Models 50, 51, 50A, 51A

"Personal Compact" & "Pleasure Chest"

Specifications

Frequency Range:

Broadcast 540-1500 K.C.
Short Wave 2.35-6.46 megacycles

I.F.:

462.5 K.C.

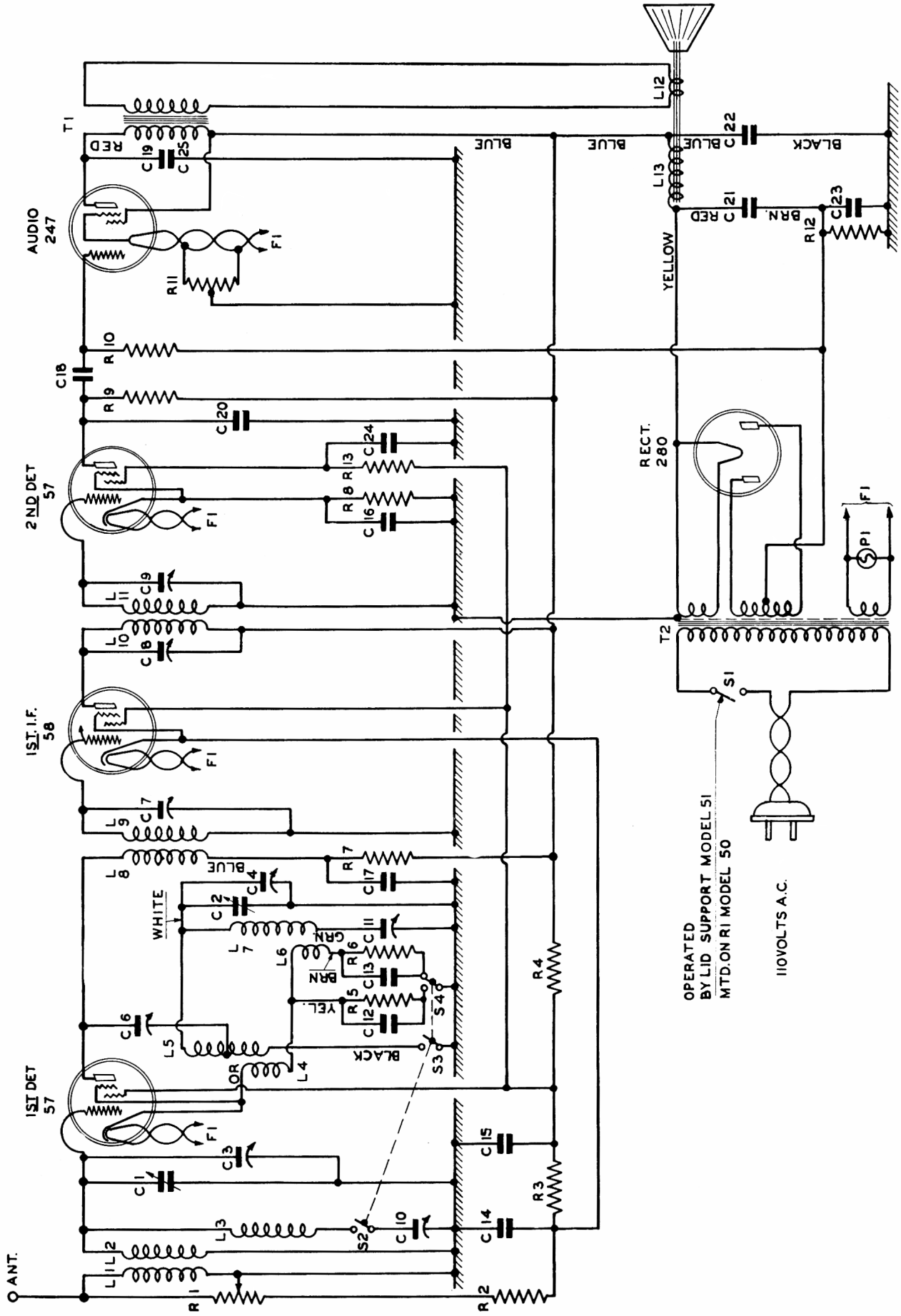
Tubes:

Type	Position
57	1st Detector and Oscillator
58	I.F. Amplifier
57	2nd Detector
47	Power Amplifier
80	Power Rectifier

Power Supply:

