Feedback Network
	Parasitic Suppressor
BTS-470K	Horizontal Output Grid
1 3/4A-12K	Horizontal Output Screen - Wire Wound
BTS-470	Anti-Ringing Coil Shunt - See Note 13
BTS-390	Centering Network
BTB-18K	Decoupling - See Note 12
BTA-27K	Horizontal Output Screen - Wire Wound - See Note 1
BW-½-4.7	HV Rectifier Filament - Wire Wound
BW-½-4.7	HV Rectifier Filament - Wire Wound
	HV Rectifier Load
	HV Rectifier Load
	Filament Dropping
	Filter - Wire Wound
BTS-10K	Bias Network
BTS-18K	Bias Network
	Bias Network - See Note 1
BW-½-10	Series Pilot Light
BTS-100K	AGC Network
BTS-2200	Contrast Control Shunt

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TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 2.4A	600VCT .325ADC	5VAC @ 6A	6.3VAC @ 1.2A SEC. 4 6.3VAC @ 9A	32-8469 32-8429 ①		P-3066	

① Used in some models.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	NOTES
T2	170Ω	330Ω	32-8431				Vertical Block Osc. Trans
T3	82Ω Tap 24Ω	52Ω Tap 1.3Ω SEC. 2 0Ω SEC. 3 0Ω	32-8465-2		HV0-5		Horizontal Output Trans.
T4	760Ω	14Ω	32-8432 (or) 32-8454-1 ①	A-8112			Vertical Output Trans.
T5A B	12Ω 48Ω		32-9642	DY-7	MDF-70		Horizontal Deflection Coil Vertical Deflection Coil

① Used in some models.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
T6	5.9KΩ	3.3Ω	480Ω	.7Ω	32-8242-9 32-8242-7 ①	A-3823	A-3019	R0-9 ②	① Used in some models. ② Drill one new mounting hole

SPEAKER

ITEM No.	RATINGS FIELD RES.	RATINGS V. C. IMP.	REPLACEMENT DATA PHILCO PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	PM	3.3Ω	36-1638-1 36-1640 ③	ST-108 Mod. P6-X	6A15	③ 10" PM - Used in Model 51-T1634 Only.
	CONE DIA.	V. C. DIA.				
SP2	5 15/16"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	INSTALLATION NOTES
L1	.170A	68Ω	1.6 Henries	32-8430 (or) 32-8419-2 ①		C-2974		
L2	.320A	50Ω	2.3 Henries	32-8435 (or) 32-8478-2 ①				

① Used in some models.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	MEISSNER PART No.	NOTES
L3	Ant. Coil	0Ω	0Ω	32-4436-2		Channel 2
L4	Fil. Choke	0Ω	0Ω	45-6579		
L5	RF, Mixer Grid and Osc. Coil	0Ω		32-4437-2		Channel 2
L6	Fil. Choke	0Ω		45-6580		
L7	1st Video IF	1.2Ω	Tap .6Ω	45-1695		
L8	2nd Video IF	.3Ω		32-4486		
L9	Adj. Sound Trap	.1Ω		32-4303-3		
L10	3rd Video IF	.3Ω		32-4486		
L11	Adj. Sound Trap	.1Ω		32-4496		
L12	Fil. Choke	.1Ω		32-4112-15		
L13	4th Video IF	.2Ω	.2Ω	32-4486-6		
L14	RF Choke	.1Ω		32-4112-15		
L15	5th Video IF	.3Ω		32-4486		
L16	Fil. Choke	.1Ω		32-4112-15		
L17	Peaking	2.2Ω		32-4143-16		40 Microhenries (White Dot)
L18	Peaking	3.1Ω		32-4480-3	19-1920	100 Microhenries (Orange Dot)
L19	4.5MC Trap	1.8Ω		32-4463-5		
L20	Peaking	4.8Ω		32-4480-9	19-1921	180 Microhenries (White Dot)
L21	Peaking	4Ω		32-4480-8	19-1921	125 Microhenries
L22	Peaking	3.1Ω		32-4480-3	19-1920	100 Microhenries (Orange Dot)
L23	1st Sound IF	5.5Ω		32-4449A		
L24	Ratio Det.	5.5Ω				
	Trans.	5.5Ω	.7Ω	32-4450		Tap 1.2Ω
L25	Fil. Choke	.1Ω		32-4112-15		
L26	Horiz. Osc.	50Ω	Tap 50Ω	32-4506		
L27	Ring Coil	4.2Ω		32-4480	12-1921	150 Microhenries (White Dot)
L28	Horiz. Width	.8Ω		32-4468-4		
L29	Horiz. Lin	11Ω	Tap 4Ω	32-4501		

