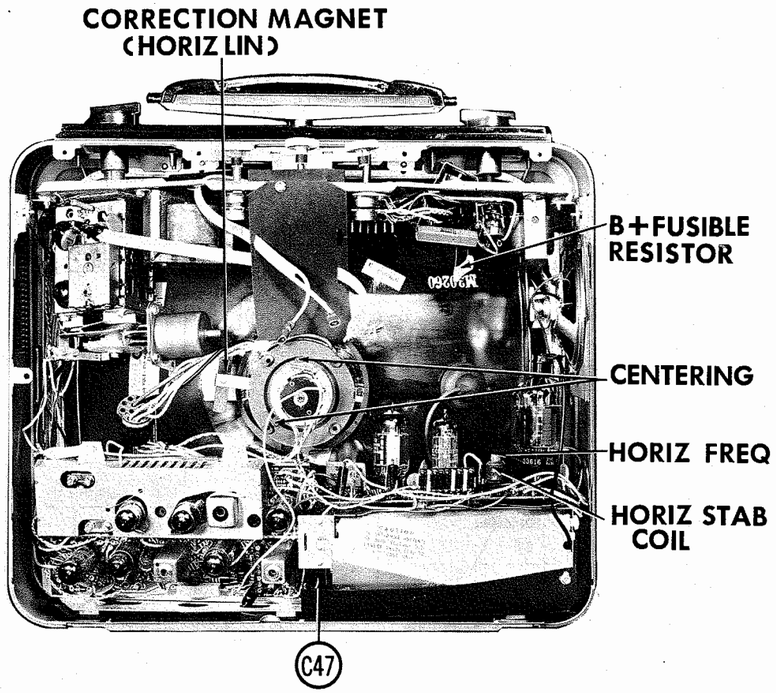


CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a station signal. Allow receiver to warm up. Connect a clip lead across the Horizontal Stabilizer Coil (L19).

Set the Horizontal Hold to the center of its range.

Adjust the Horizontal Hold Centering (R4) until the picture appears to float back and forth across the screen.

Remove the clip lead from across L19 and adjust the Horizontal Stabilizer Coil Slug (B1) until the picture synchronizes horizontally.

Adjust Width Control for a picture SLIGHTLY wider than necessary to fill picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL (17" MODELS)

1. Remove rear cover (7 screws).
2. Remove cabinet front (safety glass and bezel assembly) by removing 5 screws.
3. Loosen cabinet front from bottom and disengage front top.
4. Remove knobs.
5. Remove 5 screws from bottom, 1 from side (right rear), and 1 from side (left rear).
6. Remove 2 screws from rear bracket; remove bracket.
7. Remove 5 screws from top.
8. Remove cabinet from chassis. (Disconnect speaker leads.)

PICTURE TUBE REMOVAL (17" MODELS)

1. Follow steps 2 and 3 of "Chassis Removal".
2. Disconnect hi voltage lead, yoke, and picture tube socket.
3. Remove drive screws holding picture tube mounting bracket.
4. Remove picture tube out front.

CHASSIS REMOVAL (19" MODELS)

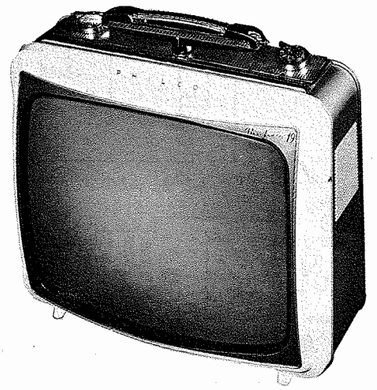
1. Remove rear cover (7 screws); disconnect antenna leads from rear cover.
2. Remove cabinet front (bezel and picture tube assembly) by removing drive screws, disconnecting yoke, hi voltage lead, and picture tube socket.
3. Remove 7 push-on type knobs from top.
4. Remove 5 screws from bottom holding chassis; disconnect speaker.
5. Remove 4 screws from rear and 5 screws from top front.
6. Remove chassis.

PICTURE TUBE REMOVAL (19" MODELS)

Follow steps 1 and 2 of "Chassis Removal".

PHILCO CHASSIS 12J27, 12J27R, 12J27TS, 12J27U

PHILCO CHASSIS 12J27, 12J27R, 12J27TS, 12J27U



CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

MODEL K3224GD

TRADE NAME	PHILCO	MODELS	CHASSIS
		K3058CG, K3059LB, K3220BE/GD/GR/WB, K3222SA/WH/BE/RBE, K3230GD	12J27
		UK3058CG, UK3059LB, UK3220BE, GD/GR/WB, UK3222SA/WH/BE/, UK3226GD/SI/SL, UK3230GD	12J27U
		K3060BL/GY/WH, K3224GD/SI/SL (with Pneumatic Remote Tuning)	12J27R
		K3218GD	12J27TS
Chassis Runs 1 thru 9		TUNERS	CHASSIS
		TT-106TS or T-106TS (VHF)	12J27TS
		TT-106 or T-106 (VHF)	12J27R
		TT-105R or T-105R (VHF with UHF Provisions)	12J27U
		TT-130 or T-130 (UHF)	12J27U
MANUFACTURER	Philco Corp., Subsidiary of Ford Motor Co., Tioga & "C" Streets, Philadelphia, Pennsylvania		
TYPE SET	Television Receiver		
TUBES	VHF - Fourteen, UHF - Fifteen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	130 Watts, 1.3 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

19" MODELS:
Remove rear cover (7 screws). Disconnect yoke, picture tube socket, and hi voltage lead. Remove screws holding cabinet front (bezel, safety glass, and picture tube assembly). Remove assembly out front.

17" MODELS:
Remove 5 screws holding cabinet front (safety glass and bezel assembly). Loosen cabinet front from bottom and disengage front top.

FUSE DEVICE

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

TUNER OSCILLATOR ADJUSTMENT

To touch up the VHF Oscillator, remove Channel Selector and Fine Tuning knobs.

AGC

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

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 Printed Board" photo.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The horiz. stabilizer coil slug, horiz. centering, and horiz. hold are used for Oscillator Control. (See back page for "Horizontal Sweep Circuit Adjustments".)

WIDTH

The width may be varied by a Width Control. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

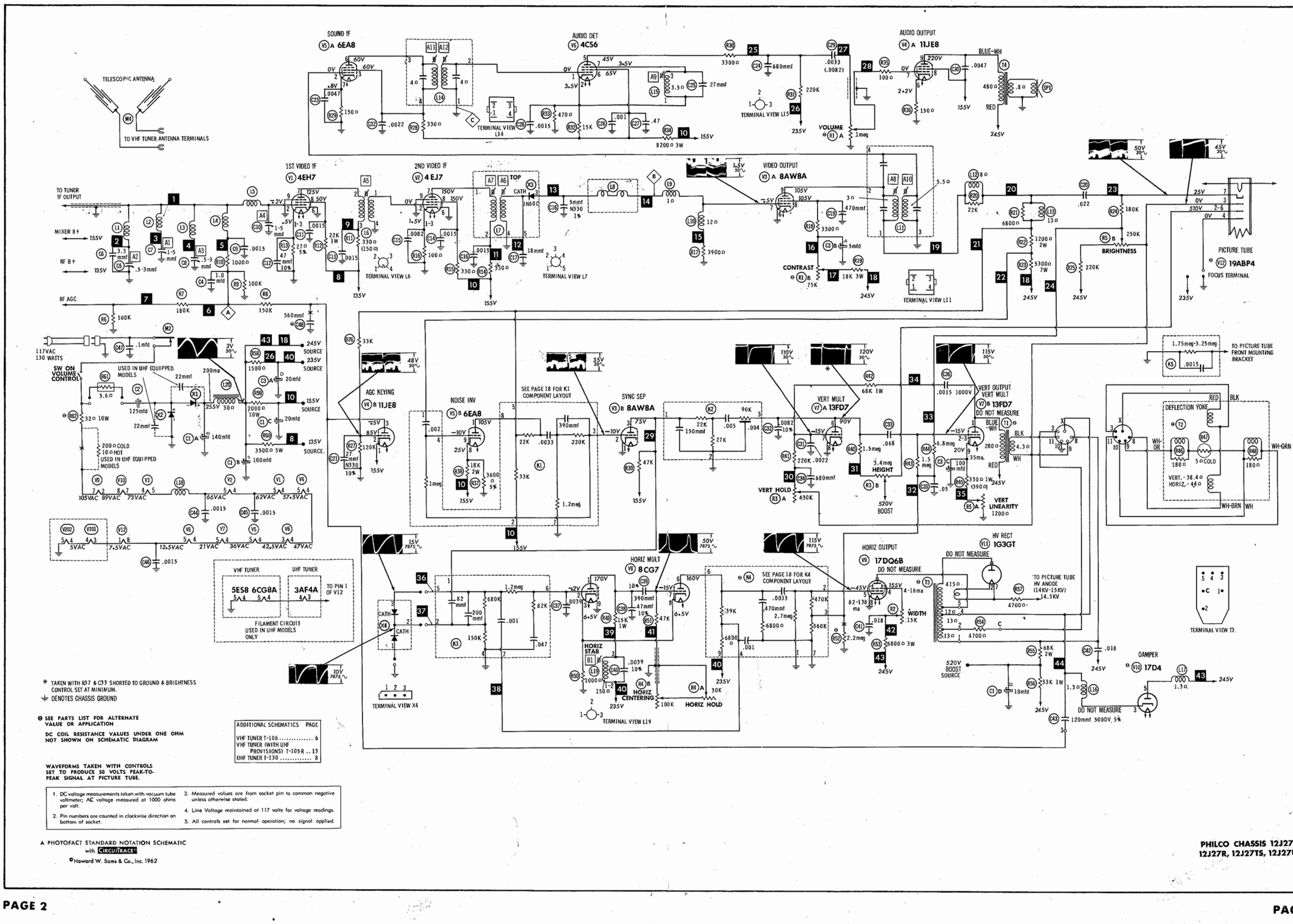
PINCUSHION CORRECTION (HORIZ. LINEARITY)

Position magnet to provide best Horizontal Linearity.

