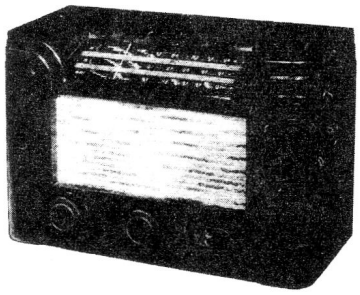
RCA Victor

MODELS Q22 and Q22C

Six-Tube, Five-Band, A-C, Superheterodyne Receivers

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA VICTOR COMPANY LIMITED • MONTREAL



Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast ("A" Band).. 540-1,720 kc (556-174 m)
Medium Wave ("B" Band)..... 3.0-9.5 mc (100-31.6 m)
"31" Meter Spread Band..... 9.5-11.7 mc (31.6-25.6 m)
"25" Meter Spread Band..... 11.7-15.1 mc (25.6-19.9 m)
"19-13" Meter Spread Band.... 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY..... 455 kc

POWER SUPPLY RATINGS

Symbol	Voltages	Frequency (cycles)	Watts
Rating A	105-125	50-60	65
Rating B	105-125	25-60	65
Rating C	105-125, 200-250	50-60	65

TUBE COMPLEMENT

(1) RCA-6SA7..... 1st Detector-Oscillator
(2) RCA-6SK7..... I-F Amplifier
(3) RCA-6SQ7..... 2nd Detector, A-F Amplifier, A.V.C.
(4) RCA-6AD7-G..... Phase Inverter, Power Output
(5) RCA-6F6-G..... Power Output
(6) RCA-5Y3-G..... Rectifier

LOUDSPEAKER

Type (Electrodynamic).....6-inch..
V-C. Impedance
at 400 c.p.s. .....2.2 ohms.

POWER OUTPUT RATING

Undistorted ..... 3 watts
Maximum ..... 3.5 watts

CABINET DIMENSIONS (inches)

Height..... 10⅝
Width..... 15⅞
Depth..... 7⅝
Net Weight (pounds)..... 20
Shipping Weight (pounds)... 24
Chassis Base Dimensions (inches) Height 2¾, Width 15⅛, Depth 5¼
Over-all Chassis Height..... 9¼ inches
Tuning Drive Ratio.....25 to 1

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 indicator-drive-cord drum which is mounted on the shaft of the gang condenser. 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 "180°" mark on the drum scale must be vertical, and directly over the center of the gang-condenser shaft 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.

To determine the corresponding frequency for any setting of the calibration scales, refer to the accompanying drawing which shows the dial with 0-180° calibration scales drawn at top and bottom.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

Dial-Indicator Adjustment. — After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark, and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

Spread-Band Alignment.—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.

2. Use harmonics of the standard-broadcast range of a test-oscillator, first checking the frequency settings on this range by means of a crystal calibrator (RCA Stock No. 9572), or by zero-beating against standard broadcast stations.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be re-adjusted so that the stations come in at the correct points on the dial.

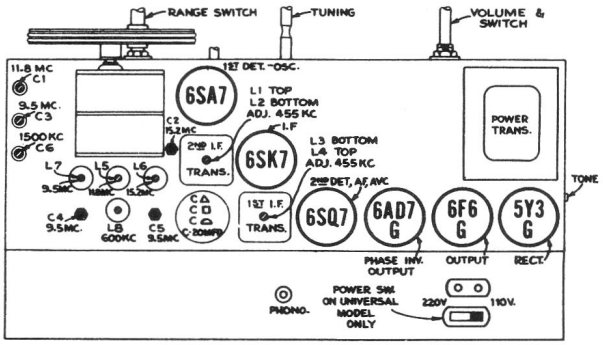
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	12C8 I-F grid in series with .01 mfd.	455 kc	A	Quiet Point near 180°	L3 and L4 2nd I-F Trans.
2	12SA7 1st Det. grid in series with .01 mfd.				L1 and L2 1st I-F Trans.
3	Ant. lead in series with 300 ohms	11.8 mc	25M	138.5°	L5 (osc.) C1 (ant.)
4		15.2 mc		17°	C2 (osc.)*
5		Repeat steps 3 and 4			
6		15.2 mc	19-13M	156°	L6 (osc.)**
7		9.5 mc	31M	156°	L7 (osc.)** C3 (ant.)
8		9.5 mc	B	11.5°	C4 (osc.)***
9	Ant. lead in series with 200 mmf.	1,500 kc	A	26°	C5 (osc.) C6 (ant.)
10		600 kc		150°	L8 (osc.) (Rock gang)
11		Repeat steps 9 and 10			

* Use minimum capacity peak if two can be obtained. Check image to determine that C2 has been adjusted to the correct peak by tuning receiver to approximately 14.29 mc (29°) where a weaker signal should be received.

