

Models 80, 80A

Radio Receivers

Specifications

Frequency Range:
Broadcast

Model 80A—105 to 125 volts A.C. 25 to 60 cycles

I.F.:
175 K.C.

A.V.C.:

Delayed A.V.C. control, the 2nd Detector controlling the 1st detector and 1st I.F. amplifier. A delay bias of about 40 volts, diode negative to cathode, type 55 tube, prevents A.V.C. action on very weak signals.

Tubes:

Type	Position
58	1st Detector
58	1st I.F. Amplifier
58	2nd I.F. Amplifier
55	2nd Detector and A.V.C.
245	Push-Pull Output
245	Push-Pull Output
56	Oscillator
280	Rectifier

Controls:

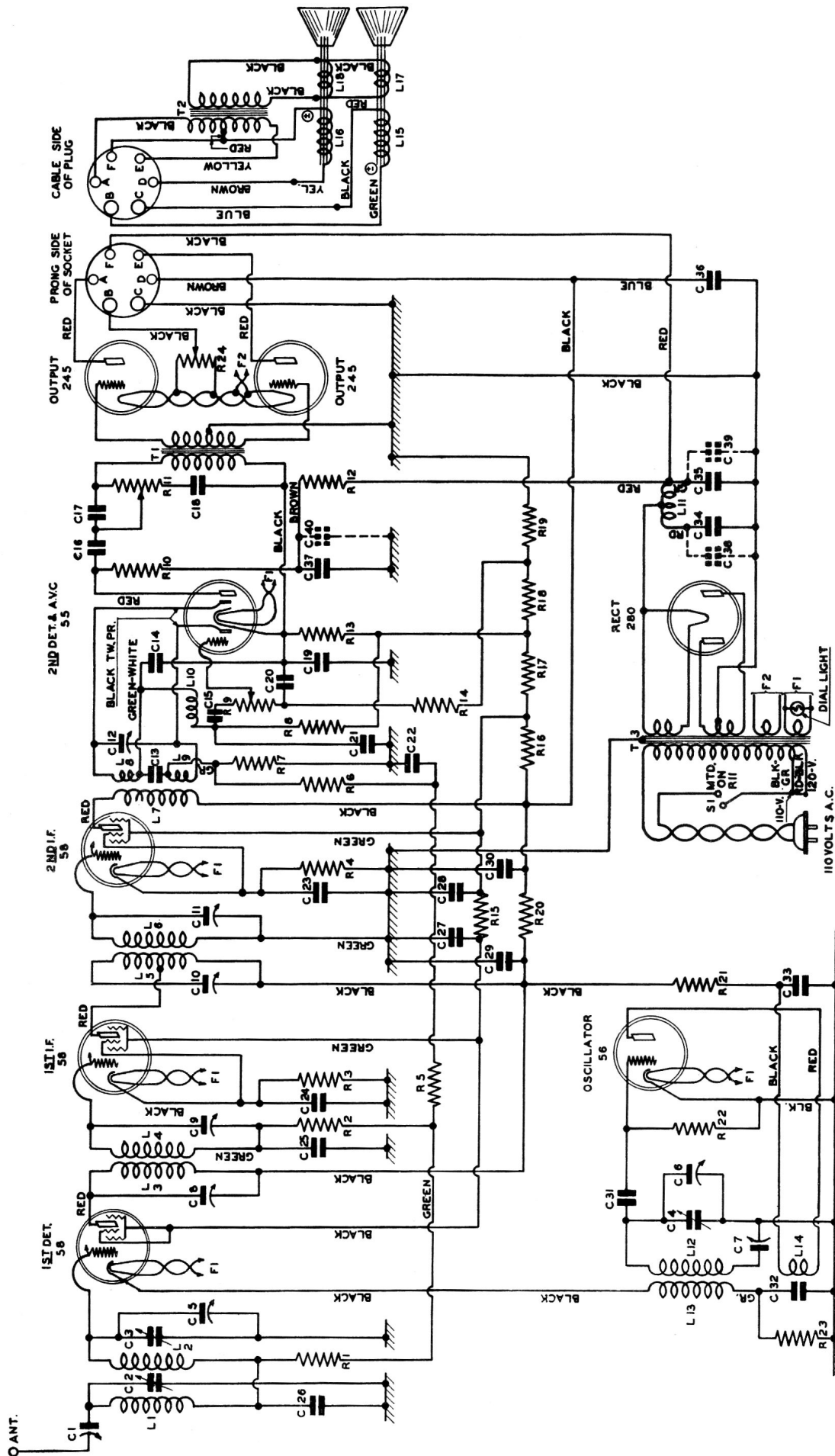
Left—Volume Control
Centre—Tuning Control
Right—A.C. Switch and Tone Control

Power Supply:

Model 80—105 to 125 volts A.C. 60 cycles

Loudspeakers:

Dual loudspeakers necessitate care in connecting for correct polarity of field coils.



