

CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested Alignment Tools:
GENERAL CEMENT #6271, 8273, 8275, 8276, 8721, 8722,
9150, 9296, 5003
WALSCO #2516, 2519

Turn the set on and tune in a TV station, preferably with a test pattern.

Adjust the Brightness and Contrast controls for a normal picture.

Short out the AFC voltage by connecting a clip lead from TP-7 to chassis. Connect a .1mf, 400 volt capacitor from TP-5 to chassis.

Adjust the Horizontal Hold to the point where the picture is almost stable horizontally.

Remove the capacitor from TP-5 and adjust the Horizontal Frequency slug (B1) to the point where the picture is almost stable horizontally.

Remove the clip lead from TP-7 and chassis. Adjust the Horizontal Hold until the picture is synchronized horizontally.

Adjust the Horizontal Size control for a picture slightly wider than necessary to fill the picture mask horizontally.

FOLDER 1
SET 440

MOTOROLA CHASSIS NTS-544, QTS-544, RTS-544, RTS-544Y, STS-544, STS-544Y, TR-3, TR-4 TR-89

PHOTOFACT* Folder

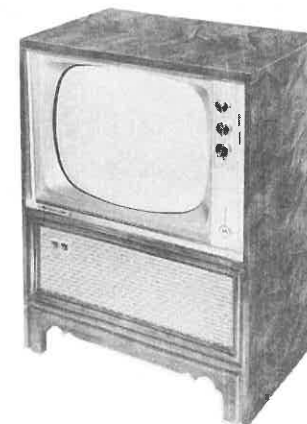


DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 wood screws holding rear cover.
2. Remove 2 screws holding stereo receptacle plug in jack to rear cover. Remove rear cover.
3. Remove 3 plugs to tuner bracket and speaker leads.
4. Remove 4 bottom chassis bolts.
5. Remove chassis.
6. Remove 4 push on type knobs from the front.
7. Inside cabinet locate actuating lever on control bracket.
8. Remove 3 metal screws holding control bracket to cabinet.
9. Carefully pull bottom of control bracket rearward to clear Tone knob from opening. Move control bracket SLIGHTLY to the right to clear retaining tab at the top and remove bracket.

MOTOROLA CHASSIS
NTS-544, QTS-544, RTS-544, RTS-544Y,
STS-544, STS-544Y, TR-3, TR-4 TR-89



MODEL 21K100MA (Ch. RTS-544)

TRADE NAME	Motorola	MODELS	CHASSIS
		A21K95M	NTS-544
		A21K103B, M, MC, 21K103B, BA, CW, CWA, M, MA, MC, MCA, 21K106B, M, 21T60BG, CH, MG	QTS-544
		21K98B, BA, M, MA, W, WA, 21K100B, BA, M, MA, 21K101B, BA, M, MA, W, WA, 21K102CW, CWA, 21T58BG, BGA, CH, CHA, MG, MGA, 21T61B, BA, M, MA	RTS-544
		Y21K98B, BA, M, MA, W, WA, Y21K101B, BA, M, MA, W, WA, Y21K103B, BA, CW, CWA, M, MA, MC, MCA, Y21T58BG, CH, CHA, MG, MGA, Y21T61B, BA, M, MA	RTS-544Y
		21K95B, M	STS-544
		Y21K95B, M	STS-544Y
		21K106B, M, 21T60BG, CH, MG	TR-3
		A21K103B, M, MC, 21K103B, BA, CW, CWA, M, MA, MC, MCA	TR-4
		A21K95M	TR-89

MANUFACTURER Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET Television Receiver (Some equipped with Remote Control)
TUBES VHF-Nineteen, UHF-Twenty
POWER SUPPLY 110-120 Volts AC, 60 Cycle
TUNING RANGE Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

RATING 210 Watts, 1.8 Amp. @ 117 Volts AC

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Fine Tuning knobs. Set the Fine Tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 13 adjustment is located at 9 o'clock. Proceed in a counterclockwise direction adjusting for best picture and sound.

SAFETY GLASS REMOVAL

Remove 5 wood screws holding metal trim at top of safety glass. Move top of glass outward and lift to remove.

AGC

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

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10, or 6 and 1.

WIDTH

The width may be varied by means of Horizontal Size con-

trol. (For location, see tube placement chart.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the Horizontal Multivibrator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSE

Two fuses are used for low voltage power supply protection, and a fuse wire for filament protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

PIN CUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible. Position 2 magnets so that all sides are straight.

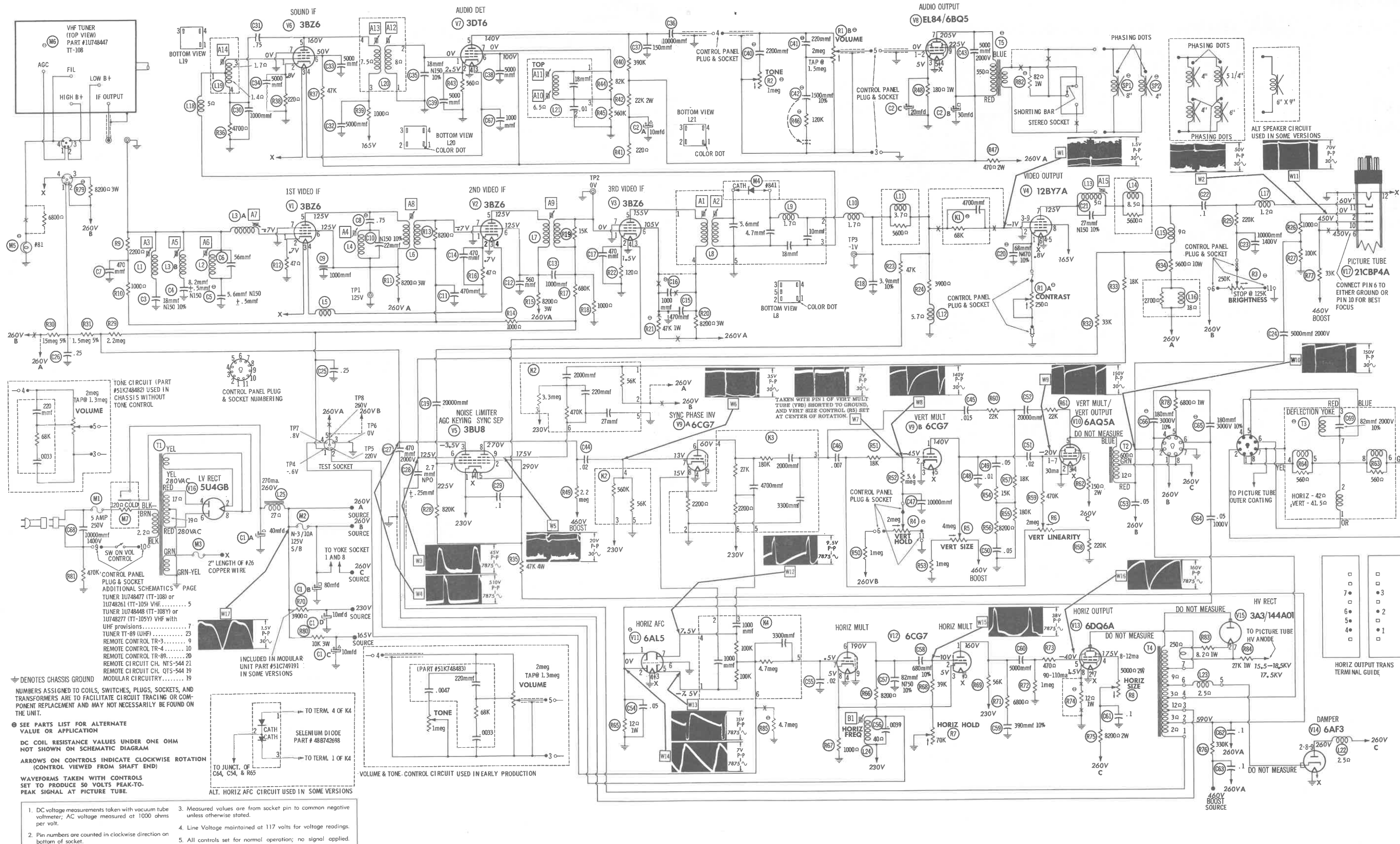
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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MOTOROLA CHASSIS NTS-544, QTS-544, RTS-544, RTS-544Y, STS-544, STS-544Y, TR-3, TR-4 TR-89

SET 440 FOLDER 1



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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MOTOROLA CHASSIS NTS-544, QTS-544, RTS-544,
RTS-544Y, STS-544, STS-544Y, TR-3, TR-4 TR-89

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	600K	47Ω	.1Ω	.4Ω	†8200Ω	†8200Ω	0Ω		
V2	3BZ6	600K	47Ω	0Ω	.4Ω	†8200Ω	†8200Ω	0Ω		
V3	3BZ6	1000Ω	120Ω	.4Ω	0Ω	†8200Ω	†47K	0Ω		
V4	12BY7A	●40Ω	72K	0Ω	.1Ω	.1Ω	0Ω	†5600Ω	†10K	0Ω
V5	3BU8	†3900Ω	†47K	2.2meg	.1Ω	.4Ω	†39K	†860K	†2.5meg	†3.7meg
V6	3BZ6	4700Ω	220Ω	.1Ω	.4Ω	†11K	†70K	0Ω		
V7	3DT6	8Ω	560Ω	.4Ω	0Ω	†390K	†22K	560K		
V8	EL84/ 6BQ5	0Ω	0Ω	180Ω	.1Ω	0Ω	NC	†1000Ω	NC	†470Ω
V9	6CG7	●†1.5meg	●1.6meg	0Ω	0Ω	.1Ω	†33K	56K	2200Ω	0Ω
V10	6AQ5A	●1.5meg	0Ω	0Ω	.1Ω	†600Ω	†150Ω	●1.5meg		
V11	6AL5	12Ω	12Ω	.1Ω	0Ω	4.8meg	0Ω	4.8meg		
V12	6CG7	†60K	●65K	1000Ω	0Ω	.1Ω	†12K	9.4meg	1000Ω	NC
V13	6DQ6A	TP	0Ω	NC	●†12K	1meg	TP	.1Ω	12Ω	TOP CAP †11.5Ω
V14	6AF3	NC	†2.5Ω	NC	0Ω	.1Ω	NC	NC	†2.5Ω	†2.5Ω
V15	3A3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †260Ω
V16	5U4GB	NC	¶	NC	17Ω	NC	19Ω	NC	¶	
V17	21CBP4A	0Ω	100K	Pin 6 †360K	Pin 10 †360K	Pin 11 ●250K	Pin 12 .1Ω			
V201	6BK7B	†470	1NF	1NF	0Ω	.1Ω	1NF	3.3meg	0Ω	0Ω
V202	6U8	†12K	44K	†270K	0Ω	.1Ω	†15K	0Ω	0Ω	15K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

CHANNEL SELECTOR
FINE TUNING

BRIGHTNESS

VERT HOLD

CONTRAST

OFF-ON (PUSH) -VOLT

TUNE

* SOME VERSIONS MAY USE SEL. RECT. AMBIFIXING.

Yoke
V27
ZIC67A

PICTURE TUBE

INDICATES BLANK
PIN OR LOCATING KEY

CONTROL
RECEPIPAGE

TUNER
RECEPIPAGE

1st VIDEO IF
V1
7A25

2nd VIDEO IF
V2
7A25

3rd VIDEO IF
V3
7A25

VIDEO OUTPUT
V4
6X47A

VIDEO DET
V5
6X47A

SYNC

V6
1A15

SOUND IF
V7
7A25

AUDIO DET
V8
7A25

Yoke RECEPTION

1st VIDEO IF
V9
7A25

2nd VIDEO IF
V10
7A25

3rd VIDEO IF
V11
7A25

VIDEO DET
V12
7A25

VIDEO OUTPUT
V13
6X47A

VIDEO DET
V14
7A25

VIDEO DET
V15
7A25

VIDEO DET
V16
7A25

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The diagram illustrates the top view of a television chassis, showing the layout of various electronic components. Key components include:

- Control and Tuner Receptacles:** CONTROL RECEPTACLE, TUNER RECEPTACLE, LV RECT (V16 5U4GB).
- Power and Protection:** FUSE (5A-250V) (LV POWER), FUSE (N-3/10A-125V-5/B) (HORIZ SWP), THERMAL SW.
- Video and Audio Stages:** V1 3BZ6 (1st VIDEO IF), V2 3BZ6 (2nd VIDEO IF), V3 3BZ6 (3rd VIDEO IF), V4 12BY7A (VIDEO OUTPUT), V5 3BU8 (AGC KEYING-NOISE LIMITER, SYNC SEP), V6 3BZ6 (SOUND IF), V7 3DT6 (AUDIO DET), V8 6BQ5 (AUDIO OUTPUT), V9 6CG7 (SYNC PHASE INV-VERT MULT), V10 6AQ5A (VERT MULT-VERT OUTPUT), V11 6AL5 (HORIZ AFC), V12 6CG7 (HORIZ MULT), V13 6DQ6A (HORIZ OUTPUT), V14 6AF3 (DAMPER).
- Other Components:** V202 6U8 (MIXER-OSC), V201 6BK7B (RF AMP), Yoke (V17 21CBP4A), PICTURE TUBE, CHANNEL SELECTOR, FINE TUNING, BRIGHTNESS, VERT HOLD, CONTRAST, OFF-ON (PUSH) -VOL, TONE, VERT SIZE, VERT. LIN, HORIZ SIZE, HORIZ HOLD, HORIZ FREQ COIL, IF AGC HIGH B+, HORIZ AFC, GROUND, TEST RECEPTACLE, INDICATES BLANK PIN OR LOCATING KEY.

