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JVC

SERVICE MANUAL

MODEL
JL-A40
AUTO-RETURN
DIRECT DRIVE
TURNTABLE



Features

- * Cueing facility protects the record surface during manual playing.
- * Automatic reject facility
To stop playing a record at any point, push the START/REJECT operation lever towards "REJECT", and the tonearm will automatically return to the arm rest.

New gimbal support arm

Outstanding tonearm sensitivity is assured, because bearings for clockwise/counterclockwise rotation are provided above and under the pivot bearing. Trackability is, thanks to the TH (Tracing Hold) tonearm system — the axis of the balance weight is positioned below its fulcrum — superb, and tracking characteristics are maintained even if a record is warped or if there is external vibration.

Direct drive

A newly developed 12-pole DC servomotor provides greatly improved performance. Highly accurate speed control and freedom from vibration are the performance features available only in the direct drive system.

Large high-inertia platter

Aluminium die-cast platter having a diameter of 31cm and weighting 1.6kg is employed. The stroboscope on the platter rim (33-1/3 r.p.m.) permits fine speed adjustment while a record is being played.

Diamond stylus

Good sound quality and long life are ensured by the diamond stylus having a tip radius of 0.5 mil.

Anti-skating mechanism

Anti-skating force can be adjusted corresponding to the tracking force.

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1. Specifications

TURNTABLE

| | |
|-------------------------|--|
| Type : | Auto-return Mechanism |
| Drive system: | Direct Drive |
| Drive motor: | D.C. Servo motor |
| Speeds: | 33-1/3 and 45 rpm |
| Wow and flutter (WRNS): | Less than 0.03% (DIN) |
| Signal to noise ratio: | More than 60dB (IEC-B) 70dB (DIN-B) |
| Pitch control range: | More than ±2.5% |
| Platter: | 12-inch (31cm) Die-cast aluminum alloy |

TO NEARM

| | |
|----------------------------------|--|
| Type: | Statically-balances S-shaped tubular arm with JVC developed TH(Tracing Hold) balancing system and with tracking force dial of 0.1 gram steps |
| Effective arm length: | 220mm |
| Overhang: | 15mm |
| Applicable tracking force range: | 0 to 3 grams |
| Applicable cartridge weight: | 14.5~21.5 grams (Headshell Included) |
| Tracking error: | +3° 35', -0° 43' |

CARTRIDGE (Except U.S.A., Canada and U.K.)

| | |
|-------------------------|---|
| Type: | Moving Magnet |
| Stylus: | 0.5 mil, diamond |
| Optimum tracking force: | 2g |
| Out put: | 3mV (1kHz) |
| Frequency response: | 10 – 25,000Hz |
| Separation: | More than 25dB |
| Load resistance: | 47k – 100k ohms |
| Compliance: | 25 x 10 ⁻⁶ cm/dyne (static) 10 x 10 ⁻⁶ cm/dyne (dynamic) |

GENERAL

| | |
|-------------|--------------------------------|
| Dimensions: | 46.0(W) x 36.7(D) x 14.5(H) cm |
| Weight: | 7.2 kg |

TABLE 1

| Countries | Line Voltage & Frequency | Power Consumption |
|----------------------|--|-------------------|
| U.S.A., CANADA | AC 120V, 60Hz | 4.5 watts |
| EUROPE CONTINENT | AC 220V~, 50Hz | 4.5 watts |
| U.K., AUSTRALIA | AC 240V~, 50Hz | 4.5 watts |
| U.S. MILITARY MARKET | AC 100/120/220/240V Selectable, 50/60Hz | 3.5 watts |
| OTHER AREAS | AC 100/120/220/240V Selectable, 50/60Hz | 3.5 watts |

2. Block Diagram

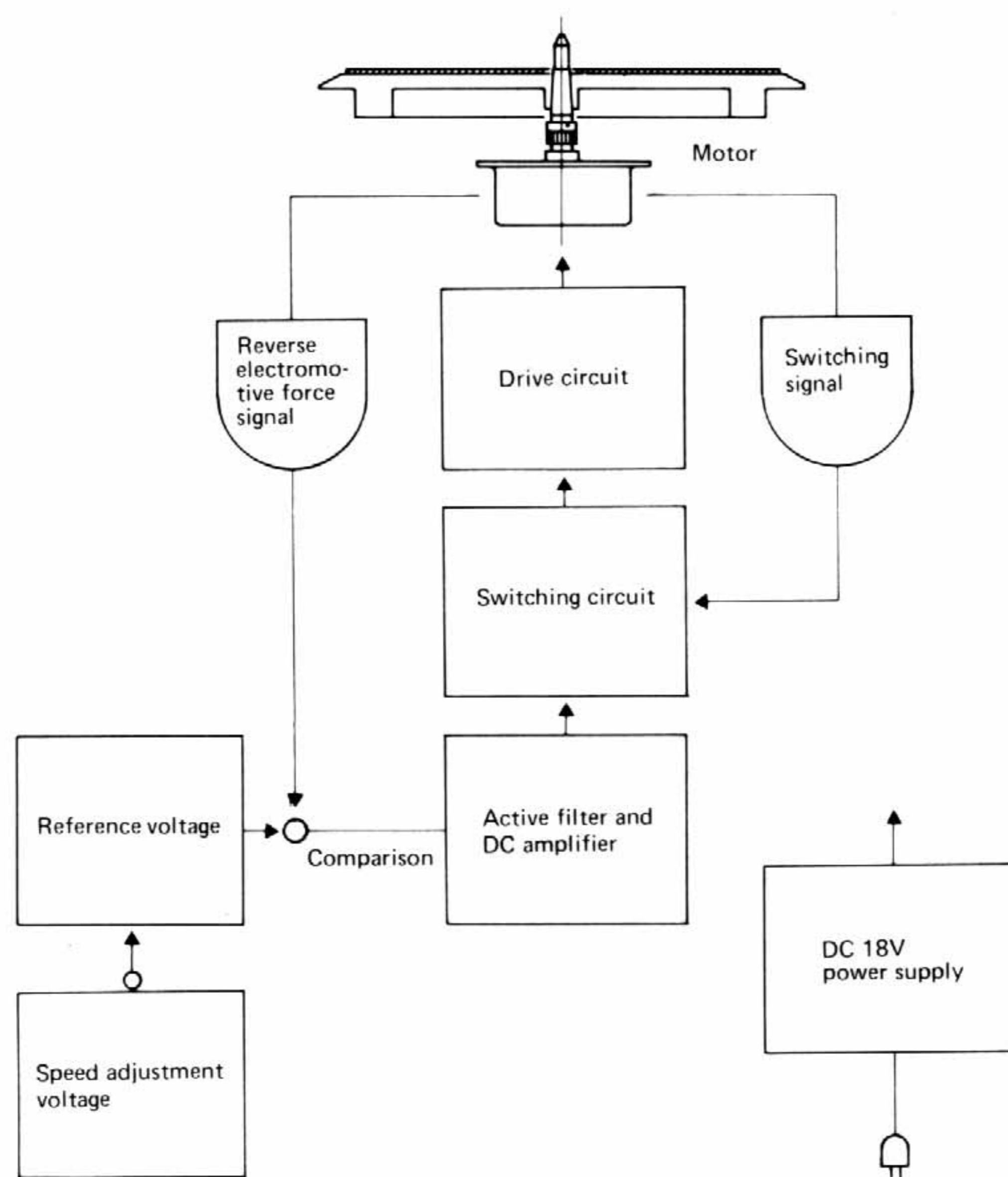


Fig. 1

* Starting platter revolution (refer to Schematic Diagram on page 21)

- 1) When the speed select knob is set to "33", switch S6 is closed (ON). For 45 rpm, switch S6 is opened. When the switch S6 is ON, the emitter of X13 is connected to the earth wire through the resistors for coarse and fine speed adjustment. The base of X13 is under a reference voltage of about 2V and the collector of X13 takes an earth level, causing the base of X12 to take an earth level at the same time.
- 2) This makes conductive, raising the emitter potential of X11 to make X10 conductive.
- 3) The conducting X10 causes X9 to become conductive. In this condition, the emitters of X5, 6 and X7, 8 are connected to the positive line, allowing the maximum current to flow.
- 4) Therefore, the output of the Hall elements inside the motor is amplified to the maximum degree, and transistors X1, 2 and X3, 4 connected in series to the drive coil are driven by this output, starting the revolution of the platter.
- 5) As the number of revolutions increases, the reverse electromotive voltage induced in the drive coil of the motor also increases gradually and after being rectified by D1~4, is stored by C5 and R14.

6) If current flows through the base of X12, the platter rotation is accelerated. If no base current flows, the revolution of the platter tends to decrease. The collector potential of X13 is determined by its base potential and emitter resistance. When the X13 collector potential drops by more than 0.6V from the reference +18V, current flows to the base of X12, starting acceleration of the platter rotation.

7) An inverse voltage ripple remains in the X12 transistor collector. This ripple, in nearly 2.2V sine wave form, is added to the direct current.

8) The Hall element switching output is amplified by X5~X8 transistors to permit switching of X1~X4 transistors. The collector voltage of transistors X1~X4 which drives the motor is approximately 6.5Vp-p.

9) To ensure that the same amount of current flows to X1, 2 and X3, 4 voltage across R45 is fed back to X10. This prevents variations due to the components used.

* Speed adjustment

The rpm of the platter can be changed by varying the collector current of X13, which is varied by changing its emitter resistance. The rpm drops with reduced current. Therefore, lower speeds are obtained using higher resistances and vice versa.

* Power supply

The reference voltage of 18V is generated by a transistor 2SD325(E or D), and a Zener diode. The non-adjusted output voltage is about 0.6V lower than the voltage of the Zener diode.

3. Operation

3-(1) Construction diagrams

The mechanism are illustrated in the diatrams below.

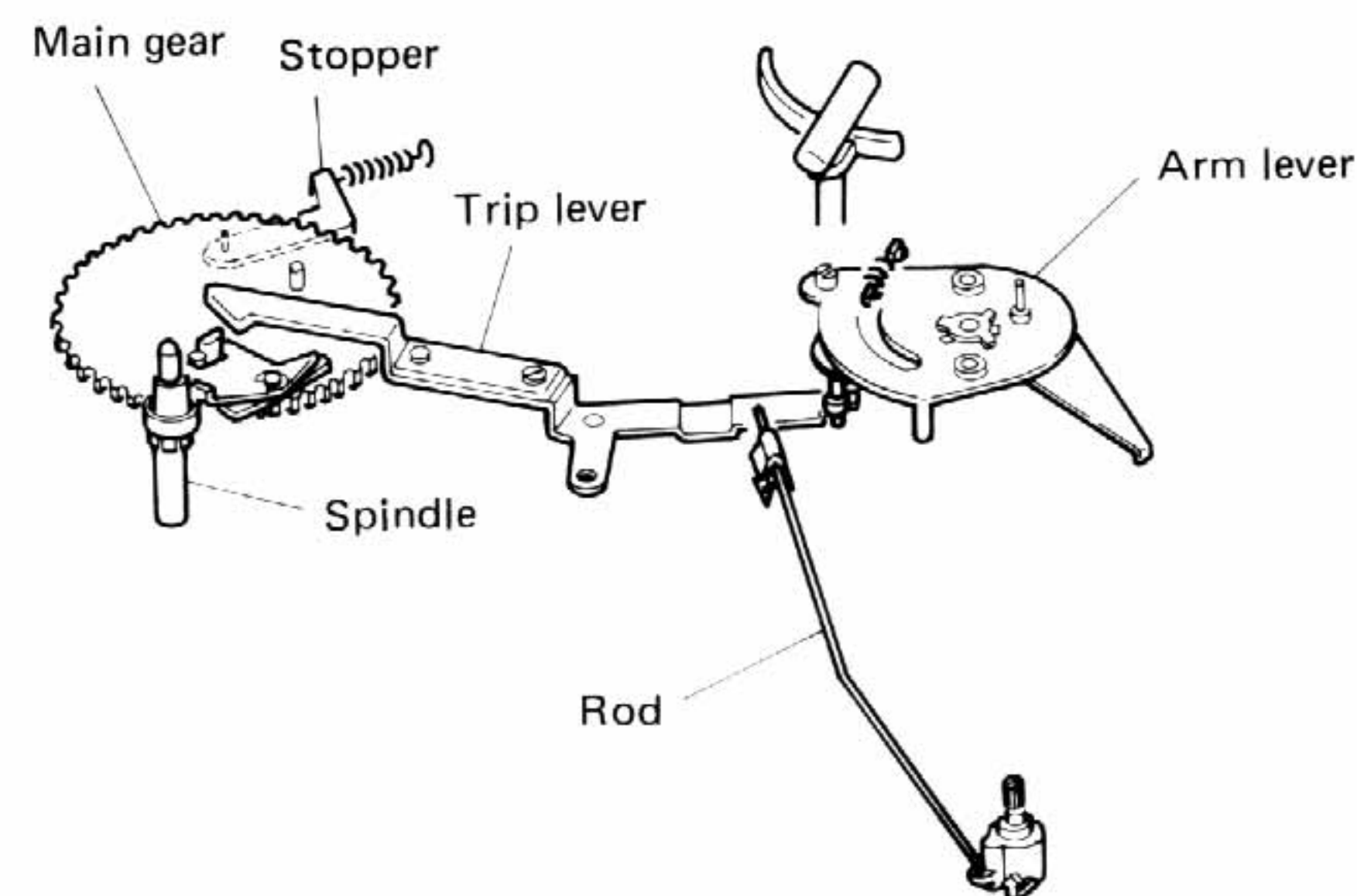


Fig. 2

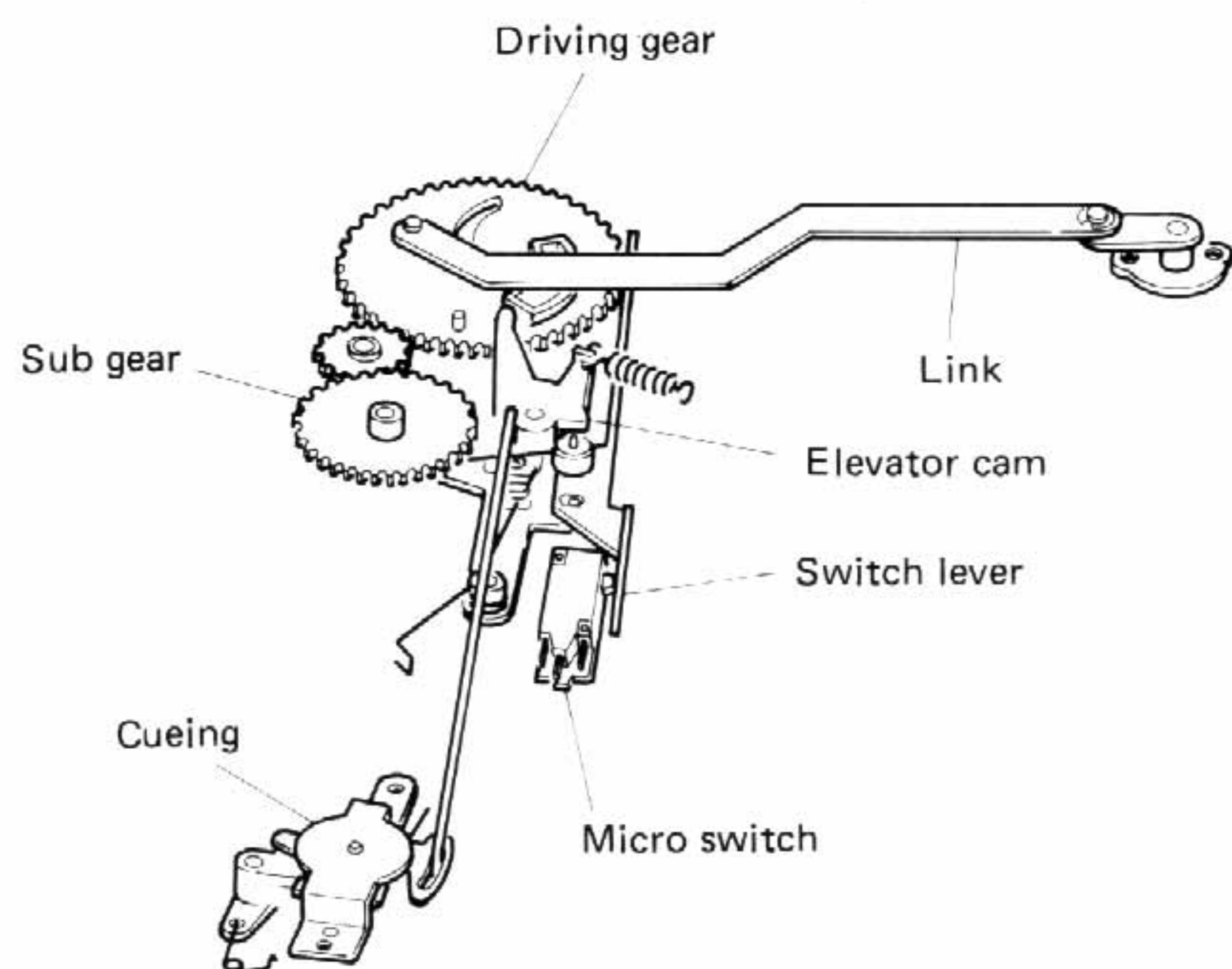


Fig. 3

3-(2) Return cycle mechanism

The smooth toothless part of the main gear and turntable gear make contact as indicated in Fig. 4 and the projection does not contact the engagement shoe.

