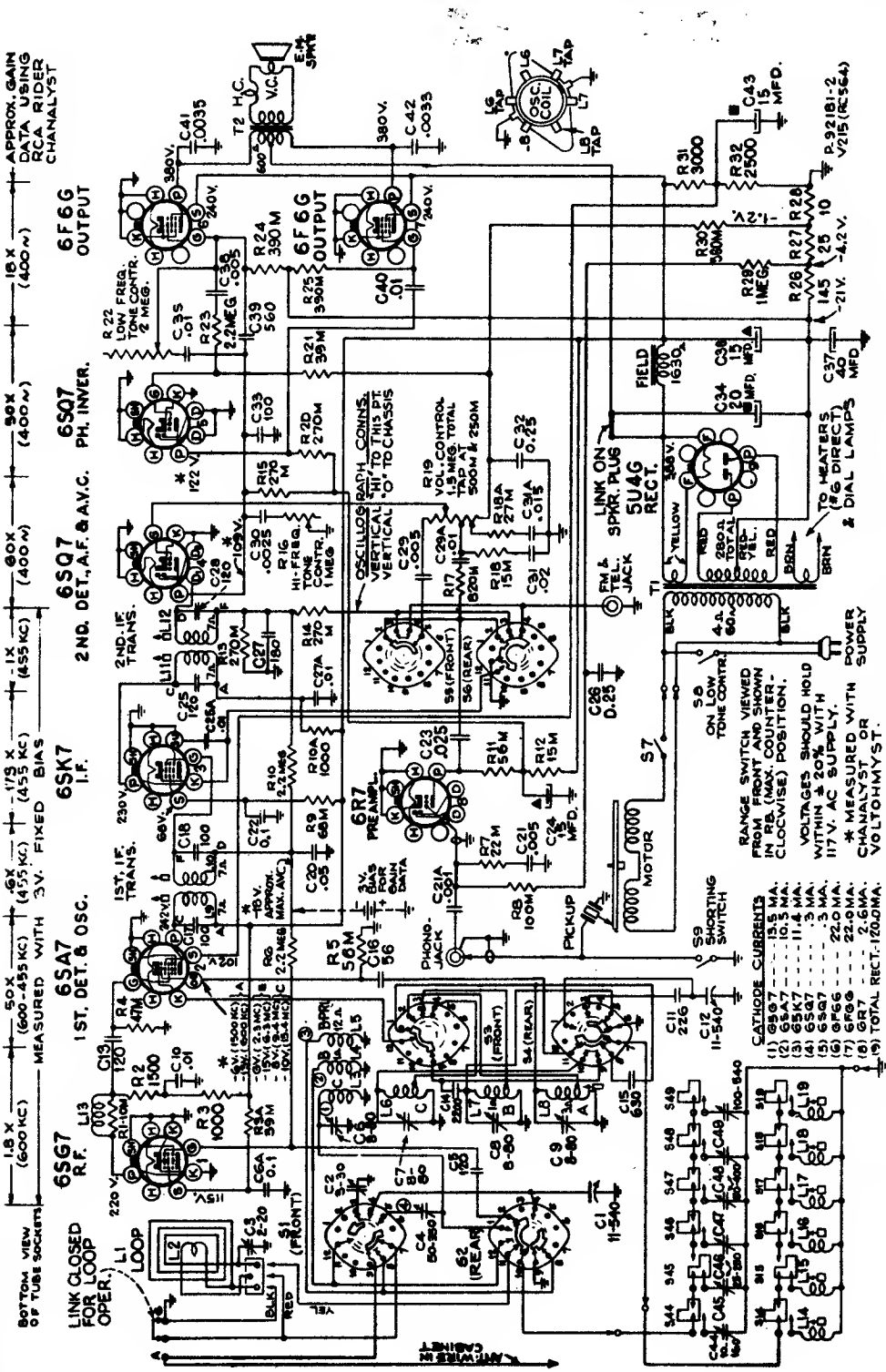
R.C.A. Victor Co., Inc.

