

AIRADIO MODEL 3100

<b>TRADE NAME</b>	Airadio, Model 3100		
<b>MANUFACTURER</b>	Airadio, Inc., Stamford, Conn.		
<b>TYPE SET</b>	AC-DC operated FM Receiver		
<b>TUBES (Eight)</b>	Types 12BA6 RF Amp., 12BE6 Converter, 6BJ6 1st IF Amp., 6BJ6 2nd IF Amp., 12BA6 3rd IF Amp., 12AL5 Ratio Det., 6AQ6 AF Amp., 50B5 Power Output.		
<b>POWER SUPPLY</b>	110-120 Volts AC-DC	<b>RATING</b>	.26 Amp. @ 117 Volts AC
<b>TUNING RANGE-Freq.</b>	Mod. 88-108MC		
<b>ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT</b>			
To set pointer turn tuning capacitor fully open and set pointer to reference dot at end of dial. Use insulated alignment screwdriver for all adjustments.			

**IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE**

Use freq. modulated signal 450KC sweep with 60% modulation. Use 120V sawtooth voltage in scope for horizontal deflection

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
1	.01 MFD High side to Pin 1 (Grid) 6BJ6 2nd IF Tube (4). Low side to Chassis.	10.7 MC (Freq. Mod.)	Tuning cap. fully open.	Vertical Input to Point A Ground to Chassis.	A1, A2 A3	Remove 8 MFD. cap. from Point A. Adjust A1, A2 & A3 for maximum amplitude, symmetry & coincidence of pattern per Fig. 1.
2	.01 MFD High side to Pin 1 (Grid) 6BJ6 1st IF Tube (3). Low side to Chassis.	10.7 MC (Freq. Mod.)	Tuning cap. fully open.	Vertical Input to Point A Ground to Chassis.	A4, A5	Adjust for maximum amplitude, symmetry & coincidence of pattern per Fig. 1.
3	.01 MFD Disconnect 5Ω resistor (49) from pin 7 12BE6. Connect 100KΩ resistor from 7 to Chassis. High side to pin 7. Low side to Chassis.	10.7 MC (Freq. Mod.)	Tuning cap. fully open.	Vertical Input to Point A Ground to Chassis.	A6, A7	Adjust for maximum amplitude, symmetry & coincidence of pattern per Fig. 1.
4	.01 MFD Remove 100KΩ resistor and reconnect 5Ω resistor. High side to Pin 1 (Grid) 6BJ6 2nd IF Tube (4). Low side to Chassis.	10.7 MC (Freq. Mod.)	Tuning cap. fully open.	Vertical Input to Point A Ground to Chassis.	A8	Reconnect 8 MFD cap. to Point A. Adjust A8 for maximum straightness of crossover lines with crossover occurring at center of pattern per Fig. 2. Continue with RF alignment Step 6.