This prevents main gear rotation even when the turntable is rotating. However, as playback proceeds, the lower trip, which causes the engagement shoe on the main gear to gradually move outward.

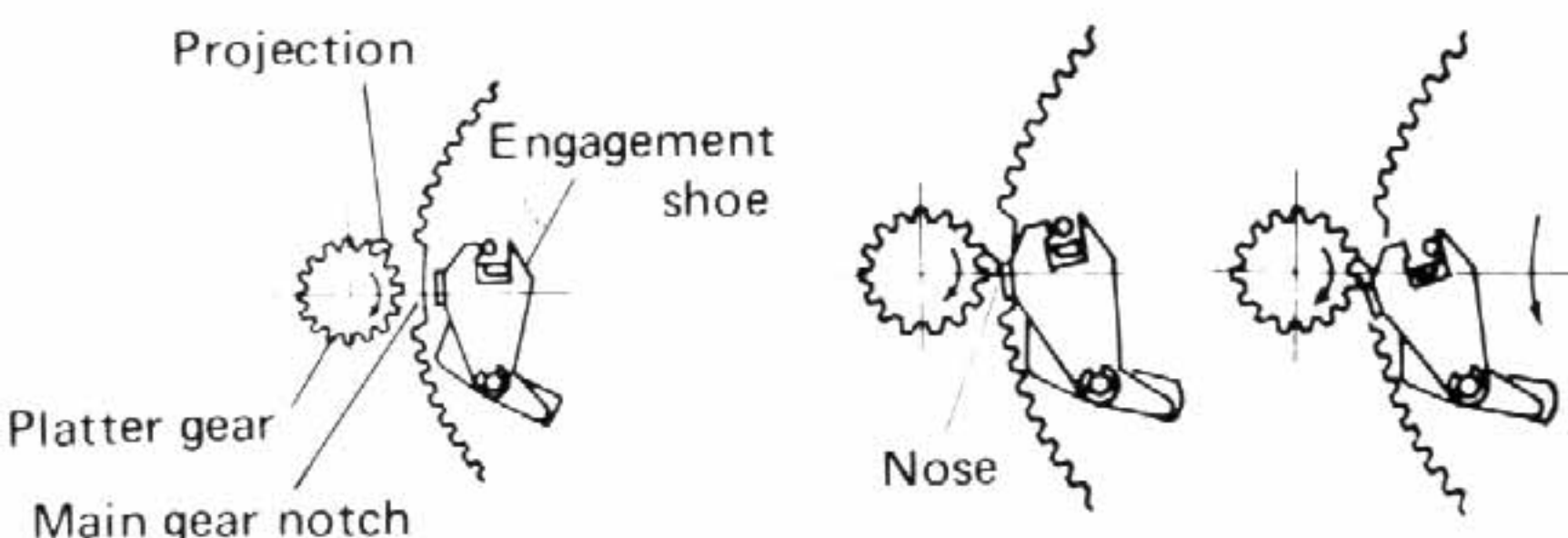


Fig. 4

Fig. 5

Fig. 6

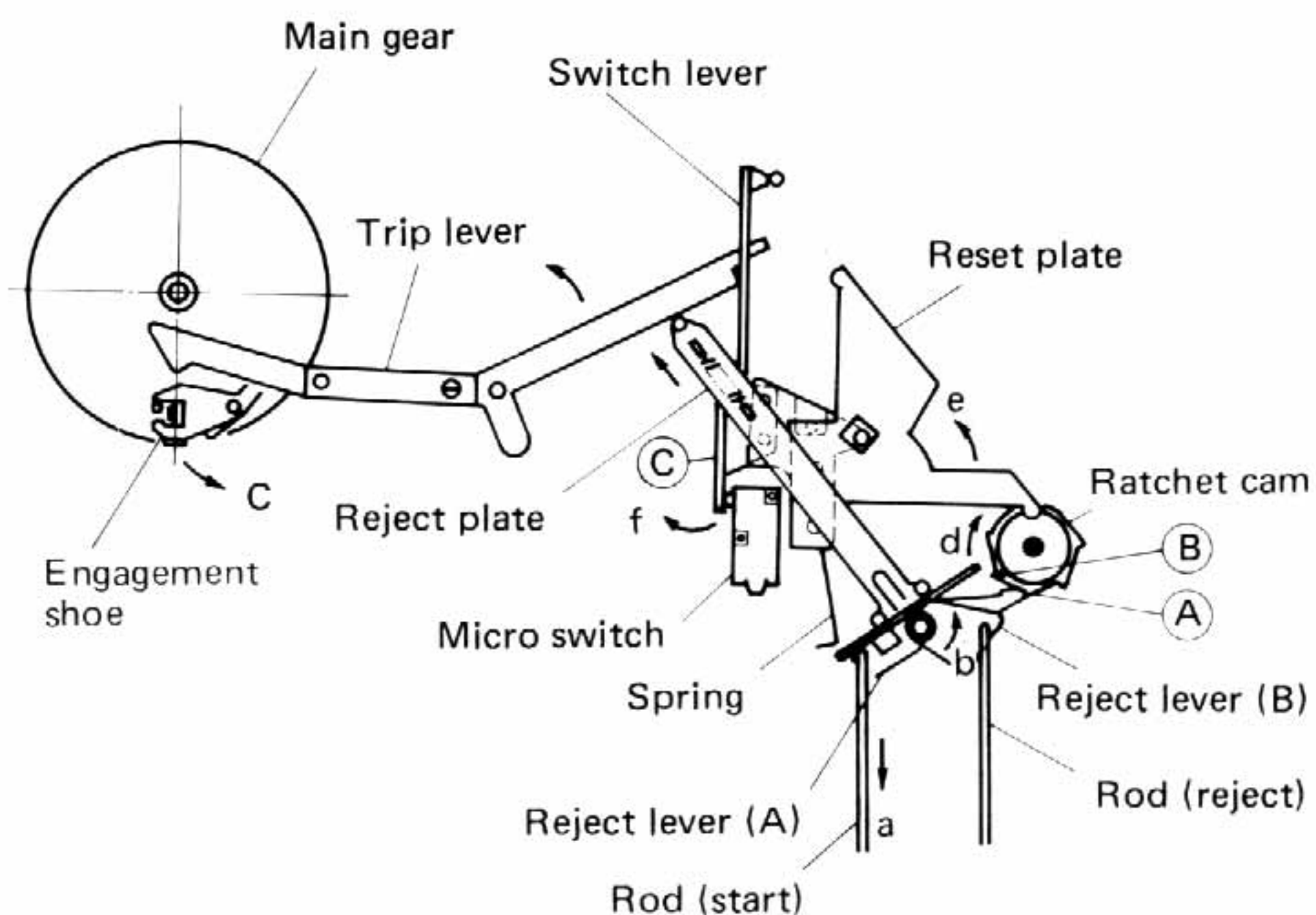


Fig. 7

In this case, the relationship between the engagement shoe and turntable projection is as shown in Fig. 5. When the stylus is in contact with the grooved part of the record, the engagement shoe shifts only slightly and is set back to its previous position by the projection. The gear does not rotate.

When playback ends and the stylus moves into the lead-out groove, the engagement shoe goes beyond the projection as illustrated in Fig. 6. The projection then turns the engagement shoe and the main gear starts rotating. This shifts the toothless part of the main gear, which engages the turntable gear and actuates the return cycle mechanism.

When the main gear stops rotating, the engagement shoe returns to its original position as shown in Fig. 4 and prevents the rotating turntable gear from causing the main gear to rotate. The engagement shoe and lower trip are reset by the outer rim of the turntable gear to their original positions just before the main gear stops rotating. The trip lever is returned by the main gear boss to its original position while the main gear is rotating.

When the return cycle starts and the main gear rotates, the link causes the driving gear and elevator cam to move back and forth, as shown in Fig. 8.

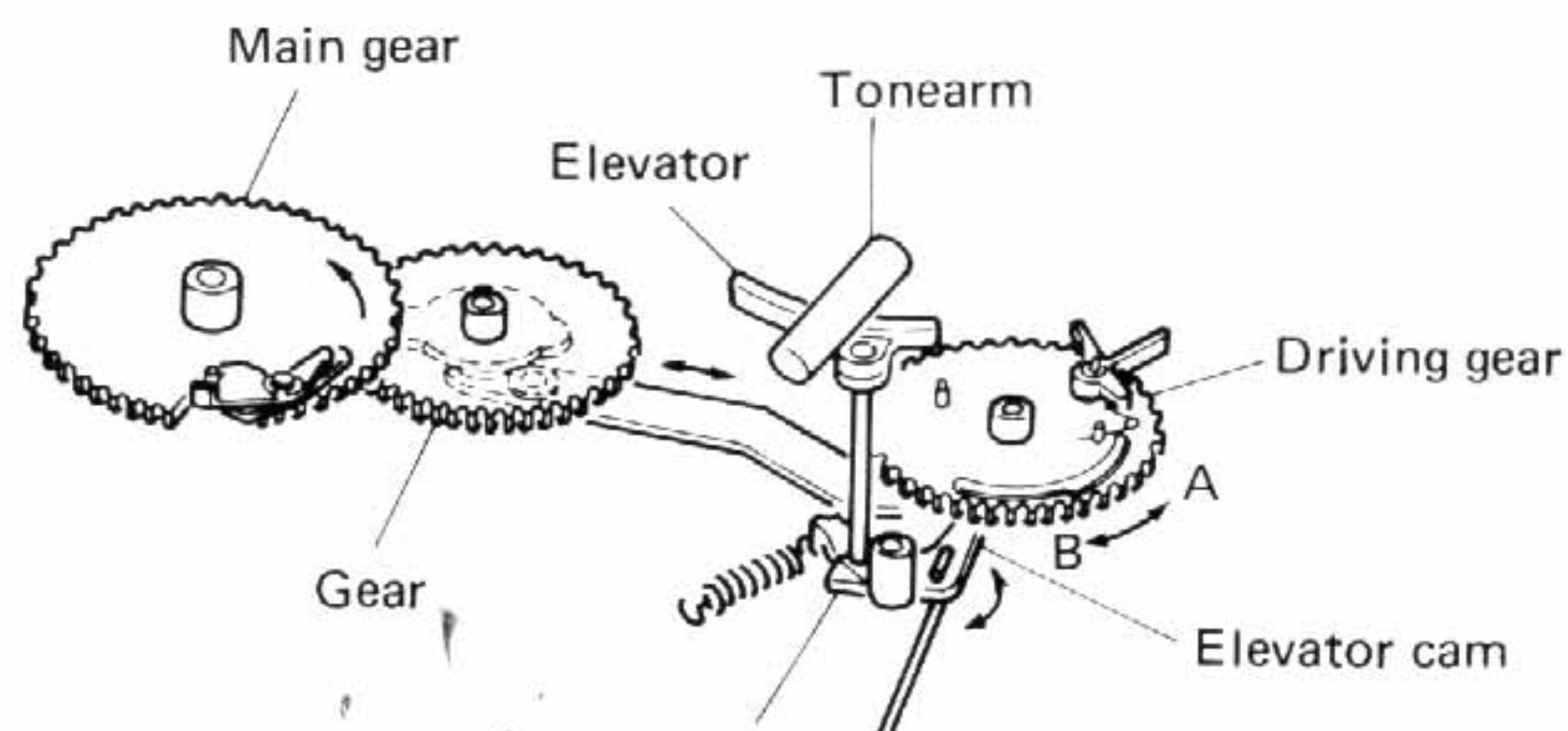


Fig. 8

When the elevator cam functions, the elevator is lifted by the inclined face and the pick-up arm moves upward. As shown in Fig. 9, the reciprocating movement of the driving gear actuates the push lever in the direction of b and moves the arm lever stud (B). The arm lever functions together with the driving gear to return the tonearm to the arm rest, thus completing the lead-out operation. See Fig. 9.

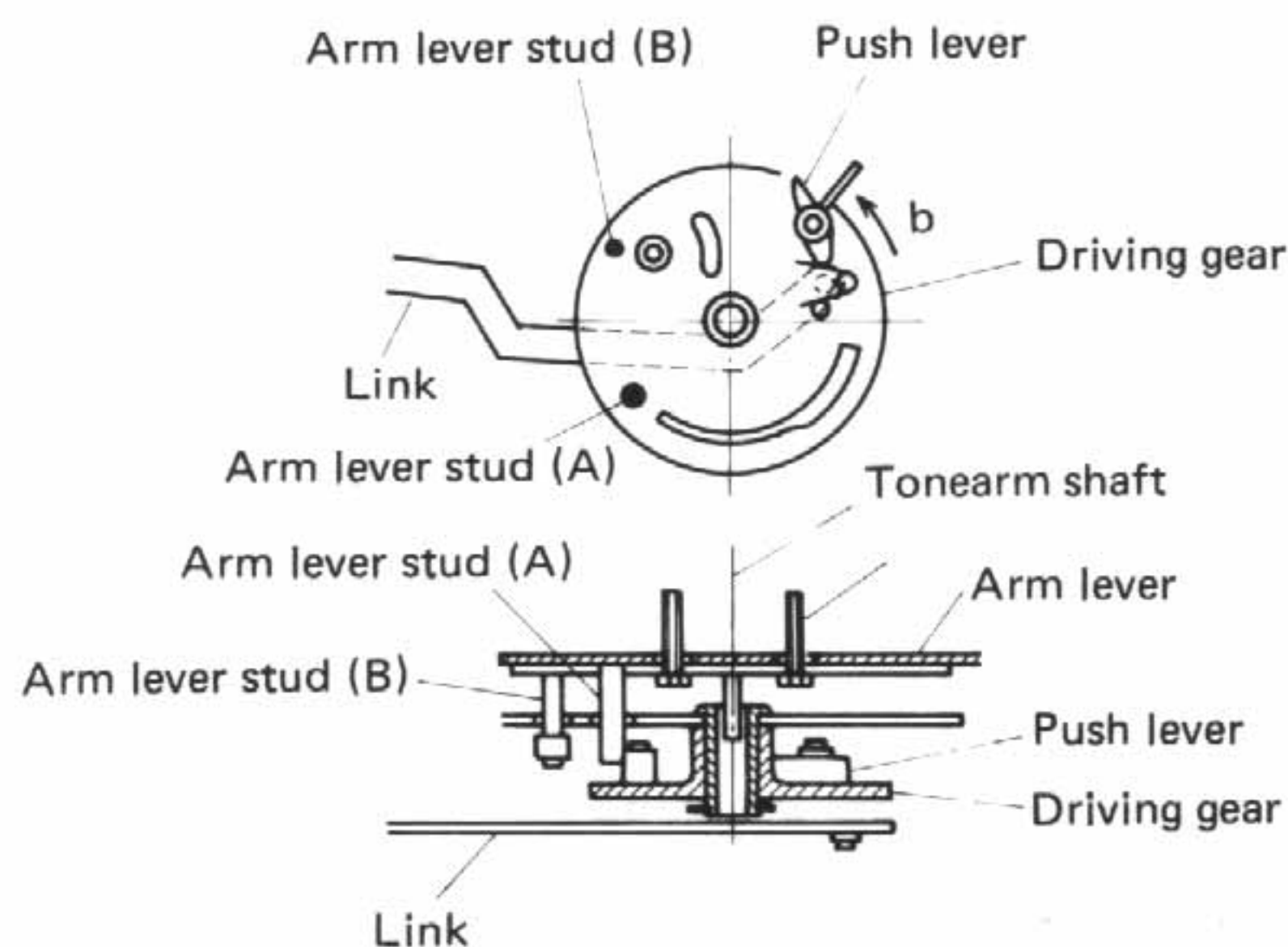


Fig. 9

3-(3) Reject mechanism

As is illustrated in Fig. 10, moving the START/REJECT lever to "REJECT" causes the start reject rod to move in direction (a) as indicated by the arrow to move the trip lever, which in turn pushes the engagement shoe out in the direction (c), thus starting the return cycle.

