

PHILCO MODEL 51-T2176

TRADE NAME	Philco, Models 51-T2102 (Code 122), 51-T2130, 51-T2132, 51-T2133 (All Code 121), 51-T2134, 51-T2136, 51-T2138, 51-T2175, 51-T2176 (All Code 124)	
MANUFACTURER	Philco Corp., Tioga And "C" Streets, Philadelphia, Pa.	
TYPE SET	Television Receiver	
TUBES	Twenty Three (TV "Only" Receivers) Twenty Eight (Combination Receivers)	
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING (TV) 2.6 Amp. @ 117 Volts AC (Radio) 1.6 Amp. @ 117 Volts AC
TUNING RANGE	(TV) Channels 2 thru 13 (AM) 540-1620KC (FM) 88-108MC	

INDEX

Alignment Instructions.....	6, 7, 8	Photographs (Continued)	
Disassembly Instructions.....	19	Chassis - Top View (Sweep Chassis).....	21
Drive Cord Stringings.....	7	RF Tuner (TV).....	26
Horizontal Sweep Circuit Adjustments.....	19	Resistor Identification (Radio Chassis).....	24
Parts List And Description (Radio And TV).....	12 thru 17	Resistor Identification (RF-IF Chassis).....	9
Parts List And Description (Remote Control Unit).....	30	Resistor Identification (Sweep Chassis).....	25
Photographs		Remote Control Unit.....	27 thru 30
Cabinet - Rear View.....	17	Schematic (Radio).....	11, 18
Capacitor Identifications (Radio Chassis).....	23	Schematic (Remote Control).....	31
Capacitor Identifications (RF-IF Chassis).....	4	Schematic (TV).....	2
Capacitor Identifications (Sweep Chassis).....	20	Tube Placement Charts (TV).....	3
Chassis - Top View (Radio Chassis).....	22	Voltage And Resistance Measurements (Radio).....	11, 18
Chassis - Top View (RF-IF Chassis).....	5	Voltage And Resistance Measurements (TV).....	10

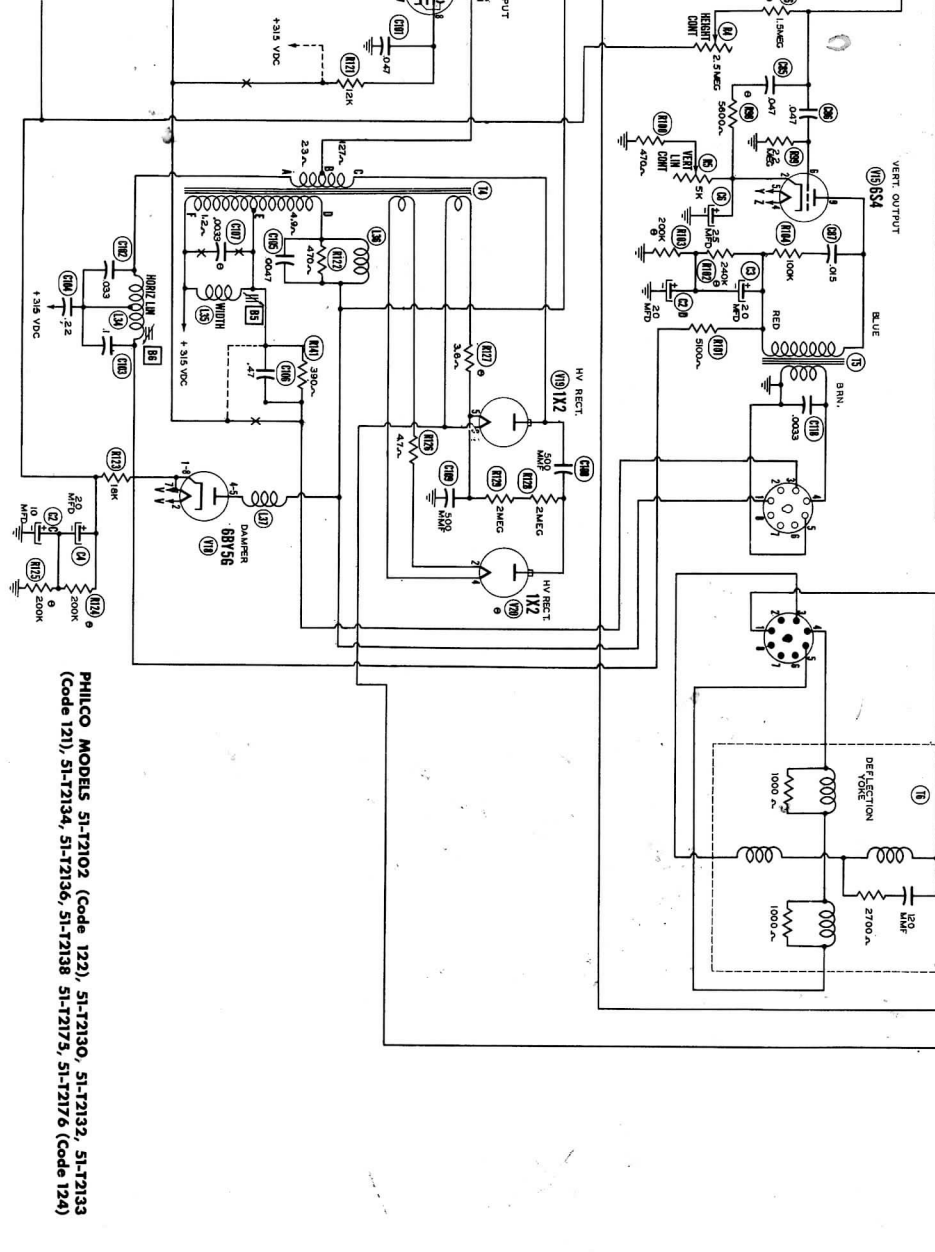
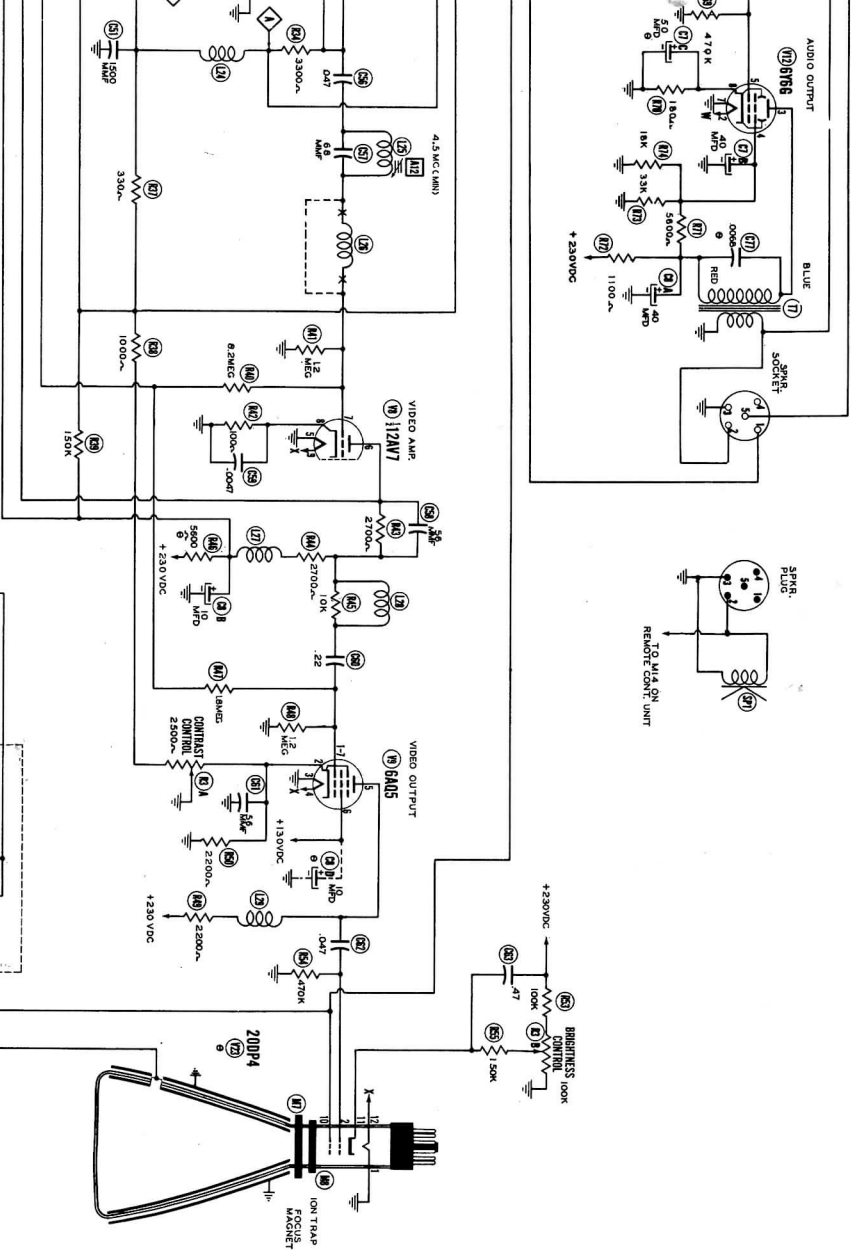
RECORD CHANGER UNIT - PHILCO MODEL M-20. SEE PHOTOFACT FOLDER #11 - SET # 103 OR RECORD CHANGER MANUAL CM-3.

HOWARD W. SAMs & CO., INC. • Indianapolis 1, Indiana

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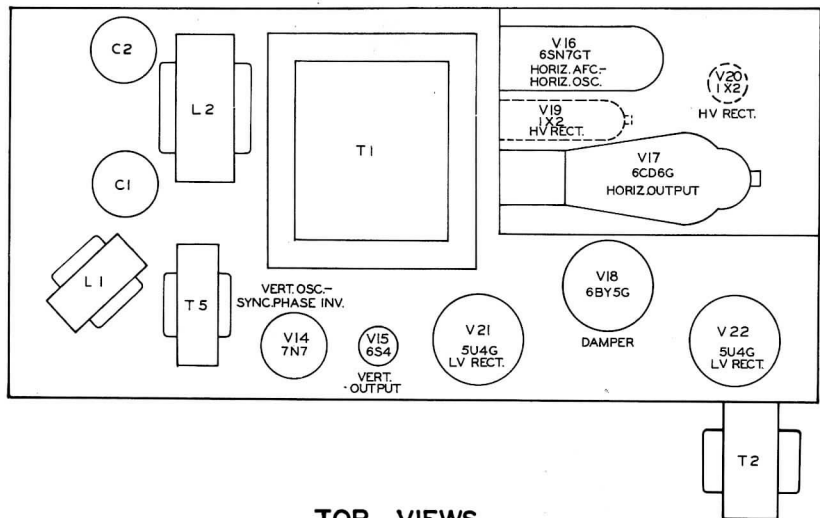
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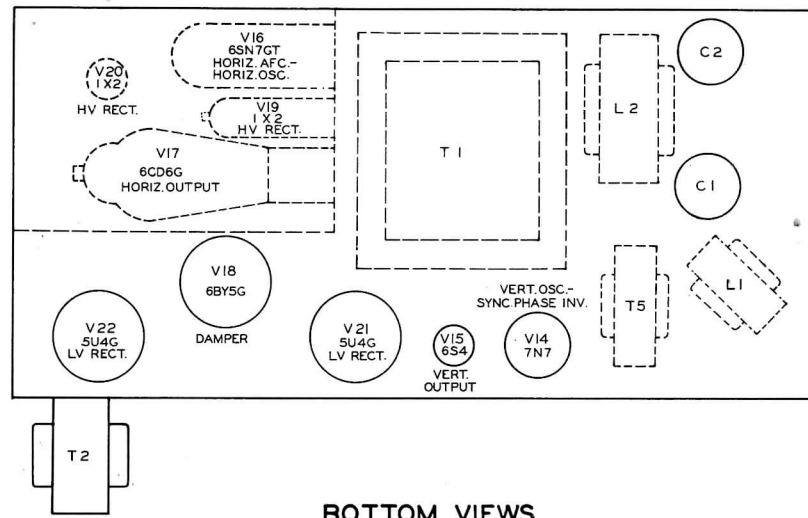


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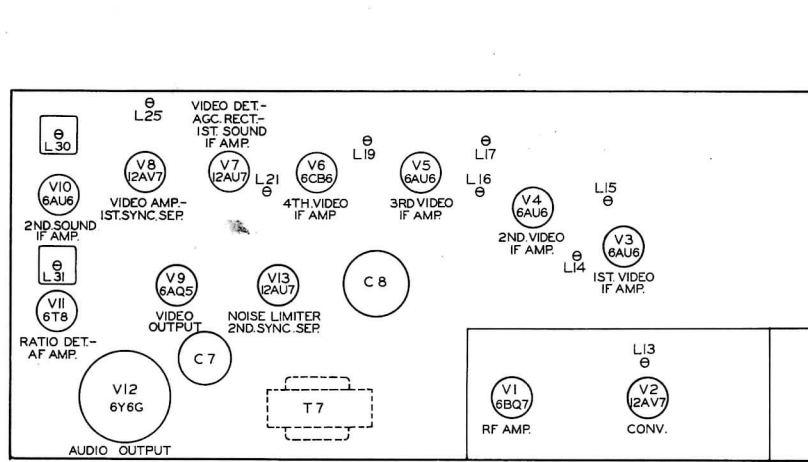
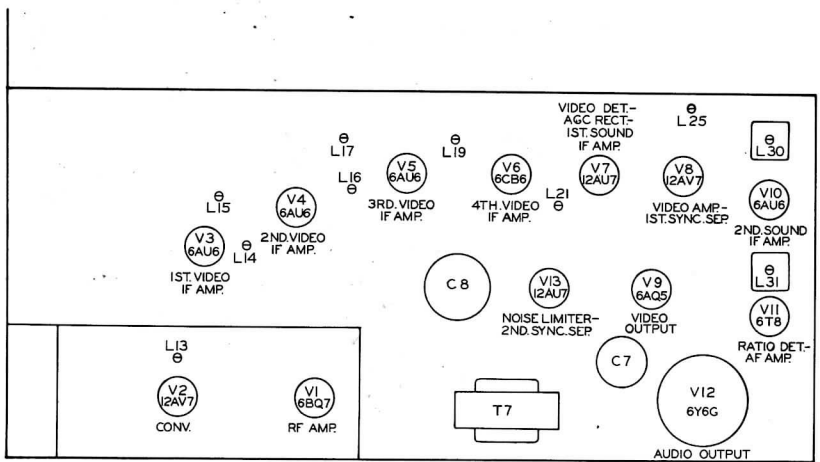
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TOP VIEWS