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

LA423

SET 583 FOLDER 2



* TAKEN WITH R37 & C33 SHORTED TO GROUND & BRIGHTNESS CONTROL SET AT MINIMUM.

⏚ DENOTES CHASSIS GROUND

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

ADDITIONAL SCHEMATICS	PAGE
VHF TUNER T-106	6
VHF TUNER (WITH UHF PROVISIONS) T-105R	13
UHF TUNER T-130	8

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

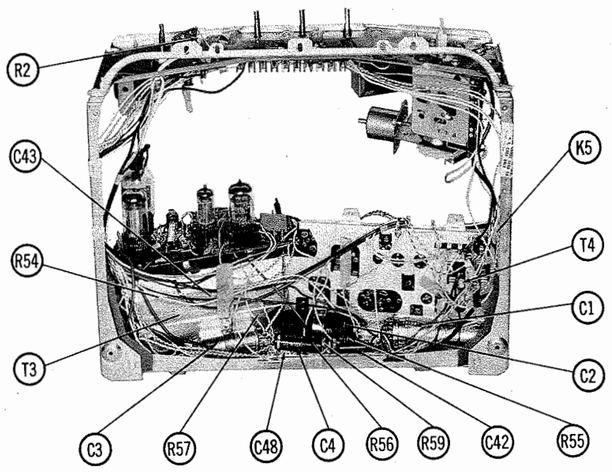
PHILCO CHASSIS 12J27, 12J27R, 12J27TS, 12J27U

RESISTANCE MEASUREMENTS

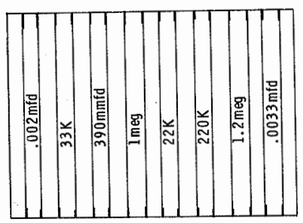
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	4EH7	27Ω	76K	27Ω	20Ω	21Ω	0Ω	†3800Ω	†25K	0Ω
V2	4EJ7	100Ω	.2Ω	100Ω	21Ω	22Ω	0Ω	†3800Ω	†3800Ω	0Ω
V3	8AW8A	0Ω	1.4meg	†50K	25Ω	22Ω	0Ω	3900Ω	•†20K	†6500Ω
V4	11JE8	†2000Ω	†39K	220K	16Ω	20Ω	150Ω	•0Ω	†2000Ω	†510Ω
V5	6EA8	†25K	3Ω	†10.5K	15Ω	12Ω	†10.5K	150Ω	3600Ω	2.4meg
V6	4CS6	4Ω	470Ω	15Ω	16Ω	†225K	†10K	470Ω		
V7	13FD7	†310Ω	2meg	NC	12Ω	8Ω	• †2.2meg	•900K	0Ω	•1000Ω
V8	8CG7	†16K	2meg	1000Ω	8Ω	5Ω	†47K	•80K	1000Ω	0Ω
V9	17DQ6B	NC	30Ω	NC	• †15K	1meg	NC	34Ω	0Ω	TOP CAP †12Ω
V10	17D4	NC	NC	†100K	NC	†30Ω	NC	25Ω	30Ω	
V11	1G3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †427Ω
V12	19ABP4	5Ω	• †2.2meg	†29Ω	0Ω	NC	• †2.2meg	•†500K	3Ω	
V201	3GK5	0Ω	80K	3Ω	2Ω	†4500Ω	NC	0Ω		
V202	6CG8A	10K	†37K	0Ω	2Ω	0Ω	†4700Ω	†20K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF X1.
† MEASURED FROM PIN 3 OF V10.

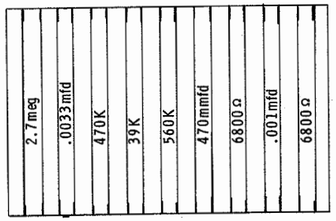
NC NO CONNECTION



CHASSIS—FRONT VIEW



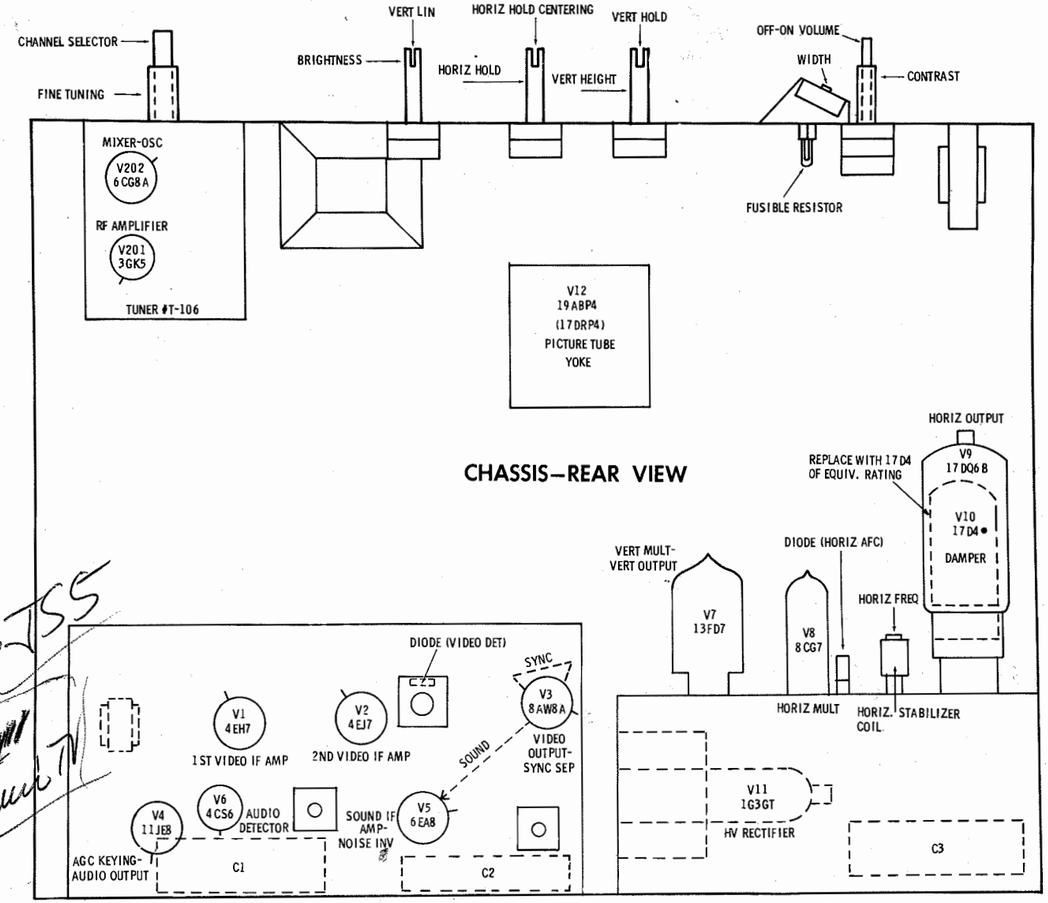
K1 (NOISE INV. -SYNC. SEP.)



K4 (HORIZ. MULT.)

COMPONENT IDENTIFICATION K1, K4

TUBE PLACEMENT CHART



CHASSIS—REAR VIEW

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.

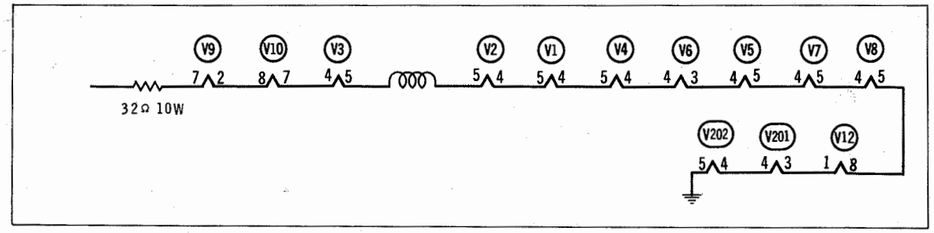
POWER SUPPLY FAILURE
No raster, no sound Resistor (Fusible), Rectifiers X1, X2

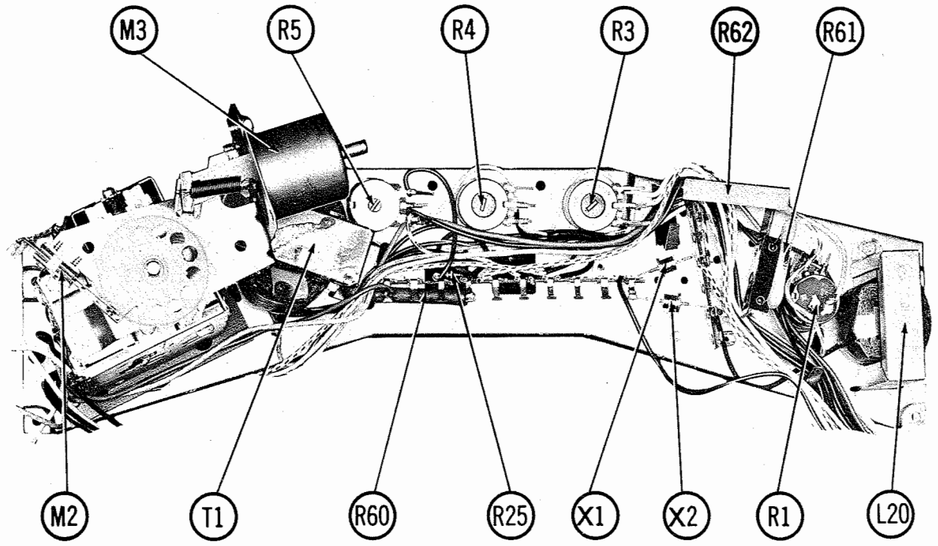
SWEEP FAILURE
No raster, has sound V8, V9, V10, V11, V12
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, X1, X2
Vert. off freq. V7
Horiz. off freq. Diode (Horiz. AFC), V8

