

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune in a TV station and set all controls for normal operation. Short Point  $\diamond$  to ground. Connect a jumper across Horizontal Stabilizer coil, L22. Adjust Horizontal Hold (Fine) control to the center of its range. Adjust Horizontal Hold (Coarse) control until the picture stops or floats slowly across the screen. Remove short from Point  $\diamond$

DISASSEMBLY INSTRUCTIONS

**CHASSIS REMOVAL**

Remove thirteen screws holding back cover and disconnect antenna leads. Remove all knobs.

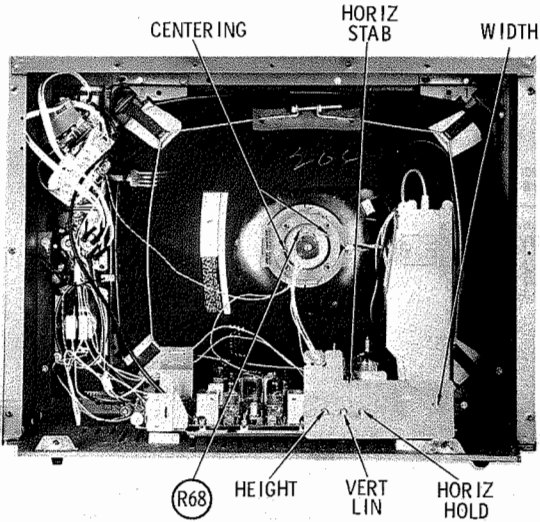
Remove picture tube socket, high voltage anode lead, yoke, speaker leads, and ground leads.

Remove three screws holding controls, four screws holding tuners, and five screws holding chassis. Lift tuners, controls, and chassis from the cabinet.

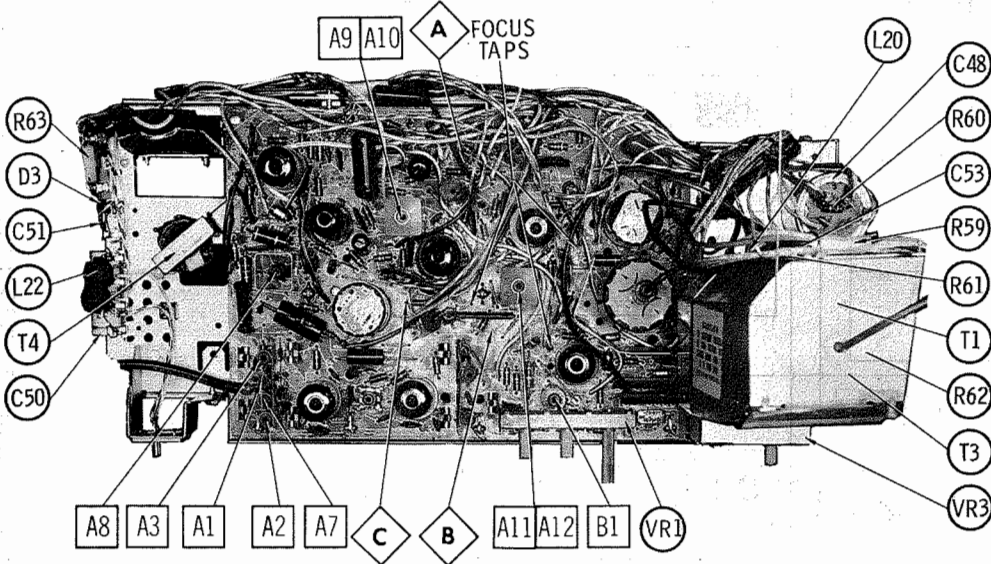
**PICTURE TUBE REMOVAL**

Follow "Chassis Removal" procedure. Lay set face down on a soft protective surface.

Remove one screw holding picture tube retaining wire. Lift picture tube out but do not lift by the neck.



CABINET-REAR VIEW  
CHASSIS-TOP VIEW



TROUBLESHOOTING CHECK CHART

The following chart lists component failures most likely to produce indicated symptoms.

SWEEP

No raster, has sound V4, V7, V8, V11, V12  
No vert. deflection V6  
Poor vert. lin. or foldover V6  
Poor horiz. lin. or foldover V4, V7, V8  
Narrow picture V4, V7, V8  
Vert. off freq. V6  
Horiz. off freq. V8, D1 AFC Diode

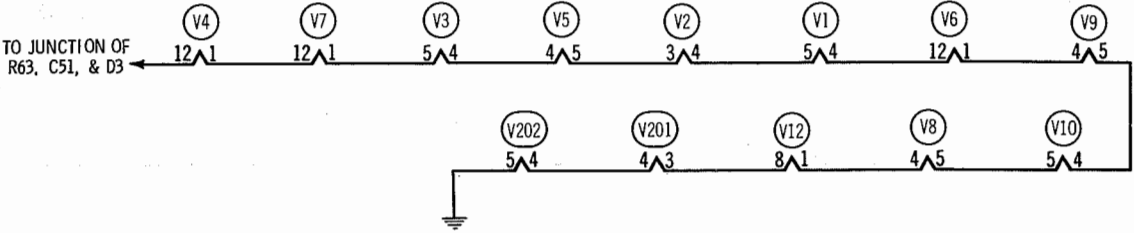
PICTURE OR SOUND

No pic, no sound, no raster Circuit Breaker, D3, R64  
No pic, no sound, has raster V201, V202, V3, V9, V10, D2  
No pic, no sound, has snow V201, V202, V9  
No pic, has sound, no raster V4, V7, V8, V11, V12  
No pic, has sound, has raster V3, V12  
Has pic, no sound V1, V2, V5  
Overloaded picture V1

SYNC

No vert. sync V6  
No horiz. sync V8, D1  
No vert. or horiz. sync V5

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.)



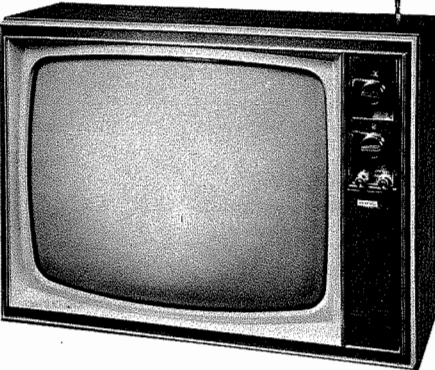
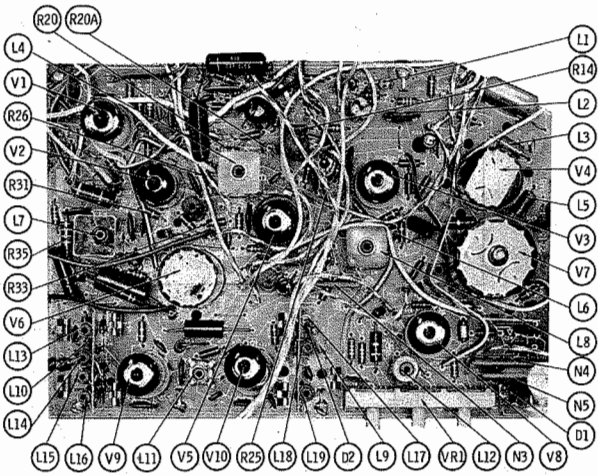
PHOTOFACT® Folder

with CIRCUITRACE™

PHILCO-FORD MODELS B820TWA,  
B830TWA (Ch. 20V35)

For Supplier Address See PHOTOFACT Index

PRINTED BOARD TOP VIEW



SAFETY PRECAUTIONS

Make sure line voltage does not exceed rating of set. Check high-voltage regulation and adjust to correct value.

Beware of shock from high voltage or AC line. Discharge high voltage to HV cage only.

Be sure shields and rear cover are in place and secure.

Use extreme care when handling picture tube. Do not bump, scratch, or exert undue strain.

**CAUTION:** One side of AC line connected to chassis. Use isolation transformer for servicing. Make certain isolation networks are in place and exposed metal is safe to touch before returning set to customer.

SERVICING IN THE FIELD

SAFETY GLASS

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

FUSE OR FUSE DEVICE

A 3 ohms fusistor is used for low voltage power supply protection.

VHF OSCILLATOR ADJUSTMENT

To touch up VHF oscillator, adjust oscillator slug (one for each channel). It may be necessary to adjust overall oscillator trimmer for best results.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal hold is accomplished by the proper setting of the Horizontal Hold control, Horiz.

