

Packard Bell Co.

Model: 58004-B

Chassis:

Year: Pre 1948

Power:

Circuit:

IF:

Tubes:

Bands:

Resources

[Riders Volume 15 - PACK-BELL 15-RCD CH 1](#)

[Riders Volume 15 - PACK-BELL 15-RCD CH 2](#)

[Riders Volume 15 - PACK-BELL 15-RCD CH 3](#)

[Riders Volume 15 - PACK-BELL 15-RCD CH 4](#)

PACKARD BELL CO.

AUTOMATIC RECORD CHANGER — RECORDER COMBINATION

GENERAL INFORMATION

LEVELING OF INSTRUMENT

Keeping the record changer-recorder in a level position is of maximum importance. If the floor under the cabinet is not level, shims should be placed under the feet of the cabinet until the base plate of the instrument is level.

Failure to level the instrument may result in improper feed-in of the pick-up arm when the automatic record changer is in use, and during recording, the proper balance of the cutter head would be disturbed.

LUBRICATION

Frequent lubrication of the record changer is not required, however, certain points should receive attention at least two or three times a year. Lubricate with SAE 20 automobile engine oil the following points: Motor bearings (52) and (53), turntable shaft bearing under cam (16) and idler bearing (51) CAUTION: MAKE SURE THAT NO OIL, GREASE, OR SOLVENT GETS ON THE RUBBER TREAD OF IDLER (54). Oil other parts of the mechanism whenever advisable. Keep the working surfaces of cam (16) and the various cams on cam shaft (19) covered with a thin film of petroleum jelly (vaseline).

Whenever the follower arm post (56) shows any tendency to stick or bind in the pivot post bushing (57), apply petroleum jelly to the follower arm post above and below the pivot post bushing. Work the lubricant in by alternately raising and lowering the recording arm (58). Never oil the follower arm post. Work petroleum jelly into the bearing surfaces between the straddle plate (59) and the pivot post bushing (57). This can best be done by raising the recording arm (58) until it is free of the feed screw after which it can be swung from side to side until the lubricant is well worked into place.

It is quite possible that threads or shavings resulting from the recording process will gather on the various components of the instrument. This debris should, of course, be removed. Particular care should be given to cleaning the threads of the feed screw (60). A brush is recommended for this process. At no time use a sharp instrument to clean the threads of the lead screw. Scratches on this component would have a detrimental effect.

AUTOMATIC RECORD CHANGER MECHANISM

ADJUSTMENT OF SPIRAL TRIP MECHANISM

(1) To adjust the spiral trip to operate farther from the center of the record, loosen the set screw (46) holding dog (7) away from the end of the trip rod (45). (Read paragraph 2 before making adjustment).

(2) Dog (7) is set at the factory to trip when the pick-up needle is $1\frac{1}{4}$ " from the edge of the hole in the record center. This standard setting is correct for all late recordings and all but a very few of the older ones. To facilitate the location of dog (7) it is best to hold a scale with the end touching the turntable pin (5) and in such a manner that the pick-up needle will swing directly above the scale graduations. As noted above, the trip should release when the pick-up needle reaches the $1\frac{1}{4}$ " graduation. NOTE: If for any reason the position of the pick-up arm (13) with relation to the pick-up base becomes changed, the trip dog (7) may require resetting. For this reason always make certain the pick-up is being lowered correctly onto the edge of the record before adjusting dog (7). (This pick-up adjustment is covered in paragraph 16).

MECHANISM FAILS TO TRIP

(3) If the mechanism fails to trip always examine the trip grooves on the record first before attempting to make any adjustments. The record grooves may be badly worn or scratched in such a manner as to cause the pick-up needle to jump the grooves. Also examine the pick-up needle for damage.

