

CABINET—REAR VIEW

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station. Allow receiver to warm up. Connect a clip lead across the Horizontal Stabilizer Coil (L19). Set the Horizontal Hold Control (R3A) to the center of its range. Adjust the Horizontal Hold Centering (R3B) until the picture appears to float back

and forth across the screen. Remove clip lead from across L19 and adjust the Horizontal Stabilizer Coil Slug (B1) until the picture is in sync. Change channels to see that the picture remains in sync.

## DISASSEMBLY INSTRUCTIONS

### CHASSIS REMOVAL

1. Remove all knobs. Remove back held by 7 screws (4 at top and 3 at bottom).
2. Unplug picture tube socket and hi voltage lead. Loosen yoke clamp. Remove cabinet front assembly (safety glass, bezel, and picture tube) held by 5 screws (3 at bottom, 1 at each side). Unsolder speaker leads.
3. Remove 5 screws from bottom of cabinet. Remove 9 screws from

chassis (5 at top front, 2 from rear top, 1 from rear side and 1 from right rear side).

4. Remove 2 screws from top rear and remove small bracket. Remove cabinet from chassis.

### PICTURE TUBE REMOVAL

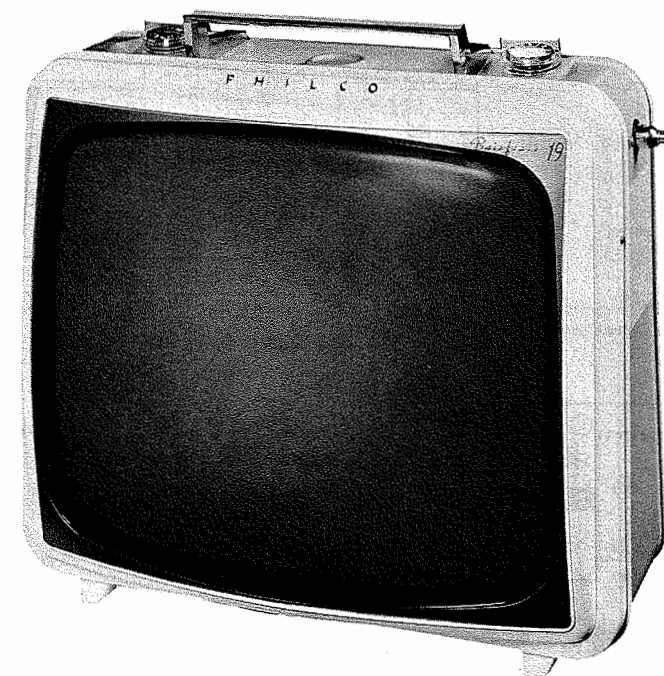
Follow "Chassis Removal" instructions. Remove bolt from picture tube retaining strip. Remove clips each corner of tube and remove picture tube.

SET 651 FOLDER 2

PHILCO CHASSIS  
13J27, 13J27U



PHILCO CHASSIS  
13J27, 13J27U



MODEL L3221BE

CAUTION  
ONE SIDE OF AC LINE CONNECTED TO CHASSIS

TRADE NAME	PHILCO	Models	Chassis
		L3219BU, L3221BE/WB, L3225BE/GD, L3232GD/SL .....	13J27
		UL3219BU, UL3221BE/WB, UL3225BE/GD, UL3232GD/SL ....	13J27U
MANUFACTURER	Philco Corp., a Subsidiary of Ford Motor Co., Tioga and "C" Streets, Philadelphia, Pennsylvania		
TYPE SET	Television Receiver		
TUBES	VHF - Fourteen, UHF - Fifteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		
		RATING	140 Watts, 1.5 Amp. @ 117 Volts AC

## SERVICING IN THE FIELD

### SAFETY GLASS

For picture tube and safety glass cleaning, it is necessary to remove the chassis. (See "Chassis Removal".)

### FUSE OR FUSE DEVICE

A 5.6Ω fusible resistor is used for low voltage power supply protection. (See "Cabinet - Rear View" for location.)

### VHF OSCILLATOR ADJUSTMENT

Set fine tuning at the center of its range and adjust osc. slug (one for each channel) for best sound and picture.

### AGC

No provision is made to vary the AGC on this receiver.

### HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the horizontal hold is accomplished

by the proper setting of the Horizontal Hold Centering control. (See "Tube Placement Chart" for location.)

### WIDTH

A jumper across R62 increases width—removing jumper decreases width.

### FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (For location, see Sweep Board photos, page 12.)

### CENTERING

Centering is accomplished by 2 magnetic rings located on yoke rear cover.

### PINCUSHION CORRECTION

Reduce the picture size so that the left side of the raster is visible. Position the magnet so the left side is straight.

PHILCO CHASSIS  
13J27, 13J27U

SET 651 FOLDER 2

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



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed.  
MA222

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DATE 8-63

SET 651 FOLDER 2



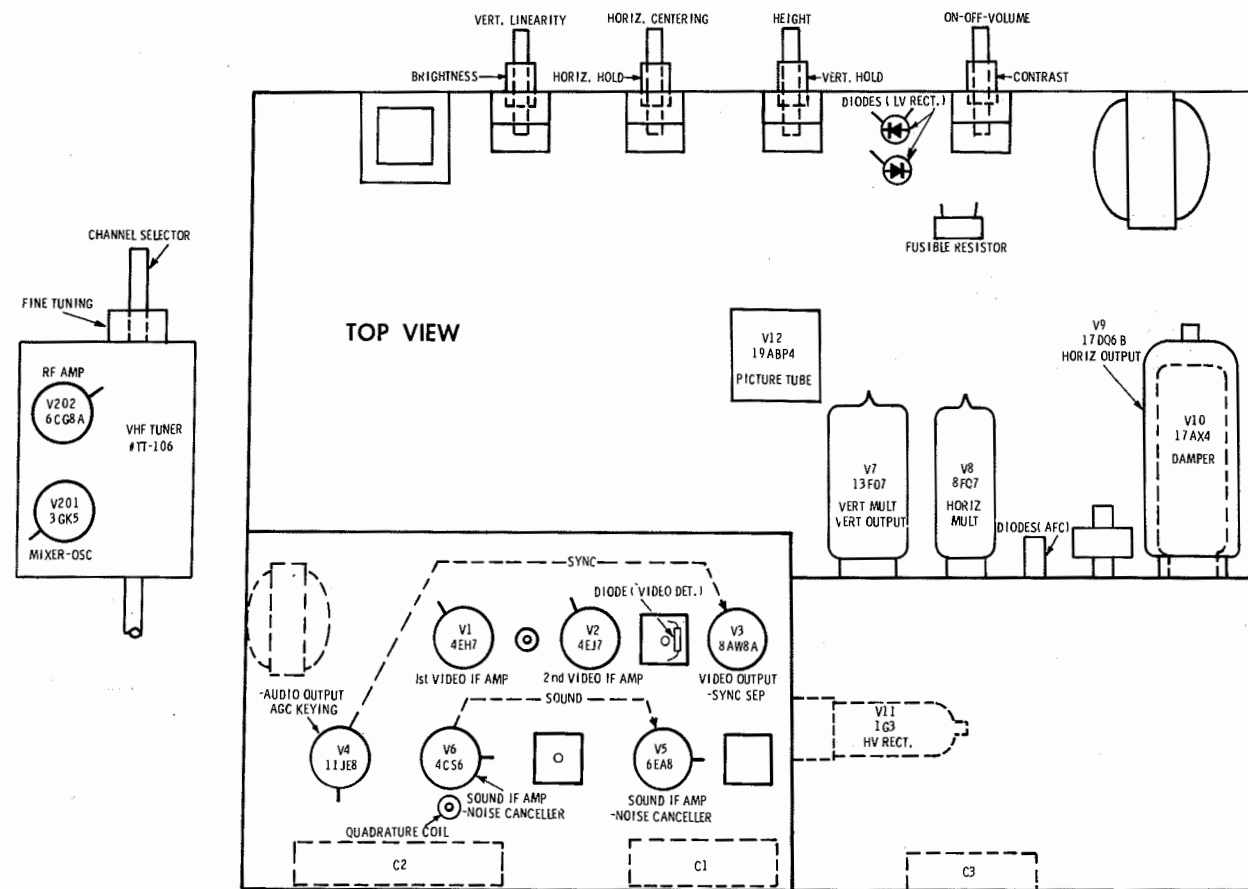
**PHILCO CHASSIS**  
**13J27, 13J27U**

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	4EH7	27Ω	85K	27Ω	20Ω	22Ω	0Ω	†3800Ω	†25K	0Ω
V2	4EJ7	100Ω	.1Ω	100Ω	22Ω	24Ω	0Ω	†2300Ω	†2300Ω	0Ω
V3	8AW8A	0Ω	1.4 meg	††28K	24Ω	27Ω	0Ω	1300Ω	†85K	†5500Ω
V4	11JE8	†20000Ω	†38K	250K	16Ω	20Ω	150Ω	2200Ω	†2000Ω	†480Ω
V5	6EA8	†26K	6Ω	†13K	15Ω	13Ω	†13K	220Ω	††20K	2.4 meg
V6	4CS6	3.7Ω	680Ω	15Ω	16Ω	†275K	††6500Ω	3.5Ω		
V7	13FD7	†290Ω	NC	2.1 meg	13Ω	8Ω	†2.9 meg	500K	0Ω	360Ω
V8	8FQ7	†17K	1.8 meg	1000Ω	8Ω	5Ω	†47K	75K	1000Ω	NC
V9	17DQ6B	NC	34Ω	NC	†4700Ω	760K	NC	41Ω	0Ω	TOP CAP †12Ω
V10	17AX4	NC	NC	115K	NC	†28Ω	NC	34Ω	27Ω	
V11	1G3		PINS 1 THRU 8		HAVE INFINITE RESISTANCE					TOP CAP †425Ω
V12	19ABP4	5Ω	NC	11Ω	0Ω	NC	2.4 meg	200K	3Ω	
V201	3GK5	0Ω	95K	3Ω	2Ω	†4500Ω	0Ω	0Ω		
V202	6CG8A	10K	†41K	0Ω	2Ω	0Ω	†2300Ω	†17K	0Ω	232K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

† THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.  
† MEASURED FROM OUTPUT OF X2.  
† MEASURED FROM PIN 3 OF V10.

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

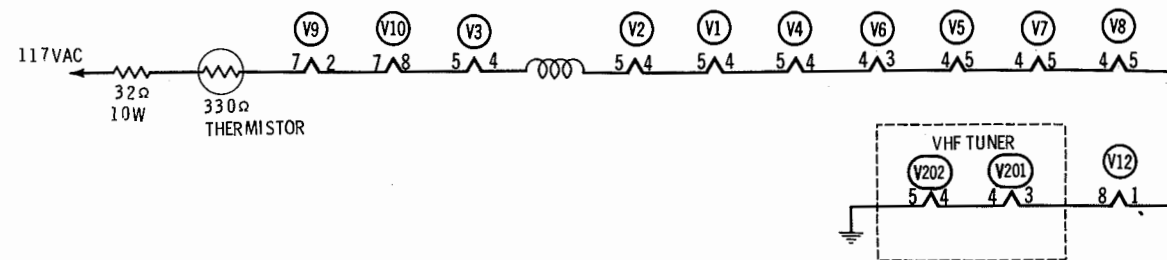
**POWER SUPPLY FAILURE**  
No raster, no sound R70, X1, X2

**SWEEP FAILURE**  
No raster, has sound V8, V9, V10, V11, V12  
No vertical deflection V7  
Poor vert. linearity or foldover V7  
Poor horiz. linearity or foldover V8, V9, V10  
Narrow picture X1, X2, V8, V9, V10  
Vert. off freq. V7  
Horiz. off freq. M4, V8

**LOSS OF PICTURE OR SOUND**  
No pic, no sound, has raster V1, V2, V3, M3 (Video Det.)  
No pic, no sound, has snow V201, V202, V1  
No pic, has sound, has raster V3, V12  
Has pic, no sound V3, V4, V5, V6  
Overloaded picture V4

**SYNC FAILURE**  
No vert. sync V7  
No horiz. sync V8  
No vert. or horiz. sync V3

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)

