

JOHN F. RIDER



as the receiver loop. With the gaug condenser set at minimum capacity, set the test oscillator at 1620 KC, and adjust the oscillator (or 1620 KC trimmer) on gang condenser. Next—set the fest oscillator at 1400 KC, and tune in the signal on the gang condenser. Adjust the antenna trimmer (or 1400 KC trimmer) for maximum signal. Next set the test oscillator at 600 KC, and tune in signal on condenser to check alignment of coils.

ments should be made with the volume control on maximum and the test oscillator output as low as possible to prevent the AVC from operating and giving false readings.

CORRECT ALIGNMENT PROCE-DURE. The intermediate frequency LOOP ALIGNMENT. Connect the test (I.F.) stages should be aligned pro-perly as the first step. After the I.F., transformers have been properly ad-justed and peaked, the oscillator and loop should be adjusted.

should be connected to the ground buss, indicated on the circuit diagram. Align all four I.F. trimmers to peak or maximum reading on the output meter. Each I.F. has two adjustments at the top of the can.

oscillator to a dummy loop which can be made by coiling 2 turns of hookup wire about 6" in diameter. Place this dummy loop about a foot from the loop on the receiver and in the same plane

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MODEL 40-1500

ALDEN, INC.



When using D.C. power supply, and after allowing sufficient time for tubes to warm up, if the receiver does not operate, remove the line cord plug from the socket and reverse. Replace the plug in the reverse position and allow tubes to warm up, at which time the receiver will operate

When using A.C. power supply, it will be found that there will be less hum when the line cord plug is in the best position. Try both positions, leaving the plug in the position that produces the least hum.

For the reception of local stations no antenna is necessary, the built-in loop providing sufficient volume. If it is desired to listen to more distant stations, an antenna 50 to 100 feet long should be connected to the flexible lead protruding from rear of the cabinet. Do not use a ground with this receiver.

If the receiver fails to operate, remove the back plate to see that all tubes are pushed down in their respective sockets as illustrated in the tube layout diagram below. Always disconnect line cord plug before making any adjustments inside of cabinet.

Sometimes, when operating this receiver in buildings having steel in their construction, it will be necessary to use an external antenna to provide sufficient volume for satisfactory operation.

TUBE LAYOUT





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REMLER CO. LTD.

MISC PAGE 16-9





INCOMINATION RECEPTION OF LOCAL STATIONS IN THE MAJORITY OF LOC BECENTION OF LOCAL STATIONS IN THE RAJUNITY OF LOC-ATORS WILL BE BETTRELY ANTIGACTION UNT THE BULLT-IN BUTENDAL BHERE BEGATER DISTONCE IS REQUIRED OF WHENE BECLIVING COMENTIONS ARE UNT BATTONCTORY ON THE BUILT-IN AUTENIA, AN OUTSIDE AND THAT TORACTIONY OF THE BUILT-ING THE AUTENDAL AND OUTSIDE ANTIONNA AND REDUES. THIS OUTSIDE AUTENMA BUDELS DE FROM 50 TO 100 FEET (IN LEMETA AND-MUDULS Automas annous a proviso to the fest in Leaft and-should a Be commetted to The tennisola, handle D'Ar, buich is held ec of The back dower. This antenna should be not in all strained a line as possible and be reft clean of nime and other the adjust a dood damage connection to a baten pipe is conserved to a dood damage the context the downo back dowers a consected to that tennisola, mak-RED "4", which is also inside of the back cover. The back cover have to take off off and covers. The back covers have been removed.

CONTROL ON THE LEFT SIDE OF THE CADINET IS THE

VOLUME CONTROL AND SH-OFF SHITCH WHEN IN THE EXTENSE LEFT POSITION. THE RIGHT NAME CONTROL IS THE STATION DELECTOR.

COMPACT IN THE SITE CORE COMMECTER, TUNE THE VOLUME COM-THEL ADDUT ONE-QUARTER TUNE TO THE RIGHT AND ALLOW ONE-MALF MINUTE FOR THE TUNES TO PROPERLY HEAT. SALECT THE BERIEDS STATION WITH THE TUNING CONTROL. FOR THE GREAT DEVELOPMENT OF THE ANTON SALECTOR WHET BE ADJUSTED TO THE COMPTEN OF THE AMAGE ON THE BIAL SITHIE WHICH THE STATON IS READO AND THE VOLUME ADJUSTED WITH THE VOL-MAE CONTROL ONLY.

SERVICE DATA

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1. If a hum becomes evident after the radio has been operating about 30 minutes, an is more noticeable at low set volumes, it is probably due to loose laminations in the transformer. and

To correct, allow the set to warm up for at least one hour, and then tighten the two screws which hold the laminations between the power transformer end-caps.

2. The 6_{*} O mfd 650 v electrolytic condenser shown in the circuit diagram has been omitted in some sets. It should be added in all cases.

5. In receivers installed in locations where unusual conditions in the ac power supply cause hum, the first filter condenser can be changed from 8.0 mfd to 16 mfd.

