

CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove six screws holding cabinet back and disconnect antenna leads. Remove cabinet back from the cabinet and remove all knobs from the set.
2. Remove picture-tube socket, HV anode lead, and speaker leads at audio output transformer.
3. Remove one screw holding tuner assembly, one screw holding controls, and one screw holding chassis. Remove deflection yoke from the

picture-tube neck. Remove chassis from the cabinet.

PICTURE TUBE REMOVAL

1. Follow "Chassis Removal" procedure and lay set face down on a soft protective surface.
2. Remove four screws holding picture tube retaining wire and lift picture tube from the cabinet. Do not lift picture tube by the neck of the tube.

SET 1091 FOLDER 2

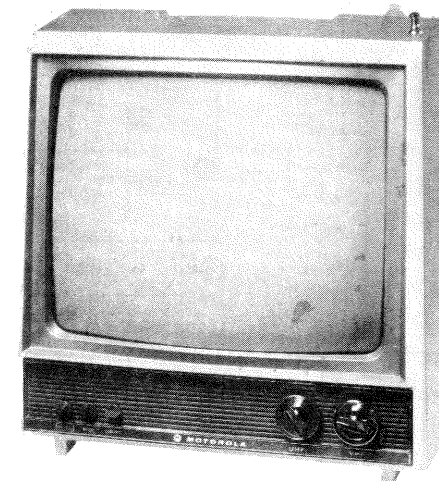
MOTOROLA
CHASSIS C12TS-465

PHOTOFACT® Folder

with CIRCUITRACE®

For Supplier Address See PHOTOFACT Index

MOTOROLA
CHASSIS C12TS-465



MODEL BP401FW

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 OR FUSE DEVICE

A 3.5-ohm fusible resistor is used for low-voltage power supply protection.

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. (See "Cabinet - Rear View" photo for location.)

WIDTH

The width may be varied by connecting the lead from the Resistor, R516, to various voltage points. (See "Cabinet - Rear View" photo for location.)

FOCUS

The focus may be varied by connecting the lead from Pin 4 of CRT to various voltage pointst. (See photo "Cabinet - Rear View" for location.)

AGC

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

CENTERING

Centering is accomplished by proper adjustment of two magnetic rings located on the 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. UA617

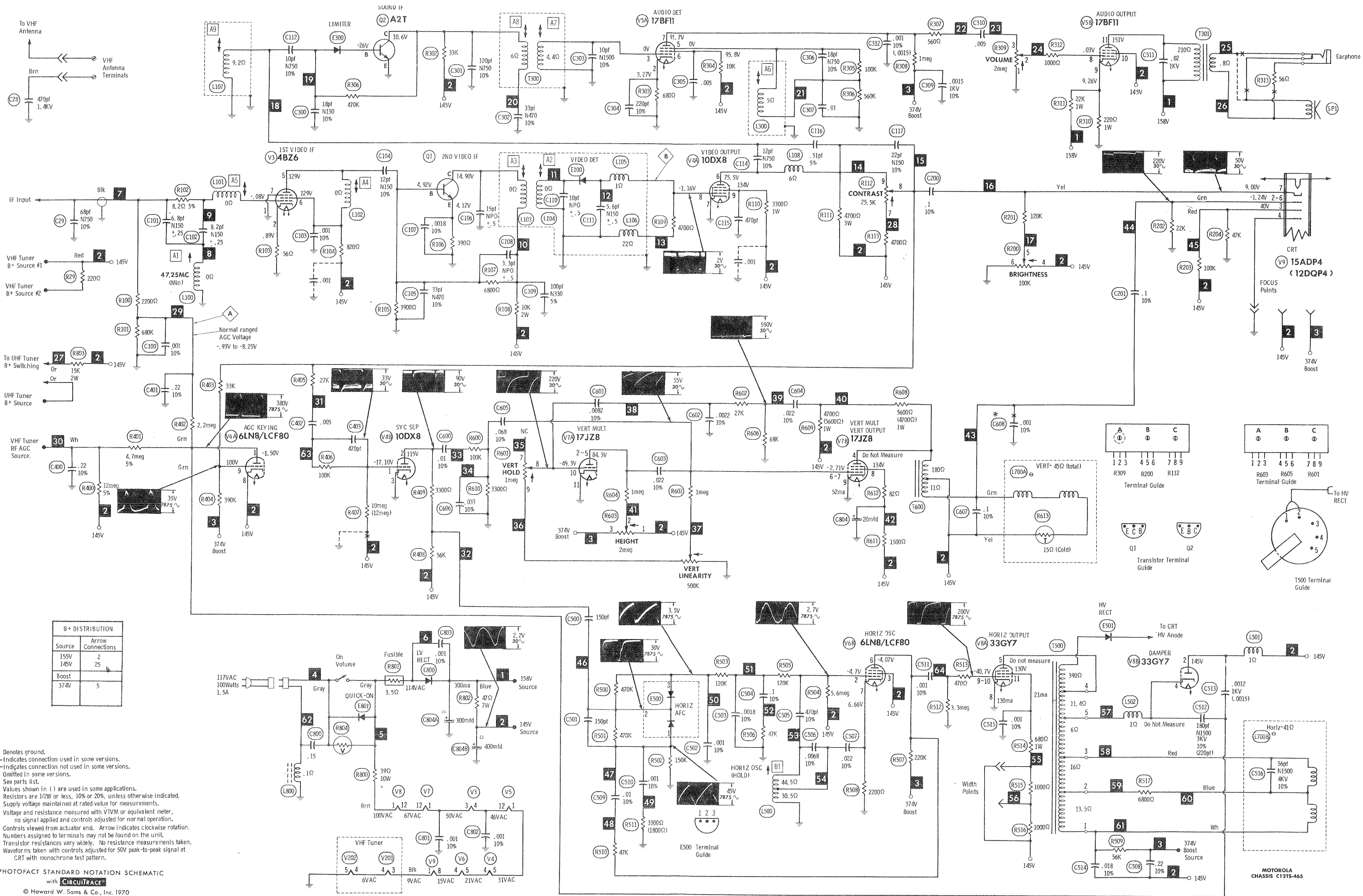
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SET 1091 FOLDER 2

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SET 1091 FOLDER 2



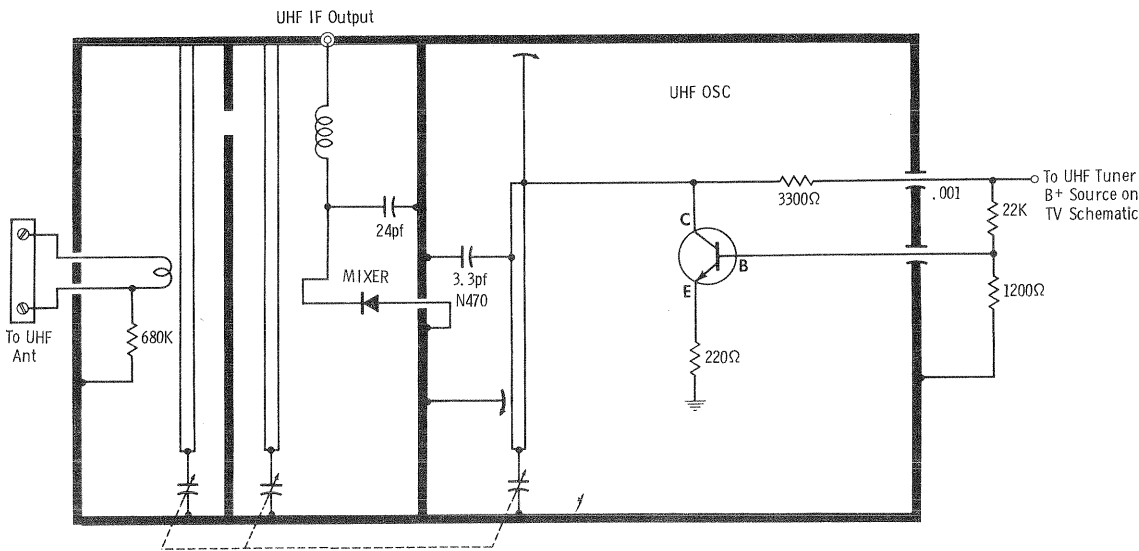
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CHASSIS C12TS-465

FOLDER 2

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
V3	4BZ6	665K	56Ω	17Ω	15.5Ω	869Ω †	869Ω †	0Ω					
V4	10DX8	12meg †	65K †	0Ω	6.8Ω	10.1Ω	4100Ω †	0Ω	4360Ω *	3180Ω †			
V5	17BF11	10.1Ω	680Ω	3.92Ω	TP	560K	10.5K †	1meg †	750K	220Ω	46.5Ω †	206Ω †	15.5Ω
V6	6LN8/ LCF80	2.35meg	1.05meg	46.5Ω †	4.6Ω	6.8Ω	284K †	2200Ω	46.5Ω †	446K †			
V7	17JZ8	17Ω	1.53meg †	NC	220Ω †	TP	1.3meg	1.3meg	1719Ω †	0Ω	848K	0Ω	23.3Ω
V8	33GY7	33.8Ω	47.5Ω †	NC	415K	11.4Ω †	NC	NC	0Ω	3.3meg	NC	692Ω †	23.3Ω
V9	15ADP4	3.3Ω	22K	32.1K	0Ω	NC	NC	116K	4.6Ω				
V201	3HA5/ 3HM5	4.5meg	0Ω	3.13Ω	2Ω	2370Ω †	0Ω	0Ω					
V202	6KZ8	7330Ω †	220K	0Ω	2Ω	0Ω	1311Ω †	22.3K †	0Ω	10K			
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

