

## RECORD CHANGERS (MODEL M-8)

### SERVICE HINTS

#### LOW TURNTABLE SPEED

Any Model M-8 having turntable-speed trouble should be examined to determine whether the full width of the idler tire is in contact with the turntable rim.

The spacers used to mount the motor may not all be the same length. In some changers the two spacers directly opposite each other and farthest from the spindle are slightly longer than the third spacer. The difference in length was designed to compensate for the hump in the middle of the base plate.

If one of the long spacers is used in a position that

should have a short spacer, part of the idler tire will be below the turntable rim. This condition may cause insufficient speed.

Whenever the motor is removed and then replaced, make sure that each spacer is placed in its original position.

#### ELIMINATING METALLIC VIBRATION

To eliminate metallic vibration during operation, the metal trip finger should be replaced with a trip finger made of plastic. The trip finger given in the Replacement Parts List is the plastic type.

### PRODUCTION CHANGES

RUN NO.	DESCRIPTION OF CHANGE	REMOVED PART NO.	ADDED PART NO.	REASON FOR CHANGE
2	Needle changed.	35-2644	35-2669	To reduce needle scratch and record noise.
3	Segment-spring retainer added over segment spring.		56-5114FA38	To secure segment spring.
4	Crystal-pickup cartridge changed.	35-2643	35-2671-1	To improve frequency response.

## RECORD CHANGERS MODEL M-9

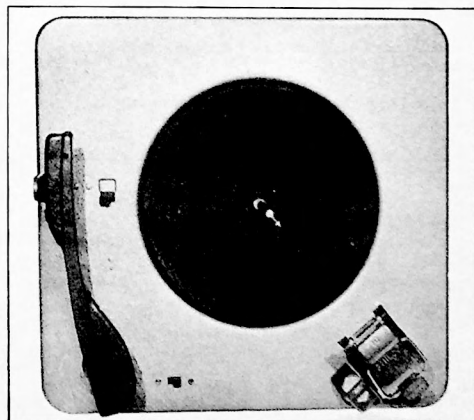
### INTRODUCTION

Philco Automatic Record Changer Model M-9, shown in figure 1, is designed for quiet, smooth, and efficient automatic playing of records.

A safety feature is incorporated in the tone-arm mechanism to prevent damage to the mechanism if, at any time, the arm is held by the user during the change cycle.

The changer, which operates on 117 volts, 60 cycles, a.c., plays ten 12" records or twelve 10" records automatically. Provision is also made for manual operation.

The tone arm is equipped with a semi-permanent type of needle, which gives long needle and record life and is easily replaced if necessary.



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Figure 1. Philco Automatic Record Changer Model M-9

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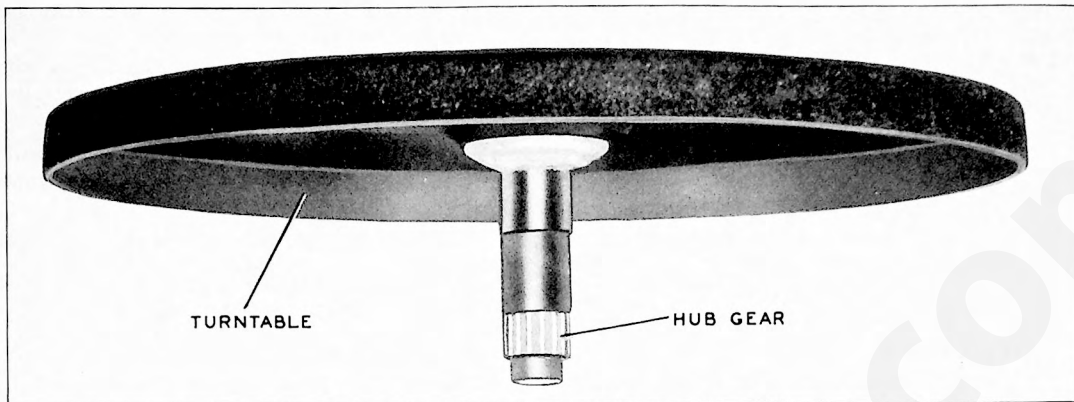
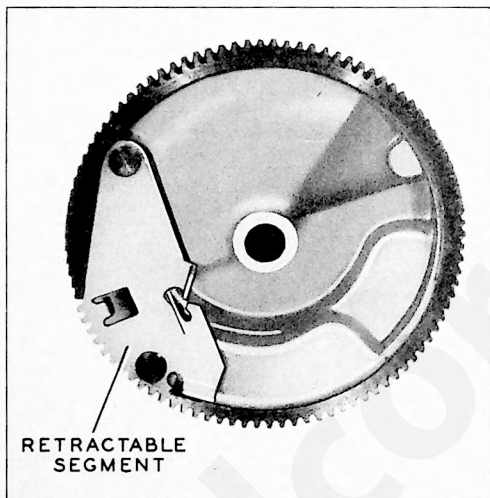


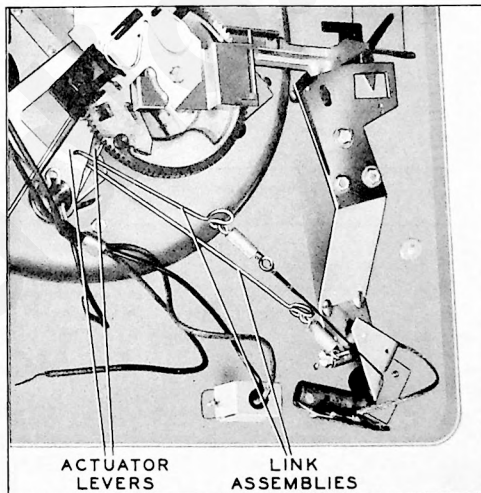
Figure 2. Turntable and Hub Gear

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TP-4182-2

Figure 3. Cam Gear, Showing Retractable Segment



TP-4101A

Figure 4. Link Assemblies and Actuator Levers

### DESCRIPTION OF OPERATING CYCLE

Power for the motor is applied through the on-off switch. The turntable is rim-driven by a rubber-tired idler wheel mounted between the motor shaft and the turntable rim.

The turntable hub is a combined shaft and gear (figure 2). This small hub gear engages a large cam gear (figure 3) when the retractable segment of the cam gear is brought into position by the action of the trip mechanism; the cam gear, in turn, operates the changer mechanism.

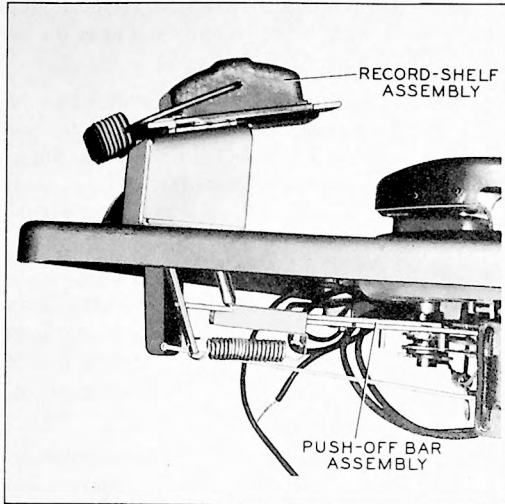
The tone arm is operated by two link assemblies attached to actuator levers (figure 4) which are in

contact with the cam surface of the cam gear.

The record-shelf push-off mechanism is connected, through a series of bars (figure 5), to a push-off actuator; the mechanism is operated when a roller on the cam gear comes in contact with the actuator.

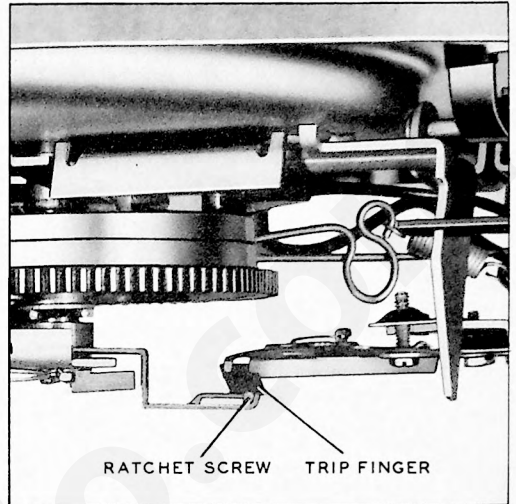
The trip mechanism is operated by a trip finger, riding over a ratchet screw (figure 6), which starts the change cycle when the needle is traveling in the eccentric finish groove of the record. The trip mechanism is locked in a disengaged position when the control button is in the manual position.