In the last stage of the return cycle, the arm lever stud pushes the switch lever in the direction of (b), which contacts the micro switch and cuts off the power.

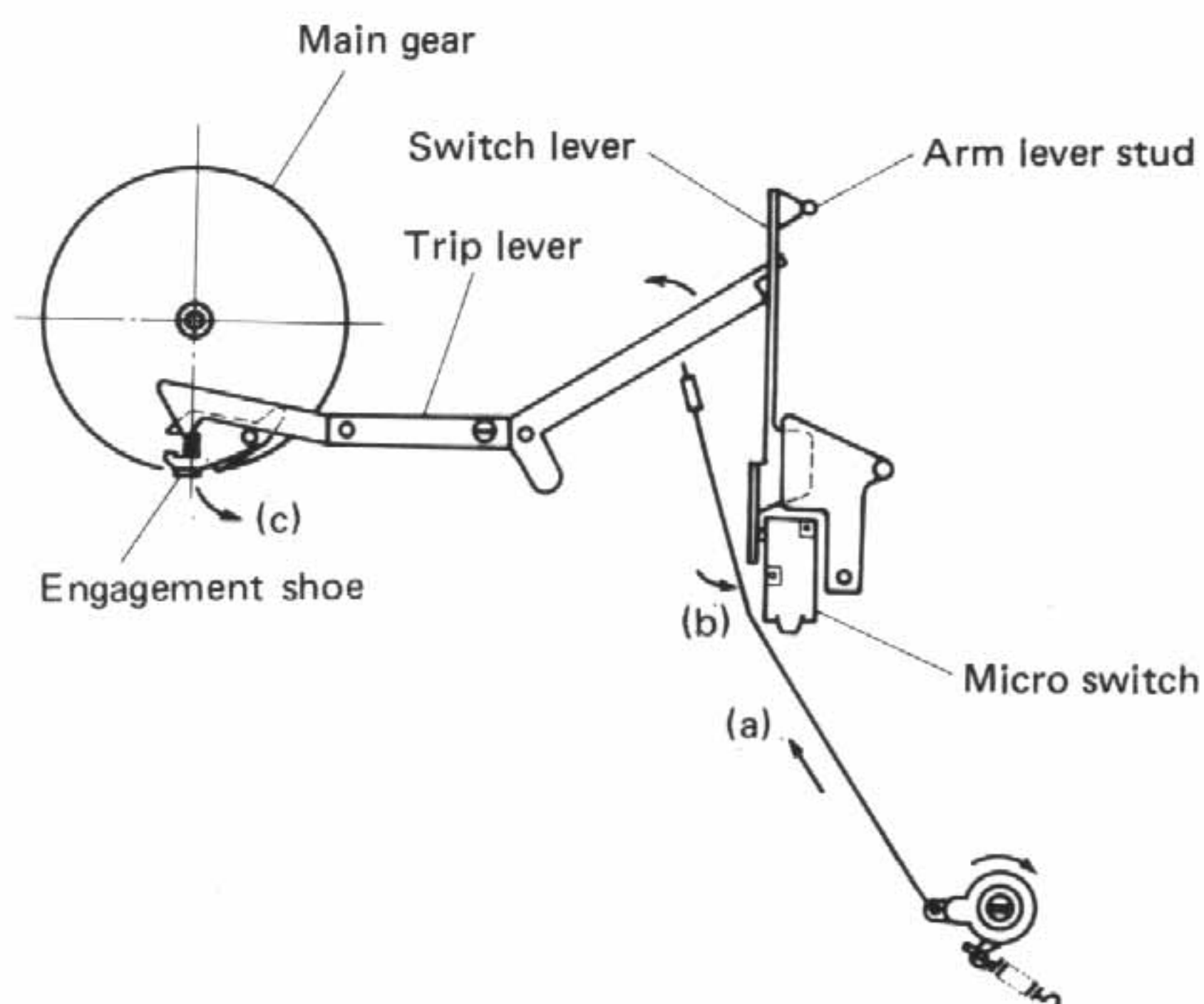


Fig. 10

4. Adjustment Procedure

Lead-out adjustment

Strict inspection is performed with regard to the lead-out adjustment before each unit is shipped. However, if you employ another type of tonearm, readjustment of the lead-out mechanism is recommended. In such cases, perform the adjustment following the procedure outlined below. (Refer to Fig. 11.) The automatic mechanism is not included in the figure.

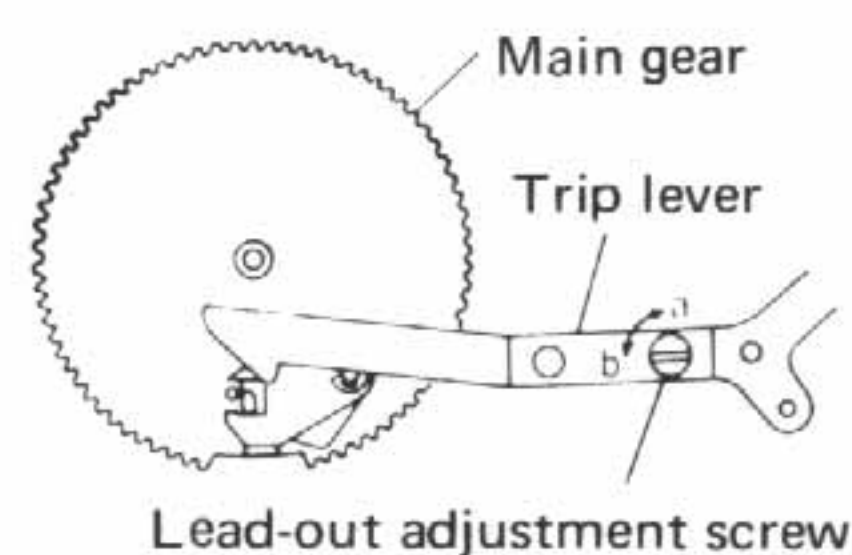


Fig. 11

Caution: Unplug the power cord first.

1. Clamp the tonearm to the arm rest.
2. Remove the dust cover.
3. Remove the rubber mat, the platter, and the belt.
4. Turn the set upside down, and place it on blocks to protect the tonearm assembly, spindle shaft and pulley.
5. After removing the signal and power cord assemblies from the bottom board, remove the seven screws fixing the bottom board.

○ When The lead-out mechanism does not function properly.

If lead-out cannot be performed using JVC's RG652 17-cm test record, with 3m — 6m pitch lead-out groove, adjust by turning the lead-out adjustment screw in the direction of the arrow (a) as is shown in Fig. 11.

○ When the lead-out mechanism starts functioning earlier than required.

If the lead-out mechanism functions while the stylus is still in an inner groove of JVC's RG653 17-cm test record (flip side of RG652), turn the lead-out adjustment screw in the direction of the arrow (b) until the proper lead-out function is obtained.

5. Removal of Chassis Base Ass'y

Remove the screws denoted by ○ mark in Fig. 12, then remove the mechanism chassis from the cabinet.

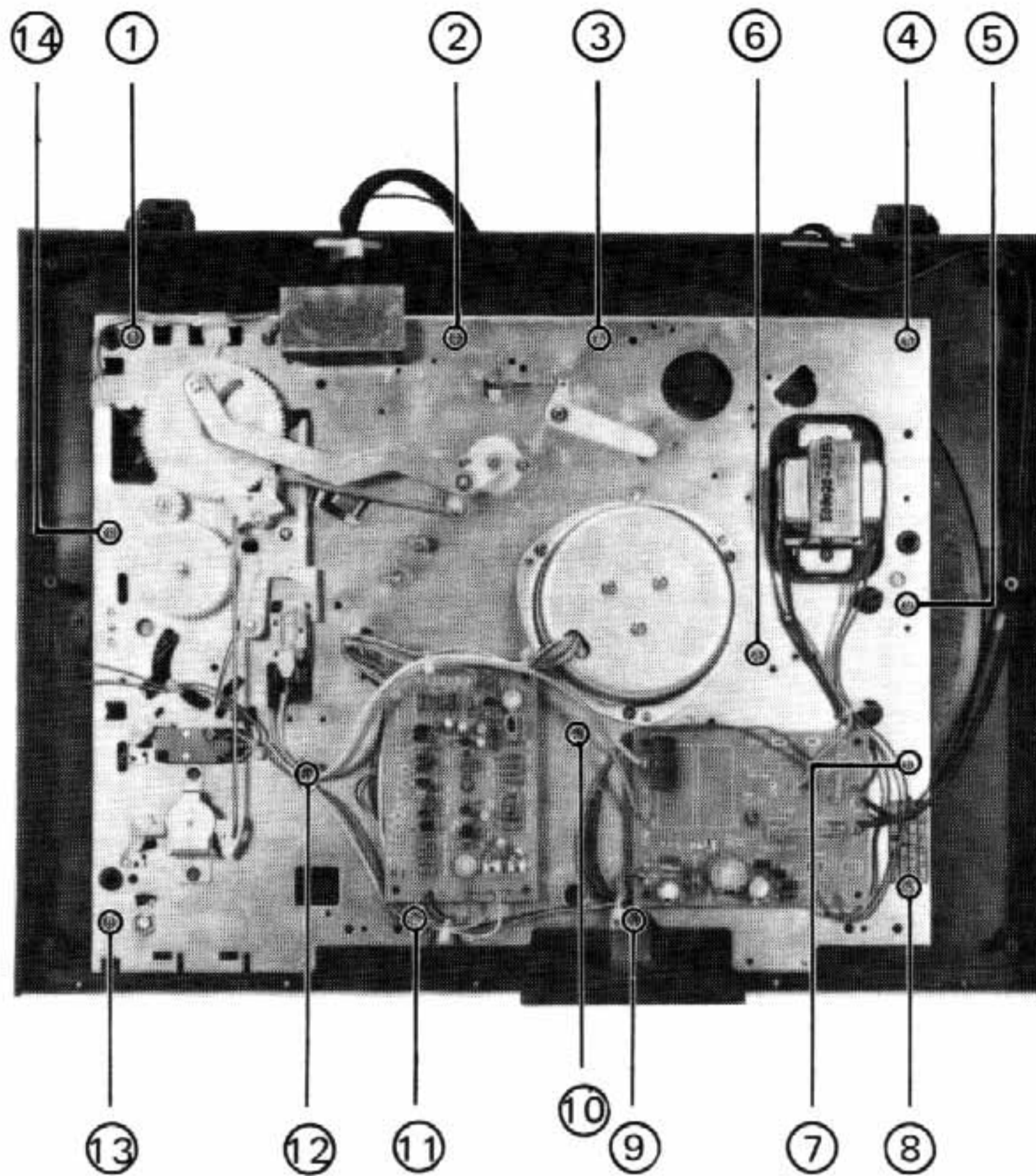


Fig. 12

6. Replacement of Parts

6-(1) Cartridge

1. Unscrew the connector nut to remove the headshell.
2. Remove the two long screws on the headshell which hold the cartridge.
3. Connect the lead wires of the headshell to the new cartridge, being careful to match the polarities correctly. Polarity and wire colors are as follows:

| | |
|-----------------|-----------------|
| White (+)....L | Red (+).....R |
| Blue (-).....LE | Green (-)....RE |
4. Attach the cartridge to the headshell squarely, and gently tighten the screws.
5. Set the tonearm cueing lever to "DOWN", and then bring the stylus tip to the overhang indicator by sliding the cartridge back and forth. After the adjustment, fix it firmly.
6. After attaching the cartridge, slide the headshell into the tonearm with the connector pin fitting in the groove. Tighten the connector nut.
7. Be sure to adjust the tracking force and lead-in position after replacing the cartridge.

Note: To play discrete 4 channel records, simply replace with the JVC stylus 4DT-Z1S the provided one.

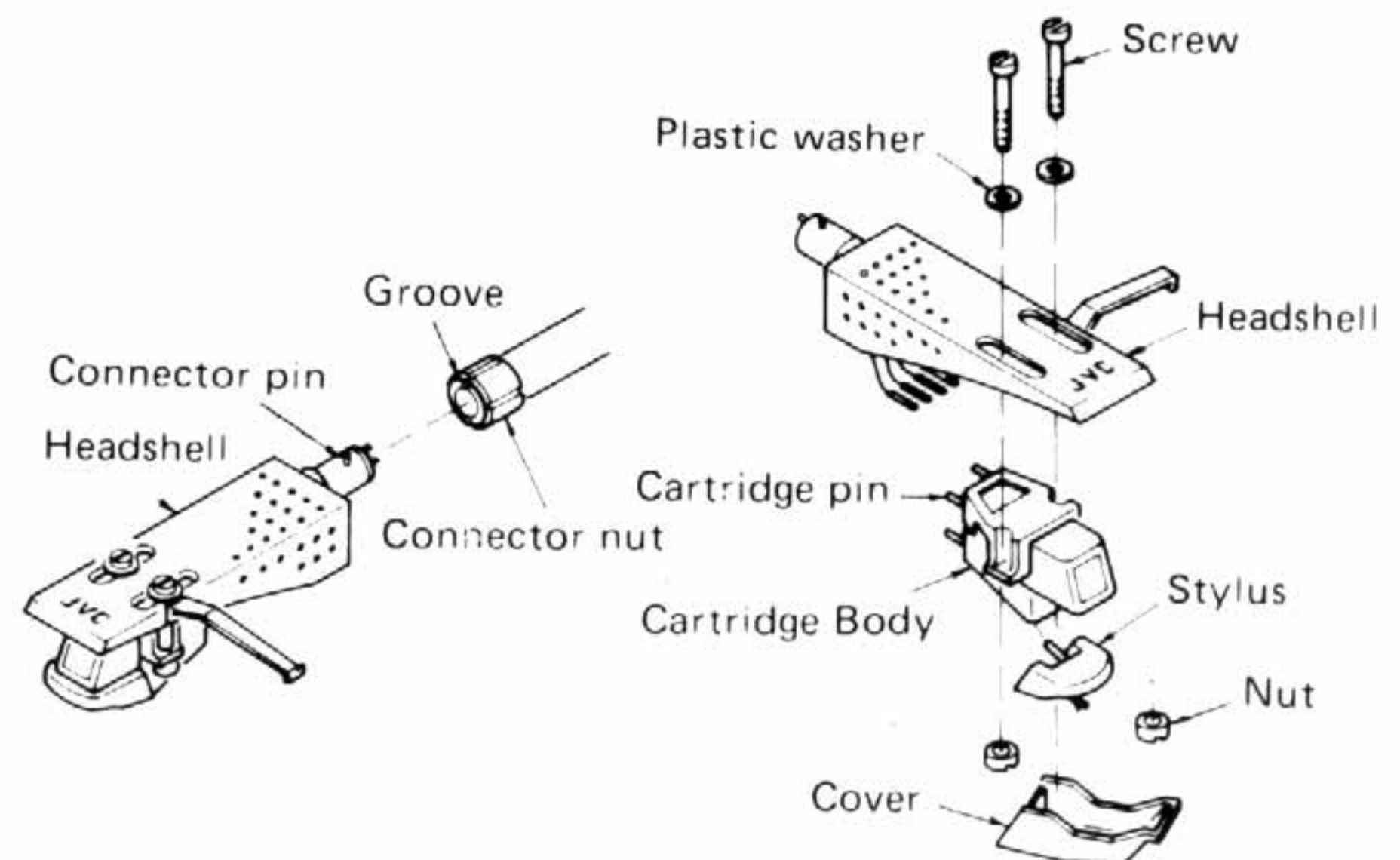


Fig. 13

Fig. 14

6-(2) Mechanism chassis

When you replace the entire mechanism (or the driving gear only), be sure to check that the lead-in lever attached to the driving gear has been returned in the direction of arrow (a) as shown in Fig. 15. (The lead-in lever faces in the direction of arrow (b), the mechanism may malfunction or be damaged.)

