



RCA VICTOR



*Mr. Serv.
Lab 2
New Albany*

3-RA-3 Series—The "Luster"

- Model 3-RA-30—*Antique White*
- Model 3-RA-31—*Charcoal/Antique White*
- Model 3-RA-32—*Aqua/Antique White*
- Model 3-RA-34—*Espresso/Autumn Smoke*

RCA SALES CORPORATION

A RADIO CORPORATION OF AMERICA SUBSIDIARY
600 NORTH SHERMAN DRIVE
INDIANAPOLIS 1, INDIANA

RADIO SERVICE DATA

—File: 1962 No. 9—

3-RA-3 Series

Chassis No. RC-1202AH

Circuit Board No. 962507-2

SPECIFICATIONS

TUNING RANGE 540-1620 kc

INTERMEDIATE FREQUENCY 455 kc

TUBE COMPLEMENT

- (V1) RCA 18FX6 Converter
- (V2) RCA 18FW6 IF Amplifier
- (V3) RCA 18FY6 Detector, AVC and Audio Amp
- (V4) RCA 34GD5 Audio Output
- (V5) RCA 36AM3A Rectifier

CABINET DIMENSIONS

Height 6 $\frac{3}{8}$ " Width 11 $\frac{1}{16}$ " Depth 4 $\frac{3}{16}$ "

AUDIO POWER OUTPUT

Undistorted 0.75 watts
Maximum 1.0 watts

LOUDSPEAKER

Size and type 3" x 5" P.M.
Voice Coil Impedance 3.2 ohms @ 400 cycles

POWER SUPPLY RATING

107-120 volts, 50-60 cycles or DC25 watts

TUNING DRIVE RATIO 1:1 (Direct drive)

NET WEIGHT Approx. 2 $\frac{3}{4}$ lbs.

DESCRIPTION

Models of the 3-RA-3 series are 5 tube (including rectifier) table style radios designed to receive the standard AM broadcast band from 540 kc to 1620 kc and to operate on a 107 to 120 volt 50-60 cycle or DC power source.

The antenna, chassis, and loudspeaker are mounted to the front section, or panel, of the two-piece molded plastic cabinet and the power, or line, cord is secured to the back, or hood, section of the cabinet.

When the hood back is removed, the power cord is disconnected from the chassis by means of a safety interlock connector to guard against a possibility of a shock hazard.

With the hood removed, both sides of the chassis are readily accessible for servicing, thus eliminating the need to unmount the chassis.

A standard ferrite rod antenna is used to pick up the signal for the superhetrodyne circuitry. This circuitry consists of a pentagrid converter (RF oscillator and mixer) stage, an intermediate frequency amplifier stage, a demodulator (detector) and AVC stage, an audio frequency amplifier stage, and a power amplifier (output) stage. Plate and screen power

is obtained from a half-wave vacuum tube rectifier circuit. This chassis utilizes the 100 ma. series of tubes - for cooler operation. The electrical impulses are converted into sound waves by a 3" x 5" P.M. loudspeaker having a voice coil impedance of 3.2 ohms at 400 cycles.

The phenolic base "Security Sealed" printed wiring chassis has all of the components mounted on one side of the base with their leads, or connections, extending through openings in the boards and dip soldered to the printed wiring which is bonded to the opposite side.

SUPPLEMENTARY INFORMATION LISTINGS

Vol.	Issue	Subject

1962 No.

3-RA-3 Series

CAPTIVE CONTROL KNOBS

The control knobs of this instrument are held captive to the cabinet by means of retaining clips on the knob shafts inside of the cabinet. If it should become necessary to unmount the chassis, *the chassis should be pulled out of the knobs.*

CABINET DISASSEMBLY

DO NOT ATTEMPT TO PULL THE KNOBS OFF FROM THE FRONT.

1. Remove the three cabinet assembly screws (one at top center and two at bottom front).
2. Grasp the instrument at the sides with the fingers extending around the front edge and onto the front.
3. Hold the cabinet face down and shake with a vertical motion until the sections separate. (fingers will catch the front section)
4. Set the instrument upright and complete the removal of the front section from the hood back.

