

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove four screws holding cabinet back. Disconnect antenna leads, remove all knobs, and remove cabinet back.
2. Remove high-voltage anode lead, and picture-tube socket. Unplug deflection-yoke wires, disconnect speaker leads, and remove ear-phone jack.
3. Remove two chassis mounting screws under chassis. Remove two chassis mounting screws on top of chassis. Remove two screws holding tuner assembly. Lift both tuner and chassis out of cabinet.

PICTURE TUBE REMOVAL

1. Follow "Chassis Removal" procedure and lay set face down on a soft protective surface.
2. Remove deflection yoke. Loosen retaining wire bolt, and remove picture tube. Do not lift picture tube by the neck of the tube.

SET 1084 FOLDER 3

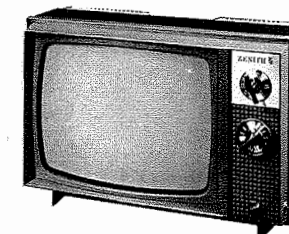
ZENITH CHASSIS 13A12,
13A12M, 13A12S, 13A12S1

PHOTOFACT® Folder



For Supplier Address See PHOTOFACT Index

MODEL	CHASSIS
A1331C,F,J,L	13A12S
A1331C1,F1,J1,L1	13A12
A1331C2,F2,J2,L2	13A12M
A1331C3,F3,J3,L3	13A12S1
A1333P,W	13A12S
A1333P1,W1	13A12
A1333P2,W2	13A12M
A1333P3,W3	13A12S1
T2612W	13A12S
T2612W1	13A12
T2612W2	13A12M
T2612W3	13A12S1



MODEL A1333W

SAFETY PRECAUTIONS

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.

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

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

CRT - IMPLOSION PROTECTION AND CLEANING

Implosion protection is an integral part of the picture tube, cleaning accomplished without CRT removal.

FUSE/FUSE DEVICE

A 1.8-amp fuse is used for AC line protection. (See "Chassis - Bottom View" photo for location.)

VHF TUNER

The fine tuning mechanically engages oscillator slug for adjustment (one slug for each channel).

HORIZONTAL OSCILLATOR

Adjustment of the horizontal hold is accomplished by the proper setting of the horizontal oscillator coil (horizontal hold). (See "Cabinet - Rear View" photo for location.)

WIDTH

The width may be varied by adjusting the width sleeve. (See "Cabinet - Rear View" photo for location.)

FOCUS

The focus may be varied by connecting the lead from Pin 7 to various voltage points. (See "Cabinet - Rear View" photo for location.)

AGC

The AGC may be varied by an AGC control. (See "Cabinet - Rear View" photo for location.)

CENTERING

Centering is accomplished by proper adjustment of two magnetic rings located on the yoke rear cover. (See "Cabinet - Rear View" photo for location.)

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. UA609

Reproduction or use, without express permission, of editorial or pictorial content, in any matter, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1970 Howard W. Sams & Co., Inc., Indianapolis, Indiana 46206. Printed in U. S. of America.

DATE 2-70

SET 1084 FOLDER 3

ZENITH CHASSIS 13A12,
13A12M, 13A12S, 13A12S1

SET 1084 FOLDER 3



RESISTANCE MEASUREMENTS

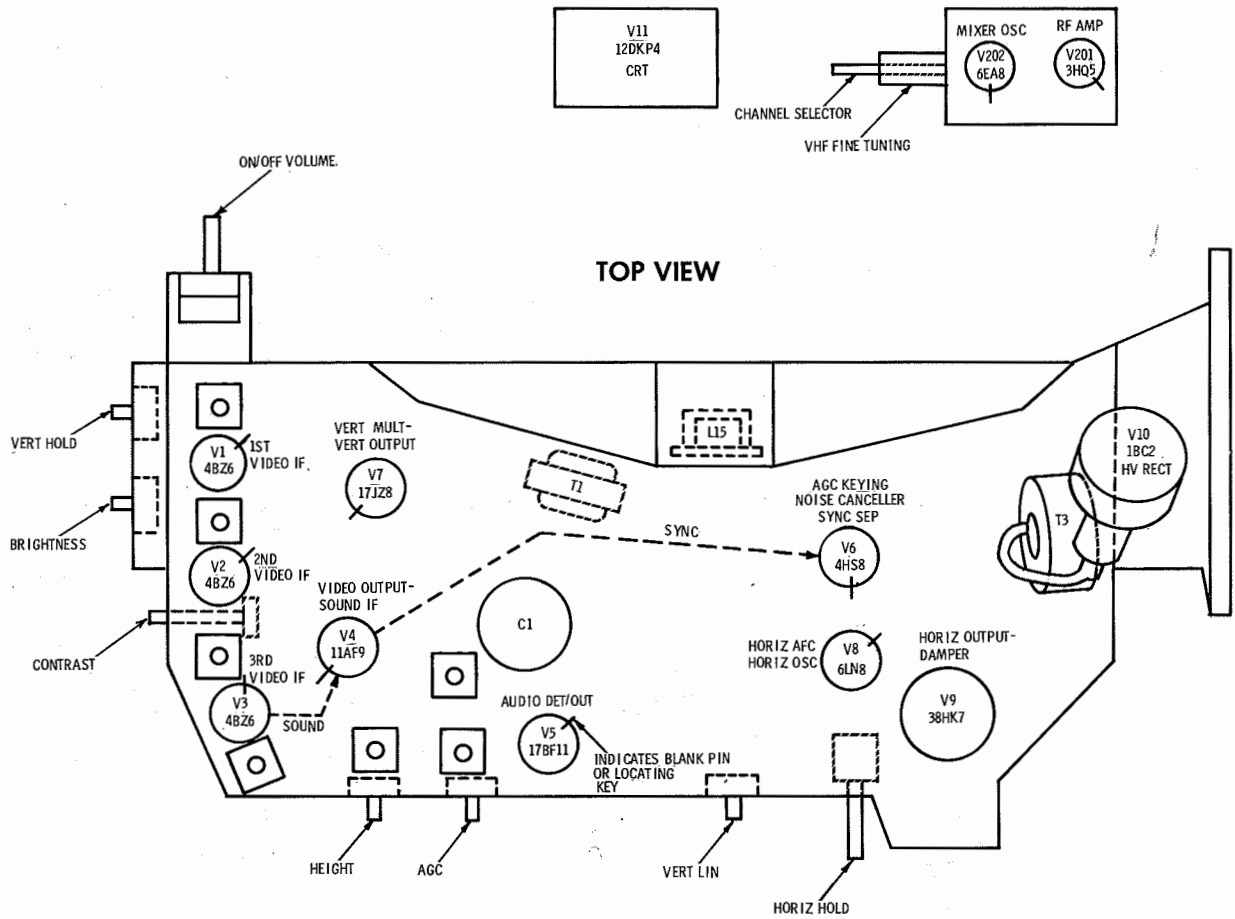
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9	PIN 10	PIN 11	PIN 12	TOP CAP
V1	4BZ6	5.76meg †	68Ω	3.2Ω	4.7Ω	306Ω †	306Ω †	0Ω						
V2	4BZ6	5.76meg †	70Ω	4.7Ω	6.17Ω	320Ω †	320Ω †	0Ω						
V3	4BZ6	.1Ω	100Ω	6.17Ω	7.66Ω	320Ω †	320Ω †	0Ω						
V4	11AF9	100K	0Ω	12K †	12K †	11Ω	7.6Ω	15Ω	3140Ω *	7080Ω †	4110Ω †			
V5	17BF11	21.5Ω	560Ω	3.96Ω	NC	470K	27K †	680K †	250K	220Ω	7380Ω †	252Ω †	16.3Ω	
V6	4HS8	3170Ω	2340Ω †	5.12meg †	29.2Ω	27.8Ω	31K	730K †	58K	10meg †				
V7	17JZ8	27.8Ω	10meg †	NC	282Ω †	NC	1.3meg	NC	92Ω †	15Ω	680K	1500Ω	21.5Ω	
V8	6LN8/	68K †	220K	92Ω †	16.3Ω	14.3Ω	82K †	20.2Ω	0Ω	1.6meg				
V9	38HE7	41Ω	62.8Ω †	NC	260K	4.41Ω †	NC	NC	0Ω	470K	NC	1221Ω †	29.2Ω	
V10	18C2													213Ω †
V11	12DKP4	12K	130K	14.3Ω	11Ω	NC	16.2K	0Ω						
V201	3HA5/	8meg †	0Ω	2.5Ω	3.2Ω	3200Ω †	0Ω	0Ω						
V202	6EA8	5600Ω †	220K	19.4K †	0Ω	2.5Ω	97Ω †	0Ω	0Ω	10K				