Aux. and Horizontal Stabilizer Coil.

WIDTH

The width may be varied by a Width control. (See "Tube Placement Chart" for location.)

FOCUS

The focus may be varied by connecting the lead from pin 4 of the picture tube to various voltage points. (For location, see "Chassis - Top View" photo.)

CENTERING

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

REMEMBER TO ASK— "What else needs fixing?"

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

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. UA733

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DATE 8-70 SET 1118 FOLDER 2



SET 1118 FOLDER 2

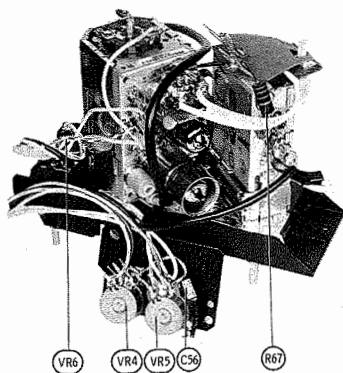
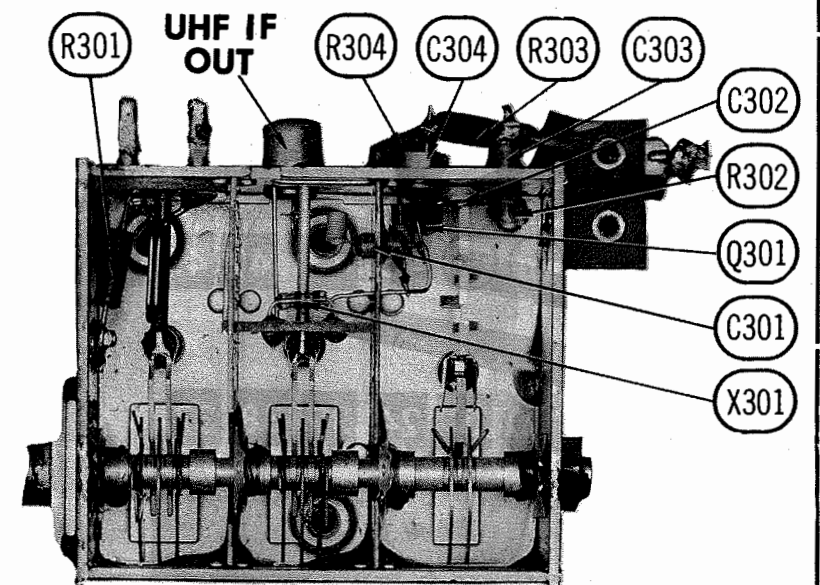
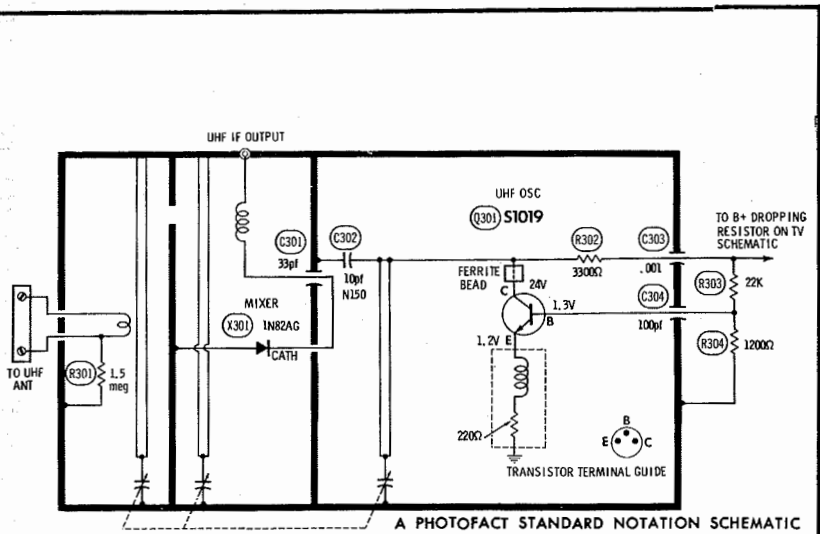
PHILCO-FORD MODELS B820TWA,  
B830TWA (Ch. 20V35)

PHILCO-FORD MODELS B820TWA,  
B830TWA (Ch. 20V35)

SET 1118 FOLDER 2

PHILCO-FORD MODELS B820TWA,  
B830TWA (Ch. 20V35)

FOLDER 2



TUNER MOUNTING ASSEMBLY

PHILCO-FORD MODELS B820TWA, B830TWA (Ch. 20V35)

FOLDER 2

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune in a TV station and set all controls for normal operation. Short Point  $\diamond$  to ground. Connect a jumper across Horizontal Stabilizer coil, L22. Adjust Horizontal Hold (Fine) control to the center of its range. Adjust Horizontal Hold (Coarse) control until the picture stops or floats slowly across the screen. Remove short from Point  $\diamond$ .

## DISASSEMBLY INSTRUCTIONS

### CHASSIS REMOVAL

Remove thirteen screws holding back cover and disconnect antenna leads. Remove all knobs.

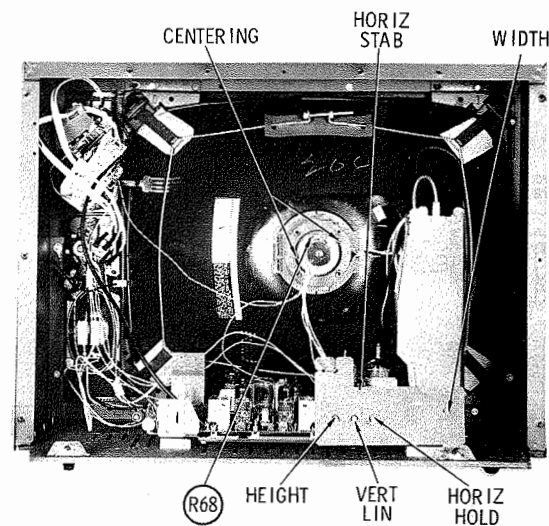
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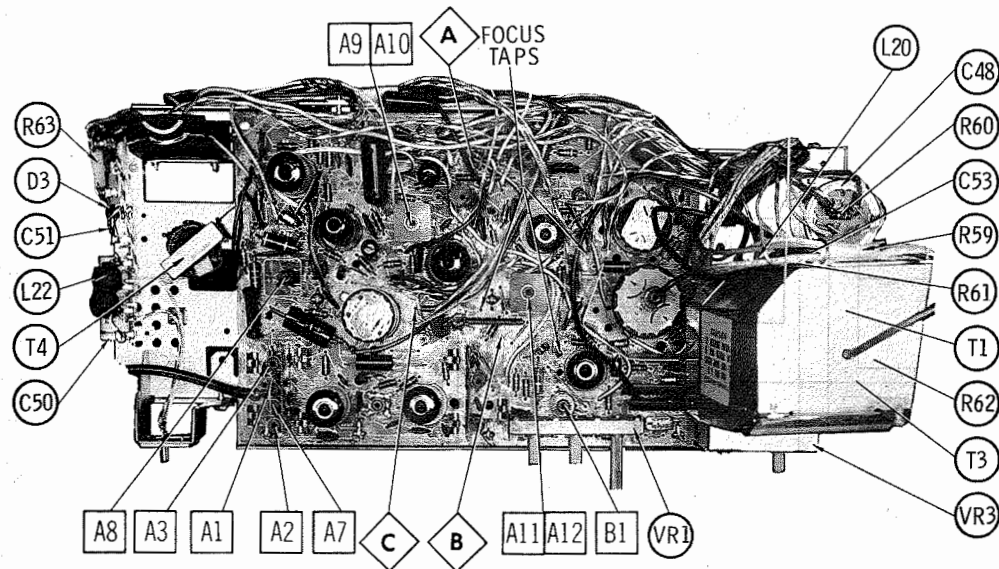
### PICTURE TUBE REMOVAL

Follow "Chassis Removal" procedure. Lay set face down on a soft protective surface.

Remove one screw holding picture tube retaining wire. Lift picture tube out but do not lift by the neck.



CABINET-REAR VIEW  
CHASSIS-TOP VIEW



## TROUBLESHOOTING CHECK CHART

The following chart lists component failures most likely to produce indicated symptoms.