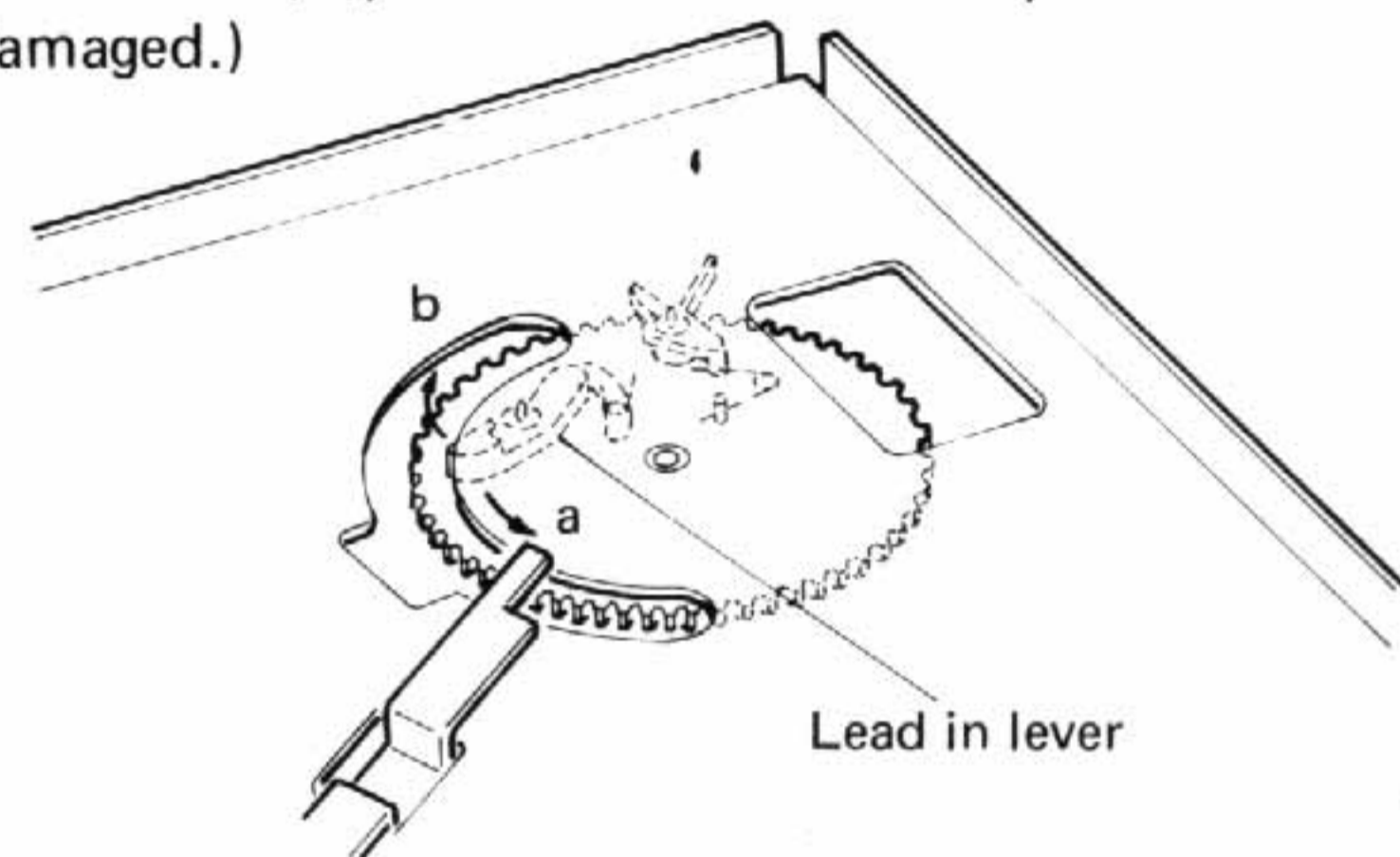


Fig. 15

6-(3) Voltage setting

(for U.S. Military Market and Other Areas)

Although this set is pre-set for the use on your area's AC line voltage without any re-adjustment, it can be used on all AC voltages in the world through following adjustments.

To change the voltage, remove a bottom board, and replace the plug so that the required voltage, marked on the socket, may come out in the window of the voltage selector plug. Do not forget to replace the fuse as well with one of appropriate capacity.