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

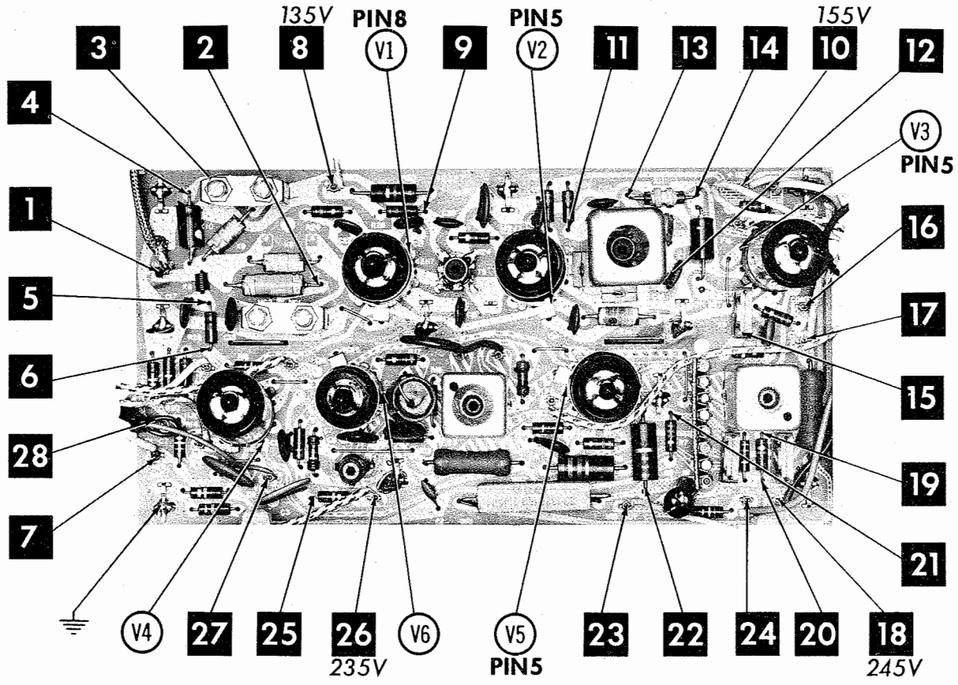
SYNC FAILURE
No vert. sync V3
No horiz. sync V3
No vert. or horiz. sync V3

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.)