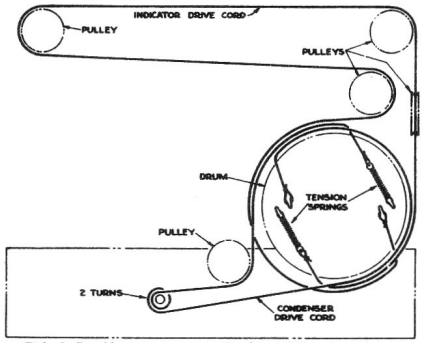
**Peak at minimum position of plunger if two peaks can be obtained.

***Peak at minimum capacity if two peaks can be obtained.

NOTE: Oscillator tracks above signal on all bands.



Tube and Trimmer Location

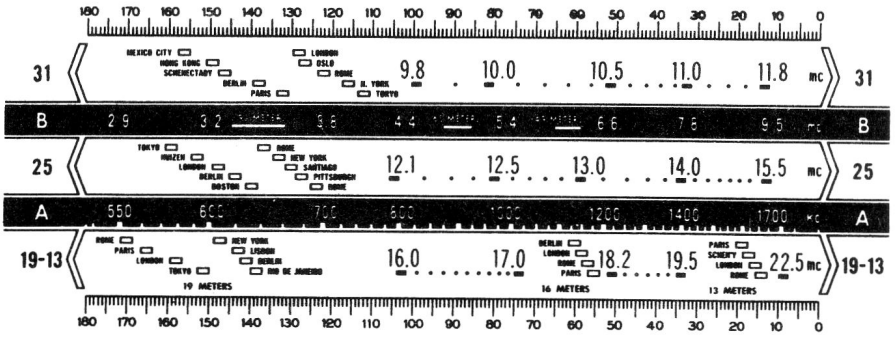


Dial-Indicator and Drive Mechanism

Precautionary Lead Dress.—

1. All leads between antenna coils and switch must be as short as possible and kept away from oscillator coil, leads and switches.
2. All oscillator coil leads must be kept apart from each other and other leads and parts.
3. Blue plate lead of 2nd I-F should be dressed under other leads and against chassis.

