JVC

SERVICE MANUAL

MODEL QL-A7

QUARTZ-LOCKED DIRECT DRIVE TURNTABLE

No. 2435
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Warning:
When replacing the parts marked with ⚠ , be sure to use the designated parts to ensure safety.

1. Specifications

Motor section

Motor	: 12-pole, 24-slot, DC type FG servomotor
Drive system	: Direct drive
Speeds	: 33-1/3 and 45 rpm
Wow and flutter	: Less than 0.025 % (WRMS)
Rumble	: More than 63 dB (IEC-B) More than 73 dB (DIN-B)
Speed detection	: Integrated frequency generator
Starting torque	: 1 kg.cm
Speed deviation	: Within 0.002 %
Load characteristics	: 0 % (with 120 g total tracking force)
Drift per hour	: 0.0001 %/H
Power characteristics	: 0 % (± 10 V)
Temperature characteristics	: 0.00005 %/°C
Platter	: 31.3 cm diam.
Quick stop time	: Within 1.6 sec.

Tonearm section

Type	: T.H. (Tracing-Hold system, static balance, new gimbal support)
Effective length	: 245 mm
Tracking error	: + 1°48′ −1°31′
Overhang	: 15 mm
Tracking force range	: 0 – 3 g (0.25 division, direct reading)
Weight range (including shell)	: 14.5 – 23.5 g (Headshell 12.5 g)
Height range	: 43.5 – 54.5 mm (preset to 48.5 mm)

Cartridge section (for Europe and U.S. military market)

Type	: Moving Magnet (MD-1025)
Stylus	: 0.3 x 0.7 mil. diamond (DT-Z1TE)
Optimum tracking force	: 2 grams
Out put	: 3mV (1 kHz)
Frequency responce	: 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 (dinamic)

General

Dimensions	: 16.5 (H) x 48.1 (W) x 40.3 (D) cm (with cover closed) (6-1/2″ x 18-15/16″ x 15-7/8″) (Since the dimensions show only the design measurements, consideration is required when installing the unit in a limited space such as a rack.)
Weight	: 12 kg (26.4 lbs.) (without corrugated cardboard case)

POWER SPECIFICATIONS

Countries	Line Voltage & Frequency	Power Consumption
U.S.A. & CANADA	AC 120 V, 60 Hz	15 watts
CONTINENTAL EUROPE	AC 220 V∿, 50 Hz	15 watts
U.K. & AUSTRALIA	AC 240 V∿, 50 Hz	15 watts
U.S. MILITARY MARKET	AC 100/120/220/240 V Selectable, 50/60 Hz	15 watts
OTHER AREAS	AC 100/120/220/240 V Selectable, 50/60 Hz	15 watts

2. Features

- **High-torque, precision FG servomotor**
  The 12-pole, 24-slot DC servomotor provides a strong torque of more than 1 kg-cm.
  The built-in frequency generator speed detecting mechanism produces signals which assure smooth, stable platter rotation.
- **Quartz-locked phase control system**
  The system controls rotation speed through phase comparison between the reference signal of the highly accurate crystal oscillator and the frequency generator detecting signal, thus greatly improving speed deviation, temperature characteristics, initial drift and voltage characteristics. The system serves to effectively eliminate lower frequency wow which has previously been impossible to eliminate with only the basic servo system.
- **High performance sample-hold type phase comparison circuit**
  A sample-hold type phase comparison circuit is employed to obtain a control signal with minimum ripple. The less the ripple, the smaller the time constant of the motor drive smoothing circuit, which results in a quicker response to servo control.
- **Touch-sensor control and quick stop**
  Touch-sensor type speed selectors and stop switch are employed. A light touch operates the switches. The stop switch is interlocked with a solenoid type brake mechanism to assure quick stop.
- **New highly sensible, stable gimbal support tonearm**
  Micron-accuracy radial bearings are symmetrically positioned with the axis to provide a unique structure. This new gimbal support system is similar to the one-point-on-the-axis support system in terms of performance, which provides high sensitivity, stability and long service life of the tonearm. Moreover, the arm pipe containing shock absorbing materials, the high density headshell and output cords which use cores of reduced d.c. resistance, greatly improve sound quality.
- **Solid cabinet**
  High density fiber board which does not propagate external vibrations is employed to obtain a solid cabinet structure.
- **Newly developed isolators**
  The rubber is housed in the solid diecast isolator housing to effectively prevent vibrations. The former which permits a reduction in the resonance frequency (fo) and the latter with a lower resonance factor Q, are effectively employed to improve anti-vibration effect and to reduce lateral vibrations. Height adjustment is also possible.
- **Photokinetic end-of-play mechanism**
  When a record ends its playing, the photokinetic end-of-play mechanism detects the play-end signal in the form of a ray of light, and then automatically lifts the tonearm while stopping the platter without delay.
  Thanks to this employed mechanism, side forces are not imposed on the tonearm, unlike in the case with the conventional mechanical trigger system.
  It can be said that the photokinetic end-of-play mechanisms is an ideal auto-return system.

3. Service Precautions

1. Be sure to place the unit on a level surface when adjusting motor rotation.
2. In servicing, do not use parts other than those specified.
3. Be careful not to damage the motor shaft when repairing the motor unit.
4. When a motor cannot be repaired and must be replaced, it is recommended that the motor and motor circuit board (TXX-38B or C) be replaced at the same time. Hall element current adjustment is required for replacement of the motor or motor circuit board only is performed. Refer to the "7-(3) Balance adjustment of drive circuit".
5. When the heat sink (including X820) is removed from the motor board to permit repair of the circuit board, the transistor temperature may increase due to the lack of heat radiation. Attach a aluminum plate (approx. 100 (W) x 100 (D) x 1 (H) mm to the motor board.)

4. "How to Operate" (Names & Functions)

Description of the turntable parts and functions

Speed select/start switches
Merely touch either one of the buttons, depending on the rpm of the record you wish to play, and the turntable will start rotating.
Touch the "33" button for 33-1/3 rpm records.
Touch the "45" button for 45 rpm records.

Power switch
Turn the power switch ON. The unit is energized while still in the stop mode and the neon lamp in the window lights.

Stop switch
Gently touch this switch to stop turntable rotation. The turntable stops within a half turn.

Window
The stroboscope pattern appears in the window and either the "33" or "45" speed indicator lights depending on which speed select button was touched. The stroboscope pattern will then appear stationary to indicate that the turntable speed is correct.

33-1/3 rpm . . . . . The "33" lamp lights
45 rpm . . . . . The "45" lamp lights

Record-size select knob
Set the knob to the corresponding size of the record before you play it. When the record is finished playing the tonearm lifts up automatically and at the same time the turntable stops rotating.

EP . . . . . 17 cm (7") record
LP . . . . . 30 cm (12") record

Note: When playing an EP record at the LP setting, the tonearm lifts up midway. And in the reverse order the tonearm does not lift up even though playing has finished.

Anti-skating knob
This device cancels out the centripetal force that pulls the tonearm to the center of the platter. This prevents the stylus tip from skating toward the center of the platter and at the same time eliminates any excessive stylus tip force on the inner wall of the record groove.

Fig. 1

Tonearm lifter lever
Use to gently lift or lower the stylus.

CAUTION!
Wet or dusty switches will cause malfunctioning.
Keep them dry and clean.

