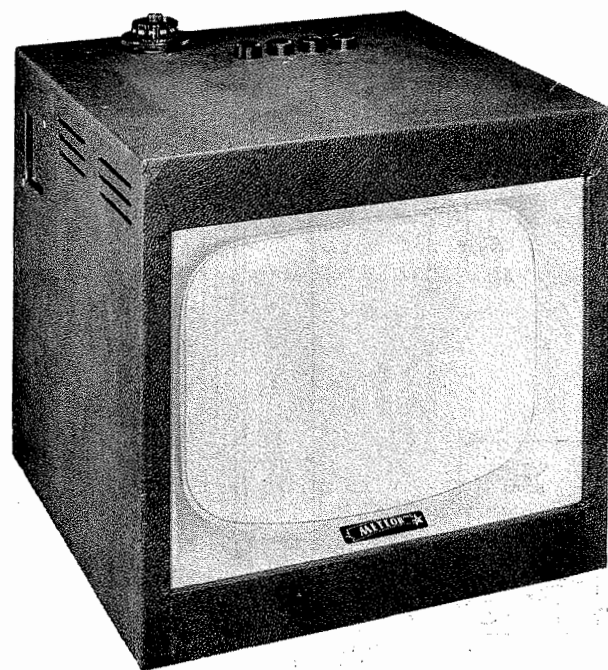




## DISASSEMBLY INSTRUCTIONS

### CABINET REMOVAL

1. Remove 7 push-on type control knobs from top panel of cabinet.
2. Remove 8 wood screws. Remove rear cover.
3. Disconnect speaker leads.
4. Remove 2 wood screws holding antenna terminal bracket.
5. Remove 8 wood screws from bottom of chassis mounting board (just the screws around the edge). Lift cabinet from chassis mounting board.
6. Remove 2 speaker nuts. Remove speaker.



MODEL	CHASSIS
4104-B	528.45000, 528.45001, 528.45002, 528.45003

## SERVICING IN THE FIELD

### TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of VHF tuner oscillator adjustments, it is necessary to remove the chassis from the cabinet. (See disassembly instructions).

### PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

### SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

### HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator it is necessary to remove the rear cover and supply power to the chassis.

Set the horizontal hold control to its mid-position and adjust the frequency slug (B2) until the picture synchronizes horizontally.

### SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, it is necessary to remove the rear cover and supply power to the chassis. Adjust the ratio detector secondary (L26) for maximum sound and minimum buzz.

### CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

METEOR MODEL  
4104-B (Ch. 528.45000, 1, 2, 3)

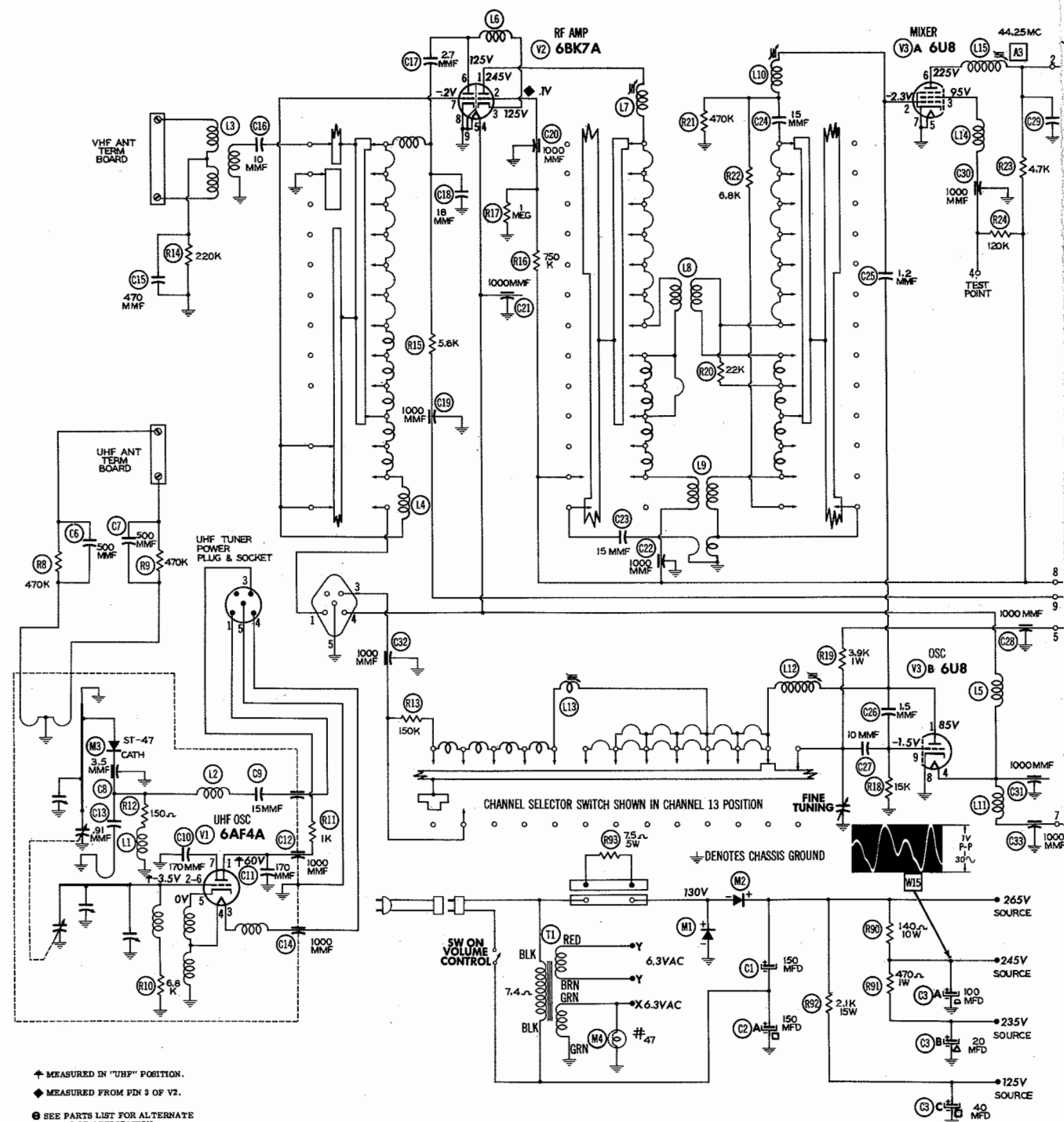
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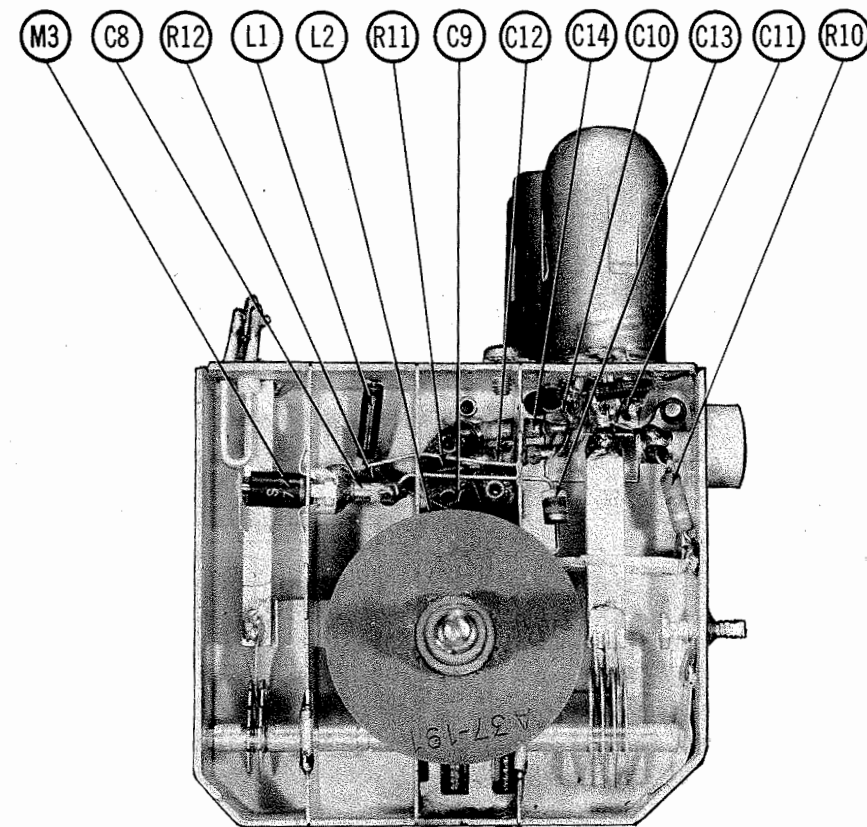
DATE 9-56