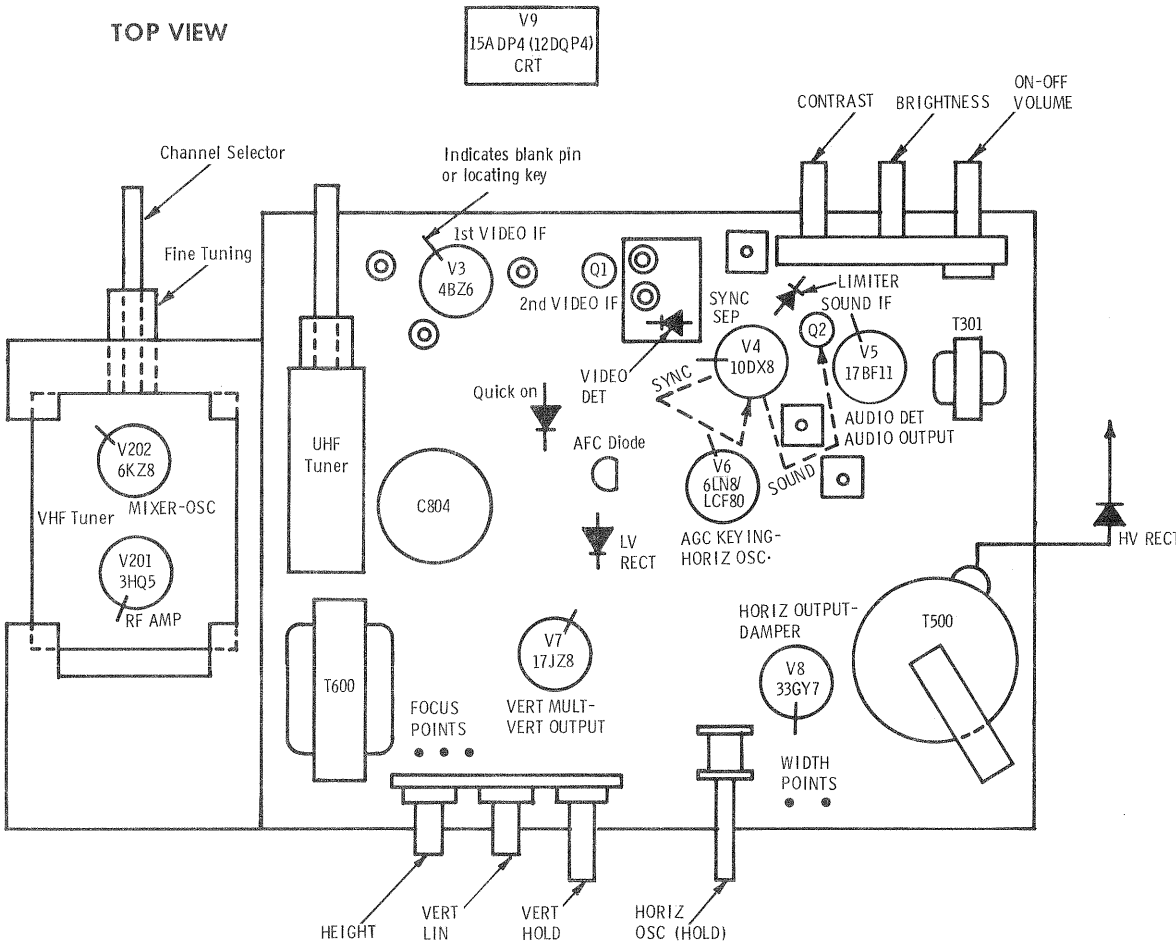
† MEASURED FROM THE CATHODE OF E800.
‡ MEASURED FROM PIN 4 OF V8.
NC NO CONNECTION
* READING DEPENDS ON POLARITY OF METER CONNECTIONS.
TP TIE POINT



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UHF TUNER KTT-636

TUBE PLACEMENT CHART



TROUBLESHOOTING CHECK CHART

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

SWEEP No raster, has sound V6, V8 No vert. deflection V7 Poor vert. lin. or foldover V7 Poor horiz. lin. or foldover V6, V8 Narrow picture E800, V6, V8 Vert. off freq. V7 Horiz. off freq. E500, V6	PICTURE or SOUND No pic, no sound, no raster R801 (Fusible Res.), E800 No pic, no sound, has raster V202, V3, Q1 No pic, no sound, has snow V201, V202 No pic, has sound, no raster V4, V9 No pic, has sound, has raster V4, E100 Has pic, no sound Q2, V5 Overloaded picture V6	SYNC No vert. sync V7 No horiz. sync E500, V6 No vert. or horiz. sync V4
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This receiver employs a series filament circuit; an open filament in any tube will cause the set to be inoperative.

TV ALIGNMENT INSTRUCTIONS

Use an isolation transformer, or observe polarity, and maintain voltage at 117VAC. Allow a 20-minute warm-up period for the receiver and test equipment.

Suggested Alignment Tools:

	GENERAL CEMENT	WALSCO
A1 thru A5	8606, 8606L, 8869	2543, 2544, 2588
A6 thru A9, Mixer Collector Coil	9296, 9297, 9300	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 that shown.

Connect a variable bias supply to the IF AGC line (Point A) and adjust to obtain a response curve which shows no indication of overload. Disable oscillator section of mixer-oscillator. Set the channel selector to any non-interfering channel.

INDICATOR	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
DC probe of VTVM thru 47K to Point B , common to ground.	High side to mixer test point U on VHF tuner, low side to ground.		47.25MC	A1	Adjust for MINIMUM.
Vertical input of scope to Point B , low side to ground.	High side to mixer test point U on VHF tuner, low side to ground.	44MC (10MC Sweep)	41.25MC 42.17MC 44.00MC 45.25MC 47.25MC	A2,A3, A4,A5, Mixer Collector Coil	Adjust for maximum gain and symmetry of response with markers as shown in Figure 1.

SOUND IF ALIGNMENT 4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set contrast at maximum. Adjust fine tuning until a beat pattern is visible on the screen. Adjust A9 for MINIMUM beat interference. Adjust A6 for maximum sound. Reduce strength at the antenna terminals until distortion appears. Continue to reduce the signal while aligning for undistorted output by adjusting A7 and A8. Finish by retouching A9 for maximum undistorted sound and MINIMUM visible beat interference.