### SWEEP

No raster, has sound V4, V7, V8, V11, V12  
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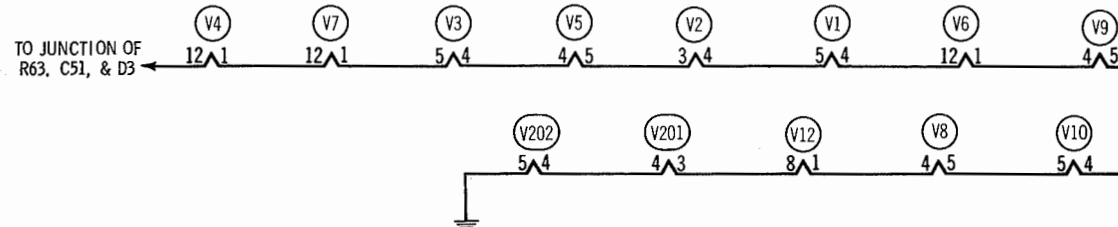
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No pic, has sound, has raster V3, V12  
Has pic, no sound V1, V2, V5  
Overloaded picture V1

### SYNC

No vert. sync V6  
No horiz. sync V8, D1  
No vert. or horiz. sync V5

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.)



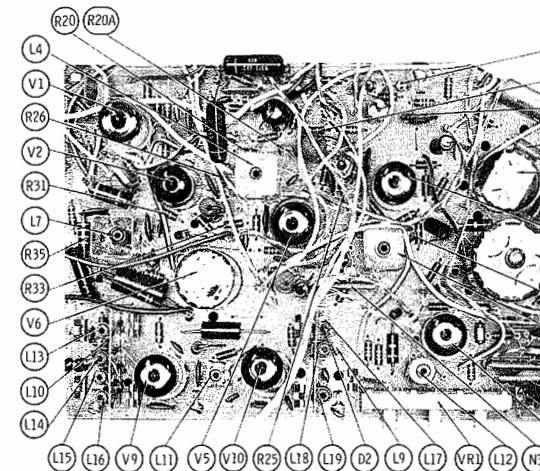
SET 1118 FOLDER 2

PHILCO-FORD MODELS B820TWA, B830TWA (Ch. 20V35)



PHOTOFACT® Folder with CIRCUITRACE™

For Supplier Address See PHC  
PRINTED BOARD TOP VIEW



## SAFETY PRE

Make sure line voltage does not exceed rating of set. Check high-voltage regulation and adjust to correct value. Be sure shields and rear cover are in place and secure.

CAUTION: One side of AC line connected to chassis. Use Make certain isolation networks are in place to customer.

## SERVICING IN

### SAFETY GLASS

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

### FUSE OR FUSE DEVICE

A 3 ohms fusistor is used for low voltage power supply protection.

### VHF OSCILLATOR ADJUSTMENT

To touch up VHF oscillator, adjust oscillator slug (one for each channel). It may be necessary to adjust overall oscillator trimmer for best results.

### HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

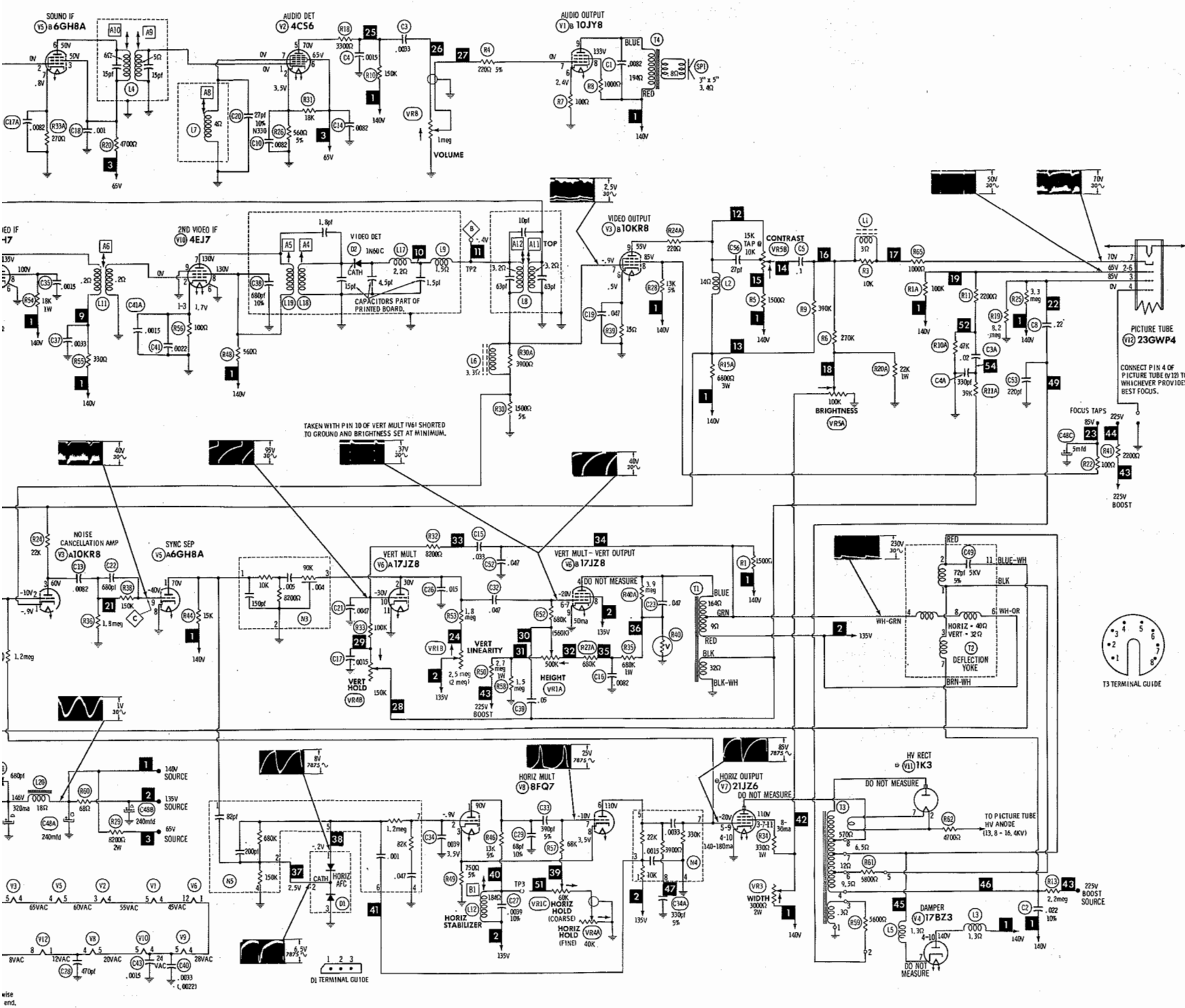
Adjustment of the horizontal hold is accomplished by the proper setting of the Horizontal Hold control, Horiz.