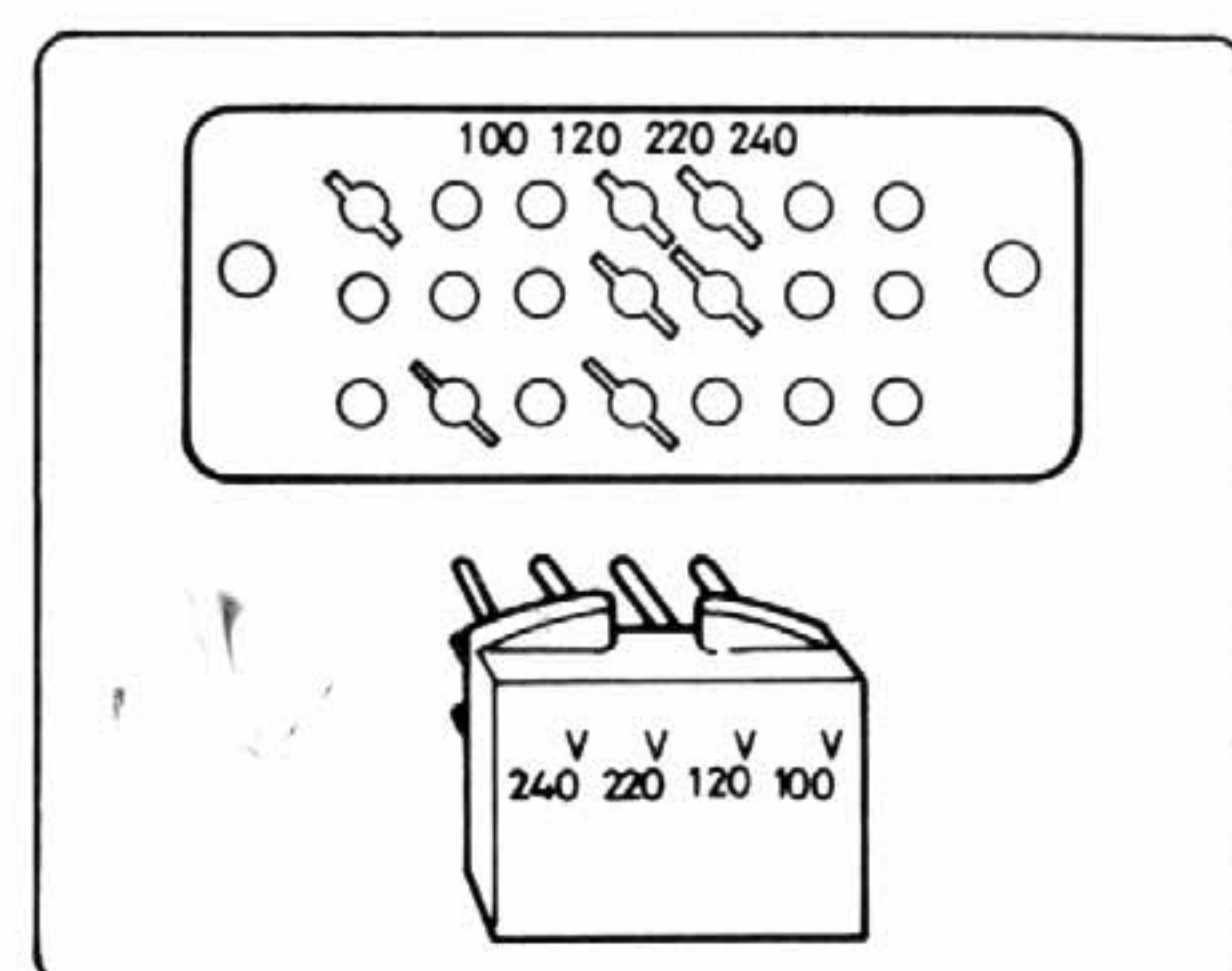


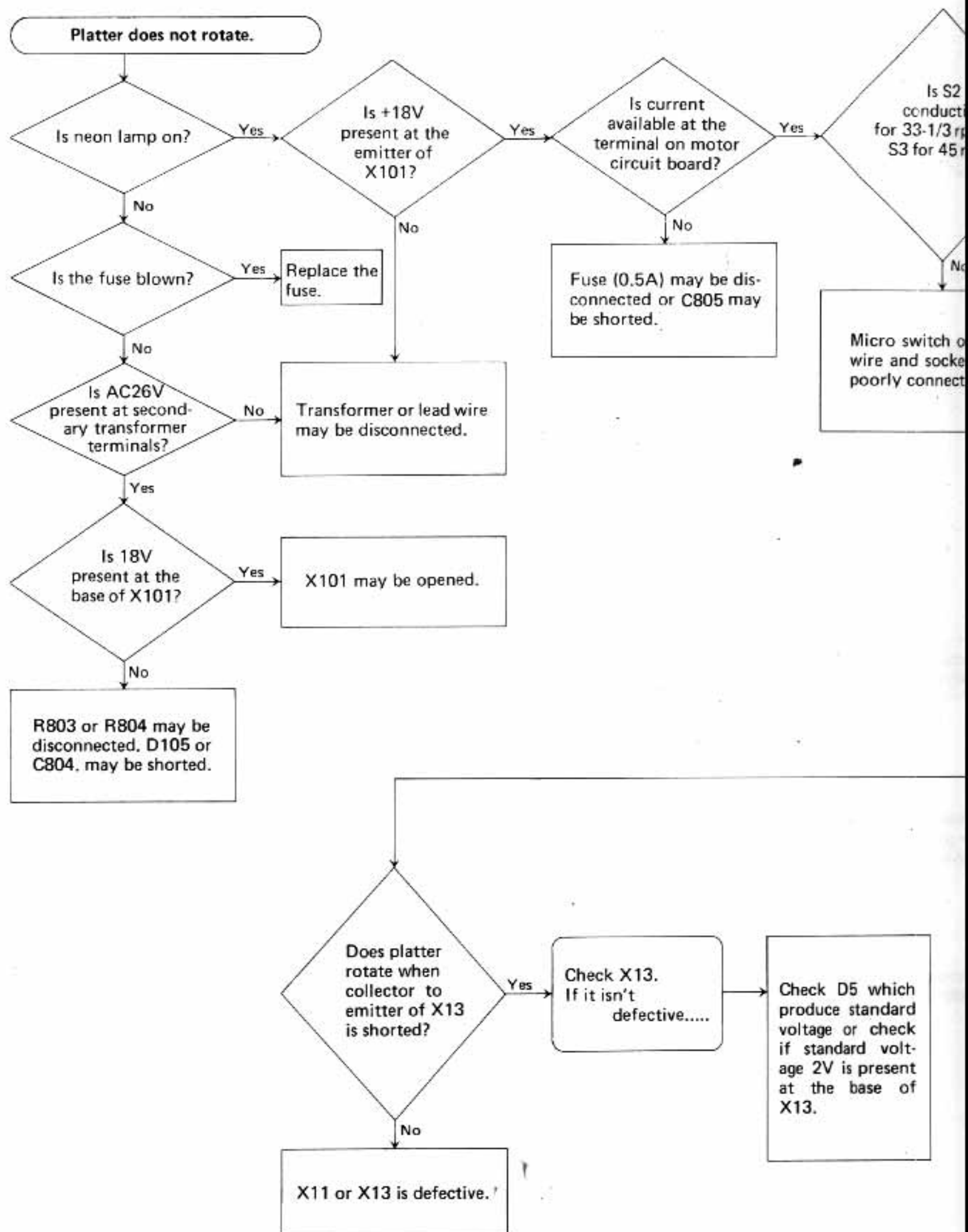
Fig. 16

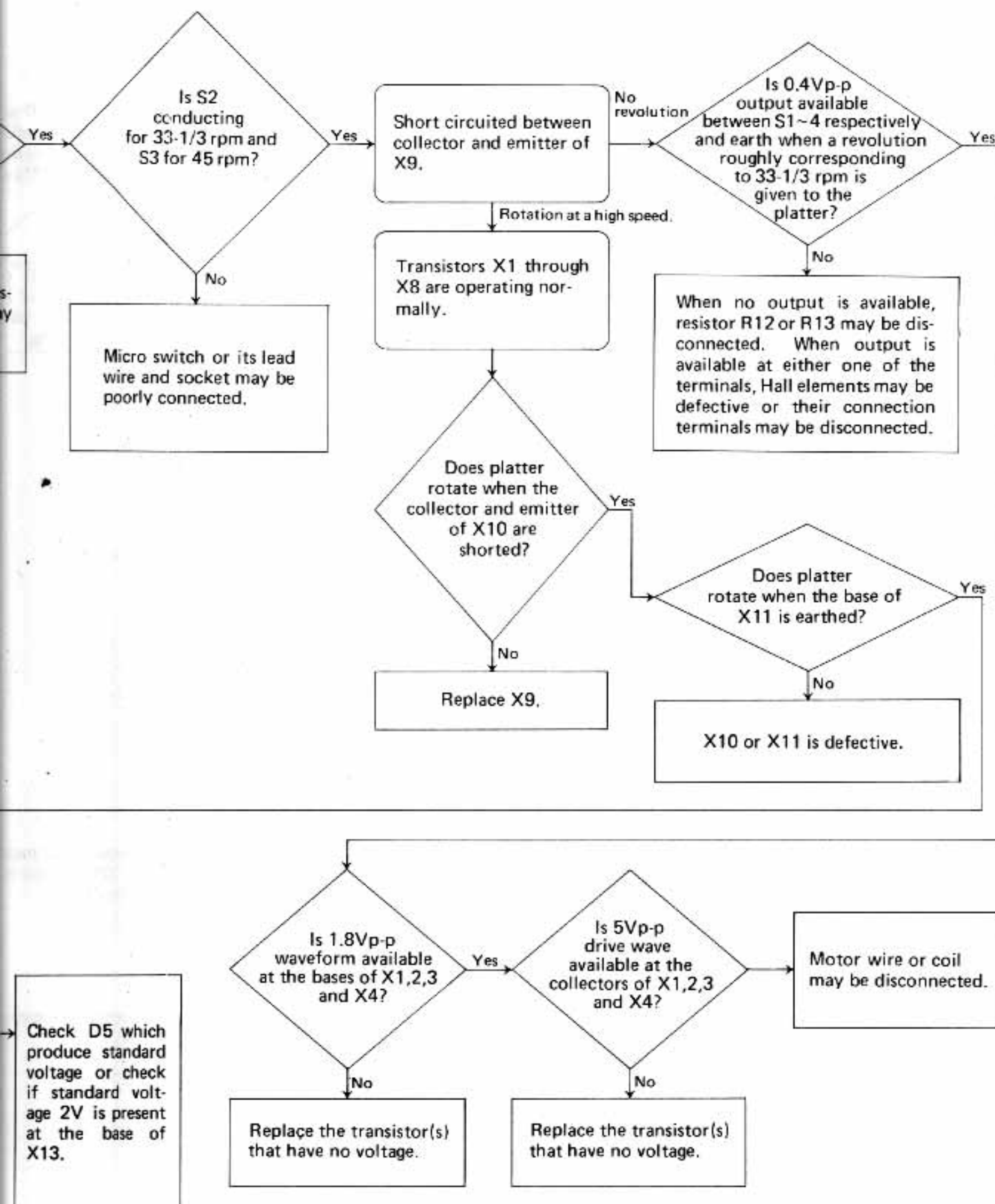
7. Troubleshooting

7-(1) Table of Troubleshooting

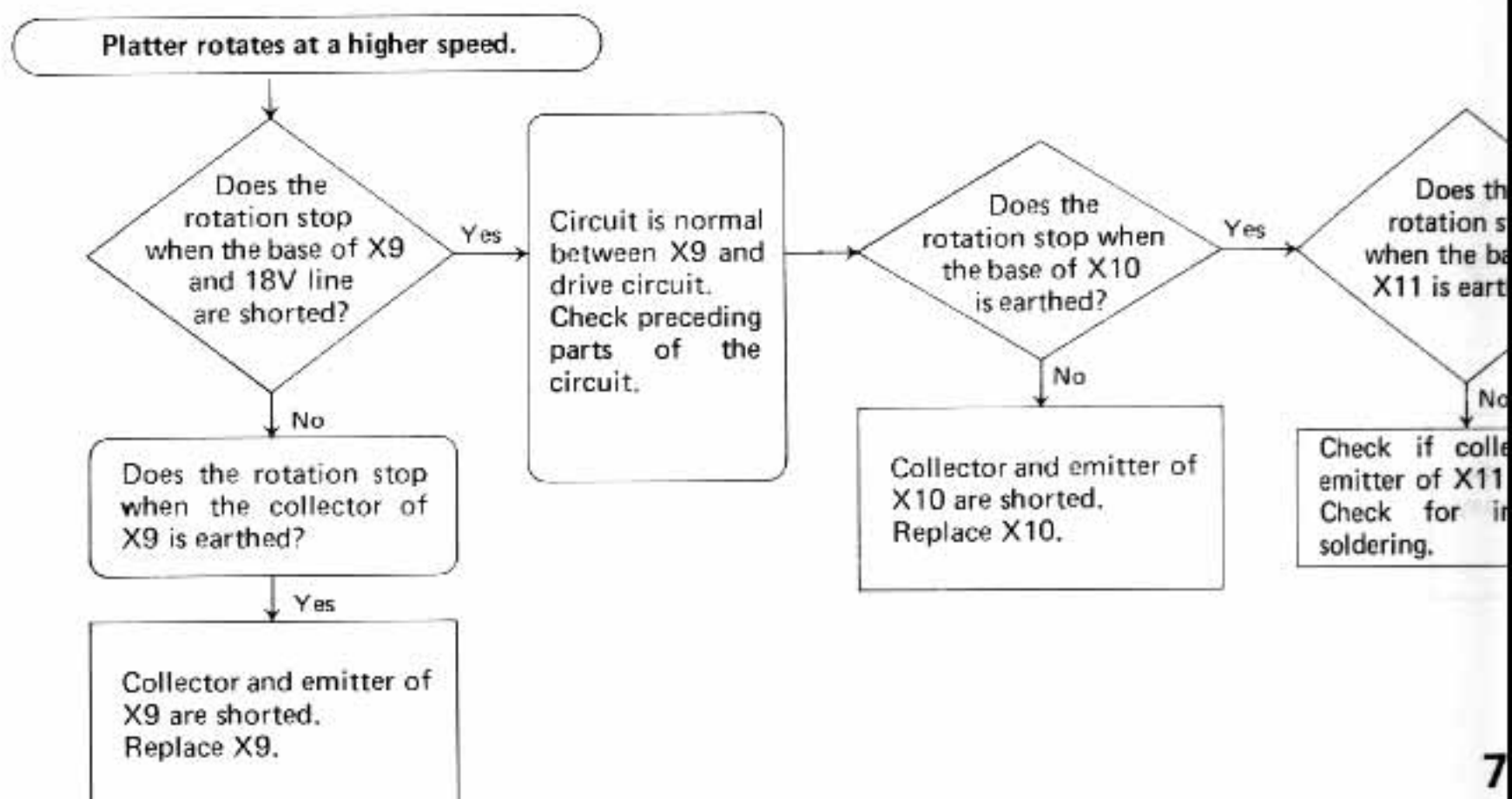
| Sympton | Cause | Remedies |
|---|---|---|
| Platter does not rotate when tonearm is moved manually or by automatic start operation. | <ol style="list-style-type: none"> 1. Motor is not powered. 2. Motor and motor circuit are defective. 3. Switch lever remains in contact with the switch. | <ul style="list-style-type: none"> * Check if the power cord is plugged in or the fuse is blown when the neon lamp also does not light. * Check the transistors in the power circuit. (Check if 18V is available at the motor terminals.) * Check voltage of each part of the servo circuit board. * Adjust the switch lever for correct clearance. |
| Platter speed is not correct. | <ol style="list-style-type: none"> 1. The circuit board is out of fine adjustment. | <ul style="list-style-type: none"> * Adjust so that it rotates correctly for both 33 (VR1) or 45 rpm (VR2). |
| Motor rotates at high speed without being controlled by the servo system. | <ol style="list-style-type: none"> 1. The printed pattern, capacitors etc. are short-circuited. (Capacitors, particularly C5 should be checked carefully.) | <ul style="list-style-type: none"> * Separate the short-circuited points. |
| Unbalanced motor rotation. | <ol style="list-style-type: none"> 1. Platter is not correctly fitted on the start. 2. Any one of transistors X1~X8 in the drive unit is defective. | <ul style="list-style-type: none"> * Fit the platter on the motor shaft correctly. * Check voltage for X1~X8. |
| Platter stops at a point when held by hand. (Dead point occurs.) | <ol style="list-style-type: none"> 1. Either one of the Hall elements is defective. 2. Input or output of the Hall elements is incompletely soldered. | <ul style="list-style-type: none"> * Replace * Solder it completely. |
| Change cycle will not stop. | <ol style="list-style-type: none"> 1. Trip lever and engagement shoe of the main gear malfunction. | <ul style="list-style-type: none"> * Check that trip lever returns after completing the change cycle, and that the engagement shoe moves smoothly and freely with its own weight. |
| No sound is reproduced while playing. | <ol style="list-style-type: none"> 1. Cartridge is defective. 2. Wiring is not correct. (Live and earth are connected inversely.) 3. Stylus is defective. 4. Amplifier is defective. | <ul style="list-style-type: none"> * Replace * Check the wiring * Replace |
| Stylus does not follow the groove correctly | <ol style="list-style-type: none"> 1. Dust or foreign matter is in the record groove. 2. Stylus is dirty or defective. 3. Lead wires in tonearm are tangled or too tight. 4. Tracking force is abnormal. 5. Tonearm bearings have too much friction. | <ul style="list-style-type: none"> * Clean * Clean or replace. * Slacken the wires. * Adjust * Replace tonearm. |
| Motor rumble is heard while playing. | <ol style="list-style-type: none"> 1. Motor is defective. 2. Transformer is defective. | <ul style="list-style-type: none"> * Bearing shake is excessive. * Replace it. * Check if the transformer is floating. |
| Tonearm does not leadout. | <ol style="list-style-type: none"> 1. The lead-out groove is not standard. | <ul style="list-style-type: none"> * It may not lead out when old or non-standard records such as film records are used. * Lead-out will not occur if the pitch of the lead-out groove is less than 3mm. * Check if the tracking force is correct. * Check if trip mechanism does not operate smoothly. |

7-(2) Chart 1 "Platter Does not rotate"

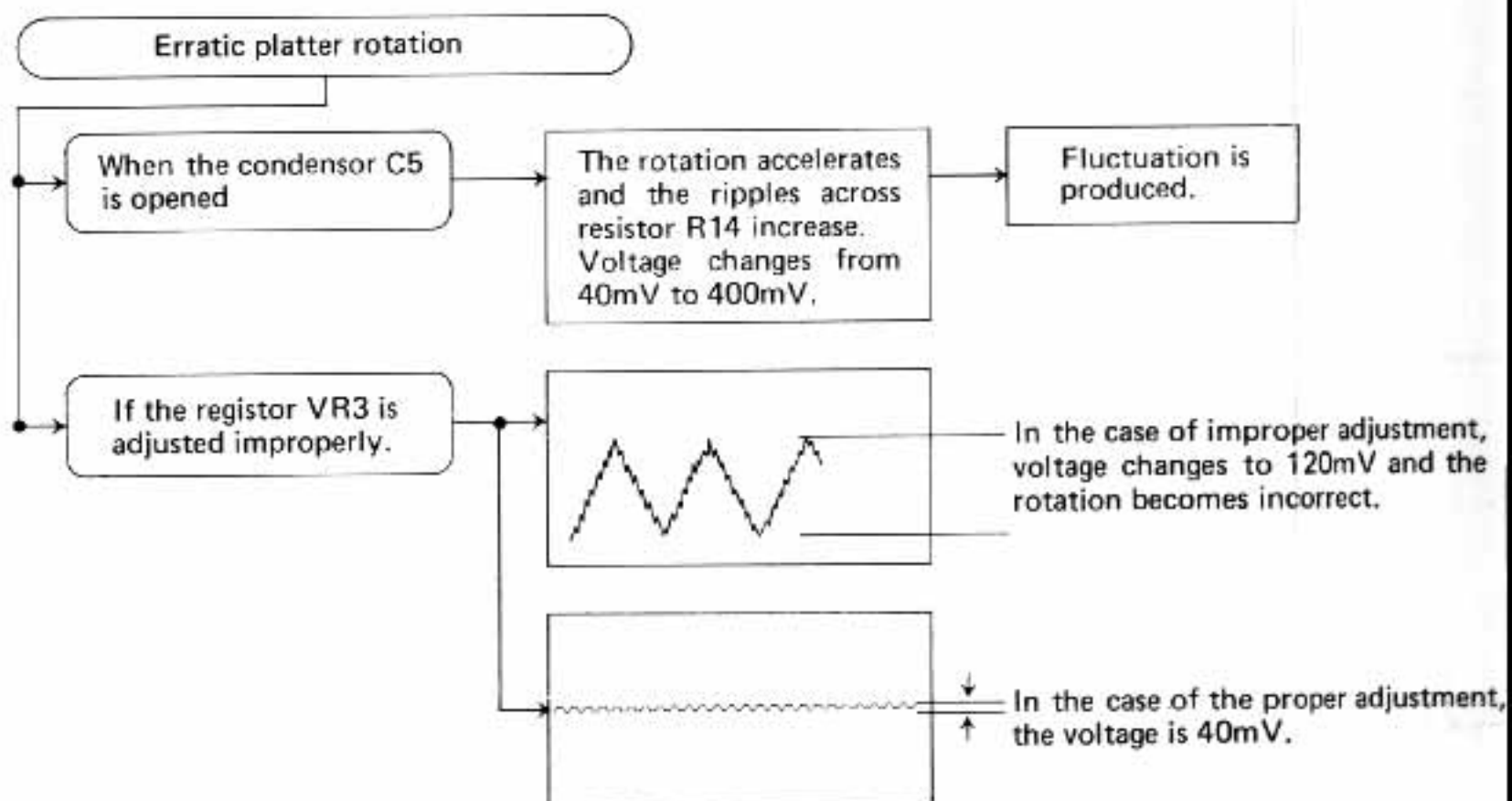


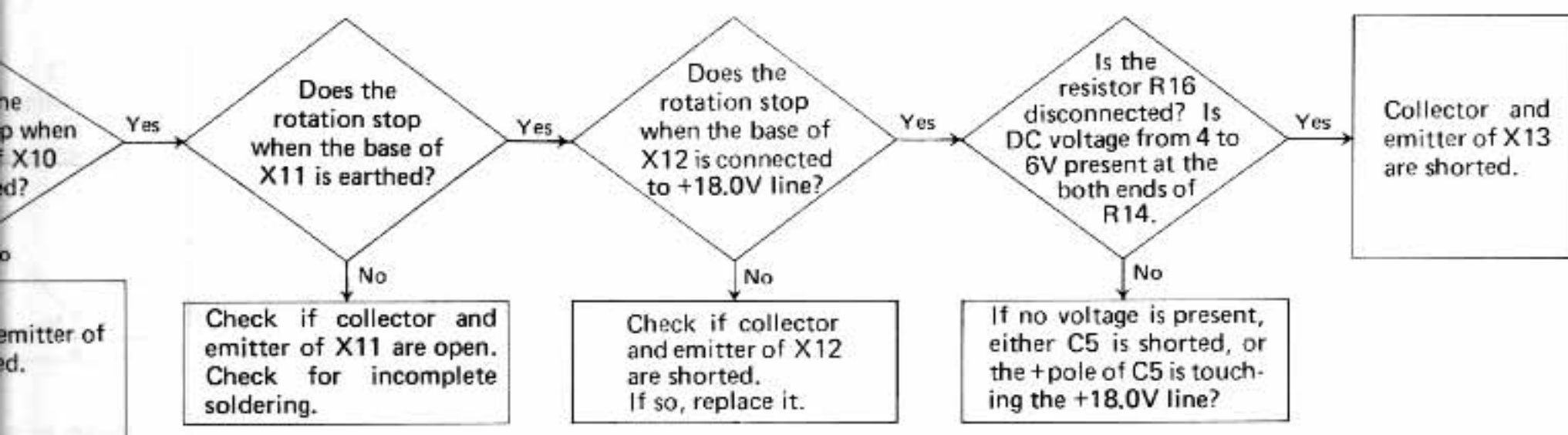


7-(3) Chart 2 "Platter rotates at a high speed"

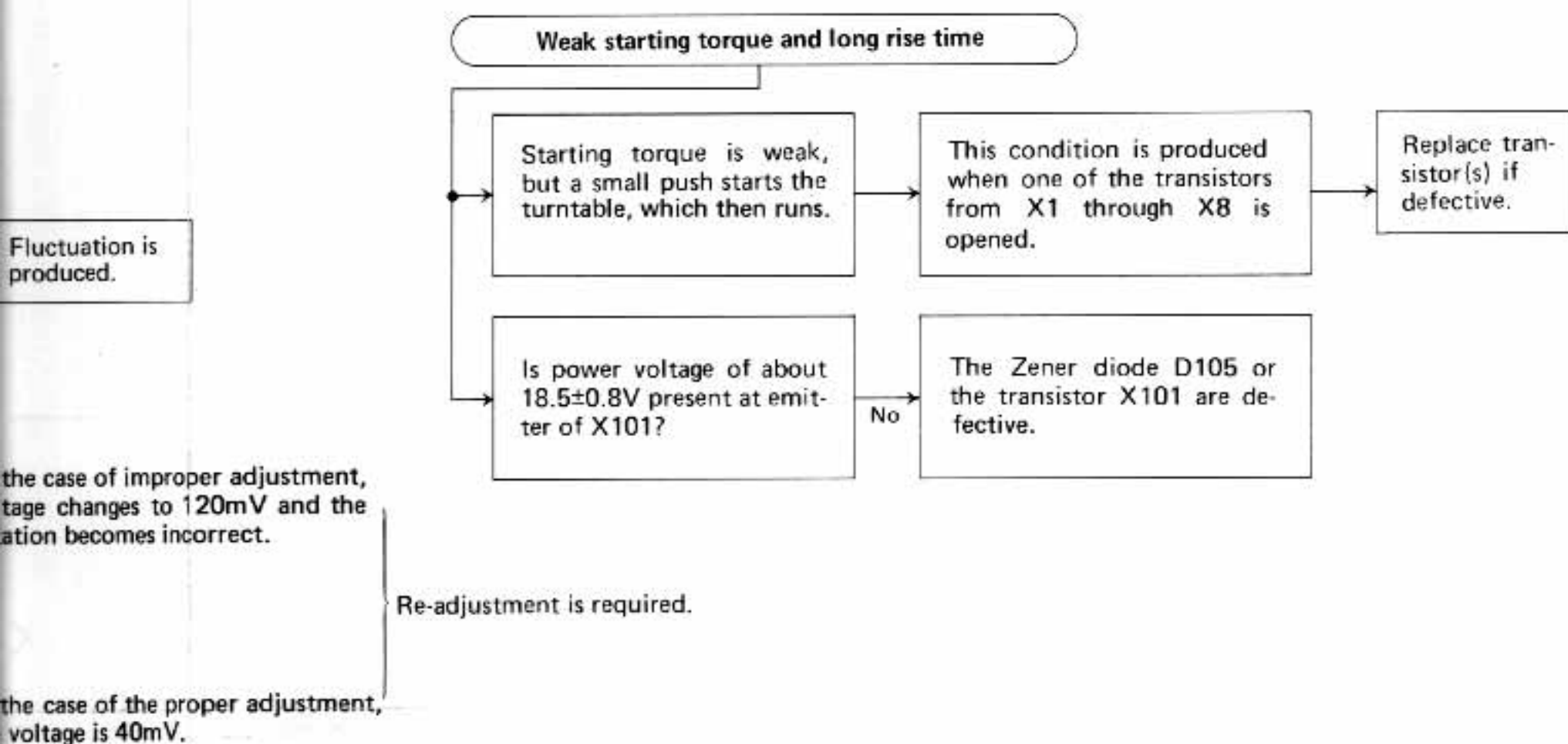


7-(4) Chart 3 "Erratic platter rotation"





7-(5) Chart 4 "Weak starting torque and long rise time"



