

RC195, RC196, RC197 RECORD CHANGERS

MODELS RC195, RC196,
RC197, RC210. RC211,
RC212

A very small quantity of record changers with model numbers RC195, RC196, RC197 were produced. These Record Changers are early production version of the RC210, RC211, and RC212 Record Changers. The only difference between them is that on the RC195, RC196, and RC197 Record Changers, no provision was made for automatically playing 7-inch records. (Centerpost is not removable and pickup arm does not have size selector knob.)

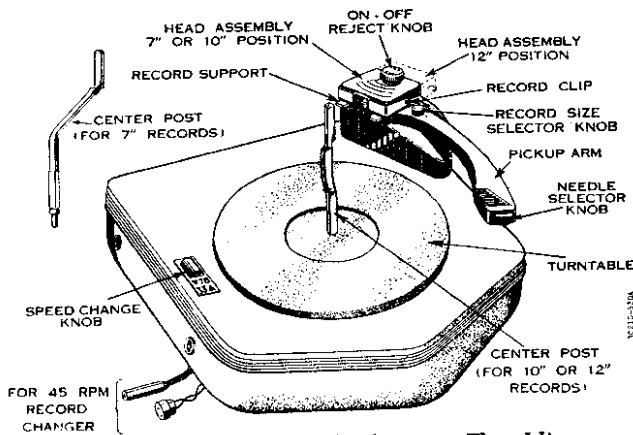
OPERATING INSTRUCTIONS

Figure 1. RC210 Record Changer, Top View.

This Admiral Record Changer will automatically play a series of ten 7-inch, twelve 10-inch, or ten 12-inch records of either the 78 RPM, or the new 33 RPM type. The records must be of one size and type for each loading.

Models RC210 and RC211 can also be used, in connection with the Admiral 45 RPM Record Changer, to play the new 7-inch, 45 RPM records. Two plugs have been provided to allow for connecting it to the Admiral 45 RPM Record Changer.

SETTING NEEDLE SELECTOR AND SPEED CHANGE KNOBS

Rotate the pickup arm cartridge, by turning the needle selector knob which extends out from the front of the pickup arm. The small arrow next to the "33" and "78" indicates the direction in which the knob must be rotated. When turning this knob to either the "78" or the "33" position, make certain that it is turned until it reaches its stop.

For playing 78 RPM records, move the speed change knob to the "78" position; for playing 33 RPM records, move it to the "33" position. When moving the speed change knob, make certain that it clicks or snaps into position.

Be certain that the needle selector knob and speed change knob are both set for "78", or are both set for "33"

SETTING FOR SIZE OF RECORD

SELECTING CENTERPOST: This record changer is designed to be used with either of two centerposts. The centerpost which has a curved portion in the center is the centerpost for 10-inch and 12-inch records. The second centerpost is bent approximately 45 degrees and is to be used for automatically playing 7-inch records.

To change centerposts it is only necessary to lift the centerpost from its socket. Place one hand on the turntable while pulling out the centerpost with the other hand.

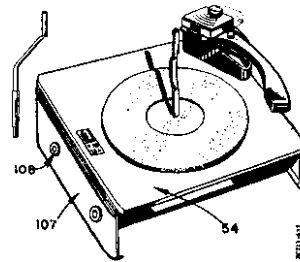


Figure 2. RC211 Record Changer

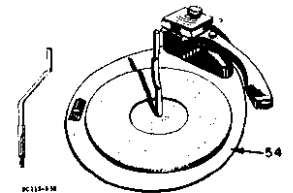


Figure 3. RC212 Record Changer

SETTING HEAD ASSEMBLY: In order to play 7-inch or 10-inch records, rotate the head assembly so that the embossed design is toward the centerpost. See figure 1. For 12-inch records, rotate the head assembly so that the embossed design is away from the centerpost.

SETTING RECORD SIZE SELECTOR KNOB: To play 7-inch records, turn the Record Size Selector knob to the left so that the figure "7" on the knob is adjacent to the dot on the pickup arm. To play 10-inch or 12-inch records, turn this knob to the right until the figures "10 12" are adjacent to the dot on the pickup arm.

STARTING THE RECORD CHANGER

Do not load 33 RPM records with the standard 78 RPM type. Also, the records must be of the same size (all 7-inch, all 10-inch, or all 12-inch) for each loading.

After setting the head assembly for the correct record size, move the record clip so that it is away from the centerpost before loading the changer.

Place your records over the centerpost so that they rest on its offset. The edge of the bottom record will be held up by the record support.

Move the record clip so that it rests on the top record.

Turn the On-Off Reject knob to the "ON" position.

Press down on the On-Off Reject knob momentarily to the "Reject" position. The bottom record will drop to the turntable and the Record Changer will play the entire stack of records automatically.

REJECTING A RECORD

If you wish to stop playing any record and start playing the next one, merely press down on the On-Off Reject knob momentarily.

STOPPING AND UNLOADING

This Record Changer cannot be turned off, by means of the On-Off Reject knob, during its change cycle. Therefore, after the last record, allow the mechanism to go through its change cycle and start playing over again.

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THE CHANGE CYCLE

DESCRIPTION OF CHANGE CYCLE

(See Figures 4 and 5)

If at all possible, we recommend that you carefully observe the operation of a changer that is in normal operating condition. It is a good idea to rotate the turntable by hand and repeat the changing cycle until you understand the function of each part. It is important to note that this changer employs the oscillating type trip, which depends upon the in and out movement of the pickup arm caused by the eccentric groove in the record.

