INSTRUCTION BOOK

FOR

CB-510 TURNTABLE

DESCRIPTION

The CB-510 is a complete turntable unit with viscous damped arm turnover cartridge, M5235 preamplifier and CB-500 turntable. The unit is completely wired ready to mount on the CAB-6 cabinet, the CB-4 desk, or any other suitable desk.

UNPACKING AND INSTALLING INSTRUCTIONS

For your convenience the CB-510 has been shipped complete in one packing container. Carefully unpack the unit and examine it for possible damage intransit. If damaged, advise the transportation company at once and arrange for an inspection before the container is destroyed and the unit is placed in service. This is important because transportation damage is the responsibility of the carrier.

As shipped, the platter is separated from the turntable by a packing board separator. Lift the platter out of the assembly and remove the separator. Then remove the main assembly and set it in place on the cabinet, or place where it is to be used. Refer to the enclosed CB-500 instruction book for installation details.

With the assembly installed and before the platter is set in place, remove the shipping brackets. One bracket holds the control mechanism in the neutral position, the other is a brace on one of the amplifier support brackets. The shipping wires holding the mechanism in place should be removed.

Be careful while handling the turntable so that the ball in the bearing housing does not fall out.

Before the platter is set in place add about a tablespoon of oil (supplied with each unit) to the bearing housing, make connections to the M5235 preamplifier and set the platter in place.

The turntable should be leveled when placed in operation.

CARTRIDGE INSTALLATION

Connections to the VRII cartridge are made by means of the plug-in pins supplied with the cartridge. Refer to the "Installation Procedure" section of the arm instruction booklet. With the slide assembly removed from the arm, solder these pins to the red and black wires. The white and green wires are not used, and should be taped up.

When inserting the pins in the cartridge, the pin carrying the black wire should connect to the cartridge shield strap. The black wire at the other end has been connected to the preamplifier ground.

When mounting the cartridge, use spacer P5 under it, and use the clips and 7/16" long screws supplied with the cartridge.

Adjust stylus pressure according to directions in the Arm Instruction Booklet.

CONNECTIONS

An insulated shielded pair can be used to connect the output of the preamplifier to the console. The shield on this wire should be connected to the console shield ground only. See instruction book on the M-5235 preamplifier and drawing C-19343 for additional information including impedance and amplifier characteristics and operating procedure.

OTHER INSTRUCTION BOOKS INCLUDED WITH CB-510 TURNTABLE FOR ADDITIONAL INFORMATION

1. Grey 208S/G Viscous Damped Transcription Arm.
2. M-5235 Equalized Preamplifier.
3. CB-500 Turntable.
4. VRII Cartridge Instruction Sheet. (Packed with cartridge hardware.)

Speed R.P.M.	Cue Allowance Maximum	Rumble
33-1/3	1/6 turn	-40 db
45	1/4 turn	-38 db
78	1 turn	-33 db

Wow: .15% Max.

Flutter: .07% Max.

Power Requirements: 105-125 V., 35 W.

Motor: Hysteresis synchonous, single phase, 600 R.P.M. with 2-1/2 mfd. running capacitor and 40° temperature rise.

Chassis Size: 21-1/4" X 21-1/4" X 1-5/16".

Motor Hang Below Bottom of Chassis: 4-7/8"

Platter Size: 17" Weights: 34 lb. net, 54 lb. shipping.

INTRODUCTION

The Gates CB-500 transcription turntable is surprisingly simple in operation, yet over-simplification has been avoided in the interest of quality, standards of performance, and low mechanical noise. Certain features that have proven themselves over the years have been retained, such as the shear type idler wheel, oilite bearings, heavy cast aluminum platter and chassis, "Monoball" self-aligning bearings, self-centering idler wheel (that insures exact tension at all times) and the direct speed shift mechanism.

New features are the hub drive, the improved motor mounting (to insure low noise rumble free operation) and the rocker type mercury OFF-ON switch.

The result is a transcription turntable built for low noise; long rugged service; and positive in operation with reduced maintenance.

INSTALLATION

The turntable is packed in a shipping carton with a piece of heavy corrugated board to separate the platter from the rest of the assembly. Lift the platter out of the assembly and remove the separator. Then remove the rest of the assembly from the shipping carton.

Before installing remove the metal bar that locks the control mechanism in the neutral position.

Add about a teaspoon of oil (supplied with each unit) to the center bearing housing, before the platter is set in place.

The turntable should be installed with clearances as indicated on drawing A-32027. When installed, the rubber stripping around the edge is the only part of the turntable that comes in contact with the cabinet. The turntable platter and arm should be carefully leveled when placed in operation. This is very important if pickups with very low tracking force are used.

OPERATION

This turntable is specifically designed for three speed operation; 78, 45 and 33-1/3 RPM. The speed is selected by moving the control lever to the desired index. This lever engages and disengages the neoprene idler from the three step motor pulley. The floating action of the idler assembly, transfers the optimum torque from the motor pulley to the platter, at all speeds.

The motor is energized with the rocker type switch on the control plate. The "ON" position is indicated when the translucent lever is illuminated. This is a mercury switch so its operation is silent. It is located close to the turntable platter so it can be actuated while holding a record.

MAINTENANCE

Under normal use the CB-500 turntable should be cleaned and oiled once every month. Place a drop of oil at each point indicated by an "O" in figures 1 and 5. Care should be taken to keep oil off the surfaces of the motor pulley, the idler wheel and the drive surface of the platter. It is a good plan to clean the driving surfaces with lighter fluid, or a similar solvent on a lint free cloth as part of the monthly maintenance program. This should be done when the platter is removed for servicing. Oil the idler wheel bearing by putting a drop of oil in the gap of the idler wheel retaining ring. About a tablespoon of oil should be placed in the center bearing housing when the unit is first placed in service.

