

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. On some models it is necessary to remove the trim cover over the knobs by prying it off. Set the fine tuning to the center of its range. The adjustments are located in a circle around the shaft and should be adjusted in sequence from the highest to the lowest channel operating in the area. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove the on-off-volume and contrast knobs. Remove the knob cover by prying it off. Remove the channel selector and fine tuning knobs. Remove 3 screws holding the side knob cover. Remove 4 screws holding the safety glass retainer. Remove the safety glass.

SPECIAL ADJUSTMENTS

- A. AGC
Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.
- B. 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 1 or 6 and 10. Readjust the ion trap for the best focus consistent with maximum brightness.
- C. Width
The width may be varied by means of a metallic sleeve lo-

cated between the yoke and the picture tube neck. Adjust sleeve in or out of the yoke for a picture SLIGHTLY larger than necessary to fill the screen.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, 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.

FUSES

Three fuses are used. One for horizontal sweep circuit protection, one for LV power supply protection and one for filament protection. (For location, see tube placement chart).

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.

PINCUSHION CORRECTION

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

FOLDER 2

MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544, WTS-544Y



MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544, WTS-544Y

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove the on-off-volume and contrast knobs.
2. Remove the trim covering the channel selector and fine tuning knobs by prying it off. Remove these knobs.
3. Remove 3 screws holding the side trim panel. Remove 3 knobs now accessible.
4. Remove 8 wood screws from the rear cover. Remove the rear cover.
5. Remove the speaker leads, control plug, and remote receiver plug.
6. Remove 2 screws from the top chassis support bracket.
7. Remove 4 chassis bolts from the bottom.
8. Remove the chassis.
9. Remove 2 hex nuts from the front holding the controls. Remove 2 screws from the inside of the cabinet holding the control panel. Remove the control panel.
10. Remove 2 screws and 2 bolts holding the remote receiver. Remove the remote receiver chassis.



MODEL 21K80CWA (CH. TS-544)

MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544, WTS-544Y

TRADE NAME	Motorola	MODELS	CHASSIS
		21F8B, BA, W, WA, 21K73B, M, 21K75B, CW, M, 21K76B, CW, M, 21K77B, M, 21K80CW, CWA, 21T40BG, MG, 21T42B, M, 21V1W, WA	TS-544
		Y21F8B, BA, W, WA, Y21K73B, BA, M, MA, Y21K75B, BA, CW, CWA, M, MA, Y21K76B, BA, CW, CWA, M, MA, Y21K77B, M, Y21K80CW, CWA, Y21T40BG, BGA, MG, MGA, Y21T42B, BA, M, MA, Y21V1W, WA	TS-544Y
		21K81B, M	WTS-544
		Y21K81B, M	WTS-544Y
		Remote Control Receiver	Model TR-89R
		Remote Control Transmitter	Model TR-89T
MANUFACTURER	Motorola, Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois		
TYPE SET	Television Receiver with Remote Control		
TUBES	TV - Nineteen, Remote Control - Four, One Transistor		
POWER SUPPLY	TV & Remote Control Receiver 110-120 Volts AC, 60 Cycles RATING 225 Watts, 2 Amp. @117 Volts AC		
	Remote Control Transmitter 22.5 Volt "A" Supply		
TUNING RANGE	TV Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		
	Remote Control 38.5KC & 41.25KC		

SOME MODELS USE MOTOROLA RECORD CHANGER #VMI3RC. FOR SERVICE INFORMATION SEE SIMILAR UNIT IN PHOTOFACT SET 353 - FOLDER 16.

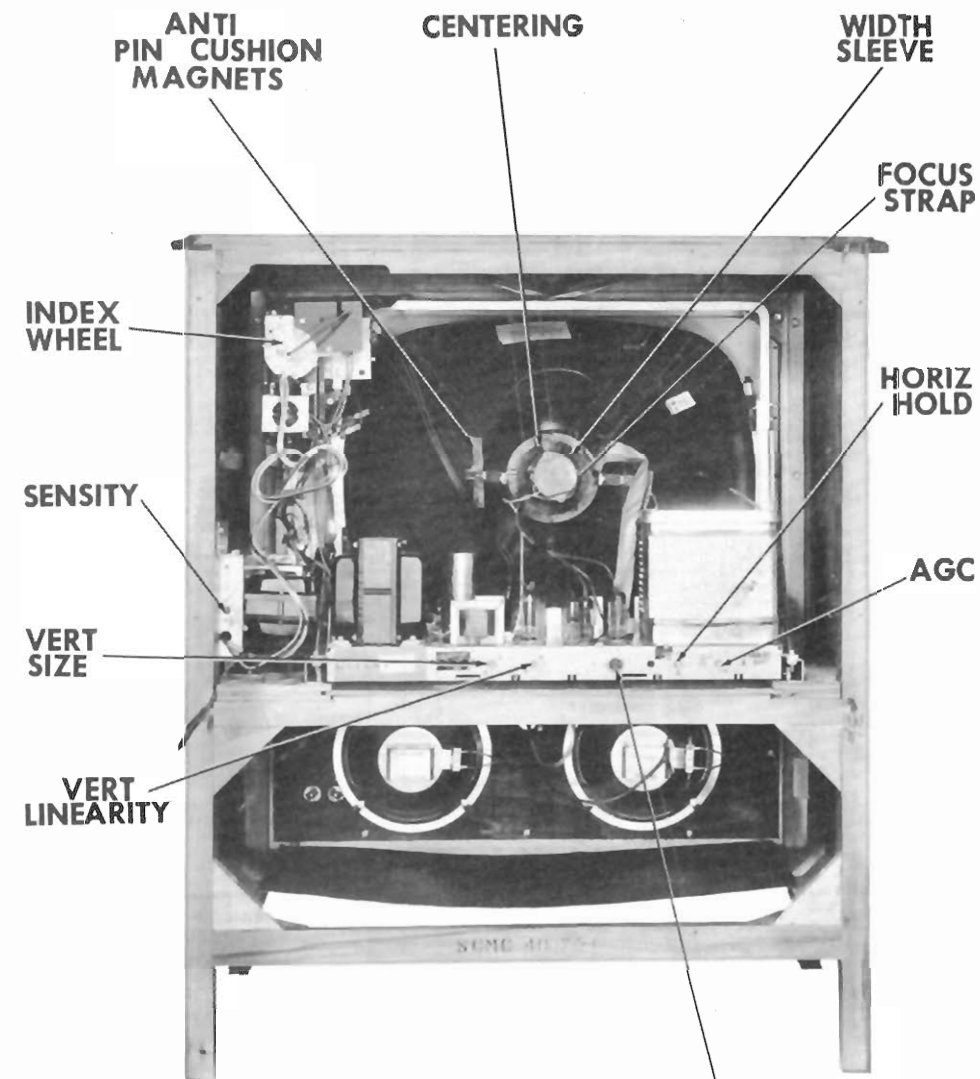
FOR "SERVICING IN THE FIELD" SEE PAGE 28.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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 H365

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

FOLDER 2



TP1	-.6V	1ST VIDEO F GRID	TP7	5	
TP2	-.1V	VIDEO DET	TP4	2	1 TP3
TP3	-.6V	AGC	TP5	3	4 TP6
TP4	210V	HORIZ OSC			
TP5	0V	GROUND			
TP6	-.1V	HORIZ AFC			
TP7	250V	B+			

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

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.

Remove the capacitor from TP4 and adjust the horizontal frequency slug (BI) to the point where the picture is almost stable horizontally.

Short out the AFC voltage by connecting a clip lead from TP3 to chassis. Connect a .1mf, 400 volt capacitor from TP4 to chassis.

Remove the clip lead from TP3 and chassis. Adjust the horizontal hold control until the picture is synchronized horizontally.

Adjust horizontal hold to the point where the picture is almost stable horizontally.

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. On some models it is necessary to remove the trim cover over the knobs by prying it off. Set the fine tuning to the center of its range. The adjustments are located in a circle around the shaft and should be adjusted in sequence from the highest to the lowest channel operating in the area. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove the on-off-volume and contrast knobs. Remove the knob cover by prying it off. Remove the channel selector and fine tuning knobs. Remove 3 screws holding the side knob cover. Remove 4 screws holding the safety glass retainer. Remove the safety glass.

SPECIAL ADJUSTMENTS

A. AGC

Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. 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 1 or 6 and 10. Readjust the ion trap for the best focus consistent with maximum brightness.

C. Width

The width may be varied by means of a metallic sleeve lo-

cated between the yoke and the picture tube neck. Adjust sleeve in or out of the yoke for a picture SLIGHTLY larger than necessary to fill the screen.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, 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 (BI) until the picture synchronizes horizontally.

FUSES

Three fuses are used. One for horizontal sweep circuit protection, one for LV power supply protection and one for filament protection. (For location, see tube placement chart).

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.

PINCUSHION CORRECTION

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

FOLDER 2

PHOTOFACT

DISASSEMBLY

CHASSIS REMOVAL

1. Remove the on-off
2. Remove the trim tuning knobs by pry
3. Remove 3 screws knobs now accessibl
4. Remove 8 wood s rear cover.
5. Remove the speal elver plug.
5. Remove 2 screws
7. Remove 4 chassi
8. Remove the chas
9. Remove 2 hex nut Remove 2 screws fr control panel. Rem
10. Remove 2 screw Remove the remote

MOTOROLA CHASSIS TS-544, TS-544Y, WTS-544, WTS-544Y

TRADE NAME

MANUFACTURER

TYPE SET

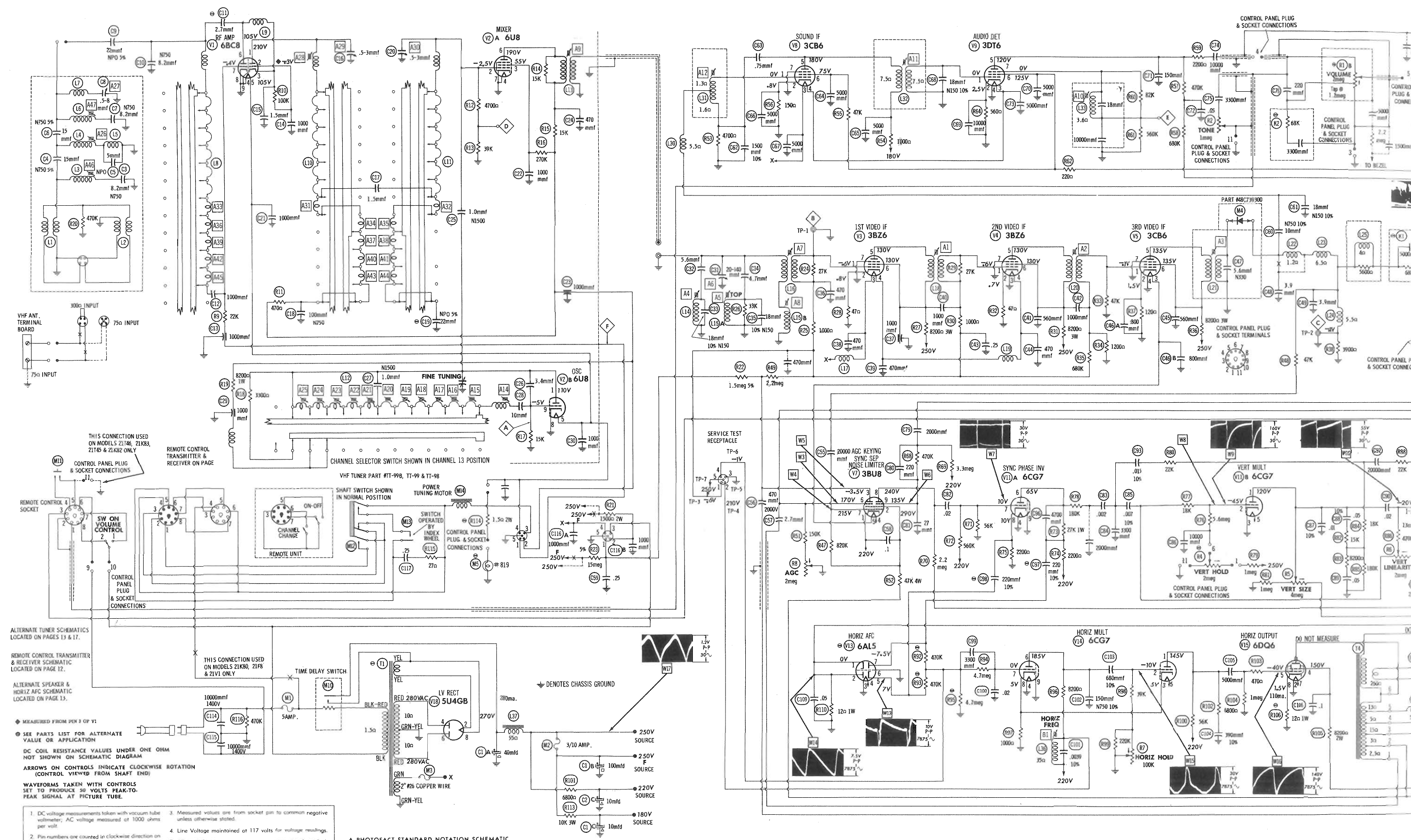
TUBES

POWER SUPPLY

TUNING RANGE

SOME MODELS
UNIT IN PHOTO

FOLDER 2

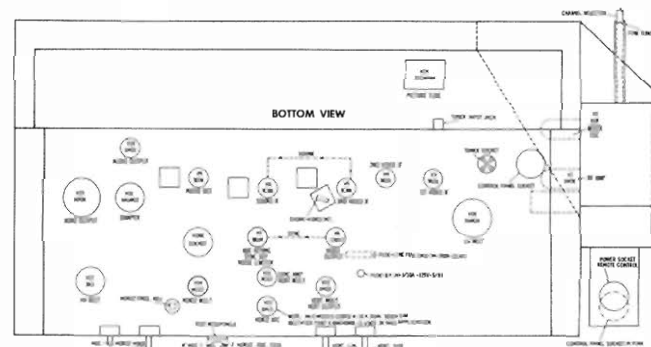
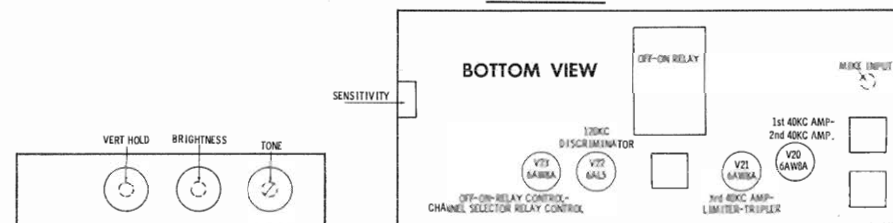


RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB8	†2000Ω	1NF	1NF	0Ω	.1Ω	1NF	4meg	0Ω	0Ω
V2	6U8	†13K	44K	†280K	0Ω	.1Ω	†28K	0Ω	0Ω	15K
V3	3BZ6	680K	47Ω	.1Ω	.2Ω	†8200Ω	†8200Ω	0Ω		
V4	3BZ6	680K	47Ω	0Ω	.2Ω	†8200Ω	†8200Ω	0Ω		
V5	3CB6	1100Ω	120Ω	.1Ω	0Ω	†8200Ω	†8200Ω	0Ω		
V6	12BY7A	• 160Ω	72K	0Ω	.1Ω	.1Ω	0Ω	†5600Ω	†10K	0Ω
V7	3BU8	†6800Ω	†47K	2.4meg	.1Ω	.2Ω	†38K	†870K	†2.4meg	†3.8meg
V8	3CB6	4700Ω	150Ω	.1Ω	.2Ω	†11K	†70K	0Ω		
V9	3DT6	7.5Ω	560Ω	.2Ω	0Ω	†1.3meg	†22K	560K		
V10	6AQ5	0Ω	330Ω	.1Ω	0Ω	†1100Ω	†570Ω	0Ω		
V11	6CG7	• †2meg	1.2meg	0Ω	0Ω	.1Ω	†35K	56K	2200Ω	0Ω
V12	6AQ5	• 1.1meg	0Ω	0Ω	.1Ω	†625Ω	†150Ω	• 1.1meg		
V13	6AL5	12Ω	12Ω	0Ω	.1Ω	5.2meg	0Ω	5.2meg		
V14	6CG7	†63K	• 70K	1000Ω	0Ω	.1Ω	†15K	9.5meg	1000Ω	0Ω
V15	6DQ6	TP	0Ω	NC	†8200Ω	1meg	TP	.1Ω	12Ω	TOP CAP †18Ω
V16	6AU4GT	NC	TP	†	NC	†5Ω	TP	.1Ω	0Ω	TOP CAP †278Ω
V17	3A3		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			
V18	5U4GB	NC	†	NC	10Ω	NC	10Ω	NC	†	
V19	21CBP4A	0Ω	78K	PIN 6 †330K	PIN 10 †330K	PIN 11 • 220K	PIN 12 .1Ω			
V20	6AW8A	1200Ω	45Ω	††190K	.1Ω	0Ω	82Ω	2.2meg	††100K	††9000Ω
V21	6AW8A	82Ω	2.2meg	††185K	.1Ω	0Ω	470Ω	470K	††38K	††4900Ω
V22	6AL5	2.2meg	4.4meg	0Ω	.1Ω	2.2meg	0Ω	4.4meg		
V23	6AW8A	0Ω	2.8meg	††4400Ω	0Ω	.1Ω	0Ω	2.8meg	††8200Ω	††5200Ω
X1	Transistor Type 2N270	RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.								

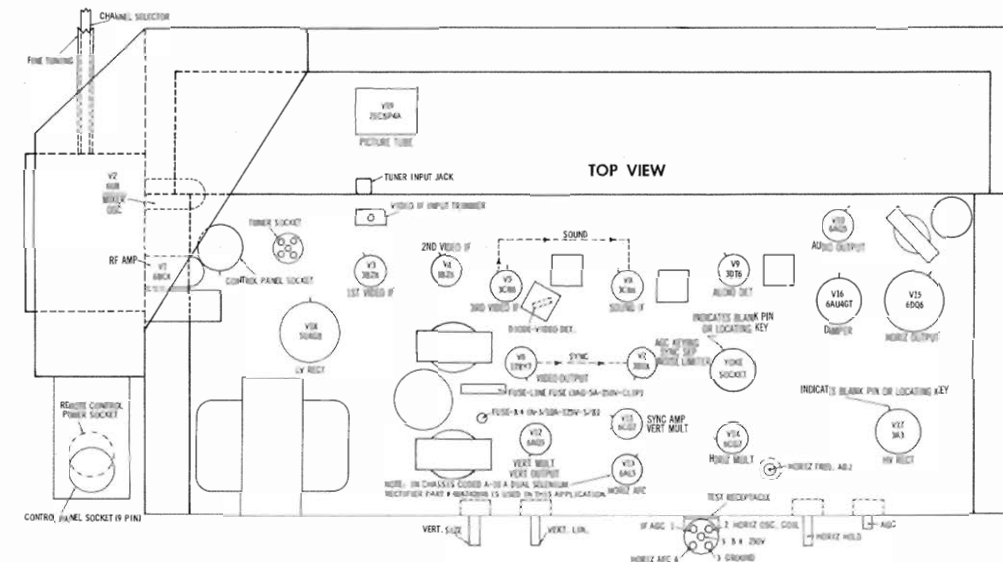
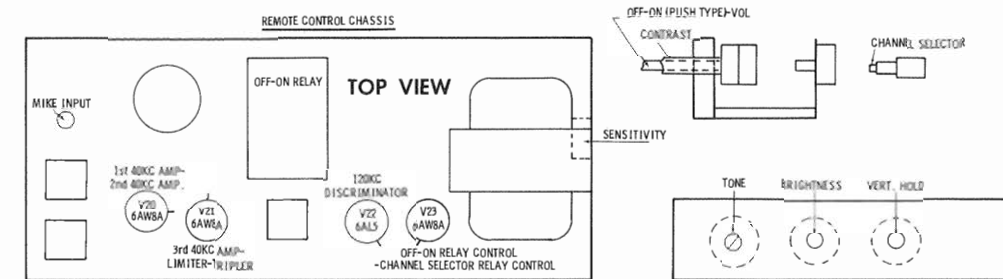
† THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE
ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT. † MEASURED FROM PIN 3 OF V16.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION. †† MEASURED FROM 400V SOURCE.
† MEASURED FROM 250V SOURCE. NC NO CONNECTION.
TP TIE POINT.

REMOTE CONTROL CHASSIS



TUBE PLACEMENT CHART

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - Fuse (M1, M2, M3), Delay Switch (M10), V18

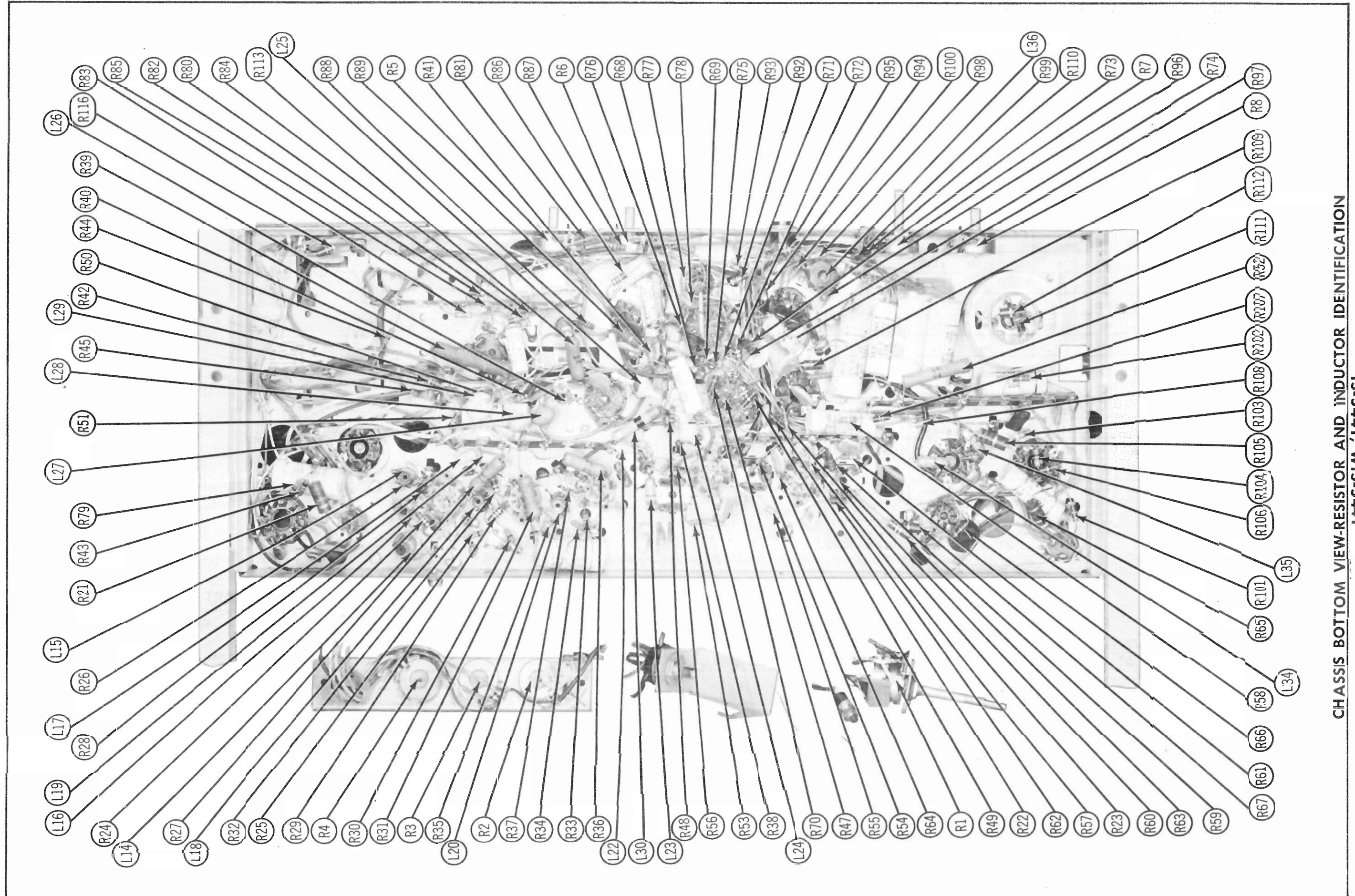
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, V5, Diode (M4)
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V19
Has pic, no sound - V8, V9, V10
Overloaded picture - V7

SYNC FAILURE
No vert. sync - V7, V11
No horiz. sync - V7, V11, V13
No vert. or horiz. sync - V7, V11

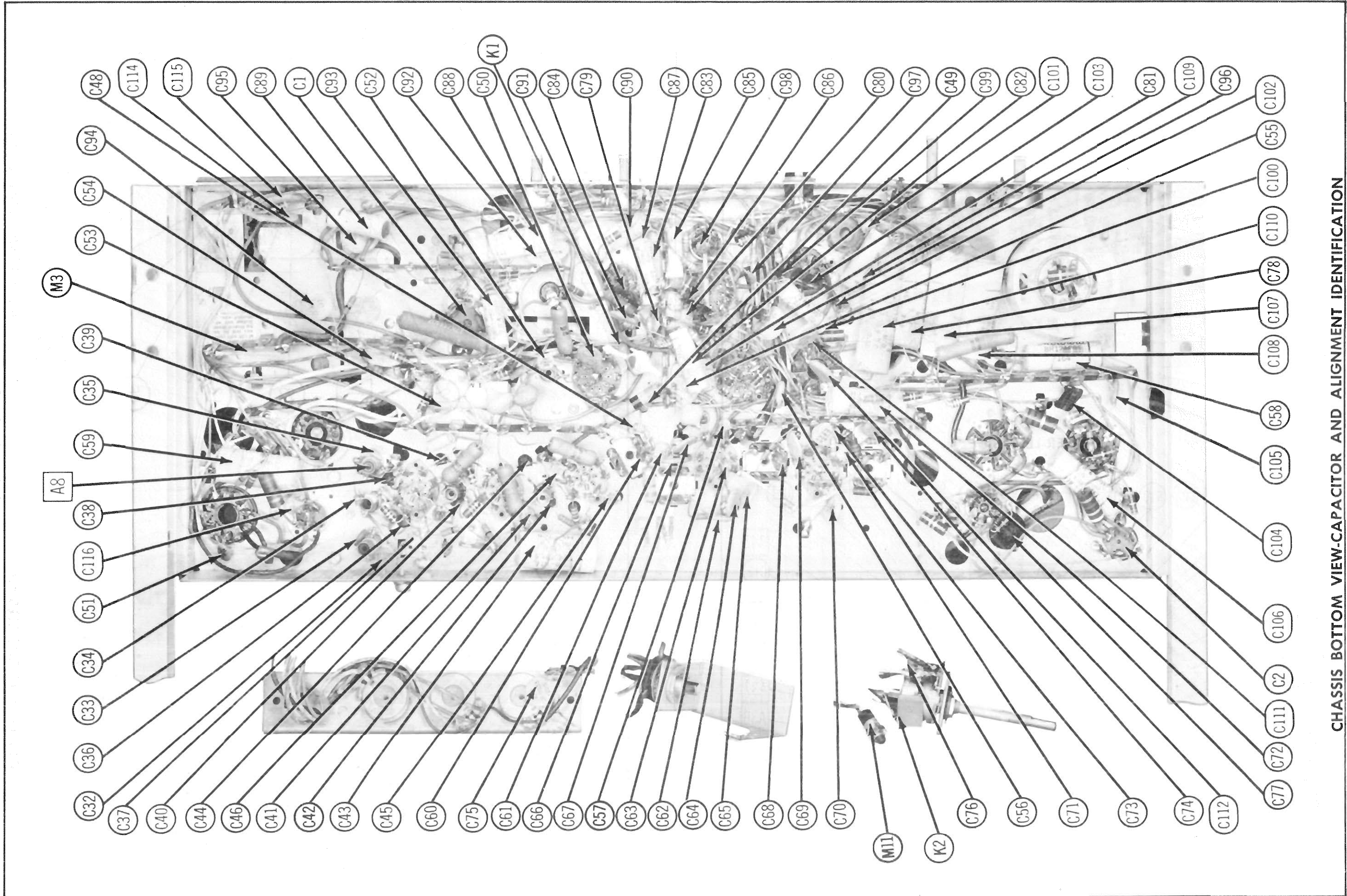
SWEEP FAILURE
No raster, has sound - V13, V14, V15, V16, V17, V19
No vertical deflection - V11, V12
Poor vert. linearity or foldover - V11, V12
Poor horiz. linearity or foldover - V14, V15, V16
Narrow picture - V14, V15, V16, V18
Vert. off freq. - V11, V12
Horiz. off freq. - V14

MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544Y

FOLDER 2



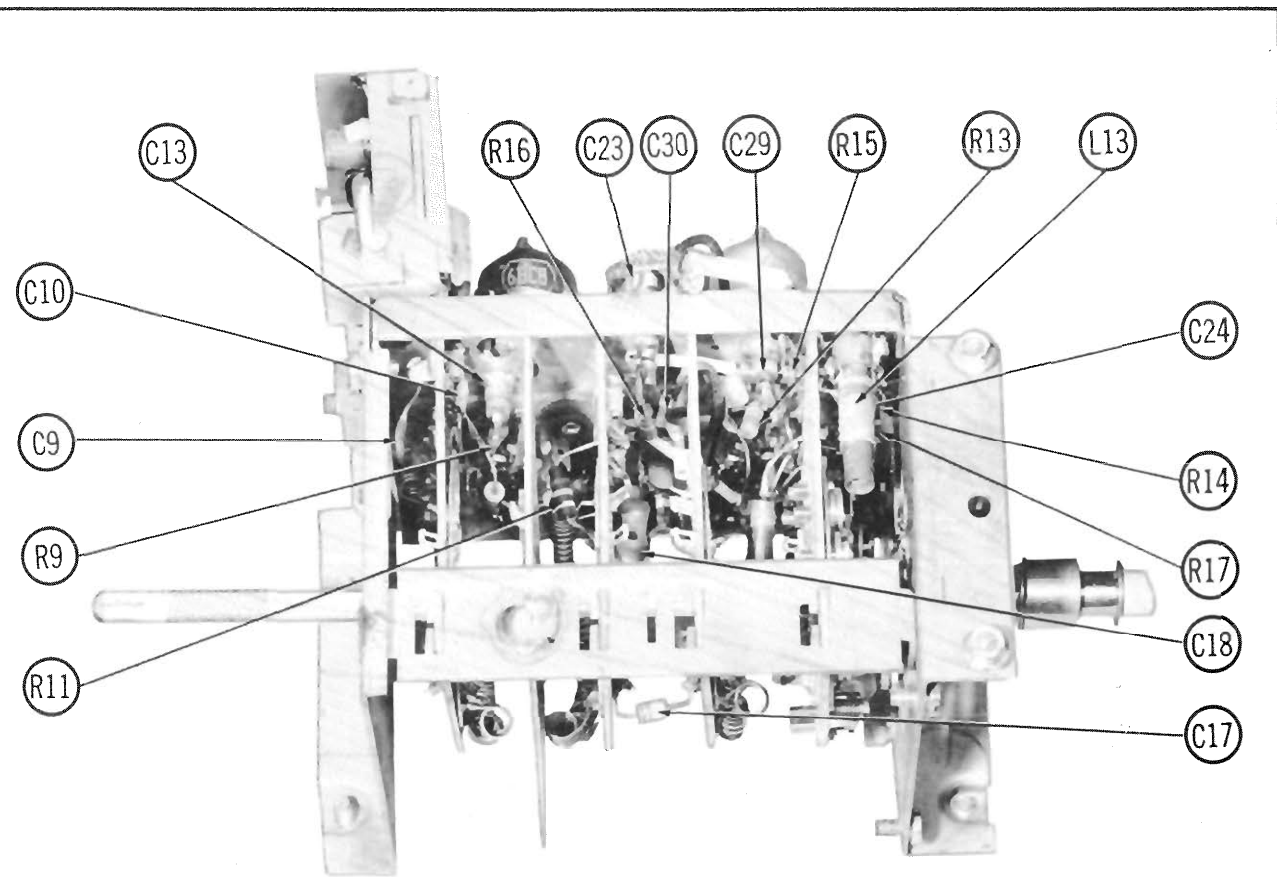
MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544Y
CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



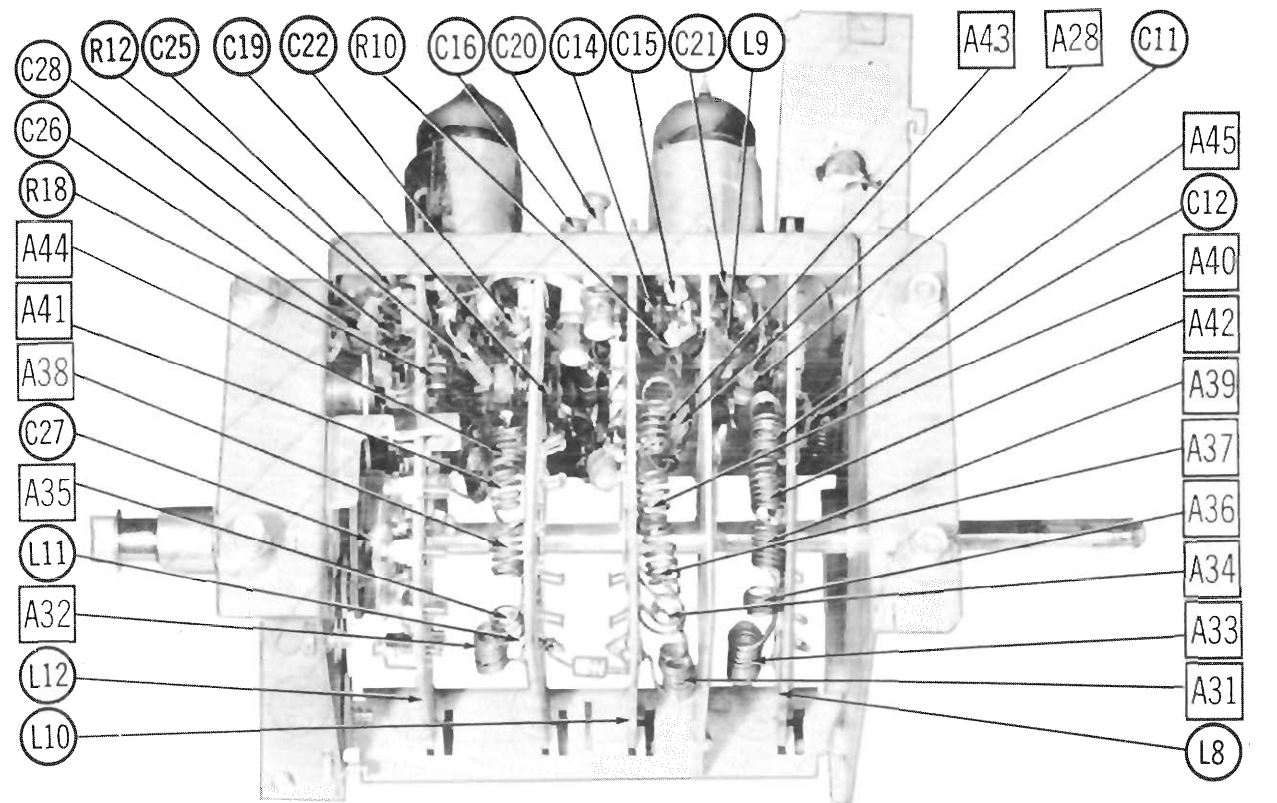
MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544Y