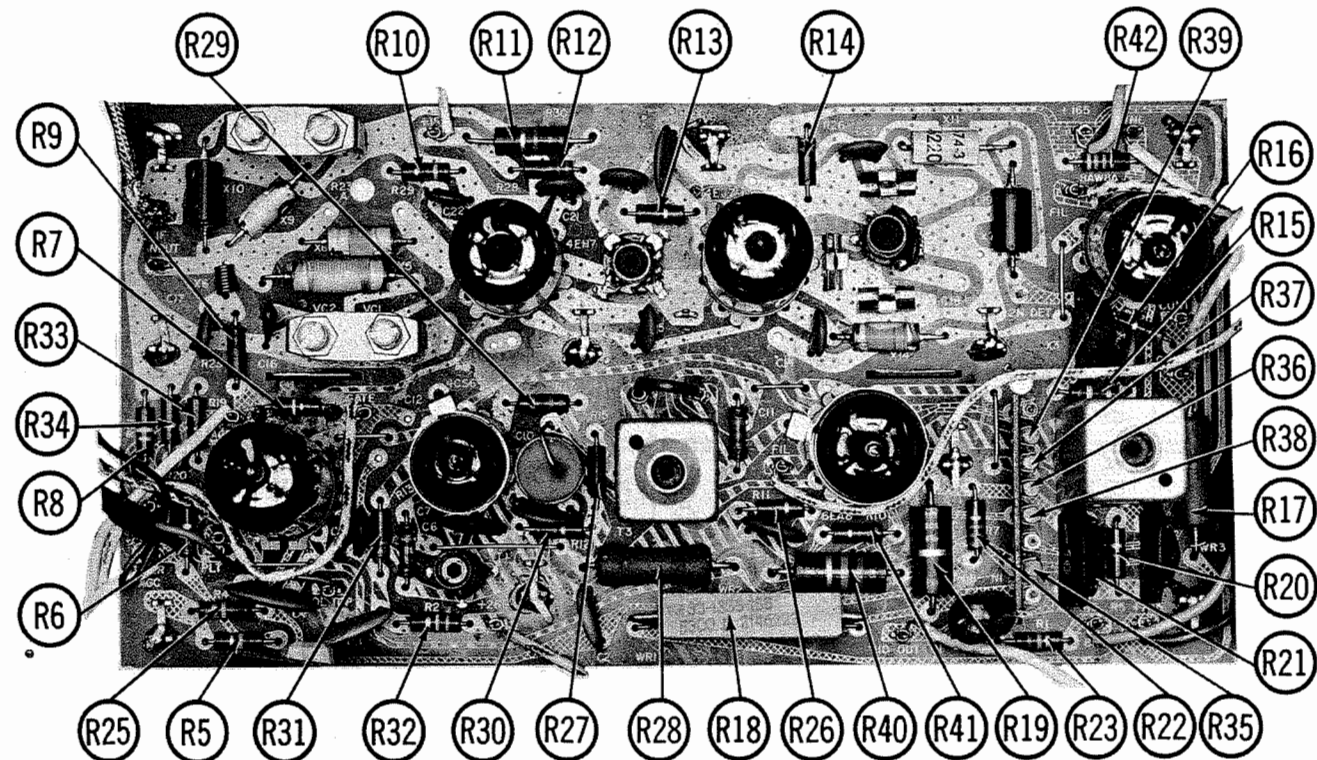
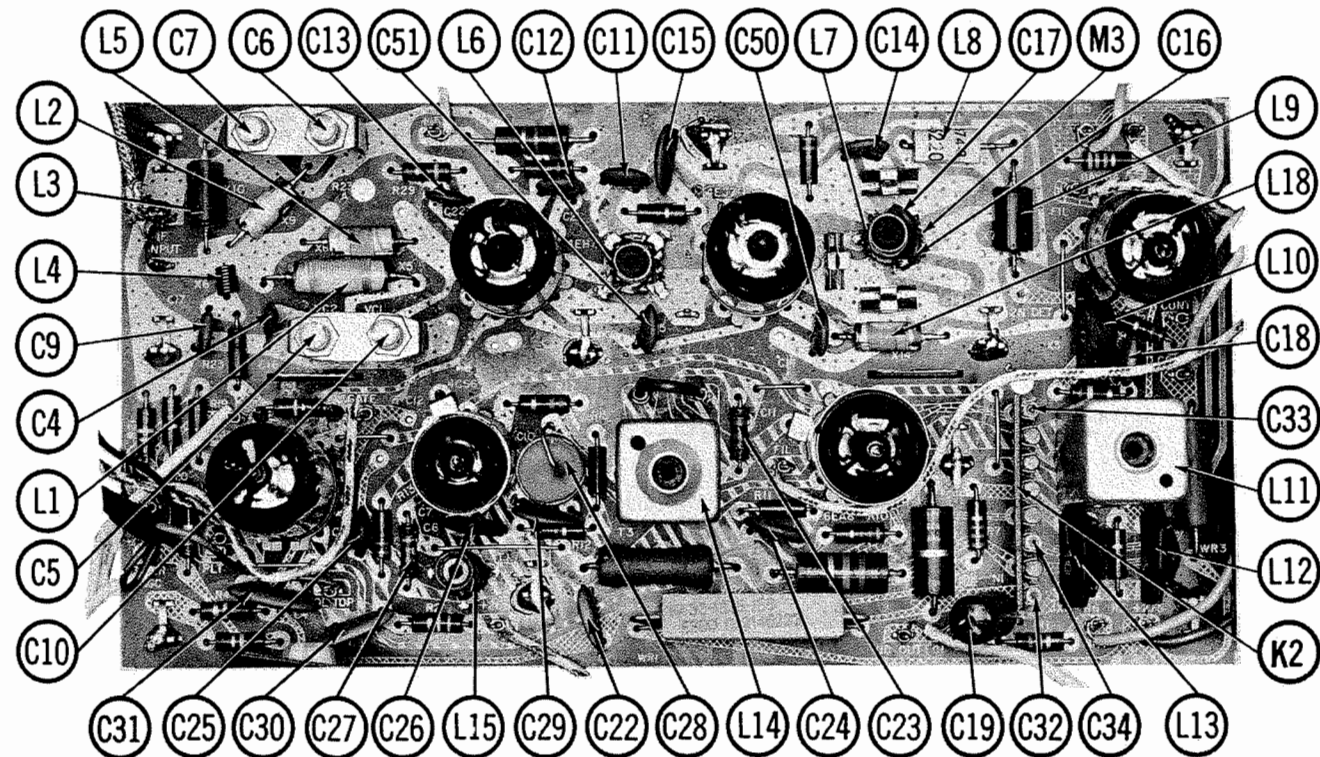
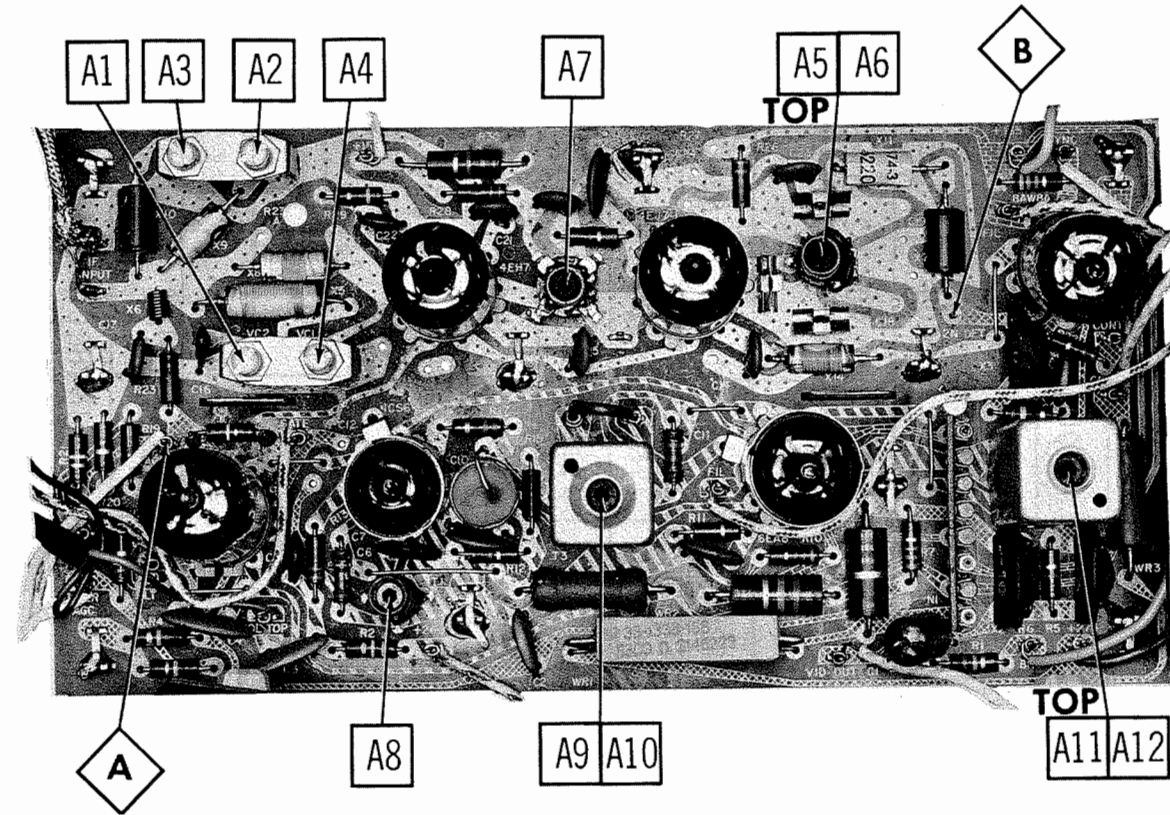
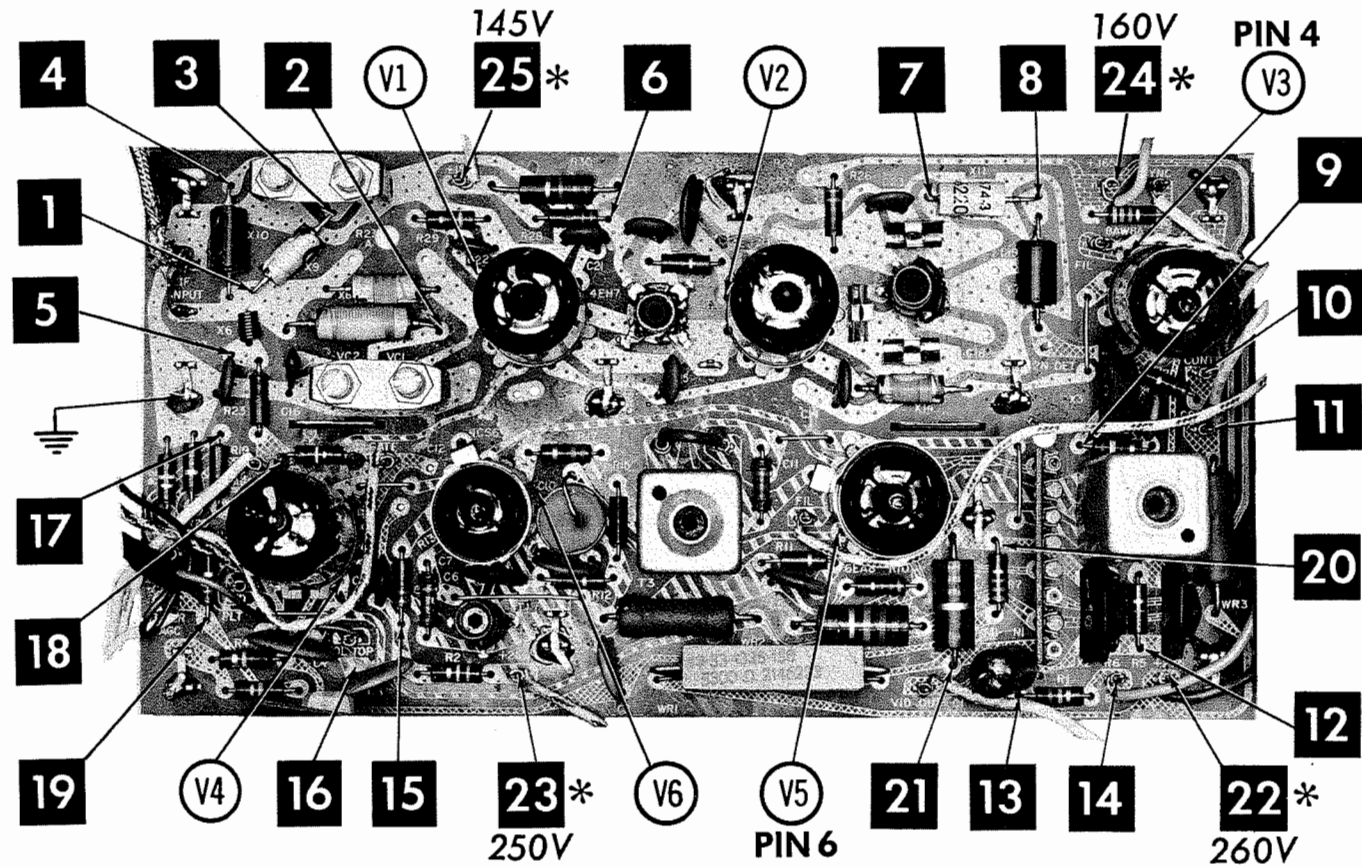


