



THE STRATO-WORLD



RCA VICTOR



AC-DC-Battery 7 Band Portable Receiver

MODEL 3-BX-671

SERVICE DATA

—1953 No. 17—

HOME INSTRUMENT SERVICE DIVISION
RCA VICTOR COMPANY, LTD.
MONTREAL, QUE.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Tuning Ranges

Standard Broadcast "A" Band	540-1600 kc
"B" Band	2.0-4.0 mc
"C" Band	4.0-8.0 mc
31 Meter Spread Band	9.45- 9.85 mc
25 Meter Spread Band	11.55-12.05 mc
19 Meter Spread Band	14.90-15.55 mc
16 Meter Spread Band	17.50-18.20 mc

Intermediate Frequency455 kc

Power Supply Rating

115 volts, d.c., or 25 to 60 cycles a.c.20 watts
or

Battery Operationusing RCA VS047 Battery
Battery voltage "A" 9 volts, "B" 90 volts
Battery current "A" 56 ma., "B" 14.5 ma.

Tube Complement

(1) RCA 1U4	R.F. Amplifier
(2) RCA 1L6	Converter
(3) RCA 1U4	I.F. Amplifier
(4) RCA 1U5	Det.-AVC-1st A.F.
(5) RCA 3V4	Output
RCA Stock No. 78101	Selenium Rectifier

Loudspeaker

Size and Type5¼ in. P.M.
Voice coil impedance3.2 ohms at 400 cycles

Power Output

Undistorted0.22 watt
Maximum0.42 watt

Tuning Drive Ratio11½:1

Weight (Approximate)

Less Battery16 lbs.
With Battery (RCA VS047)23 lbs.

Dimensions (Overall)

Height 11½ in. Width 17½ in. Depth 8 in.

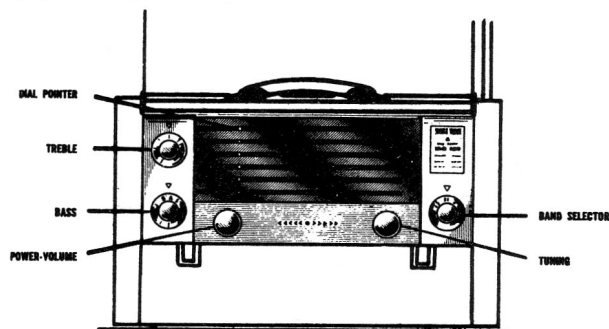
OPERATING INSTRUCTIONS

Rotate POWER-VOLUME knob to right until a click is heard, and advance for about half a turn. Rotate BAND SELECTOR knob until desired band marking on knob is directly beneath the red triangle. A white indicator will appear at right of desired band on dial. To obtain reception on any one of the six Short Wave bands, the telescopic rod antenna must be used. See instructions under "General Information." Rotate TUNING knob until dial pointer indicates desired frequency marking on the desired band. Rotate TREBLE and BASS tone control knobs as desired. Treble tone increases as TREBLE knob is rotated clockwise. BASS tone increases as BASS knob is rotated counter-clockwise.

Headphones — A "PHONES" receptacle, for connection of headphones, is located on the rear of the chassis. Should individual listening be desired, any standard headphone set with standard plug may be inserted, automatically disconnecting the speaker.

Ground Terminal — A terminal for ground connection is located on the rear of the chassis. To improve reception in

weak-signal areas, connect a ground wire from this terminal ("GND") to a cold-water pipe, or other suitable ground. "GND" connection is not necessary when operating on power line.



Operating Controls

Circuit Description

The seven band 3BX671 portable instrument is a sensitive three-way receiver designed to operate from an AC or DC power source, or from a self-contained battery pack.

The receiver incorporates a 7 band tuner covering the broadcast band "A band"; two short wave bands, 2-4 mc. and 4-8 mc. "B and C bands"; also four short wave spread bands, 31, 25, 19, and 16 meters. The superheterodyne circuit is used with a tuned R.F. stage preceding the pentagrid converter on all bands; one I.F. stage; a combined AVC, detector, and A.F. stage; and a power amplifier stage. A selenium rectifier is used.