TOP VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

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: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Remove Deflection yoke plug to eliminate RF interference from the Horizontal Sweep circuit. Connect a 155Ω 50 watt resistor from TP-8 to TP-6. (CAUTION: TP-8 has B plus voltage on it.)
Disable the tuner oscillator by shorting the Oscillator grid (V202) to chassis.
Set the Contrast fully counterclockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Connect the negative lead of a 6 volt bias supply to TP-4. Positive to chassis.
Maintain between 2 and 5 volts peak to peak on the scope except where otherwise noted in the procedure.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001mfd	High side to TP-2. Low side to chassis.	44.0MC (10MC Swp)	42.5MC 45.75MC	13	Vert. Amp. thru 47K to TP-3. Low side to chassis. (Across Video Det. load)	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Peak with maximum core separation.
2.	Direct	High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis.	"	47.25MC	"	"	A3, A4	Adjust to place marker in trap notch as in Fig. 2. Tune slug at end of coil form away from chassis.
3.	"	"	"	41.25MC	"	"	A5	Adjust to place marker in trap notch as in Fig. 2. Tune slug at end nearest chassis.
4.	"	"	"	39.75MC	"	"	A6	Adjust to place marker in trap notch as in Fig. 2. Tune slug at end of coil form away from chassis.
5.	"	"	"	39.75MC 41.25MC 44.0MC 45.75MC 47.25MC	"	Vert. Amp. to TP-1. Low side to chassis.	Mixer Plate Coil & A7	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. The Mixer Plate Coil affects the center peak and A7 affects the two outside peaks. Tune slug at end of coils away from chassis. If a suckout (trap effect) occurs, detune A6.
6.	"	"	"	42.25MC 45.75MC	"	Vert. Amp. thru 47K to TP-3. Low side to chassis.	A8, A9	Adjust A8 to place 42.25MC marker at 50% as in Fig. 4. Adjust A9 to place 45.75MC marker at 50% on other side. Tune slugs to end of coil nearest chassis. If necessary, retouch A8 and A9 for correct response.

SOUND IF ALIGNMENT

Tune in a strong TV signal and adjust all controls for a normal picture and sound.
Connect the DC probe of a VTVM to point ⬠. Common to chassis. A10 is a preset slug which should be set near the top of the coil form and left there. Adjust A11 for maximum deflection choosing the one of two peaks that produces the highest voltage. While listening to the sound, retouch A11 for maximum sound with MINIMUM distortion.
Change to a weak signal (this may be done by loosely coupling the antenna leads to the receiver terminals) that produces a hiss in the sound. Adjust A12 and A13 for maximum sound and MINIMUM distortion. Adjust A14 for maximum undistorted sound. If the sound is not clear at the point, repeat entire procedure.

4.5MC TRAP ALIGNMENT

Tune in a strong TV signal and set the Contrast fully clockwise.
Adjust the Fine Tuning until a strong 4.5MC beat pattern is visible.
Adjust A15 to find the two points at which the beat pattern is just visible on the screen. Tune the slug to the center of these two points. (Use the MINIMUM amount of inductance that will result in no apparent beat pattern.)

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 6 & 23
REMOTE CONTROL ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 8 & 21

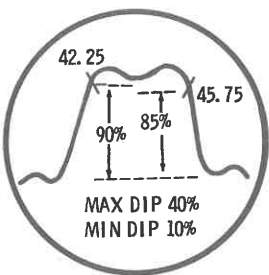


FIG. 1

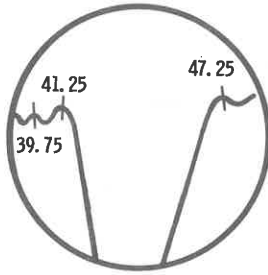


FIG. 2

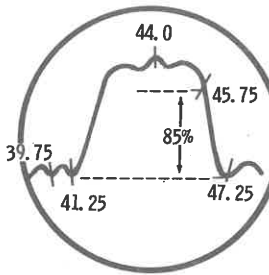


FIG. 3

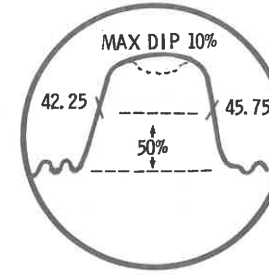
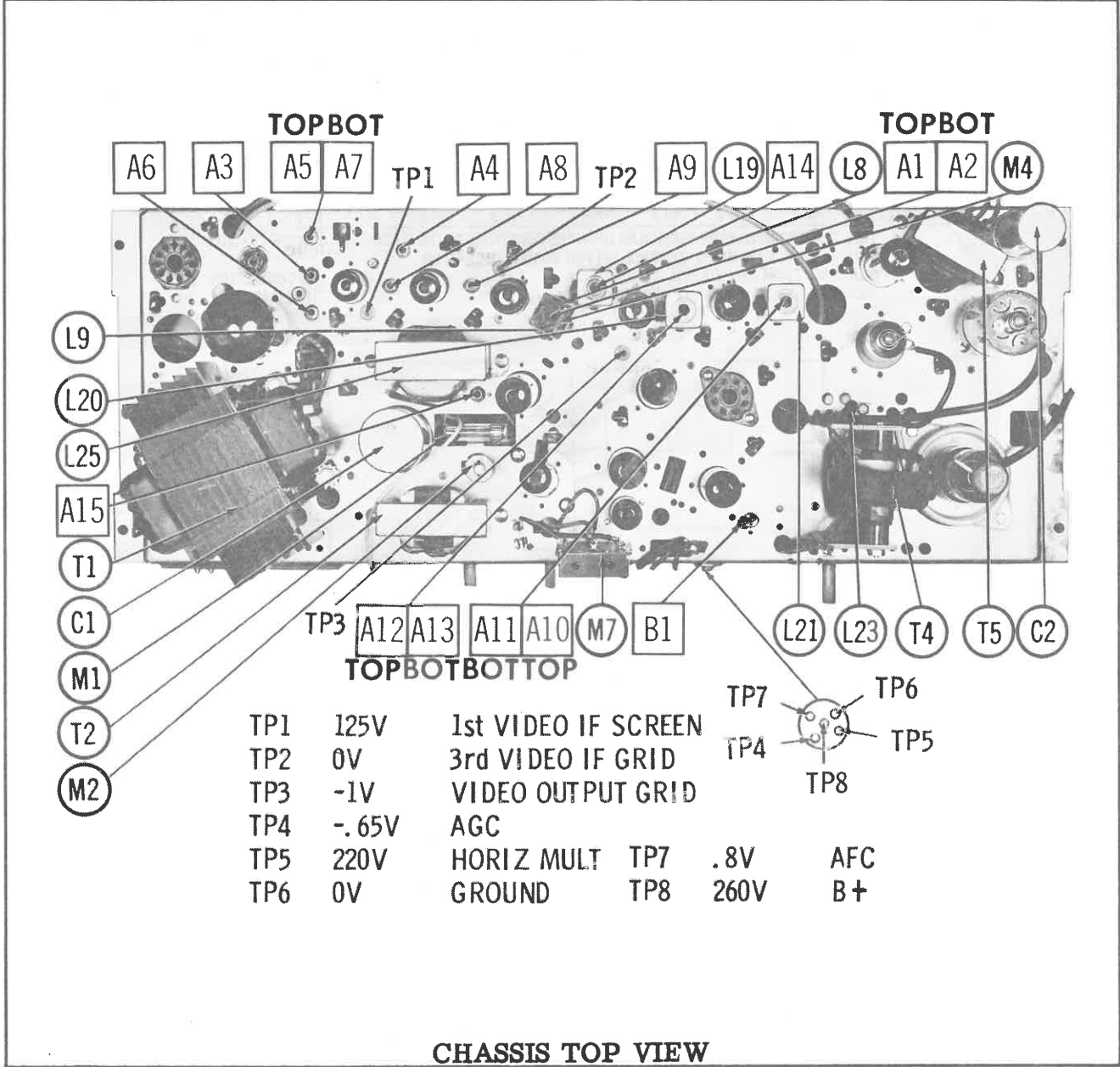
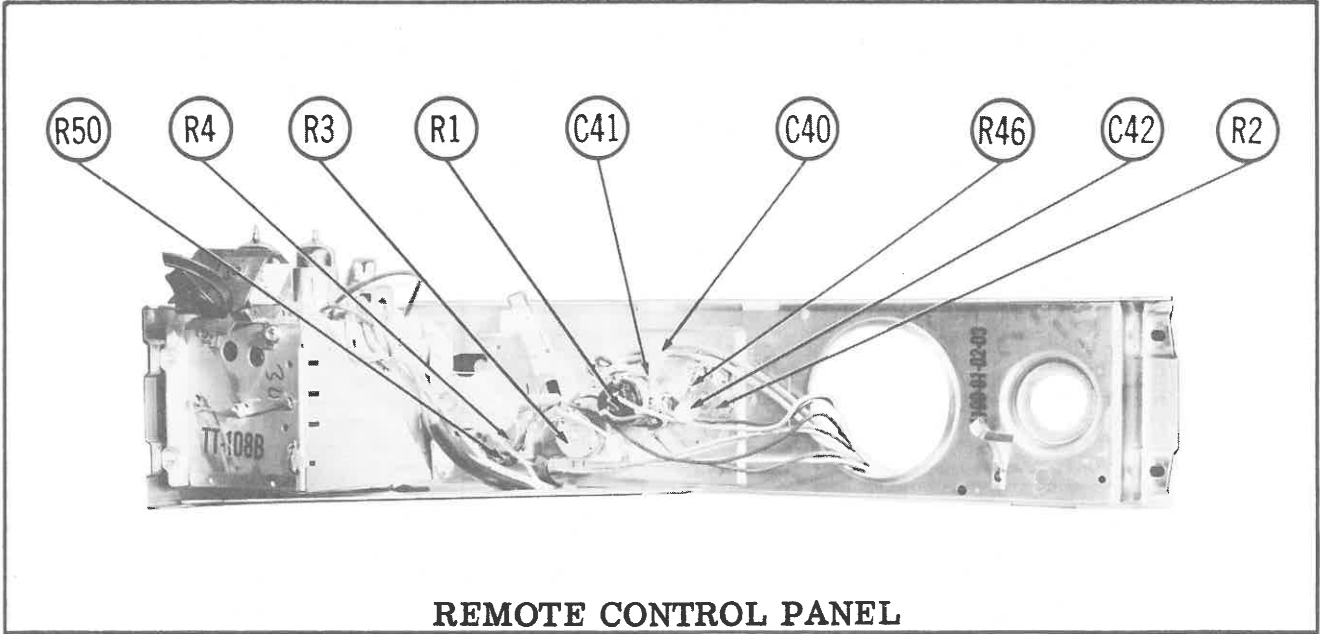


FIG. 4



TUNER PARTS LIST AND DESCRIPTIONS

1U748447 (TT-108)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BK7B	
V202	Mixer-Osc.	6U8A	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	VOLT	REPLACEMENT DATA						NOTES
			MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNEIL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	27		21R122050			C10Q27U	CN7-427	5TCU-Q27S 5% *	N780 5%
C202	15		21R124919			C10Q5U	CN7-415	5TCU-Q15S 10% *	N780 10%
C203	5.6		21R121154					5TCU-Q5.6S ±.5mmf *	N750 ±.5mmf
C204	1000		21R115386	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C205	1000		21K739920	EF-001	MFT-1000			503C-D1	
C206	2.7		21R115950					5TCCB-V27S 10%*	
C207	1000		21R115386	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C208	1.5		21R115959	NPO-SI 1.5	TCZ-1R5	CTA6V15C	ZT-5515	5TCCB-V15S 10%*	10%
C209	.5-3		21K735985		829-3				
C210	1000		21R115386	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C211	1.5		21R115959	NPO-SI 1.5	TCZ-1R5	CTA6V15C	ZT-5515	5TCCB-V15S 10%*	10%
C212	100		21R120577	DI-100	D8-101	CTA8T1U	CNO-310	5TCC-T1	10%
C213	22		21R124554	NPO-DI 22	DTZ-22	C10Q22C	CNO-422	5TCC-Q22S 5% *	5%
C214	.5-3		21K735985		829-3				
C215	1.0		21R114071						N1500 ±.5mmf
C216	470		21R114554	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C217	470		21R114554	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47	
C218	1000		21R115386	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C219	15		21R125066	DTZ-15			CNO-415	5TCC-Q15S 5% *	NPO 5%
C220	15		21R125077	DTZ-15			CNO-415	5TCC-Q15S 5% *	NPO 5%
C221	1.0		21R124552						NPO 2.5%
C222	1000		21K739920	EF-001	MFT-1000			503C-D1	
C223	1000		21K739920	EF-001	MFT-1000			503C-D1	
C224	1000		21K115386	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	

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

RESISTORS

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

ITEM No.	RATING	MOTOROLA PART No.	NOTES	ITEM No.	RATING	MOTOROLA PART No.	NOTES
R201	22K	6K119405		R207	270K	6R6414	
R202	100K	6K122313		R208	15K	6K119834	
R203	4700Ω	6K121847		R209	470Ω	6K127633	
R204	39K	6K125535		R210	3300Ω	6K121725	Note 1
R205	15K	6K119934		R211	1000Ω	6K127960	Note 2
R206	15K	6K119934					

Note 1. Not used in some versions.

