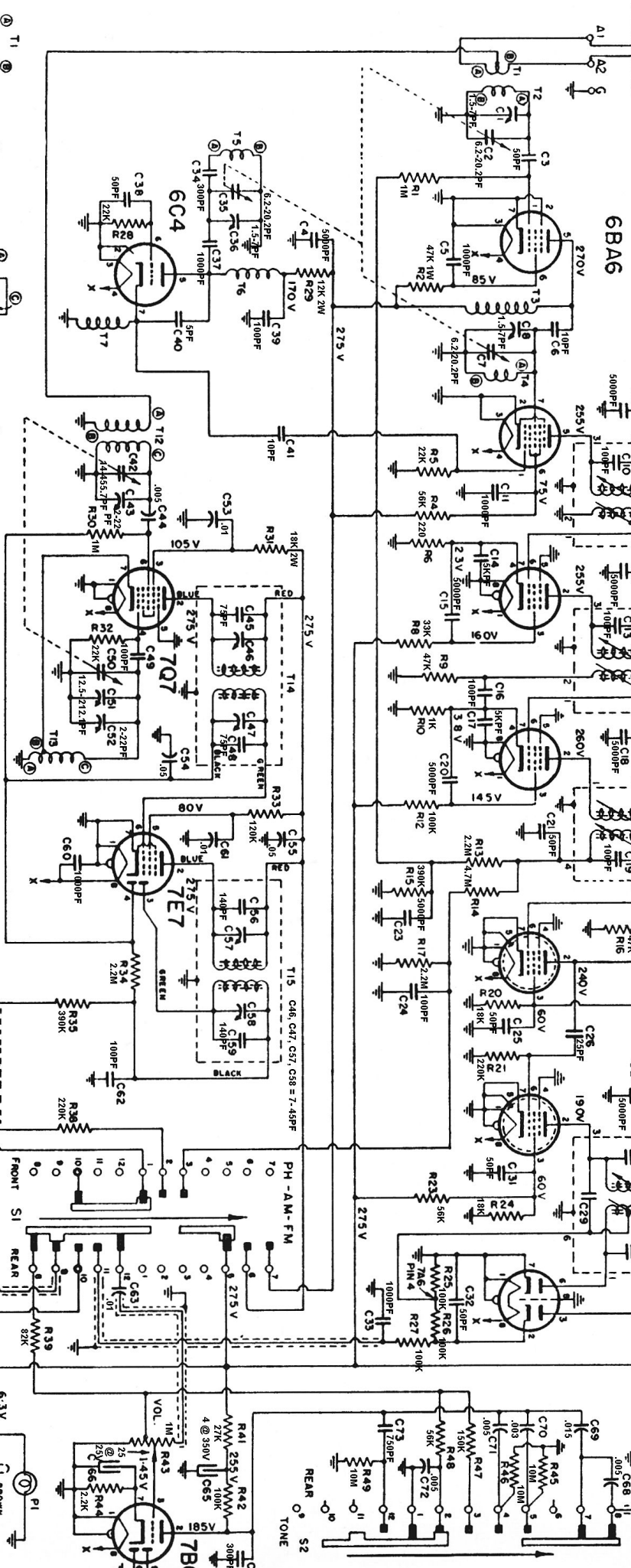


T	1	2	5	6	3	7	4	12	8	9	14	13	10	15	11	32	33	69,70,73,68,72
C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	65,66
C	34	35	36	37	38	39	40	41	42	43	44	45	46	49,50,51,52	47,48,54	55	61	67
R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	47,48,49,45,46
R	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	

Rogers Majestic R348 De Forest D748



ALL VOLTAGES MEASURED TO THE CHASSIS WITH A 20,000 OHMS PER VOLT METER, WITH S1 IN POS 2 FOR AUDIO & AM CIRCUIT READINGS, OR POSITION 3 FOR FM CIRCUIT READINGS
NO INPUT SIGNAL APPLIED TEST VOLTAGE = 117 V, 25/60 c

ARROWS — ON POTENTIOMETER AND SWITCHES INDICATES CLOCKWISE ROTATION OF SHAFT. ALL SWITCH SECTIONS ARE SHOWN IN THE EXTREME COUNTER CLOCKWISE POSITION. S1 IS SHOWN IN THE PHONOGRAPH POSITION, S2 IS SHOWN IN THE NORMAL HIGH FIDELITY POSITION.