	Model: V-215	**Chassis:**	**Year:** Pre March 1942
	Power:	**Circuit:**	**IF:**
	Tubes:		
	Bands:		

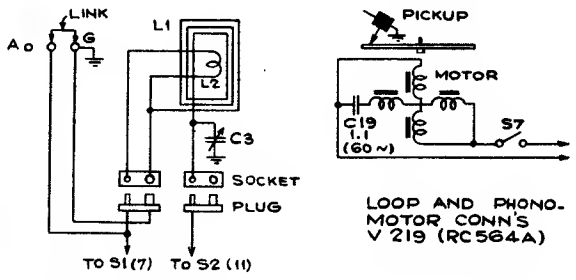
Resources
Beitmans 1942 121
Beitmans 1942 122
Riders 13 (XIII) RCA 13-80
Riders 13 (XIII) RCA 13-81
Riders 13 (XIII) RCA 13-82
Riders 14 (XIV) RCA 14-67

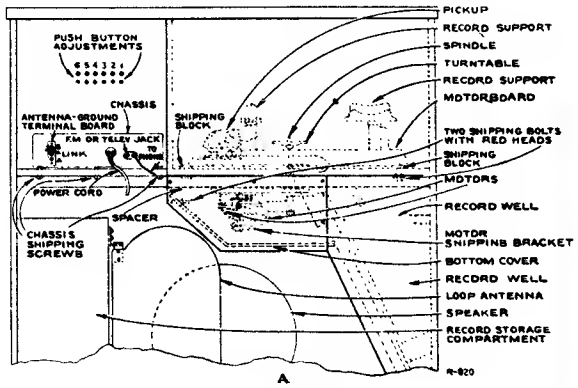
RCA Models V-215, V-219, V-221, V-225



In Model V-219, the loop and phono motor connections are different, as shown in separate diagram on a following page. In Model V-225, R-8 is 220,000 ohms, R-17 is 1.8 Meg., and C-21 is .0035 mfd.

RCA Models V-215, V-219, V-221, V-225





Model V-225

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.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

Calibration Scale.—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the full size calibration scale printed in this service note can be used as an accurate and convenient substitute for the regular dial.

Using Tuning Dial.—

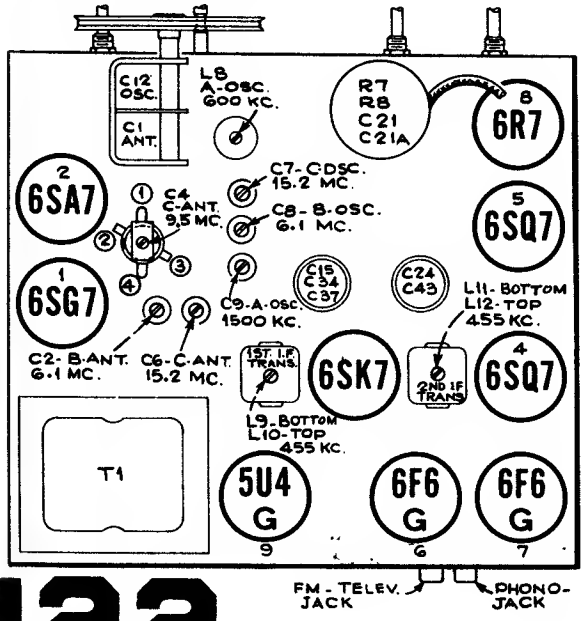
1. Remove the dial glass from the cabinet.
2. With gang at full mesh move the pointer to a point (1/16) inch to the left of the reference mark at the left hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in place.

Using Dial Scale Printed In This Service Note.—

Follow the procedure above, substituting the dial scale printed in this service note for the glass dial in the cabinet.

Steps	Connect high side of test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid in series with .01 mfd.	455 kc	"A" Band 540 kc	L12, L11 (2nd I-F Trans.)
2	1st Det. grid in series with .01 mfd.			L10, L9 (1st I-F Trans.)
3	Yellow loop lead in series with 200 mmf. (link closed)	1,500 kc	"A" Band 1,500 kc	C9 (osc.)
4		600 kc	"A" Band 600 kc	L8 (osc.)
5		Repeat steps 3 and 4		
6	Ant. terminal in series with 47 mmf. (link closed)	6.1 mc	"B" Band 6.1 mc	C8 (osc.)* C2 (ant.)
7		15.2 mc	"C" Band 15.2 mc	C7 (osc.)* C6 (ant.)
8		9.5 mc	"C" Band 9.5 mc	C4 (ant.)
9		Repeat steps 7 and 8		
10	Install and connect chassis in cabinet, with link closed. Tune in a radiated oscillator signal at 1,500 kc and peak the "A" band ant. trimmer C3 (on loop). Rock in L8 for peak output at 600 kc.			