Note 2. Some versions may use 3300Ω in this application.

COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	NOTES	ITEM No.	USE	MOTOROLA PART No.	NOTES
L201	IF Trap	24B747530 †		L211	Mixer Grid	24A741232	Channel 13
L202	IF Trap	24B747530 †		L212	Osc. Coil	24K746879	Channel 13
L203	Ant. Trans.	24B747543 †		L213	Osc. Coil	24K739385	Channel 6
L204	FM Trap	24B747801 †		L214	Osc. Coil	24K739384	Channel 5
L205	Ant. Coll	24A744031	Channel 13	L215	Osc. Coil	24K739381	Channel 4
L206	Ant. Colls	24K748713	Channel 2 - 6	L216	Osc. Coil	24K739382	Channel 3
L207	RF Choke	24A739397		L217	Osc. Coil	24K739381	Channel 2
L208	RF Coll	24A739361	Channel 13				
L209	RF Colls	24K740811	Channel 2 - 6				
L210	Mixer Grid Colls	24K740041	Channel 2 - 6				

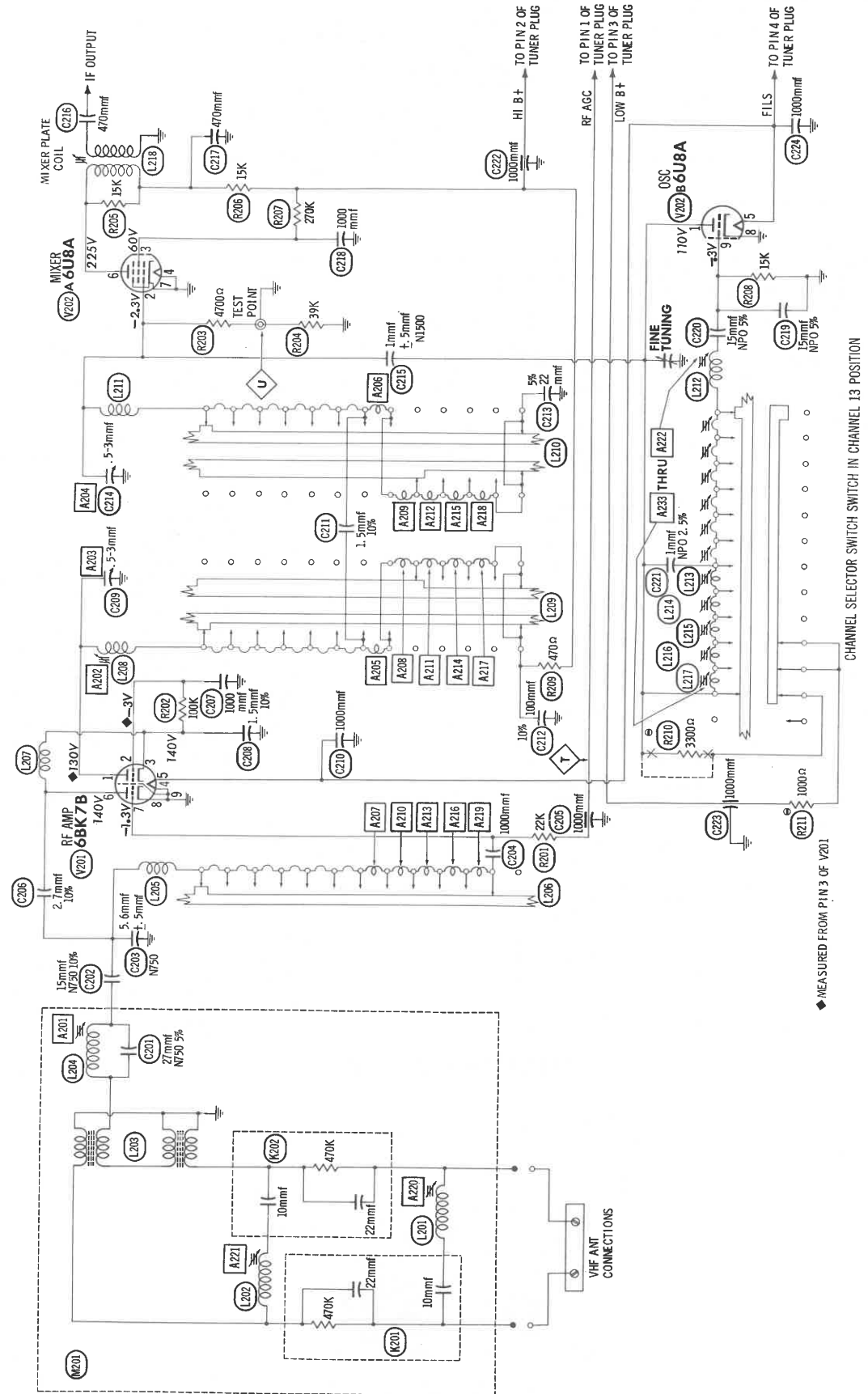
† Part of M201 (Part #V747644).

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K201	Antenna Network	10mmf, 22mmf, 470K	51C747535	
K202	Antenna Network	10mmf, 22mmf, 470K	51C747535	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M201	Antenna Network	1V747644	High Pass Filter Assy.



MOTOROLA CHASSIS NTS-544, QTS-544, RTS-544,
RTS-544Y, STS-544, STS-544Y, TR-3, TR-4, TR-89
(501-LT) 19287421, (801-LT) 47487421 RENUL JHA

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FOLDER 1

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS FOR TUNER TT108, TT108Y

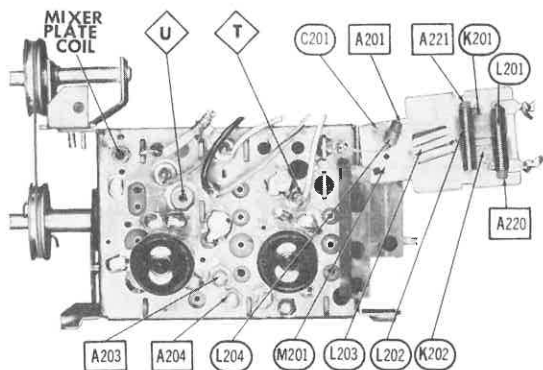
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Remove yoke plug to prevent interference radiation. Connect a 1500Ω 50 watt resistor from pin 1 of yoke socket to chassis.
Suggested Alignment Tools: A201, A220, A221..... GENERAL CEMENT #9296, 9297
WALSCO #2546, 2547
A202 GENERAL CEMENT #9050L, 9150
WALSCO #2521
A203, A204 GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A222 thru A233 GENERAL CEMENT #8607, 9291
WALSCO #2520, 2522, 2523, 2524, 2537
Mixer Plate Coil GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544

VHF RF AND MIXER ALIGNMENT

Connect a clip lead from point \diamond to chassis.
Remove the tuner shield.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	94MC	94MC	6	Vert. Amp. thru 47K to point \diamond . Low side to chassis.	A201	Adjust for MINIMUM response at 94MC marker.
2. "	"	213MC	211. 25MC 215. 75MC	13	"	A202	Preset A203 and A204 to mid-range. Adjust A202 for maximum gain and symmetry similar to Fig. 201.
3. "	"	177MC	175. 25MC 179. 75MC	7	"	A203, A204	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
4. "	"	85MC	83. 25MC 87. 75MC	6	"	A205, A206, A207	Adjust in numerical order for response similar to Fig. 202. First two adjustments are for proper placement of markers. Third adjustment is for maximum gain and symmetry.
5. "	"	"	"	"	"	A201	Adjust SLIGHTLY above point where is begins to affect response curve at sound marker.
6. "	"	79MC	77. 25MC 81. 75MC	5	"	A208, A209, A210	Adjust in numerical order for response similar to Fig. 202. First two adjustments are for proper placement markers. Third adjustment is for maximum gain and symmetry.
7. "	"	69MC	67. 25MC 71. 75MC	4	"	A211, A212, A213	"
8. "	"	63MC	61. 25MC 65. 75MC	3	"	A214, A215, A216	"
9. "	"	57MC	55. 25MC 59. 75MC	2	"	A217, A218, A219	"
10. "	"	57MC	43. 5MC 45. 5MC	2	"	A220, A221	Adjust for A220 MINIMUM response at 43. 5MC marker and A221 for MINIMUM response at 45. 5MC marker. Retouch either or both for flat response with MINIMUM amplitude at marker.

continued PAGE 23



TUNER 1U748447 —TOP VIEW

TUNER ALIGNMENT INSTRUCTIONS (cont)

VHF OSCILLATOR ALIGNMENT

The tuner shield must be in place when adjusting the oscillator.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the Fine Tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211. 25MC 215. 75MC	13	Vert. Amp. thru 47K across Video Det. load.	A222	Adjust to place sound marker in trap notch as in Fig. 203. Video marker should fall at 50%.
		207MC	205. 25MC 209. 75MC	12		A223	
		201MC	199. 25MC 203. 75MC	11		A224	
		195MC	193. 25MC 197. 75MC	10		A225	
		189MC	187. 25MC 191. 75MC	9		A226	
		183MC	181. 25MC 185. 75MC	8		A227	
		177MC	175. 25MC 179. 75MC	7		A228	
		85MC	83. 25MC 87. 75MC	6		A229	
		79MC	77. 25MC 81. 75MC	5		A230	
		69MC	67. 25MC 71. 75MC	4		A231	
		63MC	61. 25MC 65. 75MC	3		A232	
		57MC	55. 25MC 59. 75MC	2		A233	

UHF IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12. 50Ω Carbon Resistor	High side to point \diamond . Low side to chassis.	44MC (10MC Swp)	41. 25MC 45. 75MC	Any UHF channel	Vert. Amp. thru 47K to point \diamond . Low side to chassis.	A234, A235	Adjust for maximum gain and symmetry of response similar to Fig. 204 with markers as shown.
13. Disconnect sweep generator and short antenna terminals.				"	USE VTVM Across Video Det. load.	A236	Adjust for maximum DC noise voltage.