TOP OF CHASSIS
SWITCH IS SHOWN AS VIEWED FROM FRONT OF CHASSIS

SI & S2 NUMBERING SYSTEM

— O — INDICATES DUMMY LUG
— — INDICATES CONTACTS CONNECTED THROUGH RIVET FROM FRONT TO REAR OF SWITCH SECTION

WAVE RANGE SWITCH POSITIONS

PH Position—Phonograph operation.

AM Position—Standard broadcast range from 540 kc. to 1730 kc.

FM Position—FM Range from 88 mc. to 108 mc.

INTERMEDIATE FREQUENCY: AM = 465 kc.

FM = 10.7 mc.

AUDIO OUTPUT: 8 watts undistorted

13 watts maximum

CURRENT DRAIN: 1.5 ampere maximum.

SPEAKER

12½" permanent magnet dynamic. DC voice coil resistance = 5 ohms.

Impedance at 400 cycles = 6 ohms.

SPECIAL FEATURES

BUILT-IN ANTENNA

The built-in antenna consists of a folded di-pole type, fastened to the rear of the cabinet. For best results an external FM antenna should be mounted on a mast above the roof or any other suitable high place. Connect a 300 ohm line between the FM external antenna and terminals A1-A2 on the receiver. The recommended maximum length of the line is 100 feet. Disconnect the built-in antenna when an external antenna is used.

The use of an outside FM antenna of the folded di-pole type cannot be too strongly recommended. It is imperative if reception from distant FM stations is desired. The external FM antenna and transmission line act as an aerial for AM reception, so that only the FM antenna installation is necessary for receiving both FM and AM signals.

TO NE CONTROL SWITCH

As the switch is turned from left to right the four positions of the switch vary the tonal response as follows:

- Position 1—Full tonal response.
- Position 2—Accentuation of bass with a slight reduction in treble response.
- Position 3—Greater emphasis of bass and a further reduction in treble response.
- Position 4—Restricted bass and treble response.

RECORD CHANGER

The record changer unit is a Webster Model 256 capable of operating at 33½ and 78 R.P.M. The turntable is driven by a 117 volt motor of a suitable frequency for the cycle rating of the version.

The Tilt-o-matic tone arm incorporates a Webster V42 crystal cartridge with a .002" tip for standard groove records. For further data on the record changer refer to the Webster 256 Service Manual.

HOW TO REMOVE THE CHASSIS

1. Remove the four control knobs.
2. Disconnect the antenna and ground leads.
3. Disconnect the phono, signal and power cables.
4. Remove the three nuts and washers located along the lower edge of the rear of the RF chassis.
5. Slide the RF chassis out of the cabinet.
6. Unsolder the speaker leads.
7. Reach under the center of the front skirting of the cabinet and slide the indicator light off the mounting bracket. Pull the light and socket up through the hole in the lower shelf.
8. Remove the four mounting screws located on the flanges of the power chassis and lift the chassis out of the cabinet.

TUBE SOCKET VOLTAGES

Pin No.	6BA6 H.F.	6BE6 Mix.	6C4 Osc.	7W7 1st IF	7W7 2nd IF	7C7 1st Lim.	7C7 2nd Lim.	7A6 Disc.	7Q7 Con.	7E7 IF & Det.	7B6 1st AF	7B6 2nd AF	7B6 Inv.	(2) 6V6GT PP Out	5U4G Rect.	6E5 Eye
1	—	—	—	6.3 ac	6.3 ac	0	0	0	0	0	0	0	0	0	—	6.3 ac
2	0	0	0	255	260	240	190	—	275	275	185	150	175	0	300	—
3	0	0	0	160	145	60	60	—	105	—	—	—	—	290	—	—
4	6.3 ac	6.3 ac	6.3 ac	2.3	3.8	0	0	—	—	—	1.25	70	275	300 ac	275	—
5	270	255	170*	0	0	0	0	0	0	80	0	0	0	—	0	0
6	85	75	—	—	—	—	—	—	—	—	0	0	0	—	300 ac	0
7	0	—	0	2.3	3.8	0	0	0	0	0	1.45	1.25	70	6.3 ac	—	—
8	—	—	0	0	0	6.3 ac	6.3 ac	6.3 ac	6.3 ac	6.3 ac	6.3 ac	6.3 ac	6.3 ac	16	300	—