The changer operates as follows: The changer mechanism is driven during its change cycle by the knurled hub of the turntable rotating the rubber-tired drive wheel (69). During normal playing, the drive wheel is held in a neutral position as illustrated in Fig. 4A, so that the indentation prevents the tire from contacting the knurled hub. The drive wheel (69) is held in this position by the trip stop wire (91A) and the cam stop stud (72A) on the control cam (72).

During the record play and as the needle enters the record eccentric groove, the pickup arm is moving in toward the centerpost. The pawl (103A) is moving across the trip serrations (94). When the eccentric groove in the record causes the pickup arm to move away from the centerpost, the pawl (103A) tends to reverse its direction but its sharp point catches in one of the trip serrations (94) and moves the trip lever (91). As the eccentric groove moves the pickup arm back in toward the centerpost, and then away from the centerpost again, the pawl (103A), again locks in one of the trip serrations, moves the trip lever (91) far enough so that the trip stop wire (91A) is no longer engaged with the cam stop stud (72A). This oscillating trip action is dependent upon the adjustment of the trip set screw (95). If it is adjusted properly, the pickup arm will move away from the centerpost, toward the centerpost, and as it comes away the second time the changer will trip and start its change cycle. (See paragraph under heading "Trip Adjustment.") The position of drive wheel (69) at this moment is shown in Figure 4B.

This allows the cycle spring (92) to pull the control cam clockwise (bottom view). Since the control cam (72) and the drive wheel (69) are on the same shaft, the drive wheel is turned so its rubber tire is against the knurled hub of the turntable (see Figure 4B). The turntable now rotates the drive wheel (69) which simultaneously rotates the control cam (72). As soon as changer has been tripped, the trip cocking spring (90) causes the trip lever (91) to return the trip stop wire (91A) to the normal playing position.

Roller (85) riding on the control cam (72) moves the pivot link (84) which in turn rotates the control plate (83). The rotation of the control plate (83) causes its inclined tab (83A) to ride against the lift rod (28) which lifts the pickup arm from the record. The arm control lever roller and stud (103B) then engages the safety arm (100). Further rotation of the control cam (72) moves the pivot link (84) causing further rotation of the control plate (83) causing the pickup arm to move to the right, clearing the record. This much has taken place in approximately one-third of the total rotation of the control cam.

As the control cam rotates further, its push-off stud (72B) engages with the end of the slot in the pushoff

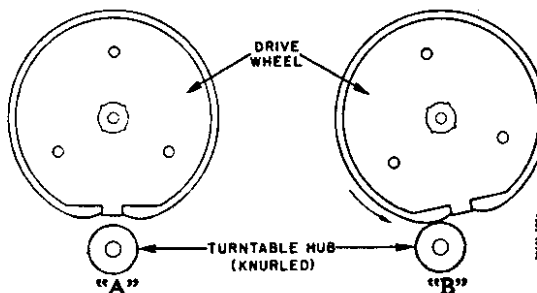


Figure 4. Drive Wheel Positions.

link assembly (76), moving it. This movement is transmitted through the push-off arm (76A) and as a result, the push-off shaft (10) is rotated. This rotates the push-off cam (10A) which in turn slides the push-off plate (11) forward and drops the next record to be played. Note that the record stack rests on the record support shelf (12). The small slide at the top end of the centerpost holds back all records other than the bottom one when the push-off plate (11) moves forward.

As the control cam continues its rotation, the pivot link (84) moves back following the cam, since the roller (85) is kept in contact with the cam by the control plate spring (87). This moves the control plate (83) back, the arm control lever (103) moves the pickup arm to the set-down point for the record to be played. The pickup arm is held above the record because the lift rod (28) is still resting at the top of the inclined tab (83A) on the control plate (83). The set-down point is governed by the set-down adjusting screw (21). (See figure 6.) The shoulder on the set-down arm (104A) holds the pickup arm at the set-down point until it is pushed back by the edge of the control plate engaging the set-down arm stud (104B). The pickup arm is then free and moves down toward the record starting groove.

When the record changer is set to play 7-inch or 10-inch records, the set-down arm (104A) through the tension of the set-down spring (106) moves the arm in toward the centerpost until the return roller and stud (103C) reaches the shoulder of the set-down arm (104A). The pickup arm is held in this position until the control plate (83) engages the set-down arm stud (104B), pushing the set-down arm back, releasing or freeing the pickup arm.

When the changer is set for 12-inch records the size change eccentric (82) moves the set-down and size change assembly (104) so that the arm return roller and stud (103C) does not travel as great a distance along the set-down arm (104A) before it reaches the shoulder. Therefore the pickup arm cannot move in toward the centerpost as far as for 7-inch or 10-inch records, during change cycle.

When the On-Off Reject knob (1) is pressed down, the push-off cam and shaft (10) moves the reject arm (97) down. This movement causes the trip lever (91) to move which prevents the trip stop wire (91A) from engaging the cam stop stud (72A). The change cycle then proceeds in the manner described above.

The change cycle is exactly the same for either speed (33 RPM or 78 RPM) except for the fact that the change cycle time is proportional to the turntable speed (33 RPM or 78 RPM).

