

FM ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE (Connect synchronized sweep voltage from signal generator to horizontal amplifier.)							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6 .05 MFD.	High side to Pin 4 (grid) of 6SG7 2nd IF Tube (4). Low side to chassis.	10.7MC (Freq. modulated at 60%, 300KC deviation.)	FM (clock-wise)	88MC	Vertical amplifier to Pin #3 of test socket (Point A). Ground to chassis.	A13,A14	Adjust for maximum amplitude and symmetry of pattern per Fig. 1.
7 .05 MFD.	High side to Pin 4 (grid) of 6SG7 1st IF Tube (3). Low side to chassis.	"	"	"	"	A15,A16	"
8 .05 MFD.	High side to junction of wave trap and resistor 51 low side to chassis.	"	"	"	"	A17,A18	"
9 .05 MFD.	"	"	"	"	Vertical amplifier to Pin #1 of test socket (Point B). Ground terminal to chassis.	A11,A12	Adjust for maximum amplitude and symmetry with maximum straightness of diagonal line per Fig. 2.
10 300Ω car. res.	High side to one FM dipole terminal in series with 300Ω. Low side to other dipole terminal.	106MC (Freq. modulated at 60%, 300KC deviation.)	"	106MC	Vertical amplifier to Point A. Ground to chassis.	A19	Center the pattern in the center of the scope sweep line per Fig. 1.
11 "	"	"	"	"	"	A20	Adjust for maximum amplitude.
12 "	"	88MC (Freq. modulated at 60%, 300KC deviation.)	"	88MC	"	A21	Center the pattern in the center of the scope sweep line per Fig. 1.
13 "	"	"	"	"	"	A22,A23	Adjust for maximum amplitude.

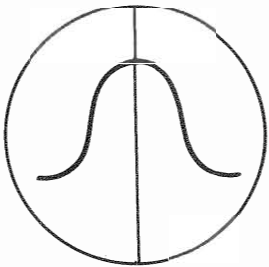


FIGURE 1

FM ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6 .05 MFD.	High side to Pin 4 (grid) of 6SG7. Low side to chassis.	10.7MC (unmodulated)	FM (clock-wise)	88MC	DC probe to blank terminal of disc. trans. #89 (Point C). Common lead to chassis.	A11	Adjust for maximum deflection.
7 .05 MFD.	"	"	"	"	DC probe to point B. Common lead to chassis.	A12	Use a zero center scale VTVM if available. Adjust for zero reading.
8 .05 MFD.	High side to Pin 4 (grid) of 6SG7. 2nd IF Tube #4. Low side to chassis.	"	"	"	DC probe to Point A. Common lead to chassis.	A13,A14	Adjust for maximum deflection.
9 .05 MFD.	High side to Pin 4 (grid) of 6SG7 1st IF Tube #3. Low side to chassis.	"	"	"	"	A15,A16	"
10 .05 MFD.	High side to junction of wave trap coil and resistor 51. Low side to chassis.	"	"	"	"	A17,A18	"
11 300Ω car. res.	High side to one FM dipole terminal in series with 300Ω. Low side to other dipole terminal.	106MC	"	106MC	"	A19	"
12 "	"	"	"	"	"	A20	"
13 "	"	88MC	"	88MC	"	A21	"
14 "	"	"	"	"	"	A22, A23	Adjust for maximum deflection. Repeat Steps 11, 12, 13 and 14 until no further improvement can be made.