8-(2) Player Ass'y

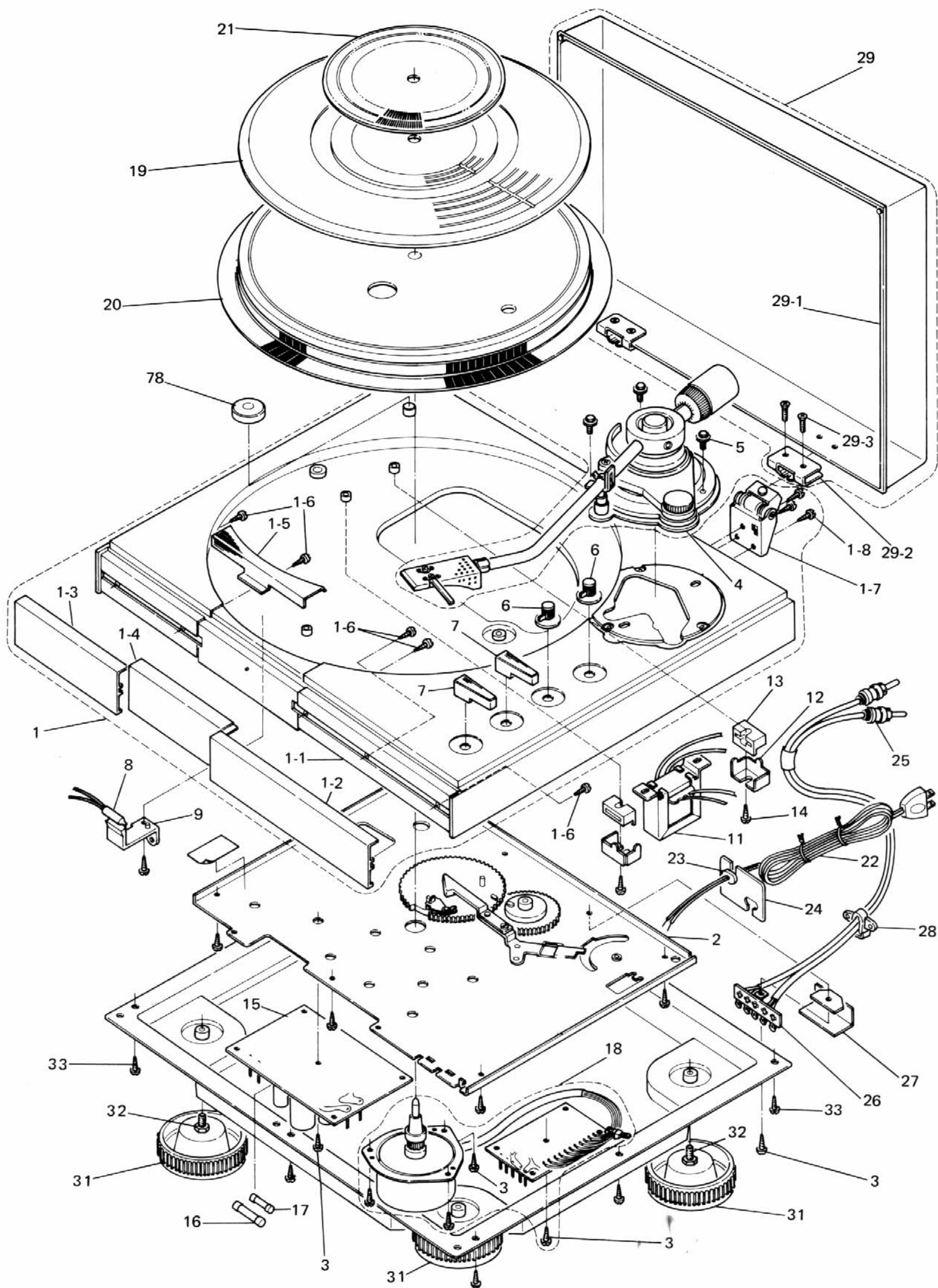


Fig. 18

| No. | Parts No. | Parts Name | Description |
|------|-------------|---------------------------|------------------|
| 1 | See page 16 | Cabinet Ass'y | Refer to table 2 |
| 1-1 | See page 16 | Cabinet | " |
| 1-2 | E34989-001 | Front Panel | |
| 1-3 | " -002 | " | |
| 1-4 | E34982-001 | Center Panel | |
| 1-5 | E61690-001 | Lamp Cover | |
| 1-6 | LPSP3005NS | Screw | |
| 1-7 | E60989-001 | Hinge Ass'y | |
| 1-8 | SPSP3005NS | Screw | |
| 2 | A4001 | Base Ass'y | |
| 3 | SBSB3008Z | Screw | |
| 4 | See page 16 | Tornarm Ass'y | Refer to table 2 |
| 5 | E61853-001 | Screw | |
| 6 | E61686-001 | Knob Ass'y | |
| 7 | E34970-001 | Knob Ass'y | |
| 8 | QLN3104-003 | Neon Lamp | |
| 9 | E61763-001 | Lamp Holder | |
| 10 | | | |
| 11 | See page 16 | Power Transformer | Refer to table 2 |
| 12 | E61825-001 | Holder | |
| 13 | E61824-001 | Cushion | |
| 14 | SBSB3016Z | Tapping Screw | |
| 15 | See page 16 | Power Circuit Board Ass'y | Refer to table 2 |
| 16 | See page 16 | Fuse | " |
| 17 | See page 16 | Fuse | " |
| 18 | MC933A | Motor Ass'y | |
| 19 | See page 16 | Platter Cover | Refer to table 2 |
| 20 | E22340-001 | Platter | |
| 21 | E61136-002 | Strobo Plate | |
| 22 | See page 16 | Power Cord | Refer to table 2 |
| 23 | QHS3876-162 | Cord Stopper | |
| 24 | E61695-001 | Cord Stopper Plate | |
| 25 | G30062-5 | Signal Cord Ass'y | |
| 26 | QML1310-051 | Lug Strip Ass'y | |
| 27 | E60090-002 | Shield Cover | |
| 28 | E33944-001 | Cord Stopper | |
| 29 | E34993-004 | Dust Cover Ass'y | |
| 29-1 | E10156-002 | Dust Cover | |
| 29-2 | E60990-001 | Lock Plate | |
| 29-3 | SHSP3010RS | Screw | |
| 30 | See page 16 | Bottom Board Ass'y | Refer to table 2 |
| 31 | See page 16 | Foot Ass'y | " |
| 32 | SBSB4012Z | Screw | |
| 33 | SBSB3012M | Screw | |

8-(3) Mechanism Ass'y

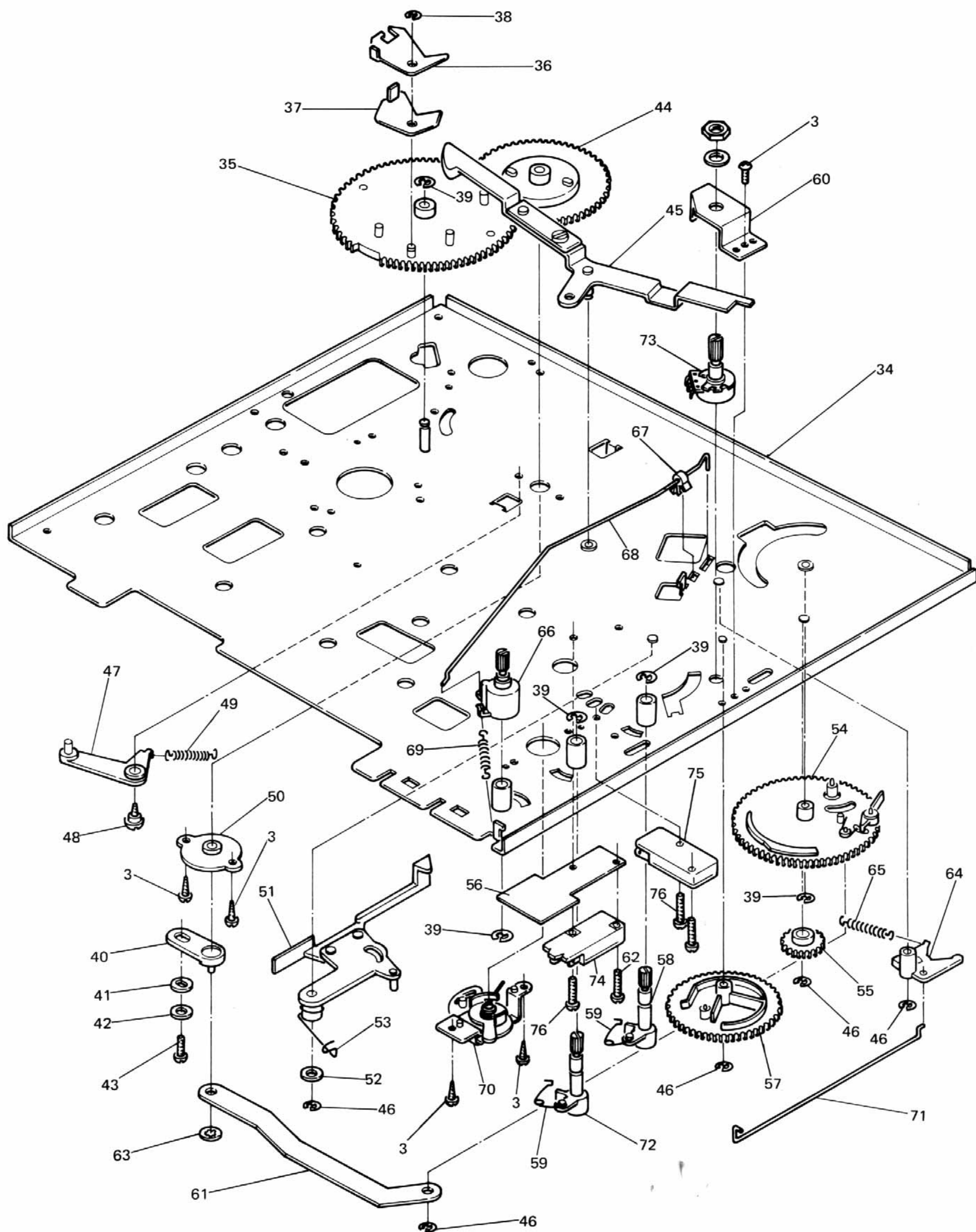


Fig. 19

| No. | Parts No. | Parts Name | Description |
|-----|-------------|----------------------|------------------|
| 34 | E10175-001 | Base Sub Ass'y | |
| 35 | E21913-002 | Main Gear Ass'y | |
| 36 | E49627-001 | Engagement Pawl | |
| 37 | E60380-001 | Lower Trip Pawl | |
| 38 | REE2000 | "E-typed" Ring | |
| 39 | REE5000 | "E-typed" Ring | |
| 40 | E60381-001 | Lever | |
| 41 | E60844-001 | Spacer | |
| 42 | WNS3000N | Washer | |
| 43 | LPSP3008ZS | Screw | |
| 44 | E60449-001 | Following Gear | |
| 45 | E34234-001 | Trip Ass'y | |
| 46 | REE3000X | "E-typed" Ring | |
| 47 | E60383-001 | Stopper | |
| 48 | G41507-1 | Tapping Screw | |
| 49 | E60384-001 | Spring | |
| 50 | E60382-001 | Bushing | |
| 51 | E60394-001 | Switch Plate Ass'y | |
| 52 | Q03091-110 | Washer | |
| 53 | E60396-001 | Spring | |
| 54 | E34236-003 | Driving Gear Ass'y | |
| 55 | E60400-001 | Idler Gear | |
| 56 | See page 16 | Insulator Sheet | Refer to table 2 |
| 57 | E60402-001 | Sub Gear | |
| 58 | E61696-001 | Switch Cam Ass'y | |
| 59 | E49608-002 | Spring | |
| 60 | E61697-001 | Volume Bracket | |
| 61 | E34237-002 | Link | Refer to table 2 |
| 62 | See page 16 | Screw | |
| 63 | G4942-4 | Speed Nut | |
| 64 | E60390-002 | Elevator Cam | |
| 65 | E49596-001 | Spring | |
| 66 | E60429-002 | Starting Shaft Ass'y | |
| 67 | E49679-001 | Rod Holder | |
| 68 | E61698-001 | Reject Rod | |
| 69 | E60416-001 | Spring | |
| 70 | E34240-002 | Cueing Ass'y | |
| 71 | E60414-001 | Rod | |
| 72 | E34239-001 | Cueing Cam Ass'y | |
| 73 | QVF1A2B-013 | Variable Resistor | Refer to table 2 |
| 74 | See page 16 | Micro Switch | |
| 75 | QSM1V01-002 | Micro Switch | |
| 76 | LPSP3014ZS | Screw | |
| 78 | E48820-001 | EP Adaptor | |

8-(4) Parts List with Specified Numbers for Designated Areas

| Item No. | Description | U.S.A. & Canada | Europe | U.K. | Australia | U.S. Military Market and Other Countries |
|----------|--------------------|-----------------------|-------------------------|-------------------------|-------------------------|--|
| 1 | Cabinet Ass'y | E22338-001 | E22338-002 | E22338-002 | E22338-002 | E22338-002 |
| 1-1 | Cabinet | E10172-001 | E10172-002 | E10172-002 | E10172-002 | E10172-002 |
| 4 | Tonearm Ass'y | ARM-516 | MP-169S | ARM-516 | MP-169S | MP-169S |
| 11 | Power Trans former | E03032-23B | E03032-23C | E03032-23C | E03032-23C | E03032-23D |
| 15 | P.C. Board Ass'y | TPS-96A(U.S.A.) | TPS-96C | TPS-96F | TPS-96D | TPS-96B |
| 15 | P.C. Board Ass'y | TPS-96E(Canada) | | | | |
| 16 | Fuse (Primary) | QMF61U2-R30 (0.3A) | QMF51A2-R10 (100mAT) | QMF51A2-R10 (100mAT) | QMF51A2-R10 (100mAT) | QMF60S1-R30 (0.3A) QMF60R1-R20 (0.2A) |
| 17 | Fuse (Secondary) | | QMF51A2-R50 (500mAT) | QMF51A2-R50 (500mAT) | QMF51A2-R50 (500mAT) | |
| 19 | Platter Cover | E22375-004 | E22375-003 | E22375-003 | E22375-003 | E22375-003 |
| 22 | Power Cord | QMP1200-244 | QMP3910-244 | QMP9017-007 | QMP2500-200 | QMP1200-244 |
| 30 | Bottom Board Ass'y | E22342-004 | E22342-002 | E22342-002 | E22342-002 | E22342-002 |
| 31 | Foot Ass'y | E35118-004 | E35118-005 | E35118-005 | E35118-005 | E35118-005 |
| 56 | Insulator Sheet | | E60964-002 | E60964-002 | E60964-002 | |
| 62 | Screw | LPSP3014ZS | SPKP3015S | SPKP3015S | SPKP3015S | LPSP3014ZS |
| 74 | Micro Switch | QSM1V01-018 | QSM1V01-022 | QSM1V01-022 | QSM1V01-022 | QSM1V01-018 |
| 108 | Cartridge | | MD-1025 | | MD-1025 | MD-1025 |
| 109 | Needle Ass'y | | DT-Z1S | | DT-Z1S | DT-Z1S |
| 110 | Needle Cover | | E34268-001 | | E34268-001 | E34268-001 |
| 111 | Screw | E60502-002 | | E60502-002 | | |

(Table 2)