PARTS LIST AND DESCRIPTIONS (Continued)

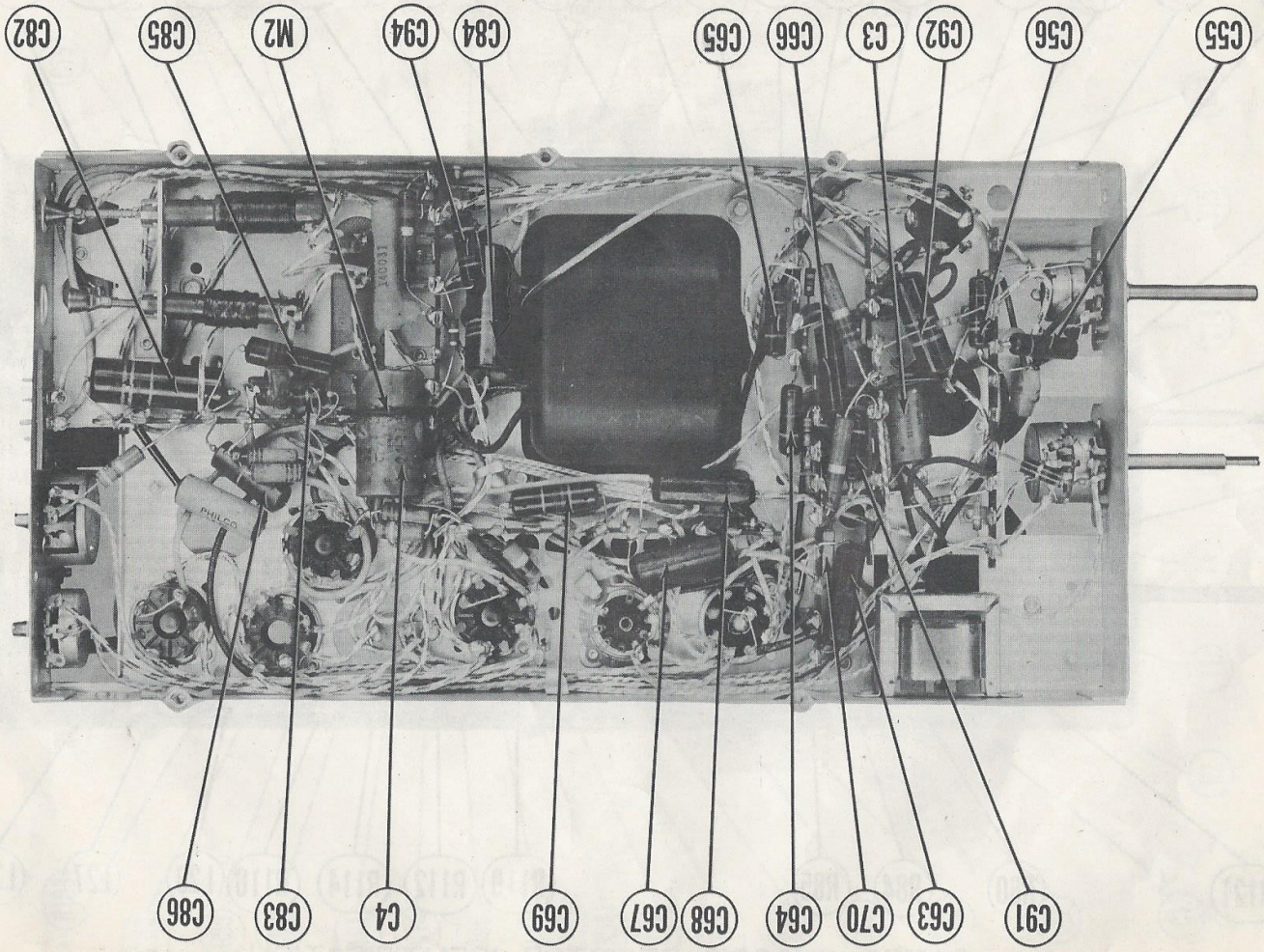
FUSES

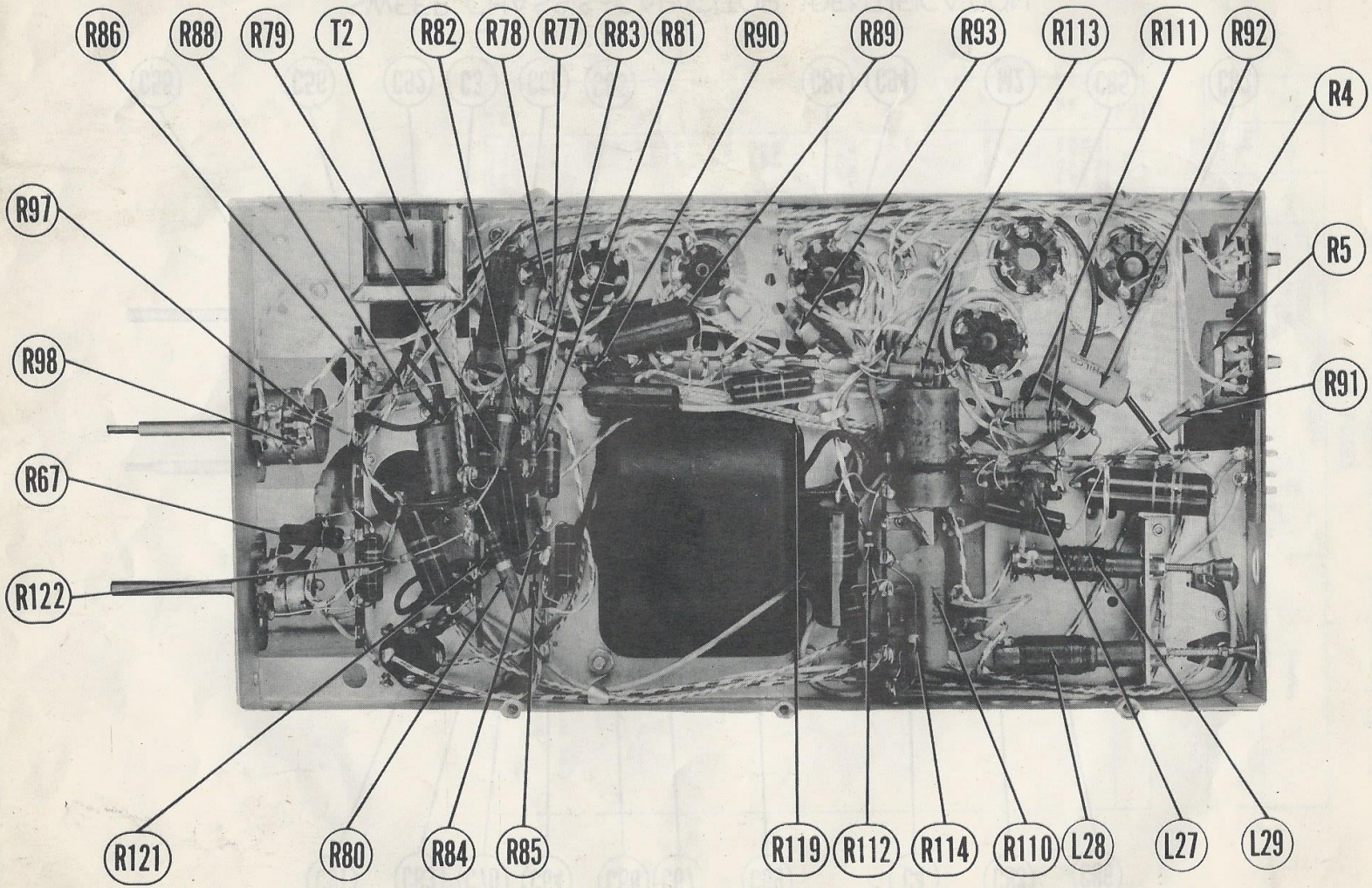
ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			PHILCO PART No.		LITTELFUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1 M2	3AG Slo-Blo Copper Wire ④	6/10A	45-2656-18	76-4519-2	313.600	357001	④ 2 1/2" Length of #26 Copper Wire