4. The power transformer has a grounded shield winding between the primary and secondary. The shield winding ground lead is brought out between the laminations and the end-cap, either at the side or the bottom of the transformer. Frequently the ground lead does not make good contact because the laminations and the end-caps were painted before assembly of the transformers. This will cause static when the connection makes and breaks, and it also allows the power transformer to conduct more of the power-line static into the receiver circuit when the shield is not grounded.

To identify this defect, tune the receiver to a point between stations and tap the power transformer firmly on top and sides. An ungrounded shield will produce noise when jarred.

The easiest and best way to correct this trouble is to make a positive ground of the transformer shield winding by soldering another wire to it which may then be soldered to the radio chassis.

5. Where the radio is used in locations where the line static is unusually bad, one or two .05 mfd 600 v condensers can be added, installed from both sides of the line to the chassis, or from one side of the line to chassis, or directly across the line. The method which gives best results will depend upon local line conditions, and will have to be determined by experimentation. If the method which gives best results is not effective when the line cord plug is reversed, be sure the radio owner is made sware of this condition and the line cord plug is marked so it can always be inserted with the correct polarity.





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RCD.CH. ADMIRAL PAGE 16-MODEL RC 170. RC 170 A.

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OPERATING INSTRUCTIONS

1. SETTING FOR SIZE OF RECORD

The size of record for which the record changer is set to play is indicated by the position of the sizechange knob (96). The record size is stamped on the housing (94) of the head assembly.

To change the setting, slide the size-change knob backward or forward to the numeral corresponding to the size of records to be played. Slide the knob to "M" for manual play.

If the size-change knob does not slide back freely, the setting may be changed by pushing against the front of the record clip (83) when it is in the downward position as shown in Figure 1.

2. STARTING THE RECORD CHANGER

To load the Record Changer, lift the record clip (83) to its upright position and place the records on the center post (27). The bottom record is supported by the shoulder of the center post and the push plate (79A).

Lower the record clip gently, using care not to let it snap onto the records or damage may result.

6. DESCRIPTION OF CHANGE CYCLE (See Figures 7 and 8)

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.

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 (28). During normal playing, the drive wheel is held in a neutral position as illustrated in Fig. 8 so that the indentation prevents the tire from contacting the knurled hub. The drive wheel (28) is held in this position by the trip lever (63) and the stop stud (65) on the main cam (66).

When a record has finished playing and the needle has reached the trip point, the arm control lever roller (48C, Fig. 7) makes contact with reject link (43A), moving the trip arm (43) which releases trip lever (63). The trip lever spring (62) moves trip lever (63) freeing cam stop stud (65) and allows spring (69) to pull the main cam clockwise (bottom view). Since the main cam (66) and the drive wheel (28, Fig. 8) are on the same shaft, the drive wheel is thus turned so its rubber tire is against the knurled hub of the turntable. The turntable now rotates the drive wheel (28) which in turn rotates the main cam (66). Roller (68), Fig. 7) riding on the main cam, moves arm control slide (52), and the raised portion (52A) of this slide raises arm lift shaft (This shaft is 19 on the RC170 and 103 on the RC170A.) which lifts pickup arm from the record. Stud (52C) moving with slide (52) pushes arm control lever (48A) causing the pickup arm to move to the right, clearing the record. The move-ment of roller (68) also causes trip lever (63) to reengage in the recess of trip arm (43). Trip spring (61) holds the trip arm (43) and trip lever (63) together.

Roller (70), also riding against main cam (66), moves push-off arm (71). This movement is transmitted through the linkage of 79F, 79D (Fig. 7) to the

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Turn the Phono-Motor switch (33) to the ON position. Move the switch button to the left (**REJECT**) momentarily and release. The bottom record will drop to the turntable and the Record Changer will play the entire stack of records automatically.

3. REJECTING A RECORD

To reject a record at any time, move the Phono-Motor switch button (33) to the left (**REJECT**).

4. STOPPING AND UNLOADING

It is advisable to stop the Record Changer when the Changer mechanism is out of cycle (playing a record). To remove the records, lift the record clip to its upright position and move the pickup arm to the right so that it clears the records. Lift the records straight up by supporting the bottom one. Do not tilt or squeeze the records when lifting.

5. REPLACING CARTRIDGE AND NEEDLE

Before replacing, see cartridge service data on page 5.

nd the push plate sing care not to mage may result. THE CHANGE CYCLE Remove the old cartridge (3) by getting your finger nails or a small screwdriver under it as shown in Figure 2 and pull down on the back edge. Press new cartridge into place again, making sure to push near its back edge where its pins go into the socket.

> push-off plate 79A, Fig. 8. (Note that the record stack rests on plate 79A.) The shape of the main cam (66) is such that the push-off plate (79A) first moves back, allowing the bottom record to drop onto the record support plate (79B). Then the push-off plate (79A) slides forward and drops the next record to be played but only after the pickup arm has cleared the record stack. The little slide in the top end of the center post holds back all records other than the bottom one.