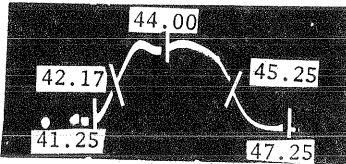
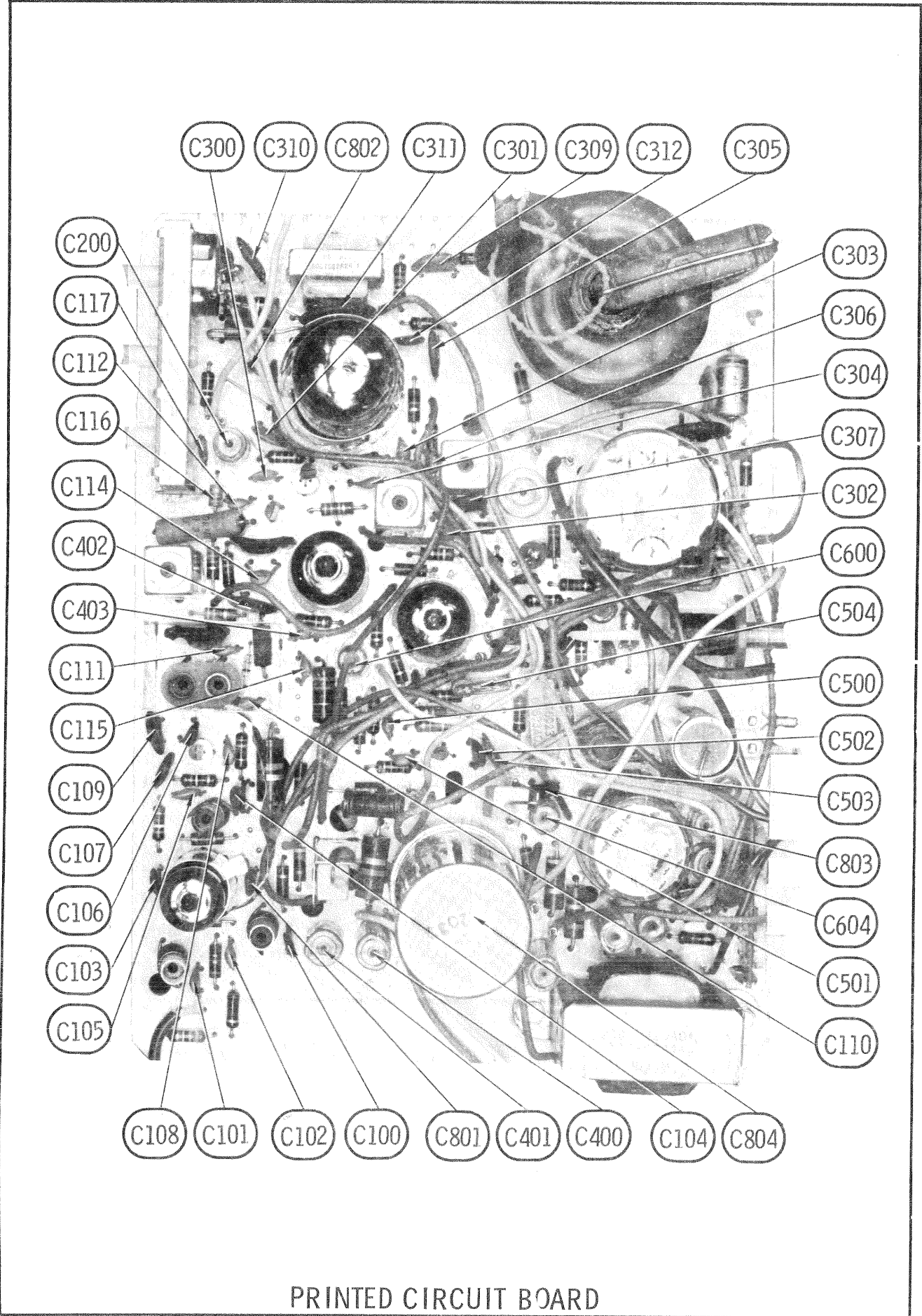
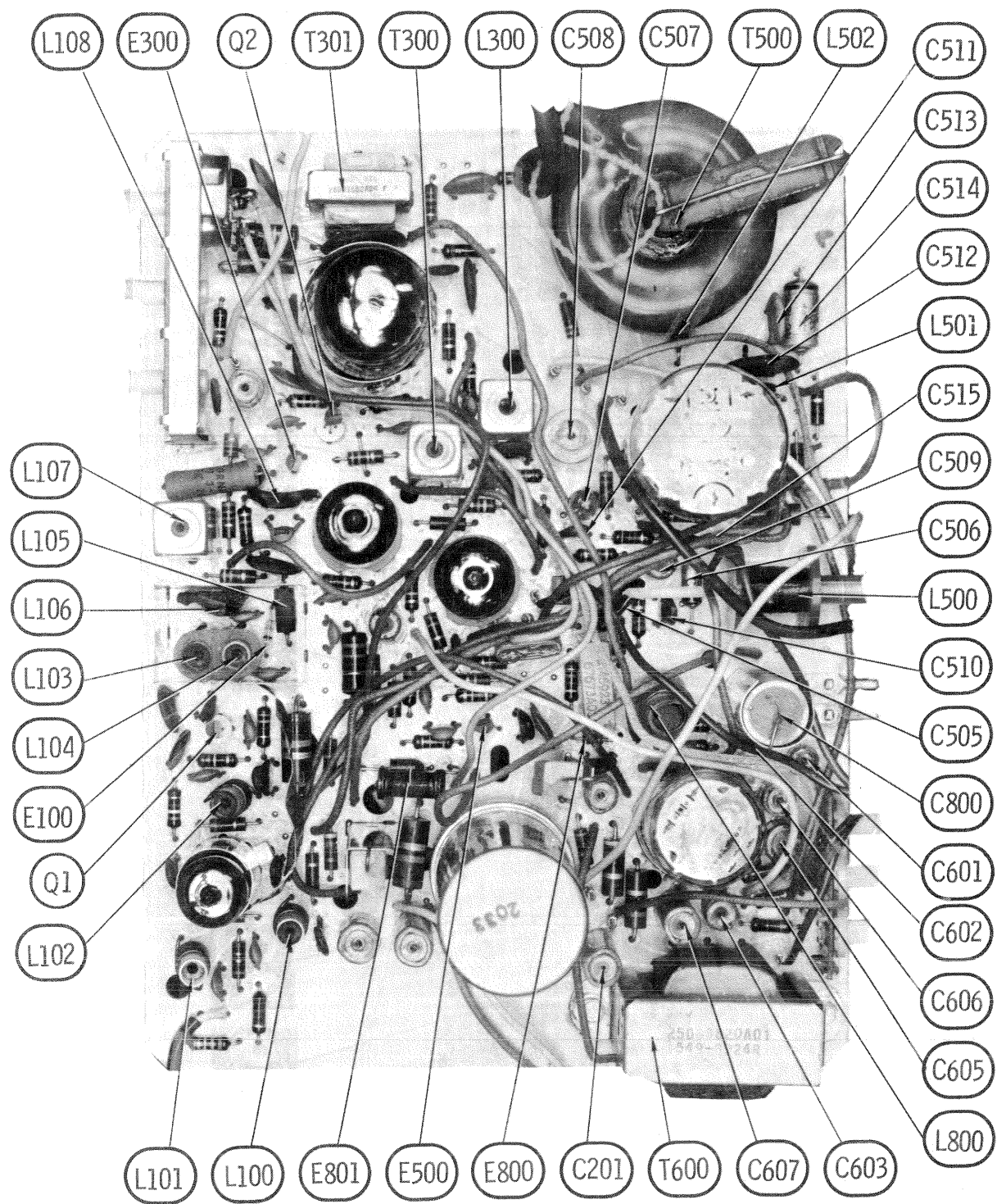