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

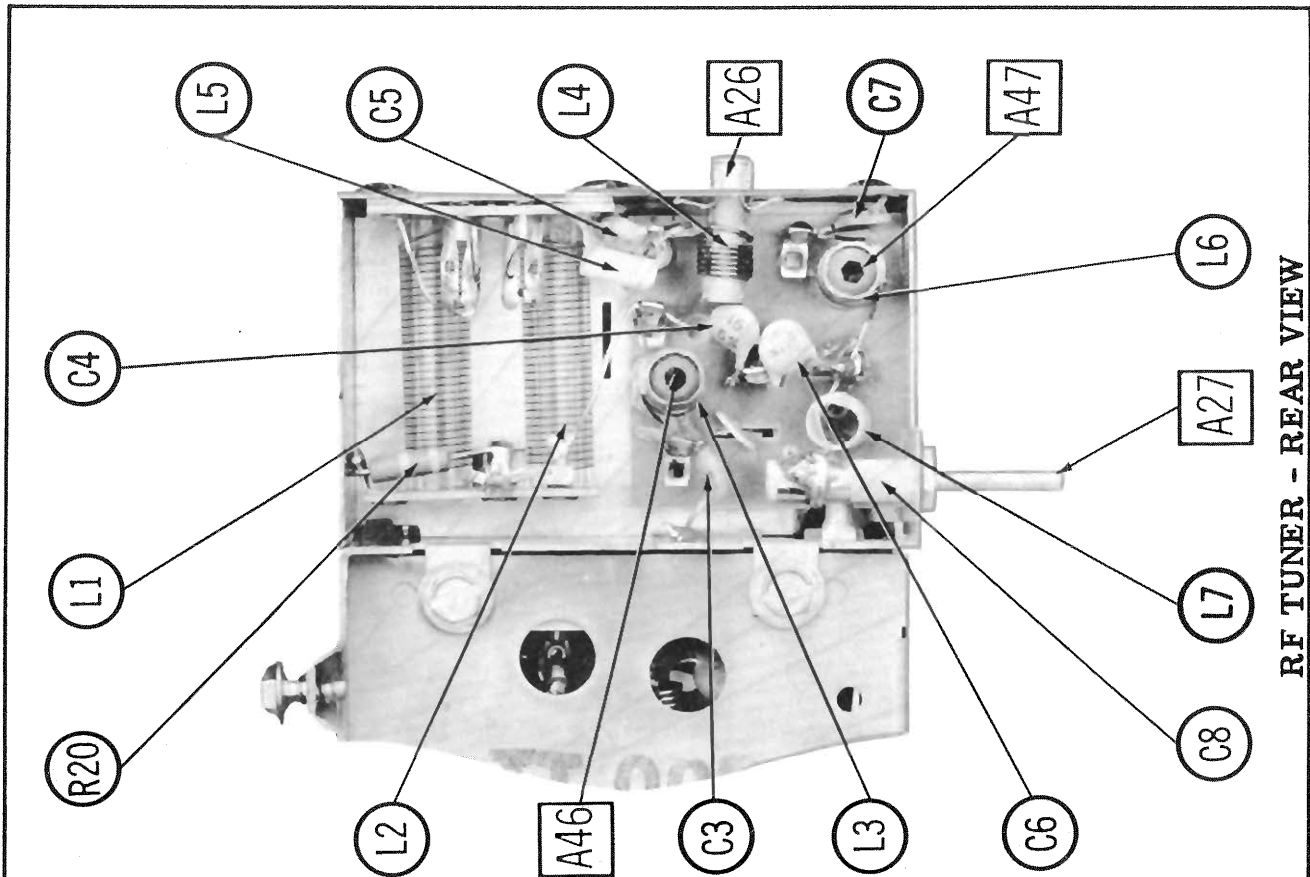
FOLDER 2



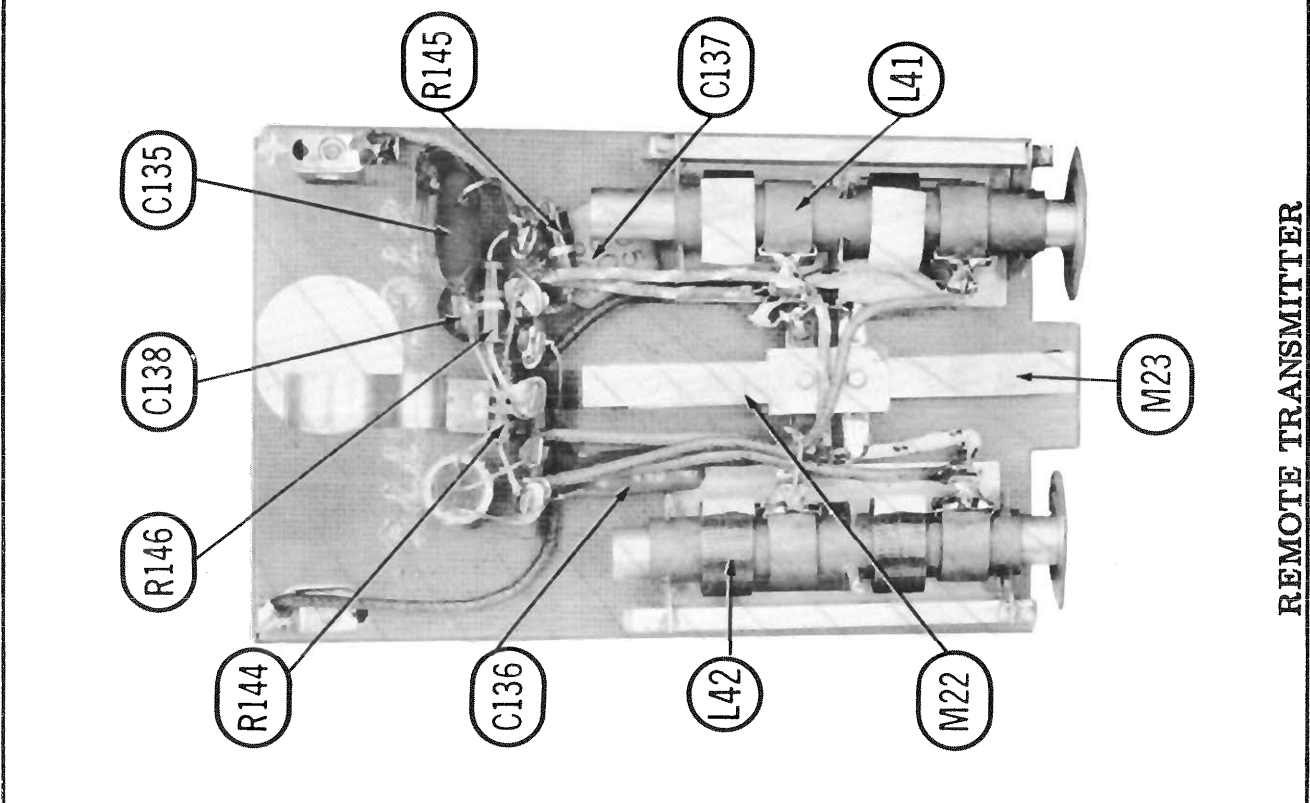
TUNER-LEFT SIDE



TUNER-RIGHT SIDE

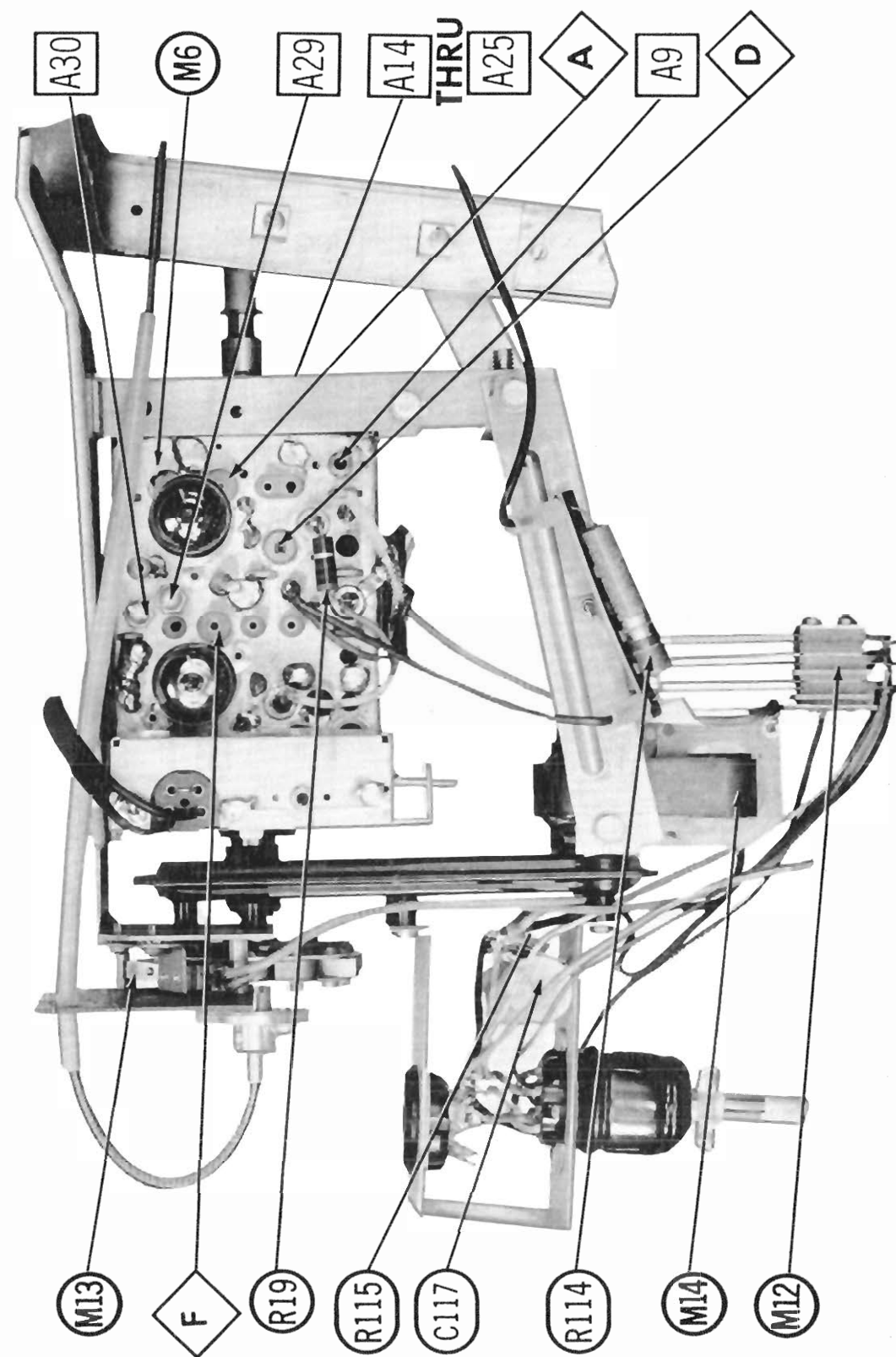


RF TUNER - REAR VIEW

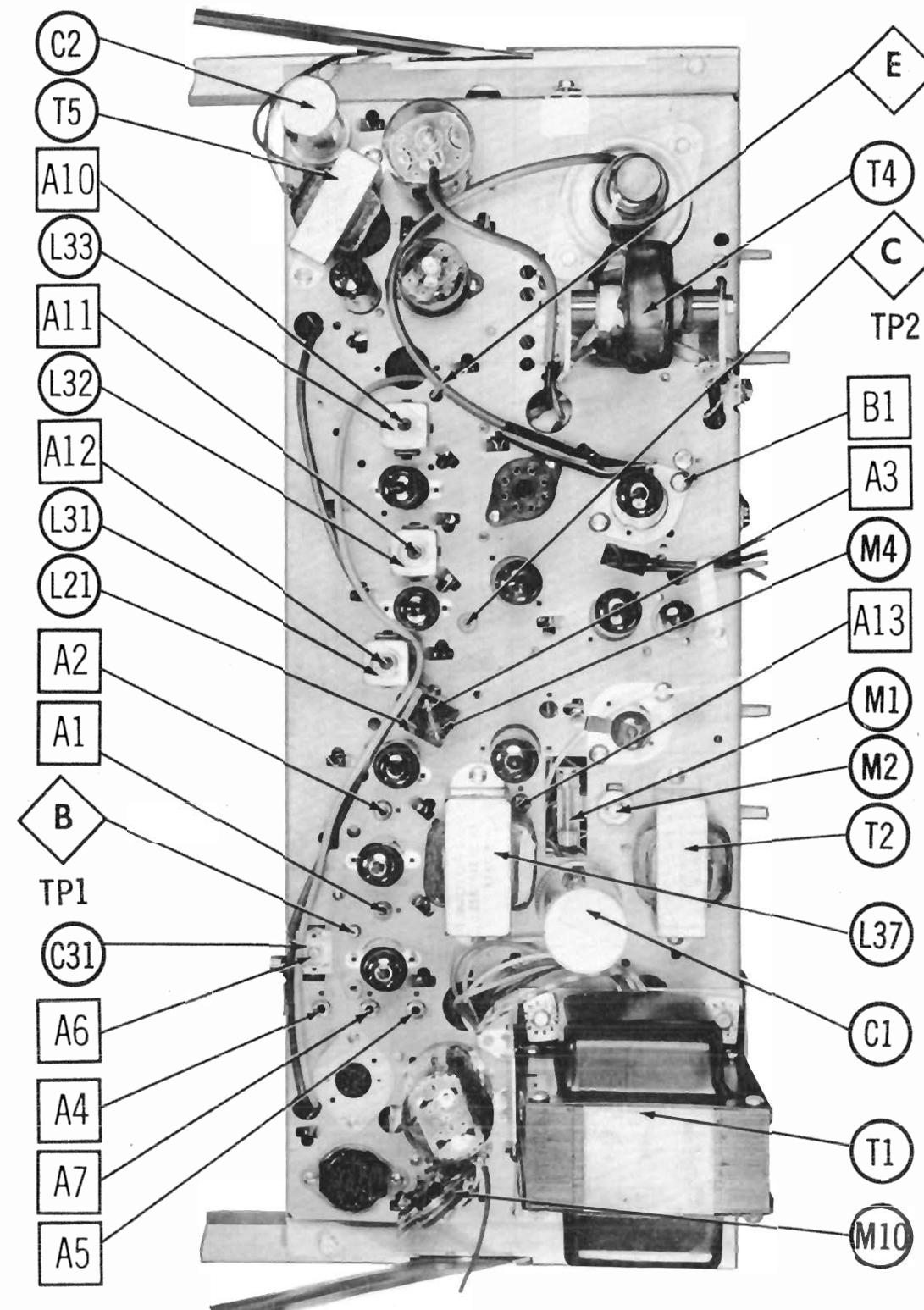


REMOTE TRANSMITTER

MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544Y



TUNER ASSEMBLY - TOP VIEW

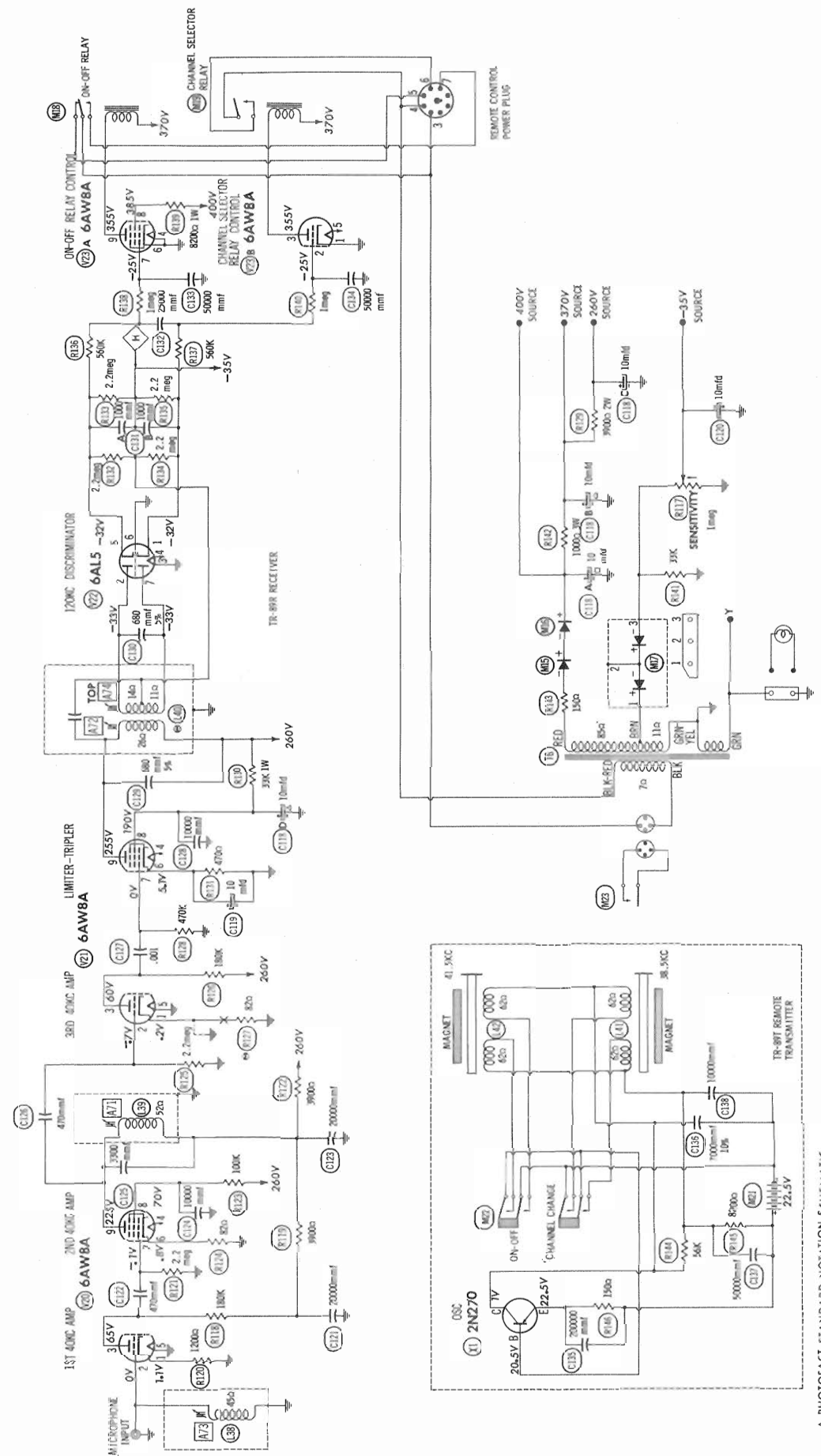


CHASSIS TOP VIEW

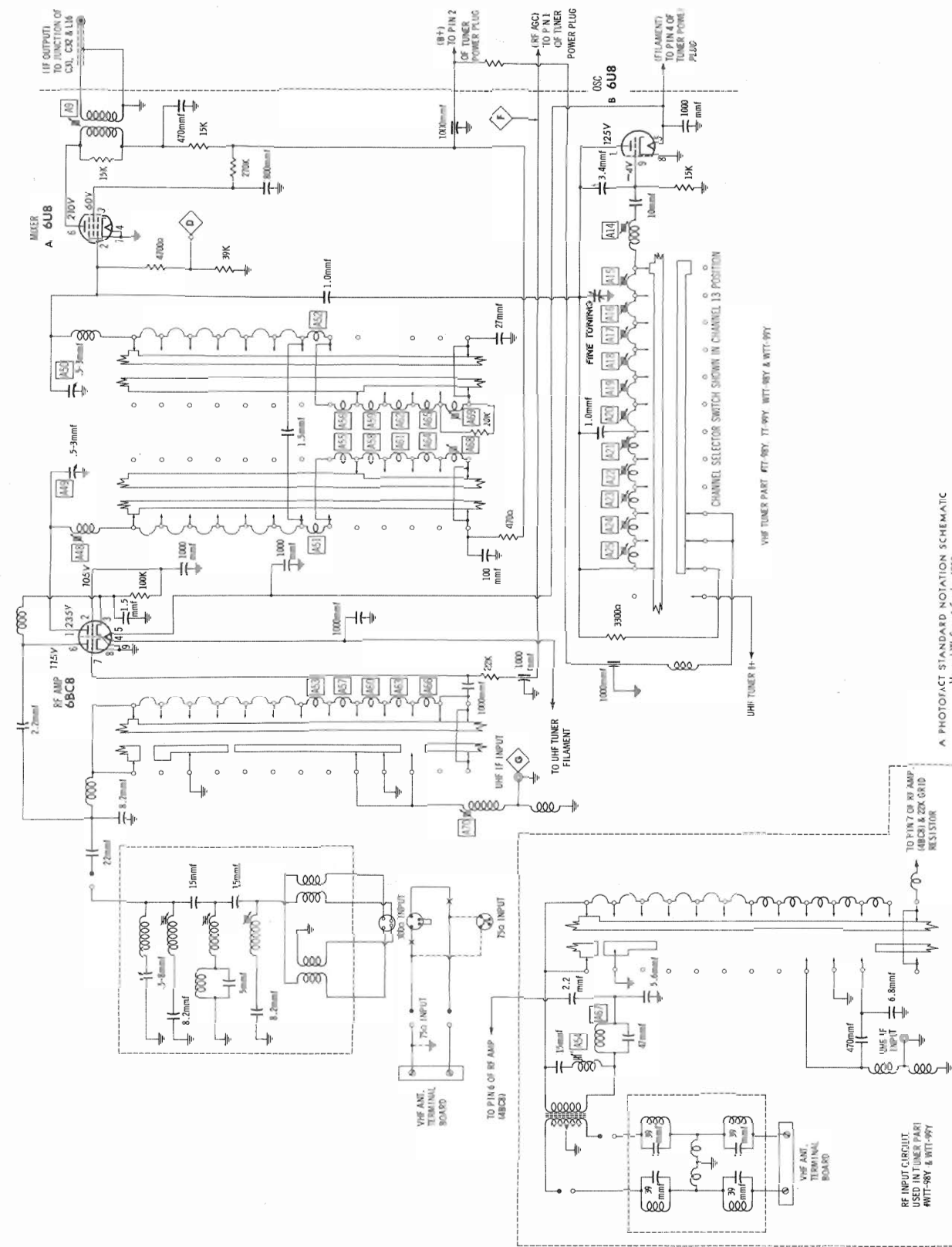
SET 393 FOLDER 2

MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544Y

FOLDER 2



REMOTE CONTROL SCHEMATIC



ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Unplug the UHF cable from the VHF tuner.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
A70 is not used in Tuners #WTT-98Y, WTT-99Y, RTT-99Y