As the main cam continues its rotation, the arm control slide (52) moves back following the cam since it is kept in contact with it by slide spring (76). Stud (52C) moving with the arm control slide (52) allows arm control lever (48A) to move back. The tension of the set-down spring (55) moves the arm control lever through set-down lever (54B) and roller (48D). This moves the pickup arm to the set-down point for the record to be played. This set-down point is governed by the set-down adjustment screw (25) for 12inch records and screw (26) for 10-inch records.

When the record changer is set to play 10-inch records, the arm control lever roller (48D) moving along the edge of the set-down lever (54B) and on reaching the shoulder of the set-down lever, moves this lever and the set-down arm (54) until they are stopped by the set-down adjustment screw (26) making contact with the rear flange of the record changer pan (24). At this point the pick-up arm is above the starting groove and is lowered by the action of the arm control slide as explained above.

When the record changer is set to play 12-inch records, the size change link (75) removes the tension from the change link spring (74) allowing the setdown arm (54) to move so that the set-down adjustment screw (25) makes contact with the rear flange, instead of screw (26). This movement of the set-down arm is caused by spring (55) when the arm is in its change cycle. This changes the set-down of the pick-up arm for 12-inch records.

While the needle is held in position above the starting groove, the safety arm (52B) pushes stud (54A)

RCD.CH. PAGE 16-2 ADMIRAL

MODEL RC 170, RC 170 A.

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IMPORTANT

These two models are very similar. The differences are illustrated in Figures 3 and 4 To be certain which model changer you are servicing, look for the changer model number which appears on the underside of the changer mechanism.



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releasing the pickup arm so that it has a tree sideward movement to follow the record groove. About one revolution of the turntable after the releasing of the pickup arm, the arm is lowered by the downward movement of arm lift shaft (19). When the reject is used, the movement of the reject knob (33) forces stud (39A) against the reject link (43A) moving trip arm (43) which releases trip lever (63) and the cycle of record change proceeds in the same manner as for automatic changing.

ADJUSTMENTS

TOOLS REQUIRED {No. 8 Allen Set Screw Wrench (Part No. P-5825. List price \$0.10) 3/16 inch Open End Wrench (Part No. P-5807. Net price \$0.39)

7. ADJUSTMENT OF SET-DOWN POINT (See Figures 1 and 8)

Adjustments for 10-inch records are made by the screw (26) which can be seen through the right hand slot at the top rear of the record changer. Turning this screw in moves the set-down point of the pickup arm closer to the center post and turning the screw out moves it further away. The proper set-down point is between 45%" and $411/_{16}$ " from the needle to the near side of the center post.

Adjust the 12-inch set-down with screw (25), Fig. 8. Turning screw (25) in (as seen through the left hand slot) moves the set-down point for 12-inch records further from the center post and turning the screw out moves it closer to the center post. The proper set-down point is between 55%" and $511/_{16}$ " from the needle to the near side of the center post.

If either adjusting screw has reached the end of its travel so that it is not possible to get a proper setdown, it will be necessary to re-set the assembly (17) or (105) as follows:

7A. SETTING PICKUP ARM SUPPORT ASSEMBLY (17) IN RC170 OR (105) IN RC170A

- (a) Set adjusting screws (25) and (26) half-way in.
- (b) With the set screws (18) loose, move the pickup arm so that the pickup arm cap (2) rests against the top portion (above the shelf) of center post.
- (c) Holding the pickup arm in this position, move the arm control lever (48B) so that it is $\frac{3}{84''}$ from the rear flange of the pan (24); always keep this spacing less than $\frac{1}{16''}$ but more than $\frac{1}{32''}$ (between .04 and :06'' is correct).
- (d) Press the arm control lever assembly (48) up into the pickup arm base (20). Press the pickup arm support assembly (17) or (105) down against the pickup arm base (20), leaving a .006 to .008 inch clearance between them. This clearance is necessary to prevent binding. The spring washer (part number 405A27) should be slightly compressed between the top of the pickup arm base and the bottom of the collar.
- (e) Tighten the two set screws (18).
- (f) Make final set-down adjustments with adjustment screws (25) and (26). (See page 2)

8. ADJUSTMENT OF PICKUP POINT (See Fig. 7) The pick-up or tripping point adjustment is made by screw (45). Turning the screw in brings the pick-up point closer to the center post and turning the screw out moves it further away. The proper pick-up point is between $1^{11}/_{16}$ " and $1^{3}/_{4}$ " from the needle to the near edge of the center post.

On the late production of the record changer used with the console radios, a hole has been made in the bottom cover so that this adjustment can be made without removing the bottom cover from the changer. As the table models do not use the bottom cover, this adjustment is easily made.

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In adjusting the pick-up point it will be found that an occasional record does not have the groove run in far enough so that the pick-up arm will be carried close enough to the center post to actuate the reject link. If adjustments are made to accommodate these few records, it will be found that the changer starts its change cycle with some normal records' before they are finished playing. In, adjusting for this type complaint, it is wise to let the customer decide for which side the adjustment should be made.

9. ADJUSTMENT OF PICKUP ARM HEIGHT (See Figures 3 and 4)

Before adjusting arm height, be sure needle is properly adjusted (see paragraph 18).