(4) The trip rod (45) is held in contact with trip latch (24) by the trip rod tension spring (6). If the eccentric trip fails to operate, it may be necessary to increase the pressure of spring (6) against trip rod (45). Before changing this adjustment, make sure the trip rod does not bind in the bearing where it is linked to the pick-up base. Now, make certain the trip rod floats freely. Examine the serration at (11) making certain the sharp edges have not been damaged. Remove any dirt that may be embedded in the serrations that would prevent the trip latch (24) from being engaged. Examine the knife edge of the trip latch (24) to see if it has become damaged. Inspect the spring (6) to see that its long leg clears that part of supporting bracket (36) on which rests trip rod (45). Make sure the

BOTTOM VIEW

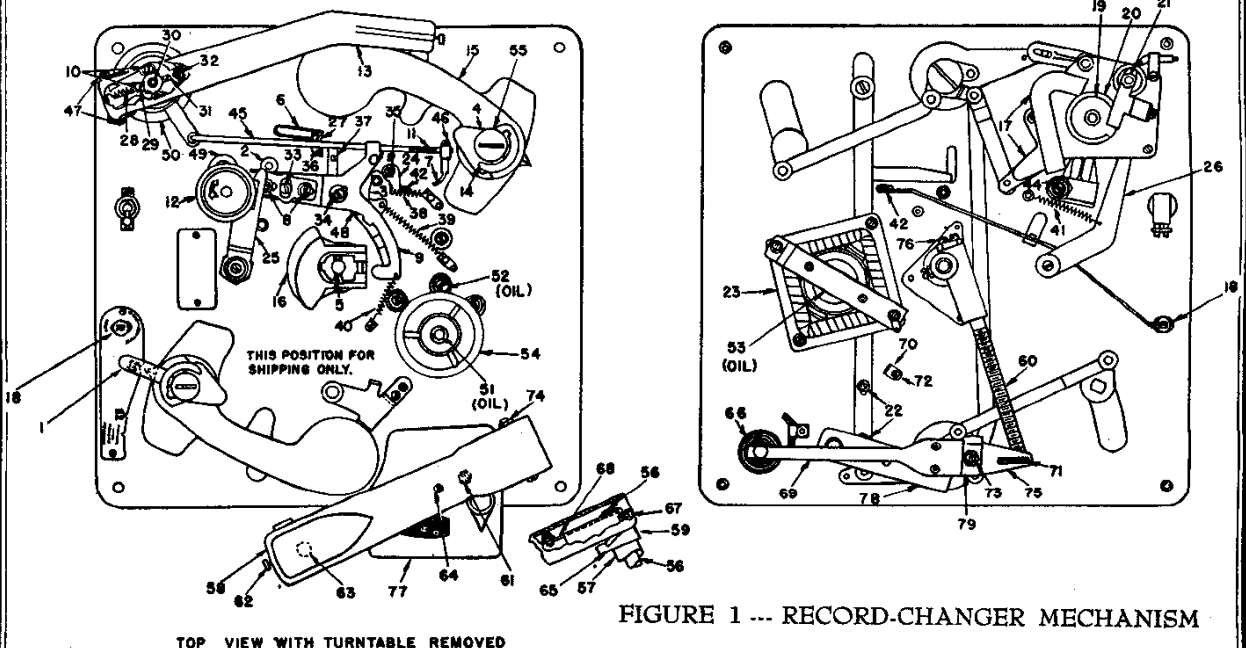


FIGURE 1 --- RECORD-CHANGER MECHANISM

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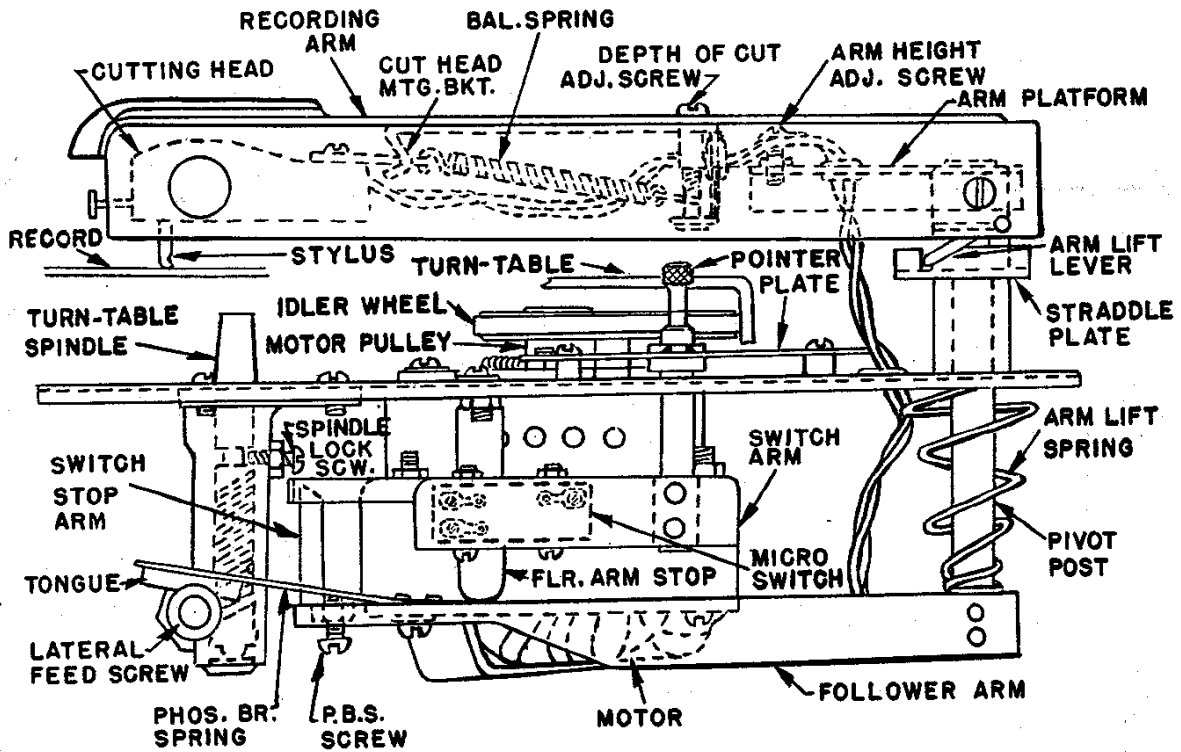
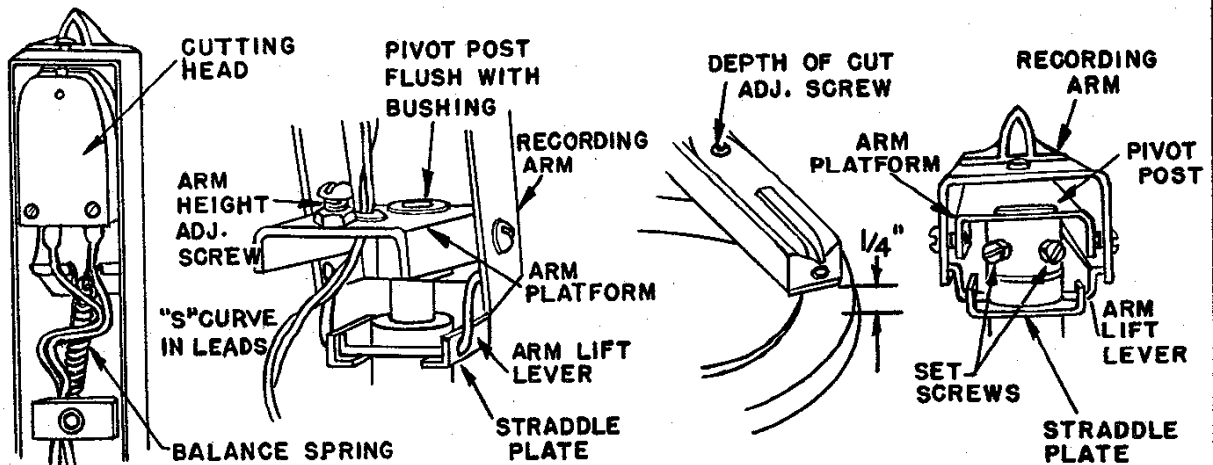


FIGURE 2

OUTLINE DRAWINGS of RECORDER MECHANISM



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pick-up needle is not jumping out of the trip grooves on the record. Hold pick-up base firmly with one hand, then press gently sideways on head of pick-up arm (13) to detect any unusual amount of lost motion or play which might be caused by lock screws (10) not holding firmly, or pivot screws (47) not being correctly adjusted. Sight along the length of the trip rod (45) to make sure it is not bent. This would seriously interfere with adjustment of spring (6). If trip rod (45) is found to be bent, always disassemble it before attempting to straighten it. NOTE: Do not increase the pressure of spring (6) against trip rod (45) any more than is necessary to insure operation of the eccentric trip, because excessive spring pressure will cause the pick-up needle to jump the record grooves. To increase the tension of spring (6) against trip rod (45), loosen screw (27) and turn spring bracket (36) in a clockwise direction.