5. Block Diagrams

5-(1) Servo (Motor) Control System

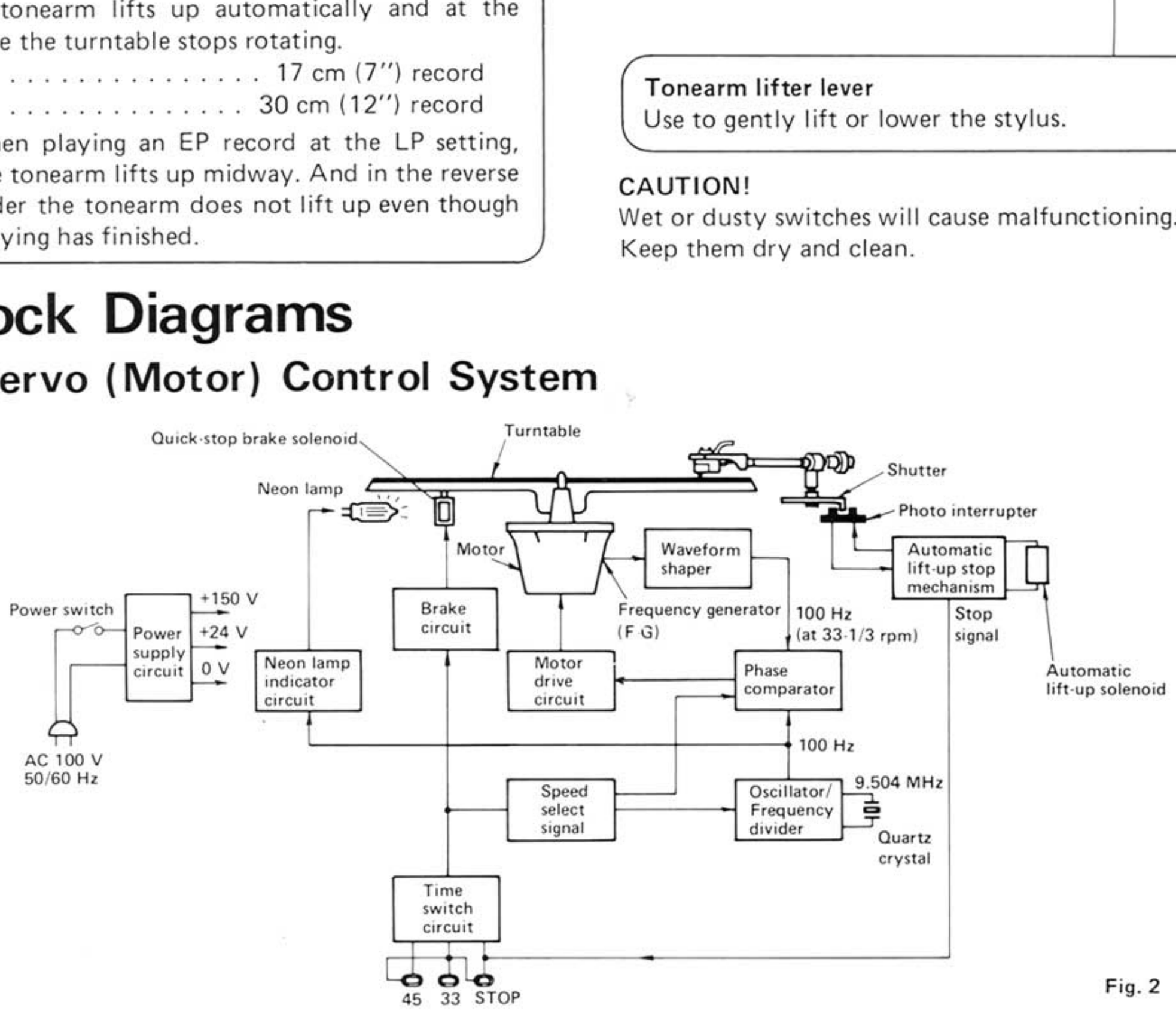


Fig. 2

5-(2) IC802 & IC803

IC802 Block Diagram

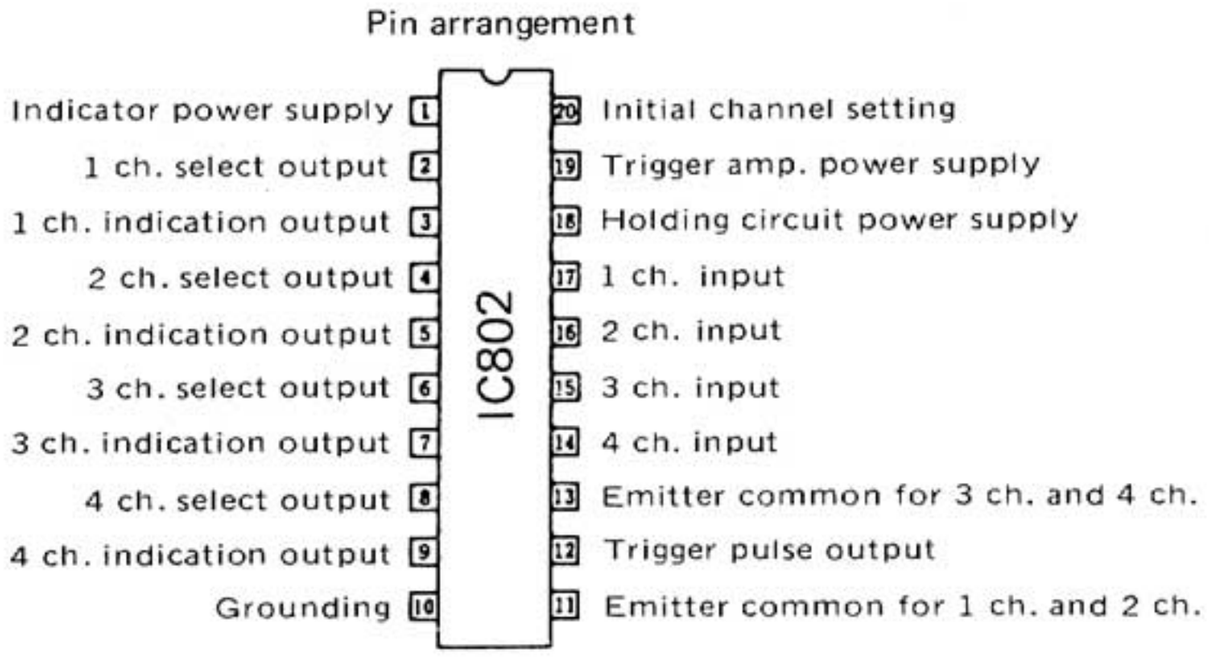


Fig. 3

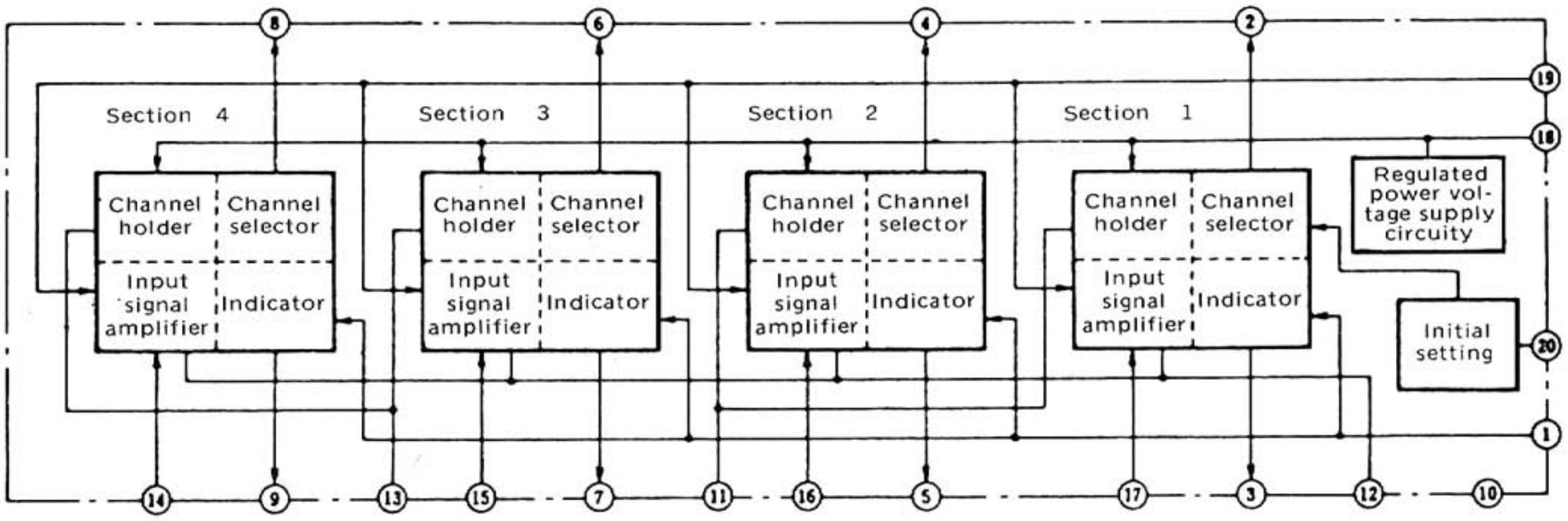