SET 328

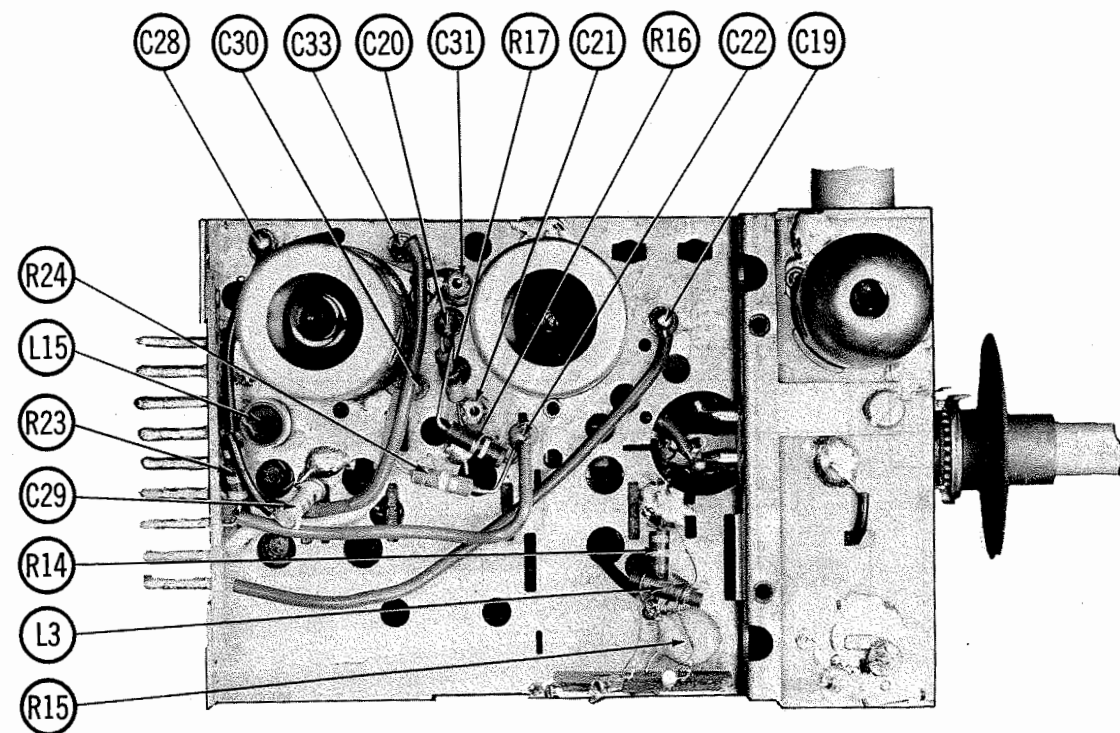
FOLDER 7



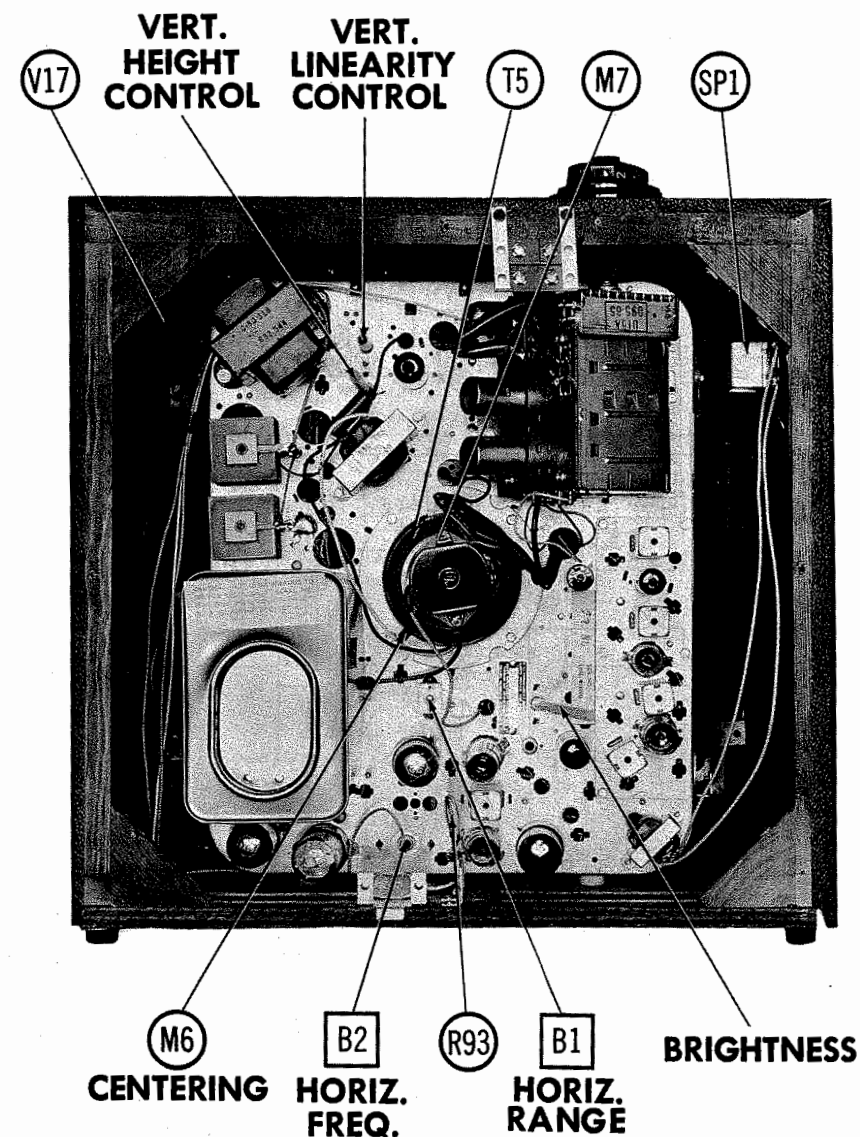
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UHF TUNER FRONT VIEW



RF TUNER TOP VIEW



CABINET-REAR VIEW

### HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.
2. Turn the horizontal range (B1) fully clockwise. Set the horizontal hold control to mid-range position.
3. Adjust the horizontal frequency slug (B2) until the picture synchronizes horizontally.
4. Connect the vertical amplifier of the oscilloscope thru a low capacity probe to point ④.
5. Adjust the waveform slug (B3) until the waveform obtained on the scope is similar to Fig. 4 with the sharp peak 10% higher in amplitude than the broad peak. During this adjustment, keep the picture in sync by adjusting the horizontal hold control and the horizontal frequency slug (B2).
6. Turn the horizontal hold control fully counter clockwise. Momentarily interrupt the signal by switching off channel and back again. The picture may remain in sync. If so, turn B2 counter clockwise until the picture will no longer pull into sync when the signal is interrupted momentarily. Then turn B2 clockwise until the picture just falls into sync.
7. Turn the horizontal hold control fully clockwise. Again, momentarily interrupt the signal by switching off channel and back again. The picture should pull into sync. If not, turn the horizontal range control (B1) counter clockwise until the picture does remain in sync during interruption.
8. Repeat steps 6 and 7 until proper action is obtained. B1 and B2 are properly adjusted when the picture will remain in sync at both extreme settings of the horizontal hold control when the signal is momentarily interrupted.

