



RCA Victor

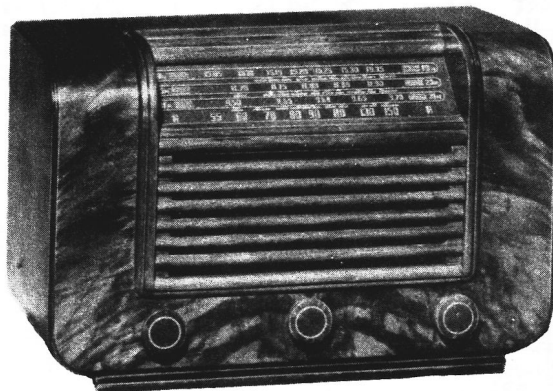
MODEL A-23

(2nd Production)

Five-Tube, Four-Band, A-C Superheterodyne Receiver
(With Electrodynamic Loudspeaker)

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA VICTOR COMPANY LIMITED • MONTREAL



Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast "A"	-----540-1570 k.c.
31 Meter Spread Band	-----9,450-9,700 k.c.
25 Meter Spread Band	-----11,680-11,920 k.c.
19 Meter Spread Band	-----15,030-15,380 k.c.
Intermediate Frequency	-----455 k.c.

TUBE COMPLEMENT

(1) TYPE-6SA7	-----First Detector—Oscillator
(2) TYPE-6SK7	-----Intermediate Amplifier
(3) TYPE-6SQ7	-----Second-Detector, A.V.C., and A-F Amplifier
(4) TYPE-6K6G	-----Power Output
(5) TYPE-5Y4-G	-----Full-Wave Rectifier
Pilot Lamp (2)	-----Mazda 51, 6.3 volts, 0.2 amp.

POWER OUTPUT RATING

Undistorted	-----1.2 watts
Maximum	-----2.5 watts

LOUDSPEAKER

Type CRL-528-1	-----5-inch Electrodynamic
Voice-Coil Impedance	-----3.8 ohms at 400 cycles

POWER SUPPLY RATINGS

Rating A	-----105-125 volts, 50-60 cycles, 50 watts
Rating B	-----105-125 volts, 25-60 cycles, 50 watts

CABINET DIMENSIONS

Height	-----9 ⁷ / ₈ inches
Width	-----14 ¹ / ₂ inches
Depth	-----7 ³ / ₄ inches
Tuning Drive Ratio	-----12 to 1

General Description

Model A-23 is a five tube, four band, table type superheterodyne receiver, designed to cover the standard broadcast range, and three short wave spread bands. Features of design include:—built in loop antenna for broadcast band reception; removable capacity type

short wave antenna; magnetite-core I.F. transformers and oscillator coils; automatic volume control; two position tone control; edge lighted straight line dial; phono input socket and a 5 inch dust-proof electrodynamic loudspeaker.