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Figure 5. Record-Shelf and Push-Off Assemblies



TP-4135-1

Figure 6. Trip Finger and Ratchet Screw

## PHILCO RADIO-PHONOGRAPH TROUBLE-SHOOTING PROCEDURE

The following tests are given for quickly localizing trouble either in the radio or phonograph section of the radio phonograph combination. Be sure to make each test in the order given, before removing either the radio chassis or the record changer from the cabinet. If the trouble is found in the audio amplifier, refer to the radio service information pertaining to the particular model radio. If the trouble is in some part of the record changer, use information following.

### AUDIO AMPLIFIER TEST

The audio amplifier is common to both the radio and the phonograph section of the combination using the M-9 changer.

Tune in a station and note the volume and tone quality. If the performance is abnormal, check the audio section of the radio, and correct the trouble.

### PICKUP TEST

Play a familiar record on the phonograph, and again note the volume and tone quality.

### NOTE

It is advisable to carry a familiar record as a part of the service test equipment.

If distortion is noted when playing the record, first try a new needle. If the distortion continues, a faulty crystal pickup is indicated; refer to page 505.

### CHANGER-MECHANISM TEST

The following series of record-changer operating tests is given for quickly locating any troubles that may be encountered. Each test should be performed with several records before making any adjustments.

Set the record shelf to the 10" position and place the tone arm on the rest post. Place a 10" record over the spindle and onto the record shelf.

Push the control button to REJ. (reject), and observe the record-dropping action. The record should fall smoothly, the edge leaving the lips of the record shelf *after* the center has started to fall. Adjustment of the record shelf is given on page 503.

The tone arm should rise from the rest post, and the needle should come down on the record, starting about  $\frac{1}{8}$ " from the outer edge. The index adjustment is given on page 497.

Play the record through and observe the tripping action; the trip mechanism should operate within the first two or three revolutions after the needle has entered the eccentric finish groove. Trip adjustments are given on page 501.

Remove the record from the turntable and turn the record shelf to the 12" position. Place a 12" record

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over the spindle and onto the record shelf. Push the control button to REJ., and observe the record-dropping action. The record should leave the lips of the record shelf *after* the center has started to fall. Refer to page 503 for the record-shelf adjustment, if needed. The tone arm should rise from the rest post, and the needle should come down on the record, starting about  $\frac{1}{8}$ " from the outer edge. If index adjustment is required, refer to page 497.

Play the record through and observe the tripping action. Trip adjustments are given on page 501.

Observe whether the lower edge of the tone arm, during a change cycle, clears the top of the hook on the tone-arm rest post by a minimum of  $\frac{1}{8}$ ". Take the tone arm off the rest post, and place the pickup over the changer base plate; the needle point should clear the base plate by at least  $\frac{1}{16}$ ", and should be no higher than the turntable top. Lift and height adjustments are given on page 498.

### TURNTABLE AND MOTOR TEST

#### NOTE

Before making this test, warm up the motor by allowing it to run for at least ten minutes.

Set the control button to MAN. (manual), load the turntable with ten 12" records, and place the tone arm on the top record.

Place a stroboscope disc, such as Philco Part No. 45-9531, on the record, and illuminate the disc with a lamp (preferably a neon bulb) operated on 60-cycle a.c. The dots in the row calibrated for 78 r.p.m. should appear to remain stationary, or drift *very* slowly, but smoothly, backward or forward.

If the turntable speed is steady, but is appreciably below 78 r.p.m., refer to the lubrication data on the turntable upper bearing, motor bearings, and motor idler plate, given under CLEANING AND LUBRICATION, below; if the lubrication appears to be adequate, the motor is probably defective.

Unsteady drift of the dots on the stroboscope disc indicates uneven turntable speed, the cause of wows; see UNEVEN TURNTABLE SPEED (WOWS), page 504.

## CLEANING AND LUBRICATION

The M-9 record changer, like any other mechanism, requires lubrication after long periods of use. Whenever a major part or assembly is to be replaced, the changer should be cleaned and lubricated. Carbon tetrachloride or other similar cleaning fluids may be used to remove old grease, oil, and dirt. Apply lubricants sparingly. All lubrication points are shown in figures 7 and 8. It may be necessary to remove some parts and assemblies in order to lubricate their bearings—for example, the actuator and cam gear must be removed to lubricate the actuator stud and the cam-gear spindle.

### PARTS NOT TO BE LUBRICATED

The following parts should not be lubricated at any time: Trip receiver; trip finger; ratchet screw on trip plate; selector.

### PARTS TO BE GREASED

The following parts are to be lubricated with a grease having the consistency of vaseline:

#### Record-Shelf Assembly (point A of figure 8)

Four protruding dimples.

#### Bridge Assembly and Slider Control Bar (point B of figure 7)

Three dimples and four upturned ears.

#### Cam Gear (point C of figure 7)

Cam-gear teeth, cam surfaces, and cam-gear spindle.

#### Main Assembly (points D, figures 7, 8, and 12)

Trip-plate ear where contact is made with gear segment.

Actuator stud.

All parts with ears sliding on changer base plate.

Index-lever surface which slides on base plate.

Push-off-actuator dimples which slide on base plate.

Turntable shaft (upper bearing).

Tone-arm shaft.

### PARTS TO BE OILED

The following parts are to be lubricated with S.A.E. 20 oil:

#### Tone Arm (point E of figure 8)

Tone-arm pivot pin where pin rides in elongated hole of tone arm—apply one drop with a pointed rod.

#### Motor (points F, figures 7 and 8)

Motor idler plate—one or two drops in each dimple.

Motor bearings.

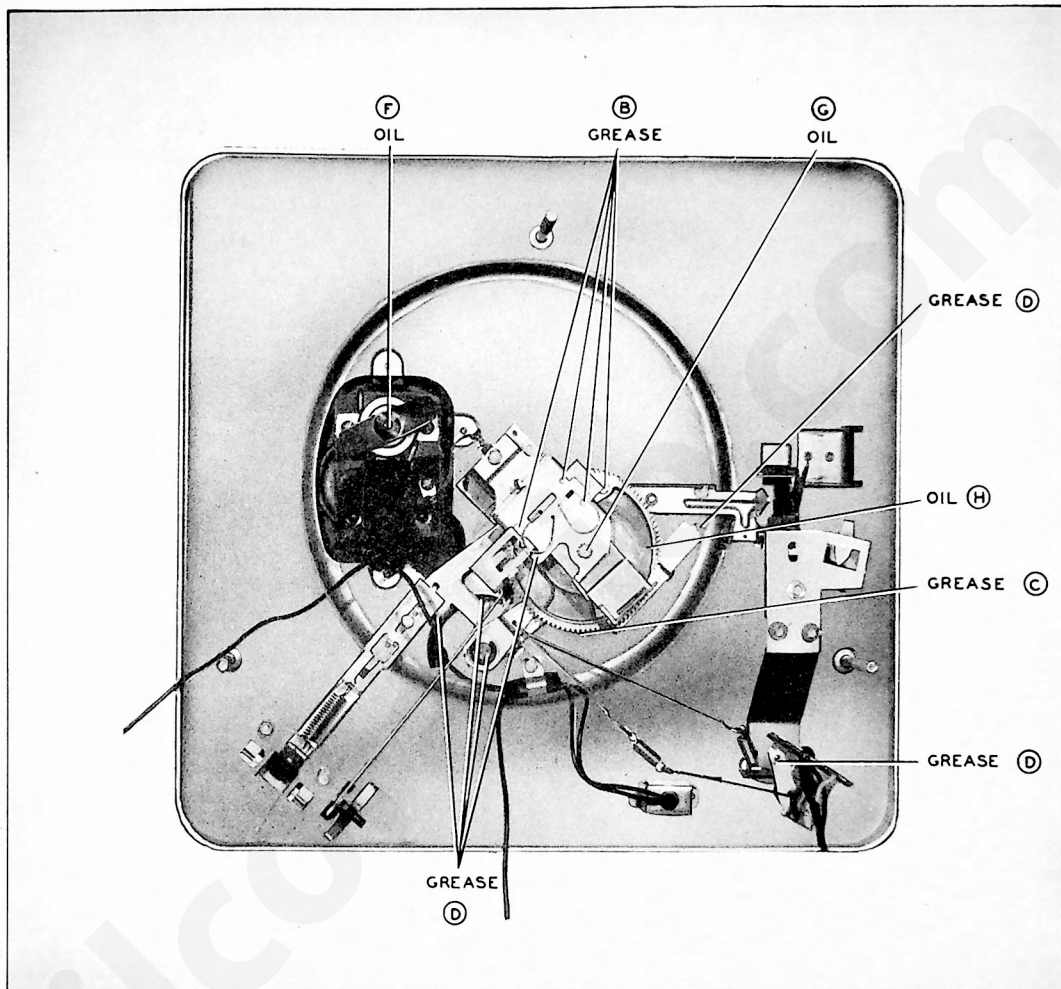
#### Trip-Plate Bushings (point G of figure 7)

#### Cam-Gear Roller (point H of figure 7)

#### CAUTION

Do not get any oil or grease on the motor shaft or the idler-wheel tire. Should this occur, remove the oil or grease immediately with carbon tetrachloride.