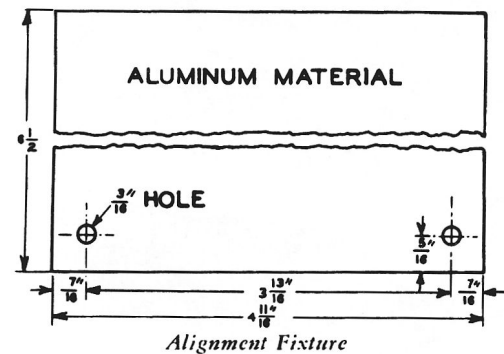
R.F. tuning is done by means of a ganged six section variable capacitor. Three large sections are used for the A, B, and C bands with series tracking capacitors. Also, three small 3 plate sections for electrical band spread are used on the four spread bands. The tuner, including the function switch, coil and trimmer assembly, R.F. and converter tubes and gang capacitor, is a completely detachable unit featuring high efficiency with small physical size. The special design permits access to the coil and trimmer adjustments from the rear.

A headphone jack is located on the chassis rear apron for individual listening. This jack automatically disconnects the speaker when the headphone plug is inserted. The slide rule type dial includes 7 separate scales on a slotted escutcheon to provide speaker openings. Continuously variable treble and bass tone controls are provided. This receiver features 3 separate antenna systems. A large flat loop built within the hinged lid includes a primary for external antenna connection, when desired. A Ferrite rod antenna with a long cable and provided with suction cups to permit mounting on a window or wall for improved pickup in shielded areas is supplied. The preceding antennas are used only on the standard broadcast band. A telescoping vertical rod antenna is provided for use on all short wave bands.

All tubes and the battery may be serviced by opening the hinged back cover. A terminal is provided on the back apron of the cover for an external ground connection, if desired. A line voltage compensator switch is mounted on the chassis rear apron under a caution label of instructions. The switch is to be used only in areas of sub-standard line voltage.

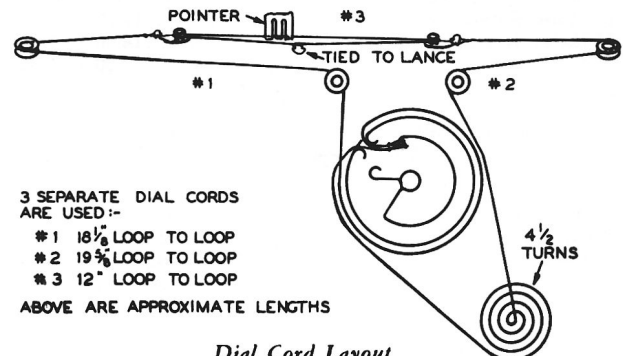
Alignment Fixture

To obtain maximum sensitivity when chassis is reinserted in case after alignment, the alignment fixture shown below should be secured to the tuner side of the chassis during alignment to simulate the effect of the case. The sheet metal clips and hardware on the dust cover base may temporarily be used to hold the fixture to the chassis.