## REMEMBER TO ASK—

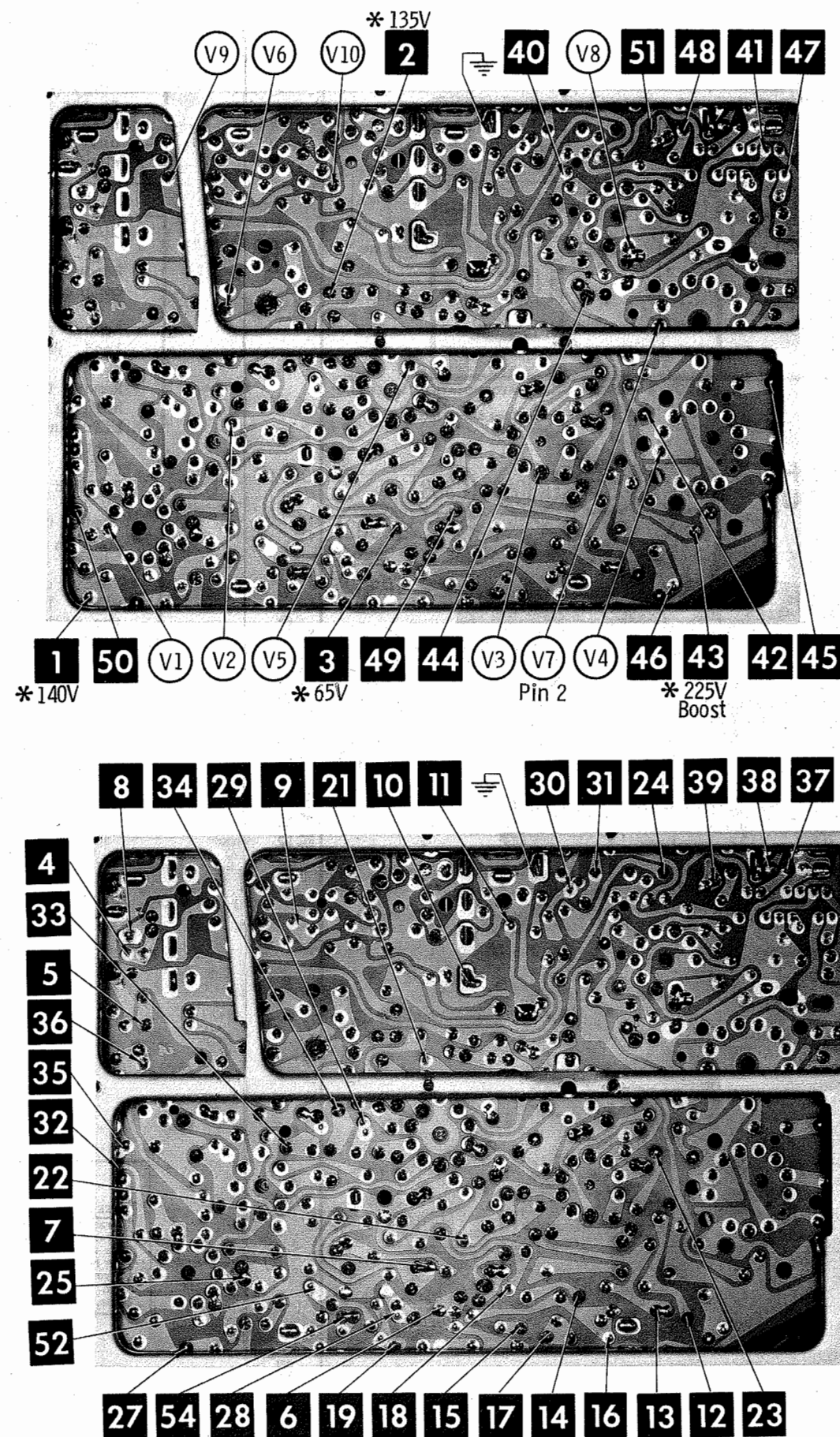
## HOWARD W. SAMS & CO.,

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PHILCO-FOER MODELS RB307WA, RB307WA (Ch. 20V33)







RESISTANCE MEASUREMENTS

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 12	TOP CAP
V1	10JY8	16.5Ω †	18.2K †	1.43meg	17Ω	19Ω	100Ω	200K	1020Ω †	288Ω †				
V2	4CS6	5Ω	546Ω	20Ω	19Ω	153K †	7210Ω †	3.5Ω						
V3	10KR8	1485Ω *	844K	27.7K †	23Ω	26Ω	15Ω	1475Ω *	13K †	4870Ω †				
V4	17BZ3	33Ω	TP	TP	18Ω †	NC	NC	5.89meg	NC	NC	18Ω †	NC	39Ω	
V5	6GH8	10.5K †	2Ω	12K †	23Ω	20Ω	12K †	270Ω	0Ω	1.96meg				
V6	17JZ8	11.1Ω	2.54meg †	NC	235Ω †	NC	1.84meg	1.84meg	83Ω †	0Ω	155K	0Ω	17Ω	
V7	21JZ6	26Ω	0Ω	3260Ω †	0Ω	305K	TP	3660Ω †	TP	305K	0Ω	NC	33Ω	7.8Ω ⊖
V8	8FQ7	13K †	2.3meg	750Ω	4.9Ω	8.3Ω	30K †	115K	750Ω	0Ω				
V9	4EH7	24Ω	423K	24Ω	11.1Ω	9.6Ω	0Ω	384Ω †	18K †	0Ω				
V10	4EJ7	100Ω	.1Ω	100Ω	9.6Ω	8.3Ω	0Ω	578Ω †	578Ω †	0Ω				
V11	1K3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE												525Ω ⊖
V12		4.9Ω	NC	2.4meg †	0Ω	TP	40K †	155K	3.2Ω					
V201	3HQ5	1meg	0Ω	3.2Ω	2Ω	2420Ω †	0Ω	0Ω						
V202	5647/ LCF801	0Ω	160K	0Ω	2Ω	0Ω	900Ω †	18K †	19K	15K				
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 12	TOP CAP

\* READING DEPENDS ON POLARITY OF METER CONNECTIONS.  
NC NO CONNECTION TP TIE POINT

† MEASURED FROM CATHODE OF D3.  
⊖ MEASURED FROM PIN 7 OF V4.

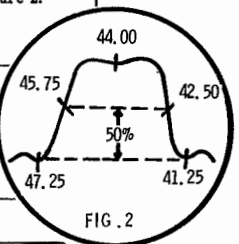
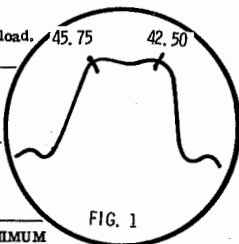
ALIGNMENT INSTRUCTIONS

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 A12 ... GENERAL CEMENT #8606, 8869, 9302 ... WALSCO #2511, 2543, 2588

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use only enough generator output to provide a usable indication. Note: Response may vary slightly from those shown. Connect a variable bias supply to the IF AGC line (point Ⓢ) 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 Ⓢ. Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		41.25MC 47.25MC	A1, A2, A3	Adjust for MINIMUM.
2. Connect vertical input of a scope to point Ⓢ. Low side to ground.	Connect high side to pin 2 (grid) of V10. Low side to ground.	44MC (10MC Sweep)	42.50MC 45.75MC	A4, A5	Adjust for maximum amplitude and MINIMUM tilt with markers as shown in Figure 1.
3. Connect vertical input of a scope to point Ⓢ. Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44MC (10MC Sweep)	41.25MC 42.50MC 44.00MC 45.75MC 47.25MC	A6, A7 and Mixer Plate Coil	Adjust for maximum gain and symmetry of response with markers as shown in Figure 2.