UHF ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

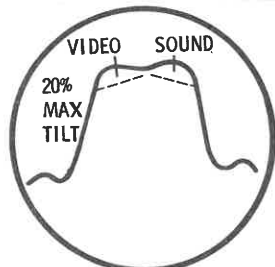


FIG. 201

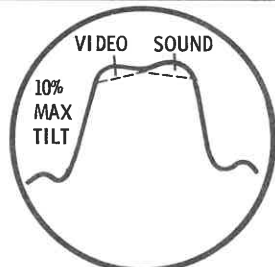


FIG. 202

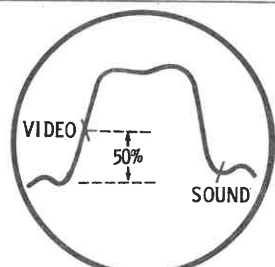


FIG. 203

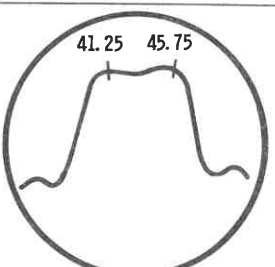
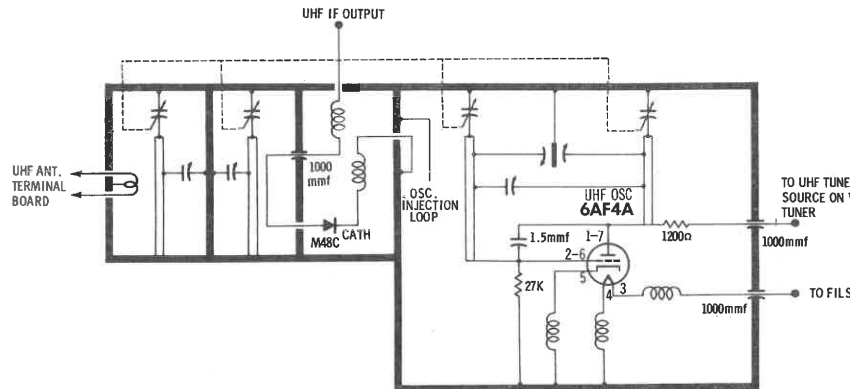


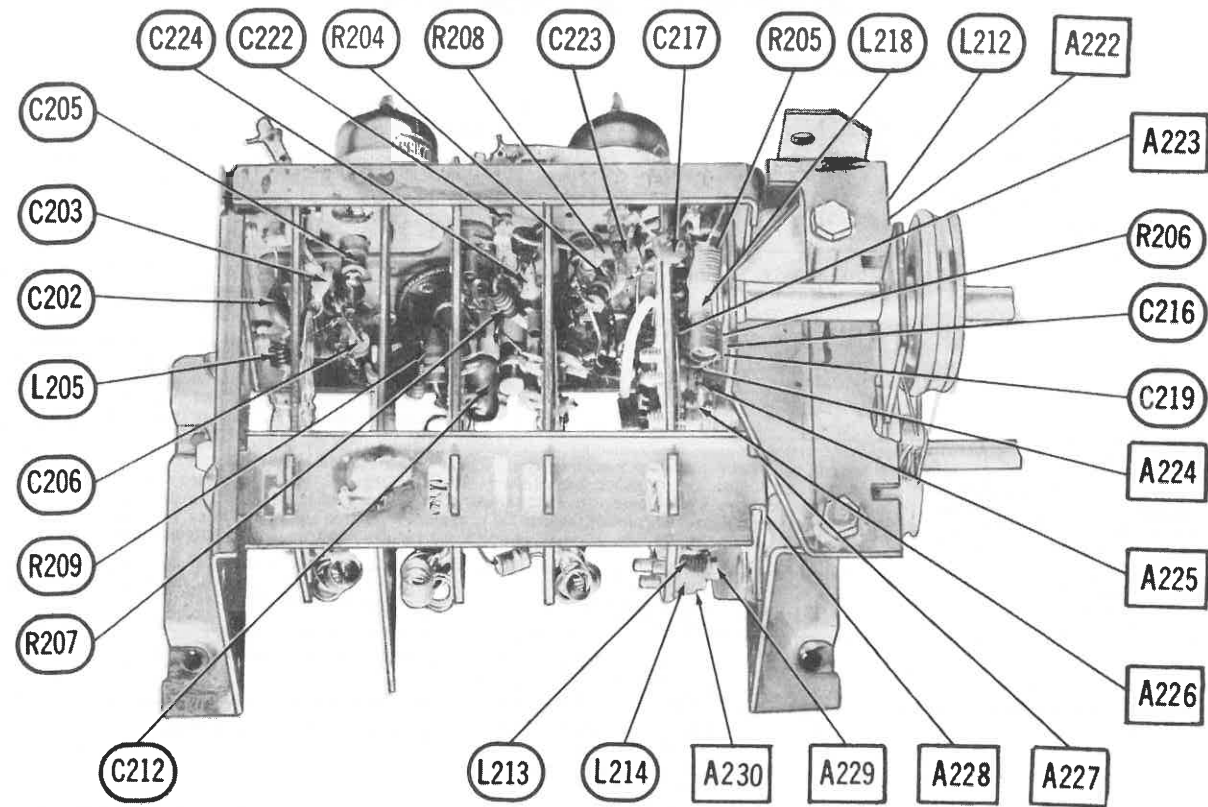
FIG. 204



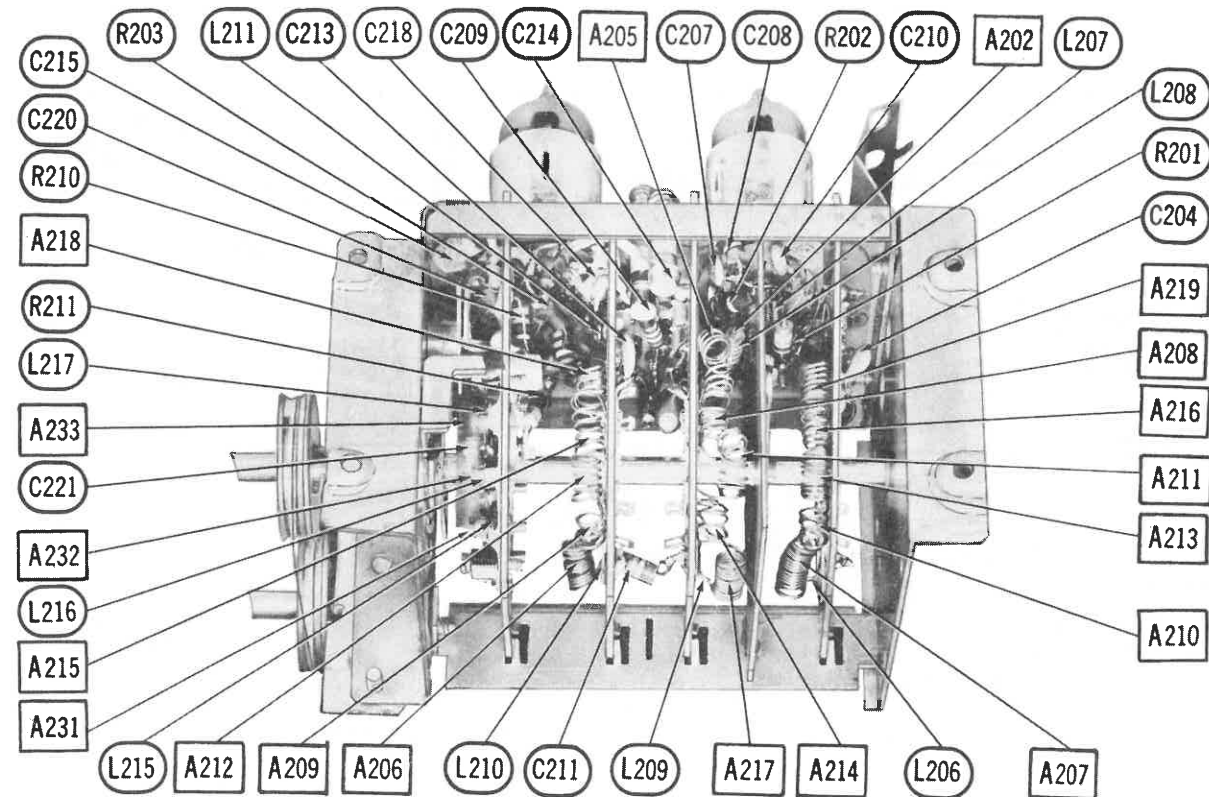
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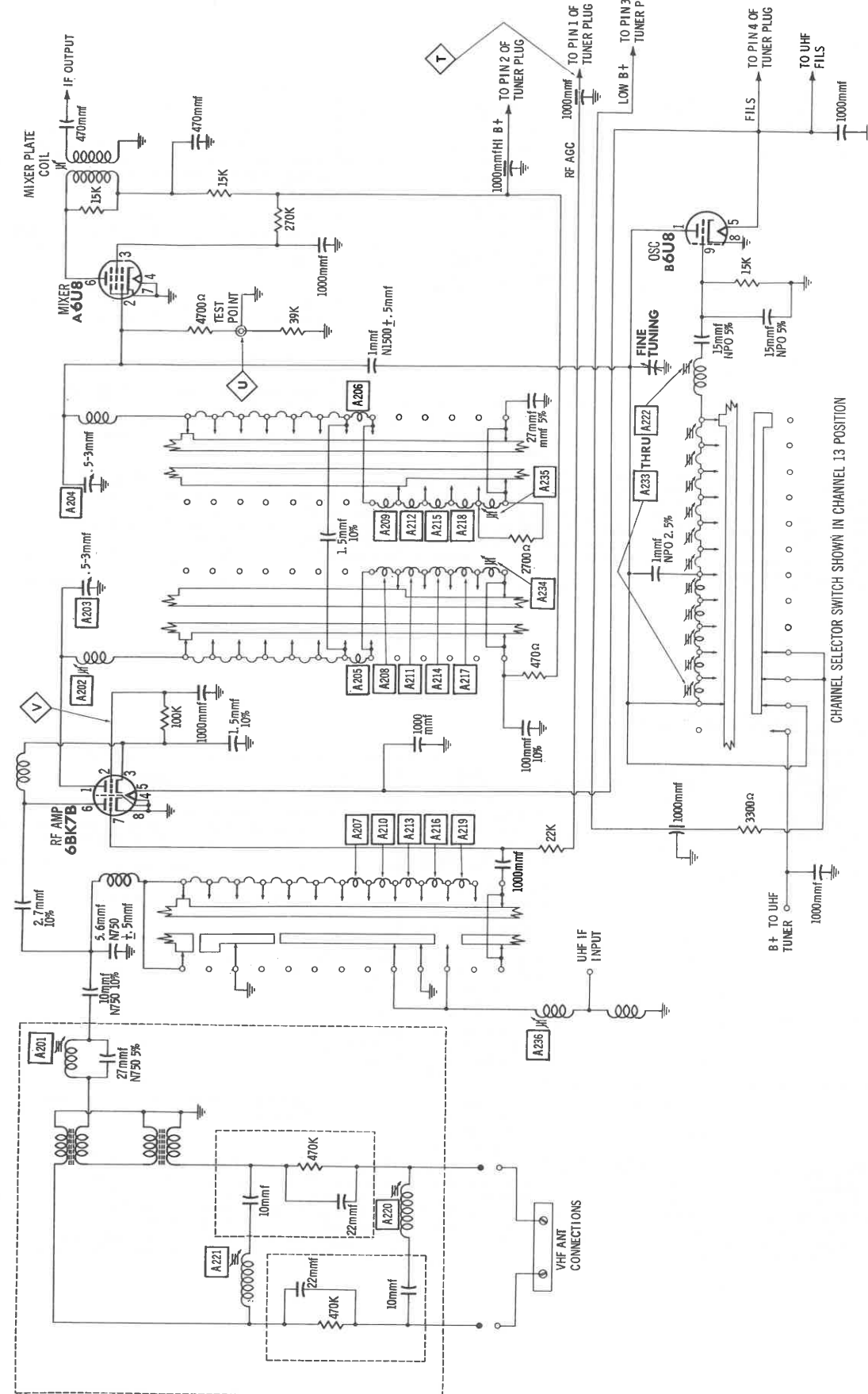
UHF TUNER TT-89



TUNER 1U748447 - LEFT SIDE



TUNER 1U748447 - RIGHT SIDE



MOTOROLA CHASSIS NTS-544, QTS-544, RTS-544,
RTS-544Y, STS-544, TR-3, TR-4, TR-8
(Y801-L1) 8F7872U1 (Y801-L1) 227872U1

REMOTE CONTROL
ALIGNMENT INSTRUCTIONS

REMOTE CONTROL RECEIVER ALIGNMENT TR-3

Unplug the microphone.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1. Direct	High side to microphone input. Low side to chassis.	40KC (300 micro-volts output)		DC probe thru 470K to pin 1 of Service Test Receptacle. Common to pin 2 of the Test Receptacle.	A1 (Top slug)	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Use zero point with slug farthest from chassis.
2. "	"	"		DC probe thru 470K to pin 3 of Service Test Receptacle. Common to chassis.	A2 (Bottom slug)	Adjust for maximum negative voltage. Set generator output to provide -15 to -25 volts on VTVM. Use maximum nearest chassis.
3. "	"	"		"	A3	Adjust for maximum negative voltage. Set generator output to provide -15 to -25 volts on VTVM. Use peak farthest from chassis.
4. "	"	"		"		Adjust generator output for -20 volts on VTVM.
5. "	"	"		DC probe thru 470K to pin 4 of Service Test Receptacle. Common to chassis.	A4	Adjust for MINIMUM negative voltage. Resonate core away from chassis. Repeat step 1.
NOTE: A5 has not been adjusted at this time. Due to the additional equipment requirements, it is normally adjusted only at the factory. Therefore, adjustments of A5 should only be made if the coil has been replaced or tampered with. Remove the signal generator and plug the microphone back into its socket. Connect either a high impedance AC meter (capable of reading .1 volt) or an oscilloscope thru a .5mfd capacitor to pin 7 (grid) of the 6CX8 (2nd Amp.) Common or low side to chassis. Place the transmitter approximately 3 inches away from the microphone, press the Channel Selector button of the transmitter and rotate the unit for maximum meter or scope indication. Without moving the transmitter, continue pressing the Channel Selector button and adjust A5 for maximum indication. Remove the AC meter or scope and remove the transmitter.						

REMOTE CONTROL RECEIVER ALIGNMENT TR-4

Unplug the microphone.