† MEASURED FROM CATHODE OF X1.
* MEASURED FROM PIN 4 OF V9.

* READING DEPENDS ON POLARITY OF METER CONNECTIONS.
NC NO CONNECTION

PINS 1 THRU 12 HAVE INFINITE RESISTANCE

TUBE PLACEMENT CHART



ZENITH CHASSIS 13A12,
13A12M, 13A12S, 13A12S1

TROUBLESHOOTING CHECK CHART

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

SWEEP

No raster, has sound V8, V9, V10, V11
No vert. deflection V7
Poor vert. lin. or foldover V7
Poor horiz. lin. or foldover V8, V9
Narrow picture V8, V9, X1
Vert. off freq. V7
Horiz. off freq. V8, X4

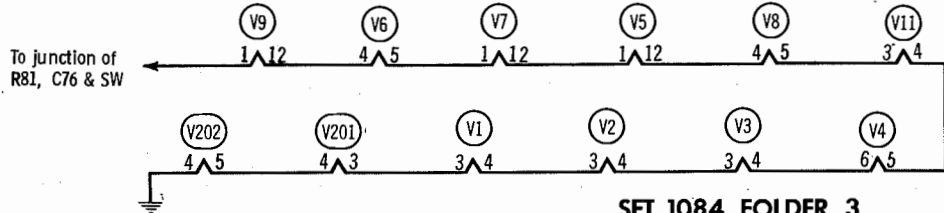
PICTURE OR SOUND

No pic, no sound, no raster X1, F1
No pic, no sound, has raster V1, V2, V3, V4, X2
No pic, no sound, has snow V201, V202, V1
No pic, has sound, no raster V8, V9, V10, V11
No pic, has sound, has raster V4, V5
Has pic, no sound V4, V5
Overloaded picture V6

