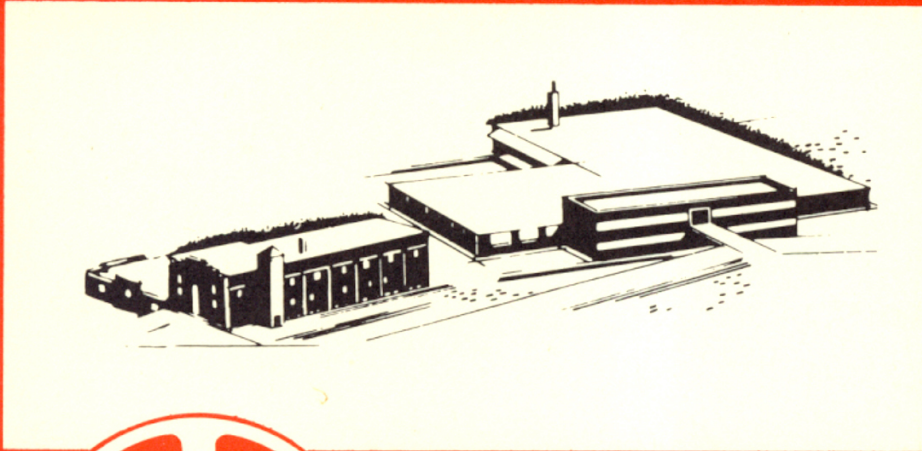


DISC RECORDER 6N

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PRESTO

RECORDING CORPORATION

A Subsidiary of The Siegler Corporation

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The Presto logo is displayed in a stylized, italicized, bold font within a rectangular border. The letters are black on a white background.

PRESTO

Manufacturers of:

Professional Tape and Disc Recorders

Professional Turntables

Professional Tape Duplicators

Long Playing Tape Reproducers

Recording Amplifiers and Accessories

Portable Tape and Disc Recorders

Recording Discs and Tape

Recording and Playback Needles

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INTRODUCTION

GENERAL

The Presto 6N Turntable is a high quality recording machine capable of operating at 33-1/3, 45 or 78 revolutions per minute. It consists of a turntable, motor-drive system and an overhead cutter-head mechanism mounted on a cast aluminum base. The overhead cutting mechanism includes a Presto 1D high fidelity cutter head, a 112-line per inch feed screw, a

dashpot and a time scale. This mechanism is designed so that it may be removed as a unit from the turntable and placed into a compartment inside of the carrying case.

The turntable drive system consists of a self-starting synchronous motor which supplies

TECHNICAL SPECIFICATIONS

FREQUENCY RESPONSE

CUTTER HEAD: ± 2 DB 50 TO 10,000 CYCLES

*PICKUP HEAD: 50 TO 10,000 CYCLES

*NOTE: The pickup head will produce a flat response from 50 to 10,000 cycles from the constant velocity portion of the record. A compensator network is included with the machine to provide some bass boost for the constant amplitude portion of the record.

IMPEDANCE

CUTTER HEAD: 15 OR 500 OHMS

PICK-UP HEAD: 500 OHMS

SPEED ACCURACY

WITHIN 0.5 PERCENT AT 33-1/3 RPM, 45 RPM AND 78 RPM. REGULATION WITHIN A SINGLE REVOLUTION IS ACCURATE TO 0.25 PERCENT

MECHANICAL NOISE: 40 DB BELOW AVERAGE PROGRAM LEVEL

FEED SCREW PITCHES

96, 112, 120 OR 136 LINES PER INCH INSIDE-OUT OR OUTSIDE-IN. MICROGROOVE, 224 LINES PER INCH OUTSIDE-IN.

NOTE: 112-line per inch feed screw supplied with equipment unless otherwise specified.

POWER REQUIREMENTS

60 WATTS, 115 VOLTS, 50 OR 60 CYCLES, SINGLE-PHASE ALTERNATING CURRENT

DIMENSIONS: IN CARRYING CASE: 20-1/4" x 20" x 15"

WEIGHT: IN CARRYING CASE: 82 LBS.

power to the inside rim of the turntable through a two-step pulley and two rubber idler wheels for the three speeds. A speed-shift handle operates the motor switch and engages the idler wheels. Correct pressure against the idler wheels is obtained by adjustable stops.

The overhead assembly has one end mounted on the turntable base. The other end is driven by a flange which fits over the turntable shaft spindle. The spiraling feed screw make it possible to space grooves up to 1/2 inch apart at convenient crank speeds. The entire overhead mechanism swings to a rest at one side of the turntable when not in use. Elapsed recording time at 78 and 33-1/3 rpm may be observed on a time scale.

The cutter head is mounted on an apron, hinged for quick adjustment of the cutter angle.

A cam lever is provided for lowering the cutter needle on the disc. The depth of cut is adjusted by a counterbalance spring. A knob on the cutter carriage lowers the feed finger under spring tension onto the feed screw. A dashpot, for eliminating rumble or flutter due to vertical motion, is mounted beside the cutter carriage.

For microgroove recording the 6N Turntable requires the following additional equipment: microgroove feed screws, microgroove cutting stylus, an "advance" ball attachment on the cutting head cover, a microgroove pickup cartridge for playing back and a feed finger blade assembly (either the existing blade may be ground down to accommodate the very fine thread of the microgroove feed screw or a new blade may be obtained from Presto).

INSTALLATION

UNPACKING

1. **Portable Carrying Case:** The 6N Turntable Unit in a portable carrying case is packed for shipment in one wooden crate. If the equipment is ordered with a microscope, the microscope will be found in the lid of the case. In unpacking the equipment, proceed as follows:

- a. Raise the lid to a vertical position and push to the right for its removal (lid will slip out of hinges).
- b. Remove the wadding on top of the turntable and clear the cables.

CAUTION: Do not lose ball bearing at the bottom of the turntable well. Do not allow the weight of the turntable to rest on its shaft.

- c. Remove the steel bracket holding the motor (see below).
- d. Open the small latches of the compartment on the side of the case and remove the protective wadding. Remove packages containing the bottle of liquid

for use in the dashpot and the 7/16" open end wrench used for tightening the overhead cutter mechanism.

- e. Loosen the wingnut so that the wood block may be moved to a horizontal position (fig. 2). Carefully lift out the overhead cutter mechanism (see Overhead Mechanism, below) from the compartment.

CAUTION: The overhead mechanism should always be cushioned with wadding when placed in a flat surface.

2. **Chassis Model:** The 6N Turntable Unit, chassis model, is packed for shipment in two wooden crates. After carefully removing the outside wood containing the chassis and the cord holding the cables securely, proceed as follows:

- a. Remove the 2x2 wood braces protecting the chassis and the four wood screws from the chassis mounting plate.