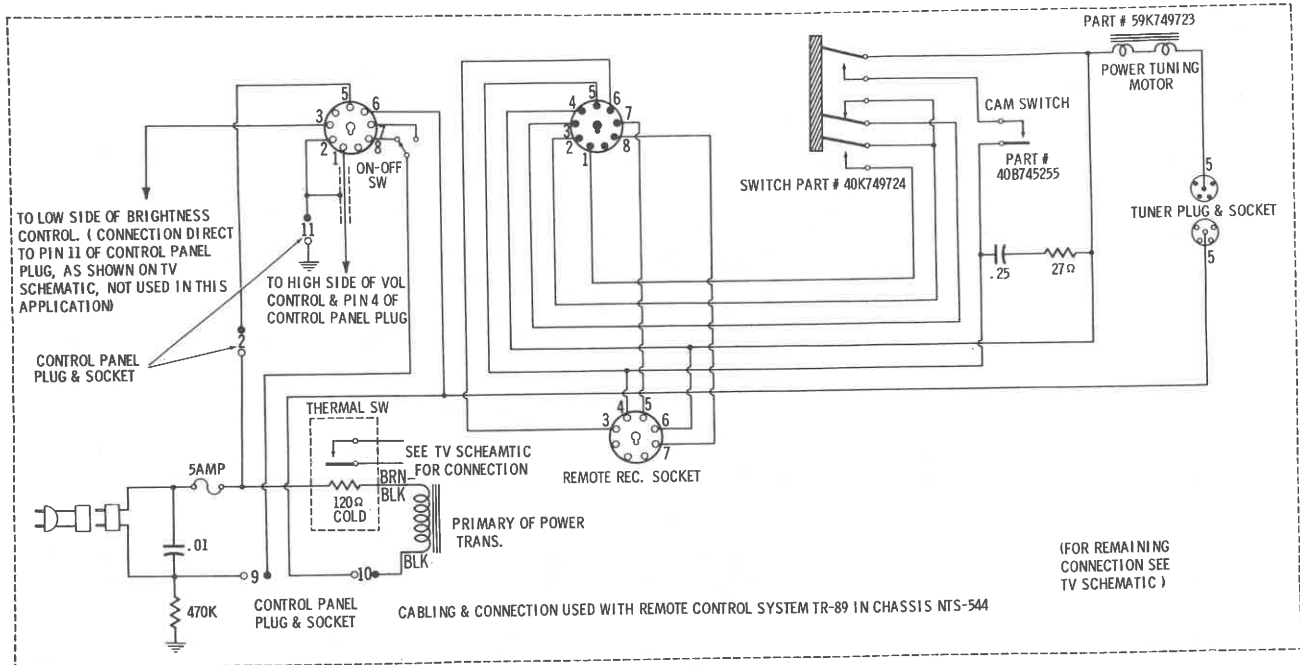
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1. Direct	High side to microphone input. Low side to chassis.	41.0KC (300 micro-volts output)		DC probe thru 470K to pin 3 of Service Test Receptacle. Common to chassis.	A1 (Top slug)	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Use zero point farthest from chassis.
2. "	"	38.5KC		DC probe thru 470K to pin 1 of Service Test Receptacle. Common to chassis.	A2 (Top slug)	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 1 and 2.
3. "	"	41KC (50 micro-volts output)		DC probe thru 470K to pin 4 of Service Test Receptacle. Common to chassis.	A3 (Bottom slug)	Adjust for maximum deflection. Use peak nearest chassis.
4. "	"	38.5KC (50 micro-volts output)		DC probe thru 470K to pin 2 of Service Test Receptacle. Common to chassis.	A4 (Bottom slug)	Adjust for maximum deflection. Use peak nearest chassis. Repeat steps 3 and 4.
5. "	"	39.75MC (50 micro-volts output)		DC probe thru 470K to pin 4 of Service Test Receptacle. Common to chassis.	A5	Adjust for maximum deflection. Use peak farthest from chassis.
NOTE: A6 has not been adjusted at this time. Due to the additional equipment requirements, it is normally adjusted at the factory. Therefore, adjustment of A6 should only be made if the coil has been replaced or tampered with. Remove the signal generator and plug the microphone back into its socket. Connect either a high impedance AC meter (capable of reading .1 volt) or an oscilloscope thru a .5mfd capacitor to pin 7 (grid) of the 6CX8 (2nd Amp.). Common to chassis. Place the transmitter approximately 3 inches away from the microphone. Press the Channel Selector button and rotate the transmitter for maximum meter or scope indication. Without moving the transmitter, continue pressing the Channel Selector button and adjust A6 for maximum indication. Remove the test equipment.						

REMOTE CONTROL
ALIGNMENT INSTRUCTIONS

REMOTE CONTROL RECEIVER ALIGNMENT TR-89

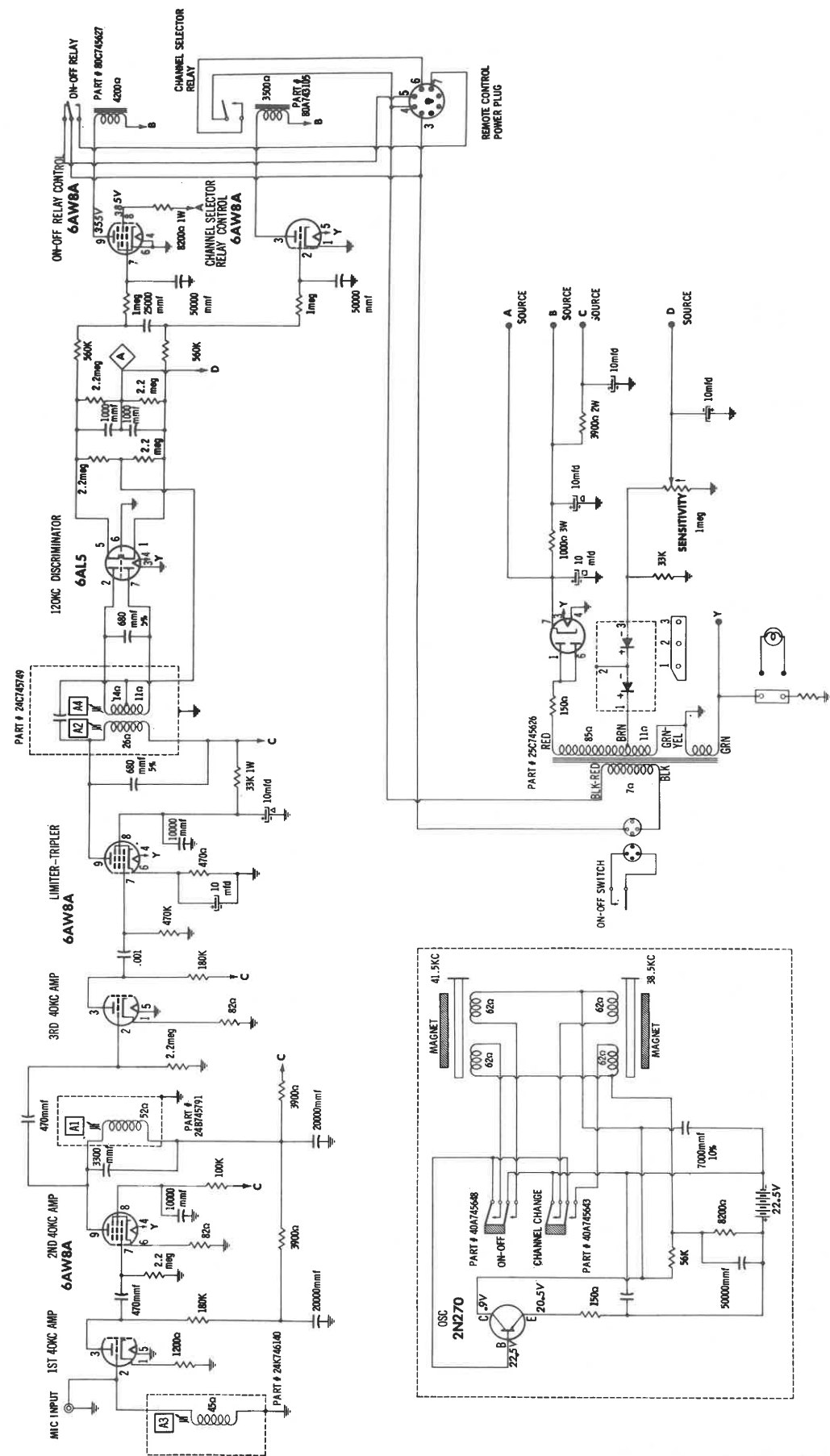
Unplug the microphone.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1. Direct	High side to microphone input. Low side to chassis.	40KC		DC probe to pin 7 (grid) of 6AW8 (On-Off Relay Control tube) Common to chassis.	Sensitivity Control	Adjust for maximum negative voltage.
2. "	"	"		DC probe to point A. Common to chassis.	A1	Set VTVM to -150 volt scale. Increase generator output until meter reads approximately -75 volts. Leave at this setting and adjust A1 for maximum deflection.
3. "	"	"		"	A2 (Bottom slug)	Turn slug as far out of coil as possible, then start tuning. As slug is turned into coil, the 4th harmonic will be passed. Continue turning into coil until next peak is obtained. This will be 3rd harmonic of 40KC and will be a larger voltage than the 4th harmonic.
NOTE: A3 has not been adjusted. Due to additional equipment requirements it is normally adjusted only at the factory. Therefore, adjustments of A3 should only be made if the coil has been replaced or tampered with. Remove the signal generator and plug the microphone back into its socket. Connect either a high impedance AC meter (capable of reading .1 volt) or an oscilloscope thru a .5mfd capacitor to pin 2 (grid) of 6AW8A (1st 40KC Amp.). Low side to chassis. Place the transmitter approximately 3 inches away from the microphone, press the channel selector button of the transmitter and rotate the unit for maximum meter for scope indication. Without moving the transmitter, adjust A3 for maximum indication. Remove the AC meter or scope and remove the transmitter. Remove the microphone.						
4. Direct	High side to microphone input. Low side to chassis.	40KC		DC probe to point A. Common to chassis.		Increase generator output until no further increase in voltage is noted on VTVM.
5. "	"	"		DC probe to pin 5 (cathode) of 6AL5. Common to chassis.	A4 (Top slug)	Adjust for zero reading on VTVM.
6. "	"	"		DC probe to pin 7 (grid) of 6AW8A. (On-Off Relay Control tube). Common to chassis.	Sensitivity Control	Adjust for -25 volts on VTVM.



