Models 53, 54, 55, 57

Radio Receivers

Specifications

Frequency Range:

.53 to 3.8 megacycles

I.F.:

175 K.C.

Tubes:

Type	Position
6F7	R.F. and 1st A.F.
6A7	Autodyne 1st Detector
6B7	I.F. Amplifier, A.V.C. and 2nd Detector
42	Power Output
80	Power Rectifier

Power Supply:

105 to 125 volts A.C. 60 cycles

Models with the letter "A" following are 105 to 125 volts A.C. 25 cycles.

A.V.C.:

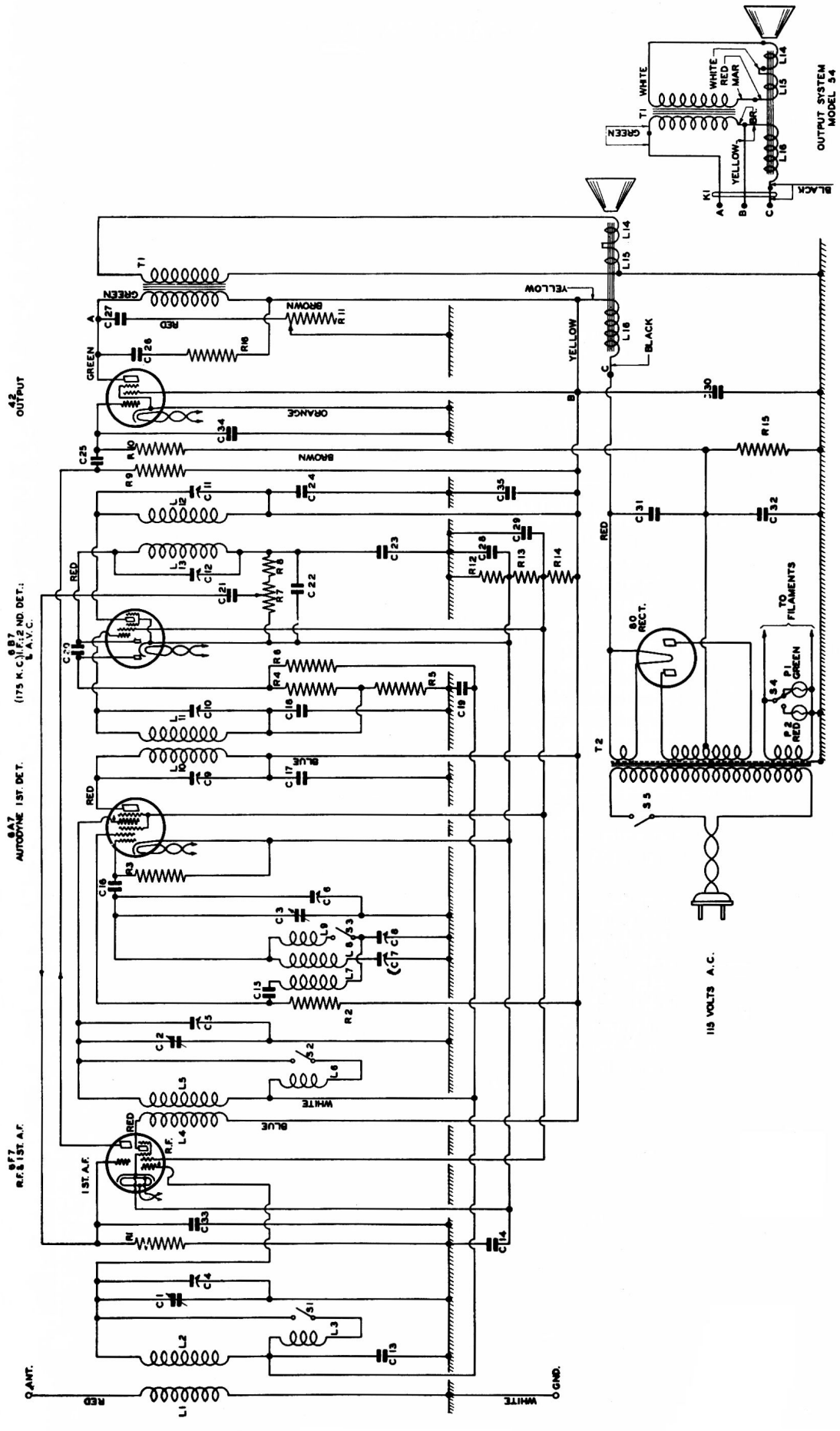
Partial A.V.C. control is applied to the 6B7 tube and full control to R.F. control grids of the 6F7 and 6A7 tubes.

Controls:

From left to right—A.C. switch and volume control; tone control; wave change switch; tuning control.

Models 53 and 55—Mantel

Models 54 and 57—Console



Schematic Diagram Model 53-54-55-57 Receivers.

