JVC

Nov. 1972
No. 2298

SERVICE MANUAL

MODEL VC-9

SPECIFICATIONS

Power	115/230 V, AC 50/60 Hz selectable
Power consumption	13W
Type	2-speed belt drive automatic turntable
Motor	6-pole hysterisis synchronous outer rotor motor
Speed	33-1/3 and 45 r.p.m.
Turntable	8.0 lbs., 12-in. zinc die cast
Tone arm	Static dynamic balanced type tubler arm
Adjustment mechanism	▫ Stylus pressure adjustment ▫ Anti-skating control ▫ Vertical tracking error correction
Stylus	Diamond
Stylus pressure	2 ~ 2.5 gr.
Frequency response	10 ~ 25,000 Hz
Conpliance	25×10^{-6} cm/dyne
Wow & flutter	Less than 0.05%
S/N ratio	More than 58dB
Record capacity	Up to 6 records
Dimensions	17"(W) x 15"(D) x 10"(H)
Gross weitht	23.3 lbs.

VICTOR COMPANY OF JAPAN, LTD.

Features

- ☆ 6-pole, hysteresis synchronous outer rotor motor
- ☆ Belt drive system
- ☆ 8.0 lbs. super heavy weight turntable (12-inch diameter)
- ☆ Oil damped cueing device
- ☆ Stylus pressure adjustment
- ☆ Anti-skating control
- ☆ Vertical tracking error correction device
- ☆ Universal type head shell
- ☆ Auto-changer
- ☆ Manual play

HOW TO USE THE TURNTABLE

Parts of the Turntable

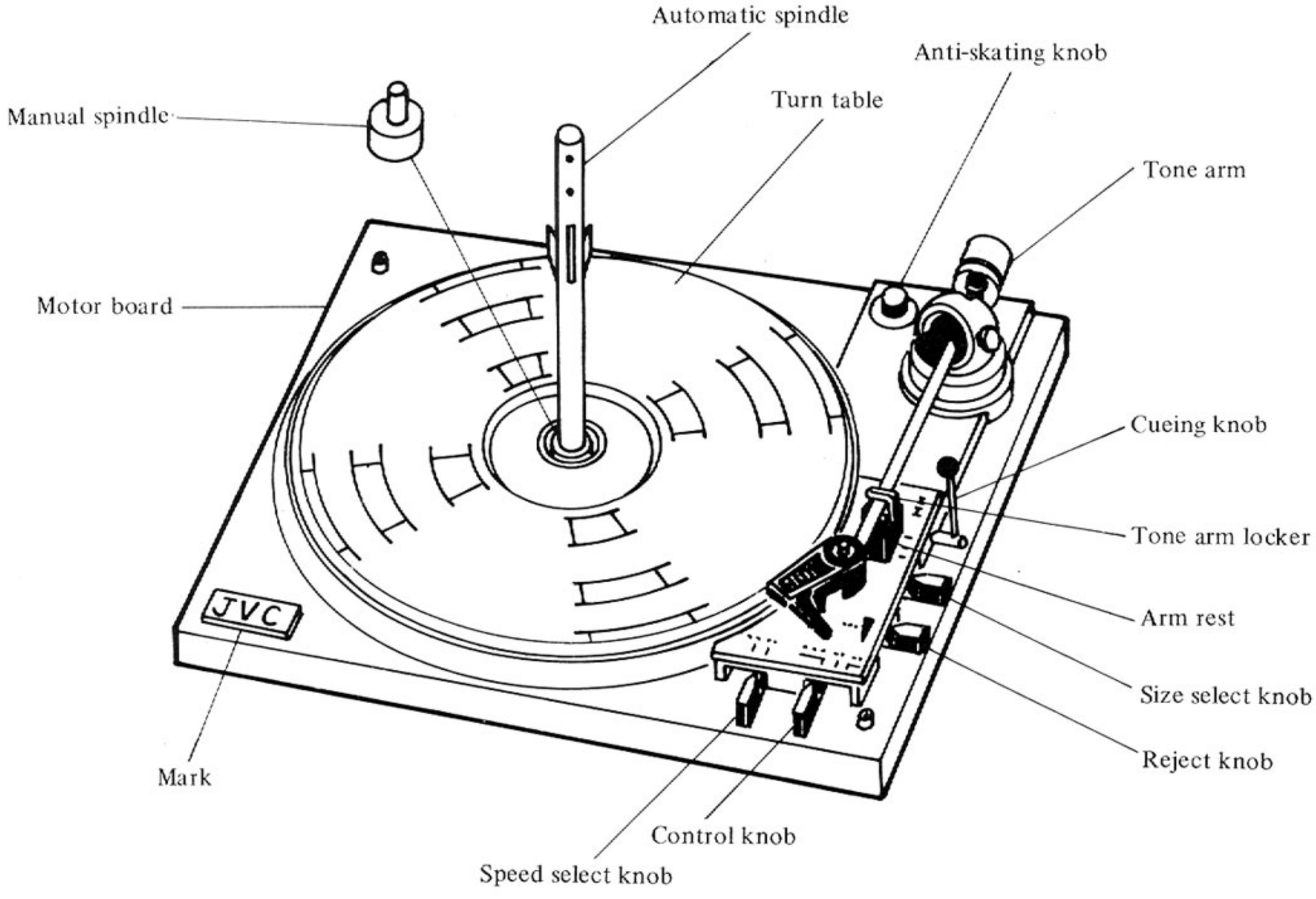


Fig. 1

A. CHANGER OPERATION

1. Release the tone arm lock.
2. A maximum of six records of the same speed and same size can now be loaded on the automatic spindle.
3. Set the speed selector knob to the correct speed for record to be played.
4. Set the size selector knob to the size for record to be played.
5. Be sure the cueing lever is lowered.
6. Move the control knob to the "START" position and then releasing it to the "MAN" position gentlely. By this operation, the turntable will make the automatic play. All the records stacked up on the spindle are played in sequence. After the last record play is finished, the tone arm will automatically return to the arm rest and then power switch will shut off.
7. A record may be rejected at any time during changer operation by pulling the reject knob.
8. The power switch can be shut off by moving the control knob to the "OFF" position. The tone arm should be returned to the arm rest by manual operation.

B. MANUAL OPERATION

1. Turning the automatic spindle to the left, remove it and insert the manual spindle into the center shaft.
2. Place the record on the platter.
3. Release the tone arm lock.
4. Set the speed selector knob to the correct speed for record to be played.
5. Move the control knob to the "MAN" position.
6. Move the cueing lever to the position ▼. Place tone arm over the record where you would like play to begin.
7. Move the cueing lever to the position ▼, and the tone arm will drop down to the record slowly and the record will now play.

Note:

For single-play, the manual spindle can be used. In this case, move the control knob to "START", and then move it back to "MAN." slowly. The tone arm will lead in, and at the end of the record, the tone arm will automatically return to the tone arm rest, thus turning off the power.

SETTING UP THE TURNTABLE

When setting up the record player after unpacking, be sure to take the following steps:

1. Remove the two red screws (A and B in Fig. 2) holding the motor.

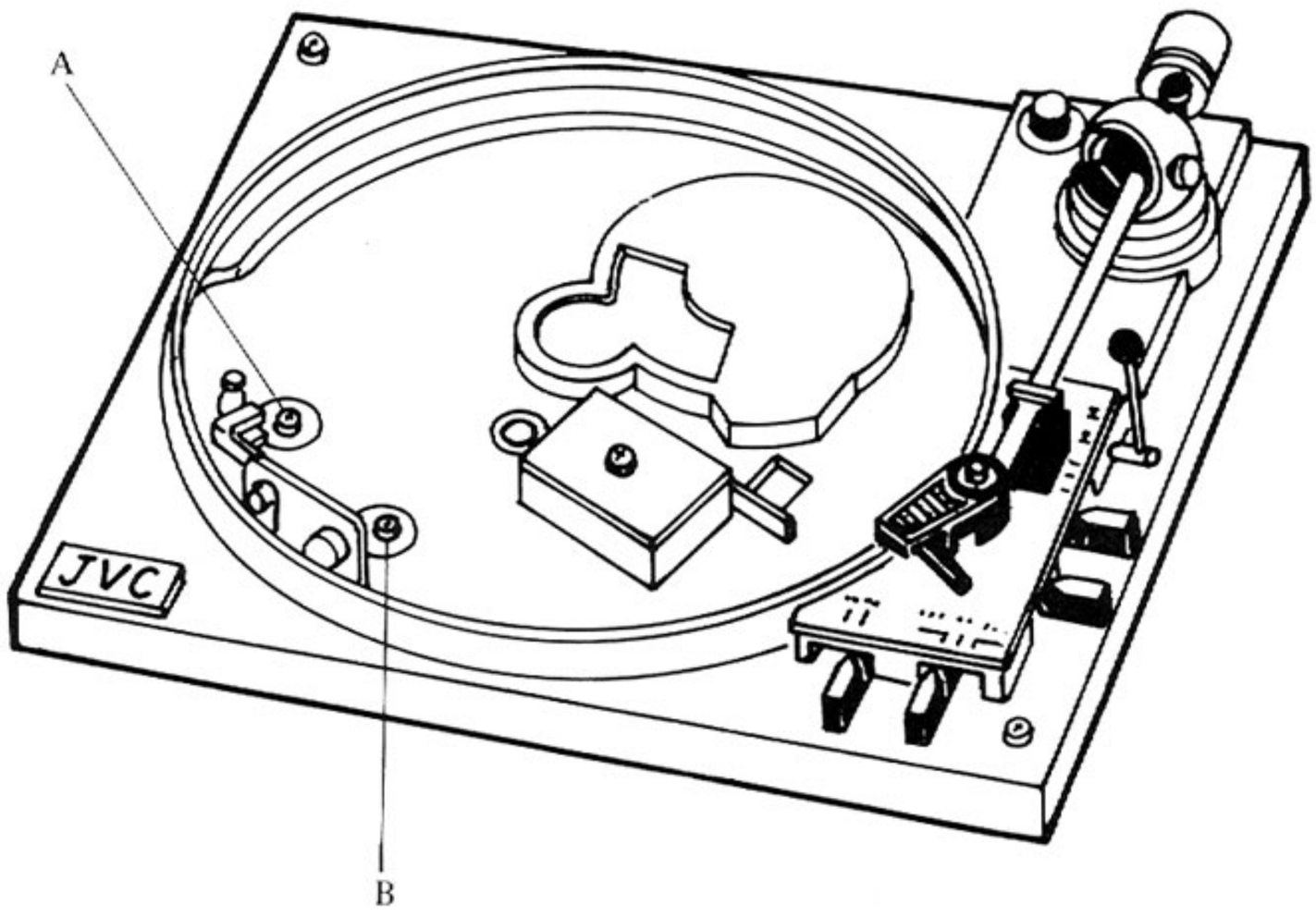


Fig. 2

2. Attach the cartridge to the cartridge base, and then plug it in the tone arm head by forcing it in the direction of the arrow. (Fig. 3)