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Figure 7. Bottom View of Changer, Showing Lubrication Points

## ADJUSTMENTS

### 10" INDEX ADJUSTMENT

Set a 10" record on the turntable; push the control button to REJ., and rotate the turntable  $4\frac{1}{2}$  turns by hand. The tone arm should then be approximately  $\frac{1}{2}$ " above the record.

Loosen the clamp screw on the trip arm (figure 9).

Hold the tone arm (steady)  $\frac{1}{8}$ " in from the edge of the record, and set the trip arm so that the trip-arm stop is in contact with the selector hinge. See figure 9.

Tighten the clamp screw, leaving  $\frac{1}{32}$ " vertical play, or clearance, between the trip arm and the base plate.

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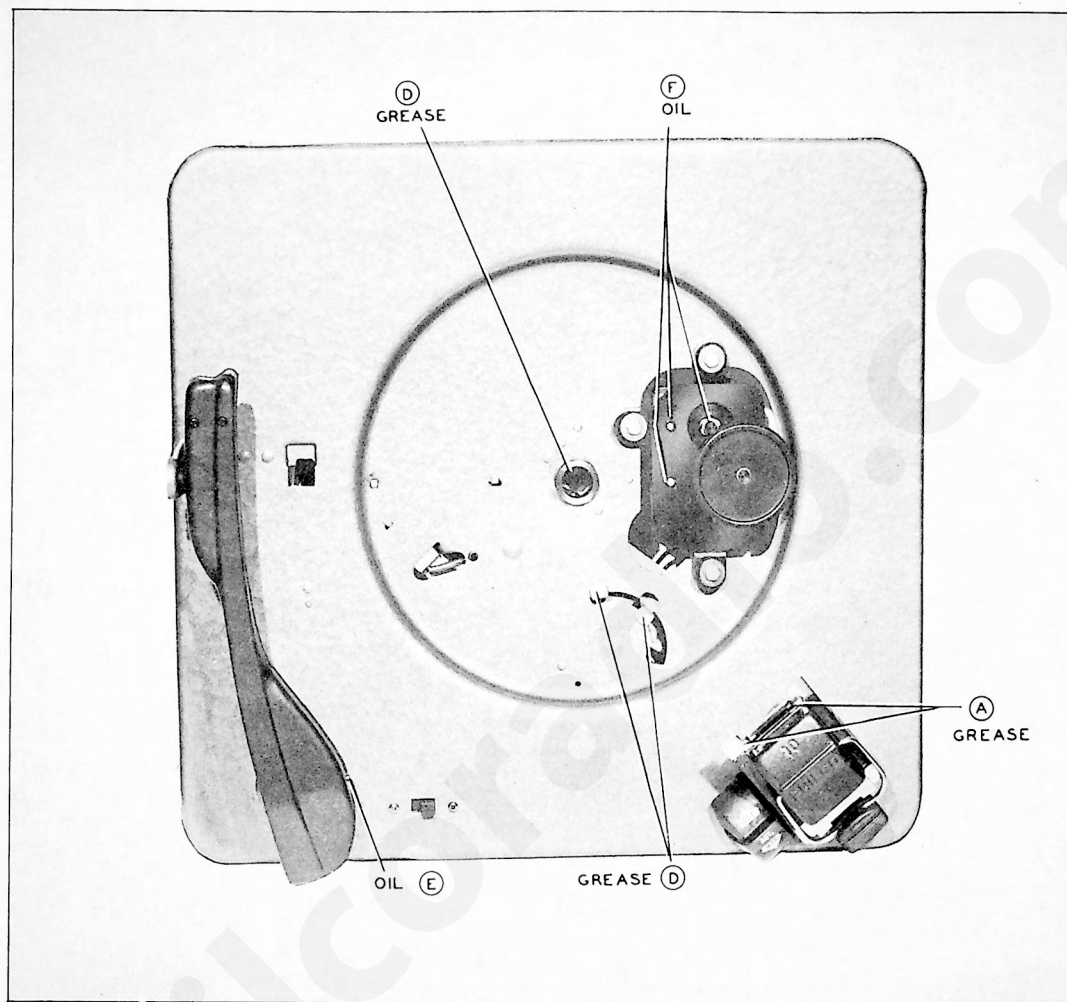


Figure 8. Top View of Changer, Showing Lubrication Points

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### 12" INDEX ADJUSTMENT

Make the 10" index adjustment first. The 12" indexing will ordinarily be satisfactory after the 10" adjustment is made; if not, bend the selector, 56-4618FA3, slightly to the right or left as required for proper indexing of the needle on the record, as shown in figure 10.

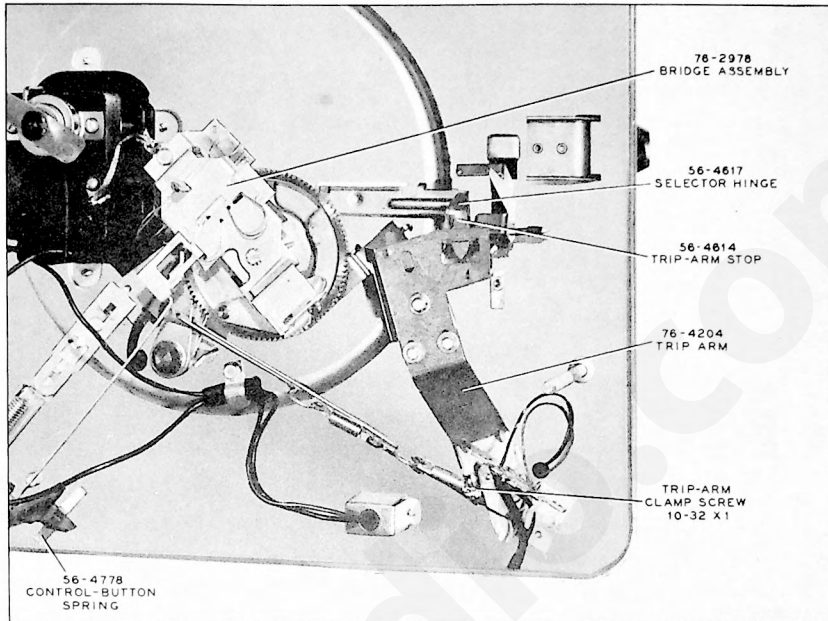
### TONE-ARM HEIGHT AND LIFT ADJUSTMENTS

With the changer out of cycle (change cycle completed; tone arm lowered), and the tone arm off the rest post, the needle point should clear the changer base plate by at least  $\frac{1}{16}$ ", and should not be higher

than the turntable top. See figure 11. To adjust the height, shape the *top* ear of the tone-arm swivel, shown in figure 11 (bending the ear downward raises the tone arm).