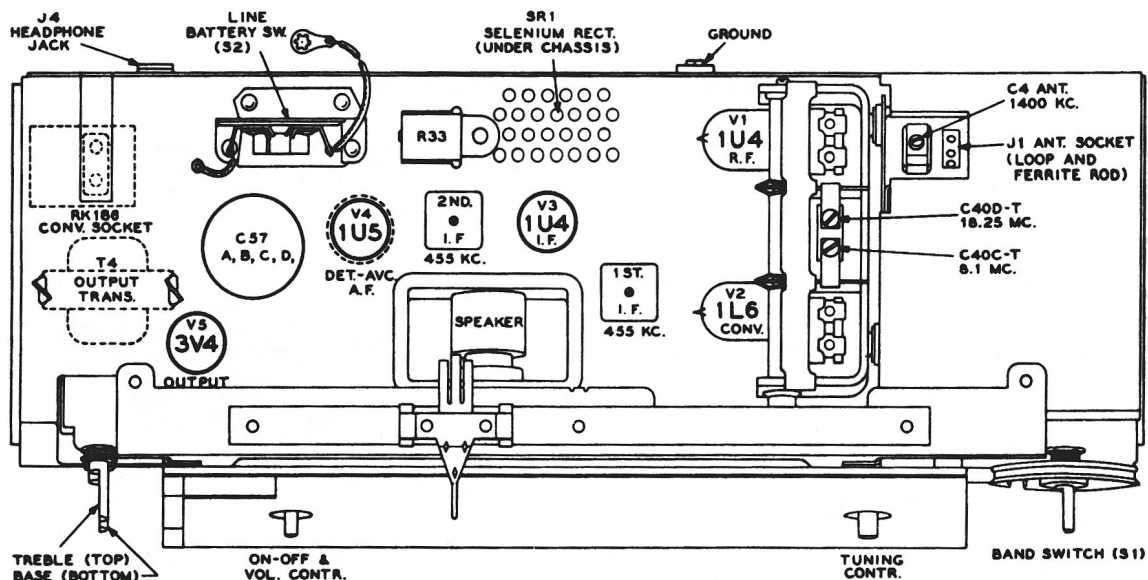


CHASSIS REMOVAL

1. Turn tuning knob until gang is fully closed.
2. Open cabinet back, pull out battery, and disconnect battery plug.
3. Remove pull-off type volume, tuning, band selector, and tone control knobs.
4. Remove the four machine screws holding the chassis to the case.
5. Pull chassis out and simultaneously slightly downward, to enable dial pointer mechanism to clear top back edge of case.



Dial Cord Layout



Chassis Top View

Alignment Procedure

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 oscillator output as low as possible to avoid AVC action.

Close gang and set dial pointer to mark on dial plate. Turn volume and treble tone controls to maximum clockwise position. Turn bass tone control to maximum counterclockwise position.					
STEP	CONNECT HIGH SIDE OF SIG. GEN. TO—	SIGNAL GEN. OUTPUT	DIAL POINTER SETTING	ADJUST FOR MAXIMUM OUTPUT	
1.	Pin #6 of 1U4 I.F. Amp. thru 0.01 mfd.	455 kc	"A" Band Quiet point near 1600 kc	T3 top and bottom cores	
2.	Pin #6 of 1L6 Conv. thru 0.01 mfd.			T2 top and bottom cores	
3.	Install bottom cover. Secure aluminum alignment fixture in place. Connect 24 mmfd. in series with 22 ohms between sig. generator lead and C39.				
4.	C39, term. 7 on SID thru dummy load indicated	18.25 mc	16M Band Right hand stop	*C40D-T top of gang	
5.		17.5 mc	16M Band Left hand stop	T11 Osc.	
6.		17.8 mc	16M Band 17.8 mc Signal	Rock gang, —Peak L11 R.F. + L5 Ant.	
7.		14.9 mc	19M Band Left hand stop	T10 Osc.	
8.		15.2 mc	19M Band 15.2 mc Signal	Rock gang, —Peak L12 R.F. + L6 Ant.	
9.		11.55 mc	25M Band Left hand stop	T9 Osc.	
10.		11.8 mc	25M Band 11.8 mc Signal	Rock gang, —Peak L13 R.F. + L7 Ant.	
11.		9.45 mc	31M Band Left hand stop	T8 Osc.	
12.		9.6 mc	31M Band 9.6 mc Signal	Rock gang, —Peak L14 R.F. + L8 Ant.	
13.		8.1 mc	"C" Band Right hand stop	*C40C-T top of gang, C16 R.F. C7 Ant.	
14.		3.9 mc	"C" Band Left hand stop	T7 Osc. L9 R.F. L4 Ant.	
15.		Repeat steps 13 and 14 until maximum gain is obtained.			
16.		4.05 mc	"B" Band Right hand stop	C32 Osc. C18 R.F. C5 Ant.	
17.		1.97 mc	"B" Band Left hand stop	T6 Osc. L10 R.F. L3 Ant.	
18.		Repeat steps 16 and 17 until maximum gain is obtained. Remove alignment fixture and install chassis in cabinet. Plug in loop cable.			
19.	Short length of wire near receiver	1620 kc	"A" Band Right hand stop	C31 Osc.	
20.		1400 kc	"A" Band 1400 kc Signal	C20 R.F. C4 Ant.	
21.		600 kc	"A" Band 600 kc Signal	Rock gang, —Peak T5 Osc. trans., + T1 R.F.	
22.		Repeat steps 19, 20 and 21 until maximum gain is obtained. Exchange loop antenna plug with external Ferrite Rod antenna plug. Extend cable to maximum.			
23.		1400 kc	"A" Band 1400 kc Signal	C43 Ferrite Rod Ant.	