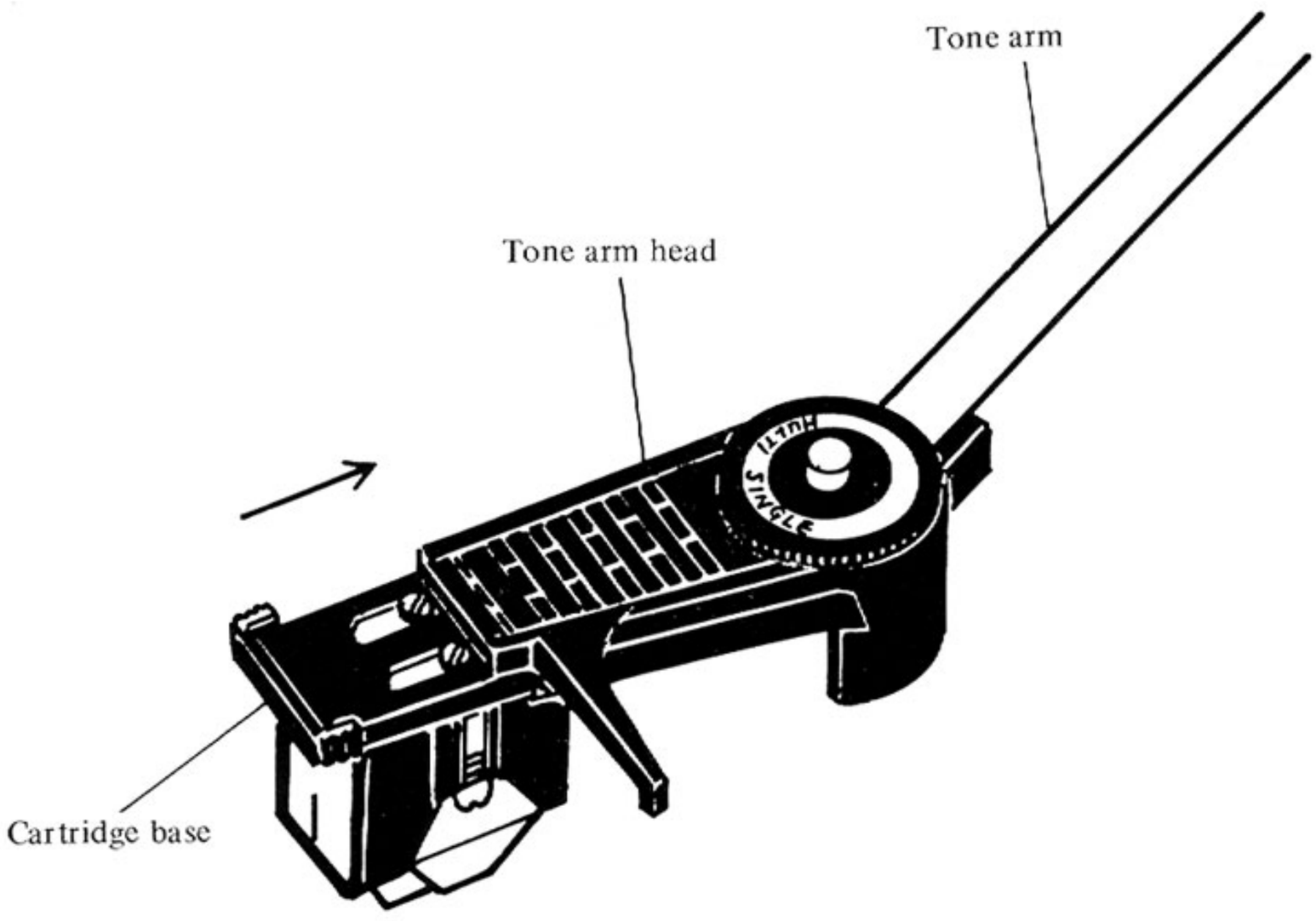


Fig. 3

3. Mount the tone arm weight on the rear end of the tone arm.
4. Mount the platter on the shaft gently.
5. Hold the cotton tape linked to the belt through the opening in the turntable, and place the belt around the pulley (Fig. 4). Then remove the cotton tape.

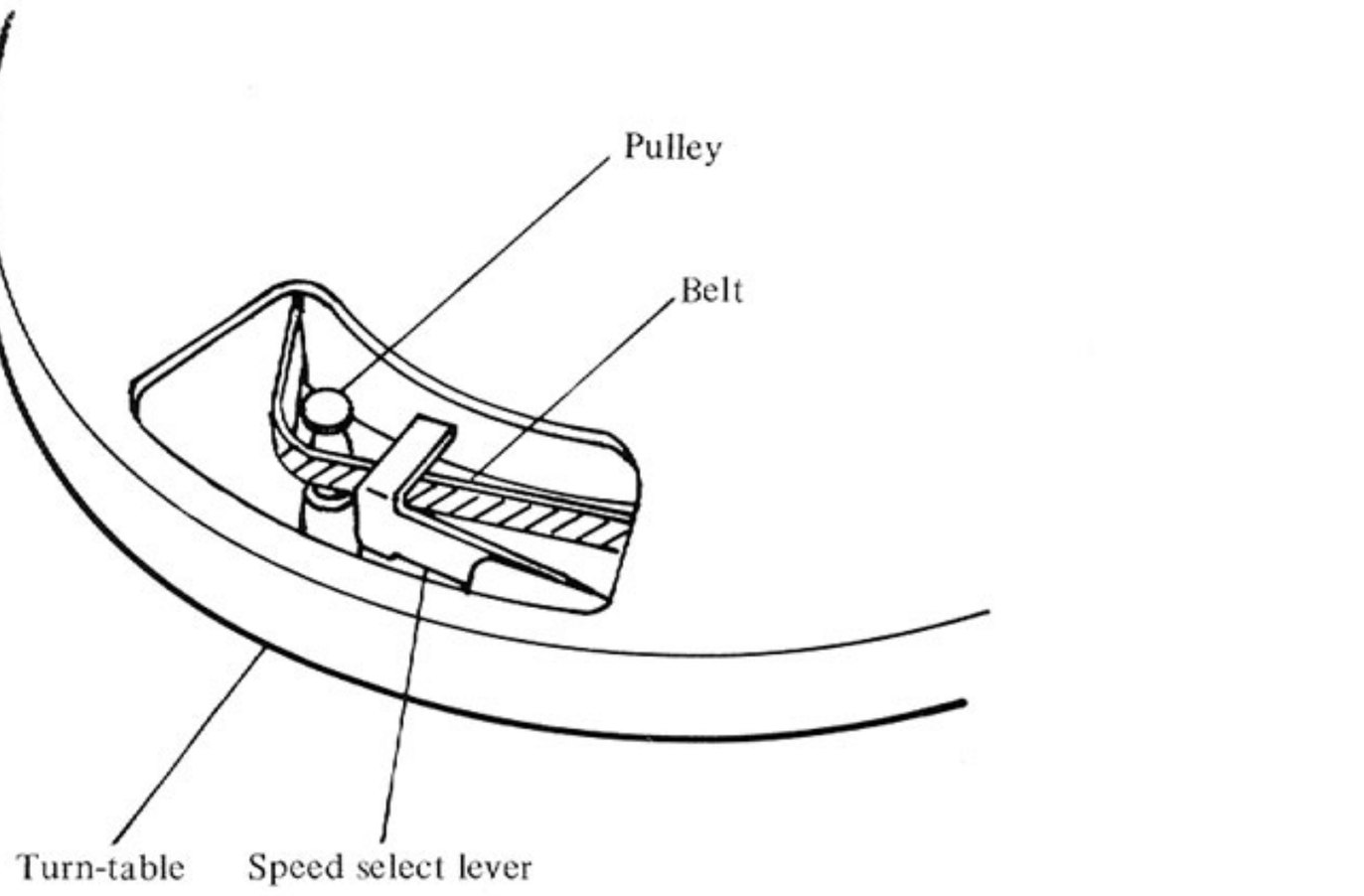


Fig. 4

6. Insert the spindle into the center of the turntable. That is, insert the automatic spindle projection into the turntable shaft slot and turn it clockwise so that it will not slip off.
7. Adjust the stylus pressure to 0 gr. (the tone arm will be parallel to the motor board) by moving the weight back and forth with a screwing motion. Then adjust the stylus pressure properly by turning the stylus pressure dial knob. (Fig. 5)

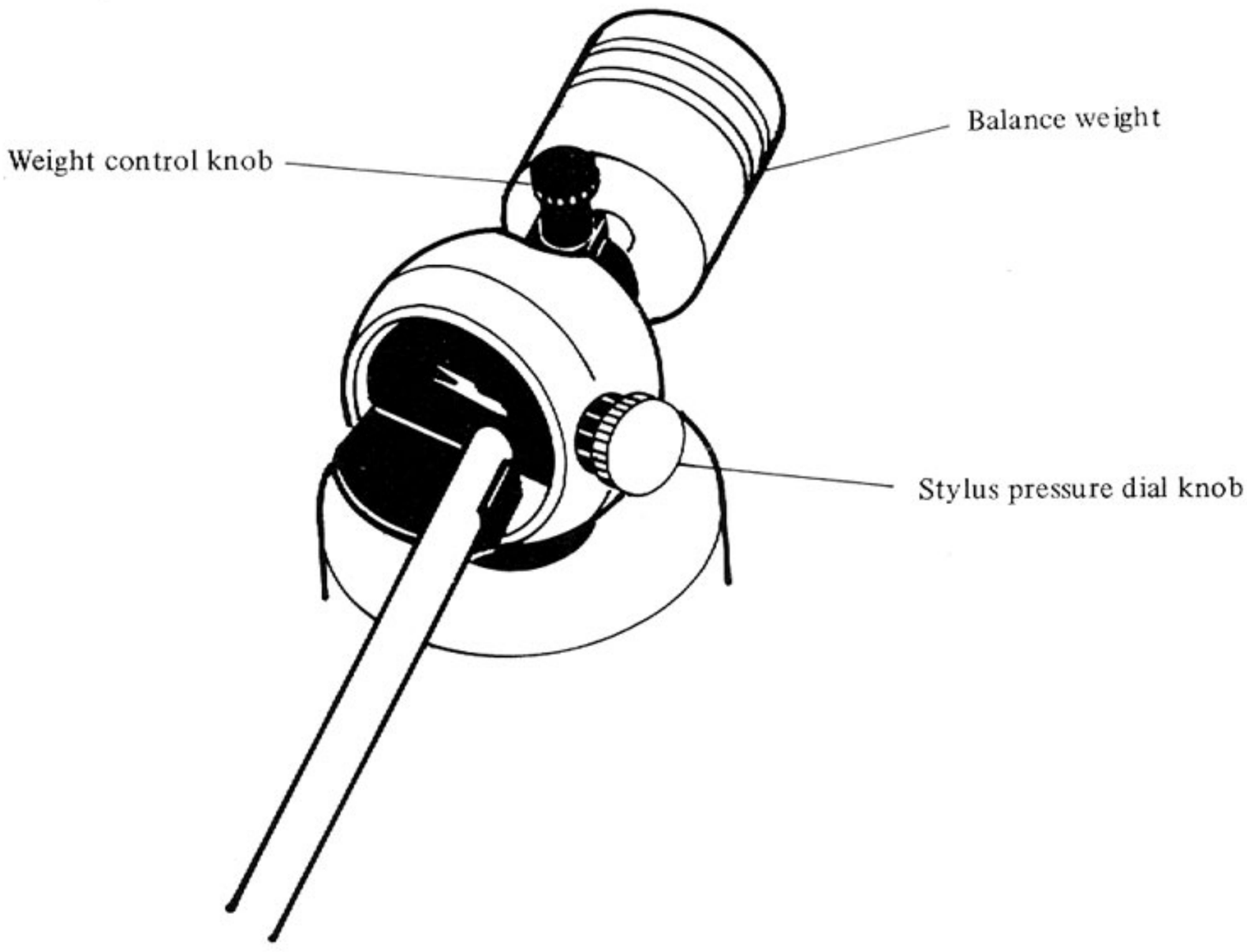


Fig. 5

TERMINOLOGY

1. Change cycle: As the tone arm moves in the run-out groove, it will soon moves up and returns to the lead-in position for record play. The cycle of these tone arm movements is called "change cycle."
2. Lead out: As the tone arm goes into the run-out groove, it moves up automatically. This action is called "lead out".
3. Lead in: When the play is started, or after the tone arm leads out, it moves back and goes down to the lead in groove of the next record. This lowering action of the tone arm is called "lead in".
4. Shut off: As the tone arm returns to the rest after playing, the power switch is automatically turned off. This is called "shut off".
5. Auto-out: When the reject knob is remove while the record is played, the tone arm lifts from it and returns to the tone arm rest.
6. Size select: "Size select" means the operation to set the size select knob to the position corresponding to the record size.
7. Speed select: "Speed select" means the operation to set the speed select knob to the position corresponding to the record speed.
8. Cueing: "Cueing" is the operation to lower the tone arm to the record by hand for manual play.
9. Anti-skating: "Anti-skating" is a device to control the "Inside Force" of the tone arm by applying the "Inside Force" to it.

OPERATION

1. Change Cycle Mechanism

1) As illustrated in Fig. 6, the untoothed portion of the main gear faces toward the platter gear during playing and as a result, the main gear is free from the rotating platter gear. The projection is also free from the engagement pawl.