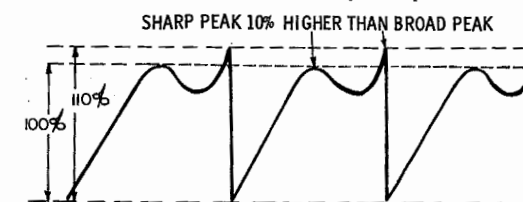
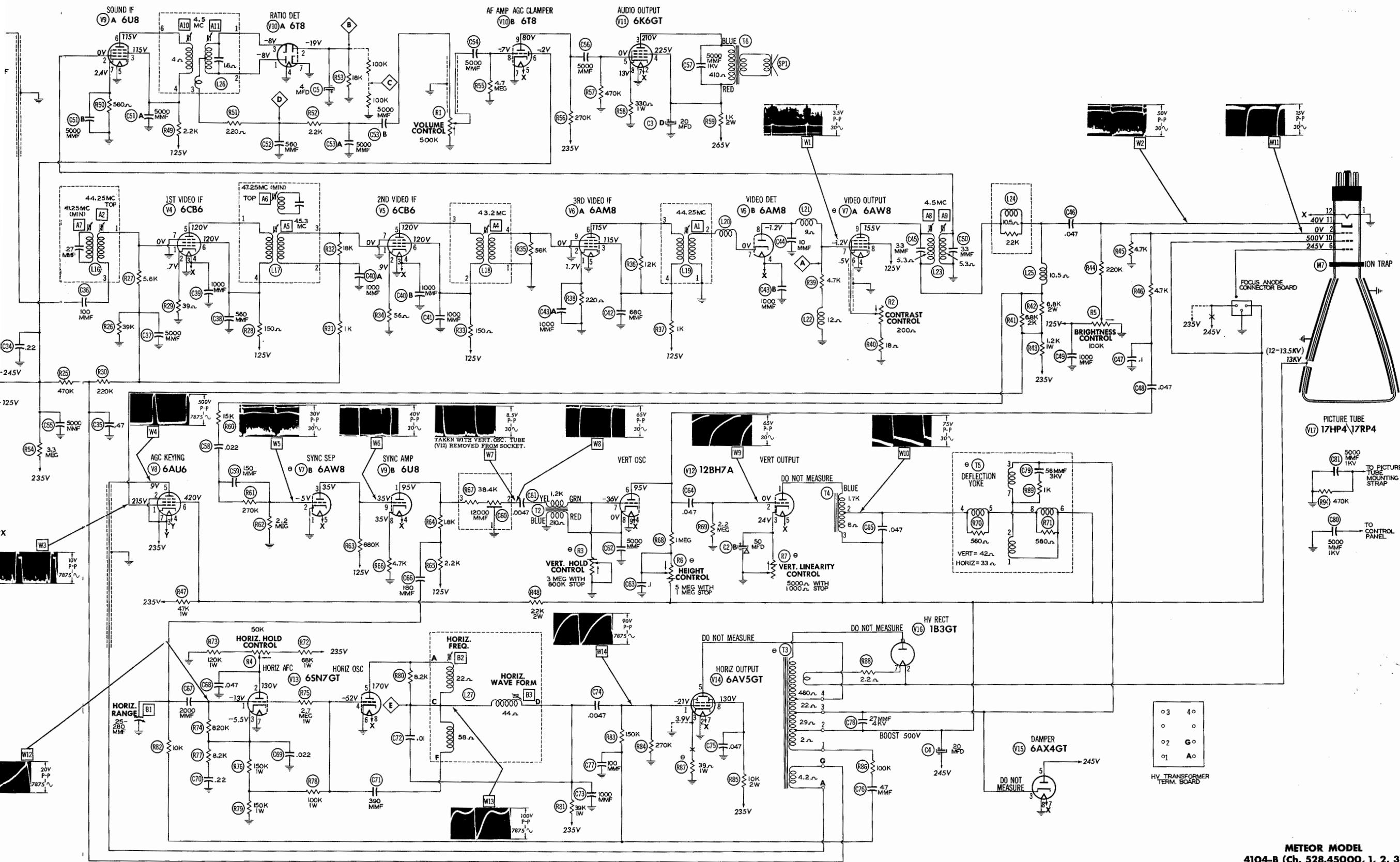


FIG. 4



**METEOR MODEL**  
4104-B (Ch. 528.45000, 1, 2, 3)

**METEOR MODEL**  
4104-B (Ch. 528.45000, 1, 2, 3)

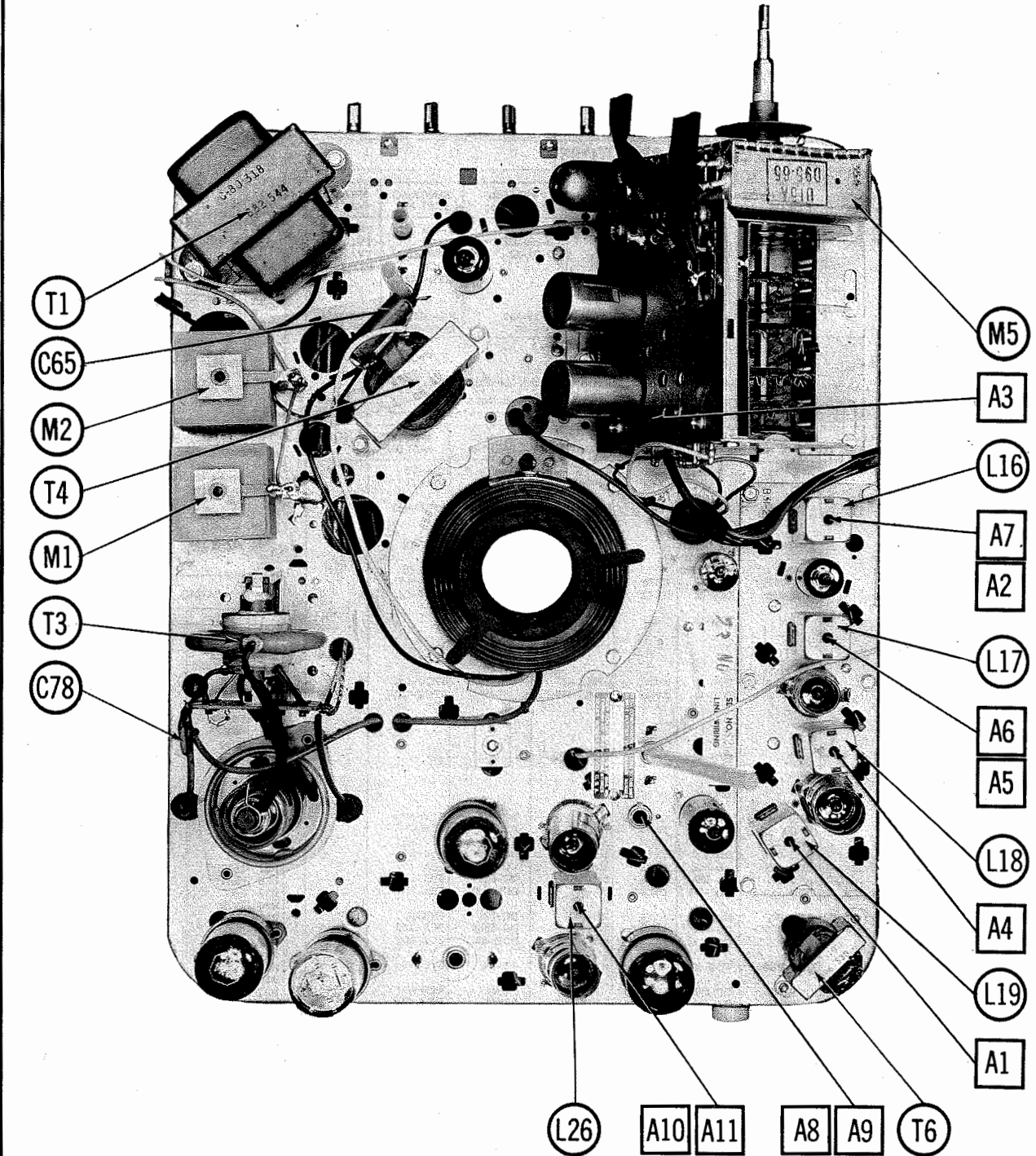


PARTS LIST AND DESCRIPTIONS (Continued)  
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		METEOR PART No.	SYLVANIA PART No.	
M3	ST-47	48-99	1N82 or 1N82A	UHF Mixer (Clip in)

MISCELLANEOUS

ITEM No.	PART NAME	METEOR PART No.	NOTES
M4	Dial Light	89-7	#47 VHF-UHF Combination, Consists of VHF Section Part #95-88, and UHF Section Part #95-85
M5	Tuner	95-83	
M6	Centering Device	83-830	Part of Deflection Yoke (T5) Rear Cover
M7	Ion Trap	20-152	Horiz. Range ( 25-280MMF)
B1	Trimmer Cap.		