*The tuning range and dial calibration of the succeeding bands depend upon the accuracy of this adjustment. Avoid aligning on image. The local oscillator is 455 kc higher in frequency than the RF on all bands.

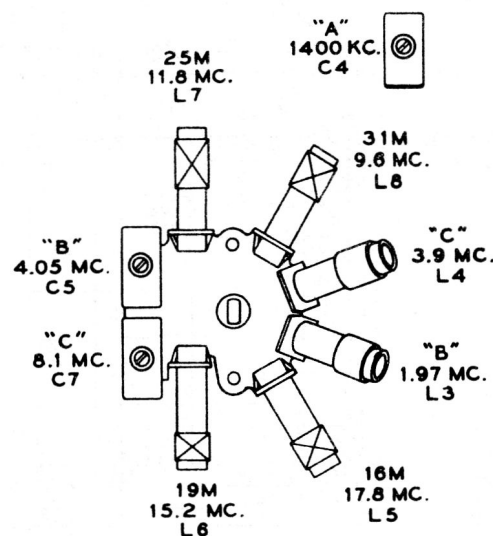
Battery operation of the receiver is preferable during alignment; on AC operation, an isolation transformer (117v./117v.) may be necessary for the receiver if the test oscillator is also AC operated.

Critical Lead Dress

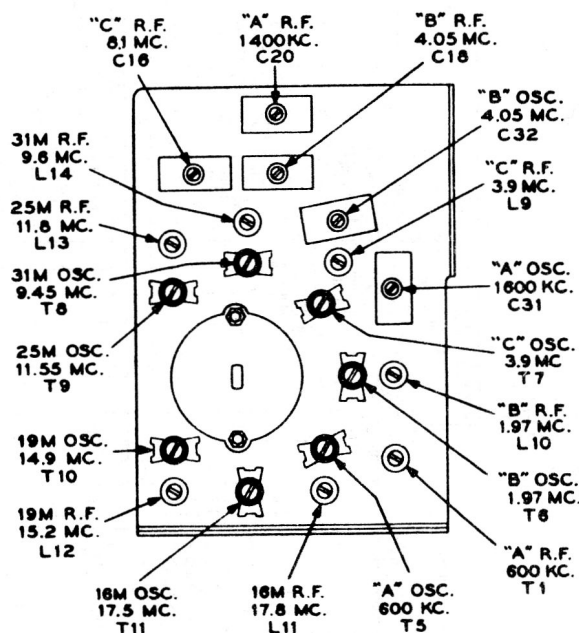
1. Dress all filament leads next to chassis.
2. Use short pigtail leads on all by-pass and coupling capacitors associated with R.F. circuits.
3. Dress gang condenser leads direct and short as possible to switch without strain.
4. Connect neutralizing capacitor C50, 0.51 MMFD across converter socket with short leads and away from other components.
5. Dress power line compensator resistor to clear surrounding components and bottom cover.
6. Dress coil pigtail leads away from each other and from coils.
7. Dress blue converter plate lead down to base.
8. Dress volume control leads down to base.