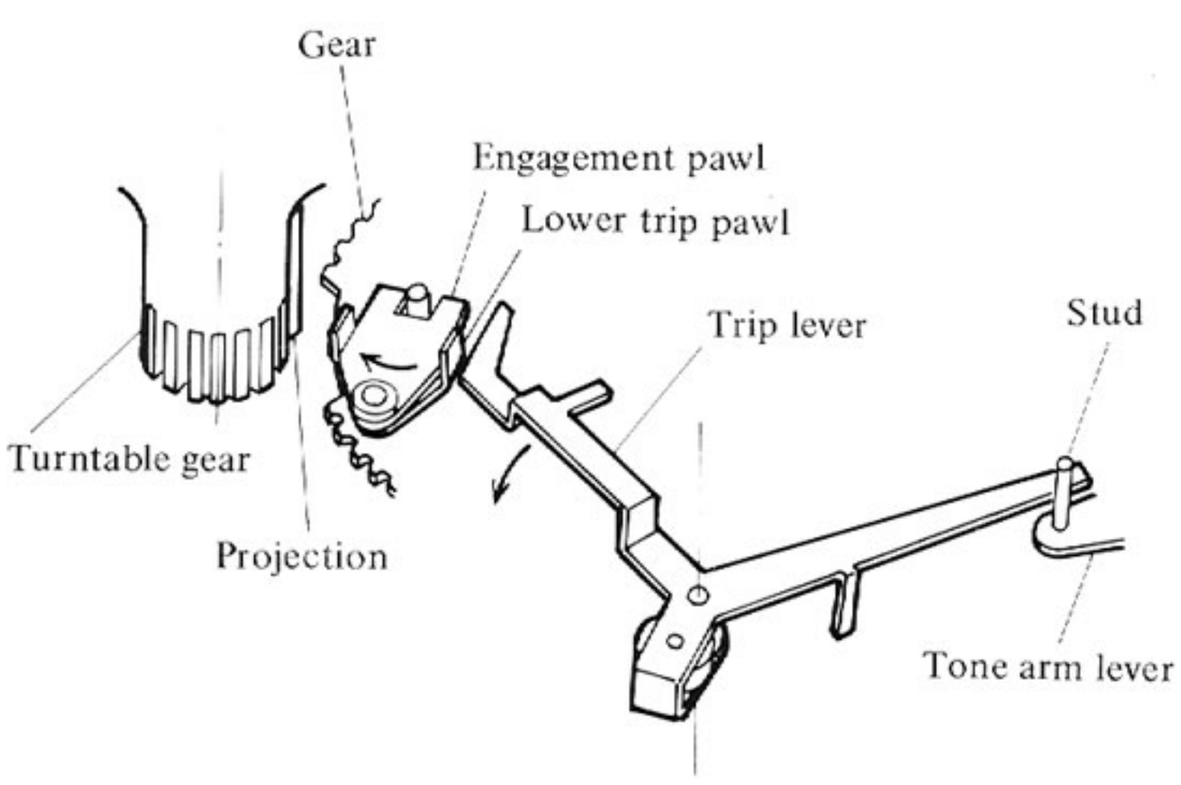


Fig. 6

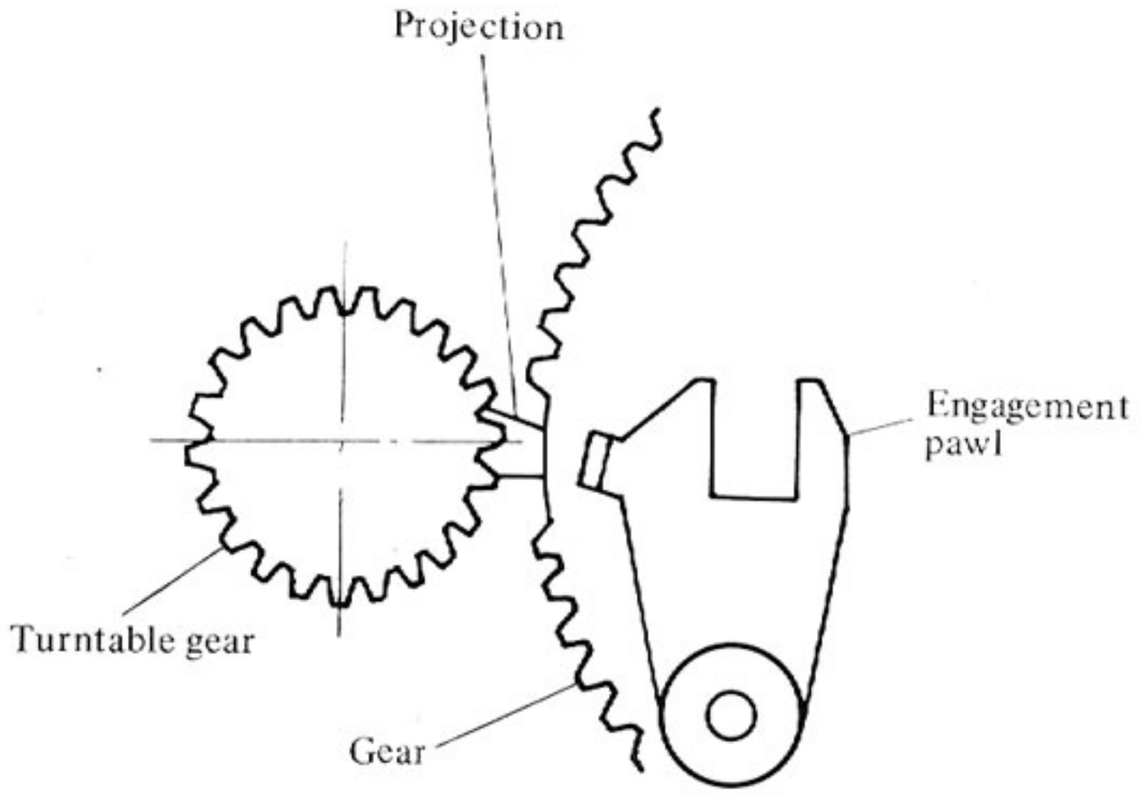


Fig. 7

2) As the tone arm advances inside, the stud attached to the tone arm lever, which is interlocked with the tone arm, causes the trip lever to turn, and the trip lever pushes the engagement located on the lower trip.
3) Since the engagement is not to held to the lower trip, it can be moved easily. The engagement pawl and the projection are positioned as illustrated in Fig. 7. When the stylus is tracking the recording groove, the movement of the engagement pawl is small, and the projection contacts the tapered portion of the engagement pawl and pushes it back a little.

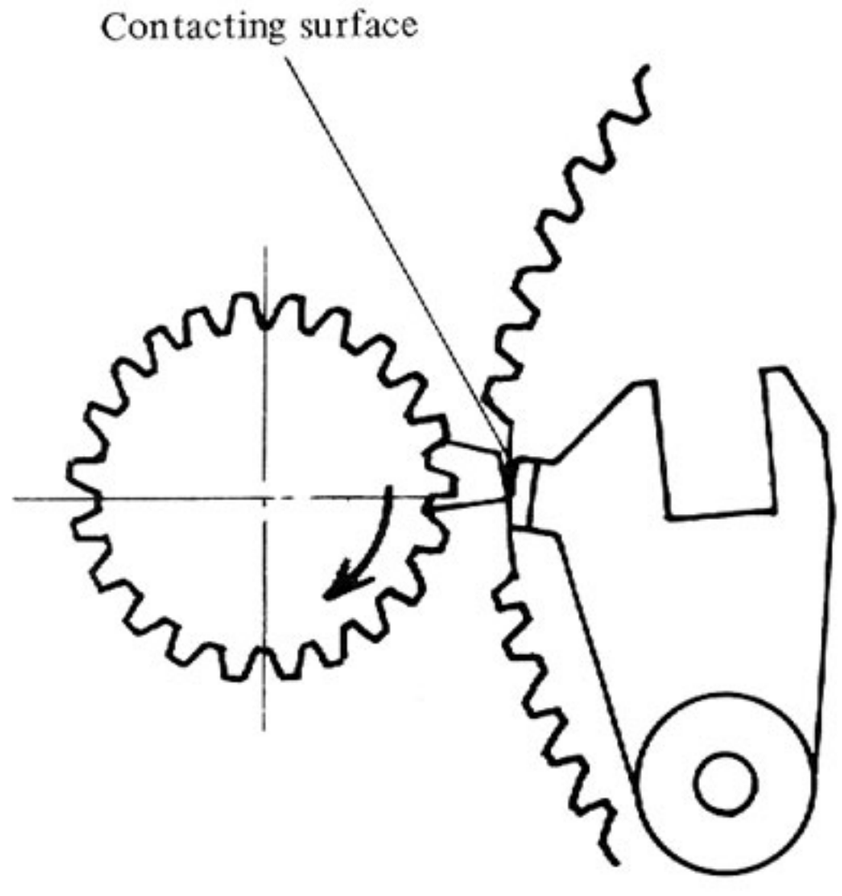


Fig. 8

4) As the tone arm moves in the run-out groove, the engagement pawl moves forward more than pushed back by the projection, and their relative positions are shown in Fig. 8. As the engagement pawl is pushed by the projection, it makes the gear rotate and thus the first tooth comes to mesh with the platter gear. That is, the change cycle begins.

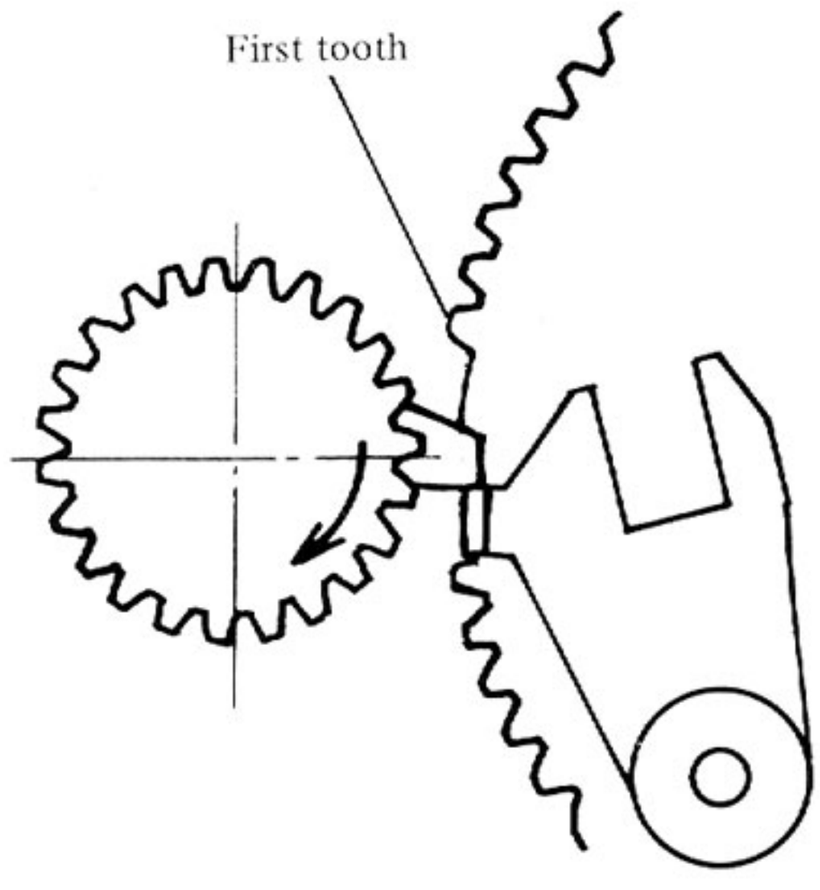


Fig. 9

5) As the gear makes a complete turn, both gear and platter gear are positioned as illustrated in Fig. 6. As a result, the gear will not turn.
6) At the same time, the engagement pawl, lower trip and trip lever also return to their respective original position. (The engagement pawl is pushed back by the outer surface of the platter gear, and the trip lever is pushed back by the projection on the gear.
7) The playing can be stopped in the way by setting the control knob to "START" position. In this case, the reject lever pushes the trip lever as shown in Fig. 8, and the change cycle begins. The same mechanical operation takes place when the control knob is set to "START" before starting the platter.

2. Tone Arm's Vertical Movement, Lead-In and Return Mechanism

As the gear begins to rotate at the end of record playing, the lifting lever linked to the gear cam moves up and pushes up the cueing lever which contacts it at the point of the lifting lever. As the cueing lever is pushed up, the elevator shaft contacting with the cueing lever pushes up. This causes the tone arm to move up.

As the tone arm moves up (that is, the lifting lever is up), this turns the operating lever linked to the gear cam. As stud A at the one of the operating lever moves, the other end of the operating lever pushes stud B attached to the tone arm lever, thus bringing the tone arm to the tone arm dropping position. As the lifting lever goes down, the tone arm lowers to the record disc. After the play is over, the tone arm is raised by the lifting lever, and at the same time, both arm lever and index lever are pulled by the friction plate attached to the end of the operating lever. Thus the tone arm starts returning to the tone arm rest.