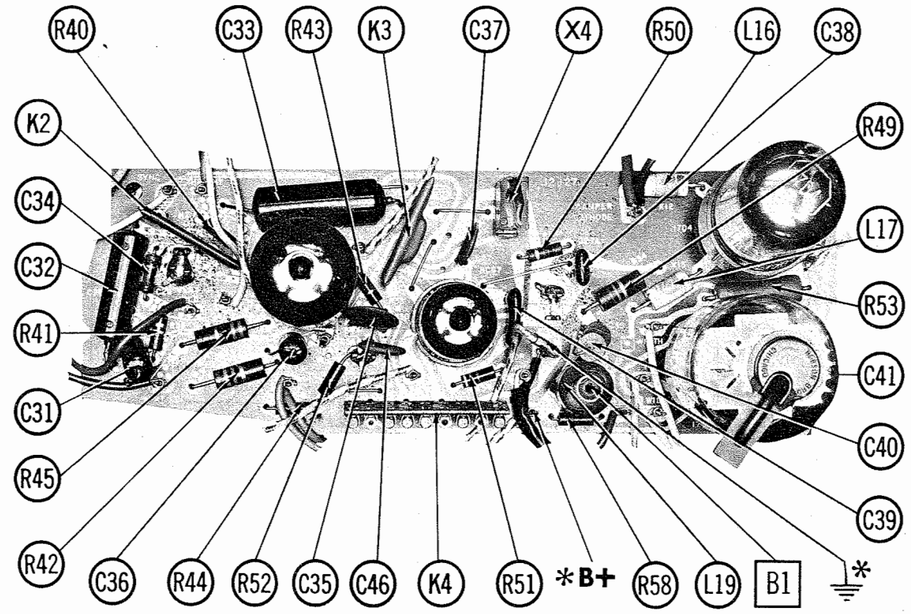
CONTROL PANEL



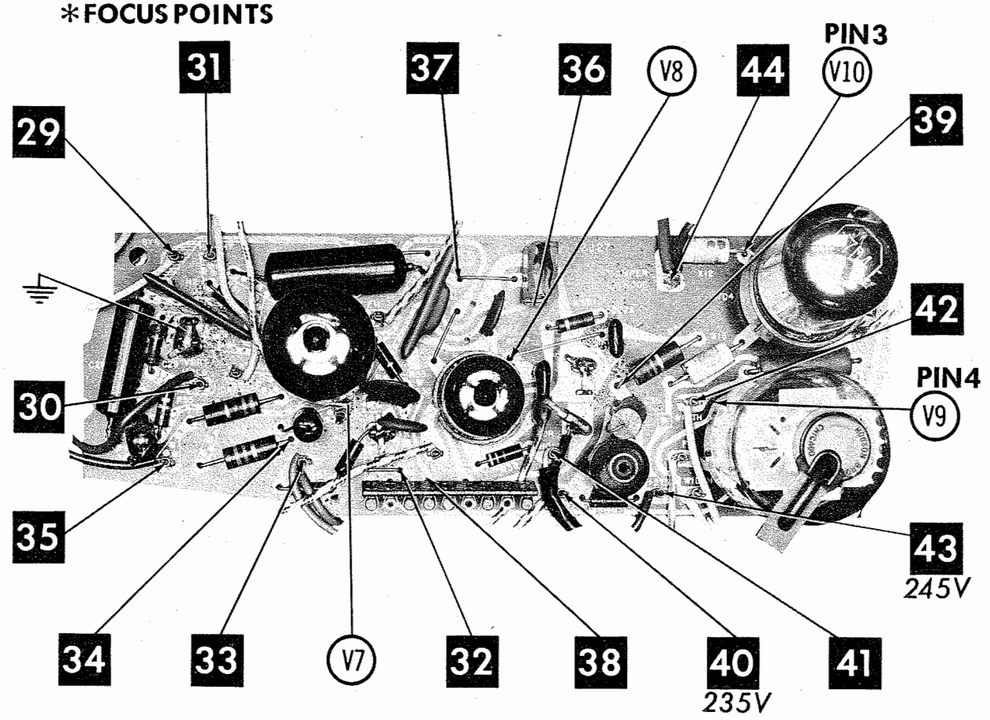
A Howard W. Sams CIRCUITRACE® Photo

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

VIDEO, SOUND, SYNC PRINTED BOARD



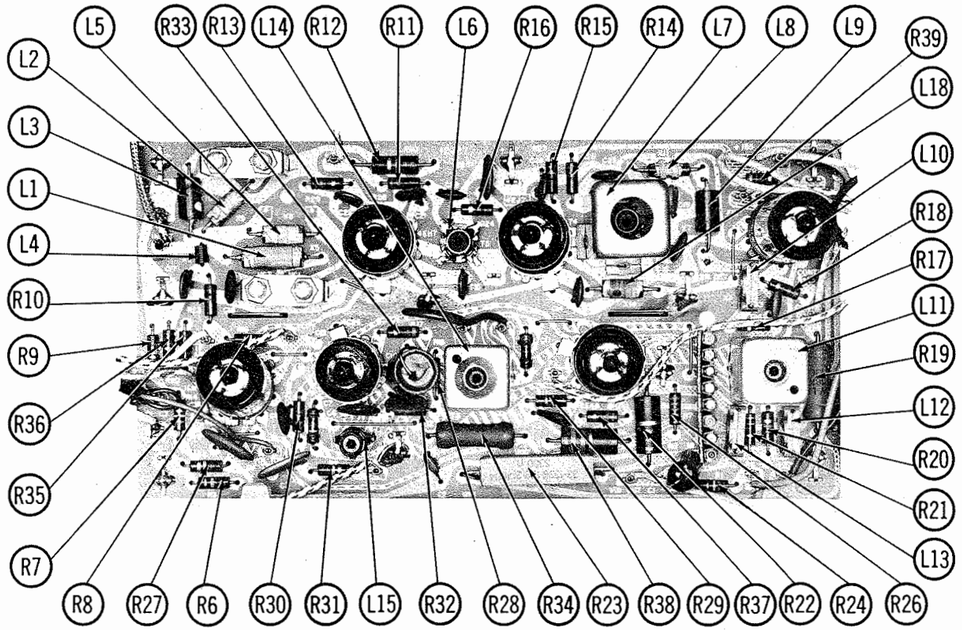
*FOCUS POINTS

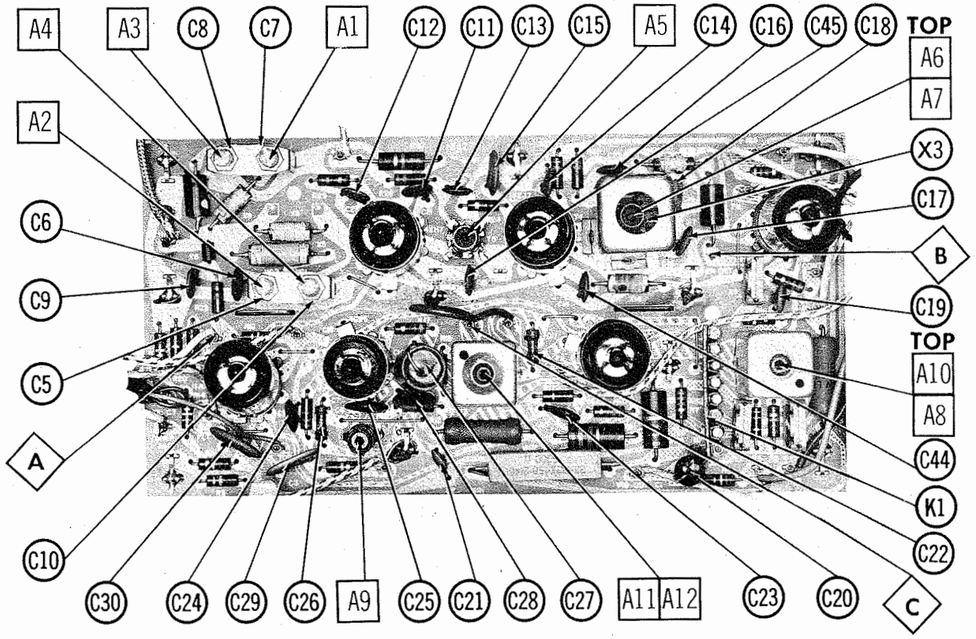


A Howard W. Sams CIRCUITRACE® Photo

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

SWEEP PRINTED BOARD





VIDEO, SOUND, SYNC PRINTED BOARD

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT 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.
Suggested Alignment Tools: A1 thru A4 ..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A5 thru A12 .... GENERAL CEMENT #8282, 8606, 8606L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Connect the negative lead of an 8 volt bias supply to point (A). Positive to chassis.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Place a thin insulated metal strip between the Mixer-Osc. tube and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	Not Used	42.9MC (400∿ 30% AM)	Any non-interfering channel	Vert. Amp. thru 10K to point (B). Low side to chassis.	Mixer Plate Coil	Adjust for maximum 400∿ on scope.
2.	"	"	41.25MC	"	"	A1	Adjust for MINIMUM 400∿ on scope.
3.	"	"	47.25MC	"	"	A2, A3	"
4.	"	"	42.9MC	"	"	Mixer Plate Coil	Retouch for maximum 400∿ on scope.
5.	"	"	45.5MC	"	"	A4	Adjust for maximum 400∿ on scope.
6.	"	"	44.3MC	"	"	A5	"
7.	"	"	45.0MC	"	"	A6	"
8.	"	"	42.7MC	"	"	A7	Adjust for maximum 400∿ on scope. Repeat step 7.
9.	Across antenna terminals with 150Ω in each lead.	"	65.75MC	4	"	Fine Tuning	Adjust for MINIMUM 400∿ on scope. Do not move Fine Tuning during balance of IF alignment.
10.	"	69MC (10MC Swp.)	42.5MC 45.75MC	"	"		Check for response similar to Fig. 1. If necessary, retouch A4 to place 45.75MC marker at 50% on curve, Mixer Plate Coil to place 42.5MC at 30 to 45% on low freq. side and A5 for flat response, then detune A5 to drop low freq. shoulder of curve 20% lower than high frequency shoulder.

4.5MC TRAP ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	High side thru .01mfd to point (B). Low side to chassis.	4.5MC (400∿ 30% AM)	Any non-interfering channel	DC probe thru demodulator probe to pin 7 (cathode) of picture tube. Common to chassis. (See Fig. 2 for probe.)	A8	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a strong TV signal and adjust A9 for maximum sound.
Remove the ground connection from point (C) and connect a 15K Resistor and an 150mmf Capacitor in parallel from point (C) to chassis.
Connect the DC probe of the VTVM to point (C) and common to chassis.
Rotate the Fine Tuning fully counterclockwise to reduce signal level. Adjust A10, A11 and A12 for maximum deflection on VTVM. Retouch A9 for maximum sound. Disconnect VTVM and Resistor-Capacitor combination from point (C) and reconnect ground lead to point (C).

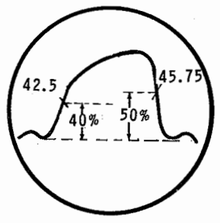


FIG 1

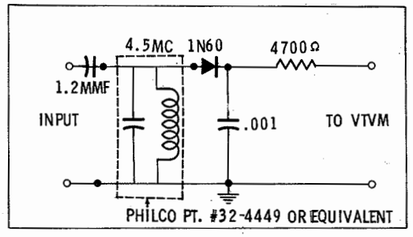
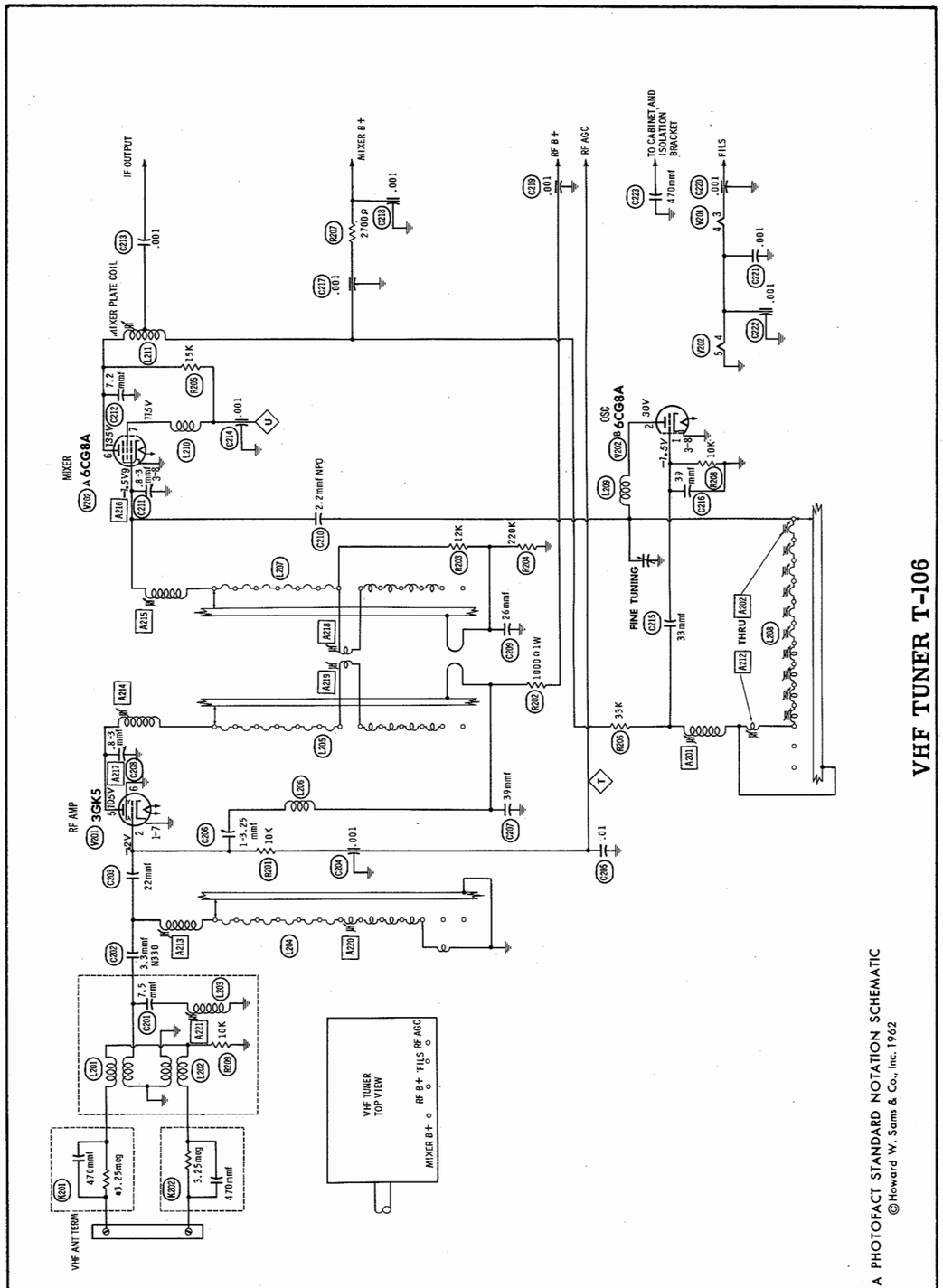


FIG 2



VHF TUNER T-106

TUNER ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER to PROTECT the Test Equipment.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools:
A201 thru A204, A210 thru A214 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987; WALSCO #2531
A208, A209 ..... GENERAL CEMENT #5004, 5008, 5009; WALSCO #2520
Mixer Plate Coil ..... GENERAL CEMENT #8606, 8606L, 8282, 9295; WALSCO #2526, 2543, 2544, 2545

VHF OSCILLATOR ALIGNMENT

Set Fine Tuning to mid-range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	209.75MC (400~ 30% AM Mod.)	13	Across Video Det. load.	A201	Adjust for MINIMUM 400~ indication.
2.	"	"	203.75MC 197.75MC 191.75MC 185.75MC 179.75MC 173.75MC	12 11 10 9 8 7	"	A202, A203, A204, A205, A206, A207	"
3.	"	"	81.75MC 75.75MC	6 5	"	A208 A209	"
4.	"	"	65.75MC 59.75MC	4 3	"	A210 A211	"
5.	"	"	53.75MC	2	"	A212	"