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ALTERNATE SCHEMATIC

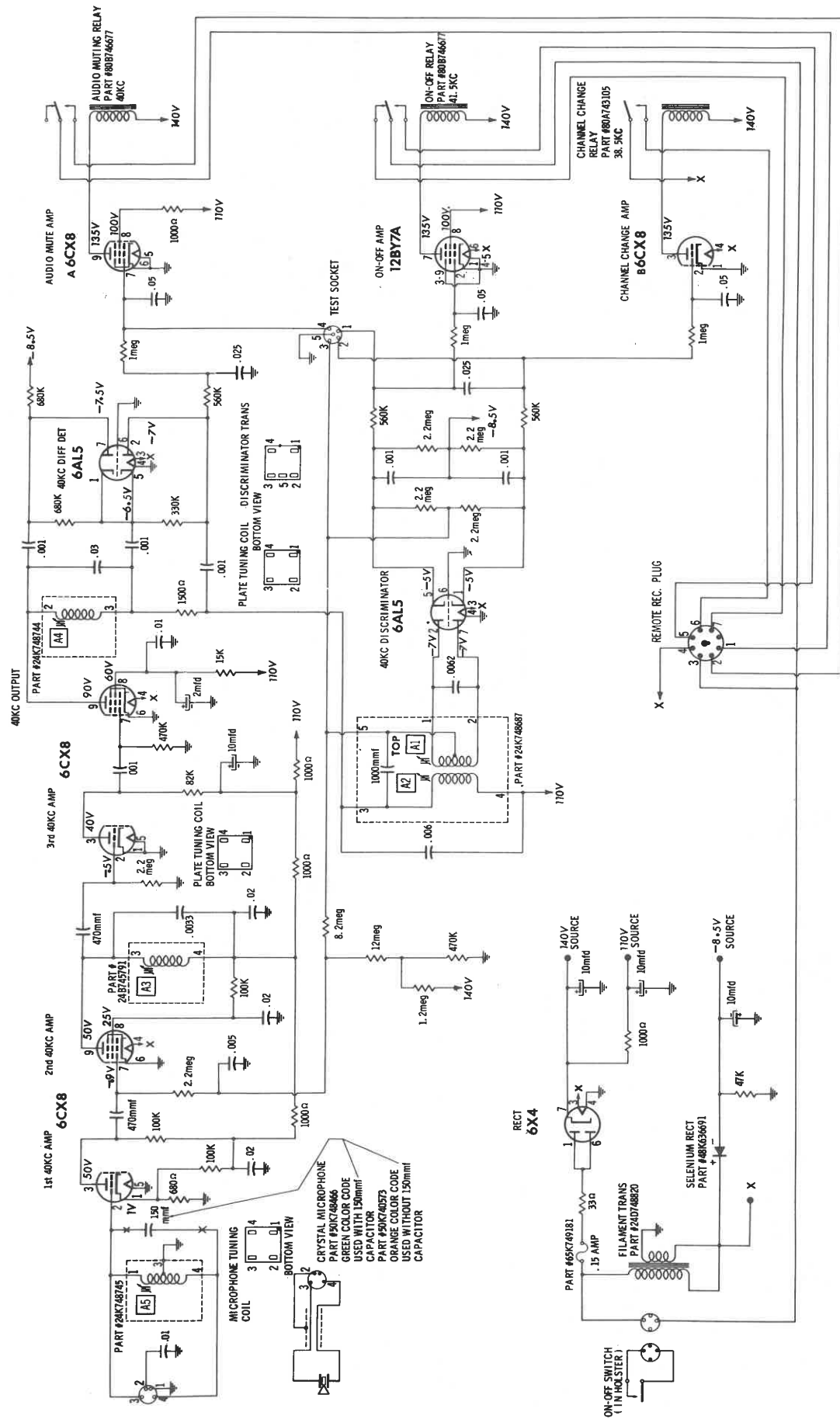


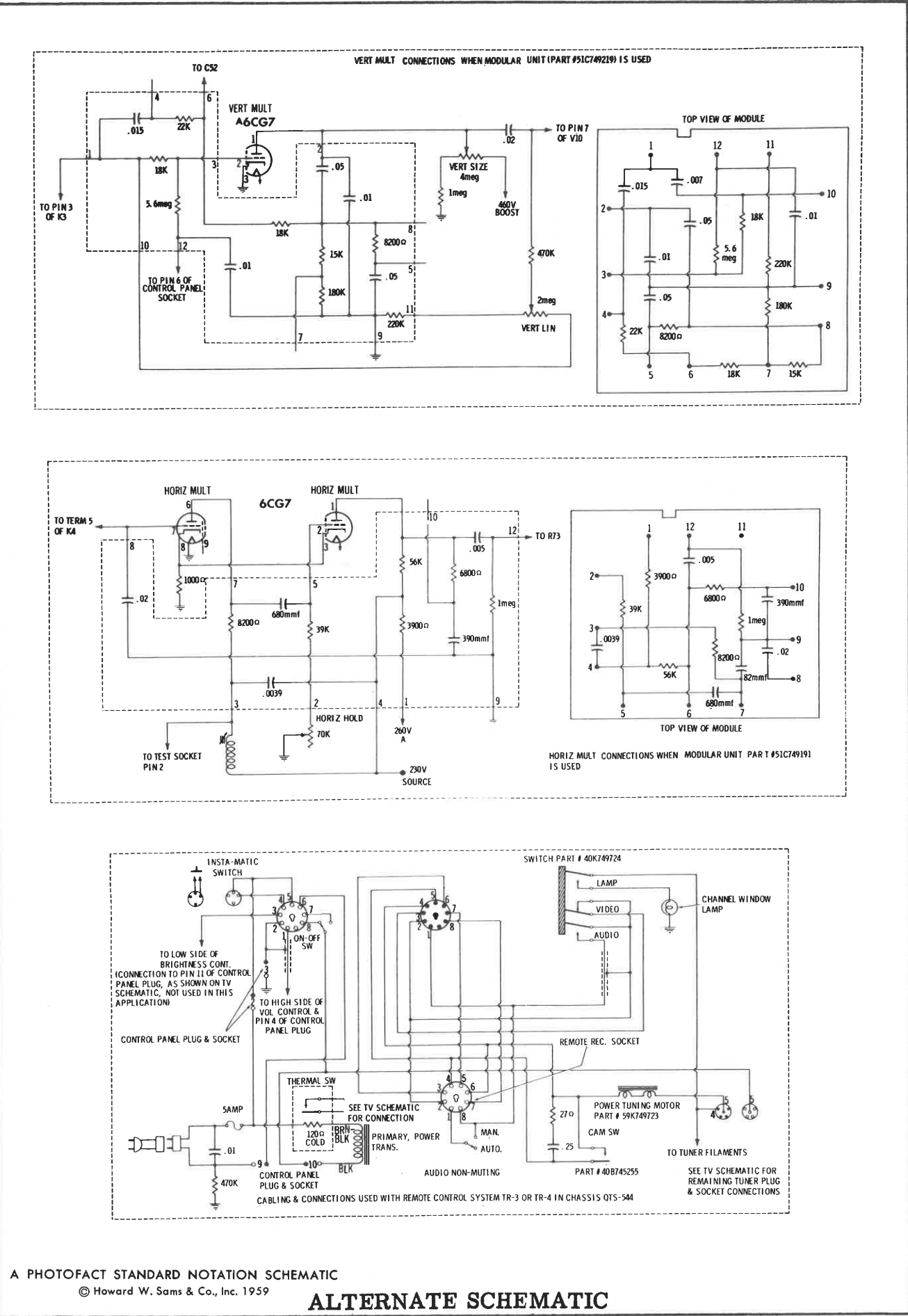
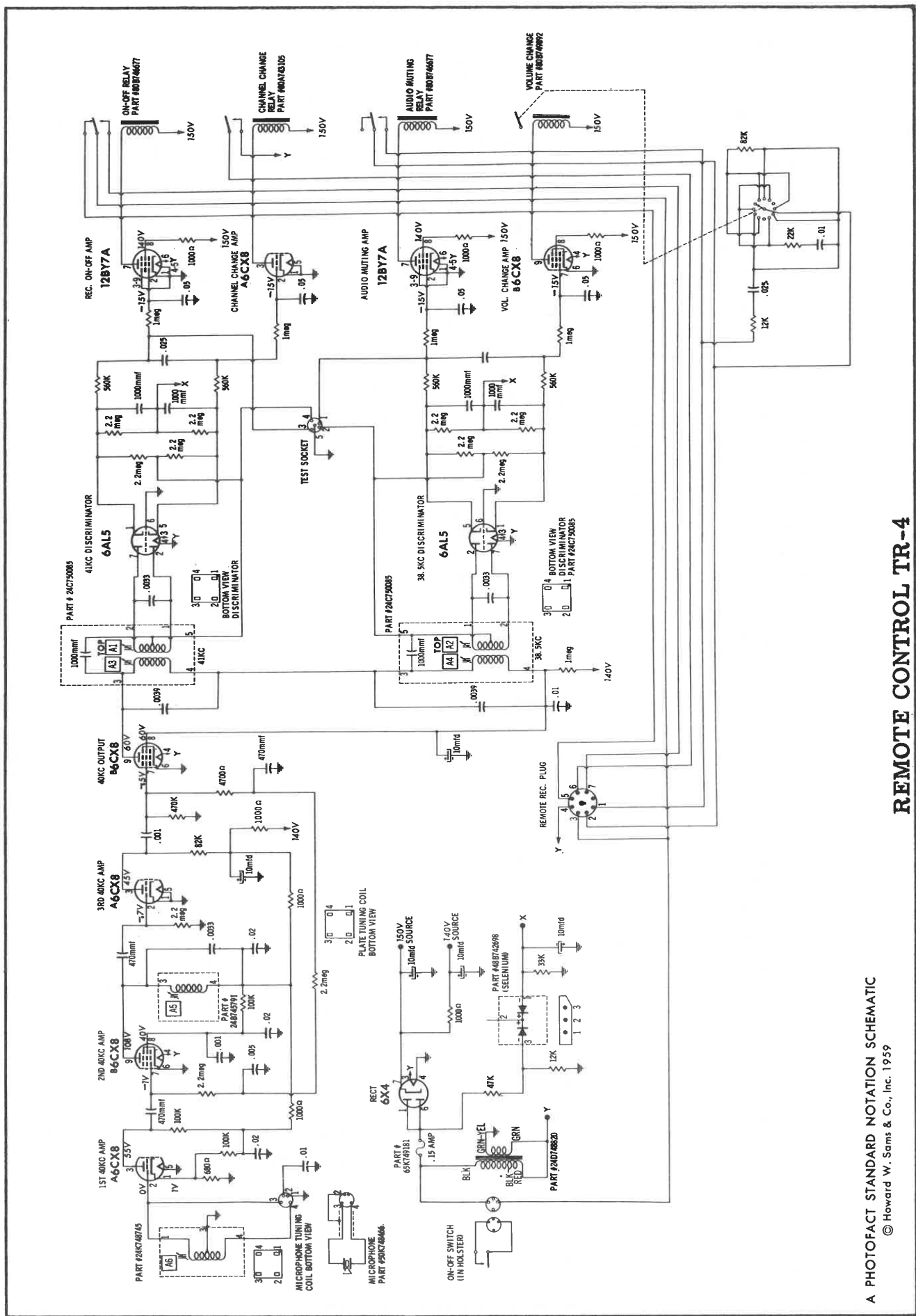
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REMOTE CONTROL TR-89A-03, TR-89TA-01