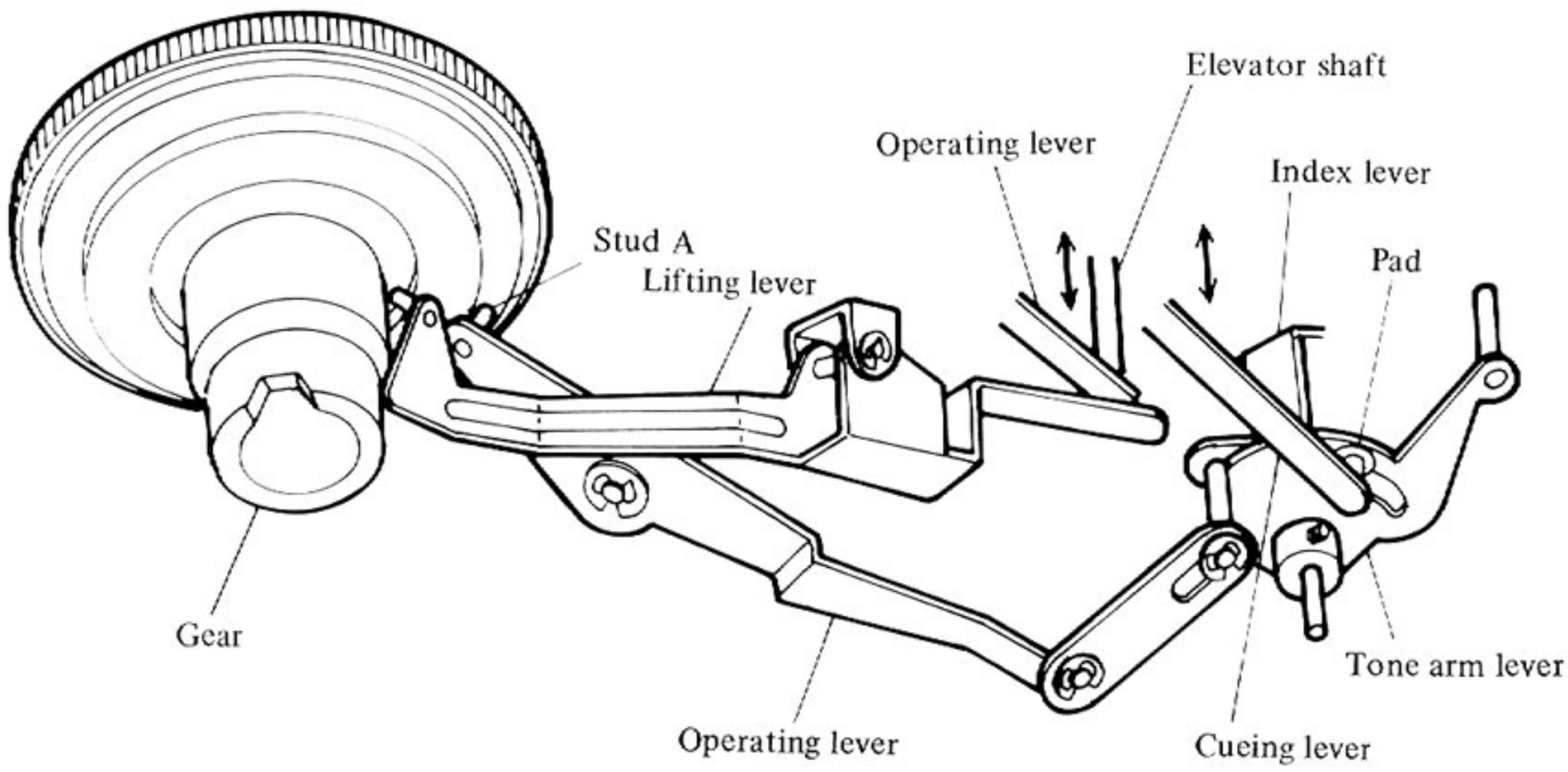


Fig. 10

3. Record Size Select Mechanism

To make the tone arm dropping position correctly, the record size select knob must be set according to the record size. As the gear starts rotating at the beginning of the change cycle, the index lever attached to the tone arm shaft is moved by index lever, together with the arm lever. In this case, the movement of the index lever is controlled by the A portion of the size selector, and thus the lead-in position of the tone arm is also regulated. The selection of the tone arm dropping position for 7-in., and 12-in., sizes can be made by sliding the size selector in the direction of the arrow. The A portion (projection) of the size selector meshes with each of the steps according to the record size select knob position.

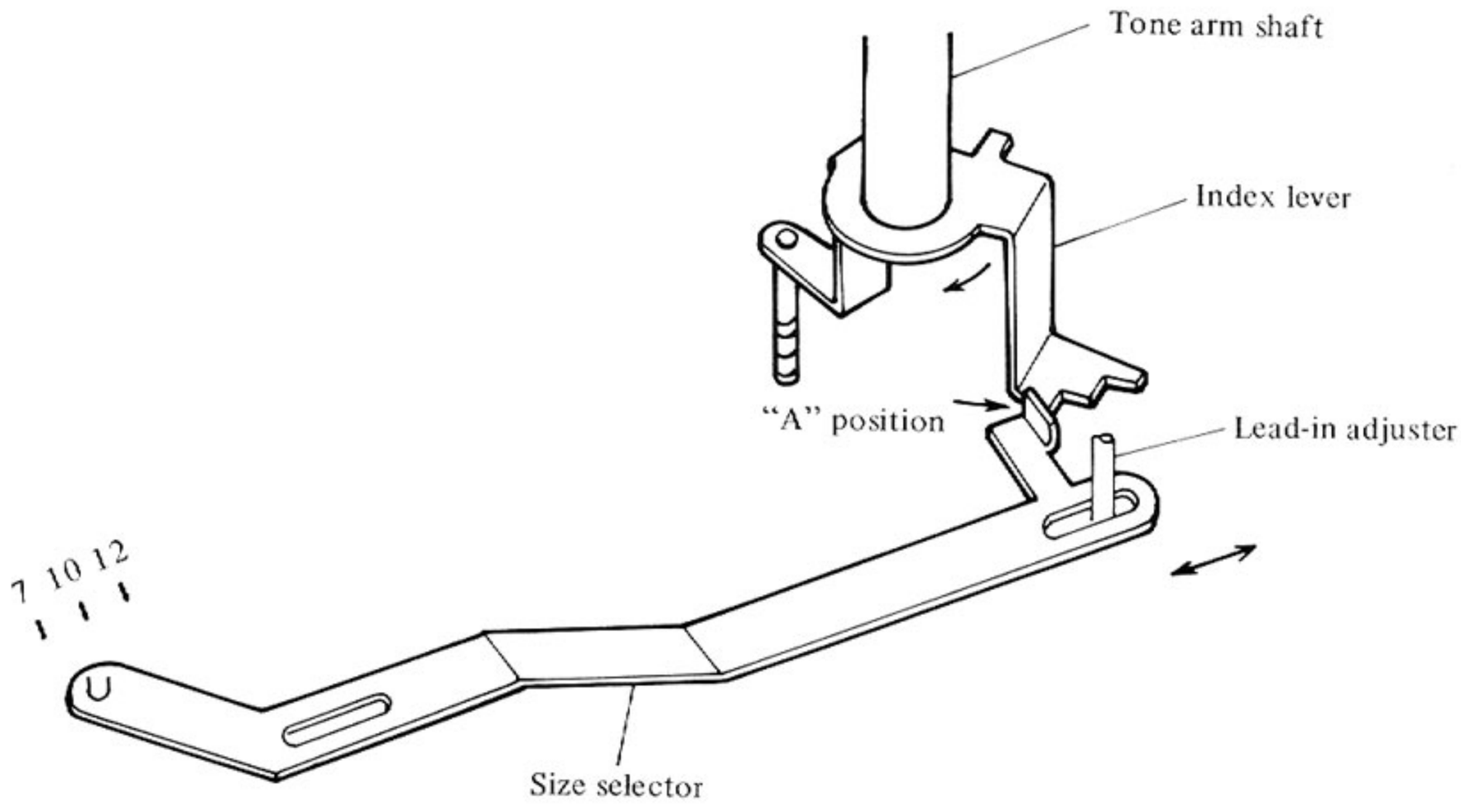


Fig. 11

4. Record Dropping Mechanism

At the beginning of the change cycle, spindle levers A and B are moved by the gear cam, thus permitting the record to stop.

1) Spindle lever C is moved in the direction of B by the cam, and the records after the first one are held by the record holder.

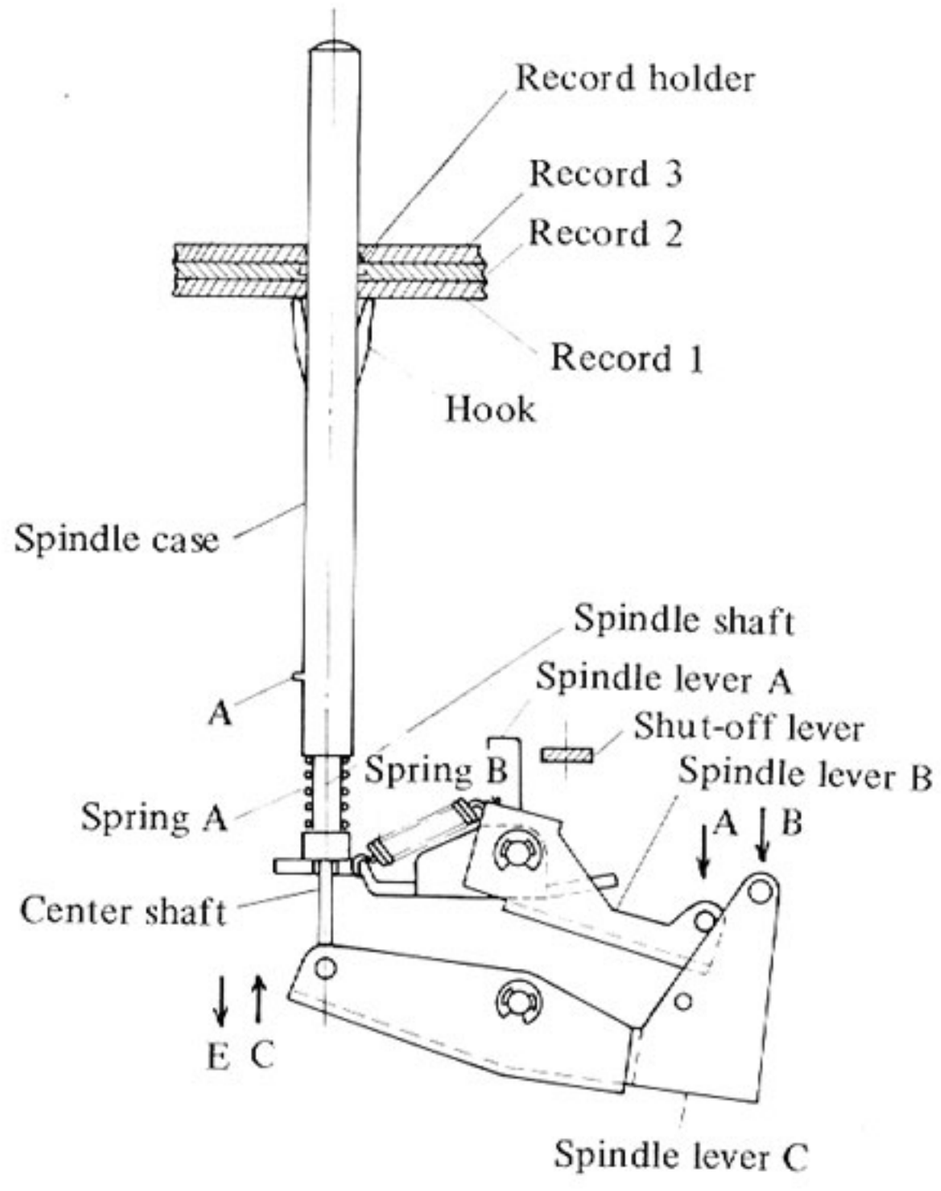


Fig. 12

2) Spindle lever B is moved by the cam in the direction of A. When its records remain on the spindle, the Hook linked to the spindle shaft stays in the position. As a result, the spindle lever A spring overcomes the force of spring B and moves apart from spindle lever B.
3) Spindle lever B is pushed upward (in the direction of the arrow) as illustrated in Fig. 12. Then, the spindle shaft is moved down by spring A, and the hook linked to the spindle shaft is also moved downward into the spindle case. Thus one record alone lowers.

