

Models 70, 70A

Radio Receiver

Specifications

Frequency Range:

540 to 1750 K.C.

I.F.:

265 K.C.

Tubes:

Type	Position
2A7	1st Detector & Oscillator
58	1st I.F. Amplifier
2B7	2nd I.F. Amplifier
	A.V.C. and Diode 2nd Detector
58	1st A.F. Amplifier
53	Audio Driver
53	Class AB-2 Push-Pull Power Amplifier
5Z3	Power Rectifier

Power Supply:

Model 70—105 to 125 volts A.C. 60 cycle

Model 70A—105 to 125 volts A.C.

25 or 60 cycle

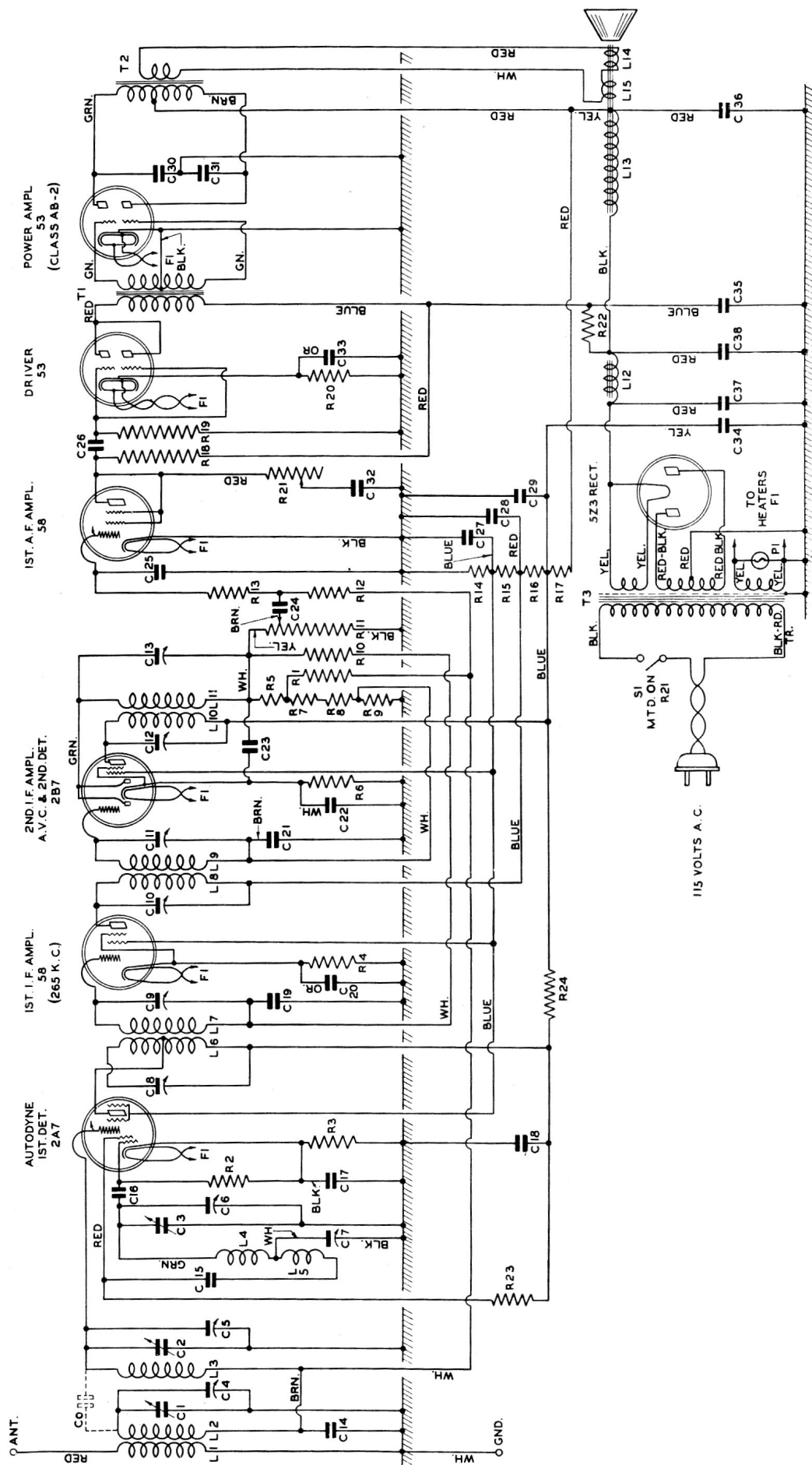
A.V.C.:

Applied to 1st I.F. amplifier, and first A.F. amplifier, also to the amplifier section of the 2B7 tube and about one third control to the 1st Detector.

Controls:

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

THE MODEL 70 AND 70-A SEVEN TUBE SUPERHETERODYNE



Schematic Diagram Model 70 Receiver.