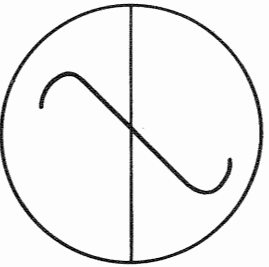
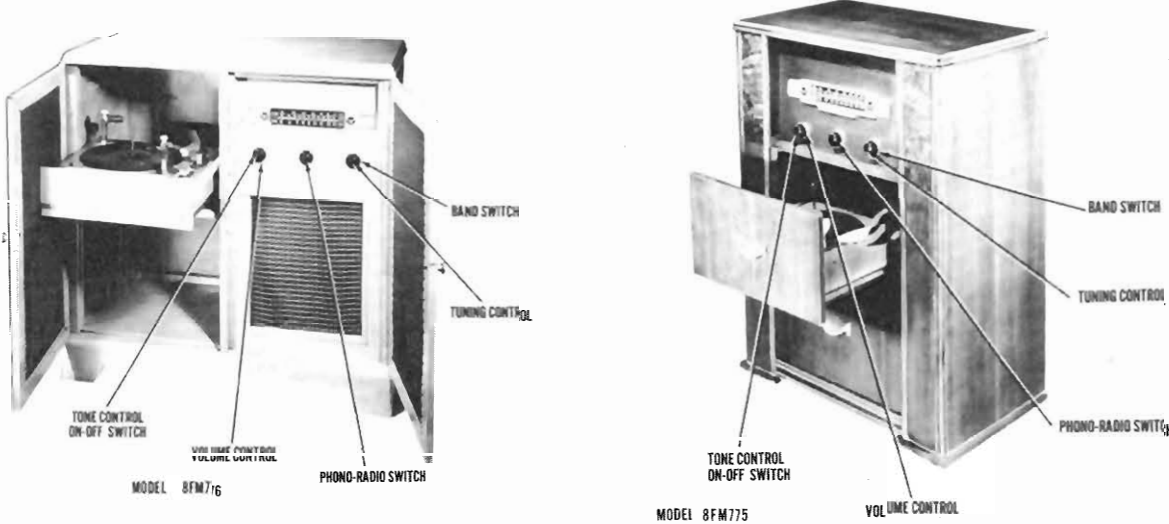


FIGURE 2



TRADE NAME	Majestic, Models 8FM775 (Ch. 8B08D), 8FM776 (Ch. 8B07D)
MANUFACTURER	Majestic Radio & Tel. Corp., Elgin, Ill.
TYPE SET	AC Operated FM-AM Combination Phono-Radio Superheterodyne with Loop Antenna
TUBES (EIGHT)	Types, 6BA6 RF Amp., 6BE6 Converter, 6SG7 1st IF Amp., 6SG7 2nd IF Amp., 6SH7 Limiter, 6S8GT Disc.-Det.-AVC-AF, 25L6GT Power Output, 25Z6GT Rectifier.
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—BROADCAST	535-1630KC
RATING	.510 Amp. @ 117 Volts AC
FREQ. MOD.	87.5-109MC
ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low freq. end of dial.	
Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.	
Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.	

AM ALIGNMENT							
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .05 MFD.	High side to rear "AM" stat of Tuning Cap. Low side to chassis.	455KC	AM (counter-clock-wise)	300KC	Across voice coil	A1,A2, A3,A4, A5,A6.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 "	"	"	"	"	"	A7	Adjust for minimum output.
3 "	Loop	1500KC	"	1500KC	"	A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4 "	"	"	"	"	"	A9	Adjust for maximum output.
5 "	"	600KC	"	"	"	A10	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 & 5 until no further improvement can be made.

FOR FM ALIGNMENT SEE LAST PAGE OF THIS FOLDER.

HOWARD W. SAMS & CO., INC.

