



RCA Victor

MODEL B67

Six-Tube, Five-Band, Battery-Operated, Superheterodyne Receiver

TECHNICAL INFORMATION AND SERVICE DATA

SERVICE DIVISION • RCA VICTOR COMPANY LIMITED • MONTREAL



Model B-67

Electrical and Mechanical Specifications

FREQUENCY RANGES

Standard Broadcast
("A" Band) 540-1,720 kc (555-174 m)
Medium Wave ("B" Band)..... 3.0-9.5 mc (100-31.5 m)
Short Wave 9.5-11.7 mc (31.5-25.6 m)
Short Wave 11.7-15.1 mc (25.6-19.9 m)
Short Wave 15.1-22.5 mc (19.9-13.3 m)

INTERMEDIATE FREQUENCY 455 kc
Drive Ratio 25:1

TUBE COMPLEMENT

(1) Type-1R5 1st Det.,—Osc.
(2) Type-1N5-G 1st I-F Amplifier
(3) Type-1N5-G 2nd I-F Amplifier
(4) Type-1H5-G 2nd Det., A-F, and A.V.C.
(5) Type-1A5-G Audio Driver Amplifier
(6) Type-1G6-G Power Output

BATTERIES REQUIRED

1—1.5 volt "A" Battery; 2—45 volt "B" Batteries

CURRENT CONSUMPTION

"A" 0.35 amperes
"B" 14.0 milliamperes

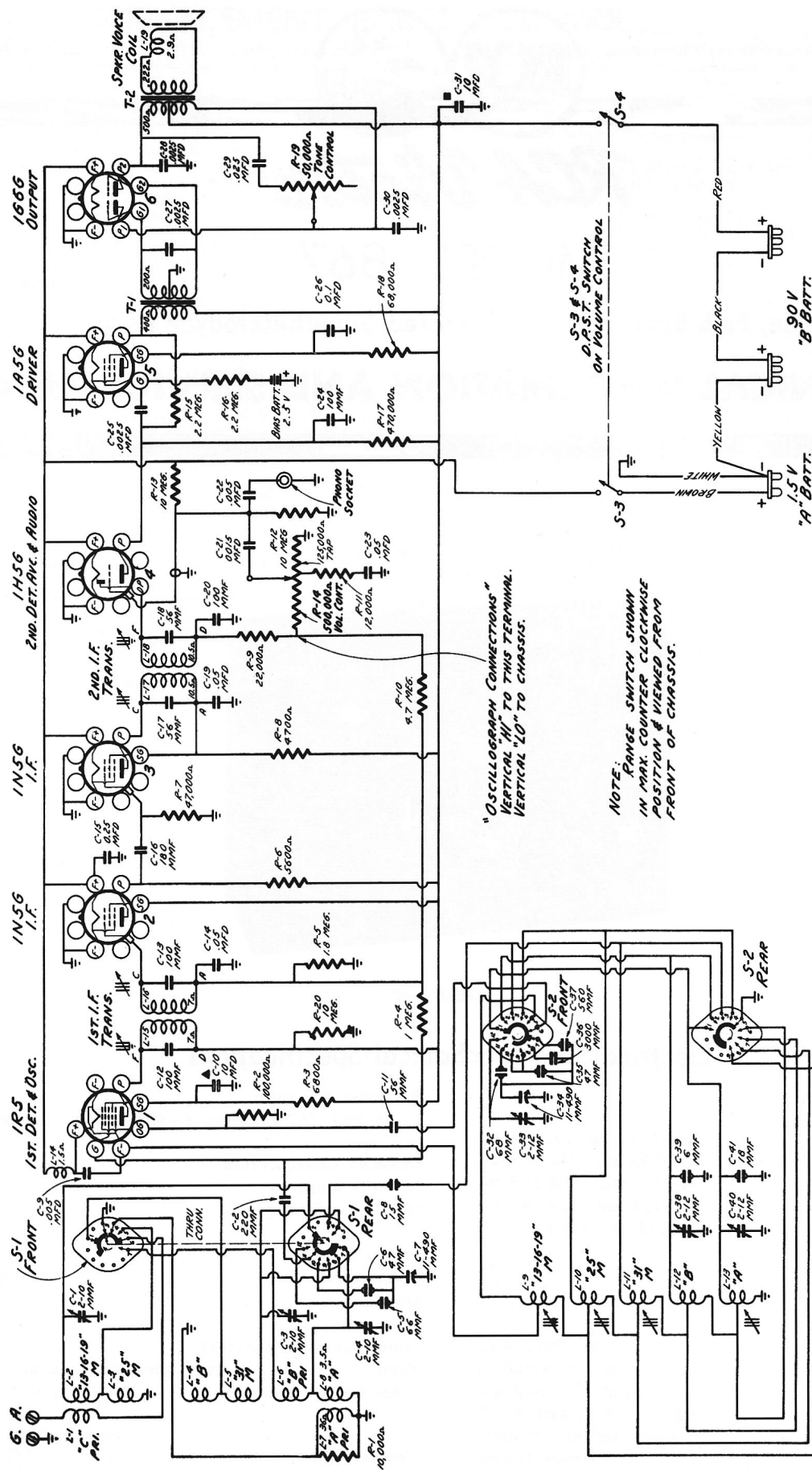
POWER OUTPUT

Undistorted 0.55 watts
Maximum 0.65 watts

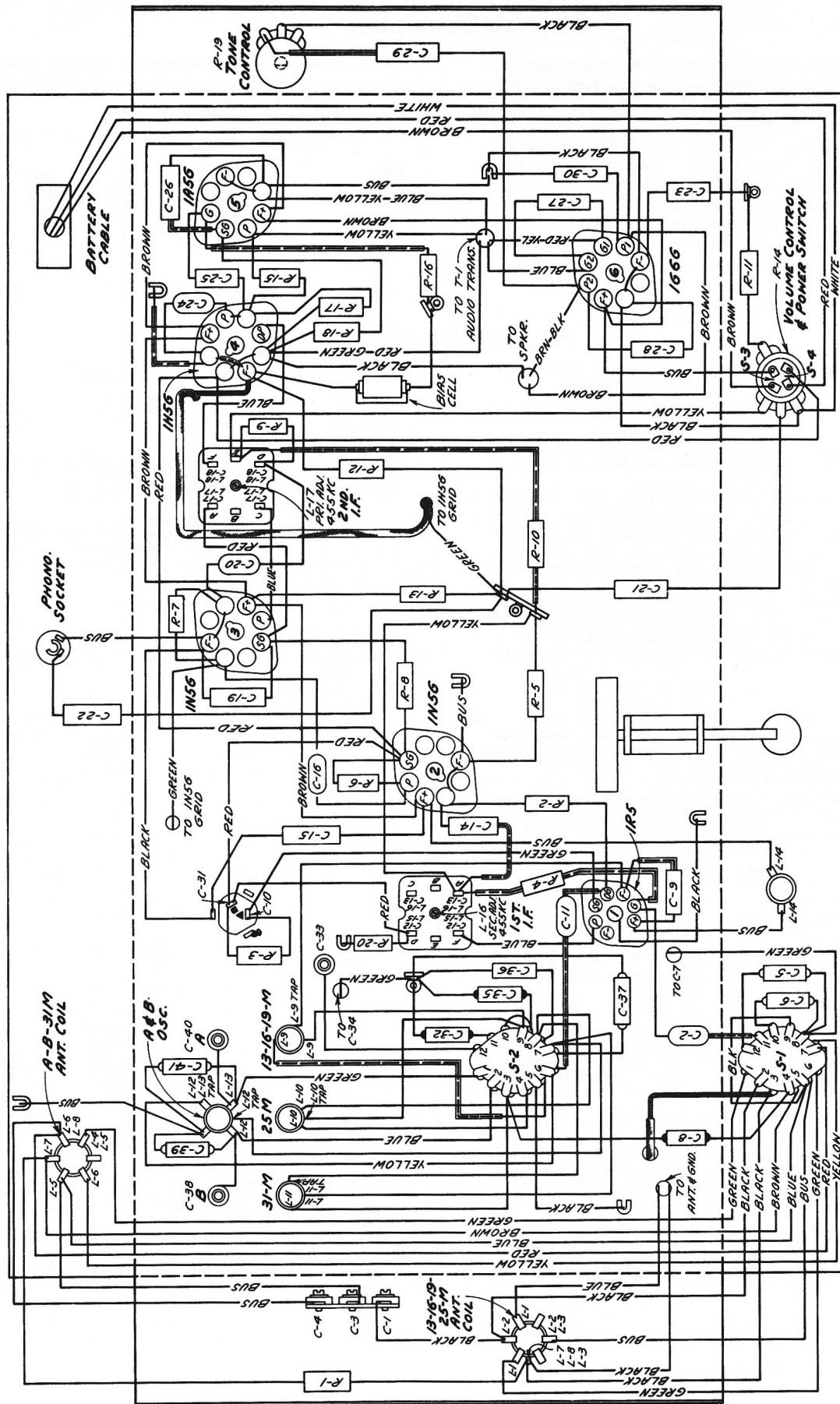
LOUDSPEAKER (CRL515-3)