CAUTION—

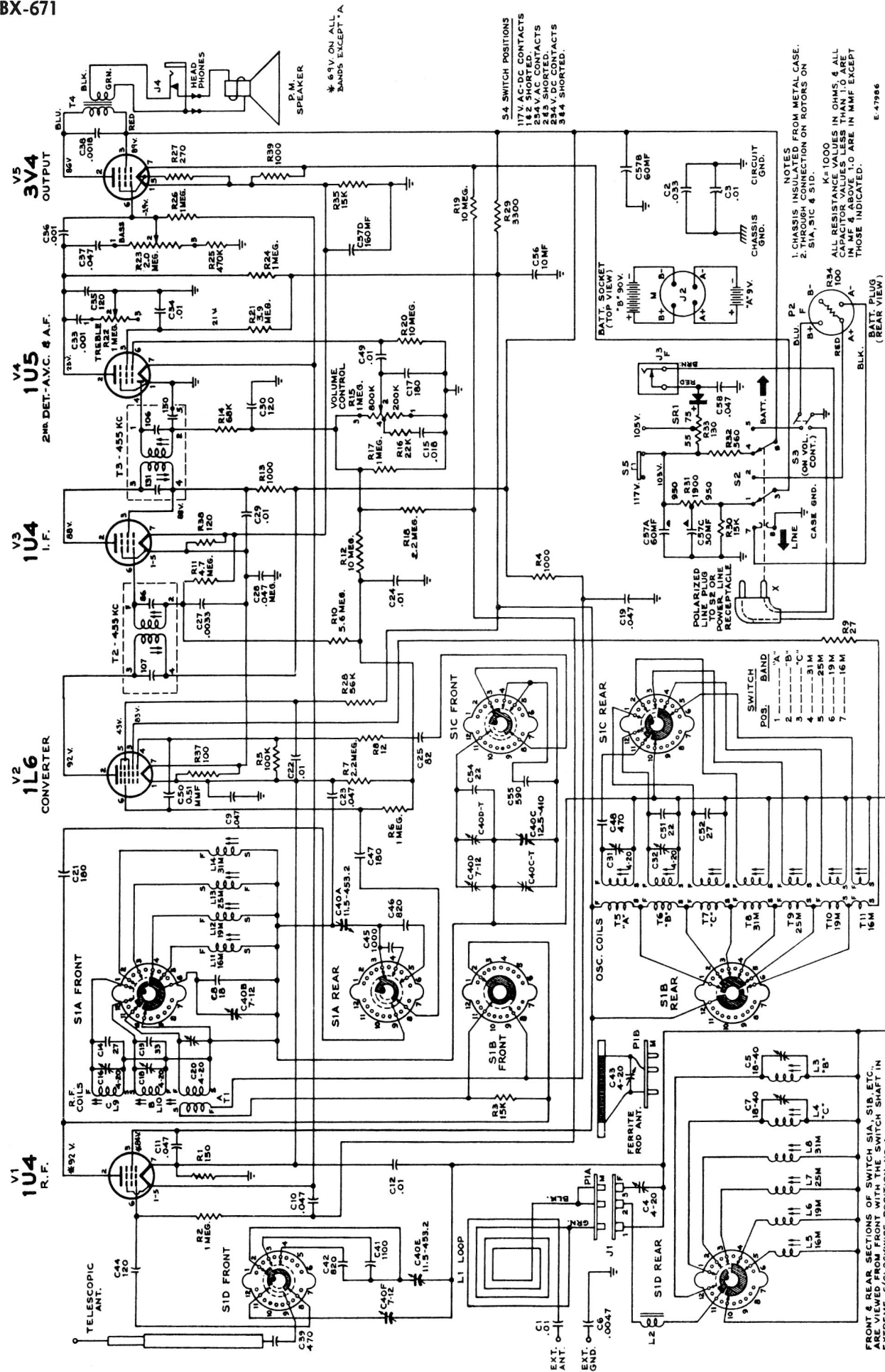
Do not remove any tubes from the chassis with the set operating and the plug connected to the power line. Damage to tubes may result.



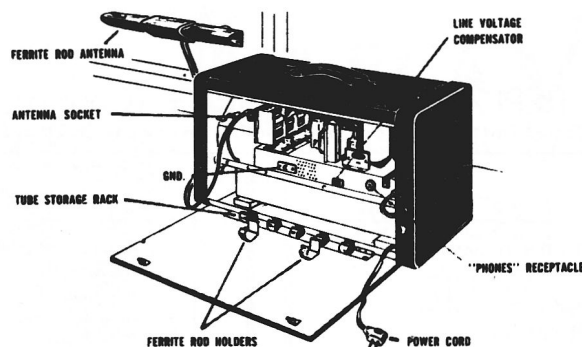
Tuner Adjustment Locations—Antenna



Tuner Adjustment Locations—Oscillator and R.F.