METEOR MODEL  
4104-B (Ch. 528.45000, 1, 2, 3)

CHASSIS TOP VIEW  
SET 328 FOLDER 7

## TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES	ITEM No.	USE	TYPE	NOTES
V1	UHF Oscillator	6AF4A		V9	Sound IF Amplifier-Sync Amplifier	6U8	
V2	RF Amplifier	6BK7A		V10	Ratio Detector-AF Amp.-AGC Clamper	6T8	
V3	Mixer-Oscillator	6U8		V11	Audio Output	6X8GT	
V4	1st. Video IF Amplifier	6CB6		V12	Vert. Osc.-Vert. Output	12BH7A	
V5	2nd. Video IF Amplifier	6CB6		V13	Horiz. AFC-Horiz. Osc.	6SN7GT	
V6	3rd. Video IF Amplifier	6AM8		V14	Horiz. Output	6AV5GT	
V7	Video Detector	6AW8	Note 1	V15	Damper	6AX4GT	
V8	Video Output-Sync Separator	6AU6		V16	HV Rectifier	1B3GT	

Note 1. 6BH8 may be used in some versions.

## PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	METEOR PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V17	17HP4/ 17RP4	17HP4/ 17RP4 17HP4B ①	17HP4/17RP4  17HP4B ①	17HP4/ 17RP4 17HP4B ②	① Aluminized ② Silver screen "85"

## ELECTROLYTIC CAPACITORS

RATING			REPLACEMENT DATA						
ITEM No.	CAP.	VOLT.	METEOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	150	150	18-323	AFHS1-70	XA004	FP117	TD-150-150	T-050	TVL-1428
C2A	150	150	18-322	ESB387	XA004	FP117	TD-150-150	T-050	TVL-1428
B	50	50			BR505	TC39	TD-50-50	FM-0550	TVA-1308
C3A	100	300	18-346	E4D972		FP447		D-177	R2228 *
B	20	300				TC68		MTD-3520	
C	40	300							
D	20	300							
C4	20	300	18-334	PRS450V20	BR2035	TC65	TD-20-350	FM-4520	TVA-1008
C5	4	50	18-339	PRS150V4	BR550	TC30	TD-4-50	MMT-0505	TVA-1303

\* Non-catalog item.

## 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		METEOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	REPLACEMENT DATA				NOTES	
	CAP.	VOLT				CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.		
C6	500		15-304	BPD-0005		G061	811-501		UC-535	5GA-T5	
C7	500		15-304	BPD-0005		G061	811-501		UC-535	5GA-T5	
C8	3.5		5219-501								
C9	15		221-150	N750-D115	TCN-15	N021	N750K-150			5TCU-Q15	
C10	170		138-3								
C11	170		138-3								
C12	1000		206-102	EF-001	MFT-1000					503C-D1	
C13	.91		2101-918								
C14	1000		206-102	EF-001	MFT-1000					503C-D1	
C15	470		230-471	BPD-00047	DD-471	K060	811-471		UC-5347	5GA-T47	
C16	10		160-100	N750-S110	TCN-10	TN01	N750A-100		NT-541	5TCU-Q1	
C17	2.7		2101-279								
C18	18		221-180		TCN-18	N022	N750K-180				
C19	1000		244-1								
C20	1000		244-1								
C21	1000		244-1								
C22	1000		244-1								
C23	15		222-150	NP0-D115	TCZ-15	Z021	N750K-150			5TCC-Q15	
C24	15		222-150	NP0-D115	TCZ-15	Z021	N750K-150			5TCC-Q15	
C25	1.2		2101-129								
C26	1.5		170-159								
C27	10		227-100								
C28	1000		244-1								
C29	62		159-620		TCN-62	TN17	N750K-620				
C30	1000		244-1								
C31	1000		244-1								
C32	1000		244-1								
C33	1000		244-1								
C34	.22	200	16-253	P288N-22		CUB2P22			PT4022	2TM-P22	
C35	.47	200	16-240	P288N-47		CUB2P47			PT4047	2TM-P47	
C36	100		15-292	NP0-D110	TCZ-100	TZ30	NP0-337-101		5TCC-T1	5TCC-T1	
C37	5000		15-320	BPD-005	DD-502	K080	811-005		DC-525	5HK-D5	
C38	560		15-305	DI-00056	DD-561	G063	811-561		UC-5356	5GA-T56	
C39	1000		15-247	BPD-001	DD-102	K069	801-001		DC-521	5HK-D1	
C40A	1000		15-286	BPD-2X001	DD2-102	DK069	812-001		DCD-521	5HK-2D1	
C41	1000		15-247	BPD-001	DD-102	K069	801-001		DC-521	5HK-D1	
C42	680		15-290	BPD-00068	DD-681	G065	811-681		UC-5368	5GA-T68	
C43A	1000		15-286	BPD-2X001	DD2-102	DK069	812-001		DCD-521	5HK-2D1	
C44	10		15-234	NP0-D110	TCZ-10	Z018	NP0A-100		ZT-541	5TCC-Q1	
C45	33										
C46	.047	400	16-245	BPD-05	DF-503	CUB4S47			PT4147	4TM-S47	
C47	.1	400	16-264	P488N-1	DF-104	CUB4P1			PT401	4TM-P1	
C48	.047	400	16-245	BPD-05	DF-503	CUB4S47			PT4147	4TM-S47	
C49	1000		15-247	BPD-001	DD-102	K069	801-001		DC-521	5HK-D1	
C50	33										
C51A	5000		15-294	BPD-005	DD2-502	DK079	811-005		DC-525	5HK-2D47	
C52	560		15-303	BPD-005	DD-561	G063	811-561		UC-5356	5GA-T56	
C53A	5000		15-294	BPD-005	DD2-502	DK079	811-005		DC-525	5HK-2D47	
C54	5000		15-320	BPD-005	DD-502	K080	811-005		DC-525	5HK-D5	
C55	5000		15-320	BPD-005	DD-502	K080	811-005		DC-525	5HK-D5	
C56	5000		15-320	BPD-005	DD-502	K080	811-005		DC-525	5HK-D5	
C57	5000	1000	15-305	HVD-15-4700	DD-502	VD47	IR5KV-472		PT4122	4TM-S47	
C58	.022	400	16-248	BPD-02	DF-203	CUB4S22	817-02		PT4122	4TM-S22	
C59	150		15-295	NP0-D110	TCZ-150	TZ34	NP0-334-151		ZT-5315	5TCC-T15	
C60	12000		117-109	117-109	117-109					1103C12	
C61	.0047	600	16-233	1464-0047		1R5D47				MS-247	
C62	5000		15-320	BPD-005	DD-502	K080	811-005		DC-525	5HK-D5	
C63	.1	600	16-208	P688N-1	DF-104	CUB6P1			PT601	6TM-P1	
C64	.047	400	16-447	BPD-05	DF-503	CUB4S47			PT4147	4TM-S47	
C65	.047	200	16-266	BPD-05	DF-503	CUB2S47			PT4147	2TM-S47	
C66	180	500	15-300	NP0-S110	TCZ-180	IR5T56	NP0-334-181			MS-316	
C67	2000		15-228	BPD-02	DD-203	K072	801-002		DC-522	5HK-D2	
C68	.047	400	16-245	BPD-05	DF-503	CUB4S47			PT4147	4TM-S47	
C69	.022	200	16-283	BPD-02	DF-203	CUB4S22	817-02		PT4122	2TM-S22	
C70	.22	200	16-253	P288N-22	CUB2P22				PT4022	2TM-P22	
C71	390	500	15-273	D6-391	5R5T39	811-391				MS-339	