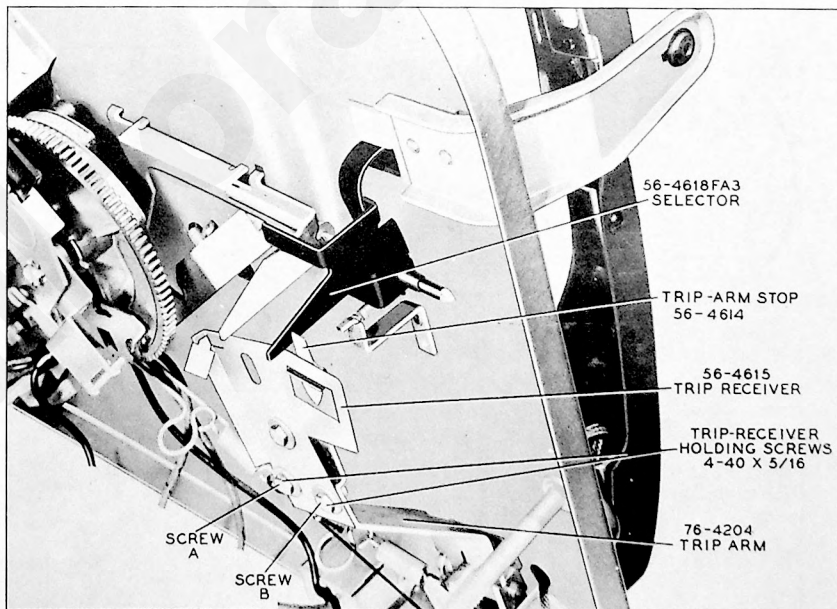
To adjust the lift, take the tone arm off the rest post, push the control button to REJ., and rotate the turntable (approximately  $1\frac{1}{2}$  turns) by hand until the tone arm comes against the rest post. See figure 12; the lower edge of the tone arm should clear the top of the protruding hook on the rest post by not less than  $\frac{1}{8}$ ", and not more than  $\frac{1}{4}$ ". Adjust by shaping the *lower* ear of the tone-arm swivel (bending the ear downward raises the tone arm).

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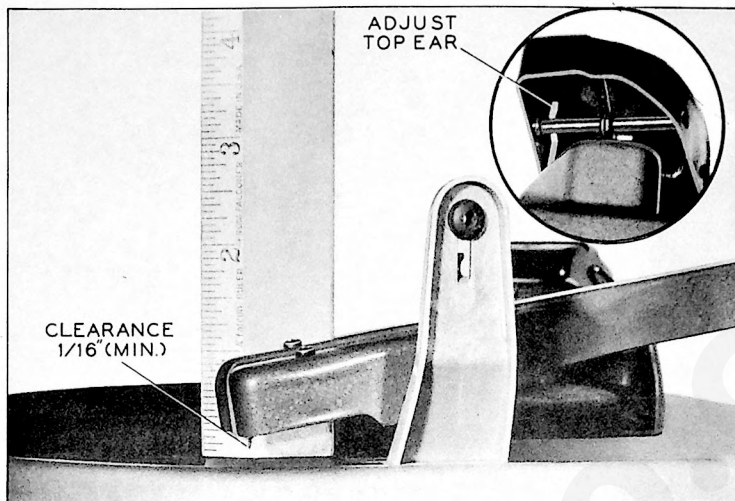
Figure 9. 10-Inch Indexing Adjustment



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Figure 10. 12-Inch Indexing and Trip-Receiver Adjustments

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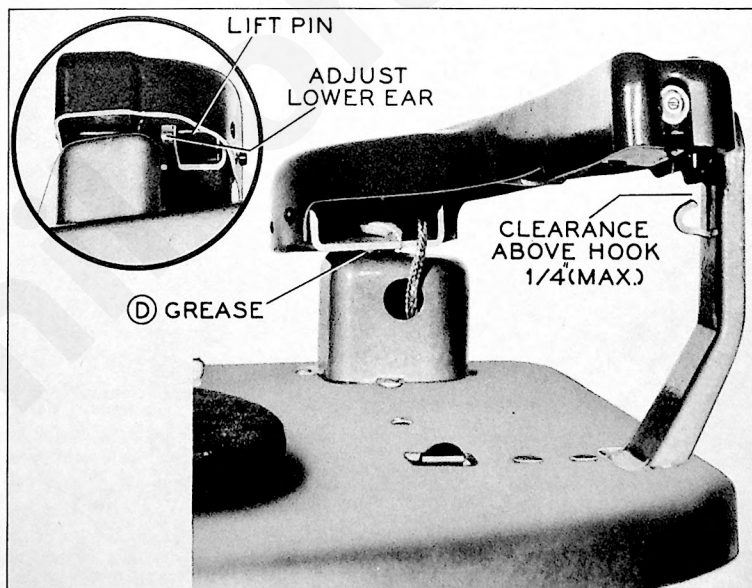
Figure 11. Tone-Arm Height Adjustment

### TONE-ARM VERTICAL AND HORIZONTAL TIMING ADJUSTMENTS

#### NOTE

Before making these adjustments, make the tone-arm height and lift adjustments given above.

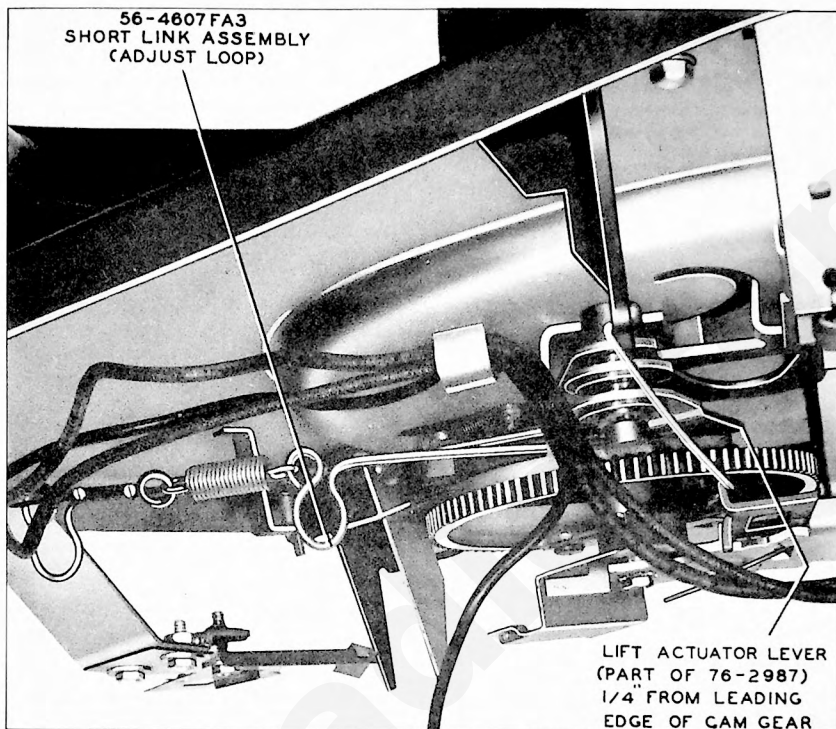
For the vertical adjustment, start with the changer out of cycle, push the control button to REJ., and rotate the turntable, by hand, three-quarters of a revolution; this setting can be obtained more accurately by making a mark on the turntable to coincide with some starting point. At the three-quarter-revolu-



TP-4102

Figure 12. Tone-Arm Lift Adjustment





TP-4116-1

Figure 13. Tone-Arm Vertical Timing Adjustment

tion point, the leading edge of the cam surface is approximately  $\frac{1}{4}$ " from the end of the lift actuator lever; this is the lower actuator lever, shown in figure 13. Adjust the wire loop of the short link (link, cord, and spring assembly), attached to the tone-arm lift pin, by squeezing or opening the loop until the tone-arm lift pin makes contact with the lower ear of the tone-arm swivel (figure 12).

For the horizontal adjustment, rotate the turntable another three-quarter revolution from the point at which the vertical adjustment was made. At this point, the leading edge of the cam surface is approximately  $\frac{1}{4}$ " from the end of the horizontal-return actuator lever; this is the upper actuator lever, shown in figure 14. Adjust the wire loop of the long link and spring assembly, attached to the trip arm, by squeezing or opening the loop until the tone arm makes contact with the rubber bumper on the tone-arm rest post.

#### TRIP-FINGER AND TRIP-RECEIVER ADJUSTMENTS

For the trip-finger adjustment, move the tone arm toward the spindle. Adjust the screw on the trip-receiver plate (figure 15) so that the trip finger, when riding over the ratchet screw on the trip plate,

assumes an angle of  $25^\circ$  to  $30^\circ$  with respect to the screw. Do *not* bend the trip finger to obtain the correct angle.