Type.....6 inch permanent-magnet dynamic
Voice Coil Impedance 3.4 ohms at 400 cycles

| | Height | Width | Depth |
|--------------------------|--------|-------|-------|
| CABINET DIMENSIONS | 11½" | 17" | 7¾" |



Schematic Circuit Diagram

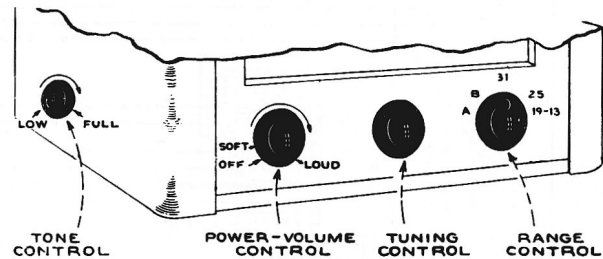


Chassis Wiring Diagram

General Description

This model employs a six tube, five band battery operated chassis which incorporates the latest developments in receiver design. Features of design include such outstanding developments as:—Low drain 1.4 volt tubes including the new type 1R5 convertor; individual oscillator coils for each band; Class B output minimizing current drain; iron core I.F. transformers and oscillator coils; Phono input socket; flywheel manual tuning; variable tone control and a large glass dial individually calibrated for each

band. Reference to the schematic circuit diagram will disclose complete details of the electrical design.



Alignment Procedure

Cathode-Ray Alignment is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

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

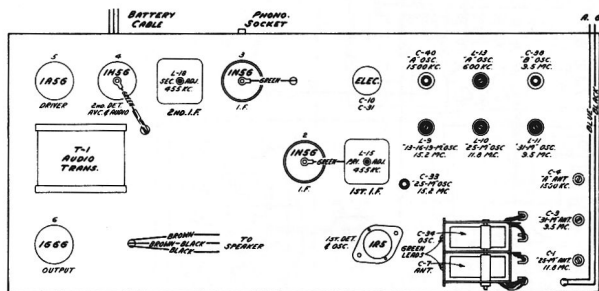
Test-Oscillator.—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the output as low as possible to avoid a-v-c action.

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.

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.



Tube and Trimmer Locations

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 the 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.

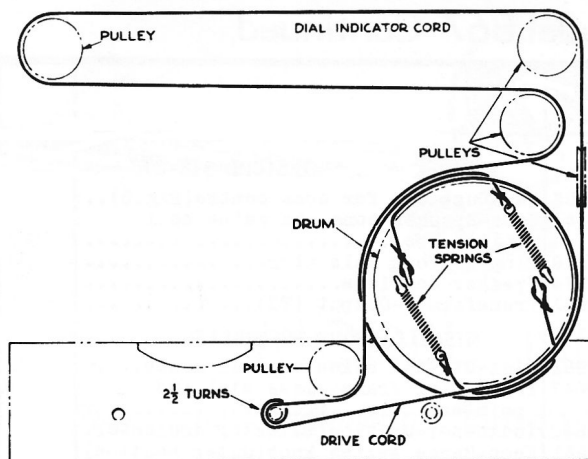
| Steps | Connect the high side of the test-osc. to— | Tune test-osc. to— | Range switch | Turn radio dial to— | Adjust the following for max. peak output | |
|-------|---|-----------------------------------|-----------------------|----------------------|---|---------------------------|
| 1 | 1N5G —2nd I-F grid cap, in series with .01 mfd. | 455 kc | A | Quiet point near 25° | L18, L17 2nd I-F transformer | |
| 2 | 1R5—1st Det. grid, in series with .01 mfd. | | | | L16, L15 1st I-F transformer | |
| 3 | Ant. lead in series with 300 ohms | 11.8 mc | 25M | 138.5° | L10 (osc.) C1 (ant.) | |
| 4 | | 15.2 mc | | 17° | C33 (osc.)* | |
| 5 | | Repeat steps 3 and 4. | | | | |
| 6 | | 15.2 mc | 19-13M | 156° | L9 (osc.)** | |
| 7 | | 9.5 mc | 31M | 156° | L11 (osc.)** C3 (ant.) | |
| 8 | | 9.5 mc | B | 11.5° | C38 (osc.)*** | |
| 9 | | 1,500 kc | | 26° | C40 (osc.) C4 (ant.) | |
| 10 | | Ant. lead in series with 200 mmf. | 600 kc | | 147.5° | L13 (osc.) (Rock gang) |
| 11 | | | Repeat steps 8 and 9. | | | |