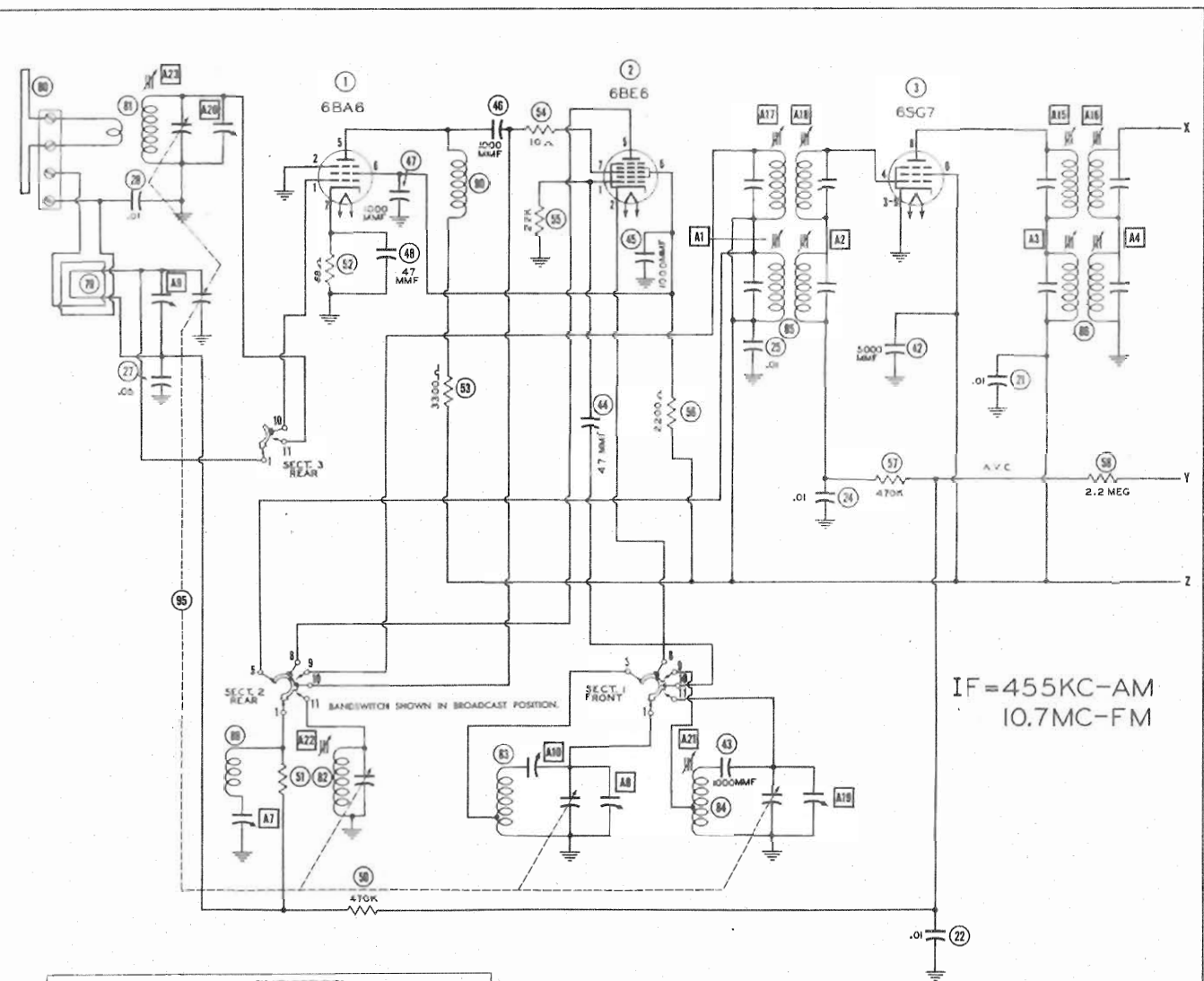
Indianapolis Indiana

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FOR AM ALIGNMENT SEE FRONT PAGE OF THIS FOLDER.



STAGE GAIN MEASUREMENTS		
ANT. TO RF GRID	10X	600K
RF GRID TO CONV. GRID	4X	600K
CONV. GAIN	12X	IN 600K OUT 450K
1st IF TRANS.	.4X	450K
1st IF TUBE	25X	455K
2nd IF TRANS.	.65X	450K
2nd IF TUBE	90X	450K
3rd IF TRANS.	.65X	450K
AUDIO	40X	400~
OUTPUT	15X	400~

VOLTAGE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS								
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	6BA6	-25VDC	0V.	24VAC	0VAC	0VAC	0VDC	0VDC
2	6BE6	-75VDC	0V.	30VAC	20VAC	10VAC	0VDC	-25VDC
3	6SG7	0V.	30VAC	0V.	-4VDC	0V.	10VDC	20VAC
4	6SG7	0V.	10VAC	7VDC	0V.	7VDC	10VDC	10VAC
5	6SG7	0V.	0VAC	0V.	-4VDC	0V.	20VDC	10VAC
6	6SG7	-4VDC	0V.	-4VDC	-4VDC	-1VDC	0VAC	0V.
7	6BA6	0V.	0VAC	10VAC	10VDC	0V.	10VDC	0VAC
8	6SG7	0VAC	0VAC	10VAC	10VDC	10VAC	10VDC	10VDC