Schematic Diagram



Rear View

AC-DC OPERATION

For 105 to 125 volts, 25-60 cycles AC or 105 to 125 volts DC operation—Be sure that the power line used has the correct voltage and frequency before turning on the receiver. Open case back, remove power cord plug from chassis socket, and insert in outlet. Feed power cord through the notch on the lower right side of the case back.

BATTERY OPERATION

Installation of Battery Pack—Insert battery cable plug into battery socket, installing battery pack with plug side facing toward the front.

For Battery Operation—Insert polarized power cord plug all the way into the chassis socket. Store excess power cord neatly to the right side of the battery pack. Close case back securely.

CARE OF INSTRUMENT CASE

To best preserve the appearance and serviceability of the instrument case, keep it clean. For this purpose, any mild soap will do, if applied as a lather and the dirt removed with a dry, clean cloth. Abrasives, commercial cleaning fluids, nail polish remover and the like should not be used.

Should leather become dry from cleaning or aging, the natural oils should be replaced. For restoration purposes, a number of applications of 10 to 20 per cent of sulfonated castor, or neatsfoot, or cod oil may be made as required.

LINE VOLTAGE COMPENSATOR

Weak reception may result from sub-normal power line voltage. If determined as the cause (check voltage rating with power company), the Line Voltage Compensator is provided to improve reception by switching to "LOW LINE VOLTAGE" position. To use, break the caution label seal, and move the switch slot to the right. Use of this feature is not recommended unless the line voltage is 105 volts or less.

USE OF ANTENNAS

Built-In Loop—For Standard Broadcast

Contained in the hinged lid of the case, this antenna is in use as long as it remains plugged into the antenna socket. It is possible to improve reception by rotating the receiver.

Ferrite Rod—For Standard Broadcast—Low Signal/Noise Areas

To improve reception within steel buildings, automobiles, etc., the ferrite rod antenna may be used. Remove loop antenna plug from its socket. Remove ferrite rod antenna from spring clips inside back cover, unwind wire extension, and insert cable plug into antenna socket. The ferrite rod antenna may be secured on a window in a horizontal position, by pressing the suction cups firmly against the glass. Reception may be improved by changing the position of the antenna.

External—For Standard Broadcast—Weak Signal Areas

A terminal for outside antenna connection is located on the hinged lid of the case. Connect a wire to this terminal and suspend approximately 60 to 100 feet in space, at least 50 feet in a horizontal position.

Telescopic Rod—For Short Wave

Concealed within the case on the right, this antenna is used for reception on any one of the six Short Wave bands. To use, press release button on lower right side of case, and antenna top will appear above its opening. Grasp antenna top, and pull up antenna sections until a distinct snap or click results. For best reception, all sections should be fully extended.

NOTE: Short Wave reception is impossible unless bottom (Satin Finish) section of antenna is snapped into its elevated position.

REPLACEMENT PARTS FOR MODEL 3-BX-671

Insist on Genuine Factory Tested Parts, which are readily identified and may be purchased from Authorized Dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLIES		78139	180 mmf. 500 volts (C17, C21, C47) Capacitor - Fixed, ceramic, non-insulated, High "K" type
78135	Board - Baffle Board & Grille screen less speaker	78141	27 mmf. 500 volts (C14)
78108	Capacitor - Var. tuning capacitor complete with drive drum (C40A, C40B, C40C, C40D, C40E, C40F, C40C-T, C40D-T)	78140	33 mmf. 500 volts (C13)
78146	Capacitor - Capacitor (82 mmf.) & resistor (12 ohms) Assembly (C25, R8)	78142	120 mmf. 500 volts (C30, C35, C44) Capacitor - Fixed - headed lead:-
	Capacitor - Adjustable, mica -	78137	0.51 mmf. 500 volts. (C50) Capacitor - Fixed Mica:-
78130	4-20 mmf. (C4, C16, C18, C20)	39644	470 mmf. 500 volts. (C48)
78131	4-20 mmf. (C31, C32)	76992	470 mmf. 300 volts, (C39)
78132	20-50 mmf. (C5, C7)	74929	590 mmf. 500 volts, (C55)
73960	Capacitor - Fixed ceramic, High "K" disc:- 10,000 mmf. L%, -0%, 500 volts. (C, C12, C22, C24, C29, C34)	78143	820 mmf. 300 volts, (C42 & C46)
33101	Capacitor - Fixed Ceramic, non-insulated. 22 mmf. 500 volts. Temp. coef. -750 (C51, C54)	39652	1000 mmf. 300 volts (C45)
72570	27 mmf. 500 volts Temp. coef. -750 (C52)	78144	1100 mmf. 500 volts (C41) Capacitor:- Electrolytic comprising:-
78138	Capacitor - Fixed, ceramic, insulated, High "K" type. 18 mmf. 500 volts (C8)	78095	1 section of 60 mfd. 250 volts. 1 section of 60 mfd. 150 volts. 1 section of 30 mfd. 150 volts. 1 section of 180 mfd. 25 volts (C57A, C57B, C57C, C57D) Capacitor - Fixed, electrolytic:-