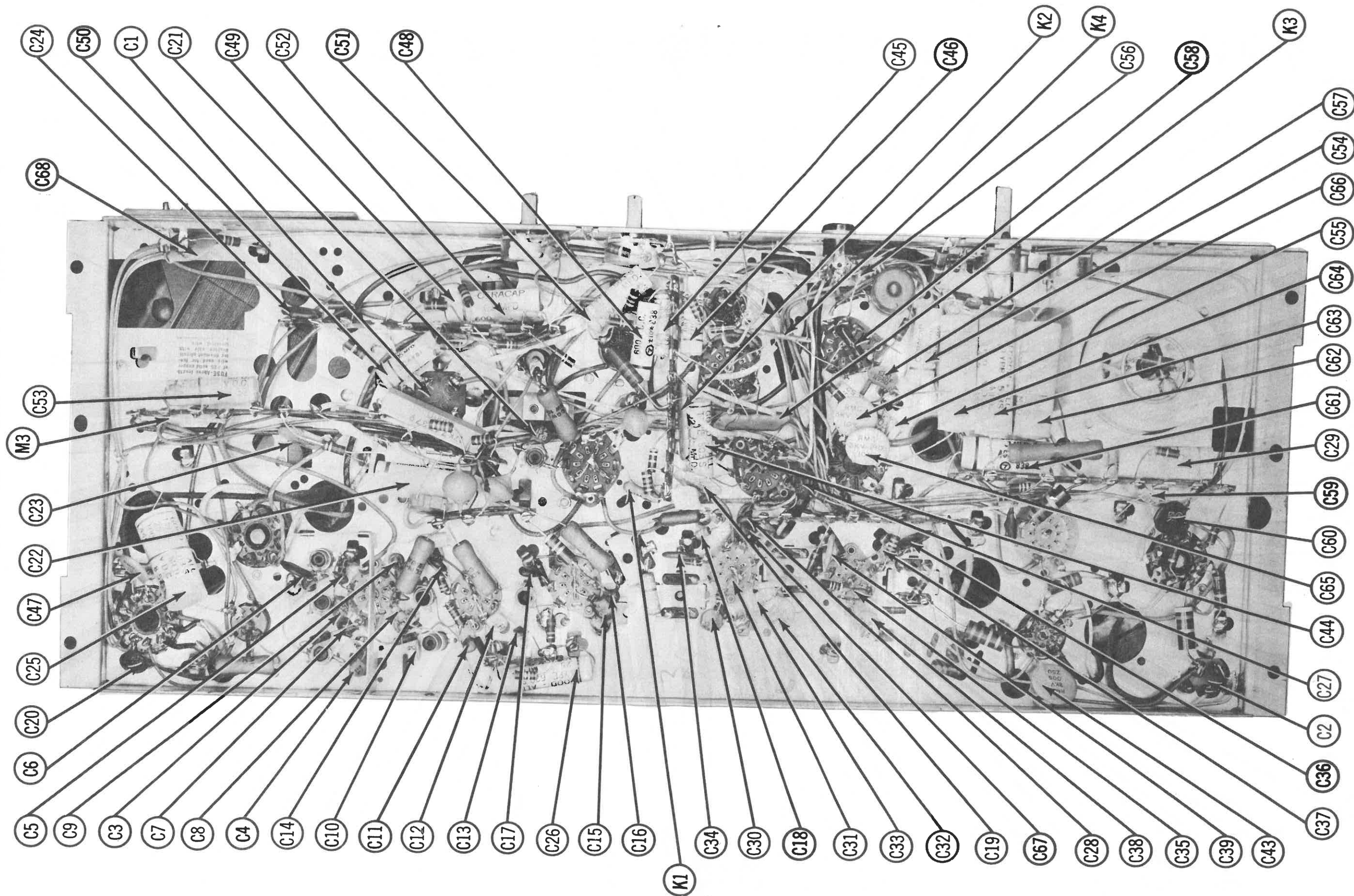
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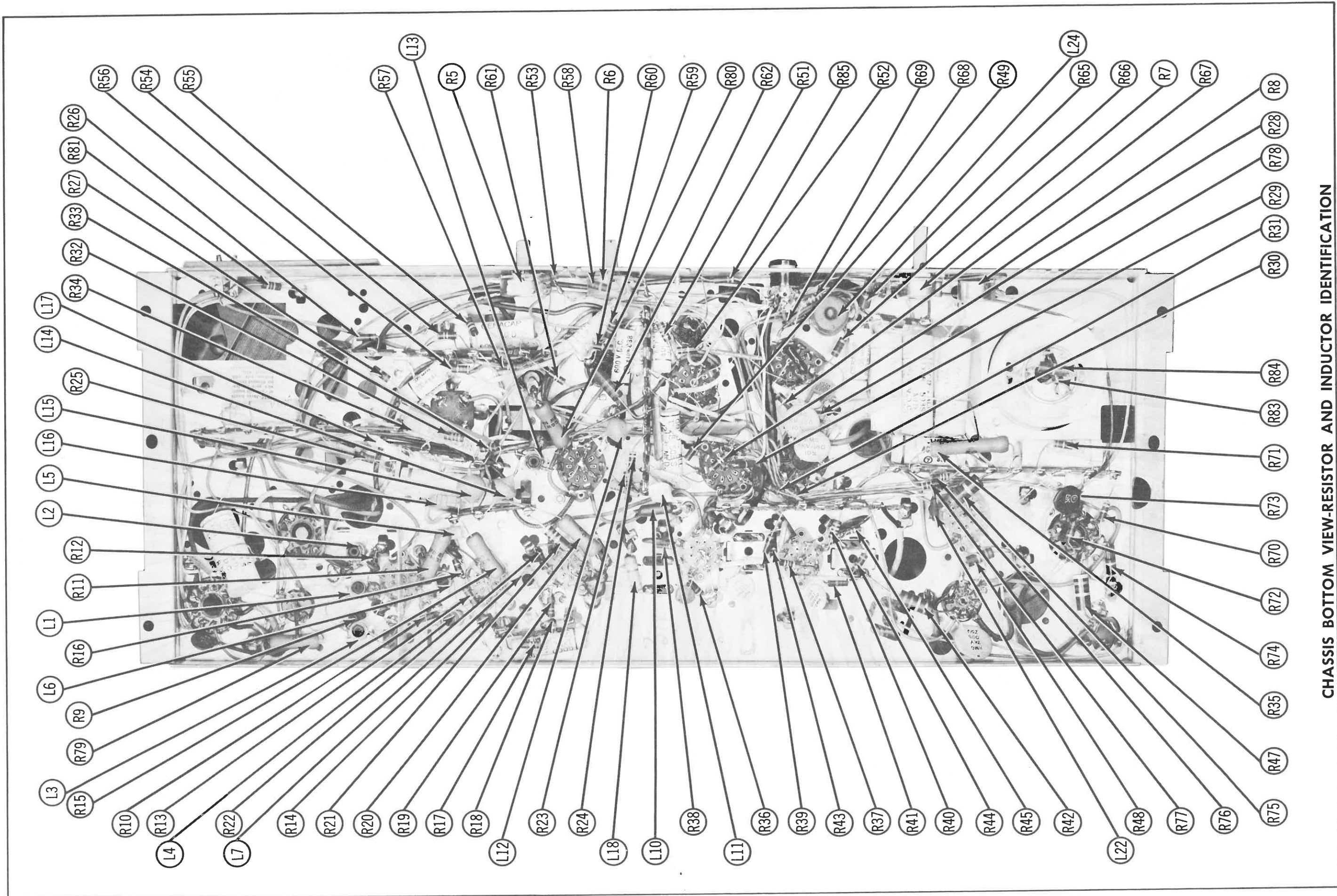
MOTOROLA CHASSIS NTS-544, QTS-544, RTS-544,
RTS-544Y, STS-544, STS-544Y, TR-3, TR-4, TR-89
3-RL TOLNOC ELOWEM





**MOTOROLA CHASSIS NTS-544, QTS-544, RTS-544,
RTS-544Y, STS-544, STS-544Y, TR-3, TR-4, TR-89**
CHASSIS BOTTOM VIEW - CAPACITOR & MISC IDENTIFICATION





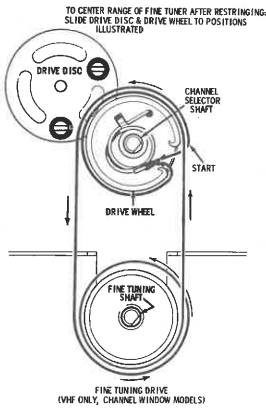
PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS (cont)

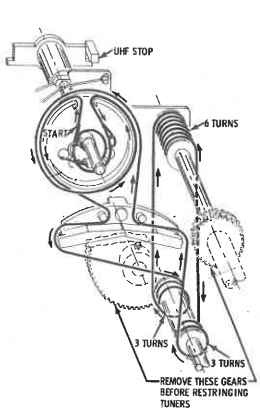
NAME	PART NO.	DESCRIPTION
Cabinet	16K747375	Blond Oak, Includes Base, Models 21K95B, Y21K95B
Cabinet	16E749231	Mahogany, Includes Base, Models A21K95M
Cabinet	16E747374	Mahogany, Includes Base, Models 21K95M, Y21K95M
Cabinet	16K748126	Blond Oak, Models Y21 & 21K98B, BA
Cabinet	16E748125	Mahogany, Models Y21 & 21K98M, MA
Cabinet	16K748133	Walnut, Models Y21 & 21K98W, WA
Cabinet	16K748291	Blond Oak, Models 21K101B, BA
Cabinet	16E748290	Mahogany, Models 21K100M, MA
Cabinet	16K748344	Blond Oak, Models Y21 & 21K101B, BA
Cabinet	16E748342	Mahogany, Models Y21 & 21K101M, MA
Cabinet	16K748343	Walnut, Models Y21 & 21K101W, WA
Cabinet	16E748352	Cherry, Models 21K102CU, CUA
Cabinet	16K748045	Blond Oak, Models Y21 & 21K103B, BA
Cabinet	16E749174	Cherry, Models Y21 & 21K103CW, CWA
Cabinet	16E748044	Mahogany, Models Y21 & 21K103M, MA
Cabinet	16K748046	Calif. Mahogany, Models Y21 & 21K103MC, MCA
Cabinet	16K747862	Blond Oak, Model 21K106B
Cabinet	16D747880	Mahogany, Model 21K106M
Cabinet	16K748382	Limed Oak, Models Y21 & 21T58BG, BGA
Cabinet	16K748383	Charcoal, Models Y21 & 21T58CH, CHA
Cabinet	16K748360	Mahogany, Models Y21 & 21T58MG, MGA
Cabinet	16K748357	Blond Oak, Model 21T60BG
Cabinet	16K748358	Charcoal, Model 21T60CH
Cabinet	16K748355	Mahogany, Model 21T60MG
Cabinet	16K748123	Blond Oak, Models Y21 & 21T61B, BA
Cabinet	16E748122	Mahogany, Models Y21 & 21T61M, MA
Legs	16K748189	Blond Oak, Includes Ferrule & Bolt, Models Y21 & 21K95B
Legs	16K748188	Mahogany, Includes Ferrule & Bolt, Models Y21 & 21K95M
Legs	16K748130	Models Y21 & 21K98B, BA
Legs	16K748131	Models Y21 & 21K98M, MA
Legs	16K748127	Models Y21 & 21K98W, WA
Legs	16K745198	Models Y21 & 21K103B, BA
Legs	16K749177	Models Y21 & 21K103CW, CWA
Legs	16K748017	Models Y21 & 21K103M, MA
Legs	16K748841	Models Y21 & 21K103MC, MCA
Legs	16K747668	Model 21K106B
Legs	16K747666	Model 21K106M
Swivel Base	16K747298	Models Y21K95 Series, A21K95M, Y21 & 21K101 Series
Swivel Base	1K748347	Assembly, Models Y21 & 21K101B, BA
Swivel Base	1K748345	Assembly, Models Y21 & 21K101M, MA
Swivel Base	1K748346	Assembly, Models Y21 & 21K101W, WA
Sub Base	16K748187	Assembly, Includes Swivel less legs, Models Y21 & 21K95B
Sub Base	16K748186	Assembly, Includes Swivel less legs, Models Y21 & 21K95M

WIRING DATA

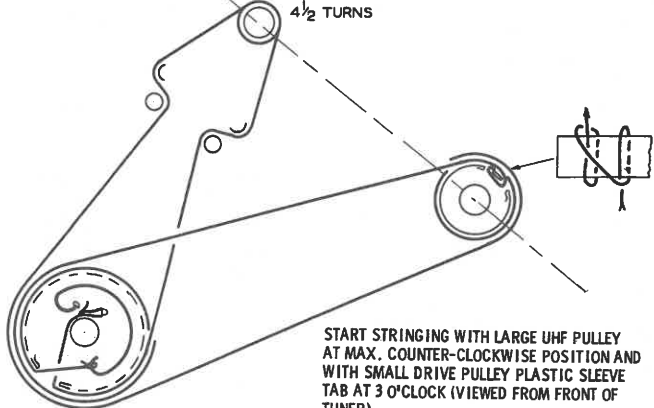
High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω 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



FINE TUNING (VHF MODELS)



FINE TUNING (UHF-VHF MODELS)



UHF TUNING

DRIVE CORD STRINGING

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st Video IF Amp.	3BZ6	
V2	2nd Video IF Amp.	3BZ6	
V3	3rd Video IF Amp.	3BZ6	
V4	Video Output	12BY7A	
V5	ACC Keying-Noise Limiter-Sync Sep.	3BU8	
V6	Sound IF Amp.	3BZ6	
V7	Audio Det.	3DT8	
V8	Audio Output	EL84/6BQ5	

* Alternate. Note 1. Some versions may use Selenium Rect. (Part #48B742698) in this application.

PICTURE TUBE

ITEM No.	MOTOROLA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	NOTES
V17	21CBP4A	21BTP4	21CBP4-A ②	21CBP4/21CBP4A ③	① "Aluminized" - Add Ion Trap. ② "Silverama" ③ "Silver Screen"

ELECTROLYTIC CAPACITORS

ITEM No.	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	.40	350	23K747541	AFH4-05-60	D0044			TVLS-4605-6*	
B	.80	300							
C	.10	300							
D	10	300							
C2A	.10	300	23K738750	AFH3-108	C0810	FP330	TMT-93	TVL-3635.5	
B	.30	300							
C	20	25							

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

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	CAP.	VOLT.	TOL.	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	18		N150 10%	21R120578						
C4	8.2		N150 ± .5mmf	21R128940						
C5	5.6		N150 ± .5mmf	21R129124						
C6	56		N150 10%	21R128699						①
C7	470			21R14554	BPD-00047	DD-47I	BYA10T47	B-347	5GA-T47	
C8	.75			21K735623						②
C9	1000			21K737426	EF-001	MFT-1000			503C-DI	
C10	22		N150 10%	21R120539						
C11	470			21R14554	BPD-00047	DD-47I	BYA10T47	B-347	5GA-T47	
C12	560			21K748762	DI-560	DD-56I	BYA10T56	B-356	5GA-T56	
C13	1000			21R115386	BPD-001	DD-102	BYA10D1M	B-210	5HK-DI	
C14	470			21C746761	BPD-00047	DD-47I	BYA10T47	B-347	5GA-T47	
C15	470			21C746761	BPD-00047	DD-47I	BYA10T47	B-347	5GA-T47	
C16	1000			21R115386	BPD-001	DD-102	BYA10D1M	B-210	5HK-DI	③
C17	470			21C746761	BPD-00047	DD-47I	BYA10T47	B-347	5GA-T47	
C18	3.9		10%	21R115953					5TCCB-V39810%*	
C19	20000			21K741862	BPD-02	DD-203	BYB682	B-120	5GA-S2	④
C20	68		N470 10%							
C21	27		N150 10%	21R119896						
C22	.1	400		8R121006	P488N-1	DF-104	CUB4PI	GEM-401	4TM-P1	
C23	10000	1400		21R124832	DAC-27	DD18-103	HVE16S1	2HV-110	20HKB-S1	
C24	5000	2000		21R120093		DD30-502	HVC20D5		20HKB-D5	
C25	.25	100		8K122045	P288N-25		CUB2P25	GEM-4025	2TM-P25	
C26	.25	100		8K124570	P288N-25		CUB2P25	GEM-4025	2TM-P25	
C27	470	2000		21R121478	HVD-30-470	DD30-47I	HVB20T47	2HV-347	20GA-T47	
C28	2.7		NPO ± .25mmf	21R125699					5TCCB-V27S ± .25mmf*	
C29	.1	400		8R121006	P488N-1	DF-104	CUB4PI	GEM-401	4TM-P1	
C30	1000			21A121678	BPD-001	DD-102	BYA10D1M	B-210	5HK-DI	
C31	.75			21K735623						
C32	5000			21K738298	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C33	5000			21K738298	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C34	5000			21K738298	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C35	18		N150 10%	21R120578						
C36	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C37	150			21K745777	BPD-00015	DD-15I	LI0T15	JL-315	5GA-T15	
C38	5000			21K738298	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C39	5000			21K738298	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C40	2200			21K121882	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C41	220			21R410115	BPD-00022	DD-22I	LI0T22	B-322	5GA-T22	⑤
C42	1500		10%	21K122498	DI-1500			JL-215	5HK-D15S 10%*	⑥
C43	5000	2000		21R121093		DD30-502	HVC20D5		20HK-D5	
C44	.02	600		8R122079	P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C45	.015	200		8K735821	P288N-015	DD18-153	CUB6S15	GEM-6115	6TM-S15	
C46	.007	200		8K741231	P288N-007	DD18-702	CUB16D7	GEM-627	MB-D7	
C47	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C48	.01	600		8R122285	P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C49	.05	600		8R122288	P688N-05	DF-503	CUB6S5	GEM-615	6TM-S5	
C50	.05	200		8R121005	P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C51	.02	600		8R122079	P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C52	20000			21B741862	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	