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point ⓓ. Positive to chassis.
Connect a 10 to 20mmf capacitor across Mixer Plate Coil.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point ⓓ. Low side to chassis.	A213, A214, A215	Coils not containing adjustable cores are adjusted by expanding or compressing coil turns. Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
7.	"	"	177MC	175.25MC	7	"	A216, A217	Adjust to obtain correct tilt on top of curve as in Fig. 202 to compensate for the tuning effect of channel 13.
8.	"	"	213MC	213MC	13	"		Retouch A214 and A215 for symmetrical response centered about marker. To retouch compress or expand cores SLIGHTLY. Repeat steps 7 and 8 alternately until optimum response is obtained on channels 7 & 13.
9.	"	"	85MC	85MC	6	"	A218, A219, A220	Turn A218 counterclockwise until a single peak appears. (DO NOT unscrew far enough to allow the core to fall out.) Adjust A219 until peak falls at 85MC. (It may be necessary to increase sweep generator output). Adjust A220 for maximum amplitude and symmetry of single peak.
10.	"	"	"	83.25MC 87.75MC	"	"		Retouch A218 and A219 for response similar to Fig. 203.
11.	"	"	"	43.5MC (400~ 30% AM Mod.)	4	Vert. Amp. across Video Detector Load	A221	Adjust for MINIMUM scope indication.

UHF IF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω Carbon Resistors	Across UHF antenna terminals with 120Ω in each lead.	Not used	43.5MC (440~ 30% AM Mod.)	UHF	Vert. Amp. to point ⓓ. Low side to chassis.	A222	Adjust for a symmetrical response.

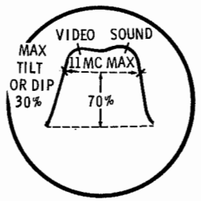


FIG. 201

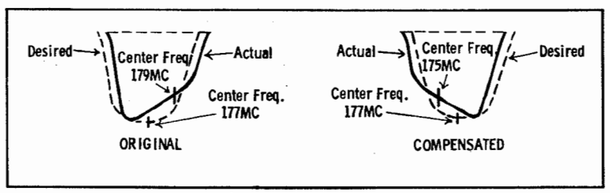


FIG. 202

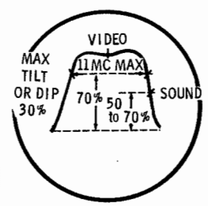
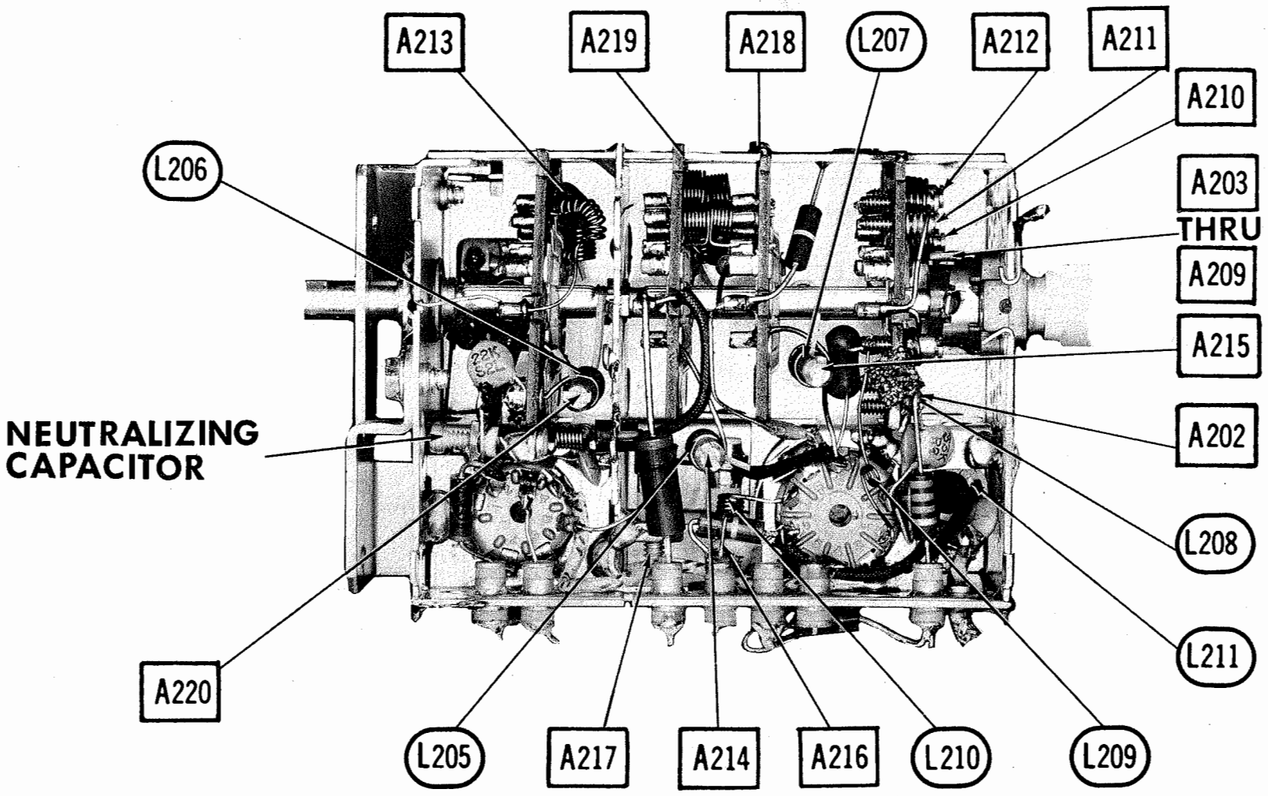
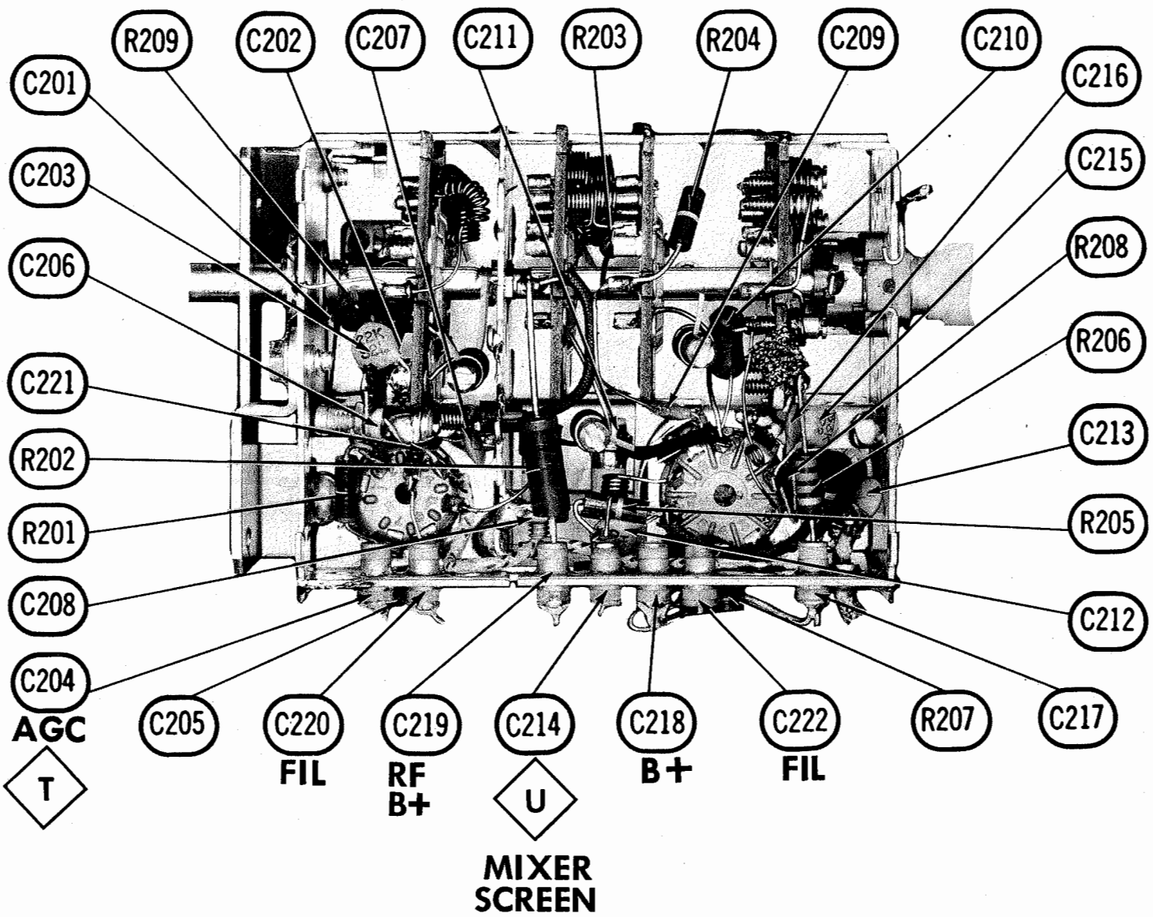