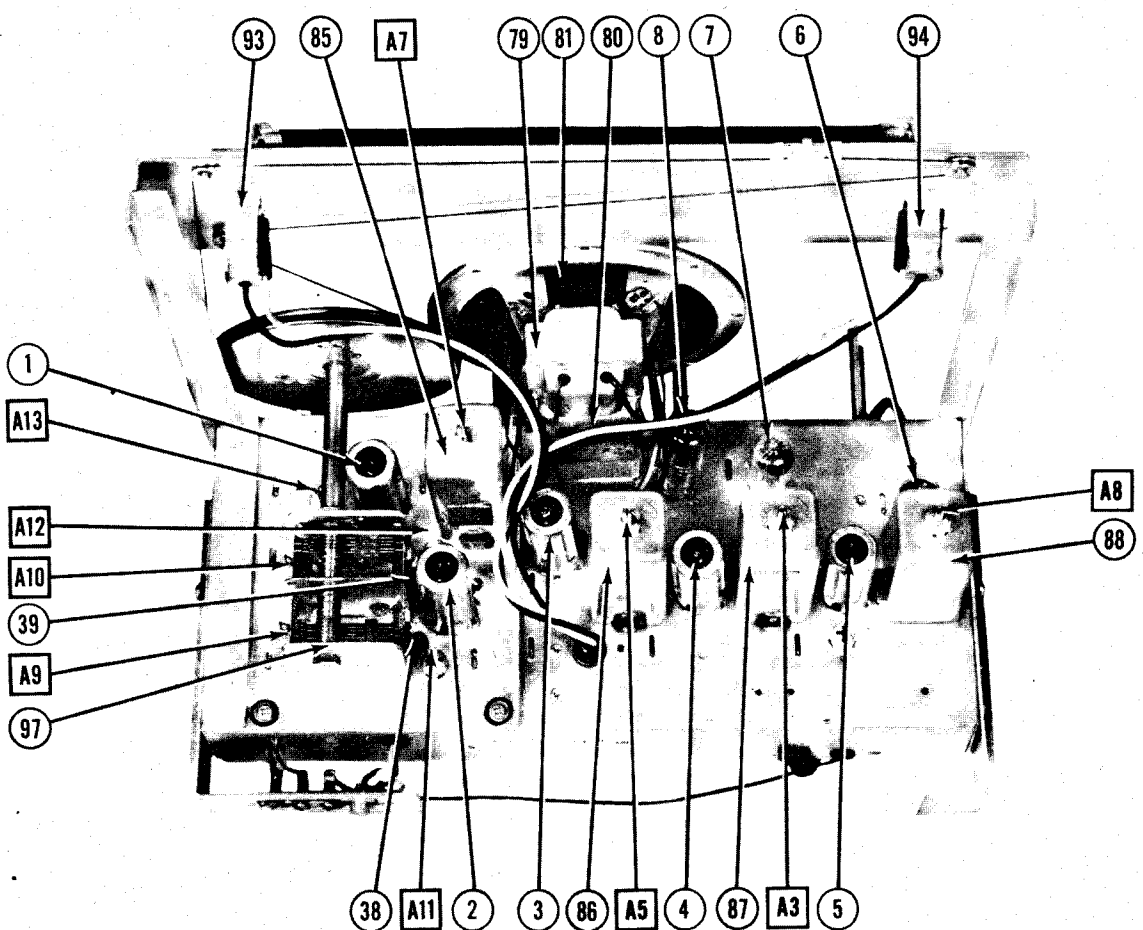
FOR RF ALIGNMENT AND ALTERNATE IF ALIGNMENT SEE PAGE 4

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# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		AIRADIO PART No.	STANDARD REPLACEMENT	RMA BASE TYPE	
1	RF Amp.	12BA6	12BA6	7BK	
2	Converter	12BE6	12BE6	7CH	
3	1st IF Amp.	6BJ6	6BJ6	7CM	
4	2nd IF Amp.	6BJ6	6BJ6	7CM	
5	3rd IF Amp.	12BA6	12BA6	7BK	
6	Relio. Det.	12AL5	12AL5	6BT	
7	AF Amp.	6AQ6	6AQ6	79T	
8	Power Output	50B5	50B5	7BZ	

