



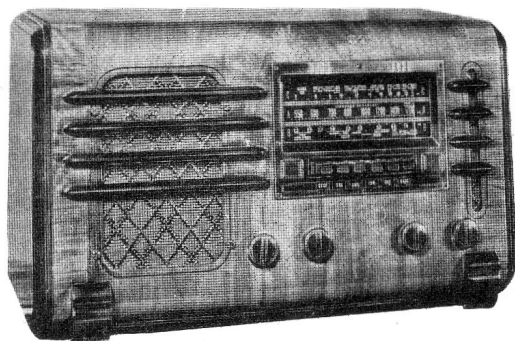
RCA Victor

MODELS B2 & B3 Battery Operated MODELS 6B2 & 6B3 Vibrator Operated

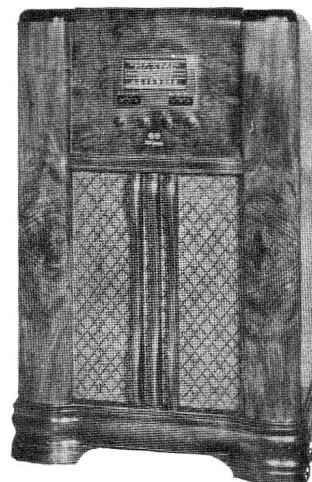
Six-Tube, Three-Band, Superheterodyne Receivers

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA VICTOR COMPANY LIMITED • MONTREAL



Models B3 and 6B3



Models B2 and 6B2

Electrical Specifications

Models B2 and B3

RADIOTRON COMPLEMENT

- | | |
|---------------|----------------------------|
| (1) Type 1N5G | R.F. Amplifier |
| (2) Type 1A7G | First Detector, Oscillator |
| (3) Type 1N5G | I.F. Amplifier |
| (4) Type 1H5G | Second Det., A.V.C., A.F. |
| (5) Type 1G4G | Driver |
| (6) Type 1G6G | Power Output |

BATTERY REQUIREMENTS

- "A" one plug-in 1½ volt battery
(Eveready A-1300 Air Cell)
or
(Eveready No. 740 Dry Battery)
- "B" Two plug-in 45 volt batteries
(Eveready No. 385 or 386)

CURRENT CONSUMPTION

- "A" at 1.5 volts36 amperes
"B" at 90 volts 12 Milliampere

POWER OUTPUT

- Undistorted4 Watts
Maximum6 Watts

Models 6B2 and 6B3

RADIOTRON COMPLEMENT

- | | |
|----------------|---------------------------|
| (1) Type 1D5GP | R.F. Amplifier |
| (2) Type 1A7G | Converter |
| (3) Type 1N5G | I.F. Amplifier |
| (4) Type 1H5G | Second Det., A.V.C., A.F. |
| (5) Type 1F5G | Driver |
| (6) Type 1J6G | Power Output |

BATTERY REQUIREMENTS

- One 6 volt Storage Battery.
Fuse Rating 3 Amperes

CURRENT CONSUMPTION

- "A" at 6 Volts 1.25 Amperes

POWER OUTPUT

- Undistorted 1.6 Watts
Maximum 2.8 Watts

LOUDSPEAKER (B3, 6B3)

- Type 8 inch, Permanent Magnet Dynamic
Voice Coil Impedance 2.2 ohms at 400 cycles

LOUDSPEAKER (B2, 6B2)

- Type 12 inch, Permanent Magnet Dynamic
Voice Coil Impedance 2.2 ohms at 400 cycles

General Description

These receivers employ a six tube, three band, superheterodyne circuit. Models B2 and B3 are battery-operated receivers using the new type 1.4 volt tubes for greater battery economy. Models 6B2 and 6B3 are vibrator-operated receivers using a combination of 1.4 volt and 2 volt tubes in an ingenious filament network operating directly from a six volt supply. Reference to the Schematic Diagrams will disclose the details of these receivers. Features of design common to these receivers include:—

Magnetite-core I.F. transformers and low frequency "A" oscillator tracking, automatic volume control, resistance coupled first audio stage and a transformer coupled driver stage to a Class B output stage, phono input socket, Radio-phono six point tone switch providing a three point tone control on radio and a three point tone control on phono, sensitive, permanent magnet dynamic loudspeaker, six mechanical type cam operated push buttons for ease in tuning, and a horizontal type glass dial.