(5) If the pick-up needle shows a tendency to jump grooves on all records and fails to trip, make sure the pick-up arm (13) swings freely. Next check the pressure of the pick-up needle against the record to make sure that counter balance spring (28) is properly adjusted. The needle pressure should be $1\frac{1}{2}$ Oz. To correct insufficient needle pressure, loosen lock nut on adjusting screw (29) and turn adjusting screw (29) in a clockwise direction until needle pressure is correct. CAUTION: Before changing adjusting screw (29) make certain that push rod (30) moves up and down freely and is not supporting the pick-up arm (13) while the needle is apparently resting on the record. Also make sure that pick-up arm (13) is not resting on the head of screw (32). If the pick-up needle only jumps grooves when one record is on the turntable, pick-up arm (13) is almost certainly resting on push rod (30) or screw (32) SEE PARAGRAPH 15. As a final precaution, make sure pivot screws (47) are not too tight; this would interfere with the free vertical motion of pick-up arm (13).

(6) If the trip mechanism still operates in a faulty manner, check the trip latch (24) and the trip cam lever (3) to make sure they are operating freely and do not bind on studs (35) and (48). If either of these levers are scraping on the base plate, make sure the studs have not worked loose.

(7) If lever (3) moves freely when it clears the trip latch (24) but does not swing into the path of the trip cam (16). Spring (39) which connects to lever (3) is either stretched or missing. If lever (3) makes a loud click when it drops in. The rubber bumper, against which it should strike, has worked up and should be pressed back into place.

NOTE: Do not attempt to make the trip mechanism operate from home recorded discs.

CHANGE MECHANISM DRIVE PULLEY FAILS TO ENGAGE

(8) If the trip mechanism functions in a satisfactory manner and pulley (12) is latched in position to engage the turntable rim, but does not contact the turntable rim with sufficient pressure to insure operation, loosen two lock screws (8) and turn eccentric (33) so as to move the pulley control lever extension (49) outwardly a distance which will bring pulley (12) into positive frictional engagement with the turntable rim.

CAUTION: This adjustment is very critical and should be carefully made. If pulley (12) is forced too tightly against turntable rim, the latch (25) will stick at the completion of the change cycle and prevent the pulley from becoming disengaged from the turntable rim. Before making any adjustment it is also advisable to check the set screw in pulley (12) to make sure that pulley (12) is tight and not turning on the shaft which carries it.

(9) If latch (25) fails to hold pulley (12) in position, check the latch to make sure the latch fingers have not been bent. Next, check spring (41) on lever (26) to make sure the spring is not defective or missing. If pulley (12) is riding off the lower edge of the turntable rim or so high as to cause it to scrape against the underside of the turntable, the height of pulley (12) may be adjusted by means of thrust screw (44). Before trying to turn screw (44) always loosen the provided lock nut.

MECHANISM REPEATS

(10) If the mechanism repeats (continues to change

records without playing them), the pulley (12) may not be disengaging from the turntable rim. This failure to disengage may be due to the following: Faulty action of the latch (25). (See "Caution" in paragraph 8). A defective or missing return spring (40) on pulley control lever (9). A defective or missing spring (41) on lever (26). Lever (26) may be bent so that it is not contacting the pulley release cam. See paragraph 17).

(11) If pulley (12) disengages at the completion of the change cycle and immediately re-engages, the trip mechanism is at fault and it is suggested that the following be checked: Reject lever (42) may be bearing against trip latch (24) or it might be caught under trip latch (24). Pulley control lever (9) may be bent down so that it engages cam (16) even when cam (16) is not elevated by lift lever (3). Cam (16) may be sticking in the raised position. The re-set spring (38) on trip latch (24) may be defective or missing. The stud (34) on which pulley control lever (9) is mounted may have worked loose and should be tightened.

MECHANISM TRIPS DURING PLAYING CYCLE

(12) If the mechanism trips during the playing of a record and before the pick-up arm has swung inwardly to the point where the trip is adjusted to operate on spiral trip groove records, the following conditions should be checked: Weak or missing re-set spring (38) on latch (24). Defective shoulder on trip latch (24) or rounded corner on cam lift lever (3), permitting lever (3) to slip off the shoulder on trip latch (24). If the mechanism trips when the pick-up is moved by hand to the outside edge of the turntable and beyond, the trip rod (45) may be bent.

