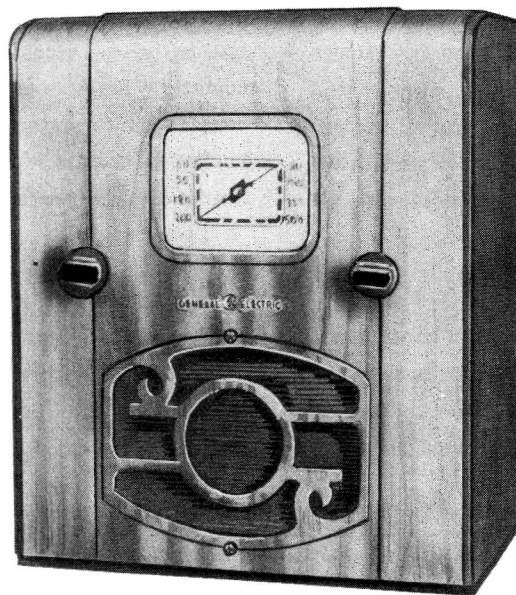


MODEL H-4B

Four-Tube, Single-Band, Battery-Operated Superheterodyne Receiver



Model H-4-B

Electrical Specifications

Frequency Range 540—1,720 k.c. Alignment Frequencies 600 k.c., 1500 k.c., (osc., ant.)
Intermediate Frequency 455 k.c.

RADIOTRON COMPLEMENT

(1) Type 1A7G First Detector—Oscillator (2) Type 1N5G I. F. Amplifier
(3) Type 1H5G Second Det., A.F. and A.V.C. (4) Type 1C5G Power Output

BATTERIES REQUIRED

"A" one 1.4 Volt Air Cell or 1.5 Dry Cell; "B" two 45 Volt heavy duty "B" Batteries

CURRENT CONSUMPTION

"A" at 1.4 Volts 0.26 Volts
"B" at 90 Volts 9.6 Ma.

POWER OUTPUT

Undistorted 115 Milliwatts
Maximum 260 Milliwatts

LOUDSPEAKER

Type Permanent Magnet Dynamic
Diameter 5 inches
Voice Coil Impedance 3 Ohms at 400 Cycles

Mechanical Specifications

	Height	Width	Depth
Cabinet Dimensions	13 $\frac{1}{4}$ inches	10 $\frac{1}{8}$ inches	6 $\frac{3}{4}$ inches
Chassis Base Dimensions	2 inches	9 $\frac{3}{4}$ inches	5 $\frac{5}{8}$ inches
Overall Chassis Height			6 inches
Weight	8 lbs. (net)	10 $\frac{3}{4}$ lbs. (shipping)	
Operating Controls	(1) Power Switch—Volume; (2) Tuning		
Tuning Drive Ratio	8 to 1		

General Description

This Model contains a four-tube chassis, battery operated, mounted in a table type cabinet. The superheterodyne type of circuit is employed, incorporating such features of design as the new low-drain 1.5 volt tubes thus reducing the physical size of

the batteries, magnetite core I.F. transformers, Automatic Volume Control; diode detection; resistance coupled audio system; sensitive, five-inch, permanent-magnet, dynamic loudspeaker; exceptionally low current drain; and a large, easy-to-read dial.

Service Data

The various diagrams of this booklet contain all information necessary to quickly isolate causes for defective operation if such develops. The ratings of resistors, capacitors, coils, etc., are indicated adjacent

to the symbols signifying these parts on the various diagrams. Identification titles such as R1, L1, C1, etc., provide ready reference between the illustrations and Replacement Parts List.

Alignment Procedure

Calibrate the tuning dial by adjusting dial pointer to the horizontal position when the gang tuning-condenser plates are in full mesh.

Perform alignment in proper order, tabulated below, starting with Step No. 1 and following all operations across, then Step No. 2, etc. Adjustment locations are shown on Figures 1 and 3.

Cathode Ray Alignment is the preferable method. Connections for the oscillograph are shown in Fig. No. 3.

Output Meter Alignment.—If this method is used, connect the meter across voice coil, and turn the receiver volume control to maximum.

Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid A.V.C. action.