Fig. 4

iC803 Block Diagram

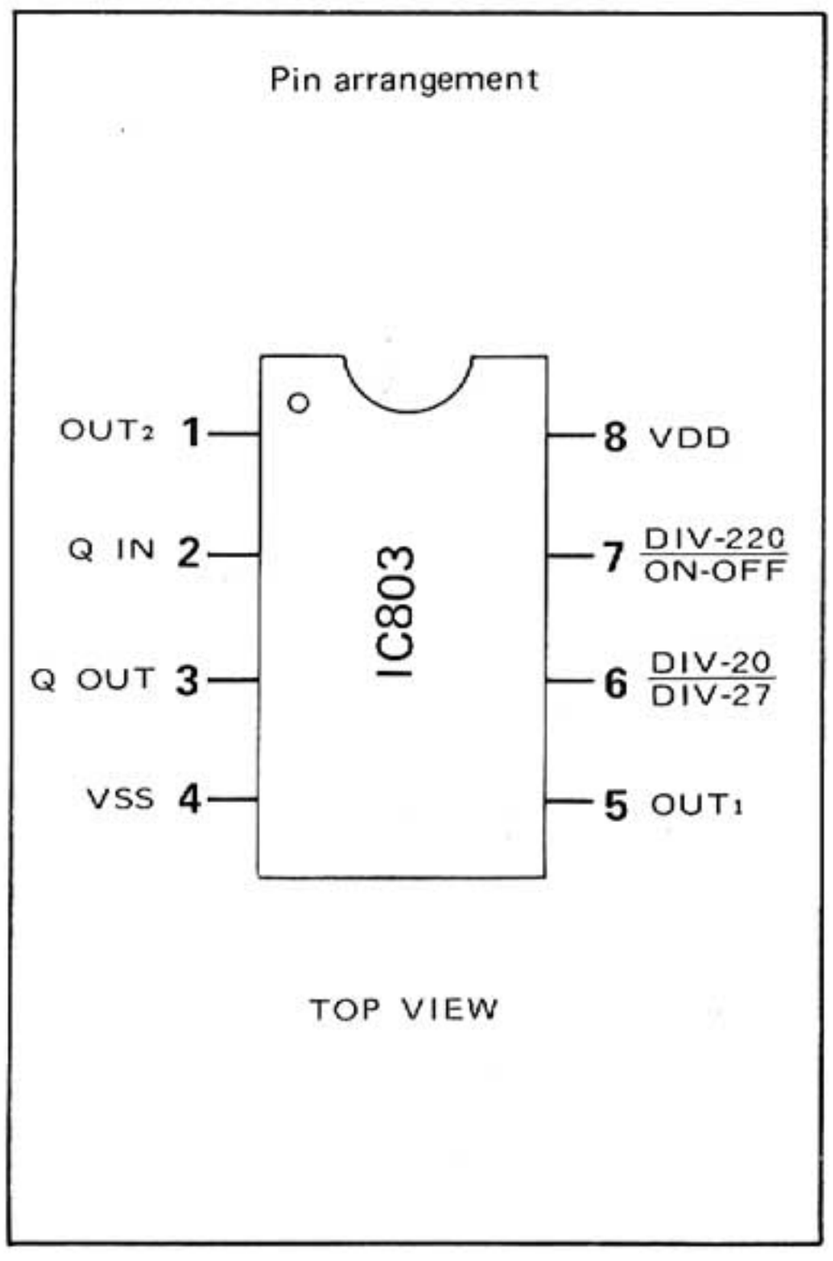


Fig. 5

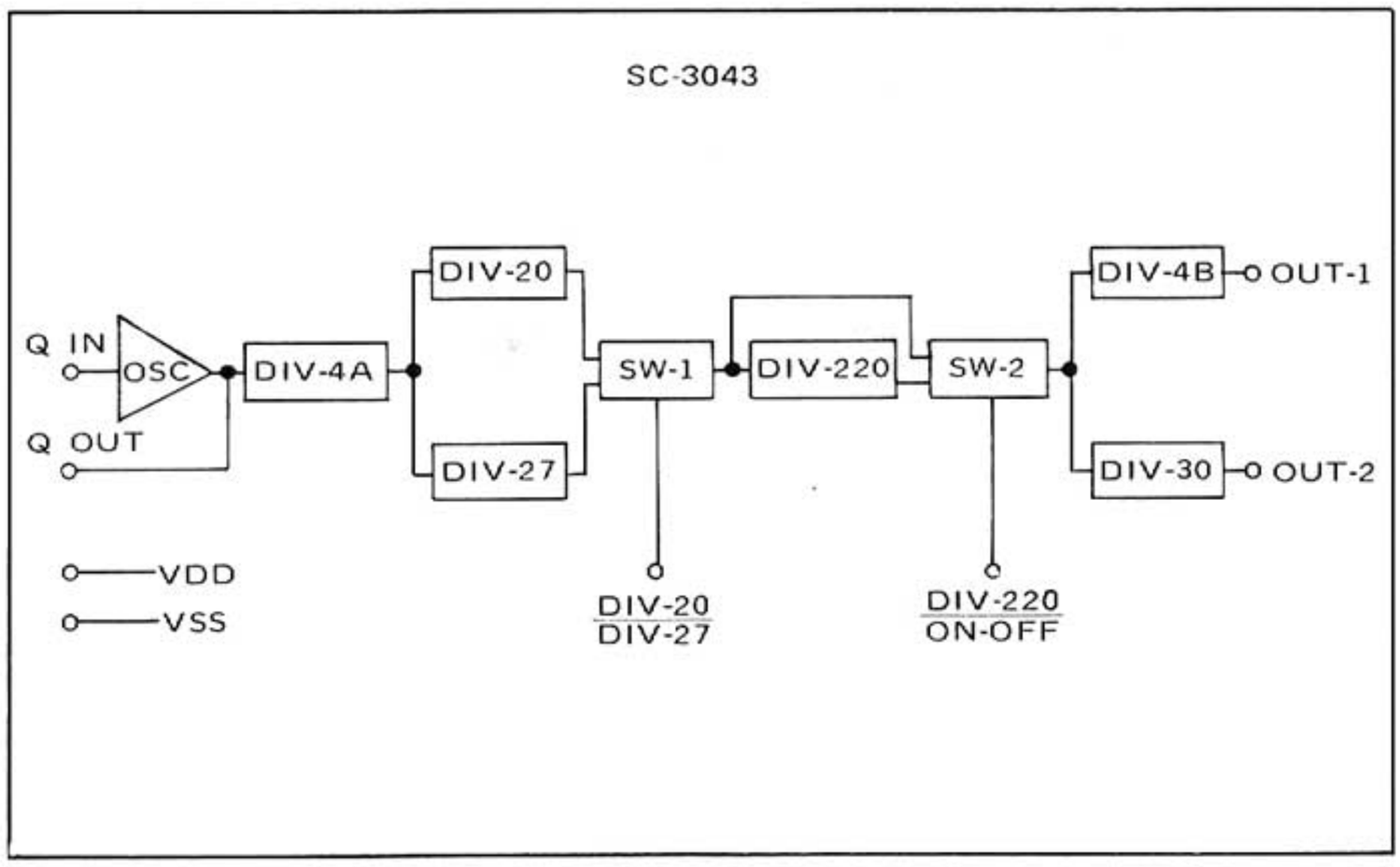
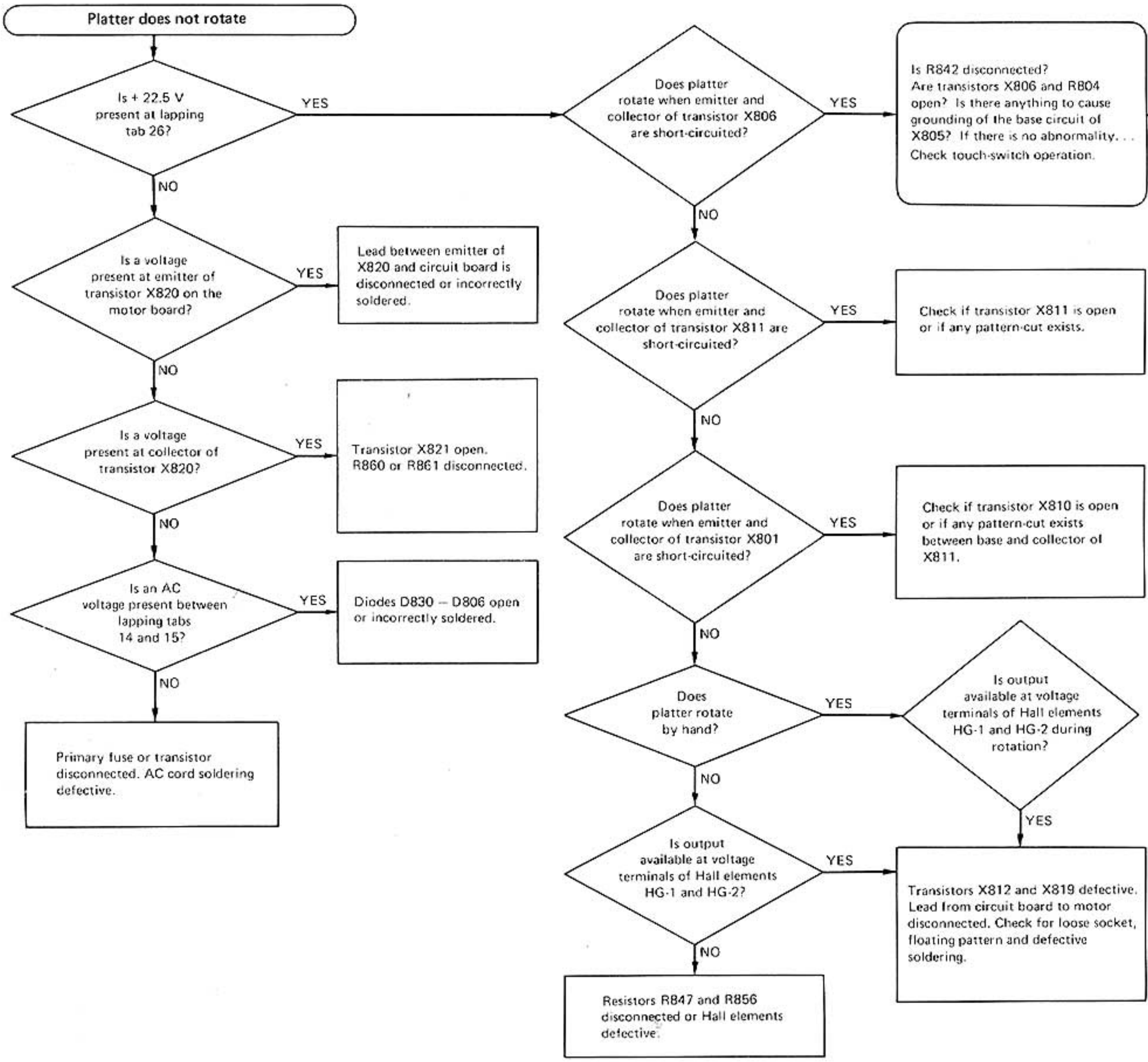
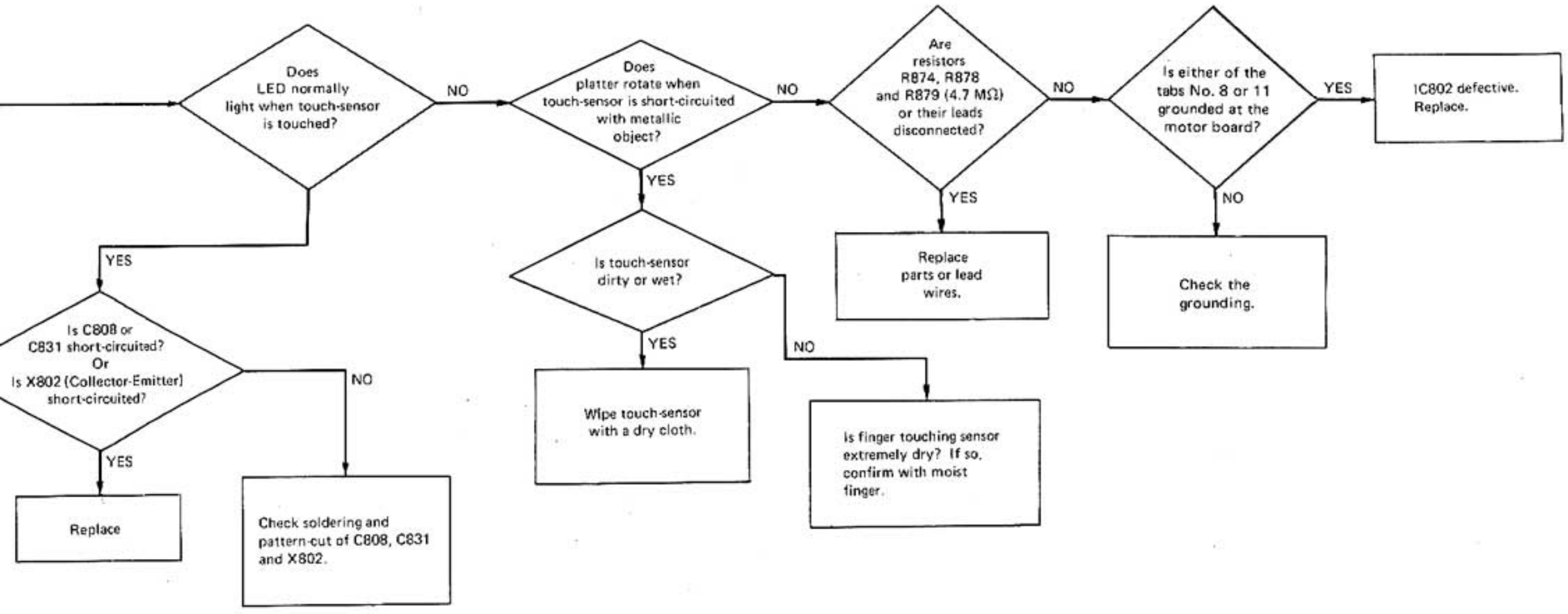