MISCELLANEOUS

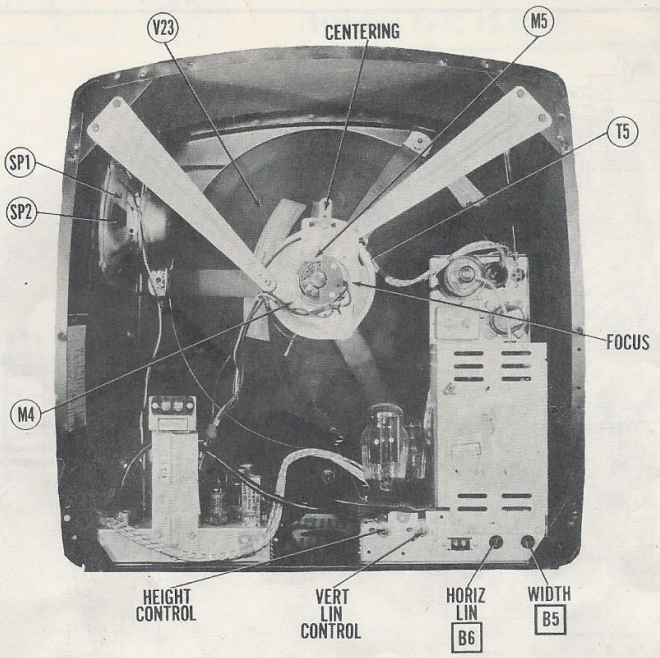
ITEM No.	PART NAME	PHILCO PART No.	NOTES
M3A	RF Tuner	76-5411-1	
B	RF Tuner	76-5747	
M4	Focus Magnet	76-5725	
M5	Ion Trap		
	Antenna Coil	32-4436-3	Channel 3
		32-4436-4	Channel 4
		32-4436-5	Channel 5
		32-4436-6	Channel 6
		32-4436-7	Channel 7
		32-4436-8	Channel 8
		32-4436-9	Channel 9
		32-4436-10	Channel 10
		32-4436-11	Channel 11
		32-4436-12	Channel 12
		32-4436-13	Channel 13
	RF, Mixer Grid and Osc. Coil	32-4437-3	Channel 3
		32-4437-4	Channel 4
		32-4437-5	Channel 5
		32-4437-6	Channel 6
		32-4437-7	Channel 7
		32-4437-8	Channel 8
		32-4437-9	Channel 9
		32-4437-10	Channel 10
		32-4437-11	Channel 11
		32-4437-12	Channel 12
		32-4437-13	Channel 13
	Knob	54-4750	Antenna Tuning
	Knob	54-4699-5	Brightness (Model 51-T1601 Code 121 and 122)
	Knob	54-4799-1	Brightness (Model 51-T1602 Code 121 and 122 , 51-T1634 Code 123 and 124)
	Knob	56-7807-1	Channel Selector (Model 51-T1601 Code 121 and 122)
	Knob	76-6175	Channel Selector (Model 51-T1602 Codes 121, 122, 51-T634 Codes 123 and 124)
	Knob	54-4707-2	Contrast (Model 51-T1601 Code 121, 122)
	Knob	54-4769	Contrast (Models 51-T1602, Codes 121, 122, 51-T1634, Code 123 and 124)
	Knob	54-4803	Fine Tuning (Model 51-T1601 Code 121)
	Knob	54-4701-1	Fine Tuning (Model 51-T1601 Code 122)
	Knob	76-6104	Fine Tuning (Model 51-T1602, Code 121, 51-T1634 Code 122)
	Knob	76-6104-3	Fine Tuning (Models 51-T1602, Code 122, 51-T1634, Code 124)
	Knob	54-4707-2	Horiz. Hold (Model 51-T1601, Codes 121 and 122)
	Knob	54-4769	Horiz. Hold (Models 51-T1602 Codes 121 and 122, 51-T1634, Codes 123 and 124.
	Knob	54-4699-5	Vert. Hold (Model 51-T1601, Codes 121, 122)
	Knob	54-4709-1	Vert. Hold (Models 51-T1602, Codes 121, 122, 51-T1634, Codes 123, 124)
	Knob	54-4804-1	Volume (Model 51-T1601 , Codes 121, 122)
	Knob	76-6166	Volume (Models 51-T1602 Codes 121, 122, 51-T1634, Codes 123,124)
A 11	Trimmer	31-6473-18	(45-370MMF) Balancing
B3	Trimmer	31-6473-22	(45-370MMF) Lock-In
B4	Trimmer	31-6473-22	(45-370MMF) Drive