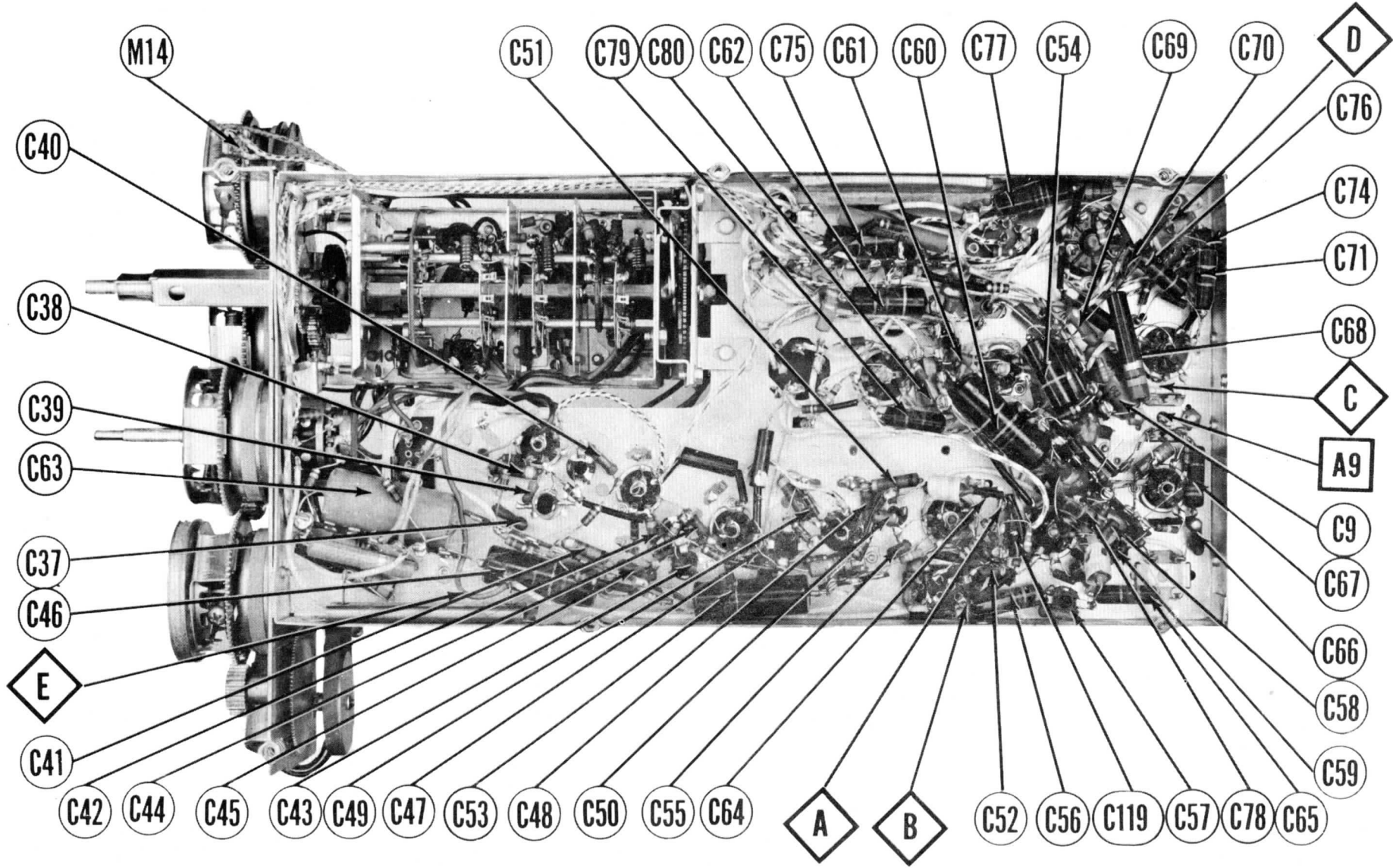


BOTTOM VIEWS

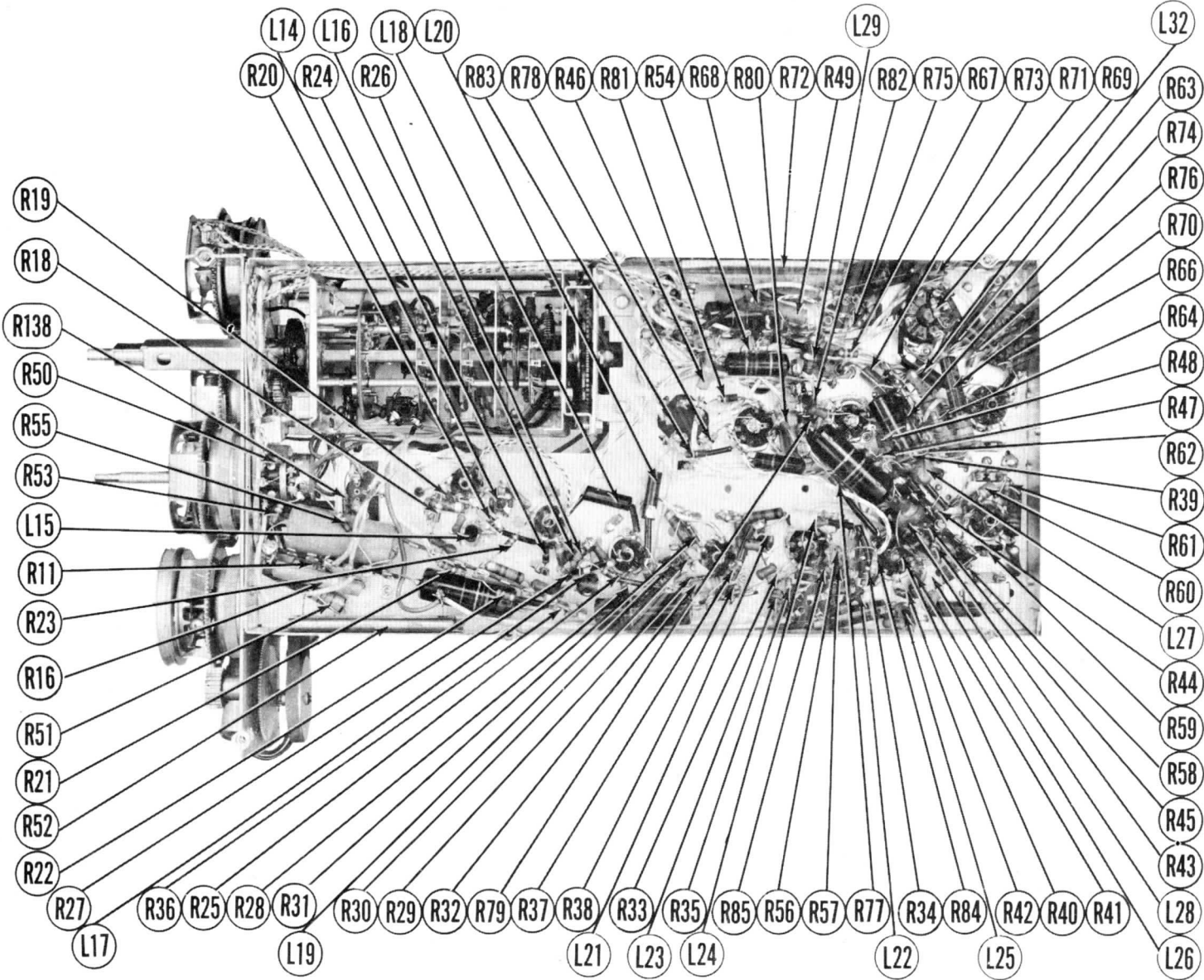


TUBE PLACEMENT CHART

PHILCO MODELS 51-12102 (Code 122), 51-12130, 51-12132, 51-12133 (Code 124), 51-12134, 51-12136, 51-12138, 51-12175, 51-12176 (Code 124)



RF-IF CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



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 RF-IF CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION

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	6BQ7	220VDC	5.6VDC	110VDC	6.3VAC	0V	110VDC	-.9VDC	0V	0V
V 2	12AV7	135VDC	-1.5VDC	0V	0V	0V	100VDC	§-7VDC	0V	6.3VAC
V 3	6AU6	.3VDC	0V	0V	6.3VAC	120VDC	120VDC	.7VDC		
V 4	6AU6	.3VDC	0V	0V	6.3VAC	125VDC	125VDC	.7VDC		
V 5	6AU6	.3VDC	0V	0V	6.3VAC	130VDC	130VDC	.7VDC		
V 6	6CB6	0V	1.8VDC	0V	6.3VAC	90VDC	125VDC	0V		
V 7	12AU7	120VDC	0V	1.7VDC	6.3VAC	6.3VAC	-.4VDC	.3VDC	1.2VDC	0V
V 8	12AV7	175VDC	0V	9.4VDC	0V	0V	130VDC	-.2VDC	.8VDC	6.3VAC
V 9	6AQ5	-1VDC	7.8VDC	0V	6.3VAC	230VDC	130VDC	-1VDC		
V 10	6AU6	-.8VDC	0V	0V	6.3VAC	65VDC	65VDC	0V		
V 11	6T8	-.8VDC	1.8VDC	-.8VDC	0V	6VAC	0V	0V	-.6VDC	80VDC
V 12	6Y6G	0V	6VAC	160VDC	110VDC	0V	235VDC	0V	9.8VDC	
V 13	12AU7	9.8VDC	9.8VDC	9.6VDC	0V	0V	20VDC	-.4VDC	0V	6.3VAC
V 14	7N7	0V	0V	170VDC 85VDC	-15VDC -28VDC	-.4VDC	45VDC	0V	6.3VAC	
V 15	6S4	0V	45VDC 12VDC	0V	0V	6.3VAC	0V	0V	0V	470VDC 340VDC
V 16	6SN7GT	-3.2VDC	90VDC	-30VDC	-75VDC	305VDC	0V	0V	6.3VAC	
V 17	6CD6G	0V	6.3VAC	0V	-27VDC	-27VDC	320VDC	0V	125VDC	TOP CAP *
V 18	6BY5G	525VDC	525VDC	0V	310VDC	310VDC	0V	525VDC	525VDC	
V 19	1X2	* DO NOT MEASURE								
V 20	1X2	* DO NOT MEASURE								
V 21	5U4G	0V	320VDC	480VDC	300VAC	0V	300VAC	0V	320VDC	
V 22	5U4G	0V	320VDC	0V	300VAC	0V	300VAC	0V	320VDC	
V 23	20DP4	0V	0V	PIN 10 315VDC	PIN 11 80VDC	PIN 12 6.3VAC				

FUNCTION SWITCH IN TV POSITION

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED

§ TAKEN WITH VACUUM TUBE VOLTMETER

* DO NOT MEASURE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7	†1.8KΩ	Inf.	Inf.	.2Ω	.1Ω	Inf.	1Meg	0Ω	0Ω
V 2	12AV7	†2.4KΩ	100KΩ	0Ω	0Ω	0Ω	†15KΩ	10KΩ	0Ω	.1Ω
V 3	6AU6	550KΩ	0Ω	0Ω	.1Ω	†2.7KΩ	†2.7KΩ	68Ω		
V 4	6AU6	545KΩ	0Ω	0Ω	.1Ω	†2.4KΩ	†2.4KΩ	68Ω		
V 5	6AU6	545KΩ	0Ω	0Ω	.2Ω	†2.1KΩ	†2.1KΩ	68Ω		
V 6	6CB6	.2Ω	180Ω	0Ω	.2Ω	†7.7KΩ	†2.4KΩ	0Ω		
V 7	12AU7	†3KΩ	120KΩ	150Ω	.2Ω	.2Ω	330KΩ	4.6KΩ	1.3KΩ	0Ω
V 8	12AV7	†5.2KΩ	8Meg	10KΩ	0Ω	0Ω	†11KΩ	1.2Meg	100Ω	.1Ω
V 9	6AQ5	750KΩ	1.2KΩ	0Ω	.1Ω	†2.7KΩ	†2.1KΩ	750KΩ		
V 10	6AU6	680KΩ	0Ω	0Ω	.1Ω	†9KΩ	†9KΩ	0Ω		
V 11	6T8	Inf.	34KΩ	Inf.	0Ω	.4Ω	Inf.	0Ω	10Meg	†370KΩ
V 12	6Y6G	Inf.	.3Ω	†1.8KΩ	†6KΩ	470KΩ	†500Ω	0Ω	180Ω	
V 13	12AU7	35KΩ	35KΩ	10KΩ	0Ω	0Ω	†18KΩ	7Meg	0Ω	.1Ω
V 14	7N7	0Ω	0Ω	#1.5Meg #4Meg	520KΩ	†1Meg	†15KΩ	0Ω	.1Ω	
V 15	6S4	Inf.	5.5KΩ 470Ω	2.2Meg	0Ω	.1Ω	2.2Meg	Inf.	Inf.	#5.7Meg
V 16	6SN7GT	1Meg	†45KΩ	330KΩ	340KΩ	#50KΩ	0Ω	0Ω	.1Ω	
V 17	6CD6G	Inf.	.1Ω	0Ω	1Meg	1Meg	#50KΩ	0Ω	†12KΩ	TOP CAP #33Ω
V 18	6BY5G	100KΩ	#.1Ω	Inf.	†80Ω	†80Ω	Inf.	100KΩ	100KΩ	
V 19	1X2	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP #160Ω
V 20	1X2	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP Inf.
V 21	5U4G	Inf.	8KΩ	#5KΩ	62Ω	Inf.	62Ω	Inf.	8KΩ	
V 22	5U4G	Inf.	8KΩ	Inf.	62Ω	Inf.	62Ω	Inf.	8KΩ	
V 23	20DP4	0Ω	470KΩ	PIN 10 †64Ω	PIN 11 180KΩ	PIN 12 .1Ω				

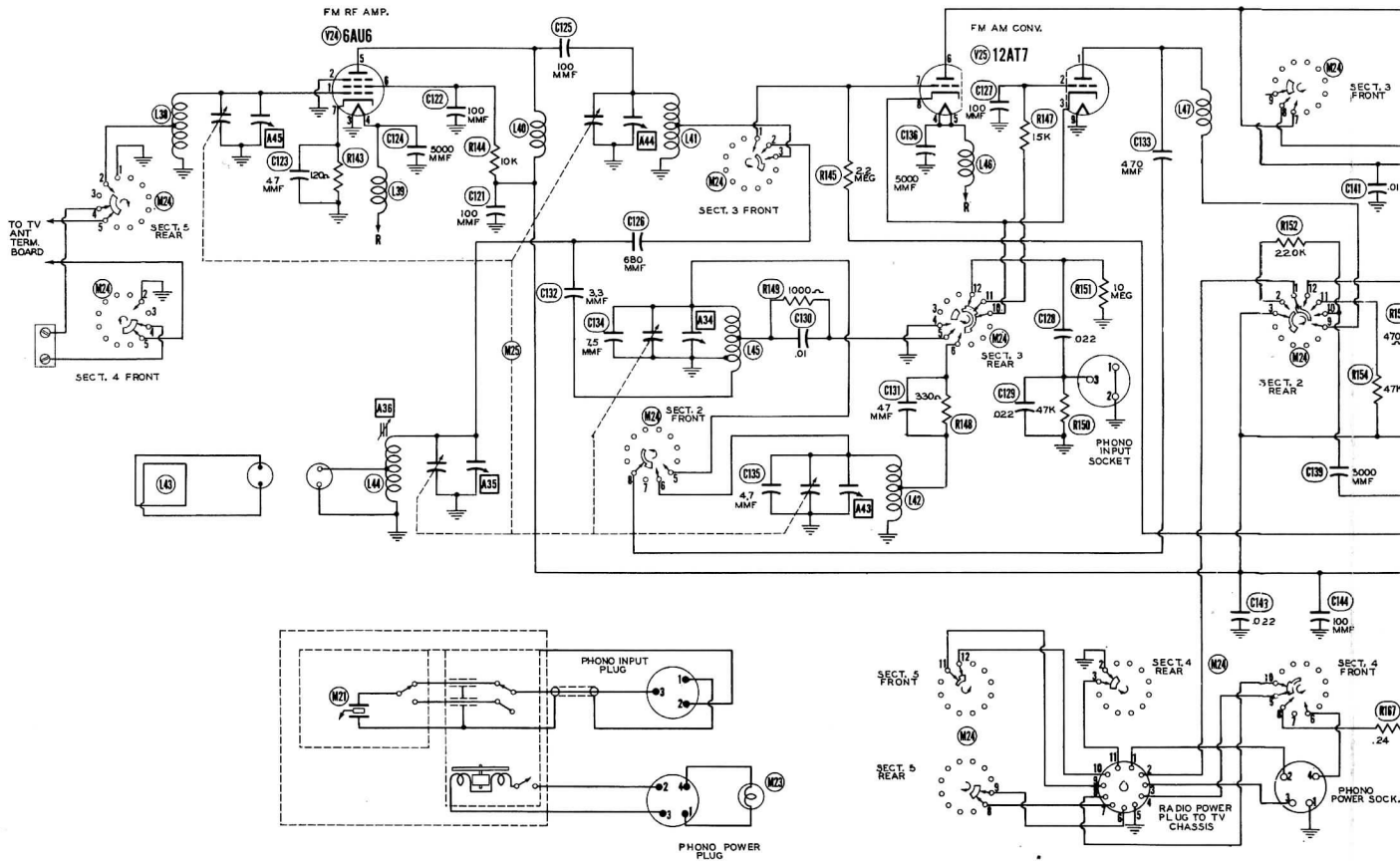
FUNCTION SWITCH IN TV POSITION

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED

† MEASURED FROM PIN 8 OF V22

MEASURED FROM PIN 8 OF V18

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



IF= 455 KC AM

IF= 9.1 MC FM

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V24	6AU6	0V	0V	0V	5.8VAC	†125VDC ‡140VDC	†85VDC ‡105VDC	1.2VDC		
V25	12AT7	†105VDC ‡80VDC	†4.4VDC ‡6.5VDC	†1.8VDC ‡2.4VDC	5.8VAC	5.8VAC	†10VDC ‡135VDC	†1.0V ‡-4.4VDC	†1.8VDC ‡2.4VDC	0V
V26	6BA6	†0V	0V	0V	5.8VAC	†98VDC ‡105VDC	†105VDC ‡115VDC	-.5VDC		
V27	6AU6	0V	0V	0V	5.8VAC	†105VDC ‡115VDC	†105VDC ‡115VDC	1.2VDC		
V28	6BC7	-.5VDC	-.1VDC	0V	5.8VAC	0V	-.6VDC	0V	-.5VDC	0V

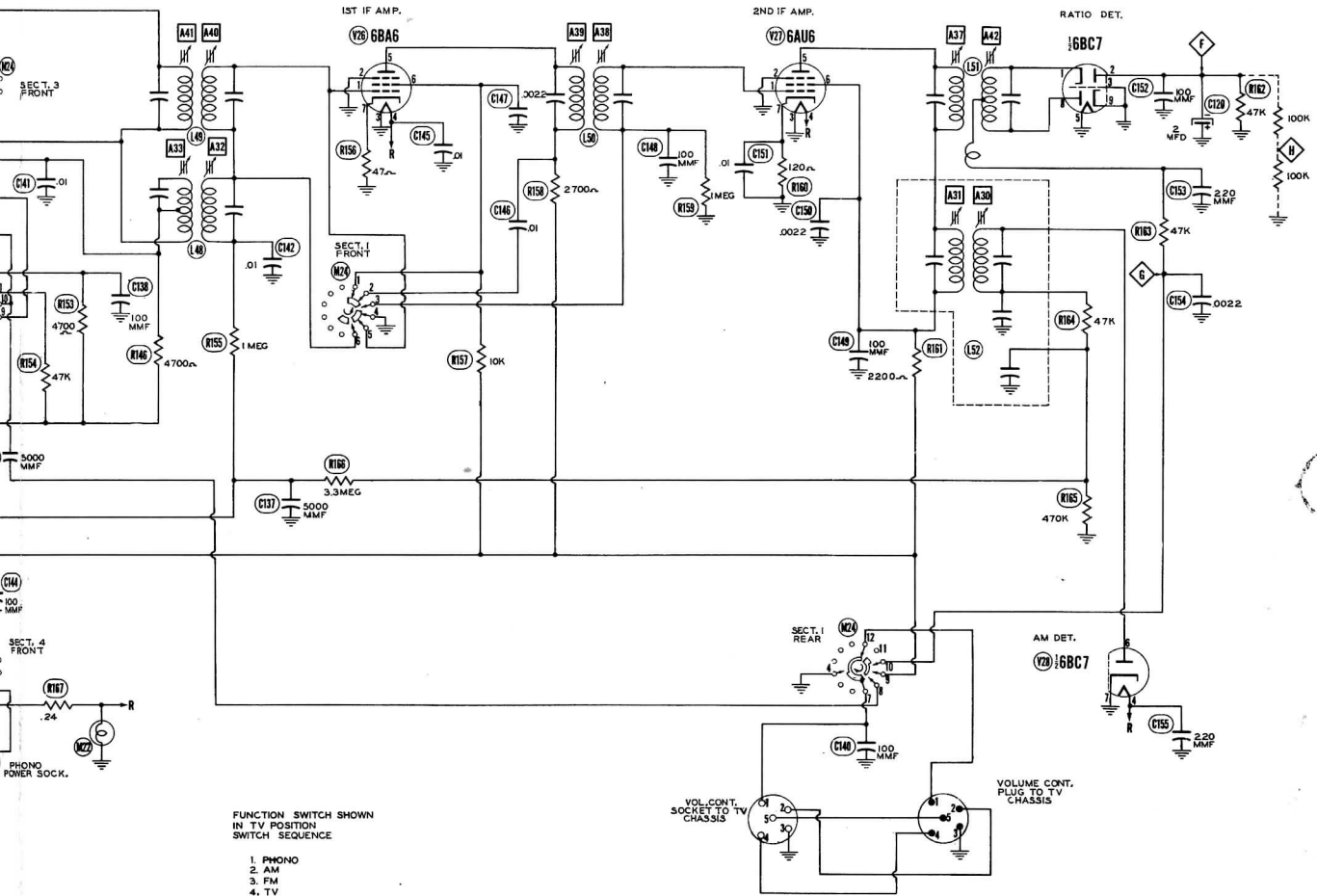
† MEASURED FROM PIN 8 OF V22

FUNCTION SWITCH IN EITHER FM OR AM POSITION
 † TAKEN IN FM POSITION
 ‡ TAKEN IN AM POSITION

Item	Tube	Pin 1
V24	6AU6	0V
V25	12AT7	†110VDC ‡153VDC
V26	6BA6	†2.3VDC ‡4.5VDC
V27	6AU6	†2.1VDC ‡4.1VDC
V28	6BC7	Inf.