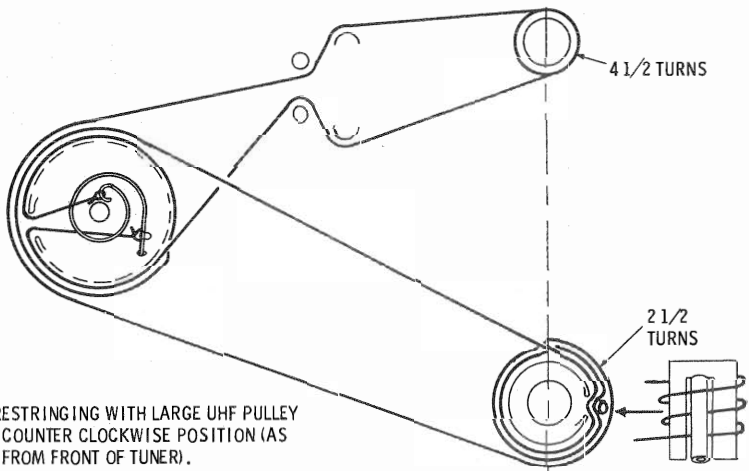
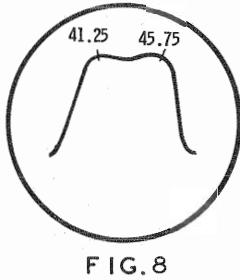
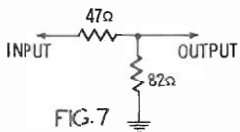
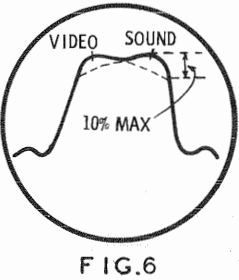
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
17. Fig. 7	High side to point . Low side to chassis.	44.0MC (10MC SWP)	41.25MC 45.75MC	UHF	Vert. Amp. thru 47K to point . Low side to chassis.	A68, A69	Adjust for maximum gain and symmetry of response similar to Fig. 8 with markers as shown.
18.	Disconnect sweep generator and connect a short from pin 1 to pin 4 of the antenna input assembly. Connect the DC probe of the VTVM to point . Low side to chassis. Adjust A70 for maximum DC noise voltage.						

REMOTE CONTROL RECEIVER ALIGNMENT

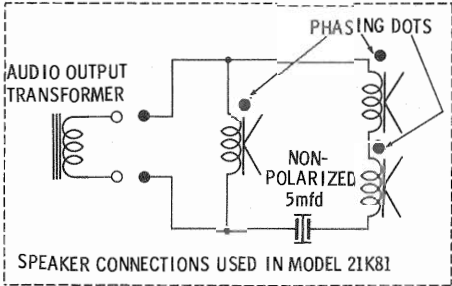
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
19. Directly	High side to microphone input. Low side to chassis.	Exactly 40KC		DC probe to pin 7 (grid) of 6AW8A (V23). Common to chassis.	RI17	Adjust RI17 (sensitivity control) for maximum negative voltage.
20. "	"	"		DC probe to point . Common to chassis.	A71	Set VTVM to -150 volts DC scale. Increase generator until VTVM reads approximately -75 volts. Leave generator at this setting. Adjust A71 for maximum deflection.
21. "	"	"		"	A72	Turn slug as far out of coil as possible, then start tuning. As the slug is turned into the coil, the 4th harmonic will be passed. Continue tuning into coil until the next peak is obtained. This will be the 3rd harmonic of 40KC and will be a larger voltage than the 4th harmonic.

NOTE: A73 has not been adjusted. Due to additional equipment requirements it is normally adjusted only at the factory. Therefore, adjustments of A73 should only be made if the coil has been replaced or tampered with. Remove the signal generator and plug the microphone back in 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 (V20). Low side to chassis. Place the transmitter approximately 3 inches away from the receivers microphone, press the channel selector button of the transmitter and rotate the unit for maximum meter or scope indication. Without moving the transmitter, adjust A73 for maximum indication. Remove the AC meter or scope and remove the transmitter. Remove the microphone.

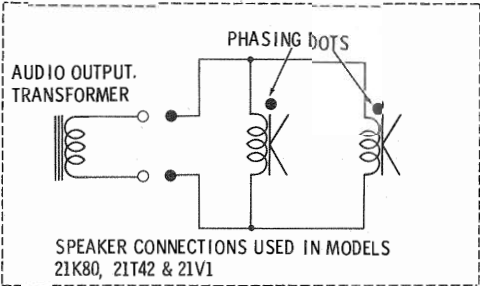
22. Directly	High side to microphone input. Low side to chassis.	40KC		DC probe to point . Common to chassis.		Increase generator output until no further increase in voltage is noted on the VTVM.
23. "	"	"		DC probe to pin 5 (cathode) of 6AL5 (V22). Common to pin 1 (cathode) of V22.	A74	Adjust for zero reading on VTVM.
24. "	"	"		DC probe to pin 7 (grid) of 6AW8A (V23). Common to chassis.	RI17	Adjust for a reading at -25 volts.



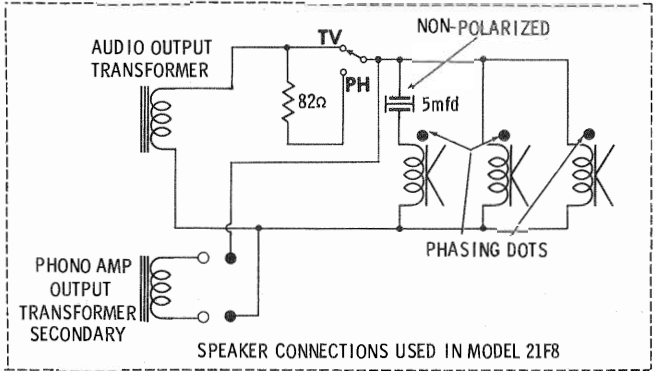
UHF DRIVE CORD STRINGING



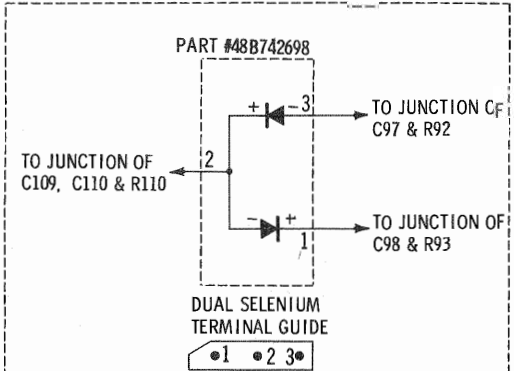
SPEAKER CONNECTIONS USED IN MODEL 21K81



SPEAKER CONNECTIONS USED IN MODELS 21K80, 21T42 & 21V1



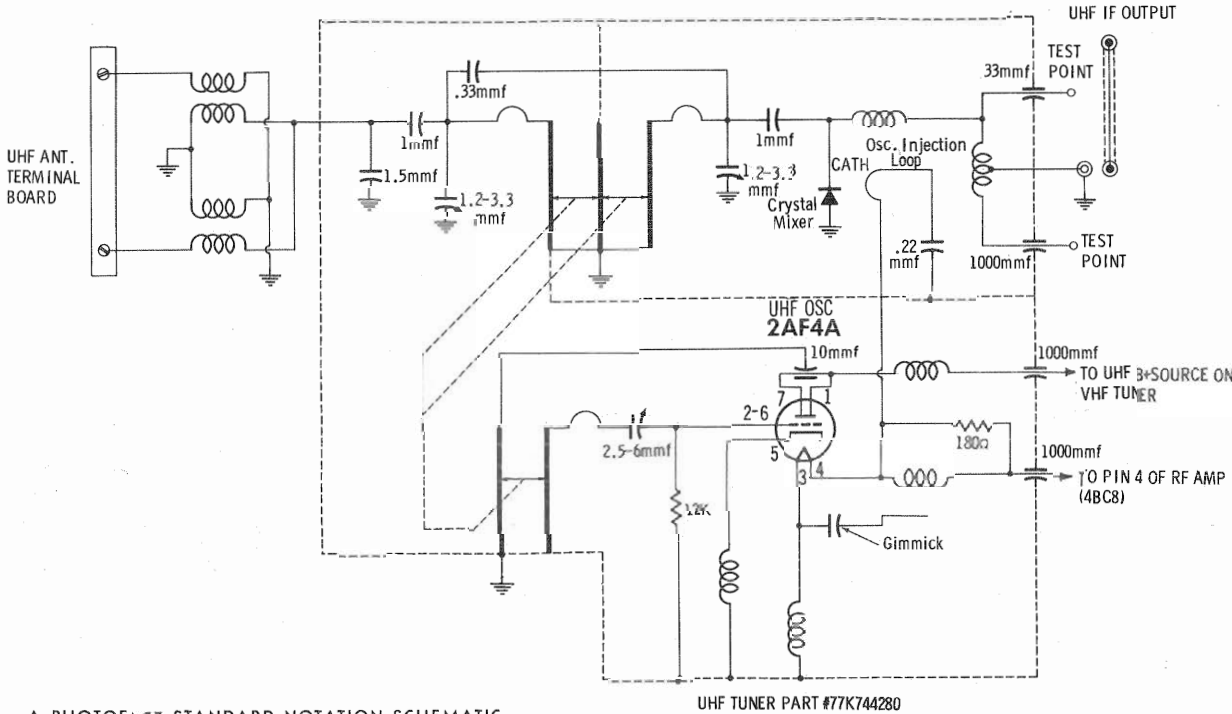
SPEAKER CONNECTIONS USED IN MODEL 21F8



HORIZ. AFC DUAL SELENIUM DIODE USED IN LIEU OF 6AL5 (V13) IN SOME VERSIONS

A PHOTOFAC STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE SPEAKER & HORIZ AFC SCHEMATIC



A PHOTOFAC STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE UHF TUNER SCHEMATIC
SET 393 FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Remove the deflection yoke plug and connect a 2000Ω 50 watt resistor from TP5 to TP7.

VIDEO IF ALIGNMENT

Disable the local oscillator by connecting a short clip lead from point ⬠ to chassis. Connect the negative lead of a 6 volt bias supply to TP3. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
All slugs should be tuned away from the chassis except A3, A4 and A5 which are tuned toward the chassis.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. .001mfd	High side to point ⬠. Low side to chassis.	44MC (10MC Swp)	42.25MC 45.75MC	13	Vert. Amp. thru 47K to point ⬠. Low side to chassis.	A1, A2, A3	Adjust A1 to place 42.25MC at 70%, A2 to place 45.75MC at 80% and A3 for flat-topped response curve. (See Fig. 1.).
2. "	High side to point ⬠. Low side to chassis.	"	40.0MC 42.25MC 45.75MC 47.25MC	"	"	A4, A5, A6, A7, A8	Preset A9 fully counter clockwise. Adjust A4 thru A8 for response similar to Fig. 2. Adjust A4 to place 47.25MC marker in trap notch. A5 to place 40.0MC marker in other trap notch. (It may be necessary to remove bias). Adjust A6, A7 and A8 alternately for correct curve and marker positions.
3. "	"	"	42.25MC 45.75MC	"	"	A9	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Remove the 2000Ω resistor and plug the yoke in.

SOUND IF ALIGNMENT

Tune in a strong TV station and adjust the controls for normal picture and sound.
Connect the DC probe of a VTVM to point ⬠. Common to chassis. Adjust A10 for maximum deflection. Remove the VTVM and retouch A10 for maximum undistorted sound.
Reduce the signal strength (by either disconnecting the antenna lead or connecting an attenuator in series with the antenna lead) until a hiss similar to super-regeneration is heard in the sound. Adjust A11 and A12 for maximum undistorted sound. If necessary, repeat entire procedure.

4.5MC TRAP ALIGNMENT

Tune in a local TV station and adjust the fine tuning until the 4.5MC beat interference in prominent in the picture with the contrast control advanced. Starting with A13 fully counter clockwise, rotate slug clockwise past first point of strongest beat pattern. Adjust for MINIMUM beat pattern between first and second point of strong beat.