REPLACEMENT PARTS (Cont'd)

Insist on Genuine Factory Tested Parts, which are readily identified and may be purchased from Authorized Dealers.

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
	CHASSIS ASSEMBLIES (Cont'd)		
78145	10 mfd. 150 volts (C56) Capacitor - Fixed paper moulded:- .001 mfd. 1000 volts (C33, C36) .0018 mfd. 1600 volts (C38) .0033 mfd. 600 volts (C27) .0047 mfd. 600 volts (C6) .01 mfd. 400 volts (C49) .018 mfd. 400 volts (C15) .033 mfd. 400 volts (C2) .047 mfd. 200 volts, (C9, C10, C23, C28, C37) .047 mfd. 400 volts, (C11 & C19) .047 mfd. 600 volts, (C3 C58)		1 megohm 1/2 watt (R2, R6, R17, R24, R26) 2.2 megohm 1/2 watt (R7, R18) 3.9 megohm 1/2 watt (R21) 4.7 megohm 1/2 watt (R11) 5.6 megohm 1/2 watt (R10) 10 megohms 1/2 watt (R12, R19, R20) 71039 Switch - Battery switch (S2) 78096 Switch - Weak signal area switch (S5) 78106 Switch - Range switch (S1) 74918 Transformer - 1st I. F. Transf. complete with adj. core (T2) 73037 Transformer - 2nd I. F. Transformer complete with adj. core (T3) 78100 Transformer - Output transformer (T4)
78123	Coil - Antenna coil - "B" band (L3)		
78124	Coil - Antenna coil - "C" band (L4)		
78128	Coil - Antenna coil 16 meter band (L5)		
78127	COIL - Ant. coil - 19 meter band (L6)		
78126	COIL - Ant. coil - 25 meter band (L7)		
78125	COIL - Ant. coil - 31 meter band (L8)		
78129	COIL - Loading coil (L2)		
78109	COIL Osc. coil "A" band (T5)		
78110	COIL Osc. coil "B" band (T6)		
78111	COIL Osc. coil "C" band (T7)		
78115	COIL Osc. coil 16 meter band (T11)		
78114	COIL Osc. coil 19 meter band (T10)		
78113	COIL Osc. coil 25 meter band (T9)		
78112	COIL Osc. coil 31 meter band (T8)		
78116	COIL RF coil "A" band (T1)		
78117	COIL RF coil "B" band (L10)		
78118	COIL RF coil "C" band (L9)		
78122	COIL RF coil - 16 meter band (L11)		
78121	COIL RF coil 19 meter band (L12)		
78120	COIL RF coil 25 meter band (L13)		
78119	COIL RF coil 31 meter band (L14)		
7903	Connector - Earphone jack (J4)		
71040	Connector - 2 contact female connector for 220 v. oper. (J13)		
38904	Connector - 2 contact female connector for AC line cord.		
78133	Connector - 3 contact female connector for antenna leads (J1)		
30567	Connector - 4 contact female connector for Batt. cable (P2)		
78094	Control - Bass tone control (R23)		
78093	Control - Treble tone control (R22)		
78092	Control - Vol. control & Power switch (R15 & S3)		
70022	Cord - Power cord & plug		
S-4313	Cord - Stn. sel. pointer drive cord (approx. 15" overall)		
S-4313	Cord - Stn. sel. pointer drive cord (approx. 22" overall)		
S-4313	Cord - Stn. sel. pointer drive cord (approx. 24" overall)		
16058	Grommet - Rubber grommet for mtg. gang capacitor.		
78090	Pointer - Band indicator pointer		
78087	Pointer - Stn. selector pointer		
78101	Rectifier - Selenium rectifier (SR1)		
78136	Resistor - Wire wound; comprising:- 1 section of 75 ohms, 5 watts 1 section of 55 ohms, 5 watts (R33)		