* Use minimum capacity peak if two peaks can be obtained.
Oscillator tracks 455 kc above signal on all bands.



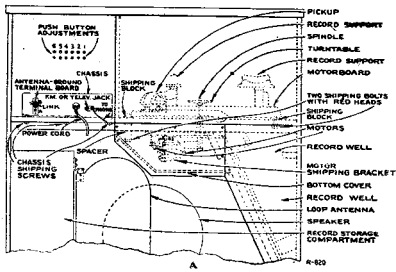
Critical Lead Dress

1. Push button, R.F. and oscillator leads should be separated as much as possible to reduce degeneration on push button reception.
2. R.F. choke in plate circuit of 6SG7 should be dressed towards the back apron.
3. Dress green push button lead under clamp and away from "C" band series capacitor.
4. Dress heater leads away from grids and diodes.
5. Dress phono. cables up and away from all wiring.
6. Dress all excess leads from transformer towards back towards transformer.
7. Keep output plate leads short and dressed close to chassis.
8. Dress green lead from 6SA7 screen to electrolytic down close to chassis.
9. Dress "C" band coil lead from oscillator coil to range switch down towards green lead.
10. Keep yellow loop lead clear of all wiring.
11. Dress ground bus of large electrolytic away from mounting lug.
12. Remove all excess slack from pilot light assembly and dress it close to chassis base away from volume control.
13. Dress oscillator grid capacitor (56 mmfd.) up and away from the screen and plate of 6SA7 socket.
14. A.C leads to "off-on" switch should be kept away from tone control cable to reduce hum.
15. Peaking coil should be dressed away from R-F grid resistor to reduce degeneration in R-F stage.
16. Dress oscillator push button lead in weld clamp on front apron away from 220 mmf. series condenser.
17. Keep all leads away from Phono.-FM jack to prevent audio oscillation and hum. Dress underneath the shield provided.

MODELS V-215, V-221, Ch. RC-564; V-219, Ch. RC-564A; V-225, Ch. RC-564B

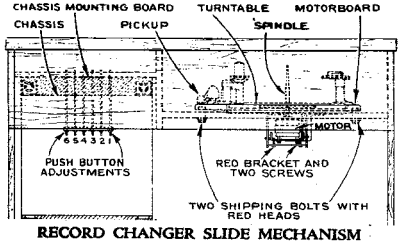
RCA MFG. CO., INC.

FOR PUSH-BUTTON DATA SEE MODEL V-210



Model V-225

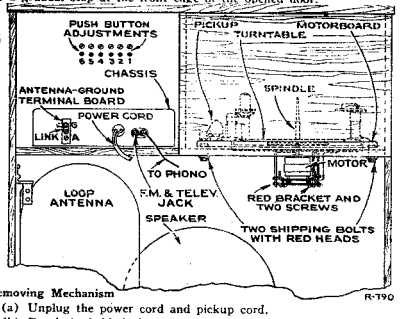
MODEL V-219



RECORD CHANGER SLIDE MECHANISM

(Models V-215, V-221)

An adjustment is located on each of the rear legs so that the angle of the cabinet may be adjusted to allow the record changer to slide out easily. Adjust so that the changer rolls out of the cabinet to a gradual stop at the front edge of the opened door.



Removing Mechanism

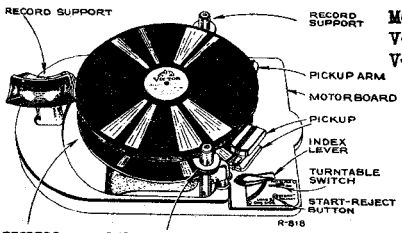
(a) Unplug the power cord and pickup cord.

(b) Reach in behind the motor board and lift up the two metal tabs which act as stops and prevent the record changer from sliding out.

(c) Loosen the cable clamp holding the two cables in place.

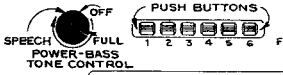
(d) Pull the record changer out of the instrument.