Models 50 and 51: 105-120 volts A.C. 60 cycles

Models 50A and 51A: 105-120 volts A.C. 25 or 60 cycles



Schematic Diagram—Models 50 and 51

REPLACEMENT PARTS LIST

CONDENSERS:—		Part No.
C-1	Main Tuning, Antenna R.F. Transformer Secondary	Main tuning unit with trimmers, total Cap. 472 mmfds. — K-1006
C-2	Main Oscillator Tuning	
C-3	Trimmer, Antenna Tuning	
C-4	Trimmer, Oscillator Tuning (Parallel Pad; 1400 K.C. aligning)	
C-5	Not used.	
C-6	Trimmer, 7-140 mmfd. 1st I.F. Transformer Primary	K-1018-1
C-7	Trimmer, 7-140 mmfd., 1st I.F. Transformer Secondary	
C-8	Trimmer, 7-80 mmfd. 2nd I.F. Transformer Primary	K-1018-2
C-9	Trimmer, 7-80 mmfd., 2nd I.F. Transformer Secondary	
C-10	Trimmer, 300-750 mmfd. (series) Short Wave Shunt Coil	K-1028-4
C-11	Trimmer, 300-750 mmfd. (series) Oscillator Plate Coil (600-K.C. Aligning)	
C-12	First Detector Cathode By-Pass (Short Wave) .001 mfd Mica	K-1611-23
C-13	First Detector Cathode By-Pass (Long Wave) .001 mfd. Mica	K-1611-23
C-14	First I.F. Cathode By-Pass; .05 mfd. 200 volts	By-Pass Block — K-1002
C-15	Screen By-Pass; .25 mfd. 200 volts	
C-16	Second Detector Cathode By-Pass; .25 mfd. 200 volts	
C-17	First Detector Plate By-Pass; .01 mfd. 400 volts	By-Pass Block — K-1026
C-18	Audio Coupling; .005 mfd. 400 volts	
C-19	Audio Plate By-Pass; .005 mfd. 400 volts	
C-20	Second Detector Plate By-Pass; .0004 mfd. Mica	K-1611-5
C-21	Filter Condenser; 8 mfd. 450 volts; Dry Electrolytic	Filter Block — K-1003-1
C-22	Filter Condenser: 4 mfd. 450 volts; Dry Electrolytic	
C-23	Audio Bias By-Pass; 20 mfd. 50 volts	
C-24	Second Det. Screen By-Pass; 05 mfd.; 200 volts	K-2227-8
C-25	Extra Audio Plate By-Pass; 01 mfd.; 400 volts	K-2228-6

RESISTORS:—		
R-1	Volume Control: 10,000 ohms, variable with A.C. Switch, Model 50	K-1008-1
	(Less A.C. Switch as used on Model 51).	K-1008-2
R-2	First I.F. Cathode Bias, 300 ohms, 1/2 watt	K-2226-20
R-3	Voltage Divider: 25,000 ohms; 1/2 watt	K-2226-7
R-4	Voltage Divider: 30,000 ohms, 2 watt	K-1095-1
R-5	First Det. Cathode Bias (Short Wave), 600 ohms; 1/2 watt	K-2226-56
R-6	First Det. Cathode Bias (Long Wave), 7000 ohms; 1/2 watt	K-2226-50
R-7	First Det. Plate Filter; 2,000 ohms, 1/2 watt	K-2226-14
R-8	Second Det. Cathode Bias; 10,000 ohms, 1/2 watt	K-2226-10
R-9	Second Det. Plate; 500,000 ohms; 1/2 watt	K-2226-3
R-10	Audio Grid; 500,000 ohms; 1/2 watt	K-2226-3
R-11	Centre Tap; 6 ohms	K-1025-1
R-12	Audio Bias; 400 ohms; 10 watts (vitreous)	K-1062-1
R-13	Second Detector Screen; 1 meg.; 1/2 watt	K-2226-2

COILS:—		
L-1	Antenna R.F. Transformer Primary	K-1001
L-2	Antenna R.F Transformer Secondary	
L-3	Antenna Short Wave Shunt Coil	K-1094
L-4	Oscillator Short Wave Pick-Up Coil	Combined Oscillator and I.F. Coil Assembly — K-1005
L-5	Oscillator Short Wave Shunt Coil	
L-6	Oscillator Long Wave Pick-Up Coil	
L-7	Oscillator Plate Coil	
L-8	First I.F. Transformer Primary	
L-9	First I.F. Transformer Secondary	
L-10	Second I.F. Transformer Primary	K-1004
L-11	Second I.F. Transformer Secondary	
L-12	Voice Coil (with diaphragm; loudspeaker) (4 ohms impedance)	K-1021-2
L-13	Field Coil; resistance 1875 ohms; (L-12 & L-13 part of K-1022 Loudspeaker Assembly)	K-1020

TRANSFORMERS:—		
T-1	Output Transformer	K-1023
T-2	Power Transformer—60 cycles	K-1007-1
	25 cycles	K-1007-2

SWITCHES:—		
S-1	A.C. Power Switch— Model 50, mounted on and part of R-1. Model 51, separate and operated by Lid support	K-1063
S-2	Antenna Section, Wave Change Switch	(Ganged) SA-105022
S-3	Oscillator Section, Wave Change Switch	
S-4	Pick-Up Coil Section, Wave Change Switch	
P-1	Pilot Lamp—3 volts	K-1024

REALIGNING DETAILS:—The intermediate frequency adjustment should be carried out as follows:—

(a) Remove chassis from cabinet.

(b) Connect output lead from good quality, reliable service oscillator to control grid of Type 57 First Detector and Oscillator.

(c) Connect ground from shield lead of service oscillator to set chassis.

(d) Connect output meter across voice coil by joining one lead from meter to chassis and other lead to voice coil terminal on right side of loudspeaker frame (looking at rear of chassis).