Schematic Diagram Model 80 and 80-A Receivers

NOMENCLATURE

CONDENSERS:—

- C-1 Antenna Tuning Condenser
 - C-2 First Preselector Tuning
 - C-3 Second Preselector Tuning
 - C-4 Oscillator Tuning
 - C-5 Trimmer for Preselector Tuning
 - C-6 Oscillator Parallel Pad Trimmer
 - C-7 Oscillator Series Pad Trimmer
 - C-8 Primary Trimmer, 1st I.F. Amplifier
 - C-9 Secondary Trimmer, 1st I.F. Amplifier
 - C-10 Primary Trimmer, 2nd I.F. Amplifier
 - C-11 Secondary Trimmer, 2nd I.F. Amplifier
 - C-12 Secondary Trimmer, Diode Coil
 - C-13 Diode Blocking Condenser—.05—200 V.
 - C-14 I.F. (1st Diode) By-Pass—.0001—Mica
 - C-15 A.F. Feed Condenser—.05—200 V.
 - C-16 Audio Coupling Condenser—.5—400 V.
 - C-17 Parallel Tone Control Condenser—.05—400 V.
 - C-18 Series Tone Control—.05—200 V.
 - C-19 Extra Cathode By-Pass—.05—200 V.
 - C-20 A.F. Feed Condenser—.5—400 V.
 - C-21 I.F. By-Pass Condenser (2 Diode)—.0001—Mica
 - C-22 Second Diode I.F. & A.F. By-Pass—.05—200 V.
 - C-23 Second I.F. Cathode By-Pass—.05—200 V.
 - C-24 First I.F. Cathode By-Pass—.05—200 V.
 - C-25 First I.F. Filter By-Pass—.05—200 V.
 - C-26 Preselector Filter By-Pass—.05—200 V.
 - C-27 Screen Resistor Filter Condenser—.25—200 V.
 - C-28 Screen Resistor Filter Condenser—.05—400 V.
 - C-29 First Detector & First I.F. Filter Resistor By-Pass—.05—400 V.
 - C-30 First Detector & First I.F. Filter Resistor By-Pass—.05—400 V.
 - C-31 Oscillator Grid Condenser—.0001—Mica
 - C-32 First Detector Cathode By-Pass—.05—200 V.
 - C-33 Oscillator Plate By-Pass—.05—400 V.
 - C-34 Rectifier Filter—8 mfd. (Dry Elect.)
 - C-35 Rectifier Filter—8 mfd. (Dry Elect.)
 - C-36 Rectifier Filter—4 mfd. (Dry Elect.)
 - C-37 Diode Plate By-Pass—4 mfd. (Dry Elec.)
 - C-38 Extra Rectifier Filter—8 mfd. (Dry Elec.)
25 cycles only
 - C-39 Extra Rectifier Filter—4 mfd. (Dry Elec.)
25 cycles only
 - C-40 Extra Diode Plate By-Pass—4 mfd. (Dry Elec.) 25 cycles only
- } Triple Section Gang.
- } K-787
K-782
- } K-811

RESISTORS:—

- R-1 First Detector Filter—100,000 ohms— $\frac{1}{2}$ watt
- R-2 First I.F. Filter—100,000 ohms— $\frac{1}{2}$ watt
- R-3 First I.F. Cathode Bias—500 ohms— $\frac{1}{2}$ watt
- R-4 Second I.F. Cathode Bias—500 ohms— $\frac{1}{2}$ watt
- R-5 Filter Resistor—500,000 ohms— $\frac{1}{2}$ watt
- R-6 Filter Resistor—500,000 ohms— $\frac{1}{2}$ watt
- R-7 A.V.C. Resistor—500,000 ohms— $\frac{1}{2}$ watt

RESISTORS (Cont'd)

- R-8 Load Resistor—100,000 ohms— $\frac{1}{2}$ watt
- R-9 Volume Control—0—500,000 ohms variable
- R-10 Triode Plate Resistor—20,000 ohms—1 watt
- R-11 Tone Control—0—100,000 ohms—variable
- R-12 Triode Plate Filter—5,000 ohms— $\frac{1}{2}$ watt
- R-13 Second Detector Cathode Resistor—1,000 ohms— $\frac{1}{2}$ watt
- R-14 Audio Delay Bias Filter—50,000 ohms— $\frac{1}{2}$ watt
- R-15 First Detector and 1st I.F. Screen Filter—1,000 ohms— $\frac{1}{2}$ watt
- R-16 Main Screen Resistor (Tap on voltage divider)—4,860 ohms
- R-17 Divider Resistor (Tap on voltage divider) 2,210 ohms
- R-18 Diode Grid Bias (Tap on voltage divider) 260 ohms
- R-19 Bleeder (Delay AVC Bias) (End section voltage divider)—1,270 ohms
- R-20 First Detector and First I.F. Plate Filter—1,000 ohms— $\frac{1}{2}$ watt
- R-21 Oscillator Plate Resistor—25,000 ohms— $\frac{1}{2}$ watt
- R-22 Oscillator Grid Leak—100,000 ohms— $\frac{1}{2}$ watt
- R-23 First Detector Cathode Bias—5,000 ohms— $\frac{1}{2}$ watt
- R-24 Centre Tap Resistor