MODELS V-215 V-221



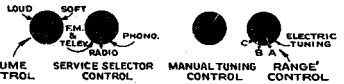
AUTOMATIC PHONOGRAPH RP-151 for V-225

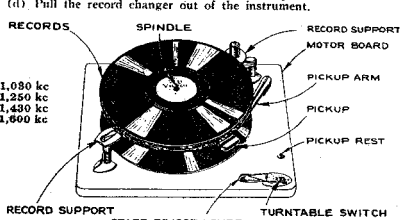
Type Pickups..... (2) Crystal
Record Capacity..... Fifteen 10-in or Twelve 12-in.
Power consumption turntable drive motor.. (14) watts
Power consumption cycle motor..... (38) watts



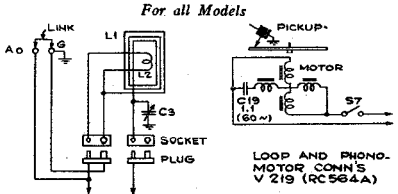
ELECTRIC TUNING

No. of Stations	
1	.. 540-1,080 kc
2	.. 610-1,250 kc
2	.. 740-1,430 kc
1	.. 880-1,600 kc

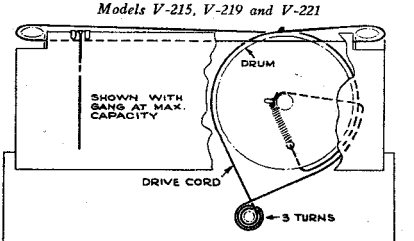




For all Models



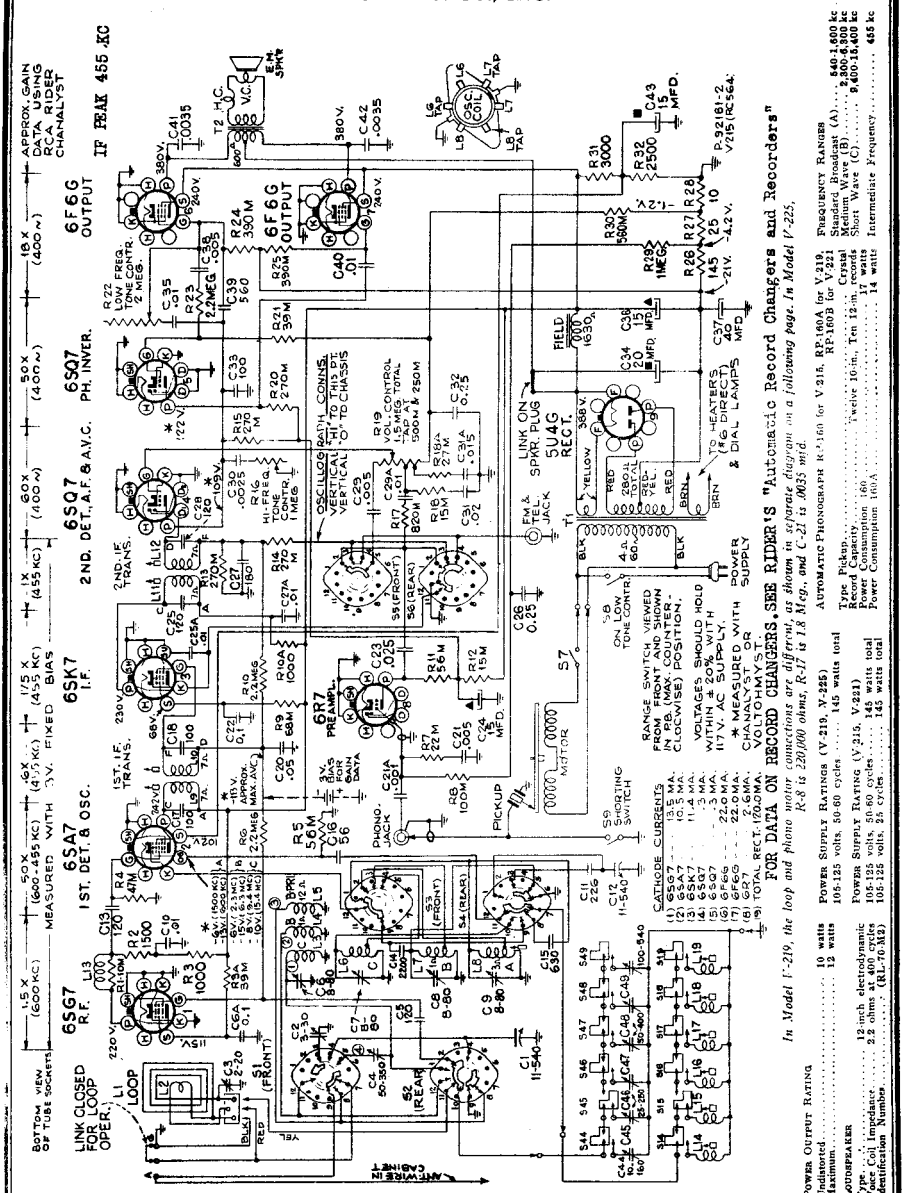
Models V-215, V-219 and V-221



External Antenna.—For best reception on "C" band with an external antenna, peak the trimmer on "C" antenna coil for maximum output on a station in the 31-meter band.

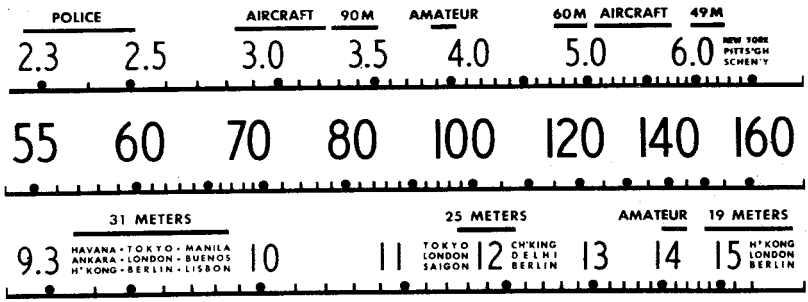
MODELS V-215, V-219, V-221, V-225

RCA MFG. CO., INC.



MODELS V-215, V-219, V-221, V-225

RCA MFG. CO., INC.



The dial scale drawing shown is a full size reproduction. It can be used as a direct substitute for regular dial scale in 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.

Electronic Voltmeter.—The electronic voltmeter in the Chanalyst or VoltOhmyst provides an unexcelled output indicator. It should be connected to the AVC bus, and the test-oscillator output adjusted to produce several volts of AVC.