## 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				IDENTIFICATION CODES	INSTALLATION NOTES
			AIRADIO PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.		
9	30	150	CD1253	UT-501	PRS 150-30	BR3015	M-30-150	Filter - Red
10A	40	150	CD1256-1	TA-430	PSRA 150-30	EDL4415	DSB-2X40-	Filter - Green
B	150	150	CD1253	TA-430	40			Filter
11	30	150	CD1253	UT-501	PRS150-30	BR3015	M-30-150	Cathode Bypass
12	10	25	CD1254	TA-10	PRS25-10	BRI02A	M-10-25	Stabilizing Cap
13	8	150	CD1252	UT-81	PRS150-8	BR815	M-8-150	Surge Limiter
14	25	25	CD1251	TA-50	PRS25-50	BR502	M-50-25	Line Filter
15	.0015	400	CD1227-2	TC-22	484-002	D76D2	ST-6-002	Output Plate Bypass
16	.01	400	CD1255-112	TC-11	494-01	D74S1	ST-4-01	Audio Coupling
17	.02	400	CD1255-114	TC-12	484-02	D74S2	ST-4-02	Audio Coupling
18	.003	400	CD1255-106	TC-23	494-003	D76D3	ST-6-003	Tone Comp.
19	.02	400	CD1255-114	TC-12	484-02	D74S2	ST-4-02	Audio Coupling
20	.02	400	CD1255-114	TC-12	484-02	D74S2	ST-4-02	Audio Coupling
21	.003	400	CD1255-106	TC-23	494-003	D76D3	ST-6-003	Tone Comp.
22	.01	400	CD1255-112	TC-11	494-01	D74S1	ST-4-01	De-emphasis
23	.01	400	CD1255-112	TC-11	494-01	D74S1	ST-4-01	1st IF Decoupling
24	.1	150	CD1255-21	TC-1	494-1	D72P1	ST-2-1	AVC Filter
25	.05	400	CD1255-117	TC-15	484-05	D74S5	ST-4-05	AVC Filter
26	50	500	CD1256-40	1FM-51	1468-0001	5M5T1	MO-5-31	Fill. Bypass - Cer.
27	50	500	CD1256-40	1FM-51	1468-0005	5M5Q5	MO-5-45	Fill. Bypass - Cer.
28	50	500	CD1254-2	1FM-45	1468-00005	5M5Q5	MO-5-45	Fill. Bypass - Cer.
29	5000	350	CD1256-60	1FM-25	1467-005	11D5D5	MM-5-25	Fill. Bypass - Cer.
30	5000	350	CD1256-60	1FM-25	1467-005	11D5D5	MM-5-25	Tone Comp. - Cer.
31	1000	350	CD1071-25	1FM-21	1467-001	1W5D1	MO-3-21	AVC Filter
32	330	350	CD1256-40	1FM-51	1468-00035	5M5T3	MO-5-33	Diode Load Cap. - Cer.
33	330	350	CD1256-40	1FM-51	1468-00035	5M5T3	MO-5-33	Diode Load Cap. - Cer.
34	330	350	CD1256-40	1FM-51	1468-00035	5M5T3	MO-5-33	RF Bypass - Cer.
35	330	350	CD1254-1	1FM-41	1468-00001	5M5Q1	MO-5-41	RF Bypass Pwr. Supply - Cer.
36	330	350	CD1259-116	1FM-45	1468-00005	5M5Q5	MO-5-45	CSC Grid Cap. - Cer.
37	50	500	CD1106-110	1FM-45	1468-00005	5M5Q5	MO-5-45	Fixed Pad - Cer.
38	50	500	CD1107-100	1FM-41	1468-00005	5M5Q1	MO-5-41	Fixed Pad - Cer.
39	50	500	CD1107-100	1FM-41	1468-00005	5M5Q1	MO-5-41	Fixed Pad - Cer.
40	50	500	CD1254-2	1FM-45	1468-00005	5M5Q5	MO-5-45	RF Coupling Bypass - Cer.
41	1500	400	CD1227-2	1FM-215	1467-0015	1W5D15	PM-5-215	RF Screen Bypass - Cer.
42	100	500	CD1071-22	1FM-51	1468-0001	5M5T1	MO-5-31	RF Cathode Bypass
43	2000	500	CD1073-5	1FM-22	1467-002	1W5D2	PM-5-22	Line Ant. Coupling
44	100	500	CD1071-22	1FM-51	1468-0001	5M5T1	MO-5-31	2nd IF Decoupling
98	.01	400	CD1255-112	TC-11	484-01	D74S1	ST-4-01	

## CONTROLS

ITEM No.	RATING RESIST. ANCE	WATTS	REPLACEMENT DATA			INSTALLATION NOTES
			AIRADIO PART No.	IRC PART No.	CAROSTAT PART No.	
45A	500K $\Omega$	1/2	RE-1181	D18-133X	T-88	Volume control tapped @ 40K $\Omega$ #
B	500K $\Omega$	1/2	Not Req.	A	Not Req.	Attach to 45A per instructions.
C	Switch		Not Req.	41	SW-A	Attach to 45A per instructions.
46A	250K $\Omega$	1/2	RE-1182	D13-130	M-64-Z	Tone control #
B	Shaft		Not Req.	A	Not Req.	Attach to 46A per instructions.

#Use original insulating washers to isolate control from chassis.