Fig. 6

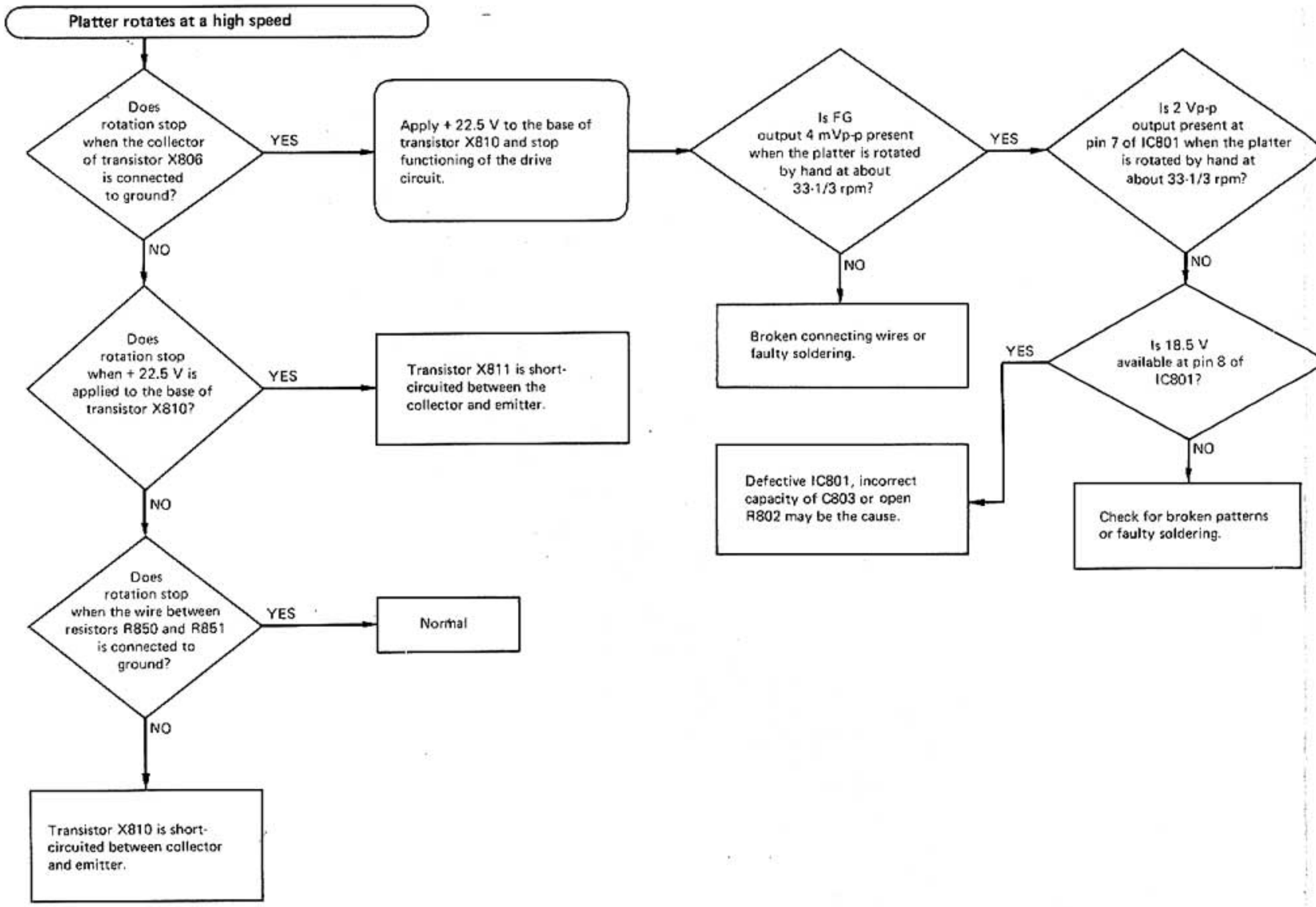
6. Troubleshooting

6-(1) Platter does not rotate

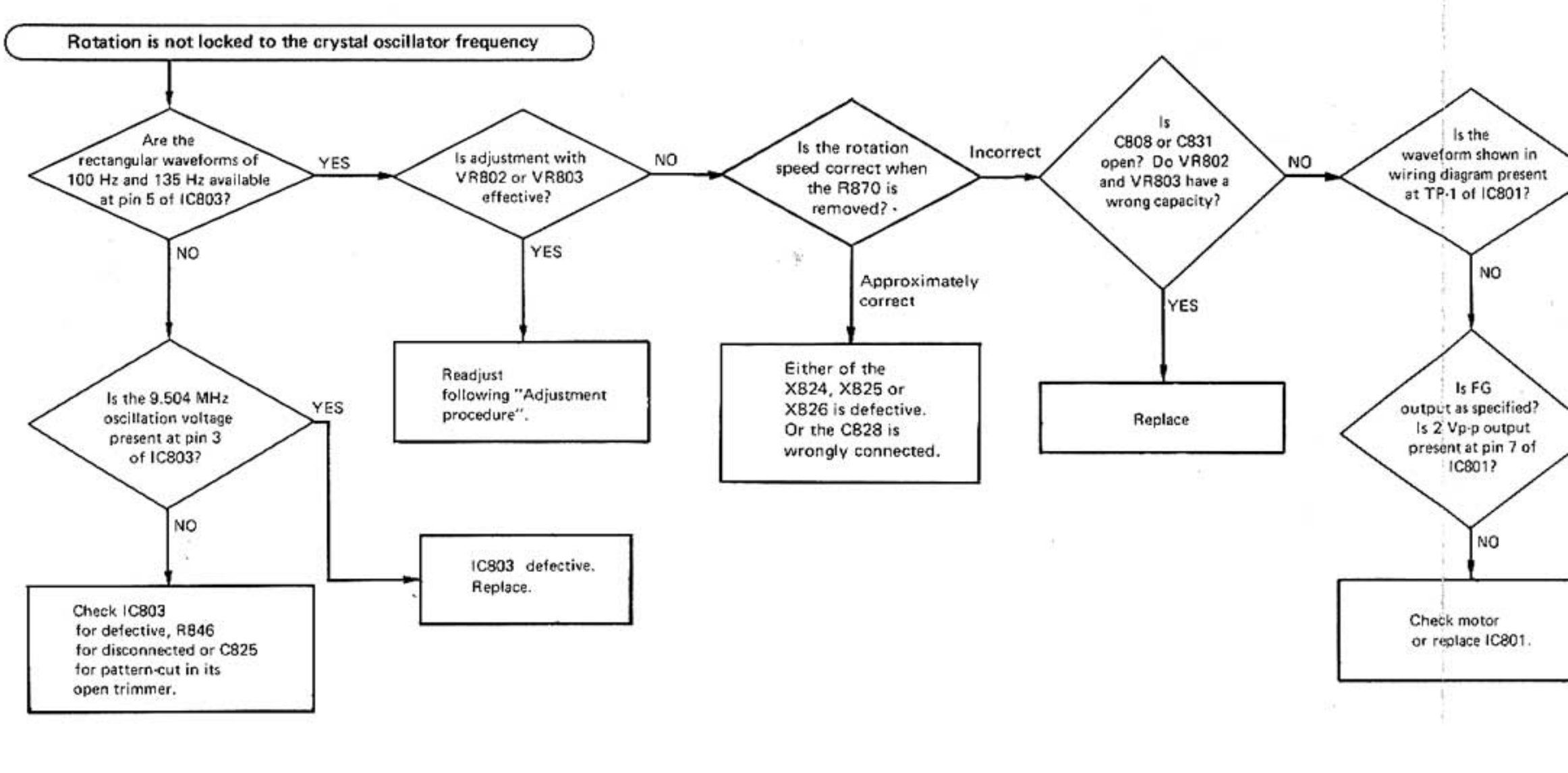



Does LED normally light when touch-sensor is touched?
NO
Does platter rotate when touch-sensor is short-circuited with metallic object?
NO
Are resistors R874, R878 and R879 (4.7 MΩ) or their leads disconnected?
NO
Is either of the tabs No. 8 or 11 grounded at the motor board?
YES
IC802 defective. Replace.
YES
Replace parts or lead wires.
NO
Check the grounding.
YES
Is touch-sensor dirty or wet?
YES
Wipe touch-sensor with a dry cloth.
NO
Is finger touching sensor extremely dry? If so, confirm with moist finger.
YES
Is C808 or C831 short-circuited? Or Is X802 (Collector-Emitter) short-circuited?
YES
Replace
NO
Check soldering and pattern-cut of C808, C831 and X802.

6-(2) Platter rotates at a high speed



6-(3) Rotation is not locked to the crystal oscillator frequency



YES

Is a 17 V rectangular waveform present at pin 1 of IC801 when the platter is rotated by hand at about 33-1/3 rpm?

YES

Is capacitor C806 or C807, resistor R814 or diode D801 open?

YES

Replace defect components.

NO

Check for defective IC801 or incorrect capacity of C804.

NO

Is transistor X803 open between the collector and emitter?

YES

Replace transistor X803.

NO

Transistor X804 is defective. Source leads or C809 are short-circuited.

Is the
orm shown in
diagram present
-1 of IC801?

YES

Check connection or soldering of C806, C807, R809 and R810.

NO

Is FG
t as specified?
Vp-p output
ent at pin 7 of
IC801?

YES

Replace IC801.

NO

k motor
eplace IC801.

6-(4) When the tonearm lifter lowering speed is exceedingly high

- Remove only the tonearm lifter unit, without removing the tonearm base B from the turntable. In this way repairs of troubles in the tonearm lifter unit, as well as the adjustment when the tonearm lifter lowering speed is exceedingly high, can be performed.

The tonearm lifter lowering speed tends to increase with frequency of usage, because the silicone oil between the cylinder and the piston assembly will used up. If the tonearm lifter lowering speed increases, supply silicone oil as follows:

Procedure

1. Remove the tonearm lifter height adjusting screw by turning it counterclockwise to remove the tonearm lifter. A spring is employed in the screw hole. Be careful not to lose the spring.
2. Loosen the screw with a hexagonal head hole securing the cylinder, on the tonearm base A, to pull out the cylinder. If the tonearm lifter height adjusting screw which has been removed in step 1, is replaced by several turns with the cylinder securing screw loosened, the cylinder together with the piston assembly can be easily removed by pulling the tonearm lifter height adjusting screw. Fully swing the tonearm to the motor spindle side to make the cylinder removal easy.

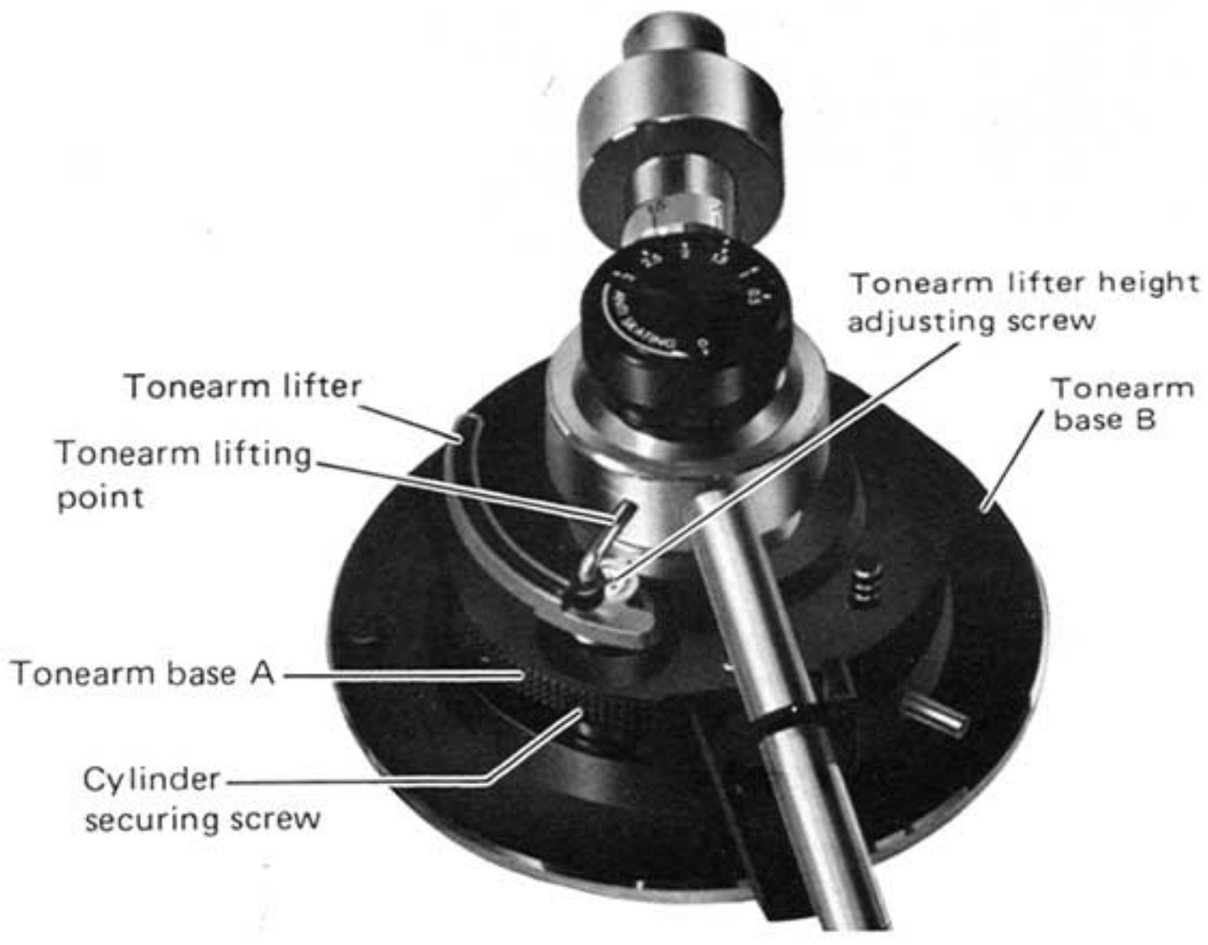


Fig. 7

3. Apply sufficient silicone oil on the 3 piston grooves of the piston assembly. Then, mount the piston assembly in the cylinder.

Re-assembly procedure

1. Mount the cylinder in the tonearm base A.
2. Tentatively secure the lifter arm with the cylinder securing screw with the cut-away part (for stopping rotation) of the tonearm lifter facing backward as viewed from the front of the turntable.
3. Align the tonearm lifter cut-away part with cylinder cut-away part. Secure the tonearm lifter with the tonearm lifter height adjusting screw.
4. Loosen the cylinder securing screw which has been temporarily secured in step 2.
   Secure the cylinder securing screw exercising care to align the tonearm lifter curve with the locus of the tonearm lifting point, which moves together with the tonearm towards the center spindle of the platter, and to adjust the cylinder top surface and the tonearm base A top surface to the same height.
5. Adjust the tonearm lifter height adjusting screw with the tonearm placed on the arm rest and the tonearm lifter set to the down position until the clearance between the tonearm lifting position and the tonearm lifter is approx. 4 mm. Turning the tonearm lifter height adjusting screw clockwise increases the clearance, turning the screw counterclockwise decreases it. See Fig. 8 below.