PARTS LIST AND DESCRIPTIONS  
CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	METEOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C72	.01	600	16-262							
C73	1000	500	15-288	1464-001		IR5D1	811-102	MCB255	MS-21	
C74	.0047	600	16-233	BPD-0047	D6-472	CUB6D47	811-0047	PT6247	6TM-D47	
C75	.047	400	16-245	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C76	47	15-265	15-265	NP0-D147	TCZ-47	Z033	NP0-338-470	ZT-5447	5TCC-Q47	
C77	100	15-262	15-262	NP0-D100	TCZ-100	TE30	NP0-337-101	ZT-531	5TCC-T1	
C78	27	4000	15-315							
C79	56	3000			DD30-560		3KV-560	DC30456		
C80	5000	1000	15-305	HVD-15-4700	DD-502	VD47	IRSKV-470		10HK-D47	
C81	5000	1000	15-305	HVD-15-4700	DD-502	VD47	IRSKV-470		10HK-D47	

† Items C80, R67A and R67B are combined in one unit.

## CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST- ANCE	WATTS	METEOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500KΩ	½	A24-221	BSK-60-S	A47-500K-Z	Q13-133	U-48	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A.
C	Switch		Not Req.	Not Req.	SWE-12	76-1	US-26	Attach to R1A.
R2A	200Ω	½	A25-41	AB-2	A47-500-S	Q11-201	U-2	Contrast
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R2A.
R3A	3Meg with 800K stop	½	A25-50D	♦ AB-83	♦A47-2.5Meg-S	♦ Q11-239	♦ U-255	Vert. Hold
B	Shaft		Not Req.	AK-4	KSS-3	Not Req.	Not Req.	Attach to R3A.
R4A	50KΩ	½	A25-42	AB-31	A47-50K-S	Q11-123	U-35	Horiz. Hold
B	Shaft		Not Req.	AB-2	Not Req.	Not Req.	Not Req.	Attach to R4A.
R5A	100KΩ	½	A25-40	AB-40	A47-100K-S	Q11-128	TA15L	Brightness
B	Shaft		Not Req.	AK-1	FKS-½	RQ	Not Req.	Attach to R5A.
R6A	5Meg with 1Meg stop	½	† A25-43	† AB-86	†A47-4Meg-S	† Q11-141	† TA56L	Height
B	Shaft		Not Req.	AK-1	FKS-½	RQ	Not Req.	Attach to R6A.
R7A	5000Ω with 1000Ω stop	½	A25-53	♦ AB-9	♦A47-4000-S	♦ Q11-114	♦ PTA-352L	Vert. Linearity
B	Shaft		Not Req.	AK-19	KSS-3	TQ	Not Req.	Attach to R7A.

- Connect an 820KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
- † Connect a 1Meg resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
- Connect a 1000Ω resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).

## RESISTORS

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

ITEM No.	RATING	REPLACEMENT DATA	NOTES
OHMS	WATT	METEOR PART No.	IRC PART No.
R8	470K	604740M	BTS-470K
R9	470K	604740M	BTS-470K
R10	680Ω	106-682	BTS-680Ω
R11	1000Ω	106-102	BTS-1000
R12	150Ω	106-151	BTS-150
R13	150K	106-154	BTS-150K
R14	220K	106-224	BTS-220K
R15	5000Ω	106-562	BTS-5000
R16	750K	106-754	BTS-750K 5%
R17	1Meg	106-105	BTS-1Meg
R18	15KΩ	106-153	
R19	3900Ω	107-392	BTA-3900
R20	22KΩ	106-223	
R21	470K	106-474	BTS-470K
R22	6800Ω	106-682	BTS-6800
R23	4700Ω	106-472	BTS-4700
R24	120KΩ	106-124	BTS-120K
R25	470KΩ	604740K	BTS-470K
R26	39K	60390K	BTS-39K
R27	5600Ω	60560K	BTS-56K
R28	150Ω	603510K	BTS-150
R29	39Ω	603900K	BTS-39
R30	220K	602240K	BTS-220K
R31	1000Ω	601020M	BTS-1000
R32	18KΩ	601830K	BTS-18K
R33	150Ω	601510M	BTS-150
R34	56Ω	605600K	BTS-56
R35	56K	605630K	
R36	12K	601230K	
R37	1000Ω	601020M	BTS-1000
R38	220Ω	602210K	BTS-220
R39	4700Ω	604720K	BTS-4700
R40	18Ω	601800K	BTS-18
R41	6800Ω	606822K	BTS-6800
R42	6800Ω	606822K	BTS-6800
R43	1200Ω	601221K	BTA-1200
R44	220KΩ	602240K	BTS-220K
R45	4700Ω	604720K	BTS-4700
R46	4700Ω	604720K	BTS-4700
R47	47K	604730K	BTA-47K
R48	22K	602232K	BTS-22K
R49	2200Ω	602220K	BTS-2200
R50	560Ω	605610K	BTS-560
R51	220Ω	602210K	BTS-220

Note 1. Not used in some versions.

† Items R67A, R67B, C60 are combined in one unit.

## TRANSFORMER (FILAMENT)

ITEM No.	RATING				REPLACEMENT DATA					
					METEOR PART No.	Holldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ② .56A	6.3V ② .3A	6.3V ② 7.1A		80-318					

## TRANSFORMERS (SWEEP CIRCUITS)

		REPLACEMENT DATA							
ITEM No.	USE	METEOR PART No.	Holldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc. Trans.	80-328	B6702	A-3003	209T1 ①	V405	A-8125	26A03	A-97X
T3	Horiz. Output Trans.	80-326B		HVC-40					
		80-326 ②		MWC-1 *					
T4	Vert. Output Trans.	80-325	Z1806 ①	A-3089 ①	226T1 ①	V312 ①	A-8141 ①	26S54 ①	A-104X ①
T5A	Yoke Horiz. (24MB)	10-692 ③	DF606 ③	MDP-15	222D1 ③	Y70F25 ③	Y-15A ③	Y-10 ③	Y-19-1 ③
B	Vert. (35MB)	10-692 ②							

① Drill new mounting hole(s).

② Alternate Motor part number.