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRADIO PART No.	IRC PART No.	
47	120Ω		RE-1062-124		Br.-Red-Br.-RF Cathode
48	150Ω		RE-1139-154		Br.-Grn.-Br. RF Decoupling
49	5Ω		RE-1139-226	BTS-22K	Blk.-Grn.-Blk. Parasitic Suppressor
50	22KΩ		RE-1062-124		Br.-Red-Br. Oscillator Grid
51	120Ω		RE-1139-683		Blue-Gray-Blk. 1st IF Cathode
52	68Ω		RE-1139-105		Br.-Blk.-Red 1st IF Decoupling
53	1000Ω		RE-1062-823		Gray-Red-Blk. 2nd IF Cathode
54	82Ω		RE-1139-105		Br.-Blk.-Red 2nd IF Decoupling
55	1000Ω		RE-1062-124		Br.-Red-Br. 3rd IF Cathode
56	120Ω		RE-1139-473		Br.-Blk.-Red 3rd IF Decoupling
57	1000Ω		RE-1139-105		Yl.-Vi.-Blk. Balancing Resistor
58	47Ω		RE-1139-156		Br.-Grn.-Or. De-emphasis
59	15KΩ		RE-1139-105		Br.-Blk.-Red Balancing Resistor
60	1000Ω		RE-1130-684		Blue-Gray-Br. Balancing Resistor
61	680Ω		RE-1015-685		Blue-Gray-Red Ratio Detector Diode Load
62	6800Ω		RE-1015-685		Blue-Gray-Red Ratio Detector Diode Load
63	6800Ω		RE-1139-108		Br.-Blk.-Gr. AVC Network
64	1 Meg.		RE-1139-476		Yl.-Vi.-Or. AVC Network
65	47KΩ		RE-1139-477		Yl.-Vi.-Vi. AVC Network
66	470KΩ		RE-1139-156		Br.-Grn.-Or. Tone Compensation
67	15KΩ		RE-1139-109		Br.-Blk.-Blue AF Grid
68	10 Meg.		RE-1139-227		Red-Grn.-Or. AF Plate Load
69	250KΩ		RE-1139-154		Br.-Grn.-Br. Output Cathode
70	150Ω		RE-1139-103		Br.-Blk.-Blk. Output Transformer Shunt
71	10Ω		RE-1139-103		Br.-Blk.-Blk. Output Transformer Shunt
72	10Ω		RE-1130-684		Blue-Gray-Br. Filter
73	330Ω		RE-1153-334		Or.-Or.-Br. Filter
74	330Ω		RE-1187-2		Br.-Blk.-Br. Filter
75	100Ω		RE-1153-153		Br.-Grn.-Br. Surge Limiter
76	15Ω		RE-1197-1		Grn.-Blk.-Blk. Pilot Light Shunt
77	50Ω		RE-1197-1		Grn.-Blk.-Blk. Pilot Light Shunt
78	50Ω		RE-1197-1		Grn.-Blk.-Blk. Pilot Light Shunt

## TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	AIRADIO PART No.	THORDARN PART No.	
79	2400Ω	3.2Ω	SK-1011	T22945*	*Bend mounting tabs down, file out slots and mount on original bracket.

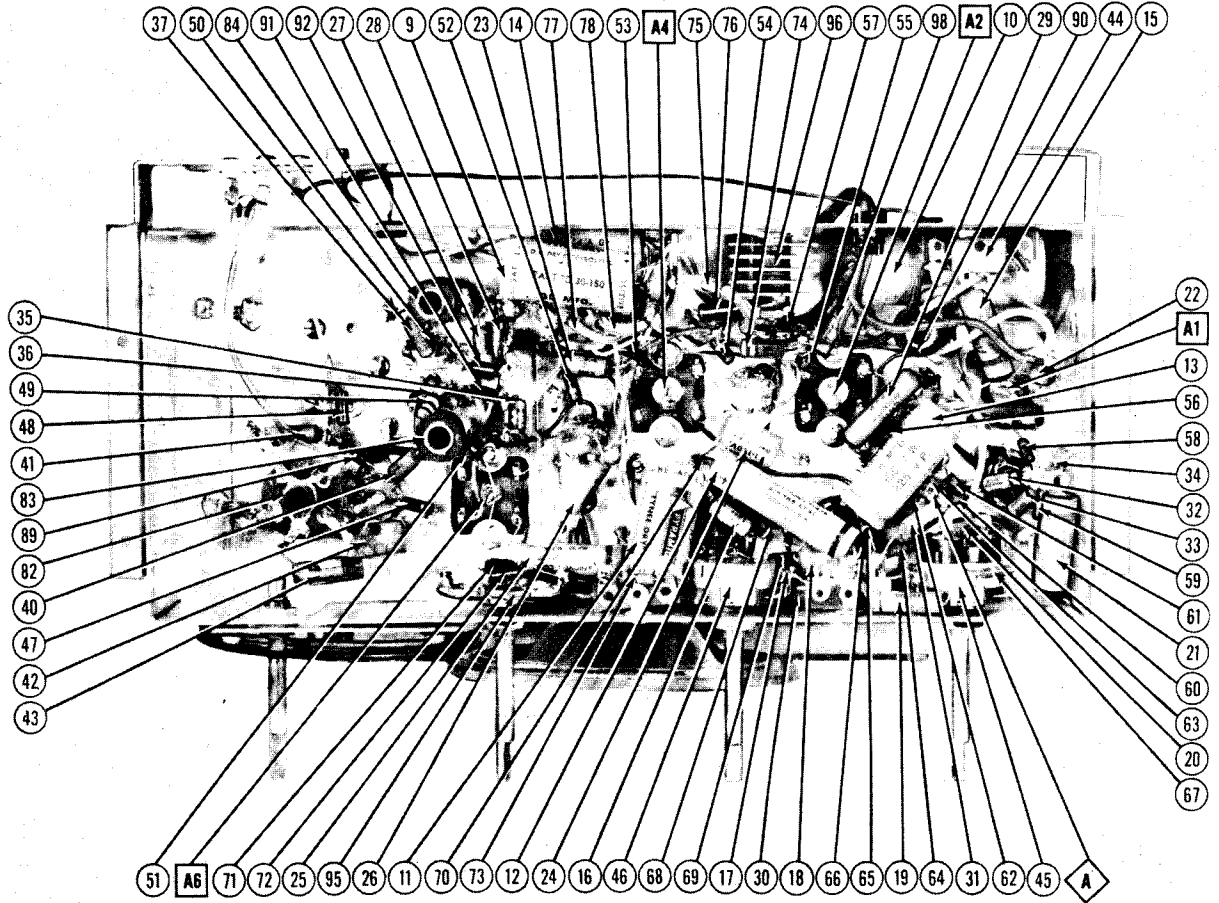
## SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMF.	AIRADIO PART No.	JENSEN PART No.	
80	FIELD	3.23	SK-1011	ST-1051 Mod. FS-X	Use wood spacers to duplicate original mounting.
81	FIELD	3.23	SK-1011	SK-1011	