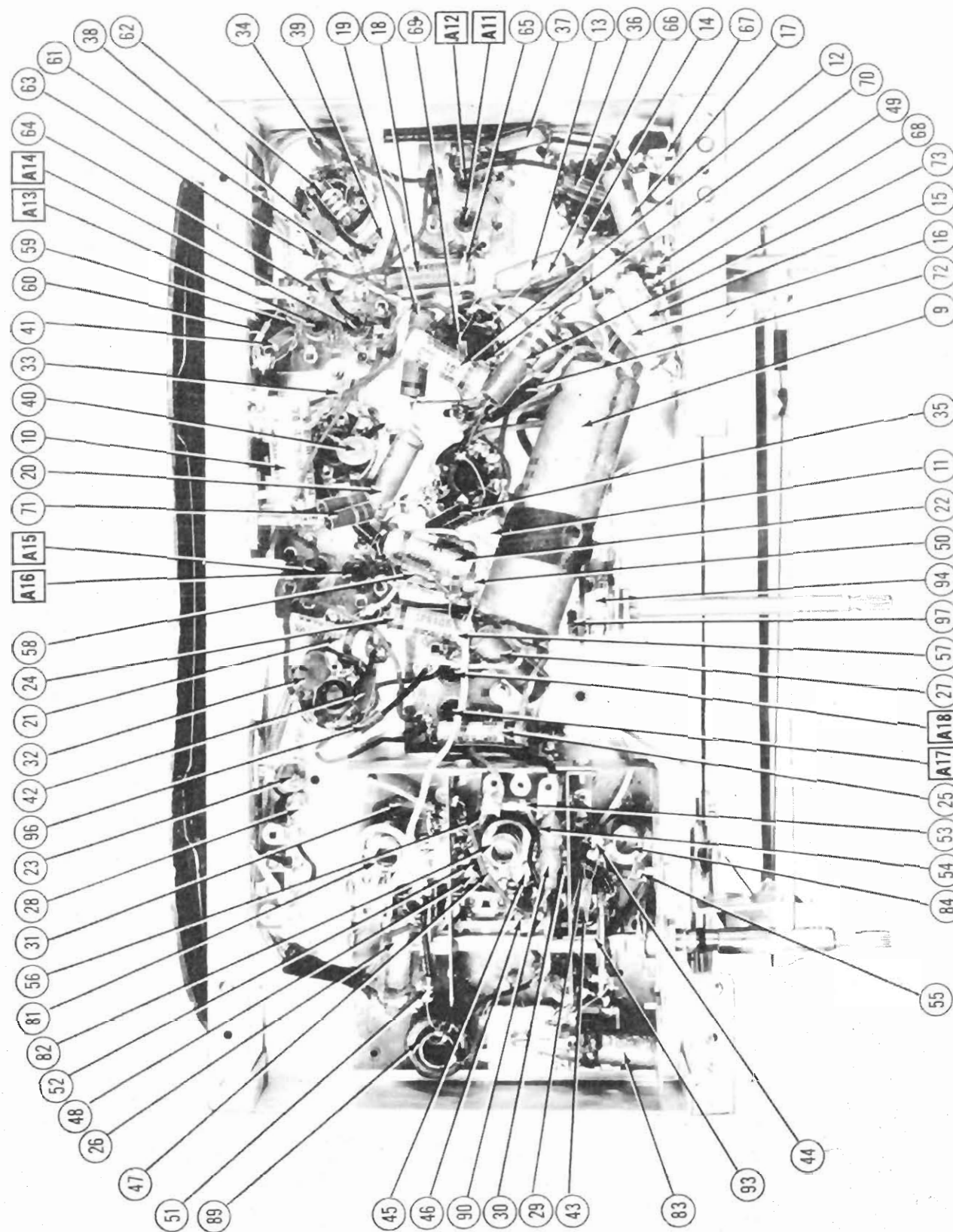
TAKEN WITH VACUUM TUBE VOLTMETER.

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THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

4719-14

The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative and 3-volt battery bias substituted for measurement.



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		INSTALLATION NOTES
		MAJESTIC PART No.	STANDARD REPLACEMENT	
1	RF Amp.	68A6	68A6	
2	Converter	68B6	70H	
3	1st IF Amp.	68C6	68C6	
4	2nd IF Amp.	68D6	68D6	
5	Detector	68E6	68E6	
6	Disc.-Det.-AVC	68F6	68F6	
7	Power Output	68G6	68G6	
8	Rectifier	25L6GT	25L6GT	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA		INSTALLATION NOTES
		MAJESTIC PART No.	JENSEN PART No.	
1	100 W	22-45	ST-110#	Used in Model 8FM776
2	3.40	22-45	ST-110#	Replace output transformer to match 6-30 voice coil
3	3.30	22-42	ST-115#	Used in Model 8FM776
4	1/2"		Mod. PR-V	Fabricate new mounting bracket.
5	1/2"			NOT READILY AVAILABLE - USE COMPLETE SPEAKER UNIT
6	1/2"			COME HAS SPECIAL ADVISORY - PART 12 - ORDER FROM MANUFACTURER