FIG. 203

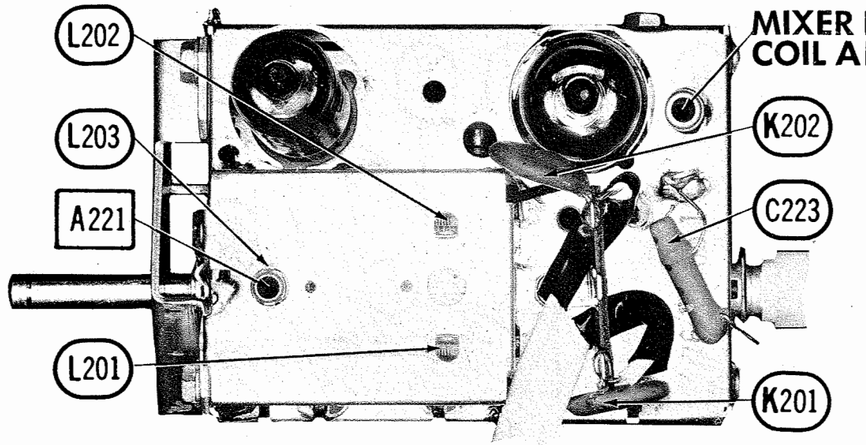


VHF TUNER T-106 - BOTTOM VIEW

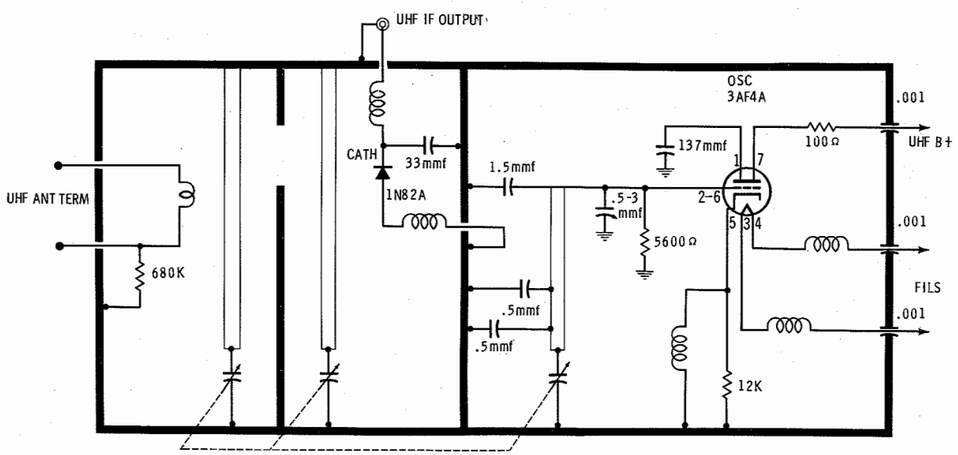
(ADDITIONAL BOTTOM VIEW PHOTO PAGE 14)



VHF TUNER T-106 - BOTTOM VIEW



VHF TUNER T-106 - TOP VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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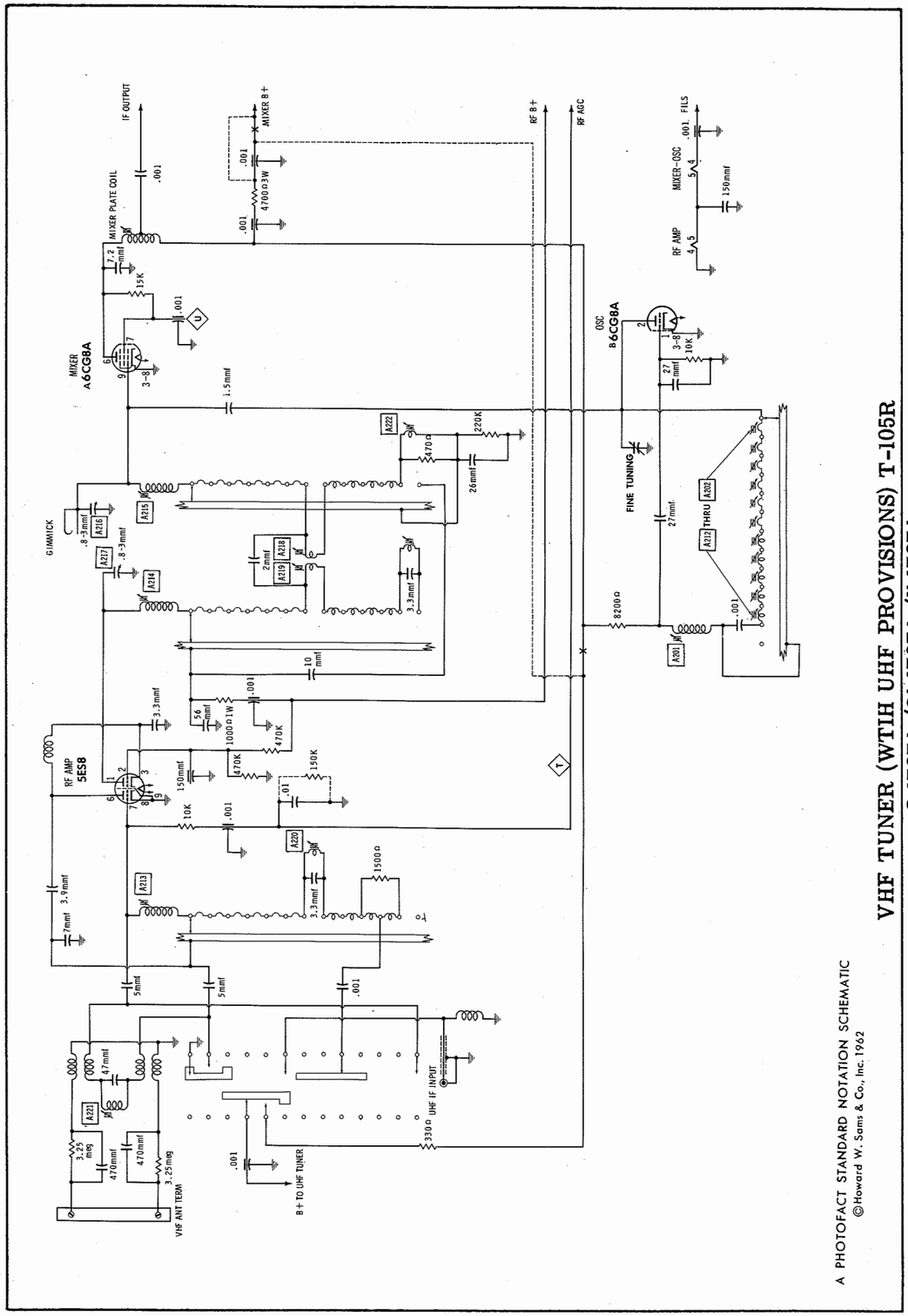
UHF TUNER T-103



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PHILCO CHASSIS 12J27, 12J27R, 12J27TS, 12J27U

VHF TUNER (WITH UHF PROVISIONS) T-105R

FOLDER 2

TV PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

DESCRIPTION	PART No.	MODEL No.								
		UK3058CG, K3058CG	UK3059LB, K3059LB	K3060BL/ GY/WH	K3218GD	UK & K3220BE/ GD/GR/ WB	UK & K3222SA/ WH/BE, K3222RBE	K3224GD/ SI/SL	UK3230GD, K3230GD	UK3226GD/ SI/SL
Mask	54-6678-7	X	X							
Mask	54-6678-4			X						
Safety Glass	54-6683-3			X						
Safety Glass	54-5918-1				X					
Safety Glass	54-6683-1	X	X							
Knob-Channel Selector	424-8332	X	X	X	X	X	X		X	
Knob "	424-8300							SL only		
Knob "	424-8305							GD only		X
Knob-UHF (Coarse Tuning)	424-8374	UK only								
Knob "	424-8274		UK only			UK only	UK only		UK only	GD only
Knob-Contrast	424-8322	X	X	X	X	X	X		X	
Knob "	424-8302							SL only		
Knob "	424-8307							GD only		X
Knob-Fine Tuning	424-8321	X	X	X	X	X	X		X	
Knob "	424-8299							SL only		
Knob "	424-8304							GD only		GD only
Knob-UHF Fine Tuning	424-8298	UK only	UK only			UK only	UK only			X
Knob "	424-8398								UK only	
Knob-On/Off, Volume	424-8333	X	X	X	X	X	X		X	
Knob "	424-8301							SL only		
Knob "	424-8306							GD only		X
Handle	28-12783-4		X	X		X				
Handle	28-13855-2						X			
Handle (Bottom)	28-11886-5							SL only		
Handle "	28-11886-8							GD only		GD only
Handle "	425-0042-5								GD only	
Handle (Top)	28-13896-1							SL only		
Handle (Top)	28-13896-4							GD only		GD only
Handle (Top)	425-0042-5								GD only	

	PART NO.	MODEL NO.
Cabinet	76-12431-27	K3059LB
Cabinet	76-12431-28	UK3059LB
Cabinet	76-12431-17	K3220BE
Cabinet	76-12431-40	K3058CG
Cabinet	76-12431-15	K3220GR
Cabinet	76-12431-19	K3220WB
Cabinet	76-12431-29	K3218GD
Cabinet	76-12431-34	K3220GD
Cabinet	76-12431-22	K3222SA
Cabinet	76-12431-24	K3222WH
Cabinet	76-12431-18	UK3220BE
Cabinet	76-12431-41	UK3058CG
Cabinet	76-12431-16	UK3220GR
Cabinet	76-12431-35	UK3220GD