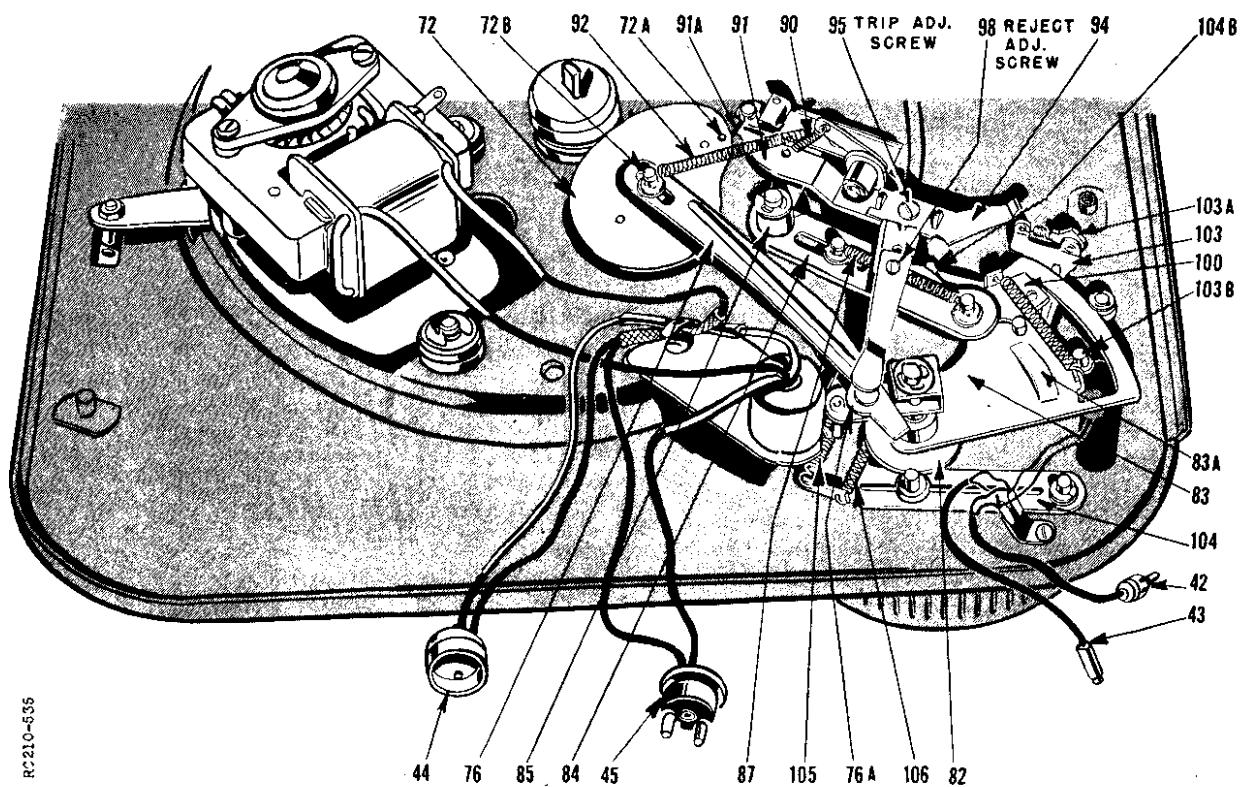
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Figure 5. Bottom View Assembled.

Playing 7-inch records automatically is accomplished by removing the centerpost for 10-inch or 12-inch records and inserting the centerpost for 7-inch records. Rotation of the record size selector knob (17) to the position for 7-inch records, rotates the set-down eccentric (23). The set-down eccentric rotates or moves the set-down plate, part of pivot and mounting plate (24),

and the pivot spring and hub (29). This in turn moves the arm control lever, studs, and pawl (103) so the pawl (103A) is closer to the lip of the trip serrations (94). This results in moving the end of the pick-up arm closer to the centerpost, by the distance needed for proper set-down on 7-inch records.

ADJUSTMENTS

ADJUSTMENT OF SET-DOWN POINT

Adjustment of the set-down point, for either 7-inch, 10-inch, or 12-inch records, is made by adjustment of the set-down adjusting screw (21), see Figure 6. Screw (21) is accessible through hole in right side of pickup arm. This adjustment must be made with the record size selector knob (17) in the "10.12" position. When turning this knob be sure to turn it all the way (the dot between "10.12" should line up with the indicating dot on the pickup arm) to avoid making the set-down adjustment at the wrong point, resulting in improper set-down on 7-inch records. Turning the set-down adjusting screw (21) in, moves the set-down point of the pickup arm closer to the centerpost and turning the screw out moves it away from the centerpost.

Make the set-down point adjustment as follows:

1. Set record size selector knob (17) to the "10.12" position; be sure the knob is turned all the way to its stop (the dot between "10.12" should line up with dot on pickup arm).
2. Set needle selector knob to either position being certain that the knob is turned to its stop so the needle projects straight down.
3. Set the head assembly to the position for playing 7-inch or 10-inch records.