VHF OSCILLATOR ALIGNMENT

The tuner cover must be in place.
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.
Connect bias as under "Video IF Alignment".
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	21.25MC 215.75MC	13	Vert. Amp. thru 47K to point ⬠. Low side to chassis.	A14	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should fall at 50%.
		207MC	205.25MC 209.75MC	12		A15	
		201MC	199.25MC 203.75MC	11		A16	
		195MC	193.25MC 197.75MC	10		A17	
		189MC	187.25MC 191.75MC	9		A18	
		183MC	181.25MC 185.75MC	8		A19	
		177MC	175.25MC 179.75MC	7		A20	
		85MC	83.25MC 87.75MC	6		A21	
		79MC	77.25MC 81.75MC	5		A22	
		69MC	67.25MC 71.75MC	4		A23	
		63MC	61.25MC 65.75MC	3		A24	
		57MC	55.25MC 59.75MC	2		A25	

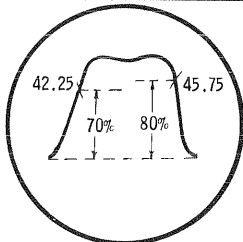


FIG. 1

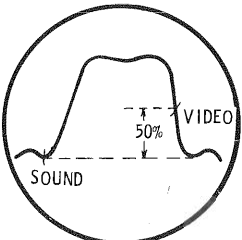


FIG. 4

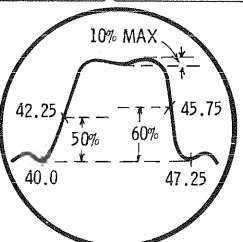


FIG. 2

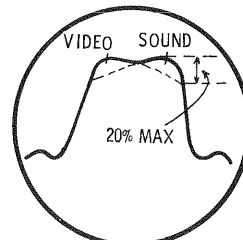


FIG. 5

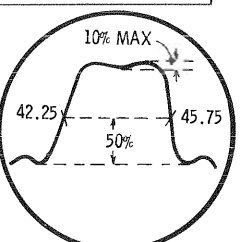


FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

VHF RF AND MIXER ALIGNMENT FOR TUNERS #TT-98, TT-98Y, TT-99, TT-99B, TT-99Y AND VTT-99Y

Short tuner AGC to ground by connecting a clip lead from point ⬠ to chassis.
Remove the tuner cover.
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
5. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	Not used	159.0MC (400% 30% AM Mod)	7	Vert. Amp. thru 47K to point ⬠. Low side to chassis.	A26	Adjust for MINIMUM 400v indication on scope.
6. "	"	"	112.0MC (400% 30% AM Mod)	6	"	A27	"
7. "	"	213MC	21.25MC 215.75MC	13	Vert. Amp. thru 47K to point ⬠. Low side to chassis.	A28	Detune A46 and A47 by turning slugs well into coils. Preset A29 and A30 at center of their range. Adjust A28 for maximum gain and response similar to Fig. 5.
8. "	"	"	"	"	"	A29, A30	Adjust for maximum gain and symmetry of response similar to Fig. 5 with markers as shown. Repeat step 7, if necessary.
9. "	"	85MC	83.25MC	6	"	A31, A32, A33	Adjust in numerical order. First two adjustments are to place the markers correctly. Last adjustment is for maximum gain and symmetry. (See Fig. 6).
10. "	"	"	"	"	"	A27	Adjust SLIGHTLY above point where it begins to effect channel 6 response curve at the sound marker.
11. "	"	79MC	77.25MC 81.75MC	5	"	A34, A35, A36	Adjust in numerical order. First two adjustments are to place the markers correctly. Last adjustment is for maximum gain and symmetry. (See Fig. 6.).
12. "	"	69MC	67.25MC 71.75MC	4	"	A37, A38, A39	"
13. "	"	63MC	61.25MC 65.75MC	3	"	A40, A41, A42	"
14. "	"	57MC	55.25MC 59.75MC	2	"	A43, A44, A45	"
15. "	"	Not used	42.5MC (400% 30% AM Mod)	"	Vert. Amp. thru 47K to point ⬠. Low side to chassis.	A46	Adjust for MINIMUM 400v indication on scope.
16. "	"	"	44.5MC (400% 30% AM Mod)	"	"	A47	"

VHF RF AND MIXER ALIGNMENT FOR TUNERS #WTT-98Y, WTT-99Y AND RTT-99Y

Short the tuner AGC to ground by connecting a clip lead from point ⬠ to chassis.
Remove the tuner cover.
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
5. Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC	21.25MC 215.75MC	13	Vert. Amp. thru 47K to point ⬠. Low side to chassis.	A48	Preset A49 and A50 to mid-range. Adjust A48 for maximum gain of response curve similar to Fig. 5.
6. "	"	183MC	181.25MC 185.75MC	7	"	A49, A50	Adjust for maximum gain and symmetry of response similar to Fig. 5 with markers as shown.
7. "	"	85MC	83.25MC 87.75MC	6	"	A51, A52, A53	Adjust in numerical order for response similar to Fig. 6. First two adjustments are for proper placing of markers. The third adjustment for maximum gain and symmetry.
8. "	"	"	83.25MC	"	"	A54	Adjust until it starts to pull down the marker of the sound side of the curve.
9. "	"	79MC	77.25MC 81.75MC	5	"	A55, A56, A57	Adjust in numerical order for response similar to Fig. 6. First two adjustments are for proper placing of markers. The third adjustment for maximum gain and symmetry.
10. "	"	69MC	67.25MC 71.75MC	4	"	A58, A59, A60	"
11. "	"	63MC	61.25MC 65.75MC	3	"	A61, A62, A63	"
12. "	"	57MC	55.25MC 59.75MC	2	"	A64, A65, A66	"
13. "	"	"	"	"	"	A67	Adjust until its effect is below channel 2 (or at interference frequency).

MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544Y

FOLDER 2

REMOTE TRANSMITTER PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	USE	REPLACEMENT DATA					
		MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L41	38.5KC Osc.	50D746067					Complete Assy. Complete Assy.
L42	41.5KC Osc.	50K746068					

BATTERIES

ITEM No.	VOLTAGE	MOTOROLA PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M21	22 $\frac{1}{2}$			U-15		#412		M-412R or M-215		215	

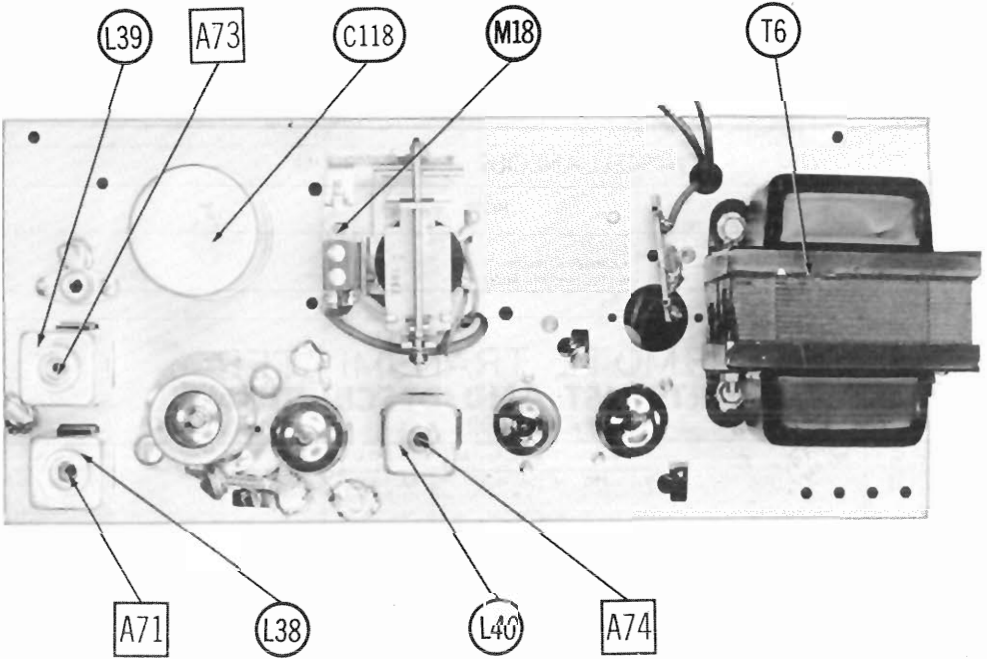
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M22	Switch	40A745643	Channel Selector, On-off (leaf type)
M23	Switch	40A745648	Remote control, On-off (located in transmitter holder)

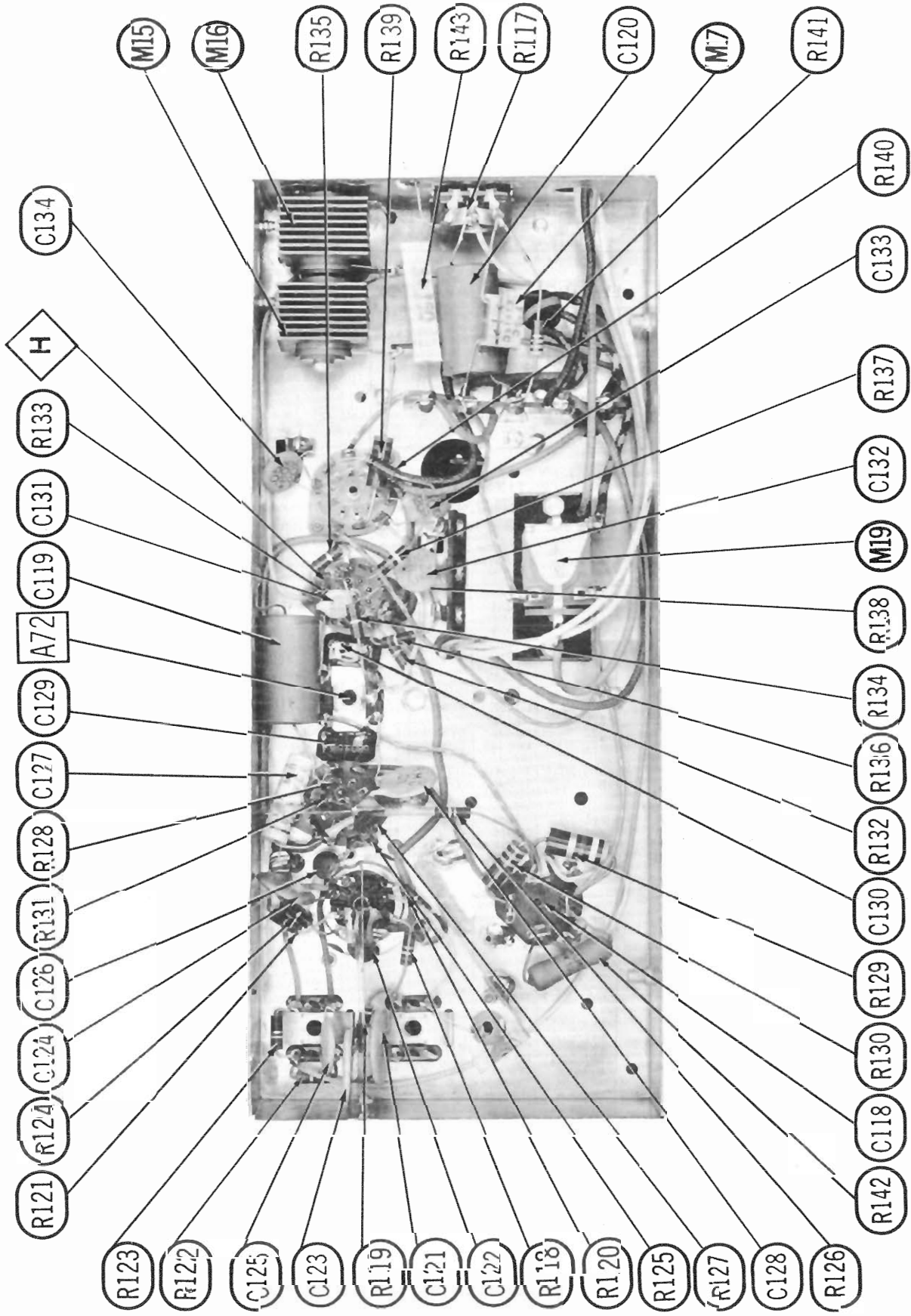
CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Pushbutton	38B745745	Channel Selector
Pushbutton	38B745812	On-off
Cabinet	16D745739	Transmitter



REMOTE RECEIVER TOP VIEW



REMOTE RECEIVER - BOTTOM VIEW

**MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544Y**

FOLDER 2

PARTS LIST AND DESCRIPTIONS TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BC6	
V2	Mixer-Osc.	6U8	
V3	1st. Video IF Amp.	3BZ6	
V4	2nd. Video IF Amp.	3BZ6	
V5	3rd. Video IF Amp.	3CB6	
V6	Video Output	12BY7A	
V7	AGC Keying-Sync Sep.	3BU8	
V8	Sound IF Amp.	3CB6	
V9	Audio Det.	3DT6	
V10	Audio Output	6AQ5	

Note 1. In chassis coded A-10 a dual selenium rectifier (Part #48B742698) is used in this application.

PICTURE TUBE

ITEM No.	MOTOROLA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	NOTES
V19	21CBP4A		21CBP4-A ①	21CBP4/ 21CBP4A ②	① "Silverama" ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40 400	23B744120	AFH4-08	D0060 BR4045	FP446 TC80	TMQ-8 TD-40-450	Q-025 MT-4540	R2569 *
C2A	30 400	23B743362 ①	AFH3-155-30	B0410 BBR20-25	FP259 TC45	TMD-42 TD-20-150	T-559	R2568 *

* Non-catalog item.

① Some versions may use 30-10mfd @ 500V. 20mfd @ 25V (Part #23B738750) in this application.