FIG. 1

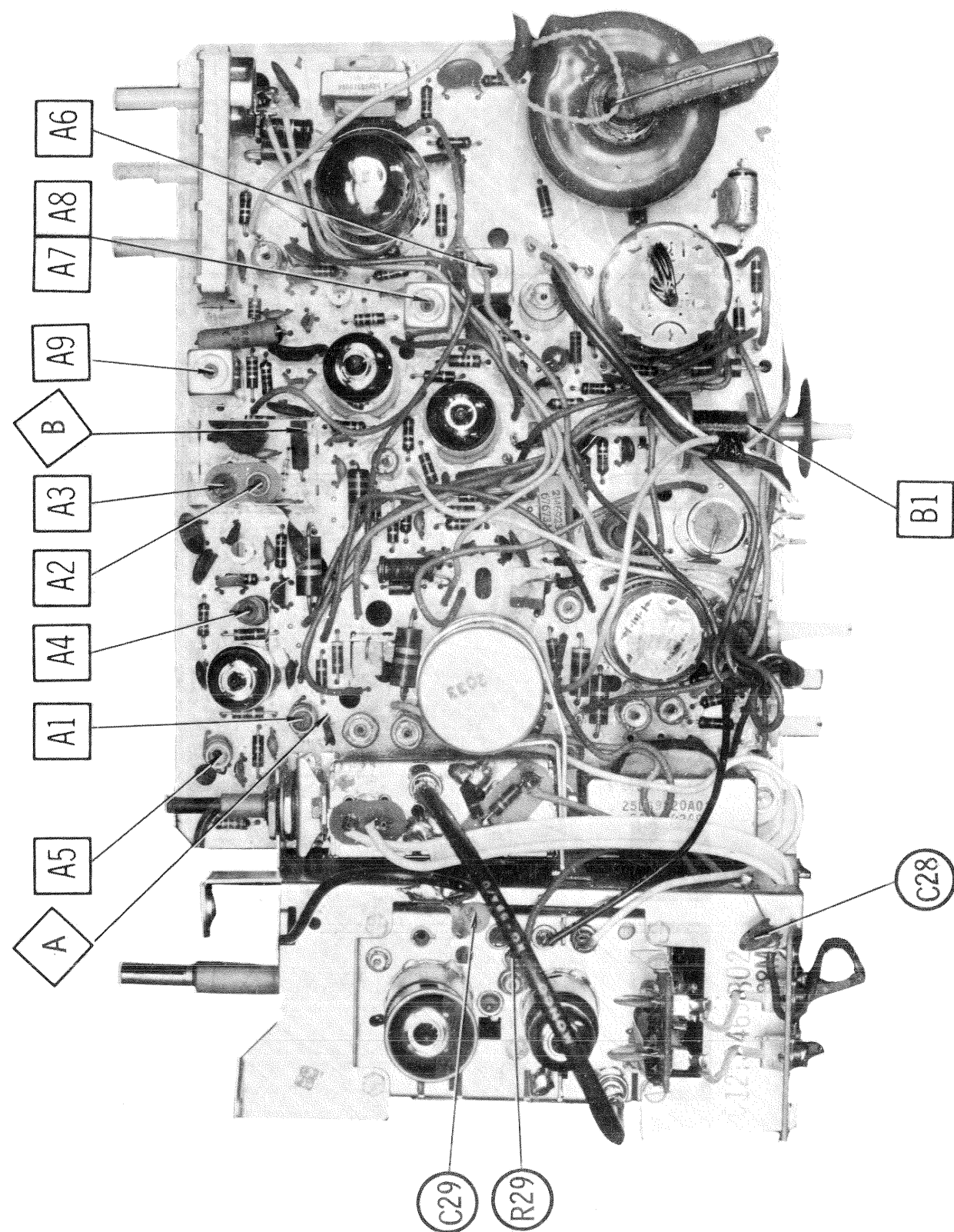


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FOLDER 2



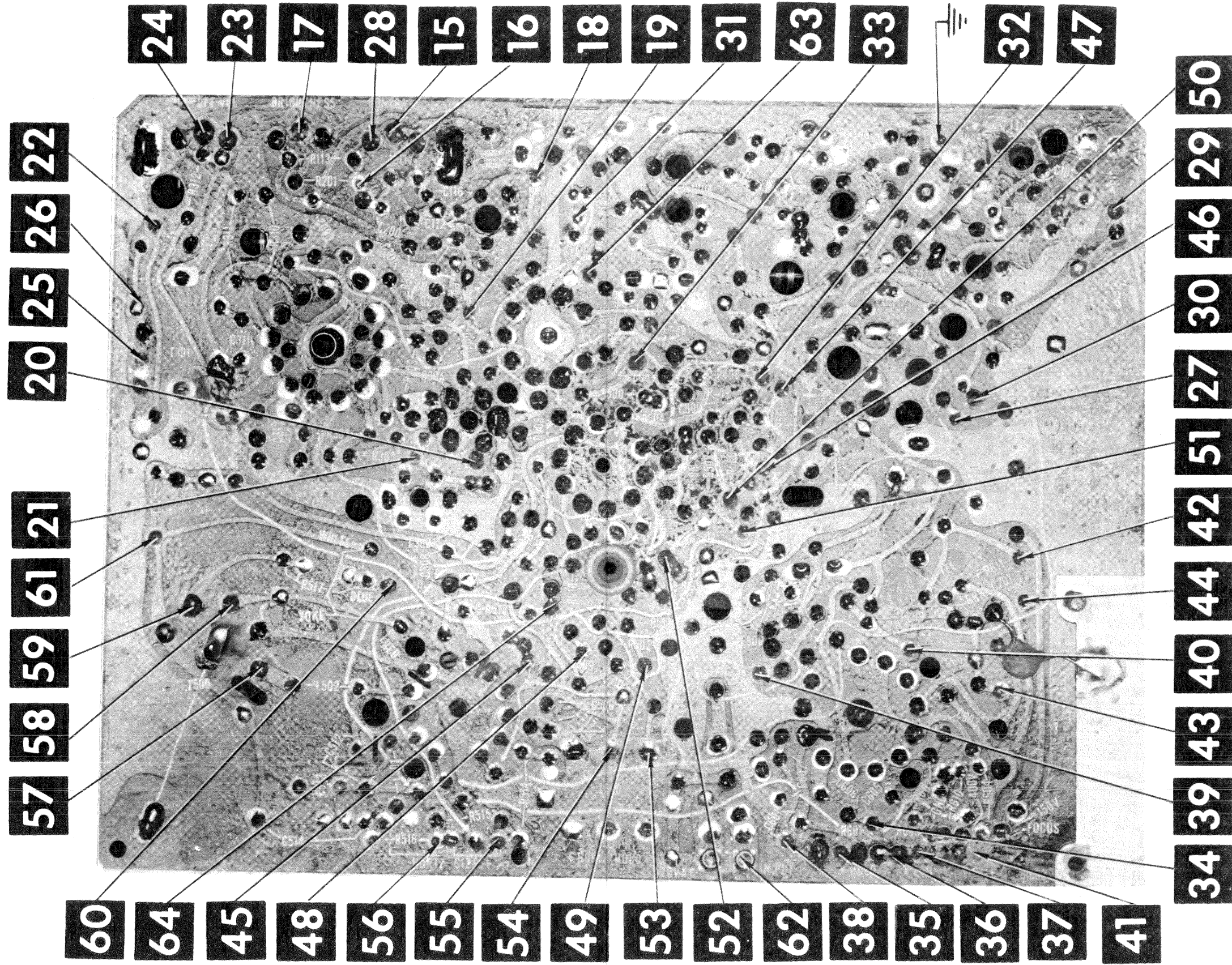
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CHASSIS – TOP VIEW

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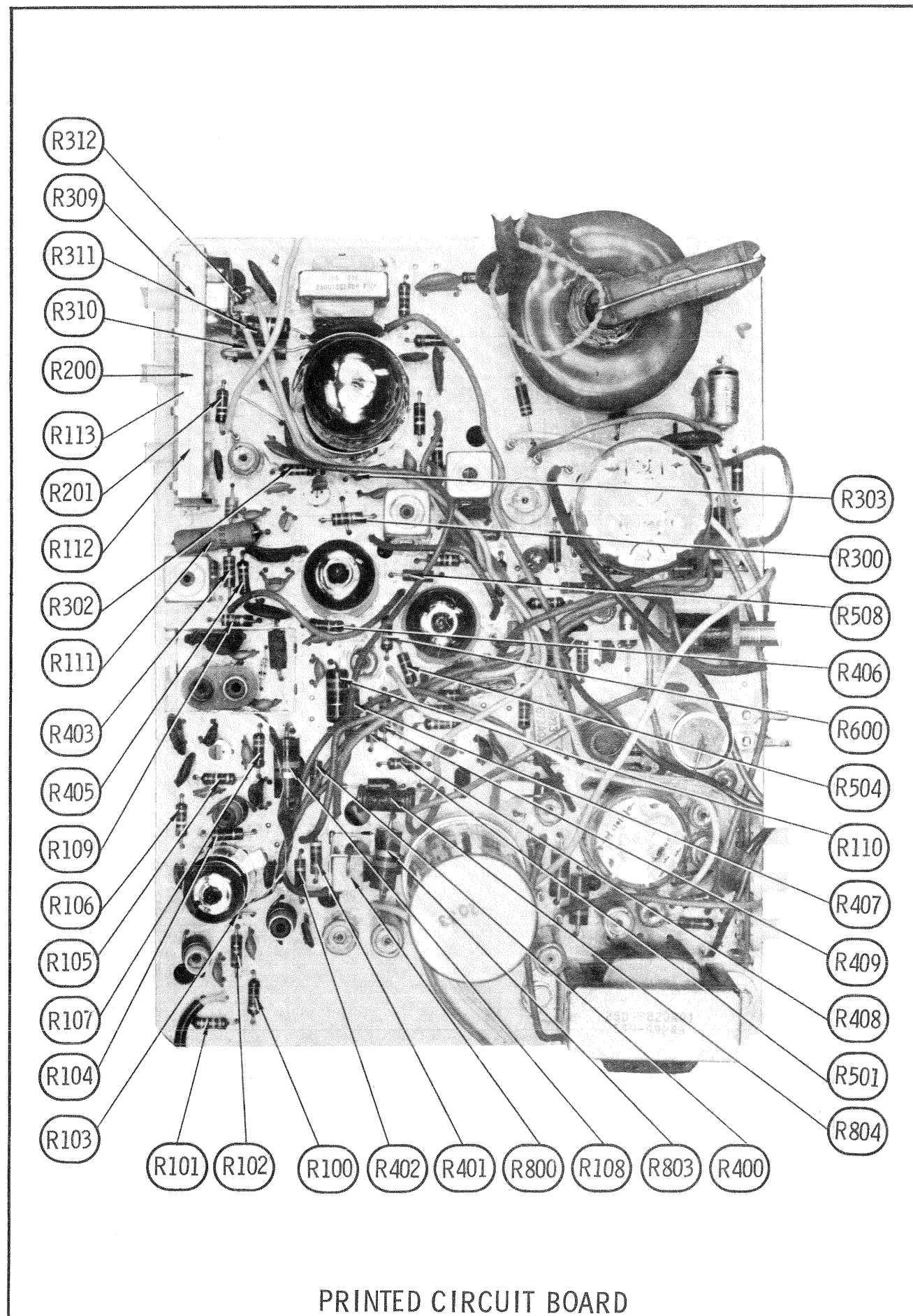
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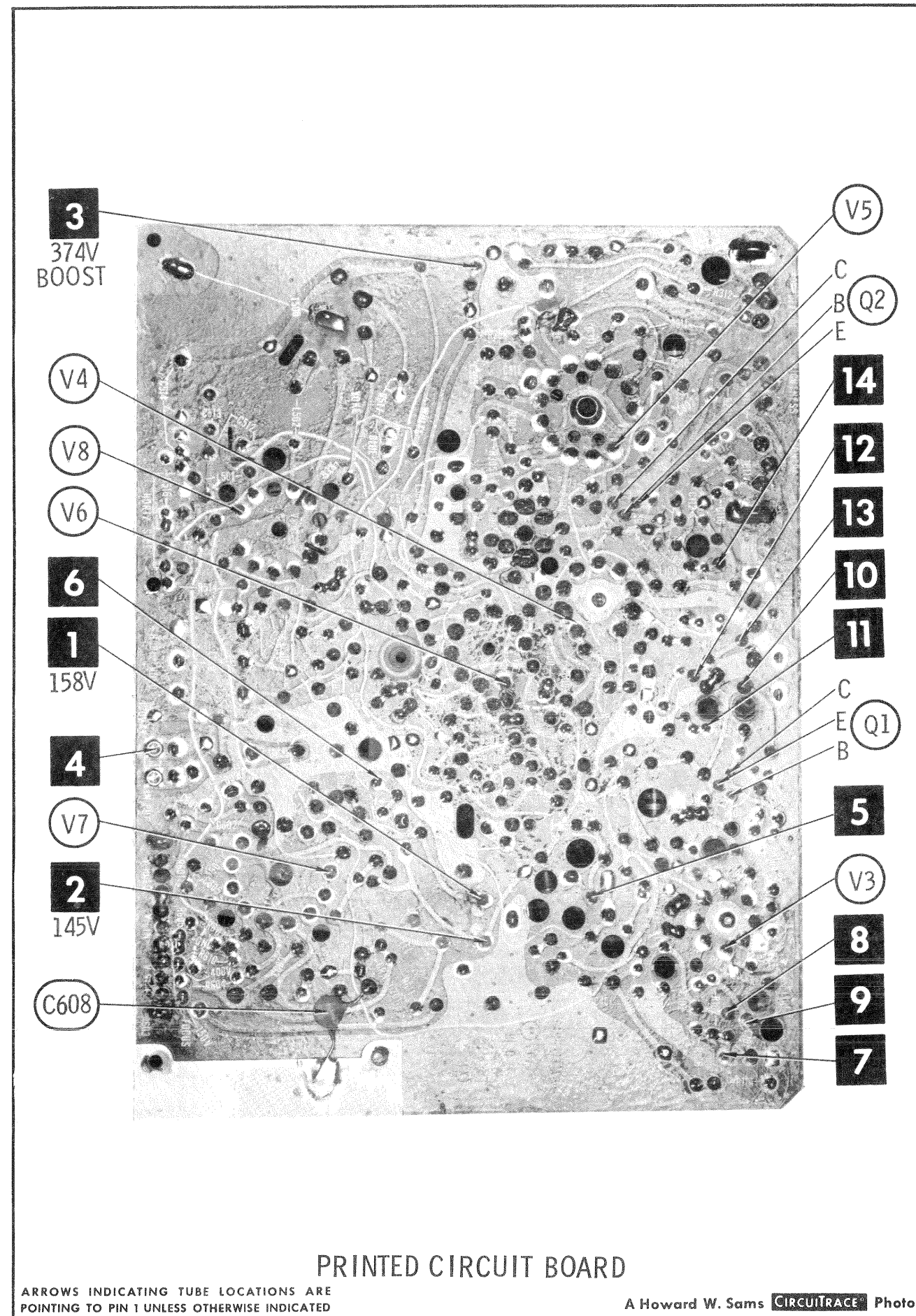
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FOLDER 2