4. Press down on the On-Off Reject knob (1) momentarily. Rotate the turntable by hand through the change cycle until the pickup arm moves down toward the turntable.
5. Check the distance between the needle point and the near side of the centerpost. For proper set-down on 10-inch records, the distance between needle and centerpost should be between $4\frac{1}{8}$ " and $4\frac{11}{16}$ ".
6. Adjust set-down screw (21) and repeat steps 4 and 5 until the proper distance is obtained. If this adjustment is made carefully, the set-down point for 7-inch records and 12-inch records will be automatically correct.
7. Check 12-inch set-down as follows: Set the head assembly to the position for 12-inch records, press On-Off Reject knob momentarily, rotate turntable by hand through the change cycle and check the 12-inch set-down point. The proper distance between the needle point and the near side of the centerpost is between $5\frac{5}{8}$ " and $5\frac{11}{16}$ ".
8. Check 7-inch set-down as follows: Set the head assembly to the position for 7-inch and 10-inch records, set the record size selector knob (17) so the dot under the "7" lines up with the locating dot on the pickup arm. (NOTE: In some early production sets, it may be necessary to set the

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record size selector knob (17) so that the dots are slightly out of line.) Press the On-Off Reject knob momentarily, rotate the turntable by hand through the change cycle and check the 7-inch set-down point. The proper distance between needle point and the near side of the centerpost is between 3-3/16" and 3 1/4".

- If step 7 or step 8 indicates improper set-down on 7-inch records or 12-inch records, make a compromise adjustment for 10-inch record set-down as outlined in steps 3, 4, 5 and 6.

ADJUSTING THE PICKUP ARM HEIGHT (See Figure 6)

This record changer is designed so that when the needle point rests 1/4" above the changer pan, the pickup arm will automatically lift high enough, during change cycle, to clear the top record of a stack of ten 7-inch, twelve 10-inch, or ten 12-inch records on the turntable. With proper pickup arm height setting, the pickup arm will not lift high enough to strike the bottom record of the stack to be played.

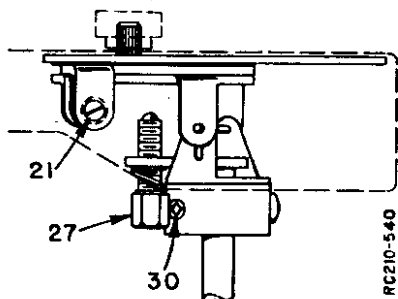


Figure 6. Arm Detail Showing Adjustments.

With the record changer out of change cycle and the pickup arm clear of the turntable, adjust the lift adjusting screw (27) so that the needle rests approximately 1/4" above the top of the changer pan. Turning screw (27) in raises the pickup arm; turning it out lowers the arm.

After this adjustment has been made, the record changer should be run through its change cycle a few times to make certain that the pickup arm does not touch the bottom record of the stack to be played. If, for some reason, the arm lifts too high, a compromise adjustment should be made. That is, turn the screw out and lower the pickup arm slightly.

REJECT AND TRIP ADJUSTMENTS

Before making either reject or trip adjustments it is very important to make certain that the reject spring (2) is holding the push-off shaft (10) up, as far as it will go. If this precaution is not observed, erratic reject and trip action may result.

Possible causes of the spring not holding the push-off shaft up are:

- The On-Off Reject knob (1) may be loose.
- The reject spring (2) may be broken, missing, slipped down between washer (3) and push-off shaft (10), or has lost its tension.
- Push-off shaft (10) binding.

REJECT ADJUSTMENT

- Be sure to read the paragraph under "Reject and Trip Adjustments".
- Adjust the reject link adjusting screw (98) until

there is approximately 1/32 of an inch space between the end of the reject arm (97) and the rivet on the push-off arm and link assembly (76). NOTE: If there is no space between these two parts, it will be possible for the changer to begin its change cycle when the on-off reject knob is turned to the "OFF" position. If there is too much space, the changer may reject erratically.

- Operate the Record Changer, press the On-Off Reject knob momentarily and check reject action.

TRIP ADJUSTMENT

Since this Record Changer uses the oscillating trip principle to begin its change cycle, it is very important that the trip adjusting screw (95) is properly adjusted. See Figures 5 and 7.

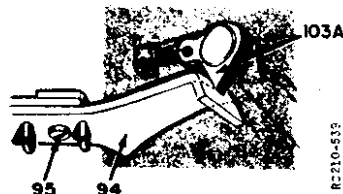


Figure 7. Positioning Trip Serrations.

The trip adjusting screw (95) is properly adjusted when the record changer trips into change cycle after the eccentric groove in the record has caused the pickup arm to move away from the centerpost once or twice, that is, one or two backswings of the pickup arm, before the changer trips into change cycle. Since some eccentric grooves cause greater movement of the pickup arm than others, the changer might trip into change cycle with only one backswing on some records and with two backswings on others.

The ideal adjustment of screw (95) for best operation is when the point of the pawl (103A) is horizontally even or level with the smooth side of the trip serrations (94). NOTE: The point of the pawl will be approximately 3/32 of an inch from the bottom edge of the lip on the trip serrations. See Figure 7.

Adjust the trip adjusting screw (95) as follows:

- Be sure to read the paragraph under "Reject and Trip Adjustments".
- Connect record changer motor to power source and turn the On-Off Reject knob on and off as needed to check this adjustment.
- Adjust trip adjusting screw (95) until the point of the pawl (103A) is horizontally even or level with the smooth side of the trip serrations (94), or until the point of the pawl is 3/32 of an inch from the bottom edge of the lip on the trip serrations. See Figure 7.
- If the top of the trip stop wire (91A) is not level with the top of the main cam stop stud (72A) as shown in Figure 8, check to see if the trip stop wire is bent slightly. If it is, bend the wire until it is even (level) with the top of the stud.
- Place a record on the turntable and check to make certain that the changer trips into change cycle with one or two backswings of the arm.