MECHANISM TRIPS OR PICK-UP ARM BINDS IN MANUAL POSITION

(13) When lever (1) is moved to the manual position, the pick-up arm (13) should be capable of free motion between the normal limits of its travel without tripping the mechanism. If the pick-up arm binds or trips the mechanism under these conditions check the following: Trip rod (45) may be bent or disengagement finger (37) bent or broken. If rubber bumper (2) becomes pushed up away from the base plate, this will permit lever (9) to overtravel and may jam trip rod (45).

RECORDS FAIL TO DROP PROPERLY FROM RECORD SUPPORTS

(14) If two or more records are dropped at the same time or one edge of the record drops and the other edge does not, then the rear record support (15) may not be correctly adjusted or record separating fingers (14) may be bent. Also check the records to make sure they are of standard diameter or thickness. Should record separating fingers (14) be bent, refer to paragraph 17 for corrective measures. An examination of the unit will disclose that the front record support has fixed positions determined by dedents which are located by lever (1). The rear record support (15) however is adjustable. If the record supports are not the correct distance apart, loosen screws (22) and move the rear record support (15) to the proper position.

CAUTION: Before making this adjustment always make sure the lever (1) is firmly located in the proper dedent.

NOTE: Due to the fact that home recording discs differ from standard records in thickness and diameter, they cannot be handled by the record supports.

PICK-UP ARM LIFT AND REST ADJUSTMENTS

(15) The height to which pick-up arm (13) is lifted during the change cycle may be adjusted by screw (21). In making this adjustment make sure it will not lift high enough to strike bottom record on the record supports. Also make sure that the pick-up needle drops low enough to rest properly on the record on the turntable. If the pick-up arm (13) is in contact with the push rod (30) or the pick-up rest (32) when the pick-up needle is resting on one record on the turntable, the needle will not exert sufficient pressure against the record for proper operation. Before adjusting the pick-up lift the pick-up rest (32) should be checked to see that it is correctly adjusted. Pick-up rest (32) is correctly adjusted when the pick-up needle just touches the top of the turntable. As a final check be sure

MODEL 58004-B

PACKARD BELL CO.

that the pick-up will track properly when reproducing the thinnest home recorded disc likely to be used.

ADJUSTMENT OF PICK-UP LOWERING POINT

(16) To adjust the pick-up arm (13) so that it will be lowered to the correct point on the outside of the record: First shift lever (1) to the 10" position and then stop the mechanism with the pick-up positioning cam follower at the point of maximum rise of the pick-up positioning cam. Now raise the pick-up arm to the vertical position and loosen two screws (10) so that the arm (13) can be moved with relation to the pick-up base (50). Next holding the pick-up base (50) so that it will not turn, force the pick-up arm (13) toward the record centering pin (5). Now place a scale under the pick-up needle with the end of the scale touching the record centering pin (5). Next, carefully pull the pick-up arm outwardly until the pick-up needle is 4-45/64" from the pin (5). Raise the pick-up arm (13) and tighten the two locking screws (10), being careful not to move arm (13) outwardly past the correct setting before tightening the screws. This adjustment will automatically take care of 12" records as well as 10". This will be seen by moving lever (10) to the 12" position and running the unit through its cycle. If the pick-up arm (13) always lowers in the 12" position, regardless of the position of

lever (1), the pick-up positioning cam follower is sticking in the down position. Some pick-ups are equipped with an eccentric (31) for rotating the pick-up arm (13) with relation to the pick-up base (50). On such units the two locking screws (10) are loosened, and eccentric (31) turned a small amount at a time until the pick-up needle is lowered to the correct point on the record.

CHIPPING OF RECORDS

(17) The record supports (4) and the record separating fingers (14) are so designed that no chipping of standard records will take place, unless, through rough handling the fingers (14) become bent. For proper operation the fingers (14) must be perfectly flat. To straighten the fingers (14) it is necessary to remove the large headed screws (55) that hold the fingers in place, after which the fingers (14) can be disassembled. Ordinarily, straightening can be accomplished by holding the main part of finger (14) through which the clamping screw passes with one hand, and then taking hold of the sickle shaped part of (14) with the fingers of the other hand, bending the sickle shaped part until it is lined up with the main body. After bending, lay the finger (14) on a flat surface to make sure the straightening has been properly done.