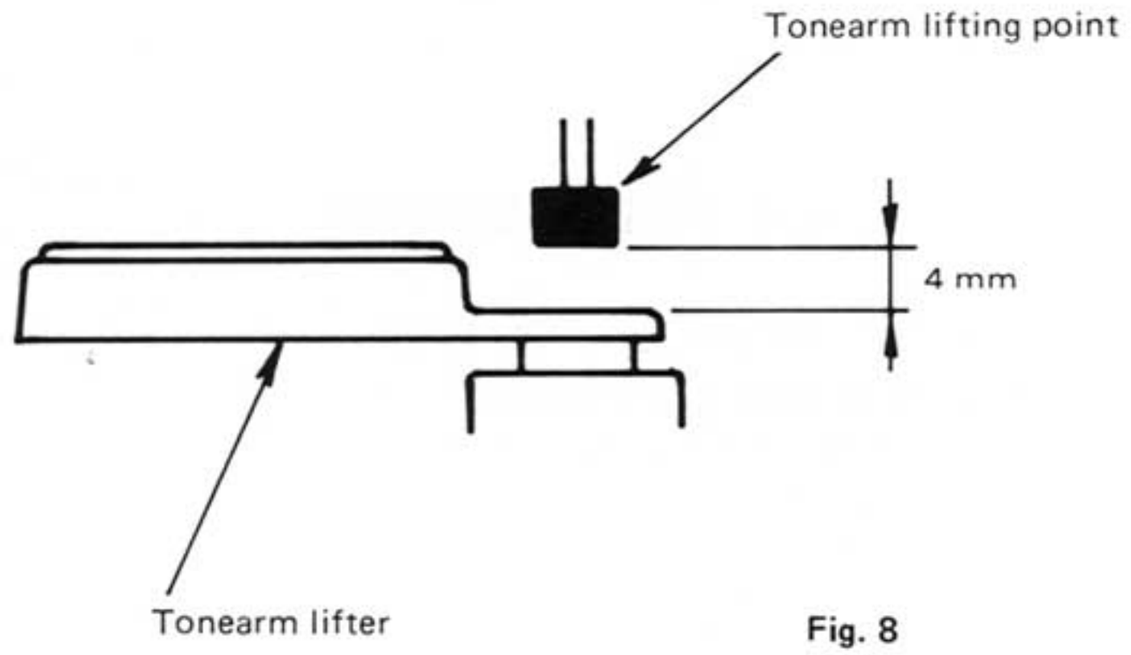


Fig. 8

6. Now the assembly is completed.
   Then, adjust the tonearm lifter height referring to the "Tonearm lifter height adjustment" at page 11.

Note: It needs approx. 24 hours for silicone oil to be evenly distributed over the inner surface of the cylinder. The tonearm lifter lowering speed may vary just after the silicone oil has been applied.

7. Adjustment Procedures
Servomotor Section

Precaution
When servicing, do not touch the motor board and connected measuring devices at the same time, since 160 V DC is applied between the motor board and the circuit board ground.

7-(1) Power Supply Voltage Check

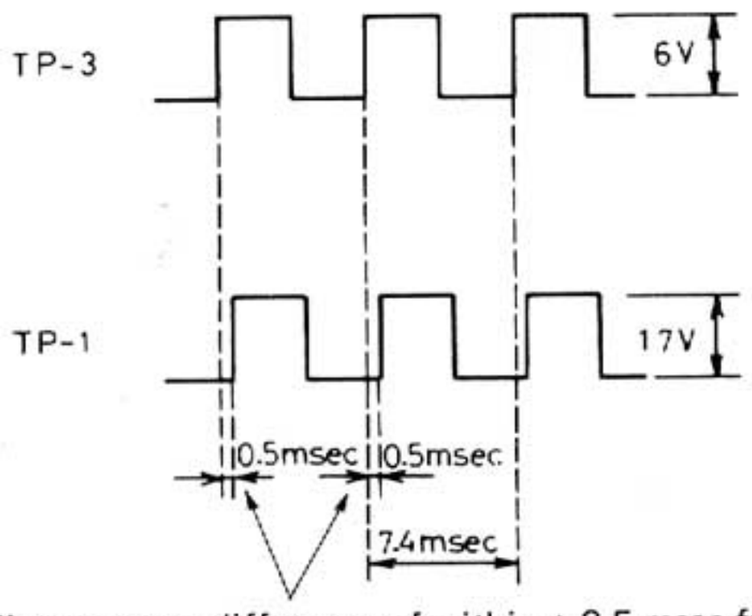
1. Disconnect the motor socket from the circuit board. Set semi-fixed resistors VR801 – 804 to the mid position. Turn the power switch on. Confirm that 22 ± 2 V DC is present at the emitter of transistor X820 on the motor board, and that 17.5 ± 2 V DC is present at TP-4 at the same time.
2. Connect the motor socket to the circuit board. Confirm that the voltage values obtained in 1 above vary less than −1 V at 33-1/3 or 45 rpm when the platter is stopped by hand.
3. Confirm that 160 V ± 5 V DC is present at the cathode terminal of diode D808 (neon lamp, terminal 9) while the platter is rotating in the steady state.

7-(2) Lock Adjustment

(Place the turntable on a level surface.)

(1) With dual beam oscilloscope

1. Connect the dual beam oscilloscope to TP-1 and TP-3. Obtain a turntable speed of 45 rpm by touching the "45" speed select switch, then adjust semi-fixed resistor VR803 (22 kΩ) until the following waveforms are obtained.



Adjust to get a difference of within ± 0.5 msec from TP-3.

Fig. 9

2. Obtain a turntable speed of 33-1/3 rpm by touching the "33" speed select switch, then adjust semi-fixed resistor VR802 (22 kΩ) until the difference between TP-3 and TP-1 is within ± 0.5 msec.

(2) With single beam oscilloscope

Connect the composite output of TP-1 and TP-3 to the vertical signal input terminal of the single beam oscilloscope as shown in Fig. 10.

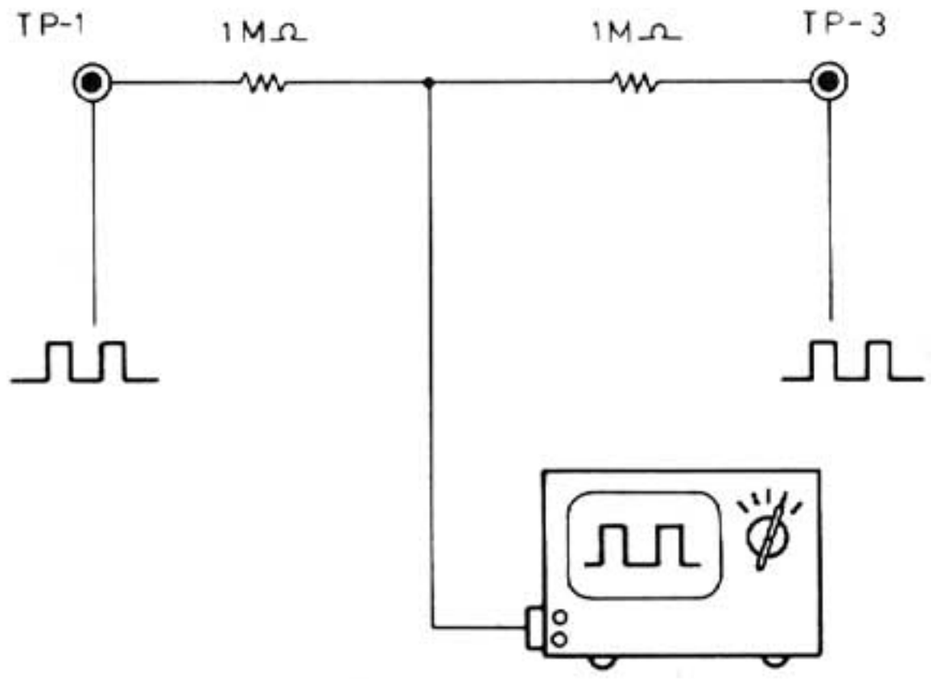
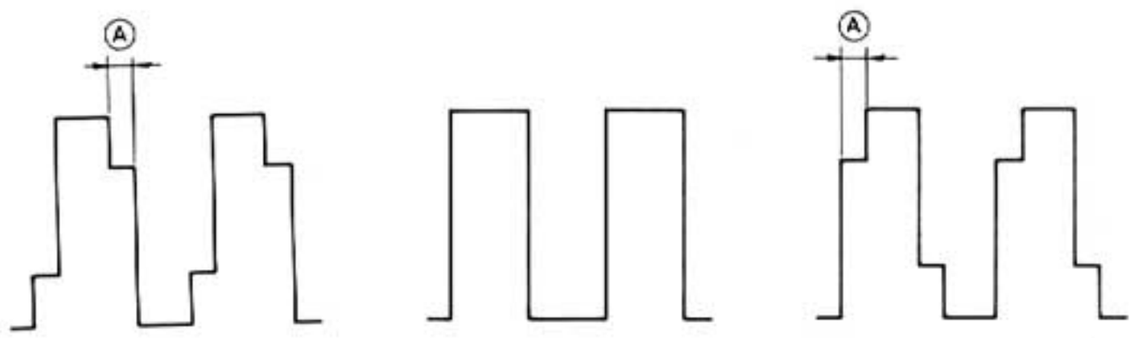


Fig. 10

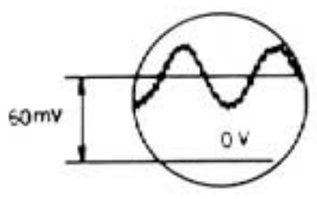


Adjust until the width of the jumping part (glitch) at (A) becomes under 0.5 msec.

Fig. 11

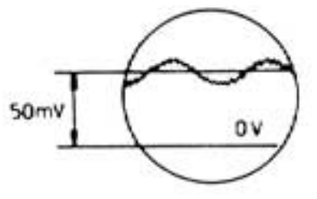
7-(3) Balance Adjustment of Drive Circuit

Connect an oscilloscope to TP-2, set an approx. 0.2 sec/cm sweep speed, then adjust semi-fixed resistor VR804 (100 kΩ) until the waveform ripple becomes minimum.



VR804: Incorrect

Fig. 12



VR804: Correct

Fig. 13

After adjustment, recheck (2) Lock Adjustment on this page. If deviation is noted, readjust.

7-(4) Brake Mechanism Adjustment

A brake lining is employed to stop the platter. A worn brake lining will result in the platter not stopping quickly or stopping with abnormal noise. If these troubles occur, adjust as described below.

- **The platter makes a noisy stop.**

1. Brush the friction surface of the brake lining, which contacts the platter, with a brush several times. Refer to Fig. 14.
2. Carefully wipe the inner platter surface, which contacts the brake lining, with a soft cloth (such as gauze) dipped in alcohol.