REPLACEMENT PARTS LIST

CAPACITORS:—

	Part No.
C-1 Antenna R.F. Transformer Secondary Tuning.....	K-1170
C-2 Preselector Tuning.....	
C-3 Oscillator Tuning.....	
C-4 Trimmer Antenna Secondary Tuning.....	
C-5 Trimmer Preselector Tuning.....	K-1171-1
C-6 Trimmer Oscillator Tuning.....	
C-7 Trimmer, Oscillator lagging—500-1200 mmf.....	K-1166-1
C-8 Trimmer, primary first I.F. Transformer; 18-90 mmf.....	
C-9 Trimmer, secondary first I.F. Transformer; 18-90 mmf.....	K-1166-1
C-10 Trimmer, primary second I.F. Transformer; 18-90 mmf.....	
C-11 Trimmer, secondary second I.F. Transformer; 18-90 mmf.....	K-1166-1
C-12 Trimmer, primary third I.F. Transformer; 18-90 mmf.....	
C-13 Trimmer, secondary third I.F. Transformer; 18-90 mmf.....	K-1166-1
C-14 AVC Filter and R.F. Coupling .01-mfd., 175 volts.....	
C-15 Oscillator Plate Blocking, .02 mfd., 350 volts.....	K-2227-6
C-16 Oscillator Grid Blocking; .0001 mfd., mica.....	
C-17 Cathode Bias, By-Pass; .05 mfd. 175 volts—mounted in.....	K-1159
C-18 Plate By-Pass; .05 mfd., 350 volts.....	
C-19 A.V.C. Filter; .05 mfd., 175 volts.....	K-2227-8
C-20 Cathode Bias By-Pass; .05 mfd., 175 volts—mounted in.....	
C-21 A.V.C. Filter; .05 mfd., 175 volts—mounted in.....	K-1159
C-22 Cathode Bias By-Pass; .05 mfd., 175 volts mounted in.....	
C-23 I.F. By-Pass; .0001 mfd.; mica.....	K-1611-2
C-24 1st I.F. Grid; .05 mfd., 175 volts.....	
C-25 I.F. Filter; .0002 mfd., mica.....	K-1611-3
C-26 Driver Grid Blocking; .005 mfd. mica.....	
C-27 Screen By-Pass; .25 mfd., 175 volts—mounted in.....	K-1159
C-28 Plate By-Pass; .1 mfd., 175 volts—mounted in.....	
C-29 Plate By-Pass; .05 mfd. 350 volts.....	K-2228-8
C-30 Power Amplifier Plate By-Pass; .005 mfd., 350 volts.....	
C-31 Power Amplifier Plate By-Pass; .005 mfd., 350 volts.....	K-2228-5
C-32 Tone Control; .05 mfd., 175 volts.....	
C-33 Driver Cathode Bias; 25 mfd., 10 volts.....	K-2227-8
C-34 Filter (Divider), 4 mfd., 300 volts.....	
C-35 Filter (Driver and 1st A.F. Plate), 4 mfd., 475 volts.....	K-1153
C-36 Filter (Loudspeaker Field), 4 mfd., 475 volts.....	
C-37 Filter (first) 8 mfd., 475 volts.....	K-1152
C-38 Filter (second) 8 mfd. 475 volts.....	

COILS:—

L-1 Antenna R.F. Transformer Primary.....	K-1160
L-2 Antenna R.F. Transformer Secondary.....	
L-3 R.F. Preselector.....	K-1161
L-4 Oscillator Grid Coil.....	
L-5 Oscillator Plate Coil.....	K-1162
L-6 First I.F. Transformer Primary.....	
L-7 First I.F. Transformer Secondary.....	K-1164-2
L-8 Second I.F. Transformer Primary.....	
L-9 Second I.F. Transformer Secondary.....	K-1164-1
L-10 Third I.F. Transformer Primary.....	
L-11 Third I.F. Transformer Secondary.....	K-1164-3
L-12 Filter Choke.....	
L-13 Loudspeaker Field.....	K-1167
L-14 Voice Coil and Diaphragm Assembly.....	
L-15 Hum Bucking Coil.....	K-1157

RESISTORS:—

R-1 A.V.C. Filter; 1/2 meg. 1/2 watt.....	K-2226-3
R-2 Oscillator Grid Leak; 50,000 ohms, 1/3 watt.....	
R-3 Cathode Bias; 1500 ohms, 1/2 watt.....	K-2226-6
R-4 Cathode Bias; 1000 ohms, 1/2 watt.....	
R-5 A.V.C. Load; 1 meg., 1/2 watt.....	K-2226-2
R-6 Cathode Bias; 125 ohms; 1/2 watt.....	
R-7 A.V.C. Load; 1/4 meg., 1/2 watt.....	K-2226-4
R-8 A.V.C. Load; 1/4 meg., 1/2 watt.....	
R-9 A.V.C. Load; 50,000 ohms, 1/2 watt.....	K-2226-6
R-10 A.V.C. Filter; 1/2 meg., 1/2 watt.....	
R-11 Volume Control; 1/2 meg., variable.....	K-1092-3
R-12 A.V.C. Filter; 1/2 meg., 1/2 watt.....	
R-13 I.F. Filter; 1/4 meg., 1/2 watt.....	K-2226-4
R-14 Divider; 6000 ohms.....	
R-15 Divider; 8000 ohms.....	K-1174
R-16 Divider I.F. Plate; 12000 ohms.....	
R-17 Divider; 1000 ohms.....	K-2226-5
R-18 A.F. Plate; 100,000 ohms—1/2 watt.....	
R-19 Driver Grid; 1/2 meg., 1/2 watt.....	K-2226-3
R-20 Cathode Bias; 1000 ohms—1/2 watt.....	
R-21 Tone Control; 100,000 ohms, variable.....	K-1093-2
R-22 Driver & A.F. Plate; 10,000 ohms—1 watt.....	
R-23 Oscillator Plate, 20,000 ohms—1/2 watt.....	K-2226-8
R-24 Plate Filter; 1,000 ohms—1/2 watt.....	