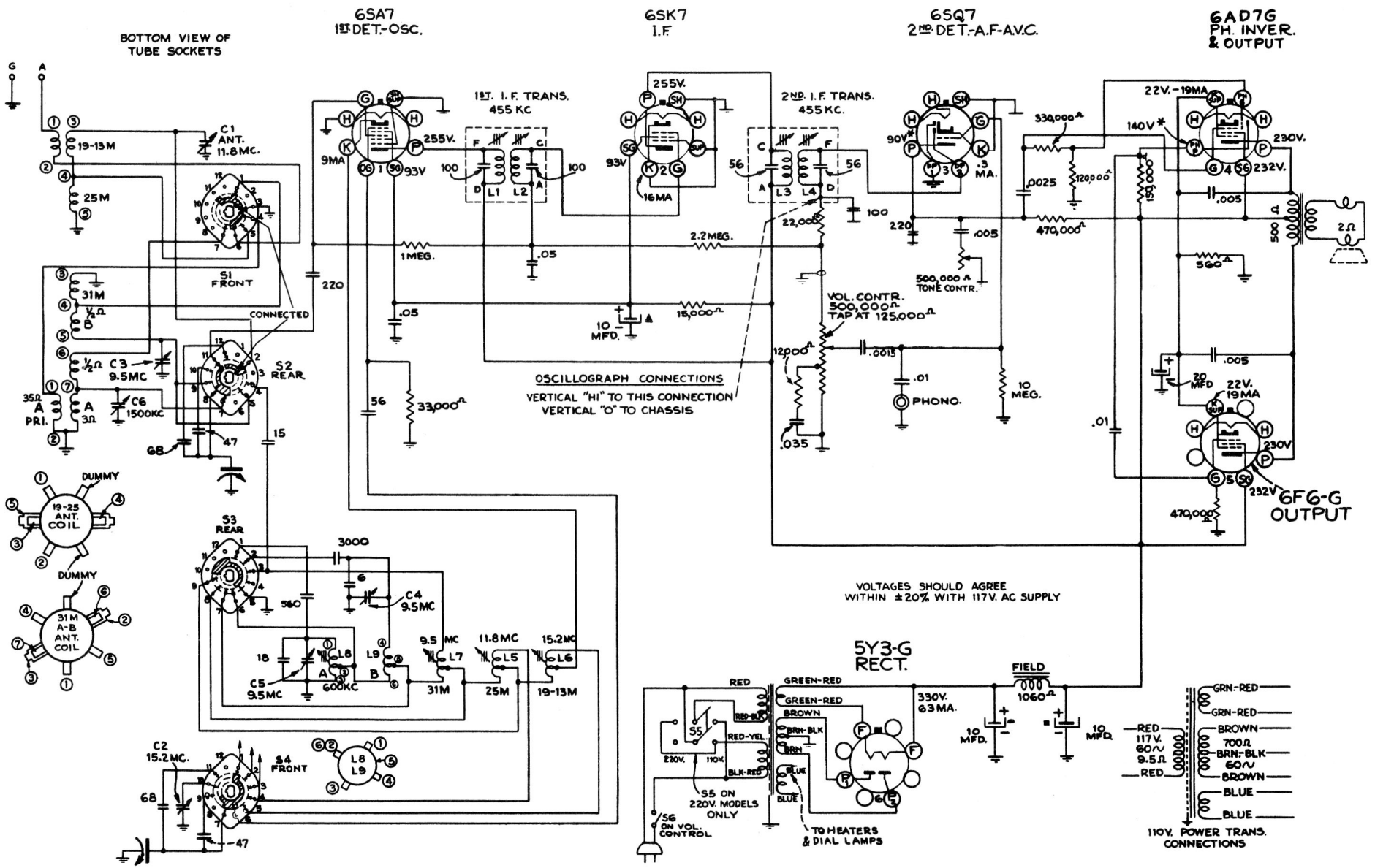
Loudspeaker.—To center the loudspeaker voice coil, first remove the front dust cover, then loosen the screws holding the spider assembly. Insert three narrow feelers into the air gap, and tighten the spider screws. Remove the feelers and fasten a dust cover in place with loudspeaker cement.



Calibration Scale

Reduced Reproduction of Receiver Dial, and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 150° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedure."



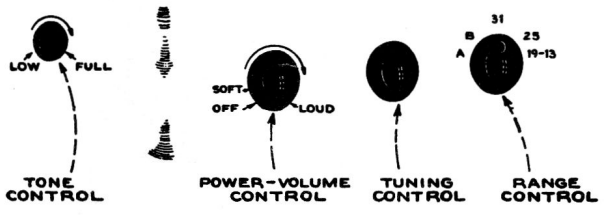
Schematic Circuit Diagram

REPLACEMENT PARTS FOR MODELS Q22 and Q22C

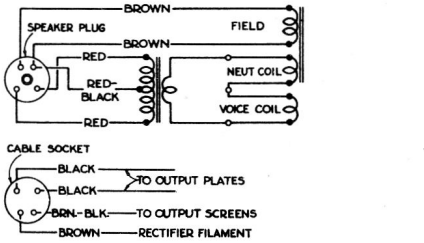
Insist on genuine factory tested parts, which are readily identified and may be purchased from authorized dealers.