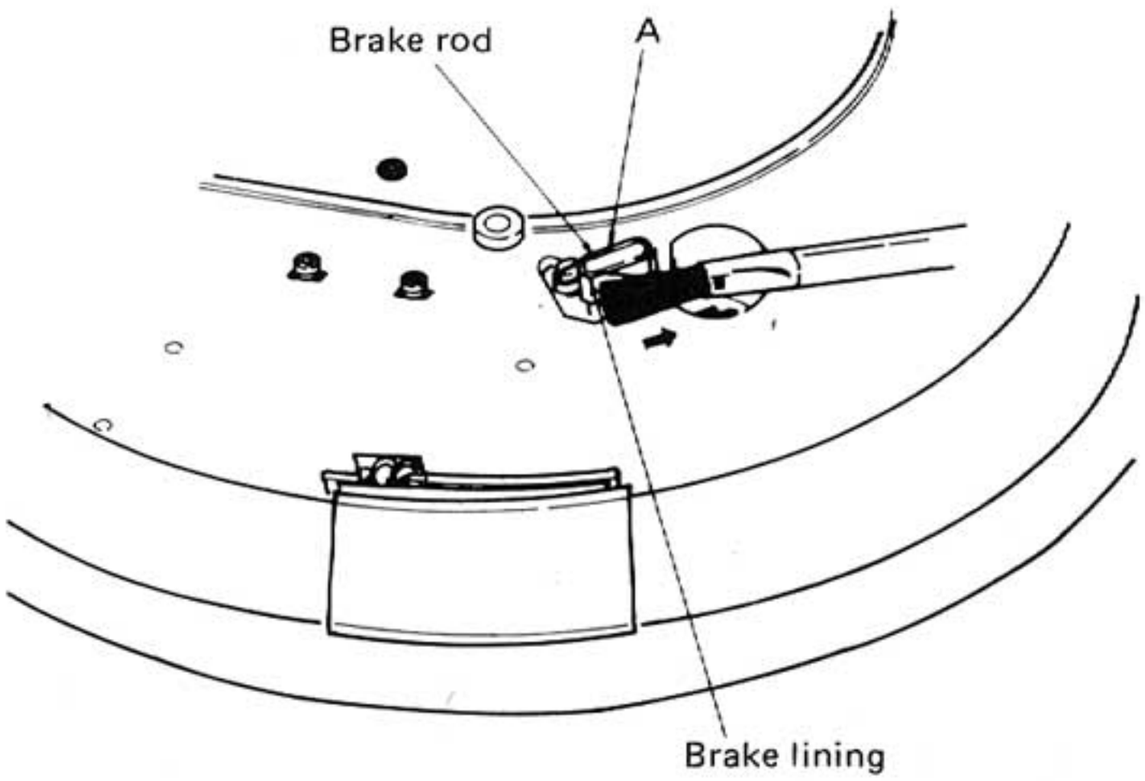


Fig. 14

- **The platter does not stop correctly due to a defective brake. (The platter does not stop within one rotation.)**

When the brake lining is worn out.

1. Completely remove the brake lining using thinner, then attach a new lining.
2. Remove the paper covering from the adhesive rear side of the new brake lining, then attach the brake lining in the previously attached position.
3. Glue the brake rod to the brake lining at the double lining position (as shown by arrow A in Fig. 14) with rubber cement.

When the solenoid coil is improperly positioned.

1. Fit the brake lining inside the platter (The function is the same as a normal brake). Slightly loosen the 2 solenoid mounting screws, then adjust the solenoid coil position until the clearance between the solenoid coil end and the plunger head is 9 mm. (Refer to Fig. 15.) After the adjustment, be sure to re-tighten the screws firmly (Refer to Fig. 16).

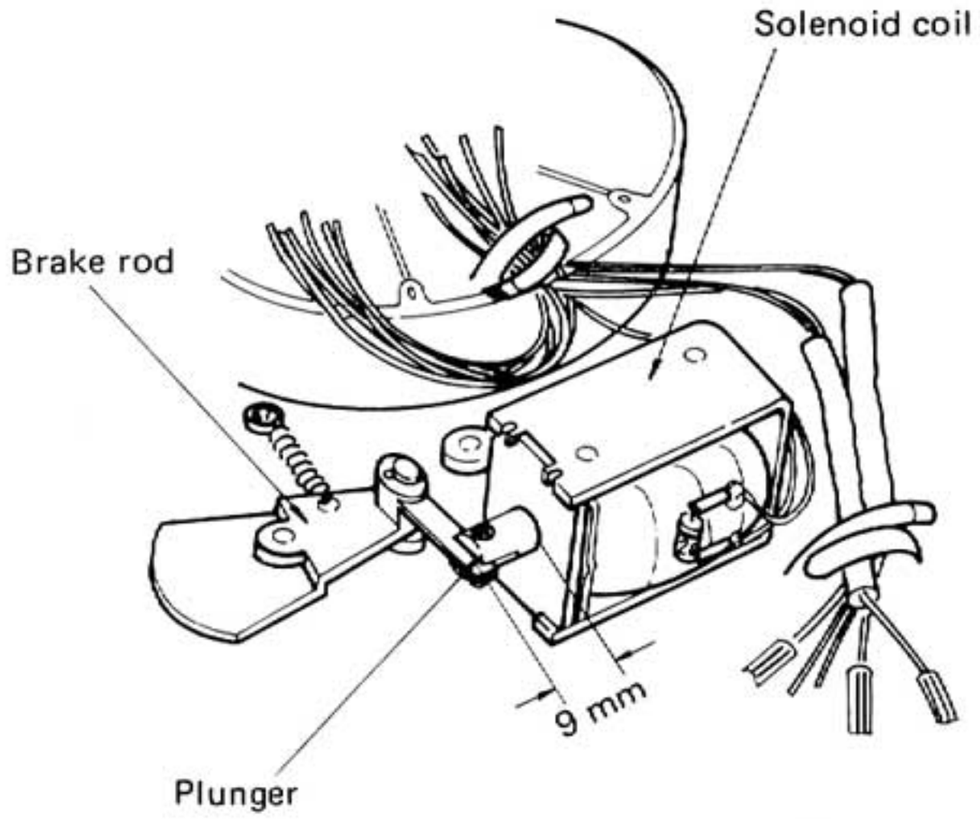


Fig. 15

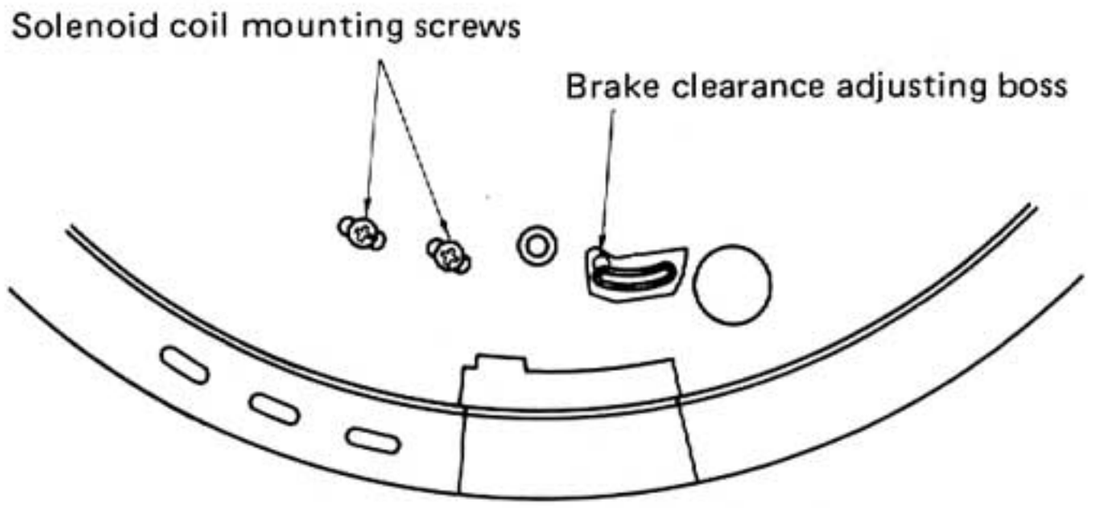


Fig. 16

- **How to use the brake clearance adjusting boss. (Refer to Fig. 16)**

When replacing the brake rod with a new one, turn the boss fully counterclockwise, then mount new brake rod.

After mounting the brake rod, gradually turn the boss clockwise (This narrows the clearance between the platter and the brake lining) until the contact sound of the brake lining and platter is eliminated when the platter is stopped by touching the stop switch.

Finally, confirm that the brake lining does not contact the platter, while the platter is rotating at the speed 33-1/3 or 45 rpm, by noting the sound and observing the stroboscope.

If the platter contacts the brake lining during rotation, turn the boss counterclockwise to increase the clearance between the brake lining and platter. After replacing the brake rod, be sure to apply a drop of silicon (in the order of million unit) to the part of the motor board stud which contacts the brake rod.

Tonearm Section

7-(5) Tonearm Height Adjustment

Mount your cartridge onto the headshell and adjust the tonearm height until the tonearm is horizontal with the stylus tip at approximately the same level as the disc surface. The tonearm is secured by 2 securing screws, but the front right one (silver screw) is for securing the tonearm and the other (red screw) for preventing damage during shipment of the turntable. So remove only the red one. Loosen the tonearm securing screw with a screwdriver to adjust the tonearm height. Be sure to re-tighten this tonearm securing screw (silver screw) after making the adjustment.

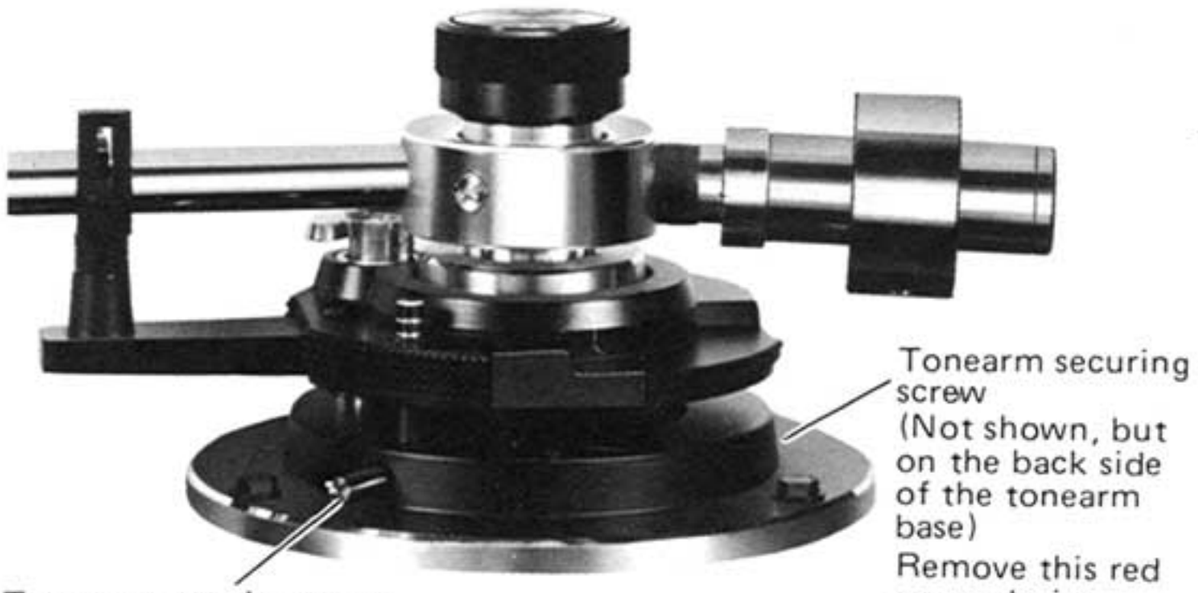


Fig. 17

7-(6) Tonearm Lifter Height Adjustment

When the tonearm is raised with the tonearm lifter lever, the optimum clearance between the stylus and the disc surface is 8 mm. If no clearance exists between the tonearm and tonearm lifter during play, proper disc play will not be obtained. If such is the case, with the tonearm lifter raised, turn clockwise or counterclockwise the arm height adjusting screw using a screwdriver. Turn clockwise to lower the tonearm lifter and counterclockwise to raise it.