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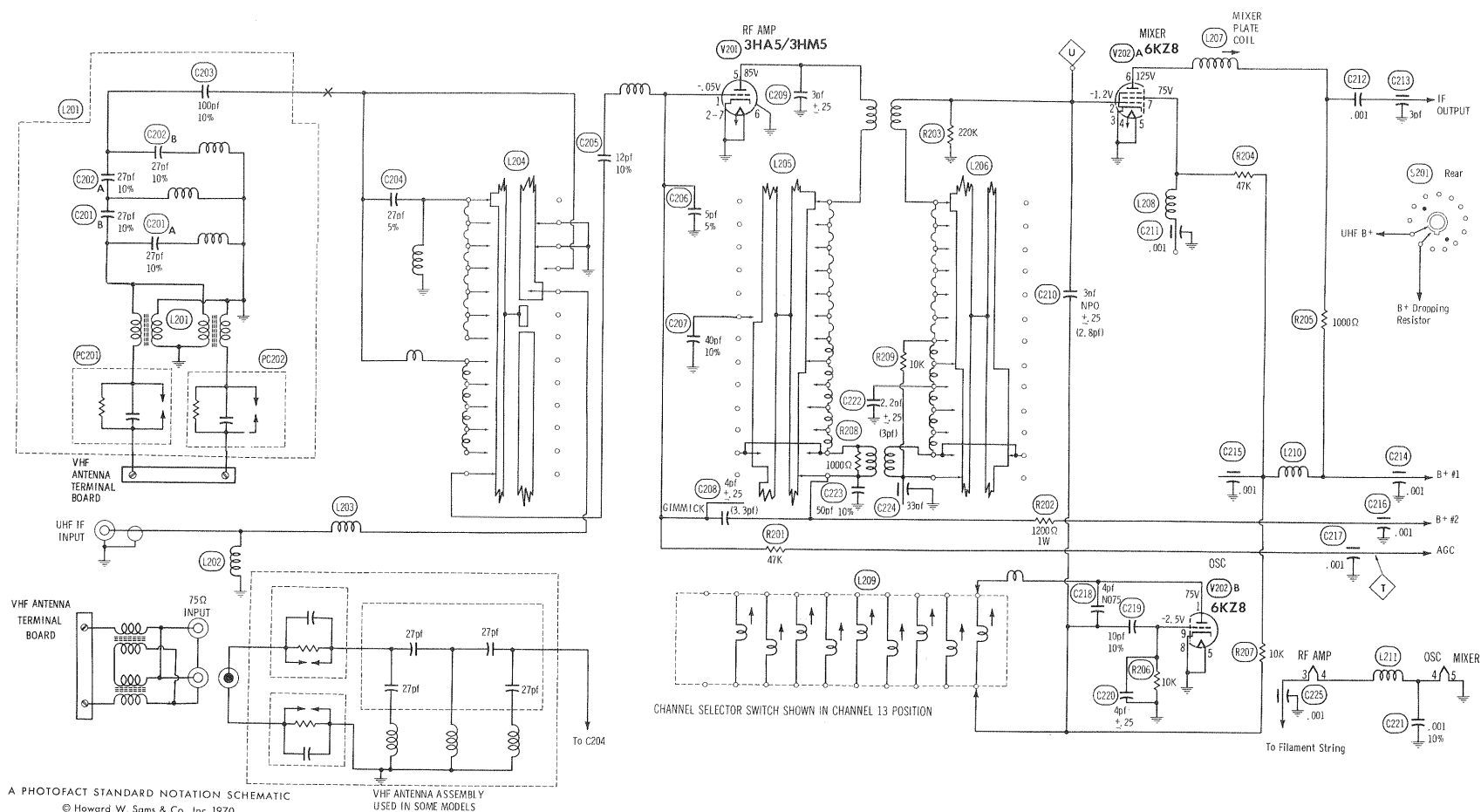
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ARROWS INDICATING TUBE LOCATIONS ARE
POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

A Howard W. Sams CIRCUITRACE Photo

MOTOROLA
CHASSIS C12TS-465

FOLDER 2



VHF TUNER ALIGNMENT INSTRUCTIONS

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.

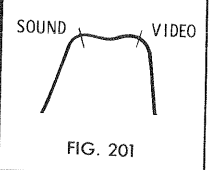
RF AND MIXER ALIGNMENT

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 (D), 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. "	See Chart	See Chart	12 thru 2	Vert. Input to Point (D), low side to ground.		Check all channels and make compromise adjustments by expanding or compressing appropriate coils if necessary.

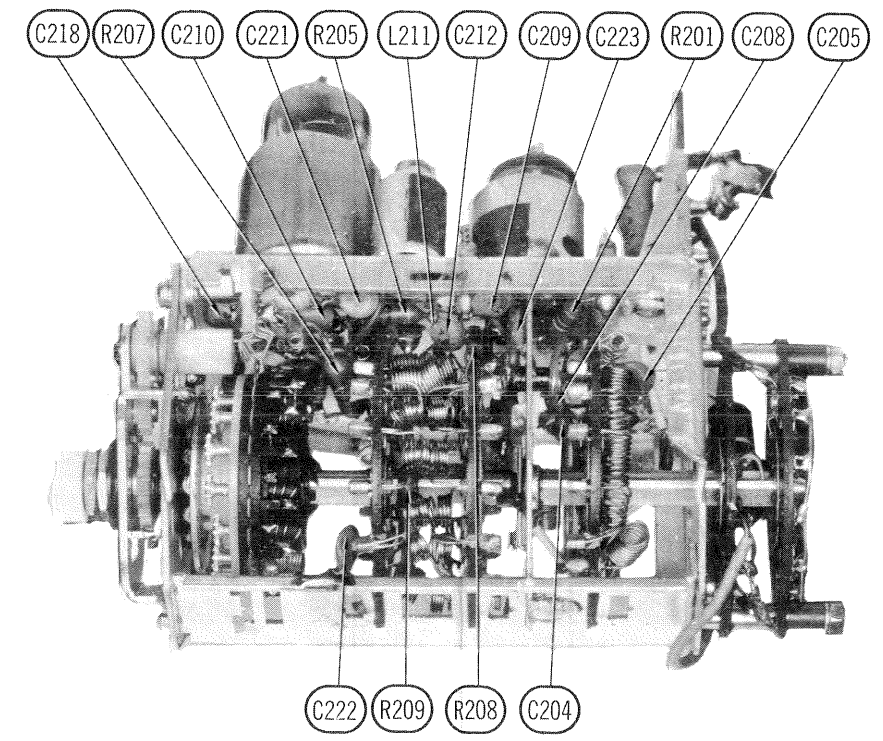
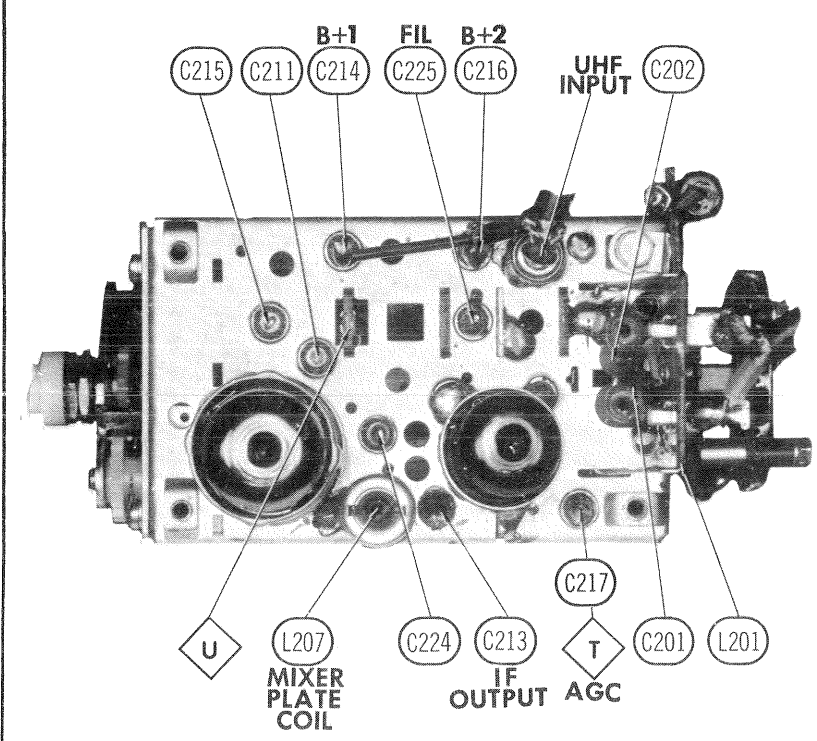
CHANNEL & FREQUENCY CHART

SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL
57MC	55.25 MC 59.75 MC	2	85MC	83.25 MC 87.75 MC	6	195MC	193.25 MC 197.75 MC	10
63MC	61.25 MC 65.75 MC	3	177MC	175.25 MC 179.75 MC	7	201MC	199.25 MC 203.75 MC	11
69MC	67.25 MC 71.75 MC	4	183MC	181.25 MC 185.75 MC	8	207MC	205.25 MC 209.75 MC	12
79MC	77.25 MC 81.75 MC	5	189MC	187.25 MC 191.75 MC	9	213MC	211.25 MC 215.75 MC	13

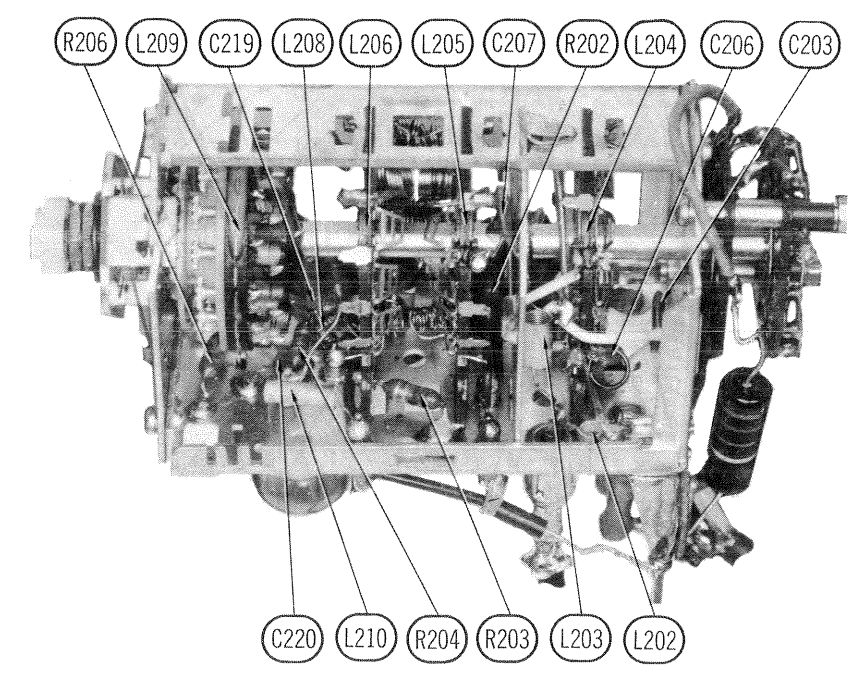


UHF TUNER ALIGNMENT INSTRUCTIONS

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.