Miscellaneous Service Data

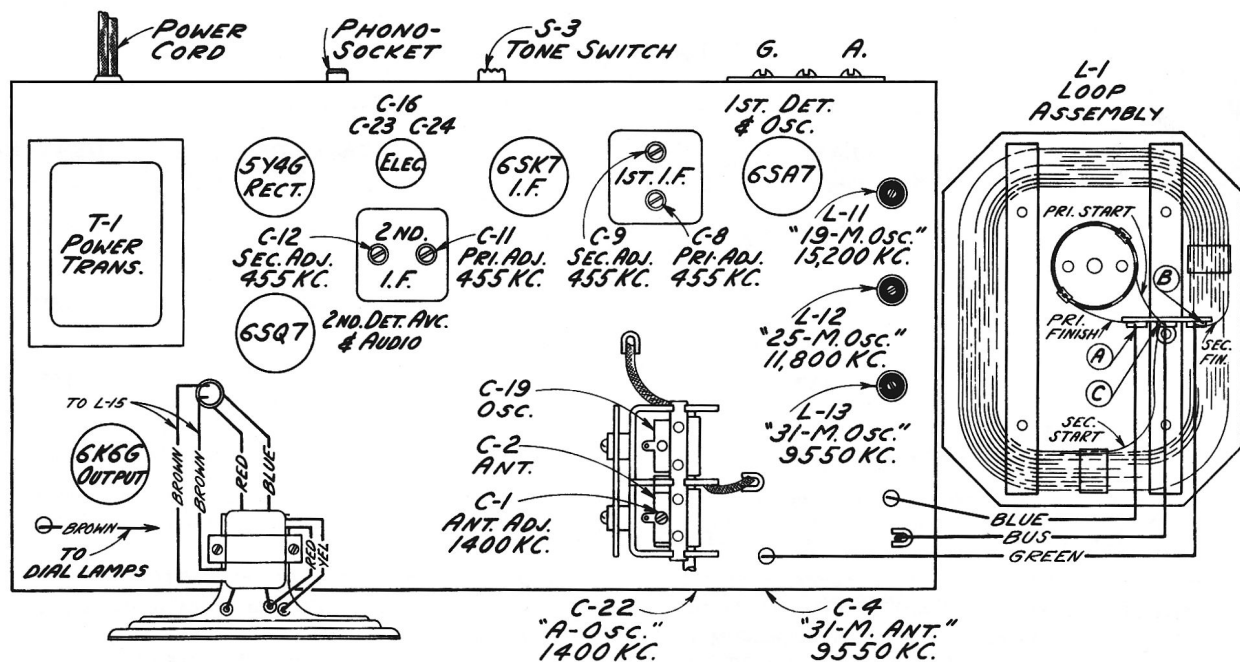
CAPACITY TYPE SHORT-WAVE ANTENNA:—

To obtain best results this antenna should be removed from the cabinet, the wire unwound, dropped to the floor and the form replaced in its receptacle.

RECORD PLAYER ATTACHMENT:—

A jack is provided on the rear of the chassis for connection of a Record Player attachment. The cable from the attachment should be terminated in a Stock No. 31048 plug to fit the jack.





Tube and Trimmer Locations

Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic 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 ground terminal, 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 rear of the 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° degree mark on the drum scale must be in a vertical position 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.

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.

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)

Order of Alignment	Test Oscillator		Frequency Setting	Range Selector	Receiver Dial Setting	Circuit to Adjust	Adjustment Symbols
	Connection to Receiver	Dummy Antenna					
1	Control grid 6SK7	.1 mfd.	455 kc	"A"	No signal 550-750 kc	2nd I.F. Trans.	C11 & C12
2	Control grid 6SA7	.1 mfd.	455 kc	"A"	No signal 550-750 kc	1st I.F. Trans.	C8 & C9
3	Ant. terminal	300 ohms	1400 kc	"A"	1400 kc 27°	"A" Osc.	C22
4	Radiated signal *	—	1400 kc	"A"	1400 kc 27°	"A" Ant.	C1
5	Ant. terminal	300 ohms	15,200 kc	19M	15,200 kc 93°	19M Osc.	L11
6	Ant. terminal	300 ohms	11,800 kc	25M	11,800 kc 82°	25M Osc.	L12
7	Ant. terminal	300 ohms	9,550 kc	31M	9,550 kc 104°	31M Osc.	L13
8	Ant. terminal	300 ohms	9,550 kc	31M	9,550 kc 104°	31M Ant.	C4**

All adjustments indicated above except operation 4 are made with antenna link in the open position.

* Radiation loop comprising two turns of wire 18 inches in diameter should be connected to test oscillator and placed approximately 4 feet from receiver before adjusting C1

** Capacity antenna lead should be removed from Ant. and ground terminal board before adjusting C4.

by zero-bearing 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.

NOTE:—All final spread band adjustments should be made with the chassis fastened in the cabinet and the pointer accurately aligned to the dial.

Tube Socket Voltages

TYPE	PLATE	SCREEN GRID	CATHODE	HEATER
6SA7	190V	65V	—	6.6V
6SK7	185V	65V	—	6.6V
6SQ7	70V*	—	—	6.6V
6K6G	175V	190V	12V	6.6V
5Y4-G	A.C. VOLTAGE PER PLATE 280V			5.0V

***NOTE:** Values marked with an asterisk (*) are measured voltages in circuits with high series resistance. The actual voltages will be higher, depending on the voltmeter loading. Above values hold within plus or minus 20% when measured with a 20,000 ohm-per-volt meter on a line voltage of 115 volts.