	PART NO.	MODEL NO.
Cabinet	76-12431-23	UK3222
Cabinet	76-12431-25	UK3222WH
Cabinet	76-12431-20	UK3220WB
Cabinet	76-12431-26	UK3226GD
Cabinet	76-12431-7	K3224SL
Cabinet	76-12431-21	K3224GD
Cabinet	76-12431-38	K3230GD
Cabinet	76-12431-39	UK3230GD
Cabinet Front	54-5917-9	UK3226GD, K3222
Cabinet Front	54-5917-19	K3222RBE
Cabinet Front	54-5917-16	K3222BE, K3218, K3220
Cabinet Front	54-5917-15	K3224SL
Cabinet Front	54-5917-14	K3224GD
Cabinet Front	54-5917-17	K3230GD

REMOTE CONTROL

NEW-MATIC II

ITEM No.	PART NAME	PHILCO PART No.	NOTES
	Tubing	L3543-8	15 ft., Plastic
	Tubing	L3543-2	Cylinder to Coupling
	Wheel	54-9890	Stepper
	Plunger	76-12042-3	Hand Control
	Cylinder	76-11560	Assembly
	Piston	76-10990-1	Assembly
	Switch	42-2105	Remote Off

VHF TUNER PARTS LIST AND DESCRIPTIONS

T-106

TUBES

◆ GENERAL ELECTRIC ◆			◆ RAYTHEON ◆ SYLVANIA ◆		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	3GK5	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	7.5			DD-7R5	L10V8		GP580	10TS-V75
C202	3.3 N330	#30-1224-149				*		
C203	22		DI-22	DD-220	L10Q22	CCD-220	GP422	10TS-Q22
C204	.001		EF-001	MFT-1000		CCF-102	CT280A	
C205	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C206	1-3.25	#31-6520-32						
C207	39		DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39
C208	.8-3			829-3		CV-1	CT565	
C209	26		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-Q27
C210	2.2 NPO		NPO-SI 2.2	TCZ2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C211	.8-3			829-3		CV-1	CT565	
C212	7.2			DD-7R5	L10V7		GP568	10TS-V68
C213	.001		DI-1000	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C214	.001		EF-001	MFT-1000		CCF-102	CT280A	
C215	33		DI-33	DD-330	L10Q33	CCD-330	GP433	10TS-Q33
C216	39		DI-39	DD-390	L10Q39	CCD-390	GP439	10TS-Q39
C217	.001		EF-001	MFT-1000		CCF-102	CT280A	
C218	.001		EF-001	MFT-1000		CCF-102	CT280A	
C219	.001		EF-001	MFT-1000		CCF-102	CT280A	
C220	.001		EF-001	MFT-1000		CCF-102	CT280A	
C221	.001		DI-1000	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C222	.001		EF-001	MFT-1000		CCF-102	CT280A	
C223	470		SI 470	D6-471	BYA10T47	CCD-471	B-347	10TS-T47

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

RESISTORS

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

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R201	10K				R206	33K			
R202	1000Ω 1W				R207	2700Ω			
R203	12K				R208	10K			
R204	220K				R209	10K			
R205	15K								

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA
K201	Antenna Filter	470mmf, 3.25meg	30-6040-1	Centralab RC-471 Sprague AC1-1
K202	Antenna Filter	470mmf, 3.25meg	30-6040-1	Centralab RC-471 Sprague AC1-1

COILS (RF-IF)

ITEM No.	USE	PHILCO PART No.	NOTES
L201	Ant	32-4725-8	
L202	Ant	32-4725-8	
L203	IF Trap	32-4719-3	
L204	Ant	318-5567	Channel 2-13
L205	RF	318-5569	Channel 2-13
L206	RF Choke	32-4652-63	

ITEM No.	USE	PHILCO PART No.	NOTES
L207	Mixer	318-5570	Channel 2-13
L208	Osc.	318-5531	Channel 2-13
L209	RF Choke	32-4652-64	
L210	RF Choke	32-4652-65	
L211	Mixer Plate	32-4629-19	

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE
V1	1st Video IF Amp.	4EE7
V2	2nd Video IF Amp.	4EJ7
V3	Video Output - Sync Sep.	8AW8A
V4	AGC Keying - Audio Output	11JE8
V5	Sound IF Amp. - Noise Inv.	6EA8
V6	Audio Detector	4CS6

ITEM No.	USE	TYPE
V7	Vert. Mult. - Vert. Output	13FD7
V8	Horiz. Mult.	8CG7
V9	Horiz. Output	17DQ6B
V10	Damper	17D4● Note 1
V11	HV Rectifier	1G3GT

Note 1. The 17D4● has higher ratings than a conventional 17D4. Do not substitute.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	PHILCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V12	19ABP4 17DRP4	19ABP4 ①			19ABP4 ②	① Aluminized ② Silver Screen "85"

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	CURRENT RATING (Measured)	ORIGINAL Part or Type No.	RECTIFIERS		DIODES	NOTES
			RCA PART No.	SARKES TARZIAN PART No.	RAYTHEON PART No.	
X1	.200A	34-8048-2	1N3194	40H		Silicon Rectifier
X2	.200A	34-8048-2	1N3194	40H		Silicon Rectifier
X3		34-8022-5			1N60	1N60C Diode
X4		34-8037				Selenium (Dual Diode, Common Cathode)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	▲ 140	350	30-2590-41	AFHS4-112-05	D0695.7	XC4-29	WP423.5	TMQ-4694	TVL-4705.9
B	▲ 100	300			BR100-350			TD-80-350	
C	20	300							
D	■ 10	450							
C2	125	200	30-2566-76	AFHI-31-25	XA0312	XC1-14	FP122	TMS-1550	TVL-1470
C3A	■ 20	300	30-2601-7	AFHS-112-20	C1150	XC3-3	FP330.21	TMT-3349	TVL-3638.1
B	▲ 5	300				XC3-13.1			
C	100	50							

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	1.0mfd 50V		P288N-1.0		CUB2W1	1DP-5-105	GEM-21	2TM-M1
C5	.5-3			829-3		CV-1	CT565	
C6	3.3		DI-3.3	DD-3R3	L10V33		GP533	10TS-V33
C7	1-5	#31-6535-2		829-6				
C8	.5-3			829-3		CV-1	CT565	
C9	.0015		BPD-0015	DD-152	BYAI0DI5	CCD-152	B-215	5HK-D15
C10	1-5	#31-6535-2		829-6				
C11	.0015		BPD-0015	DD-152	BYAI0DI5	CCD-152	B-215	5HK-D15
C12	47 10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47
C13	.0015		BPD-0015	DD-152	BYAI0DI5	CCD-152	B-215	5HK-D15
C14	.0015		BPD-0015	DD-152	BYAI0DI5	CCD-152	B-215	5HK-D15
C15	.0082		BPD-008	DD-822		CCD-822	B-282	
C16	.0015		BPD-0015	DD-152	BYAI0DI5	CCD-152	B-215	5HK-D15
C17	18		DI-18	DD-180	L10QI8	CCD-180	GP418	10TS-Q18
C18	5 N330 1%	#30-1263				*		
C19	470		BPD-00047	DD-471	BYAI0T47	CCD-471	B-347	10TS-T47
C20	.022 400V		P488N-022	DD-202	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C21	27 N330 10%	#30-1263-6				*		10TCS-Q27
C22	.0022		SI-7-0022	D6-222	BYAI0D22	CCD-222	B-222	5HK-D22
C23	.0047		BPD-0047	DD-472	BYAI0D47M	CCD-472	B-247	5HK-D47
C24	680		BPD-00068	DD-681	BYAI0T68	CCD-681	B-368	10TS-T68
C25	27		DI-27	DD-270	L10Q27	CCD-270	GP427	10TS-Q27
C26	.001		SI-1-1000	D6-102	BYAI0DI	CCD-102	B-210	5HK-DI0
C27	.47 100V		P288N-47		CUB2P47	1DP-4-474	GEM-2047	2TM-P47
C28	.0015		BPD-0015	DD-152	BYAI0DI5	CCD-152	B-215	5HK-D15
C29	.0033	(.0082) †	BPD-0033	DD-332	BYAI0D33	CCD-332	B-233	5HK-D33
C30	.0047		BPD-0047	DD-472	BYAI0D47	CCD-472	B-247	5HK-D47
C31	.0022 600V		P688N-0022	DD-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C32	.0082 400V 10%		P488N-0082	DD-822	DPMS6D82	6DP-2-822	GEM-6282	6TM-D80
C33	.068 400V		P488N-068		CUB4S66	4DP-3-683	GEM-4168	4TM-S66
C34	680		SI-1-680	DD-681	BYAI0T68	CCD-681	B-368	10TS-T68
C35	.05 50V		BPD-05	DDA-503	H-0585		TA-150	TG-S50
C36	.0015 1000V		P1088N-0015	DD-152	CUBI0DI5	16DP-2-152	GEM-10215	10TM-DI5
C37	.0039		BPD-004	DD-392	BYAI0D4	CCD-392	B-240	5HK-D40
C38	47 10%		1469-47	DTZ-47	22R5Q47	CM-20B-470K	MCB225	MS-447
C39	390 10%		1469-390		22R5T39	CM-20B-391K	MCB243	MS-339
C40	.0039 100V 10%		P288N-004	DD-392	CUB6D4	6DP-1-392	GEM-624	6TM-D40
C41	.018		BPD-02	DD-203	BYB682	CCD-203	B-120	5HK-S20
C42	.018 600V		P688N-02	DD-203	CUB682	6DP-2-203	GEM-612	6TM-S20
C43	120 5000V 5%		HVD-60-120	DD60-121	HVB50T1	6CCD-121	6HV-312	60CA-T12
C44	.0015		BPD-0015	DD-152	BYAI0DI5	CCD-152	B-215	5HK-D15
C45	.0015		BPD-0015	DD-152	BYAI0DI5	CCD-152	B-215	5HK-D15
C46	.0015		BPD-0015	DD-152	BYAI0DI5	CCD-152	B-215	5HK-D15
C47	.1mfd 600V		P688N-1		CUB6P1	6DP-4-104	GEM-601	6TM-P10
C48	560	Note 1	BPD-00056	DD-561	BYAI0T56	CCD-561	B-356	10TS-T56