RECORDER MECHANISM**GENERAL INFORMATION**

(18) This model is designed to utilize the "Short Shank" cutting stylus. The overall length of the "Short Shank" stylus is 9/16" to 5/8". Do not attempt to use the "Long Shank" stylus under any circumstances, because it will be found impossible to adjust the "Stylus Angle".

CUTTING HEAD ADJUSTMENTS

(19) The cutter head pressure may be adjusted by screw (64). This adjustment should be made carefully in quarter or half turns. The screw (64) is turned clockwise to increase the cutting depth and counter-clockwise to decrease the cutting depth. The proper cutting pressure is one and one-quarter ounces. To assure that the correct cutting depth has been attained, make a trial cut. The shaving left by the cutting stylus will be continuous and slightly elastic, and its thickness will be about the same as a human hair.

STYLUS ANGLE ADJUSTMENT

(20) The stylus angle is controlled by the length of the stylus and the distance from the top of the recording blank to the recording arm (58). Referring to Figure — it will be noted that this distance is approximately one-quarter inch. This distance may be regulated by raising or lowering stylus angle screw (61). Keep in mind, when making this adjustment, that the stylus must be inserted as far as possible into the stylus chuck.

(21) CAUTION: Because of the wide variation of the thickness of record blanks (.020" to .100"), the variation of the length of cutting stylus (9/16" to 5/8") and the possibility of warped or bent recording blanks, be sure that the stylus clamping screw (62) does not strike the bottom of the slot in the end of the recording arm as the stylus follows the surface of the recording blank.

(22) WARNING: Never allow the stylus to rest on a stationary recording blank if energy is being fed into the cutting head. The stylus will dig through the record coating and damage its cutting edges.

PROPER ENGAGEMENT OF FEED SCREW

(23) Engagement between the knife edge (71) and the feed screw (60) usually starts to take place when the nose of the recording arm is around two inches above the turntable. When the recording arm (58) is raised to a greater height than this, unhampered horizontal motion of the recording arm is possible between the normal limits of its travel. To permit disengagement of the recording arm from the feed screw at a minimum height above the turntable, stop screw (73) has been provided. Adjustment of screw (73) should be made with the recording arm in lowered position and with the feed screw engaged. Adjust screw (73) so that it barely touches spring blade (75) when the knife edge (71) is engaged at any point in the length of feed screw (60).

(24) Normally the full pressure of knife edge (71) against feed screw (60) is desirable. If this pressure is sufficient to cause uneven turntable speed, the pressure of knife edge (71) can be reduced by turning screw (73) in a clockwise direction. Great care should be used in reducing the blade pressure, as uneven groove spacing may result.

UNEVEN SPACING OF RECORD GROOVES

(25) If screw (73) is turned too far in a clockwise direction, it will reduce the pressure of the knife blade (71) against feed screw (60), to where the knife blade (71) will climb the sides of the thread in the feed screw and cause uneven spacing of the recorded grooves. Always be sure that the threads of feed screw (60) are free of dirt or other foreign matter, as these particles will cause uneven spacing of record grooves. Excessive end play in the feed screw will also cause uneven groove spacing.

(26) Thrust screw (76) is provided to keep the end play out of feed screw (60). Care must be used in adjusting screw (76) to prevent binding feed screw (60) between the end thrusts, as this would put an excessive load on the motor and cause speed variations on the turntable.

(27) Lost motion or play between the follower arm (69) and recording arm (58) in the horizontal direction, will prevent the recording arm from accurately following the follower arm. This play should be eliminated.

HOW TO REPLACE CUTTER HEAD

- (28) 1. Remove stylus screw (62).
2. With the arm (58) in the vertical position, press the balance spring against the top of the arm which will throw the cutter head out where it can be firmly grasped.
3. Pull the cutter head upwards until the knife edge at the back of cutter clears its seat in the arm.
4. Unhook the balance spring from the cutter head.
5. Hook the balance spring to the new cutter head and extend the spring sufficiently so that the cutter head knife can be placed in its seat in the arm.
6. Replace stylus screw.
7. Thread the cutter leads through the arm and the arm platform. Clamp the leads on the underside of the base plate and arrange them exactly as before.

AUTOMATIC CUTTER STOP FAILS TO OPERATE

(29) The automatic cutter stop (77) is almost completely devoid of parts that are likely to fail. The only part that is at all likely to fail is the micro-switch (78). Since this micro-switch is completely sealed in, it must be replaced in its entirety.