CAPACITORS

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

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND NOTES
		MAJESTIC PART No.	MALLOY PART No.	SOLAR PART No.	AEROVOX PART No.	
1	100	19-37	24N500	TA-530	FRS-150-50	Filter - Red - See Note 1
2	20	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 2
3	10	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 3
4	50	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 4
5	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 5
6	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 6
7	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 7
8	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 8
9	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 9
10	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 10
11	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 11
12	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 12
13	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 13
14	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 14
15	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 15
16	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 16
17	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 17
18	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 18
19	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 19
20	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 20
21	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 21
22	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 22
23	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 23
24	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 24
25	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 25
26	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 26
27	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 27
28	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 28
29	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 29
30	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 30
31	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 31
32	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 32
33	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 33
34	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 34
35	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 35
36	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 36
37	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 37
38	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 38
39	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 39
40	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 40
41	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 41
42	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 42
43	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 43
44	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 44
45	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 45
46	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 46
47	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 47
48	100	19-44	24N500	TA-530	FRS-150-50	Filter - Blue - See Note 48
49	100	19-44	24N500	TA-530	FRS-150-50	Filter - Red - See Note 49

*Parallel 50-30 section and omit bypass section. †Parallel sections to obtain desired capacity. Note 1 - Used in 8FM776. Note 2 - Used in 8FM776. Note 3 - Used in 8FM776.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MAJESTIC PART No.	MALLOY PART No.	IRC PART No.	CLAROSTAT PART No.	
49	100 W	03-32				Volume-Tone Control - Off-in Sw. This is a dual control operated by a concentric shaft.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		MAJESTIC PART No.	MAJESTIC PART No.	IRC PART No.	MAJESTIC PART No.	
50	100 W	01-157				Y1-V1-11. AVC Network
51	100 W	01-157				Y1-V1-11. AVC Network
52	100 W	01-157				Y1-V1-11. AVC Network
53	100 W	01-157				Y1-V1-11. AVC Network
54	100 W	01-157				Y1-V1-11. AVC Network
55	100 W	01-157				Y1-V1-11. AVC Network
56	100 W	01-157				Y1-V1-11. AVC Network
57	100 W	01-157				Y1-V1-11. AVC Network
58	100 W	01-157				Y1-V1-11. AVC Network
59	100 W	01-157				Y1-V1-11. AVC Network
60	100 W	01-157				Y1-V1-11. AVC Network
61	100 W	01-157				Y1-V1-11. AVC Network
62	100 W	01-157				Y1-V1-11. AVC Network
63	100 W	01-157				Y1-V1-11. AVC Network
64	100 W	01-157				Y1-V1-11. AVC Network
65	100 W	01-157				Y1-V1-11. AVC Network
66	100 W	01-157				Y1-V1-11. AVC Network
67	100 W	01-157				Y1-V1-11. AVC Network
68	100 W	01-157				Y1-V1-11. AVC Network
69	100 W	01-157				Y1-V1-11. AVC Network
70	100 W	01-157				Y1-V1-11. AVC Network
71	100 W	01-157				Y1-V1-11. AVC Network
72	100 W	01-157				Y1-V1-11. AVC Network
73	100 W	01-157				Y1-V1-11. AVC Network
74	100 W	01-157				Y1-V1-11. AVC Network
75	100 W	01-157				Y1-V1-11. AVC Network
76	100 W	01-157				Y1-V1-11. AVC Network
77	100 W	01-157				Y1-V1-11. AVC Network
78	100 W	01-157				Y1-V1-11. AVC Network
79	100 W	01-157				Y1-V1-11. AVC Network
80	100 W	01-157				Y1-V1-11. AVC Network
81	100 W	01-157				Y1-V1-11. AVC Network
82	100 W	01-157				Y1-V1-11. AVC Network
83	100 W	01-157				Y1-V1-11. AVC Network
84	100 W	01-157				Y1-V1-11. AVC Network
85	100 W	01-157				Y1-V1-11. AVC Network
86	100 W	01-157				Y1-V1-11. AVC Network
87	100 W	01-157				Y1-V1-11. AVC Network
88	100 W	01-157				Y1-V1-11. AVC Network
89	100 W	01-157				Y1-V1-11. AVC Network
90	100 W	01-157				Y1-V1-11. AVC Network
91	100 W	01-157				Y1-V1-11. AVC Network
92	100 W	01-157				Y1-V1-11. AVC Network
93	100 W	01-157				Y1-V1-11. AVC Network
94	100 W	01-157				Y1-V1-11. AVC Network
95	100 W	01-157				Y1-V1-11. AVC Network
96	100 W	01-157				Y1-V1-11. AVC Network
97	100 W	01-157				Y1-V1-11. AVC Network
98	100 W	01-157				Y1-V1-11. AVC Network
99	100 W	01-157				Y1-V1-11. AVC Network
100	100 W	01-157				Y1-V1-11. AVC Network