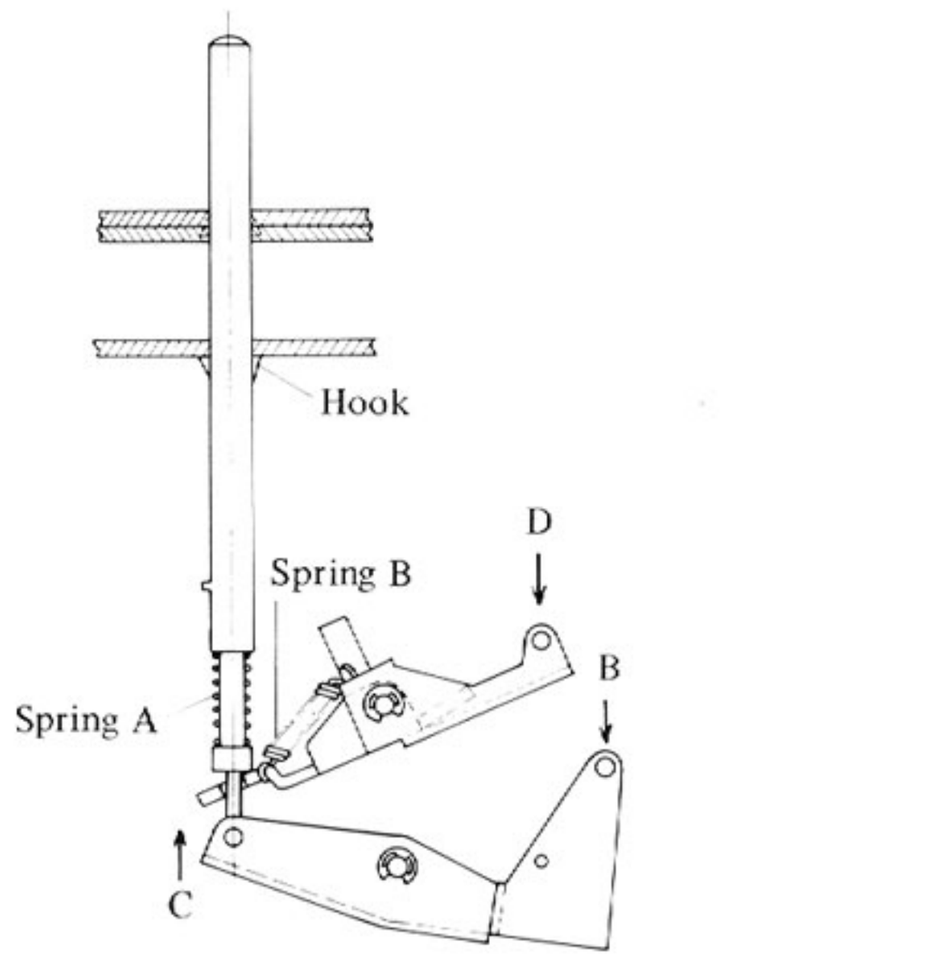


Fig. 13

4) Next, spindle lever B moves in the direction of the arrow and returns to its original position, thus supporting the next record.
5) Finally, spindle lever C moves in the direction of E and returns to its original position. As a result, the record holder moves into the spindle case. With this operation, the turntable is reset.

5. Final Record Play Select Mechanism

When a record remains on the spindle, spindle lever B is moved in the direction of A by the cam and is positioned as shown in Fig. 12. As explained above, the record keeps the hooks in its position, and thus spindle lever A stays where it is. When no record is on the spindle, spindle lever A goes up as illustrated in Fig. 14, and the hooks pass through the record (X) and move further upward. Then, the point of spindle lever A pushes shut-off lever A′ in Fig. 15 down to the position of shut-off lever A. At the same

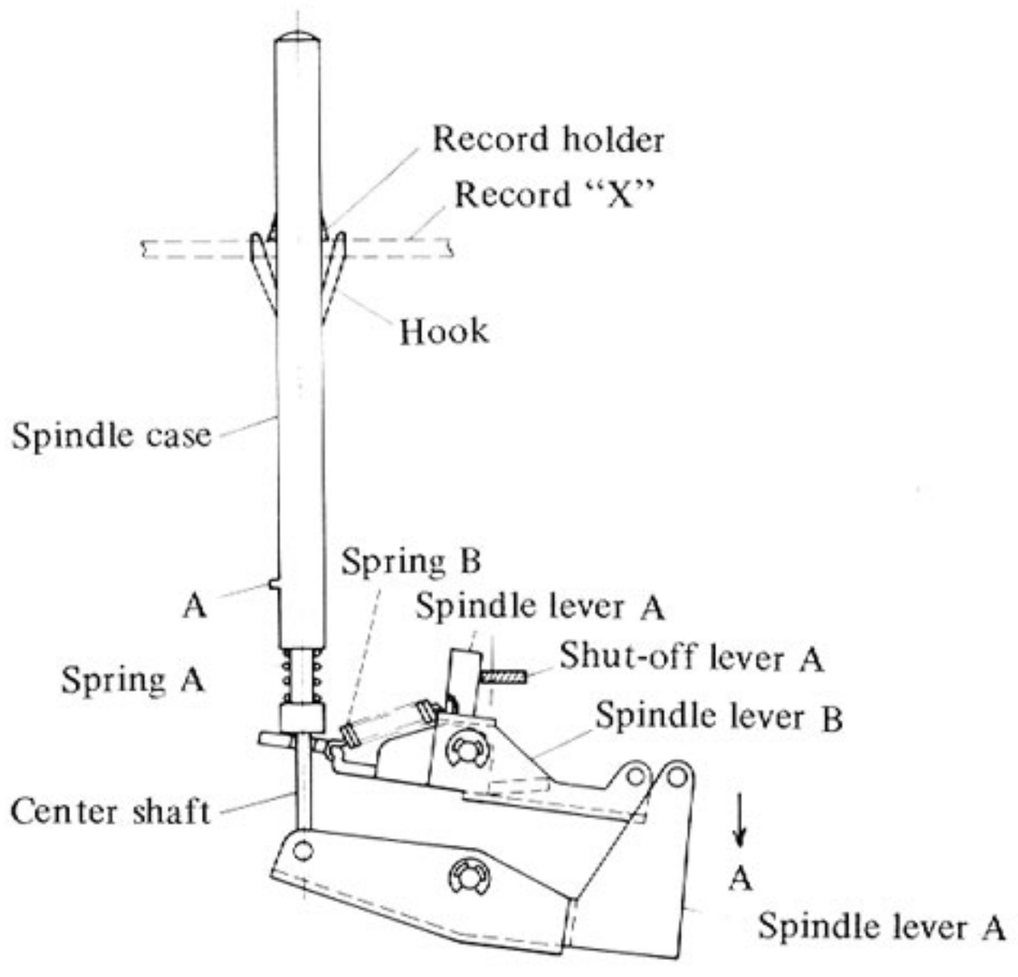


Fig. 14

time, shut-off levers B′ and D′ coupled with shut-off lever A also move to the positions of B and D, respectively. Shut-off lever D prevents the tone arm from going to lead in. As for the power switch, the gear boss pushes the kick lever, and when the kick lever pushes shut-off lever A, it also pushes the point of the trigger lever. This releases the other end of the trigger lever from the control lever, and it is pulled by the spring. Then the trigger lever is pushed up by the tapered portion of the control lever and moved to the position A, and this action shuts off the power switch.

After the power switch is shut off, the final record play select mechanism returns to the original state. In Fig. 15, the dotted lines show the lever position when a record remains on the spindle. Both shut-off levers are kept apart, and the tone arm is on the tone arm dropping position. Since shut-off lever A′ is positioned as indicated by the dotted lines, the out-away of the shut-off lever keeps it away from the trigger lever. This also keeps the power switch on.

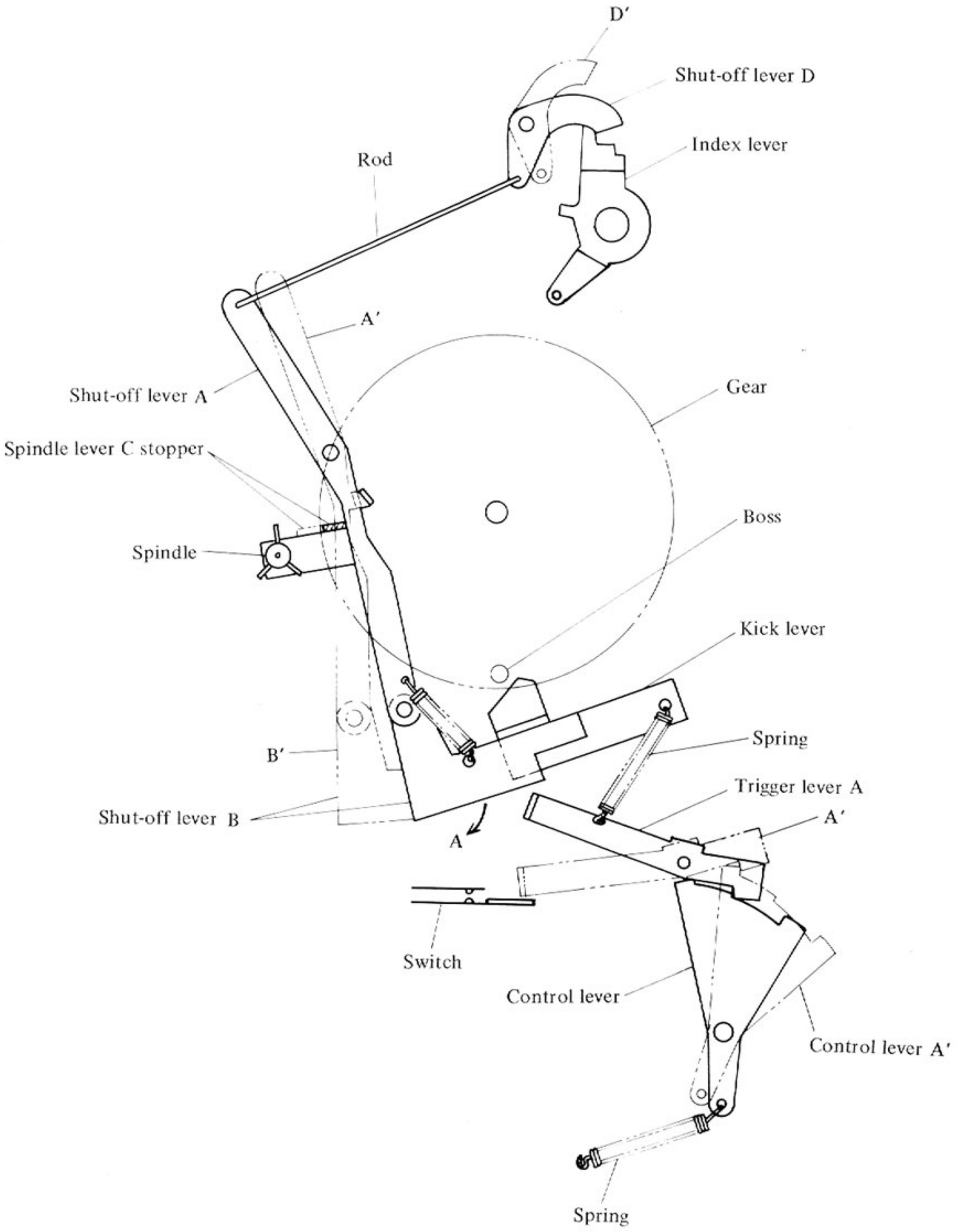


Fig. 15

ADJUSTING MECHANISM

1. Stylus Pressure Adjustment

First set the stylus pressure adjustment dial to "zero", and by moving the main weight back and forth, adjust the tone arm so that it is parallel to the motor board (zero balance). When both ends (cartridge and weight) of the tone arm are balanced, they are in a state of "zero balance". Then, set the stylus pressure dial knob to the position specified for the cartridge. (Fig. 5)

2. Vertical Tracking Error Correction

When using the turntable as an auto-changer, turn the adjust knob to "MULTI". For manual operation, set the adjust knob to "SINGLE". The cartridge can be maintained at a proper angle.