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

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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FUNCTION SWITCH SHOWN
IN TV POSITION
SWITCH SEQUENCE

1. PHONO
2. AM
3. FM
4. TV

RESISTANCE READINGS

Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
6BAG	0Ω	0Ω	0Ω	.8Ω	16.3KΩ	110KΩ	120Ω	1.0Ω	13300
6AU6	111KΩ	115KΩ	13300	.8Ω	.8Ω	111KΩ	1.0 Meg	1KΩ	0Ω
6BC7	12.2Meg	115KΩ	0Ω	.3Ω	110KΩ	110KΩ	47Ω		
6BC7	1.1Meg	0Ω	0Ω	.3Ω	18.5KΩ	8.5KΩ	120Ω		
6BC7	Inf.	47KΩ	0Ω	.3Ω	0Ω	110KΩ	0Ω	Inf.	0Ω

1 TAKEN WITH VACUUM TUBE VOLTMETER

OWNER OF THIS
SERVICE

TV PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	NOTES
		PHILCO PART No.	STANDARD REPLACEMENT			
V1	RF Amplifier	6BQ7	6BQ7		9AJ	
V2	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		6CK	
V7	AGC Rectifier - Video Detector - 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	6Y6G	6Y6G		7AC	
V13	2nd Sync. Sep. - Noise Limiter	12AU7	12AU7		9A	
V14	Vert. Oscillator - Sync. Phase Inv.	7N7	7N7		8AC	
V15	Vert. Output	6S4	6S4		9AC	
V16	Horiz. AFC - Horiz. Oscillator	6SN7GT	6SN7GT		8BD	
V17	Horiz. Output	6CD6G	6CD6G		5BT	
V18	Damper	6BY5G	6BY5G		6CN	
V19	H. V. Rectifier	1X2	1X2		7CB	
V20A	H. V. Rectifier	1X2	1X2		7CB	
B	H. V. Rectifier	1B3GT	1B3GT		3C	
V21	L. V. Rectifier	5U4G	5U4G		5T	
V22	L. V. Rectifier	5U4G	5U4G		5T	
V23A	Picture Tube	20DP4	20DP4		12D	
B	Picture Tube	20DP4A	20DP4A		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		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES		
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.		SPRAGUE PART No.	
C1	40	475	30-2568-48	E4A100			UPT4045		TVL-1820	Filter
C2A	50	475	30-2584-3	AF1062X4G			UPT53150-230			▲ Filter
B	30	475								■ Filter
C	10	475								▲ Decoupling
D	20	300								Vert. Output Dec.
C3	20	300	30-2417-18	PRS350/24			BR2035A		TVA-1608	Vert. Output Dec.
C4	20	300	30-2417-18							Decoupling
C5	50	25	30-2417-8	PRS25/50			BR502A		TVA-1206	Bias Filter *
C6	25	25	30-2417-9							Vert. Output Cathode
C7A	30	450	30-2570-73	AFH6J10I8A			UPT345-435C5		TVL-3723	■ Filter
B	40	350								▲ Output Screen
C	50	25								Output Cathode †
C8A	40	450	30-2570-41	AF8422J			UPT42145		TVL-4840	▲ Output Decoupling
B	10	450								■ Decoupling
C	20	450								▲ Decoupling
D	10	450								Decoupling †
C9	2	50	30-2417-7	E2E66			BB2-50T		TVA-1301	Stabilizing Cap
C10	30	30VAC @ 60%	30-2355-3	E62A2						Motor Capacitor
C11	20		62-020309001	SI20	D6-200			GPIK-20		Fixed Trimmer
C12	5		30-1221-13	SI5NPO	TCZ-4.7			NPOK-5		Fixed Padder
C13	10		62-010409001	SI10	D6-100			GPIK-10	19C19	Fixed Padder
C14	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	RF Coupling
C15	3.3		30-1221-9	SI3.3NPO	TCZ-3.3			NPOK-3.3		Neutralizing
C16	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	AGC Filter
C17	.5-3		31-6520-1		829-3					Variable Trimmer
C18	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	RF Amp. Grid
C19	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	RF Amp. Grid
C20	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	RF Amp. Plate Dec.
C21	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	RF Coupling
C22	.56		30-1221-16							RF Coupling
C23	1.5		30-1221-8	SI1.5NPO	TCZ-1.5			NPOK-1.5		RF Coupling
C24	5		30-1221-13	SI5NPO	TCZ-4.7			NPOK-5		RF Coupling
C25	33		62-033009001	SI33	D6-330			GPIK-33	19C24	RF Coupling
C26	.5-3		31-6520-1		829-3					Variable Trimmer
C27	.5-3		31-6520-1		829-3					Variable Trimmer
C28	10		30-1224-48	SI10N750	TCN-10			N750K-10	19C4	Osc. Grid Cap
C29	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	Osc. Feedback
C30	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	Osc. Plate Dec.
C31	1		30-1224-71		TCZ-1					Osc. Coupling
C32	1500		30-1225-19	SI1500	D6-152			GP2L-0015	29C8	Conv. Plate Dec.
C33	15		62-015409001	SI15	D6-150			GPIK-15	19C22	Fixed Trimmer
C34	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	Conv. Filament
C35	220		30-1225-11	SI220	D6-221			GP2K-220	19C13	Filament Bypass
C36	470		62-147001001	SI470	D6-471			GP2K-470	19C15	IF Coupling
C37	1500		62-215001011	SI1500	D6-152		1W5D15	GP2L-0015	29C8	AGC Filter
C38	1500		62-215001011	SI1500	D6-152		1W5D15	GP2L-0015	29C8	1st V. IF Dec.
C39	39		62-039409001	SI39	D6-390		5W5Q4	GPIK-39	MS-44	Fixed Trimmer
C40	100		62-110009001	SI100	D6-101		5W5T1	GPIK-100	19C11	IF Coupling
C41	1500		62-215001011	SI1500	D6-152		1W5D15	GP2L-0015	29C8	AGC Filter
C42	1500		62-215001011	SI1500	D6-152		1W5D15	GP2L-0015	29C8	2nd V. IF Dec.
C43	22		62-022009001	SI22	D6-220			GPIK-22	19C23	Fixed Trimmer
C44	33		62-033000001	SI33	D6-330		5W5Q4	GPIK-33	19C24	IF Coupling
C45	1500		62-215001011	SI1500	D6-152		1W5D15	GP2L-0015	29C8	AGC Filter
C46	.22	200	45-3505-49	P488-22			GT2P25		2TM-P22	AGC Filter
C47	1500		62-215001011	SI1500	D6-152		1W5D15	GP2L-0015	29C8	3rd V. IF Dec.
C48	1500		62-215001011	SI1500	D6-152		1W5D15	GP2L-0015	29C8	4th V. IF Screen
C49	1500		62-215001011	SI1500	D6-152		1W5D15	GP2L-0015	29C8	4th V. IF Cathode
C50	470		62-147001001	SI470	D6-471		5W5T5	GP2K-470	19C15	IF Coupling
C51	1500		62-215001011	SI1500	D6-152		1W5D15	GP2L-0015	29C8	RF Bypass
C52	56		62-056409001	SI56	D6-560		5W5Q5	GPIK-56	19C28	AGC Rect. Plate
C53	.22	200	45-3505-49	P488-22			GT2P25		2TM-P22	AGC Filter
C54	.1	200	45-3505-47	P288-1	DF-104		PTE4P1		2TM-P1	RF Bypass
C55	8		30-1224-13	SI8.2NPO	D6-100		5W5Q1		19C3	V. Diode Filter
C56	.047	200	45-3505-62	P288-047	DF-503		PTE4S5		2TM-S47	Video Coupling

TV PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C57	.68		62-06840901	SI68	D6-680	5W5Q7	GPIK-68	19C10	Fixed Trimmer Peaking
C58	.56		62-056409001	SI56	D6-560	5W5Q5	GPIK-56	19C28	
C59	.0047	600	45-3505-56	P688-0047	D6-472	PTE6D5	GP2M-0047	6TM-D47	Video Amp. Cathode
C60	.22	400	45-3505-48	P488-22		GT4P25		4TM-P22	Video Coupling
C61	.56		62-056409001	SI56	D6-560	5W5Q5	GPIK-56	19C28	V. Output Cathode
C62	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Video Coupling
C63	.47	400	45-3500-4	484-5		GT4P5		4TM-5	Pic. Tube Cathode
C64	.56		62-056409001	SI56	D6-560	5W5Q5	GPIK-56	19C28	S. IF Coupling
C65	.01	400	45-3505-58	P488-01	D6-103	PTE4S1	821-01	4TM-S1	1st S. IF Dec.
C66	1500		62-21500101	SI1500	D6-152	1W5D15	GP2L-0015	29C8	S. IF Coupling
C67	.0033	400	45-3505-55	P688-0033	D6-332	PTE6D3	GP2M-0033	6TM-D33	2nd S. IF Dec.
C68	.330		60-10335407	SI330	D6-331	5W5T3	GP2K-330	19C14	RF Bypass
C69	1500		62-21500101	SI1500	D6-152	1W5D15	GP2L-0015	29C8	RF Bypass
C70	.0022	400	45-3505-54	P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	De-emphasis
C71	.01	400	45-3505-58	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Tone Comp.
C72	.0047	600	45-3505-56	P688-0047	D6-472	PTE6D5	GP2M-0047	6TM-D47	Audio Coupling * *
C73	.015	200	45-3505-59	P288-015		PTE6S15		6TM-S15	Tone Comp.
C74	.0068	400	45-3505-52	P488-0068	D6-682	PTE6D6	821-01	6TM-D68	Audio Coupling \$
C75	.1	400	45-3505-64	P488-1	DF-104	PTE4P1		4TM-P1	AF Amp. Dec.
C76	.01	400	45-3505-57	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Audio Coupling
C77	.0068	1000		P1068-0068		PTE16D7		MB-D68	Output Plate *
C78	.022	400	45-3505-60	P488-022	DF-203	PTE4S2		4TM-S22	Sync. Coupling
C79	.015	200	45-3505-59	P288-015		PTE6S15		6TM-S15	Sync. Coupling
C80	.180	500	30-1224-5	1469-0002	D6-181	5R5T2	GP2K-180	MS-32	Sync. Coupling
C81	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Sync. Coupling
C82	.01	400	45-3505-58	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Vert. Sync. Coupling
C83	.0047	600	45-3505-56	P688-0047	D6-472	PTE6D5	GP2M-0047	6TM-D47	Integrator Network
C84	.022	200	45-3505-60	P488-022	DF-203	PTE4S2		4TM-S22	Integrator Network
C85	.047	400	45-3505-62	P488-047		PTE4S5		4TM-S47	Vertical Discharge
C86	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Vert. Sweep Coupling
C87	.015	400	45-3505-59	P488-015		PTE6S15		6TM-S15	Vertical Shaping
C88	.120	500	60-10125237	1469-00015	D6-121	5R5T15	GP2K-120	MS-315	Horiz. Sync. Coupling
C89	.0022	400	45-3505-54	P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	Horiz. Sync. Coupling
C90	.15	200	45-3505-48	P288-15				2TM-P15	AFC Filter
C91	.022	200	45-3505-43	P488-022	DF-203	PTE4S2		4TM-S22	AFC Filter
C92	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Horiz. AFC Plate
C93	.180	1000	30-1244-5	1469-HV-0002				4TM-S47	Horiz. Osc. Grid
C94	10000	500	60-30103404	1467-01		ID3S1		1FM-11	Fixed Trimmer
C95	.001	600	45-3505-52	P688-001	D6-102	PTE6D1	GP2L-001	6TM-D1	Horiz. Sweep Coupling
C96	.150	500	60-10155407	1468-00015	D6-152	5W5T15	GP2K-150	1FM-315	Voltage Divider
C97	.10	500	30-1244	1468-00001	D6-100	5W5T1	GPIK-10	1FM-41	Horiz. Feedback
C98	1200	500	60-20125404	1468-0004	D6-391	5W5T4	GP2K-390	1FM-34	Horiz. Sweep Coupling †
C99	.390	500							Horiz. Feedback
C100	.33	1000	30-1244-6						Horiz. Feedback
C101	.047	400	45-3505-62	P488-047	DF-503	PTE4S5		4TM-S47	Horiz. Output Screen
C102	.033	400	45-3505-61	P488-033		PTE6S3		4TM-S3	Damper Filter
C103	.1	400	45-3505-64	P488-1		PTE4P1		4TM-P1	Damper Filter
C104	.22	400	45-3505-49	P488-22		GP4P25		4TM-P22	Damper Filter
C105	.0047	600	45-3505-56	P688-0047	D6-472	PTE6D5	GP2M-0047	6TM-D47	Fixed Trimmer
C106	.47	200	45-3505-34	P288-47		GT2P5		2TM-P47	Horiz. Sweep Coupling
C107	.0033	600		P688-0033	D6-332	PTE6D3	GP2M-0033	6TM-D33	Fixed Trimmer #
C108	.500	10000	30-1229-5	HV10C	TV3-501				Voltage Doubler Cap
C109	.500	20000	30-1229-6	HV20C	TV3-502				H.V. Filter
C110	.01	600	30-1226-1	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Line Filter
C111	.01	600	30-1226-1	P688-01	D6-103	PTE6S1	821-01	6TM-S1	Line Filter
C112	.1	400	45-3505-47	P488-1	DF-104	PTE4P1		4TM-P1	RF Bypass
C113	.1	200	30-4634	P288-1	DF-104	PTE4P1		2TM-P1	Damping
C114	.1	200	30-4634	P288-1	DF-104	PTE4P1		2TM-P1	Damping
C115	.1	200	30-4634	P288-1	DF-104	PTE4P1		2TM-P1	Damping
C116	.1	200	30-4634	P288-1	DF-104	PTE4P1		2TM-P1	Damping
C117	.1	200	30-4634	P288-1	DF-104	PTE4P1		2TM-P1	Damping
C118	.0033	400		P688-0033	D6-332	PTE6D3	GP2M-0033	6TM-D33	Fixed Trimmer
C119	.33			SI33	D6-330	5W5Q3	GPIK-33	19C24	RF Bypass #

- * Some models use 10MFD in this application.
- † Some models use section C8D in this application and section C7C is not used.
- ‡ Some models use this section in the application of C7C.
- § Some models use .001MFD in this application.
- Some models use .022MFD in this application.
- # Not used in all models.
- † Some models use 220MMF in this application. Mfgs. part # 60-10225417.
- ** Some models use .01MFD in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	2Meg	1/2	33-5563-37	Concentrikit B18-139X B12-114 E-187	RTV-263		Volume Control - Tapped @ 1Meg - Front
B	5 Meg						
C	Shaft End						
R2A	75KΩ	2	33-5563-35		RTV-262		Attach Per Instructions in "Concentrikit"
B	250KΩ						
R3A	2500Ω						
B	100KΩ	2	33-5563-33		RTV-261		Horizontal Hold Control - Front
R4A	2.5Meg						
B	Shaft						
R5	5000Ω	2	33-5566-10	Q11-239	AM-84-S	AN-83	Vertical Hold Control - Rear
B	Not req.						
R5	5000Ω						
			33-5546-10	W-5000	FKS-1/4	AK-1	Contrast Control - Wire Wound - Front - See Note 1.
					43-5000	VK-135	Brightness Control - Rear
							Height Control
							Attach to R4A Per Instructions
							Vertical Linearity Control

- 33-5563-36 is mgr. part number for models 51T2134, 51T2136 and 51T2175.
- ⊘ Fashion shaft to duplicate original.
- Note 1. When replacing, use original parts including nut bushing.
- ▲ Additional parts to be used with "Concentrikit".

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
R6	10KΩ	1	66-3108340	BTS-10K	Antenna Matching
R7	330Ω 20%		66-1338340	BTS-330	AGC Network
R8	470KΩ 20%		66-4478340		RF Amp. Grid
R9	470KΩ 20%		66-4478340		RF Amp. Grid
R10	330Ω 20%		66-1338340		RF Amp. Plate Decoupling
R11	1000Ω 20%			BTA-1000	RF Amp. Plate Decoupling - See Note 2
R12	100KΩ		66-4108340		Mixer Grid

PHILCO MODELS 51-T2102 (Code 122), 51-T2130, 51-T2132, 51-T2133 (Code 121), 51-T2134, 51-T2136, 51-T2138, 51-T2175, 51-T2176 (Code 124)