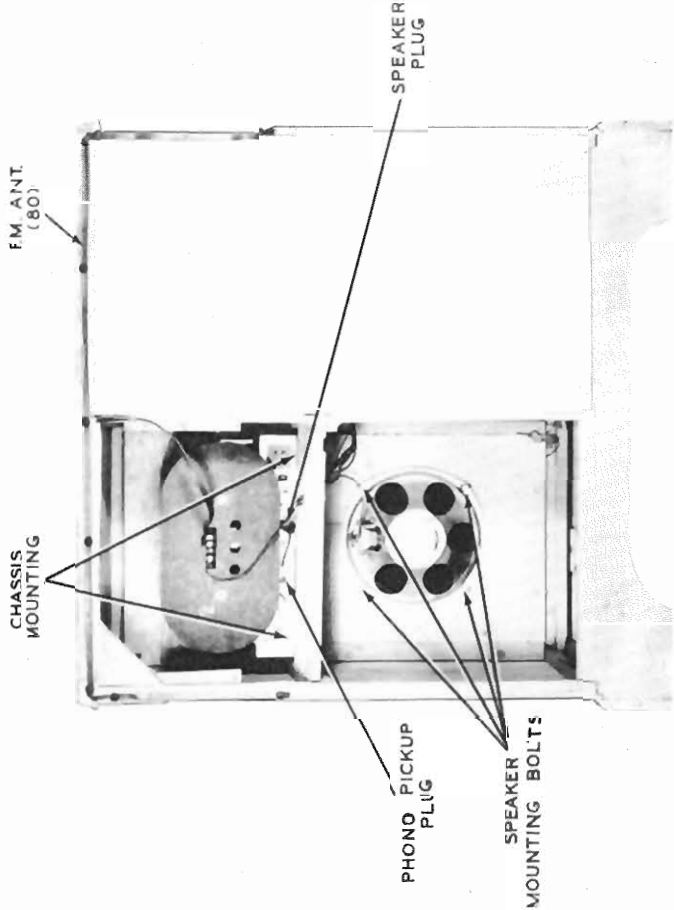
Note 1 - Some models use 10 Meg. in this application. IRC replacement 875-10 Meg. Note 2 - Some models use two 150k resistors in parallel. Note 3 - Some models use 27k in this application. IRC replacement BW-1-27.

FILTER CHOKE

ITEM No.	RATINGS	REPLACEMENT DATA				INSTALLATION NOTES
		MAJESTIC PART No.	MAJESTIC PART No.	MAJESTIC PART No.	MAJESTIC PART No.	
75	1000	2-32				Drill one new mount-log hole.