With the record changer out of cycle and the pick-up arm clear of the turntable, adjust screw (This adjustment screw is 15 on the RC170 and 106 on the RC170A.) so that the tone arm needle is approximately $\frac{1}{8}''$ above the top of the pan. Turning the screw in raises the arm and turning it out lowers the arm.

The model RC170 also has an adjustment screw (19C) to adjust the maximum height that the pickup arm should reach. The maximum height of the pick-up arm during the change cycle should be from $1\frac{3}{6}$ " and $1\frac{1}{2}$ " between the needle and turntable. After making this adjustment tighten locking nut (19B) and again check the adjustment.

10. ADJUSTING DISTANCE BETWEEN HEAD ASSEM-BLY (79) AND CENTERPOST (See Figs. 7, 8)

Do not bend the centerpost to make this adjustment; adjust as described below.

The adjustment of the head assembly (79) is made by loosening the three screws. 85. (underneath the changer) and moving the assembly closer or further away from the center post as the case may be. The head assembly is in proper relationship to the center post when it is set with a dimension of $47/_8$ " from the front edge of the record support plate (79B, Fig. 8) to the rear of the center post (side nearest the record support plate) and at a point on the center post of the same height as the record support plate. This dimension is taken with the changer set to play 10-inch records.

After adjusting, check as follows:

- (a) Place a 10-inch record (with a true center hole) on the centerpost to a point in line with the record support plate (79B). Holding the record horizontal and exerting force on it toward the head assembly, the record should just clear the record support plate (79B). Exerting force away from the head assembly should give a small gap between the record support plate (79B) and the record. Repeat with a 12-inch record.
- (b) Load the changer with a stack of records; push record stack toward head assembly. Start the changer mechanism, and check push-off for several 10-inch records. **Repeat for 12-inch** records.





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SERVICE PARTS LIST FOR RC170 & 170A RECORD CHANGER