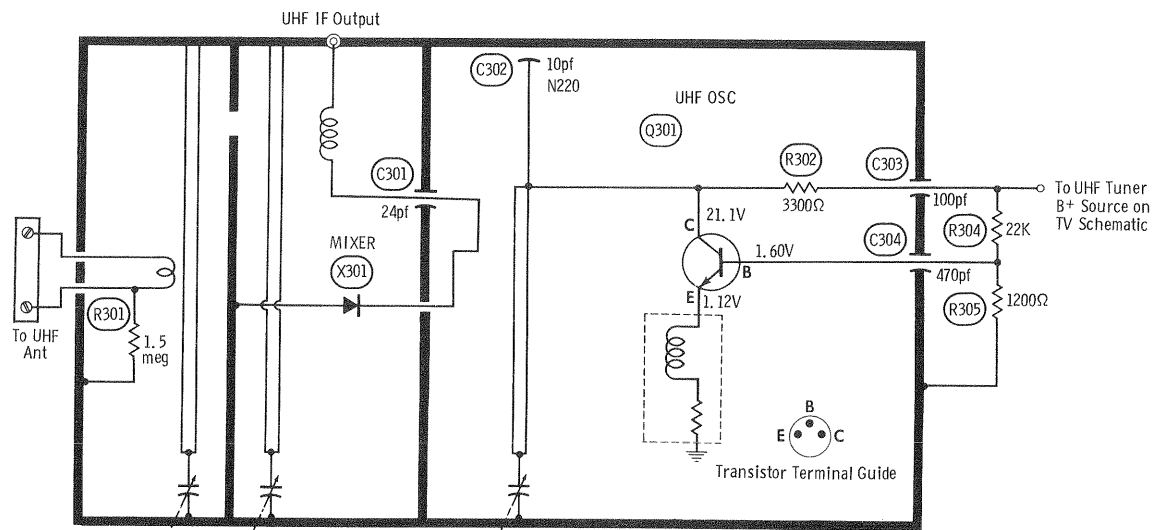


VHF TUNER

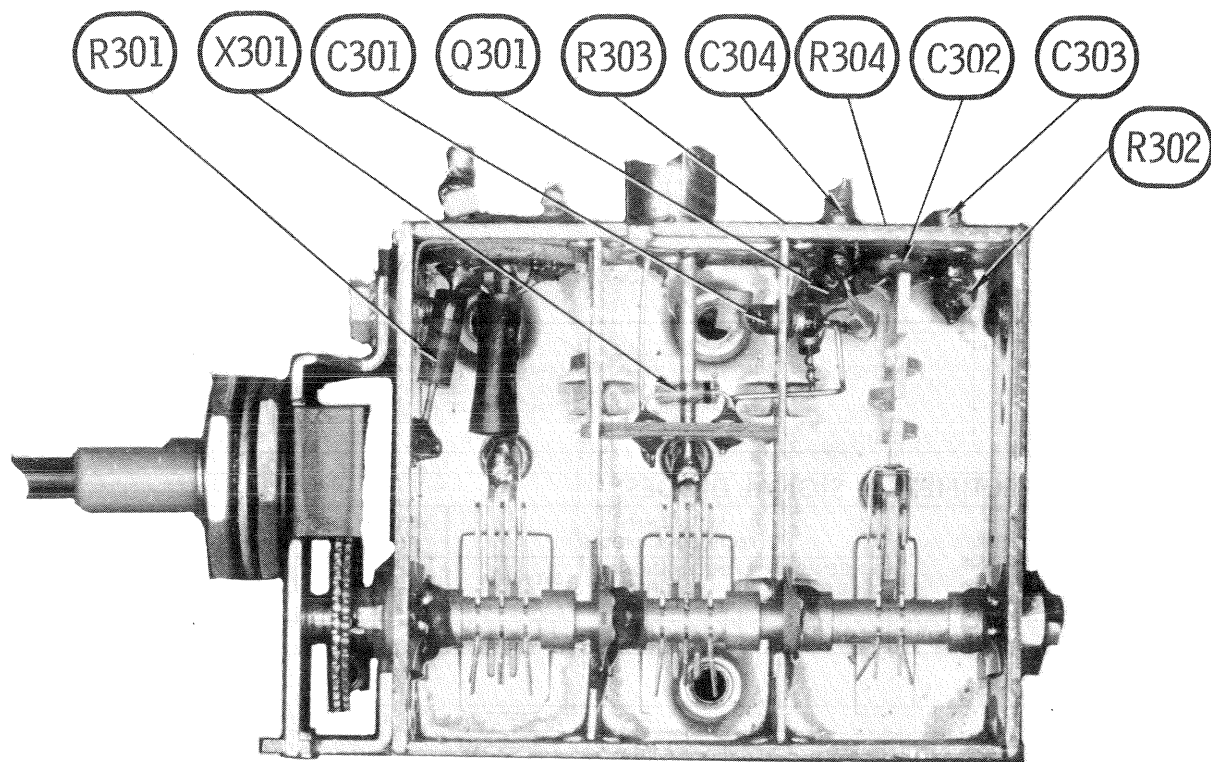


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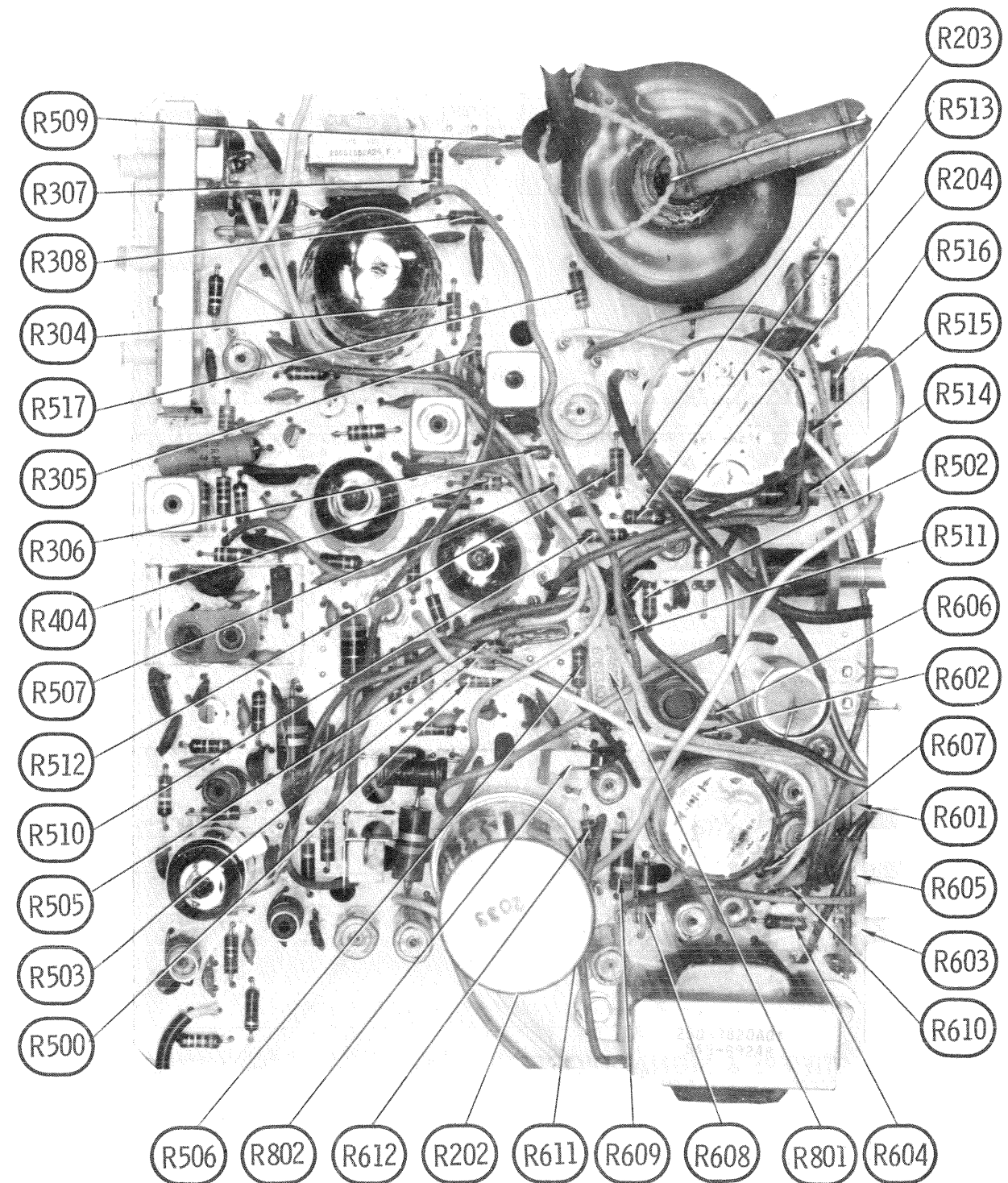
FOLDER 2



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UHF TUNER KTT-637



PRINTED CIRCUIT BOARD

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FOLDER 2

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.

TUBES

AMPEREX			GENERAL ELECTRIC			RCA			SYLVANIA		
ITEM No.	USE	TYPE		ITEM No.	USE	TYPE		ITEM No.	USE	TYPE	
V3	1st Video IF	4BZ6		V6	AGC Keying - Horiz. Osc.	6LN8/LCF80					
V4	Video Output - Sync Separator	10DX8		V7	Vert. Mult.- Vert. Output	17JZ8					
V5	Audio Detector - Audio Output	17BF11		V8	Horiz. Output - Damper	33GY7					

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	MFGR. PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V9	15ADP4 (1) 12DQP4 (2)			15ADP4 12DQP4	(1) Models: BP400FN, BP401FW. (2) Models: BP312FN, BP314FW.

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.	SYLVANIA PART No.
Q1	A1U	2nd Video IF Amp	48S134932					
Q2	A2T	Sound IF Amp	48S134970	GE-17	TR-22	HEP738	SK3018	ECG 128

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.	
E100	48C65837A02	1N60	1N60	ECG 109		
E300	48S137101 (D2U)					
E500	48S134916 (D1B)	6GC1	DD04	ECG 113		
E501	48S137082 (D2M)					
E800	48S191A05					
	48S191A07*	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	
E801	48S191A07	GE-504A	8D4 or 5A4-D	ECG 116 or ECG 117	SK3030 or SK3031	

* Use this part number when ordering new part.

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.	3HA5/3HM5		V202	Mixer - Oscillator	6KZ8	

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.
C201A	27	100V	10%	#21R134153		DD-270		CCD-270	GP427	10TS-Q27
B	27	100V	10%			DD-270		CCD-270	GP427	10TS-Q27
C202A	27	100V	10%	#21R134153		DD-270		CCD-270	GP427	10TS-Q27
B	27	100V	10%			DD-270		CCD-270	GP427	10TS-Q27
C203	100	100V	10%		GPD X5F101K	DD-101	JBZ601YP101K	CCD-101	GP310	10TS-T10
C204	27	500V				TCZ-27			CN0427	10TCC-Q27
C205	12	500V	10%			DD-220	CZ601CG120K	CCD-120	GP412	10TS-Q12
C206	5	500V	+ .25		NPO-DI 5.0		CZ601CH5R0D			10TCC-V50
C207	40	500V	10%			DD-390		CCD-390	GP439	10TS-Q39
C208	4	500V	+ .25						CN0533	10TCC-V33
C209	3	500V	+ .25		NPO-DI 3.0		NP03P9			10TCC-V30
C210	3	NPO	+ .25		NPO-DI 3.0				CN0522	10TCC-V22
C211	.001			#21P65142A37						
C212	.001	500V			GPD X5F102K	DD-102	JB5601YP102K	CCD-102	GP210	10TS-D10
C213	3			#21P65123A76						
C214	.001			#21P65142A37						
C215	.001			#21P65142A37						
C216	.001			#21P65142A37						
C217	.001			#21P65142A37						
C218	4	N075	+ .25	#21P65142A42						
C219	10	N560, 500V	10%		GPD C0H100K	DD-100	CZ601CG100K	CCD-100	GP410	10TS-Q10
C220	4	500V	+ .25	#21P65142A38						10TCC-V39
C221	.001	500V	10%		GPD X5F102K	DD-102	JB5601YP102K	CCD-102	GP210	10TS-D10
C222	2.2	500V	+ .25		NPO-DI 2.2	DTZ-2R2	NP02P2		CN0522	10TCC-V22
C223	50	500V	10%		GPD X5F500K	DD-500	JBZ601YP500K	CCD-500	GP450	10TS-Q50
C224	33			#21S120660						
C225	.001			#21P65142A37						

Motorola Part Number

COILS (RF-IF)

ITEM No.	USE	MFGR. PART No.	NOTES
L201	Antenna Input Assembly	24P65148A52	Includes C201, C202, PC201 and PC202
L202	UHF Input Choke	24P65148A23	Shunt
L203	UHF Input	24P65148A22	Series
L204	Antenna Wafer	40P65148A47	
L205	RF Wafer	40P65148A46	

ITEM No.	USE	MFGR. PART No.	NOTES
L206	Mixer Wafer	40P65148A45	
L207	Mixer Plate	24P65148A55	
L208	Mixer Screen	24P65142A70	
L209	Oscillator Rotor Assembly	59P65148A29	
L210	RF Choke	24P65123A57	
L211	Filament Choke	24P65148A24	UHF B+

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
PC201	Antenna Isolation	51P65148A56	Includes Spark Gap
PC202	Antenna Isolation	51P65148A56	Includes Spark Gap
SW201	Switch	40P65148A48	UHF B+ and Dial Lamp

UHF TUNER PARTS LIST AND DESCRIPTION

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

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.	SYLVANIA PART No.
Q301	S-1019	UHF Oscillator	48P65144A72	GE-11	TR-22	HEP56	SK3019	ECG 108

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.	
X301	48P65112A73	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	24pf	#21P65144A76						
C302	10pf N220	#21P65144A77						
C303	100pf	#21P65144A79						
C304	470pf	#21P65144A78						

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		MFG. PART No.	QUAM PART No.	
SP1	2" X 3 3/4" PM 8 ohms	50G10252A03		Models: BP401FW; BP400FN; BP314FW;BP312FN.

MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
	VHF Antenna UHF Antenna VHF Tuner UHF Tuner UHF Tuner Printed Circuit Board	1C67665A01 85D67625A06 OPTT-408 KTT-636 KTT-637 84V68629A78	JFD Replacement: TA365 JFD Replacement: TA545 Models: BP401FW,BP312FN, BP314FW,BP400FN. Less Components, includes lugs and AC interlock contacts.

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

ITEM	PART No.	ITEM	PART No.
Cabinet Front Cabinet Back Knob - Brightness, Contrast, On/Off/VoLume Knob - UHF Channel Selector Knob - VHF Channel Selector Knob - VHF Fine Tuning	MODEL BP312FN 16P65173A01 15P65173A03 36D68493A24 36D69218A15 36D69218A16 36D68425A07	Cabinet Front Cabinet Back Knob - Brightness, Contrast, On/Off/VoLume Knob - UHF Channel Selector Knob - VHF Channel Selector Knob - VHF Fine Tuning	MODEL BP314FW 16P65173A02 15P65173A04 36D68493A14 36D69218A09 36D69218A08 36D68425A04
Cabinet Front Cabinet Back Handle Knob - Brightness, Contrast, On/Off/VoLume Knob - UHF Channel Selector Knob - VHF Channel Selector Knob - VHF Fine Tuning	MODEL BP400FN 16P65173A09 15P65173A10 55C69814A02 36D68493A17 36D69218A10 36D69218A12 36D68425A05	Cabinet Front Cabinet Back Handle Knob - Brightness, Contrast, On/Off/VoLume Knob - UHF Channel Selector Knob - VHF Channel Selector Knob - VHF Fine Tuning	MODEL BP401FW 16P65173A11 15P65173A12 55C69814A03 36D68493A19 36D69218A10 36D69218A11 36D68425A05

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869 (17KV) or 8868 (25KV)
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

PARTS LIST AND DESCRIPTION (CONTINUED)