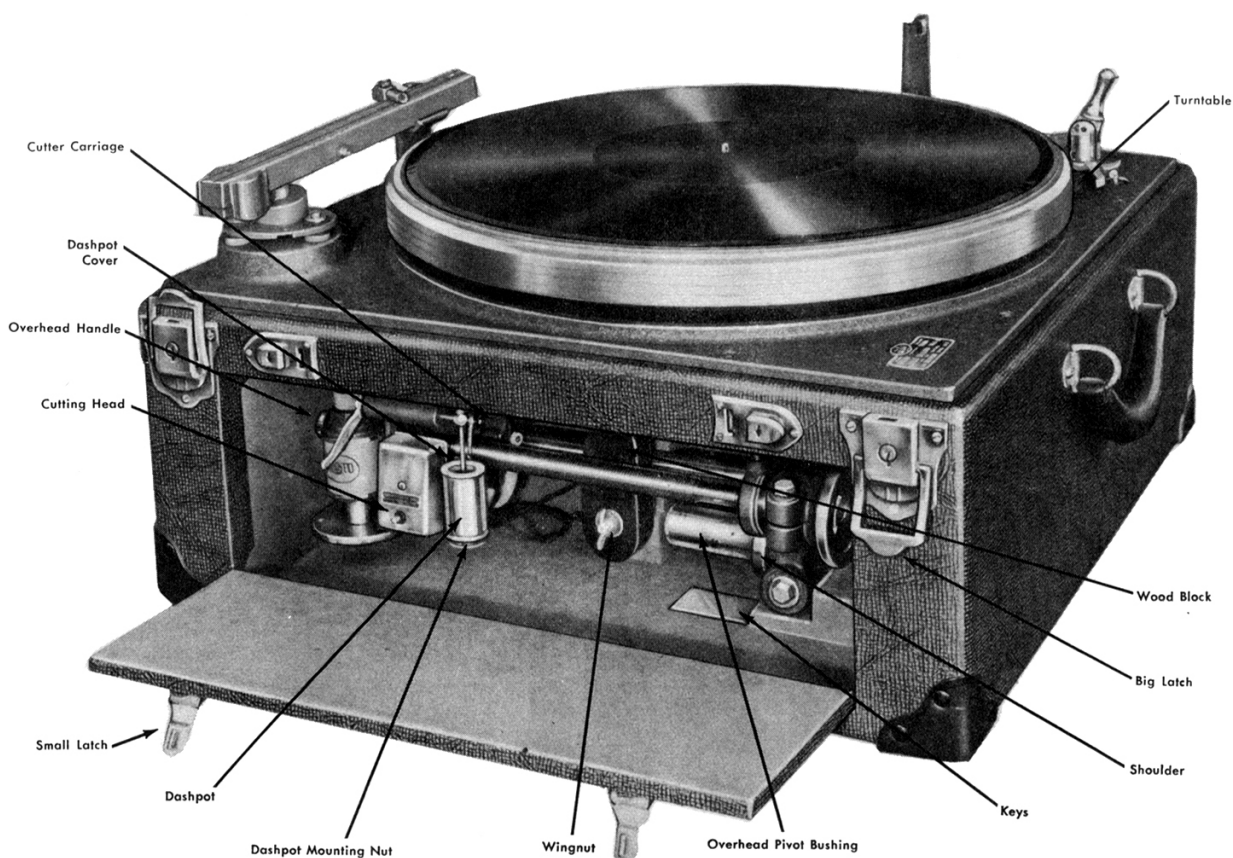


Figure 2. 6N Turntable Unit in portable carrying case

- b. Lift the chassis out of its frame and install it in its proper location.

CAUTION: Do not allow the weight of the chassis to rest on the motor.

- c. Remove the cork from the turntable bearing well. Open the crate containing the turntable and place it carefully into position.
 - d. Remove the steel bracket holding the motor (see below).
 - e. Install the idler wheels (see Installing Equipment, paragraph 1, below).
1. **Cabinet Model:** The 6N Turntable, cabinet model, is packed similarly to the chassis model, except that there is one extra crate containing the cabinet itself. Follow

previous instructions for unpacking the unit.

REMOVAL OF STEEL BRACKETS

To prevent damage to the motor during transit, a steel bracket is used to hold the motor fast to the bottom of the chassis mounting plate. Proceed as follows:

1. Remove the two red screws attached to the chassis plate and to the motor mounting ring.
2. Remove the bracket.
3. Check to make certain that the rubber grommets are properly seated in the sockets and the motor swings freely.

INSTALLING EQUIPMENT

1. Idler Wheels

- a. Wipe and clean the idler wheel shafts. Apply not more than 1 or 2 drops of 3-1 oil to the shafts. Wipe off any oil on the rubber of the idler wheels.

CAUTION: *Do not use any carbon tetrachloride or cleaning fluid on the idler wheels.*

- b. Place each idler wheel on its proper shaft (the single wheel should be placed on the shaft closest to the speed shift handle). See Fig. 8
- c. Place a spring clip on each shaft to hold each idler wheel.
- d. Place turntable shaft into the turntable well.

2. Overhead Mechanism

- a. Open compartment containing the overhead mechanism, loosen the wingnut

holding the wood block and turn the block clockwise as far as possible.

- b. Grasp the overhead bars, raise the mechanism slightly and pull it forward and to your right to remove it from the compartment.
- c. Turn the overhead pivot bushing (fig. 2) to a vertical position.
- d. Lower the overhead pivot bushing into the hole in the panel casting until the shoulder of the bushing rests against the top bearing surface of the hole.
- e. Grasp the overhead handle and swing the mechanism to and on top of the overhead rest (fig. 3).
- f. Tighten the overhead-mounting bolt (fig. 7) with the supplied wrench.
- g. Raise the dashpot cover and fill the dashpot $\frac{2}{3}$ full with the supplied liquid (glycerine). Replace the dashpot cover.
- h. For chassis models, it is necessary to install the feedscrew and crank handle. See Section on Operating Instructions.

OPERATING INSTRUCTIONS

OVERHEAD MECHANISM

1. **Cutter-head Connections:** Two pin jacks connected to a cable are provided for connecting the cutter head to an amplifier. The output impedance of the amplifier should match the cutter head impedance and should have an undistorted output of at least 10 watts. The proper recording level is 23 db.
2. **Cutter-cam Lever (fig. 5):** The cutter cam lever is used to lower or lift the cutter head.
3. **Feed-finger Knob (fig. 5):** The feed-finger knob is used to engage and disengage the cutter carriage to and from the feed screw. To engage the cutter carriage to the feed

screw, the feed-finger knob can be turned in either direction until the pin under the knob slips into the grooved area. When lifted and turned approximately 180° from the grooved area, the knob disengages the cutter carriage from the feed screw and allows free movement of the cutter carriage.

4. **Feed Screw (fig. 4):** Standard feed screws are available for cutting inside-out or outside-in at 96, 112, 120 or 136 lines per inch. A microgroove feed screw is available to cut outside-in at 224 lines per inch. To change the feed screw, disengage the cutter carriage (see feed-finger knob above) and loosen the lock screw (fig. 4). Hold the feed screw and pull out on the crank, thus disengaging it from

DISC RECORDER



Figure 3. Overhead mechanism mounted on overhead rest

the gear mechanism. Slip it out carefully for a replacement.

5. **Time Scale Assembly (fig. 4):** The time scale assembly is an attachment for reading the elapsed recording time at both 78 and 33-1/3 rpm. The red portion of the time scale assembly is used with recordings at 33-1/3 rpm and the black portion with recordings at 78 rpm. To read the time scales, proceed as follows:

- a. Select the red or black portion of the scale depending upon recording speed.
- b. Determine the feed screw to be used and rotate the time scale assembly until the scale with the number of lines per inch to be cut is located.
- c. The time scale indicator (fig. 4) has two pointers. Use the pointer at the right (towards the crank handle) for reading the 33-1/3 rpm scale, the pointer at the left for reading the 78 rpm scale.
- d. For each feed screw, the scale contains two sets of figures. The upper set of

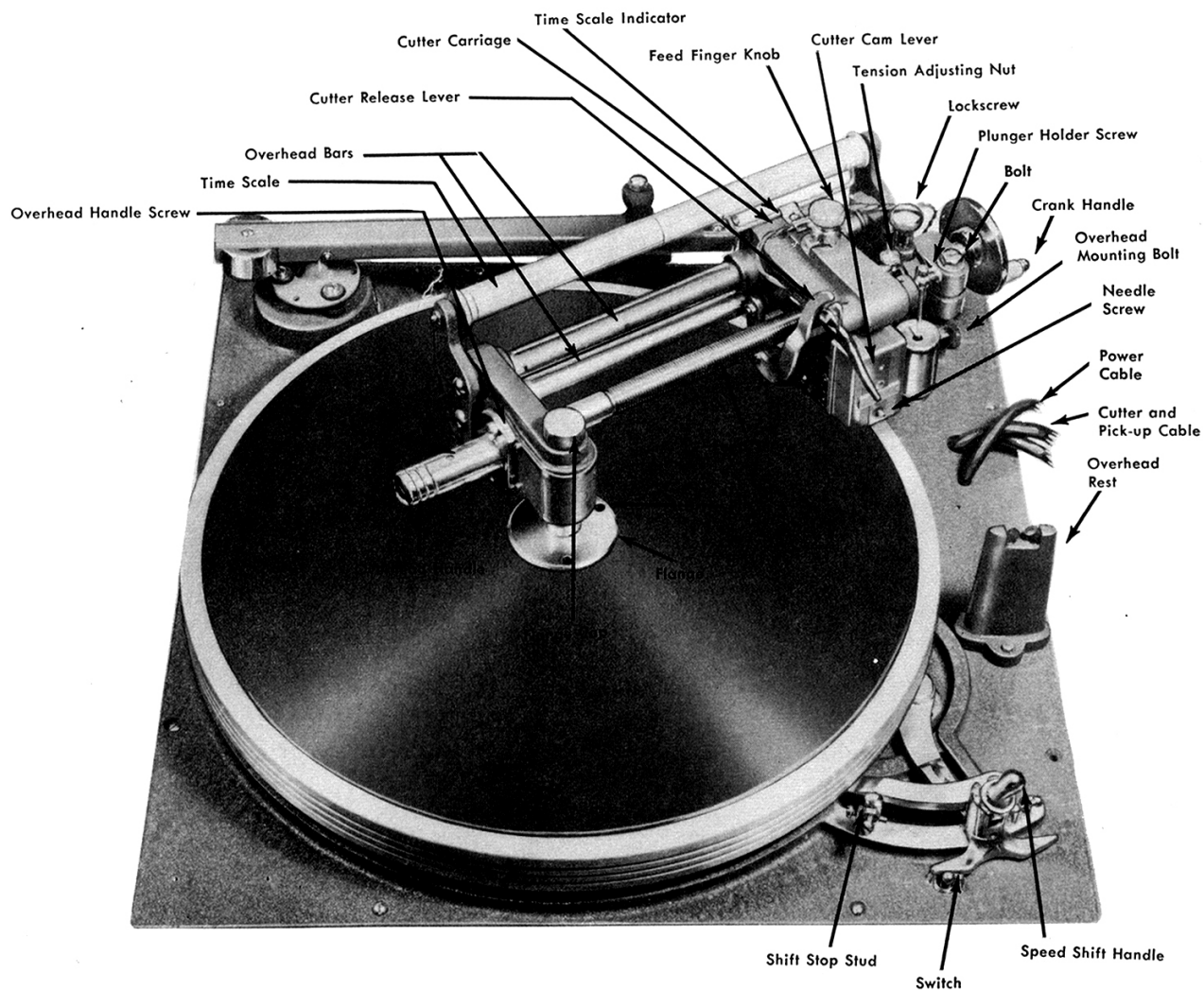


Figure 4. Close-up of the 6N Turntable

numbers reads from left to right, the lower set from right to left. If cutting outside-in, set the pointer at zero on the lower scale. The lower scale will then indicate the elapsed time and the upper scale the time remaining for the recording (for a 16" record). If cutting inside-out, set the pointer at zero on the upper scale. The elapsed time should then be read on the upper scale and, for a 16"

record, the time remaining on the lower scale.

The time scale indicator assembly is moveable so that the pointers can encompass the entire range of the time scale. To set either pointer, loosen the screw holding the indicator clamp (just behind the feed-finger knob), set the pointer to the position desired, and re-tighten.

SPEED SELECTION

1. **33-1/3 and 78 rpm:** The speed shift handle is used to start and stop rotation of the turntable. Raised to a vertical position and pushed to the right, it rests against the 78 rpm stop screw and engages the 78 rpm idler wheel against the motor shaft. Pushed to the left, the shift handle yoke rests against the 33-1/3 rpm stop screw (bottom screw) and engages the 33-1/3 rpm idler wheel against the motor shaft. After the desired speed is chosen, the shift handle should be pressed down and locked firmly into position.
2. **45 rpm:** Raise the turntable and locate the angle bracket near the turntable well. Raise this bracket and remove the 45 rpm adapter sleeve underneath it. Place the sleeve on the motor pulley and rotate it until it engages the locking pin on the pulley. Remove the upper stop screw on the 33-1/3 rpm shift stop stud (fig. 4) from the rest position and place it in the hole parallel to the 33-1/3 stop screw. The head of the 45 rpm stop screw should, however, point towards the shift stop handle. (On playback, place the 45 rpm adapter disk (included with the accessories) on the center of the turntable. Raise the shift handle to a vertical position and move it to the left (towards the 33-1/3 rpm position) until it meets the upper stop screw.

CAUTION: To avoid vibration caused by flats on the idler wheels, keep the speed-shift handle in the "O" (center) position when the turntable is not in use.

PREPARING EQUIPMENT FOR RECORDING

For best results, level the turntable and ground the equipment. Always make a test cut with no signal being fed to the cutter before recording.

1. Making a Test Cut

- a. Insert a Presto long shank cutting needle in the cutter head.
- b. Place a blank disc on the turntable.

- c. Grasp the overhead handle and swing the overhead mechanism to operating position. Rotate the flange cap so that the turntable drive pin lines up with one of the flange holes.
- d. Engage the cutter carriage with the feed screw by turning the feed-finger knob. Rotate the crank handle one or two turns to ascertain that the cutter carriage is properly engaged with the feed screw.
- e. Lower the cutter head gently (use the cutter cam lever) and note the angle of the cutter needle with respect to the disc. The proper angle lies between the vertical and 5°. If the angle is incorrect, loosen the bracket securing screw and reposition the cutter head.
- f. Disengage the cutter carriage and move the cutter head towards the center of the disc to about 1/2 inch outside the record label for a few test grooves.
- g. Start the turntable by moving the speed-shift handle to either 33-1/3 or 78 and lock. Engage the cutter carriage.
- h. Lower the cutter needle gently onto the disc and cut a few grooves.

NOTE: Damage to the cutting needle will result if the cutter carriage is disengaged from the feed screw for more than two revolutions.

- i. Stop the machine by moving the speed-shift handle to the "O" position. Raise the cutter head by means of the cutter cam lever and swing the overhead mechanism to the rest.
- j. Examine the thread (shavings). The texture of the threads indicates the approximate depth of cut. Thread that is almost straight (slightly curly), shiny, and the thickness of human hair is indicative of the proper depth of groove. If the groove is too shallow, the thread will be very fine and grayish in color; if the groove is too deep, the thread will be coarse and kinked. Whenever a microscope is

available, check the ratio of the groove width to wall width. The accepted correct depth for proper tracking of the pickup head has been determined as between 0.002 and 0.0025 inches depending upon the feed screw (lines per inch) in use. The former depth is applicable when cutting over 120 lines per inch and the latter depth when cutting below 120 lines per inch. In other words, the ratio of width of groove to width of wall should be approximately 58/42 at 96 lines per inch and not greater than 65/35 at 136 lines per inch for normal recording level.

CAUTION: Although discs will not support combustion, the shavings are highly flammable and should be placed in a metal container.

2. **Adjusting for Depth of Groove:** If the pressure of a good recording needle on the disc is correct, cutting will be noiseless (if the cutter angle is also correct). If the angle is incorrect or the needle defective, a faint hiss will be heard upon cutting. Every adjustment of the cutter needle angle requires a slight readjustment of the tension spring to maintain the proper depth of the groove.

To adjust for a deeper groove, turn the tension-adjusting nut (fig. 5) counter-clockwise; for a shallower groove, turn clockwise.

NOTE: Tightening the tension-adjusting nut increases the tension on the tension spring and decreases the pressure of the recording needle on the disc. Loosening the nut has the opposite effect.

3. **Spiral and Close-out Grooves:** Spiral grooves are used to guide the playing needle toward the sound recording at the beginning of a record, and away from the recording at the end. Either inside-out or outside-in spiral grooves may be cut depending upon the type feed screw in use. All that is required is the quick turning of the crank handle before and after the recording is completed. To make a close-out groove without damaging the cutting needle, however, requires considerable practise. It is advisable to put a chalk line on the turntable rim or a thin piece of paper under the rubber pad as a marker for a complete revolution. After spiraling, disengage the cutter carriage from the feed screw by means of the feed-finger knob. After one complete revolution (as evidenced by the marker), lift the cutter head off the disc by pushing up on the cutter cam lever.

PREPARING EQUIPMENT FOR MICROGROOVE RECORDING

1. In microgroove recording, minimizing cutter head vibration and a constant depth of cut is necessary. This is accomplished through an "advance ball" attachment on the cutting

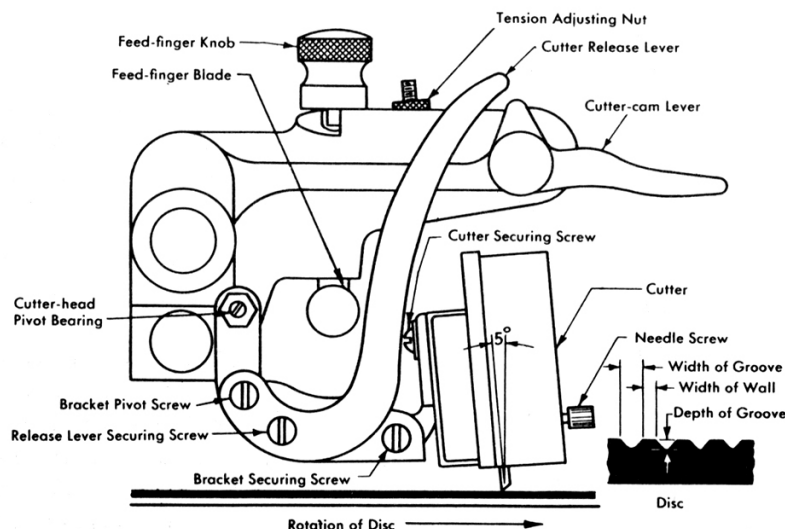


Figure 5. Cutter-head and carriage details

DISC RECORDER

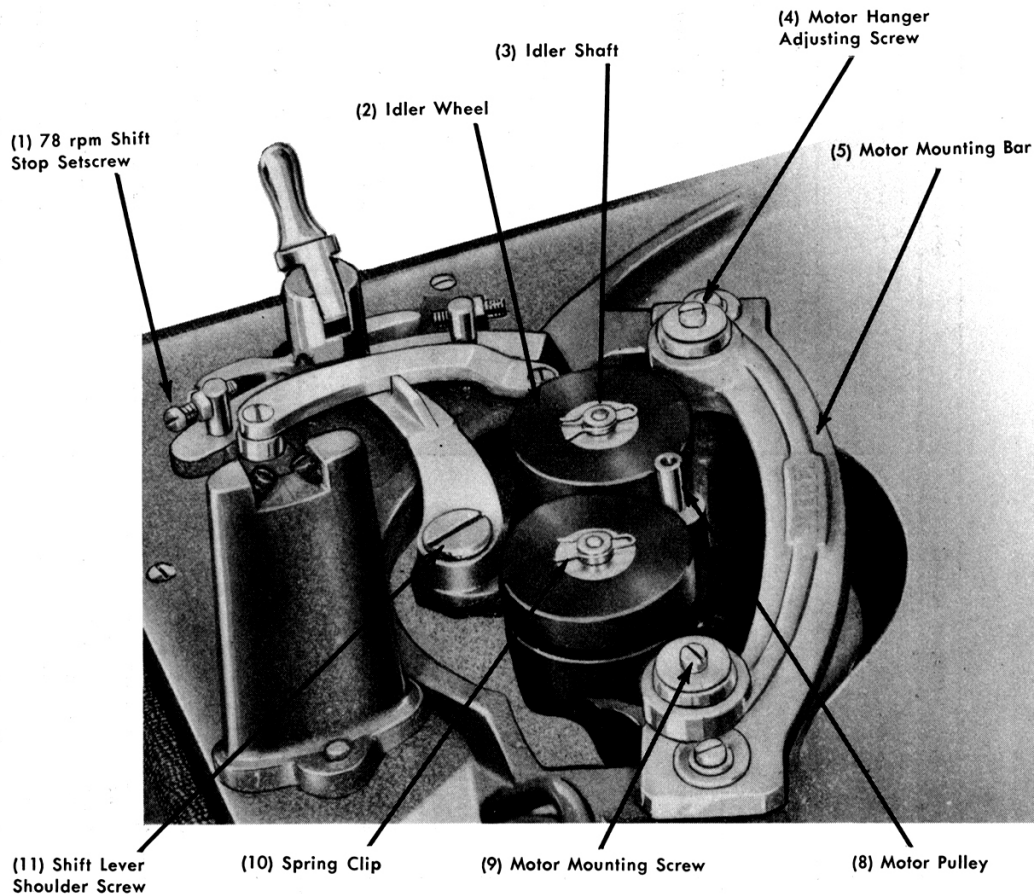
head cover. The depth of cut is controlled by the thumbscrew on the cutter head. Turning the thumbscrew clockwise lowers the advance ball and reduces the depth of cut.

Vibration is kept to a minimum by the weight of the cutter on the disc. To allow the full weight of the cutter on the ad-

vance ball, the dashpot must be removed from the cutter head mounting assembly.

When cutting inside-out, the advance ball should be to the right of the stylus. For outside-in cutting, the advance ball should be removed and screwed into the bracket to the left of the stylus. Always remove the stylus when changing the position of

(Continued on page 15)



TROUBLE SHOOTING CHART

SYMPTOMS	PROBABLE SOURCE OF TROUBLE	CORRECTIONS	REMARKS
1. Cutting needle runs in a single groove cutting through the coating of the disc.	The feed-finger blade was not properly engaged with the feed screw.	A few rapid turns of the crank handle will be sufficient to seat the feed-finger blade.	Examine the cutter needle to see that it hasn't been damaged in cutting through the coating of the disc.
2. Pickup repeats a single groove at some point on the record.	Groove was cut too deep. Over-modulation.	Refer to operating instructions for correct depth of cut. Watch meter and adjust volume control for proper recording level.	As the groove becomes deeper, it also becomes wider and the wall between the grooves may become too thin to hold the playing needle in place. Cutting too deeply will wear out the cutting needle quickly and ruin the quality of reproduction.
3. Very little sound on the record, making it necessary to use excess amplification on playback.	Insufficient amplification while recording.	See that the meter needle kicks frequently to the 23 db level. Turn up on the volume control.	When a speaker raises or lowers his voice, or when music becomes louder or softer, the volume control must be adjusted to keep the pointer on the meter kicking to the 23 db level. Avoid making rapid changes in the setting of the volume control. Try in all cases, to anticipate changes in the sound intensity, shifting the volume control slowly to compensate for them.
4. Reproduction ragged and distorted	Speaking too close to the microphone or shouting. Pointer on meter kept kicking too high while recording. Improper grounding. Cutting too close to center of record at 33-1/3 rpm. Faulty microphone.	Speak into the microphone in a natural tone of voice keeping the microphone between 6 inches and 18 inches away from face. If it is necessary to raise voice, move away from the microphone. Keep pointer on meter kicking up to but not beyond the 23 db level.	In recording a group of singers or musical instruments, care must be taken to place the various members of the group at the proper distance from the microphone, otherwise, certain instruments or voices will predominate. The proper balance is best obtained by listening to the group on a loudspeaker where the direct sound cannot be heard. Make the record only after the proper balance has been obtained.
5. Playing needle will not stay in groove. Slides across record.	Groove was cut too shallow.	Loosen the tension spring by means of the tension adjusting nut, to increase the pressure of the cutting needle on the disc.	Thread from a groove of proper depth should be about the thickness of human hair.
6. Cutting needle jumps, chatters or whistles.	Improper angle of the cutting needle.	Refer to figure 5 for proper cutting angle.	If records of varying thickness are used, it is advisable to obtain mats of different thickness to compensate for record variations rather than changing the cutter angle frequently. (Mats cut from blotting paper are suitable.)
7. Tone of music varies or sounds off-key.	Glazed surface on idler wheels. Eccentricity of idler wheels caused by too much oiling thereby swelling them out of round. Improper pressure adjustment of the idler wheels. Improper adjustment of the motor mounting. Improper adjustment of the over-head mechanism.	Clean idler wheels more frequently with soap and water. Less oiling of the idler wheels. Refer to maintenance instructions for idler wheel adjustment Refer to maintenance instructions for motor mounting adjustment. Refer to maintenance instructions for over-head mechanism adjustment.	Occasionally the motor may move out of adjustment due to rough handling in transportation. If the pressure is not sufficient the turntable will slip while recording and run at less than the proper speed. As the drag of the playing needle is not as great as that of the cutting needle, the turntable will return to proper speed when playing the record and the voice or music will sound high pitched. If the pressure is too great, vibration will occur due to the motor being pushed off center.
8. Machine has tendency to howl when records are played loudly.	Defective tube. Placing of extra loudspeaker or amplifier too close to the turntable.	Test tubes and replace those at fault.	

DISC RECORDER

the advance ball to prevent damage to the stylus tip. Use of the advance ball is recommended only for recording at 33-1/3 and 45 rpm. Because microgrooves are so closely spaced, a magnifying glass must be used to determine the proper depth of cut. A ratio of 65/35 width of groove to width of wall should be maintained.

2. Successful microgroove recording requires that proper level to the cutting heads be maintained. In general, lower levels of 4 to 6 db are required. Insufficient level will result in a high noise background on playback. Too high a level causes a cut too close or through the previous grooves

and results in echos or improper tracking of pickup.

3. In order to playback microgroove long-playing records, it is necessary to replace the standard cartridge (identified by a gold plate) with the microgroove cartridge (identified by a silver plate). To do this, pull out the phono pin jacks and place the fingers underneath the spring bar at the rear of the pickup arm. Place the palm of the hand on top of the pickup arm and lift up. Remove the cartridge by sliding it back towards the rear of the arm; then pull out the pin jacks. Install the microgroove cartridge and replace pickup.

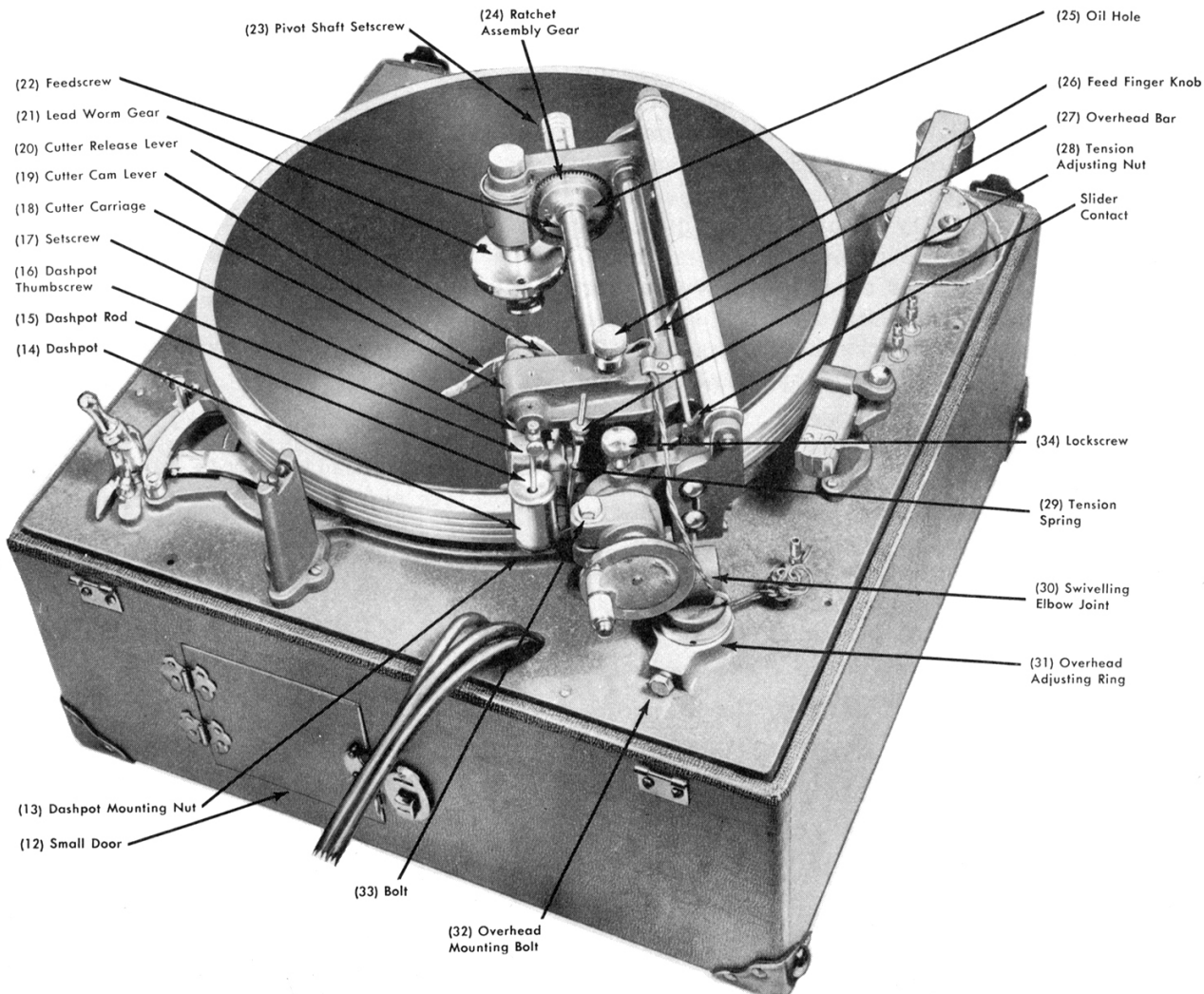


Figure 7. Top view of the 6N Turntable

FUNCTIONING OF EQUIPMENT

MAIN DRIVE (fig. 8)

The main drive comprises a 115-volt, 50/60-cycle, single-phase self-starting synchronous motor mounted under the turntable chassis. The motor shaft has a two-diameter pulley at its driving end. This pulley is coupled to the rim of the turntable through one of two idler wheels according to the speed that is preselected. The idler wheels are rubber on molded bronze cores and run freely on vertical steel shafts. The undercut bronze cores contain oil-retarding felt washers to keep the shafts well lubricated. When the speed-shift handle is in the 78-rpm position, the large diameter section of the motor shaft engages the lower part (b) of the dual idler wheel, whereas the upper part (a) engages the inner rim of the turntable. With the speed-shift handle in the 33-1/3 rpm position, the smaller diameter section of the motor shaft engages the upper part (c) of the 33-1/3 rpm idler wheel, which directly transmits the drive to the inside rim of the turntable. When the 45 rpm adapter sleeve is on the two-step motor pulley and the speed shift handle is in the 33-1/3 rpm position, the shaft engages the 33-1/3 rpm idler wheel, but turntable rotation is at 45 rpm. With the speed-shift handle in the "0" (center) position, the motor is switched off and both idlers are disengaged (this prevents flats from forming on the rims of the idler wheels by being left under pressure between the motor shaft and the rim of the turntable). The speed-shift handle is fitted with a locking device, so that when the handle is depressed, the desired idler wheel is locked in position against the shaft.

Turntable wiring details are illustrated in figure 9 on page.

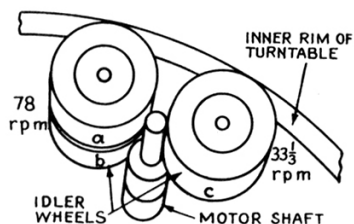
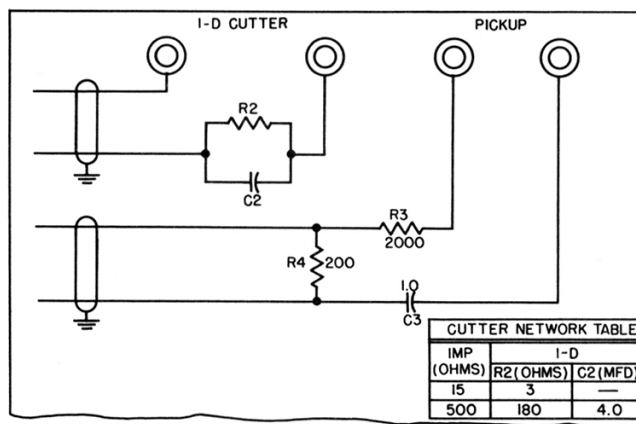
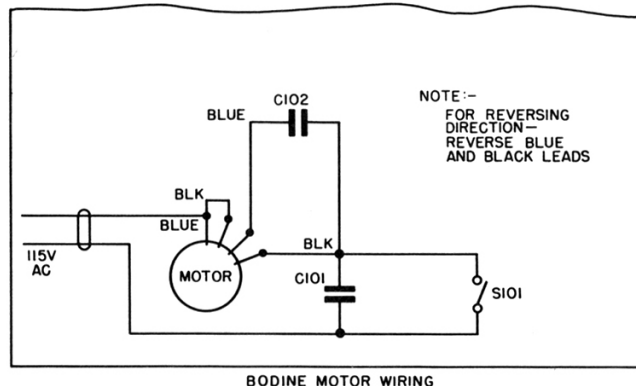


Figure 8. Turntable drive



CUTTER/PICKUP WIRING (STANDARD)



BODINE MOTOR WIRING

Figure 9. Turntable wiring details

OVERHEAD ASSEMBLY (fig. 7)

The overhead assembly is constructed as a complete unit. One end is mounted on the turntable chassis by means of a swiveling elbow joint (30) which is held fast with the overhead mounting bolt (32). The other end, carrying the driving mechanism, is driven by a flange which fits over the turntable shaft spindle and drive pin. The driving mechanism, which turns the feed screw, consists of a worm gear (21) and a worm drive assembly gear (24). The feedscrew can be removed by unscrewing the lock screw (34) and pulling outward on the crank handle. The cutter carriage (18), which slides laterally on the overhead bars (27) is engaged with the feed screw by the feed-finger knob (26). Turning this knob lowers a metal blade into engagement with the threads of the feed screw. By turning the crank handle, the cutter carriage can be moved mechanically in one direction only (inside-out or outside-in) depending on the type feed screw in use. The crank

handle turns in one direction only (clockwise as viewed from the right-hand side of the machine) because of the clutch device in the worm drive assembly (24). The overhead assembly may be swung clear of the turntable and placed on the rest as shown in fig. 3.

CUTTER HEAD AND CARRIAGE (figs. 5 and 7)

The cutter head is mounted on a U-shaped bracket and secured by the cutter securing screws; it is pivoted to the overhead carriage by two pivots (cutter head pivot bearing) shown

in figure 5. The bracket has a cutter-release lever (20) which engages with the cutter-cam lever (19). A dashpot (14) which serves as a vertical damping device is attached to the cutter head bracket and secured in place by the dashpot mounting nut (13). The function of the dashpot is to damp out undesirable vertical vibrations of the cutter head. Depth of cut is controlled by the tension spring (29) which suspends the cutter-head bracket. Adjustment of the spring is made by the tension adjusting nut (28). The cutter head employs a resonance-damped moving-iron balanced armature.

MAINTENANCE

LUBRICATION (figs. 6 and 7)

To obtain continuous high quality performance from the Presto 6N Turntable Unit, it is necessary to properly lubricate all bearing surfaces, gears, idler wheels, etc. periodically as follows:

1. Lubrication Every 60 Hours of Service

- a. Remove the turntable from its bearings, being careful not to lose the ball (bearing) on which the turntable shaft revolves and place one drop of 3-1 oil in the center holes of the idler shafts (3). *Do not get oil on the idler wheels.* Always wipe clean (soap and water may be used), as loose oil will cause loss of friction resulting in improper speed. The idler wheels may be removed by lifting the spring clips (10).
- b. Wipe dry with a soft lint-free cloth the feed screw and overhead bars. Then lubricate well with 3-1 oil.

- c. Wipe the turntable shaft and the bearing well dry with a clean, lint-free cloth; then relubricate with a thin film of light grease or high grade vaseline and a few drops of 3-1 oil.
- d. Place four or five drops of 3-1 oil in the motor oil cups.

2. Lubrication Every 100 Hours of Service

- a. Examine all moveable parts of the turntable unit to ascertain if lubrication or cleaning is necessary, especially the parts listed below.
 - (1) Lead worm gear (21) and worm drive assembly gear (24).
 - (2) Shift lever shoulder screw (11).
 - (3) Motor oil cups.
 - (4) Oil hole (25).
 - (5) Cutter head pivot bearing (fig. 5).
 - (6) Shaft of crank handle (fig. 11 - 6N-65).
 - (7) Overhead universal assembly bearings and swivelling elbow joint (30).

IDLER WHEEL ADJUSTMENTS (fig. 6)**1. General**

"Wows" are usually due to faulty adjustment of the idler wheels or to faulty idler wheels. Check as follows:

- a. Lift the turntable from the bearing well.
- b. Push the speed shift handle to the 78 rpm position.
- c. Push the 33-1/3 rpm idler wheel counter-clockwise so as to engage the 78 rpm idler wheel with the motor pulley (fig. 8). If the drive is out of adjustment, it will be that, with moderate pressure, the 78 rpm idler wheel rises on its spindle until it touches the spring clip (10). If this is so, the idler spindle should be bent slightly towards the turntable rim and the motor pulley. The same test should be applied to the 33-1/3 rpm idler wheel by engaging the speed shift handle in the 33-1/3 rpm position and pushing the 78 rpm idler wheel in a clockwise direction. If the idler wheel rises on its spindle until it touches the spring clip, the idler spindle should be bent slightly away from the turntable rim and towards the motor pulley.

NOTE: *The above adjustments should only be undertaken by an experienced repairman having shop facilities.*

2. For Normal Wear of the Idler Wheels

After three or four months of use, it may be necessary to readjust the pressure of the idler wheels against the motor drive pulley and turntable rim. The pressure between the motor, idler wheels and turntable rim should be just sufficient to maintain the speed of the turntable at exact rpm when cutting at a diameter of about 12 inches. Insufficient pressure will allow slippage causing the table to run at improper speed. Too great pressure will cause the motor to labor and shorten the life of the idler wheels. Check and adjust speed as follows:

78 rpm

- a. Loosen the locknut and back off by several turns the adjustable 78 rpm shift stop stud (1).
- b. Push speed shift handle to 78 rpm position.
- c. Check rpm with stroboscope (furnished with equipment) and handy lamp. When correct speed is obtained, push handle down to lock position.
- d. Turn the shift stop stud up to the speed shift handle and lock in this position by tightening the locknut.

33-1/3 rpm

- a. Loosen the locknut and back off by several turns the 33-1/3 rpm shift stop stud screw (lower screw) and push speed shift handle to the 33-1/3 rpm position.
- b. Follow steps (c) and (d) 78 rpm.

45 rpm

- a. Place adapter sleeve on motor pulley. Loosen the locknut and back off by several turns the 45 rpm shift stop stud screw (upper screw) and push speed shift handle to the 45 rpm position.
- b. Follow steps (c) and (d) 78 rpm.

MOTOR MOUNTING ADJUSTMENTS (fig. 6)**1. General**

If the recorder-reproducer has been subjected to abuse during transportation or if parts such as turntable and shift assemblies are replaced, check the rubber grommets to make certain that they are not displaced from their sockets. Check the motor mounting screws (9). They should not be bent.

2. Motor Mounting Bar

Before making adjustments, a check should be made to make certain that the motor is suspended absolutely free. A twisted motor wire strap, or wood block (designed to

prevent excessive swinging of the motor while the equipment is in transit) may be the sole reason for improper suspension of the motor. Check motor pulley (8) and observe whether it is running true. A soft lead pencil held lightly against the pulley while running will show any eccentricity. A few light taps with a piece of wood against the surface should straighten out the pulley. The following procedure is employed to adjust the motor mounting bar (5):

- a. Loosen the motor mounting adjusting screws (4) and move motor mounting bar either towards or away from idler wheels to proper position. This position should be such that there should be sufficient clearance between both idler wheels and the motor pulley when the speed shift handle is in the "0" position.
- b. Tighten the motor mounting adjusting screws (4).

OVERHEAD MECHANISM ADJUSTMENTS

1. Checking Alignment of Flange

- a. Cut thin strips of paper (approximately .004" thick) and place them on the center of the disc at several positions (at least 4) diagonally opposite each other. Place the flange (fig. 4) on the disc in normal operating position so that the flange is flat on the record.
- b. If the paper under the flange at any point can be removed, it indicates that the flange is raised and adjustment necessary.
- c. If the front or rear edge of the flange (along axis of feed screw) is raised the overhead adjusting ring (31) should be loosened. Loosen the set screws on the ring and settle the overhead mechanism firmly on the chassis. Then push the overhead handle (with a forward and backward motion) to straighten the overhead mechanism.

- d. Insert paper again, tighten set screws, and recheck until proper adjustment is obtained.
- e. If paper can be removed from the left or right side of the flange, it indicates that the pivot point is out of adjustment. The hexagonal bolt (33) must be loosened. Pivot the overhead handle until the mechanism settles firmly on the chassis.

NOTE: A further test of flange alignment may be made by sighting along the plane of the turntable as the turntable rotates. If the mechanism is stable, there will be no weaving effect as the table turns.

2. Checking Alignment of Feed Screw and Worm Gear

- a. Hold overhead mechanism up by its handle and revolve the flange slowly.
- b. Sticking or retarding action indicates too close an adjustment of the worm drive assembly gear (24) with the lead worm gear (21).
- c. Loosen the overhead handle screws (fig. 4) and move handle sufficiently to obtain free turning of the flange.

CARE OF THE CUTTER HEAD

The cutter head must be checked occasionally to see that the armature is clean. To inspect remove the needle screw. Remove the cover screw directly above. Slip off the cover and inspect the armature. Since the gap between the armature and pole pieces of the magnet is only a few thousandths of an inch, this space must be free of dirt so that the radial motion of the armature is unhindered. A blast from an air hose is the simplest means of removing dirt from the armature. If air pressure is not available, the dirt can be removed with a thin blade of nonmagnetic material. Adjustments for centering the armature are sealed and should not be touched. If the armature collapses (i.e., touches one of the pole pieces), the cutter must be returned to the factory for resetting and recalibration. When replacing the cover make sure that the rubber dust gasket is in place around the stylus opening in the cover.

REPLACEMENT OF FEED-FINGER BLADE

After considerable use, tracking of the feed-finger blade with the feed screw may become erratic and replacement of the blade is necessary. Procedure for its removal is as follows:

1. Remove cutting needle.
2. Remove feed screw.
3. Remove tension adjusting nut (28).
4. Loosen the cutter head pivot bearing lock-nut and back off the pivot bearing (a few turns counterclockwise). The lower part of the cutter carriage is then released to enable removal of the feed-finger assembly.
5. Remove the feed-finger knob and push the feed-finger assembly down and out.
6. Using thin nail, drive drift pin from shaft. Old blade will fall out.

DESCRIPTION OF MECHANICAL PARTS

(Figures 10 and 11)

6N- 1 - 33-1/3-rpm-idler wheel	6N-40 - Lead worm
6N- 2 - 78-rpm-idler wheel	6N-41 - Flange pad
6N- 3 - Retaining clips	6N-42 - Worm guard
6N- 4 - Motor-support bar	6N-43 - Flange assembly
6N- 5 - Motor-mounting grommets	6N-44 - Acorn nuts
6N- 6 - Motor-mounting studs	6N-45 - Worm thrust bearing
6N- 7 - Motor-mounting ring	6N-46 - Flange cap
6N- 8 - Motor-starting capacitor	6N-47 - Cutter-release lever
6N- 9 - Capacitor-mounting bracket	6N-48 - Cutter-cam lever
6N-10 - Motor pulley	6N-49 - Cam-lever stud
6N-11 - Motor	6N-50 - Cutter carriage
6N-12 - Idler-wheel shaft	6N-51 - SAE washers
6N-13 - Idler-rocker arm	6N-52 - Plunger holder
6N-14 - Idler-arm-shoulder screw (3/8")	6N-53 - Feed-finger knob
6N-15 - Shift-lever-shoulder screw (1/2")	6N-54 - Cutter hinge
6N-16 - Speed-shift lever	6N-55 - Cutter bracket
6N-17 - Shift-handle yoke	6N-56 - Feed-finger with removable blade
6N-18 - Speed-shift handle	6N-57 - Feed-finger spring
6N-19 - Shift-lock pin	6N-58 - Tension spring
6N-20 - Shift-stop stud	6N-59 - Tension-adjusting screw
6N-21 - Shift-lock segment	6N-60 - Tension-adjusting nut
6N-22 - Motor switch	6N-61 - Dashpot rod
6N-23 - Switch capacitor	6N-62 - Dashpot-mounting bracket
6N-24 - Time-scale assembly	6N-63 - Dashpot assembly
6N-25 - Time-scale indicator	6N-64 - Dashpot-mounting nut
6N-26 - Time-scale pivots	6N-65 - Carriage-rest pin
6N-27 - Indicator clamp	6N-66 - Crank handle
6N-29 - Pick-up mounting grommets	6N-67 - Feed screw-center lock-screw
6N-30 - Pick-up-arm assembly	6N-68 - Overhead-universal assembly
6N-32 - Pick-up rest	6N-69 - Overhead-adjusting ring
6N-33 - Pick-up-clamp thumbscrew	6N-70 - Overhead-pivot bushing
6N-34 - Pick-up clamp grommet	6N-71 - Overhead rest
6N-35 - Pick-up clamp	6N-72 - Cutter head
6N-36 - Overhead bars	6N-73 - Cutter jacks
6N-37 - Overhead handle	6N-74 - Cutter C-R network
6N-38 - Worm drive assembly	6N-75 - Time-scale mounting bracket
6N-39 - Gear housing	