(e) Set service oscillator to 462.5 K.C.

(f) Align C-9, C-8, C-7 and C-6. (See Fig. 2 for location of these trimming condensers on chassis.)

(g) Place wave change switch at "OUT" position and dial of receiver at 50.

REALIGNING DETAILS (Cont'd.)

(h) Screw down C-6 approximately 1/8 turn..This provides a compromise adjustment as between long and short wave band.

Check all alignments a second time, starting at C-9. Have lowest reading obtainable on output meter. Do not overload tubes. See additional instructions covering alignment of first I.F. transformer primary trimming condenser C-6.

For oscillator tracking and general realignment of antenna, interstage and oscillator circuits, care should be taken to see that when either the short or long wave alignment is changed, realignment be made to both. The circuits are very closely associated and therefore realignment of one should not be attempted without also realigning the other. Realigning operations for both the short and long waves are as follows:—

1. **LONG WAVE:**—

(a) Connect output meter as described in "d" above.

(b) Set service oscillator to 1400 K.C. and connect to antenna lead of receiver.

(c) Place Wave Change Switch at "IN" position.

(d) Set receiver dial to approximately 80.5.

(e) Align C-4 (tune to signal with trimmer far out as possible). Point of maximum signal where trimmer is full in, is incorrect, as this will be 937.5 K.C., whereas it is 1862.5 K.C. that is required.

(f) Set service oscillator to 575 K.C. and receiver dial at approximately 10.

(g) Align C-11 (vary pointer slightly above and below the receiver dial position of 10 until maximum output is obtained).

(h) Check alignment at 1000 K.C. (approximately 58 on dial).

IMPORTANT NOTE:—Preparatory to above realignment unscrew R.F. Transformer trimmer C-3 almost whole way out. This adjustment is not critical and can be left at that point.

2. **SHORT WAVE BAND (2.35 to 6.46 megacycles):**—

(a) Place wave change switch on "OUT" position.

(b) Set service oscillator to 2.5 megacycles and receiver dial to approximately 11.

(c) Align C-10 (vary pointer slightly above and below the receiver dial position of 11 until maximum output is obtained).

(d) Check alignment at 3.5 megacycles (approximately 48.5 on dial).

In operation, if it is found that sensitivity is low on one band as compared to the other, readjust C-6. The position of this trimmer is not critical. If the standard frequency band is weak, screw in C-6 about 1/8 of one turn and if short wave band appears insensitive, screw trimmer out same amount.

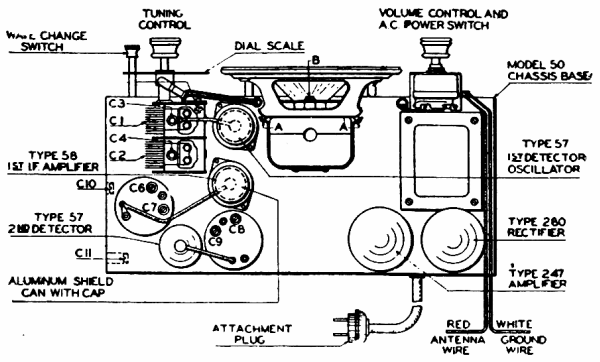
If tuning at 540 K.C. becomes difficult, make slight adjustment of series trimming condenser C-11.

SOCKET VOLTAGE AND CURRENT READINGS

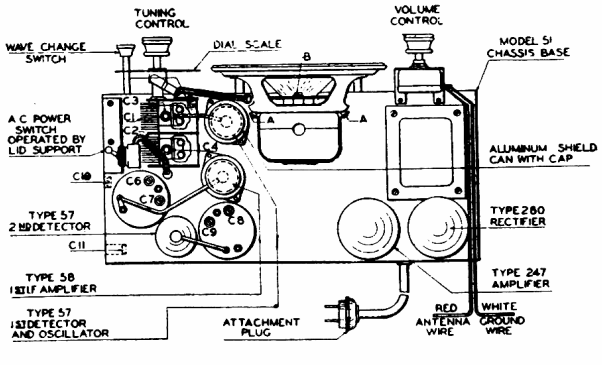
The following readings were taken with a Weston Type 566 test analyzer at a line pressure of 112 volts, 60 cycles frequency. The volume control was adjusted to maximum for all readings.

Tube	Position	Filament	Plate	Screen	Control Grid or "C" Bias	Cathode	Plate Current	
							Bias	Reduced Bias
57	1st Det. and Oscillator...	2.4	260	90	4	+4.5	.5	4.0
58	I.F. Amplifier.....	2.4	260	90	6	+4.5	8.5	11.0
57	2nd Detector.....	2.4	60	65	4	+4.5	.15	.45
47	Power Amplifier..	2.4	240	260	18*	....	26.0	30.0
80	Power Rectifier.	4.6	650 A.C. Volts (Plate to Plate)				One Plate	24.0

* Read with test prods inside chassis.



"A"



"B"

A—**Model 50** and 50-A. Chassis, showing Controls and Tube Positions.
B—**Model 51** and 51-A Chassis, "PLEASURE CHEST" Series, showing Controls and Tube Positions.