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13 Boolds Log Participant Program Part Program	12		Arm Suppart Bracket (see note †)			
14 14.1.02.04.05.0 Prize Am might full use main j. 200.2 kg/r (see not 1) 405.04.8 11.0 405.04.8 Thip Spring 16 142.07.0 Leak Spring for Prize Am Adjustment Serve (see or extra or the spring 40.10.21.1 Thip Spring 40.10.21.1 17 GG00.18 Prize Am Am (Jin Surger A samply (see not 1) 40.10.21.1 40.10.1<	13	65-250-C2-39	Arm Support Bracket Screw #6-32x1/4*** B.H.M.S.	1		
13 13 25.425 (2.2) Pring Arm Adjustment Serve (see rate 1) 405.475 Top Lever Spring Arm (1/2 rever (includes shoulder rive T=64) 14 140.474 Arm (1/2 should rive T=64) 402.477 Should rever (includes should rive T=64) 16 140.570 Arm (1/2 should rive T=64) 402.477 Should rever (includes should rive T=64) 17 160.0011 Arm (1/2 should rive T=64) 402.477 Should rever (includes should rive T=64) 18 1.40.14 Arm (1/2 should rive T=64) 402.477 Should rever (includes should rive T=64) 19 1.60.011 Should rever (includes should rive T=64) 402.477 Should rever (includes should rive T=64) 19 1.60.011 Should rever (includes should rive T=64) 402.477 Ann (1/2 should rive) 19 1.60.011 Should rever (includes should rive) 272.17 403.47 Nation France 10 1.60.011 Should rever (includes should rive) 272.18 1.77 403.47 12 1.60.011 Should rive) 1.72 403.47 1.70 1.70 12 1.60.011 Should rive) 1.72 403.47 1.70 1.70	14	†G400A165	Pickup Arm Hinge Plate (see note †)	1		
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28 GA0A179 Drive Wheel (includes trie) (ar 2018) 2 monopoint (includes trie) 30 GA0A147-1 Drive Wheel Spring (ar 2018) 2 monopoint (includes trie) 31 4054.45 Drive Wheel Spring (ar 2018) 2 monopoint (includes trie) 31 4054.45 Drive Wheel Spring (ar 2018) 2 monopoint (includes trie) (ar 2018) 2 monopoint (includes trie) 314 4054.45 Drive Wheel Spring (ar 2018) 2 monopoint (includes trie) (ar 2018) 2 monopoint (includes trie) 314 4054.45 Drive Wheel Spring (ar 2018) 2 monopoint (includes trie) (ar 2018) 2 monopoint (includes trie) 314 4054.45 Drive Wheel Spring (ar 2018) 2 monopoint (includes trie) (ar 2018) 2 monopoint (includes trie) 314 4014.45 Drive Fulles (for of 34 for monors 40783, 40744 (ar 2018) 4 monopoint (includes trie) (ar 2018) 4 monopoint (includes trie) 315 GA00A12 Spring, Lifer Wheel (ar 4078) ar 4078 or 4078 monopoint (includes trie) (ar 2018) 4 monopoint (includes trie) 316 4014.16 Spring, Spring, Iiler Wheel (ar 4078) ar 4078 or 4078 monopoint (includes trie) (ar 2018) 4 monopoint (includes trie) 317 (4054.75 Monopoint (includes trie) (ar 2018) 4 monopoint (includes trie			· · · · · · · · · · · · · · · · · · ·	/0	G400A203	Rubber Mounting Grommet, spacer, and fastener
29 406A13 Drive Wheel Support Assembly C400A185.1 The edd Assembly (Includes 774 to 276; does not include 374, for 276, does not include 374, for 376, does not include 374, does not include 374, for 376, does not include 374, for 376, does not include 374, does not include 374						(for 407B1-2 motor)
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31 403.43 Drive Wheel Spring 786 Record Support Plote 32 403.423 Reject Knob	30	G400A149-1	Drive Wheel Support Assembly	704		
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 33.3 4 403.80 Meter Anos Anos Meter Anos Anos Anos Anos Anos Anos Anos Anos	33	403A23	Reject Knob		405449	
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 (*40784-2 Motor with Idler Wheel and fasteners; 103125 V, 304 401A8 Drive Pulley (Part of 34, For motors 40783, 40784, In addition, motor 40284 includes a cell spring part number 405A22, appart number 405A23, 405A74 405A32 G400A133 Hoirpin Spring (hits spring used to 405A35 G400A23 Idler Wheel Assembly (used with either 40783 or 405A35 G400A135 Hoirpin Spring, Idler Wheel 405A35 G400A15 Hoirpin Spring, Idler Wheel 405A14 Spring, Idler Wheel (for 40781 motor) 405A27 G400A15 Hoirpin Spring G400A162 Swith and Lever (107 A0781 motor) 405A27 Spring Stud (Part of 39) 405A28 Hoirpin Spring G400A181 Trip Arm Atsembly G400A175 Arm Control Lever Roller Pickup Arm Soring G400A175 Arm Control Lever Roller Pickup Arm Soring G400A175 G400A175 G400A187 Hoirpin Spring G400A175 Arm Control Lever Roller Pickup Arm Soring G400A175 G400A175 Arm Control Lever Roller Pickup Arm Soring G400A175 G400A187 G400A187 Hoirpin Spring G400A175 Arm Control Lever Roller Pickup Arm Soring G400A187 <l< td=""><td></td><td></td><td></td><td></td><td></td><td></td></l<>						
 401A48 Drive Pulley (Part of 34. For motors 40783, 40784. In addition, motor 40784 includes a coil spring. Jost number 40781 motor) Jost number 40784 motor Jost number 40	34					Spacer Spring
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adot number84405A 22405A73Joint Wheel Assembly (used with either 407B3 or convert 407B3 motor)62-375-C2-39Strew #6-32x3/9" (Fit, H.M.S. (3 required)35{GadoA33Idler Wheel Assembly (used with either 407B3 or 40784 motor)86G2-375-C2-39Strew #6-32x3/9" (Fit, H.M.S. (3 required)36403A15Hoirspin Spring for Idler WheelMotor87G400A16-1Center Post Bracket Assembly (includes 1-#405A-62 speed Nul for Fostener Colsp and Port Number.37403A14Spring, Idler WheelAror 407B1 motor)88403A2Spring for Idler Wheel38401A105Shokeproof Motor Fostener Spring, Idler Wheel (for 407B1 motor)88405A2Spring (Tor mounting bottom cover to pon)39G400A161Tor Assembly(100 Fostener Spring, Idler Wheel90198A8-5Plug, 4 contact Plug, 3 contact40405A78Heirpin Spring Materian Spring9119A10-3Mounting Sterew (for mounting bottom cover to pon)41405A78Heirpin Spring Materian Spring9319A10-3Mounting Sterew (for mounting bottom cover to pon)42405A78Heirpin Spring Materian Spring94403C14Record Support Housing Plastic (does not include #5544405A78Heirpin Spring Materian Spring94403C14Record Support Housing Plastic (does not include #5544405A78Heirpin Spring Materian Spring94403C14Record Support Housing Plastic (does not include #55 </td <td>34A</td> <td>401A48</td> <td>Drive Pulley (Part of 34. For motors 407B3, 407B4.</td> <td>83</td> <td>G400A190</td> <td></td>	34A	401A48	Drive Pulley (Part of 34. For motors 407B3, 407B4.	83	G400A190	
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RCD.CH. ADMIRAL PAGE 16-7 MODEL RC 170, RC 170

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If the setting of the head assembly does not give proper push-off for both 10-inch and 12-inch records, vary the spacing slightly and re-check.

It should be noted that the records do not rest on the record support plate (79B) during normal playing of the changer; but rest on top of the push off plate

SERVICE AND REPAIR

CAUTION

See that the rubber tires on both the drive wheel (28) and the idler wheel (35) are kept clean and free from oil, grease, dirt, or any foreign material. Carbona or carbon tetrachloride may be used for cleaning these parts.