TV PARTS LIST AND DES

RESISTORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
R13	330Ω	20%	66-1338340	BTS-330	Mixer Decoupling
R14	6800Ω		66-2688340	BTS-6800	Antenna Coil Shunt
R15	2200Ω	20%	66-2228340	BTS-2200	Osc. Plate Decoupling
R16	12KΩ				Osc. Plate Decoupling - See Note 3
R17	10KΩ		66-3108340		Osc. Grid
R18	15KΩ		66-3158340		1st Video IF Amp. Grid
R19	68Ω		66-0688340		1st Video IF Amp. Cathode
R20	330Ω		66-1338340	BTS-330	1st Video IF Amp. Decoupling
R21	330Ω		66-1338340	BTS-330	AGC Network
R22	330Ω		66-1338340	BTS-330	AGC Network
R23	12KΩ		66-3128340		2nd Video IF Amp. Grid
R24	68Ω		66-0688340		2nd Video IF Amp. Cathode
R25	330Ω		66-1338340	BTS-330	Decoupling
R26	33KΩ		66-3338340		3rd Video IF Transformer Shunt
R27	12KΩ		66-3128340		3rd Video IF Amp. Grid
R28	68Ω		66-0688340		3rd Video IF Amp. Cathode
R29	330Ω		66-1338340	BTS-330	4th Video IF Amp. Screen
R30	8200Ω		66-2828340		4th Video IF Transformer Shunt
R31	180Ω		66-1188340	BTS-180	4th Video IF Amp. Cathode - See Note 4
R32	5600Ω				4th Video IF Amp. Plate - See Note 5
R33	330KΩ		66-4338340	BTS-330K	Video Det. Diode Load
R34	3300Ω		66-2338340	BTS-3300	Video Det. Diode Load
R35	100KΩ		66-4108340	BTS-100K	AGC Network
R36	100KΩ		66-4108340	BTS-100K	AGC Network
R37	330Ω		66-1338340	BTS-330	Isolation
R38	1000Ω		66-2108340	BTS-1000	Voltage Divider
R39	150KΩ		66-4158340	BTS-150K	Voltage Divider
R40	8.2Meg	20%	66-5828340	BTS-8.2Meg	Bias Network
R41	1.2Meg	20%	66-5128340	BTS-1.2Meg	Video Amp. Grid
R42	100Ω		66-1108340	BTS-100	Video Amp. Cathode
R43	2700Ω		66-2278340	BTS-2700	Video Amp. Plate
R44	2700Ω		66-2278340	BTS-2700	Video Amp. Plate
R45	10KΩ		66-3108340	BTS-10K	Video Peaking Coil Shunt
R46	4700Ω		66-2474340	BTA-4700	Decoupling - See Note 16
R47	1.8Meg	20%	66-5188340	BTS-1.8Meg	Bias Network
R48	1.2Meg	20%	66-5128340	BTS-1.2Meg	Video Output Grid
R49	2200Ω		33-1335-97	1 3/4A-2250	Video Output Plate - Wire Wound
R50	2200Ω		66-2228340	BTS-2200	Contrast Control Shunt
R51	270Ω		66-1275340	BW-2-270	Decoupling - Wire Wound
R52	1300Ω	10	33-3435-31	1 3/4A-1250	Decoupling - Wire Wound
R53	100KΩ		66-4108340	BTS-100K	Voltage Divider
R54	470KΩ		66-4478340	BTS-470K	Picture Tube Grid
R55	150KΩ		66-4158340	BTS-150K	Picture Tube Cathode
R56	120KΩ		66-4128340	BTS-120K	1st Sound IF Amp. Grid
R57	150Ω		66-1158340	BTS-150	1st Sound IF Amp. Cathode
R58	1000Ω		66-2108340	BTS-1000	1st Sound IF Amp. Decoupling
R59	660KΩ		66-4688340	BTS-660K	2nd Sound IF Amp. Grid
R60	12KΩ		66-3124340	BTA-12K	2nd Sound IF Amp. Decoupling
R61	22KΩ		66-3224340	BTA-22K	Voltage Divider
R62	270Ω		66-1278340	BTS-270	Balancing
R63	51KΩ				De-emphasis - See Note 6
R64	33KΩ		66-3338340	BTS-33K	AVC Network
R65	68KΩ		66-3688340	BTS-68K	Tone Compensation
R66	10Meg		66-6108340	BTS-10Meg	AF Amp. Grid
R67	270KΩ		66-4278340	BTS-270K	AF Amp. Plate
R68	100KΩ		66-4108340	BTS-100K	AF Amp. Plate Decoupling
R69	470KΩ		66-4478340	BTS-470K	Output Grid
R70	180Ω		66-1185340	BW-2-180	Output Cathode - Wire Wound
R71	5600Ω		66-2565340	BW-2-5600	Output Screen - Wire Wound
R72	1100Ω	10	33-3435-33	1 3/4A-1100	Output Decoupling - Wire Wound
R73	33KΩ	1	66-3334340	BTA-33K	Voltage Divider
R74	18KΩ	2	66-3185340	BTA-18K	Voltage Divider
R75	270Ω	1	66-1278340	BTS-270	Feedback Network
R76	15Ω		66-0158340		Feedback Network
R77	1.2Meg		66-5128340	BTS-1.2Meg	1st Sync. Sep. Grid
R78	10KΩ		66-3108340	BTS-10K	Bias Network
R79	6.8Meg		66-5688340	BTS-6.8Meg	Voltage Divider
R80	270KΩ		66-4278340	BTS-270K	2nd Sync. Sep. Grid
R81	100KΩ		66-4108340	BTS-100K	2nd Sync. Sep. Plate
R82	15KΩ		66-3158340	BTS-15K	Voltage Divider
R83	220KΩ	5%	66-220K-5%	BTS-220K-5%	Voltage Divider - See Note 7
R84	39KΩ		66-3398340	BTS-39K	Noise Limiter Load
R85	47KΩ		66-3478340	BTS-47K	Series Test Jack
R86	10KΩ		66-3108340	BTS-10K	Sync. Phase Inv. Grid
R87	1Meg		66-108340	BTS-1Meg	Sync. Phase Inv. Grid
R88	15KΩ		66-3158340	BTA-15K	Sync. Phase Inv. Plate
R89	56KΩ				Sync. Phase Inv. Decoupling - See Note 15
R90	56KΩ				Sync. Phase Inv. Decoupling - See Note 15
R91	4700Ω		66-2478340	BTA-4700	Voltage Divider
R92	10KΩ		66-3108340	BTS-10K	Integrator
R93	4700Ω		66-2478340	BTS-4700	Integrator
R94	4700Ω		66-2478340	BTS-4700	Integrator
R95	270KΩ		66-4278340	BTS-270K	Vert. Osc. Grid - See Note 8
R96	1.5Meg		66-5158340	BTS-1.5Meg	Vert. Osc. Plate - See Note 9
R97	15KΩ		66-3158340	BTS-15K	Vert. Osc. Transformer Shunt
R98	5600Ω	5%			Vert. Peaking - See Note 10
R99	2.2Meg		66-5228340	BTS-2.2Meg	Vert. Output Grid
R100	470Ω		66-1478340	BTA-470	Vert. Output Cathode
R101	5100Ω		33-1335-18	1 3/4A-5100	Vert. Output Plate Decoupling - Wire Wound
R102	240KΩ	5%			Voltage Divider - See Note 11
R103	200KΩ	1			Voltage Divider - See Note 11
R104	100KΩ	20%	66-4104340	BTA-100K	Damping
R105	820KΩ	5%	66-4824240	BTS-820K-5%	Horizontal AFC Grid
R106	470KΩ		66-4474340	BTS-470K	Horizontal AFC Grid
R107	330KΩ	5%	66-4334240	BTA-330K-5%	Horizontal AFC Cathode
R108	8200Ω		66-2828340	BTS-8200	Horizontal AFC Filter
R109	82KΩ		66-3824340	BTA-82K	Horizontal AFC Plate
R110	47KΩ		66-3474340	BTS-47K	Horizontal AFC Plate
R111	3.3Meg	5%	66-5334240	BTA-3.3Meg-5%	Voltage Divider
R112	560KΩ	5%	66-4564240	BTA-560K-5%	Voltage Divider
R113	33KΩ		66-3334340	BTA-33K	Horizontal Osc. Grid
R114	6800Ω		66-2688340	BTS-6800	Horizontal Osc. Plate
R115	22KΩ		66-3228340	BTS-22K	Horizontal Osc. Coil Shunt
R116	22KΩ		66-3228340	BTS-22K	Horizontal Osc. Coil Shunt
R117	220KΩ		66-4224340	BTS-220K	Horizontal Feedback Network
R118	1Meg	20%	33-1350		Horizontal Feedback Network
R119	100Ω	20%	66-1104340	BTS-1Meg	Horizontal Feedback Network
R120	1Meg				Parasitic Suppressor
					Horizontal Output Grid - See Note 12

RESISTORS (C

ITEM No.	RATING		REPLACEMENT DATA		IRC PART No.
	RESISTANCE	WATTS	PHILCO PART No.	PHILCO PART No.	
R121	12KΩ	5	33-1335-103		1 3/4A-12K
R122	470Ω	2	66-1475340		BTA-470
R123	18KΩ	1	66-3184340		BTA-18K
R124	200KΩ	1			
R125	200KΩ	1			
R126	4.7Ω	1	66-9474360		BW-1/2-4.7
R127	3.6Ω	1			BW-1/2-3.6
R128	2Meg	1	33-1352		
R129	2Meg	1	33-1352		
R130	100Ω	5	33-1335-105		1 3/4A-500
R131A	500Ω	10	33-3445-4		
B	400Ω	10			
R132	150KΩ	1	66-4158340		BTS-150K
R133	100KΩ	1	66-4108340		BTS-100K
R134	10KΩ	1	66-3108340		BTS-10K
R135	6300Ω	20	33-3446-1		
R136	.24Ω	2			BW-2-.24
R137	.08Ω	1	66-0228340		BW-1-22
R138	10Ω 20%	1/2	66-0104340		BW-1/2-10
R139	.03Ω				
R140	390Ω	1	66-1391340		BW-1-390
R142	100KΩ 20%	1			BTA-100K

Note 2. Some models use 4700Ω resistor in this application.
 Note 3. Some models use 15KΩ resistor in this application.
 Note 4. Some models use 150Ω resistor in this application.
 Note 5. Some models use 6800Ω resistor in this application.
 Note 6. Some models use 22KΩ resistor in this application.
 Note 7. Some models use 240KΩ resistor in this application.
 Note 8. Some models use 180KΩ resistor in this application.
 Note 9. Some models use 680KΩ resistor in this application.
 Note 10. Some models use 3300Ω resistor in this application.
 Note 11. Some models use 220KΩ resistor in this application.
 Note 12. Some models use 4.70K resistor in this application.
 Note 13. Some models use 4.70K resistor in this application.
 Note 14. Some models use piece of wire in this application.
 Note 15. Some models use 27KΩ, 2 watt resistor in place of R89.
 Note 16. Some models use 5600Ω resistor in this application.
 Note 17. Not used in all models.

TRANSFORMER

ITEM No.	RATING				PHILCO PART No.
	PRI.	SEC. 1	SEC. 2	SEC. 3	
T1	117VAC ⓐ 2.6A	660VCT ⓐ.33uADC	5VAC ⓐ 6A	ⓐ.6.3VAC ⓐ 5.4A	32-8488
			SEC. 4	SEC. 5	
			ⓐ 4.4A	ⓐ 1.6A	

TRANSFORMER

ITEM No.	RATING				PHILCO PART No.
	PRI.	SEC. 1	SEC. 2	SEC. 3	
T2	117VAC ⓐ .53A	24VAC ⓐ 1.85A			32-8493

TRANSFORMER (S

ITEM No.	RATING		REPLACEMENT DATA	
	DC RESISTANCE		PHILCO PART No.	STANCOR PART No.
T3	190Ω	365Ω		
T4	150Ω	5.1Ω		
	Tap 23Ω	Tap 1.2Ω		
		SEC. 2		
		0Ω		
		SEC. 3		
		0Ω		
T5	640Ω	22Ω	32-8454	A-8112 ①
T6A	12Ω		32-9644	DY-7
B	47Ω			

① Drill one new mounting hole.

TRANSFORMER (A

ITEM No.	RATING				REPLACEMENT DATA	
	IMPEDANCE	DC RES.	PHILCO PART No.	STANCOR PART No.		
T7	2.3KΩ	3.5Ω	200Ω .5Ω	32-8367-5	A-3825 ①	

SPEAK

ITEM No.	RATINGS		REPLACEMENT DATA	
	FIELD RES.	V. C. IMP.	PHILCO PART No.	VIKING PART No.
SP1	PM	3.2Ω	36-1611-7	12J12
SP2	.CONE DIA.	V. C. DIA.		
	11 1/2"	1"		

FILTER C

ITEM No.	RATINGS			PHILCO PART No.
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ̄)	
L1	.15A	64Ω	1.5 Henries	32-8479-2
L2	.34A	49Ω	2.5 Henries	32-8478-2

TV PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
R121	12K Ω	5	33-1335-103	1 3/4A-12K	Horizontal Output Screen - Wire Wound Anti - Ringing Coil Shunt Decoupling Voltage Divider - See Note 11 Voltage Divider - See Note 11 HV Rectifier Filament - Wire Wound HV Rectifier Filament - Wire Wound HV Filter HV Filter Voltage Divider - Wire Wound Voltage Divider - Wire Wound Voltage Divider - Wire Wound Voltage Divider Bias Network Bias Network Decoupling - Wire Wound Filament Dropping - Wire Wound - See Note 4 Isolation - Wire Wound Series Pilot Light Filament Dropping - Piece of #24 Wire Filament Dropping - Piece of #24 Wire Centering Network - Wire Wound Isolation - See Note 17
R122	470 Ω	2	66-1475340	BTB-470	
R123	18K Ω	1	66-3184340	BTA-18K	
R124	200K Ω	1			
R125	200K Ω	1			
R126	4.7 Ω	1	66-9474360	BW- $\frac{1}{2}$ -4.7	
R127	3.6 Ω	1		BW- $\frac{1}{2}$ -3.6	
R128	2Meg	1	33-1352		
R129	2Meg	1	33-1352		
R130	100 Ω	5	33-1335-105	1 3/4A-500	
R131A	500 Ω	10	33-3445-4		
B	400 Ω	10			
R132	150K Ω		66-4158340	BTS-150K	
R133	100K Ω		66-4108340	BTS-100K	
R134	10K Ω		66-3108340	BTS-10K	
R135	6300 Ω	20	33-3446-1		
R136	.24 Ω	2		BW-2-.24	
R137	22 Ω	1	66-0228340	BW-1-22	
R138	10 Ω 20%		66-0104340	BW- $\frac{1}{2}$ -10	
R139	.08 Ω				
R140	.03 Ω				
R141	390 Ω	1	66-1391340	BW-1-390	
R142	100K Ω 20%	1		BTA-100K	

- Note 2. Some models use 4700 Ω resistor in this application.
 Note 3. Some models use 15K Ω resistor in this application.
 Note 4. Some models use 150 Ω resistor in this application.
 Note 5. Some models use 6800 Ω resistor in this application.
 Note 6. Some models use 22K Ω resistor in this application.
 Note 7. Some models use 240K Ω resistor in this application.
 Note 8. Some models use 180K Ω resistor in this application.
 Note 9. Some models use 680K Ω resistor in this application.
 Note 10. Some models use 3300 Ω resistor in this application.
 Note 11. Some models use 220K Ω resistor in this application.
 Note 12. Some models use 470K Ω resistor in this application.
 Note 13. Some models use 4.7 Ω resistor in this application.
 Note 14. Some models use piece of wire in this application.
 Note 15. Some models use 27K Ω , 2 watt resistor in place of R89 and R90.
 Note 16. Some models use 5600 Ω resistor in this application.
 Note 17. Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC @ 2.6A	660VCT .33uADC	5VAC @ 6A	6.3VAC @ 5.4A	32-8488			
			SEC. 4 @ 4.4A	SEC. 5 @ 1.6A				

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T2	117VAC @ .53A	24VAC @ 1.85A			32-8493			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	DC RESISTANCE		PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
T3	190 Ω	365 Ω			A-3000		Vert. Block Osc. Trans. Horizontal Output Trans.
T4	150 Ω	5.1 Ω					
	Tap 23 Ω	Tap 1.2 Ω					
		SEC. 2 0 Ω					
		SEC. 3 0 Ω					
T5	640 Ω	22 Ω	32-8454	A-8112 ①	A-3036 ①	TS0-1 ①	Vertical Output Trans. Horizontal Deflection Coil Vertical Deflection Coil
T6A	12 Ω		32-9644	DY-7			

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	2.3K Ω	3.5 Ω	200 Ω	.5 Ω	32-8367-5	A-3825 ①	P-3018	R0-2 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	PHILCO PART No.	VIKING PART No.	QUAM PART No.	
SP1	PM	3.2 Ω	36-1611-7	12J12	12A4A	
SP2	.CONE DIA. 1 1/2"	V. C. DIA. 1"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 μ)	PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	
L1	.15A	64 Ω	1.5 Henries	32-8479-2				
L2	.34A	49 Ω	2.5 Henries	32-8478-2				

ITEM No.	USE	DC RES.	
		PRI.	SEC.
L3	Ant. Trans.	.8 Ω	
L4	Ant. Trans.	.8 Ω	
L5	FM Trap	0 Ω	
L6	RF Choke	.4 Ω	
L7	Ant. Coils	0 Ω	
L8	RF Coils	0 Ω	
L9	Mixer Grid Coils	0 Ω	
L10	Osc. Coils	0 Ω	
L11	RF Choke	.1 Ω	
L12A	Fil. Choke	.1 Ω	
B	Fil. Choke	.1 Ω	
L13	1st Video IF	.6 Ω	
L14	2nd Video IF	.2 Ω	
L15	Adj. Channel Sound Trap	0 Ω	
L16	3rd Video IF	.2 Ω	
L17	21.85MC Trap	.1 Ω	
L18	Fil. Choke	.1 Ω	
L19	4th Video IF	.2 Ω	
L20	RF Choke	.1 Ω	
L21	5th Video IF	.3 Ω	
L22	Fil. Choke	.1 Ω	
L23	Peaking	2.2 Ω	
L24	Peaking	3.6 Ω	
L25	4.5MC Trap	1.8 Ω	
L26	Peaking	.4 Ω	
L27	Peaking	4.6 Ω	
L28	Peaking	4 Ω	
L29	Peaking	3.6 Ω	
L30	Sound IF	5 Ω	
L31	Ratio Det. Trans.	5 Ω	
L32	Fil. Choke	.1 Ω	
L33	Horiz. Osc. Coil	60 Ω	
L34	Horiz. Lin.	10 Ω	
L35	Width Coil	2.8 Ω	
L36	Anti-Ringing Coil	5 Ω	
L37	Suppressor Coil	2 Ω	

ITEM No.	TYPE	RATING	FUSE
M1	3AG	8/10amp	45-2655
M2	Slo-Blo		
M3	See Note		

ITEM No.	BASE TYPE	VOLTS
M4	Bayonet	6-8

ITEM No.	PART NAME	PH
M5A	RF Tuner	76-6
B	RF Tuner	76-6
M6	Switch	76-6
M7	Focus Magnet	76-6
M8	Ion Trap	76-6
M9	Solenoid Assembly	76-6
M10	Solenoid Assembly	76-6
M11	Solenoid Assembly	76-6
M12	Solenoid Assembly	76-6
M13	Motor	35-1
M14	Switch	42-1
M15	Switch	42-1
M16	Switch	42-1
M17	Switch	42-1
M18	Switch	42-1
M19	Switch	42-1
M20	Slip Ring Assembly	42-1
B3	Trimmer	31-64
B4	Trimmer	31-64
	Safety Glass	54-79
	Safety Glass	54-79
	Safety Glass	54-79
	Mask	56-85
	Mask	56-85
	Mask	56-85
	Knob	76-60
	Knob	76-63
	Knob	76-63
	Knob	76-61
	Knob	76-60
	Knob	54-47
	Knob	76-62
	Knob	54-47
	Knob	76-60
	Knob	54-47
	Knob	54-47

DESCRIPTIONS (Continued)

CONT.)

IDENTIFICATION CODES	
Horizontal Output Screen - Wire Wound	
Horizontal Ringing Coil Shunt	
Horizontal Coupling	
Stage Divider - See Note 11	
Stage Divider - See Note 11	
Rectifier Filament - Wire Wound	
Rectifier Filament - Wire Wound	
Filter	
Filter	
Stage Divider - Wire Wound	
Stage Divider - Wire Wound	
Stage Divider - Wire Wound	
Stage Divider	
Resistor Network	
Resistor Network	
Coupling - Wire Wound	
Resistor Dropping - Wire Wound - See Note 4	
Resistor Dropping - Wire Wound	
Resistor Pilot Light	
Resistor Dropping - Piece of #24 Wire	
Resistor Dropping - Piece of #24 Wire	
Resistor Network - Wire Wound	
Resistor Network - See Note 17	

and R90.

RESISTORS (POWER)

REPLACEMENT DATA		
STANCOR PART No.	MERIT PART No.	CHICAGO PART No.

RESISTORS (POWER)

REPLACEMENT DATA		
STANCOR PART No.	MERIT PART No.	CHICAGO PART No.

KEEP CIRCUITS)

DATA		NOTES
MERIT PART No.	CHICAGO PART No.	
3000		Vert. Block Osc. Trans. Horizontal Output Trans.
3036 ①	TS8-1 ①	Vertical Output Trans. Horizontal Deflection Coil Vertical Deflection Coil

RADIO OUTPUT)

REPLACEMENT DATA		INSTALLATION NOTES
MERIT PART No.	CHICAGO PART No.	
2-3018	R0-2 ①	① Drill one new mounting hole.