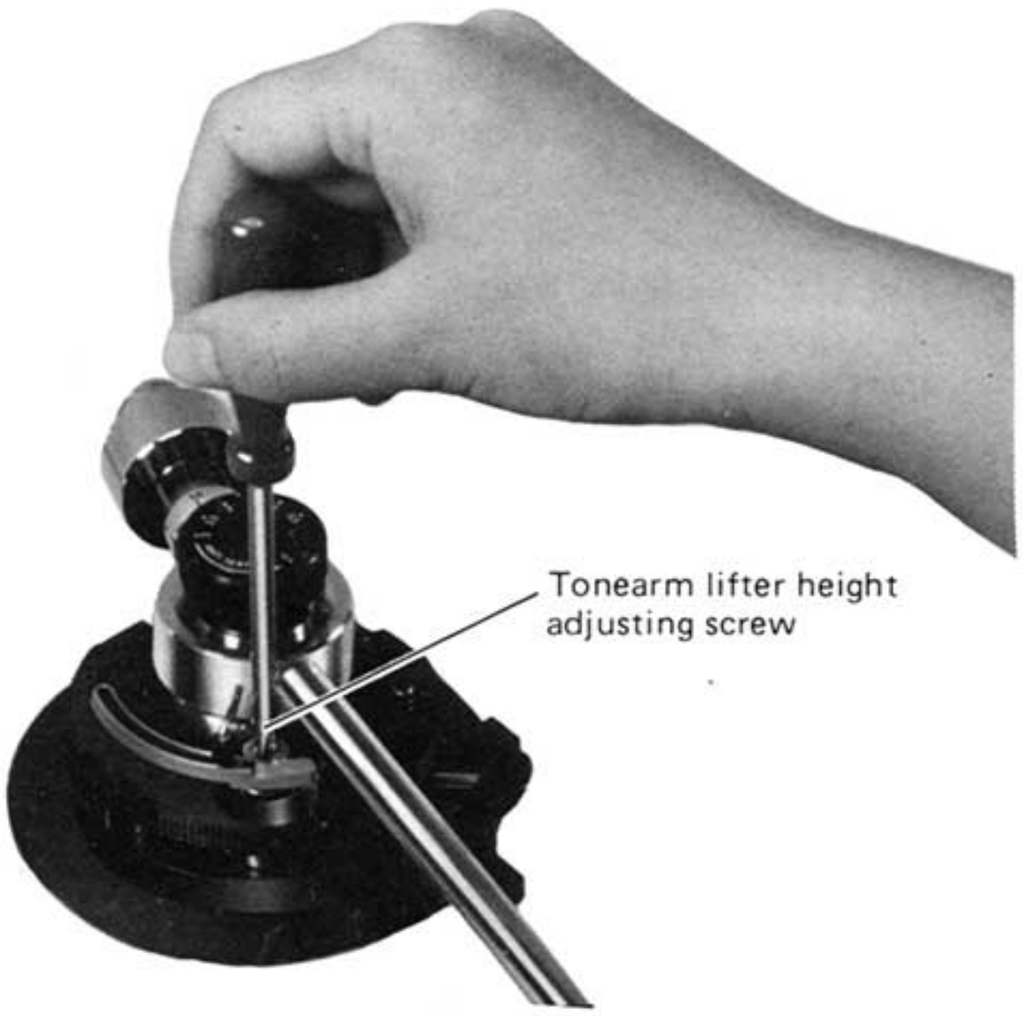


Fig. 18

7-(7) Overhang Adjustment

To obtain optimum overhang, when mounting the cartridge, first align the cartridge's longitudinal axis with that of the headshell and position the cartridge so that the distance between the headshell's end face and the stylus tip equals 48 mm as shown in Fig. 19.
Be sure to tighten the set screw after the adjustment. Errors within 1 mm are negligible from a practical point of view.

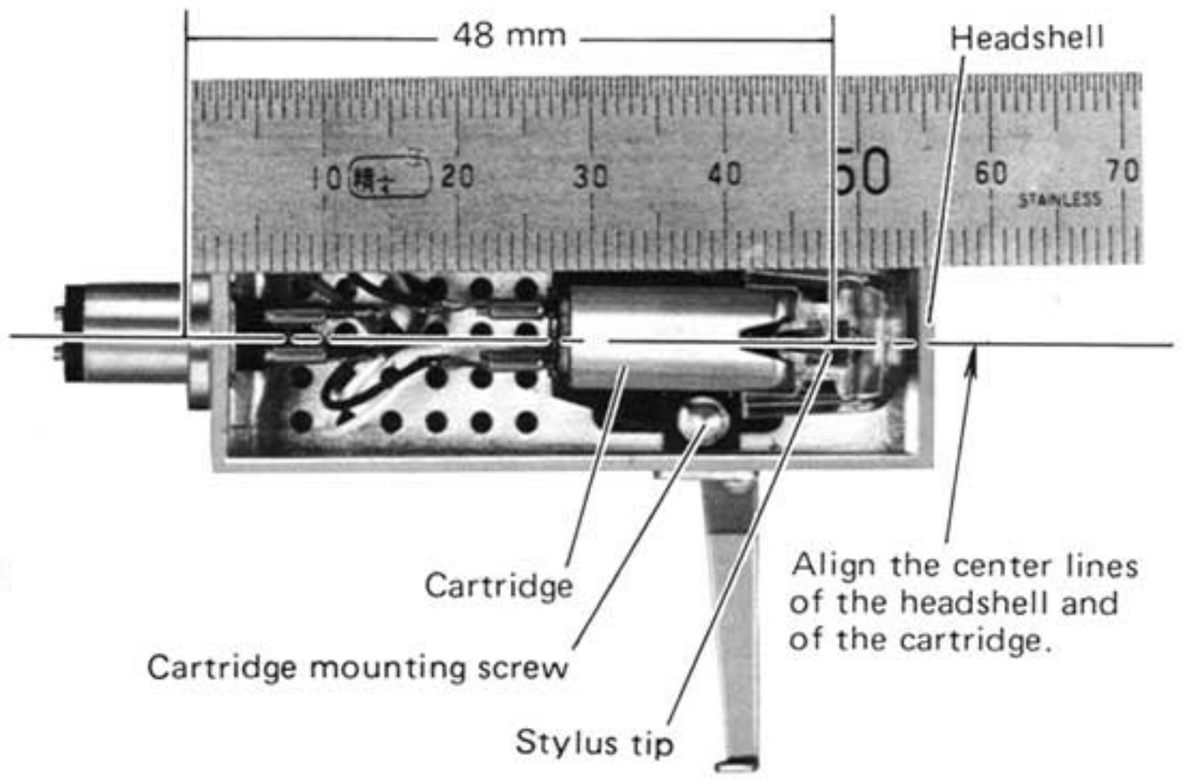


Fig. 19

7-(8) Headshell Angle Adjustment

If the headshell is not horizontal and the stylus tip is not perpendicular to the record surface, loosen the lock screws using a small screwdriver and adjust the headshell until the stylus tip is set at a right angle as shown in Fig. 21. Eye measurement is sufficient.
Be sure to retighten the screws after the adjustment is completed.

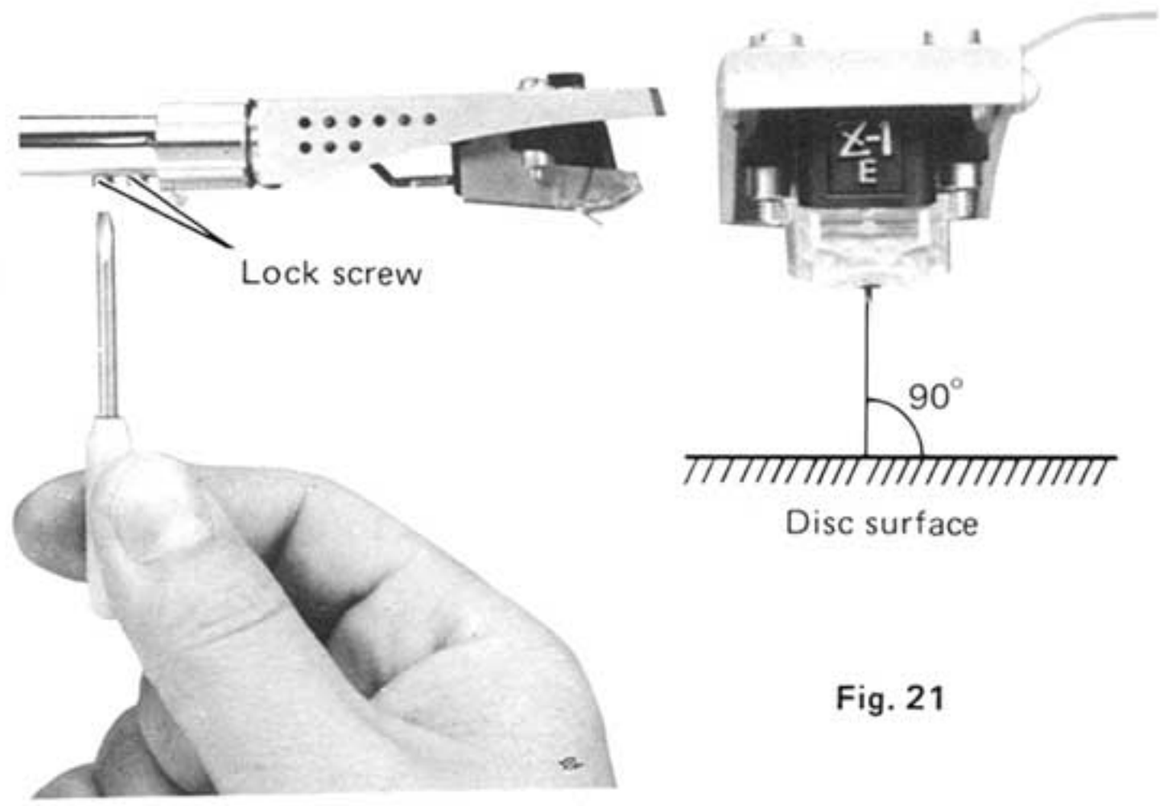


Fig. 21

The cartridge shown in these pictures is the JVC Z-1.

Fig. 20

7-(9) Tracking Force Adjustment

Exercise care to prevent contact with the stylus (finger, etc.).

1. Turn the anti-skating knob until the "0" mark on the anti-skating dial is aligned with the index line. If not aligned, zero balance adjustment will not be correct due to sliding movement of the tonearm. (Fig. 24)
2. Zero balance adjustment
   Hold the weight shaft 10 mm from the shaft holder, then slide the counterweight back and forth until zero balance is obtained. (Fig. 22)

If the cartridge or the headshell is too heavy to attain zero balance, hold the clearance between the shaft holder and the dial ring a little larger than 10 mm, by turning the weight shaft to attain zero balance.