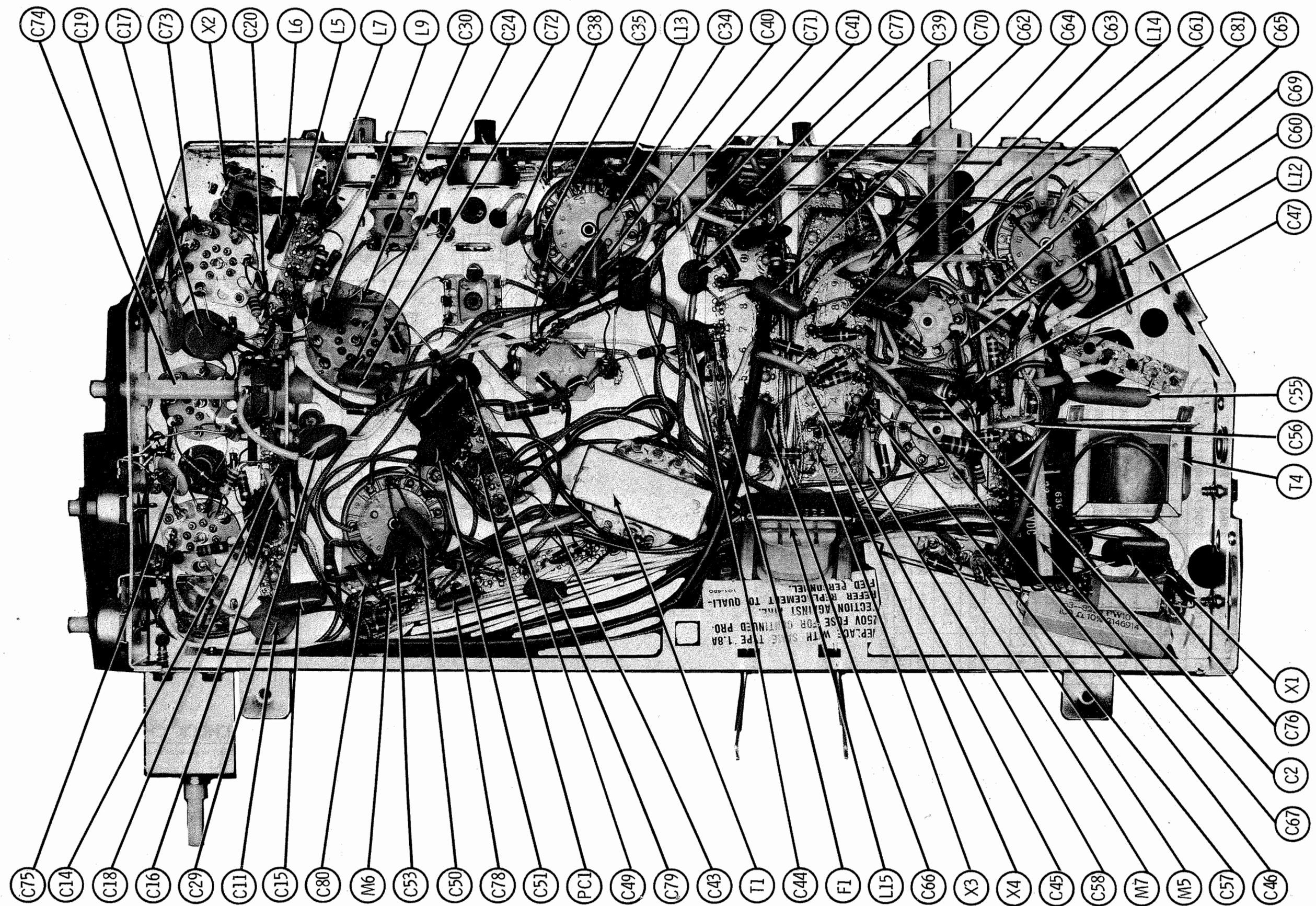
SYNC

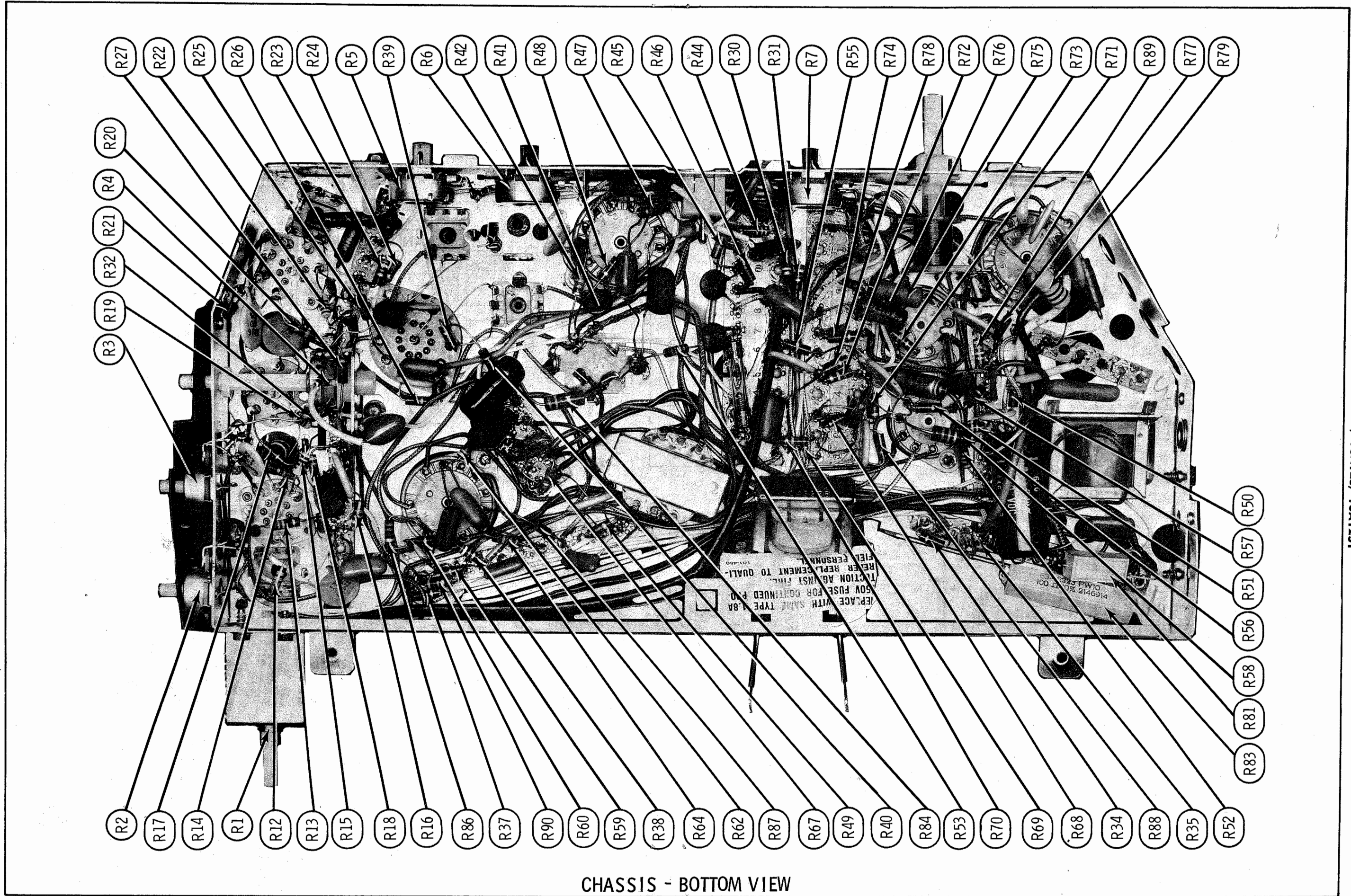
No vert. sync V6
No horiz. sync V6
No vert. or horiz. sync V6

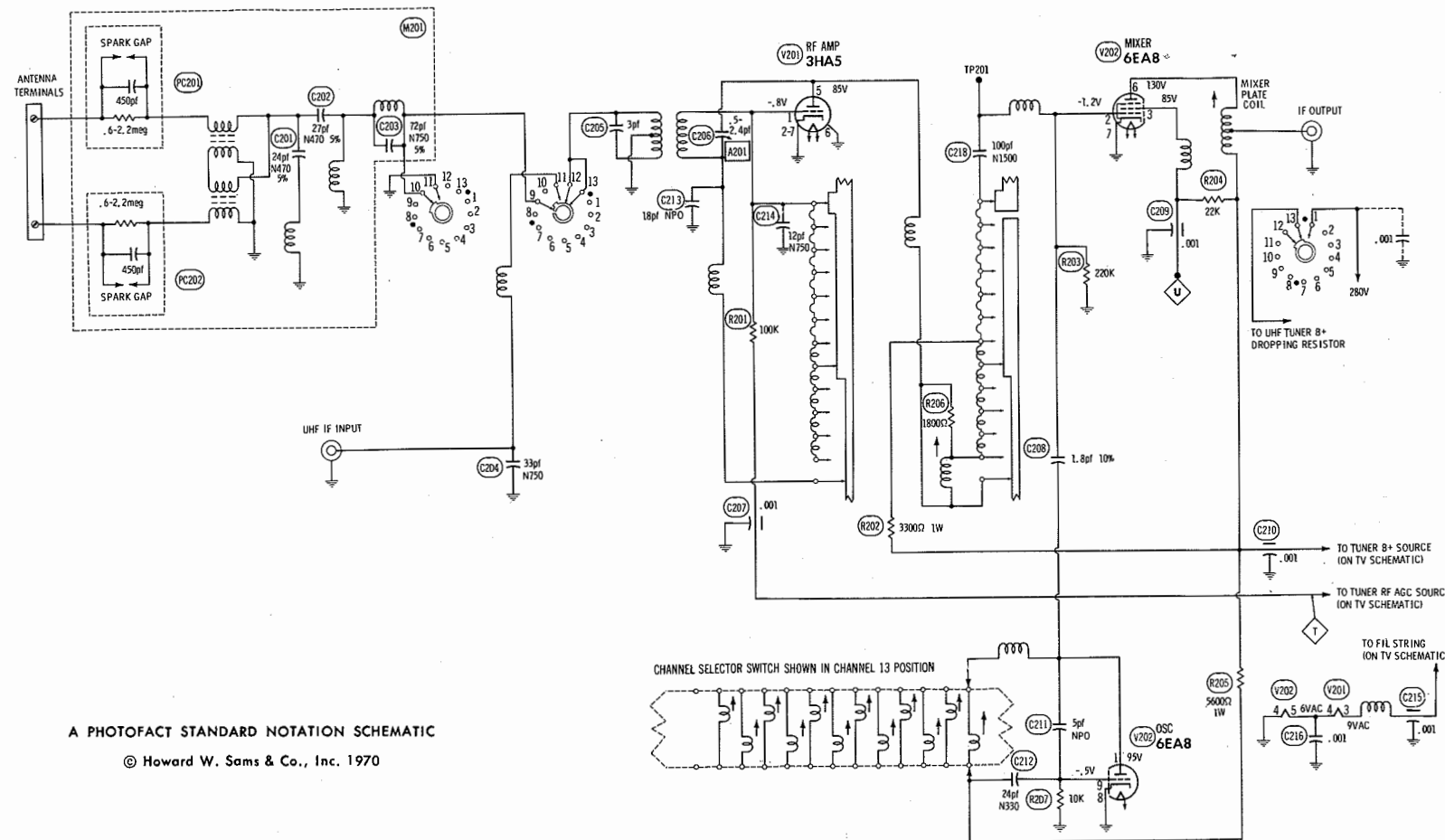
This receiver employs tubes used in a series filament network; an open filament in any tube will cause the set to be inoperative. (See circuit below.)



SET 1084 FOLDER 3







OSCILLATOR ADJUSTMENTS

The oscillator for each channel is preset by means of the fine tuning control. Adjust fine tuning for best picture and sound on each channel.