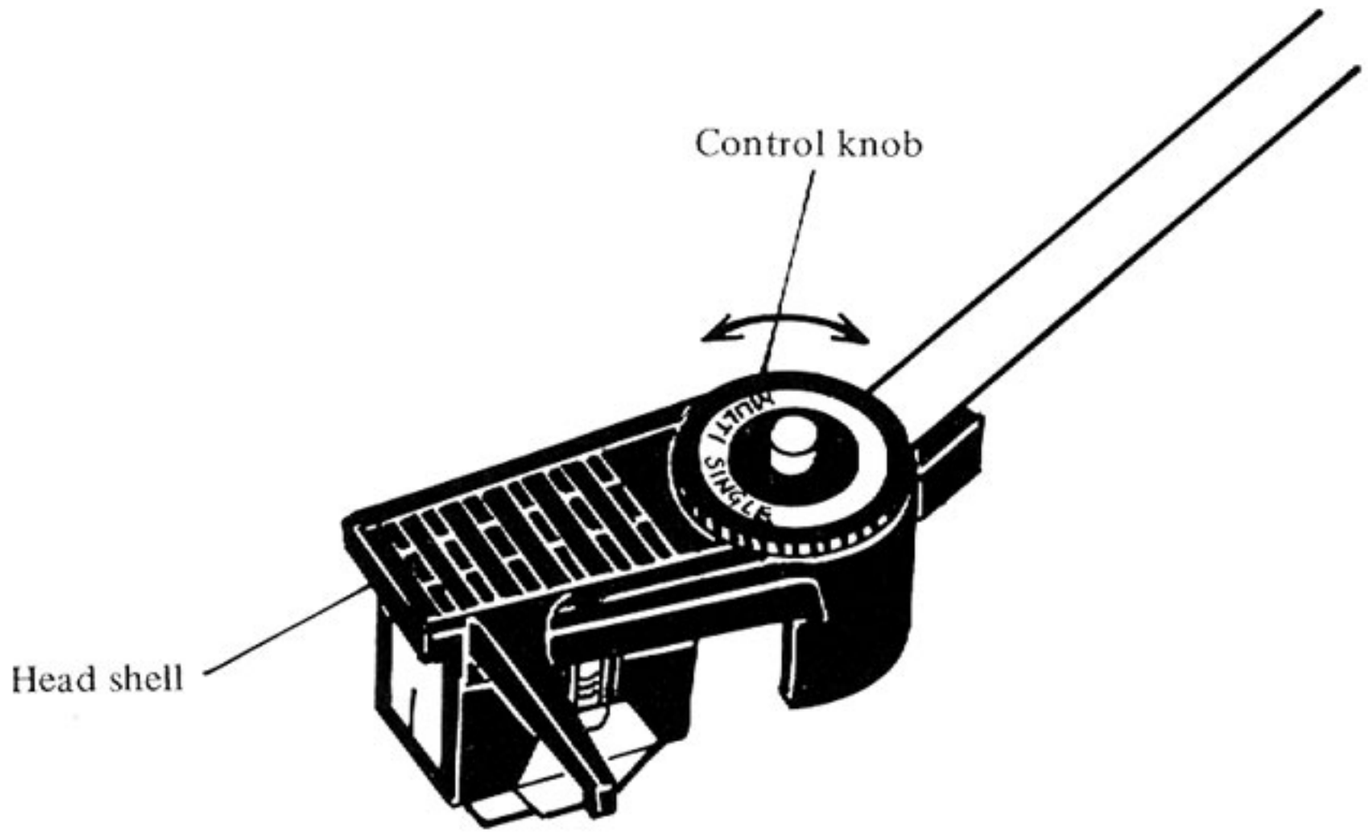


Fig. 16

3. Anti-Skating Adjustment

Anti-skating adjustment must be made for elliptical and conical stylus, respectively. The red scale on the ornament is for elliptically stylus, and the black scale for conical stylus. The number of adjustment knob should be in accordance with the number of stylus pressure.

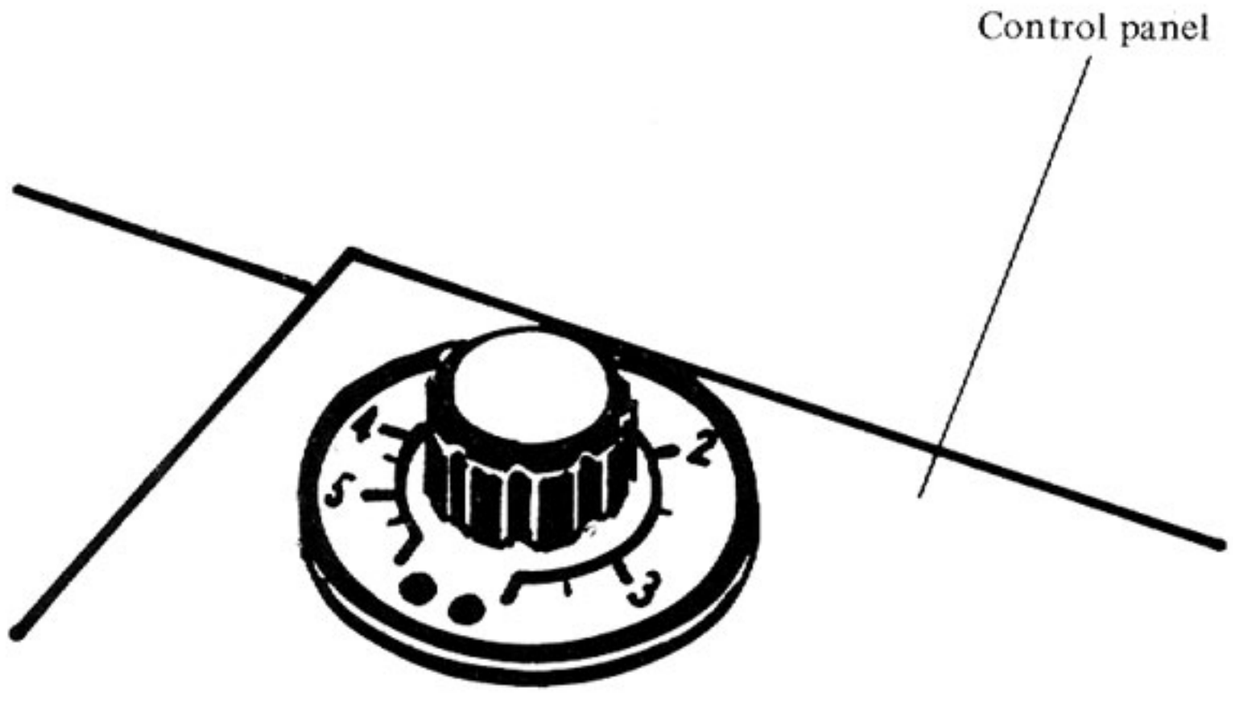


Fig. 17

4. Tone Arm Dropping Position Adjustment

The lead-in mechanism is adjusted in the factory, and therefore, adjustment should be made only when required. The tone arm dropping position can be adjusted by turning in and out the adjust screw located in the right rear (under the right rear of the tone arm) of the motor board by using a screwdriver. Turning it clockwise shifts the pick-up arm inside, and turning counterclockwise shifts it outward. The maximum angles of adjustment is 90° for right and left, respectively.

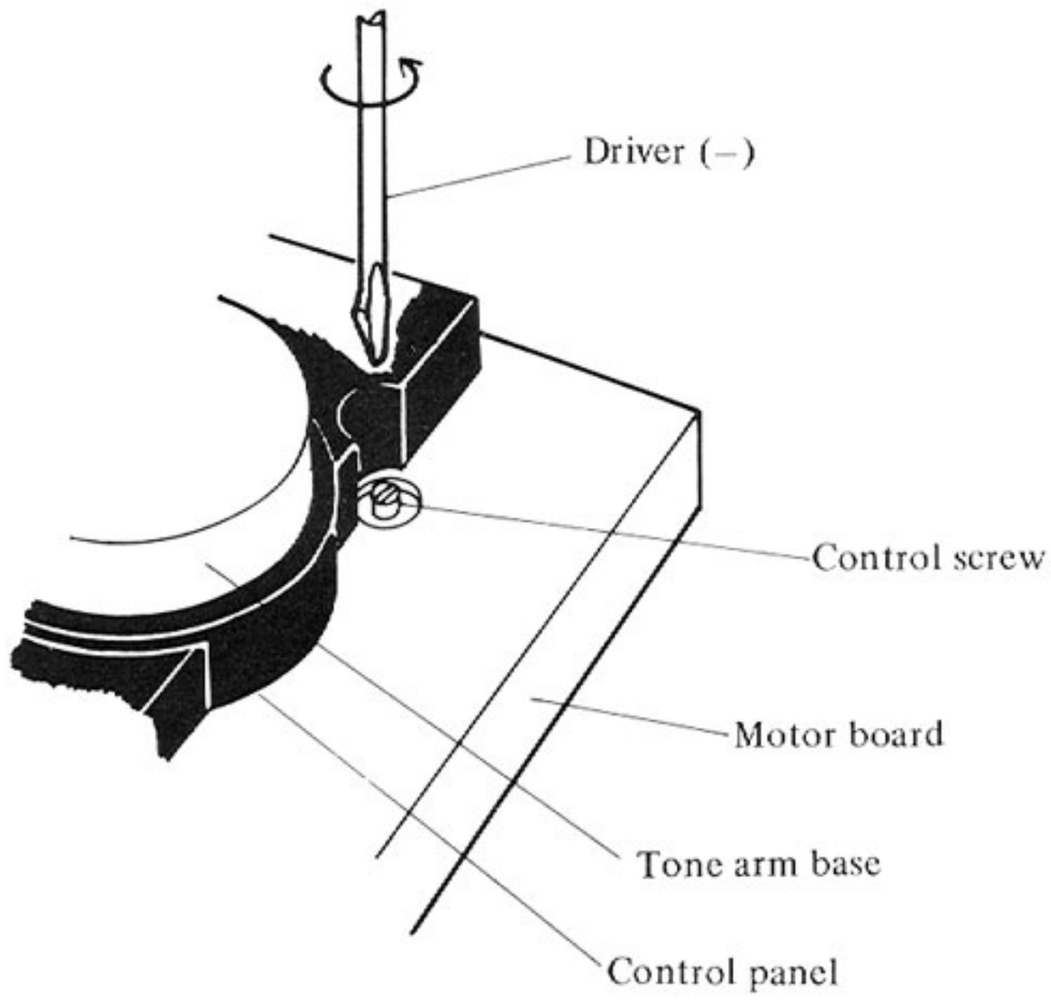


Fig. 18

5. Record Lowering Adjustment

If two records tend to fall at one time, or if no record should fall at all, insert the Phillips-head screwdriver through the hole underneath the gear plate, and turn in and out the adjust screw to adjust the height of the end of spindle lever A, as illustrated in Fig. 20. The gap between the record holder and the hook should be adjusted to 2.2 ~ 2.3 mm (equal to the thickness of a record) as shown in Fig. 20. If two records fall at one time, turn the adjust screw counterclockwise. If no record will not lower, turn it clockwise.