11. REMOVING PLASTIC HOUSING FROM HEAD ASSEMBLY (See Figures 1 and 7)

The housing (94) of the head assembly can be taken off by removing the two size change knobs (96) and the three screws (86). With the record clip (83) in the down position, the housing can be lifted from the assembly. The housing slide (95) will drop out as the housing is removed.

12. REPLACING A PICKUP ARM BASE (See Figures 3, 4 and 7)

When installing a pick-up arm base (20) and before tightening the two screws (51), exert pressure on the base towards the front of the changer and at the same time rotate it in a clockwise (bottom view) direction. Tighten the screws while holding the base in this position. If this is not done properly, the arm control slide (52) may bind between the two slide spacers (50).

After replacing the pickup arm base, re-set the pickup arm support assembly as in paragraph 7A.

13. REPLACING SIZE CHANGE SPRING (See Figure 5)

Whenever it is necessary to remove or replace the size change spring (79G) care must be taken to reinstall it in its proper position. See Figure 5 for its mounting position.

14. REPLACING HEAD ASSEMBLY

Remove the assembly housing as explained in No. 11. Release the push-off link (79F) from the push-off arm (71) by removing the hairpin clip (73) and washer. Remove three screws and washers (85) and the assembly is free from the pan.

When re-installing the head assembly, replace the three screws and washers but do not tighten them. Reconnect the push-off link and arm. Adjust the head assembly as explained in paragraph 10.

15. REMOVING TURNTABLE AND BEARING ASSEMBLY

To remove the turntable it is only necessary to grasp the table by its edges and lift up. Before replacing the turntable, make sure that the recessed part of the drive wheel (28) is towards the centerpost. If necessary, turn drive wheel counter clockwise about a turn so it locks in this position. The pickup arm should be positioned away from the turntable to avoid the possibility of accidentally tripping the changer mechanism. In replacing the turntable force

(79A). During record change the push off moves back and allows the records to drop to the record support plate (79B). The push off plate now moves forward pushing the bottom record off. The remaining records are being supported by the push off plate itself. This is done to reduce any tendency for two records to drop to the turntable at the same time.

is not needed to seat it. Make sure, however, that the drive wheel of the motor has been pushed in towards the centerpost and that the wheel is making contact with the inner side of the turntable flange. In some cases it may be found that the two cork washers, after considerable use, are compressed so the turntable will rub. To build the stack up, an extra cork washer should be used. This third cork washer may be placed at the top or bottom of the stack.

The washers (22) and thrust bearing assembly (23) are removed by sliding them off of the centerpost. In replacing, have them in the order shown in Figure 8.

16. REMOVING BOTTOM COVER (100) To remove the bottom cover (100) from the record changer, remove the two rear screws (92) 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 (93) to prevent microphonic feedback, thus the springs (93) 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 (24). In some changers it has been necessary to add spacer washers beneath the narrow portion of the spring (93) to assure "free floating" of the changer.

17. MOUNTING 407B1 MOTOR TO CHANGER

The model 407B1 motor may be used with this record changer but it is necessary that a fibre or felt washer be used as a spacer between the motor mounting grommet and the changer pan. The No. 401A106 shakeproof motor fastener can be used to then mount the motor.

18. CARTRIDGE (See Figure 6)

The new Admiral pick-up cartridge uses an entirely new principle since it is not a crystal, magnetic, or capacitive device. The pick-up element is made of special rubber which is a high resistance electrical conductor (R-1 & R-2). The resistance varies as the length of the rubber is changed. A Monel metal needle, osmium tipped, is clamped to the center of the resistive rubber as shown at B. As the needle moves back and forth in the record groove, it alternately lengthens the rubber on one side and shortens the rubber on the other side.

A DC voltage is applied at A. The voltage drop from B to C varies as the resistance changes due to the "back and forth" movement of the needle. The varying voltage drop is in reality an alternating voltage of audio frequency. This voltage is applied through the coupling condenser (Cc) to the grid (G) of the audio amplifier tube.

Trouble Shooting: If you suspect the cartridge or needle and have a replacement cartridge available, the quickest test is to try the other cartridge. This is very simple since the Admiral cartridge plugs in. Remove

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MODEL RC 170, RC 170 A.

ADMIRAL CORPORATION

the old cartridge as described on page 1 and plug in the replacement cartridge. If replacing cartridge does not correct the trouble or if no replacement is available, proceed as follows:

- 1. Make sure radio operates satisfactorily on radio stations.
- 2. Turn switch to Phono and turn volume control up high. Touch the needle with finger. If a loud hum is heard, circuit from **B** to G is not open or shorted. If hum is not heard, check circuit -from B to G.
- 3. If hum is heard, check voltage across outer terminals on bottom of cartridge. Generally it should measure from 80 to 100 volts DC. See circuit diagram for individual chassis. If voltage is correct, cartridge should be replaced.
- 4. If voltage is not correct, check circuit for fault. In case of distortion, check coupling condensers.
- 5. If the needle is bent, it can be straightened by bending it down so that it projects $\frac{1}{16}$ " from cartridge. It should then be pressed back several times with a flat object.

Do not attempt to repair cartridges or remove the cap on the cartridge assembly as this will void the warranty.