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	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	8.2	21R125856						N750
C4	15	21R125929						N750 5%
C5	5	21R125928						NPO
C6	15	21R125929						N750 5%
C7	8.2	21R125856						N750
C8	.5-8	20A743920						
C9	22	21R124554						NPO 5%
C10	8.2	21R125856						N750
C11	2.7	21R115950						①
C12	1000	21R115386	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C13	1000	21A739020	EF-001	MFT-1000	BYA6D1	ED-1000	DC521	503C-D1
C14	1000	21R115386	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C15	1.5	21R115959	NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	STCCB-V15
C16	.5-3	21K735985		829-3		3115E	CT565A	
C17	1.5	21R115959	NPO-SI 1.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	STCCB-V15
C18	100	21R120577	N750-SI 100	TCN-100	CTA6TIU	TC7-100	NT-531	STCU-T1
C19	22	21R124554						
C20	.5-3	21K735985		829-3		3115E	CT565A	
C21	1000	21R115386	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C22	1000	21R115386	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C23	1000	21A739020	EF-001	MFT-1000	BYA10T47	ED-470	UC-5347	503C-D1
C24	470	21R114554	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47
C25	1.0	21R114071						
C26	3.4	21R124489						
C27	1.0	21R124552						
C28	10	21R124710	DI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1
C29	1000	21A739020	EF-001	MFT-1000	BYA6D1	ED-1000	DC521	503C-D1
C30	1000	21R115386	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C31	20-140	20A736287						
C32	5.6	21R120156						N750 10%
C33	18	21R120578						N750 10%
C34	4.7	21R115954						
C35	18	21R120578						
C36	470	21R114554	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47
C37	1000	21A737426	EF-001	MFT-1000	BYA10T47	ED-470	UC-5347	503C-D1
C38	470	21R114554	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47
C39	470	21R114554	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47
C40	1000	21R115386	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C41	560	21R120936						
C42	1000	21R115386	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C43	.25	21R122045	P288N-25	CUB2P25		GEM-2025	ZTM-P25	
C44	470	21R114554	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47
C45	560	21R120936						
C46A	800	21R100943	BPD-0008	DD-801	L10T8	ED-0008	UC-5356	5GA-T8
C46B	800		BPD-0008	DD-801	L10T8	ED-0008	UC-5356	5GA-T8
C47	5.6	21R124490						
C48	3.9	21R115953						
C49	3.9	21R115953						
C50	5000	21A733298	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C51	47	21R114207	N750-DI 47	TCN-47	C10Q4TU	TC7-47		STCC-Q47
C52	27	21R115996						
C53	.1	21R121006	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1
C54	10000	21R124832	DAC-27	DD-103	HVE16S1			BL-S10
C55	20000	21B741862	BPD-02	DD-203	BYA6S2	ED-02		58K-S2
C56	470	21R121478	HVD-30-470	DL30-471	HVB20T4	HD3-470	DC30347	20GA-T47
C57	2.7	21R125699						
C58	.1	21R121006	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1
C59	.25	21R122045	P288N-25	CUB2P25		GEM-2025	ZTM-P25	
C60	10	21R12114	N750-DI 10	TCN-10	C10Q1U	TC7-10	NT-541	STCU-Q1
C61	18	21R120578						
C62	1500	21R122498						

REMOTE RECEIVER PARTS LIST AND DESCRIPTIONS (Continued) CONTROLS

ITEM No.	RATING	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R117A	1meg	18K740893	BX-69	A47-1meg-8	Q11-137	TA16L	Sensitivity
B	Shaft		Not Req.	FKS-1/4	Not Req.	Not Req.	

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
	OHMS WATT				OHMS WATT		
R118	180K	6K125531		R131	470Ω	6K127833	
R119	3900Ω	6K127515		R132	2.2meg	6K127001	
R120	1200Ω	6K119925		R133	2.2meg	6K127001	
R121	2.2meg	6K127001		R134	2.2meg	6K127001	
R122	3900Ω	6K127515		R135	2.2meg	6K127001	
R123	100K	6K125534		R136	560K	6K127631	
R124	82Ω	6K127516		R137	560K	6K127631	
R125	2.2meg	6K127001		R138	1meg	6K127630	
R126	180K	6K125531		R139	8200Ω	6K125633	
R127	82Ω	6K127516	Note 1	R140	1meg	6K127630	
R128	470K	6K125533		R141	33K	6K127632	
R129	3900Ω	6K119927		R142	1000Ω	17K537732	
R130	33K	6K127634		R143	150Ω	65A633275	

Note 1. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING	MOTOROLA PART No.	Helldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T6	117V 2.7A 300V 2.022A tap @ 30V @ .001A	25C745626						

COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	Meissner PART No.	Miller PART No.	Ram PART No.	NOTES
L38	40KC Input Coil	24K746140				
L39	40KC Output Coil	24B745791				
L40	120KC Discriminator	24D745749				Note 1

Note 1. Alternate part #24C745749.

RECTIFIERS

ITEM No.	RATING	MOTOROLA PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKIS TAZIAN PART No.	NOTES
	CURRENT (Measured)						
M15	.042A	48K127587 ①	1068 ①		6RS100A ①	58D ①	① Selenium type.
M16	.042A	48K127587 ①	1068 ①		6RS100A ①	58D ①	
M17	.001A	48B742699 ①	K1616 ①		2V1 ①	Model 12 ①	

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M18	Relay	80C745627	On-off
M19	Relay	80A743105	Channel Selector
M20	Microphone	59B745625	Includes cable & plug

REMOTE TRANSMITTER PARTS LIST AND DESCRIPTIONS TRANSISTORS

ITEM No.	ORIG. TYPE	USE	CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
X1	2N270	Remote Control Osc.			2N270		

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	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
	CAP. VOLT								
C135	200000	8R127645							
C136	7000	8R127648							10%
C137	50000	21K542384							TG-S50
C138	10000	21K740833							TG-S10

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
	OHMS WATT				OHMS WATT		
R144	56K	6K127541		R146	150Ω	6K124797	
R145	8200Ω	6K119931					

MOTOROLA CHASSIS TS-544,
TS-544Y, WTS-544Y

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS (cont)

NAME	PART NO.	DESCRIPTION
UMF Dial	34C743539	Models Y2K73BA, MA, Y2K75BA, CWA, MA, Y2K76BA, CWA, MA, Y2K76GA, Y2K76MA, Y2K76BA, MA
UMF Dial	34K744038	Models Y2K742B, M, Y2K77B, M, Y2K77B, M
Leg	16C739573	Cabinet - Models Y2K76B, BA, W, WA, Y2K76B, BA, W, WA
Leg	16K744293	Base (Right Hand) - Models Y2K77B, Y2K77B
Leg	16K744291	Base (Left Hand) - Models Y2K77B, Y2K77B
Leg	16K744294	Base (Right Hand) - Models Y2K77M, Y2K77M
Leg	16K744292	Base (Left Hand) - Models Y2K77M, Y2K77M
Leg	16K744477	Cabinet - Models Y2K73M, Y2K73M, MA
Leg	16K743630	Cabinet - Models Y2K73B, Y2K73B, BA
Leg	16C743777	Cabinet - Models Y2K73M, Y2K73M, MA
Leg	16K744157	Cabinet - Models Y2K75B, Y2K75B, BA, Y2K76B, Y2K76B, BA
Leg	16K744158	Cabinet - Models Y2K75CW, Y2K75CW, CWA, Y2K76CW, Y2K76CW, CWA
Leg	16K744156	Cabinet - Models Y2K75M, Y2K75M, MA, Y2K76M, Y2K76M, MA
Cabinet	16K744290	Masonite (Blond Oak) - Models Y2K77B, Y2K77B
Cabinet	16E744289	Masonite (Swirl Mahogany) - Model Y2K77M, Y2K77M
Cabinet	16K745882	Masonite (Blond Oak) - Model Y2K81B, Y2K81B
Cabinet	16E745881	Masonite (Mahogany) - Model Y2K81M, Y2K81M
Cabinet	16E743722	Cherrywood - Models Y2K80CW, CWA, Y2K80CW, CWA
Cabinet	16K744660	Swedish Oak - Models Y2F8B, BA, Y2F8B, BA
Cabinet	16E744659	Walnut - Models Y2F8W, WA, Y2F8W, WA
Cabinet	16K745184	Masonite (Blond Oak) - Models Y2K73B, Y2K73B, BA
Cabinet	16K745183	Masonite (Sierra Mahogany) - Models Y2K73M, Y2K73M, MA
Cabinet	16K744154	Masonite (Swedish Oak) - Models Y2K75B, Y2K75B, BA, Y2K76B, Y2K76B, BA
Cabinet	16K744155	Masonite (Fruitwood) - Models Y2K75CW, Y2K75CW, CWA, Y2K76CW, Y2K76CW, CWA
Cabinet	16E744153	Masonite (Dawn Mahogany) - Models Y2K75M, Y2K75M, MA, Y2K76M, Y2K76M, MA
Cabinet	16K743637	Metal (Lined Oak) - Models Y2T40BG, Y2T40BG, BGA
Cabinet	16K743636	Metal (Mahogany Grain) - Models Y2T40MG, Y2T40MG, MGA
Cabinet	16K743813	Masonite (Blond Oak) - Models Y2T42B, Y2T42B, BA
Cabinet	16E743812	Masonite (Sierra Mahogany) - Models Y2T42M, Y2T42M, MA
Cabinet	16E744958	Walnut, Corner - Models Y2V1W, WA, Y2V1W, WA

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8865 (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. 8484 (Flat) or 8484 (Round) - 4 Conductor
	8485 (Round) - 5 Conductor
	8488 (Round) - 8 Conductor

REMOTE RECEIVER
PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V20	1st. 40KC Amp. -	6AW8A	
V21	2nd. 40KC Amp. -	6AW8A	
	3rd. 40KC Amp. -		
	Limit-Tripler		

ITEM No.	USE	TYPE	NOTES
V22	120KC Discriminator	6AL5	
V23	Off-On-Relay Control-Channel Selector Relay Control	6AW8A	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C18A	10 450	23B745824	AFH4-10	D0090	FP434	TMQ-10	Q-030	TVL-4760
B	10 450							
C	10 450							
D	10 450							
C19	10 50	23A90205	PRSS0V10	BBR10-50	TC32	TD-10-50	MT-0510	TVA-1304
C20	10 50	23A90205	PRSS0V10	BBR10-50	TC32	TD-10-50	MT-0510	TVA-1304

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	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C121	20000	21K745774	BPD-02	DD-203	BYB6S2	ED-02	5HK-S2	
C122	470	21R125529	BPD-00047	DD-471	BYA10T47	ED-470	5GA-T47	
C123	20000	21K745774	BPD-02	DD-203	BYB6S2	ED-02	5HK-S2	
C124	10000	21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	
C125	3300	21K741863	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	
C126	470	21R125529	BPD-00047	DD-471	BYA10T47	ED-470	5GA-T47	
C127	.001	8R122103	P688N-001	D6-103	CUB6D1	GP-1000	GEM-621	
C128	10000	21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	
C129	680	21K745738	1464-00068	DD-103	IR5T68	CY15C68LJ	MS-368	5%
C130	680	21K745738	1464-00068	DD-103	IR5T68	CY15C68LJ	MS-368	5%
C131A	1000	21R401058	BPD-2X001	DD2-102	BYC6DD1	ED2-001	DCD521	
B	1000							
C132	25000	21K740606					TG-S25	
C133	50000	21K542384	BPD-05	DF-503			TG-S50	
C134	50000	21K542384	BPD-05	DF-503			TG-S50	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C63	.75	21K735623	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C64	5000	21A738296	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C65	5000	21A738296	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C66	5000	21R15312	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C67	5000	21K120578	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C68	18	21K120578	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C69	10000	21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1
C70	5000	21R15312	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C71	150	21R12228	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C72	.05	8R12228	P688N-05	DF-503	CUB6S5	ED-005	UC-5315	5GA-T15
C73	5000	21R15312	BPD-005	DD-502	BYA10D5	ED-005	GEM-615	6TM-S5
C74	10000	21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1
C75	3300	21R120422	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33
C76	220	21R410115	BPD-00022	DD-221	LYOT22	ED-220	UC-5233	5GA-D33
C77	5000	21R120093	DAC-9	DD30-502	HVC20D5	ED-220	UC-5233	5GA-D33
C78	.05	8R122185	P688N-05	DF-503	CUB6S5	ED-005	GEM-615	6TM-S5
C79	2000	21R12106	BPD-002	DD-203	BYA10D2	ED-002	DC522	5HK-D2
C80	220	21R410115	DI 220	DD-201	LYOT22	ED-220	UC-5232	5GA-T22
C81	27	21R19896		TCZ-27	C10Q27C	TCO-27	GEM-612	6TM-S2
C82	.02	8R122079	P688N-02	DF-503	CUB6S2	ED-002	GEM-612	6TM-S2
C83	.002	8R121500	P688N-002	DF-503	CUB6S2	ED-002	GEM-612	6TM-S2
C84	3300	21R120422	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33
C85	.007	8K741231					GEM-1627	
C86	10000	21K738700	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1
C87	.01	8R122285					GEM-611	
C88	.05	8R122185					GEM-615	6TM-S5
C89	.05	8R12005	P288N-05	DF-503	CUB6S5	ED-005	GEM-615	6TM-S5
C90	.02	8R122079	P688N-02	DF-503	CUB6S2	ED-002	GEM-612	6TM-S2
C91	1000	21R124456	HVD-30-1000	DD30-102	HVB20D1	ED-1000	GEM-3021	5HK-S2
C92	20000	21B741862	BPD-02	DD-203	BYB6S2	ED-02	UC-5233	5GA-D33
C93	.015	8K737422					GEM-1627	
C94	10000	21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1
C95	5000	21R120093	BPD-01	DD30-502	HVC20D5	ED-220	GEM-3025	5HK-S2
C96	4700	21R120149	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47
C97	220	21R125999		D6-221	LYOT22	ED-220	MS-322	10% 3
C98	220	21R125999		D6-221	LYOT22	ED-220	MS-322	10% 3
C99	3300	21R120422	BPD-0033	DD-332	BYA10D33	ED-0033	UC-5233	5GA-D33
C100	.02	8R121003	P288N-02	DF-503	CUB6S2	ED-002	GEM-412	2TM-S2
C101	.0039	8K125942					GEM-412	2TM-S2
C102	150	21R121228	N750-D1 150	TCN-150	C10T15U	TC7-150	5TCU-T15	10% 10%
C103	580	21K756046	1464-00068	D6-681	5R5T68	ED-680	MS-368	10%
C104	390	21B735757		D6-391	5R5T39	ED-390	MS-339	10%
C105	5000	21A738296	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5
C106	.1	8R121006	P488N-1	DF-104	CUB6P1	ED-001	GEM-401	4TM-P1
C107	.1	8R121869	P688N-1	DF-104	CUB6P1	ED-001	GEM-601	6TM-P1
C108	.1	8R121869	P688N-1	DF-104	CUB6P1	ED-001	GEM-601	6TM-P1
C109	.05	8R121005	P288N-05	DF-503	CUB6S5	ED-005	GEM-415	4TM-S5
C110	.06	8R121870	P1088N-05	DF-503	CUB6S5	ED-005	GEM-415	4TM-S5
C111	56	21R127008					GEM-415	4TM-S5
C112	56	21R127008					GEM-415	4TM-S5
C113	82	21R120150					GEM-415	4TM-S5
C114	10000	21R124832	DAC-27	DD16-103	HVE16S1	ED-1001	BL-S10	10%
C115	10000	21R124832	DAC-27	DD16-103	HVE16S1	ED-1001	BL-S10	10%
C116A	1000	21R401058	BPD-2X001	DD2-102	BYC6DD1	ED2-001	DCD521	
B	1000							
C117	25	8R121788	P488N-05	DF-503	CUB6S5	ED-005	GEM-415	4TM-S5

- 1 In Tuners WTT-98Y, WTT-99Y a 2.2mmf (Part #21R15048) is used in this application.
2 In Tuners WTT-98Y, WTT-99Y a 27mmf (Part #21R122050) is used in this application.
3 Chassis coded A-10 use 1000mmf (Part #21R128045) in this application.