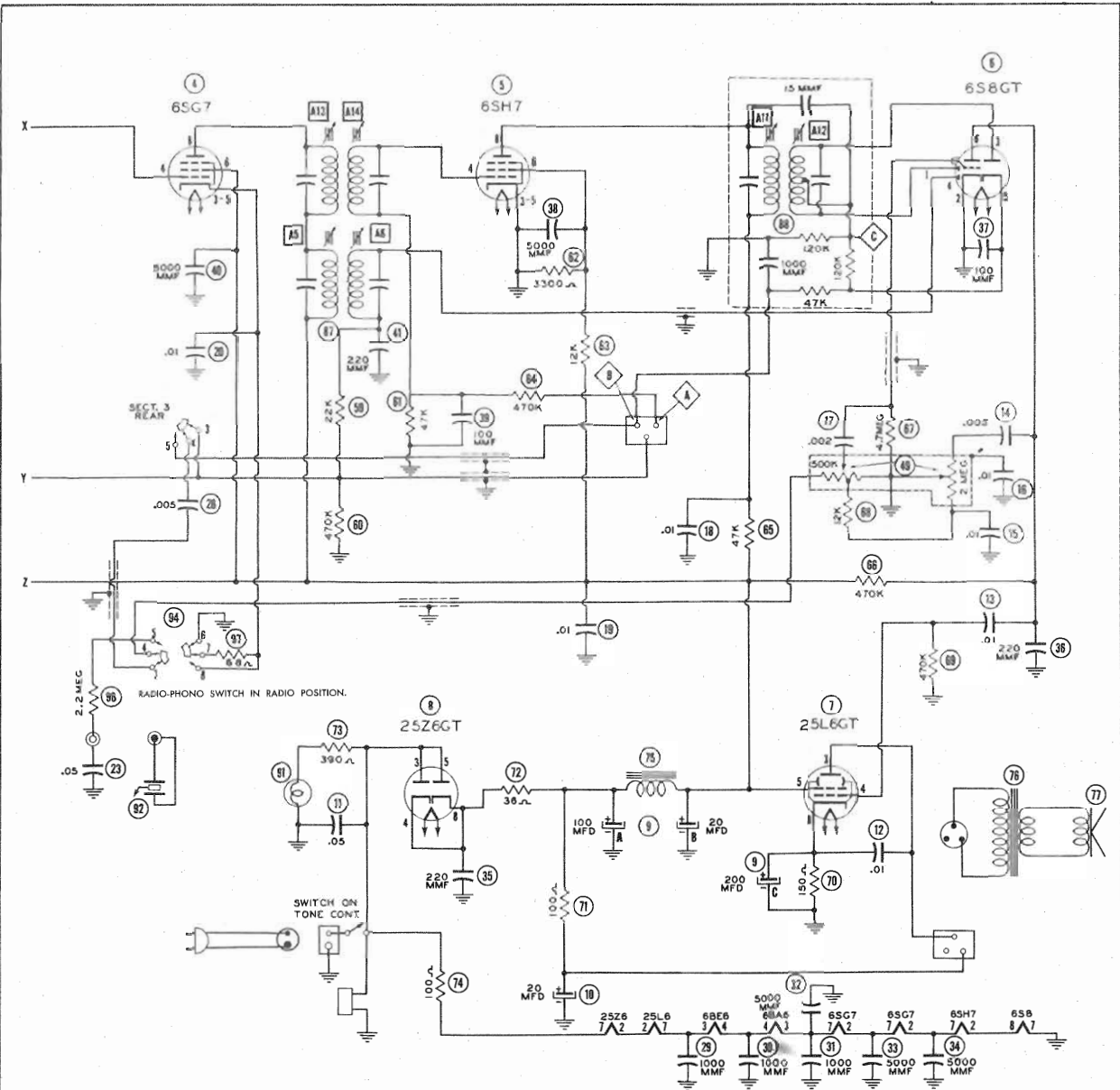
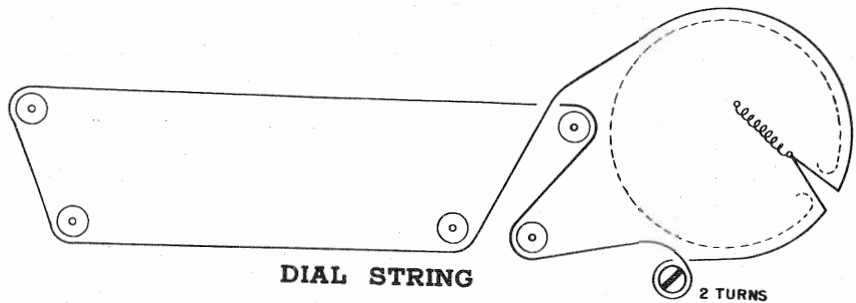
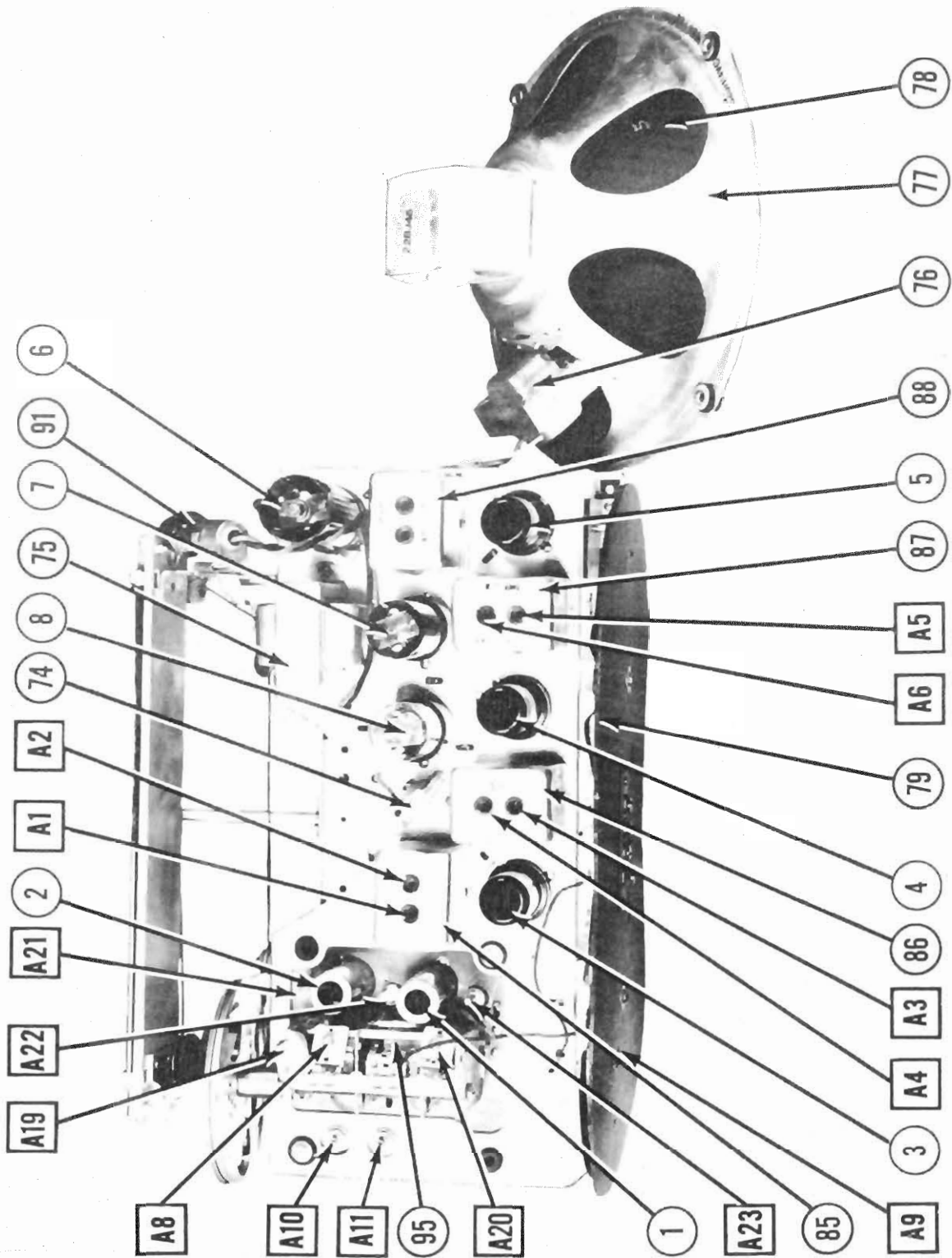
TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA				INSTALLATION NOTES
		MAJESTIC PART No.	MAJESTIC PART No.	MAJESTIC PART No.	MAJESTIC PART No.	
76	1000	2-32				Used in Model 8FM776