PHILCO CHASSIS  
13J27, 13J27U

FOLDER 2



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

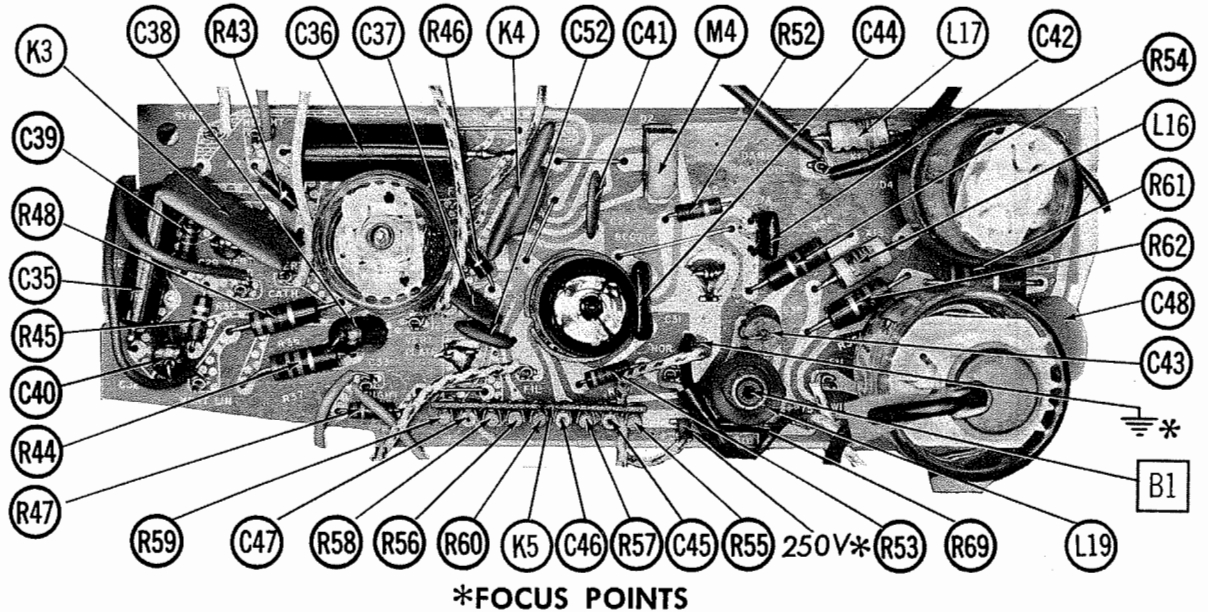
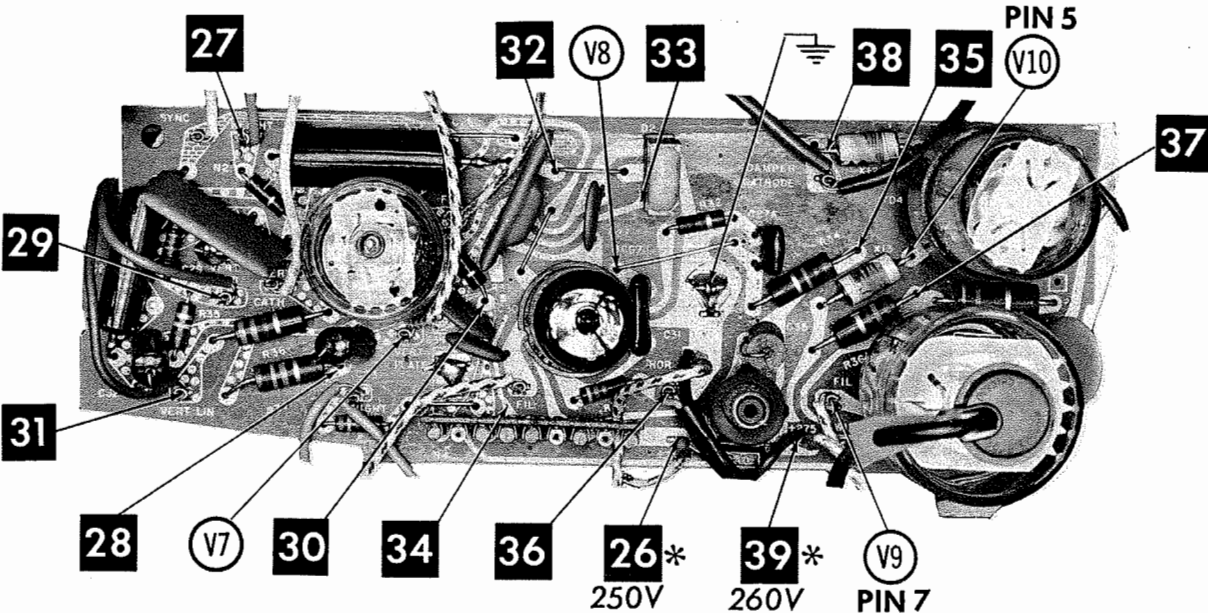


VIDEO, SOUND, SYNC SEP PRINTED BOARD

PHILCO  
CHASSIS 13J27, 13J27U

FOLDER 2

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



SWEEP PRINTED BOARD

ALIGNMENT INSTRUCTIONS

Use an isolation transformer and maintain voltage at 117 volts. Allow a 20-minute warm-up period for the receiver and test equipment.  
Suggested Alignment Tools: A1 thru A4 ..... GENERAL CEMENT #9087, 8290, 8868 .... WALSCO #2525, 2528, 2587  
A5 thru A12 ..... GENERAL CEMENT #9302, 8606L, 8869 .... WALSCO #2511, 2544, 2588  
Mixer Plate Coil ... GENERAL CEMENT #9302, 9296, 9297 .... WALSCO #2511, 2546, 2547

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use only enough generator output to provide a usable indication. Note: Response may vary slightly from those shown. Connect a variable bias supply to the IF AGC line (point A) and adjust to obtain a response curve which shows no indication of overload. Disable Oscillator section of Mixer-Osc. Set the Channel Selector to any non-interfering channel.

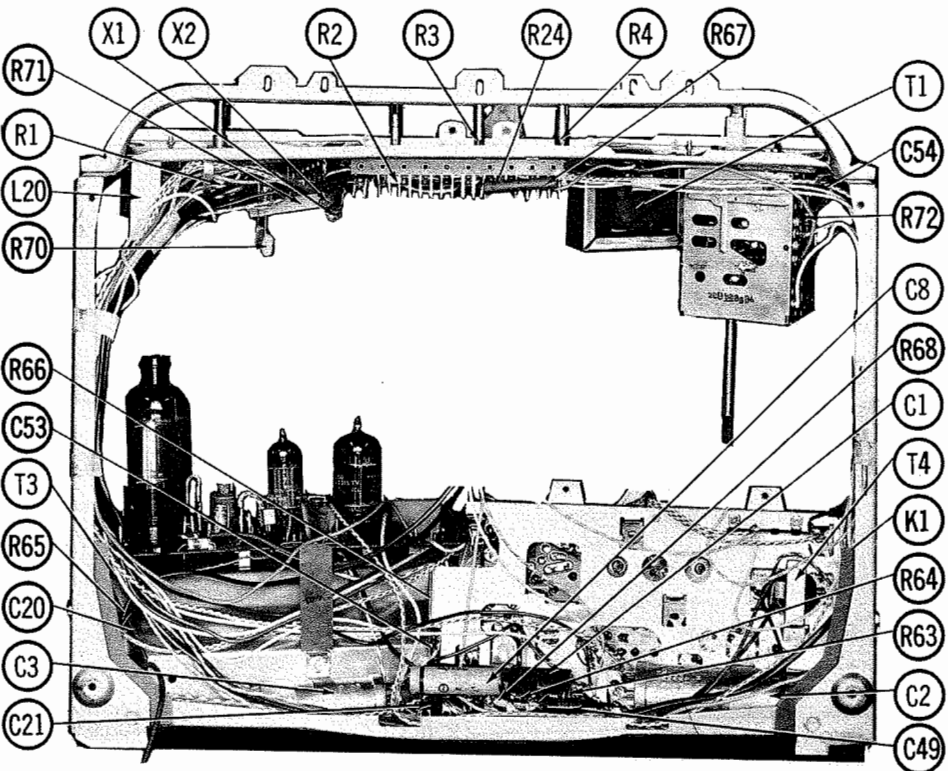
INDICATOR	GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
1. Connect DC probe of a VTVM thru a 47K resistor to point B. Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		41.25 MC 47.25 MC	A1 A2, A3	Adjust for MINIMUM.
2. Connect DC probe of a VTVM thru a 47K resistor to point B. Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		42.9 MC 45.5 MC 45.0 MC 42.7 MC 44.3 MC	Mixer Plate Coil A4 A5 A6 A7	Adjust for maximum.
3. Connect vertical input of a scope to point B. Low side to ground.	Connect high side to pin (grid) of V. Low side to ground.	44 MC (10 MC Sweep)			Adjust for maximum amplitude and MINIMUM tilt with markers as shown in Figure 1.
4. Connect vertical input of a scope to point B. Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44 MC (10 MC Sweep)	41.25 MC 42.5 MC 44.0 MC 45.75 MC 47.25 MC		Check for maximum gain and symmetry of response with markers as shown in Figure 1. In order to obtain a proper response, it may be necessary to slightly retouch A4, A5, A6, A7 and Mixer Plate Coil.

SOUND IF ALIGNMENT

Tune in a station and adjust A8 for maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce signal while aligning for undistorted output by adjusting A8, A9, A10, and A11.

4.5 MC TRAP ALIGNMENT

Tune in a strong TV signal and set the Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible on the screen. Adjust A12 for MINIMUM beat interference.