RESISTOR

REPLACEMENT DATA		NOTES
MERIT PART No.	CHICAGO PART No.	
12A4A		

RESISTOR HOKE

REPLACEMENT DATA			INSTALLATION NOTES
STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	PHILCO	MEISSNER	
				PART No.	PART No.	
L3	Ant. Trans.	.8Ω	.8Ω	76-6459		Includes L4 Includes L3
L4	Ant. Trans.	.8Ω	.8Ω	76-6459		
L5	FM Trap	0Ω		32-4438-2		
L6	RF Choke	.4Ω		32-4112-22		
L7	Ant. Coils	0Ω		76-6463		Switch Wafer With Coils
L8	RF Coils	0Ω		76-6469		Switch Wafer With Coils
L9	Mixer Grid Coils	0Ω		76-6468		Switch Wafer With Coils
L10	Osc. Coils	0Ω		76-5768		Switch Wafer With Coils
L11	RF Choke	.1Ω		32-4112-22		
L12A	Fil. Choke	.1Ω		32-4503		
L13	1st Video IF	.6Ω		32-4359-10		Part of L12A
L14	2nd Video IF	.2Ω		32-4486		
L15	Adj. Channel Sound Trap	0Ω		32-4303-3		
L16	3rd Video IF	.2Ω		32-4486		
L17	2L 85MC Trap	.1Ω		32-4496		
L18	Fil. Choke	.1Ω		32-4112-15		
L19	4th Video IF	.2Ω	.2Ω	32-4486-6		
L20	RF Choke	.1Ω		32-4112-15		
L21	5th Video IF	.3Ω		32-4486		
L22	Fil. Choke	.1Ω		32-4112-15		
L23	Peaking	2.2Ω		32-4143-16		40 Microhenries
L24	Peaking	3.6Ω		32-4480-3	19-1920	100 Microhenries
L25	4.5MC Trap	1.8Ω		32-4463-5		
L26	Peaking	.4Ω				
L27	Peaking	4.6Ω		32-4480-9	19-1921	180 Microhenries
L28	Peaking	4Ω		32-4480-8	19-1921	125 Microhenries
L29	Peaking	3.6Ω		32-4480-3	19-1920	100 Microhenries
L30	Sound IF	5Ω		32-4449A		
L31	Ratio Det. Trans.	5Ω	.8Ω	32-4450-2		
L32	Fil. Choke	.1Ω				
L33	Horiz. Osc. Coil	60Ω	48Ω	32-4506		Tap at 4Ω
L34	Horiz. Lin.	10Ω		32-4501-1		
L35	Width Coil	2.8Ω		32-4505		
L36	Anti-Ringing Coil	5Ω		32-4480		150 Microhenries
L37	Suppressor Coil	2Ω		32-4112-24		10 Microhenries

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			PHILCO		LITTELFUSE		
			PART No.	HOLDER	PART No.	HOLDER	
M1	3AG	8/10Amp	45-2658-21	27-4519-2	313.800	357001	
M2	Slo-Blo						Length of #26 Copper Wire
M3	See Note						Length of #26 Copper Wire

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					PHILCO PART No.		
M4	Bayonet	6-8	.15	Brown	34-2068		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M5A	RF Tuner	76-6481-1	Models 51-T2138, 51-T2176
B	RF Tuner	76-6440-1	Models 51-T2134, 51-T2136, 51-T2175
M6	Switch	76-6572	Models 51-T2138, 51-T2176, (Switch Part of Volume Control on Models 51-T2134, 51-T2136, 51-T2175)
M7	Focus Magnet	76-6126-4	
M8	Ion Trap	76-6077-1	
M9	Solenoid Assembly	76-6416	Channel Selector (Models 51-T2138, 51-T2176)
M10	Solenoid Assembly	76-6416	Fine Tuning (Models 51-T2138, 51-T2176)
M11	Solenoid Assembly	76-6416	Contrast (Models 51-T2138, 51-T2176)
M12	Solenoid Assembly	76-6416	Volume (Models 51-T2138, 51-T2176)
M13	Motor	35-1465	Remote Control (Models 51-T2138, 51-T2176)
M14	Switch	42-1953	Muting (Models 51-T2138, 51-T2176)
M15	Switch	42-1950	Cycling (Models 51-T2138, 51-T2176)
M16	Switch	42-1950	Remote Control Channel Selector (Models 51-T2138, 51-T2176)
M17	Switch	42-1950-1	Remote Control Fine Tuning (Models 51-T2138, 51-T2176)
M18	Switch	42-1950	Remote Control Contrast (Models 51-T2138, 51-T2176)
M19	Switch	42-1950-1	Remote Control Volume (Models 51-T2138, 51-T2176)
M20	Slip Ring Assembly	42-1952	Models 51-T2138, 51-T2176
B3	Trimmer	31-6473-22	Horizontal Lock (45-370MMF)
B4	Trimmer	31-6473-22	Horizontal Drive (45-370MMF)
	Safety Glass	54-7943-28	Models 51-T2175, 51-T2176
	Safety Glass	54-7943-25	Models 51-T2136, 51-T2138
	Safety Glass	54-7943-27	Model 51-T2134
	Mask	56-8578-2	Model 51-T2134
	Mask	56-8578	Models 51-T2136, 51-T2138
	Mask	56-8578-1	Models 51-T2175, 51-T2176
	Knob	76-6064	Channel Selector (Models 51-T2134, 51-T2136, 51-T2175)
	Knob	76-6386	Channel Selector (Models 51-T2138, 51-T2176)
	Knob	76-6387	Fine Tuning (Models 51-T2138, 51-T2176)
	Knob	76-6104-1	Fine Tuning (Models 51-T2134, 51-T2136, 51-T2175)
	Knob	76-6048	Contrast
	Knob	54-4799	Volume
	Knob	76-6213	Tone
	Knob	54-4799	Brightness
	Knob	76-6048	Horizontal Hold
	Knob	54-4799	Vertical Hold
	Knob	54-4750	Antenna Tuning

PHILCO MODELS 51-T2102 (Code 122), 51-T2130, 51-T2132, 51-T2133 (Code 121), 51-T2134, 51-T2136, 51-T2138, 51-T2175, 51-T2176 (Code 124)

RADIO PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
V24	FM RF Amplifier Converter - Phono Pre-Amp. 1st IF Amplifier 2nd IF Amplifier Ratio Detector - AM Detector	6AU6	6AU6	7BK	
V25		12AT7	12AT7	9A	
V26		6BA6	6BA6	7BK	
V27		6AU6	6AU6	7BK	
V28		6BC7	6BC7	9R	

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		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.		SPRAGUE PART No.
C120	2	50	30-2417-7	E26E6		BB2-50T		TVA-130I	Stabilizing Cap
C121	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	FM RF Plate Dec.
C122	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	FM RF Screen
C123	47		62-051009001	SI47	D6-470	5W5Q5	GPIK-47	19C25	FM RF Cathode
C124	5000		30-1238-1	BPD-005	DD-502	1D5D5	811-005	29C1	FM RF Fil.
C125	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	RF Coupling
C126	680		62-168001001	SI680	D6-681	1W5T7	GP2K-680	19C17	RF Coupling
C127	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	Osc. Grid Bypass
C128	.022	200	45-3505-43	P488-022	DF-203	PTE4S2		4TM-S22	Audio Coupling
C129	.022	200	45-3505-43	P488-022	DF-203	PTE4S2		4TM-S22	Tone Comp.
C130	.01	400	45-3505-41	P488-01	D6-103	PTE4S1	821-01	4TM-S1	AM Mixer Cathode
C131	47		62-051009001	SI47	D6-470	5W5Q5	GPIK-47	19C25	FM Mixer Cathode
C132	3.3		30-1224-49	SI3.3NPO	TCZ-3.3		NPOK-3.3		Osc. Coupling
C133	470		62-147001001	SI470	D6-471	5W5T1	GP2K-470	19C15	Osc. Feedback
C134	7.5		30-1224-65						Fixed Trimmer
C135	4.7		30-1224-41	SI4.7NPO	TCZ-4.7		NPOK-4.7		Fixed Trimmer
C136	5000		30-1238-1	BPD-005	DD-502	1D5D5	811-005	29C1	Conv. Filament
C137	5000		30-1238-1	BPD-005	DD-502	1D5D5	811-005	29C1	AVC Filter
C138	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	Osc. Plate Dec.
C139	5000		30-1238-1	BPD-005	DD-502	1D5D5	811-005	29C1	Audio Coupling
C140	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	RF Bypass
C141	.01	400	45-3505-41	P488-01	D6-103	PTE4S1	821-01	4TM-S1	Conv. Decoupling
C142	.01	400	45-3505-41	P488-01	D6-103	PTE4S1	821-01	4TM-S1	AVC Filter
C143	.022	400	45-3505-43	P488-022	DF-203	PTE4S2		4TM-S22	RF Bypass
C144	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	RF Bypass
C145	.01	400	45-3505-41	P488-01	D6-103	PTE4S1	821-01	4TM-S1	1st IF Fil.
C146	.01	400	45-3505-41	P488-01	D6-103	PTE4S1	821-01	4TM-S1	1st IF Plate Dec.
C147	.0022	400	45-3505-43	P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	1st IF Screen
C148	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	2nd IF Grid
C149	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	2nd IF Dec.
C150	.0022	400	45-3505-43	P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	2nd IF Dec.
C151	.01	400	45-3505-41	P488-01	D6-103	PTE4S1	821-01	4TM-S1	2nd IF Cathode
C152	100		62-11009001	SI100	D6-101	5W5T1	GPIK-100	19C11	RF Bypass
C153	220		62-122001001	SI220	D6-221	5W5T2	GP2K-220	19C13	Diode Load Cap
C154	.0022	400	45-3505-43	P688-0022	D6-222	PTE6D2	GP2M-0022	6TM-D22	De-emphasis
C155	220		62-122001001	SI220	D6-221	5W5T2	GP2K-220	19C13	Det. Filament

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	
R143	120Ω		66-1128340	BTS-120	RF Amp. Cathode
R144	10KΩ		66-3108340	BTS-10K	RF Amp. Screen
R145	2.2Meg		66-5228340		Converter Grid
R146	4700Ω		66-2478340	BTS-4700	Converter Decoupling
R147	15KΩ		66-3158340	BTS-15K	Osc. Grid
R148	330Ω		66-1338340	BTS-330	FM Osc. Cathode
R149	1000Ω		66-2108340	BTS-1000	AM Osc. Cathode
R150	47KΩ		66-3478340	BTS-47K	Tone Compensation
R151	1.0Meg		66-6108340	BTS-1.0Meg	Phono Pre-Amp. Grid
R152	220KΩ		66-4228340	BTS-220K	Phono Pre-Amp. Plate
R153	4700Ω		66-2478340	BTS-4700	FM Osc. Plate
R154	47KΩ		66-3478340		AM Osc. Plate
R155	1Meg		66-5108340	BTS-1Meg	AVC Network
R156	47Ω		66-0478340		1st IF Amp. Cathode
R157	10KΩ		66-3108340		1st IF Amp. Screen
R158	2700Ω		66-2278340	BTS-2700	1st IF Amp. Plate Decoupling
R159	1Meg		66-5108340		2nd IF Amp. Grid
R160	120Ω		66-1128340	BTS-120	2nd IF Amp. Cathode
R161	2200Ω		66-2228340	BTS-2200	2nd IF Amp. Decoupling
R162	47KΩ		66-3478340	BTS-47K	Ratio Det. Diode Load
R163	47KΩ		66-3478340	BTS-47K	De-emphasis
R164	47KΩ		66-3478340	BTS-47K	Diode Filter
R165	470KΩ		66-4478340	BTS-470K	Diode Load
R166	3.3Meg		66-538340	BTS-3.3Meg	AVC Network
R167	.24Ω		66-8245340	BW-2-.24	Filament Dropping - Wire Wound

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	IRC PART No.	
L38	FM Ant. Coil	0Ω		32-4467			
L39	Fil. Choke	.4Ω		32-4422-15		CL-1	1 Microhenry
L40	RF Choke	3Ω		32-4422-10		CL-A	3.3 Microhenries
L41	FM RF Coil	0Ω		32-4477			
L42	FM Osc. Coil	0Ω		32-4414-2			
L43	Loop Ant.						
L44	AM Ant. Coil	2.2Ω		32-4413-1			One Turn Around Cabinet
L45	AM Osc. Coil	10Ω		32-4458-1			Tap at .5Ω
L46	Fil. Choke	.4Ω		32-4422-15			Tap at 3.3Ω and 4.2Ω
L47	RF Choke	3Ω		32-4422-10		CL-1	1 Microhenry
L48	1st AM IF	12Ω	12Ω	32-4258-2A		CLA	3.3 Microhenries
L49	1st FM IF	1.5Ω	1.5Ω	32-4372A			Primary Tapped at 5Ω
L50	2nd FM IF	2.1Ω	2.1Ω	32-4372-2A			
L51	Ratio Det.						
	Trans.	4Ω	.5Ω	32-4310-3A			
L52	2nd AM IF	16Ω	16Ω	32-4240-3A			

RADIO PARTS LIST AND DESCRIPTIONS (Continued)

PHONO CARTRIDGE and NEEDLE

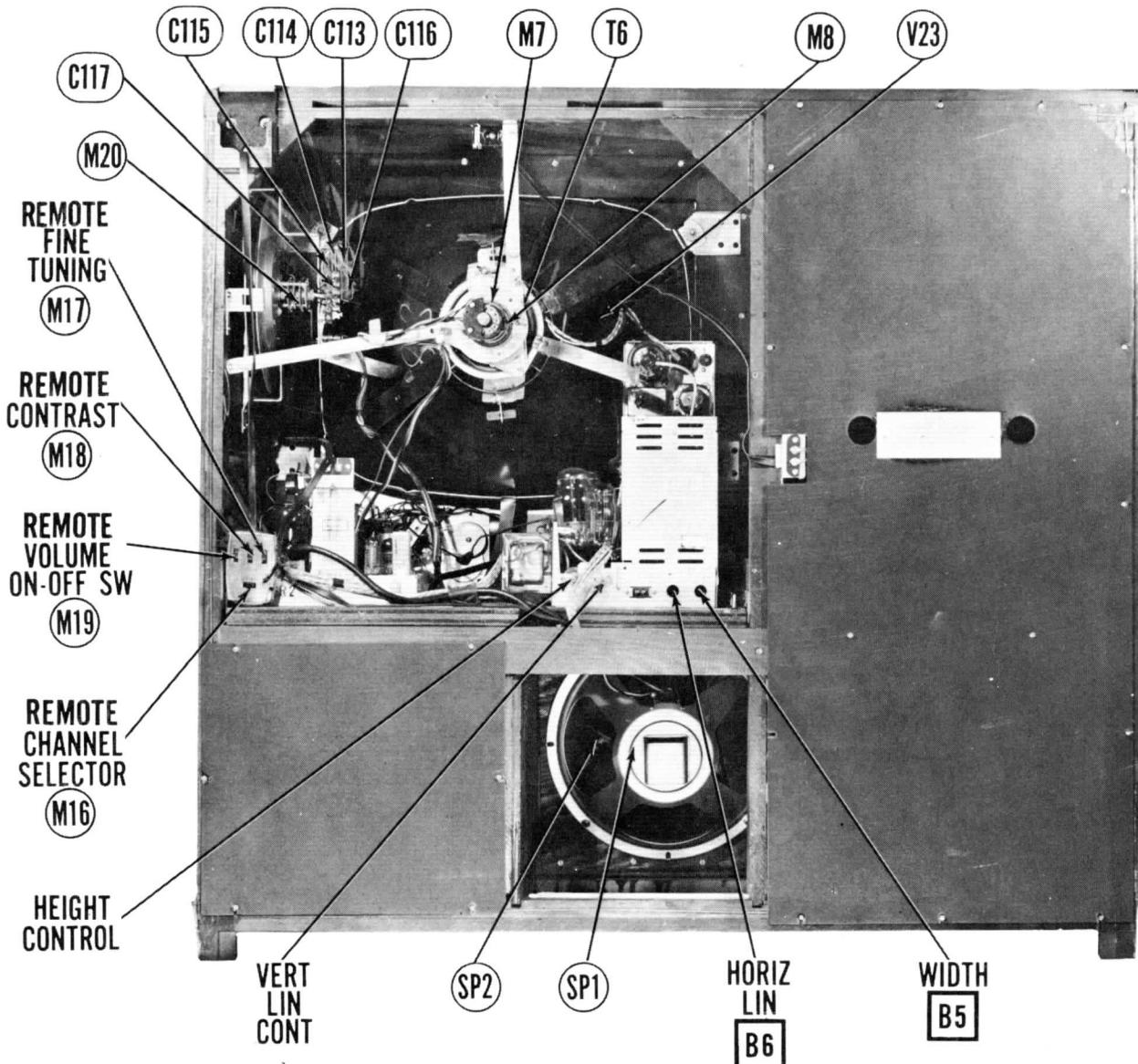
ITEM No.	REPLACEMENT DATA						REMARKS	
	PHILCO PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE		NEEDLE
M21	76-4649							

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					PHILCO PART No.		
M22	Bayonet	6-8	.25	Blue	34-2064		Type #44 (Radio Dial)
M23	Bayonet	6-8	.25	Blue	34-2064		Type #44 (Phono Compartment)

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M24	Switch	42-1938	Function Phono-AM-FM-TV (Models 51-T2175, 51-T2176)
M25	Tuning Capacitor	31-2756-1	36-492MMF, 19-162MMF (Models 51-T2175, 51-T2176)
	Pointer	56-5630-28FCP	Dial (Models 51-T2175, 51-T2176)
	Scale	54-5106	Dial (Models 51-T2175, 51-T2176)
	Panel	54-8171	Diffusing (Models 51-T2175, 51-T2176)
	Knob	54-4798-4	Function Switch (Models 51-T2175, 51-T2176)
	Knob	54-4798	Tuning (Models 51-T2175, 51-T2176)



CABINET-REAR VIEW

PHILCO MODELS 51-T2102 (Code 122), 51-T2130, 51-T2132, 51-T2133 (Code 121), 51-T2134, 51-T2136, 51-T2138, 51-T2175, 51-T2176 (Code 124)

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT

Pre-set the adjustment as follows:

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

Horizontal stabilizing core, (B2), until the screw extends 5/8 inch above the can.

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

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), to synchronize the picture horizontally.

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

Adjust the horizontal 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 during adjustment of B2. Note: In moderately strong signal areas, free from noise, the double triggering tendency of the oscillator may be reduced by adjusting B2 until the rounded portion of the waveform is slightly lower than the narrow peak. Do not adjust for more than a slight difference in height, for to do so will render the oscillator too insensitive. Remove the oscilloscope and turn the hold control to maximum clockwise.

Adjust B1 until the picture shows 4 bars sloping downward to the right. Note: If this adjustment is made before the set has thoroughly warmed up, adjust B1 for sloping bars.

Turn the hold control to maximum counter-clockwise and 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 just before the picture pulls into sync. If more than 3 1/2 bars are present, adjust B3 slightly counter-clockwise. If less than 2 1/2 bars are present, adjust B3 slightly clockwise.

Repeat the check and adjustment of B3 until 2 1/2 to 3 1/2 bars are present at the pull-in point.