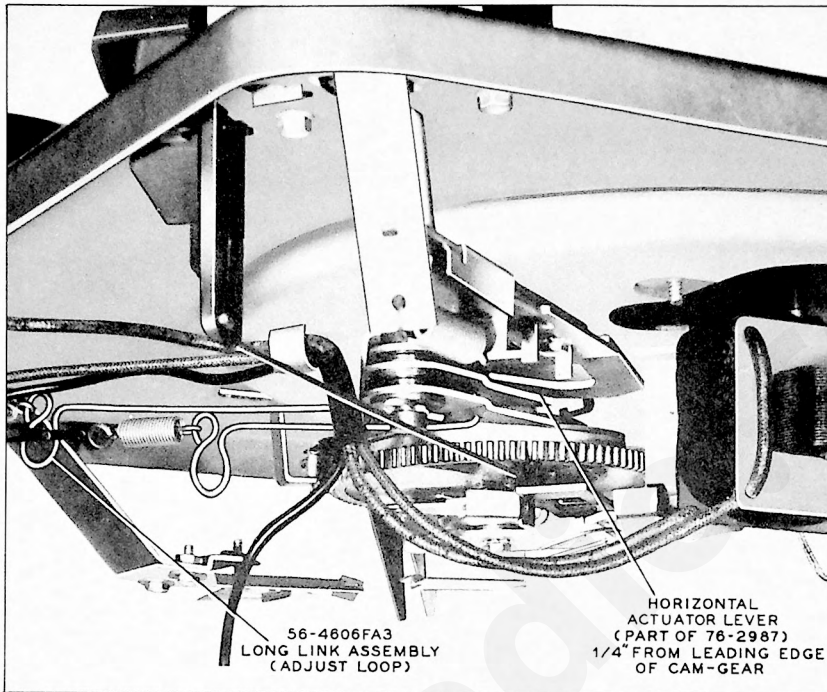
For the trip-receiver adjustment, place the tone arm on a record with the needle resting in the eccentric finish groove. The vertical center line of the trip finger should coincide with the center line of the ratchet screw. To adjust the centering of the trip finger over the ratchet screw, loosen screw B slightly, and screw A completely (see figure 10). Rotate the trip receiver about screw B, as a center, to obtain the correct adjustment (see figure 15). Tighten the screws.

Approximately  $\frac{1}{8}$ " of the trip-arm stop should engage the selector (see figure 10). To adjust the engagement of the trip-arm stop, loosen screw A slightly, and screw B completely (see figure 10). Rotate the trip receiver about screw A, as a center, to obtain the correct adjustment. Tighten the screws.

The above adjustments will affect each other slightly; therefore, it may be necessary to repeat each adjustment until both are correct.

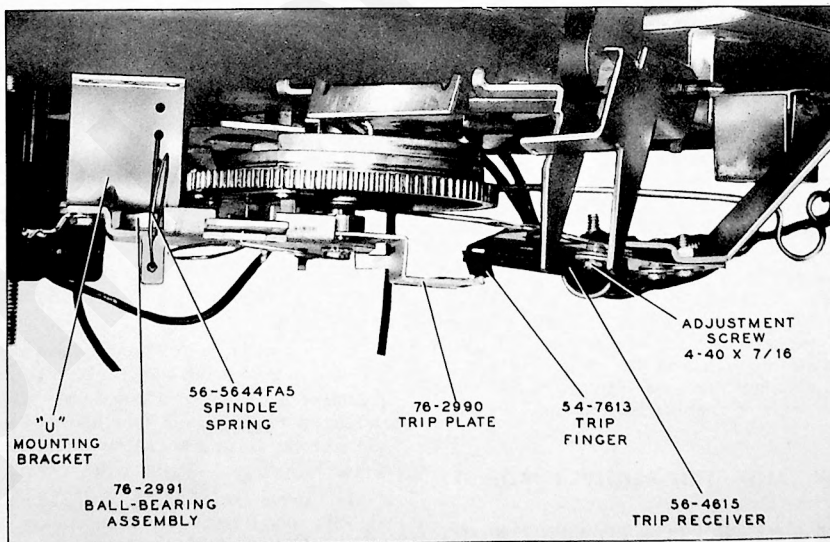
After making the above adjustments, it will be necessary to correct the index adjustments.

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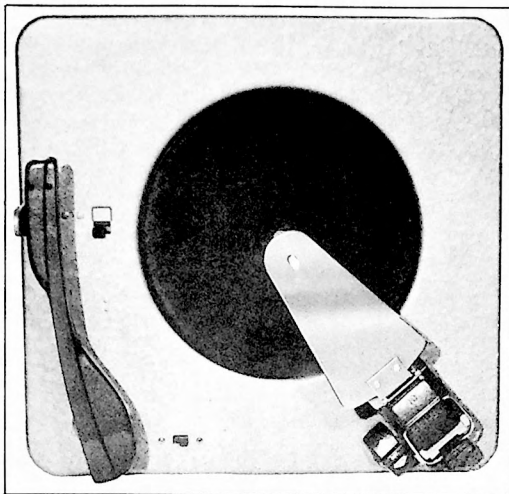
Figure 14. Tone-Arm Horizontal Timing Adjustment



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Figure 15. Trip-Finger Adjustment

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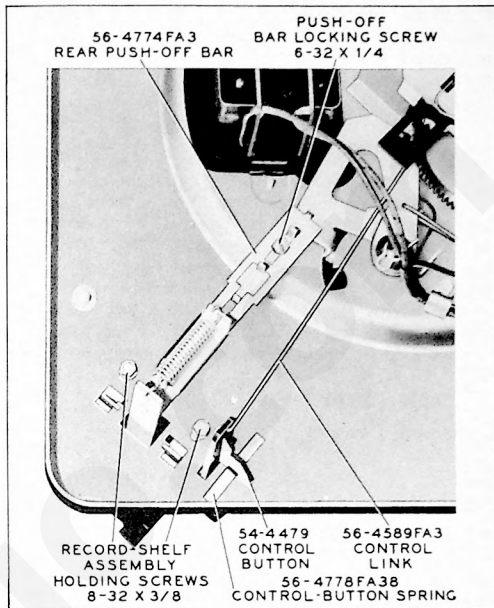


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**Figure 16. Special Gauge, Shown in Correct Position on Record Shelf and Spindle**

### RECORD-SHELF ADJUSTMENT

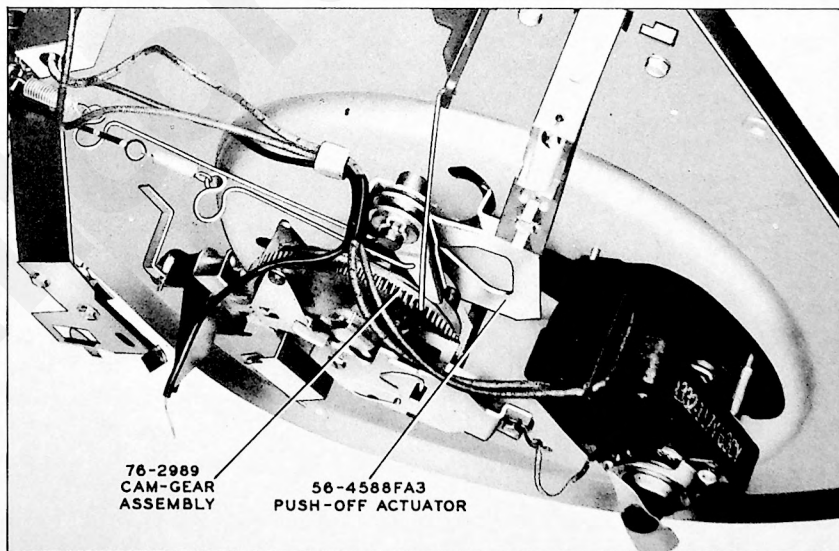
Place the shelf in the 10" position, and the changer out of cycle. Place the Philco record-shelf gauge, 45-1470 (also used for M-4), over the spindle and onto the record shelf, as shown in figure 16. Loosen the two hex-head screws which hold the record-shelf assembly to the changer base plate (figure 17). Move



TP-4117A

**Figure 17. Push-Off-Lever Adjustment**

the record-shelf assembly away from the record spindle until the large curved part of the gauge drops even with the record-shelf lips, as shown in figure



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**Figure 18. Push-Off-Actuator Against Cam Roller**

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16. Now push the record shelf and gauge lightly against the spindle, taking out all play toward the spindle; keep the lips of the record shelf in even contact with the edge of the gauge. Tighten the two hex-head screws.

### PUSH-OFF ADJUSTMENT

Push the control button to REJ., and rotate the turntable  $2\frac{1}{2}$  revolutions, by hand; at this point, the push-off actuator is in its most forward position, in contact with the roller on the cam gear (see figure 18). Loosen the push-off-bar locking screw, shown in figure 17. Squeeze the push-off-bar ears toward each other to the point where the slider blade on the record shelf extends  $\frac{1}{32}$ " beyond the lips of the shelf. Tighten the hex-head locking screw.