CHASSIS-FRONT VIEW



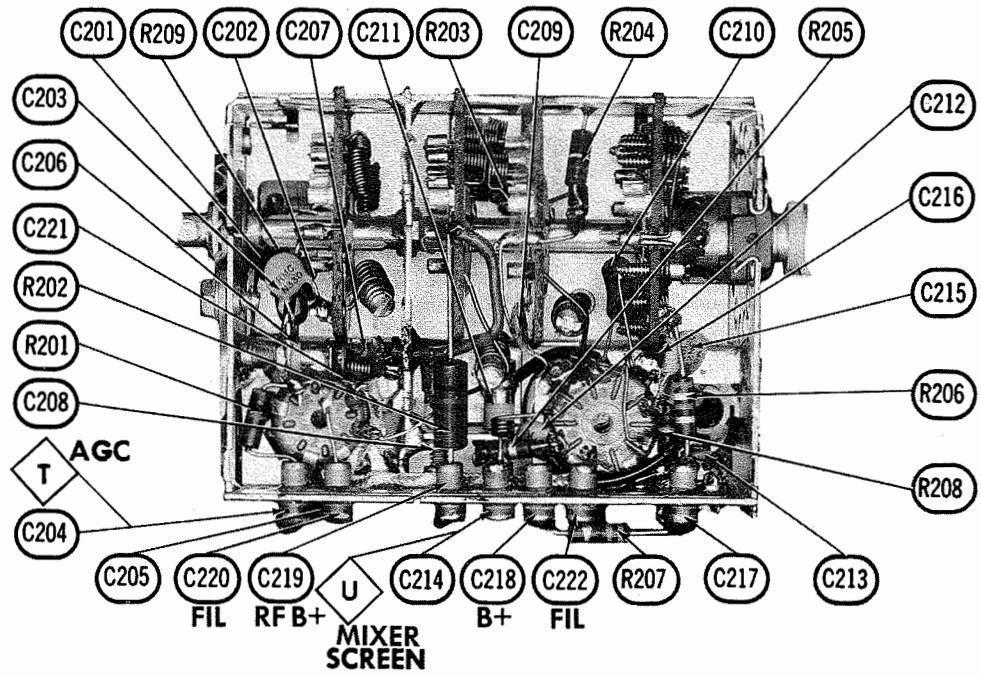
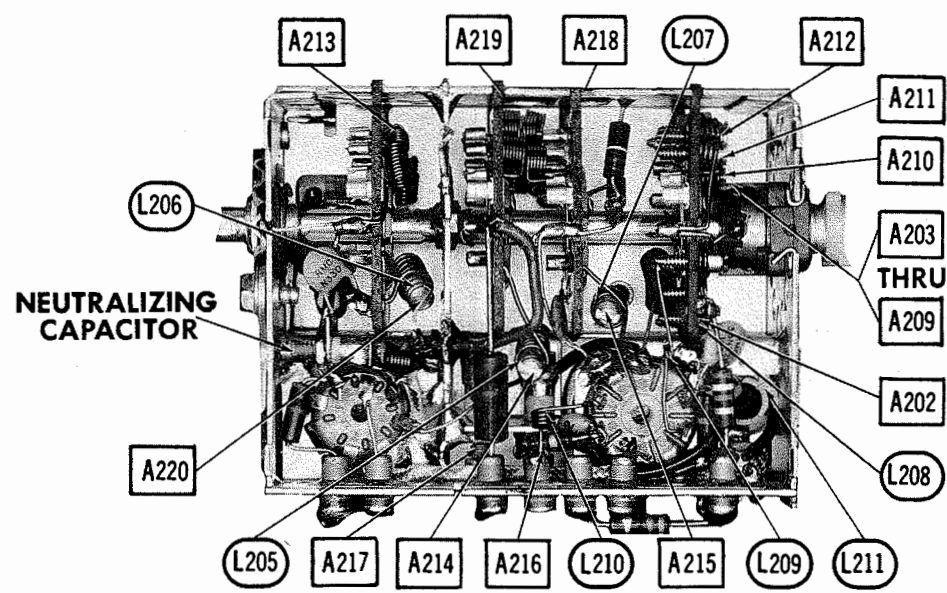
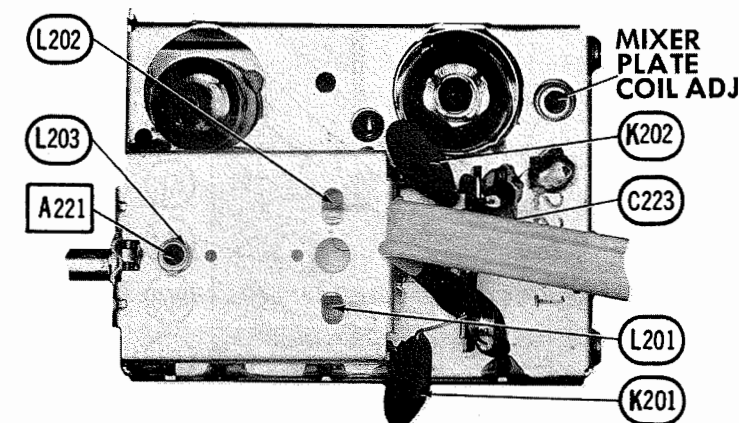
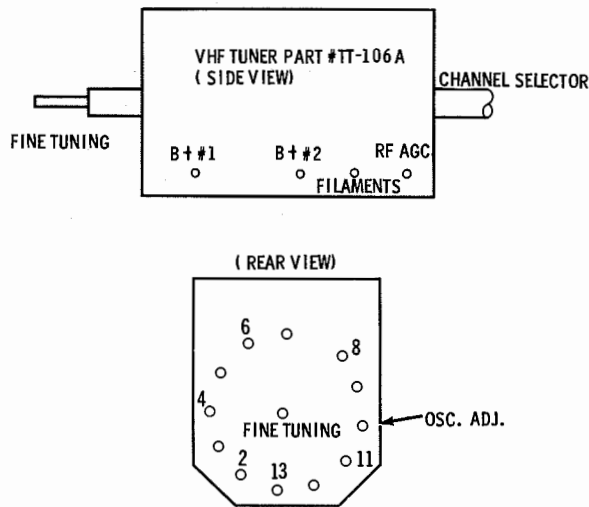
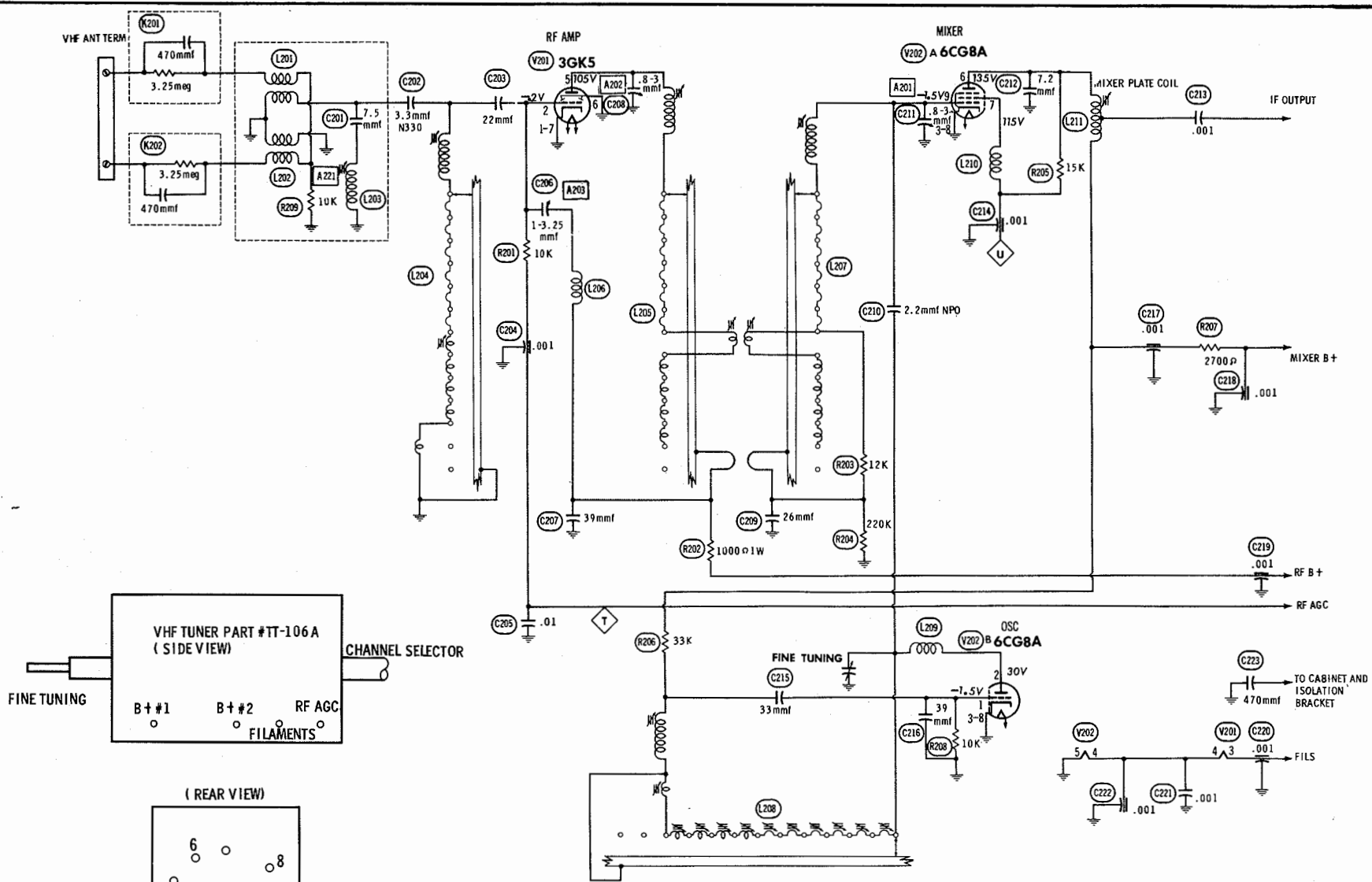
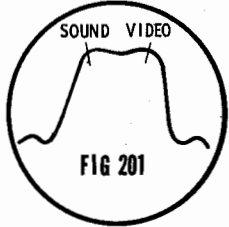
VHF TUNER ALIGNMENT INSTRUCTIONS

**PREALIGNMENT INSTRUCTIONS**  
USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT. The High Voltage lead should be securely taped and kept away from the chassis. Allow a 20-minute warm-up period for the receiver and test equipment.