CONTROLS

ITEM No.	RATING	MOTOROLA PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
R1A	250Ω	18C745837					Contrast - Note 1
C	2meg						Volume-Tap @ 1.2meg-Note 1
R2A	1meg	18K743525	B-70	A47-1meg-Z	Q13-137	TA16A	Tone
B	100K	18K741521	Not Req.	KSS-3	Not Req.	TA15L	Brightness
R3A	100K	18K745394	Not Req.	A47-100K-S	Q11-128	TA15L	Brightness
B	2meg	18K745394	Not Req.	KSS-3	Not Req.	TA26L	Vert. Hold - Note 2
R4A	4meg	18K743524	Not Req.	A47-2meg-S	Q11-139	TA26L	Vert. Hold - Note 2
B	4meg	18K743524	Not Req.	KSS-3	Not Req.	TA26L	Vert. Hold - Note 2
R5A	2meg	18K743523	AB-86	A47-4meg-S	Q11-139	PTA26L	Vert. Lin.
B	2meg	18K743523	AK-19	RN-3	TM2-K11	PTA26L	Vert. Lin.
R6A	100K	18K739549	AB-75	A47-2meg-S	Q11-139	PTA26L	Vert. Lin.
B	100K	18K739549	AK-19	RN-3	TM2-K11	PTA26L	Vert. Lin.
R7A	100K	18K739549	AB-40	A47-100K-S	Q11-128	PTA26L	Vert. Lin.
B	100K	18K739549	AK-19	RN-3	TM2-K11	PTA26L	Vert. Lin.
R8A	2meg	18K743523	AB-75	A47-2meg-S	Q11-139	PTA26L	Vert. Lin.
B	2meg	18K743523	AK-19	RN-3	TM2-K11	PTA26L	Vert. Lin.

- * Enlarge mounting hole to 3/8" diameter.
Note 1. An alternate part #18C743644, contrast 250Ω, volume 2meg tap @ 1.5meg may be used in some versions. These versions use on-off switch (Part #40B745748).
Note 2. Alternate part #18K395556 may be used in some versions.
* "STA-LOC" Equivalent: FA251L, OS1812A, RU28T125, IS2500, US-41.

RESISTORS

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

ITEM No.	RATING	MOTOROLA PART No.	NOTES
R9	22K	6R6028	
R10	100K	6R6075	
R11	470Ω	6R3949	
R12	470Ω	6R6039	
R13	39K	6R6487	
R14	15K	6K124551	
R15	15K	6R2119	
R16	270K	6R6414	
R17	15K	6R2119	

ITEM No.	RATING	MOTOROLA PART No.	NOTES
R18	3300Ω	6K1351	
R19	8200Ω	6K125891	
R20	470K	AR2005	
R21	1500Ω	6K127000	
R22	1.5meg 5%	6K125891	
R23	15meg 5%	6K125891	
R24	27K	6R6434	
R25	1000Ω	6R6301	
R26	33K	6R6434	

SET 393 FOLDER 2

RESISTORS (cont)

ITEM No.	RATING		MOTOROLA PART No.	NOTES	ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT				OHMS	WATT		
R27	8200Ω	3	17K738283		R72	560K		6R5697	
R28	47Ω		6R5650		R73	27K	1	6R6434	
R29	27K		6R6434		R74	2200Ω		6R6069	
R30	1000Ω		6R6229		R75	2200Ω		6R6069	
R31	8200Ω	3	17K738283		R76	5.6meg		6K122846	
R32	47Ω		6R5650		R77	18K		6R6444	
R33	47K		6R6048		R78	180K		6R6046	
R34	1200Ω		6R6393		R79	1meg		6K125568	
R35	680K		6R6475		R80	22K		6R6004	
R36	8200Ω	3	17K738283		R81	1meg		6R6477	
R37	120Ω		6R5651		R82	15K		6R2004	
R38	3900Ω		6R5659		R83	8200Ω		6R5591	
R39	5600Ω	10	17K744407		R84	18K		6R6444	
R40	18K		6R5591		R85	180K		6R6032	
R41	56K		6R6378		R86	470K		6R6407	
R42	220K		6R6407		R87	220K		6K125568	
R43	100K		6R6031		R88	22K	1	6R6330	
R44	10K		6R6054		R89	150Ω		6K122802	
R45	68K		6R6001		R90	560Ω		6K122802	
R46	33K		6R6012		R91	560Ω		6R6377	
R47	820K		6R6429		R92	470K		6R6377	
R48	47K		6R6048		R93	470K		6R2122	
R49	2.2meg		6R6432		R94	4.7meg		6R2122	
R50	150K		6R6012		R95	4.7meg		6R2004	
R51	150K		6R6378		R96	8200Ω		6R6229	
R52	47K	4	17K743157		R97	1000Ω		6R6487	
R53	4700Ω		6R6039		R98	39K		6R6407	
R54	1000Ω		6R6301		R99	220K		6R6378	
R55	47K		6R6048		R100	56K		6R6428	
R56	150Ω		6R6373		R101	6800Ω		6R6428	
R57	470K		6R6377		R102	6800Ω		6R3349	
R58	680K		6R6475		R103	470Ω		6R6048	
R59	2200Ω		6R6230		R104	1meg		6R5725	
R60	62K		6R6444		R105	8200Ω	2	6R2030	
R61	560K		6R5697		R106	12Ω	1	6R6407	
R62	220Ω		6R393.3		R107	220K		6R2096	
R63	22K	1	6R6341		R108	330K		6R490492	
R64	560Ω		6R6291		R109	6800Ω	1	6R113226	
R65	470Ω	2	6R2010		R110	12Ω	1	17K742915	
R66	100Ω		6R6018		R111	1.8Ω		6R8427	
R67	330Ω	1	6R6254		R112	27K	3	17K744464	
R68	470K		6R6377		R113	10K	1		
R69	3.3meg		6R6497		R114	1.5Ω	2		
R70	2.2meg		6R6433		R115	27Ω			
R71	56K		6R6378		R116	470K		6R6032	

Note 1. Chassis coded A-10 use 100K (Part #6R6031) in this application.
Note 2. Not used in chassis coded A-10.
Note 3. Some versions may use 22Ω (Part #6R6031) in this application.
Note 4. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	Hallderson Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
T1	117VAC @ 1.7A	540VCT @ .280A	5V @ 3A	25D743311 ①					26R90 ②	
		SEC. 3	SEC. 4	SEC. 5						
	6.3V @ 9.2A									

① Alternate part #24D743311.
② Use universal mounting brackets. Parallel and phase 6.3V @ 1.5A and 6.3V @ 8A windings.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							NOTES
		MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	Vert. Output	25C743634-B	Z1900 ②	A-2823 ①③	V316	A-8148 ④	26S77 ①	A118X ③	
T3A B	Alt. Vert. Output	25C743634							
	Yoke- Horiz. (24MH)	24D744084	DF-610 ⑤				Y-15 ⑤	Y-44 & NW 4	
	(90°)-Vert. (39MH)								
	Alternate Yoke	24D744322	DF-610 ⑤				Y-15 ⑤	Y-44 & NW 4	
M8	Yoke Clamp	42K743456							
	Rear Cover & Centering Device	48A743407							
T4	Horiz. Output	24C744042⑤		HVO-130					
	Primary Coil	24C744044							
	Secondary Coil	24C744043							

① Connect as autotransformer.
② Use 8 to 1 turns ratio.
③ Drill new mounting hole(s).
④ Cut and tape blanking lead.
⑤ Use original rear cover, centering device, width sleeve and horizontal damping network, if necessary.
⑥ Black coded coils and uncoded transformers used in chassis coded A-00. Red coded coils and transformers used in chassis coded A-01 and A-02. Orange coded coils and transformers used in A-03 and later chassis. When replacing secondary coil or complete transformer, change resistor R106 to 12Ω 1W, if any other value is used.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
			MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI.	SEC.								
T5	5000Ω	3-4Ω	25K743211	Z1002	A-3019	AU-600	A-8092	26S49	S-5Z	① Alternate part number.
	5000Ω	3-4Ω	25K74210 ①	Z1107	A-2930	AU-601	A-3877	24S51	S-3X	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	8"	PM	6-8Ω	50K740262 ① ② ③	8A21PA ②	① Manufacturer states to replace with part #50K740261. ② Phase. ③ Used in Models 21K80CW, CWA, Y21K80CW, CWA, Y21VW, WA, Y21VW, WA.
SP2	8"	PM	6-8Ω	50K740261 ② ③	8A21PA ②	④ Used in Models 21F8B, BA, W, WA, Y21F8B, BA, W, WA
	6"	PM	6-8Ω	50K745276 ④		⑤ Used in Models 21K73B, M, Y21K73B, BA, M, MA.
	4"	PM	6-8Ω	50K745276 ④		⑥ Manufacturer states to replace with part #50B740279.
	6"x9"	PM	3-4Ω	50K744621 ⑤		⑦ Used in Models 21K75B, CW, M, Y21K75B, BA, CW, CWA, M, MA, 21K75B, CW, M, Y21K75B, BA, M, MA
	8"	PM	3-4Ω	50D739233 ⑥		⑧ Used in Models 21T40BG, MG, Y21T40BG, BGA, MG, MGA. Manufacturer states to replace with part #50D739234.
	5 1/4"	PM	3-4Ω	50K744706 ⑦		⑨ Used in Models 21T42B, M, Y21T42B, BA, M, MA.
	5 1/4"	PM	6-8Ω	50K744706 ⑦		⑩ Used in Models 21K77B, M, Y21K77B, M. Manufacturer states to replace with part #50B634504.
	4"	PM	6-8Ω	50K744706 ⑦		⑪ Used in Models 21K81B, M, Y21K81B, M.
	8"	PM	6-8Ω	50D744704 ⑧		⑫ Two used in Models 21K81B, M, Y21K81B, M.
	12"	PM	3-4Ω	50D745881 ⑨		Manufacturer states to replace with part #50K746444.
	4"	PM	6-8Ω	50K746185 ⑩		

COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	NOTES	ITEM No.	USE	MOTOROLA PART No.	NOTES
L1	Ant. Coll	24C744200		L10	RF Coils	1V743447	Channel 2-13
L2	Ant. Coll	24C744200					Includes C17, C18, R11
L3	IF Trap Coll	1B743982		L11	Mixer Grid Coils	1V738959	Channel 2-13
L4	IF Trap Coll	1B743980					Wafer Assy. Includes C19
L5	IF Trap Coll	24K743530		L12	Osc. Coils	1V738961	Channel 2-13
L6	IF Trap Coll	1B743982					Wafer Assy. Includes C27, C28, R18
L7	IF Trap Coll	24B743947		L13	Mixer Plate Coil	24B739079	
L8	Ant. Coils	1V743899	Channel 2-13 Wafer Assy. Includes C9, C10, C12				
L9	Neutr. Coll	24A739397					

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MOTOROLA PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L14	47.25MC Trap	24K743363					
L15A	40MC Trap	24K743725					
L16	Bandpass Coil						
	1st. Video IF	24K743453	17-4523	TV-130	6219	VF-3	1.5 Microhenries
L17	Flt. Choke	24K743875	19-1001	BC-562	4604		
L18	2nd. Video IF	24B743328	17-4524	TV-130	6219	VF-3	1.5 Microhenries
L19	Flt. Choke	24K743875	19-1001	BC-582	4604		
L20	3rd. Video IF	24B743330	17-4524	TV-130	6219	VF-3	
L21	4th. Video IF	24C743408					Includes M4
L22	Resonant Choke	24R119889					10 Microhenries
L23	RF Choke	24K791446	19-1005	BC-566	4612		10 Microhenries, IRC part #CL-1
L24	Shunt Peaking Coil	24C736006	19-3180	TV-184	6180	VP-5	180 Microhenries
L25	Series Peaking Coil	24K744411	19-3100 *	TV-181 *	6112 *	VP-3 *	100 Microhenries, wound on 5600Ω resistor
L26	4.5MC Trap	24K739290	20-1004	TV-151	1469 *	SF-3	400 Microhenries, wound on 12K resistor
L27	Series Peaking Coil	24K744409	19-4400 *	TV-202 *	6136 *		
L28	Shunt Peaking Coil	24K744410	19-4400	TV-202	6136		400 Microhenries, wound on 2700Ω resistor
L29	Shunt Peaking Coil	24K743340					
L30	RF Choke	24K743727			4611		7.5 Microhenries, IRC part #CLA
L31	1st. Sound IF	24B743463					7.5 Microhenries, IRC part #CLA
L32	2nd. Sound IF	24B738943	17-3495 †	TV-113 †	6203 †	SF-2 †	
L33	Quadrature Coil	24B743425					
L34	RF Choke	24K743727			4611		
L35	RF Choke	24K743727			4611		

* Parallel with 5600Ω resistor.
† Remove C68 from circuit.

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.	
L36	35Ω		24B743426	19-1576 *	TV-163 *	6210 *	H-102 *	HS-5 *	12-45 Millihenries * Fabricate mounting.

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Hallderson Part No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.
L37	.280A	55Ω	2.5 Hy.	25K743212	C5037 ①	C-2996 ①	C-2334 ①	26C44	C-17X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Video Coupling	5000mmf, 68K		Note 1
K2	Tone Compensation	3300mmf, 68K		Note 1

Note 1. Some versions may use individual components in this application.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	5A 250V	65A742612	31A737468	312005. (3AG-5A-250V)	357001	MTH5	4405
M2	N	3/10A 125V S/B	65B743104	9K743152	333.300 (N 3/10A-S/B)	346008	N 3/10	HN 0 to 3/10
M3	2"	Length of #28 Copper Wire						

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	CBS PART No.	SYLVANIA PART No.	
M4		48C739300	1N80	1N80	Video Detector (Clip-In)

MISCELLANEOUS