MOTOROLA CHASSIS NTS-544, QTS-544, RTS-544, RTS-544Y, STS-544, STS-544Y, TR-3, TR-4 TR-89

FOLDER 1

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLOY PART No.	SPRAGUE PART No.	
C53	.05	400		8R121567	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C54	.05	200		8R121005	P288N-05	DF-503	CUB2S5	GEM-415	2TM-S5	
C55	.02	200		8R121003	P288N-02	DD-203	CUB2S2	GEM-412	2TM-S2	
C56	.0039	400		8K125942	P488N-004	D6-402	CUB6D4	GEM-624	6TM-D4	
C57	82		N750 10%	21R128698		TCN-82	C10Q82U	JL-482		
C58	680		10%	21K736046	1464-00068	MD-681	1R5T88	MS-368	5GA-T39S 10% *	
C59	390		10%	21K748364	DI-390	MD-390	L10T39	56K-D5	4TM-P1	
C60	5000			21R115312	BPD-005	DD-502	BYA10D5	B-250	4TM-P1	
C61	.1	400		8R121006	P488N-1	DF-104	CUB4P1	GEM-401	6TM-P1	
C62	.1	600		8R121869	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C63	.1	600		8R121869	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C64	.05	1000		8R121870	P1088N-05	DD30-502	CUB10S5	GEM-1015	10TM-S5	
C65	180	3000	10%	21R129124				30GAB-T18S 10% *		
C66	180	3000	10%	21R129124				30GAB-T18S 10% *		
C67	1000			21R115386	BPD-001	DD-102	BYA10D1M	B-210	5HK-D5	
C68	10000	1400		21R124832	DAC-27	DD-103	HVE16SI	2HY-110	20HKB-SI	
C69	82	2000	10%	21R120150				20GA-Q62S 10% *		

① Chassis Coded A01, A02 use 10mmf in this application (Part #21R128086).

② Some versions may use 4.7mmf in this application.

③ Not used in some versions.

④ Some versions may use 47mmf in this application (Part #21R115593).

⑤ Some versions may use component combination (4700mmf, 220mmf, 3300mmf and 68K) in this application (Part #51K748483).

Chassis QTS-544 uses component combination (220mmf, 3300mmf and 68K) (Part #51K748482).

⑥ Chassis Coded A00 use 150mmf in this application (Part #21R125422).

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

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLOY PART No.	
R1A	250Ω	$\frac{1}{2}$	18K748008				UE3965-S	Contrast, ①
R2A	1meg	$\frac{1}{2}$	18K749387	B-70	A47-1meg-Z	Q13-137	U53	Volume, Tap @ 1.5meg, ①
R3A	250K	$\frac{1}{2}$	18K748870	Not Req.	KSS-3	Not Req.	TA254L †	On-Off
R4A	2meg	$\frac{1}{2}$	18K748948		B47-250K-S†	BL-130 †	TA254L †	Brightness, Stop @ 125K, ③
R5A	4meg	$\frac{1}{2}$	18K743524	AB-86	Not Req.	BL-139	TA28L	Vert. Hold, ④
R6A	2meg	$\frac{1}{2}$	18K743523	AB-75	A47-4meg-S	Q11-141	PTA56L	Vert. Size
R7A	70K	$\frac{1}{2}$	18K748235	AK-19	Not Req.	Q11-139	PTA26L	Vert. Lin.
R8A	5000Ω	2(WW)	17B746869	AK-19	B47-2meg-S	Q11-125	PTA15L	Horiz. Hold
R9A	5000Ω			AK-19	A47-75K-S	Q11-125	PTA15L	Horiz. Size
R10A	5000Ω			AK-19	RN-13	Not Req.	FL5K	
R11A	5000Ω			AK-19	A45-5000	TQ	Not Req.	

Note 1. Chassis NTS & QTS-544 use Part #18K748914.

Note 2. Not used in chassis QTS-544. Some versions may use Part #18K738148.

Note 3. Chassis NTS & STS-544 use Part #18K748234.

Note 4. Chassis NTS & STS-544 use Part #18K739556.

† Use 125K resistor in series with left hand terminal.

■ "STA-LOC" Equivalent: FA251L, OSI1000, 26T1254.

RESISTORS

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

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R10	2200Ω		6R8069	
R11	1000Ω		6K127960	
R12	8200Ω	3	17K738283	
R13	47Ω		6K127542	
R14	8200Ω		6K119931	
R15	1000Ω		6K127960	
R16	8200Ω	3	17K738283	
R17	47Ω		6K127542	
R18	680K		6K128229	
R19	1000Ω		6K127960	
R20	15K		6K119834	
R21	8200Ω	3	17K378283	
R22	47K	1	6K121299	Note 1
R23	120Ω		6K128226	
R24	47K		6K121299	
R25	3900Ω		6K121931	
R26	220K		6K122322	
R27	1000Ω		6R6054	
R28	100K		6K122313	
R29	820K		6K128230	
R30	2.2meg		6K127001	
R31	15meg 5%		6K125681	
R32	33K		6K127000	
R33	18K		6K127632	
R34	5600Ω	10	6K122848	
R35	47K	4	17K747879	
R36	4700Ω		17K743157	
R37	47K		6K121847	
R38	220Ω		6K121299	
R39	1000Ω		6K127960	
R40	390K		6R5646	
R41	220K		6K125471	
R42	22K	2	6R5069	
R43	560Ω		6R400058	
R44	82K		6K125179	
R45	560K		6K128228	
R46	120K		6K127540	Note 2
R47	470Ω	2	6K125146	

Note 1. Not used in some versions.

Note 2. Some versions may use component combination (4700mmf, 220mmf, 3300mmf and 68K) (Part #51K748483).

Chassis QTS-544 uses component combination (220mmf, 3300mmf, and 68K) (Part #51K748482).

Note 3. Chassis Coded A00, A01 use 10K 3W in this application (Part #17K744464).

Note 4. Not used in chassis Coded A.

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Video Coupling	4700mmf, 68K	Note 1	Sprague PRC-6
K2	Sync Input	27mmf, 220mmf, 2000mmf, 56K, 66K, 470K, 560K, 3.3meg	51B747693	Sprague HN-5
K3	Sync Output	2000mmf, 3300mmf, 4700mmf, 2200Ω, 2200Ω, 27K, 180K	51B747379	Sprague VF-3
K4	Horiz. AFC	1000mmf, 1000mmf, 3300mmf, 100K, 100K, 4.7meg	51B747561	Sprague F-4

Note 1. Not used in chassis coded A or B00. Some versions may use individual components.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	47.25MC Trap	24C747584	20-1049	TV-153 *			Includes M4 10 Microhenries 10 Microhenries 100 Microhenries, wound on 5600Ω resistor 180 Microhenries
L2	39.75MC Trap	24K747583	20-1044 ▲	TV-152			
L3A	1st Video IF	24K747586					
L4	47.25MC Trap	24K747585	20-1049	TV-153 *			
L5	Fil. Choke	24K743875	19-1001	BC-562	4604	VF-3	
L6	2nd Video IF	24K747587	17-4522	TV-130	6219	VF-3	
L7	3rd Video IF	24K747587	17-4522	TV-130	6219		
L8	4th Video IF	24K747589					
L9	Resonant Choke	24K733225					
L10	Resonant Choke	24K733225					
L11	Series Peaking Coil	24K744411	19-3100 ◆	TV-181 ◆	6112 ◆	VP-3 ◆	
L12	Shunt Peaking Coil	24D736006	19-3180	TV-184	6180	VP-5	330 Microhenries, wound on 5600Ω resistor 400 Microhenries 1400 Microhenries, wound on 2700Ω resistor 8.5 Microhenries 7.5 Microhenries ① Tapped @ 1.4Ω
L13	4.5MC Trap	24K739290	20-1004	TV-151	1469 *	SF-3	
L14	Series Peaking Coil	24K746871	19-3300 ◆	TV-200 ◆	6132 ◆	VP-7 ◆	
L15	Shunt Peaking Coil	24K744410	19-4400	TV-202	6136		
L16	Shunt Peaking Coil	24K743340					
L17	Resonant Choke	24R119889					
L18	Resonant Choke	24K743727					
L19	1st Sound IF	24B743463					
L20	2nd Sound IF	24B738943	17-3495 ■	TV-113 ■	6203 ■	SF-2 ■	
L21	Quadrature Coil	24K749031					
L22	RF Choke	24B747171			4611		7.5 Microhenries
L23	RF Choke	24B747171			4611		7.5 Microhenries

* Disregard Tap.

① IRC Part #CLA.

▲ Use original cap. C6.

■ Disconnect C35 (18mmf).

♦ Parallel with 5600Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L24	40Ω		24K743426	19-1576 *	TV-165 *	6210 *	H-102 *	HS-5 *	Horiz. Freq. * Enlarge mounting hole. ■ Disregard tap.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 Hz)	MOTOROLA PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.
L25	.270A	27Ω	1 H.	25K746803	C5041	C-2896	F-801	C-2328	26C92 C-23X

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1.8A	560VCT @ .270A	5V @ 3A	25D745778						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 9.5A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		MOTOROLA PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Output Yoke (Horiz. 24MH) (90°) (Vert. 39MH)	25K744974	Z1803 ①	A-2853 ②	V309 ①	V026 ①	VO-100 ②	26S51 ①	A-102X
T3	Alternate Yoke Rear Cover & Centering Device Yoke Clamp	24D743785	DF-610 ③④⑤⑦	MDF-97 ③④⑤⑦		MY-3 ③④⑤		Y-15 ③④⑤⑦	Y-45-2 ③
T4	Horiz. Output Primary Coil Secondary Coil	24K744322							YC-1
		59C721145							CL-1
		42A736175							
		42A736257							
		24K748397							
		24K748398							
		24K745108							

① Connect as autotransformer.

② Tape blanking lens.

③ Use original pincushion magnet assembly.

④ Connect same as original.

⑤ Remove jumper between vertical and horizontal windings.

⑥ Use original damping network, if necessary.

⑦ Use original rear cover and centering device.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	Holldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	4600Ω	6-8Ω	25K749230 ①	Z1002	A-2901	AU-804	A-2203	24S64	S-53X	
	5000Ω	3-4Ω	25K743211 ②	Z1002	A-3019	AU-600	A-3337	26S49	S-5Z	

① Used in Chassis Coded B and higher.

② Used in Chassis Coded A.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	8"	PM	6-8Ω	50K745276 ①	8A31Z6. 7 ①	① Connect in parallel and phase. ② Replacement Part #50K744704. ③ Replacement Part #50K740279. ④ Replacement Part #50K744707. ⑤ Replacement Part #50D739234. ⑥ Replacement Part #50B634504. ⑦ Replacement Part #50C838897.
SP2	4"	PM	14-16Ω	50K744708 ①	4A15Z15. 2 ①	
	8"	PM	8Ω	50K749189		
	8"	PM	3-4Ω	50K748609 ②		
	8"	PM	8Ω	50K749188		
	6" x 9"	PM	3-4Ω	50K748734 ③		
	6" x 9"	PM	3-4Ω	50K749104 ④		
	6" x 9"	PM	8Ω	50K749196		
	6" x 9"	PM	16Ω	50K749195		
	6"	PM	3-4Ω	50K748866		
	5 1/4"	PM	3-4Ω	50K748865 ⑤		
	4"	PM	6-8Ω	50K744708	⑥	
	4"	PM	3-4Ω	50K748864		
4"	PM	3-4Ω	50K748863 ⑦			
4"	PM	3-4Ω	50K748 610			
4"	PM	8Ω	50K749193			
4"	PM	16Ω	50K749190			