## R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	AIRADIO PART No.	MESSNER PART No.
82	FM Ant. Coil	.1Ω	.1Ω	TR-1064	
83	FM RF Coil	.1Ω	.1Ω	AS-3767-1	
84	FM OSC Coil	0Ω	0Ω	AS-3767-2	
85	FM Input IF	.2Ω	.2Ω	TR-1065	
86	FM Inter IF	.2Ω	.2Ω	TR-1065	
87	FM Output IF	.2Ω	.2Ω	TR-1066	
88	FM Ratio Det	.6Ω	.6Ω	CK-1041	
89	RF Choke	.1Ω	.1Ω	AS-3793	
90	Plate Choke	.1Ω	.1Ω	CK-1041	
91	Fill. Choke	.6Ω	.6Ω	CK-1041	
92	Fill. Choke	.6Ω	.6Ω	CK-1041	

# CHASSIS—BOTTOM VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					ALRADIO PART No.	TYPE	
93	Bayonet	6-8	0.15A	Brown	LA-1014-32	Type 47	
94	Bayonet	6-8	0.15A	Brown	LA-1014-32	Type 47	

## MISCELLANEOUS

ITEM No.	PART NAME	ALRADIO PART No.	NOTES
95	Switch	SM-1070	
96	Rectifier	RT-1013	Local-Remote Selenium
97	2 Gang Var. Cap	CDC-4008	