When the turntable is not in use the control lever should be in the neutral position. (See Fig. 2). This disengages the idler wheel from the motor drive pulley. If the idler wheel is left resting against the motor pulley for a length of time a flat spot will develop on the driving face of the idler. This flat spot will usually smooth out after a period of running the turntable. Some undesirable thumping will occur until it regains the original shape. It is suggested that a spare idler wheel be kept on hand.

CAUTION: Under no circumstances should the motor pulley be removed from the motor shaft. The motor shaft and pulley constitute a very close and precise fit. After the motor and pulley are assembled at the factory, a finish cut is taken on the pulley to assure perfect concentricity and the proper diameter for very accurate speed. Any attempt to remove the pulley from the motor will result in damage to the motor shaft and also to the pulley itself. Any adjustments to the motor and pulley assembly should be handled at the factory.

When oiling the various points mentioned, including the motor, use only "Gulfoil Electric Motor Oil". Oils with a paraffin base will gum up in use, so they should not be used.

TROUBLE SHOOTING

1. Idler Wheel Hangs Up On Motor Pulley

   The idler wheel is adjusted at the factory to have approximately 1/64" clearance between each step on the motor pulley and the bottom of the drive surface of the wheel when in the 33-1/3 and 45 RPM positions. (See Fig. 3.). There should also be 1/64" clerance between the driving surfaces of the idler wheel and the motor pulley (See Fig. 3.). When the control lever is in the neutral position (Fig. 2.) This clearance can be checked as follows; remove the platter, place the control lever in neutral, and slide the idler wheel all the way back on the idler arm. (Fig. 5.) If there is not enough clearance at these two points, the idler will hang up on the motor pulley.

To adjust this clearance, lengthen or shorten the rod which disengages and engages the idler (Fig. 1). This can be done by backing off the locknut on the ball joint, and removing the fillister head screw at the bottom of the idler assembly. (Fig. 5). Turn the ball joint in or out a half turn at a time until the proper clearance is obtained. Too much clearance will not allow the idler to seek the proper location when "floating" from one speed change to another. Be sure to replace the lock washer and tighten the lock nut, as shown in Fig. 5.

The idler will also hang up on the motor pulley steps if the control lever is not adjusted properly in relation to the three slots of the index plate.

To check this, remove the platter and place the idler arm in the 45 RPM position. You can feel the idler arm fall into the ball detent on the idler arm shaft. (Fig. 1). The control lever should be perfectly centered in the 45 RPM index slot. If the lever is not centered, this can be remedied by removing one of the screws on the ball joint transfer mechanism (Fig. 1) just below the control lever, and turning the ball joint in, or out a half turn at a time until the lever is centered in the index slot.

When the control lever is not centered correctly in the three index slots it will not allow sufficient travel when changing from one speed position to another. The control lever should never touch the sides of the index slots when in the engaged position.

2. Idler Wheel Will Not Float Properly.

The CB-500 is equipped with a floating idler wheel which allows the idler to seek the proper relation or position between the motor pulley and the drive surface of the platter (Fig. 5). If the two shafts (on which the idler floats) should become dirty or gummed up, the idler will not move back and forth when changing from one speed to another. This will result in the loss of speed and torque, or possibly the platter may start with a jerk.

To correct this condition, slip the idler from the two shafts and wipe the shafts with a clean cloth. Place a drop of oil on each shaft and replace the idler. Move the idler back and forth by hand until it slides freely. Repeat the operation, if necessary, to clean the holes in the block.

The idler will not float if the clearance between the idler and pulley is not correct. See instruction #1 in this section for treatment of this condition.

3. Control Lever Shifts Hard; Too Much Play.

Keep all the moving joints and pivot points clean and well oiled. This will help to keep the control lever moving freely.

If the control lever has considerable play and does not move easily it is possible that some of the hardware has become loose. There may be too much clearance between the pivot blocks or some of the pivot pins are loose. (See Fig. 4). Loosen the screws that mount the pivot blocks to the motor plate. Also loosen the set screws which hold the pivot shafts in place. Squeeze the pivot blocks together and tighten the mounting screws and set screws. Move the parts back and forth while tightening the screws so they will not bind.

4. Torque

Torque is affected greatly by the idler hanging up or not floating properly. These two problems can be corrected by following instruction #1. The set screws, located in front of the index plate are not torque adjustments. They are for the purpose of preventing the idler wheel from pulling in too far when the platter is being accelerated.

They are properly adjusted when there is about 1/64" gap between the shift lever arm and the rubber tip on the set screw, observed while the turntable is running and engaged in one of the three speeds. Check each of the three speeds to see if the set screws are in the proper position. If the arm is allowed to ride on the rubber tips during operation, the rumble level will be increased. Turning the set screws in too far will result in loss of torque.

Torque is also affected by dirt or oil on the idler wheel, motor pulley or platter. Oil on the driving surfaces will cause the platter to slip. Clean these surfaces as indicated in the MAINTENANCE section.

5. Turntable Will Not Start Smoothly.

If the idler wheel hangs up on the motor pulley, the platter will start with a sudden jerk. This is also caused by failure of the idler to float freely as you change from one speed position to another. Correct these faults as outlined in instruction #1.

6. Platter Wobble.

The CB-500 is equipped with a hardened, ground center spindle and runs in a porous type bronze bearing which retains the oil for a long period of time.

If the oil supply in the center bearing housing should get low, and the platter seems to wobble slightly when you press on the outer rim, simply replenish the oil and the wobble will disappear.

Very little wear will occur on the center spindle or bearing even after long periods of operation.