19. 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. A good grade automobile chassis grease may be used for this purpose.

The oilite bearings, used in the turntable hub and pick-up arm base, 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.

Use grease sparingly on stud (64) of trip lever (63); excessive lubricant may cause suction binding and subsequent failure of the trip mechanism.

20. REPLACEMENT PARTS

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In some cases replacement parts from the factory may be a different type than those being replaced. These parts will be of a later production but may be used as replacement parts. In cases where rivets or adapting parts are needed, they will be included with the replacement part.

Note that when replacements involve loosening or removing set screws (18) in assemblies (17) or (105), it will be necessary to re-set the assembly as described in paragraph 7A.

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MODEL 46

AERO'- METAL PRODUCTS

OPERATING AND SERVICE INSTRUCTIONS FOR RECORD CHANGER

MODEL 46-A

General Specifications

MOTOR VOLTAGE-115 Volts-60-cycles A.C. (**DO NOT USE D.C.**) MAXIMUM NUMBER OF RECORDS PLAYED AUTOMATICALLY: Fourteen (14) 10" records Twelve (12) 12" records TUBNTABLE SPEED - - - 78 to 80 B.P.M.



CAUTION

Twelve only 12" or fourteen 10" records may be played, DO NOT INTERMIX 12" and 10" records.

DO NOT CHANGE CAP playing position unless Changer is out of cycle.

DO NOT USE FORCE at any time to either start or stop the Changer mechanism.

DO NOT LEAVE RECORDS ON SUPPORTS when Changer is not in use as this will cause the records to warp and hinder the efficiency of the Changer.

For more enjoyable listening and operating performance, always keep records in albums.

The last record in the stack will keep repeating until the Changer is stopped.

DO NOT OPERATE the Changer on D.C. Current.

Make certain that the center post slide cap is down before loading.

If a record does not have the eccentric inside groove, it will be necessary to use the REJECT PUSH BUTTON to play the next record.

With normal use, the needle should not require replacement. **DO NOT DROP** the needle or damage its precision point. DO NOT REMOVE and then replace the same needle. Make certain that the needle is securely held in cart-ridge case.

LOADING

The, plastic cap can be moved either forward or backward, from the 10-inch to 12-inch position, or from the 12-inch to the 10-inch position.

The records are placed over the center post, resting on the ledge in the center and on the cap ledge on the outside edge.

Snap pressure clamp down on top record stack.

To place Changer in either 10" or 12" playing position, use the following procedures:

For 10" playing position, lift up the cap at an angle and push the cap forward until the maximum forward motion is reached, then release cap to allow it to fall into place. The Changer is now ready to play 10" records. For 12" playing position, lift up the cap at an angle and pull backwards until the maximum backward position is reached, then release cap to allow it to fall into place. The Changer is now ready to play 12" records.

NOTE: The 10" cap position is always in the maximum FORWARD position, and the 12" cap position is , always in the maximum BACKWARD position.

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MODEL 46-A

AERO-METAL PRODUCTS



STARTING

Press down on the push button marked "ON." After the turntable has attained speed, press down on the push button marked "REJ." Hold finger pressure for a few seconds and then release.

The bottom record will fall on the turntable and the Changer will automatically play through the entire stack of records.

REJECTING

Press down on the push button marked "REJ." Hold finger pressure for a few seconds and release. A record may be rejected at any time during playing by this simple operation.

UNLOADING

Press down on the push button marked "OFF." Set the tone arm on the tone arm rest post. Set the record pressure clamp in an upright position. The played records may now be easily removed by lifting the entire stack of records upward and in a horizontal plane.

OPERATING CYCLE

l—Records are placed on offset portion of center post. Tone arm plays through the first record and follows on to the eccentric groove. When needle feeds into a position of $l\frac{16}{16}$ inches away from center post, the trip which is attached to tone arm link (16) engages and moves pawl lever (23). Clutch arm which is attached to pinion, gear is now released thus engaging turntable clutch. Changing mechanism is now powered.

2-Lift lever roller (73) travels over lift lever (17) raising tone arm off record.

3-End of elongated slot in main slide (21) engages stud (58) on tone arm link (16). The backward motion causes the tone arm to swing clear, allowing record to drop.

4—Push-off stud (68) on slide plate (10) engages push-off arm (10) which in turn retards record cap (89). Record drops from upper shelf to lower shelf. At this point the slide reverses its motion.

5—Stud (68) on slide plate (10) reverses its motion thereby causing record cap to advance. This action pushes the record forward, allowing it to drop off spindle shelf.

6—Spring on return slide (113) engages stud (58) on tone arm link (16). It then moves forward until the stud engages position stop (8) in either $10^{\prime\prime}$ or $12^{\prime\prime}$ position.

7—Tone arm is now in set down position and is allowed to rest on record when lift lever roller (73) is disengaged from lift lever (17).

8—Tone arm is now resting on record and remains locked for the next half turn.

9—Roller (70) on bottom of large gear (18) pushes position stop (8) until it is clear of stud (58) on tone arm link (16).