Turn the hold control to maximum counter-clockwise and adjust B1 until 4 sloping bars are obtained.

Turn the hold control clockwise and check to see that the picture pulls into sync then falls out of sync at maximum clockwise.

HORIZONTAL DRIVE, WIDTH AND LINEARITY ADJUSTMENT

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

Adjust the horizontal linearity slug (B6) until the picture is symmetrical from left to right.

Readjustment of B4 may be required to obtain proper width and best linearity.

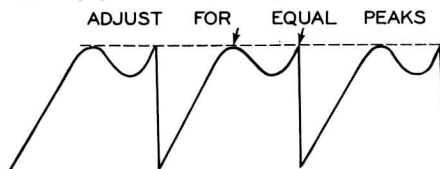


FIG. 6

DISASSEMBLY INSTRUCTIONS

TV CHASSIS REMOVAL

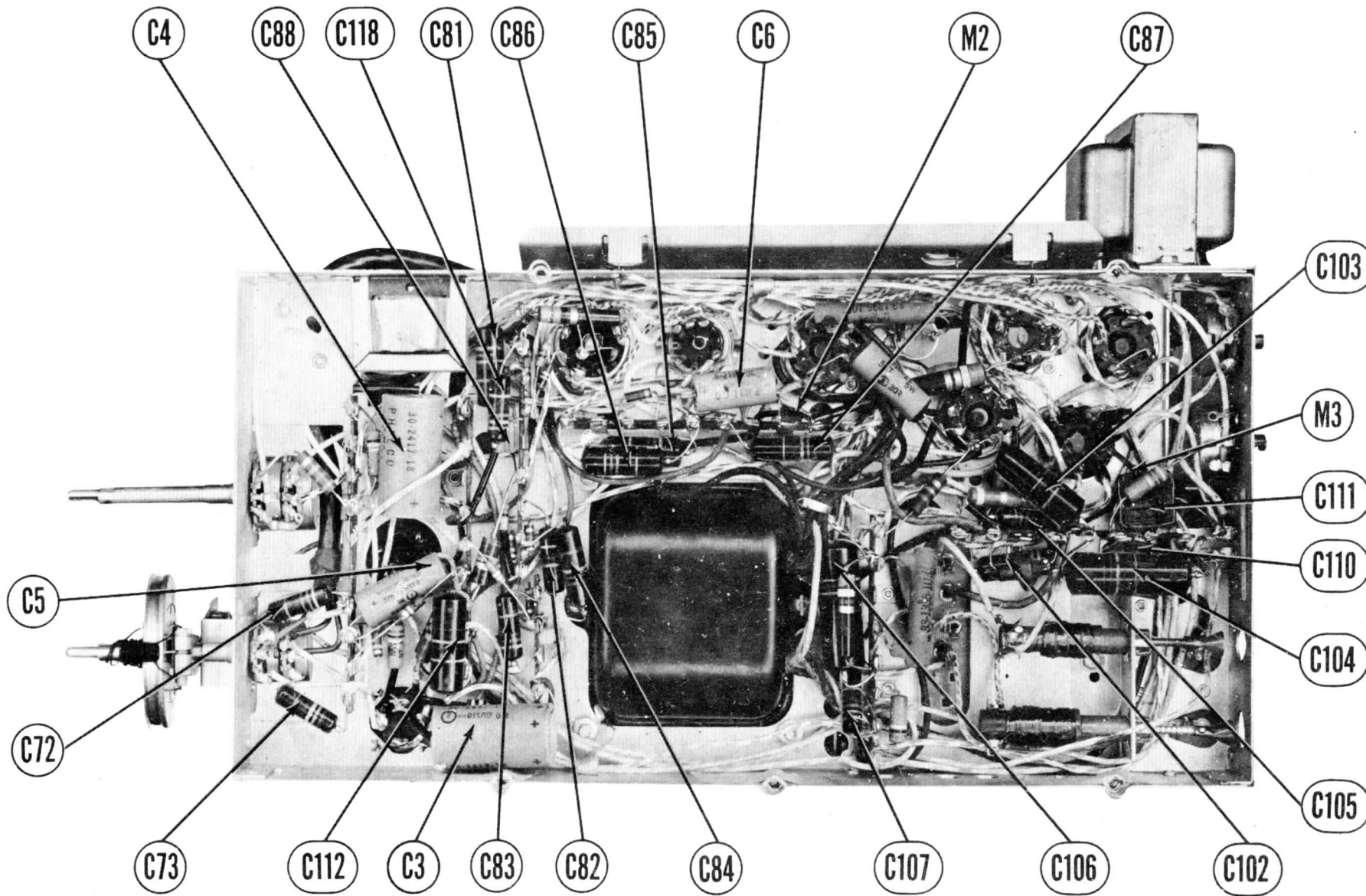
1. Remove eight push-on type control knobs.
2. Remove twelve wood screws from rear cover.
3. Disconnect built-in antenna.
4. Disconnect remote control motor plug.
5. Disconnect picture tube socket.
6. Disconnect high voltage lead.
7. Disconnect yoke plug.
8. Disconnect radio audio plugs.
9. Disconnect power plug to RF-IF chassis.
10. Disconnect radio power plug.
11. Disconnect speaker.
12. Remove four hex nuts from speaker.
13. Remove eight hex head bolts holding mounting shelf in cabinet. Remove shelf and chassis.
14. Remove seven hex head bolts from RF-IF chassis. Remove chassis.
15. Remove seven hex head bolts from sweep chassis. Remove chassis.

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

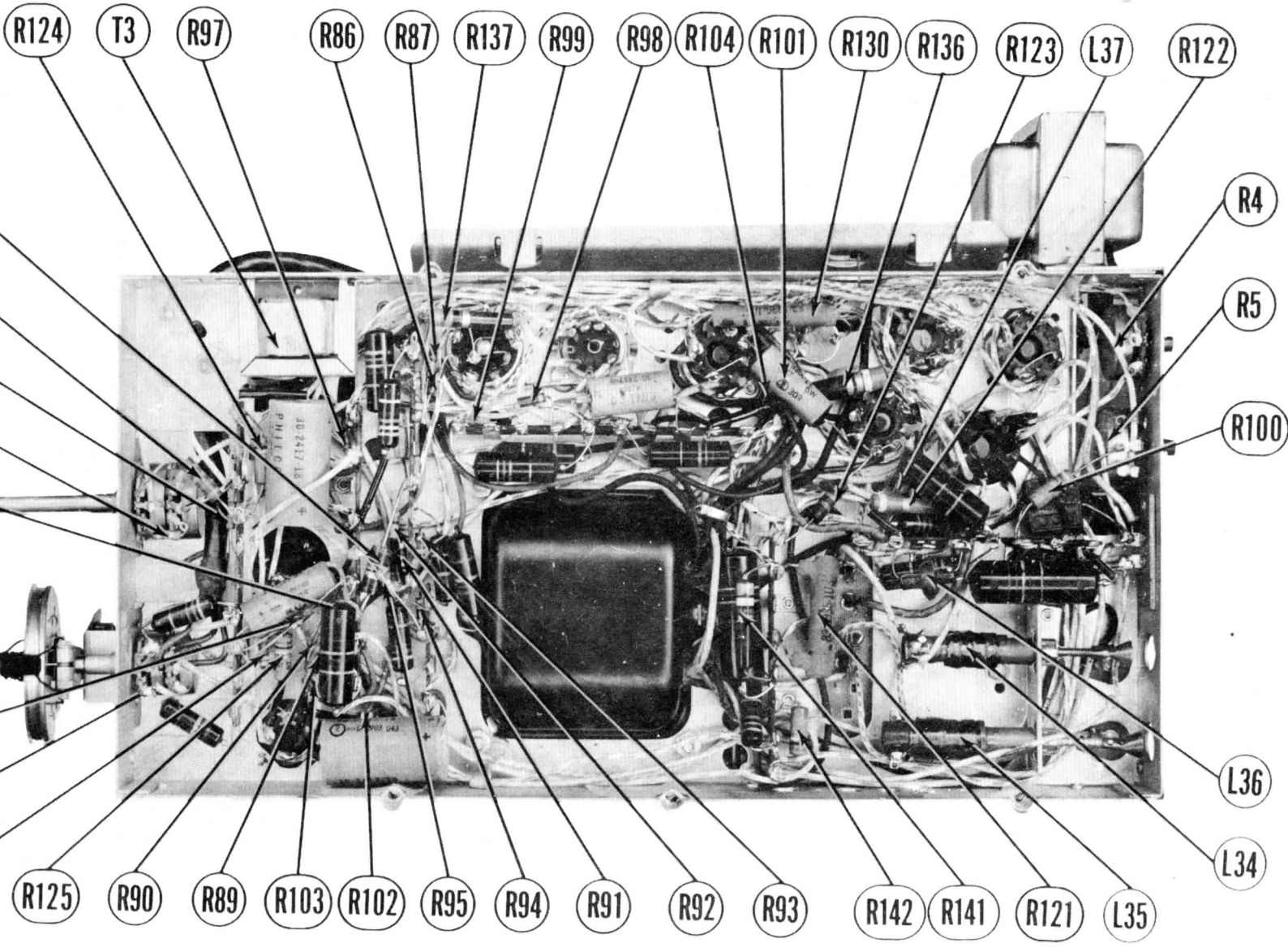
RADIO CHASSIS REMOVAL

1. Remove two push-on type control knobs.
2. Remove fourteen wood screws securing rear cover to cabinet. Remove rear cover.
3. Disconnect AM antenna.
4. Disconnect FM antenna.
5. Disconnect phono power plug.
6. Disconnect phono audio plug.
7. Remove four hex head bolts from chassis. Remove chassis.

PHILCO MODELS 51-T2102 (Code 122), 51-T2130, 51-T2132, 51-T2133
(Code 121), 51-T2134, 51-T2136, 51-T2138, 51-T2175, 51-T2176 (Code 124)

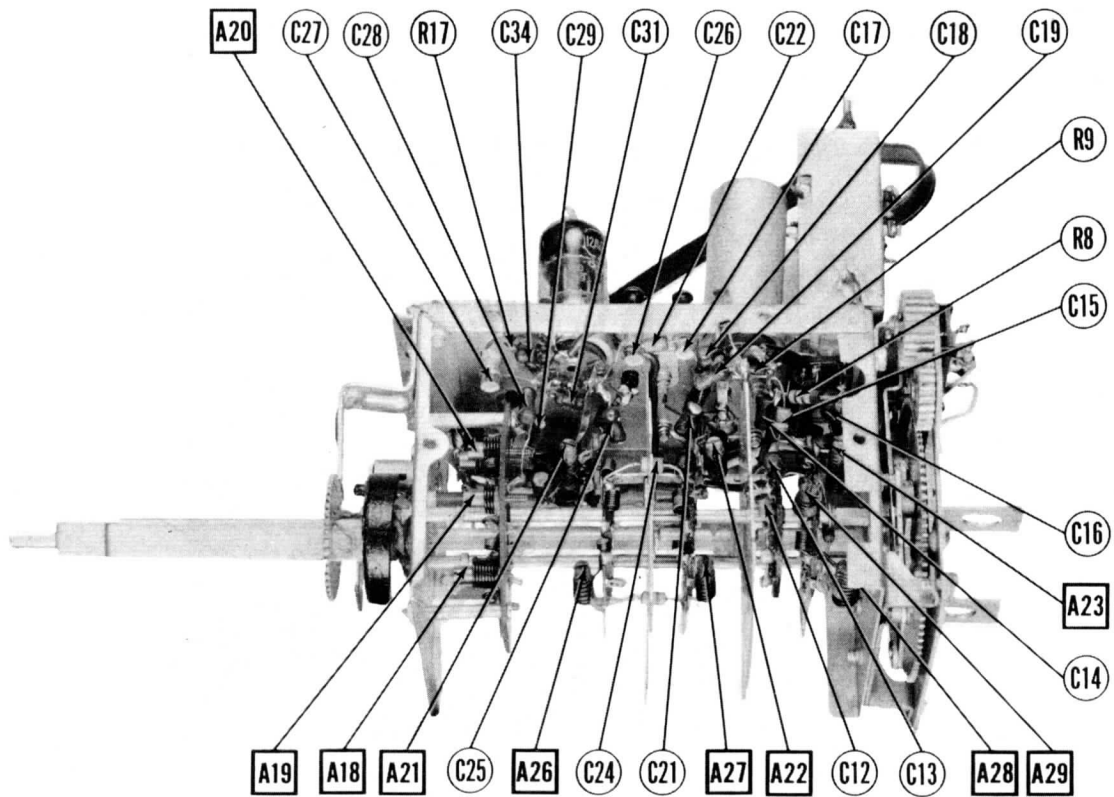


SWEEP CHASSIS-CAPACITOR IDENTIFICATION

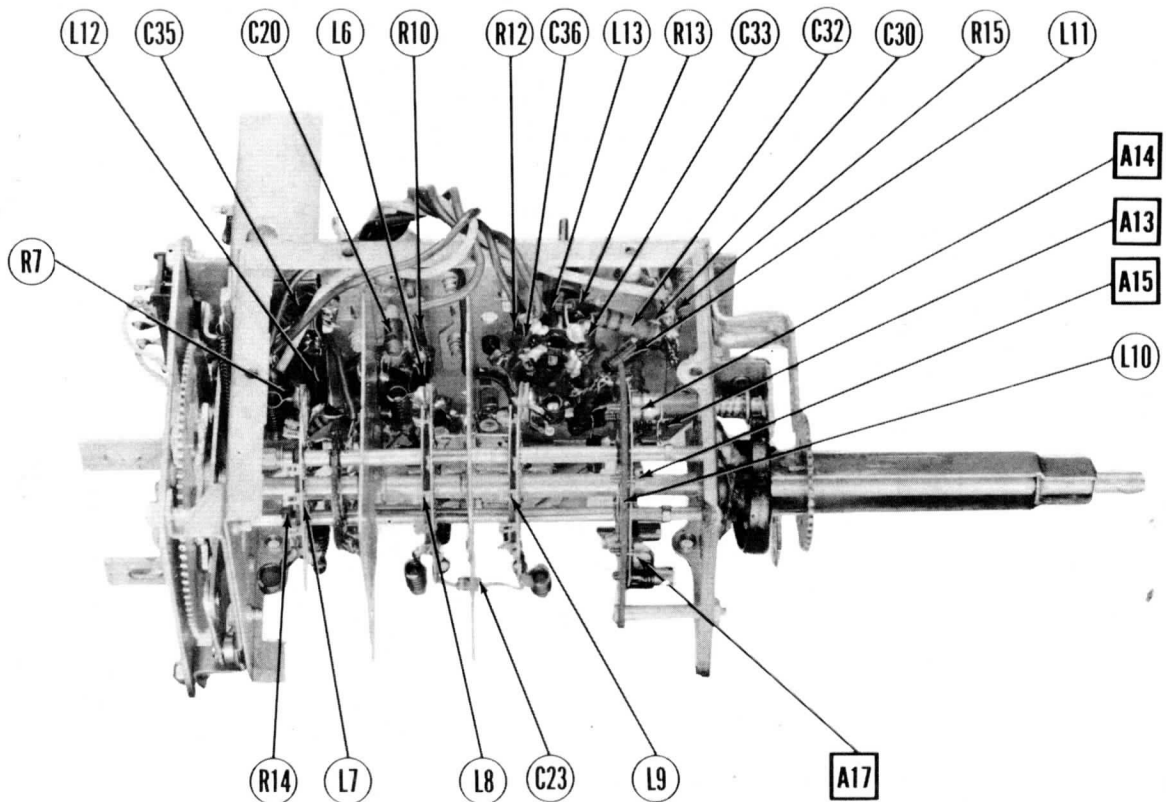


SWEEP CHASSIS-RESISTOR IDENTIFICATION

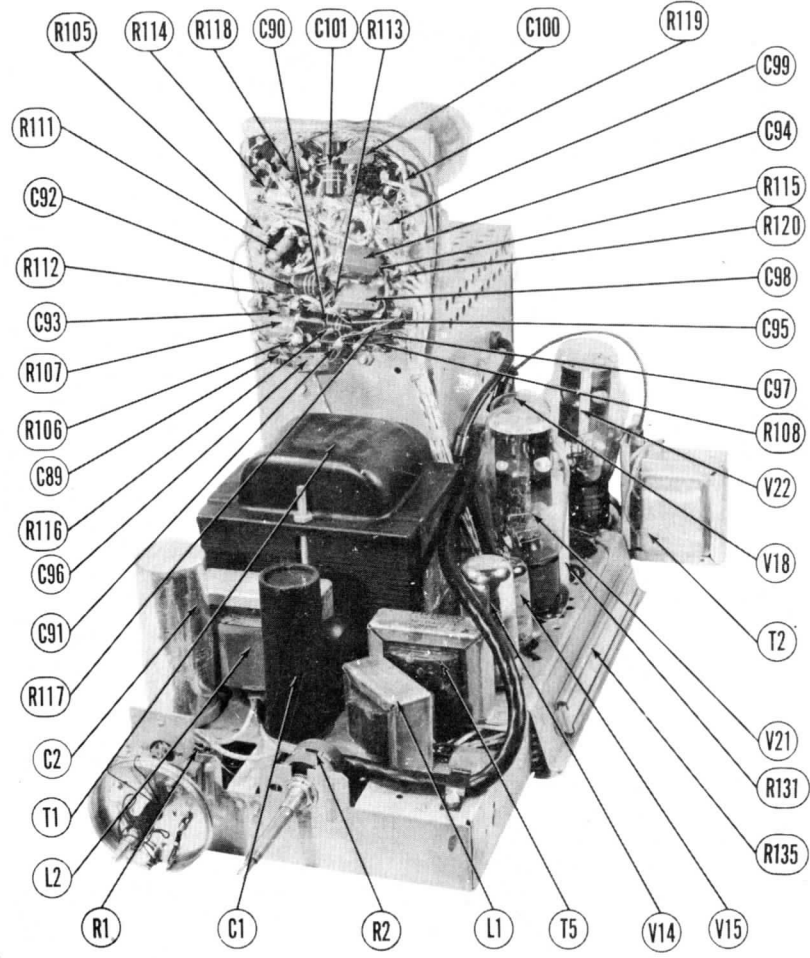
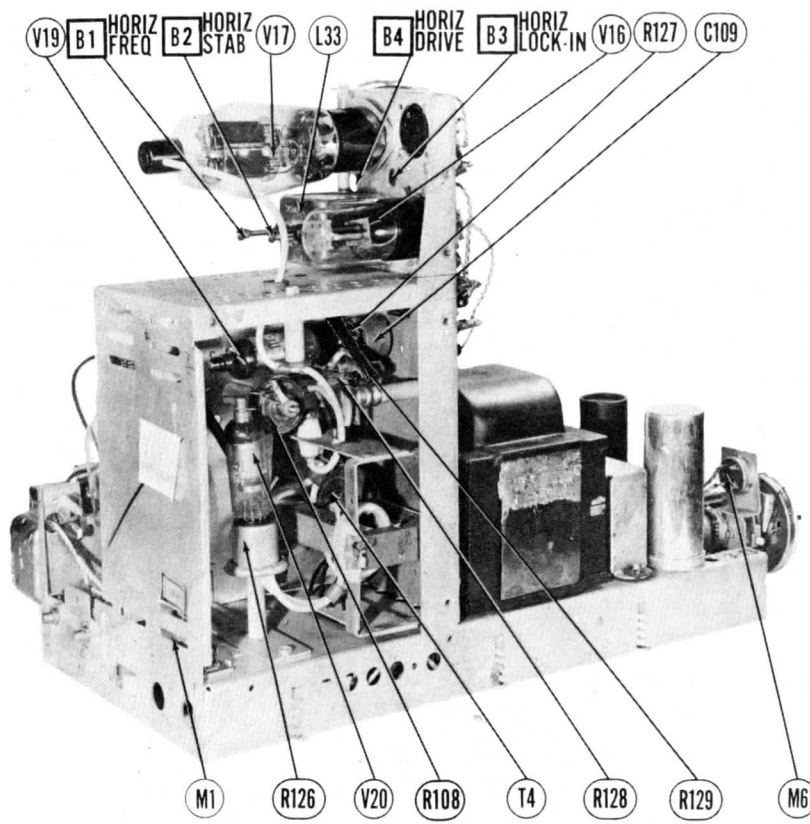
PHILCO MODELS 51-T2102 (Code 122), 51-T2130, 51-T2132, 51-T2133 (Code 121), 51-T2134, 51-T2136, 51-T2138, 51-T2175, 51-T2176 (Code 124)