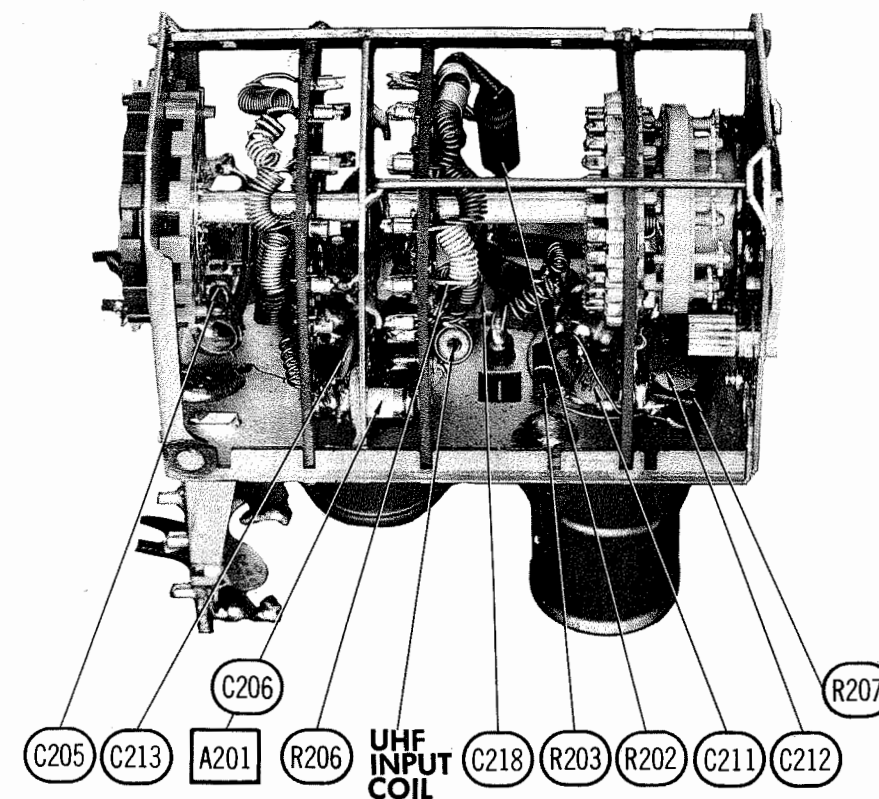
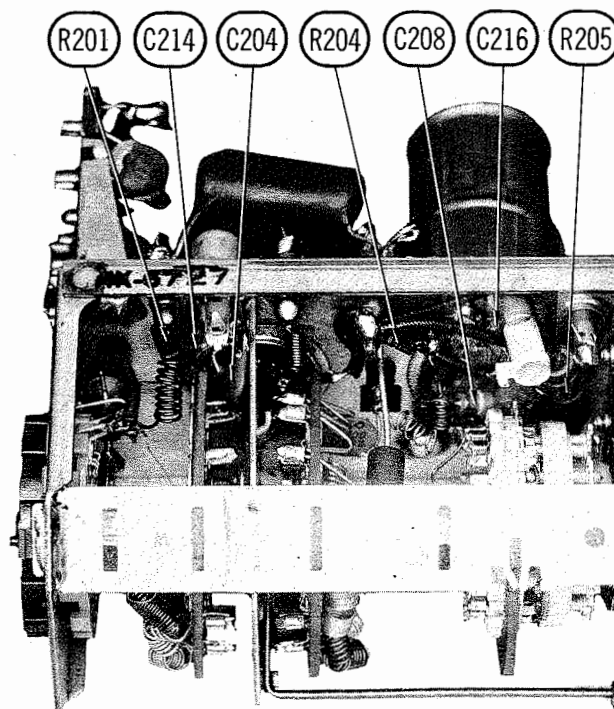
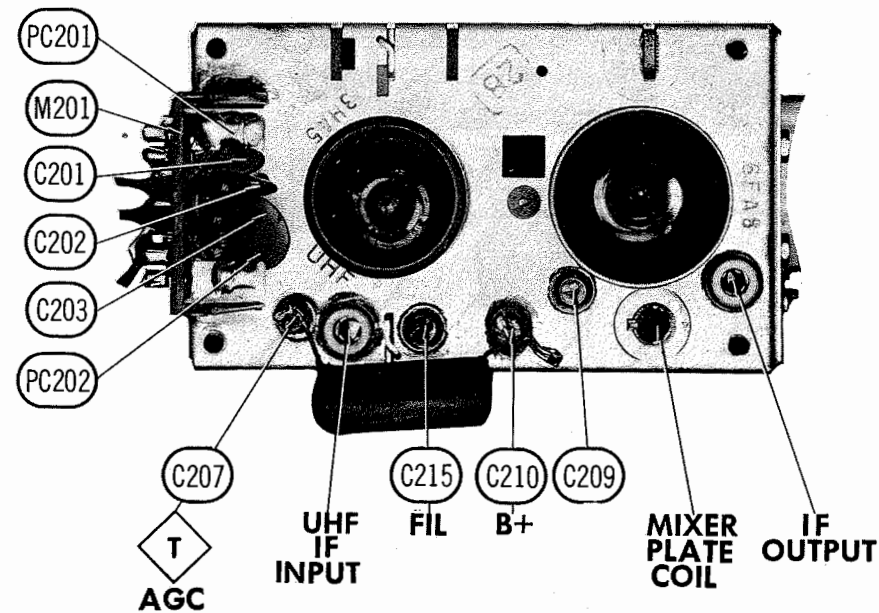
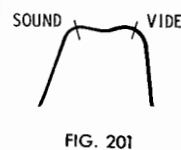
RF AND MIXER ALIGNMENT

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 T. Adjust bias to obtain response curve which shows no indication of overloading.

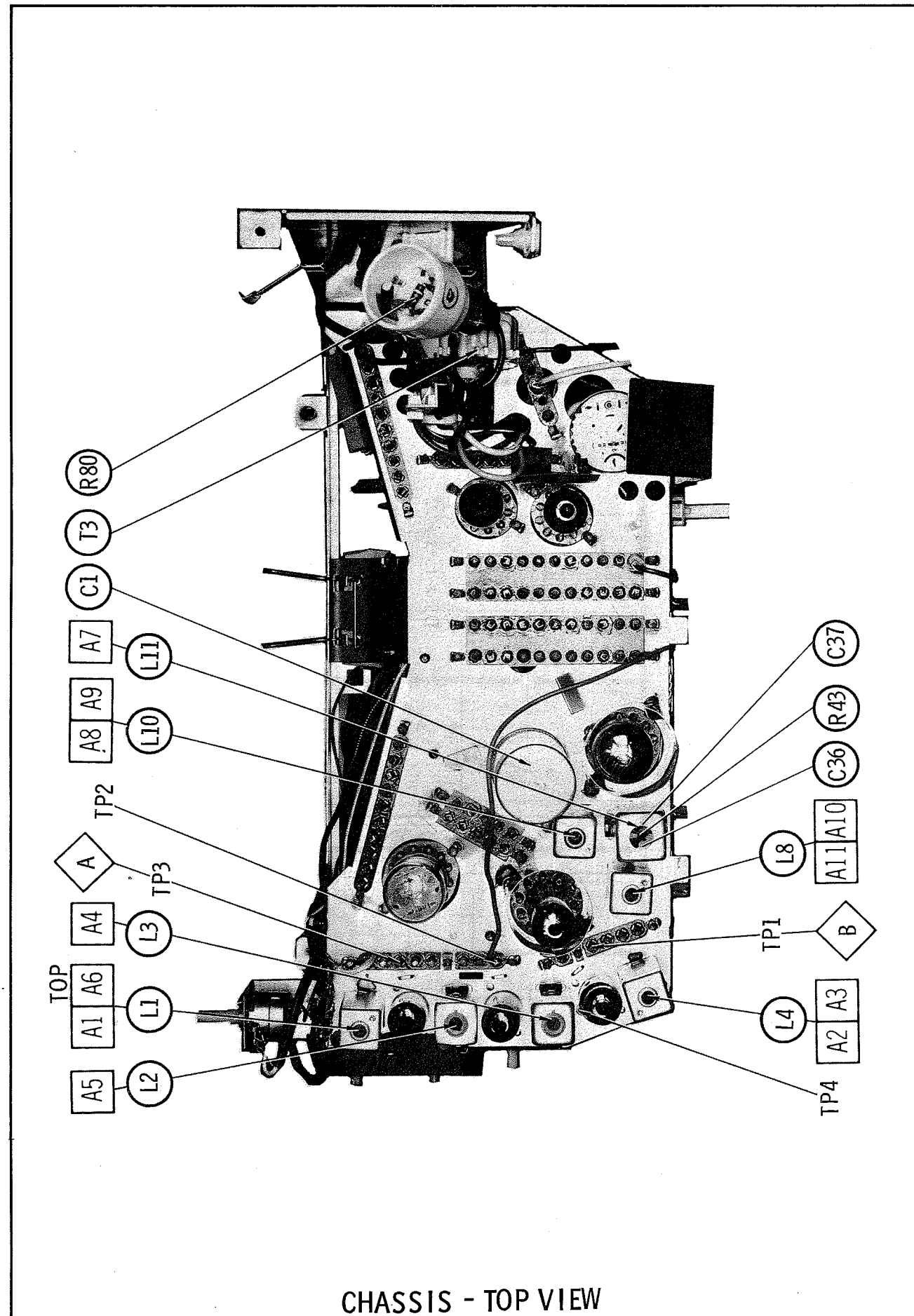
SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Input to Point T, low side to ground.		Expand or compress appropriate coils for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2. "	195MC	193.25MC 197.75MC	10	Across Video Det. load resistor.	A201	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
3. "	See Chart	See Chart	12 thru 2	Vert. Input to Point T, low side to ground.		Reduce bias. Check all channels for response similar to Fig. 201. Make compromise adjustments.