* Use minimum capacity peak if two can be obtained. Check image to determine that C3 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 of two peaks can be obtained.

NOTE: Oscillator tracks above signal on all bands.



Drive Cord Assembly

Precautionary Lead Dress:

1. All leads between antenna coil and switch must be as short as possible and kept away from the oscillator coil leads and switches.
2. Tap on 19-13 meter oscillator coil to pin No. 6 on oscillator tube socket must be dressed as far away from the air trimmer as possible.
3. All oscillator coil leads must be kept apart from each other, as well as other leads and parts.
4. Oscillator grid coupling condenser must bear against parts on S3, and be kept away from the shield between S2 and S3.
5. Check for correct bias cell polarity. Do not shunt with voltmeter.
6. The speaker leads must be kept from the volume control and associated parts and leads.

Replacement Parts for Model B67

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-2973 | Cable-Battery cable complete with Plugs..... | 35619 | Condenser-Variable tuning condenser (C7, C34)..... |
| 35642 | Calibrator-Drive drum calibrator.. | 36063 | Control-Volume control and power switch (R14,S3,S4)..... |
| 12714 | Capacitor-Air trimmer-medium (C33, C38, C40)..... | S-2979 | Cord-Drive cord (approx. 26 in.)... |
| 34654 | Capacitor-Mica trimmer comprising 3 sections (C1, C3, C4)..... | S-2980 | Cord-Indicator drive cord (Approx. 51 in.)..... |
| 35646 | Capacitor-6 mmfd (Close Tol.)(C39) | 35788 | Core-Adjustable core for "A" and "B" oscillator coil..... |
| 36012 | Capacitor-15 mmfd (Temp.comp.)(C8) | 31259 | Core-Adjustable core for spread band oscillator coil..... |
| 31350 | Capacitor-18 mmfd (Close Tol.)(C41) | 35627 | Drum-Drive drum less calibration scale..... |
| 37329 | Capacitor-47 mmfd (Close Tol.)(C6) | S-2969 | Flywheel-Tuning shaft and flywheel.. |
| 35644 | Capacitor-47 mmfd (Temp.comp.)(C35)..... | 34499 | Holder-Bias cell holder..... |
| 12723 | Capacitor-56 mmfd (C11, C17, C18) | 5119 | Plug-3 contact female speaker plug. |
| 36072 | Capacitor-66 mmfd (Close Tol.)(C5) | 12827 | Plug-3 prong male battery plug..... |
| 35645 | Capacitor-68 mmfd (Temp.Comp.)(C32)..... | 32208 | Plug-2 prong male battery plug..... |
| 12720 | Capacitor-110 mmfd (C12, C13, C20, C24)..... | 35641 | Pulley-Drive cord pulley..... |
| 13003 | Capacitor-180 mmfd (C16)..... | 35630 | Pulley-Drive cord pulley (on chassis)..... |
| 12694 | Capacitor-220 mmfd (C2)..... | 30146 | Resistor-4700 ohm 1/4 watt (R8).... |
| 31433 | Capacitor-560 mmfd (Close Tol.)(C37)..... | 13714 | Resistor-5600 ohm 1/4 watt (R6).... |
| 35643 | Capacitor-3000 mmfd (C36)..... | 12265 | Resistor-6800 ohm 1/4 watt (R3).... |
| 33806 | Capacitor-.0015 mfd. (C21)..... | 14559 | Resistor-10,000 ohm 1/4 watt (R1).. |
| 34459 | Capacitor-.0025 mfd. (C25, C27, C28, C30)..... | 30128 | Resistor-12,000 ohm 1/4 watt (R11).. |
| 33584 | Capacitor-.005 mfd. (C9, C22)..... | 13998 | Resistor-22,000 ohm 1/4 watt (R9).. |
| 30938 | Capacitor-.025 mfd. (C29)..... | 12412 | Resistor-47,000 ohm 1/4 watt (R7).. |
| 32787 | Capacitor-.05 mfd. (C14,C19,C23)... | 13715 | Resistor-68,000 ohm 1/4 watt (R18).. |
| 4839 | Capacitor-.1 mfd. (C26)..... | 14560 | Resistor-100,000 ohm 1/4 watt (R2).. |
| 12484 | Capacitor-.25 mfd. (C15)..... | 12285 | Resistor-470,000 ohm 1/4 watt (R17) |
| 33790 | Capacitor-Electrolytic comprising two 10 mfd. sections (C10,C31)... | 13730 | Resistor-1.0 megohm 1/4 watt (R4).. |
| 31581 | Cell-Bias cell..... | 5028 | Resistor-1.8 megohm 1/4 watt (R5).. |
| 35632 | Coil-"A", "B" and 31M band antenna coil (L4,L5,L6,L7,L8)..... | 12679 | Resistor-2.2 megohm 1/4 watt (R15, R16)..... |
| 35631 | Coil-Spread band antenna coil (L1,L2,L3)..... | 30271 | Resistor-4.7 megohm 1/4 watt (R10). |
| 36065 | Coil-Oscillator coil "A" and "B" bands (L12, L13)..... | 13601 | Resistor-10. megohm 1/4 watt (R12, R13, R20)..... |
| 36066 | Coil-Oscillator coil 13-19 M bands (L9)..... | 14350 | Screw-No.8-32 square head set screw for drum (Pkg.5)..... |
| 36067 | Coil-Oscillator coil 25 M band (L10)..... | 35633 | Shaft-Range switch slip-on indicator shaft..... |
| 36068 | Coil-Oscillator coil 31 M band (L11)..... | 35637 | Shaft-Tuning shaft..... |
| 36071 | Coil-Filament series choke coil (L14)..... | 35787 | Socket-Phono input socket..... |
| | | 36069 | Socket-1R5 tube socket and ring.... |
| | | 31251 | Socket-Tube socket..... |
| | | 13638 | Spring-Drive cord tension spring (Pkg.2)..... |