### UNEVEN TURNTABLE SPEED (WOWS)

Uneven turntable speed (wows) may be caused by the following:

Dirt under and around the turntable or idler-wheel assembly. Remove the turntable (see Spindle and Turntable, page 505) and clean out the dirt. Be careful to lift the turntable straight up. When replacing the turntable, be sure the idler is behind the turntable rim before the turntable is fully lowered.

Flat or worn spots, or grease, on the rubber tire of the idler wheel.

Defective turntable shaft or bearing assembly.

Replace the defective parts as directed under REPLACEMENT OF PARTS AND ASSEMBLIES, page 505.

Lack of lubrication on idler-wheel assembly. Follow the directions under CLEANING AND LUBRICATION, page 496.

## REPLACEMENT OF PARTS AND ASSEMBLIES

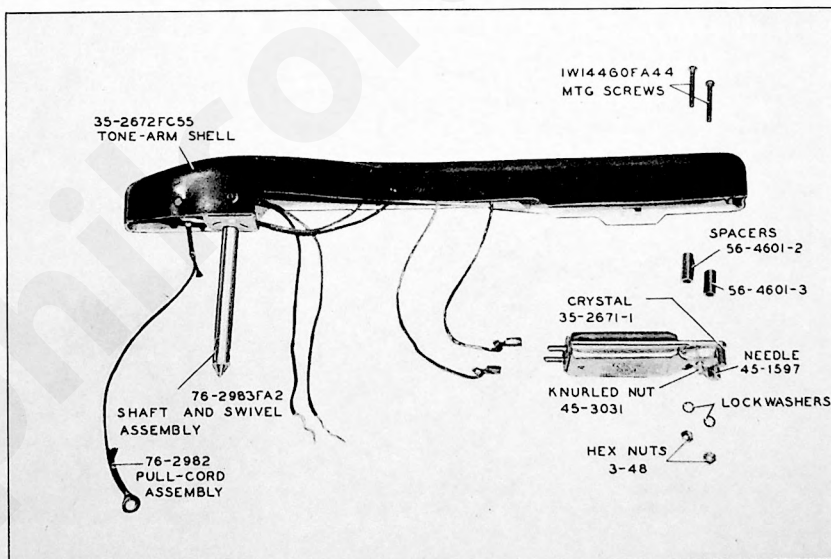
The following procedures are recommended for correct replacement of parts and assemblies. The part should be replaced by reversing the order of removal, and should be adjusted according to the directions given in the ADJUSTMENTS section of this manual.

When any part is to be removed, the control button

should be in the AUT. (automatic) position, and the changer should be out of cycle.

### 1. NEEDLE

To remove the needle, loosen knurled nut from under front end of crystal cartridge, and slide needle out horizontally.



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Figure 19. Tone Arm (35-2663-2), Crystal Cartridge Removed

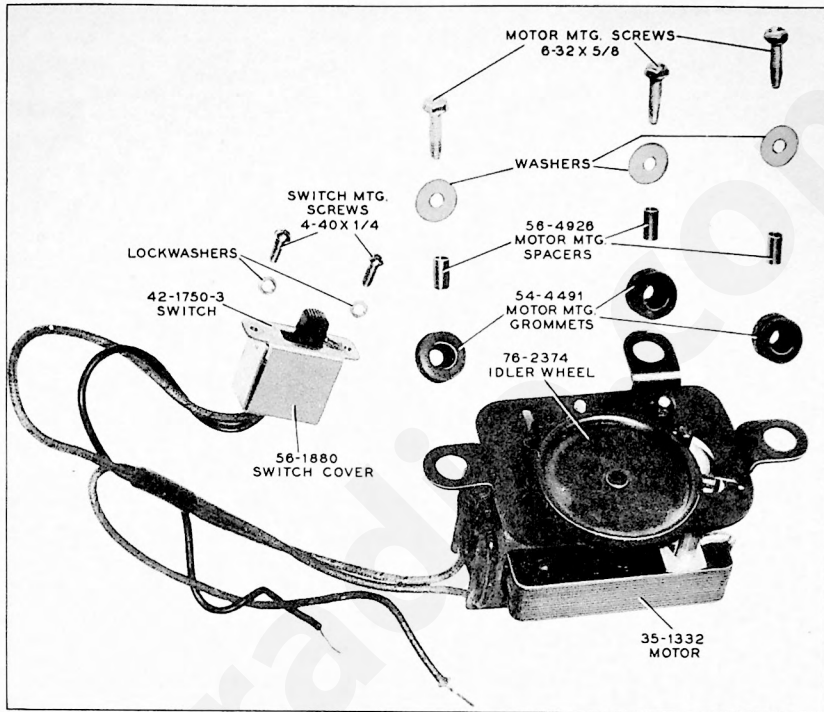


Figure 20. Motor, Switch, and Mounting Hardware

TP-4133

When replacing needle, tighten thumb nut and add a dab of cement in thumb-nut hole to prevent nut from loosening due to vibration.

## 2. CRYSTAL-PICKUP CARTRIDGE

- a. Bring tone arm toward center of turntable.
- b. Remove the two screws, nuts, lock washers, and spacers which hold cartridge to tone arm.
- c. Drop cartridge below tone arm sufficiently to allow removal of the two clips from cartridge, as shown in figure 19. If pickup leads are shielded, unsolder shield.

### NOTE

When mounting cartridge, be sure to insert long spacer in side toward spindle.

## 2A. SPINDLE AND TURNTABLE

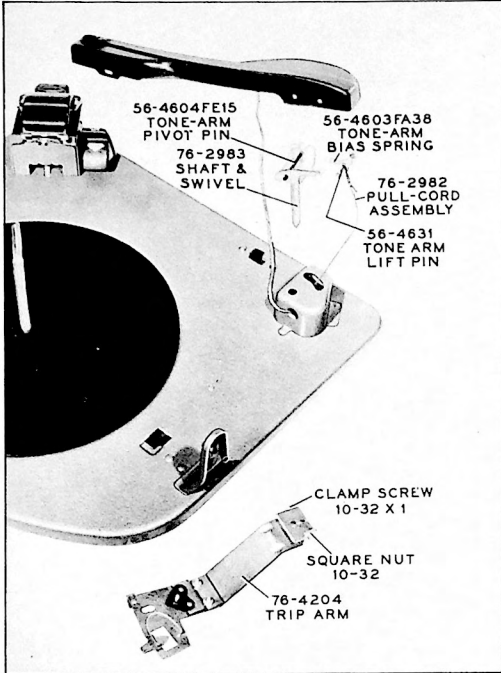
- a. Unhook both ends of spindle spring from "V" mounting bracket (figure 15).

- b. Uncoil spring wire through spindle hole.
- c. Pull out spindle.
- d. Remove turntable by pulling straight up.

## 3. MOTOR

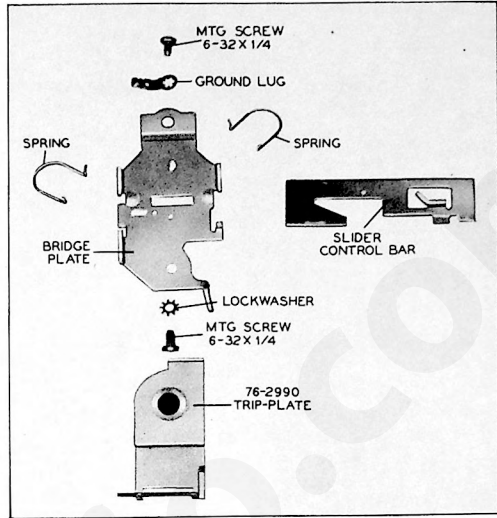
- a. Push control button to MAN. position.
- b. Remove spindle and turntable, as directed in paragraph 2A.
- c. Remove switch cover, and unsolder motor lead from switch contact.
- d. Loosen screw of clamp which holds wire against base plate, and pull wire through clamp.
- e. Unsolder second motor lead from power plug, or disconnect at splice from chassis power lead, whichever is used.
- f. Remove ground lead from lug on motor.
- g. Remove the three screws, washers, and bushings from motor frame (figure 20), and lift motor out.