TRANSFORMERS:—

T-1 Input Transformer.....	K-1168
T-2 Output Transformer.....	K-1065-3
T-3 Power Transformer—60 cycles.....	K-1169-1
25 cycles.....	K-1169-2

MISCELLANEOUS:—

P-1 Dial Lamp (3 volts).....	K-1024-1
S-1 A.C. "On-Off" Switch.....	Part of K-1093-2

THE MODEL 70 AND 70-A SEVEN TUBE SUPERHETERODYNE

SOCKET VOLTAGE AND CURRENT READINGS

Tube	Position	Fil. Volts	Plate Volts	Screen Volts	Cathode Volts	Control Grid or "C" Bias Volts	Plate Current	
							Normal Bias	Reduced Bias
2-A-7	First Det. and Oscillator.....	2.3	285	42	4.7	.25 *(1 & 2)	Ⓐ .2	Ⓐ .7
58	First I.F.....	2.3	130	47	1.5	*1.5	2.0	2.5
2-B-7	Second Detector....	2.3	290	53	.4	*(3) .1	3.0	5.8
58	First A.F.....	2.3	35	35	..	.1	2.0	2.1
53	Audio Driver.....	2.3	300 { Both Plates	..	6.2	.02 { Both Grids	Ⓒ2.8	Ⓒ6.7
53	Power Amplifier....	2.3	310 { Both Plates	..	..	..	18 { Both Plates	35 One Plate 40 Second Plate
5-Z-3	Power Rectifier....	4.8	A.C. Volts Plate to Plate 740				One Plate 34	

The above readings were taken with a Weston Type 665 analyzer with the associated 666 unit, at a line pressure of 114 volts, 60 cycles frequency. The volume control was turned to maximum and the tone control to treble for all readings.

The power amplifier plate current readings were taken at zero signal level.

(1) No. 2 Grid to Cathode, 220 volts.

(2) No. 1 Grid to Cathode, 4.4 volts.

(3) Diode Plates not readable.

* Discrepancy in readings will exist due to differences in meter resistances.

Ⓐ Will vary with position of tuning selector.

Ⓒ These readings taken with separate meter and external battery.

REALIGNING DETAILS

In realigning the Model 70 Receiver, an intermediate frequency of 265 K.C. is used. Proceed as follows:—

- (a) Set signal generator at 265 K.C.
(b) Couple to control grid type 2-A-7 first detector and oscillator tube.
(c) Align C-8, C-9, C-10, C-11, C-12 and C-13.
- (a) Set signal generator at 1500 K.C.
(b) Still feeding generator to control grid Type 2-A-7.
(c) Align C-6.
- (a) Connect 1500 K.C. output signal generator to Antenna Receiver.
(b) Set dial at 1500 K.C.
(c) Align C-4 and C-5.
- (a) Set signal generator at 600 K.C.

(b) Connect generator to Antenna lead of receiver.

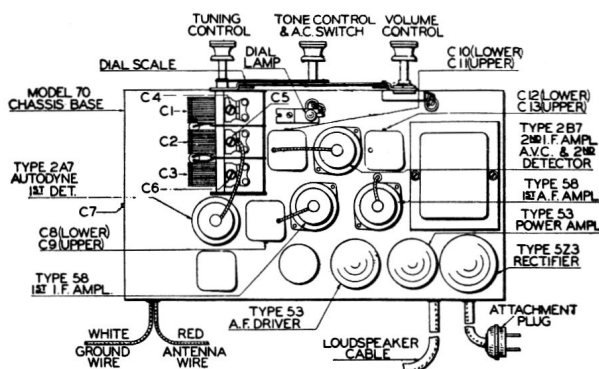
(c) Set dial at 600 K.C.

(d) Align C-7.

- (a) Recheck alignment of C-4, C-5, as in number three above.

IMPORTANT NOTES:—The I.F. transformer alignments are particularly critical and care should be exercised in locating the peak and in trimming to maximum output on all six adjustments as indicated in number one above. An output meter is essential for reliable realigning. Its terminals should be connected across the voice coil of the loud-speaker.

The location of the trimming condensers mentioned above is shown in the cut below.



Chassis Layout Model 70 Receiver.