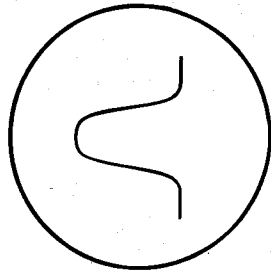


FIG. 1

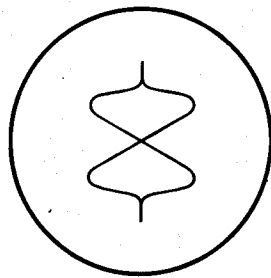


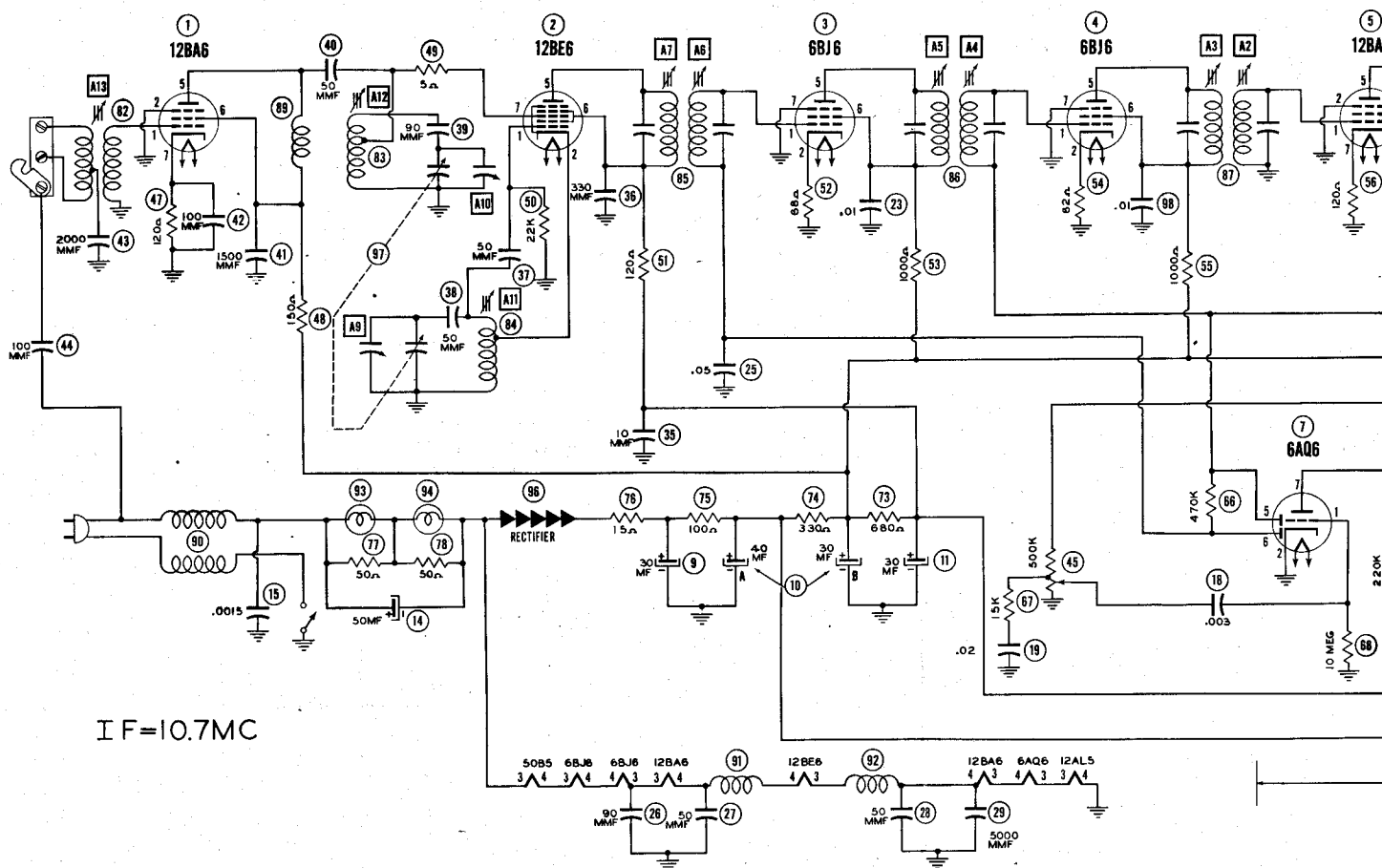
FIG. 2

FOR VISUAL IF ALIGNMENT SEE FRONT PAGE

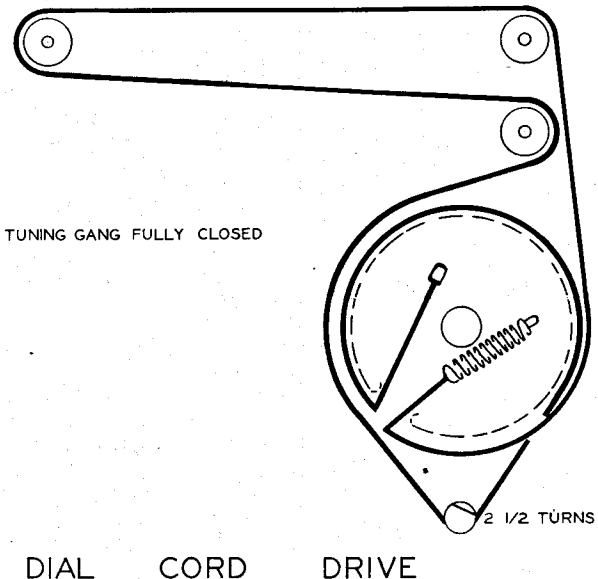
## IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