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

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ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA						
		PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C804	300 175V 400 175V 20 175V	23C69772A01	PWH3-13-72.4					TVL-3454.18

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.
C100	.001 10%		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C101	6.8 N150 +.25							10TCP-V68
C102	8.2 N150 +.25							10TCP-V82
C103	.001 10%		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C104	12 N150 10%							10TCP-Q12
C105	33 N470 10%							10TCT-Q33
C106	15 NPO +.5		NPO-DI 15	DTZ-15	NP015	CCT0-150	CN0415	10TCC-Q15
C107	.0018 10%		GPD X5F182K	DD-182	JBX601YP182K	CCS-182	GP218	10TS-D18
C108	3.3 NPO +.25		NPO-DI 3.3	DTZ-3R3	NP03P3		CN0533	10TCC-V33
C109	100 N330 5%			TCA-100				10TCS-T10
C110	10 NPO +.5	NPO-DI 10	DTZ-10	NP010	CCT0-100	CN0410	10TCC-Q10	
C111	5.6 N150 +.5						10TCP-V56	
C112	10 N750 10%	N750-DI 10	TCN-10	CZ601UJ100K	CCTN-100	CN7410	10TCU-Q10	
C114	12 N750 10%		TCN-12	CZ601UJ120J		CN7412	10TCU-Q12	
C115	470	GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47	
C116	.51 5%							
C117	22 N150 10%						10TCP-Q22	
C200	.1 400V 10%		DBE4P1	DPMS4P1	4DP-3-104	PVC401	4PS-P10	
C201	.1 400V 10%		DBE4P1	DPMS4P1	4DP-3-104	PVC401	4PS-P10	
C300	18 N150 10%						10TCP-Q18	
C301	120 N750 10%			TCN-120		CCTN-121	10TCU-T12	
C302	33 N470 10%						10TCT-Q33	
C303	10 N1500 10%						10TCW-Q10	
C304	220 10%						10TS-T22	
C305	.005		GPD X5F221K	TCL-10	GP220	CCD-221	CN15-410	10TS-S10
C306	18 N750 10%		TTP-005	DD-221	MGPO05	CCD-502	GP322	10TS-T22
C307	.01		GPD X5S103K	CK-502	CZ601UJ180J		TA250	TG-D50
C309	.0015 1000V 10%		GPD X5F152K	TCN-18	GP10000	CCD-103	JF110	10TS-S10
C310	.005		TTP-005	DD-103		CCD-152	GP215	10TS-D15
C311	.02 1000V		GPD Z5U203P	CK-502	MGPO05	CCD-502	TA250	TG-D50
C312	.001 10%		GPD X5F102K	DD-203	GP1000	CCD-203	GP120	10TS-S20
C400	.22 10%	(.0015)	DBE6P22	DD-102	4DP-5-224	CCD-102	GP210	10TS-D10
C401	.22 10%		DBE6P22	DPMS4P22	4DP-5-224	PVC4022	4PS-P22	
C402	.005		TTP-005	CK-502	MGPO05	CCD-502	TA250	TG-D50
C403	470		GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47
C500	150		GPD X5F151K	DD-151	GP150	CCD-151	GP315	10TS-T15
C501	150		GPD X5F151K	DD-151	GP150	CCD-151	GP315	10TS-T15
C502	.001 10%		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C503	.0018 10%		GPD X5F182K	DD-182	JBX601YP182K	CCS-182	GP218	10TS-D18
C504	.1 10%		DBE4P1		DPMS4P1	4DP-3-104	PVC401	4PS-P10
C505	470 500V 10%	31	GPD X5F471K	DD-471	GP470	CCD-471	GP347	10TS-T47
C506	.0068 400V 10%			CPR-6800J	CD30F682J500	DM-30-682J	SX268	MS-268
C507	.022 10%		DBE6S22		DPMS6S22	4DP-2-223	PVC6122	4PS-S22
C508	.22 10%		DBE6P22		DPMS4P22	4DP-5-224	PVC4022	4PS-P22
C509	.01 400V 10%		V1614S1	CPR-10000J	DPMS6S1	4DP-1-103	PVC411	4PS-S10
C510	.001 10%		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C511	.001 10%		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C512	180 N1500 3000V	10% (220)						10TCW-T18
C513	.0012 1000V	(.0015)	GPD X5F122K	DD-122	JBX601YP122K	CCD-122	GP212	10TS-D12
C514	.018 250/630V	10%	DBE6S18		PKM6S18	6DP-2-183		
C515	.001 10%		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C516	56 N1500 400V 10%							10TCP-Q56
C600	.01 400V 10%		V1614S1	CPR-10000J	DPMS6S1	4DP-1-103	PVC411	4PS-S10
C601	.0082 400V 10%			CPR-8200J	CD30F822J500	DM-30-822J	SX282	MS-282
C602	.0022 10%		GPD X5F222K	DD-222	GP2200	CCD-222	GP222	10TS-D22
C603	.022 400V 10%		DBE6S22		DPMS6S22	4DP-2-223	PVC6122	4PS-S22
C604	.022 400V 10%		DBE6S22		DPMS6S22	4DP-2-223	PVC6122	4PS-S22
C605	.068 400V 10%		DBE4S68		DPMS6S68	4DP-3-683	PVC6168	4PS-S68
C606	.033 400V 10%		DBE6S33		DPMS6S33	4DP-2-333	PVC6133	4PS-S33
C607	.1 400V 10%		DBE4P1		DPMS4P1	4DP-3-104	PVC401	4PS-P10
C608	.001 10%		GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10

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PARTS LIST AND DESCRIPTION (CONTINUED)

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

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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.
C800	.15		DBE6P15		DPMS4P15	4DP-4-154	PVC6015	4PS-P15
C801	.001	10%	GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C802	.001	10%	GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10
C803	.001	10%	GPD X5F102K	DD-102	GP1000	CCD-102	GP210	10TS-D10

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

ITEM No.	FUNCTION	RESIST-ANCE	REPLACEMENT DATA				
			MFGR. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS—IRC PART No.	MALLORY PART No.
R112	Contrast	25.5K "C"	18D69773A01 (1)	(2)			
R200	Brightness	100K "B"					
R309	Volume/Switch	2meg "A"					
R601	Vertical Hold	1meg "C"	18D67678A08 (1)	(3)			
R603	Height	2meg "A"					
R605	Vertical Linearity	500K "B"					

- (1) To establish section identification of side-by-side controls, view controls with shaft ends facing you, terminals down. On 3-section controls, left hand section is "A", middle section is "B", right hand section is "C". On 2-section controls, left hand section is "A", right hand section is "B".
- (2) Includes R112, R200 and R309 and Switch.
- (3) Includes R601, R603 and R605.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R111	4.7K ohm 3W	PW5-4500	5W-SQ-4.7K	17S751479
R613	Thermistor (13 ohm Cold)		FR13	6C65884A07
R800	39 ohm 10W	PW10-40	10W-SQ-40	17S136618

ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MFGR. PART No.
R801	Fusible 3.5 ohm		F7-3.6	17C67673A03
R802	47 ohm 7W	PW10-50	7G-4.7K	17S136676
R804	V.D.R. *			6C66263A10

* Voltage Dependent Resistor.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		PART No.	MEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L100	47.25MC Trap	24D67754A22		7527*	TA292*
L101	1st Video IF	24D67754A29			
L102	2nd Video IF	24D67754A23			
L103	3rd Video IF Detector Pri.	24D67754A23		23A156RPC*	
L104	3rd Video IF Detector Sec.	24D67754A29		23A156RPC*	
L105	RF Choke (8.8uh)	24D66772A11	19-1009	4611	T960
L106	Peaking (1000uh)	24D68801A41	19-2032	72F103AP	T873
L107	4.5MC Trap	24D68822A05			
L108	Peaking (180uh)	24D68801A27	19-3180	72F224AP	T310
L300	Quadrature	24D68822A06			
L501	RF Choke (6.8uh)	24D66772A13	19-2014	74F686AB	T821
L502	RF Choke (6.8uh)	24D66772A13	19-2014	74F686AP	T821
L800	Line Choke (1.5uh)	24D67534A19	19-1001	4604	T809
T300	Sound IF	24D68822A04			

* Remove unused terminals.

PARTS LIST AND DESCRIPTION (CONTINUED)

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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.
L500	Horizontal Osc. (Hold Adjustment Rod)	24D68130A04 47C66082A02						

TRANSFORMERS (Sweep Circuits)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MFGR. PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L700	Yoke (Horiz = 24.5MH)	24D69822B02 (2)	MDF-143 (1)	DY-58AT (1)	Y-105 (1)	YT-103-1 (1)	(2) Used in Models BP400FN & BP401FW
T500	114° (Vert = 87MH)	24D69822A03 (3)					(1) See Component Connection Data.
T600	Yoke	24D69828A01					(3) Used in Models BP312FN & BP314FW.
	Horizontal Output	25D69820A01					
	Vertical Output						

SWEEP COMPONENT CONNECTION DATA

ORIGINAL →	YOKE										YOKE PLUG							
REPLACEMENT ↓	Original Connections																	
	RED	BLU	WH	GRN	YEL						TO YOKE TERMINALS							
MERIT	2	1,3	7	6	4 (1)													
STANCOR	2	1,3	7	6	4 (2)													
THORDARSON	2	1,3	7	6	4													
TRIAD	2	1,3	7	6	4 (1)													

(1) Remove orange lead.

(2) Discard Yoke Plug and rewire.

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.	
T301	2200 ohms	8 ohms	25D67552A24(F)					

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