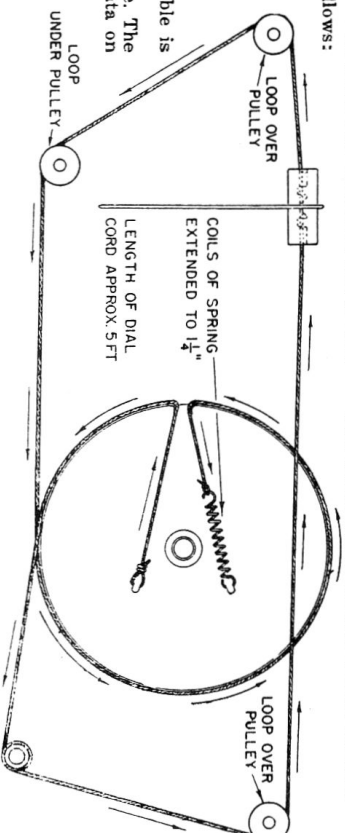
QUIETING SENSITIVITY TEST

1. Set the output meter on the 1 watt scale.
2. Apply a 400 cycle, 30% modulated, 98 Mc. signal of approx. 30 microvolts.
3. Tune the receiver for maximum output and adjust the volume control for a 1 watt output meter reading.
4. Remove the modulation.
5. Set the output meter to the 50 milliwatts scale.
6. Check to see that the receiver is tuned to the minimum noise output.
7. If the RF input is of the proper value, the output reading will be 1 mW. (The ratio of 1 watt to 1 mW. is equal to 30 db.)
8. When the minimum noise output is not 1 mW., increase or decrease the signal as required, and repeat the test until a value of RF input is found that results in a 30 db. difference in the outputs resulting from modulated and unmodulated input signals.
9. The value of RF input that produces a 30 db. output signal ratio is the quieting sensitivity.
10. The quieting sensitivity for the receiver should be below 30 uV.
11. If the quieting sensitivity is above 30 uV., check for faulty tubes, etc., especially the 6BE6 mixer tube.

DIAL DRUMS IN POSITION SHOWN

POINTER AT LOW FREQUENCY END OF DIAL

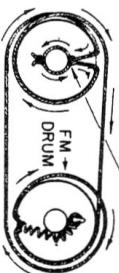
GANG CAPACITORS AT MAXIMUM CAPACITY (CLOSED)



ARRANGEMENT OF DIAL DRIVE CORD

3 TURNS AROUND TUNING SHAFT

LOOP CORD AROUND HUB AND SECURE WITH A KNOT.



ARRANGEMENT OF FM TUNER DRIVE CORD
LENGTH OF CORD APPROX 2 FT.

Rogers Majestic R348

De Forest D748

*Plate voltage of 6C4 Oscillator Tube to be measured at the junction of R29, C39 and the R.F. Choke.

All voltages are measured to the chassis and are D.C. positive except where noted. Readings may vary plus or minus 10% due to line voltage fluctuations.

All tubes must be in their sockets during test. Tests made at 117 volts 25/60 cycles with a 20,000 ohms per volt meter. Receiver set for AM reception for AM and audio readings. Receiver set for FM for FM readings. No input signal applied.