9. Printed Circuit Board Ass'y and Parts List

9-(1) TPS-96 Power Supply P.C. Board Ass'y

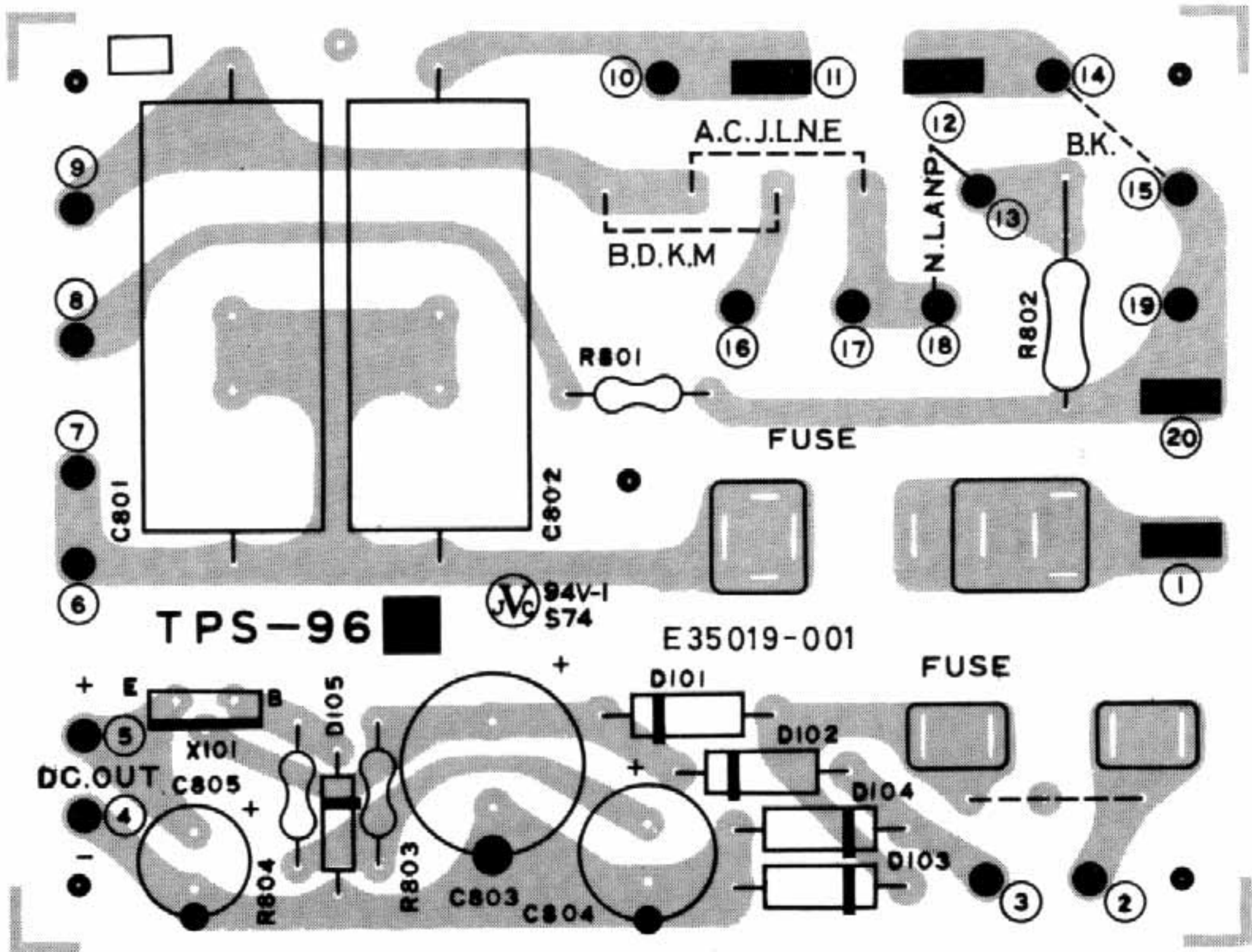


Fig. 20

| Description | U.S.A. & Canada | Europe | U.K. | Australia | U.S. Military Market and Other Countries |
|-------------------------------|--------------------------------------|---------|---------|-----------|--|
| Power Supply P.C. Board Ass'y | TPS-96A (U.S.A.) TPS-96E (Canada) | TPS-96C | TPS-96F | TPS-96D | TPS-96B |

Transistor

| Item No. | Part Number | Rating | | Description | Maker |
|----------|-------------|--------|------|-------------|-------------|
| | | Pc | fT | | |
| X101 | 2SD325(E) | 10W | 8MHz | Silicon | Sanyo Denki |

Diodes

| Item No. | Part Number | Rating | Description | Maker |
|-------------------|--------------------|--------|------------------|--------------------------------|
| D101~D104 D105 | SIB01-02 WZ-192 | | Silicon Zener | Fuji Denki Shin Nihon Musen |

Capacitors

| Item No. | Part Number | Rating | | Description |
|----------|-------------|---------------|-----|------------------|
| C801 | See page 18 | 0.047 μ F | | Refer to table 3 |
| C803 | QEW41VA-477 | 470 μ F | 35V | Electrolytic |
| C804 | QEW41VA-107 | 100 μ F | 35V | " |
| C805 | QEW41HA-476 | 47 μ F | 50V | " |

Resistors

| Item No. | Part Number | Rating | | Description |
|----------|-------------|--------------|-----------------|--------------------|
| R801 | See page 18 | | | Refer to table 3 |
| R802 | See page 18 | | | " |
| R803 | QRG129J-681 | 680 Ω | $\frac{1}{2}$ W | Uninflammable O.M. |
| R804 | QRX129J-100 | 10 Ω | $\frac{1}{2}$ W | " |

TPS-96 Parts List with Specified Numbers for Designated Areas

| Item No. | Description | U.S.A. & Canada | Europe | U.K. | Australia | U.S. Military Market and Other Countries |
|----------|---|---|--|--|--|--|
| | Power Supply P.C. Board (Plain) Fuse Clip Fuse (Primary) | E35019-001 E45524-001 QMF61U2-R30 (0.3A) | E35019-002 E48965-002 QMF51A2-R10 (100mA) | E35019-002BS E48965-002 QMF51A2-R10BS (100mA) | E35019-002 E48965-002 QMF51A2-R10 (100mA) | E35019-002 E45524-001 QMF61U2-R30 (0.3A/110, 120V) QMF61U2-R20 (0.2A/220, 240V) |
| | (Secondary) | ————— | QMF51A2-R50 (500mA) | QMF51A2-R50BS (500mA) | QMF51A2-R50 (500mA) | |

(Table 3)

Transistors

| Item No. | Part Number | Rating | | Description | Maker |
|----------|--------------|--------|--------|-------------|-------------|
| | | Pc | fr | | |
| X1~X4 | 2SD571 (K,L) | 800mW | 110MHz | Silicon | Nihon Denki |
| X5~X9 | 2SA733 (P,Q) | 250mW | 180MHz | " | " |
| X10 | 2SC945 (K,P) | " | 250MHz | " | " |
| X11~X12 | 2SA733 (K) | " | 180MHz | " | " |
| X13 | 2SC945 (K,P) | " | 250MHz | " | " |

Diodes

| Item No. | Part Number | Rating | Description | Maker |
|----------|------------------------------|--------|-------------|-------------|
| D1~D4 | 1S953 (A) | | Silicon | Nihon Denki |
| D5 | RD5.6EKVM2, or RD6.2EKVM2 | | Zener | " |
| D8 | VD1220 | | Varistor | " |
| D9~D10 | VD1121 | | " | " |

Capacitors

| Item No. | Part Number | Rating | | Description |
|----------|-------------|--------------|-----|--------------|
| C5 | QEW41CA107 | 100 μ F | 16V | Electrolytic |
| C6 | QEW41EA335 | 3.3 μ F | 25V | " |
| C8 | QEW41EA475 | 4.7 μ F | 25V | " |
| C9 | QEW41HA225 | 2.2 μ F | 50V | " |
| C12 | QEW41CA106 | 10 μ F | 16V | " |
| C14 | QEW41HA474 | 0.47 μ F | 50V | " |
| C18 | QEW41CA106 | 10 μ F | 16V | " |

Resistors

| Item No. | Part Number | Rating | | Description |
|----------|-------------|---------------|----|-------------------|
| R1~R4 | QRD141J-104 | 100k Ω | ¼W | Carbon |
| R5~R6 | QRD141J-680 | 68 Ω | " | " |
| R9 | QRD141J-151 | 150 Ω | " | " |
| R11 | QRD141J-170 | 17 Ω | " | " |
| R12~R13 | QRD121J-471 | 470 Ω | ½W | " |
| R14 | QRD141J-273 | 27k Ω | ¼W | " |
| R16 | QRD141J-123 | 12k Ω | " | " |
| R17 | QRD141J-122 | 1.2k Ω | " | " |
| R18 | QRD141J-222 | 2.2k Ω | " | " |
| R22 | QRD141J-681 | 680 Ω | " | " |
| R23 | QRD141J-823 | 82k Ω | " | " |
| R24 | QRD141J-682 | 6.8k Ω | " | " |
| R25 | QRD141J-103 | 10k Ω | " | " |
| R26 | QRD141J-392 | 3.9k Ω | " | " |
| R31 | QRD141J-913 | 91k Ω | " | " |
| R33 | QRD141J-153 | 15k Ω | " | " |
| R34 | QRD141J-123 | 12k Ω | " | " |
| R35 | QRD141J-273 | 27k Ω | " | " |
| R36 | QRD141J-183 | 18k Ω | " | " |
| R40 | QRD141J-332 | 3.3k Ω | " | " |
| R42 | QRD141J-122 | 1.2k Ω | " | " |
| R43 | QRD141J-392 | 3.9k Ω | " | " |
| R44 | QRD141J-471 | 170 Ω | " | " |
| R45 | QRD121J-2R7 | 2.7 Ω | ½W | " |
| R46 | QRD141J-683 | 68k Ω | ¼W | " |
| R47 | QRD141J-183 | 18k Ω | " | " |
| VR1~VR2 | QVP8A0B-053 | 5k Ω | | Variable Resistor |
| VR3 | QVP4A0B-331 | 330 Ω | | " " |

Others

| Item No. | Part Number | Rating | Description |
|----------|---|-----------|--|
| | M30387 M40244 QXT310H-015 M40243-2 | 6φ x 12mm | Circuit Board Tab Vinyl Tube Silicon Tube |