7. Wow.

This could be caused by low torque, idler wheel hang up or failure of idler to float properly. The adjustments are covered under instructions #1, #2 and #4.

8. Transcription Arm Does Not Track Properly.

Tracking trouble usually indicates that the arm or turntable is not level. Check the turntable with a spirit level. Refer to the instructions supplied with the transcription arm for correct adjusting procedures and stylus pressure.

9. Tighten All Hardware Securely.

It is a good practice to check all of the mounting screws, etc., as part of the routine maintenance procedure.

Be sure to tighten all screws, etc., after making any adjustment.

PARTS LIST

Item	Drawing No.	Description
1	E-25624-101	Assembly
2	D-22404-2	Turntable Base
3	A-31605-101	Turntable Platter Assembly
4	A-31587-101	Motor Plate Assembly
5	A-31588-101	Motor End Support Assembly
6	A-2400-102	Center Bearing Housing Assembly
7	A-10857-101	Idler Wheel Assembly
8	A-31606-101	Speed Change Arm Assembly
9	B-65707-1	Control Plate
10	A-10869-101	Idler Arm Assembly
11	A-10837-1	Change Arm Support
12	A-10836-1	Speed Change Shaft
13	A-10845-1	Speed Change Stud
14	A-10829-2	Stop Collar
15	A-10831-2	Spring for Ball Detent
16	A-10863-1	Idler Arm Shaft
18	A-10833-1	Spacer for Ball Joints
19	A-31590-1	Idler Control Rod
20	A-10830-1	Idler Tension Spring
22	A-10843-1	Control Arm Pivot Block
23	A-10841-1	Control Arm Bearing
24	A-10842-2	Speed Control Link
25	A-31591-1	Speed Change Lever Pivot Pin
26	A-10868-102	Speed Control Link Assembly
27	A-31594-1	Control Arm
28	A-10839-1	Speed Change Arm Bearings
29		Ball Joint (Female)
30	A-31589-1	Motor Support Spacer
31	A-31592-1	Idler Spring Stud
32	C-15128-1	Topping Felt
33	*A-11030-103	Motor Assembly (60 cycles)
34	A-10307-1	A.C. Line Cord
36		Socket
37		Lamp, Double Contact Bay. 130 V, 6 W.
38		Knob, 1" Dia.
39		#8-32X1¼" Allen Head Cup Point Set Screw, 78/45/33 RPM, Steel
42	B-65797-101	Switch Assembly
43	A-31595-1	Switch Stop
44	A-31611-1	Switch Shaft Support
47		#12-9425 Sponge Rubber Stripping 1/2 X 9/16 X 85" lg.
49		1/2" dia. Ball Bearing, Steel
	*A-11056-103	Motor Assembly (50 cycles)
57	C-19361-1	60 Cycle Stroboscope
61		#8-32 X 7/16" Spade Bolt (1-5/32" lg.)
65		5/32" Dia. Ball Bearing, Steel
68		Retaining Ring, 7/16"
69		W27 Nylon Washer, 1/32" thick
70	A-31648-101	Filter Assembly
72		Retaining Ring, 1/4"
76		Ball Joint (Male)
77	510 0366 000	Motor Capacitor, 2.0 mfd.
86		Handle Stop

WARRANTY

This equipment is warranted by Gates Radio Company of Quincy, Illinois to be free from defects in workmanship and material and will be repaired or replaced in accordance with the terms and conditions set forth below:

1. Gates Radio Company believes that the purchaser has every right to expect first-class quality, materials and workmanship and has created rigid inspection and test procedures to that end, and excellent packing methods to assure arrival of equipment in good condition at destination.

2. Gates Radio Company will endeavor to make emergency shipments at the earliest possible time giving consideration to all conditions.

3. Gates Radio Company warrants new equipment of its manufacture for one (1) year and (six (6) months on moving parts), against breakage or failure of parts due to imperfection of workmanship or material, its obligation being limited to repair or replacement of defective parts upon return thereof f.o.b. Gates Radio Company's factory, within the applicable period of time stated. Electron tubes shall bear only the warranty of the manufacturer thereof in effect at the time of the shipment to the purchaser. Other manufacturers' equipment covered by a purchaser's order will carry only such manufacturers' standard warranty. These warranty periods commence from the date of invoice and continue in effect as to all notices, alleging a defect covered by this warranty, received by Gates Radio Company prior to the expiration of the applicable warranty period.

The following will illustrate features of the Gates Radio Company warranty:

Transmitter Parts: The main power or plate transformer, modulation transformer, modulation reactor, main tank variable condensers all bear the one (1) year warranty mentioned above.

Moving Parts: As stated above, these are warranted for a period of six (6) months.

Electron Tubes: As stated, electron tubes will bear such warranty, if any, as provided by the manufacturer at the time of their shipment. Gates Radio Company will make such adjustments with purchasers as given to Gates Radio Company by the tube manufacturer.

All other component parts (except as otherwise stated): Warranted for one (1) year.

Abuse: Damage resulting from abuse, an Act of God, or by fire, wind, rain, hail, in transportation, or by reason of any other cause or condition, except normal usage, is not covered by this warranty.

4. Operational warranty - Gates Radio Company warrants that any new transmitter of its manufacture, when properly installed by purchaser and connected with a suitable electrical load, will deliver the specified radio frequency power output at the output terminal(s) of the transmitter, but Gates Radio Company makes no warranty or representation as to the

coverage or range of such apparatus. If a transmitter does not so perform, or in the event that any equipment sold by Gates Radio Company does not conform to any written statement in a contract of sale relative to its operating characteristics or capabilities, the sale liability of Gates Radio Company shall be, at the option of Gates Radio Company, either to demonstrate the operation of the equipment in conformance with its warranty, or to replace it with equipment conforming to its warranty, or to accept its return, f.o.b. purchaser's point of installation and refund to purchaser all payments made on the equipment, without interest. Gates Radio Company shall have no responsibility to the purchaser under a warranty with respect to operation of equipment unless purchaser shall give Gates Radio Company a written notice, within one (1) month after arrival of equipment at purchaser's shipping point, that the equipment does not conform to such warranty.