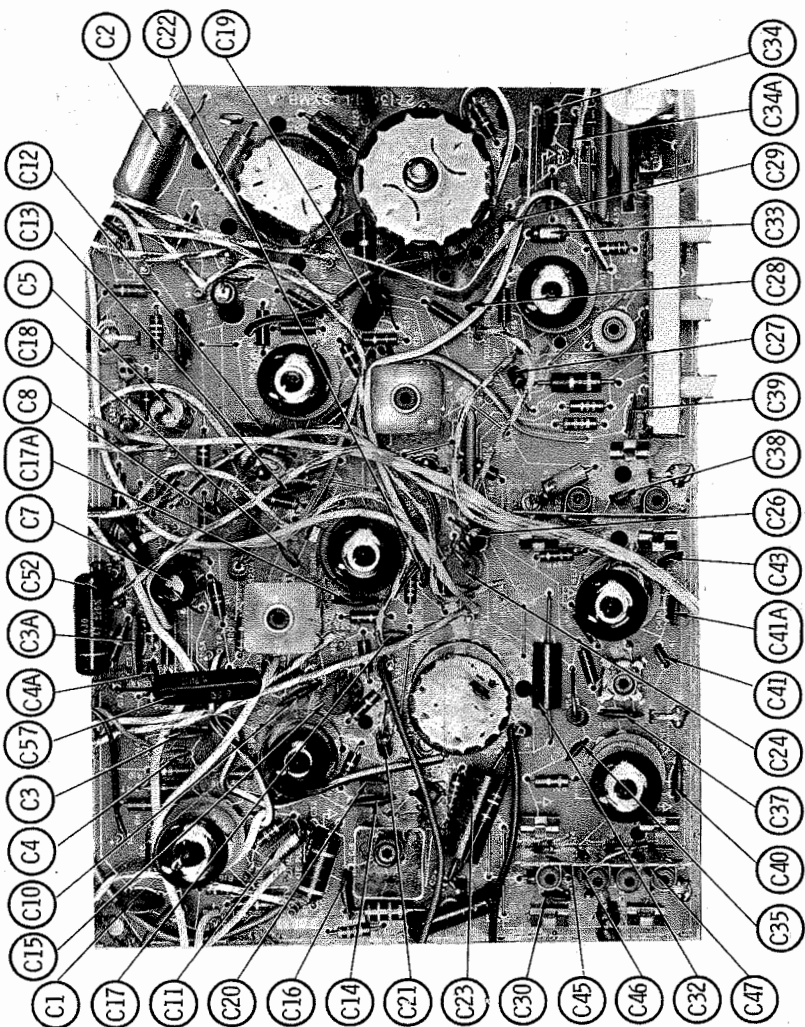
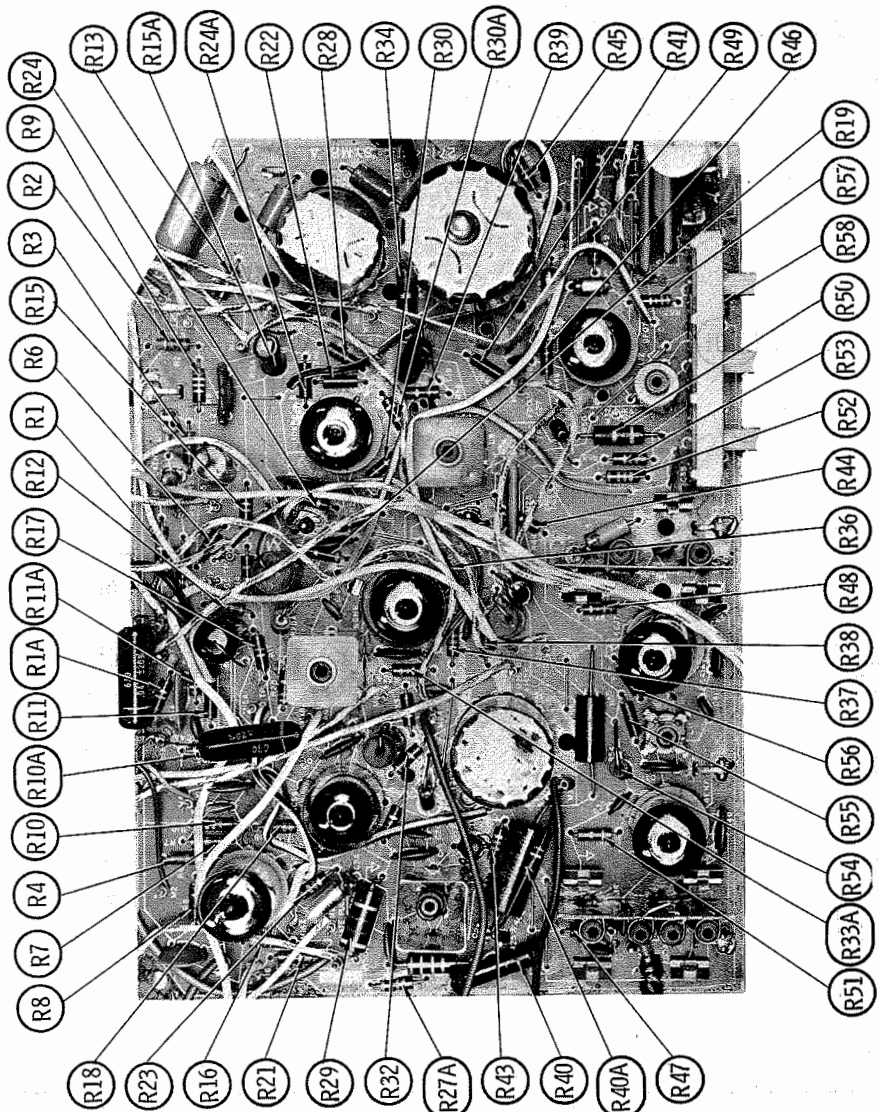


SOUND IF ALIGNMENT

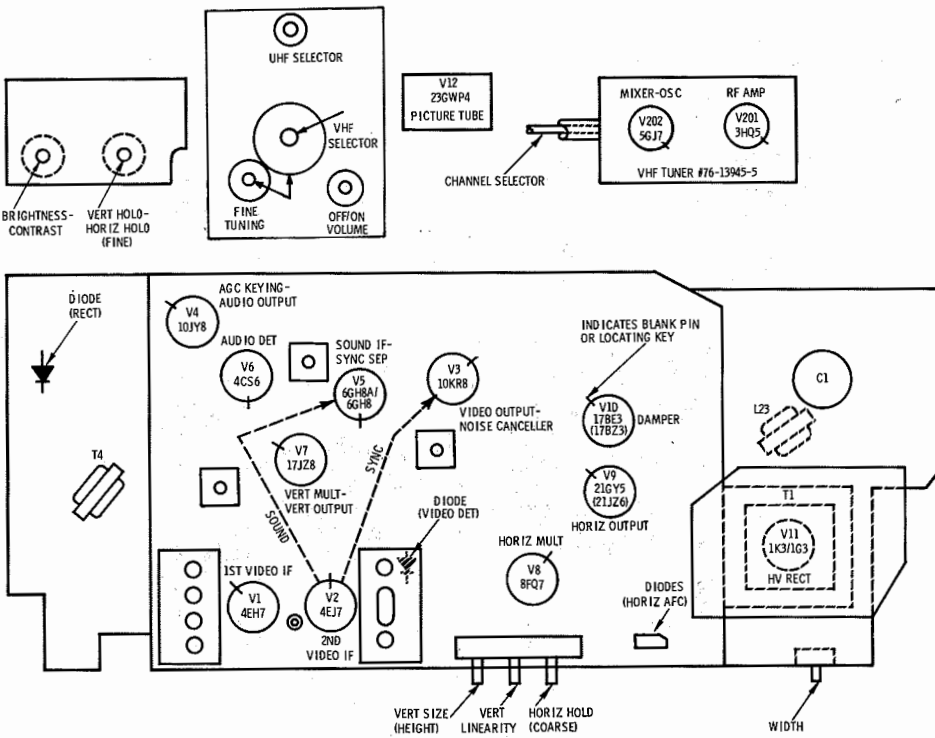
Tune in a station and adjust A8 for maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce signal while aligning for undistorted output by adjusting A9, A10 and A11.

4.5 MC TRAP ALIGNMENT

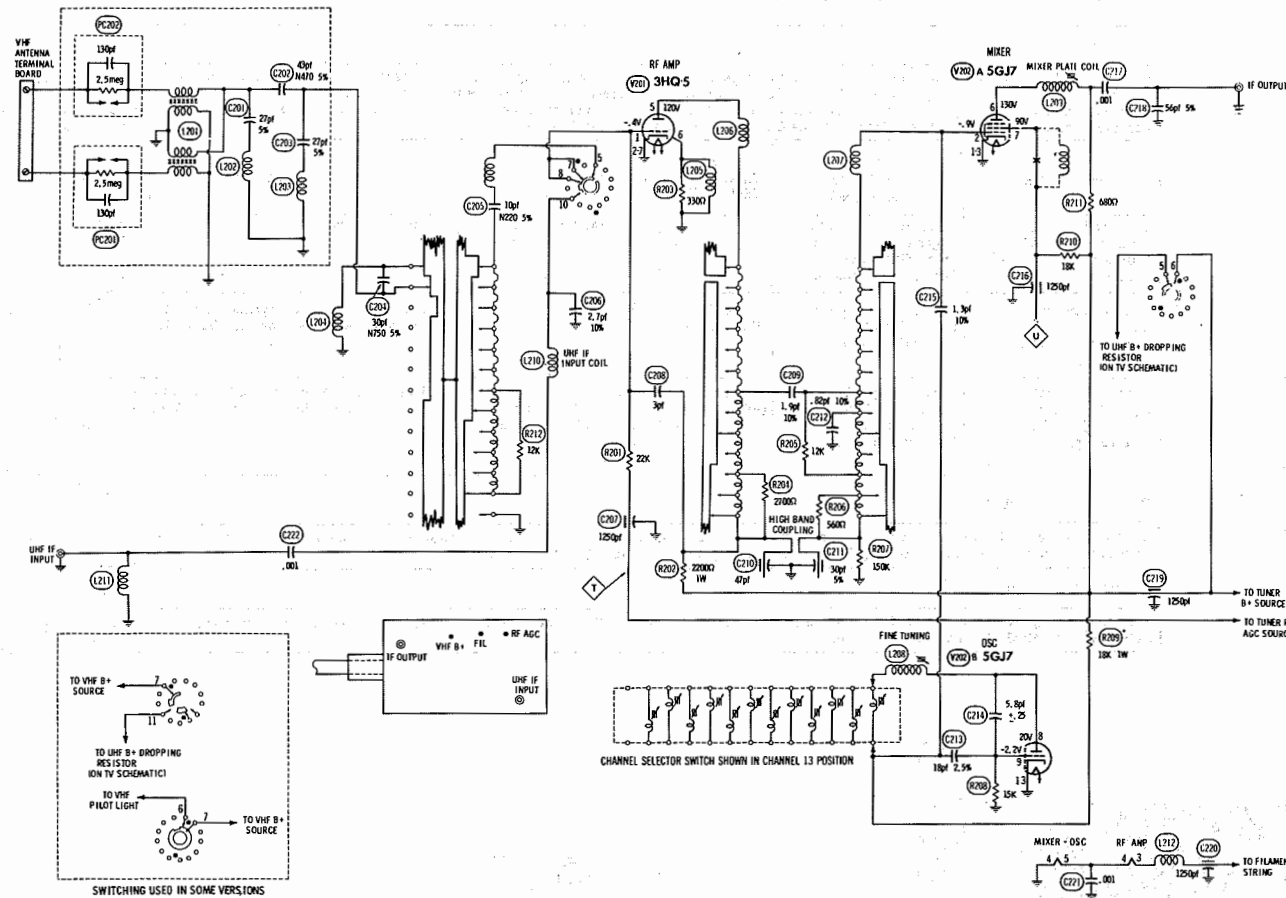
Tune in a strong TV signal and set the Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible on the screen. Adjust A12 for MINIMUM beat interference.