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		
79MC	77.25MC 81.75MC	5	189MC	187.25MC 191.75MC	9	213MC	211.25MC 215.75MC	13		



VHF TUNER 175-1104, 175-1105



CHASSIS - TOP VIEW

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 A11 GENERAL CEMENT #8606, 8606L, 8869 ... WALSCO #2543, 2544, 2588
Mixer Plate Coil .. GENERAL CEMENT #9296, 9297, 9300 WALSCO #2510, 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 Δ) 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.

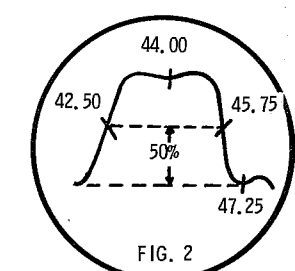
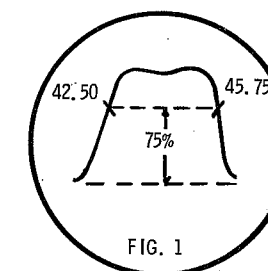
INDICATOR	GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
1. Connect DC probe of a VTVM thru a 47K resistor to point Δ . Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		47.25 MC	A1	Adjust for MINIMUM.
2. Connect vertical input of a scope to point Δ . Low side to ground.	Connect high side thru .002mfd capacitor to pin 1 of V3. Low side to ground.	44 MC (10 MC Sweep)	42.5 MC 45.75 MC	A2, A3	Adjust for maximum amplitude and MINIMUM tilt with markers as shown in Figure 1.
3. Connect vertical input of a scope to point Δ . Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44 MC (10 MC Sweep)	42.50 MC 44.00 MC 45.75 MC 47.25 MC	A4, A5, A6	Adjust for maximum gain and symmetry of response with markers as shown in Figure 2. In order to obtain a proper response, it may be necessary to slightly retouch A 2 and A 3.

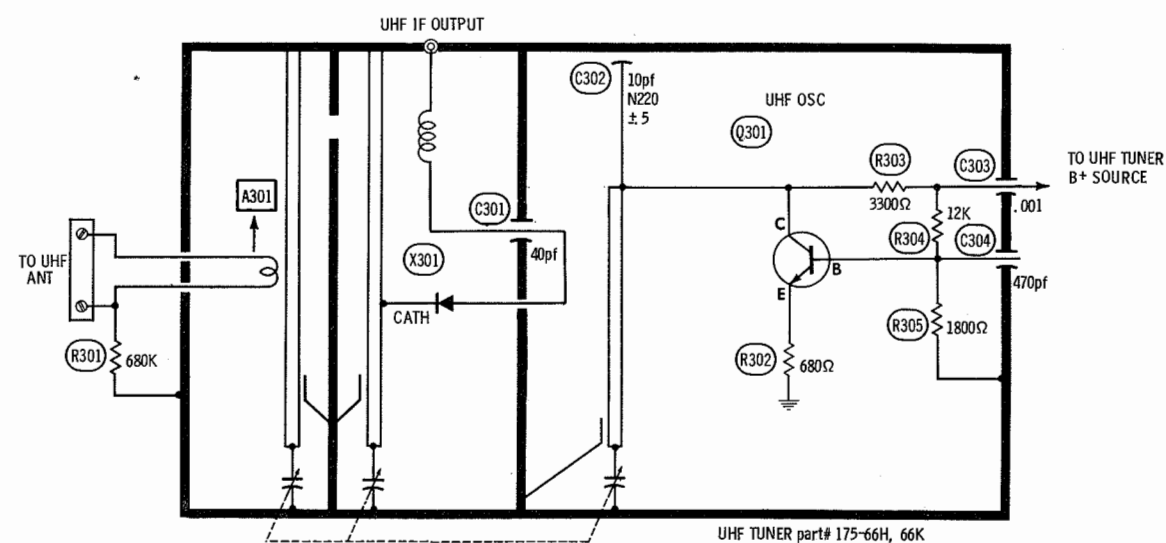
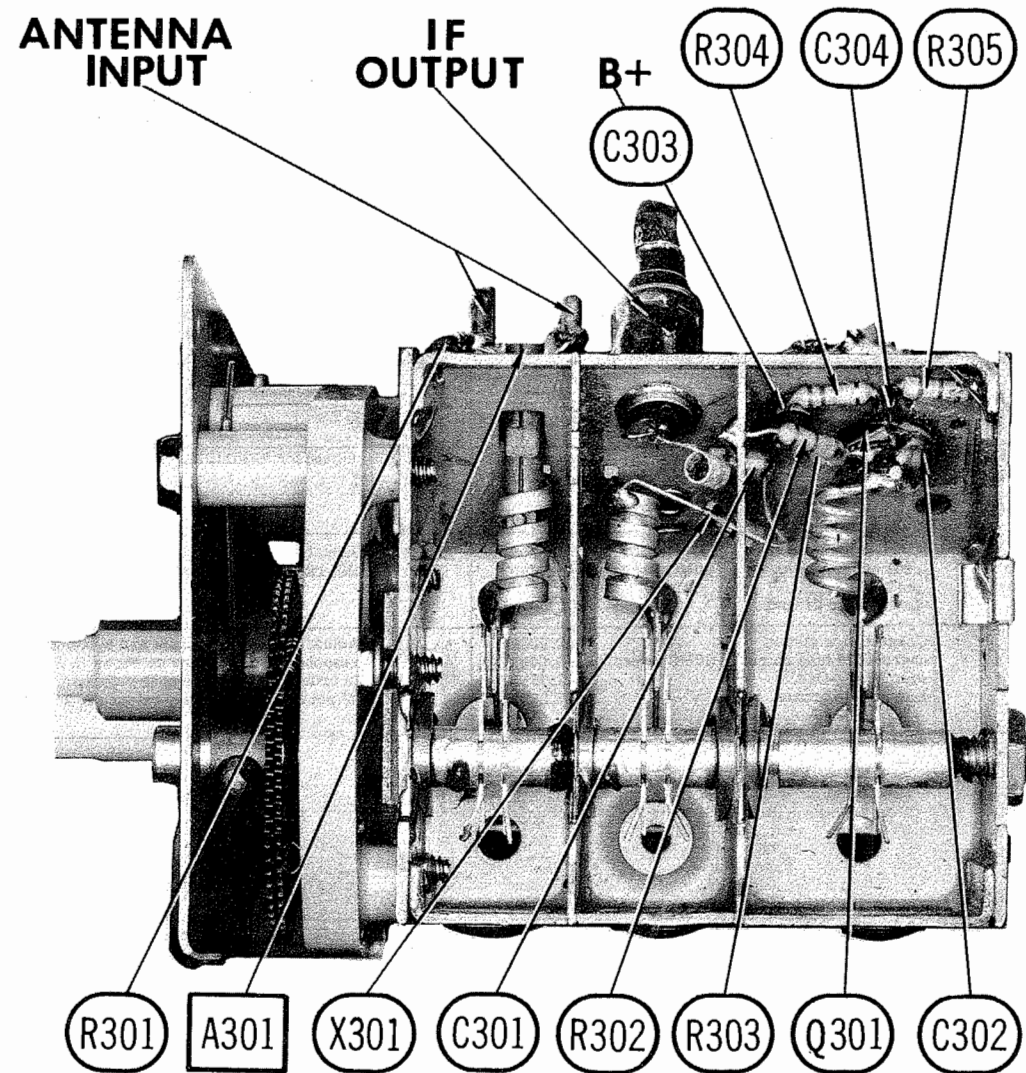
SOUND IF ALIGNMENT