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TP-4132-1A

Figure 21. Tone Arm and Trip Arm, Removed

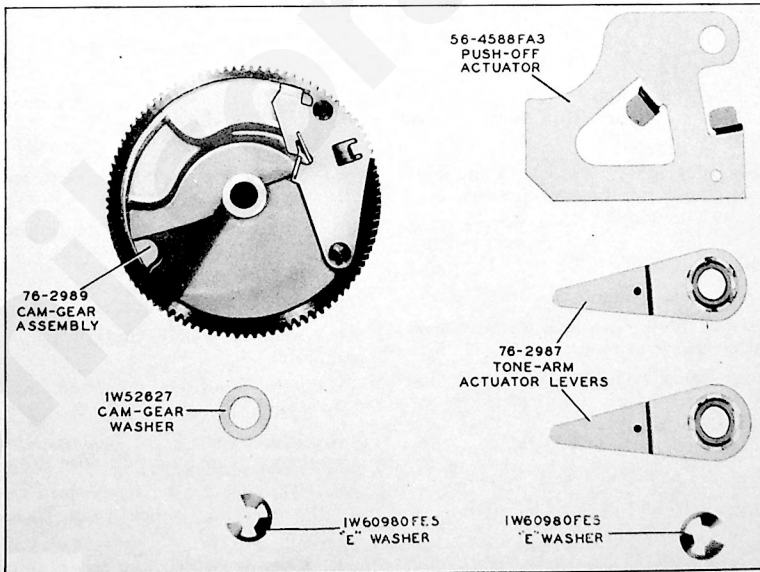


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Figure 22. Bridge Assembly

## 4. TONE-ARM ASSEMBLY

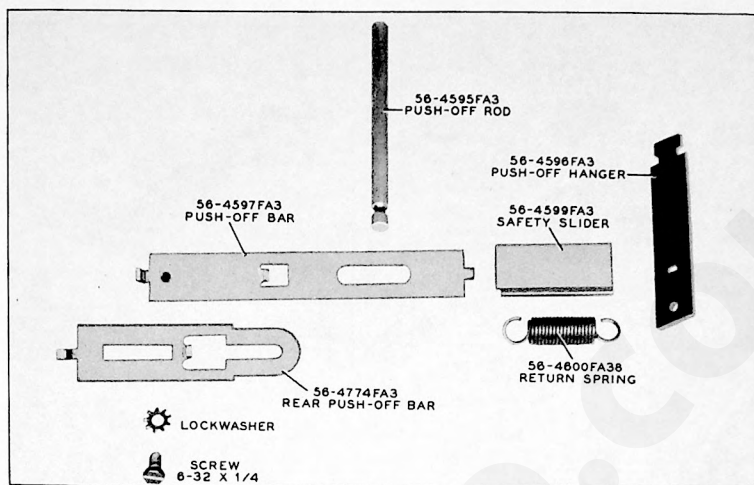
- Unsolder tone-arm lead wires from terminal panel on underside of changer base plate.
- Remove pull cord from spring and short link, 56-4607FA3.



TP-4182-1A

Figure 23. Cam Gear, Push-Off Actuator, and Tone-Arm Actuator Levers

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Figure 24. Push-Off Assembly

c. Loosen clamp screw which holds trip arm to tone-arm shaft, 76-2983 (figure 21). Lift out tone arm and shaft.

### 5. BRIDGE ASSEMBLY

a. Remove spindle spring; then remove the two hex-head screws from bridge plate.

b. Remove link rod, 56-4589FA3, from slider control bar. Complete assembly of bridge is shown in figure 22.

### 6. TRIP PLATE

a. Remove bridge assembly, 76-2978, as directed in paragraph 5.

b. Slide trip plate, 76-2990, off cam-gear spindle.

### 7. CAM-GEAR ASSEMBLY

a. Remove bridge assembly and trip plate, as directed in paragraphs 5 and 6.

b. Remove ball-bearing assembly, 76-2991 (figure 17), by pulling it off.

c. Remove "E" washer, 1W60980FE5.

d. Slide cam gear off spindle. Figure 23 shows cam-gear assembly.

### 8. TONE-ARM ACTUATOR LEVERS

a. Remove "E" washer, 1W60980FE5.

b. Slide lower actuator lever from stud, and remove short link, 56-4607FA3.

c. Remove upper actuator lever from stud, and disengage long link, 56-4606FA3. Figure 23 shows actuator-lever assembly.

### 9. PUSH-OFF ACTUATOR

a. Remove two motor-mounting screws, and loosen the third one; swing motor to one side.

b. Remove tone-arm actuator levers, 76-2987, as directed in paragraph 8.

c. Press push-off rod, 56-4595FA3, and push-off hanger bar, 56-4596FA3, together, and pull downward, releasing the entire assembly.

d. Slide push-off actuator, 56-4588FA3, over, to align upturned ears with cutout in base plate. Slide actuator off stud.

#### NOTE

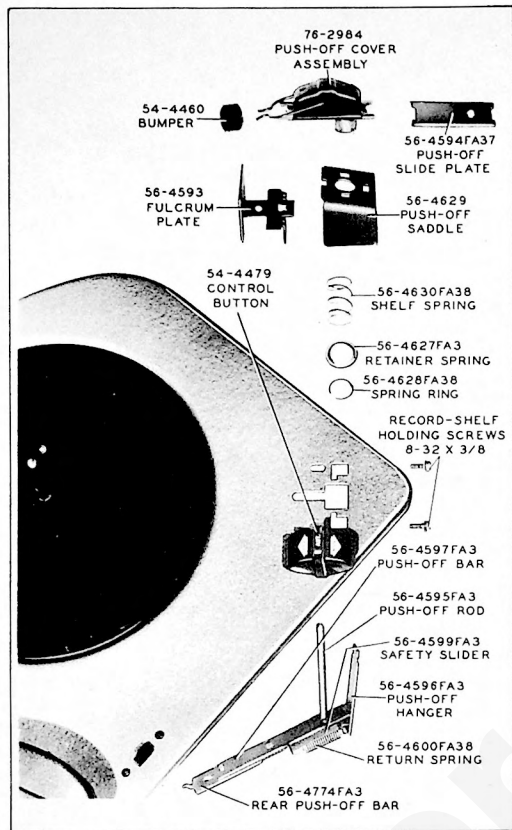
After removing the push-off actuator and push-off-bar assembly, the slider blade on the record shelf may slide out of the assembly. When reassembling, this blade should be inserted in the record-shelf assembly with the elongated hole toward the 12" position of the record shelf. The push-off assembly is shown in figure 24.

### 10. RECORD-SHELF ASSEMBLY

a. Remove push-off actuator assembly as directed in paragraph 9.

b. Remove the two hex-head screws which hold record-shelf assembly to base plate (figure 17).

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**Figure 25. Record-Shelf and Push-Off Assemblies, Removed**

c. Align ears on record-shelf assembly with cut-out on base plate. Lift out record-shelf assembly. Record-shelf assembly is shown in figure 25.

### 11. CONTROL-BUTTON ASSEMBLY

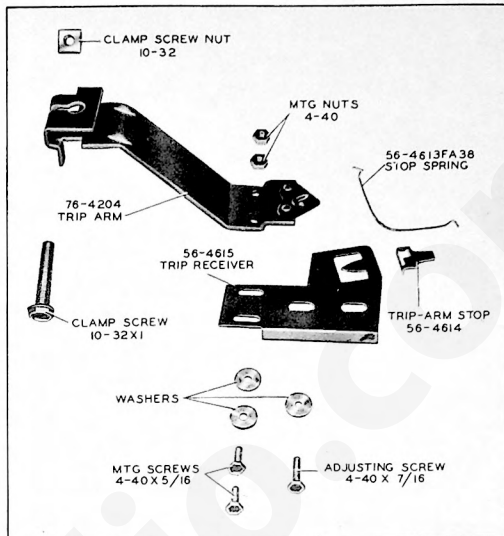
a. Remove flat spring, 56-4778FA38, by sliding it laterally through underside of button (figures 9 and 17).

b. Remove the two hex-head screws and drop bridge assembly, 76-2978 (shown in figure 9).

c. Disengage control link, 56-4589FA3, from underside of control button. Lift out control button.

### 12. TRIP-ARM ASSEMBLY

a. Loosen clamp screw on trip arm, 76-4204 (figure 26).



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**Figure 26. Trip-Arm and Trip-Receiver Assemblies**

b. Raise tone arm and shaft sufficiently to clear trip arm. Remove trip arm.

#### NOTE

When assembling, maintain  $\frac{1}{32}$ " vertical play (clearance between trip arm and base plate) in tone-arm shaft.

### 13. TRIP-RECEIVER ASSEMBLY

Remove the three screws, washers, and nuts from trip arm (figure 26).

Remove trip receiver.