DISASSEMBLY INSTRUCTIONS

1. Remove two push-on type control knobs.
2. Loosen set screw and remove third control knob.
3. Remove FM antenna leads from terminal strip on back of loop antenna.
4. Remove four wood screws holding cover over back of chassis. Remove cover.
5. Disconnect phone-motor plug.
6. Remove speaker plug from chassis.
7. Remove phone-pickup plug from chassis.
8. Remove ground lead from terminal strip on back of loop antenna.
9. Remove four screws holding chassis in cabinet. Remove chassis from cabinet.
10. Remove four hex nuts holding speaker in cabinet. Remove speaker from cabinet.



RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

RESISTANCE READINGS								
Pin	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 8
1	65G7	4 Pin.	0Ω	14Ω	10Ω	10KΩ	10KΩ	0Ω
2	65H7	0Ω	0Ω	0Ω	10Ω	10KΩ	10KΩ	4 Pin.
3	65G7	0Ω	11Ω	0Ω	4 Pin.	0Ω	10KΩ	14Ω
4	65G7	0Ω	0Ω	0Ω	6.5Ω	0Ω	10KΩ	11Ω
5	65H7	0Ω	0Ω	0Ω	47KΩ	0Ω	3.3KΩ	0Ω
6	65G7	10KΩ	0Ω	12KΩ	40KΩ	27KΩ	40KΩ	0Ω
7	25L6GT	0Ω	31Ω	10Ω	10Ω	800Ω	10KΩ	22Ω
8	658GT	10Ω	31Ω	11Ω	10Ω	11Ω	10Ω	41Ω

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RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY
ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.