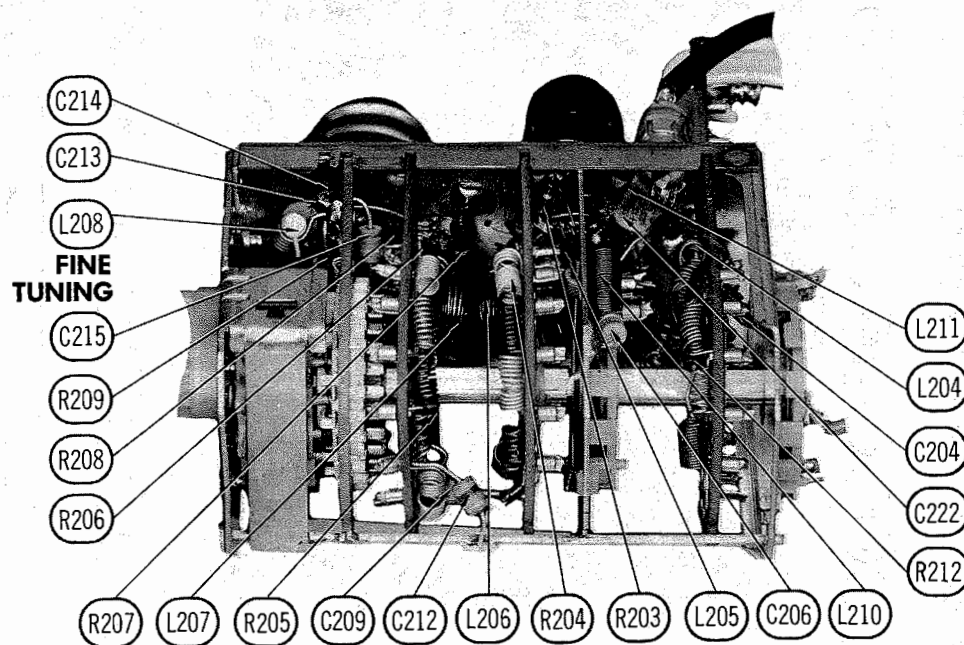
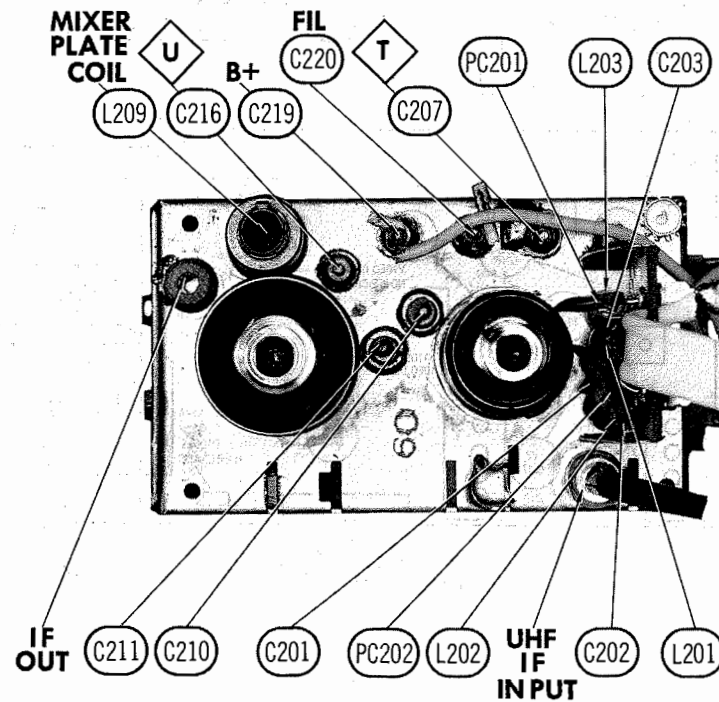
PRINTED BOARD-TOP VIEW



TUBE PLACEMENT CHART



A PHOTOFAC STANDARD NOTATION SCHEMATIC  
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## VHF TUNER ALIGNMENT INSTRUCTIONS

### OSCILLATOR ADJUSTMENTS

The individual oscillator slugs are accessible one at a time through a hole in the front of the tuner. Set the Fine Tuning to the center of its range and adjust oscillator for best picture and sound on each active channel.

### RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use 10MC sweep unless otherwise noted. Connect a variable bias to the RF AGC line at point (1). Adjust bias to obtain response curve which shows no indication of overloading.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Input to Point (1), low side to ground.		Expand or compress appropriate coils for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2. "	195MC	193.25MC 197.75MC	10	Across Video Det. load resistor.	Gimmick	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
3. "	See Chart	See Chart	12 thru 2	Vert. Input to Point (1), low side to ground.		Check all channels and make compromise adjustments by expanding or compressing appropriate coils if necessary.

### CHANNEL & FREQUENCY CHART

SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SOUND	VIDEO
57MC	55.25MC 59.75MC	2	85MC	83.25MC 87.75MC	6	195MC	193.25MC 197.75MC	10		
63MC	61.25MC 65.75MC	3	177MC	175.25MC 179.75MC	7	201MC	199.25MC 203.75MC	11		
69MC	67.25MC 71.75MC	4	183MC	181.25MC 185.75MC	8	207MC	205.25MC 209.75MC	12		
75MC	73.25MC 77.75MC	5	189MC	187.25MC 191.75MC	9	213MC	211.25MC 215.75MC	13		

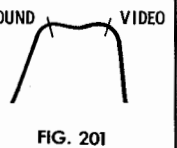


FIG. 201

## UHF TUNER ALIGNMENT INSTRUCTIONS

Tune UHF Channel Selector to the lowest UHF channel (low end of dial) operating in the area. Adjust UHF Low Channel Oscillator Trimmer for best picture and sound. Tune to the highest UHF channel (high end of dial) in the area and adjust UHF High Channel Oscillator Trimmer for best picture and sound. Repeat above steps until no further improvement can be made. Tune to a UHF station and adjust UHF IF Input Coil for best picture and sound.

## VHF TUNER PARTS LIST AND DESCRIPTION

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

### TUBES

AMPEREX			GENERAL ELECTRIC			RCA			SYLVANIA		
ITEM No.	USE		TYPE			ITEM No.	USE		TYPE		
V201	RF Amp		3HQ5			V202	Mixer - Oscillator		5GJ7		

### CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27	#30-1251-44	NPO-DI 3	TCZ-27	*	*	CNO427	10TCC-Q27
C202	43							10TCC-Q27
C203	27							10TCU-Q30
C204	30							10TCR-Q10
C205	10							10TCC-V27
C206	2.7							10TCC-V37
C207	1250							10TCC-V18
C208	3							
C209	1.9							
C210	47							
C211	30	#76-13602-07	DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C212	.82pf							10TCC-Q56
C213	18							
C214	5.8							
C215	1.3							
C216	1250							
C217	.001							
C218	56							
C219	1250							
C220	1250							
C221	.001	#76-13602-104	DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C222	.001							10TS-Q10

\* Not normally in distributor's stock. Available thru distributor on order to manufacturer. #PHILCO part no.