Replacement Parts for Model B67 Continued

| STOCK NO. | DESCRIPTION | STOCK NO. | DESCRIPTION |
|-----------|--|-----------|--|
| 31418 | Spring-Indicator pointer drive cord spring (Pkg.2)..... | 32907 | SPEAKER ASSEMBLIES(CRL 515-3) Cap-Dust cap for cone centre(Pkg.5).. |
| 35640 | Support-Drive cord pulley support with one pulley..... | 35441 | Cone-Speaker cone and voice coil (L19)..... |
| 36064 | Switch-Range switch (S1, S2)..... | 5118 | Plug-3 prong male plug..... |
| S-2975 | Tone control (R19)..... | S-2974 | Speaker-complete..... |
| 36061 | Transformer-Driver transformer (T1).. | 35941 | Transformer-Output (T2)..... |
| 35636 | Transformer-First I.F. Transformer (L15,L16,C12,C13,C14)..... | | MISCELLANEOUS ASSEMBLIES |
| 35628 | Transformer-Second I.F. Transformer (L17,L18,C17,C18,C20)..... | S-2981 | Dial-Station selector dial scale..... |
| 33726 | Washer-"C" washer for pulley (Pkg.5). | 35647 | Frame-Dial frame, less dial and pointer..... |
| 2917 | Washer-"C" washer for tuning shaft (Pkg.5)..... | 35648 | Indicator-Station selector indicator. |
| | | 35651 | Knob-Range switch knob(Outer section) |
| | | 35652 | Knob-Range switch knob(Inner section) |
| | | 35650 | Knob-Tone control knob..... |
| | | 36038 | Knob-Tuning or volume control knob... |
| | | 14270 | Spring-Knob retaining spring (Pkg.2). |
| | | 4982 | Spring-Knob retaining spring for stock #35652 Knob (Pkg.5)..... |