COILS:—

- L-1 First Preselector Coil (Litz. wound) (No. 103525)
- L-2 Second Preselector Coil (Litz. wound) (No. 103525)
- L-3 Primary First I.F. Amplifier Transformer
- L-4 Secondary First I.F. Amplifier Transformer
- L-5 Primary Second I.F. Amplifier Transformer
- L-6 Secondary Second I.F. Amplifier Transformer
- L-7 Primary Third I.F. Amplifier
- L-8 } Secondary (both sections)—Two diode coils
- L-9 }
- L-10 R.F. Choke Coil
- L-11 Power Filter Choke
- L-12 Oscillator Grid Coil
- L-13 Oscillator Secondary (Cathode feed coil)
- L-14 Oscillator Plate Coil
- L-15 Speaker Field (as 750 ohm audio bias)
- L-16 Speaker Field (as choke of filter section—2500 ohms,
- L-17 Voice Coil of Bias Field Speaker
- L-18 Voice Coil of "Filter Choke" Speaker

TRANSFORMERS:—

- T-1 Input Transformer
- T-2 Output Transformer
- T-2 Power Transformer—60 cycle K-848—25 cycle K-847

SWITCHES:—

- S-1 A.C. Power Switch (Mounted on Tone Control)—(This type of switch cannot be ordered separately)

SOCKET VOLTAGE AND CURRENT READINGS

Tube	Position	Fil.	Plate	Screen	Cont. Grid or C-Bias	Cathode	Plate Current (Mils.)	
							Bias	No Bias
56	Oscillator.....	2.1	65	—	—	—	6	6.5
58	First Detector.....	2.1	185	80	1.6	18	2.5	7.0
58	1st I.F. Amp.....	2.1	200	90	—	2.5	3.5	8.5
58	2nd I.F. Amp.....	2.1	225	90	—	5.0	5.5	9.0
55	2nd Detector.....	2.1	160	20(1)	.2	+46.0	5.0	8.0
245	Push-Pull.....	2.1	260	—	52.0	—	33.0	39.0
245	Push-Pull.....	2.1	260	—	52.0	—	30.0	34.0
280	Rectifier.....	4.2	700 A.C.	—	—	—	60 m.a.	

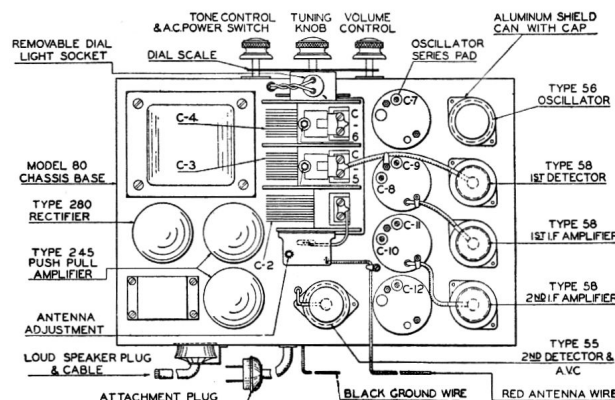
Readings taken on Weston 566 Analyser.
Line Voltage 118-A.C. 60 cycles.
Test made on Model 80-A.

Volume Control Maximum—Tone Control Treble.
Power Transformer of Set adjusted for high line of 120 volts.
(1) No. 1 Diode Plate.

REALIGNING

Realigning the Model 80 or 80-A receivers follows the general procedure for superheterodyne retuning. A reliable modulated R.F. oscillator capable of giving both I.F. and standard broadcast frequencies is, of course, an essential instrument for this work. We recommend the Weston Type 590 or 662 or the Jewel 560, in addition to an accurate output meter. The full realigning operation is as follows:—

- (a) Ground Antenna lead.
 - (b) Set Volume Control on maximum and Tone Control on Treble.
 - (c) Set oscillator to 175 K.C. and connect output to control grid lead terminal of Type 58 First Detector Tube.
 - (d) Align C-8, C-9, C-10, C-11 and C-12.
- (a) Reset oscillator to 1400 K.C., place dial at 1400; keep oscillator output connected to control grid terminal of the type 58 First Detector Tube.
 - (b) Align C-6 taking care to get correct peak at 1575 K.C. and not 1225.
- (a) Reset oscillator to 600 K.C.; change set dial to 600 K.C.; keep oscillator output connected to control grid terminal of the type 58 First Detector Tube.
 - (b) Align C-7.
 - (c) Recheck C-6 above.
In tuning C-7, keep moving dial approximately one-quarter inch on either side of 600 mark until correct peak at 600 obtained.
- (a) Reset oscillator to 1400 K.C. and connect output to Antenna lead of set.
 - (b) Align C-1 and C-5.
- (a) Check sensitivity and dial reading on 540, 700 and 1500 K.C.



Aligning Positions Model 80 Receiver