**VHF OSCILLATOR ADJUSTMENT**  
Set Fine Tuning to center of its range. Adjust the overall oscillator screw for best picture and sound. If the Fine Tuning control will not bring desired results, compress or expand coils or bend tabs to compensate. See photo for channel 6 coil (counterclockwise-high channel, clockwise-low channel).

**VHF RF-MIXER ALIGNMENT**  
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use only enough sweep generator output to provide a usable pattern on scope. Use 10MC sweep unless otherwise noted. Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
Across VHF antenna terminal with 120Ω resistor in each lead.	213MC	211.25MC 215.75MC	13	Vert. amp. thru demodulator probe to point U. Low side to chassis.	A201, A202, A203	Adjust A202 for maximum amplitude and symmetry of response with markers as shown in Fig. 201. Adjust A203 for MINIMUM response on scope.
	207MC	205.25MC 209.75MC	12			
	201MC	199.25MC 203.75MC	11			
	195MC	193.25MC 197.75MC	10			
	189MC	187.25MC 191.75MC	9			
	183MC	181.25MC 185.75MC	8			
	177MC	175.25MC 179.75MC	7			
	85MC	83.25MC 87.75MC	6			
	79MC	77.25MC 81.75MC	5			
	69MC	67.25MC 71.75MC	4			
	63MC	61.25MC 65.75MC	3			
	57MC	55.25MC 59.75MC	2			



VHF TUNER TT-106A

PHILCO  
CHASSIS 13J27, 13J27U

FOLDER 2

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M1	VHF Tuner	TT-106 (78-12405-1)	
	VHF Tuner	TT-106R (78-12432-1)	
	VHF Tuner	TT-160 (78-12320-1)	
M2	Antenna	78-12581-2	
M3	Diode	84-8022-6	
M4	Diode	84-8037-2	

JFD REPLACEMENT TA385, Models L3218BU, L3225BE, WB.  
 JFD REPLACEMENT TA386, Models L3225BE, L3225SL, GD.  
 Video Detector (IN80C)  
 Horiz. AFC, Dual Selenium

CABINETS & CABINET PARTS

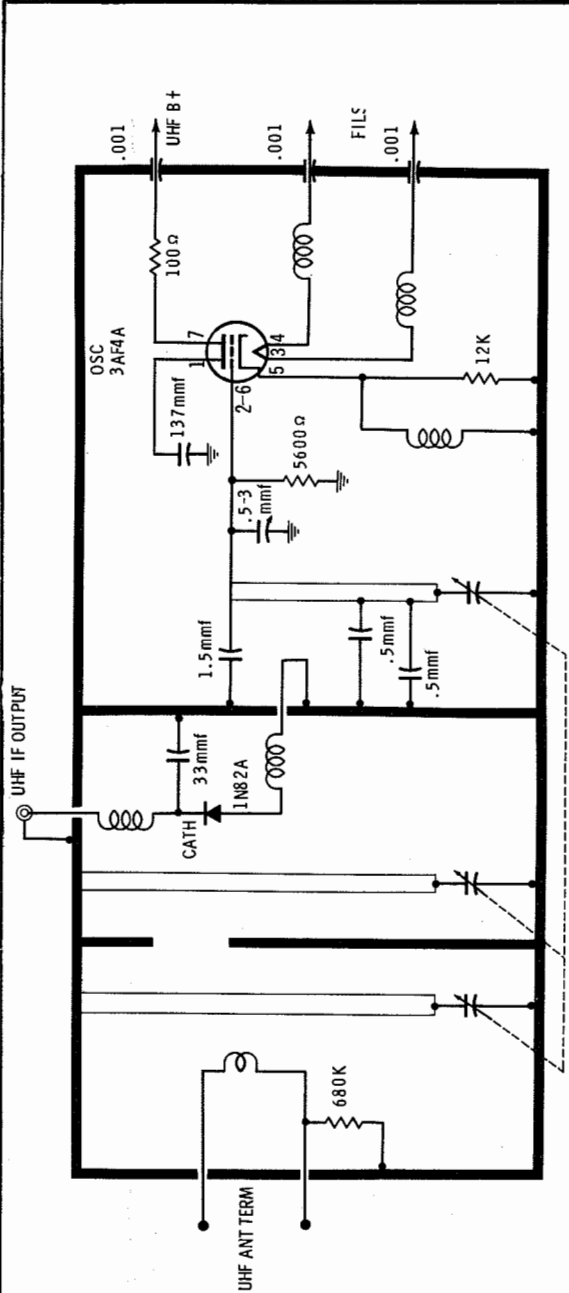
(When Ordering Specify Model, Chassis & Color)

DESCRIPTION	PART NO.	MODELS	L3219BU	L3221BF	L3225BE	L3232GD
Safety Glass	54-5918-1	X	X	X	X	
Channel Selector Knob	424-8444	X				
Channel Selector Knob	824-8332		X	X		
Fine Tuning Knob	424-8321	X	X	X		
UHF Coarse Tuning Knob	424-8374	X	X	X		
UHF Fine Tuning Knob	424-8298	X	X	X		
On-Off Volume Knob	424-8445	X				
On-Off Volume Knob	424-8333		X	X		
Contrast Knob	424-8322	X	X	X		
Vert., Horiz., Brightness Knob	424-8273	X	X	X		
Cabinet Front	54-5917-20	X				
Cabinet Front	54-5917-16		X	X		
Cabinet Front	54-5917-10					X

WIRING DATA

High Voltage Lead ..... Use BELDEN No. 8885 (17KV) or 8885 (25KV)  
 Shielded Hook-up Wire ..... Use BELDEN No. 8885 (Single Conductor)  
 General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8830 (Two Conductor)  
 Power Cord (Interlock Type) ..... Use BELDEN No. 8824 (Stranded) Available in 12 Colors  
 300Ω Tuner Input Lead ..... Use BELDEN No. 8874 (Rubber) or 8895 (Plastic)  
 300Ω Antenna Lead-In ..... Use BELDEN No. 8235 or 8275  
 Antenna Rotor Cable ..... Use BELDEN No. 8464 (Flat) or 8464 (Round) - 4 Conductor  
 ..... Use BELDEN No. 8485 (Round) - 5 Conductor  
 ..... Use BELDEN No. 8488 (Round) - 8 Conductor

UHF TUNER TT-130



TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	3GK5	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBIER PART No.	ELENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	7-5		DI-22	DD-785	L10V8		GP580	10TS-V75
C202	3-3	#30-1224-149	EF-001	DD-220	L10Q22		GP422	10TS-Q22
C203	22		BFD-01	MFT-1000			CT280A	10TS-Q22
C204	.001			DD-103	BYA1081		B-110	5HK-S10
C205	.01	#31-6520-32						
C206	1-3, 25							
C207	39		DI-39	DD-390	L10Q39		GP439	10TS-Q39
C208	.8-3			828-3			CT565	10TS-Q27
C209	26		DI-27	DD-270	L10Q27		GP427	10TCC-V22
C210	2-2	NPO	NFO-SI 2.2	DD-3	C10V22C		CNO-522	10TS-V68
C211	.8-3			828-3			CT565	10TS-V68
C212	7-2			DD-785	L10V7		GP568	5HK-D10
C213	.001		DI-1000	DD-102	BYA10D1		B-210	10TS-Q33
C214	.001		EF-001	MFT-1000			CT280A	10TS-Q39
C215	33		DI-33	DD-330	L10Q33		GP433	10TS-Q39
C216	39		DI-39	DD-390	L10Q39		GP439	10TS-Q39
C217	.001		EF-001	MFT-1000			CT280A	10TS-Q39
C218	.001		EF-001	MFT-1000			CT280A	10TS-Q39
C219	.001		EF-001	MFT-1000			CT280A	10TS-Q39
C220	.001		EF-001	MFT-1000			CT280A	10TS-Q39
C221	.001		DI-1000	DD-102	BYA10D1		CT280A	10TS-Q39
C222	.001		EF-001	MFT-1000			B-210	5HK-D10
C223	.001		SI 470	DD-471	BYA10T47		CT280A	10TS-T47