ALIGNMENT PROCEDURE CHART

Operation Steps	SIGNAL GENERATOR				METER			RECEIVER				
	Series Component	Connection To Receiver	Frequency	Modulation	Type	Connection To Receiver	Scale	Range Switch	Tuning Capacitor	See Notes	Adjust in Stated Order	Adjust For
1	.05 mf.	7E7 Pin No. 6	455 kc.	400c AM at 30%	Output	In place of voice coil	6 ohms	AM	Min. Cap.	A	C58-C57	Max. Output
2	.05 mf.	Stator of C42	455 kc.	400c AM at 30%	Output	In place of voice coil	6 ohms	AM	Min. Cap.	A	C47-C46	Max. Output
3	100 mmf.*	Antenna Terminal A1	1500 kc.	400c AM at 30%	Output	In place of voice coil	6 ohms	AM	1500 kc.	B	C51, C52, C43	Max. Output
4	200 mmf.	2nd IF, 7W7, Pin 6	10.7 Mc.	None	VTVM	Pin 4 of T10	—3 V	FM	Max. Cap.	C	T10 Secondary T10 Primary	Max. A.V.C. Voltage
5	200 mmf.	1st IF, 7W7, Pin 6	10.7 Mc.	None	VTVM	Pin 4 of T10	—3 V	FM	Max. Cap.	D	T9 Secondary T9 Primary	Max. A.V.C. Voltage
6	None	Stator Lug of C7	10.7 Mc	None	VTVM	Pin 4 of T10	—3 V	FM	Max. Cap.	D	T8 Secondary T8 Primary	Max. A.V.C. Voltage
7	None	Stator Lug of C7	10.7 Mc	None	VTVM	Pin 4 of 7A6	—30 V	FM	Max. Cap.	E	T11 Primary	Max. Discrim. Voltage
8	None	Stator Lug of C7	10.7 Mc.	None	VTVM	Pin 2 of 7A6	—3 V	FM	Max. Cap.	F	T11 Secondary	Zero Voltage
9	150 ohm resistor in each lead	Antenna Terminals A1-A2	106 Mc.	400c FM at 30%	VTVM	Pin 4 of T10	—3 V	FM	106 Mc.	G-H	C36, C8, C1	Max. A.V.C. Voltage
10	150 ohm resistor in each lead	Antenna Terminals A1-A2	90 Mc.	400c FM at 30%	VTVM	Pin 4 of T10	—3 V	FM	90 Mc.	I	T5, T4, T2	Max. A.V.C. Voltage

*or a Standard Dummy Antenna with a 200 mmf. condenser in series.

ALIGNMENT NOTES

- After step 2 has been completed do not readjust C58 and C57.
- The oscillator trimmer capacitors C51 and C52 are in parallel. Adjusting C51 should be sufficient.
- Secondary is adjusted through the bottom of transformer, primary through the top.
- Secondary is adjusted through the top of the transformer, primary through the bottom. After completing operation 6, increase the signal generator output until the A.V.C. voltage is —3 volts. Leave the signal generator at this increased setting for operation steps 7 and 8.
- Primary is adjusted through the bottom of the transformer. Discriminator voltage should be approx. —10.5 volts.
- Secondary is adjusted through the top of the transformer. After completing operation 8, repeat operation 7, then repeat operation 8. Continue this procedure until no further improvement results. Always perform operation 8 last. After the last repetition of operation 8 the discriminator tuning should be checked by one of the following methods:
 - If the calibrations of the signal generator used for IF and discriminator alignment are sufficiently accurate, swing the signal to 75 kc. higher and 75 kc. lower in frequency than the 10.7 Mc. intermediate frequency, and note the plus and minus discriminator voltages. If these voltage values are not approximately equal in magnitude (within 5%) repeat steps 7 and 8.
 - This method is used if the signal generator calibration is not accurate enough for method 1. Connect the VTVM across the end of the de-emphasis network i.e., from junction of R27 and C33 to chassis) and tune the receiver to the signal of the local FM station until the VTVM reads zero. Then adjust the tuning of the receiver, to the left and right of the zero VTVM point, for maximum readings on the VTVM. If the voltage peaks are not approximately equal in magnitude (within 5%), the discriminator has not been properly aligned, thus requiring the realignment of steps 7 and 8.
- A balanced output FM modulated signal generator is recommended for the RF alignment. Tune the receiver to the center response of the three audio responses. If a suitable FM signal generator is not available, the RF or "front-end" alignment can be done quite well with an AM signal generator capable of supplying frequencies from 87 to 109 Mc. The trimmers and coils are adjusted as in the alignment chart for maximum A.V.C. reading on the VTVM.
- The use of a signal generator for steps 9 and 10 is recommended only if the available generator is sufficiently accurate to insure correct frequency settings. Otherwise, an alternate procedure employing FM station signals in place of a signal generator is recommended. For adjustments at the high frequency end of the band, use the station nearest 105 Mc. For adjustments at the low frequency end of the band, use the station nearest 90 Mc. Make certain of the frequency of the FM stations used in alignment in order that the receiver may be logged correctly. If only one FM station is available in your community it will have to suffice for RF alignment.
- Check all coil adjustments with a tuning wand. If inserting the brass end in or near the coil increases the A.V.C. reading, spread the coil turns. If the powdered-iron end increases the A.V.C. reading, compress the coil turns. If both ends of the tuning wand cause a decrease in the VTVM reading, the coil is correctly adjusted. Do not change the coils excessively as only a small adjustment is required at these frequencies.

Rogers Majestic R348

De Forest D748