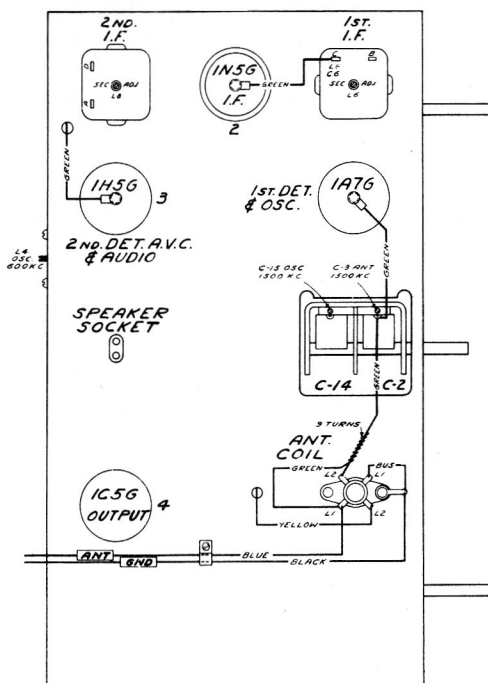


Fig. 1 Radiotron and Trimmer Locations

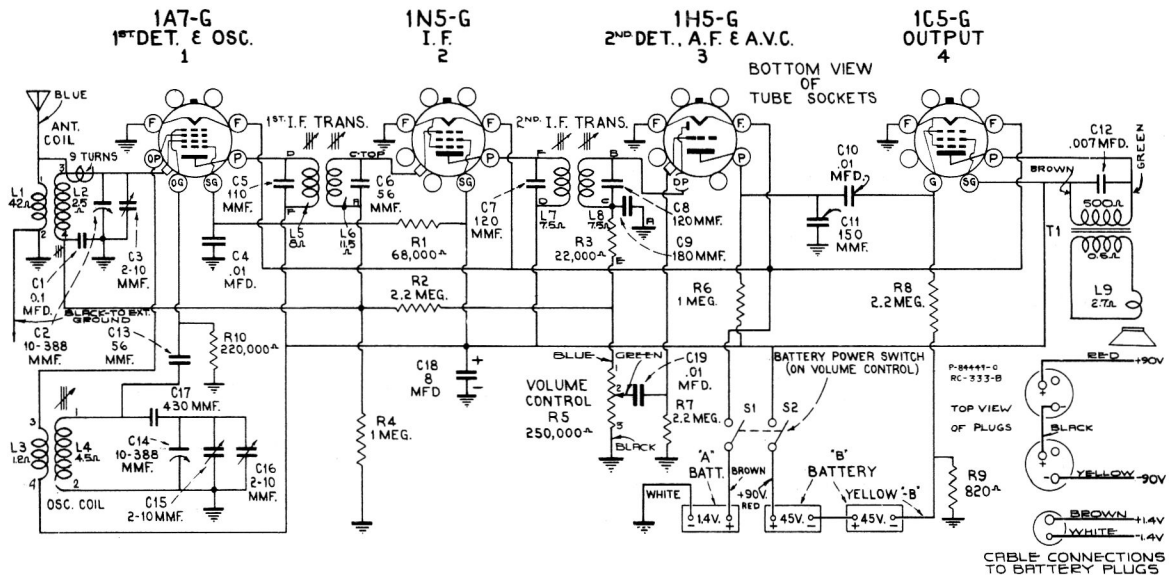
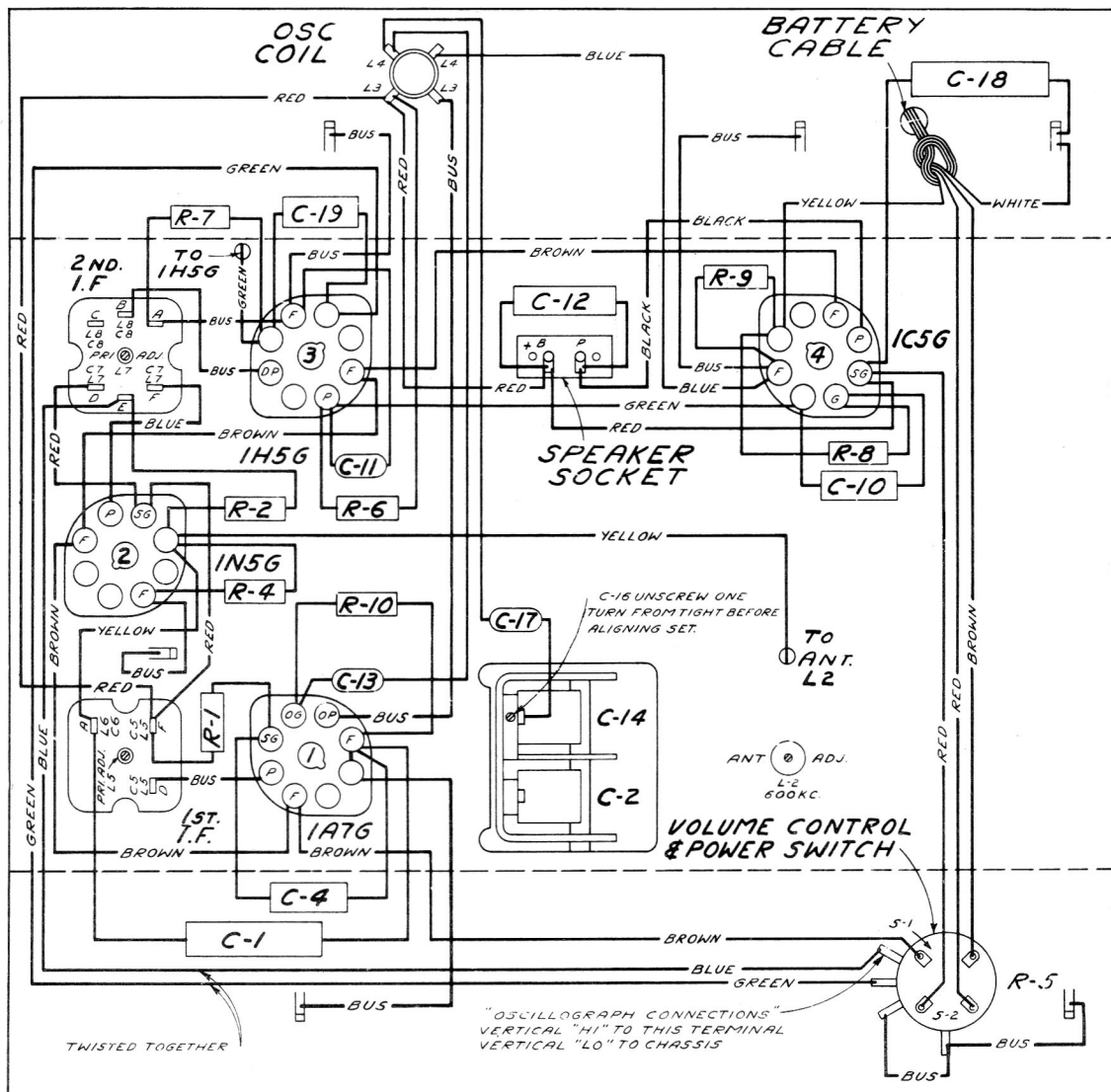


Fig No. 2 Schematic Circuit Diagram



Alignment Procedure

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
No. 1	1N5-G I-F grid cap, in series with 0.01 mfd.	455 kc	Quiet point between 550-750 kc	L7 and L8 (2nd I-F transformer)
No. 2	1A7-G 1st-det. grid cap, in series with 0.01 mfd.	455 kc		L5 and L6 (1st I-F transformer)
No. 3	Antenna lead, in series with 200 mmfd.	600 kc	600 kc	L4 (oscillator) L2 (antenna)
No. 4	Antenna lead, in series with 200 mmfd.	1,500 kc	1,500 kc	C15† (oscillator) C3 (antenna)

† Trimmer C16 on gang condenser should be unscrewed one complete turn from tight, before adjusting C15.