SWEEP CHASSIS-CAPACITOR IDENTIFICATION





SWEEP CHASSIS-RESISTOR IDENTIFICATION



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Pre-set the adjustments as follows:

Horizontal lock-in trimmer, (B3), one turn counter-clockwise from tight.

Stabilizing core, (B2), extending 5/8 in. above the coil mount.

Horizontal drive trimmer, (B4), one turn counter-clockwise from tight.

Horizontal hold control to the center of its range.

Turn the set on and tune in a TV station, preferably a test pattern.

Adjust the horizontal frequency slug, (B1), until the picture synchronizes horizontally.

Connect the vertical input lead of an oscilloscope to terminal 3 of horizontal test socket.

Adjust the stabilizing core, (B2), until the broad and narrow peaks of the waveform on the scope are of equal height as shown in figure 6.

If necessary adjust B1, to keep the picture synchronized horizontally, during adjustment of B2.

Remove the scope connection and turn the hold control to fully clockwise.

Adjust B1 until there are 4 blanking bars sloping downward to the right.

Turn the hold control fully counter-clockwise. The picture should be out of sync. If not, momentarily interrupt the signal by switching to another channel and back again.

Slowly turn the hold control clockwise and carefully note the least number of sloping bars present just before the picture synchronizes. If there are more than $3\frac{1}{2}$ bars present turn B3 slightly clockwise. If there are less than $2\frac{1}{2}$ bars turn B3 slightly counter-clockwise.

Repeat the check and adjustment of B3 until $2\frac{1}{2}$ to $3\frac{1}{2}$ bars are present at the pull-in point.

Adjust the horizontal drive trimmer, (B4), counter-clockwise as far as possible without crowding or vertical lines appearing in the picture.

Adjust the width slug, (B5), until the picture fills the mask horizontally.

Adjust the horizontal linearity slug, (B6), until the picture is symmetrical from left to right. Slight readjustment of B4 may be required to obtain optimum results.