Radiotron Socket Voltages RCA Models (B2, B3)
Measured with all batteries at Normal Voltage

Radiotron	Plate	Screen Grid	Grid	Filament
1N5G R.F.	90v	90v	....	1.4v
Conv. 1A7G Osc.	90v 79v	31v*	....	1.4v
1N5G I.F.	90v	90v	....	1.4v
1H5G Audio	35v*	....	....	1.4v
1G4G Driver	89v	89v	—4v	1.4v
1G6G Output	89/89v	....	....	1.4v

*Cannot be accurately measured with an ordinary voltmeter due to the high series resistance. All the above values hold within plus or minus 20% when measured with a 1000 ohm-per-volt meter.

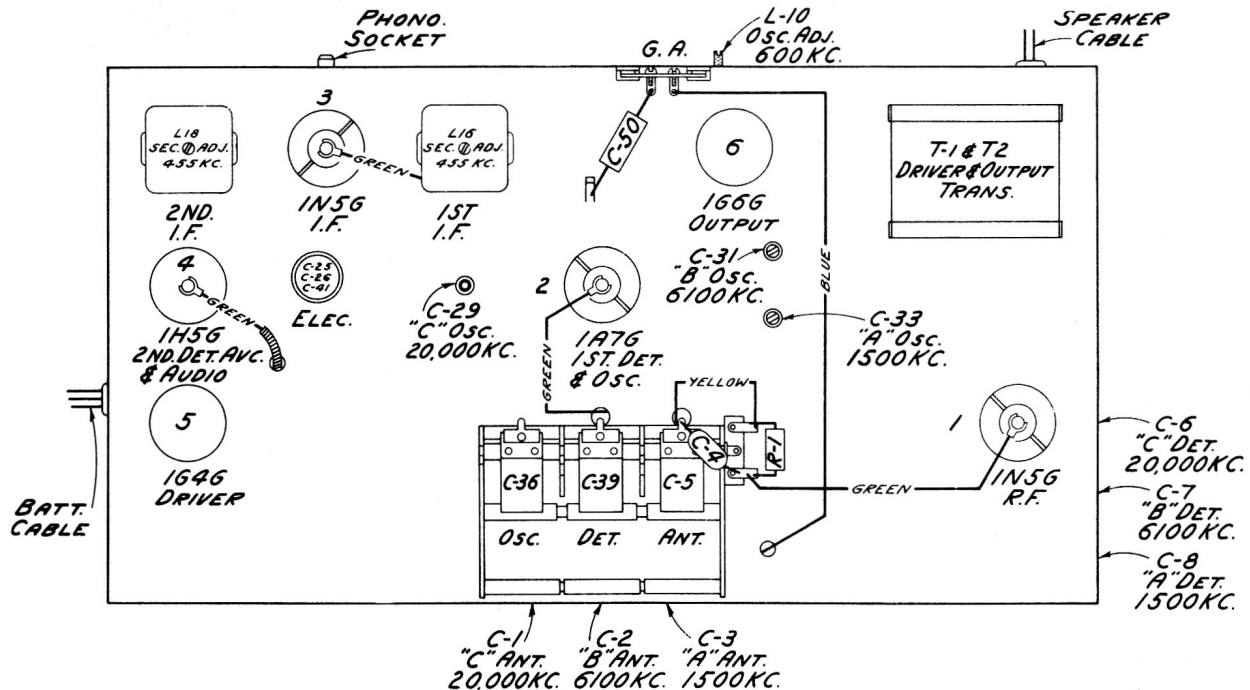
BIAS CELLS:— Four bias cells are connected in series for the purpose of supplying a bias potential to the 1G4G driver grid. Due to their construction, any attempt to measure the potential with an ordinary voltmeter should be avoided. A simple check may be made by connecting a milliammeter in the plate circuit of the 1G4G tube and note the plate current reading. Then carefully remove the cells

Radiotron Socket Voltages RCA Models 6B2, 6B3
Measured with "A" Battery at Normal Voltage

Radiotron	Plate	Screen Grid	Grid	Filament
1D5GP R.F.	91v	42*v	....	2.1v
Conv. 1A7G Osc.	91v 82v	31*v	....	1.4v
1N5G I.F.	91v	91v	....	1.4v
Det. 1H5G Audio	35*v	30v	....	1.4v
1F5G Driver	91v	91v	—4.1v	2.0v
1J6G Output	160/160v	....	—2.1v	2.0v

*Cannot be accurately measured with an ordinary voltmeter due to the high series resistance. All the above values hold within plus or minus 20% when measured with a 1000 ohm-per-volt meter.

and substitute a battery potential of 4 volts in their place and note the plate current reading on the milliammeter. If the first reading (with bias cells connected) deviates more than 40% from the latter reading (with battery connected) the cells should be replaced. A 40% difference in the plate current readings is equivalent to a change of approximately 25% in battery voltage.



Models B2, B3 Chassis Layout and Alignment Adjustments

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the chassis drawing.

Output Meter Alignment.—If this method is used, connect the meter across the 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.

Calibration Scale on Indicator-Drive-Cord-Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment; therefore, a calibration scale is attached to the tuning drum. The setting of the gang condenser is read on this scale, which is calibrated in degrees. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

As the first step in r-f alignment, check the position of the

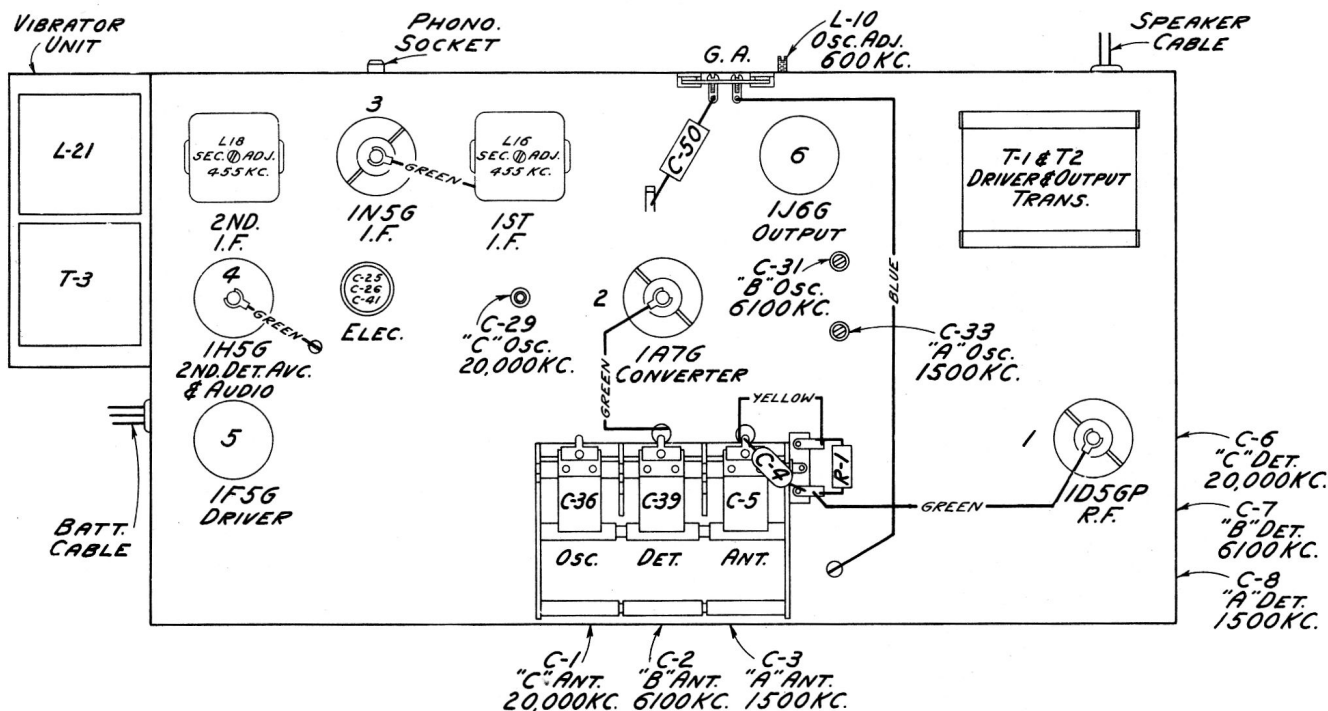
drum. The 240° mark on the drum scale must be vertical and directly above the center of the shaft of the turning drum when the plates are fully meshed. The drum is held to the shaft by means of two set-screws, which must be tightened securely when the drum is in the correct position.

On the inner side of the tuning drum are two projections which serve as stops to prevent extreme rotation of the gang condenser. The tuning drum should be set so that the stop limiting clockwise movement of the drum takes effect just as the gang condenser plates are becoming fully meshed, thus preventing stress on the gang due to extreme rotation.

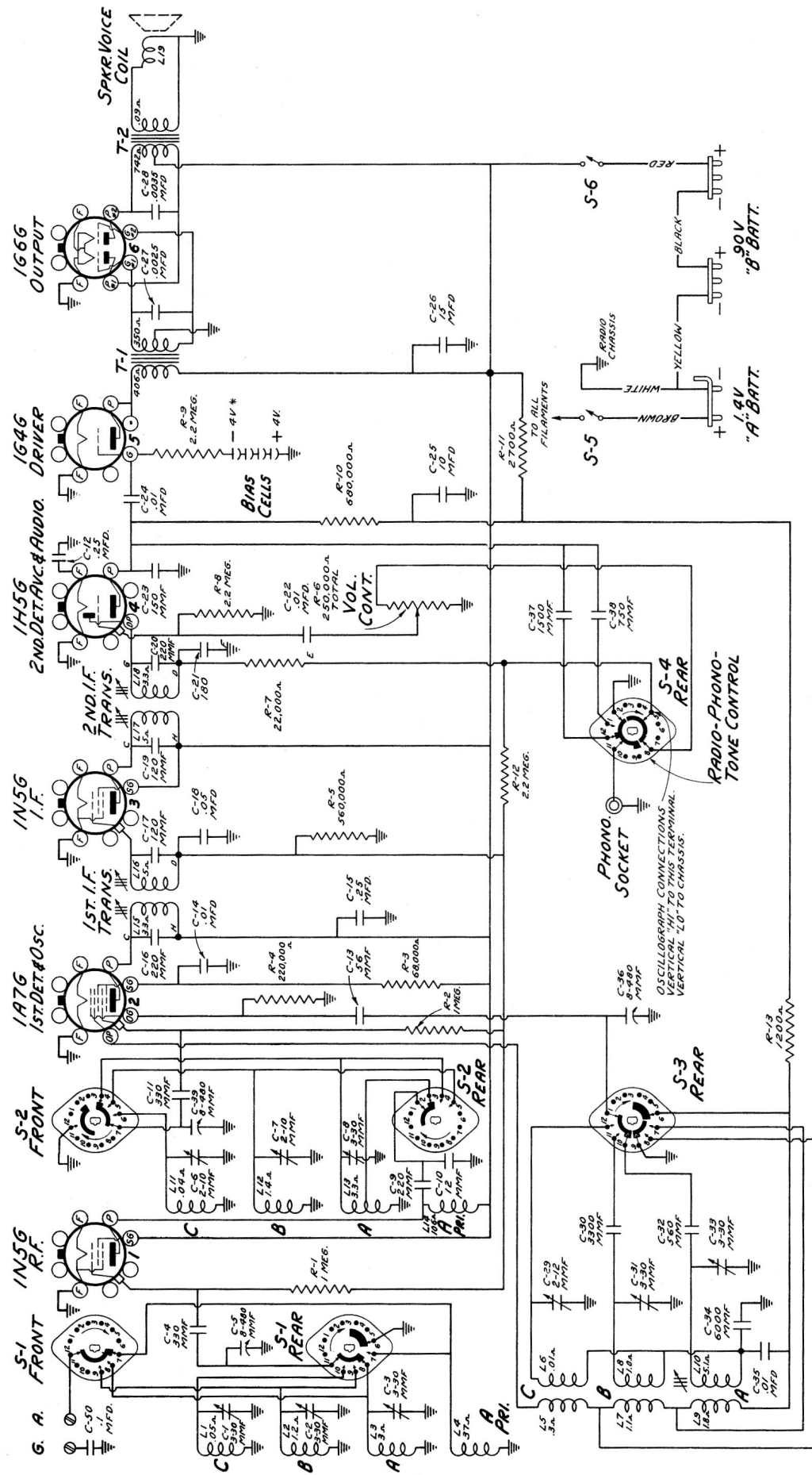
Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the chassis, and bend the wire so that it points to the 240° mark on the calibration scale when the plates are fully meshed.

Order of Alignment	Test Oscillator			Range Selector	Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols
	Connection to Receiver	Dummy Antenna	Frequency Setting				
1	1N5G I.F. Grid	.001 Mfd.	455 kc	"A"	No Signal 550-750 kc	2nd I.F. Trans.	L17 & L18
2	1A7G Det. Grid	.001 Mfd.	455 kc	"A"	No Signal 550-750 kc	1st I.F. Trans.	L15 & L16
3	Ant. Term	300 ohms	20,000 kc	"C"	20 mc (41°)	"C" Osc.	C29
4	Ant. Term	300 ohms	20,000 kc	"C"	20 mc (41°)	"C" Det.	C6
5	Ant. Term	300 ohms	20,000 kc	"C"	20 mc (41°)	"C" Ant.	C-1
6	Ant. Term	300 ohms	6,100 kc	"B"	6.1 mc (51°)	"B" Osc.	C31
7	Ant. Term	300 ohms	6,100 kc	"B"	6.1 mc (51°)	"B" Det.	C7
8	Ant. Term	300 ohms	6,100 kc	"B"	6.1 mc (51°)	"B" Ant.	C2
9	Ant. Term	200 Mmfd.	1,500 kc	"A"	1,500 kc (42°)	"A" H-F Osc.	C33
10	Ant. Term	200 Mmfd.	600 kc	"A"	600 kc (201°)	"A" L-F Osc.	L10
11	Ant. Term	200 Mmfd.	1,500 kc	"A"	1,500 kc (42°)	"A" Det.	C8
12	Ant. Term	200 Mmfd.	1,500 kc	"A"	1,500 kc (42°)	"A" Ant.	C3

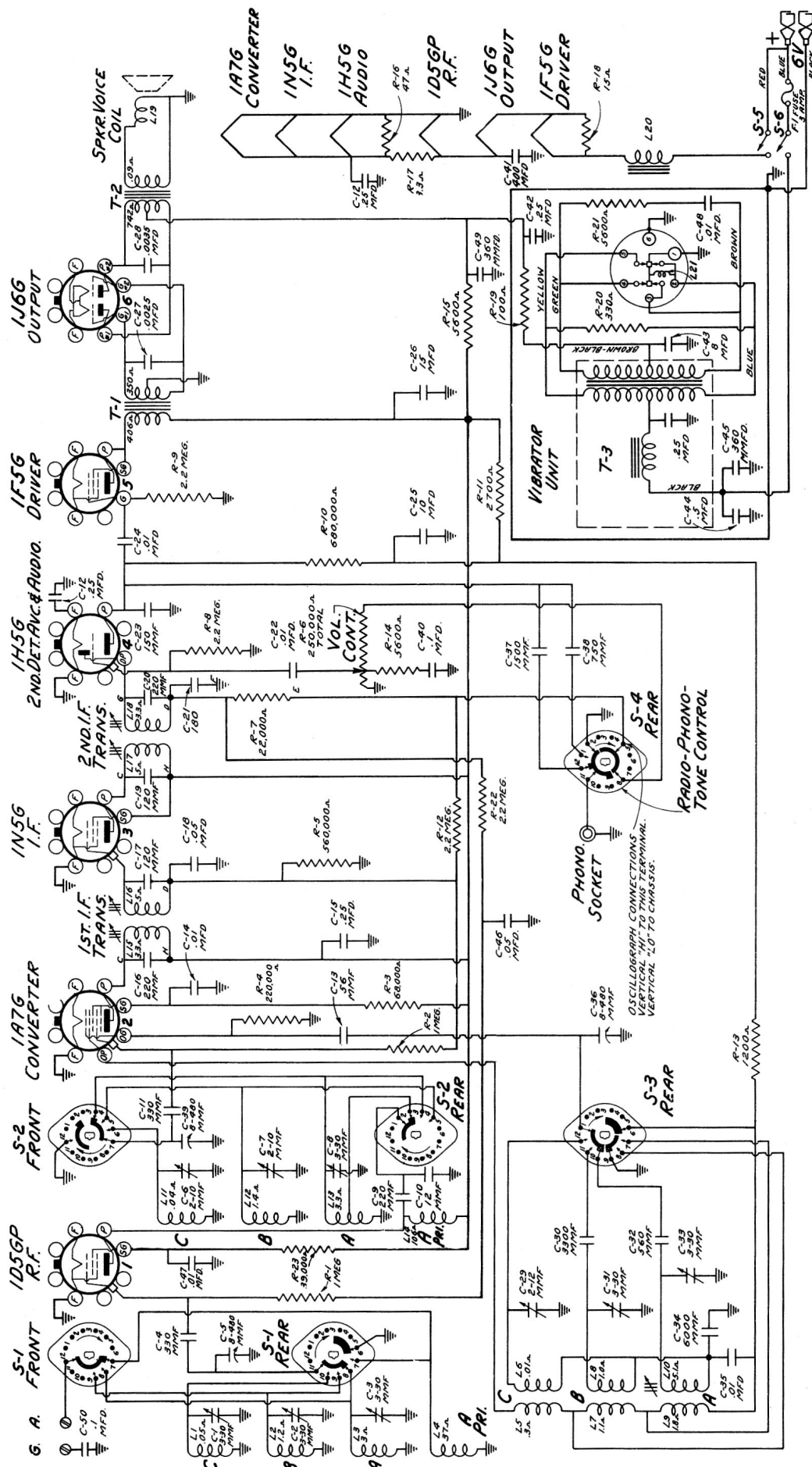
NOTE:—Align the I.F. Circuits by means of the oscillograph, for a symmetrical curve. Peak R.F. stages of all bands.



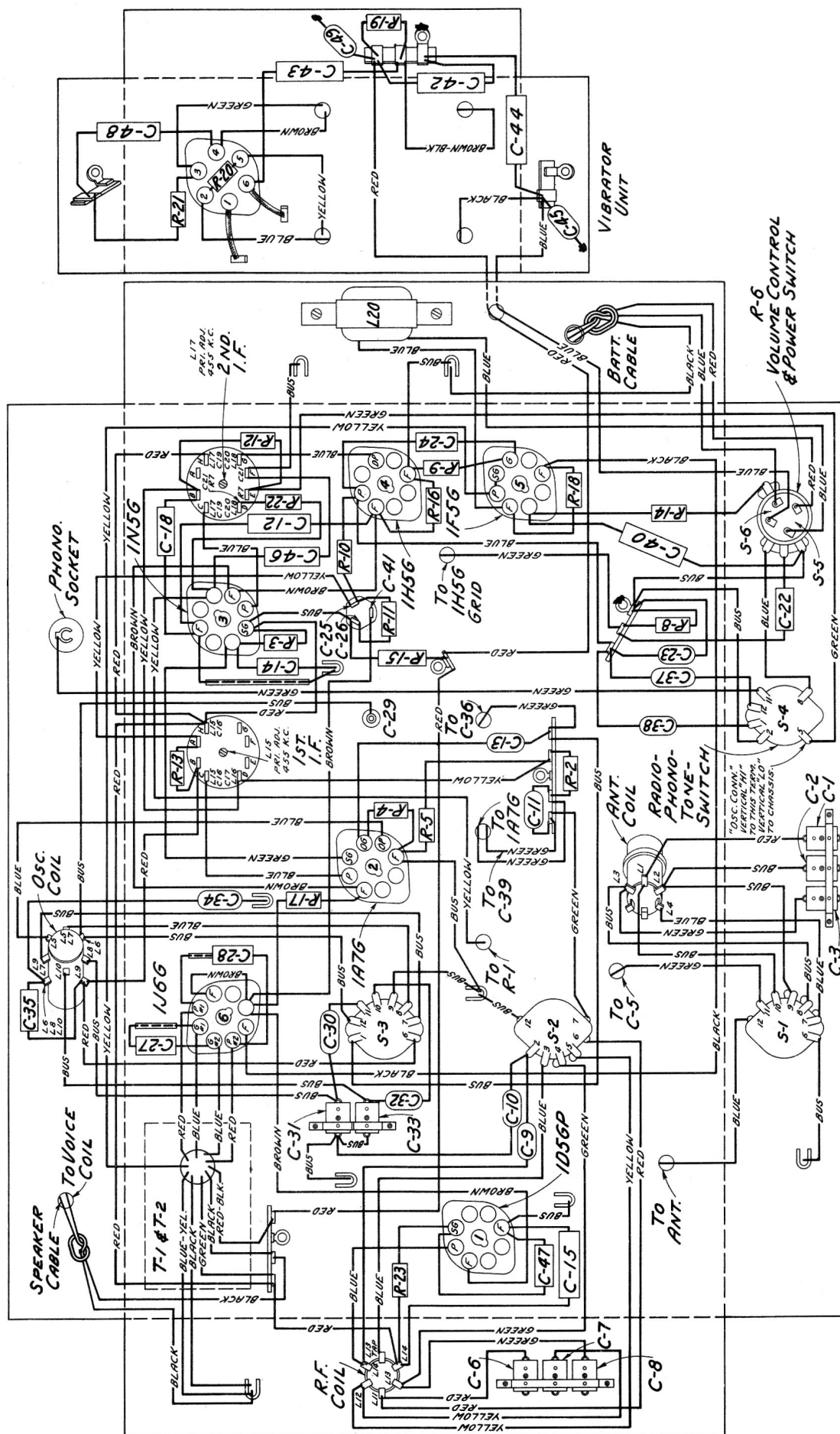
Models 6B2, 6B3 Chassis Layout and Alignment Adjustments



Schematic Circuit Diagram (Models B2, B3)



Schematic Circuit Diagram (Models 6B2, 6B3)



Chassis Wiring Diagram (Models 6B2, 6B3)

Push Button Adjustments

The push buttons should be adjusted for six favorite stations after the receiver has had a brief warm-up period.

Any standard broadcast stations may be chosen. The preferable arrangement is to adjust for stations in the order of frequency, from low to high.

Proceed as follows:—

1. Set the accessory tone knob to "Radio" and turn the range selector to "A" band position.

2. Remove the six push buttons by inserting a small screwdriver blade in the slot provided on the under side of the button. Press the screwdriver blade upwards at the same time pull the button forward.

3. Loosen the push arm adjusting screws accessible through the push button openings.

4. Press in the tuning knob and accurately tune in the first station.

5. With station accurately tuned in, press in the first push button and tighten screw.

6. Proceed in a similar manner to adjust the remainder of the push buttons.

7. Replace push buttons by inserting in the escutcheon openings, spring side down. Press button in as far as possible to securely lock button in escutcheon.

8. Place call letter tabs in openings provided.

Note:—When difficulty is experienced in setting up the push buttons due to sticking cams, unscrew cam screw ½ turn and rotate gang back and forth until the cam plate moves freely.

REPLACEMENT PARTS FOR MODELS B2, B3, 6B2 & 6B3

Insist on genuine factory tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK NO.	DESCRIPTION	STOCK NO.	DESCRIPTION
RECEIVER ASSEMBLIES			
S-2524	Arm-Trip arm located on range switch shaft.....	32086	Roller-Friction roller for tuning knob shaft.....
31767	Board-Ant. & Gnd. terminal board....	32595	Shield-Tube shield.....
S-2525+	Cable-Battery cable complete with plugs.....	14278	Socket-Phono input socket.....
S-2526*	Cable-Battery cable complete with clips.....	31251	Socket-Tube socket.....
12714	Capacitor-Adjustair trimmer2-12mmfd.(C29)	31418	Spring-Drive cord tension spring (Pkg.2).....
13002	Capacitor-12 mmfd. (C10).....	S-2559	Switch-Tone & Phono switch(S4)..
12723	Capacitor-56 mmfd. (C13).....	S-2560	Switch-Range Switch(S1,S2,S3)...
12725	Capacitor-150 mmfd. (C23).....	S-2561	Transformer-1st I.F. transformer (L15,L16,C16,C17).....
12694	Capacitor-220 mmfd. (C9).....	S-2562	Transformer-2nd I.F. transformer(L17,L18,C19,C20,C21,R7)..
12952	Capacitor-330 mmfd. (C4,C11).....	S-2567	Transformer-Audio transformer pack(T1,T2).....
12537	Capacitor-560 mmfd. (C32).....	REPRODUCER ASSEMBLIES	
14498	Capacitor-750 mmfd. (C38).....	(CRL-509-1) (8")	
13762	Capacitor-1500 mmfd. (C37).....	13866	Cap-Dust cap for cone center (Pkg.5).....
S-2568	Capacitor-3,300 mmfd.(C30).....	S-2563	Cone-Reproducer cone&voice coil(L19)
S-2569	Capacitor-6000 mmfd.(C34).....	S-2564	Reproducer complete.....
5107	Capacitor-.0025 mfd. (C27).....	REPRODUCER ASSEMBLIES	
30303	Capacitor-.0035 mfd. (C28).....	(CRL-510-1) (12")	
4886	Capacitor-.05 mfd.(C18,C46).....	13866	Cap-Dust cap for cone center (Pkg.5).....
12484	Capacitor-.25 mfd. (C12,C15).....	S-2565	Cone-Reproducer cone&voice coil(L19)
14393	Capacitor-.01 mfd.(C14,C22,C24,C35,C47)	S-2566	Reproducer complete.....
11414*	Capacitor-.1 mfd. (C40).....	VIBRATOR ASSEMBLIES	
31292	Capacitor-Adjustable trimmer-two 3-30 mmfd.(C31,C33).....	(Models 6B2, 6B3)	
31400	Capacitor-Adjustable trimmer-two 2-10 mmfd. & one 3-30 mmfd.(C6,C7,C8)	12764	Capacitor-360 mmfd. (C45,C49)....
S-2550	Capacitor-Adjustable trimmer (Three 3-30 mmfd. sections).(C1,C2,C3)....	4858	Capacitor-.01 mfd.(C48).....
S-2551*	Capacitor-Electrolytic capacitor consisting of one 400 mfd., one 15 mfd., and one 10 mfd. sections (C25,C26,C41).....	12484	Capacitor-.25 mfd. (C42).....
S-2552+	Capacitor-Electrolytic capacitor consisting of one 15 mfd. section and one 10 mfd. section (C25,C26)...	12741	Capacitor-.5 mfd. (C44).....
S-2553	Coil-Antenna coil (L1,L2,L3,L4).....	S-2175	Capacitor-Electrolytic 8 mfd.(C43)
S-2554	Coil-Oscillator coil(L6,L7,L8,L9,L10)	S-2575	Resistor-100 ohm 1/4 watt(R19)..
S-2555	Coil-R.F. Coil (L11,L12,L13,L14).....	30538	Resistor-330 ohm 1/4 watt(R20)..
S-2556+	Control-Volume control & Power Switch (R6,S5,S6).....	S-1894	Resistor-560 ohm 1/4 watt(R21)..
S-2557*	Control-Volume control & Power Switch (R6,S5,S6).....	14505	Socket-Vibrator socket.....
12681+	Cell-Bias Cell.....	32371	Transformer-Vibrator Transformer(T3)
S-2529	Cord-Variable condenser drive cord..	14309	Vibrator-Synchronous vibrator complete. (L21).....
33552	Dial-Station selector dial scale....	MISCELLANEOUS ASSEMBLIES	
S-2530	Drive-Friction drive assembly.....	S-2537	Button-Station selector push button assembly.....
34267	Drum-Dial drive drum assembly.....	14289*	Clip-"A" battery connector clips, one marked + (Pkg.2)....
S-2220+	Holder-Bias cell holder.....	S-2539	Escutcheon-Dial scale escutcheon.....
10907*	Fuse-3 Ampere fuse (F1) (Pkg.2)....	S-2540	Knob-Volume, tone, range switch or tuning control knob.....
S-2531	Indicator-Station selector indicator pointer.....	S-2541	Marker-Station selector push button marker (1 set).....
S-2398+	Plug-2 contact male battery plug....	14270	Spring-Knob retaining spring (Pkg.10).....
S-1628+	Plug-3 contact male battery plug....	S-2543	Spring-Push button retaining spring (Pkg.3).....
S-2177*	Reactor-Filter reactor (L20).....	S-2542	Tool-Push button adjustment tool.....
S-2570*	Reactor-15 ohm, 1/2 Watt (R18).....		
S-2571*	Resistor-47 ohm, 1/4 watt (R16).....		
12267	Resistor-1200 ohm 1/4 watt(R13).....		
S-2572	Resistor-2700 ohm 1/4 watt(R11).....		
S-2574*	Resistor-3.3 ohm flexible type (R17)..		
S-2573*	Resistor-5600 ohm, 1 Watt (R14,R15)..		
12266*	Resistor-39,000 ohm, 1/4 watt (R23) ..		
13715	Resistor-68,000 ohm, 1/4 watt (R3) ..		
12264	Resistor-220,000 ohm, 1/4 watt (R4) ..		
12486	Resistor-560,000 ohm, 1/4 watt (R5) ..		
S-1896	Resistor-680,000 ohm, 1/4 watt (R10)..		
13730	Resistor-1 meg., 1/4 watt (R1,R2).....		
12679	Resistor-2.2 meg., 1/4 watt(R8, R9, R12, R22)		

Items marked thus(+) used on models B2 & B3 only. Items marked(*) used on models 6B2 & 6B3.