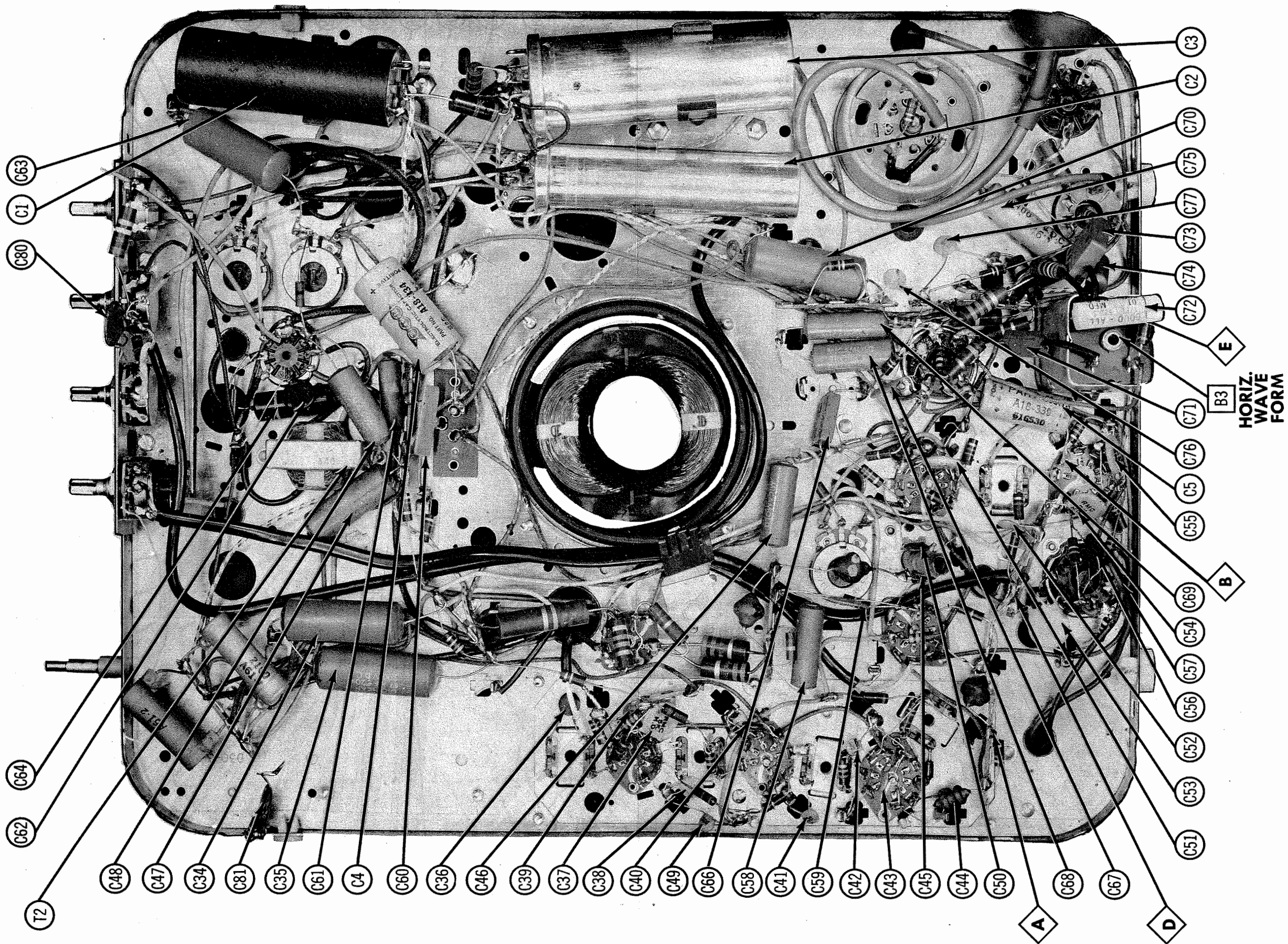
③ Includes rear cover and centering device; capacitor C70; resistors R70, R71, and R88.

④ Connect horizontal damping network across terminals #3 and #7. Use original if necessary.

⑤ Use original rear cover and centering device.

⑥ Use original horizontal yoke damping network if necessary.

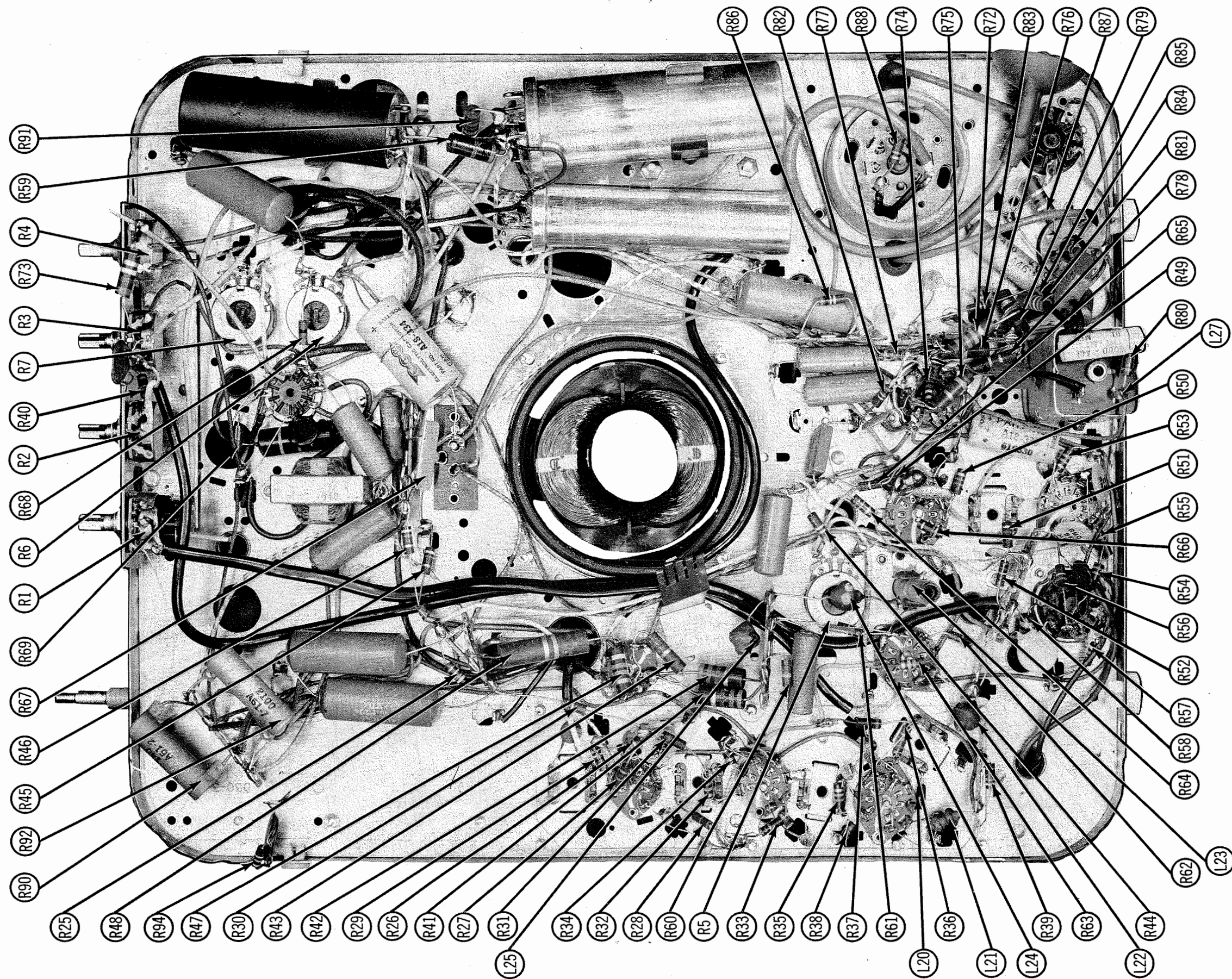




HORIZ.  
WAVE  
FORM

**METEOR MODEL**  
4104-B (Ch. 528.45000, 1, 2, 3)  
CHASSIS BOTTOM VIEW CAPACITOR IDENTIFICATION





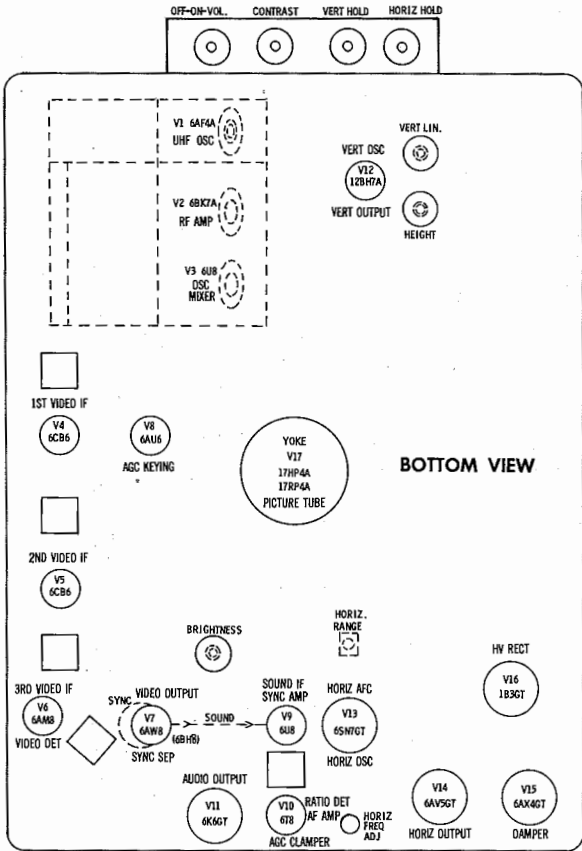
METEOR MODEL  
 4104-B (Ch. 528.4500, 1, 2, 3)  
 CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