Tune in a station and adjust A 7 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, and A10.

4.5 MC TRAP ALIGNMENT

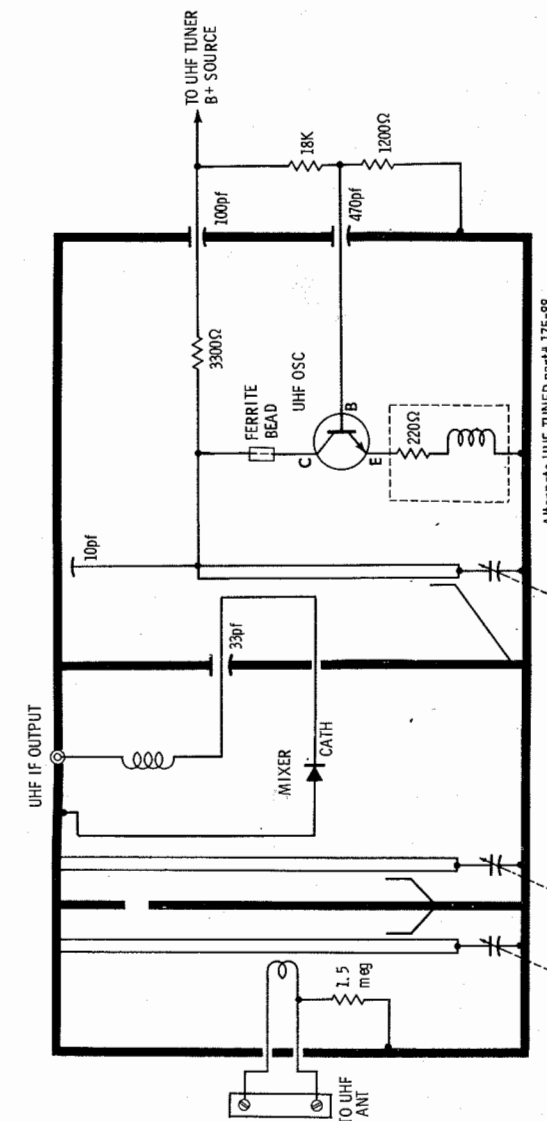
Tune in a strong TV signal and set the Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible on the screen. Adjust A11 for MINIMUM beat interference.





A PHOTOFAC STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1970

UHF TUNER 175-66H/K



A PHOTOFAC STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1970

UHF TUNER 175-88U

VHF TUNER PARTS LIST

TUBES

AMPEREX			GENERAL ELECTRIC		RCA		SYLVANIA	
ITEM No.	USE		TYPE		ITEM No.	USE		TYPE
V201	RF Amp.		3HA5/LC900		V202	Mixer - Oscillator		6EA8

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	24	N470 5%	#22-3545 #22-3987 #22-2428 #22-8987 #22-3986 #22-3835 #22-3987	N750-DI 33 NPO-DI 3.0 NPO-DI 5.0 TCZ-18 TCN-12	DTN-332	CZ601UJ330K	CCTN-330	CN7433	10TCT-Q27 10TCU-Q33 10TCC-V30 10TCC-V50 10TCC-Q18 10TCU-Q12
C202	27	N470 5%							
C203	72	N750 5%							
C204	33	N750 5%							
C205	3	5%							
C206	5-2.4								
C207	.001								
C208	1.8	10%							
C209	.001								
C210	.001								
C211	5	NPO ±.25							
C212	24	N330 3%							
C213	18	NPO 5%							
C214	12	N750 5%							
C215	.001								
C216	.001								

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

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M201	Balun	S-73217	Includes C201, C202, C203, PC201, PC202. .6-2.2meg, 450pf .6-2.2meg, 450pf
PC201	Antenna Isolation	105-97	
PC202	Antenna Isolation	105-97	

UHF TUNER PARTS LIST

TRANSISTORS

ITEM No.	TYPE No.	FUNCTION	REPLACEMENT DATA						
			MFGR. PART No.	DELCO PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MOTOROLA PART No.	RCA PART No.	SYLVANIA PART No.
Q301		UHF Oscillator	121-551 ①		GE-11	TR-22	HEP56	SK3019	ECG 108

① Part #121-630 used in Tuner 175-66K; Part #121-308 used in Tuner 175-88.

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.	
X301	103-61	1N82A	1N82AG	ECG 112		

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.
C301	40		#22-5060						
C302	10 N220 ±.5		#22-5005						
C303	.001		#22-4651						
C304	470		#22-5062						

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
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

TUBES

AMPEREX			GENERAL ELECTRIC		RCA		SYLVANIA	
ITEM No.	USE		TYPE		ITEM No.	USE		TYPE
Q301	UHF Osc. (Transistor)		121-551		V5	Audio Det. - Audio Output		17BF11
V201	RF Amp.		3HA5/LC900		V6	AGC Keying - Sync Sep. - Noise Canceller		4HS8
V202	Mixer - Oscillator		6EA8		V7	Vert. Mult. - Vert. Output		17JZ8
V1	1st Video IF		4BZ6		V8	Horiz. AFC - Horiz. Osc.		6LN8
V2	2nd Video IF		4BZ6		V9	Horiz. Output - Damper		38HE7 (38HK7) †
V3	3rd Video IF		4BZ6		V10	HV Rectifier		1BC2
V4	Video Amp. - Sound IF		11AF9					

† Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	MFGR. PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V11	12DKP4				

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.	
X1	212-71	GE-504A	8D6 or 5A6-D	ECG 116 or ECG 117	SK3017A or SK3032	① Matched Pair
X2	103-23	1N60	1N80	ECG 109		
X3	103-142	1N60	1N60	ECG 110 ①		
X4	103-142	1N60	1N60			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	300 175V	22-5857	AFH4-38-98,5					TVL-4459.4
B	400 150V							
C	200 150V							
D	10 150V							
C2	4 150V	22-5425	CRE953A		AL3-150	MT1-4	TC40A	TE-1508