5. Any item alleged by a purchaser to be defective, and not in conformance with a warranty of Gates Radio Company shall not be returned to Gates Radio Company until after written permission has been first obtained from the Gates Radio Company home office for such return. Where a replacement part must be supplied under a warranty before the defective part can be returned for inspection, as might be required to determine the cause of a defect, purchaser will be invoiced in full for such part, and if it is determined that an adjustment in favor of the purchaser is required, a credit for an adjustment will be given by Gates Radio Company upon its receipt and inspection of a part so returned.

6. All shipments by Gates Radio Company under a warranty will be f.o.b. Quincy, Illinois or f.o.b. the applicable Gates Radio Company shipping point.

7. Gates Radio Company is not responsible for the loss of, or damage to, equipment during transportation or for injuries to persons or damage to property arising out of the use or operation of Gates equipment. If damage or loss during transportation occurs, or if the equipment supplied by Gates Radio Company is otherwise damaged, Gates will endeavor to make shipment of replacement parts at the earliest possible time giving consideration to all conditions. It is the responsibility of a purchaser to file any claim for loss or damage in transit with the transportation company and Gates will cooperate in the preparation of such claims to the extent feasible when so requested.

8. Gates Radio Company, in fulfilling its obligations under its warranties, shall not be responsible for delays in deliveries due to depleted stock, floods, wars, strikes, power failures, transportation delays, or failure of suppliers to deliver, acts of God, or for any condition beyond the control of Gates that may cause a delayed delivery.

9. This warranty may not be transferred by the original purchaser and no party, except the original purchaser, whether by operation of law or otherwise, shall have or acquire any rights against Gates Radio Company by virtue of this warranty.

10. Gates Radio Company reserves the right to modify or rescind, without notice, any warranty herein except that such modification or rescission shall not affect a warranty in effect on equipment at the time of its shipment. In the event of a conflict between a warranty in a proposal and acceptance and a warranty herein, the warranty in the proposal and acceptance shall prevail.