RF TUNER-RIGHT SIDE

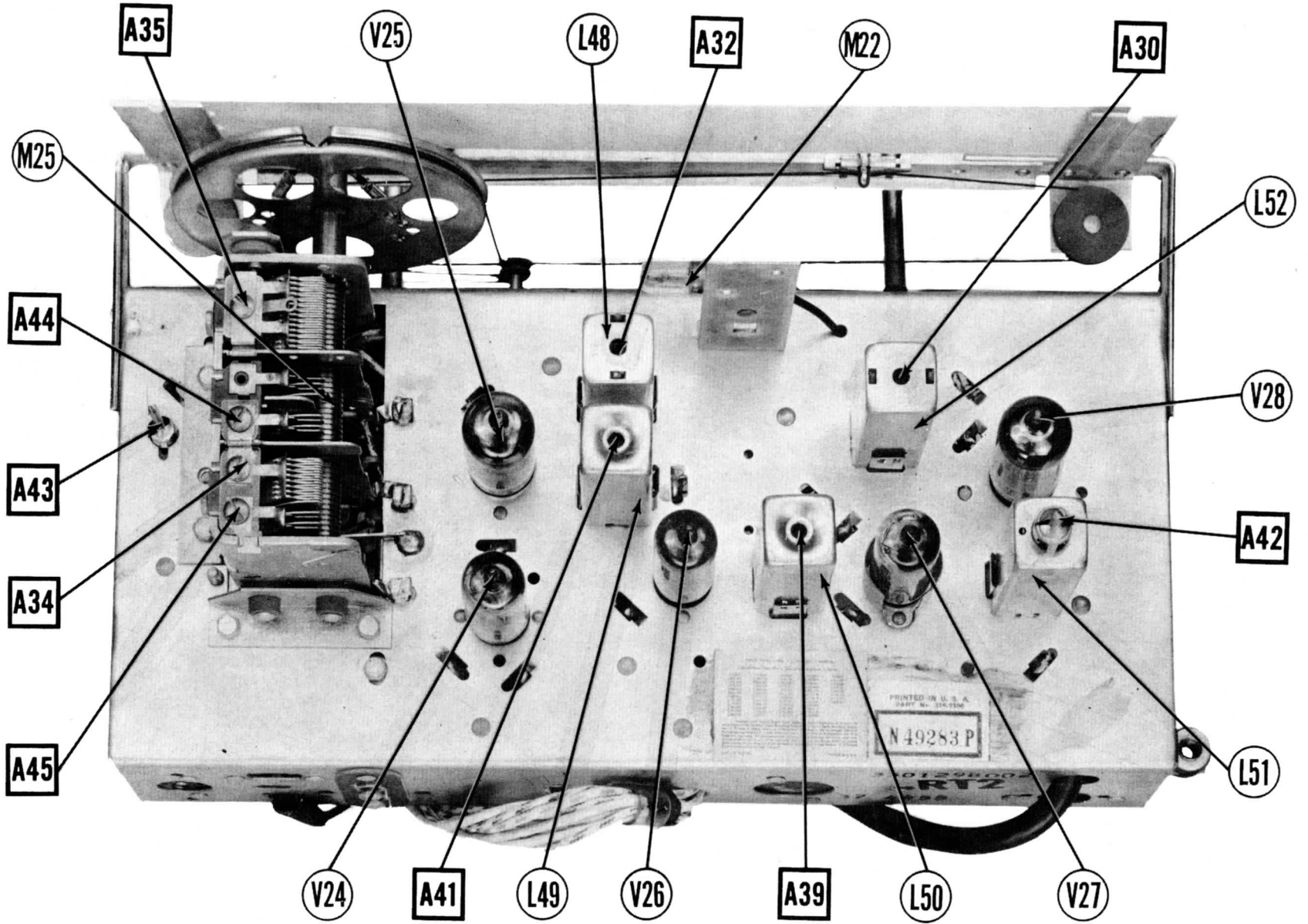


RF TUNER-LEFT SIDE



SWEEP CHASSIS-TOP VIEW

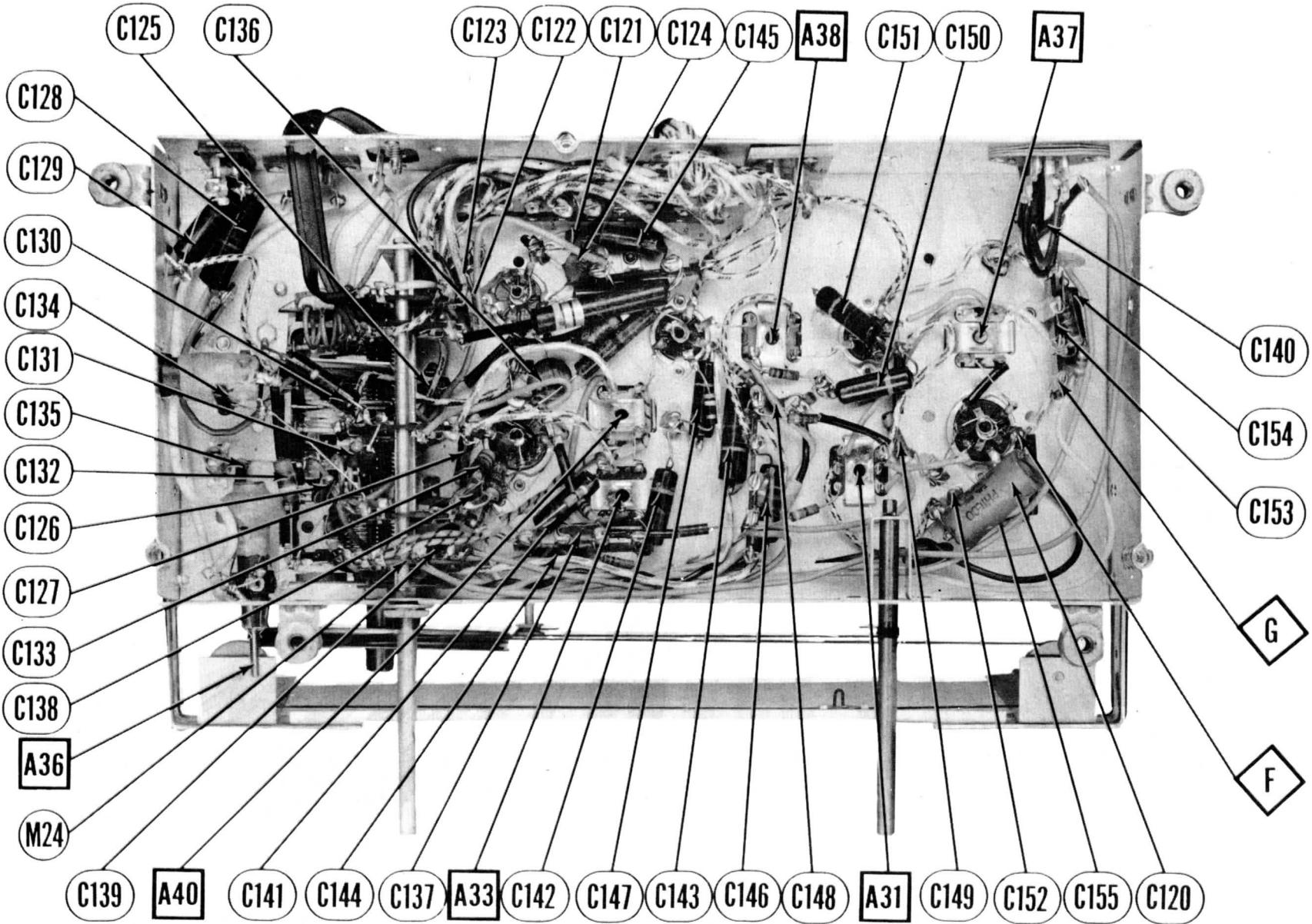
PHILCO MODELS 51-12102 (Code 122), 51-12130, 51-12132, 51-12133 (Code 121), 51-12134, 51-12136, 51-12138, 51-12138, 51-12175, 51-12176 (Code 124)

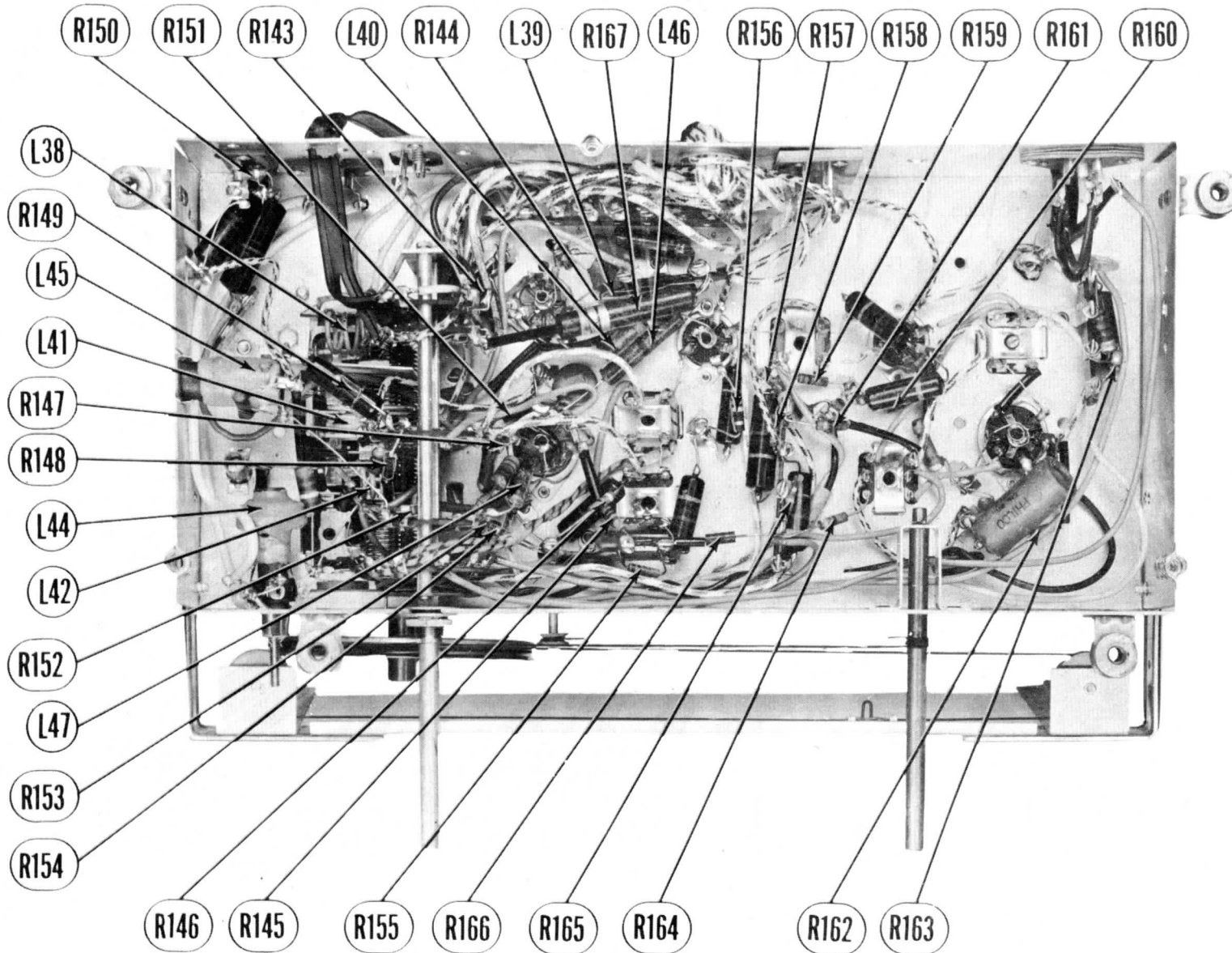


RADIO CHASSIS-TOP VIEW

PHILCO MODELS 51-12102 (Code 122), 51-12130, 51-12132, 51-12133 (Code 121), 51-12134, 51-12136, 51-12138, 51-12175, 51-12176 (Code 124)

RADIO CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



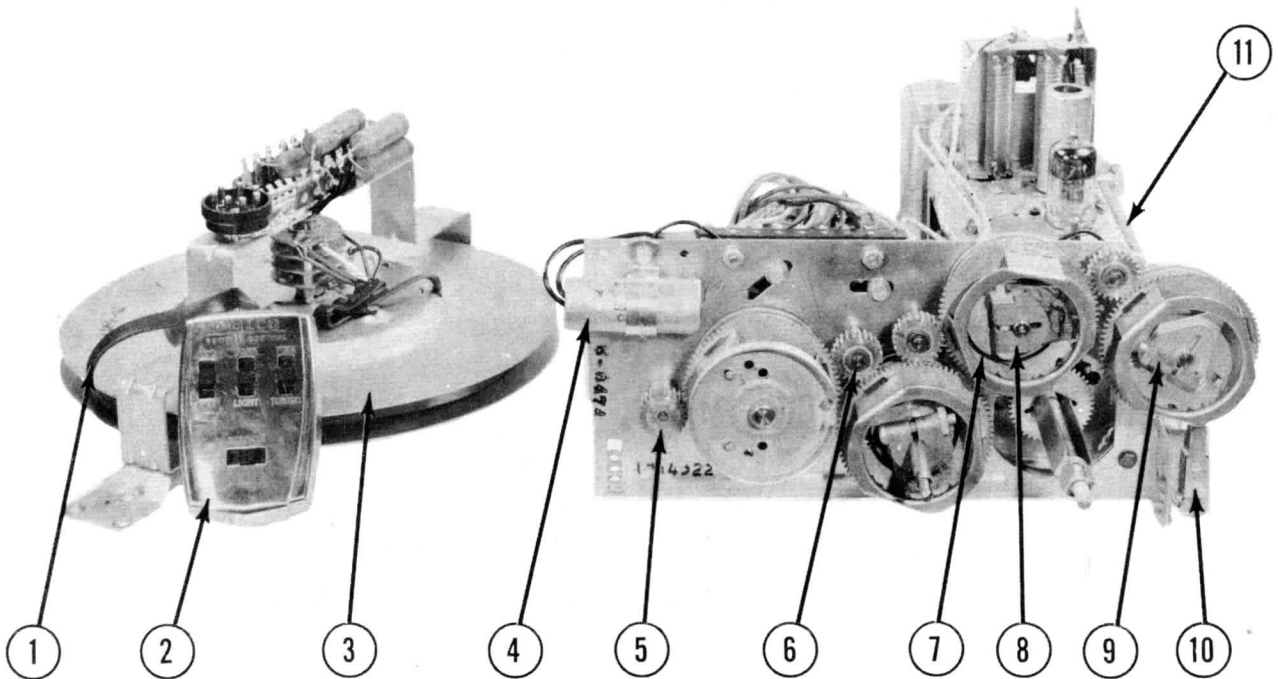


RADIO CHASSIS -BOTTOM VIEW-RESISTOR IDENTIFICATION

SERVICE INFORMATION

FOR

REMOTE CONTROL UNIT RC-1



**PHILCO MODELS 51-T2102 (Code 122), 51-T2130, 51-T2132, 51-T2133
 (Code 121), 51-T2134, 51-T2136, 51-T2138, 51-T2175, 51-T2176 (Code 124)**

FIGURE 1.

GENERAL INFORMATION

The Remote Control Unit makes it possible to tune and adjust the television receiver from any point up to a distance of thirty feet. The adjustments are made by the operation of a group of switch levers on a control box. A flat eight conductor cable, which is stored on a self-winding reel, connects the control box to the control mechanism.

The Remote Control Unit consists of three major assemblies:
 (A) Control Box and Reel Assembly
 (B) Clutch and Gear Assembly with Solenoid Coils
 (C) Motor Assembly

REEL ASSEMBLY AND CONTROL BOX

There are three major parts in the Control Box and Reel Assembly:
 --- Thirty feet of eight conductor cable (1)
 Reel assembly (3)
 Control Box (2)

The cable may be stopped at any distance up to thirty feet by pulling it about six inches past the desired point and then letting it rewind slowly until the pawl on the

reel drops in the slot locking the reel in place. The cable can be rewound on the reel by pulling the cable out swiftly about six inches and then letting the reel wind up the cable.

Four (Double-Pole, Double-Throw) self-centering switches constitute the contents of the Control Box.

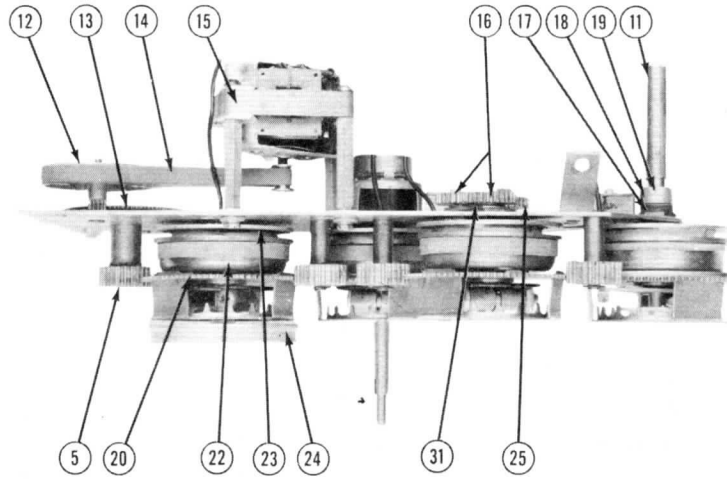


FIGURE 2.

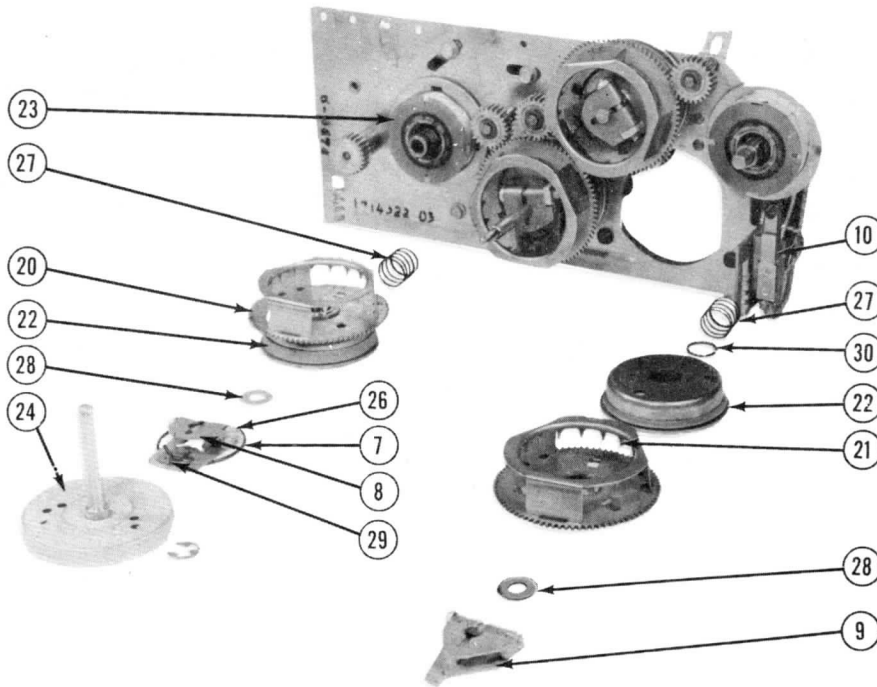


FIGURE 3.

GENERAL OPERATION

The shaft of the 24 Volt AC motor (15) (See Fig. 2) will turn in either a clockwise or counterclockwise direction by applying 24 Volts AC to either of two fields which are electrically 90° apart. The direction in which the motor rotates is determined by moving one of the switch levers on the Control Box to either of the two off-center positions. As the motor starts, the drive belt (14) drives the intermediate pulley and gear assembly (12), which in turn starts the drive gear assembly (13) rotating. The drive gear pinion (5) turns the clutch and gear assembly (20) on the volume control shaft. Through this process the three other clutch and gear assemblies are put into a rotary motion. The clutch and gear assemblies will revolve as long as the motor shaft is turning.

Moving one of the self-centering switches on the Control Box to start the motor will also energize an associated solenoid coil (23). The armature (22) is then attracted by magnetic force of the solenoid and is pulled inward compressing the return spring (27) (See Fig. 3). The armature (22) is secured to the shaft of the clutch and gear assembly

(20) by the retaining washer (30). Therefore, the clutch and gear assembly moves with the armature and, as a result, a tooth of the clutch engages the toggle (29) of the safety driver (8), which in turn, rotates the selected control. The toggle of the safety driver assembly is held in position by the toggle spring (7) which maintains enough pressure to make the driver turn the control in normal operation; however, when the control is turned to its maximum rotation, clockwise or counterclockwise, the spring tension is overcome, allowing the toggle (29) to slip off the clutch tooth with an accompanying clicking noise until the voltage is removed from the solenoid (23), or until the control is made to turn in the opposite direction. This safety feature prevents the gears from locking. An ordinary driver (9), instead of a safety driver (8), is used on the channel selector control since this control can be rotated continuously.

When the voltage is removed from the solenoid (23), the return spring (27) causes the disengagement of the clutch tooth with the toggle (29).

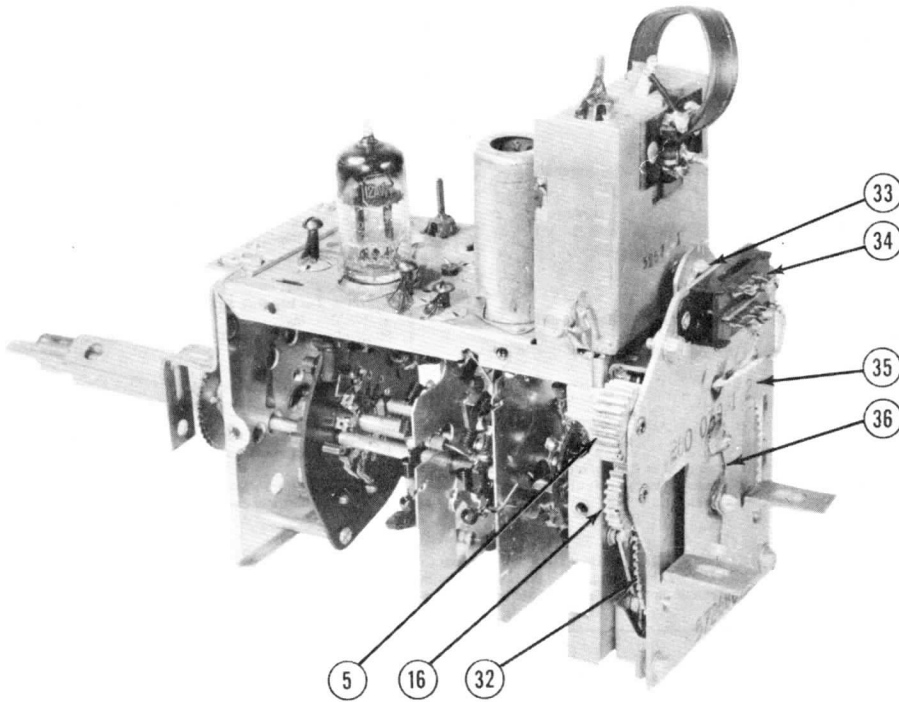


FIGURE 4.

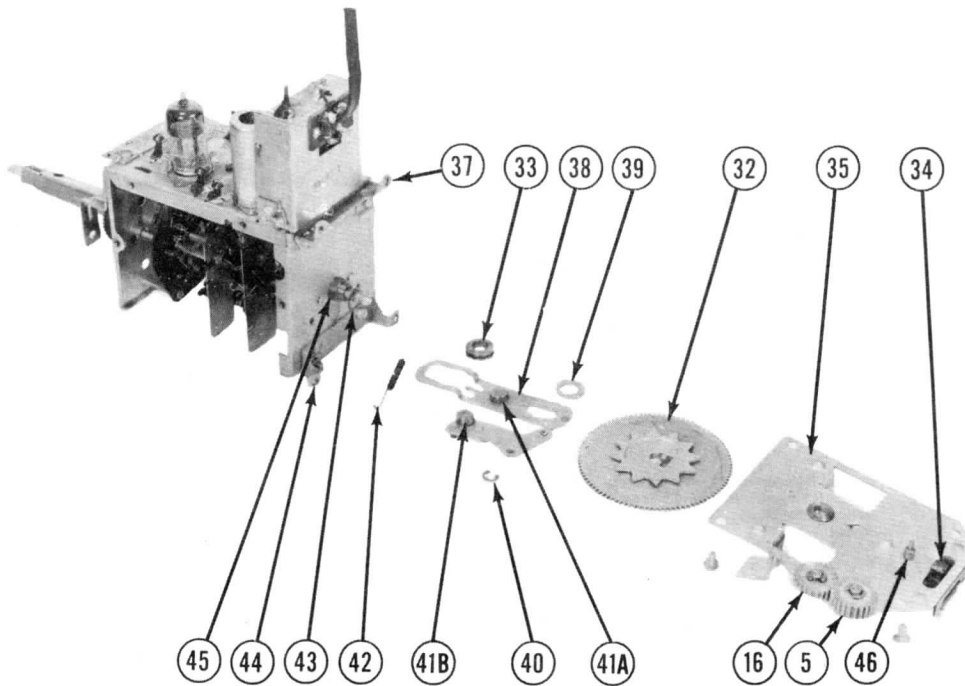


FIGURE 5.

OPERATION OF CHANNEL SELECTOR

When the station selector switch on the Control Box (2) is operated, the motor and channel selector solenoid are energized. As the magnetic force set up by the solenoid pulls the clutch and gear assembly (21) inward, closing the solenoid switch (10), a tooth of the clutch engages with the toggle of the ordinary driver (9) and starts the tuner shaft (11) rotating. The roller (41A) (See Fig. 5) fastened on the centering lever is subjected to an upward force as well as a lateral force by the star wheel of the detent plate assembly (32). Until the centering lever (38) has traveled far enough sideways to close the cycling switch (34), the centering pin (46) will prevent any upward motion. The cycling switch (34) is in series with the solenoid switch (10) and together parallel the station selector switch in the control box. If the station switch on the control box is released before the cycle is completed, voltage is still applied to the solenoid through the cycling switch (34) and the solenoid switch (10). When

the cycle is completed, the detent roller (41B) rolls down into one of the detents of the detent plate (32) star wheel, releasing the tension on the detent spring (42) which returns the centering lever (38) to the center of the cycling switch (34) thereby opening the switch. This cuts off voltage to the solenoid, and motor, allowing the return spring (27) to push the clutch and gear assembly out of engagement with the toggle on the ordinary driver (9), and opening the solenoid switch (10). During manual rotation of the tuner shaft no voltage is applied to the motor or solenoid as the solenoid switch (10), in series with the cycling switch (34), remains open.

The other section of the solenoid switch is used to mute the sound during remote control operation of the channel selector. This switch, closed only during remote operation, grounds the hot side of the speaker voice coil.

PHILCO MODELS 51-T2102 (Code 122), 51-T2130, 51-T2132, 51-T2133 (Code 121), 51-T2134, 51-T2136, 51-T2138, 51-T2175, 51-T2176 (Code 124)

SERVICING HINTS

1. Buzzing
 - a. Armature seating improperly on pole-piece face of solenoid.
 - b. Burrs on pole-piece.
 - c. Foreign matter between armature and pole-piece.
 - d. Armature engaging solenoid switch (10) before last 1/64" of movement.
 - e. Uneven surface on inside of armature (22).
2. Armature Binds on Solenoid Bushing
 - a. Foreign matter or burrs on Solenoid Bushing
3. Tuner Fails to Rotate
 - a. Line voltage too low. (It should not be less than 105 Volts)
 - b. Faulty motor capacitor (4).
 - c. Faulty motor (15).
 - d. Faulty transformer.
 - e. Tuner shaft (11) binding. (The shaft must be aligned so it rotates freely and has .005" to .015" end-play.
4. Clutch and Gear Assemblies Fail To Rotate When Motor Is Energized.
 - a. Oil or grease on motor belt (14).
 - b. Motor belt loose.
 - c. Driving pinion (5) loose on driving gear (13) shaft.
 - d. Burrs or foreign matter in gear teeth.
 - e. Leads fouling moving parts.
 - f. Bent pinion gear shaft.
5. Clutch Teeth Fail to Engage Toggle of Driver When Solenoid is Energized
 - a. Clutch teeth more than 1/32" from toggle when clutch is in neutral position.
6. Driver Fails to Rotate Control Shaft When Clutch is Engaged
 - a. Driver loose on control shaft.

CAUTION: Do not allow any oil or grease to come in contact with the drive belt (14) or the belt driving surface of the intermediate pulley (12). Any oil or grease on these parts should be removed with carbon tetrachloride.

LUBRICATION

Lubrication is applied at the time of manufacture and should be sufficient to last for a long period of time. However, in the event of repairing or replacing of parts, parts needing lubrication should be cleaned with carbon tetrachloride and lubricated as follows:

Use a good cup grease on the following:

1. Intermediate pulley and gear (12).
2. All gear teeth.
3. Toggle (29) of safety drivers (8).
4. Teeth of clutch (20) and (21).
5. Reel Bearings.

Use S. A. E. 20 oil on the following:

1. Threads and bearing surfaces of the solenoid bushings.
2. Motor Bearings
3. Shaft of volume control pulley assembly (24).
4. Fine tuning shaft.
5. Studs of link assembly (31).
6. Bearings of tuner drive shaft.
7. Left side of reel (3) and washer.

Use a mixture of grease and graphite on the following:

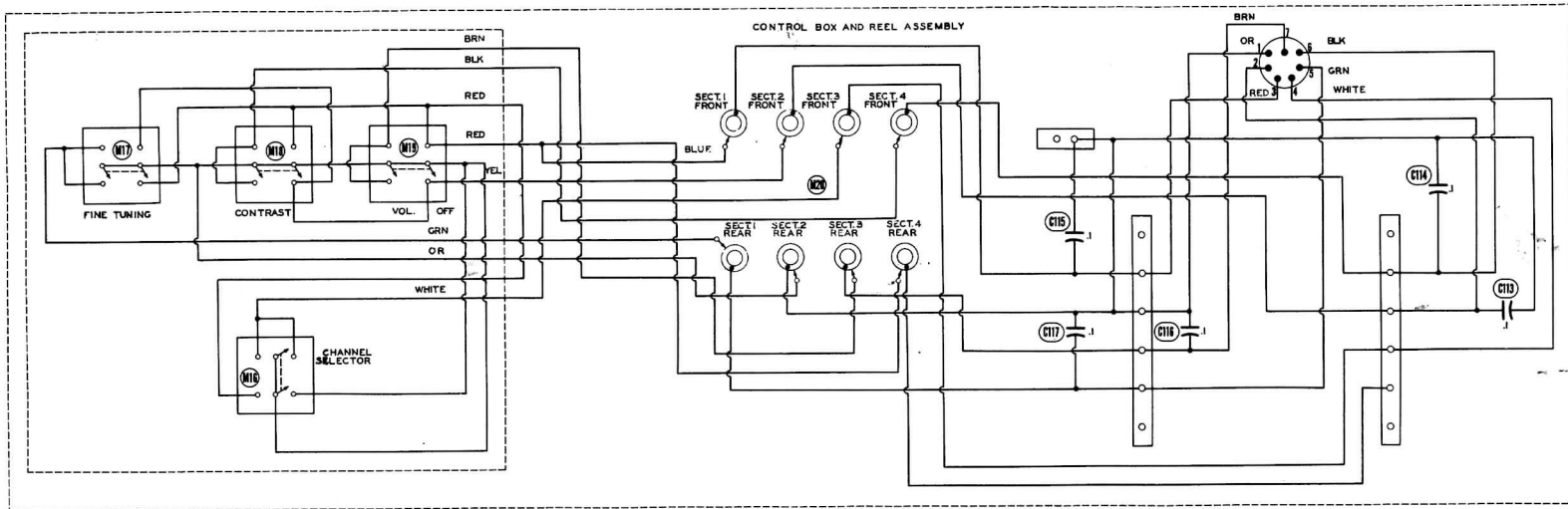
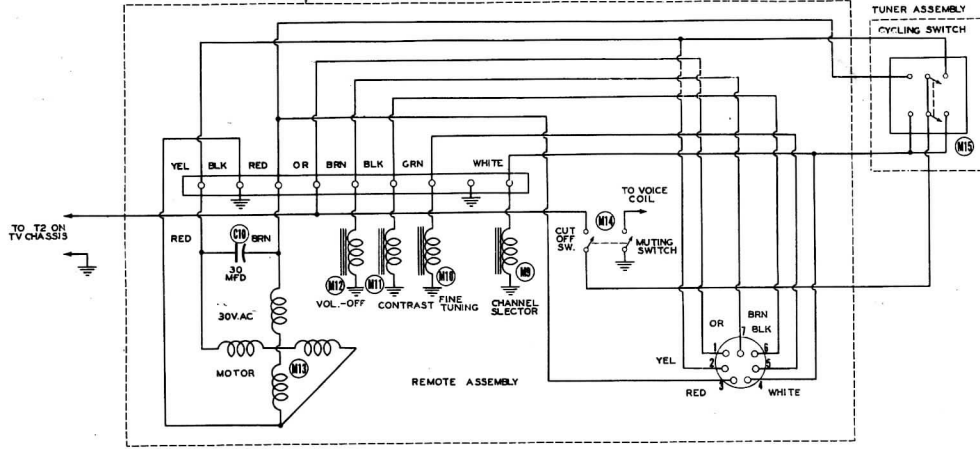
1. Bearing surface of reel (3) power spring.

Use graphite on the following:

1. Reel (left side) and pawl.

PARTS LIST

<u>Item</u>	<u>Part Number</u>	<u>Description</u>	<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	41-4069	Cable	20	76-6424	Clutch Assembly - 3 used
2	42-1950	Control Box Assembly -Consists of:	21	76-6424-1	Clutch Assembly (Channel Selector)
	42-1950-1	Switch (Channel Selector, Contrast)2 used	22		Armature
	56-8581	Switch (Fine Tuning, Volume-On/Off) 2 used	23	76-6416	Solenoid Coil Assembly
3		Spring	24	76-6428	Shaft and Pulley Assembly (Volume Control Driver)
	56-8637	Reel Assembly - Consists of:	25	76-6526	Shaft and Pinion Assembly (Fine Tuning)
	56-8642	Bearing, reel	26	56-7042	Nut
	42-1952	Ring, spring retainer	27	56-8613FE15	Return Spring
	56-8636	Slip-Ring Assembly	28		Neoprene Washer
	56-8643	Spring, power	29	56-8804	Toggle
	56-8644	Pawl	30	1W42310FE7	Washer, retaining
4	30-2355-3	Ratchet	31	76-6525	Link Assembly
5	56-8628	Capacitor, motor	32	76-6420	Detent Plate Assembly
6	1W60977FE7	Pinion, gear - 5 used	33	56-8592	Switch Handle Bushing
7	56-8805FA15	Washer, "E", pinion mounting	34	42-1950	Switch (Cycling)
8	56-8806	Toggle Spring	35	76-6422	Rear Bracket Assembly
9	76-6475	Safety Driver - 3 used	36	56-8023	Spring, shaft grounding
10	42-1953	Ordinary Driver Assembly	37	56-8608	Bracket (Tuner Top)
11	76-6425	Solenoid Switch Assembly	38	76-6421	Centering Lever Assembly
12	56-8738	Shaft Assembly (Side of Tuner)	39	56-8603	Spacer, brass
13	76-6413	Intermediate Pulley and Gear	40	1W60977FE7	"E" Washer
14	54-8318	Driving Gear Assembly	41	56-8597	Detent Roller
15	35-1465	Belt	42	56-8817	Detent Spring
16	56-8628-1	Motor Assembly	43	56-8812	Washer, steel
17	56-8615	Pinion Idler - 4 used	44	76-6419	Bracket Assembly (Bottom)
18		Bushing	45	56-8604	Spacer Bushing
18		Set Screw	46		Centering Pin
19	56-8661	Collar			



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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REMOTE CONTROL WIRING DIAGRAM

132-10