IMPORTANT

The eccentric groove of a record should be used when checking the trip adjustment. Do not lift the pickup arm and move it in and out by hand.

If the trip adjusting screw (95) is turned out too

far, it will take more than two backswings of the pickup arm to trip the changer into change cycle. If the screw (95) is almost all the way out, the changer will not trip. If the screw is turned too far in, there will be excessive drag and wear on the trip serrations, pawl point and on record eccentric grooves. Consequently, the trip adjustment should be made very carefully.

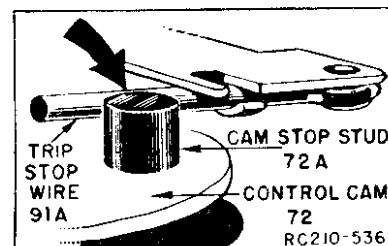


Figure 8. Positioning Trip Stop Wire.

SERVICE AND REPAIR

CAUTIONS

1. See that the rubber tires on both the drive wheel and the idler wheel are kept clean and free from oil, grease, dirt or any foreign material. Carbona or carbon tetrachloride may be used for cleaning these parts.
2. The drive wheel assembly (69) appears to be almost identical with that used on the model RC170 and RC170A record changers. These parts are not interchangeable.
3. When replacing the rubber tire (68) do not bend the tab on the drive wheel over too far as this may result in the tire catching or rubbing on the drive wheel pressure spring (71).
4. If the On-Off Reject knob (1) cannot be pulled off with the fingers, pry very carefully. The head cover (7) is plastic and if the On-Off Reject knob is pried off, excessive force should not be used.
5. When removing or replacing the pawl spring (102) care should be taken not to stretch it.
6. When removing or replacing the pickup arm (18), always loosen the Allen set screw (30) and lift off the complete assembly. The pivot spring, hub and pin assembly (29) can be removed from the pivot plate assembly (24) and replaced much more readily with the complete pickup arm assembly off of the changer.
7. When replacing the switch mounting bracket (79) or the trip bracket (89) be sure to locate the half punches in the holes in the pan before tightening their mounting screws (80).
8. When replacing the on-off switch assembly (81) care should be used in bending the tab fasteners so that the switch is mounted firmly to the bracket.
9. When replacing or reinstalling the record size selector knob (17), turn the set-down eccentric (23) to the position for 10" and 12" set-down. Then install the knob (17) so that the dot between "10.12" lines up with the locating dot on the pickup arm.

CARTRIDGE AND NEEDLES

The cartridge (34) used in these record changers is especially designed and there are a few things which should be observed when replacing the cartridge (34), needles (36 and 37), or pickup arm cable (40).

When replacing either needle make certain that the correct needle is inserted in the proper "side" of the cartridge. The needle (36) for 33 RPM records is an osmium tipped needle especially designed for playing 33 RPM records. The radius of the point of the 33 RPM needle is only 1/3 of the radius of the point of a standard (78 RPM) needle. If this sharp needle is used on

standard 78 RPM records, it has a tendency to "wobble" in the record groove and would possibly damage the standard record groove. A needle for 78 RPM records may possibly damage 33 RPM "microgroove" records because of its tendency to "skate" across a microgroove record. Consequently, care should be taken when replacing needles.

The needle (36) for 33 RPM records is painted red to identify it. The needle guard on the 33 RPM "side" of the cartridge has red color dots to distinguish it from the 78 RPM "side" of the cartridge. The red (33 RPM) needle (36) should be inserted in the side of the cartridge which has the red color dots.

When replacing the cartridge (34) care must be taken when placing the pickup arm cable pinjacks on the cartridge. There must be sufficient slack in the cable to allow the cartridge to rotate. It is also important that the short length of plastic tubing be kept over one terminal.

TWO SPEED MOTOR (67)

The turntable speed of these Record Changers is changed mechanically. When the speed change knob (58) is moved to the "33" position, the speed change arm (56) moves. This causes the 33 RPM drive shaft to pivot and ride against the idler wheel (60). When the speed change knob is moved to the 78 RPM position, the speed change arm causes the 33 RPM drive shaft to pivot away from the idler wheel (60). When the speed change knob (58) is moved, make certain that it "clicks" or "snaps" into position.

Note that the 33 RPM drive shaft is driven by the 78 RPM drive shaft by means of a rubber belt (63). This belt should be clean and free from oil. If the belt is greasy or stretched, it might possibly slip which would cause the turntable speed to vary, resulting in unsatisfactory operation.

When replacing the speed change knob (58), make certain that the shaft in the knob does not touch the sides or ends of the cut-out in the pan. The speed change arm (56) must be installed properly (its half-punches keep the proper angle). If it is not installed correctly, the speed change knob shaft may rub against the edge of the opening in the pan causing rumble and noise pickup. Also, the clearance between the bottom of the speed change knob and the top of the pan should not be less than 1/64 of an inch or more than 3/64 of an inch.