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

ITEM No.	RATING	REMARKS	REPLACEMENT DATA						
			AEROVOX PART No.	CENTRALAB PART No.	CORNEILL-DUBILIER PART No.	ELMENDO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C11	470		GPD X5F471K	DD-471	JBZ601YP471K	CCD-471	GP347	10TS-T47	
C14	470	N1500 10%	V162P15		DMF1P15	1DP-3-154	PVC1015	10TCW-T47	
C15	.15	100V	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	JF210	2PS-P15	
C16A	.001	10%	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	JF210	10TS-D10	
B	.001	10%	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	JF210	10TS-D10	
C17	270	N750 10%	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C18	.001	10%	GPD X5F471K	DD-471	JBZ601YP471K	CCD-471	GP347	10TS-T20	
C19	470	10%	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C20	.001	1KV 10%	V161S22		DMF1S22	1DP-1-223	PVC1122	22S-P22391	
C24	.022	100V 10%	DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10	
C29	.1	200V							
C30	47	N75 5%	GPD X5S103K	DD-103	BYX601ZU103M	CCD-103	JF110	10TS-S10	
C34	.01		GPD X5S103K	DD-103	BYX601ZU103M	CCD-103	JF110	10TS-S10	
C35	.01								
C36	20	N470 10%	TTP-05	UK10-503	HOV101ZV503Z	CCD-503	MAG1215	TGL-S50	
C37	.05	10V	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C38	.001		GPD X5S103K	DD-103	BYX601ZU103M	CCD-103	JF110	10TS-D10	
C39	.01		DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10	
C40	.1	200V	DBE6S15		DMF6S15	6DP-2-153	PVC6115	6PS-S15	
C41	.015	600V	V161S22		DMF1P15	1DP-3-154	PVC1015	2PS-P15	
C42	.15	100V	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	JF210	10TS-D10	
C43A	.001	10%	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	JF210	10TS-D10	
B	.001	10%	GPD X5S103K	DD-103	BYX601ZU103M	CCD-103	JF110	10TS-S10	
C44	.01		GPD X5F471K	DD-471	JBZ601YP471K	CCD-471	GP347	10TS-T47	
C45	470	1KV	GPD X5R332K	DD-332	JBY601YP332K	CCD-332	JF233	10TS-D33	
C46	.0033		GPD X5S103K	DD-103	BYX601ZU103M	CCD-103	JF110	10TS-S10	
C47	.01		DBE6P15		PKM4S56	4DP-3-563	PVC6156	4PS-S56	
C49	.1	400V	DBE4S68		DMF4S68	4DP-3-683	PVC6188	4PS-S68	
C50	.068	10%	DBE6D33		DMF6D33	6DP-1-332	PVC6233	6PS-D33	
C51	.0033	600V 10%	DBE6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33	
C53	.056	200V 10%							
C54	36	N1500/3KV/5%	DBE6S56		DPMS6S56	6DP-3-563	PVC6156	6PS-S56	
C55	.056	600V 10%	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C56	.001		GPD X5F500K	DD-510	JBZ601YP500K	CCD-500	GP450	10TS-Q50	
C57A	51		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	JF210	10TS-D10	
B	.001	10%	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	JF210	10TS-D10	
C58A	.001	10%	V1614D15	CPR-1500K	WMP4D15	6DP-1-152	PVC6215	6PS-D15	
B	.001	10%	DBE6D1	CPR-1000J	WMP4D1	6DP-1-102	PVC621	6PS-D10	
C60	.0015	10%	V1614D33	CPR-3300J	WMP4D33	6DP-1-332	PVC6233	6PS-D33	
C61	.001	400V 10%	GPD X5F471K	DD-471	JBZ601YP471K	CCD-471	GP347	10TS-T47	
C62	.0033	400V 10%	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C63	.047	200V 10%	GPD X5R472K	DD-472G	JBT601YP472K	CCD-472	JF247	10TS-D47	
C64	.001	1KV 10%	V1612S47		DMF2S47	4DP-3-473	PVC4147	4PS-S47	
C66	.047	200V	DBE6P22		DPMS4P22	4DP-5-224	PVC4022	4PS-S22	
C67	.22	200V							
C69	245	N1500/3KV/10%	GPD X5R682K	DD-682	BYX601ZU682P	CCD-682	JF268	10TS-D68	
C70	.0068	1KV	GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C71	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C72	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C73	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C74	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C75	.001		GPD X5F102K	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10	
C76	.033	400V	DBE6S33	DD-303	DMF4S33	4DP-2-333	PVC6133	4PS-S33	
C77	.01	1KV	GPD X5S103K	DD-103	BYX601ZU103M	CCD-103	JF110	10TS-S10	
C78	.022		GPD 75U203P	DD-203		CCD-203	GP120	10TS-S20	
C79	.0047	200V 10%	GPD X5R472K	DD-472G	JBZ601YP472K	CCD-472	JF247	10TS-D47	
C80	820		GPD X5F821K	DD-821	GP821	CCD-821	GP382	10TS-T82	
C81	470	*	GPD X5R472K	DD-471	GP470	CCD-471	GP347	10TS-T47	

① Value may vary from 47pf to 72pf. Replace with exact value found in set.
② Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

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.		
R1	Volume/Switch	1meg	63-8219	F2-1meg, SNF100, KR-1	NP-1meg-Z, NMS-A-300, NWE-12, TT-2	B13-137, TM10, 76-1 or (BU11, CF26, SS16, GC)*	RUI6A, SL37, SD1000, US41 or (UA16A, SD1000, US41)		
R2	Vert. Hold	1meg	63-8170	F1-1meg, SNF100, AK-40	NP-1meg-S, UP-N-010, TT-3	BU11, CF17, SS16, DC2 *			
R3	Brightness	250K	63-8221	F1-250K, SNF100, AK-40	NP-250K-S, UP-N-010, TT-3	BU11, CF15, SS16, DC2 *			
R4	Contrast	4000Ω 2W	63-8222	WW402, AK-16 ①		WPS4000, C3 ① or (BU1, WF8, SS6, C3 ①)	MRS4000T, MRS1250, EC249 ① or (VW46, EC240 ①)		
R5	Height	7meg	63-6433	TT-90 or (F1-7.5meg, SNK010)		B47-7.5meg-S or NPL-7.5meg-S, TT-2	HLC6		
R6	AGC	5000Ω	63-8224	TT-10 or (F1-5000, SNK010)		B47-5000-S or (NP-5000-S, NML-A-300, TT-2)	B11-114, TM4 or (BU11, CF8, SS6) *	PTA53L or (RU53L, SL37, SN1000) or (UA53L, SN1000)	

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

ITEM No.	FUNCTION	RESISTANCE	REPLACEMENT DATA						
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.		
R7	Vert. Linearity	290K	63-8327	TT-50 or (F1-250K, SNK010)		B47-250K-S or (NP-300K-S, NML-A-300, TT-2)	B11-131, TM4 or (BU11, CF15, SS6) *	PTA35L or (RU35L, SL37, SN1000) or (UA254L, SN1000)	
	Vert. Linearity		63-8220 ②						

① Use coupler with portion of original shaft to obtain desired length.
② Alternate Part, may be used in some versions.