10—Pawl lever (23) engages clutch arm thus cutting off power for changing mechanism. Changer will now proceed through playing cycle.

OPERATION OF PUSH-OFF HEAD

When record cap (89) is in 12" position the pushoff lever (9) is in the forward hole. The 12''-10'' lever (11) is free. When record cap (89) is in 10" position the push-off lever (9) is in the rear hole and the 12''-10'' lever (11) is pushed forward. This in turn pulls



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AERO-METAL PRODUCTS

MODEL 46-A



the position stop (8) into the 10° position through the action of the connecting link (16).

OPERATION OF REJECT LEVER

When reject button (82) is pushed down it moves reject arm (32) through the action of connecting link (100). The reject arm (32) engages tab on bottom of pawl lever ((23) thereby engaging the clutch.

TONE ARM ADJUSTMENT

(Vertical)

Tighten screw (77) clockwise to raise tone arm. Counter-clockwise to lower.

(Horizontal)

Operate mechanism by hand, through change cycle, until tone arm rests on turntable. For slight adjustment—turn screw in hole in rear of tone arm clockwise for outward adjustment, counter-clockwise for inward adjustment. For greater adjustment turn hexagon head screw. Place in proper position for set down and tighten screw.

ADJUSTMENT OF PUSH-OFF HEAD

Be sure center post (45) has not been bent. It should be at right angles to turntable before proceeding with adjustment. To adjust, loosen three screws holding base (87) to base plate (11). Place 10" record on center post (45) so that it rests on shoulder of record cap (89). Be sure the hole in record is directly on top of center post (45). With edge of record

resting on top shelf, move base (87) back or forward until edge of record has 1/32" clearance from back edge of top step. When proper adjustment is made tighten screws in base (87), being certain position is not changed.



TIMING OF GEARS AND CLUTCH ADJUSTMENT TO ADJUST REMOVE TURNTABLE

l--Normal position of large gear, while in playing cycle should be with roller (60) centered in slot at end of slide plate (21). In this position the gear will snap into the index position. (As shown in Figure 1), and clutch will be disengaged.

2—The small pinion gear is indexed correctly when the turntable shaft and clutch assembly is rotated in a counter clockwise direction, with clutch engaged. The end of the clutch arm will be in line with the edge of the trip lever as shown in Figure 5.

3—If pinion gear has been removed from changer proceed as follows. Place large gear in index position. Insert pinion gear with brass rivet opposite trip lever as shown in Figure 6. Clutch arm will be resting on trip lever. If properly timed you will be able to spin turntable and clutch assembly freely. If motion is not free remove assembly and rotate pinion gear one tooth (clockwise direction).

4—For a finer adjustment bend end of trip lever forward or backward. Clutch arm should have smallest clearance possible between turntable and clutch assembly.





RCD.CH. PAGE 16-4 AERO AERO-METAL PRODUCTS ODRI LALA IF CHANGER FAILS TO REJECT OR PUSH RECORD PROPERLY 1-Be sure tone arm shaft has .005 to .010 end play. 2-Be certain trip lever is properly adjusted on tone arm link (16). Move trip lever forward or backward and tighten locking screws. 3-See that there is no excess play in tone arm linkage. Also be sure needle is fastened securely in cartridge and cartridge is fastened securely to tone arm. If tone arm sets down in 12" position regardless of cap setting, shorten 10"-12" link (105) by bending. If tone arm has erratic motion when setting down check to determine if tone arm bracket is free from index washer (33) and that it returns to normal position without end play. If this condition exists free bracket from tone arm lever (34). USE FINE OIL and adjust spring to take out side play. TO PREVENT BINDING OF CHANGER Remove turntable by removing three screws on top. Revolve turntable hub and clutch by hand. If binding occurs look for bent parts or heavy burrs. If burrs are found remove them with a smooth file. Be certain stud (58) has 1/32" to 1/16" clearance from push-off arm (10). If it does not have this clearance bend backward to obtain correct dimension. Be sure the four rollers (64) are free. LUBRICATION

Use fine oil sparingly on rollers and other moving parts.

Use light cup grease on bottom of turn table thrust bearing. Remove excess grease from large gear (on cam side). DO NOT UNDER ANY CIRCUMSTANCES OIL MOTOR. Keep turntable and idler wheels free from oil. If oil should get on any of these parts be sure to remove it.

The turntable bearing and center shaft hub are self-lubricating and therefore require no oil.

Grounded side of pick up cartridge is terminal nearest the tone arm. A.C. connections (85) will fit Allen-502 or EBY-624 plug or equivalent.

PARTS LIST

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3	Switch Mounting Bracket	1202	54	Lift Rod	2216	101	Reject Spring	4202
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27	Center Post Support Plate	1226	76	Bushing-Tone Arm				
28	Square Washer Pickup	1227	77	Screw-Height Adj. (Gulmite				
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49	Push Off Plate Shaft	2210	96	Turntable Main Bearing	3218	139	Tone Arm Mounting Assembly	
50	Large Shoulder Rivet	2211	97	Rubber Wheel	3219	140	Tone Arm Shaft Assembly-	
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