10. Packing Materials and Part Numbers

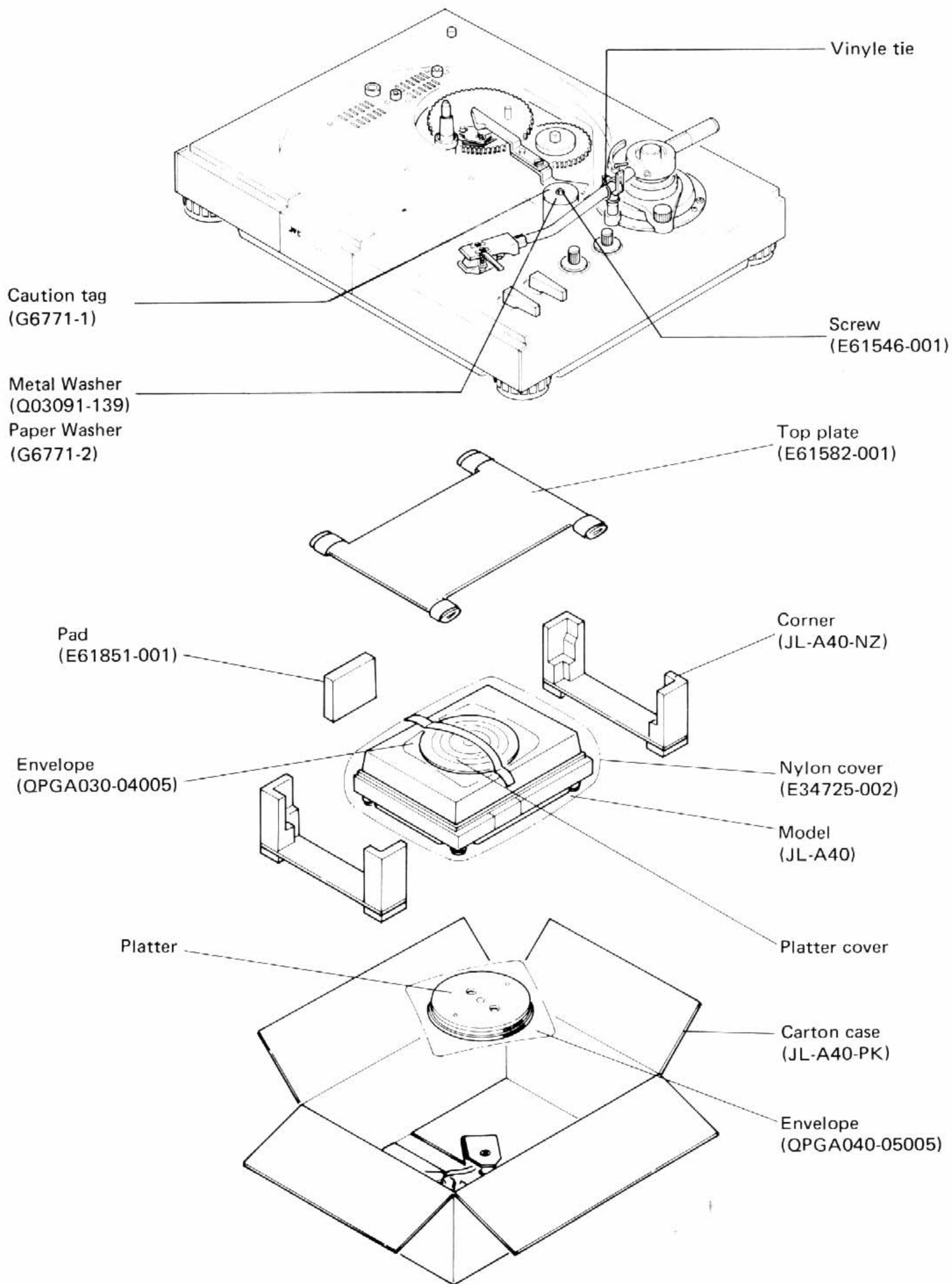
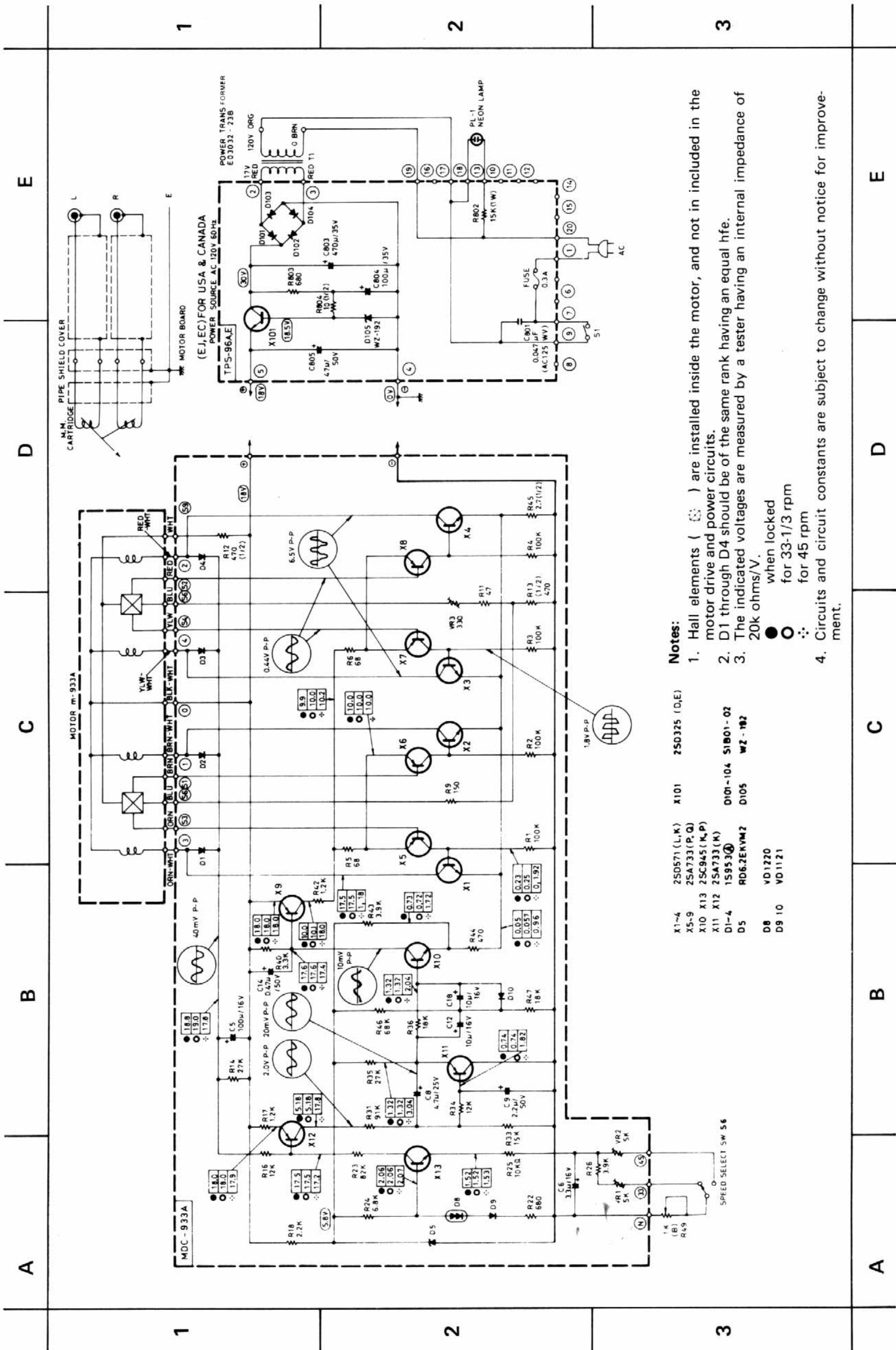
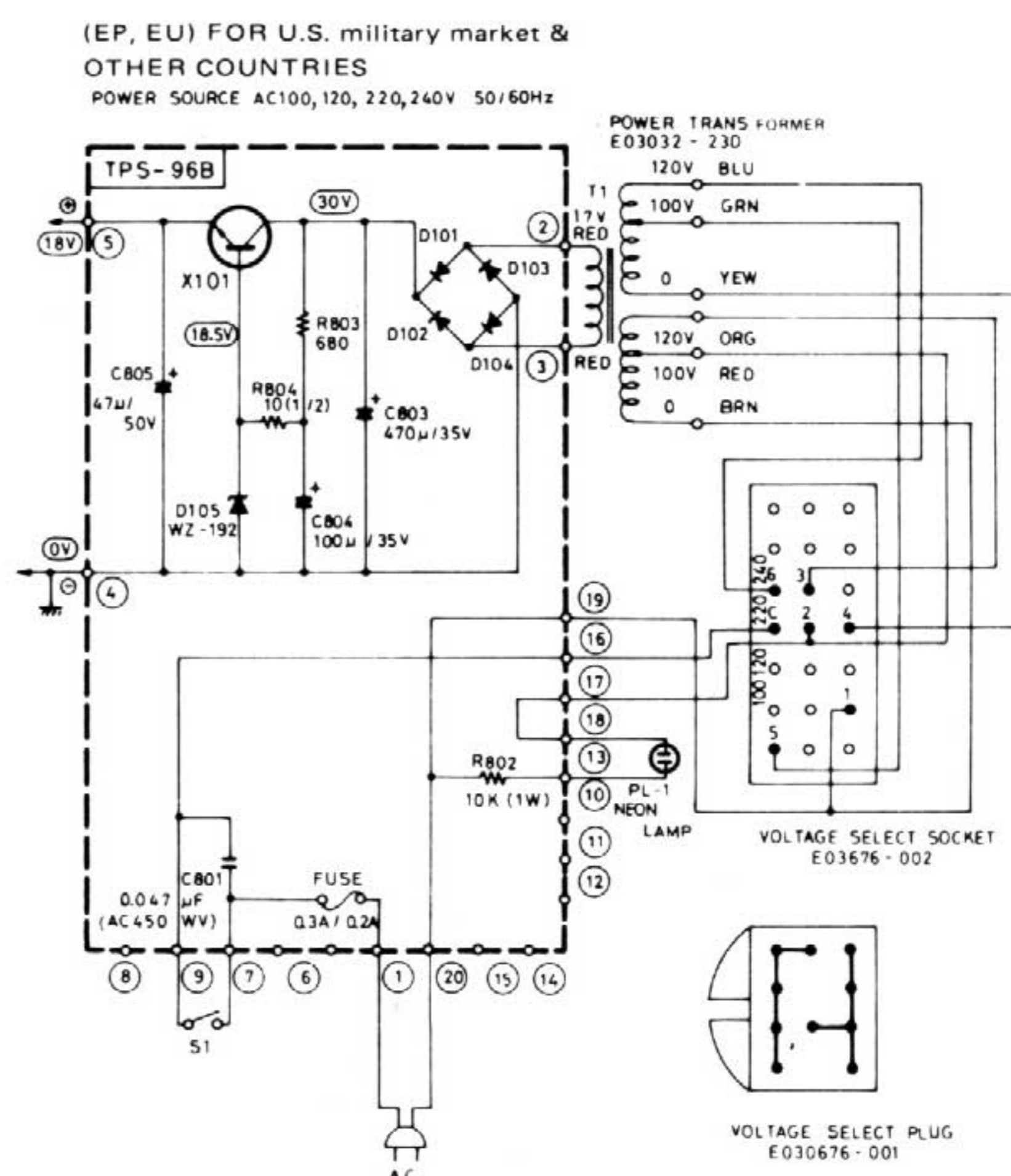
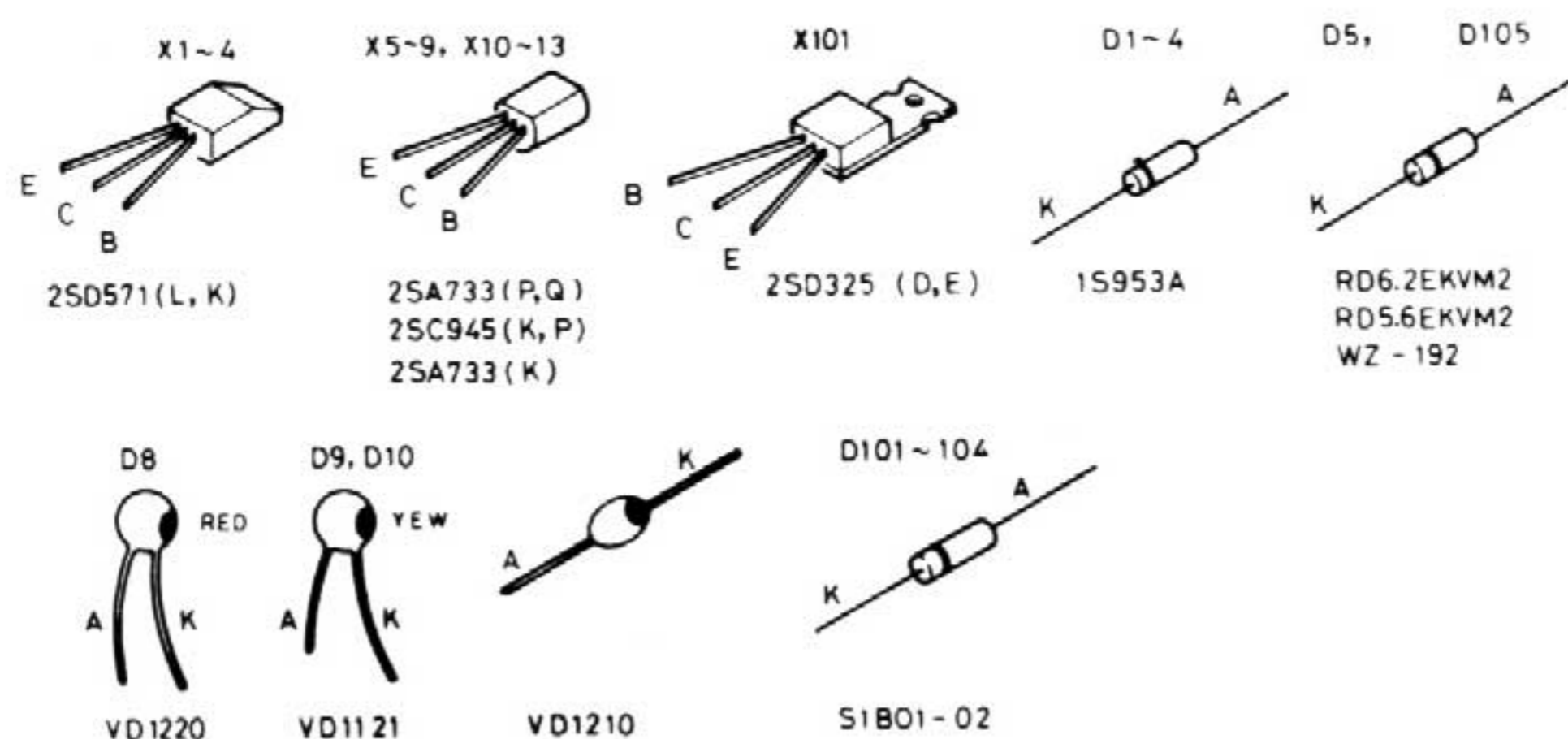
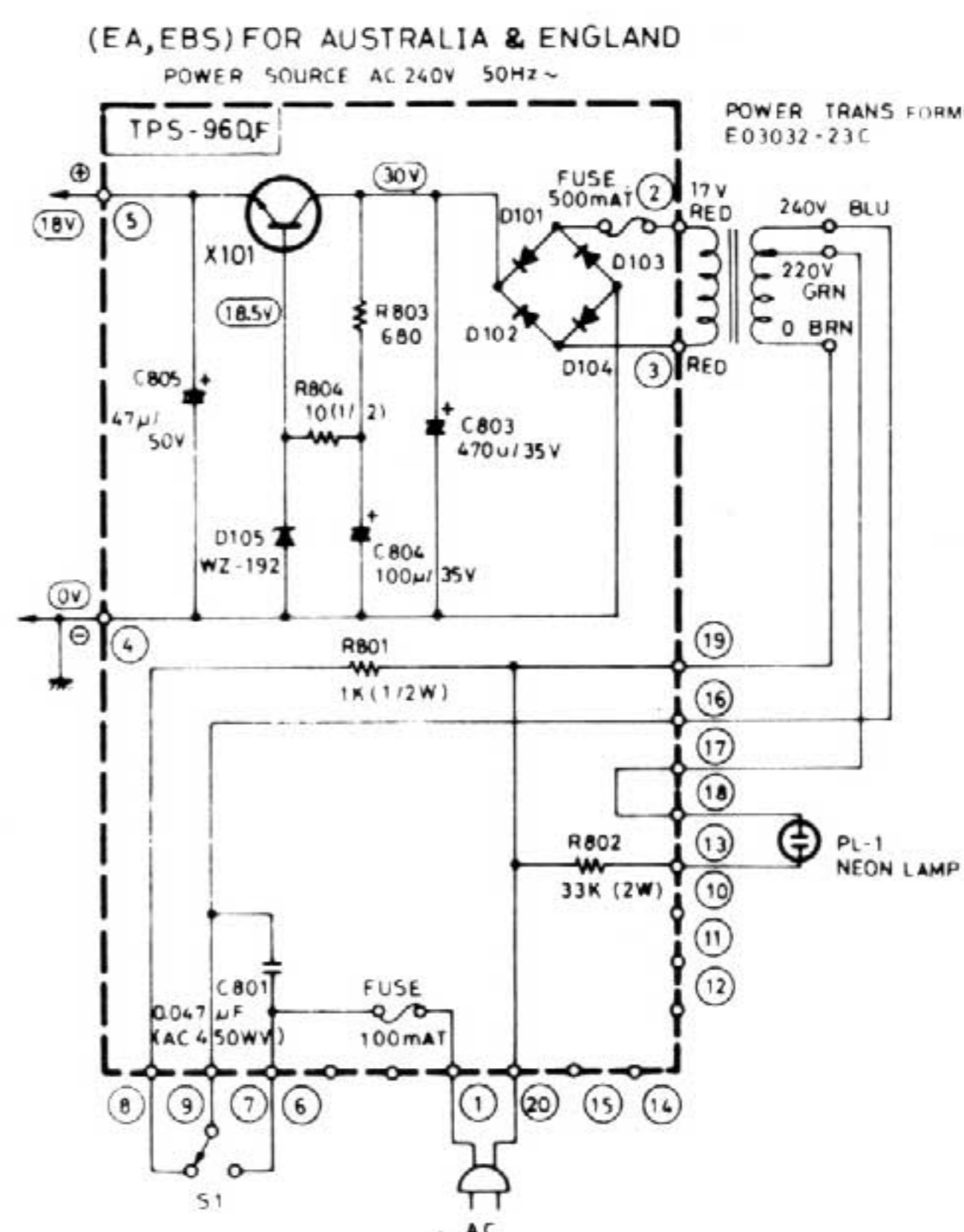
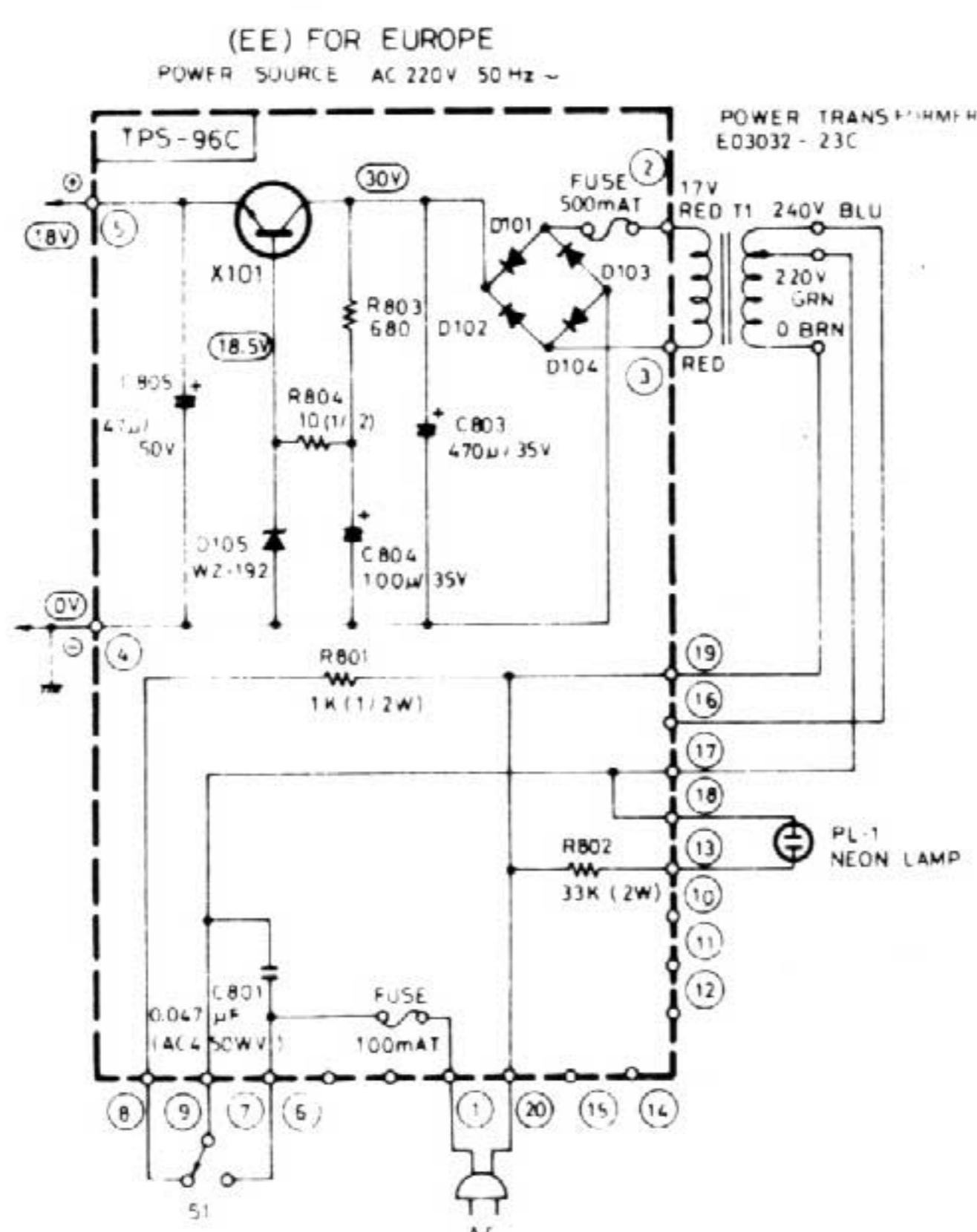


Fig. 23

11. JL-A40 Schematic Diagram



12. Schematic Diagram for Designated Areas



13. Accessories List

| Description | U.S.A. | Canada | Europe | U.K. | Australia | U.S. Military Market and Other Countries |
|-------------------|-------------|-------------|--|-------------|-------------|--|
| Inst. Book | E30580-616A | E30580-616A | E30580-616A (English) E30580-617A (German) E30580-618A (French) | E30580-616A | E30580-616A | E30580-616A |
| Warranty Card | BT20032 | BT20025 | | BT20013B | BT20029 | BT20014 |
| Do it Better | BT20024B | | | | | |
| Service Procedure | BT20023 | | | | | |
| Envelope | E64207-001 | E64207-001 | E64207-001 | E64207-001 | E64207-001 | E64207-001 |
| EP Adaptor | E48820-001 | E48820-001 | E48820-001 | E48820-001 | E48820-001 | E48820-001 |

Memo

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