* "SNAPTROL"

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.			IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R81	4Ω 5W			63-6394	R83	100Ω 10W	PW10-100	10W-SQ-100	63-8223

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1A	1st Video IF -	95-2708			
B	47.25MC Trap				
L2	2nd Video IF	S-66852	17-4523 ②		T231 ②
L3	3rd Video IF	S-83338		6227	TL279
L4	4th Video IF	95-2711			
L5	Peaking (90uh)	29-2013	19-3093	6177	T368
L6	RF Choke (6uh)	20-2004	19-2014	4610	T992
L7	Peaking (220uh)	20-2541 ①	14-4201 *	72F224AP *	T312 *
L8	Sound Take-off - 4.5MC Trap	95-2712			
L9	Peaking (20uh)	20-2022	19-4201	6154	T312
L10	Sound IF	95-2713	17-1052 ②	7138 ②	T270 ②
L11	Quadrature	S-83648	20-1005	1480	TC268
L12	RF Choke (10uh)	20-2005	19-1005	72F105AP	T860
L13	Line Choke	20-1424			

① Wound on 8200Ω Resistor.
② Use original shield.
* Shunt with 8200Ω Resistor.
③ Solder to chassis and add .001mfd capacitor externally.

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.
L14	Horiz. Osc. (Hold)	S-56875	TV-159 ①	6211 ①		HS-7 ①	WLC-25 ①	TL04 ①

① Install plastic sleeve on adjustment screw.

FILTER CHOKE

ITEM No.	RATINGS	REPLACEMENT DATA						
		CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000~)	MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.
L15	.16A DC	99Ω	1.1 H		95-2703			

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 Yoke (Horiz. 12.8mh)	95-2707(-B)						
T2	114° (Vert. 26mh)	95-2705						
T3	Horiz. Output	S-82908 ① or S-83539 ②						

① Part No. includes: Bracket assembly, anode lead, Palnut (2 required), 3.9Ω Resistor, high-voltage tube socket, plate cap, spring and wire assembly.
② Part No. includes: Bracket assembly, anode lead, 3.9Ω Resistor, high-voltage tube socket, and self-tapping washers.

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	1800Ω	8Ω	95-2706(-C)	A-4097 ①		22S61 ①	S-62X ①	① Bend mounting tabs and

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA			NOTES
		MFGR. PART No.	QUAM PART No.		
SPI	3" PM 8Ω	49-1170	30A0528		

FUSE DEVICES

ITEM No.	DESCRIPTION	REPLACEMENT DATA					
		PART No.		BUSS PART No.		LITTELFUSE PART No.	
F1	1.8 Amp Slo Blo, Pigtail	DEVICE	HOLDER	DEVICE	HOLDER	DEVICE	HOLDER
		136-65		MDY2		315002	

① Alternate used in some versions

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
	VHF Antenna	1-125	JFD Replacement TA525
	UHF Antenna	S-59774	JFD Replacement TA544
	VHF Tuner	175-1105	
	VHF Tuner	175-1104	
	VHF Tuner	175-88U	
	VHF Tuner	175-66H/K	
	VHF Tuner	175-910	
M5	Neon Lamp	100-397 (NE2H)	
M6	Spark Gap	52-957	
M7	Spark Gap	52-957	
PCI	Vert. Integrator	87-4	

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

ITEM	PART No.	ITEM	PART No.
Cabinet Models A1331C, C1, C2, C3	14-9215	Cabinet Models A133P, P1, P2, P3	S-83183
Cabinet Back	14-9238	Cabinet Back	14-9241
Knob - Horiz. Hold	46-3289	Knob - Contrast, Brightness	46-7420
Knob - Vert. Hold, Contrast, Brightness	46-7417	Knob - Horiz. Hold	46-3289
Knob - Volume	46-7423	Knob - Vert. Hold, Models A1333P, P1	46-7420
Knob - VHF Channel Selector	46-7431	Knob - Vert. Hold, Models A1333P2, P3	46-7421
Knob - VHF Fine Tuning	46-6948	Knob - Volume, Models A1333P, P1	46-7427
Knob - UHF Dial, Model A1331C	46-7441	Knob - Volume, Models A1333P2, P3	46-7428
Knob - UHF Dial, Models A1331C1, C3	46-7447	Knob - VHF Channel Selector A1333P, P1	46-7436
Knob - UHF Dial, Model A1331C2	46-7453	Knob - VHF Channel Selector A1333P2, P3	46-7435
Knob - UHF Tuning, Model A1331C	46-7440	Knob - VHF Fine Tuning, A1333P, P1	46-7023
Knob - UHF Tuning, Models A1331C1, C2, and C3	46-7437	Knob - VHF Fine Tuning, A1333P2, P3	46-7430
		Knob - UHF Dial, Models A1333P, P1	46-7446
		Knob - UHF Dial, Model A1333P2	46-7458
		Knob - UHF Dial, Model A1333P3	46-7456
		Knob - UHF Tuning, Models A1333P, P1	46-7439
		Knob - UHF Tuning, Models A1333P2, P3	46-7437
Cabinet Models A1331F, F1, F2, F3	14-9216	Cabinet Models A133W, W1, W2	S-83182
Cabinet Back	14-9239	Cabinet Back	14-9240
Knob - Vert. Hold, Contrast, Brightness	46-7419	Knob - Vert. Hold, Contrast, Brightness	46-7420
Knob - Horiz. Hold	46-3289	Knob - Horiz. Hold	46-3289
Knob - Volume	46-7426	Knob - Volume	46-7427
Knob - VHF Channel Selector	46-7434	Knob - VHF Channel Selector	46-7426
Knob - VHF Fine Tuning	46-6948	Knob - VHF Fine Tuning	46-7023
Knob - UHF Dial, Model A1331F	46-7442	Knob - UHF Dial, Model A1333W	46-7445
Knob - UHF Dial, Models A1331F2	46-7454	Knob - UHF Dial, Model A1333W1	46-7451
Knob - UHF Dial, Model A1331F3, F3	46-7449	Knob - UHF Dial, Model A1333W2	46-7457
Knob - UHF Tuning, Model A1331F	46-7439	Knob - UHF Tuning, Models A1333W, W2	46-7439
Knob - UHF Tuning, Models A1331F1, F2, and F3	46-7438	Knob - UHF Tuning, Model A1333W1	46-7438
Cabinet Models A1331J, J1, J2, J3	14-9213	Cabinet Model A1333W3	S-83184
Cabinet Back	14-9236	Cabinet Back	14-9242
Knob - Vert. Hold, Contrast, Brightness	46-7021	Knob - Vert. Hold, Contrast, Brightness	46-7422
Knob - Horiz. Hold	46-3289	Knob - Horiz. Hold	46-3289
Knob - Volume	46-7435	Knob - Volume	46-7429
Knob - VHF Channel Selector	46-7453	Knob - VHF Channel Selector	46-7436
Knob - VHF Fine Tuning	46-6948	Knob - VHF Fine Tuning	46-7023
Knob - UHF Dial, Model A1331J	46-7444	Knob - UHF Dial	46-7445
Knob - UHF Dial, Models A1331J1, J3	46-7450	Knob - UHF Tuning	46-7439
Knob - UHF Dial, Model A1331J2	46-7456		
Knob - UHF Tuning, Model A1331J	46-7439	Cabinet Models T2612W, W1, W2, W3	S-83184
Knob - UHF Tuning, Models A1331J1, J2, and J3	46-7438	Cabinet Back	14-9242
		Knob - Vert. Hold, Contrast, Brightness	46-7422
		Knob - Horiz. Hold	46-3289
		Knob - Volume	46-7429
		Knob - VHF Channel Selector	46-7436
		Knob - VHF Fine Tuning	46-7023
		Knob - UHF Dial, Models T2612W, W3	46-7445
		Knob - UHF Dial, Model T2612W1	46-7451
		Knob - UHF Dial, Model T2612W2	46-7437
		Knob - UHF Tuning, T2612W, W2, W3	46-7439
		Knob - UHF Tuning, T2612W1	46-7438