REPLACEMENT PARTS LIST

CAPACITORS:—

C-1	Antenna R.F. Tuning	Three gang variable capacitor with trimmers; mmf. 455 max. K-1200
C-2	Second R.F. Tuning	
C-3	Oscillator Tuning	
C-4	Trimmer for Antenna Tuning	
C-5	Trimmer for 2nd R.F. Tuning	
C-6	Trimmer Oscillator (pad)	
C-7	Oscillator Lag (Broadcast), 550-1200 mmf. var.	K-1171-2
C-8	Oscillator Lag (Short Wave), 550-1200 mmf. var.	
C-9	Trimmer, 1st I.F. Transformer Primary (20-100 mmf. var.)	K-1244-1
C-10	Trimmer, 1st I.F. Transformer Secondary (20-100 mmf. var.)	
C-11	Trimmer, 2nd I.F. Transformer Primary (20-100 mmf. var.)	K-1244-1
C-12	Trimmer, 2nd I.F. Transformer Secondary (20-100 mmf. var.)	
C-13	A.V.C. By-Pass; .05 mf; 175 volts	K-2227-8
C-14	Cathode By-pass; .25 mf; 175 volts	K-2227-10
C-15	D.C. Blocking (Oscillator Plate), .01 mf; 350 volts	K-2228-6
C-16	Oscillator Grid; 100 mmf; mica	K-1611-2
C-17	Plate By-pass; .005 mf; 175 volts	K-2227-4
C-18	A.V.C. By-Pass; .005 mf; 350 volts	K-2228-5
C-19	A.V.C. By-Pass; .1 mf; 175 volts	K-2227-9
C-20	Diode Paralleling; 100 mmf; mica	K-1611-2
C-21	D.C. Blocking; .005 mf; 350 volts	K-2228-5
C-22	I.F. By-Pass; 100 mmf; mica	K-1611-2
C-23	By-Pass; 100 mmf; mica	K-1611-2
C-24	By-Pass; .005 mf; 350 volts	K-2228-5
C-25	D.C. Blocking; .05 mf; 350 volts	K-2228-8
C-26	Impedance Equaliser; .02 mf; 175 volts	K-2227-7
C-27	Tone Control; .05 mf; 350 volts	K-2228-8
C-28	Divider By-Pass; .05 mf; 175 volts	K-2227-8
C-29	Divider, By-Pass; .25 mf; 175 volts	K-2227-10
C-30	Power Filter; 6 mf; 450 volts	K-1201
C-31	Power Filter; 8 mf; 450 volts	
C-32	Bias By-Pass; 20 mf; 25 volts	
C-33	Grid R.F. By-Pass; 100 mmf; mica	K-1611-2
C-34	Grid R.F. By-Pass; 100 mmf; mica	K-1611-2
C-35	Divider By-Pass; .25 mf; 350 volts	K-2228-10

RESISTORS:—

R-1	1st A.F. Grid; ½ meg; ½ watt	K-2226-3
R-2	Oscillator "Plate," 20,000 ohms; ½ watt	K-2226-8
R-3	Oscillator Grid; 1/10 meg; ½ watt	K-2226-5
R-4	A.V.C. Load; 1 meg; ½ watt	K-2226-2
R-5	A.V.C. Load; ¼ meg; ½ watt	K-2226-4
R-6	A.V.C. Filter; 1 meg; ½ watt	K-2226-2
R-7	Volume Control; ½ meg; variable	K-1092-6

RESISTORS:—

R-8	I.F. Filter; 50,000 ohms; ½ watt	K-2226-6
R-9	Audio Plate; 50,000 ohms; ½ watt	K-2226-6
R-10	Audio Grid; ¼ meg, ½ watt	K-2226-6
R-11	Tone Control; ¼ meg; variable	K-1093-3
R-12	Divider; 300 ohms; ½ watt	K-2226-20
R-13	Divider; 10,000 ohms; 1 watt	K-2363-21
R-14	Divider; 15,000 ohms; 2 watts	K-1095-2
R-15	A.F. Bias; 350 ohms; 1 watt	K-2363-30
R-16	Impedance Equaliser; 10,000 ohms; ½ watt	K-2226-10

COILS:—

L-1	Antenna R.F. Transformer Primary	K-1196-1 (part of K-1198-1)
L-2	Antenna R.F. Transformer Secondary	
L-3	Antenna R.F. Transformer S.W. Shunt	
L-4	2nd R.F. Transformer Primary	K-1196-2 (part of K-1198-2)
L-5	2nd R.F. Transformer Secondary	
L-6	2nd R.F. Transformer S.W. Shunt	
L-7	Oscillator Plate	K-1197
L-8	Oscillator Grid	
L-9	Oscillator Grid S.W. Shunt	
L-10	1st I.F. Transformer Primary	K-1365-1 (part of K-1193-1)
L-11	1st I.F. Transformer Secondary	
L-12	2nd I.F. Transformer Primary	K-1365-2 (part of K-1193-2)
L-13	2nd I.F. Transformer Secondary	
L-14	L.S. Voice Coil and Diaphragm Assembly	K-1242-1 Models 53-55; K-1156-2 Models 54-57; K-1246-1
L-15	L.S. Hum Bucking Coil	Models 53-55 Part of K-1157-2 Models 54-57; K-1241-1
L-16	L.S. Field Coil	Models 53-55 K-1157-2 Models 54-57