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Using Tuning Dial.—

1. Remove the dial glass from the cabinet.
2. With gang at full mesh move the pointer to a point (1/16) inch to the left of the reference mark at the left hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in place.

Using Dial Scale Printed In This Service Note.—

Follow the procedure above, substituting the dial scale printed in this service note for the glass dial in the cabinet.

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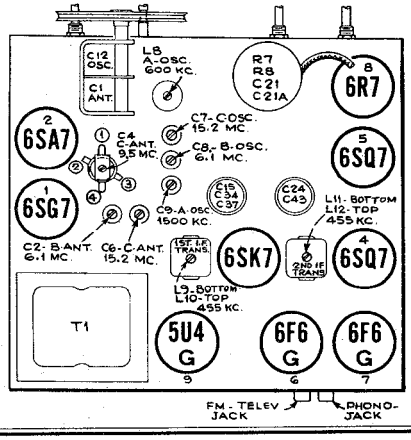
4		600 kc	"A" Band 600 kc	L8 (osc.)
5		Repeat steps 3 and 4		
6	Ant. terminal in series with 47 mmf. (link closed)	6.1 mc	"B" Band 6.1 mc	C8 (osc.)* C2 (ant.)
7		15.2 mc	"C" Band 15.2 mc	C7 (osc.)* C6 (ant.)
8		9.5 mc	"C" Band 9.5 mc	C4 (ant.)
9		Repeat steps 7 and 8		
10	Install and connect chassis in cabinet, with link closed. Tune in a radiated oscillator signal at 1,500 kc and peak the "A" band ant. trimmer C3 (on loop). Rock in L8 for peak output at 600 kc.			

* Use minimum capacity peak if two peaks can be obtained. Oscillator tracks 455 kc above signal on all bands.