CABINET REASSEMBLY

1. Insert the front section into the hood back in a straight and parallel position.
2. Push sections firmly together feeling that lugs on chassis insert themselves into the power cord interlock plug.
3. Reinsert the three cabinet assembly screws.

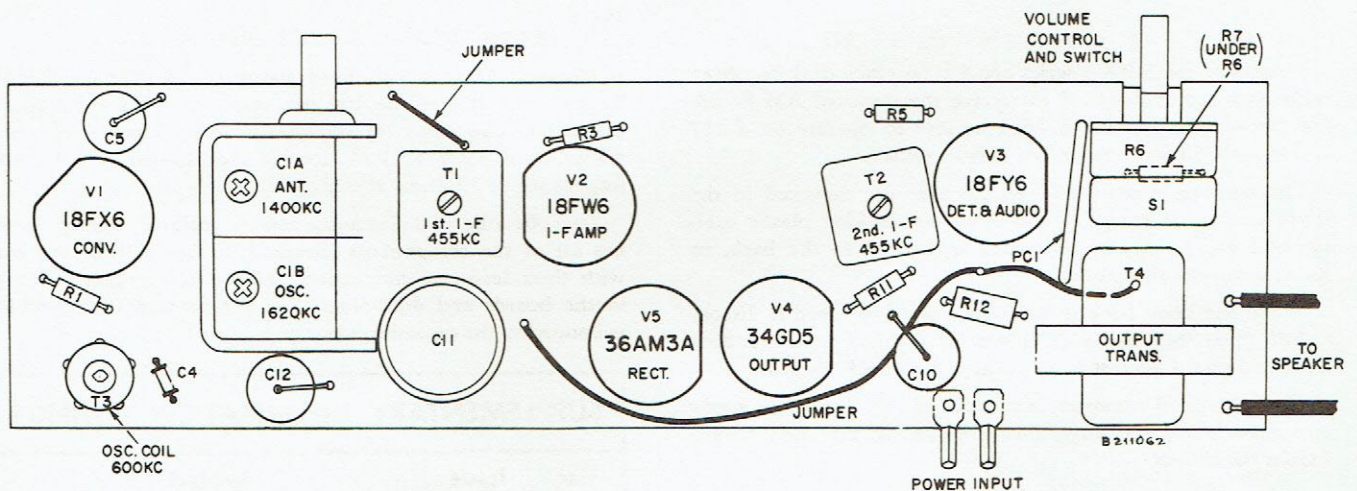
ALIGNMENT PROCEDURE

For all alignment operations connect the low side of the signal generator to the common negative. Keep the signal generator output as low as possible to avoid AVC action. Connect the output indicator to the voice coil terminals of the loudspeaker. Turn volume control to maximum.