### 14. SELECTOR ASSEMBLY

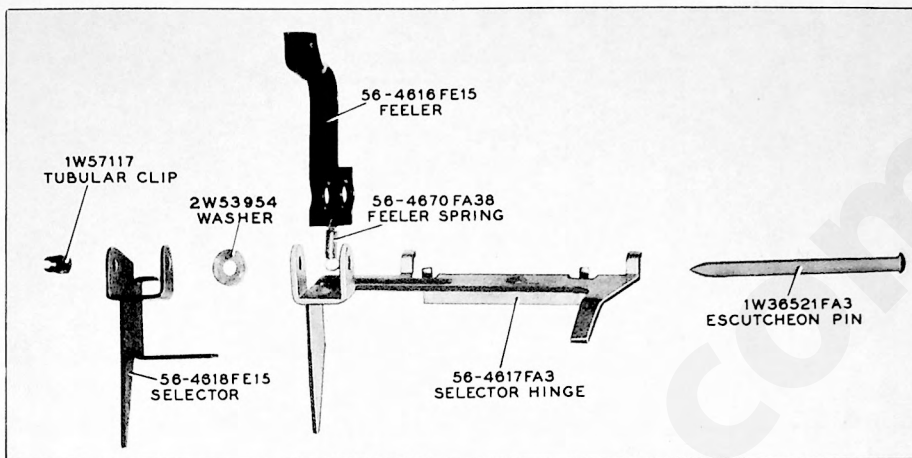
Remove cam gear as directed in paragraph 7. Remove feeler spring from attachment point on motor board. Tilt selector assembly, and remove from base plate.

#### NOTE

When assembling selector assembly, be sure to maintain .005" clearance between selector hinge, 56-4617FA3, and washer, 2W53954. For correct assembly refer to figures 27 and 10.

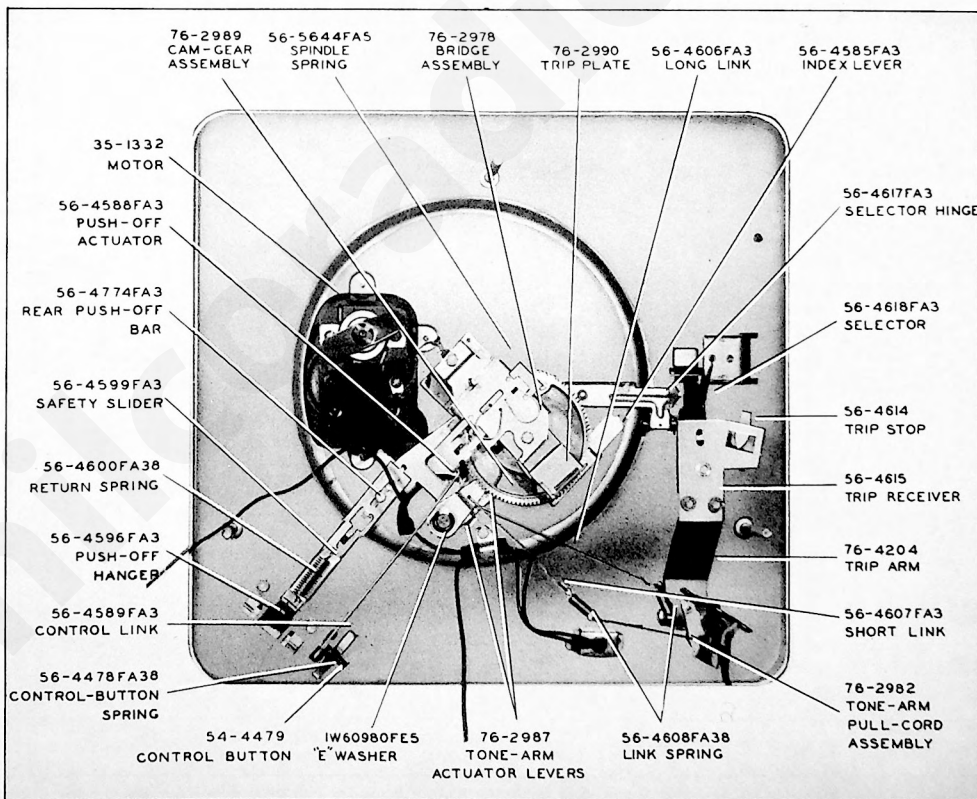


# RECORD CHANGERS (MODEL M-9)



TP-4123-1

Figure 27. Selector and Selector-Hinge Assembly



TP-6539

Figure 28. Bottom View of Changer, with Parts Identification

## RECORD CHANGERS (MODEL M-9)

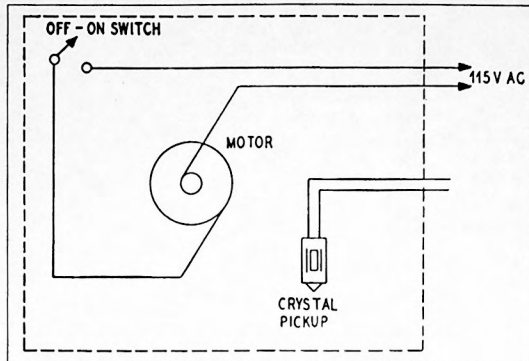


Figure 29. Changer Wiring Diagram TP-4073

## REPLACEMENT PARTS LIST

Description	Service Part No.	Description	Service Part No.
Plug .....	27-4787	Spring, stop .....	56-4613FA38
Motor, 60 cycles .....	35-1332	Stop, trip arm .....	56-4614
Tone arm .....	35-2663-2	Trip receiver .....	56-4615
Crystal .....	35-2671-1	Feeler, selector assembly .....	56-4616FE15
Tone-arm shell .....	35-2672FC55	Hinge, selector assembly .....	56-4617FA3
Turntable .....	35-3066-2	Selector .....	56-4618FA3
Cable .....	41-3869	Record shell .....	56-4626-1FA7
Cable .....	41-3869-1	Retainer, spring, record-shell assembly .....	56-4627FA3
Switch, motor, 50 cycles .....	42-1750-3	Spring ring, record-shell assembly .....	56-4628FA38
Needle .....	45-1597	Push-off saddle, record-shell assembly .....	56-4629
Control button .....	54-4479-1	Spring, record shell .....	56-4630FA38
Bumper .....	56-4460	Pin, tone-arm lift .....	56-4631FE15
Trip finger .....	54-7613	Spring, feeler, selector assembly .....	56-4670FA38
Cover (plug) .....	56-1146	Bar, rear, push-off-link assembly .....	56-4774FA3
Switch cover, 50 cycles .....	56-1880	Spring, control knob .....	56-4778FA38
Cable clamp .....	56-2832FA3	Spring, spindle .....	56-5644FA5
Index lever .....	56-4585FA3	Bridge assembly .....	76-2978
Actuator, push-off .....	56-4588FA3	Pull-cord assembly .....	76-2982
Link, control .....	56-4589FA3	Shaft and swivel .....	76-2983FA3
Fulcrum plate .....	56-4593	Push-off, record-shell assembly .....	76-2984
Plate, push-off slide .....	56-4594FA37	Actuator assembly, tone arm .....	76-2987
Rod, push-off-link assembly .....	56-4595FA3	Base plate assembly .....	76-2988-3
Hanger, push-off-link assembly .....	56-4596FA3	Cam-gear assembly .....	76-2989
Bar, push-off-link assembly .....	56-4597FA3	Trip-plate assembly .....	76-2990
Slider, safety, push-off link assembly .....	56-4599FA3	Bearing assembly .....	76-2991
Spring, return, push-off-link assembly .....	56-4600FA38	Idler wheel .....	76-3556
Spacer, tone arm .....	56-4601-2	Spindle .....	76-3926
Spacer, tone arm .....	56-4601-3	Trip arm .....	76-4204
Spring, index and tone-arm bias .....	56-4603FA38	Screw, crystal mtg. ....	1W14460FA44
Pin, tone-arm pivot .....	56-4604FE15	Spacer, selector assembly .....	1W29126FA3
Link, long .....	56-4606FA3	Pin, escutcheon, selector assembly .....	1W36521FA3
Link, short .....	56-4607FA3	"E" washer .....	1W60980FE5
Spring .....	56-4608FA38		

### PRODUCTION CHANGES

RUN NO.	DESCRIPTION OF CHANGE	REMOVED PART NO.	ADDED PART NO.	REASON FOR CHANGE
2	Trip-arm assembly changed to incorporate arm with cut-out.	76-2979	76-4305	To prevent arm from whipping during shipment.
3	Resistor across standard tone arm removed.	66-5108340		To improve bass response.