11. This warranty shall be applicable to all standard Gates catalog items sold on or after March 1, 1960.

Gates Radio Company
Quincy, Illinois

1/6/60

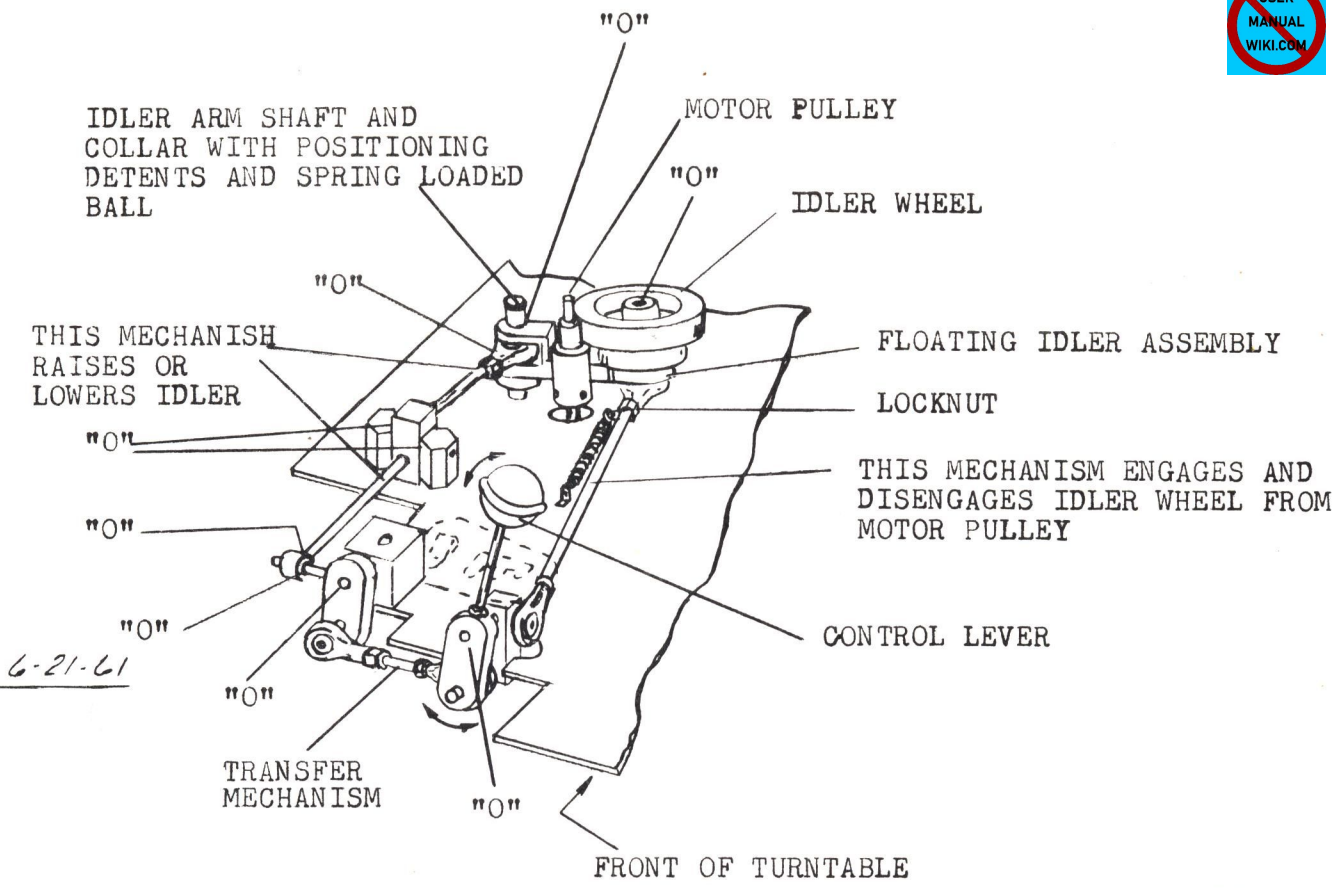

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Fig. 1

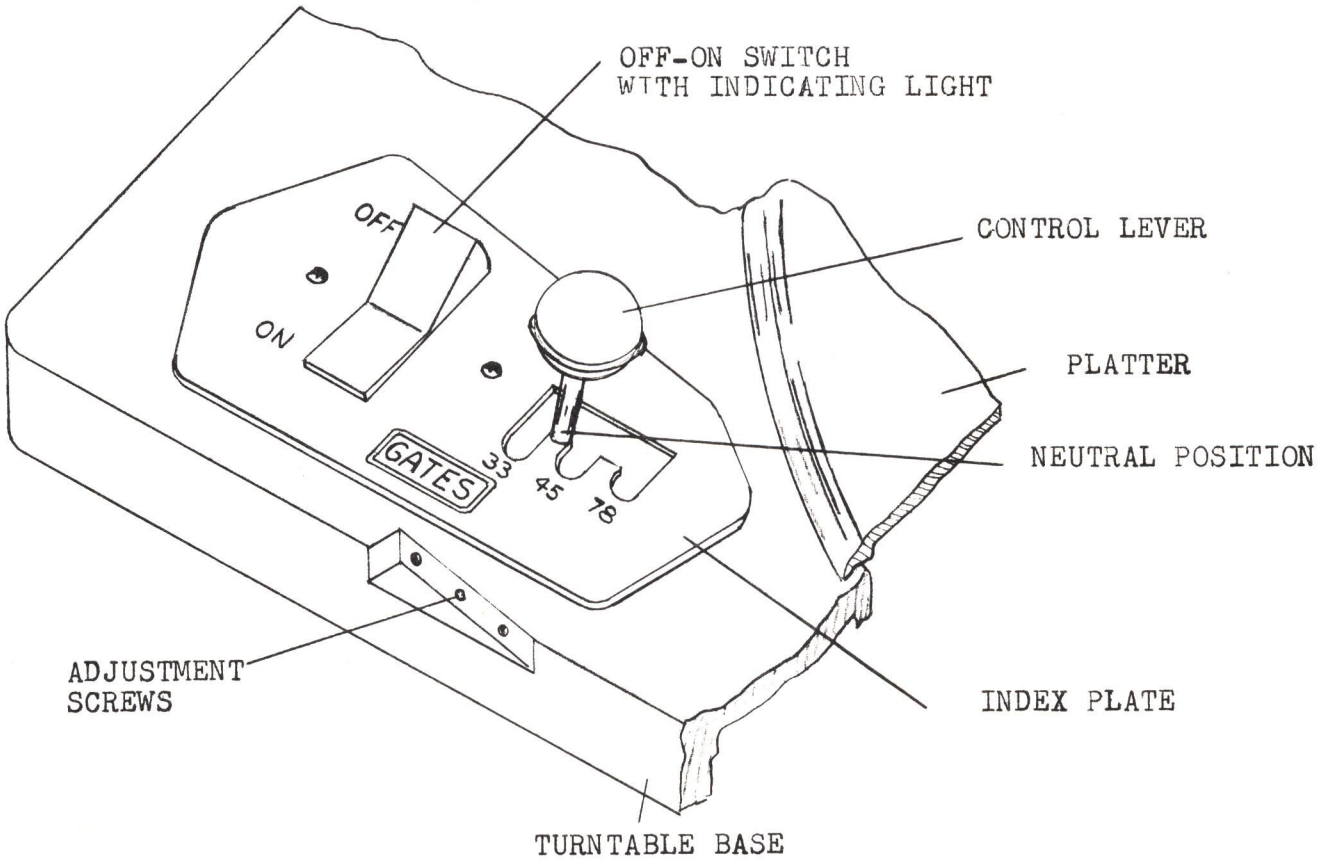

Fig. 2

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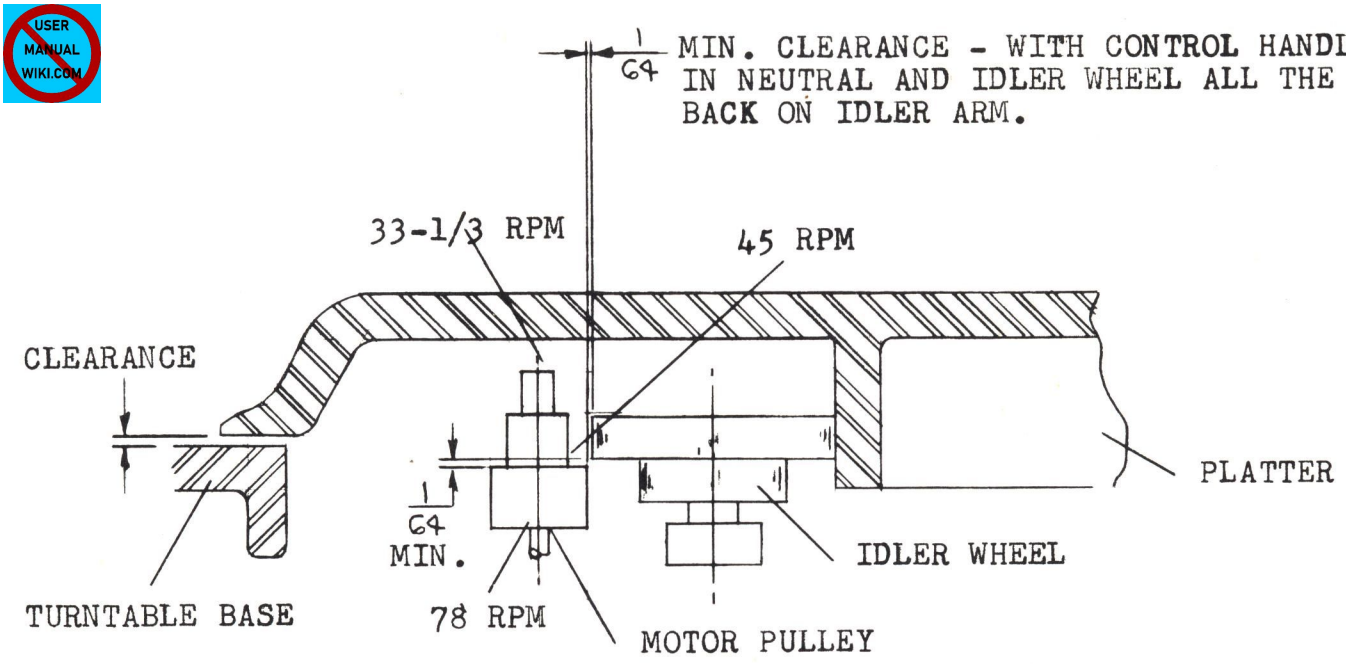

Fig. 3 A-32044

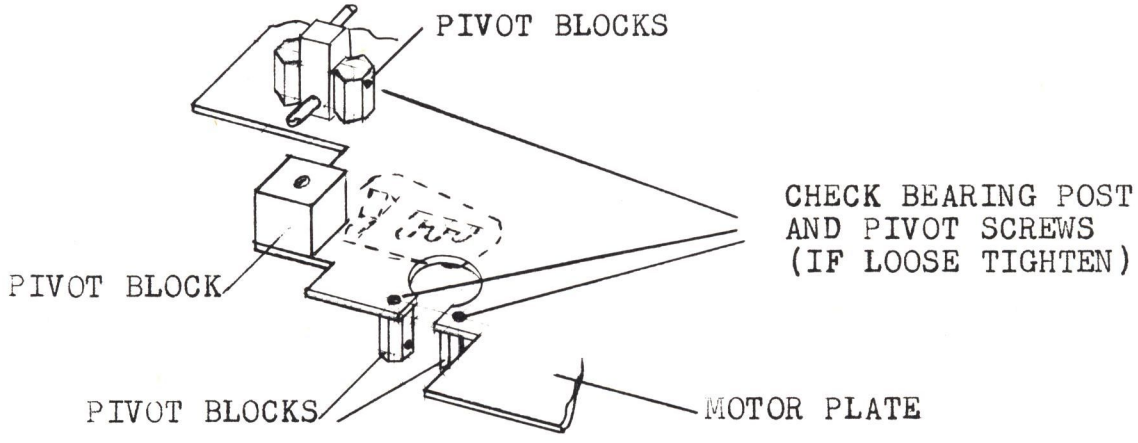

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Fig. 4 A-32045

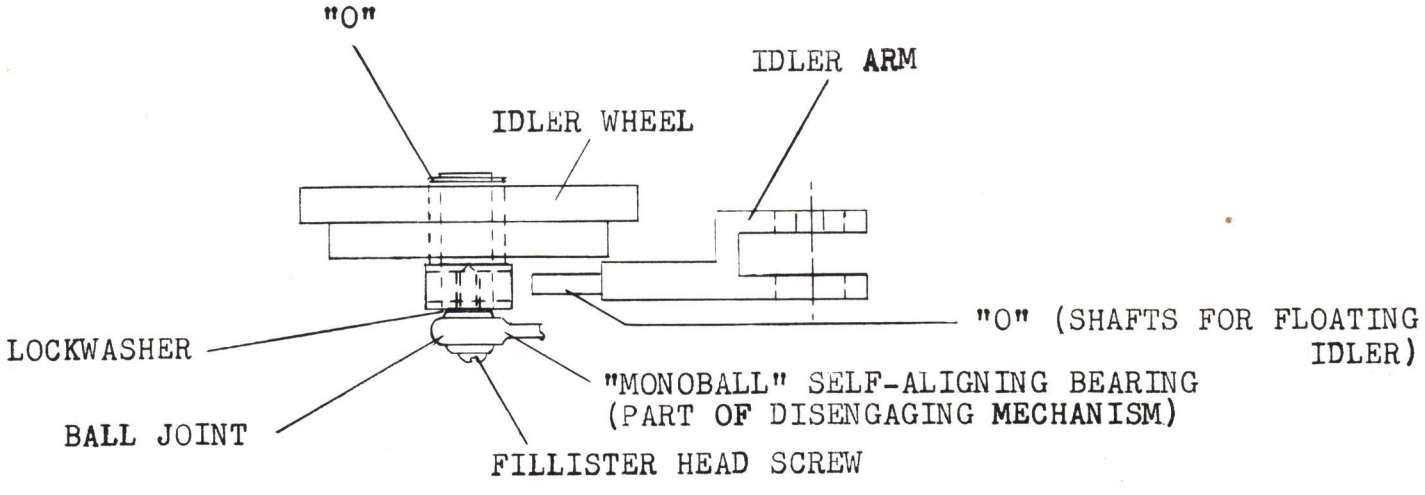

Fig. 5 A-32046

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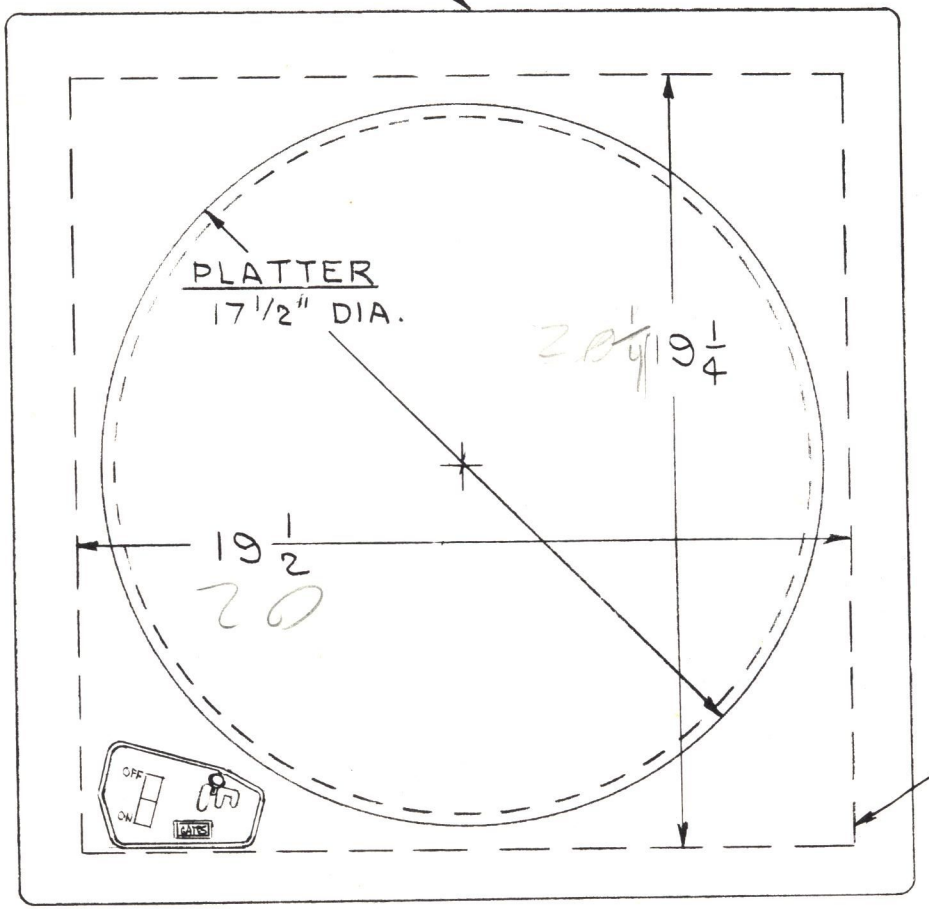
OUTLINE OF BASE CASTING



CLEARANCE REQUIRED BELOW MOUNTING SURFACE = 4 7/8" ABOVE MOUNTING SURFACE = 3"

OUTLINE OF CUTOUT REQUIRED

MOUNTING CLEARANCE AND CUTOUT DETAILS
CB 500 TURNTABLE M5739

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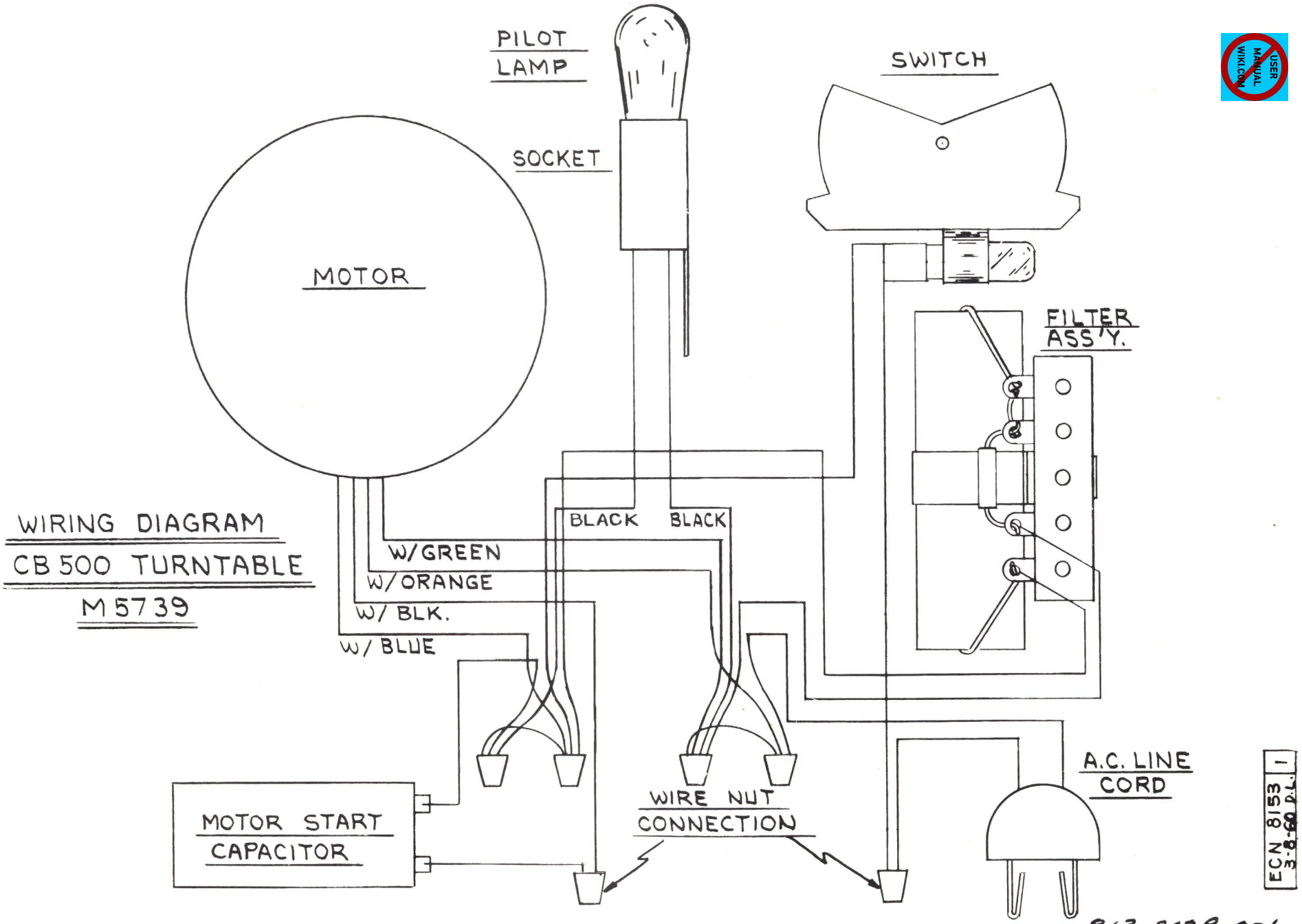

WIRING DIAGRAM
CB 500 TURNTABLE
M5739

ECN 8153 1
3-8-60 D.L.

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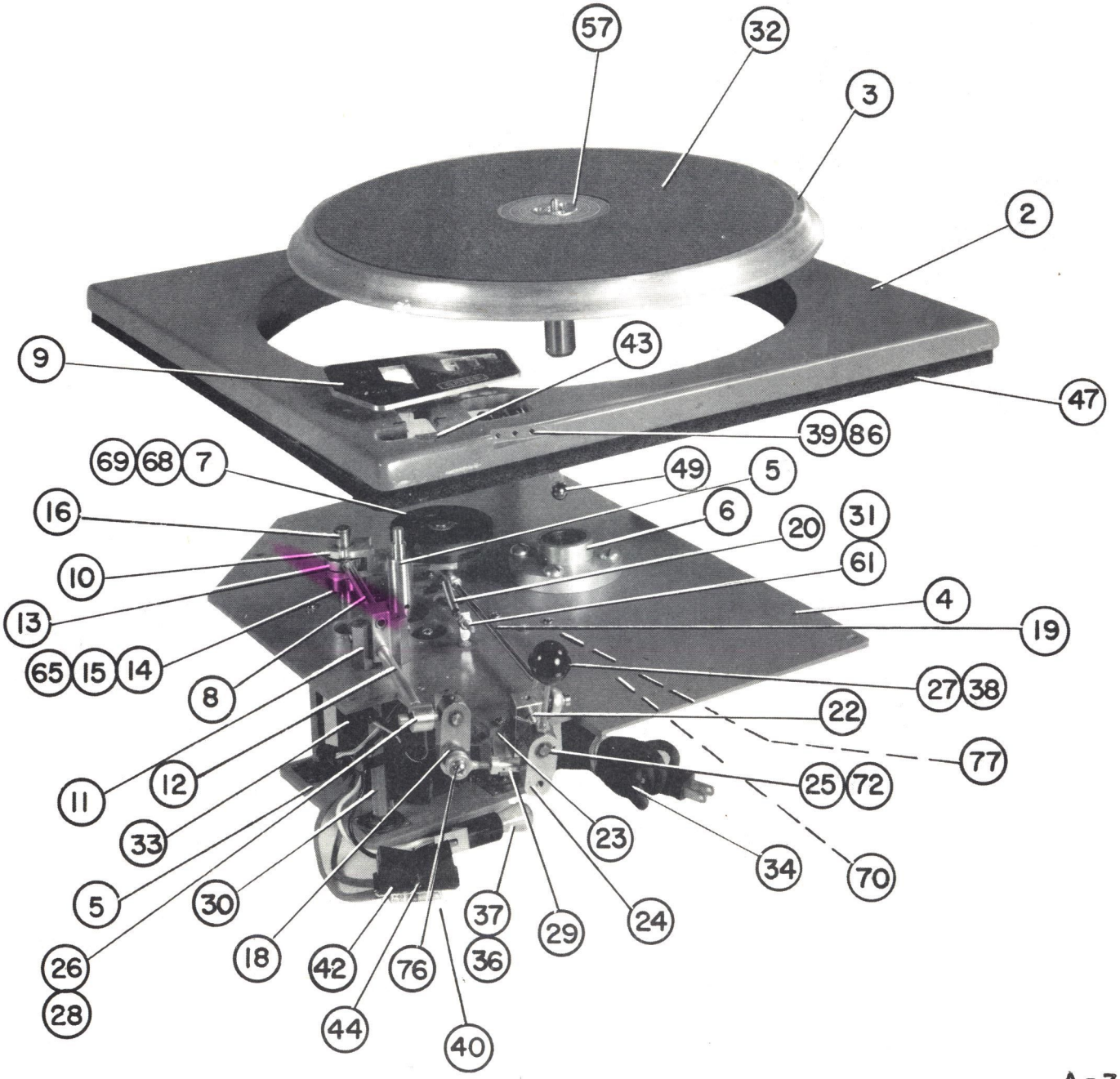

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