RESISTANCE MEASUREMENTS

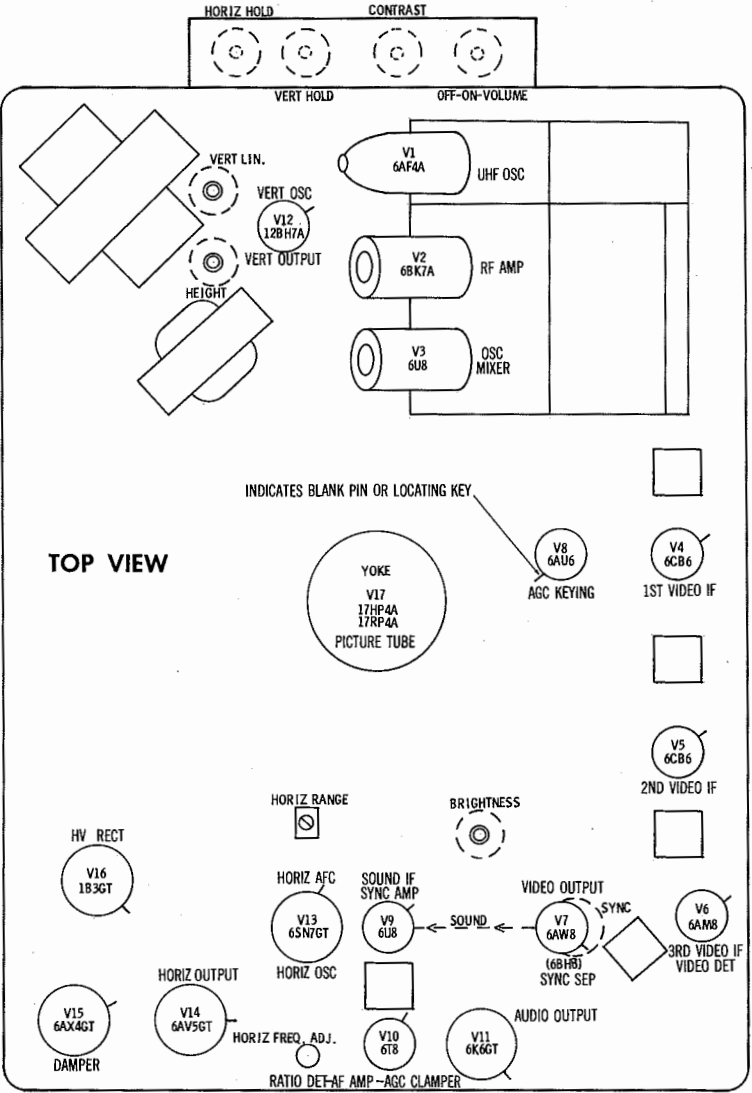
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AF4A	† 7KΩ	6.8KΩ	.1Ω	0Ω	0Ω	6.8KΩ	† 7KΩ		
V2	6BK7A	† 140Ω	400KΩ	1NF	.1Ω	0Ω	1NF	600KΩ	0Ω	0Ω
V3	6U8	† 6KΩ	470KΩ	† 120KΩ	.1Ω	0Ω	† 4.8KΩ	0Ω	0Ω	15KΩ
V4	6CB6	45KΩ	39Ω	0Ω	.1Ω	† 2.3KΩ	† 2.3KΩ	0Ω		
V5	6CB6	40KΩ	56Ω	0Ω	.1Ω	† 2.3KΩ	† 2.3KΩ	0Ω		
V6	6AM8	220Ω	.1Ω	† 3.1KΩ	.1Ω	0Ω	† 3.1KΩ	.2Ω	4.7KΩ	0Ω
V7	6AW8	0Ω	2.2Meg	† 680KΩ	0Ω	.1Ω	25Ω	4.7KΩ	† 2.1KΩ	† 5KΩ
V8	6AU6	† 1.8KΩ	† 600Ω	† 600Ω	† 600Ω	250KΩ	† 47KΩ	† 600Ω		
V9	6U8	† 6KΩ	5.3Ω	† 4.3KΩ	.1Ω	0Ω	† 4.3KΩ	560Ω	4.7KΩ	† 680KΩ
V10	6T8	1NF	18KΩ	1NF	0Ω	.1Ω	600KΩ	0Ω	4.7Meg	† 270KΩ
V11	6K6GT	NC	.1Ω	† 1.4KΩ	† 1KΩ	470KΩ	TP	0Ω	330Ω	
V12	12BH7A	† 1.7KΩ	2.2Meg	2.1KΩ	.1Ω	.1Ω	† 3Meg	1.5Meg	210Ω	0Ω
V13	6SN7GT	800KΩ	† 50KΩ	300KΩ	250KΩ	† 40KΩ	0Ω	0Ω	.1Ω	
V14	6AV5GT	270KΩ	0Ω	39Ω	NC	† 22Ω	NC	.1Ω	† 10KΩ	
V15	6AX4GT	NC	NC	70KΩ	NC	† 140Ω	NC	.1Ω	0Ω	
V16	1B3GT	PINS 1-8 HAVE INF RESISTANCE								TOP CAP † 482Ω
V17	17HP4A/ 17RP4A	0Ω	4.7KΩ	† 140Ω	† 15Ω	† 250KΩ	.1Ω			

\* MEASURED IN "UHF" POSITION.  
† MEASURED FROM POSITIVE SIDE OF C1.  
‡ MEASURED FROM PIN 3 OF V15.  
TP-TIE POINT.  
NC-NO CONNECTION.



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 - Selenium Rectifiers (M1 & M2)
- LOSS OF PICTURE OR SOUND**  
No pic, no sound, has raster - V3, V4, V5, V6, V7 (V1 UHF only)  
No pic, no sound, has snow - V2, V3, V4  
No pic, has sound, has raster - V7, V8, V17  
Has pic, no sound - V9, V10, V11  
Overloaded picture - V8, V10
- SYNC FAILURE**  
No vert. sync - V9, V12  
No horiz. sync - V9, V13  
No vert. or horiz. sync - V7, V9
- SWEEP FAILURE**  
No raster, has sound - V13, V14, V15, V16, V17  
No vertical deflection - V12  
Poor vert. linearity or foldover - V12  
Poor horiz. linearity or foldover - V13, V14, V15  
Narrow picture - V13, V14, V15, V16, M1, M2  
Vert. off freq. - V9, V12  
Horiz. off freq. - V9, V13

4104-B (Ch. 528.45000, 1, 2, 3)

METEOR MODEL

# ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped away from the chassis.  
Use an isolation transformer to protect the test equipment.

## VIDEO IF ALIGNMENT

Connect the negative lead of a 4.5 volt bias to the ungrounded side of R26. Connect a short clip lead across the antenna terminals. Adjust generator output to maintain not more than 2.5 volts on VTVM. When adjusting for minimum readings, increase generator output to provide a definite dip on the VTVM.  
When a separate marker generator is used, loosely couple to the sweep generator output lead.  
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.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Direct	High side to floating tube shield over converter tube. Low side to chassis.	Not used	44.25MC	Any non-interfering channel	USE VTVM. DC probe to point A. Common to chassis.	A1	Detune A2, A5, A6 and A7 by turning cores fully counter clockwise. Adjust A1 for maximum deflection.
2. "	"	"	44.25MC	"	"	A2	Detune A3. Adjust A2 for maximum deflection.
3. "	"	"	44.25MC	"	"	A3	Adjust for maximum reading.
4. "	"	"	43.2MC	"	"	A4	"
5. "	"	"	45.3MC	"	"	A5	"
6. "	"	"	47.25MC	"	"	A6	Adjust for MINIMUM deflection. Repeat steps 5 and 6.
7. "	"	"	41.25MC	"	"	A7	Adjust for MINIMUM deflection.
8. "	"	44.25MC (10MC Swp)	41.25MC 42.75MC 43.8MC 44.25MC 45.0MC 45.75MC 47.25MC	"	"		Check for response curve similar to Fig. 1. Retouch A3 to place 45.75MC at 50% point. Retouch A7 for correct tilt.

## SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Set the contrast control fully clockwise.  
Connect two matched 100KΩ (±1%) resistors in series from point B to chassis. The junction of these two resistors is alignment point C as shown on the schematic.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9. .001MFD	High side to pin 7 (grid) of video output (V7). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point B. Common to chassis.	A8, A9, A10	Adjust for maximum deflection.
10. "	"	"	"	DC probe to point C. Common to point B.	All	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

Use frequency modulated signal with 80% modulation and 450KC sweep. Use 120V sawtooth voltage in scope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9. .001MFD	High side to pin 7 (grid) of video output (V7). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. thru 47KΩ to point B. Low side to chassis.	A8, A9, A10	Disconnect stabilizing capacitor (C5). Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
10. "	"	"	"	"	Vert. Amp. to point C. Low side to chassis.	All	Reconnect C5 and adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

## 4.5MC TRAP ALIGNMENT

Tune in the strongest TV station available. Adjust A8 for minimum 4.5MC beat interference in the picture.

## TUNER ALIGNMENT

The RF and mixer portion of this receiver have been properly aligned at the factory and are very stable. Alignment of this portion should not be required in the field.

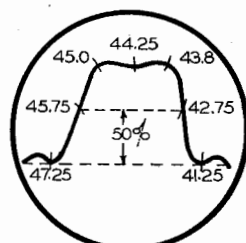


FIG. 1

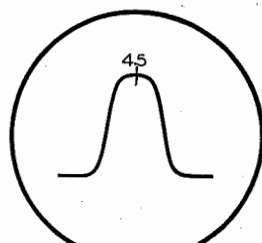


FIG. 2

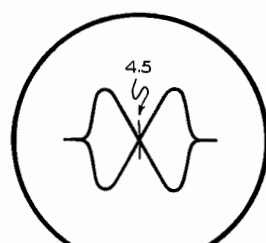
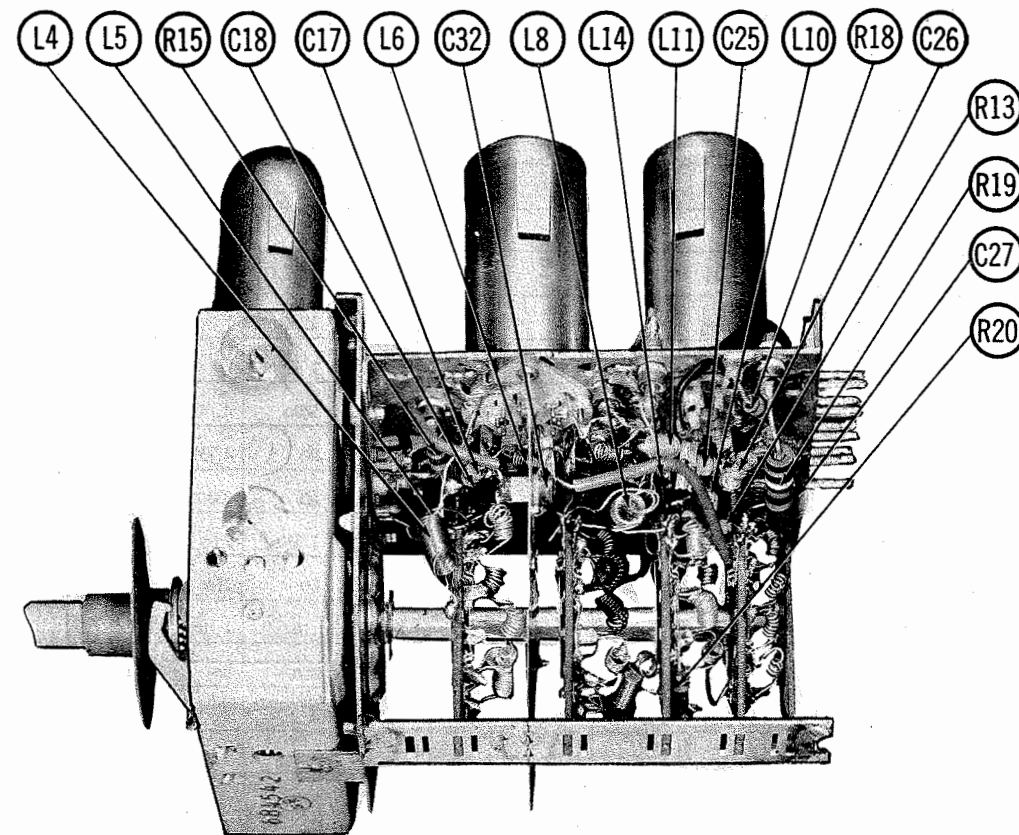
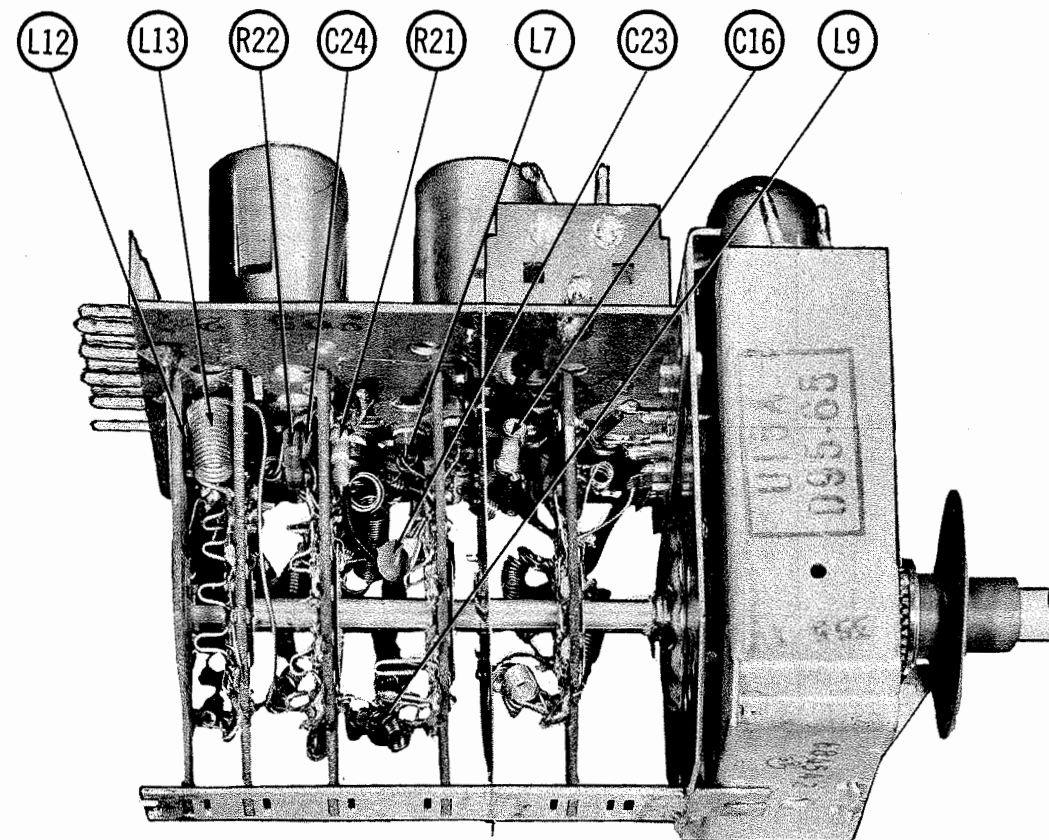


FIG. 3



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

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