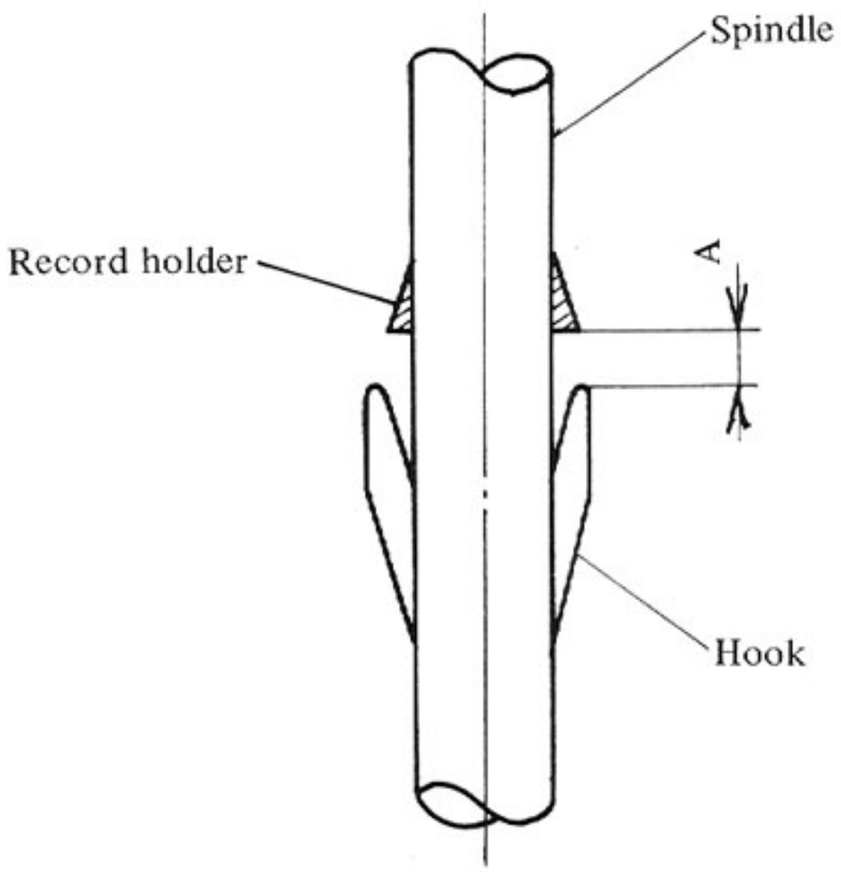


Fig. 19

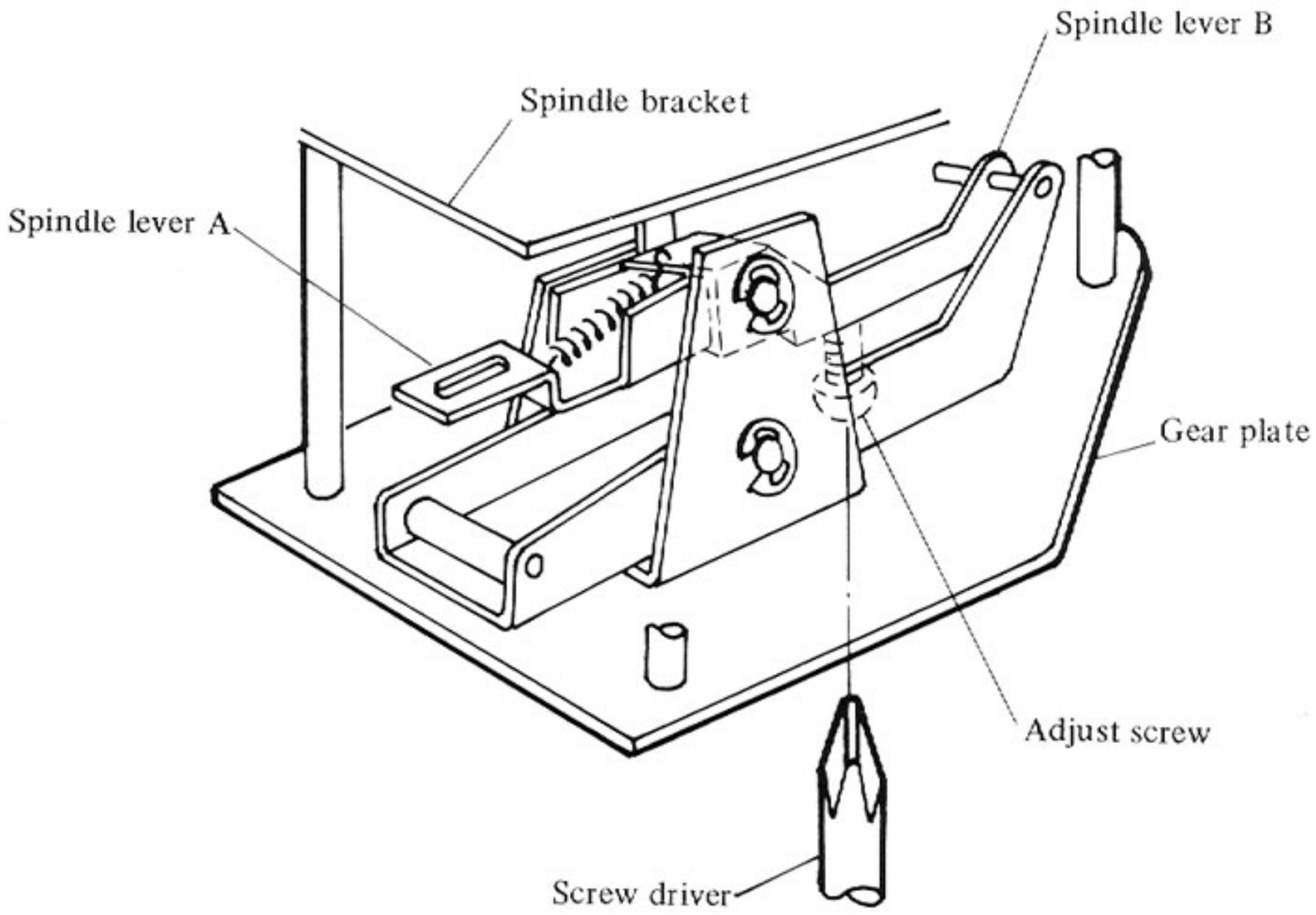


Fig. 20

6. Tone Arm Height Adjustment

The height of the tone arm which is leading in and return will become incorrect when the cartridge has been replaced. In this case, as shown in Fig. 21, loosen the knob, and turn it so that the stylus is 7 mm above, the surface of the top one of the six stacked records while the changing cycle.

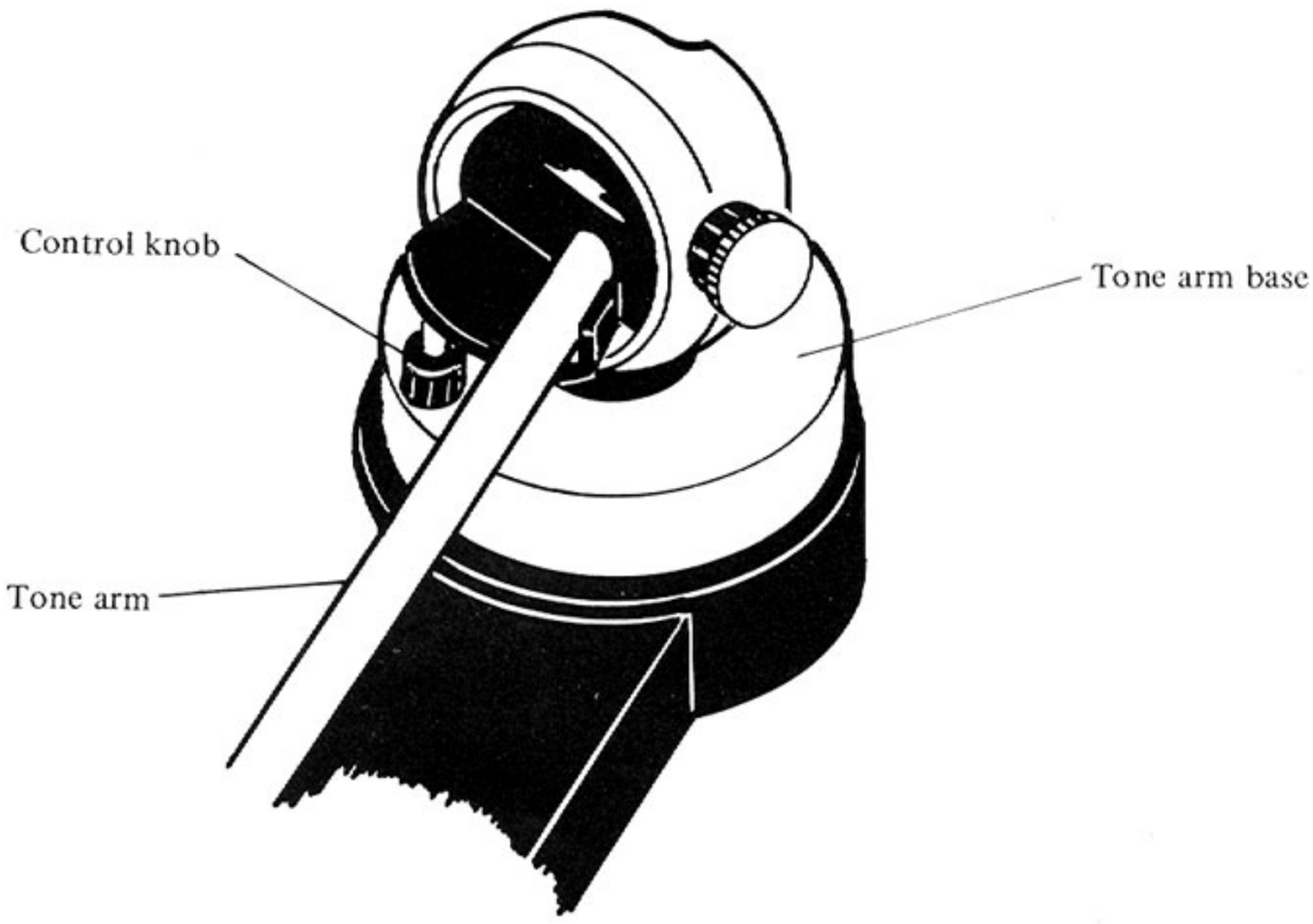


Fig. 21

LUBRICATION

When the player is used at home, oiling is required every three months. When it is used for the purpose of business, oiled once a month.