REMOVING THE PLASTIC BASE HOUSING (14)

Should it be necessary to remove the plastic base housing, proceed as follows:

1. Remove retaining rings (86 and 88).
2. Release one end of the index spring (105).

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3. Lift the entire head assembly up from the top of the changer.
4. Loosen Allen set screw (30) and lift complete pickup arm assembly off.
5. Remove retaining ring (31) and washer (32).
6. Remove three screws (16) holding base.
7. Lift off the plastic base housing (14).
8. When reassembly has been completed, the pickup arm height should be carefully checked and adjusted, if necessary, by means of the lift adjusting screw (27). The set-down should also be checked and adjusted, if necessary, as outlined under "Adjustment Of Set-Down Point".

REMOVING TURNTABLE (8) AND BEARING ASSEMBLY (49)

To remove the turntable it is only necessary to grasp the turntable by its edges and lift up. Before replacing the turntable, make sure that the recessed part of the drive wheel (69) is towards the centerpost. If necessary, turn drive wheel counterclockwise about a turn so it locks in this position. The pickup arm should be positioned away from the turntable. In replacing the turntable, force is not needed to seat it. Make certain, however, that the idler wheel of the motor has been pushed in towards the centerpost and that the idler wheel is making contact with the inner side of the turntable flange.

The dimensions of the two speed motor are such that three cork washers (47) are used under the turntable hub to keep the turntable from rubbing against the idler wheel drive shafts.

In some cases it may be found that the three cork washers, after considerable use, are compressed so the turntable will rub. To build the stack up, an additional thin cork washer should be used. This fourth cork washer may be placed at the top or bottom of the stack.

The washers (47 and 48) and thrust bearing assembly (49) are removed by sliding them off of the centerpost. In replacing, have them in the order shown in Figure 9.

REMOVING BOTTOM COVER (107)

For Model RC210 only. To remove the bottom cover (107) from the record changer, remove the two rear screws (50) through the bottom. Then press on the front edge of the bottom cover; this frees the changer from the slotted mounting brackets at the front of the bottom cover. To replace bottom cover, reverse above operations.

The changer must float on the springs (51) to prevent microphonic feedback, thus these springs must be re-installed properly. The wider end fits around and hugs the extrusion in the mounting brackets in the bottom cover. The narrow end of the spring fits over the threaded bushing on the changer pan (54). To assure "free floating" of the changer, spacer washers (52) are used under the narrow portion of springs (51).

For Model RC211 only. To remove the bottom cover on this model (RC211), remove the three mounting screws (50), from the top of the changer pan. Then merely lift the changer pan off of the bottom cover (107) being careful to see that lead-in cables and motor leads are disconnected.

When reinstalling the changer pan on the bottom cover be certain the float springs (51) are properly installed. Insert the mounting screws (50). **IMPORT-**

ANT: These screws must be installed so they travel freely through the extruded holes in the changer pan. If the screws touch the edges of the holes in the pan, a scraping sound will occur when records drop to the turntable and microphonics might also result.

LUBRICATION

Under normal operating conditions, the motor should never require oiling. The rest of the changer, however, should be lubricated with grease whenever it comes into the shop for repairs or adjustment. All pivot and friction points should be greased adequately but not excessively. A good automobile chassis grease may be used for this purpose.

The push-off shaft (10), powdered iron roller (85), oilite bearings, (used in the turntable hub and base housing), may be lubricated with SAE No. 20 motor oil.

Care should be taken to prevent any of the lubricant from coming into contact with the drive or idler wheel tires. Also be careful, when using oil, that an excess does not seep into the felt of the turntable.

RECORD CHANGER TROUBLE SHOOTING

1. Records Do Not Drop To Turntable Or More Than One Record Drops.

- (a) Check the distance between the inside edge of the centerpost (9) and the edge of the record support (12). This distance should be $4.61/64'' \pm 1/32''$, in the 10-inch position.

With the centerpost for 7-inch records in place and the head assembly in the 10-inch position, the distance between the inside edge of the centerpost and the edge of the record support should be $3\frac{1}{2}'' \pm 1/32''$. These dimensions are critical and if distance does not meet specifications, bend the centerpost slightly toward or away from the head assembly as needed.

2. Changer Repeatedly Trips Into Change Cycle.

- (a) Check for broken trip cocking spring (90), or
- (b) Check for broken reject spring (2), or
- (c) Check for On-Off Reject knob (1) loose, or
- (d) Check for misadjustment of reject adjusting screw (98), or trip adjusting screw (95).

3. Changer Will Not Trip.

- (a) Check for broken or loose cycle spring (92),
- (b) Check On-Off switch cover (81). If cover is not assembled to switch properly it may bind push-off link and arm (76) preventing cycle spring (92) from pulling the main cam (72) around, or
- (c) Check for misadjustment of the trip adjusting screw (95), or
- (d) Check for bent trip stop wire (91A), or
- (e) Check for broken pawl spring (102).

4. Changer Will Not Reject.

- (a) Check adjustment of reject screw (98).

5. Cannot Get Proper Set Down.

- (a) Check set-down spring (106), or
- (b) Check for broken or loose set-down adjusting spring (22), or
- (c) Check for loose pickup arm counter weight screws (20) resulting in erratic set-down. (These screws hold pivot and mounting plate (24) in position).