### COILS (RF-IF)

ITEM No.	USE	MFGR. PART No.	NOTES	ITEM No.	USE	MFGR. PART No.	NOTES
L201	Balun		(1)	L207	Mixer Grid		5 Turns
L202	RF Choke		(1)	L208	Fine Tuning	76-13602-72	
L203	RF Choke		(1)	L209	Mixer Plate Coil	76-13602-86	
L204	Antenna Input		(2)	L210	UHF IF Input	76-13602-34	22 Turns
L205	RF Choke		1 Turn	L211	UHF IF "Tuning	76-13946-7	8 Turns
L206	RF Plate		7 Turns	L212	Filament Decoup.	76-13602-33	12 Turns

(1) Part of Antenna Filter Assembly.

(2) Part of RF Grid Switch.

### MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
PC201	Antenna Isolation (1)		2.5meg, 130pf - CENTRALAB Replacement RC-428.
PC202	Antenna Isolation (1)		2.5meg, 130pf - CENTRALAB Replacement RC-428.

(1) Some versions may use 1.75-3.25meg, 130pf in this application.

## UHF TUNER PARTS LIST

### TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA					
			MFGR. PART No.		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.
X301	SI019	UHF Oscillator	76-13570-39		GE-11	TR-24	HEP56	SK3019

### POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
X302	76-13570-65(1N82AG)	1N82A	1N82AG	ECG 112		

### CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	33		NPO-DI 10	DTZ-10	C2601CG100J	CCTO-100	CNO410	10TCC-Q10
C302	10							
C303	.001							
C304	100							

## PARTS LIST AND DESCRIPTION

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

Replacement parts shown may be superseded by the availability of newly introduced replacements.

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

### WIRING DATA

High Voltage Lead	Use BELDEN No. 8869 (17KV)
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor)
	8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors
	8524 (Stranded) Available in 12 Colors
300-Ohm Tuner Input Lead	Use BELDEN No. 8225
300-Ohm Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor
	8485 (Round) - 5 Conductor
	8488 (Round) - 8 Conductor

### PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	MFGR. PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V12	23GMP4	23GMP4 (1)	23GMP4 (1)	23GMP4 (2)	(1) Aluminized (2) Silver Screen "85"

### TUBES

AMPEREX			GENERAL ELECTRIC			RCA			SYLVANIA		
ITEM No.	USE		TYPE			ITEM No.	USE		TYPE		
V201	RF Amp.		3HQ5			V5	Sound IF - Sync Separator		6GH8A		
V202	Mixer - Oscillator		5GJ7			V6	Vert. Mult. - Vert. Output		17J28		
V1	AGC Keying - Audio Output		10JY8			V7	Horiz. Output		21J26 (21GY5)		
V2	Audio Detector		4CS6			V8	Horiz. Mult.		8F07		
V3	Video Output -		10KR8			V9	1st Video IF		4EH7		
V4	Noise Canceller		17B23 (17BE3)			V10	2nd Video IF		4EJ7		
	Dampers					V11	HV Rectifier		1G3/1K3		

### POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MFGR. PART OR TYPE No.	REPLACEMENT RECTIFIERS & DIODES			REPLACEMENT RECTIFIERS	NOTES
		GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	SYLVANIA PART No.	RCA PART No.	
VD1	34-8037-1	6GC1	DD04	ECG 113		
VD2	34-8022-6 (91N60C)	1N60	1N60	ECG 109		
VD3	34-8054-7	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3031 or SK3017A	

### ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PHILCO-FORD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C48A	240 175V	30-2616-13	AFH4-01-66		DD001B.1A	XC3-20 & QT1-27	FP412.13	TVL-4477
B	240 175V							
C	5 175V							
D	160 175V							

### CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.
C1	.0082		GPD X5R822K	DD-822	DMF6S22	CCD-822	PVC6122	10TS-D82
C2	.022	500V 10%	DBE6S22					6PS-S22
C3	.0033		GPD X5R332K	DD-332	JBV601YP332K	CCD-332	JF233	10TS-D33
C3A	.02		GPD Z5U203P					10TS-D30
C4	.0015		GPD X5F152K	DD-152		CCD-152	GP215	10TS-D15
C4A	330		GPD X5F331K					10TS-D13
C5	.1	200V	DBE2P1	DD-331	GP330	2DP-3-104	GP201	2PS-P10
C7	.22	100V	V1212P22		DMF1P22	1DP-3-224	PVC1022	2PS-P22
C8	.22	100V	V1612P22	DD-822	DMF1P22	1DP-3-224	PVC1022	2PS-P22
C10	.0082		GPD X5R822K		CD19F681J500	CCD-822	SX368	10TS-D82
C11	680	10%	GPD X5R822K	CPR-680J		DM-16-681J		MS-368
C12	.0082		GPD X5R822K			CCD-822		10TS-D82
C14	.0082		GPD X5R822K	DD-822	DMF4S33	4DP-2-333	PVC6133	10TS-D82
C15	.033	400V	DBE6S33			CCD-822		4PS-S33
C16	.0082		GPD X5R822K	DD-822		CCD-152	GP215	10TS-D82
C17	.0015		GPD X5F152K		DD-152	CCD-822		10TS-D15
C17A	.0082		GPD X5R822K	DD-822		CCD-102	GP210	10TS-D82
C18	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102		10TS-D10
C19	.047	100V 10%	V1612S47		DMF1S47	1DP-2-473	PVC1147	225P47391
C20	27	N330		CPR-4700J	PM2D47	6DP-1-472	PVC6247	10TCC-Q27
C21	.0047	200V			JBV601YP681K	CCD-681	GP368	6PS-D47
C22	680		GPD X5F681K	DD-681	DMF6S47	6DP-3-473	PVC6147	10TS-T68
C23	.047	600V	DBE6S47		DMF1P15	1DP-3-154	PVC1015	6PS-S47
C24	.15	100V	V1612P15	CPR-390J	DMF2S15	4DP-2-153	PVC2115	2PS-P15
C26	.015	200V	V1612S15		WMF1D39	6DP-1-392	PVC6239	4PS-S15
C27	.0039	100V 10%	DBE6D39	DD-471	JBZ601YP471K	CCD-471	GP347	6PS-D39
C28	470		GPD X5F471K		CD15E680J500	DM-15-680J	SX468	10TS



## PARTS LIST AND DESCRIPTION (CONTINUED)

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

Replacement parts shown may be superseded by the availability of newly introduced replacements.

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

## CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMenco PART No.	MALLORY PART No.	SPRAGUE PART No.
C38	680		GPD X5F681K	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68
C39	.05 50V		TTP-05	CK-503	H0V101ZV503Z	CCD-503	TA150	TGL-S50
C40	.0022		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C41	.0022		GPD X5F222K	DD-222	GP220	CCD-222	GP222	10TS-D22
C41A	.0015		GPD X5F152K	DD-152		CCD-152	GP215	10TS-D15
C43	.0015		GPD X5F152K	DD-152	GPD X5F152K	CCD-152	GP215	10TS-D15
C45	6 NPO	#30-1287-12						10TCC-V56
C46	39 N330 5%					*	*	10TCC-V56
C47	6 NPO	#30-1293-43						10TCC-V56
C49	120 N2200/5KV/5%	#30-1246-36						
C50	.22 400V		DBE6P22		DMF4P22	4DP-5-224	PVC4022	4PS-P22
C51	680 10%		GPD X5F681K	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68
C52	.047 400V		DBE6S47		DMF4S47	4DP-3-473	PVC4147	4PS-S47
C53	220		GPD X5F221K	DD-221	JBY601YP221K	CCD-221	GP322	10TS-T22
C56	27			DD-270	NP0270	CCD-270	GP427	10TS-Q27
C57	.22		DBE6P22		DPMS4P22	4DP-5-224	PVC4022	4PS-P22
C58	.001 1.4KV		HVD-15-1000	DD30-102	HV3-1000	3CCD-102	2HV210	30GA-D10