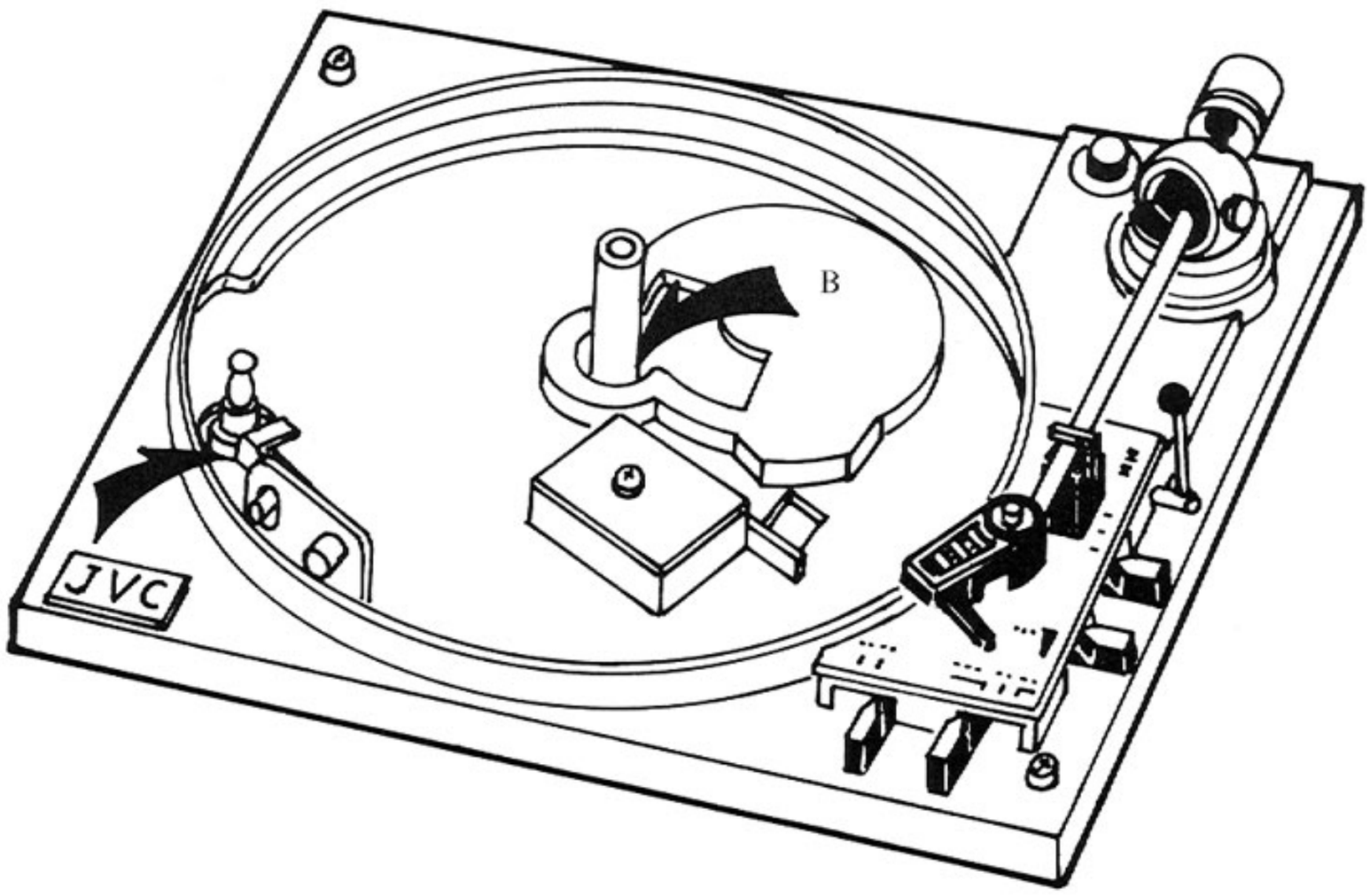


Fig. 22

Schematic Diagram

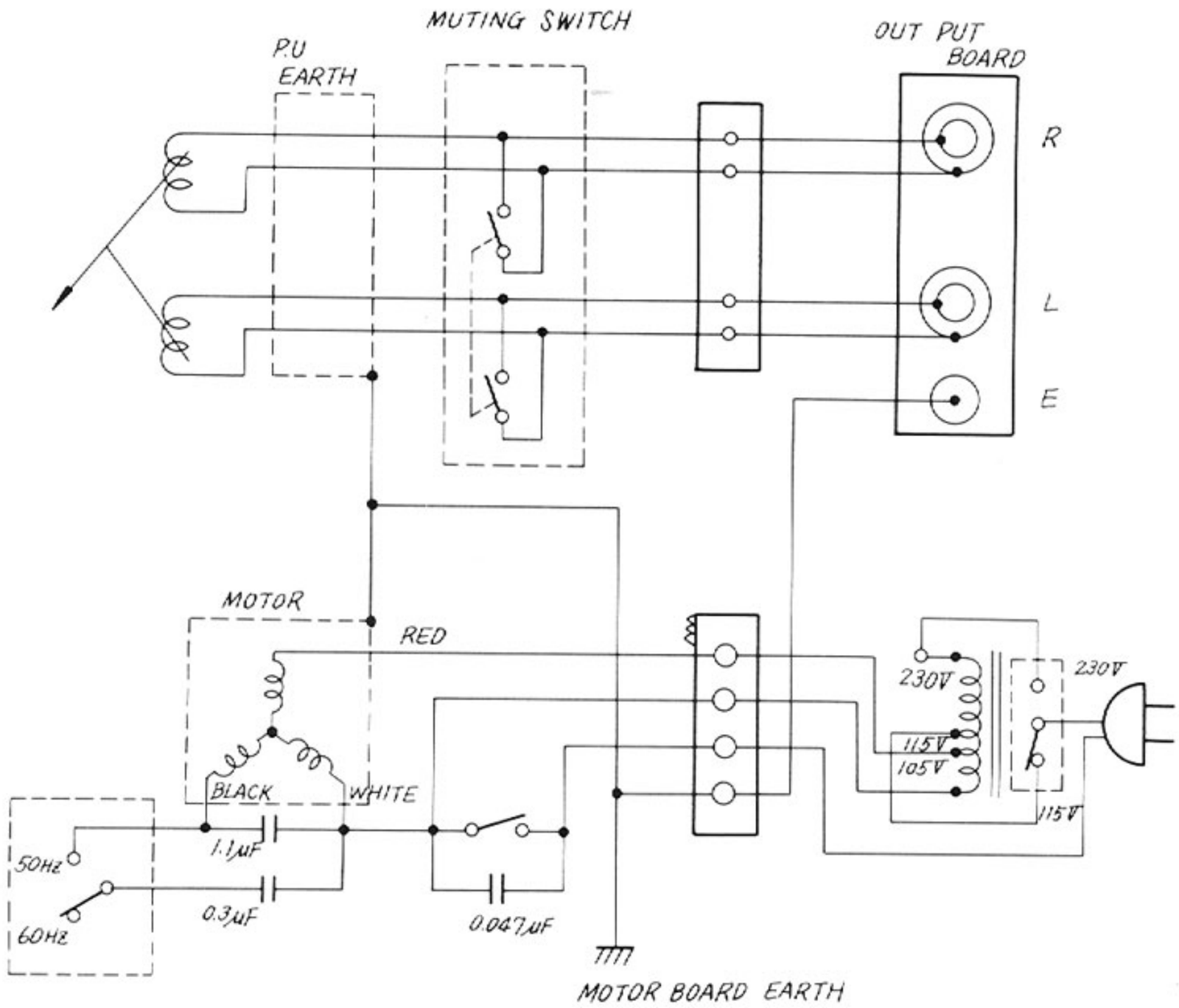


Fig. 23

Disassembly Diagram: Motor

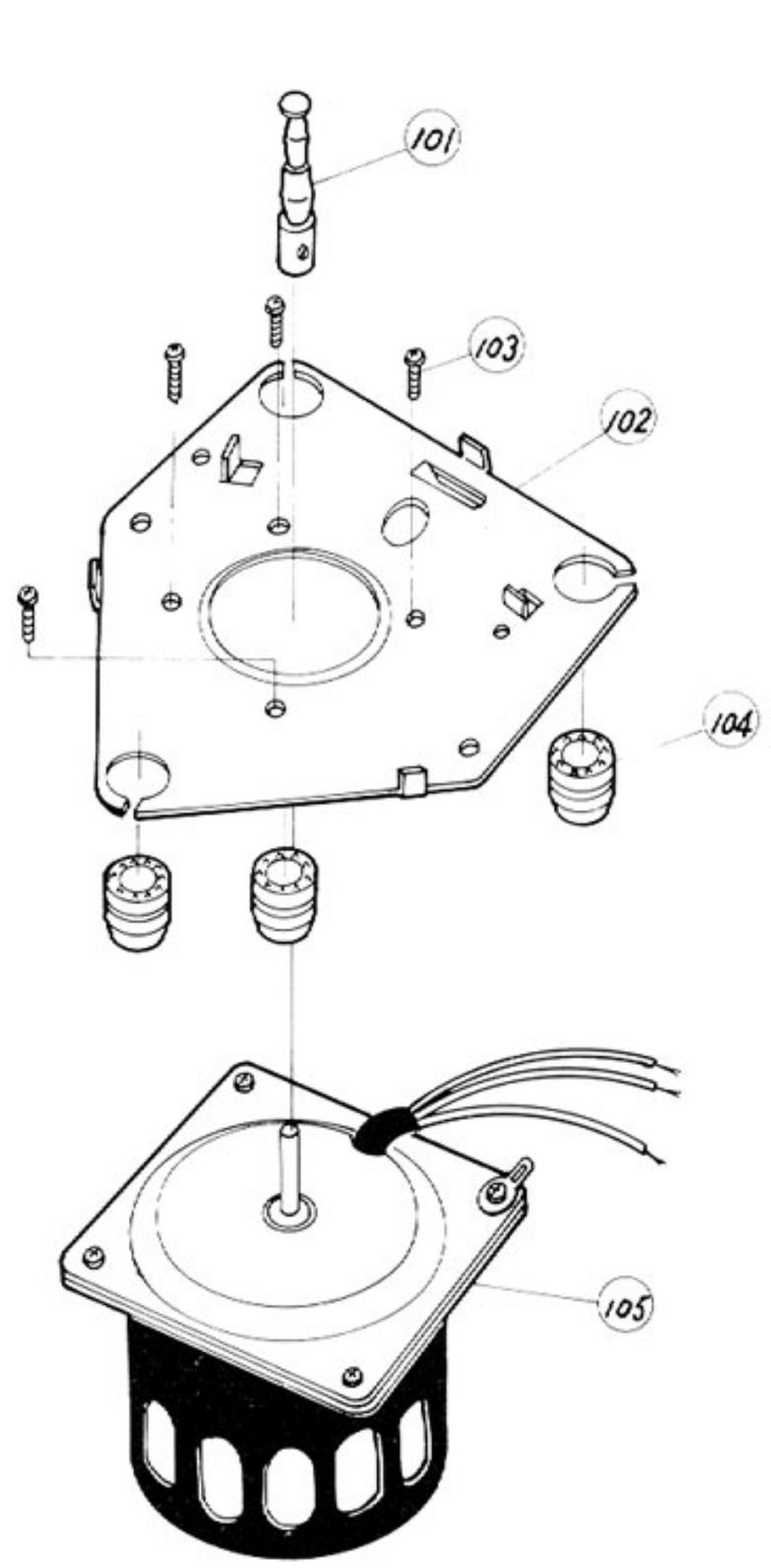
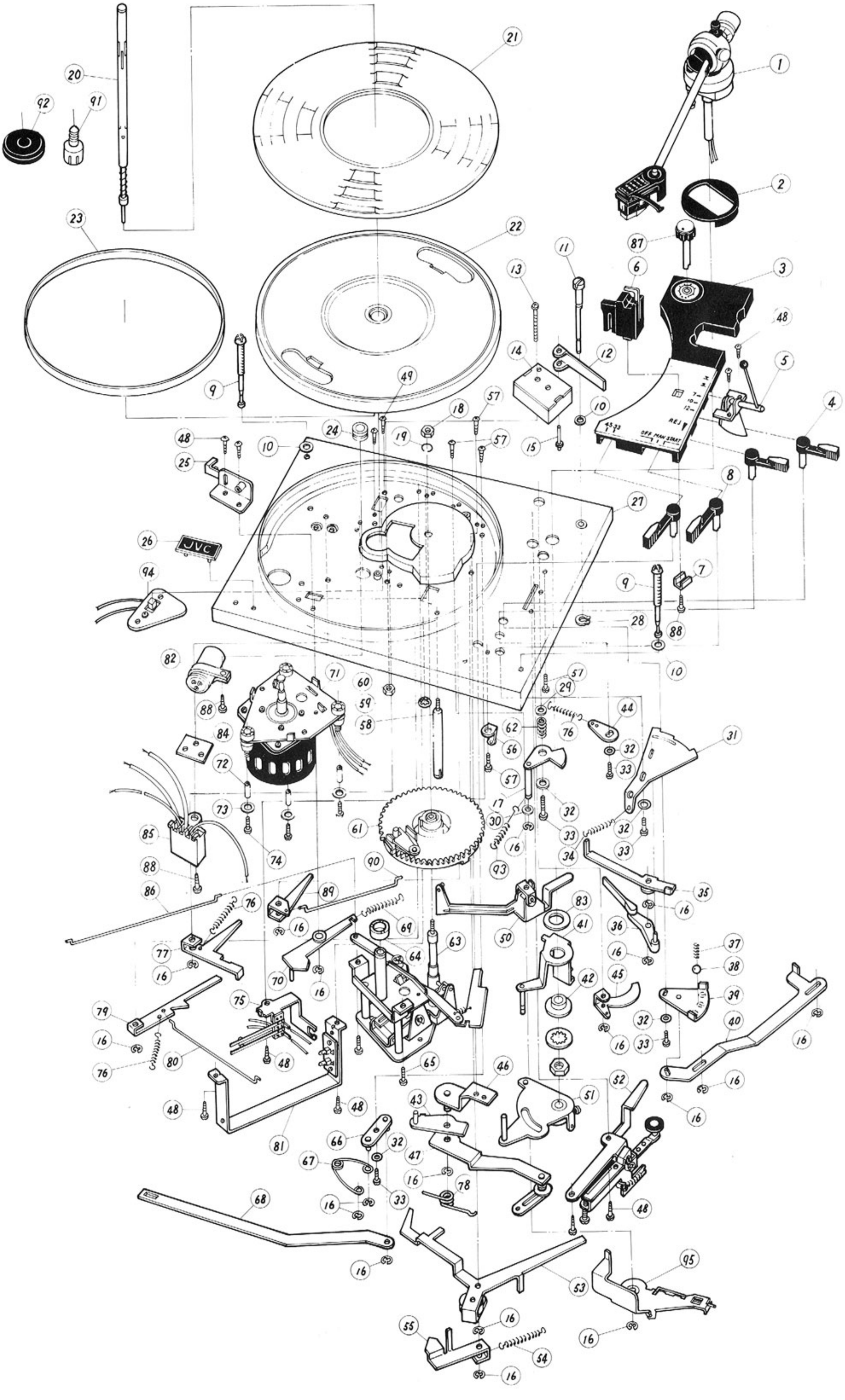


Fig. 24

Disassembly Diagram: Changer



Analysis Parts List (2)

Analysis No.	Parts No.	Parts Name
55	G40123A	Kick Lever Ass'y
56	52396	Terminal Lug
57	LPSP3010Z	Ass'y Screw
58	G8589	Foot
59	G8495	Spring Washer
60	NTB9000	Nut
61	G3675A	Main Gear Ass'y
62	G40756	Spring
63	G3494B	Gear Bracket Ass'y
64	G40720A	Thrust Bearing
65	LPSP4008ZS	Ass'y Screw
66	G8657A	Speed Select Lever Ass'y
67	G8128	Spring
68	G8658	Connecting Plate
69	G40977	Spring
70	G8629	Stopper
71	EM82221B	Phono Motor Ass'y
72	M0313-134	Spacer
73	Q03091-009	Washer
74	LPSP4025ZS	Ass'y Screw
75	G3706A	Shorting Switch Ass'y
76	G6303	Spring
77	G40946A	Key Ass'y
78	G40952	Spring
79	G8932	Clutch Lever
80	G8931	Rod
81	G3491A	Jack Bracket Ass'y
82	G41608	Condenser
83	G40784	Washer
84	G6525	Insulator
85	G8681A	4P Socket Ass'y
86	G8627	Connecting Rod
87	G40752	Anti-skate Knob
88	SBSB3008Z	Tapping Screw
89	G8733	Reject Lever (B)
90	G8935	Reject Rod
91	G8702	Mannual Spindle
92	G8395	EP Manual Adaptor
93	G40757	Spring
94	G41595A	Slide Switch Ass'y
95	G40959A	Index Setter Ass'y
96	G41704A	Brake Lever Ass'y
97	G41705	Spring
101	M6786	Pulley Ass'y
102	M3464	Motor Mounting Plate
103	LPSP3006ZS	Ass'y Screw
104	52992-2	Rubber Bushing
105	M3463G	M-822C Hys. Synch. Motor
	G3803A	Cartridge Base Ass'y
	MD-1016	Cartridge
	DT-33H	Stylus
	G2278A	Cabinet Ass'y
	G2279A	Dust Cover Ass'y

Requirement to Customers

For the purpose of prompt supply of service parts, inscribe parts number, parts name, and model name correctly when you order.

JVC America Inc.
50-35, 56th Road, Maspeth
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