TRANSFORMERS:—

T-1	Output Transformer	K-1247-1 (Models 53-55); K-1065-4 (Models 54-57)
T-2	Power Transformer. 60 cycles	K-1249-5
	25 cycles	K-1249-6

SWITCHES:—

S-1, S-2, S-3, S-4	Wave Change Switch	K-1223
S-5	A.C. Power Switch (mounted on Tone Control)	K-1093-3

REALIGNING DETAILS

In realigning the Model 53, 54, 55 and 57 Receivers, an intermediate frequency of 175 K.C. is used. Proceed as follows:—

1. A. Set signal generator to 175 K.C.
   B. Couple to control grid terminal type 6-A-7 autodyne first detector.
   C. Align C-9, C-10, C-11 and C-12.
2. A. Set signal generator to 1600 K.C.
   B. Set receiver dial to 1600 K.C. (green band).
   C. Connect signal generator to antenna.
   D. Align C-5, C-6 and C-4.
3. A. Set signal generator and receiver dial to 1400 K.C.
   B. Realign C-4 and C-5 if necessary.
4. A. Set signal generator to 600 K.C.
   B. Set receiver dial to 600 K.C. (green band).
   C. Align C-7.
5. A. Repeat No. 2 as above for check.
6. A. Check at 1000 K.C.
7. A. Set signal generator to 2500 K.C.
   B. Set receiver dial to 2500 K.C. (red band).
   C. Align C-8.

The location of the trimming condensers mentioned above is shown in Fig. 1, both A. and B.

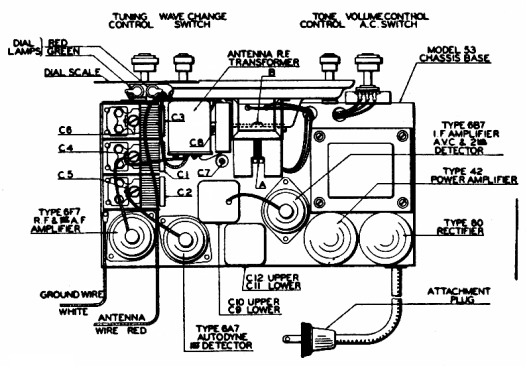
Only a high quality, thoroughly reliable signal generator should be used and the output variations indicated by an output meter in preference to listening to volume changes at the loudspeaker.

SOCKET VOLTAGE AND CURRENT READINGS

The following readings were taken on a standard production Model 53 chassis, using a Weston Model 566 Analyzer modified for use with the Type 666-1A adapter.

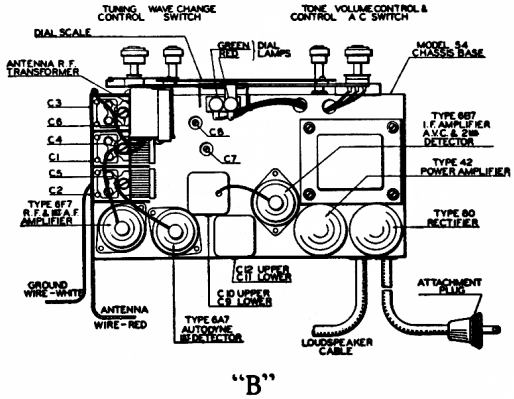
Tube	Position	Filament Volts	Plate Volts	Screen Volts	Bias	Plate Current	
						Normal Bias	Red. Bias (4.5 volts)
6-F-7	R.F. and 1st A.F.	6.3	(2) 105 (1) 235	85	(2) .2 (1) .8	(2) 2.5 (1) 3.0	(2) 3.5 (1) 6.0
6-A-7	Autodyne 1st Det.	6.3	(3) 235 (4) 150	80	(3) .5	2.2	6.0
6-B-7	I.F.; A.V.C. and Second Detector	6.3	235 (5) 1.4 (6) 2.9	85	.5	3.0	3.0
42	Power Output	6.3	230	245	2.5	28	33
80	Power Rectifier	5.2	(7) 370 (8) 550			26 & 29 for each plate	

Line Voltage—114.
(1) R.F. Section (Nos. 2 and 6 on Analyzer Adapter).
(2) Audio Section (Nos. 6 and 5 on Analyzer Adapter).
(3) I.F.
(4) Oscillator.
(5) No. 1 Diode Plate.
(6) No. 2 Diode Plate.
(7) Filament to Plates (either).
(8) A.C. Plate to Plate.
Bias readings to cathode; current readings (excepting type 80) to cathode.



"A"

A.—The Model 53-55 chassis.



"B"

B.—The Model 54 and 57 Console chassis only.