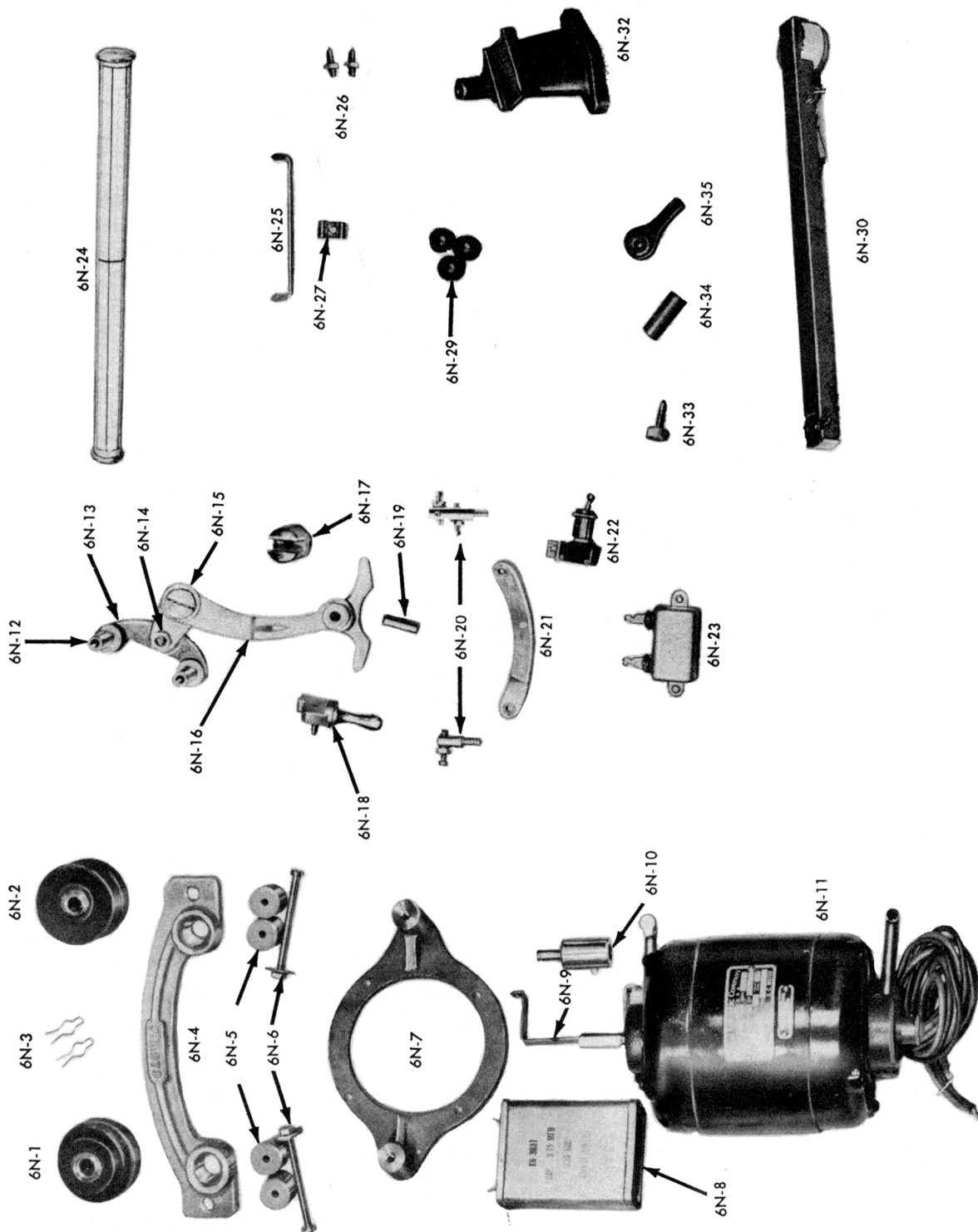


Figure 10. Turntable Parts

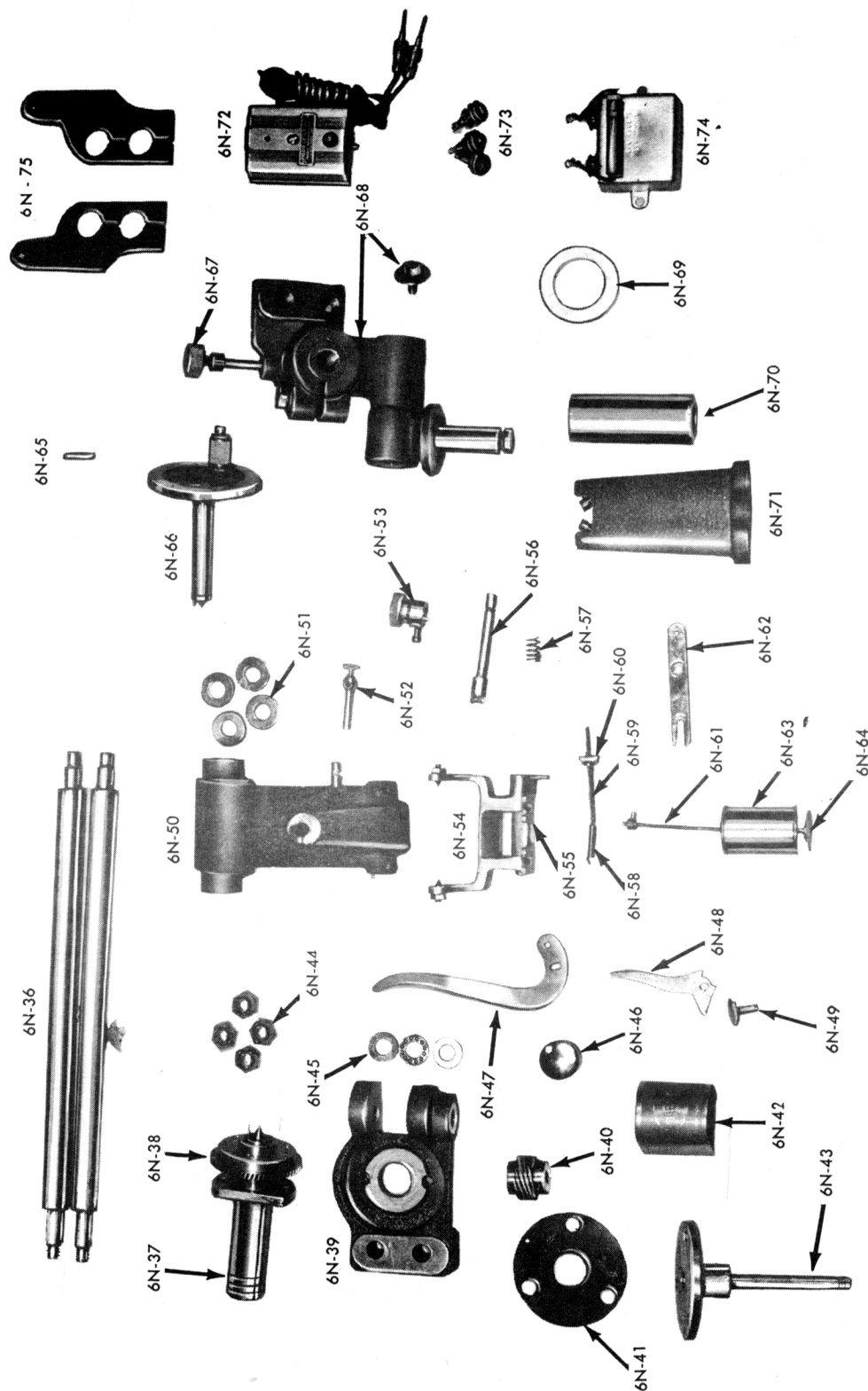
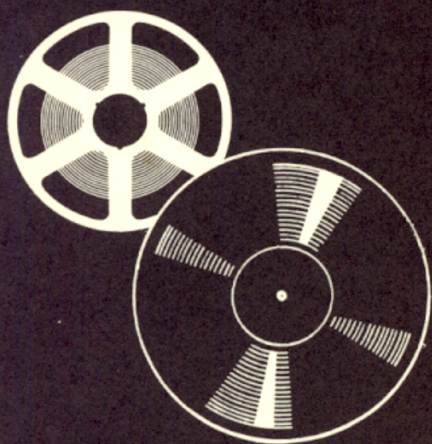


Figure 11. Turntable Parts

GUARANTEE

The Presto Recording Corporation guarantees to repair or replace, without charge, any equipment or part thereof which shows a defect due to workmanship or materials within ninety days after date of sale. To obtain free service or replacements under this guarantee, the equipment or part must be returned, transportation prepaid, either to the Presto factory or to the distributor from whom it was purchased. Before returning equipment to the factory, kindly write to our service department for shipping instructions and return authorization forms. We cannot assume responsibility for any charges incurred in returning equipment without our authorization.

A guarantee card is enclosed with each unit. This card must be returned to the factory within seven days of the date of purchase to obtain service under the guarantee.



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PARAMUS, NEW JERSEY