If a VTVM is not available a 20KΩ per volt DC voltmeter may be used as an output indicator.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1	.01 MFD High side to Pin 1 (Grid) 12BA6 3rd IF Tube (5). Low side to Chassis.	10.7 MC (Unmodulated)	Tuning cap. fully open.	DC Probe to Point to Chassis.	A1	Adjust for maximum deflection.
2	.01 MFD High side to Pin 1 (Grid) 6B76 2nd IF Tube (4). Low side to Chassis.	10.7 MC (Unmodulated)	Tuning cap. fully open.	DC Probe to Point to Chassis.	A2, A3	Adjust for maximum deflection.
3	.01 MFD High side to Pin 1 (Grid) 6B76 1st IF Tube (3). Low side to Chassis.	10.7 MC (Unmodulated)	Tuning cap. fully open.	DC Probe to Point to Chassis.	A4, A5	Adjust for maximum deflection.
4	.01 MFD High side to Pin 7 (Grid) 12BE6. Low side to Chassis.	10.7 MC (Unmodulated)	Tuning cap. fully open.	DC Probe to Point to Chassis.	A6, A7	Adjust for maximum deflection.
5	.01 MFD High side to Pin 1 (Grid) 12BA6 3rd IF Tube (5). Low side to Chassis.	10.7 MC (Unmodulated)	Tuning cap. fully open.	DC Probe to Point to Chassis.	A8	Adjust for zero deflection. Repeat steps 1 & 5 until no further improvement can be made making A8 last adjustment for zero deflection. Continue with RF alignment Step 6.
RF ALIGNMENT						
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6	2 150Ω carbon resistors in series with each generator lead to Dipole Terminals.	106 MC (Unmodulated)	106 MC	DC Probe to Point to Chassis.	A9, A10	Adjust for maximum deflection.
7	2 150Ω carbon resistors in series with each generator lead to Dipole Terminals.	92 MC	92 MC	DC Probe to Point to Chassis.	A11, A12	Adjust for maximum deflection. Repeat steps 5 & 6 until no further improvement can be made.
8	2 150Ω carbon resistors in series with each generator lead to Dipole Terminals.	99 MC	Tune for maximum deflection	DC Probe to Point to Chassis.	A13	Adjust for maximum deflection.