Radiotron Voltages

Readings taken with a receiver supply of 90 Volts "B" and 1.4 Volts "A".				
Radiotron	Plate	Screen Grid	Grid	Filament
(1) 1A7G Converter 1A7G Oscillator	83V 83V	45V*	—	1.4V
(2) 1N5G I.F.	83V	83V	—	1.4V
(3) 1H5G Detector and Audio	64V	—	—	1.4V
(4) 1C5G Output	80V	83V	—7.4V*	1.4V

Precautionary Lead Dress

1. Red lead from second i-f transformer to screen terminal of 1N5-G must be dressed close to and along edge of chassis.
2. Twisted green wire from antenna coil to gang must be 9 turns and kept clear of rotor.
3. Blue and green leads to volume control must be dressed close to chassis and between gang and front apron.

***NOTE**—Values with asterisk (*) are operating voltages in circuits with high series resistance. The actual measured value will be lower, depending on the voltmeter loading.

Measurements are made to chassis, with set tuned to a quiet point and the volume control at minimum. Values should hold within approximately + 20% with rated battery voltage.

REPLACEMENT PARTS FOR MODEL H4-B

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
RECEIVER ASSEMBLIES			
S-1997	Cable-4 conductor battery cable complete with male battery.....	12679	Resistor-2.2 meg.1/4 watt (R2,R7,R8)...
13307	Capacitor-56 mmfd. (C6).....	14887	Retainer-Knob shaft retainer (Pkg.of 20)
12723	Capacitor-56 mmfd. (C13).....	S-2118	Shaft-Station selector knob shaft.....
14262	Capacitor-110 mmfd. (C5).....	32149	Shield-Tube shield for 1N5G tube.....
12404	Capacitor-120 mmfd. (C7,C8).....	11196	Socket-Tube socket.....
12724	Capacitor-150 mmfd. (C11).....	30956	Socket-Speaker socket.....
14712	Capacitor-180 mmfd. (C9).....	S-2119	Spring-Drive Cord Tension Spring- (Pkg.of 3).....
30433	Capacitor-430 mmfd. (C17).....	14261	Transformer-1st I.F. Transformer (L5, L6,C5,C6).....
5148	Capacitor-.007 mfd. (C12).....	14308	Transformer-2nd I.F. Transformer (L7, L8,C7,C8,C9,R3).....
14393	Capacitor- 0.1 mfd. (C4,C10,C19).....	30947	Volume Control and "on-off" switch (R5,S1,S2).....
4839	Capacitor- 0.1 mfd. (C1).....	REPRODUCER ASSEMBLIES (CRL-500-1)	
32187	Capacitor- 8 mfd. (C18).....	S-2375	Cone-Reproducer Cone and Voice Coil (L17)
32150	Coil-Antenna Coil (L1,L2).....	S-2376	Reproducer Complete.....
32148	Coil-Oscillator Coil (L3,L4).....	S-2377	Output Transformer (T1).....
32147	Condenser-2 gang variable tuning condenser (C2,C3,C14,C15,C16).....	SPEAKER ASSEMBLIES (84226-3)	
30877	Cord-Drive Cord.....	32163	Cone-Speaker cone and voice coil (L9)
12006	Core-Adjustable core for I.F.Transformer	32162	Speaker-Speaker complete.....
S-1914	Dial-Dial scale and plate assembly....	32164	Transformer-Output Transformer (T1)..
S-2120	Drum-Tuning condenser drive cord drum and set screws.....	MISCELLANEOUS ASSEMBLIES	
S-2017	Indicator-Station selector indicator pointer.....	S-1999	Crystal-Station selector dial crystal.....
32208	Plug-2 prong male plug for battery cable.....	S-2155	Knob-Tuning or volume control knob...
S-1628	Plug-3 prong male plug for battery cable (Package of 2).....	30886	Screw-Chassis mounting screw and washer assembly (Pkg.of 4).....
14076	Resistor-820 ohm,1/4 watt (R9).....	14270	Spring-Retaining spring for knob (Pkg.of 10).....
S-2046	Resistor-22,000 ohm,1/10 watt (R3).....		
13715	Resistor-68,000 ohm,1/4 watt (R1).....		
12264	Resistor-220,000 ohm,1/4 watt (R10).....		
12200	Resistor-1 meg.,1/4 watt (R4,R6).....		