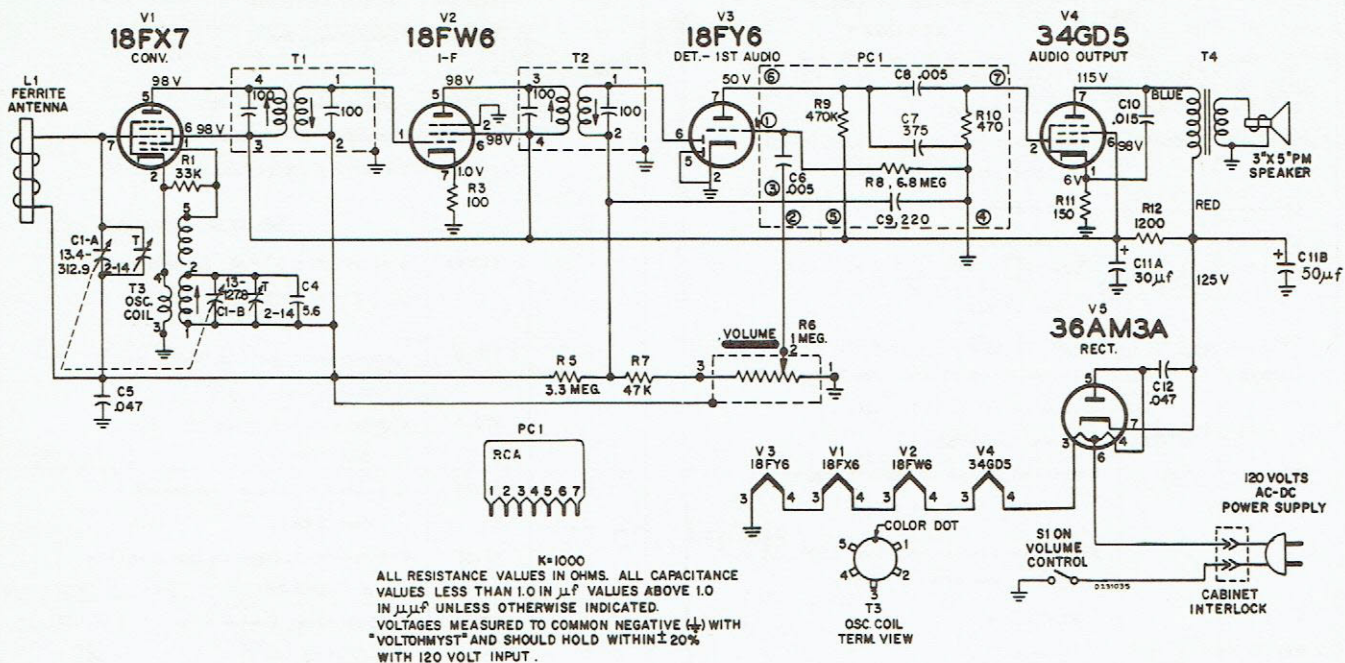
Step	Connect high side of signal gen. to—	Set signal gen. to—	Turn radio dial to—	Adjust for peak output
1	Pin #1 of V2 (18FW6) through .01 μ f capacitor	455 kc (Modulated)	Quiet point near 1600 kc	T2 (2nd I-F trans.), top and bottom cores
2	Pin #7 of V1 (18FX6) through .01 μ f capacitor			T1 (1st I-F trans.), top and bottom cores
3	Repeat steps 1 and 2			
4	Short wire placed near antenna to radiate signal	1620 kc (Modulated)	Gang fully open	C1-B-T (osc. trimmer)
5		1400 kc (Modulated)	1400 kc signal	C1-A-T (Ant. trimmer)
6		600 kc (Modulated)	600 kc signal (rock gang)	T3 (osc. coil)
7	Repeat steps 3, 4 and 5			

CAUTION

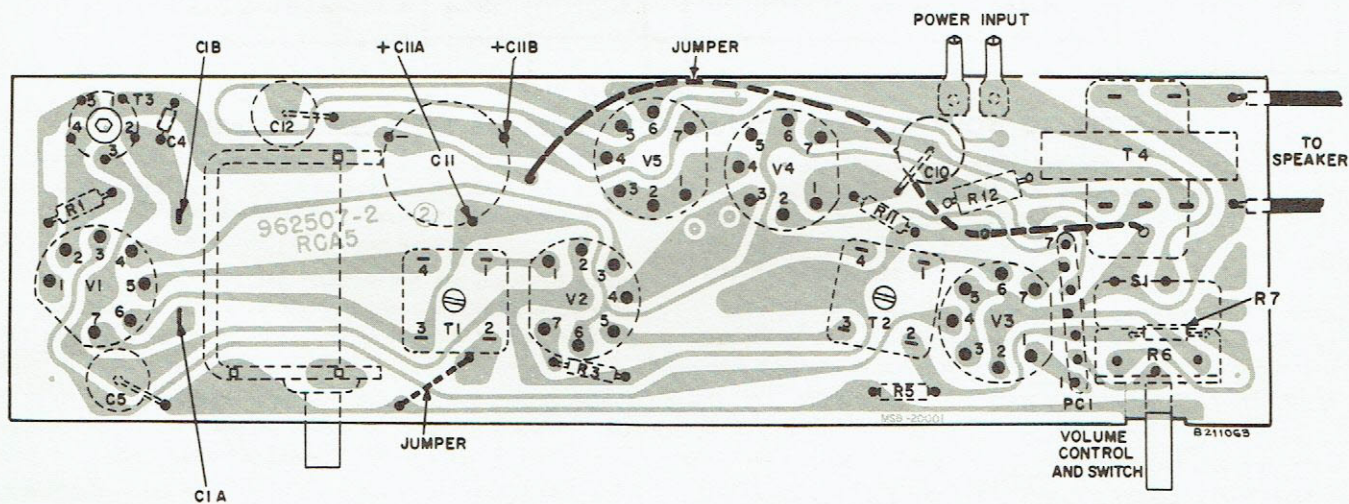
THE CHASSIS IS CONNECTED DIRECTLY TO THE POWER LINE. TO AVOID SHOCK HAZARD AN ISOLATION TRANSFORMER SHOULD BE USED DURING SERVICE WORK ON THE CHASSIS.