78102	Resistor Dual 950 ohms, 2 3-1/2 watts (R31) Resistor - Fixed, composition:- 27 ohms, 1/2 watt (R9) 100 ohms, 1/2 watt (R34 - R37) 120 ohms, 1/2 watt (R38) 150 ohms, 1/2 watt (R1) 270 ohms, 1/2 watt (R27) 560 ohms, 1 watt (R32) 1000 ohms, 1/2 watt (R4, R13, R39) 3300 ohms, 1/2 watt (R29) 15,000 ohms 1/2 watt (R3, R30, R35) 22,000 ohms 1/2 watt (R16) 56,000 ohms 1/2 watt (R28) 68,000 ohms 1/2 watt (R14) 100,000 ohms 1/2 watt (R5) 470,000 ohms 1/2 watt (R25)		- SPEAKER ASSEMBLIES - 78147 Speaker - 5-1/4" P.M. Speaker complete with cone and voice coil (3.2 ohms) - MISCELLANEOUS - 78196 Antenna - Ferrite rod antenna complete with winding 78187 Antenna - Lid and ant. loop assembly complete (L1, C1) 78157 Antenna - Telescopic antenna 78174 Bracket - "U" shaped bracket for carrying handle links. 78166 Button - Telescopic antenna push button. 78184 Back - Case back complete 79808 Cable - 2 conductor antenna cable 78165 Cap - Telescopic ant. screw-on-cap 75967 Capacitor - Adjustable - Mica, 4-20 mmf. (C43) 78190 Case - case only, for ferrite rod ant. 78153 Case - case less sides, handle, links, feet front & Bk. Cover 78170 Catch - Catch for case 78186 Catch - Case back catch - part of case back 78185 Clip - Mtg. clip for ferrite rod antenna 78411 Clip - Clip for case catch - bottom 78177 Connector - 3 contact male connector for ant. loop and for ferrite rod ant. (P1A & P1B) 78162 Contact - Bottom contact for telescopic ant. 78163 Contact - Formed spring clip and contact for telescopic ant-upper. 78164 Contact - Lower contact & push button catch 78195 Cover - Bottom cover for ferrite rod antenna 78097 Eyelet - Station selector cord connecting eyelets 78181 Dial - Dial scale less escutcheon 77012 Emblem "RCA Victor" emblem 78182 Escutcheon - Dial scale escutcheon less dial 78173 Handle - Carrying handle 78643 Hinge - Door hinge - R. H. 78644 Hinge - Door hinge - L. H. 78156 Hinge - Hinge for back cover (2 req'd) 78167 Insulator - Nylon insulator for case lid 78187 Lid - Case lid and ant. loop ass'y (L1, C1) 78175 Link - Carrying handle link 78149 Knob - Bass tone control knob 78151 Knob - Range switch knob 78150 Knob - Treble tone control knob 78148 Knob - Tuning control or vol. control & Pwr. sw. knob. 78414 Map - World map and Time chart 78192 Plate - Bakelite plate for ferrite rod ant. trimmer capacitor. 78172 Plate Mtg. plate for carrying handle. 77974 Side - Case side - L. H. complete with leather belting 77975 Side - Case side - R. H. complete with leather belting 78188 Spring - Case lid spring 78160 Spring - Push up spring for telescopic antenna 78154 Strap - Leather strap for L. H. case side 78155 Strap - Leather strap for R. H. case side 78413 Strap - Strap for holding ferrite rod ant. lead 78161 Support - Telescopic ant. bearing support - at top of ant.

Only items listed under stock numbers are available as Replacement Parts.

All parts subject to change or withdrawal without notice.