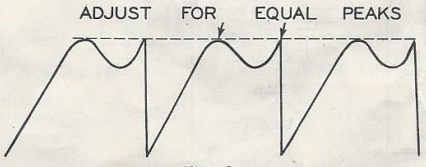
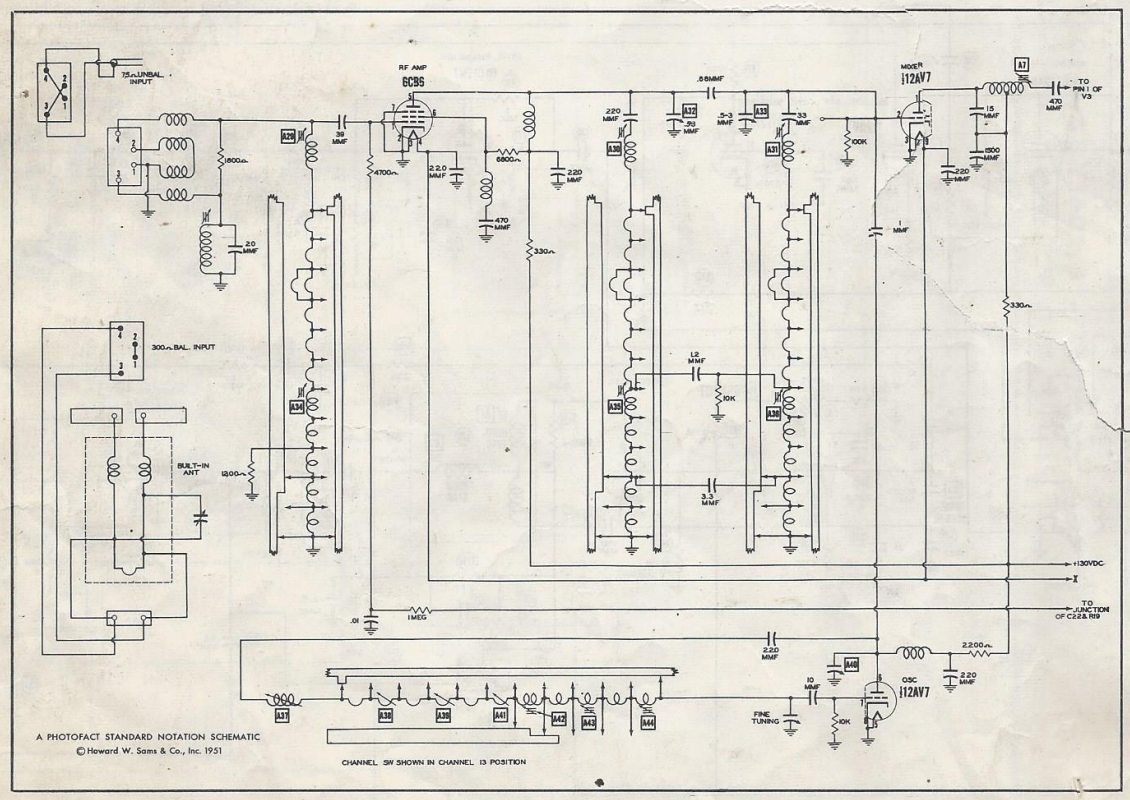


FIG. 6

DISASSEMBLY INSTRUCTIONS

1. Remove seven push-on type control knobs.
2. Remove twelve hex head screws from rear cover. Remove rear cover.
3. Disconnect built-in antenna.
4. Disconnect speaker.
5. Disconnect receiver chassis power plug.
6. Disconnect volume control plug.
7. Disconnect yoke plug.
8. Disconnect picture tube plug.
9. Disconnect HV lead.
10. Remove four 1/4" hex head bolts from receiver chassis. Remove chassis.
11. Remove five 1/4" hex head bolts from Rectifier chassis. Remove chassis.
12. Remove four 5/16" hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE THE CHASSIS AS OUTLINED ABOVE.



ALTERNATE TUNER SCHEMATIC