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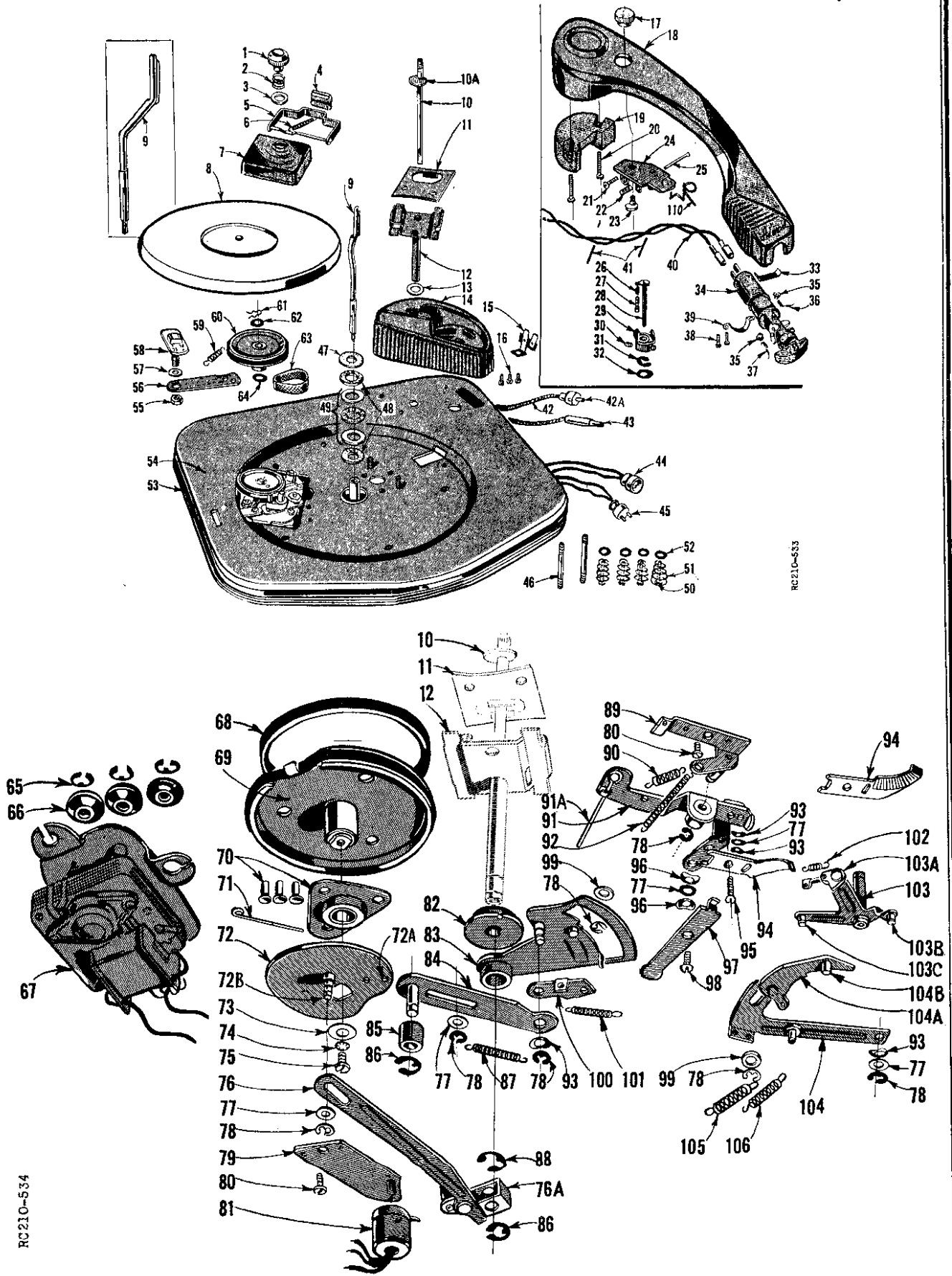


Figure 9. RC210 Record Changer, Exploded.