IF=10.7MC



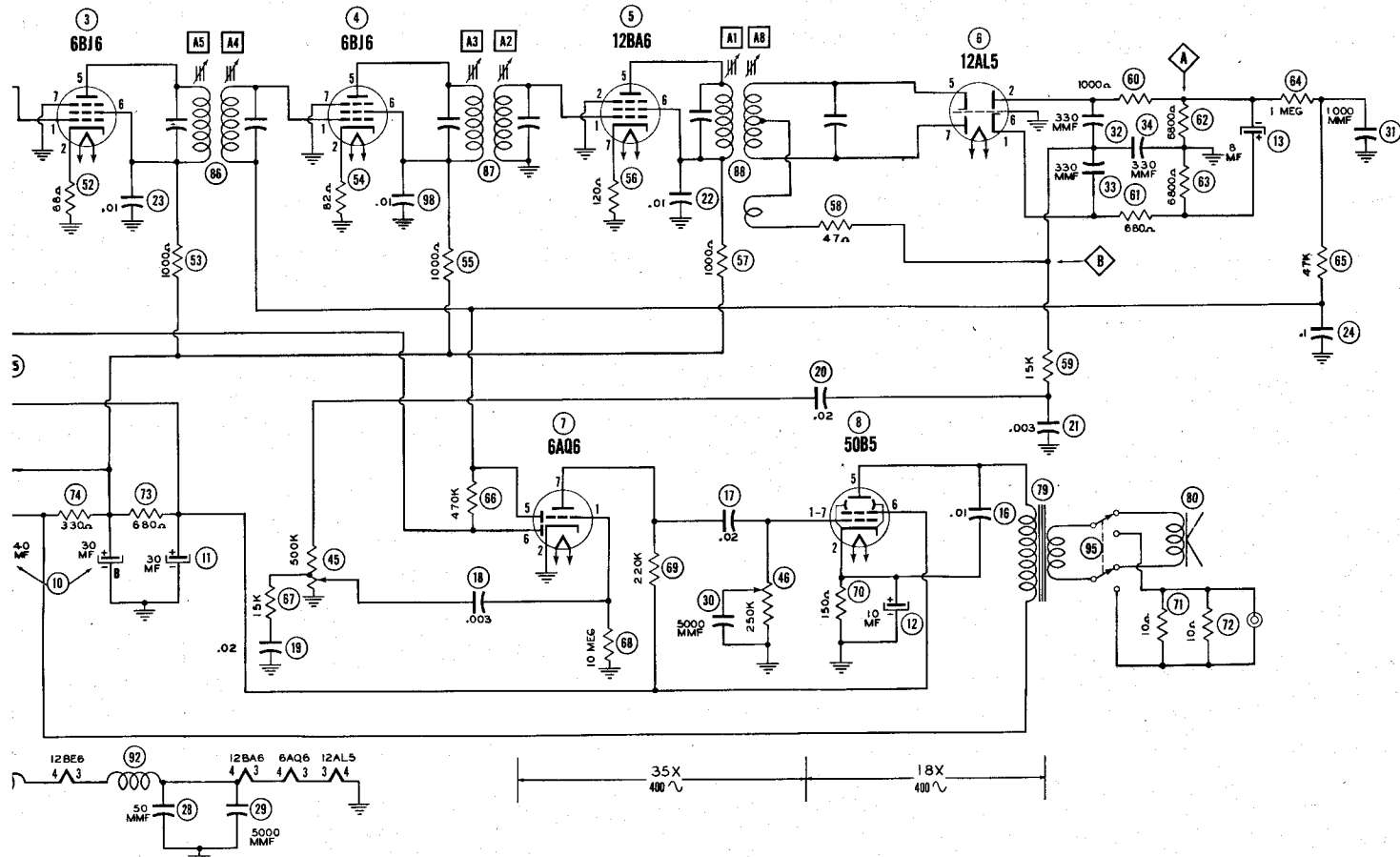
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6
1	12BA6	OV.	OV.	52VAC	40VAC	92VDC	92VDC
2	12BE6	-4VDC	OV.	29VAC	40VAC	87VDC	87VDC
3	6BJ6	-.4VDC	.3VDC	52VAC	57VAC	87VDC	87VDC
4	6BJ6	-.4VDC	.5VDC	62VAC	57VAC	87VDC	87VDC
5	12BA6	OV.	OV.	17VAC	29VAC	87VDC	87VDC
6	12AL5	.8VDC	-.8VDC	11VAC	OV.	OV.	OV.
7	6A06	-.4VDC	OV.	11VAC	17VAC	-.5VDC	-.5VDC
8	50B5	OV.	5.9VDC	110VAC	62VAC	105VDC	87VDC

STAKEN  
RESISTANCE READINGS IN  
ACCORDING TO THE CC

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.

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RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BA6	OV.	OV.	52VAC	40VAC	92VDC	92VDC	1.3VDC
2	12BE6	-4VDC	OV.	29VAC	40VAC	87VDC	87VDC	OV.
3	6BJ6	-.4VDC	.3VDC	52VAC	57VAC	87VDC	87VDC	OV.
4	6BJ6	-.4VDC	.5VDC	62VAC	57VAC	87VDC	87VDC	OV.
5	12BA6	OV.	OV.	17VAC	29VAC	87VDC	87VDC	1.4VDC
6	12AL5	.8VDC	-.8VDC	11VAC	OV.	OV.	OV.	OV.
7	6AQ6	-.4VDC	OV.	11VAC	17VAC	-.5VDC	-.5VDC	-4.3VDC
8	5085	OV.	5.9VDC	110VAC	62VAC	105VDC	87VDC	OV.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
1	12BA6	.1Ω	0Ω	54Ω	42Ω	50KΩ	50KΩ	120Ω
2	12BE6	22KΩ	0Ω	30Ω	42Ω	50KΩ	50KΩ	5Ω
3	6BJ6	1.6 Meg.	68Ω	54Ω	60Ω	50KΩ	50KΩ	0Ω
4	6BJ6	1.1 Meg.	85Ω	68Ω	60Ω	50KΩ	50KΩ	0Ω
5	12BA6	.2Ω	0Ω	19Ω	30Ω	50KΩ	50KΩ	125Ω
6	12AL5	7KΩ	7KΩ	12.5Ω	0Ω	INF.	0Ω	INF.
7	6AQ6	10 Meg.	0Ω	12.5Ω	19Ω	1.1 Meg.	1.6 Meg.	270KΩ
8	5085	270KΩ	150Ω	115Ω	68Ω	50KΩ	50KΩ	270KΩ

§ TAKEN WITH VACUUM TUBE VOLTMETER.

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

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.

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 + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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