Critical Lead Dress

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2. R.F. choke in plate circuit of 6SG7 should be dressed towards the back apron.
3. Dress green push button lead under clamp and away from "C" band series capacitor.
4. Dress heater leads away from grids and diodes.
5. Dress phono. cables up and away from all wiring.
6. Dress all excess leads from transformer towards back towards transformer.
7. Keep output plate leads short and dressed close to chassis.
8. Dress green lead from 6SA7 screen to electrolytic down close to chassis.
9. Dress "C" band coil lead from oscillator coil to range switch down towards green lead.
10. Keep yellow loop lead clear of all wiring.
11. Dress ground bus of large electrolytic away from mounting lug.
12. Remove all excess slack from pilot light assembly and dress it close to chassis base away from volume control.
13. Dress oscillator grid capacitor (56 mmfd.) up and away from the screen and plate of 6SA7 socket.
14. A-C leads to "off-on" switch should be kept away from tone control cable to reduce hum.
15. Peaking coil should be dressed away from R-F grid resistor to reduce degeneration in R-F stage.
16. Dress oscillator push button lead in weld clamp on front apron away from 220 mmf. series condenser.
17. Keep all leads away from Phono.-FM jack to prevent audio oscillation and hum. Dress underneath the shield provided.

RP-152, -A, -B, -C, -D, -J

Intermittent Start, Slow Speed, or Stalling:

These conditions may be caused by binding of idler wheel on its mounting stud. Smooth and clean the idler wheel bearing so that it can rotate freely.

RP-152, -152A

Tendency to Stall:

Some RP-152 and -152A automatic record changer mechanisms in Model VA-15, V-170, V-200, and V-201 use a motor identified by stamping number 91706-1. Slow speed and

Motor Stamped No. 91706-1 Used in Some RP-152, -152A Automatic Record Changers.

tendency to stall in this motor may be due to the motor bearings becoming misaligned with respect to the motor spindle.

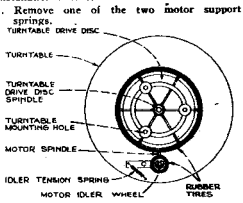
In most cases, the motor spindle may be freed by tapping the stator laminations while the motor is in operation.

For a permanent remedy it is advisable to install an idler wheel assembly to reduce side thrust on the motor bearings. The following parts are required:

Stock No.	Description	Unit List Price
1—36274	Idler wheel	.55
1—36275	Idler wheel arm	.25
2—33726	"C" washer for idler wheel	.02
1—30585	Spring for idler	.06

Installation Instructions:

1. Remove one of the two motor support springs.



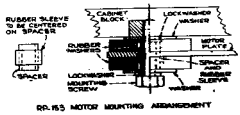
Arrangement of Idler Wheel Assembly to Improve RP-152, -152A Using Motor 91706-1.

2. Remove the turntable by removing the screw in the turntable spindle drive gear below the motorboard.
3. Mount the idler wheel by means of a "C" washer on the single end stud of the idler arm.
4. Install the idler assembly in place on the motor board as shown in accompanying sketch and fasten by means of the second "C" washer.
5. Connect the tension spring between the end of the idler arm and the motorboard pin (below motorboard).

RP-153 (V-301, V-302)

Motor Hum:

Excessive hum may be caused by incorrect assembly of the rubber grommets on the two bolts that fasten the motor-mounting plate to the cabinet. The correct assembly is shown in the sketch. The rubber sleeve must be centered on the metal spacer so that the motor plate can not come in metallic contact with the spacer.



RP-153 MOTOR MOUNTING ARRANGEMENT

Excessive Motor Hum will Result in RP-153 if the Rubber Sleeves are not Centered on the Metal Spacers.

RP-151

Pickup Arm Springs:

In the Replacement Parts List, Pickup and Arm Assemblies, in the RP-151 Automatic Record Changer service note, the following change and addition should be made:

Stock No.	Description	Unit List Price
38455	Spring—Coil spring (10) for upper pickup pressure adjustment (2 required)	.10
39695	Spring—Flat spring for pickup arm pivot tension	.10

RP-151, -152, -153, -154, -158, -160, -161, -162

Idler Wheel Fiber Washers:

In order to reduce idler wheel noise, the two metal washers have been replaced by two fiber washers in the Idler Wheel Assembly, Stock No. 36274, for the above record changers. The new fiber washers are Stock No. 39996.