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

COMPONENT COMBINATIONS

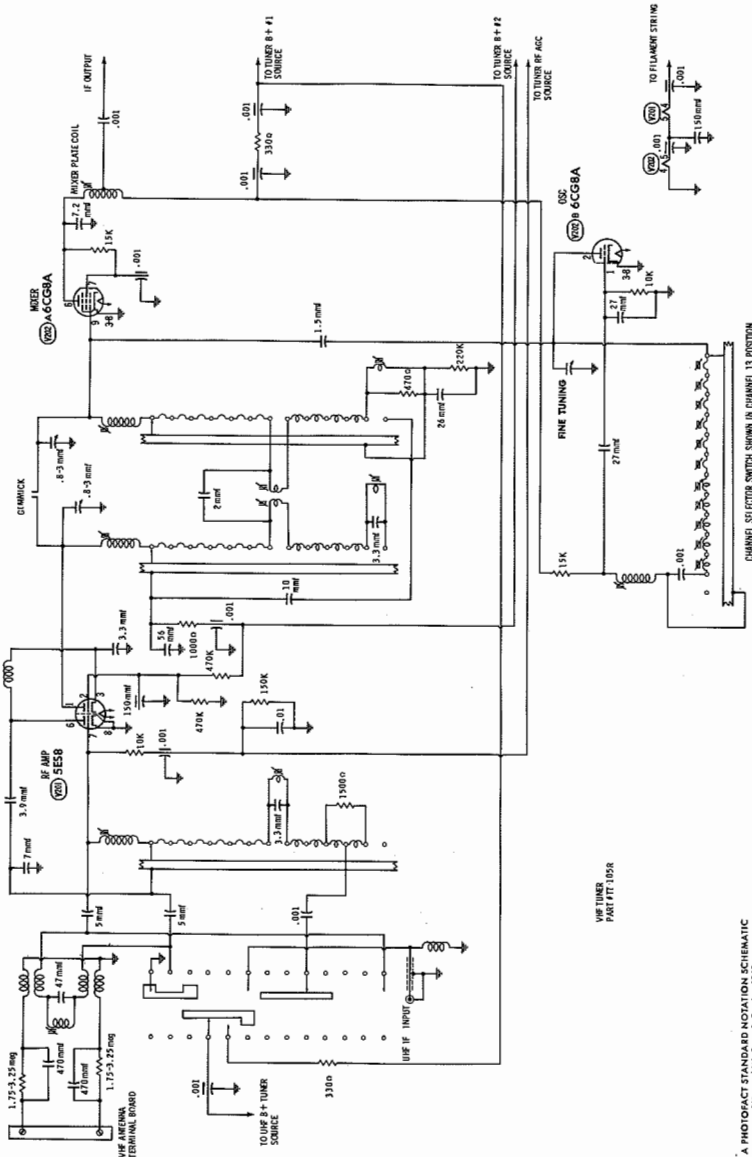
ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA
K201	Antenna Filter	470mmf, 3.25meg	30-6040-1	Centralab RC-471 Sprague ACI-1
K202	Antenna Filter	470mmf, 3.25meg	30-6040-1	Centralab RC-471 Sprague ACI-1

COILS (RF-IF)

ITEM No.	USE	PHILCO PART No.	NOTES	ITEM No.	USE	PHILCO PART No.	NOTES
L201	Ant	32-4725-8		L207	Mixer	318-5570	Channel 2-13
L202	Ant	32-4725-8		L208	Osc.	318-5531	Channel 2-13
L203	IF Trap	32-4719-3		L209	RF Choke	32-4852-64	
L204	Ant	318-5587	Channel 2-13	L210	RF Choke	32-4852-65	
L205	RF	318-5569	Channel 2-13	L211	Mixer Plate	32-4852-19	
L206	RF Choke	32-4852-63					

13 POSITION SWITCH-TYPE VHF TUNER TT-105R

CHASSIS 13J27, 13J27U



A PHOTOFACT STANDARD NOTATION SCHEMATIC  
 Drawn by: Sam E. Co., Inc. 1155

CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION

## PARTS LIST AND DESCRIPTION

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

## FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.
C41	.0039		BPD-004	DD-392	L10D39	CCD-392	GP239	5GA-D39
C42	47		1469-000047	CFR-47J	22R5Q47	DM-15-470K		MS-447
C43	.0039 100V 10%		B68D39	CF-392	PM6D39	8DP-1-392	PVC6239	6PS-D39
C44	390		1469-00039	CFR-390J	SR5T39	DM-15-391K		MS-339
C45	.0012	Note 2	SI 1200	D6-122	L10D12	CCD-122	B-212	5GA-D12
C46	470		SI 470	D6-471	L10T47	CCD-471	B-347	5GA-T47
C47	.0033	Note 2	SI 3300	D6-332	L10D33	CCD-332	B-233	5HK-D33
C48	.018		BPD-02	DD-203	BVB682	CCD-203	B-120	5HK-820
C49	.018 600V 10%	#30-4651-43	BE6818		PM6818			
C50	.0015		BPD-0015	DD-152	L10D15	CCD-152	B-215	10TS-D15
C51	.0015		BPD-0015	DD-152	L10D15	CCD-152	B-215	10TS-D15
C52	.0015		BPD-0015	DD-152	L10D15	CCD-152	B-215	10TS-D15
C53	.1		P688N-1	DF-104	CUB6P1	8DP-4-104	GEM-601	6TM-P10
C54	470		SI 470	D6-471	L10T47	CCD-471	B-347	5GA-T47

\* Not normally in distributor's stock. Available thru distributor on order to manufacturer.  
# Philco Part Number Note 1. Part of K2. Note 2. Part of K5.

## CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Contrast Volume, Switch	75K 1meg	33-5592-66	F1-75K, R2-1meg, FFS102, RFS10, KR-1	P-75K-S, R-1meg-Z, CP-102, CSR-110, SW-12	* QJ-1421	* UE4298S
R2A	Vert. Hold Height	430K 4meg	33-5604-7	F1-500K, R1-5meg, FFS103, RS008, AK-38	P-500K-S, R-5meg-S, CP-104	* QJ-1597	* UE4418
R3A	Horiz. Hold Horiz. Centering	30K 100K	33-5592-62	F1-50K, R1-100K, FFS103, RS008, AK-38	P-50K-S, R-100K-S, CP-104	† QJ-1416	† UE4300
R4A	Brightness B Vert. Linearity	250K 1200Ω	33-5592-24	F1-250K, R1-1500, FFS103, RS008, AK-38	RTV-732		* UE4230

\* "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-125, P17-106 (Panel), B13-137, R1-118 (Rear), 76-1.  
† "SNAPTROL" Equivalent: BU5, CF54, CR2, SF8, SR43, GC.  
\* "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-133, P22-109 (Panel), B11-141, R15-005 (Rear), RS.  
† "SNAPTROL" Equivalent: BU7, CF16, SF9, CR17, SR100, DCL.  
† "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-121, P17-106 (Panel), B11-128, R15-005 (Rear), RS.  
\* "STA-LOC" Equivalent: FA753L, RU16A, OS125, IS1625, US-41.  
† "STA-LOC" Equivalent: FA55L, RU46L, OS1250A, IK825.  
† "STA-LOC" Equivalent: FA34L, OS187, RU15L, IK825.  
\* "STA-LOC" Equivalent: FA254L, OS187, RU152L, IK825.

## RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R17	18K 3W		3G-18K		R67	3500Ω 5W	PW5-3500	5W-SQ-3500	
R18	5300Ω 1W	PW7-5300	7W-SQ-5300		R68	2000Ω 10W	PW10-2000	10W-SQ-2000	(2700Ω 10W)*
R28	8200Ω 3W		3G-8200		R70	5.6Ω (Fuse)	FR 5.6	F 5.6	
R50	4.5Ω (Cold)			Thermistor	R71	32Ω 10W	PW10-32	10W-SQ-32	(12Ω 10W)*

\* Alternate

## COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		PHILCO PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.		
L1	47.25MC Trap	32-4645-32	BC-562	4604	RTC-8516	T856		† Includes Detector Assembly
L2	47.25MC Trap	32-4645-47	SW-630	4606	RTC-8517	T857		
L3	41.25MC Trap	32-4645-45	SW-630	4606	RTC-8517	T857		
L4	RF Choke (.17uh)	32-4652-06		4582	RTC-8512	T976		
L5	1st Video IF	32-4645-49	BC-580	4590	RTC-8514	T803		
L6	2nd Video IF	32-4686-28						
L7	3rd Video IF	32-4698-2						
L8	RF Choke (22uh)	32-4674-1	TV-192	6152	RTC-8564	TA311		
L9	RF Choke (3uh)	32-4645-44	BC-564	4606	RTC-8516	T8294		
L10	Peaking (330uh)	30-4762-10	BC-675	6132	RTC-8577	T349		
L11	Sound Takeoff - 4.5MC Trap	32-4688-10	TV-158	7102-P		TA803		
L12	Peaking (150uh)	30-4762-6	BC-871	6120	RTC-8575	T343		
L13	Peaking (330uh)	30-4762-10	BC-875	6132	RTC-8577	T349		
L14	Audio Interstage IF	32-4745-2	TV-157	6270-PC	RTC-8306	TA803		
L15	Quadrature	32-4844-25						
L16	RF Choke (9uh)	32-4112-62	BC-566	4612	RTC-8522	T880		
L17	RF Choke (9uh)	32-4112-62	BC-566	4612	RTC-8522	T880		
L18	File Choke (2.9uh)	32-4645-35	SW-630	4606	RTC-8517	TE293		

## COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
L19	Horiz. Stabilizer		TV-250	6335-G		HB-18	T183	

## FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	PHILCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L20	.3A	30Ω	.9 Hy.	32-8980-2	C-4084	C-2343	26C05	C-28X	† Drill new mounting hole(s).

## \* TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	Vert. Output Yoke (Horiz. 26.5MHz, 1140° Vert. 23MHz)	32-8982-2 76-12279-8	A-2823 MDF-138	VO-112	26872 Y-59	A-108X Y-72-1	† Use original leads. † Use original pincushion magnet if necessary and position same as orig. † Used in Model L3225BE
T2	Horiz. Output	76-12399-1 76-12279-4 32-8955-8	HVO-203	HO-345	Y-59 FLY-106	YC-111 Y-72-1 D-175	† Use original terminal board and mounting bracket.

## \* COMPONENT CONNECTION DATA

ORIGINAL → REPLACEMENT ↓	HV TRANSFORMER					VERTICAL OUTPUT				YOKE				YOKE PLUG							
	Original Connections					Original Connections				Original Connections				TO YOKE TERMINAL							
	1	2	3	4	5	C				Blue White	Red	Black	White					Grn. Whl.	Whl.	Grn. Whl.	Blk. Whl.
MERIT ①	Red	Grn.	Yel.	Blue						Blue	Red	Yel.	Green								
STANCOR ②	1	2	4	3	5	C				Blue	Red	Green	Yel.								
THORDARSON ③	1	2	D	3	5	C				Blue	Red	Green	Yel.					4	5	6	2
TRIAD ③	1	2	D	3	5	C				Blue	Red	Green	Yel.					Grn. Whl.	Blk. Whl.	Red	Blue

- Carefully remove original transformer leads from terminal board and connect replacement transformer leads to original terminal board as shown above.
- Remove jumper between terminals #1 and #4.
- Remove choke from terminals #3 and D, and connect original 120 mhf capacitor to terminals #3 and D. Use original 4700Ω resistor (terminals #2 and C) in place of 2200Ω.
- Remove 160 mhf capacitor.

## TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PHIL	SEC.	PHILCO PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T4	8000Ω	3-4Ω	32-8985-1	A-2998	A-3822	24582	8-8X	† Drill new mounting hole(s).

## SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		PHILCO PART No.	QUAM PART No.	
SP1	4" PM 3-4Ω	36-1855-19	4A07 *	* Trim Basket to fit.

## COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA
K1	Isolation	1.75-3.25meg, .0015mfd	30-8040-2	Centralab PC-377 Sprague PRC-19
K2	Sync Separator	22K, 33K, 220K, 1meg, 1.2meg, 390mmf, .002mfd, .0033mfd	30-6543-3	
K3	Vertical Integrator	22K, 27K, 90K, 150mmf, .004mfd, .005mfd	30-6030-8	Centralab PC-439 Sprague V-27
K4	Horiz. Phase Comp.	82K, 150K, 680K, 1.2meg, 82mmf, 200mmf, .001mfd, .047mfd	30-6035-3	Centralab PC-443
K5	Horiz. Oscillator	6800Ω, 6800Ω, 39K, 580K, 560K, 2.2meg, 470mmf, .0012mfd, .0033mfd	30-6541-6	

## TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amp.	4EH7	V8	Audio Detector	4CS6
V2	2nd Video IF Amp.	4EJ7	V7	Vert. Mult. - Vert. Output	13FD7
V3	Video Output - Sync Sep.	8A78A	V8	Horiz. Mult.	8FQ7
V4	AGC Keying - Audio Output	1LJE8	V9	Horiz. Output Damper	17DQ6B
V5	Sound IF Amp. - Noise Canceller	6EA8	V10	HV Rectifier	17AX4
			V11		1G3

## PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	PHILCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	
V12	19ABP4	19ABP4 ①	19ABP4 ①	19ABP4	① Aluminized ② Silver Screen "85"

## POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.3A	34-8054-1	1N2094 ①	1N1763 or 1N3194	40H or F-4
X2	.3A	34-8064-1	1N2094 ①	1N1763 or 1N3194	40H or F-4

X1 and X2 may use a single unit Part # VB600

## ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA							
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	125	200	30-2566-76	AFB1-25-85 ①	XA0312 ①	XC1-14 ①	TMS-1550 ①	FPI22A ①	TVL-1470 ①	
C2A	140	350	30-2590-41	AFB1-112-05 ①	D0895.7	XC4-29	TMQ-4694	WP423.5	TVL-4705.9	
C2B	100	300			BR100-350		TD-80-350			
C2C	20	300								
C2D	10	450								
C3A	20	300	30-2601-7	AFB3-112-20	CU150	XC3-13.1	TMT-3349	FP330.21A	TVL-3638.1	
C3B	10	300								
C3C	100	50								

① Use insulating sleeves.

## FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCOR PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	2.2 ±.25mmf			TCZ-2R2			CNO-522	10TCC-V22	
C5	1-5			829-6		CV-3	CT552		
C6	1-5			829-6		CV-3	CT552		
C7	1-5			829-6		CV-3	CT552		
C8	1mf 50V		P288N-1.0		WMF1W1E	IDP-5-105	PVC11	2TM-M1	
C9	.0015		BPD-0015	DD-152	L10D15	CCD-152	B-215	10TS-D15	
C10	1-5			829-6		CV-3	CT552		
C11	.0015		BPD-0015	DD-152	L10D15	CCD-152	B-215	10TS-D15	
C12	.0015		BPD-0015	DD-152	L10D15	CCD-152	B-215	10TS-D15	
C13	47	10%	DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47	
C14	.0015		BPD-0015	DD-152	L10D15	CCD-152	B-215	10TS-D15	
C15	.0082			DD-822		CCD-822	B-282		
C16	18 N330 5%	#31-1251-48						10TCS-Q18	
C17	5 N330 ±.25mmf	#30-1251-32							
C18	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C19	.022 400V		P488N-022	DD-203	CUB4822	4DP-2-223	GEM-4122	4TM-822	
C20	120 5KC 5%	#30-1246-34							
C21	560 200AC 10%			DD-561					
C22	27 N330 10%	#30-1263-6				CCD-561	GP356	10TS-T56	
C23	.0022		SI 2200	D6-222	L10D22	CCD-222	B-222	10TCS-Q27	
C24	.0047		BPD-0047	DD-472	BYA10D47	CCD-472	B-247	5HK-D47	
C25	.680		BPD-00688	DD-681	BYA10T68	CCD-681	B-368	10TS-T68	
C26	27	10%	DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-Q27	
C27	.001		SI 1000	D6-102	L10D1	CCD-102	B-210	5HK-D10	
C28	.47 100V		P288N-47		WMF1P47E	IDP-4-474	PVC1047	2TM-P47	
C29	.0015		BPD-0022	DD-222	L10D33	CCD-222	B-222	10TS-D22	
C30	.0033		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33	
C31	.0047		BPD-0047	DD-472	BYA10D47	CCD-472	B-247	5HK-D47	
C32	.002	Note 1	SI 2000	D6-202	L10D2	CCD-202	B-220	5HK-D20	
C33	.0033	Note 1	SI 3300	D6-332	L10D33	CCD-332	B-233	5HK-D33	
C34	.390	Note 1	SI 390	D6-391	L10T39	CCD-391	B-339	5GA-T39	
C35	.0082 400V 10%		BF682	CF-822	PM682	6DP-2-822	4DP-3-683	GEM-4168	
C36	.068 400V		P488N-068		CUB6808			TA-150	
C37	.05 50V		TTD-05	CK-503	E-0585			10T-850	
C38	.015 1000V		P1088N-0015	D5-152	CUB1015	16DP-2-152	GEM-10215	6TM-822	
C39	.680		SI 680	D6-681	L10T68	CCD-681	B-368	5GA-T88	
C40	.0022 800V		P588N-0022	DD-222	CUB6822	6DP-1-222	GEM-6222		