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PARTS LIST

Ref. No.	Part Number	Description	Ref. No.	Part Number	Description
1	403A27	On-Off Reject Knob	55	2A1-20-47	Hex Nut #10-32
2	405A97	Reject Spring	56	{401A242 401A269	Speed Change Arm (for RC210, RC211) Speed Change Arm (for RC212 only)
3	481-166-47	Washer (Flat) .390x5/8x1/16	57	481-68-47	Washer
4	406A18	Rubber Bumper for Record Clip	58	403A33	Speed Change Knob
5	403A32	Record Clip (Plastic)	59	405A107	Idler Wheel Spring
6	405A94	Record Clip Spring	60	G400A279	Idler Wheel Assembly
7	403A31	Head Cover (Plastic)	61	405A15	Hairpin Clip
8	G400B167	Turntable	62	412A30	Washer (under Hairpin Clip)
9	{G400B311 G400B310	Centerpost Assy. (for 10" & 12" Records) Centerpost Assy. (for 7" Records)	63	406A20	Drive Belt
10	G400A248	Push-Off Cam and Shaft Assembly	64	98A54-4	Fibre Washer (under Idler Wheel)
10A		Push-Off Cam (Part of 10)	65	401A229	Retaining Ring
11	401A166	Push-Off Plate	66	406A21	Rubber Mounting Grommet (3 req.)
12	G400A249	Support Tube and Shelf Assembly	67	407B15	2 Speed Motor
13	481-166-47	Washer (Flat) .390x5/8x1/16		405A113	50 Cycle Conversion Spring (for 78 RPM Drive Shaft)
14	403C28	Base Housing		405A112	50 Cycle Conversion Spring (for 33 RPM Drive Shaft)
15	10B1-6	Terminal Strip	68	406A13	Drive Wheel Tire Only
16	402A148	Screw, Base Housing Mounting	69	G400A252	Drive Wheel (includes Tire)
17	403A37	Record Size Selector Knob	70	404A18-1	Drive Wheel Support Assembly (includes Rivets)
18	403C35	Pickup Arm	71	414A23	Drive Wheel Pressure Spring
19	404A23	Pickup Arm Counterweight	72	G400A227	Control Cam Assembly
20	1A50-6-47	Screw, #4 FH S.T. (2 req.)	72A		Cam Stop Stud (Part of 72)
21	45-500-C2-47	Set-Down Adjusting Screw 4-40x1/2 BH MS	72B		Push-Off Link Stud (Part of 72)
22	405A118	Set-Down Adjusting Spring	73	401A145	Control Cam Washer
23	402A173	Set-Down Eccentric	74	3B1-26-47	Lockwasher, #8 I.T.
24	G400A297	Pivot and Mounting Plate	75	85-375-C2-39	Control Cam Screw 8-32x3/8 BH MS
25	414A31	Pivot Shaft	76	G400A219	Push-Off Arm and Link Assembly
26	405A120	Lift Adjusting Lock Spring	77	481-68-47	Washer
27	402A156	Lift Adjusting Screw	78	401A177	Retaining Ring
28	G400A238	Lift Plate and Rod Assembly	79	401A223	Switch Bracket
29	G400A294	Pivot Spring & Hub (includes 8-32 Set Screw)	80	1A53-9-47	Screw, Switch Bracket Mounting
30	1A43-14	Allen Set Screw 8-32	81	408A1	On-Off Switch and Cover
31	401A235	Retaining Ring	82	404A17	Size Change Eccentric
32	412A32	Washer	83	G400A226	Control Plate, Hub and Stud Assembly
33	405A111	Cartridge Indexing Spring	84	G400A224	Pivot Link and Stud
34	98A54-1	Cartridge, includes Needle Screws (less Needles)	85	415A9	Powdered Iron Roller
35	98A54-2	Needle Screw (Knurled)	86	401A229	Retaining Ring
36	98A15-6	33 RPM Needle (Painted Red)	87	405A91	Control Plate Assembly
37	98A15-7	78 RPM Needle	88	401A230	Retaining Ring
38	402A139	Plasticscrew, #2 (2 req.)	89	G400A228	Trip Bracket and Stud Assembly
39	401A264	Cartridge Hold-Down Bracket	90	405A88	Trip Cocking Spring
40	G400A307	Pickup Arm Cable and Lugs	91	G400A230-1	Reject Arm Support and Trip Lever
41	{414A30 414A34	Wire Clip, approx. 1/2" long (2 required) Wire Clip, approx. 3/4" long (1 required)	91A		Trip Stop Wire (Part of 91)
42	{413A11-1 413A11-2	Shielded Lead-in Cable & Plug (15") for RC211, RC212 Shielded Lead-in Cable & Plug (30") for RC210 only	92	405A87	Cycle Spring
42A	88A2-3	Plug (for lead-in cable)	93	405A22	Spring Washer
43	89A5-27	Shielded Cable & Socket (RC210, RC211 only) for 45 RPM Record Changer	94	401A271	Trip Serrations
44	413A12	Motor Socket & Leads (RC210, RC211 only) for 45 RPM Record Changer	95	65-500-C2-47	Trip Adjusting Screw
45	88A8-1	Motor Plug (Male)	96	405A98	Spring Washer
46	1A80-5	Stud Bolt (for RC210 only)	97	401A237	Reject Arm
47	412A9	Cork Washer 3/64" thick (1 req.)	98	65-500-C2-47	Screw, Reject Adjusting 6-32x3/8"
48	412A1	Cork Washer 3/32" thick (2 req.)	99	401A173	Washer
49	415A11	Thrust Bearing	100	401A202	Safety Arm
50	G400A197	Mtg. Screw & Washer Assembly for RC210, RC212 (4 req.)	101	405A90	Safety Spring
51	{402A154 19A10-3	Float (Mounting) Screw for RC211 only (3 req.) Conical Mounting Spring (for RC210, RC211, RC212)	102	405A89	Pawl Spring
52	481-72-21	Fibre Mounting Washer for RC210 only (4 req.)	103	G400A233	Arm Control Lever, Studs and Pawl
53	{403A24 403A38	Plastic Trim (for RC210) Plastic Trim for RC211 (2 req.)	104	G400A222	Set-Down and Size Change Assembly
54	{G400D303 G400D291 G400D306-1 G400D306-2	Changer Pan Assembly (RC212) Changer Pan Assembly (RC210) Changer Pan Assembly, (RC211) Copper Changer Pan Assembly, (RC211) Black	105	405A92	Index Spring
			106	405A93	Set-Down Spring
			107	{G400D260 G400D287-2 G400D288-1	Bottom Cover (RC210) Bottom Cover, Painted Black (RC211) Bottom Cover, Painted Copper (RC211)
			108	27A24	Bushing in Bottom Cover for RC210, RC211
			109	405A99	Spring Washer for Bushing (RC210, RC211)
			110	414A33	Size Change Tension Spring