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

# Philco-Ford Part Number.

## CONTROLS (All wattages 1/2 watt, or less, unless listed)

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA					
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
VR1A	Height	500K	33-5632-4			H4(2) [A-E17,A3]		
B	Vert. Linearity	2.5meg				[B-E22,A3]		
C	Horiz. Hold (Coarse)	60K				[C-E11,A3]		
A	Height	500K	33-5595-8 (3)			H4(2) [A-E17,A3]		
B	Vert. Linearity	2meg				[B-E21,A3]		
B	Horiz. Hold (Coarse)	60K				[C-E11,A3]		
VR3	Width	3000, 2W	33-5620-1	WT-3K, WSK104 or WB2.5K or V	U39-3000 (4) or [NPM-3000, NML-A-300, TT-2]	P1152A, P115-117-1 or [BUT,WF7,SS6] * (5) QJ-2538	MR3000T, MRS1250 or MRS2500B	
VR4A	Horiz. Hold (Fine)	40K						
B	Vert. Hold	100K	33-5618-33	F1-50K, R1-100K, FFS008, RFS100		(6) QJ-2530	P54L, 3014, RU15L, OX500, IS1000	
VR5A	Brightness	100K						
B	Contrast	15K, Tap @ 10K	33-5618-32	F55-15K (1), R2-100K, FFS008, RFS100			P153T14, 3014, RU15A, OX500, IS1000	
VR6	Volume/Switch	1meg	33-5634-6	F2-1meg, SFS212, KR-1	A47-1meg-Z, RS-3/16, SWE-12 or [NP-1meg-Z, SE-F-400, NWE-12]	B13-137, SK9, 76-1 or [BU2, CF26, SS4, GC] * 2	RU16A, SL35, IS1875, US41 or [UA16A, SD3500, US31] or (US3, DS37, US26)	

(1) Do not use 5000-ohm Tap.

(2) To establish section identification of side-by-side controls (controls viewed from shaft ends, terminals down): For 3-section controls, left-hand section is "A", middle section is "B", right-hand section is "C". For 2-section controls, left-hand section is "A", right-hand section is "B".

(3) May be used in some versions.

(4) Insulate control from chassis and solder original center terminal lead to metal case of control.

(5) "CONCENTRIKIT" Equivalent: K-15 Kit with base elements and shafts: B11-123, P22-015 (Panel), B13-128, R1-100 (Rear).

(6) "CONCENTRIKIT" Equivalent: K-15 Kit with base elements and shafts: B13-118X, P22-015 (Panel), B13-128, R1-100 (Rear).

\* "SNAPTROL" Equivalent: BU4, CF21, CR8, SF67, SR107, DC1.

\* "SNAPTROL" Equivalent: BU4, CF42T, CR63, SF67, SR107, DC1.

## RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		WORKMAN PART No.	MFGR. PART No.			WORKMAN PART No.	MFGR. PART No.
R15A	6800 3W	3G-6800		R63	3-ohm Fusible		33-1381-5
R40	VDR * (560V @ 10ma)		33-1373-6				

\* Voltage Dependent Resistor

## COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	Peaking (180uh)	32-4762-7	19-3180	6180	T344
L2	Peaking (330uh)	32-4762-20	19-3330	6132	T349
L3	RF Choke (9uh)	32-4112-62	19-2015	4611	T860
L4	Sound Interstage	32-4745-12	17-3489	6270-PC	T255
L5	RF Choke (9uh)	32-4112-62	19-2D15	4611	T860
L6	Peaking (220uh)	32-4762-25	19-2027	72F224AP	T345
L7	Quadrature	32-4876-1		Q-101	T8289
L8	Sound Takeoff/4.5MC Trap	32-4688-13	17-3489	6270-PC *	TE208 *
L9	RF Choke (3uh)	32-4645-7	19-1002	74F336AP	T8294
L10	RF Choke (7 turns)	32-4652-96			
L11	2nd Video IF	32-4686-34		7513-P	T696
L13	47.25MC Trap	32-4652-78			
L14	41.25MC Trap	32-4652-80			
L15	1st Video IF	32-4652-79			
L16	47.25MC Trap	32-4652-78			
L17	RF Choke (22uh)	32-4837-1	19-6022	72F225AP	T300
L18	3rd Video IF (Sec.)	32-4652-79			
L19	3rd Video IF (Pri.)	32-4652-78			
L20	Line Choke	32-4857-1		5250	
L21	Line Choke	32-4857-1		5250	

\* Add 10pf capacitor externally.

## PARTS LIST AND DESCRIPTION (CONTINUED)

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

Replacement parts shown may be superseded by the availability of newly introduced replacements.

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

## COILS (Sweep Circuits)

ITEM No.	FUNCTION	REPLACEMENT DATA						
		MFGR. PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	THORDARSON MEISSNER PART No.	TRIAD PART No.	WORKMAN PART No.
L22	Horiz. Stabilizer	32-4754-3	TV-250	6342				T183

## FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L23	.32A DC	18	.34 H	32-10118-2	C-4125	C-2343	26C79	C-34X	

## TRANSFORMERS (Sweep Circuits)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.		
T1	Vert. Output	32-10012-6						
T2	Yoke (Horiz. 24.5mh) 114° (Vert. 74mh)	76-14170-1	MDF-143 (1) (2)	DY-67AT	Y-94	YT-103-1 (1) (2)		(1) Remove vertical damping resistors if necessary. (2) Remove Orange lead.
T3	Yoke Cover & Clamp Horiz. Output *	76-13432-3 32-10008-7						

## \* COMPONENT CONNECTION DATA

ORIGINAL → REPLACEMENT ↓	HV TRANSFORMER				VERTICAL OUTPUT				YOKE				YOKE PLUG			
	Original Connections				Original Connections				Original Connections				1 2 3 4 5 6 7 8			
									1 2 3 4 6 7 8 11				TO YOKE TERMINAL			
MERIT									1 2 3 4 6 7 8 11							
STANCOR									1 2 3 4 6 7 8 11							
THORDARSON									1 2 3 4 6 7 8 11							
TRIAD									1 2 3 4 6 7 8 11							

† Install original 120pf @ 5KV capacitor between Yoke Terminal #2 or Horizontal Output Transformer #7 and AGC

(Gate Pulse) Tie Point on printed circuit board.

▲ Rotate Yoke 180° (leads @ top). Install original 120nf capacitor between Yoke Terminal #2 and Blue lead.

## TRANSFORMER (Audio Output)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T4	4200	3-4	32-10013-3	A-2998	A-3856 (1)	22561	S-62X	(1) Drill new mounting holes.

## SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFGR. PART No.	QUAM PART No.	
SP1	3" x 5" PM 3-4 ohms	36-1689-11	35A05	

## MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
	VHF Antenna	426-8007	JFD Replacement TA384, Models: B820TWA, B830TWA (2 used)
	UHF Antenna	76-13797-1	JFD Replacement TA447
	VHF Tuner	TT162D (76-13945-5)	
	UHF Tuner	TT152 (76-13827-1)	
N3	VHF Dial Lamp		
N4	UHF Dial Lamp		
	Vertical Integrator	30-6030-12	Assembly, Includes 30K Resistor and NE2H Lamp (Used in some versions)
	Horiz. Oscillator Network	30-6057-1	Assembly, Includes 30K Resistor and NE2H Lamp (Used in some versions)
N5	Horiz. Phase Network	30-6035-2	CENTRALAB Replacement PC-507
N6	Isolation CRT	30-6058-2	
	Printed Circuit Board	38-10543	
	Printed Circuit Board	27-13461-1	
	Printed Circuit Board	38-10302	
	Printed Circuit Board	27-10561-4	
	Printed Circuit Board	38-10301	
	Printed Circuit Board	27-10561-9	

## CABINETS &amp; CABINET PARTS (When ordering specify model, chassis &amp; color)

ITEM	PART No.	ITEM	PART No.
Cabinet & Back (Model B820TWA)	27-11269-5	Knob - Contrast, Horiz. Hold	424-8636
Cabinet & Back (Model B830TWA)	27-11269-6	Dial - VHF Channel Selector (Model B820TWA)	27-11753-3
Knob - VHF Channel Selector	27-11975-4	Dial - VHF Channel Selector (Model B830TWA)	27-11753-4
Knob - UHF Channel Selector	27-11975-4	Dial - VHF Channel Selector (Model B820TWA)	27-11754-3
Knob - VHF Fine Tuning	27-15476-11	Dial - VHF Channel Selector (Model B830TWA)	27-11754-4