RP-158, -160, -161, -162

Bakelite Alternate Replacement Parts:

The following shows a comparison of replacement part stock numbers for the above record changers when bakelite parts are used as alternates for regular die-castings:

Description	Stock No. Die-Cast	Stock No. Bakelite
Record Separator Assembly:		
Separator cap	38470	38470
Separator knife	38467	39768
Separator spring (upper)	38468	39769
Separator spring (bottom) (RP-158, -160, -161)	38621	39968
Separator shell and shaft (RP-158, -160, -161)	38652	39767
Separator shell and shaft (RP-162)	39035	39770
Main Cam	38641	39760
Record Support and Shaft (Left hand front post): (RP-158, -160, -161)	38645	39762
Record Support Cam: (RP-158, -160, -161)	38646*	39763†
Tone Arm Segment Cam: (RP-158, -160, -161)	38619*	39764†

*The die-cast cams 38646 and 38619 require a 10-32 set screw, stock number 32869, to fasten cam to shaft.

†The bakelite cams 39763 and 39764 require a drive pin, stock number 39765, to fasten cam to shaft. (A drive pin is included with 39763 and 39764).

RP-151, -158, -160, -162

Crystals and Sapphires:

RP	Stock No. of Sapphire and Holder, less nut—	Stock No. of Crystal and Sapphire Assembly—
151	38449	Top, 38453 (Alum. case) Bottom, 38598 (Alum. case)
158	39564	38610
160	38449	38453 (Alum. case) 39559 (Zinc case)
162	39564	38610

RP-158, RP-160

Eccentric Stop, No. 39569:

In Replacement Parts, add Stock No. 39569 eccentric stop for record separator support.

RP-158, -160, -162

Slow Speed:

In cases of slow speed, adjust the bottom bearing of turntable spindle to remove binding and to obtain free rotation. Refer to adjustment "B" in Service Data. Check by applying power to the turntable motor, allowing turntable to reach full speed, then pull motor away from turntable drive disc. The turntable should coast for at least twelve revolutions. (In RP-162, disengage motor from turntable by pulling idler away from turntable to observe coast.)

RP-160

Spring for use with Zinc Crystal:

On RP-160 with aluminum pickup arm, and aluminum-cased crystal, the spring that governs pickup pressure is No. 30585; with zinc pickup arm and aluminum-cased crystal, the spring is No. 39673. When installing a zinc-cased crystal in a zinc arm, cut 1½ turns off the spring, or install a No. 39754 spring.

RP-162

Pickup Pressure:

The Service Data for RP-162 incorrectly lists the Sapphire pressure as four ounces: The correct pressure is approximately two ounces.

V-170, V-200, V-201

Rumble:

Rumble is related to motor vibration, combined with high-gain amplifier, and prominent bass response.

The vibration of the motor in these instruments is as low as it can be made: Do not replace it to correct rumble. Rather, reduce the low-frequency response by shunting a 50,000-ohm ½-watt resistor across the crystal pickup terminals.

V-205-A

Using RP-153 Automatic Mechanism:

A limited number of V-205 instruments contain the RP-153 record changer. These are labeled V-905-A. Refer to Service Note on RP-153 for service data and replacement parts.

V-209, -210, -215, -219, -221, -225

Use of GT (Glass) Tubes:

When using the glass equivalent for metal tubes in the above models, the following changes must be made to prevent oscillation with the push-buttons in the "out" position:

6SA7GT glass tube in place of metal tube 6SA7:

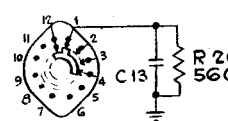
V-209—No changes required.

V-210—Add resistor R26, 560 ohms, ½ watt (RCA Stock No. 12414) in parallel with C13 capacitor, 2200 mmf., as shown in the accompanying sketch.

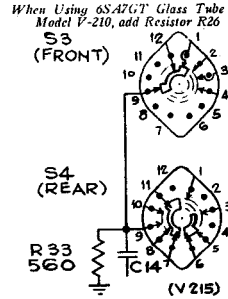
V-215, V-219, V-221, V-225—Add resistor R33, 560 ohms, ½ watt (RCA Stock No. 12414) from terminal 9 of switch S4 (Rear) to chassis ground as shown in the accompanying sketch.

6SK7GT glass tube in place of metal tube 6SK7:

A shield (RCA Stock No. 39074) and a grounding clip (RCA Stock No. 7073) are required for shielding purposes on all models above.



When Using 6SA7GT Glass Tube in Model V-210, add Resistor R26



When Using 6SA7GT Glass Tube in Models V-215, V-219, V-221, V-225, add Resistor R33