REPLACEMENT PARTS FOR MODEL A-23 (2nd Production)

(Used on chassis stamped Sub-4)

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 (Used on Chassis Stamped Sub-4)		
34025	Board-Ant. and Ground Terminal Board	12679	Resistor-2.2 megohm 1/4 watt (R1,R3).....
S-3099	Capacitor-Adjustable Trimmer bank comprising one of 2-10 mmfd, one of 3-30 mmfd. (C4,C22).....	13601	Resistor-10 megohm 1/4 watt(R7)..
12723	Capacitor- 56 mmfd. (C6).....	S-3106	Shaft-Station selector drive shaft.....
S-3123	Capacitor- 62 mmfd. (Temp.Comp.) (C-20).....	31364	Socket-Dial lamp socket.....
12724	Capacitor-120 mmfd. (C5).....	31319	Socket-Tube Socket.....
13003	Capacitor-180 mmfd. (C13).....	14278	Socket-Phono input socket.....
12694	Capacitor-220 mmfd. (C15).....	30585	Spring-Drive cord tension spring (Pkg.2).....
S-2895	Capacitor-220 mmfd. (Close Tol.) (C18).....	S-3097	Switch-Range Switch (S1).....
12952	Capacitor-330 mmfd. (C3).....	33634	Switch-Tone switch (S3).....
31381	Capacitor-620 mmfd. (C21).....	S-3115	Transformer-1st I.F. Transformer (L6,L7,C8,C9).....
5107	Capacitor-.0025 mfd. (C14,C25).....	S-3116	Transformer-2nd I.F. Transformer (L8,L9,C11,C12).....
4937	Capacitor-.01 mfd. (C17,C26).....	S-3117	Transformer-Power 105-125 volt, 50/60 cycle (T1).....
32787	Capacitor-.05 mfd. (C7,C10,C28).....	S-3118	Transformer-Power 105-125 volt, 25/60 cycle (T1).....
32240	Capacitor-Electrolytic comprising one section of 20 mfd and two sections of 10 mfd. (C16,C23,C24)	S-3095	Volume Control & Switch(R5,S2)..
S-3109	Coil-"C" Band Antenna(L2,L3,L4,L5)		SPEAKER ASSEMBLIES (Electrodynamic Type) CRL 528-1
S-3111	Coil-"A" Band Oscillator (L14)....	32907	Cap-Dust cap for cone centre (Pkg.5).....
S-3114	Coil-19 M. Band Oscillator (L11)...	S-3248	Coil-Field Coil (L15).....
S-3112	Coil-25 M. Band Oscillator (L12)...	35440	Cone-Speaker cone and voice coil (L10).....
S-3113	Coil-31 M. Band Oscillator (L13)...	S-3246	Speaker complete.....
S-3124	Condenser-two gang tuning condenser (C1,C2,C19).....	S-3247	Transformer-Output (T2).....
S-3125	Cord-Indicator pointer drive cord (approx.52").....		MISCELLANEOUS ASSEMBLIES
S-3110	Drum-Drive cord drum assembly.....	S-3093	Dial-Station selector dial scale
S-3098	Indicator-Station selector indicator pointer.....	S-3102	Knob-Range switch knob.....
11765	Lamp-Dial lamp Mazda #51.....	S-3101	Knob-Volume or tuning knob.....
S-3108	Loop-Antenna loop assembly (L1)...	30900	Spring-Knob retaining spring (Pkg.5).....
S-3105	Loop-Short wave-Capacity antenna..		
33726	Retainer-"C" Washer for drive shaft (Pkg. 5).....		
8063	Resistor-330 ohm-1/2 watt (R6)....		
30499	Resistor-470 ohm-1/2 watt (R10)....		
30151	Resistor-18,000 ohm-1 watt (R4)....		
13998	Resistor-22,000 ohm-1/4 watt (R13)		
12454	Resistor-33,000 ohm-1/4 watt (R2)..		
12285	Resistor-470,000 ohm-1/4 watt (R8,R9).....		