Chassis Layout—View from Component Side



Schematic Diagram



Chassis Wiring and Component—View from Wiring Side

REPLACEMENT PARTS

SYMBOL NO.	STOCK NO.	DESCRIPTION
CHASSIS ASSEMBLY RC-1202AH		
CAPACITORS:		
C1A/B	110055	variable, tuning
C4	103440	ceramic— $5.6\mu\text{f}$, $\pm 0.5\mu\text{f}$, 500v, N3300
C5		paper— $0.047\mu\text{f}$, $\pm 20\%$, 400v
C6		Part of PC1
C7		Part of PC1
C8		Part of PC1
C9		Part of PC1
C10		paper— $0.015\mu\text{f}$, $\pm 10\%$, 400v
C11A/B	110060	electrolytic— $50/30\mu\text{f}$, $\pm 100-10\%$, 150/150v
C12		paper— $0.047\mu\text{f}$, $\pm 20\%$, 400v
L1	111050	Antenna—ferrite rod
PC1	106989	Circuit—printed circuit (includes C6, C7, C8, C9, R8, R9, R10)
RESISTORS: fixed composition, $\pm 20\%$, $\frac{1}{2}$ watt, unless otherwise specified		
R1		33,000 ohm
R3		100 ohm
R5		3.3 megohm
R6	110056	control—volume, with "ON-OFF" switch (S1)
R7		47,000 ohm
R8		Part of PC1
R9		Part of PC1
R10		Part of PC1
R4		150 ohm
R12		1200 ohm
S1		Switch—(Part of R6)

SYMBOL NO.	STOCK NO.	DESCRIPTION
T1	110247	Transformer—1st IF
T2	110246	Transformer—2nd IF
T3	110310	Coil—oscillator
T4	110058	Transformer—audio output
	103236	Connector—AC interlock
	110061	Socket—7 pin miniature tube
SPEAKER ASSEMBLY		
	110068	Speaker—3" x 5" P.M., 3.2 ohm v.c.
MISCELLANEOUS		
	Y7240	Cabinet—front, Antique White, less control dial—3-RA-30
	Y7241	Cabinet—front, Charcoal, less control dial—3-RA-31
	Y7239	Cabinet—front, Aqua, less control dial—3-RA-32
	Y7238	Cabinet—front, Espresso, less control dial—3-RA-34
	Y7237	Cabinet—back, Antique White—3-RA-30, -31, -32
	Y7236	Cabinet—back, Autumn Smoke—3-RA-34
	103620	Cable—power cord
	110766	Dial—tuning control insert
	108349	Grommet—antenna mounting
	110767	Knob—tuning
	110701	Knob—Volume, "ON-OFF"
	107163	Nut—Cabinet—retaining
	110547	Retainer—Spring grip—for control knob shaft
	109288	Spring—control knob retainer
	110864	Spring—speaker mounting

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