STOCK NO.	DESCRIPTION
	RECEIVER ASSEMBLIES
35640	Bracket-Bracket with one (1)pulley for indicator cord.....
35622	Bracket-Flywheel and shaft mounting bracket.....
35639	Bracket-Long bracket with three pulleys for indicator cord.....
12714	Capacitor-Medium air trimmer (C2,C4, C5).....
34654	Capacitor-Mica trimmer-comprising 3 sections (C1, C3, C6).....
35646	Capacitor-6 mmfd.....
36012	Capacitor-15 mmfd., ceramic.....
31350	Capacitor-18 mmfd.....
35644	Capacitor-47 mmfd.,ceramic.....
13141	Capacitor-47 mmfd.,moulded.....
30949	Capacitor-56 mmfd.,mica (I-F).....
12723	Capacitor-56 mmfd.,moulded.....
35645	Capacitor-68 mmfd.,ceramic.....
13057	Capacitor-68 mmfd.,mica.....
30904	Capacitor-100 mmfd.,mica (I-F).....
12720	Capacitor-100 mmfd.,moulded.....
12694	Capacitor-220 mmfd.....
31433	Capacitor-560 mmfd.....
35643	Capacitor-3,000 mmfd.....
33806	Capacitor-.0015 mfd.....
5107	Capacitor-.0025 mfd.....
4838	Capacitor-.005 mfd.....
4937	Capacitor-.01 mfd.....
4870	Capacitor-.025 mfd.....
5196	Capacitor-.035 mfd.....
32787	Capacitor-.05 mfd.....
33014	Capacitor-Electrolytic comprising three sections of 10 mfd.and one section of 20 mfd.....
35632	Coil-Antenna coil-"A" band.....
35631	Coil-Antenna coil-spread band.....
35623	Coil-Oscillator coil-A and B bands..
35624	Coil-Oscillator coil-19-13 meter band
35625	Coil-Oscillator coil-25 meter band..
35626	Coil-Oscillator coil-31 meter band..
35619	Condenser-Variable tuning condenser.
35629	Control-Tone control.....
35620	Control-Volume control and power switch.....
34662	Cord-Indicator drive cord.....
35642	Dial-Calibrator dial for drive drum.
35627	Drum-Tuning condenser drive drum-less calibrator.....
35638	Flywheel-Tuning shaft flywheel.....
5040	Plug-4 contact female plug for speaker cable.....
35641	Pulley-Indicator cord pulley.....
35630	Pulley-Pulley operating between the tuning shaft and drive drum.....
30735	Resistor-560 ohms, 1 watt.....
30128	Resistor-12,000 ohms, 1/4 watt.....
35595	Resistor-15,000 ohms, 3 watts.....

STOCK NO.	DESCRIPTION
13998	Resistor-22,000 ohms,1/4 watt.....
12454	Resistor-33,000 ohms,1/4 watt.....
13734	Resistor-120,000 ohms,1/4 watt.....
30493	Resistor-150,000 ohms,1/2 watt.....
14983	Resistor-330,000 ohms,1/4 watt.....
30648	Resistor-470,000 ohms,1/2 watt.....
13730	Resistor-1 meg., 1/4 watt.....
12679	Resistor-2.2 meg., 1/4 watt.....
13601	Resistor-10 meg.,1/4 watt.....
35633	Shaft-Range switch indicator knob shaft
35637	Shaft-Tuning shaft.....
31364	Socket-Dial lamp socket.....
31251	Socket-Tube socket.....
14278	Socket-Phono,input socket.....
13638	Spring-Drive cord spring.....
31418	Spring-Pointer cord spring.....
35621	Switch-Range switch.....
32827	Switch-Voltage change switch (Q22 only).....
35636	Transformer-First I-F transformer-less grid lead and clip.....
35628	Transformer-Second I-F transformer...
32910	Transformer-Power transformer-110 volts,25 cycle (Q22Conly).....
32852	Transformer-Power transformer-105-120 and 200-240 volts,50-60 cyc.(Q22)..
32911	Transformer-Power transformer-110 volts,60 cycle (Q22Conly).....
33726	Washer-"C" washer for pulley Stock No.35630.....
	SPEAKER ASSEMBLIES (RL-79A6)
35849	Cap-Dust cap.....
33966	Coil-Field coil.....
35441	Cone-Cone complete with voice coil...
5039	Plug-4-prong male plug for speaker...
35809	Transformer-Output transformer.....
35848	Speaker complete.....
	MISCELLANEOUS ASSEMBLIES
S-3062	Cabinet-Plastic cabinet.....
35654	Dial-Glass dial scale.....
35647	Frame-Dial frame complete-less pointer and dial.....
35648	Indicator-Station selector indicator.
35652	Knob-Band indicator knob.....
35651	Knob-Range switch knob.....
35650	Knob-Tone control knob.....
35955	Knob-Volume control or tuning knob...
11891	Lamp-Dial lamp Mazda No.44.....
35653	Mounting-One set speaker mounting hardware.....
14270	Spring-Retaining spring for knobs Stock Nos. 35650, 35955, 35651.....
4982	Spring-Retaining spring for knob Stock No. 35652.....



Location of Controls



Connections and Colors of Loudspeaker and Cable