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in Run 2 and later. † Value used in Runs 1 and 2. # Philco Part Number

CONTROLS

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

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA: PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1A	Volume, On-Off Sw.	1meg	33-5592-61①		RTV-748	②QJ-1421	③UE4298-S
B	Contrast	75K					
R2	Width	15K	33-5574-7	WW-153	A43-15K, FKS-1/4	WPK15000, or (BUI, WF10, SSI, DCI) †	R15ML
R3A	Vertical Hold	430K	33-5592-57	F1-40,	P-500K-S,		
B	Height	3.4meg		R2-78	R-3meg-S, CP-104	④QJ-1538	⑤UE4229
R4A	Horiz. Hold	30K	33-5592-62	F1-31,	P-25K-S,		
B	Horiz. Centering	100K		R2-21	R-100K-S, CP-104	⑥QJ-1416	⑦ UE4300
R5A	Vert. Linearity	1200Ω	33-5592-24	F1-34	RTV-732		
B	Brightness	250K		R2-6		⑧QJ-1415	⑨ UE4230

① Run 9 Chassis uses Part #33-5592-66. † "SNAPTROL"
② "CONCENTRIKIT" Equivalent: K-6 Kit with Base Elements and Shafts: B11-125, P17-105 (Panel), B13-137, R1-118, 76-1 (Rear)
③ "STA-LOC" Equivalent: FA753L, RU16A, OS1125, IS1625, US41.
④ "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-132, P17-108 (Panel), B11-240, R15-005, R5 (Rear) (Not available as a factory assembled unit.)
⑤ "STA-LOC" Equivalent: FB45L, RU36L, OS1187, IK625.
⑥ "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B11-121, P17-108 (Panel), B11-128, R15-005, R5 (Rear) (Not available as a factory assembled unit.)
⑦ "STA-LOC" Equivalent: FA34L, RU15L, OS1187, IK625.
⑧ "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: B13-130, P17-108 (Panel), B11-109, R15-005, R5 (Rear) (Not available as a factory assembled unit.)
⑨ "STA-LOC" Equivalent: FA254L, RU152L, OS1187, IK625.

RESISTORS

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

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN PART No.	REMARKS
R6	100K			
R7	180K			
R8	150K			
R9	100K			
R10	1000Ω			
R11	330Ω			(150Ω) ▲
R12	22K 1W			
R13	27Ω 5%			
R14	330Ω			
R15	330Ω			
R16	100Ω			
R17	3900Ω			
R18	3300Ω			
R19	18K 3W		3G-18K	
R20	22K			
R21	6800Ω			
R22	1200Ω 2W			
R23	5300Ω 7W		7G-5300	
R24	180K			
R25	220K			
R26	33K			
R27	120K			
R28	330Ω			
R29	150Ω			
R30	3300Ω			
R31	220K			
R32	15K			
R33	470Ω			
R34	8200Ω 3W		3G-8200	

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN PART No.	REMARKS
R35	100Ω			
R36	150Ω			
R37	3600Ω 5%			
R38	18K 2W			
R39	47K			
R40	1.5meg			
R41	220K			
R42	68K 1W			
R43	1.5meg			
R44	6.8meg			
R45	330Ω 1W			(390Ω) †
R46	180Ω			
R47	5Ω (Cold)			
R48	180Ω			
R49	15K 1W			
R50	1000Ω			
R51	47K			
R52	2.2meg			Note 1
R53	6800Ω 3W		3G-6800	
R54	4700Ω			
R55	68K 2W			
R56	33K 1W			
R57	4700Ω			
R58	1500Ω			
R59	2000Ω 10W	PW10-2000	10W-SQ-2000	
R60	3500Ω 5W		5W-SQ-3500	
R61	5.6Ω *		FZ 5.6 *	
R62	32Ω 10W		10W-SQ-32	Note 2

Note 1. Not used in Runs 1 and 2.
Note 2. 12Ω, 5W used in UHF Versions.
* Fusible Type.
† Value used in Run 1.
▲ Value used in Runs 1, 2, and 3.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman PART No.	NOTES
L1	47.25MC Trap	32-4645-32	BC-562	4604	RTC-8516	T856	
L2	41.25MC Trap	32-4645-45	SW-631	4606	RTC-8517	T857	
L3	47.25MC Trap	32-4645-47	SW-631	4606	RTC-8517	T857	
L4	RF Choke (.17uh)	32-4652-66		4582		T976	
L5	1st Video IF	32-4645-49	BC-560	4590	RTC-8514	T803	
L6	2nd Video IF	32-4686-28					
L7	3rd Video IF	32-4808-1					
L8	RF Choke (22uh)	32-4674-1	TV-192	6152	RTC-8584	T336	
L9	RF Choke (3uh)	32-4645-44	BC-564	4608	RTC-8518	T858	
L10	Peaking (330uh)	32-4762-10	TV-200	6132	RTC-8577	T349	
L11A	4.5MC Trap	32-4688-10	TV-158	7102-P		TA603	
B	Sound Takeoff						
L12	Peaking (150uh)	32-4762-6	TV-196	6120	RTC-8575	T343	
L13	Peaking (330uh)	32-4762-10	TV-200	6132	RTC-8577	T349	
L14	Sound IF	32-4745-2	TV-157	6270-PC	RTC-9306	TA603	
L15	Quadrature	32-4644-25					
L16	RF Choke (9uh)	32-4112-62	BC-568	4612	RTC-8522	T860	
L17	RF Choke (9uh)	32-4112-62	BC-568	4612	RTC-8522	T860	
L18	Fil. Choke (2.2uh)	32-4645-35	SW-631	4606	RTC-8517	T988	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	Workman PART No.	NOTES
L19	Horiz. Stabilizer	32-4754-3		6335		HS-16		WT183	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
L20	.200A	30Ω	.9 Hy.	32-8980-2	C-4084	C-2343 ①	26C05	C-28X	① Drill new mounting hole(s).

*TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triod PART No.	NOTES
T1	Vert. Output	32-8982-2	A-2823	VO-112		A-135X	
T2	Yoke Horiz. 25MH (110°) Vert. 23MH	76-12279-4 ①				Y-72 & NW22	
	Rear Cover and Centering Device	76-12398-1					
T3	Horiz. Output	32-8855-8 ②			FLY-196③	D-175 ③	

① Alternate Part #76-12279-6 used in Models U/K3059 Series and U/K3060 Series.
② Alternate Part #32-8855-7.
③ Remove Choke from Terminals #3 and D and connect C43 (120mmf) to Terminals #3 and D. Use R54 (4700Ω, Terminals #2 and C) in place of 2200Ω Resistor.

*COMPONENT CONNECTION DATA

ORIGINAL → / REPLACEMENT ↓	HV TRANSFORMER: Original Connections 1	2	3	4	5	C		VERTICAL OUTPUT: Original Connections Blue-White	Red	Black	White	YOKE: Original Connections 1	2	3	4	5	6	7	8	YOKE PLUG 1	2	3	4	5	6	7	8
																					TO YOKE TERMINAL						
MERIT								Blue	Red	Yel.	Green																
STANCOR								Blue	Red	Green	Yel.																
THORDARSON	1	2	D	I/3	5	C																					
TRIAD	1	2	D	I/3	5	C		Blue	Red	Green	Yel.																

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: PHILCO PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triod PART No.	NOTES
T4	7900Ω	3-4Ω	32-8985-1	A-2998	A-3822 ①	22886 ①	S-8X	① Drill new mounting hole(s).

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: PHILCO PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	36-1655-19	4A07 ①	① Trim frame to fit.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA
K1	Sync Separator	390mmf, .002mfd, .0033mfd, 22K, 33K, 1meg, 1.2meg, 220K	30-6543-2	
K2	Vert. Integrator	150mmf, .004mfd, .005mfd, 22K, 27K, 90K	30-6030-8	Sprague V-27
K3	Horiz. Phase Comp.	82mmf, 200mmf, .001mfd, .047mfd, 82K, 150K, 680K, 1.2meg	30-6035-3	Sprague HN-7
K4	Horiz. Mult.	470mmf, .001mfd, .0033mfd, 6.8K, 6.8K, 39K, 470K, 560K, 2.7meg	30-6541-4 ①	①Runs 1, 2 use #30-6541-3 in this application.
K5	Isolation	.0015mfd, 1.75meg, 3.25meg	30-6040-2	Centralab PC-377 Sprague PRC-19

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M1	VHF Tuner	76-12405-1	T-106 (TT-106)
	VHF Tuner	76-12405-2	T-106TS (TT-106TS)
	VHF Tuner	76-12432-1	T-105R (TT-105R)
	UHF Tuner	76-12320-1	T-130 (TT-130)
M2	Switch		Remote Control, On-Off
M3	Plunger	76-12042-3	(Part of Remote Control)
M4	Antenna (Monopole)	76-12581-2	JFD REPLACEMENT TYPE #TA385, Models: K/UK3059LB, K3060BL/GY/WH, K/UK3220BE/GD/GR/WB, K/UK3222SA/WH
	Antenna (Monopole)	76-11536-1	JFD REPLACEMENT TYPE #TA386, Models: K3224GD/SI, K/UK3230GD, UK3226GD/SI

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869 (17KV) or 8868 (25KV)
Shielded Hook-up Wire	Use BELDEN No. 8888 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874 (Rubber) or 8895 (Plastic)
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor