

HORIZONTAL OSCILLATOR ADJUSTMENTS

Tune in a station and turn the vertical hold control to sync the picture vertically.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal oscillator adjustment (B1) to the center of the range over which the picture syncs as B1 is adjusted.

Adjust the horizontal drive trimmer (B2) for the best compromise between brightness and horizontal linearity.

Adjust the horizontal size adjustment (B3) until picture fills the mask horizontally.

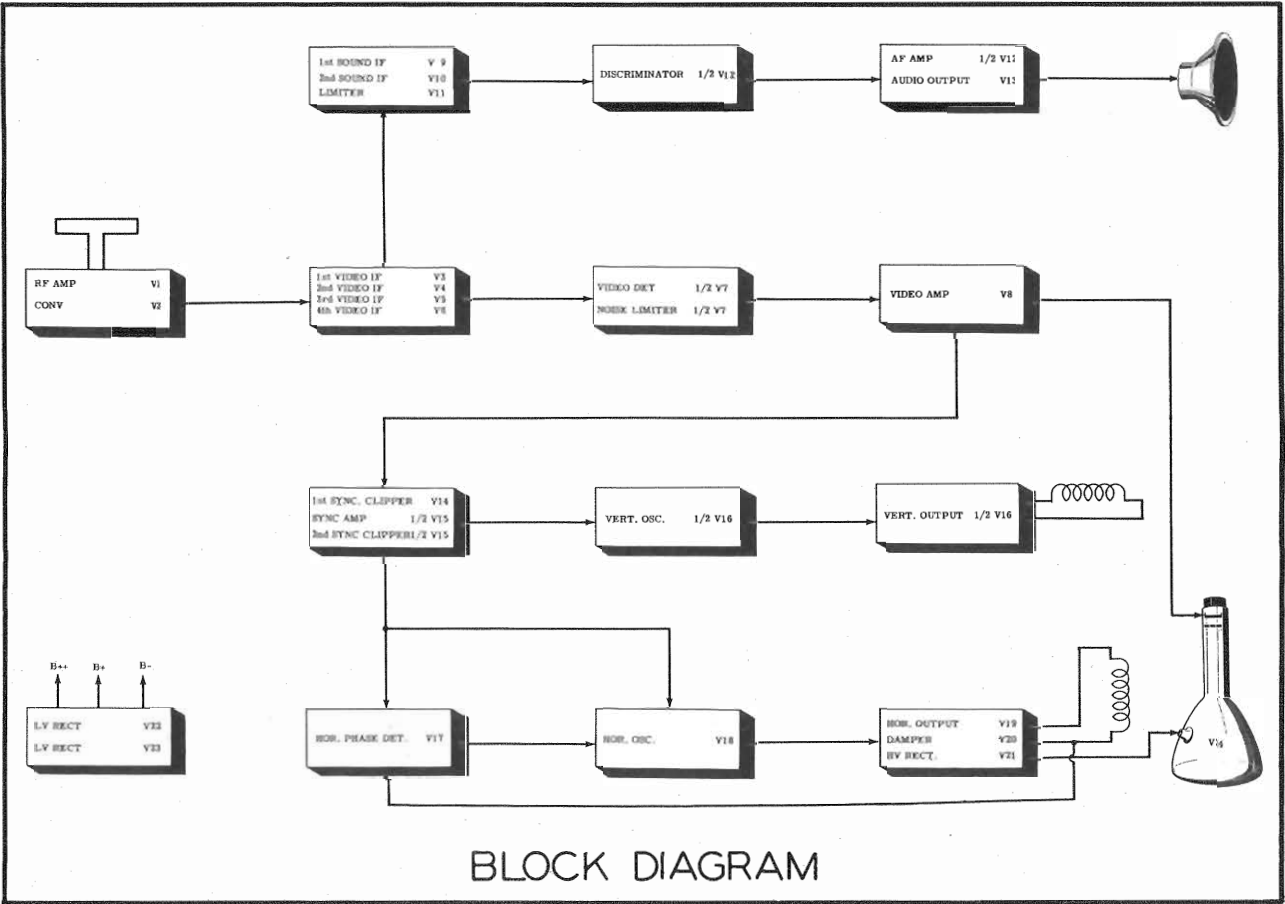
Adjust the horizontal linearity adjustment (B4) for best horizontal linearity.

The adjustments B3 and B4 are interacting and will need to be adjusted alternately for best results.

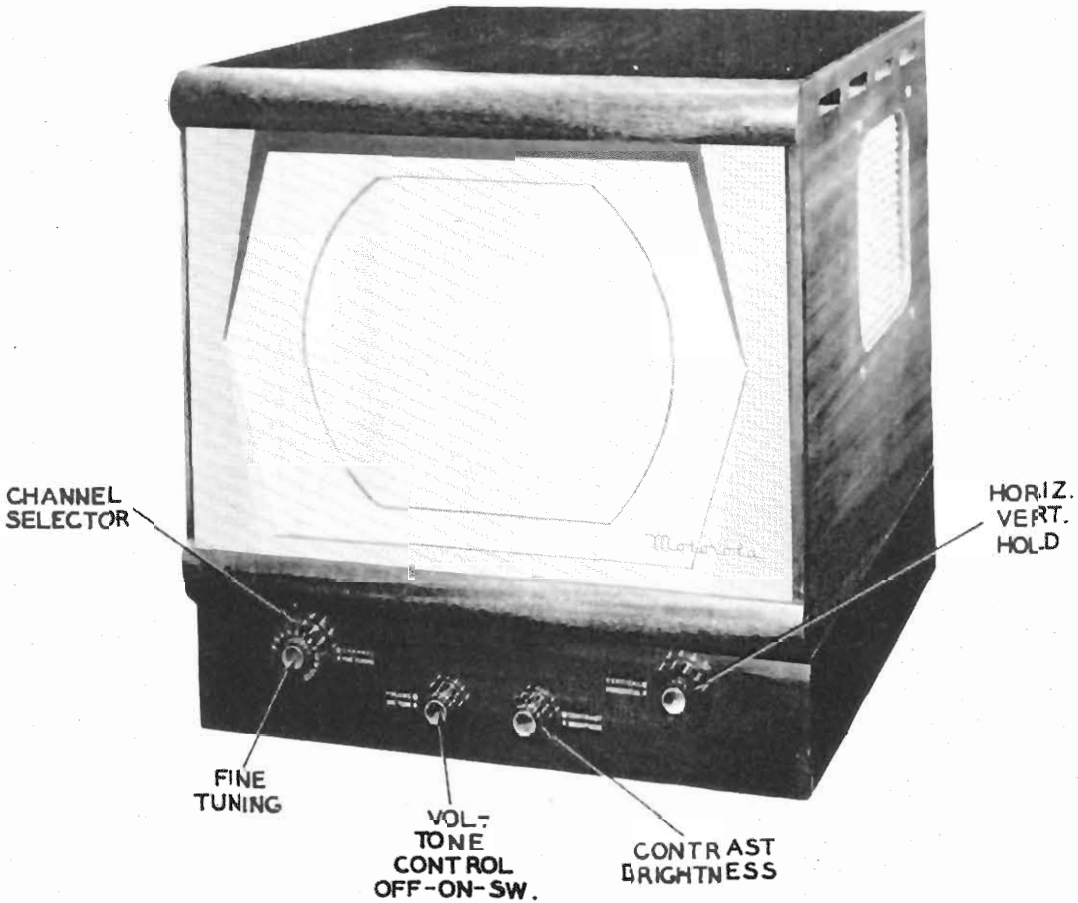
Center the picture by means of the adjusting screws on the focus coil.

DISASSEMBLY INSTRUCTIONS

- 1. Loosen 2 screws holding channel selector knob. Remove knob.
- 2. Remove three push-on type control knobs.
- 3. Remove ten screws holding rear cover over TV chassis.
- 4. Disconnect speaker plug at speaker.
- 5. Remove two screws holding antenna terminals to top right rear corner of cabinet.
- 6. Remove four 3/8" hex head bolts holding TV chassis to cabinet.
- 7. Slide cabinet forward to clear control shafts and lift upwards off TV chassis.
- 8. Remove four 5/16" hex nuts holding speaker to cabinet. Remove speaker.



BLOCK DIAGRAM



MOTOROLA MODELS VK-106, 107, 10VK9, 10VT3, 12VK18B, R, 12VT16, B, R

TRADE NAME	Motorola Models VK106, VK107 (Ch. TS-9E), 10VK9, 10VT3 (Ch. TS-9E, TS-9E1), 12VK18B, 12VK18R, 12VT16, 12VT16B, 12VT16R (Ch. TS-15C, TS-15C1)		
MANUFACTURER	Motorola, Inc., 4545 Augusta Blvd., Chicago 51, Illinois		
TYPE SET	TV Receiver		
TUBES	Twenty Four		
POWER SUPPLY	110-120 Volts AC-60 Cycles		
TUNING RANGE	Channels 2 thru 13	RATING: 2.2 Amp. @ 117 Volts AC	

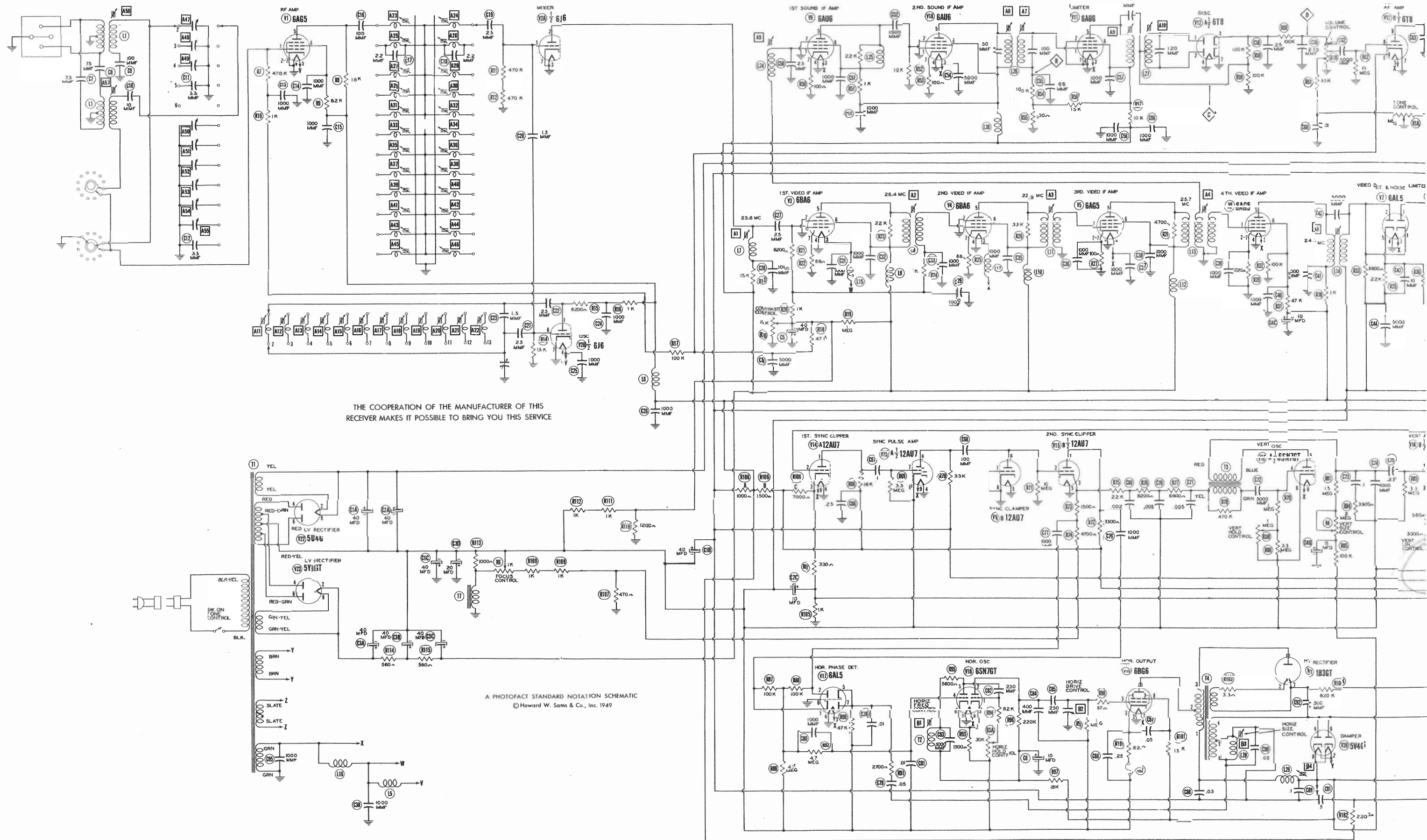
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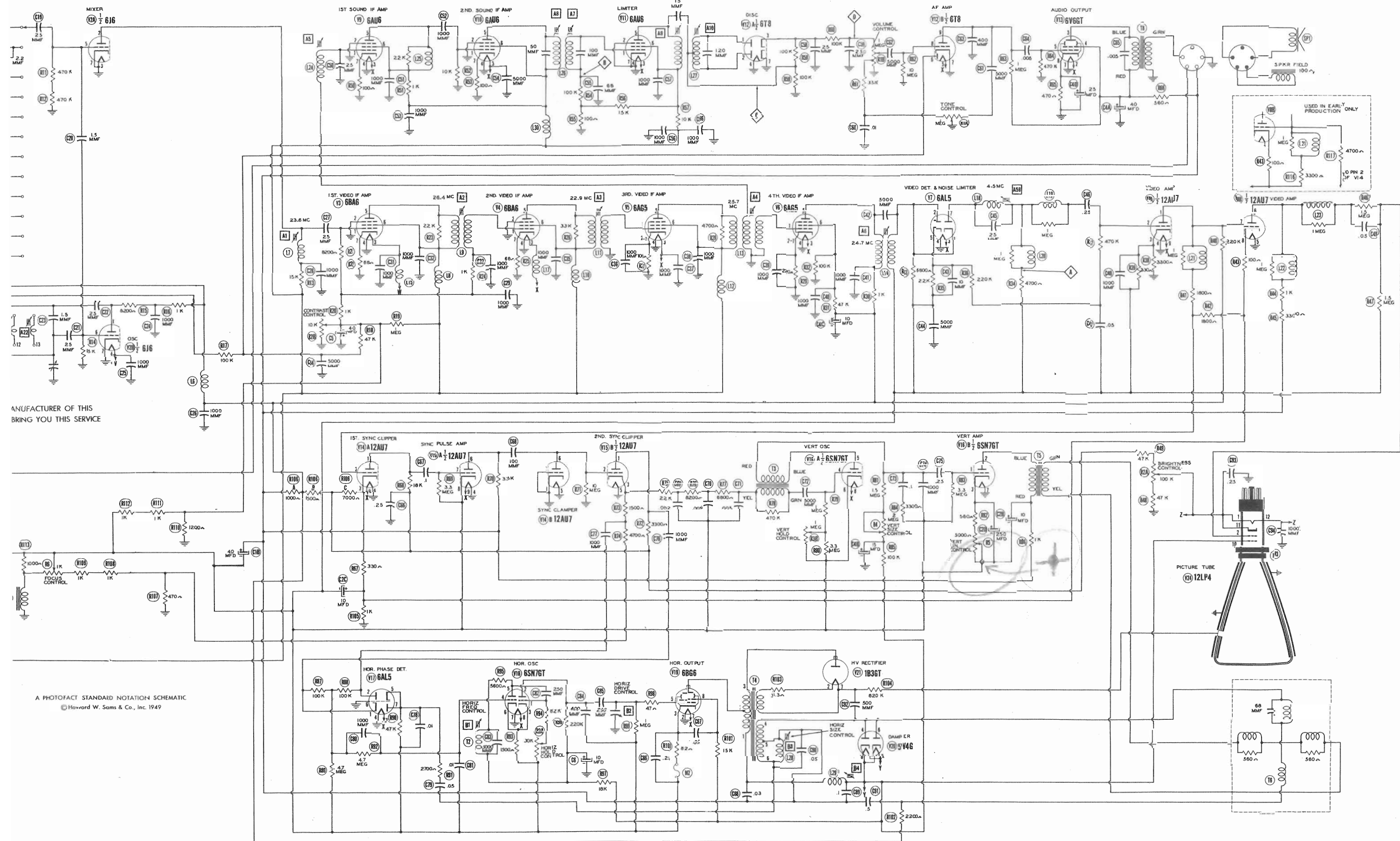
HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana

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DATE 11/49 SET #77 FOLDER #6





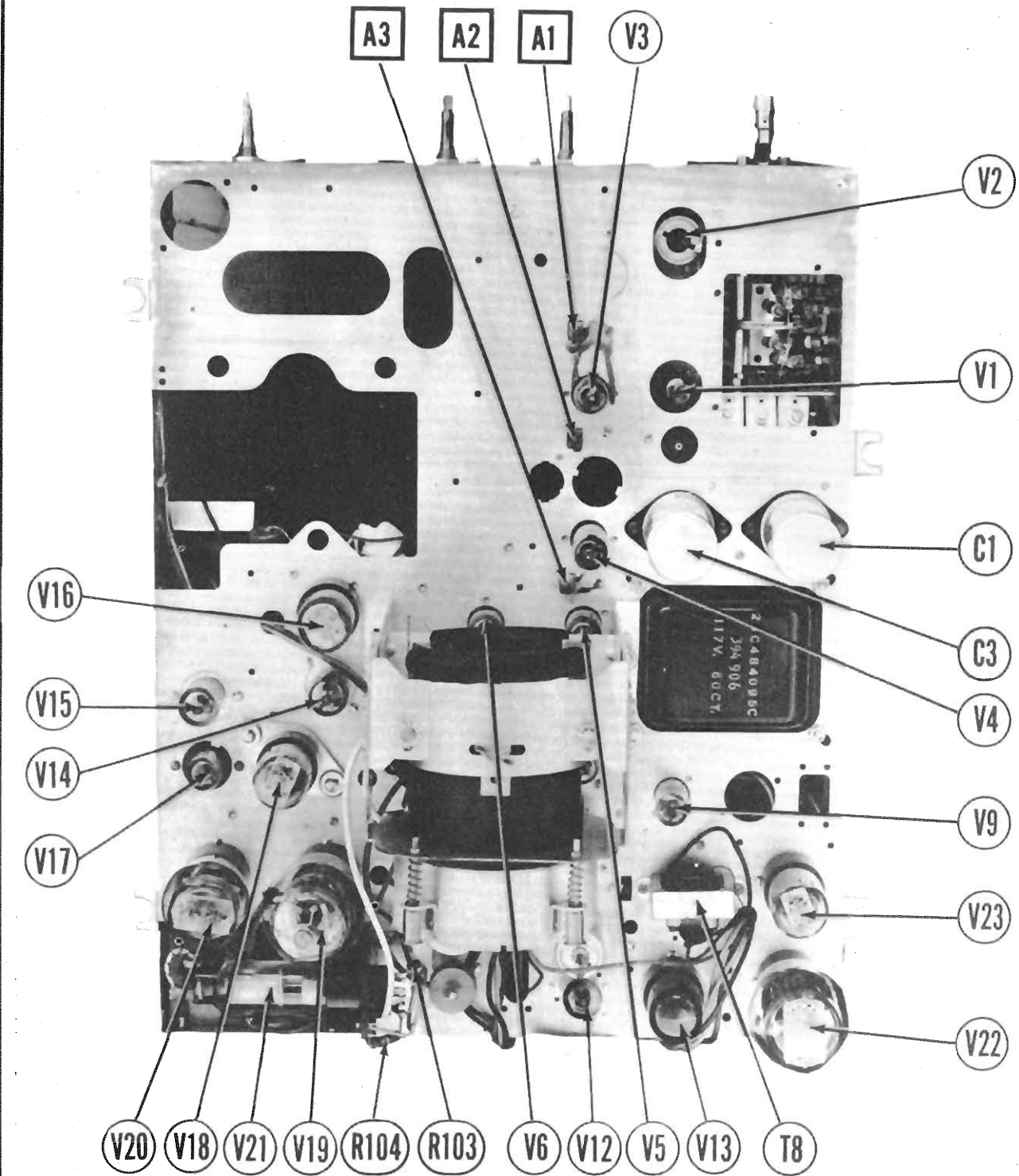
MOTOROLA MODELS 10K-106, 107,
10VK9, 10VT3, 12VK18B, R, 12VT16, B, R

VOLTAGE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6AG5	-1.4VDC	OV	6.3VAC	OV	175VDC	100VDC	OV	
V 2	6V6	185VDC	57VDC	OV	6.3VAC	-2.4VDC	5-4.8VDC	OV	
V 3	6BA6	-2.3VDC	OV	6.3VAC	OV	92VDC	92VDC	.8VDC	
V 4	6BA6	-2.3VDC	OV	6.3VAC	OV	92VDC	92VDC	.8VDC	
V 5	6AG5	OV	.8VDC	6.3VAC	OV	92VDC	92VDC	.8VDC	
V 6	6AG5	OV	2VDC	6.3VAC	OV	92VDC	92VDC	.8VDC	
V 7	6AL5	.4OV	OV	6.3VAC	OV	117VDC	117VDC	2VDC	
V 8	12AU7	4.0VDC	4.2VDC	6.3VAC	OV	4.1VDC	4.1VDC	4-1.0VDC	6.3VAC
V 9	6AU6	OV	OV	6.3VAC	OV	92VDC	92VDC	.8VDC	
V 10	6AU6	-1.7VDC	OV	6.3VAC	OV	90VDC	90VDC	.7VDC	
V 11	6AU6	-1.7VDC	OV	6.3VAC	OV	90VDC	90VDC	.7VDC	
V 12	6B8	-1.3VDC	-4VDC	6.3VAC	OV	50VDC	50VDC	OV	50VDC
V 13	6V6	OV	6.3VAC	6.3VAC	OV	30VDC	30VDC	OV	18VDC
V 14	12AU7	215VDC	20VDC	6.3VAC	OV	OV	OV	OV	OV
V 15	12AU7	225VDC	-43VDC	6.3VAC	OV	OV	OV	OV	OV
V 16	6SN7GT	4OV	4.34VDC	6.3VAC	OV	4.1VDC	4.1VDC	4OV	6.3VAC
V 17	6AL5	45.4VDC	4-6.3VDC	6.3VAC	OV	4OV	4OV	4OV	6.3VAC
V 18	6SN7GT	4-4VDC	4.11VDC	6.3VAC	OV	4.1VDC	4.1VDC	4OV	6.3VAC
V 19	6V6	OV	OV	6.3VAC	OV	4.1VDC	4.1VDC	4OV	6.3VAC
V 20	5V4	OV	300VDC	300VDC	310VDC	OV	310VDC	OV	300VDC
V 21	1B3GT	* DO NOT MEASURE							
V 22	5V4	OV	330VDC	330VDC	375VAC	260VDC	375VAC	-85VDC	330VDC
V 23	5Y3GT	OV	16VDC	OV	225VAC	240VDC	225VAC	OV	160VDC
V 24	12LP4	1.75VDC	180VDC	350VDC	175VDC	175VDC	175VDC	175VDC	175VDC

* Do not measure
* 6.3VAC measured across filament.
* Taken with vacuum tube voltmeter.
Note: Contrast control set at maximum for these measurements.

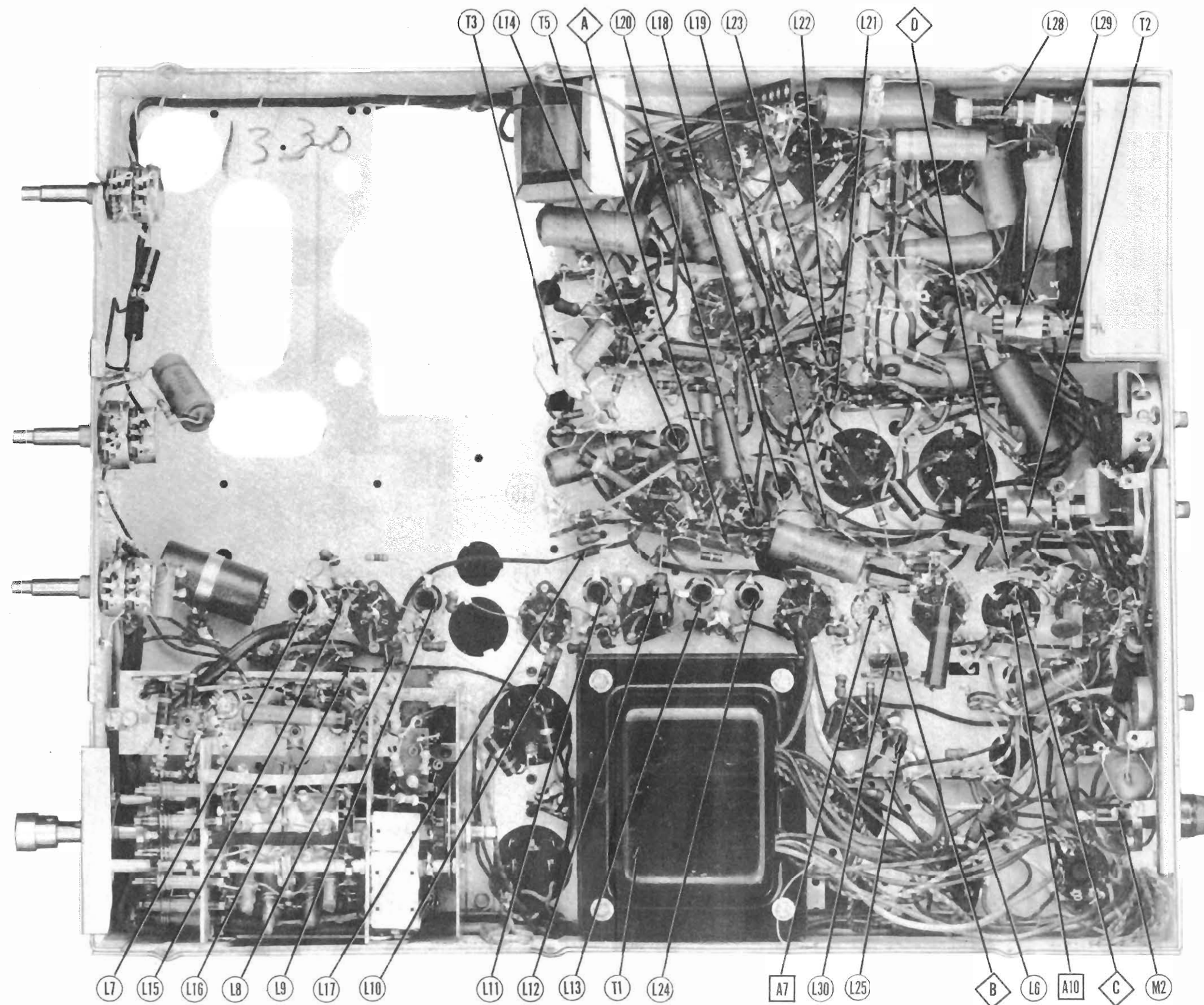
RESISTANCE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6AG5	200KΩ	OV	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 2	6V6	110KΩ	1.6KΩ	OV	.1Ω	1.8KΩ	1.8KΩ	OV	
V 3	6BA6	10KΩ	OV	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 4	6BA6	3.2KΩ	OV	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 5	6AG5	.1Ω	100Ω	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 6	6AG5	.1Ω	220Ω	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 7	6AL5	40Ω	40Ω	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 8	12AU7	4.5KΩ	710KΩ	435Ω	OV	1.8KΩ	1.8KΩ	OV	
V 9	6AU6	2Ω	OV	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 10	6AU6	10KΩ	OV	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 11	6AU6	100KΩ	OV	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 12	6B8	100KΩ	100KΩ	170KΩ	OV	1.8KΩ	1.8KΩ	OV	
V 13	6V6	OV	.1Ω	100Ω	170KΩ	110Ω	110Ω	OV	
V 14	12AU7	120KΩ	3KΩ	1.3KΩ	OV	1.8KΩ	1.8KΩ	OV	
V 15	12AU7	16KΩ	10 MΩ	7KΩ	OV	1.8KΩ	1.8KΩ	OV	
V 16	6SN7GT	3.3 MΩ	1.2KΩ	45.5KΩ	OV	1.8KΩ	1.8KΩ	OV	
V 17	6AL5	4.8 MΩ	4.8 MΩ	.1Ω	OV	1.8KΩ	1.8KΩ	OV	
V 18	6SN7GT	82KΩ	240KΩ	1.5KΩ	10 MΩ	1.8KΩ	1.8KΩ	OV	
V 19	6V6	Inf.	OV	42Ω	42Ω	1.8KΩ	1.8KΩ	OV	
V 20	5V4	Inf.	Inf.	65KΩ	111Ω	1.8KΩ	1.8KΩ	OV	
V 21	1B3GT	Inf.	Inf.	Inf.	Inf.	1.8KΩ	1.8KΩ	OV	
V 22	5V4	Inf.	15KΩ	15KΩ	41Ω	1.8KΩ	1.8KΩ	OV	
V 23	5Y3GT	Inf.	30KΩ	Inf.	42Ω	1.8KΩ	1.8KΩ	OV	
V 24	12LP4	47KΩ	800KΩ	.0Ω	47KΩ	1.8KΩ	1.8KΩ	OV	

1. DC Voltage measurements are at 20,000 ohms per volt, AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panel controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



CHASSIS TOP VIEW

MOTOROLA MODELS VK-106, 107, 10VK9, 10VT3, 12VK18B, R, 12VT16, B, R



MOTOROLA MODELS VK-106, 107,
10VK9, 10VT3, 12VK18B, R,
12VT16, B, R

CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT						
When adjusting RF coils, detune one adjustment counter-clockwise, adjust the other adjustment from maximum deflection. Then turn the formerly detuned adjustment for maximum. Do not readjust first adjustment.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
23. See note above—Osc. alignment.	Across antenna terminals.	58MC (Unmod.)	2	DC Probe to Point A Common to B-.	A23, A24	See note above.
24. "	"	64MC (Unmod.)	3	"	A25, A26	"
25. "	"	70MC (Unmod.)	4	"	A27, A28	"
26. "	"	80MC (Unmod.)	5	"	A29, A30	"
27. "	"	86MC (Unmod.)	6	"	A31, A32	"
28. "	"	178MC (Unmod.)	7	"	A33, A34	"
29. "	"	184MC (Unmod.)	8	"	A35, A36	"
30. "	"	190MC (Unmod.)	9	"	A37, A38	"
31. "	"	196MC (Unmod.)	10	"	A39, A40	"
32. "	"	202MC (Unmod.)	11	"	A41, A42	"
33. "	"	208MC (Unmod.)	12	"	A43, A44	"
34. "	"	214MC (Unmod.)	13	"	A45, A46	"
ANTENNA ALIGNMENT						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
35. See note under "Osc. Align."	Across antenna terminals.	86MC (Unmod.)	6	DC Probe to Point A Common to chassis.	A56	Adjust for maximum deflection.
36. "	"	58MC	2	"	A47	"
37. "	"	64MC	3	"	A48	"
38. "	"	70MC	4	"	A49	"
A fixed trimmer has been used on channel 5 in some models thereby not necessitating an adjustment for this channel. However, those models having a variable trimmer should be adjusted at 80MC.						
39. "	"	214MC	13	"	A57	"
40. "	"	178MC	7	"	A50	"
41. "	"	184MC	8	"	A51	"
42. "	"	190MC	9	"	A52	"
43. "	"	196MC	10	"	A53	"
44. "	"	202MC	11	"	A54	"
45. "	"	208MC	12	"	A55	"
4.5MC TRAP ADJUSTMENT						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
46. .01MFD	High side to pin 2 (Plate) of 6AL5 (V7). Low side to chassis.	4.5MC (Unmod. max. output)	Any	DC Probe thru detector (Fig. 4) to pin 1 (plate of 12AV7) (V8). Common to chassis.	A58	Adjust for MINIMUM deflection.

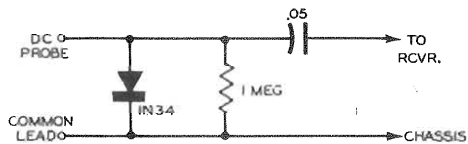
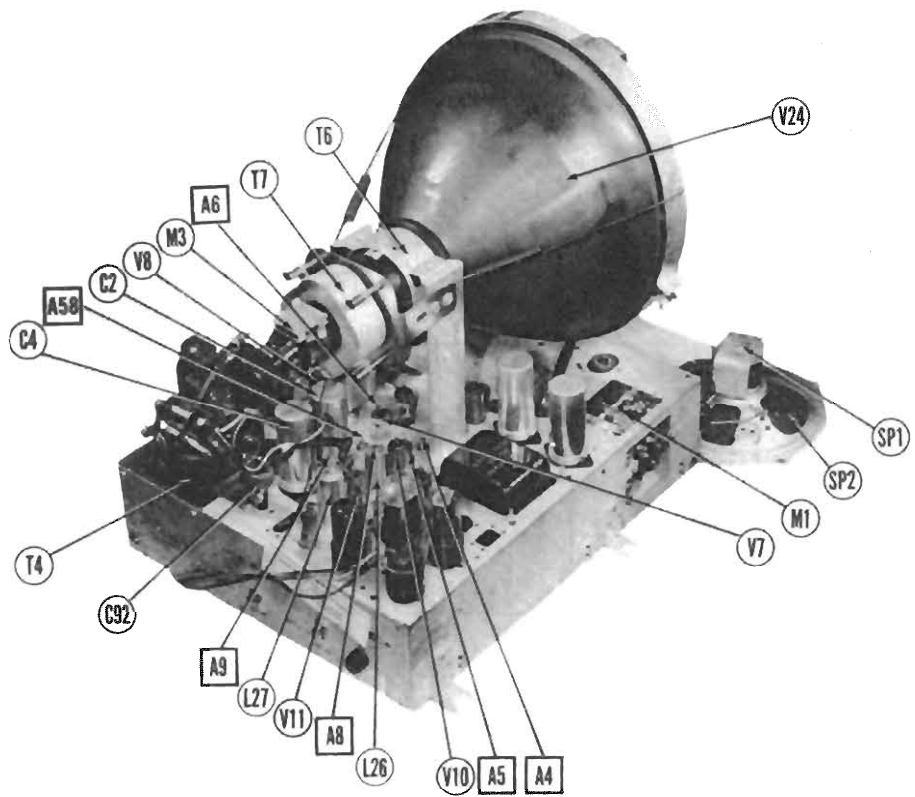
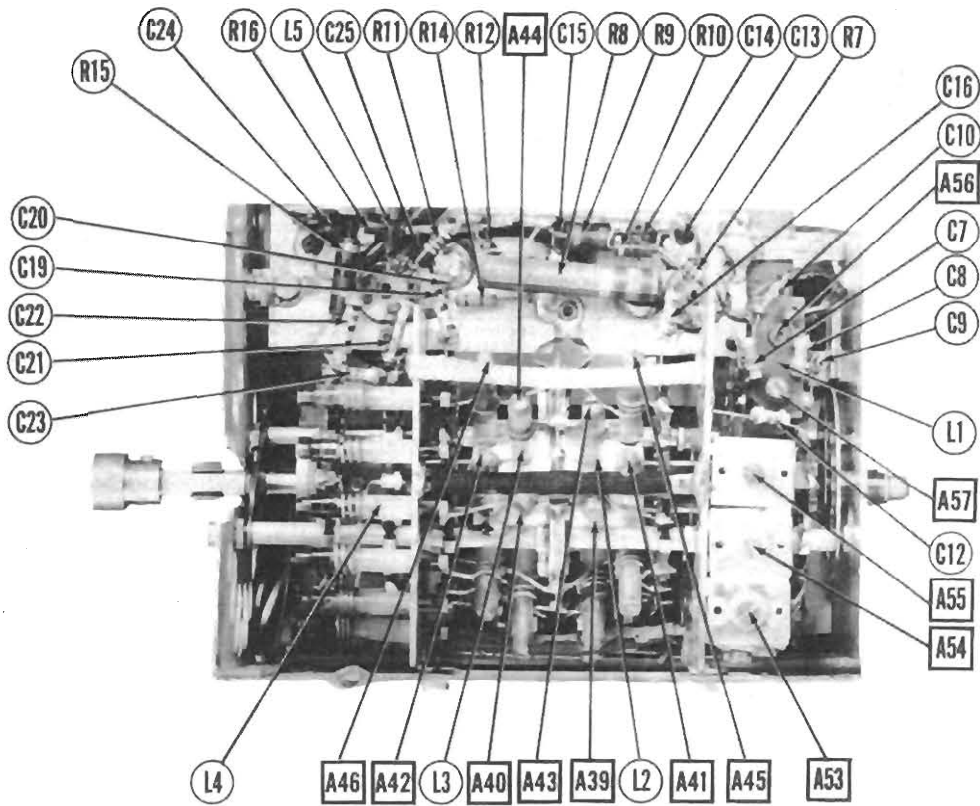


FIG. 4



CHASSIS-TOP VIEW



RF TUNER-BOTTOM VIEW

MOTOROLA MODELS VK-106, 107,
10VK9, 10VT3, 12VK18B, R,
12VT16, B, R

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT						
It is necessary to remove the picture tube during alignment. Remove the horizontal oscillator tube V16 to eliminate the high voltage shock hazard. During alignment, avoid contact with the electrolytic capacitor cans as they are not at chassis potential.						
VIDEO IF ALIGNMENT						
Turn the channel selector switch to one of the blank positions between channel 2 and channel 13. This disables the local oscillator to prevent erroneous indications. Turn the contrast control read -5 volts between the arm (center terminal) and chassis. Connect the negative lead of a 3 volt battery to the junction of R11 and R12 and the positive lead to chassis. The alignment frequencies for chassis TS-9E1 and TS-15C1 are different from the frequencies used for the TS-9E and TS-15C. Both frequencies are given in the signal generator frequency column and are identified as follows: 1 for chassis TS-9E and TS-15C and * for chassis TS-9E1 and TS-15C1.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1. .01MFD	High side to pin 5 (Grid) of 6J6 (V2). Low side to chassis.	26.6MC † 23.4MC * (Unmod.)	See note above	DC Probe to Point Common to B-.	A1	Adjust for maximum deflection.
2. .01MFD	"	26.4MC † 22.9MC * (Unmod.)	"	"	A2	"
3. .01MFD	"	22.9MC † 26.7MC * (Unmod.)	"	"	A3	"
4. .01MFD	"	25.7MC † 25.5MC * (Unmod.)	"	"	A4	"
5. .01MFD	"	21.7MC (Unmod.) maximum output.	"	"	A5	Adjust for MINIMUM deflection. Repeat step 4.
6. .01MFD	"	24.7MC (Unmod.)	"	"	A6	Adjust for maximum deflection.
OVERALL VIDEO IF RESPONSE CHECK						
See instructions under Video IF Alignment. Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7. .01MFD	High side to pin 5 (Grid) of 6J6 (V2). Low side to chassis.	24MC (10MC Sweep)	21.7MC 22.9MC 26.2MC	See note above Vert. Amp. to Point Common to chassis.		Check for response curve as per Fig. 1 with markers as shown. If necessary slightly retouch A1 thru A6 for optimum response.
SOUND IF ALIGNMENT						
See instructions under Video IF Alignment. If complete video IF alignment is not performed, step 5 of video IF alignment must be performed before beginning sound IF alignment.						
SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8. .01MFD	High side to pin 5 (Grid) of 6J6 (V2). Low side to chassis.	21.7MC (Unmod.)	See note above	DC Probe to Point Common to chassis.	A7, A8	Adjust for maximum deflection.
9. .01MFD	"	"	"	DC Probe thru 1 Meg. to point Common to chassis.	A9	Adjust for maximum deflection.
10. .01MFD	"	"	"	DC Probe to Point Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8. .01MFD	High side to pin 1 (Grid) of 6AU6 (V10). Low side to chassis.	21.7MC (450KC Sweep)	21.7MC	See note above Vert. Amp. to Point Low side to chassis.	A7, A8, A9	Adjust for maximum amplitude and symmetry as per Fig 2.
9. .01MFD	"	"	"	Vert. Amp. to Point Low side to chassis.	A9, A10	Adjust A10 so 21.7MC marker occurs at center of crossover lines as per Fig 3. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines. Continue with step 11.

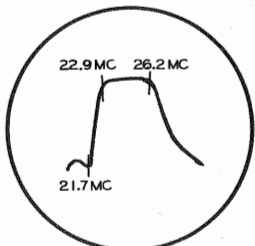


FIG. 1

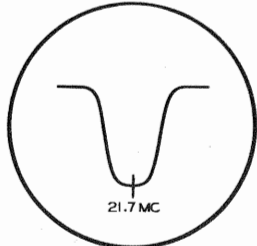


FIG. 2

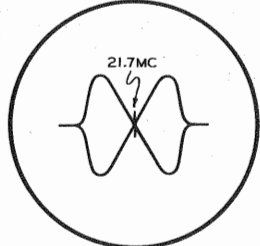
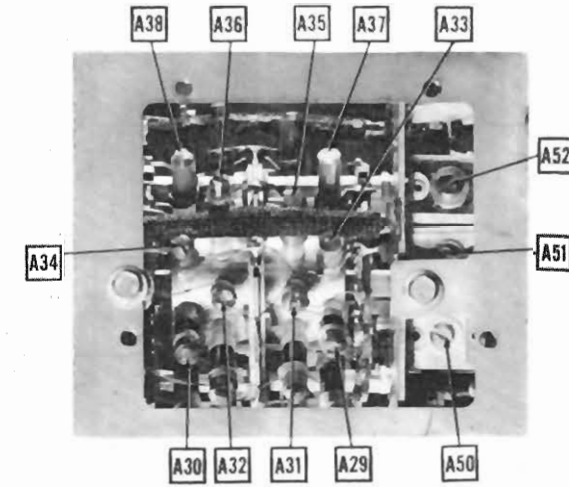
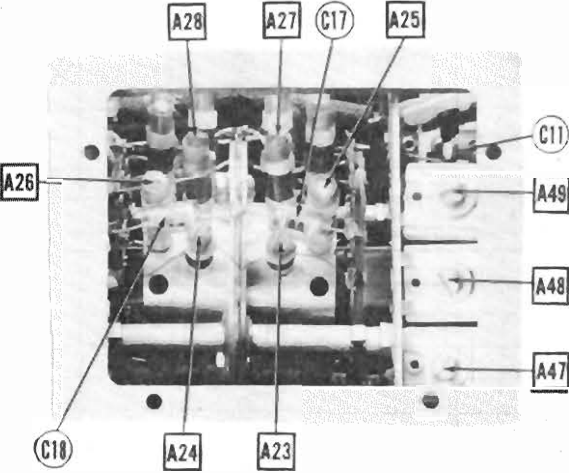
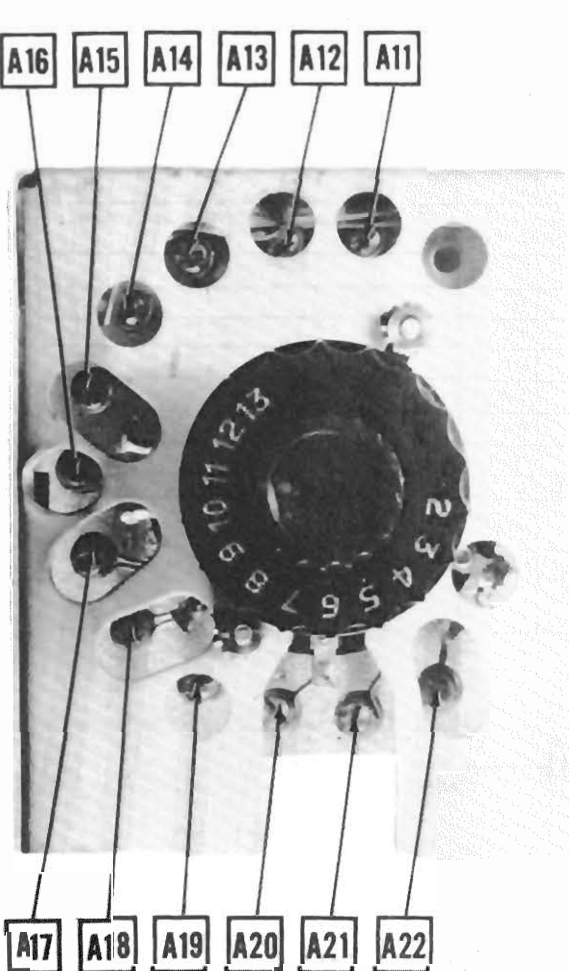


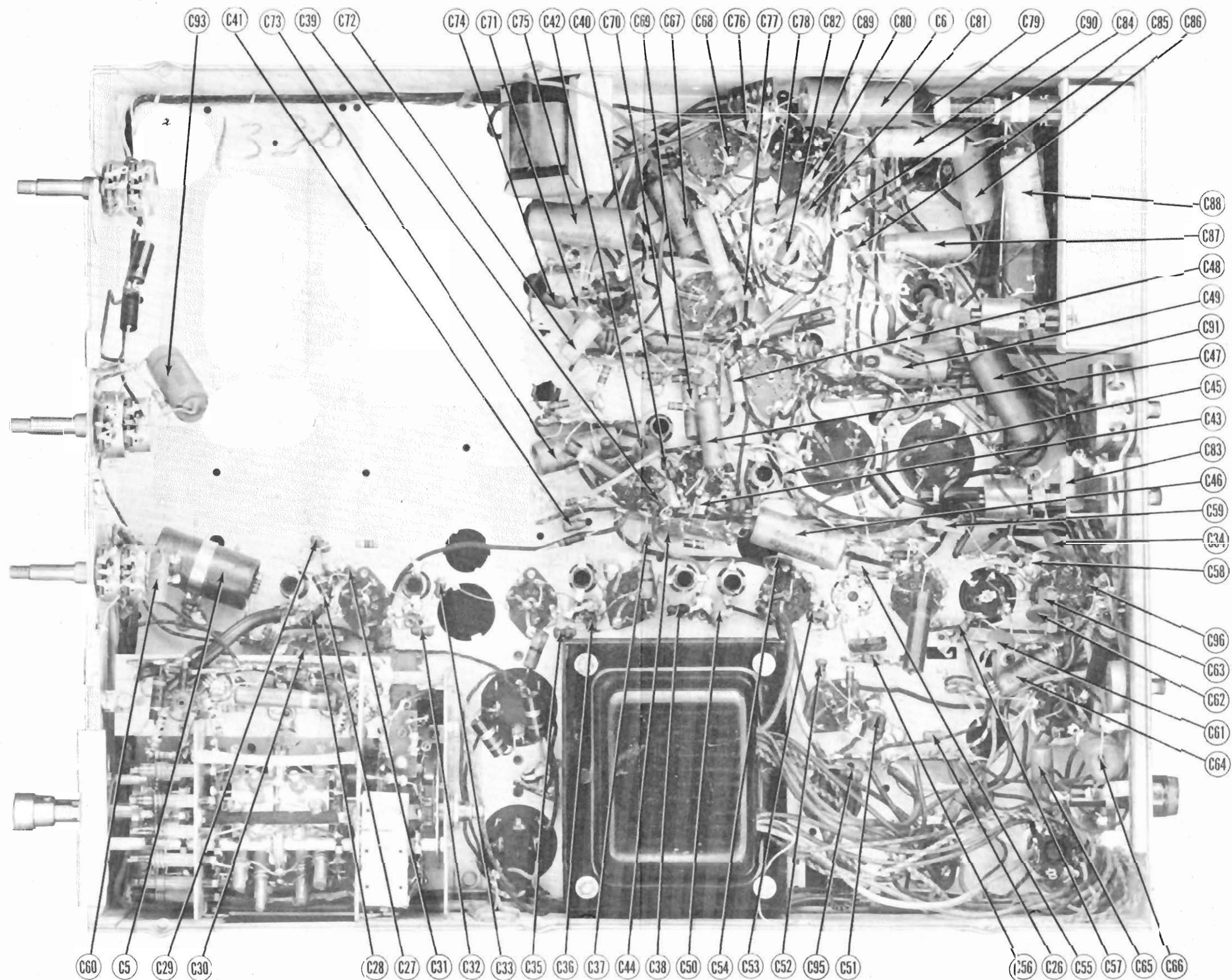
FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT						
Set the fine tuning control to the mid-position of its range. Match the generator output to the 3002 input. If generator has 50 ohm output use a 100 resistor in series with the high side and 1502 in series with the low side. If generator has 302 output use a 1202 resistor in series with the high side and 1502 in series with the low side.						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11. See note above	Across 3002 antenna terminals.	59.75MC (Unmod.)	2	DC Probe to Point Common to chassis.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
12. "	"	61.25MC (Unmod.)	3	"	A12	"
13. "	"	67.25MC (Unmod.)	4	"	A13	"
14. "	"	77.25MC (Unmod.)	5	"	A14	"
15. "	"	83.25MC (Unmod.)	6	"	A15	"
16. "	"	175.25MC (Unmod.)	7	"	A16	"
17. "	"	181.25MC (Unmod.)	8	"	A17	"
18. "	"	187.25MC (Unmod.)	9	"	A18	"
19. "	"	193.25MC (Unmod.)	10	"	A19	"
20. "	"	199.25MC (Unmod.)	11	"	A20	"
21. "	"	205.25MC (Unmod.)	12	"	A21	"
22. "	"	211.25MC (Unmod.)	13	"	A22	"

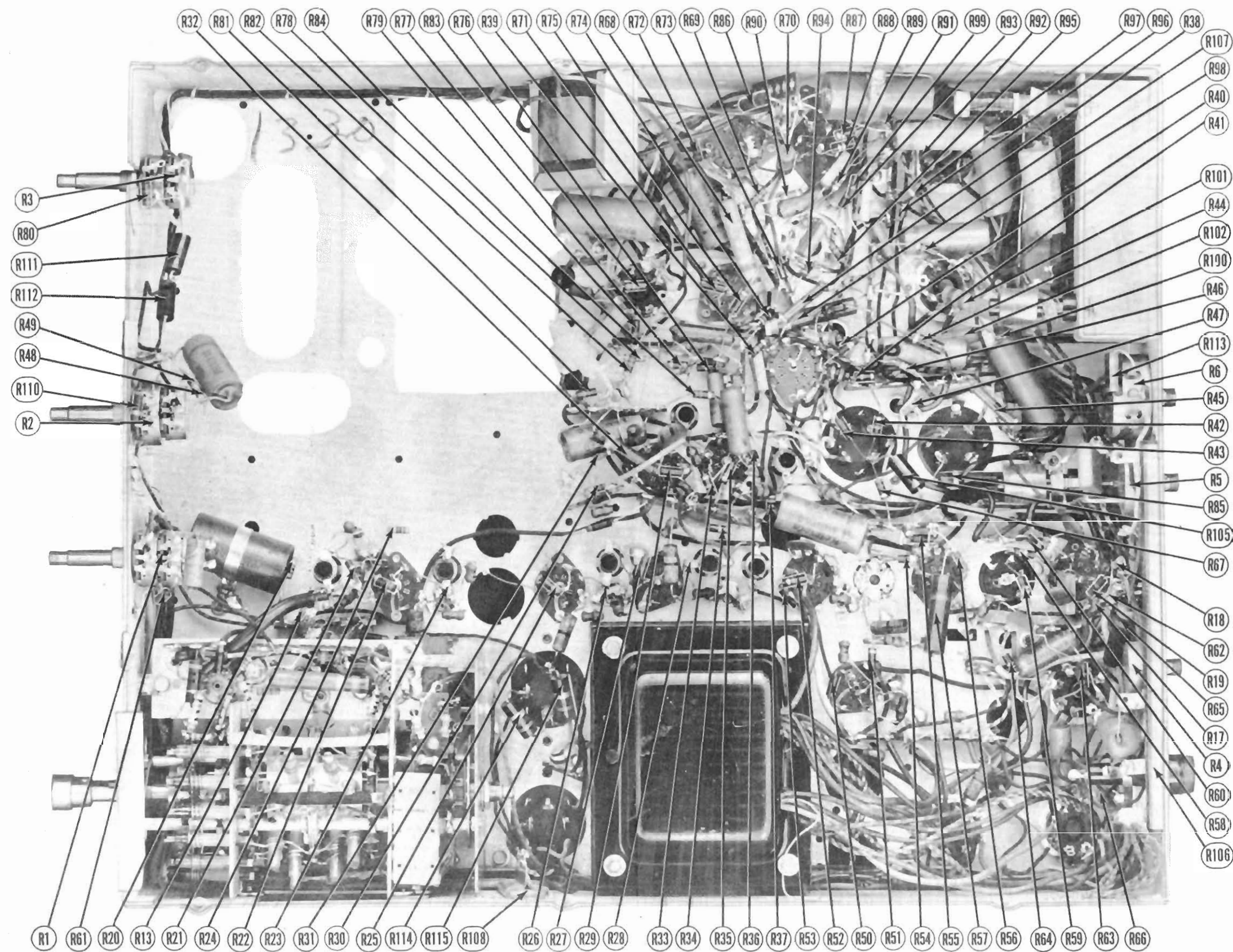


MOTOROLA MODELS VK-106, 107, 10VK9, 10VT3, 12VK18B, R, 12VT6, B, R



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

MOTOROLA MODELS VK-106, 107,
10VK9, 10VT3, 12VK18B, R,
12VT16, B, R



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

MOTOROLA MODELS VK-106, 107,
10VK9, 10VT3, 12VK18B, R,
12VT16, B, R

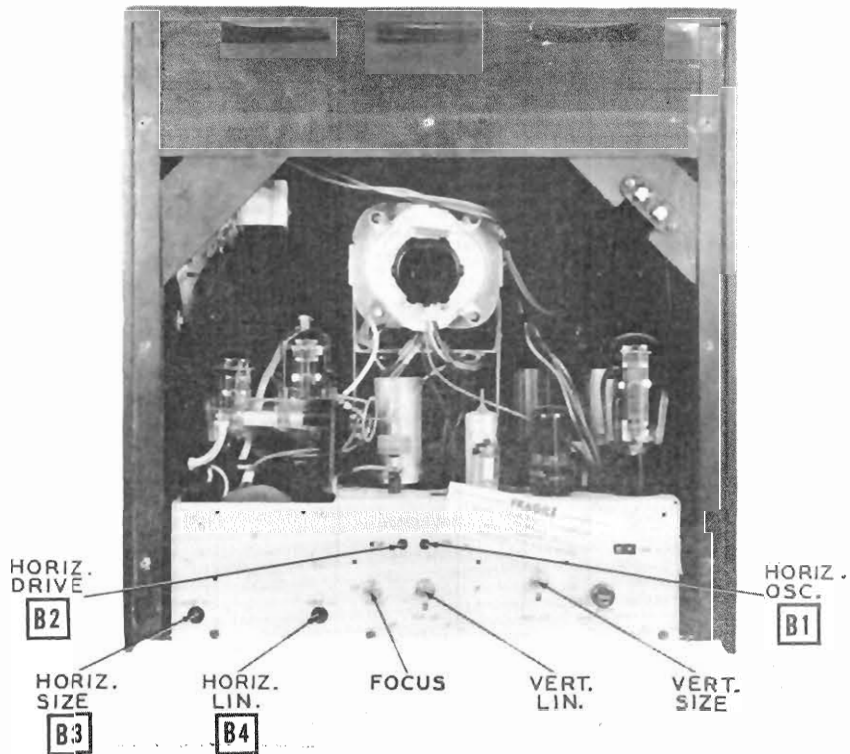
PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF) CONT.

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
L28	Hor. Size	22		24K790689		Complete with iron core.
L29	Hor. Linearity	40		24B470796		Complete with iron core.
L30	RF Choke	12		24A780127		1 Microhenry.

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1A	RF Tuner TT-3	1X484850	Complete
B	RF Tuner TT-5	1X790460	Complete
M2	Fuse	58K474899	Type AGC 1/8 Amp.
M3	Ion Trap	24B484822	PM
	Core	46K471143	Iron and Screw for L29
	Core	46A780344	Iron-Ceramic and screw for L28
	Core	46A70062	Iron and screw for L9, L11, L14 and L7 and L18
	Core	46K471337	Iron and screw for L27 primary and secondary & L24
	Core	46A484188	Iron: Threaded for L26 primary and secondary
	Back Cover	1X780413	Includes line cord and shield for model 12VT16
	Cabinet	16K790414	Table model, red mahogany model 12VT16R
	Cabinet	16K790415	Console model, lined oak model 12VT16B
	Back Cover	1X790096	Includes line cord and shield assy. for model 10VK9
	Cabinet	16K790047	Table Model: Red mahogany, model 10VT3R
	Cabinet	16K790051	Table model: lined oak, model 10VT3B
	Cabinet	16K790048	Console: red mahogany, model 10VK9R
	Cabinet	16K790411	Console lined oak, model 10VK9B
	Safety Glass	1X790523	Includes rubber gasket, for model 12VT16
	Safety Glass	1X790098	Includes rubber gasket, for model 10VT3
	Safety Glass	1X790096	Includes rubber gasket, for model 10VK9
	Knob	36B489176	Channel Selector, mahogany plastic model 12VT16R
	Knob	36B489176	Vert. hold mahogany plastic model 12VT16R
	Knob	36B485489	Contrast and volume mahogany plastic model 12VT16R
	Knob	36A790050	Brightness, Horiz. hold and off-tone mahogany plastic model 12VT16R
	Knob	36A790006	Fine tuning, mahogany plastic, model 12VT16R
	Knob	36K489178	Channel Selector tan plastic model 12VT16B
	Knob	36K489178	Vert. hold tan plastic, model 12VT16B
	Knob	36K485491	Contrast and volume, tan plastic model 12VT16B
	Knob	36K790433	Brightness, Horiz. hold and off-tone, tan plastic, model 12VT16B
	Knob	36K790432	Fine tuning, tan plastic model 12VT16B
	Knob	36A790050	Brightness, Horiz. hold and off-tone, mahogany plastic for models 10VT3R and 10VK9R
	Knob	36K790433	Brightness, Horiz. hold and off-tone, tan plastic for models 10VT3B and 10VK9B
	Knob	36A790006	Fine tuning, mahogany plastic for models 10VT3R and 10VK9R
	Knob	36K790432	Fine tuning, tan plastic for models 10VT3B and 10VK9B



CABINET-REAR VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF	6BA6	6BA6	7EK	
V4	2nd Video IF	6BA6	6BA6	7EK	
V5	3rd Video IF	6AG5	6AG5	7BD	
V6	4th Video IF	6AG5	6AG5	7BD	
V7	Video Det. and Noise Limiter	6AL5	6AL5	6BT	
V8	Video Amp.	12AU7	12AU7	9A	
V9	1st Sound IF	6AU6	6AU6	7BK	
V10	2nd Sound IF	6AU6	6AU6	7BK	
V11	Limiter	6AU6	6AU6	7BK	
V12	Disc.-AF Amp.	6T8	6T8	9E	
V13	Audio Output	6V6GT	6V6GT	7AC	
V14	1st Sync. Clipper	12AU7	12AU7	9A	
V15	Sync. Pulse Amp.-2nd Sync. Clipper	12AU7	12AU7	9A	
V16	Vert. Osc.-Vert. Amp.	6SN7GT	6SN7GT	8BD	
V17	Hor. Phase Det.	6AL5	6AL5	6BT	
V18	Hor. Osc.	6SN7GT	6SN7GT	8BD	
V19	Hor. Output	6BG6G	6BG6G	8ET	
V20A	Damper	6V4G	6V4G	8L	Used in chassis TS-9E and TS-15C.
B	Damper	6W4GT	6W4GT	4CG	Used in chassis TS-9E1 and TS-15C1.
V21	RV Rectifier	1B3GT	1B3GT	3C	
V22	LW Rectifier	6U4G	6U4G	6T	
V23	LW Rectifier	6Y3GT	6Y3GT	6T	Used in chassis TS-15C and TS-15C1.
V24A	Picture Tube	12LP4	12LP4	12D	Used in chassis TS-9E and TS-9E1.
B	Picture Tube	10BP4	10BP4	12D	

CAPACITORS

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

ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA			ERIE PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
		MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.			
C1A	40 450	23A484197	AFH88J8D	UP11CJ		TVL-54	Filter
B	40 450			1067			Filter
C	40 150						Filter
C2A	40 450	23A484196	AFH822J50A	UP9DJ		D6292	Filter
B	10 450			1068			Vert. Output Dec.
C	10 450						Filter
C3A	250 25	23A484194	AFH888G40	UP9DJ		D6286	Vert. Output Cath. Byp.
B	40 300			1070			Filter
C	40 300						Filter
D	20 150						Filter
C4A	40 450	23A484195	AFH822J6A	UP9DJ		D6290	Decoupling
B	15 450			1065			Vert. Osc. Dec.
C	10 450						Decoupling
D	25 25						Output Cath. Bypass
C5	40 150	23A484194	FRS250/40	BR4015		JT-401	Bias Filter
C6	10 450	23K489031	FRS450/10	BR1045		FVA-21	Decoupling
C7	7.5	21K790454					Ant. Coupling
C8	7.5	21K790454					Ant. Coupling
C9	100	21K790051					Isolation
C10	10	21K790455					Fixed Padder
C11	2.3	21A489032					NFCK-10
C12	3.3	21A489032					NFCK-3.3
C13	1000	21K478410					Fixed Trimmer
C14	1000	21K478410					Fixed Trimmer
C15	1000	21K478410					Bias Filter
C16	100	21K470736					RF Screen Bypass
C17	2.2	21K471216					RF Bypass
C18	2.2	21K471216					RF Coupling
C19	25	21A470738					Fixed Trimmer
C20	1.5	21K482296					RF Coupling
C21	25	21A470738					NFCK-1.5
C22	25	21A470738					Opt. Grid Cap.
C23	1.5	21K482296					Opt. Feedback
C24	1000	21K478410					Fixed Trimmer
C25	1000	21K478410					Opt. Plate Dec.
C26	1000	21K478410					Conv. Fil. Bypass
C27	25	21K28816	1468-0001	1W5D1			RF Bypass
C28	1000	21K478410	1468-000025	5W5Q25			IFM-21
C29	1000	21K478410	1468-0001	1W5D1			IFM-21
C30	1000	21K478410	1468-0001	1W5D1			IFM-21
C31	1000	21K478410	1468-0001	1W5D1			IFM-21
C32	1000	21K478410	1468-0001	1W5D1			IFM-21
C33	1000	21K478410	1468-0001	1W5D1			IFM-21
C34	5000	21A470769	1467-005	1D5D5			IFM-21
C35	1000	21K478410	1468-0001	1W5D1			IFM-21
C36	1000	21K478410	1468-0001	1W5D1			IFM-21
C37	1000	21K478410	1468-0001	1W5D1			IFM-21
C38	1000	21K478410	1468-0001	1W5D1			IFM-21
C39	1000	21K478410	1468-0001	1W5D1			IFM-21
C40	1000	21K478410	1468-0001	1W5D1			IFM-21
C41	1000	21K478410	1468-0001	1W5D1			IFM-21
C42	5000	21A470769	1467-005	1D5D5			IFM-21
C43	10	21A101778	1468-00001	5W5Q1			IFM-21
C44	5000	21A470769	1467-005	1D5D5			IFM-21
C45	25	21K28816	1468-000025	5W5Q25			IFM-21
C46	.25 200	8A471366	1468-25	GT5P45			IFM-21
C47	.05 100	8A471166	1468-05	GT5P45			IFM-21
C48	1000 500	21K6663	1468-001	1W5D1			IFM-21
C49	.05 600	8A471151	1468-05	GT5P45			IFM-21
C50	25	21K28816	1468-000025	5W5Q25			IFM-21
C51	1000	21K478410	1468-0001	1W5D1			IFM-21
C52	1000	21K478410	1468-0001	1W5D1			IFM-21
C53	1000	21K478410	1468-0001	1W5D1			IFM-21
C54	5000	21A470769	1467-005	1D5D5			IFM-21
C55	68 500	21R2740	1468-000075	5W5Q7			IFM-21

MOTOROLA MODELS VK-106, 107, 10VK9, 10VT3, 12VK18B, R, 12VT16, B, R

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
		MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SPRAGUE PART No.	
C58	1000	21K478410	1468-001	1W8D1	GP2L-001	1FM-21	RF Bypass
C57	1000	21K478410	1468-001	1W8D1	GP2L-001	1FM-21	Limiter Decoupling
C56	25	21K28816	1468-00025	5W8Q25	GP1K-25	1FM-25	RF Bypass
C55	250 500	21R6662	1468-00025	5W8T25	GP2K-250	1FM-250	De-emphasis
C60	.01 100	21K471163	1468-001	1W8D1	GP2-253-01	TM-11	Tone Comp.
C61	5000	21A470789	1467-005	1D5D4	811-005	25C1	Tone Comp.
C62	5000	21A470789	1467-005	1D5D4	811-005	25C1	Audio Coupling
C63	400 500	21R6664	1468-0004	5W8T4	GP2K-350	1FM-34	AF Plate Bypass
C64	.005 600	21K471162	1468-005	1W8D1	GP2M-005	TM-25	Audio Coupling
C65	.005 600	21K471162	1468-005	1W8D1	GP2M-005	TM-25	Output Plate Bypass
C66	.25 200	21K471164	1468-25	1D5D4	811-005	25C1	Decoupling
C67	.1 600	21K471164	1468-1	1D5D4	811-005	25C1	Sync. Coupling
C68	100	21K38224	1468-0001	5W8T1	GP1K-100	1FM-31	Sync. Coupling
C69	.002 400	21K780005	1468-002	1W8D2	GP2M-002	TM-22	Integrator Net.
C70	.005 200	21K780006	1468-005	1W8D5	GP2M-005	TM-25	Integrator Net.
C71	.005 200	21K780006	1468-005	1W8D5	GP2M-005	TM-25	Integrator Net.
C72	5000 500	21R6667	1467-005	1D5D4	811-005	25C1	Vert. Osc. Grid Cap.
C73	.1 400	21K471169	1468-1	1D5D4	811-005	25C1	Vert. Discharge
C74	1000	21K478410	1468-001	1W8D1	GP2L-001	1FM-21	Vert. Sweep Coupling
C75	.25 400	21K478410	1468-25	1D5D4	811-005	25C1	Hor. Sync. Coupling
C76	1000 500	21R6663	1468-001	1W8D1	GP2L-001	1FM-21	Hor. Sync. Coupling
C77	1000 500	21R6663	1468-001	1W8D1	GP2L-001	1FM-21	AF Filter
C78	.01 100	21K471163	1468-01	1W8D1	GP2L-001	1FM-21	AF Filter
C79	.05 600	21K471161	1468-05	1W8D1	GP2L-001	1FM-21	AF Filter
C80	1000 500	21R6663	1468-001	1W8D1	GP2L-001	1FM-21	AF Filter
C81	.01 100	21K471163	1468-01	1W8D1	GP2L-001	1FM-21	AF Filter
C82	250 400	21R6662	1468-00025	5W8T25	GP2K-250	1FM-250	Hor. MW Feedback
C83	5000 500	21R6667	1467-005	1D5D4	811-005	25C1	Fixed Trimmer
C84	400 500	21R6664	1468-0004	5W8T4	GP2K-350	1FM-34	Hor. Discharge
C85	250 500	21R6662	1468-00025	5W8T25	GP2K-250	1FM-250	Hor. Sweep Coupling
C86	.25 200	21K471164	1468-25	1D5D4	811-005	25C1	Hor. Output Cath. Bypass
C87	.05 600	21K471161	1468-05	1W8D1	GP2L-001	1FM-21	Hor. Output Screen Byp.
C88	.03 1000	21K780005	1468-03	1W8D3	GP2M-003	TM-22	Damper Filter
C89	.1 600	21K471169	1468-1	1D5D4	811-005	25C1	Damper Filter
C90	.05 600	21K471161	1468-05	1W8D1	GP2L-001	1FM-21	Fixed Trimmer
C91	.5 100	21K780158	1468-5	1W8D5	GP2M-005	TM-25	Hor. Sweep Coupling
C92	500 10000	21A90013	1468-500	1D5D5	811-005	25C1	HF Filter
C93	.25 200	21K471164	1468-25	1D5D4	811-005	25C1	Pic. Tube Cath. Dec.
C94	1000	21K478410	1468-001	1W8D1	GP2L-001	1FM-21	Pic. Tube Fil. Bypass
C95	1000	21K478410	1468-001	1W8D1	GP2L-001	1FM-21	Filament Bypass
C96	1000	21K478410	1468-001	1W8D1	GP2L-001	1FM-21	RF Bypass

* Some models use 200PF in this application.
† Not used in all models.

CONTROLS

ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA			INSTALLATION NOTES
		MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	
R1A	1 Meg.	18K489005			Tone control and switch (Dual Concentric)
B	1 Meg.	18K489005			Volume control, tapped @ 250K Ω
R2A	100K Ω	18A484072			Brightness control (Dual Concentric)
B	10K Ω	18A484072			Contrast control
R3A	30K Ω	18A484073			Horiz. hold control
B	1 Meg.	18A484199	Q11-139	M-63-S	Vert. hold control (Dual Concentric)
R4	2 Meg.	18A484800	Q11-114	M-19-S	Vert. size control
R5	500K Ω	18K780354			Vert. linearity control
R6	100K Ω	18K780354			Focus control, (Wire Wound)

RESISTORS

ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA		IDENTIFICATION CODES
		MOTOROLA PART No.	IRC PART No.	
R7	470K Ω	6R5377		RF Grid
R8	18K Ω	6R47014	BT-2-18K	RF Plate
R9	50K Ω	6R5377		RF Screen
R10	1000 Ω	6R5377		Bias Network
R11	470K Ω	6R5377		Conv. Grid
R12	470K Ω	6R5377		Conv. Grid
R13	18K Ω 20%	6R2119	BTS-15K	Conv. Plate Decoupling
R14	18K Ω 20%	6R2119	BTS-15K	Osc. Grid
R15	820K Ω	6R610		Osc. Plate
R16	1000 Ω 20%	6R6201		Osc. Plate Decoupling
R17	100K Ω	6R6081	BTS-100K	Bias Network
R18	47K Ω	6R6048	BTS-47K	Voltage Divider
R19	1 Meg.	6R6004	BTS-1 Meg.	Voltage Divider
R20	1000 Ω	6R6229	BTS-1000	Bias Network
R21	600 Ω 20%	6R6004		1st Video IF Grid
R22	600 Ω 20%	6R6007		2nd Video IF Cathode
R23	22K Ω	6R6229	BTS-1000	Bias Network
R24	1000 Ω	6R6007		2nd Video IF Cathode
R25	33K Ω	6R6410		3rd Video IF Transformer Shunt
R26	100 Ω 20%	6R6016		3rd Video IF Cathode
R27	4700 Ω	6R6090	BTS-4700	4th Video IF Transformer Shunt
R28	220K Ω 20%	6R6033		4th Video IF Cathode
R29	1000 Ω	6R6229		4th Video IF Plate Decoupling
R30	47K Ω	6R6048	BTS-47K	4th Video IF Screen Decoupling
R31	100K Ω	6R6081	BTA-100K	Voltage Divider See Note 1
R32	6800 Ω	6R6428	BTS-6800	5th Video IF Transformer Shunt See Note 2
R33	4700 Ω	6R6090	BTS-4700	Video Det. Diode Load
R34	22K Ω	6R6229	BTS-22K	Bias Network
R35	220K Ω	6R6407	BTS-220K	Voltage Divider
R36	470K Ω	6R6377	BTS-470K	Video Amp. Grid
R37	3200 Ω	6R6029	BTA-3200	Voltage Divider
R38	3200 Ω	6R6022	BW-4-320	Video Amp. Cathode
R39	220K Ω	6R6407	BTS-220K	Video Amp. Plate
R40	1800 Ω	6R6089	BTS-1800	Video Amp. Grid See Note 3
R41	1800 Ω	6R6089	BTS-1800	Video Amp. Grid See Note 3
R42	1800 Ω	6R6089	BTS-1800	Video Amp. Cathode
R43	100 Ω 20%	6R6018	BW-1-100	Video Amp. Plate
R44	1000 Ω	6R6327	BTA-1000	Video Amp. Plate
R45	3300 Ω	6R6029	BTA-3300	Video Amp. Plate

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA		IDENTIFICATION CODES
		MOTOROLA PART No.	IRC PART No.	
R46	1.5Meg. 20%	6R6389	BTS-1.5 Meg.	Voltage Divider
R47	1.5Meg. 20%	6R6389	BTS-1.5 Meg.	Picture Tube Grid
R48	47K Ω	6R6048	BTS-47K	Voltage Divider
R49	47K Ω	6R6048	BTS-47K	Voltage Divider
R50	100 Ω 20%	6R6018	BW-1-100	1st Sound IF Cathode
R51	1000 Ω	6R6329		1st Sound IF Decoupling
R52	10K Ω	6R6329		2nd Sound IF Grid
R53	100 Ω 20%	6R6018		2nd Sound IF Cathode
R54	100K Ω	6R6031		Limiter Grid
R55	100 Ω 20%	6R6018	BW-4-100	Voltage Divider
R56	18K Ω 20%	6R2119	BTS-18K	Voltage Divider
R57	10K Ω 20%	6R470060	BT-2-10K	Voltage Dropping
R58	100K Ω	6R6031	BTS-100K	Disc. Load
R59	100K Ω	6R6031	BTS-100K	Disc. Load
R60	100K Ω	6R6031	BTS-100K	De-emphasis
R61	33K Ω	6R6410	BTS-33K	Tone Compensation
R62	10 Meg. 20%	6R2109	BTS-10 Meg.	AF Grid
R63	1 Meg. 20%	6R6004	BTS-1 Meg.	AF Plate
R64	470K Ω	6R6377	BTS-470K	Output Grid
R65	470K Ω	6R6010	BW-2-470	Output Cathode (Wire Wound)
R66	560 Ω	6R48036	BTA-560	Filter
R67	330 Ω	6R6022	BW-4-330	Voltage Divider
R68	18K Ω	6R470014	BT-2-18K	1st Sync. Clipper Plate
R69	3.3Meg. 20%	6R2118	BTS-3.3 Meg.	Sync. Amp. Grid
R70	33K Ω	6R470014	BT-2-33K	Sync. Amp. Plate
R71	10 Meg. 20%	6R2109	BTS-10 Meg.	2nd Sync. Clipper Grid
R72	330K Ω	6R5561	BTS-330K	2nd Sync. Clipper Plate
R73	1500 Ω 20%	6R6101	BTS-1500	2nd Sync. Clipper Cathode
R74	4700 Ω	6R6090	BTS-4700	2nd Sync. Clipper Cathode
R75	22K Ω	6R6377	BTS-22K	Integrator
R76	8200 Ω	6R2004	BTS-8200	Integrator
R77	6800 Ω	6R6428	BTS-6800	Integrator
R78	470K Ω	6R6377	BTS-470K	Vert. Osc. Transformer Shunt
R79	1 Meg. 20%	6R6004	BTS-1 Meg.	Vert. Osc. Grid
R80	3.3Meg. 20%	6R2118	BTS-3.3 Meg.	Voltage Divider
R81	1.5Meg. 20%	6R2966	BTS-1.5 Meg.	Vert. Osc. Plate
R82	560 Ω	6R6291	BTS-560	Vert. Output Cathode
R83	3.3Meg. 20%	6R2118	BTS-3.3 Meg.	Vert. Output Grid
R84	3300 Ω	6R5561	BTS-3300	Vert. Peaking
R85	100K Ω	6R6031	BTA-100K	Filter
R86	1000 Ω	6R470004	BT-2-1000	Filter
R87	100K Ω	6R6031	BTS-100K	Horiz. Phase Det. Load
R88	100K Ω	6R6031	BTS-100K	Horiz. Phase Det. Load
R89	4.7 Meg.	6R6446	BTS-4.7 Meg.	Feedback Network
R90	47K Ω	6R6048	BTS-47K	Feedback Network
R91	2700 Ω	6R6090	BTA-2700	Feedback Network
R92	4.7 Meg.	6R6446	BTS-4.7 Meg.	Horiz. AFC Filter Network
R93	1500 Ω 20%	6R6101	BTS-1500	Horiz. Osc. Cathode
R94	82K Ω	6R5644	BTS-82K	Horiz. Osc. Grid
R95	5600 Ω	6R6117	BTS-5600	Horiz. Osc. Plate
R96	220K Ω	6R6407	BTS-220K	Horiz. Osc. Plate
R97	18K Ω	6R5754	BTA-18K	Filter
R98	47K Ω 20%	6R2109	BTS-47K	Parasitic Supp.
R99	1 Meg. 20%	6R6004	BTS-1 Meg.	Horiz. Output Grid
R100	82 Ω	6R48036	BW-2-82	Horiz. Output Cathode (Wire Wound)
R101	18K Ω	6R5754	BT-2-18K	Horiz. Output Screen
R102	2200 Ω	6R5627	BT-2-2200	Horiz. Centering
R103	3.3 Ω	17A485412		HV Rect. Filament (Wire Wound)
R104	820K Ω	6R2033		HF Filter
R105	1000 Ω 20%	6R470004	BW-2-1000	Bleeder
R106	1000 Ω	AB-1000		Filter (Wire Wound)
R107	470 Ω	AB-7000		Voltage Divider (Wire Wound)
R108	1000 Ω 20%	6R2010	BW-2-470	Voltage Divider (Wire Wound)
R109	1000 Ω 20%	17K780243	AB-1000	Voltage Divider (Wire Wound)
R110	1200 Ω	6R470004	BT-2-1200	Voltage Divider (Wire Wound)
R111	1000 Ω 20%	6R6329	BTS-1000	Voltage Divider
R112	1000 Ω 20%	6R470004	BT-2-1000	Voltage Divider
R113	1000 Ω 20%	6R470004	BT-2-1000	Voltage Divider
R114	560 Ω	6R48036	BW-2-560	Filter
R115	560 Ω	6R48036	BW-2-560	Filter
R116	3300 Ω	6R5561	BTS-3300	Video Amp. Grid See Note 6
R117	4700 Ω	6R6090	BTS-4700	Sync. Coupling See Note 6

Note 1. Used only in chassis TS-15C and TS-9E.
Note 2. Some models use 10K Ω resistor in this application.
Note 3. Chassis TS-9E uses 1500 Ω resistor in this application.
Note 4. Used in some TS-15C chassis, and TS-9E chassis.
Note 5. 680K Ω resistor is used in some TS-15C chassis, and TS-9E chassis.
Note 6. Used only in early production of TS-15C chassis.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	100 Ω	3.2 Ω	50C780320		7E	§ Supplied on order. State field resistance and current.
SP2	CONE DIA. V. C. DIA.					
	7 1/4"	3/4"				

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
T1	117VAC ② 2.2A	740VCT .24ADC 450VCT .050ADC	5VAC ③ 3A	5VAC ② 2A	25C484095	P-8157		TP-450
		SEC. 4 5VAC ② 2A	SEC. 5 0.2VAC ② 7.8A	SEC. 6 0.3VAC ② .6A				