*Zero balance means that the tonearm maintains a balance with the stylus tip on the same level as the record surface.

*If the cartridge/headshell assembly is too heavy to attain zero balance with the counterweight alone, attach the optional sub-weight (SW-71).
The SW-71 is suitable for cartridge/headshell assemblies weighing 21.5 to 32 g.

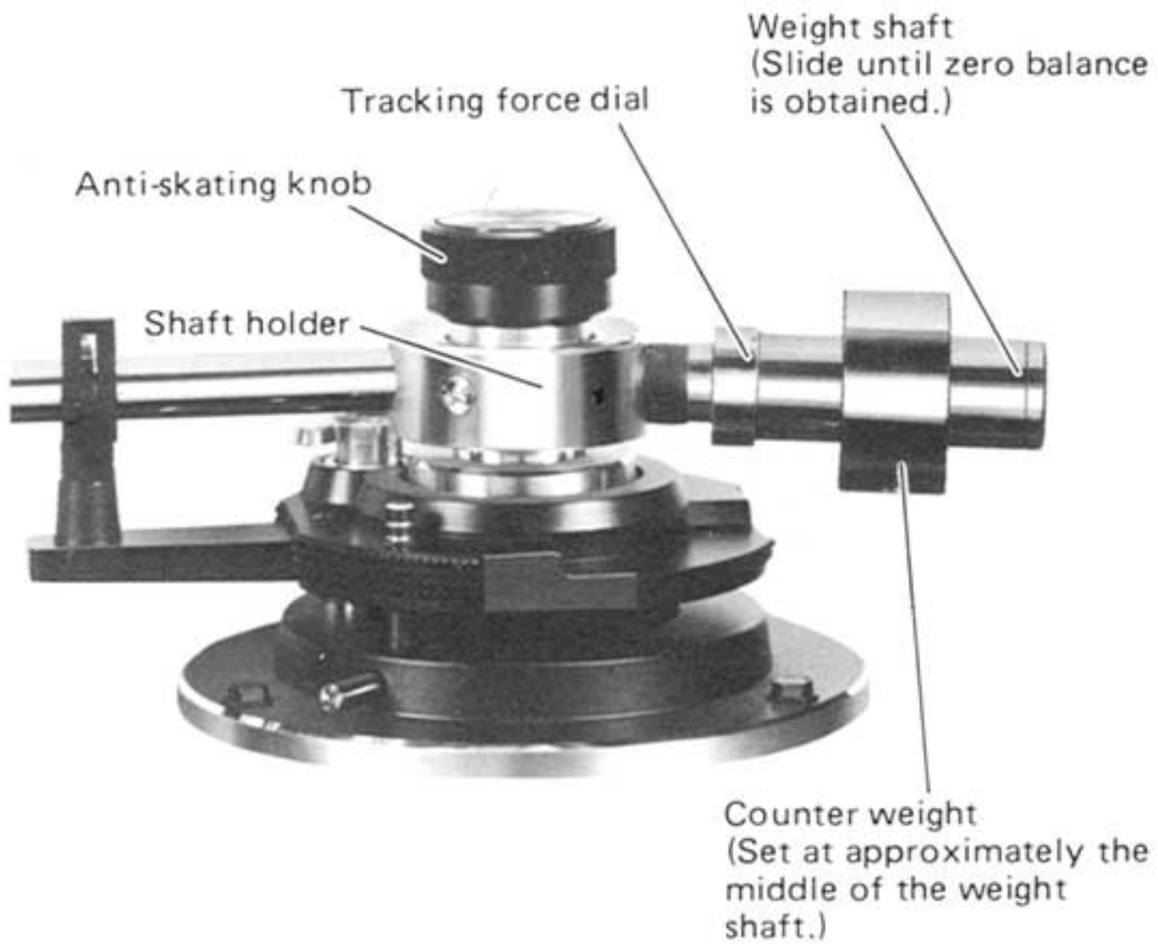


Fig. 22

3. Return the tonearm to the rest and clamp it.
4. Holding the counterweight at the adjusted position, turn the tracking force dial until the "0" mark is aligned with the index line.
5. Now, turn the weight shaft counterclockwise, as viewed from the front of the tonearm, until the optimum tracking force value on the dial is aligned with the index line. Be careful not to touch the counterweight. The numbers on the tracking force dial show the tracking force in grams.
   "1.5" means a tracking force of 1.5 g, "2" means tracking force 2 g. Set the dial to the optimum tracking force of the cartridge in use.

7-(10) Anti-skating Adjustment

It is necessary to adjust the anti-skating force according to the cartridge being used.
To charge the optimum force, turn the knob until the tracking force value is aligned with the index line.

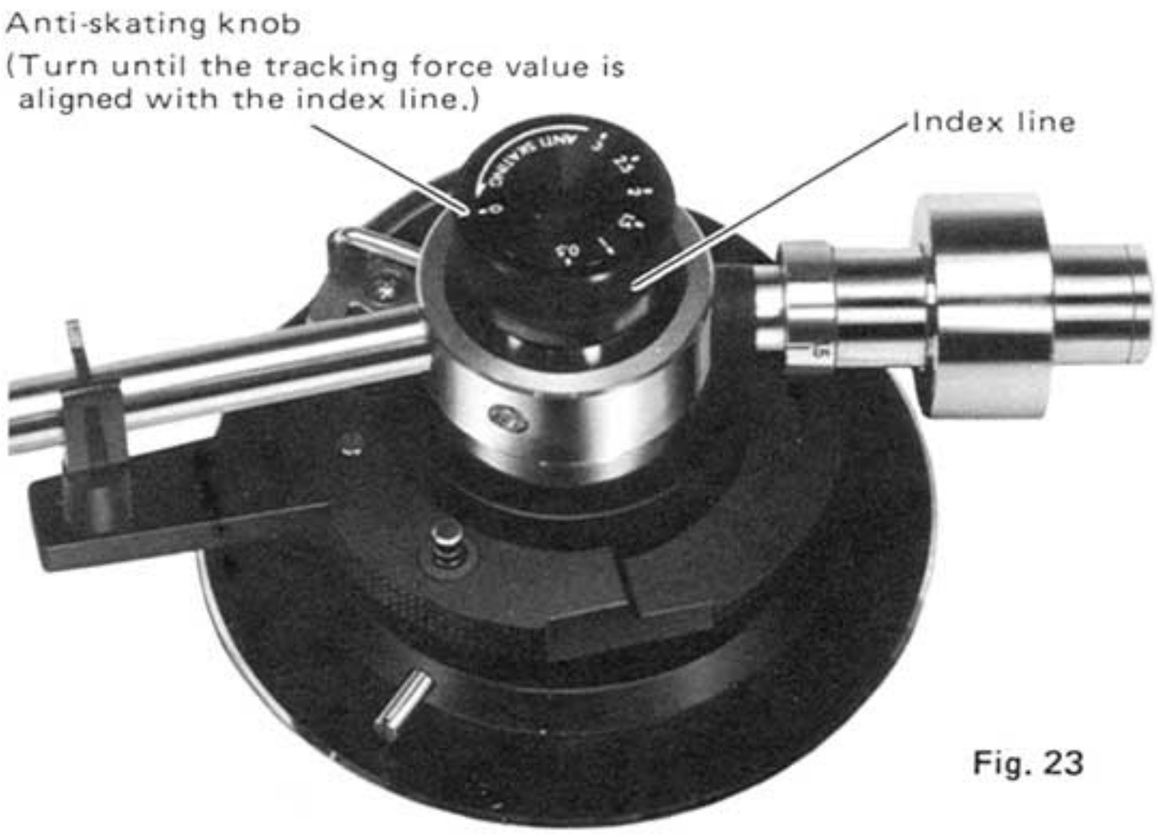


Fig. 23

7-(11) Automatic Arm-lifting Position Adjustment

Perform this adjustment after the dismounting steps A and B described below are performed.

A. After the tonearm assembly is removed.
B. After the motor is removed from the cabinet or the screws securing the motor are removed.

For case A, remove the tonearm base with the tonearm assembly attached to it and repair in the following order.

1. Unsolder the signal lead wires and grounding wires of the tonearm assembly from the turntable unit.
   Note the soldering positions as a reference for replacing the unsoldered parts later.
2. Remove the 3 screws ①, ② and ③ securing the tonearm base assembly B.

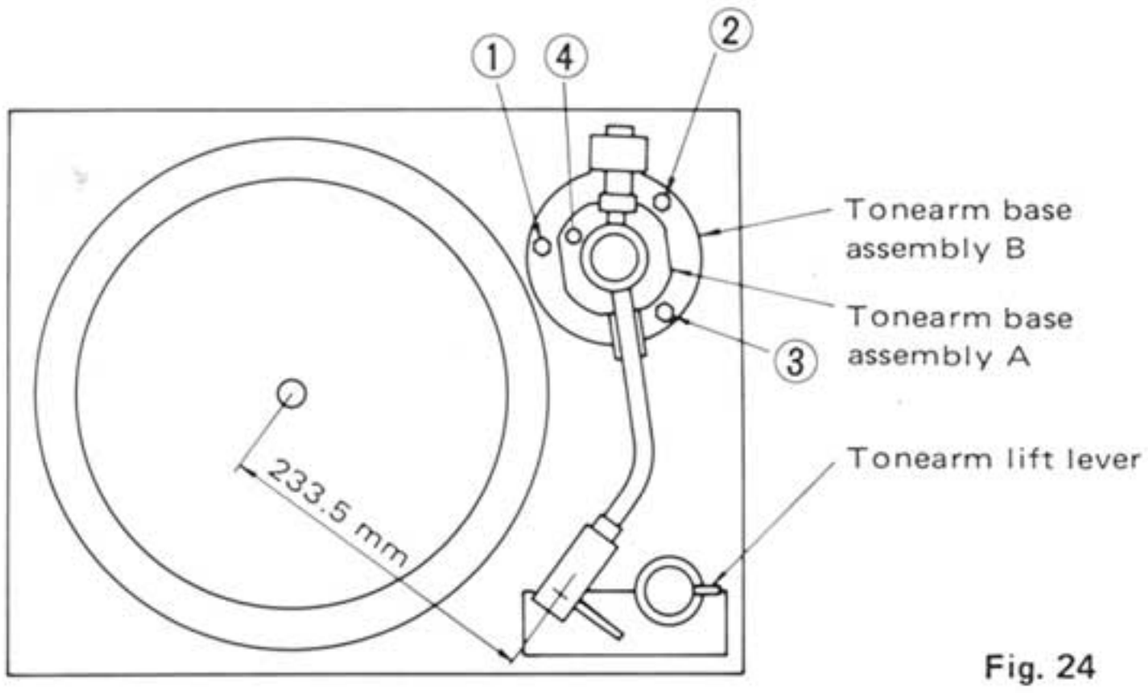


Fig. 24

For both cases A and B, replace the tonearm assembly when assembling the turntable unit in the following manner.

1. When mounting the tonearm assembly, position the tonearm base B until the distance between the motor spindle center and the stylus tip is 233.5 mm and then secure the 3 screws ①, ② and ③. Solder the signal lead wires and grounding wires to the turntable unit.

2. When replacing the motor board and motor, the distance between the motor spindle center and the stylus tip should be 233.5 mm.
   Note: Be sure to perform the overhang adjustment (see page 11) before performing this distance adjustment.

Automatic arm-lifting position adjustment

1. The adjustor is accessible in hole ④ in Fig. 24.

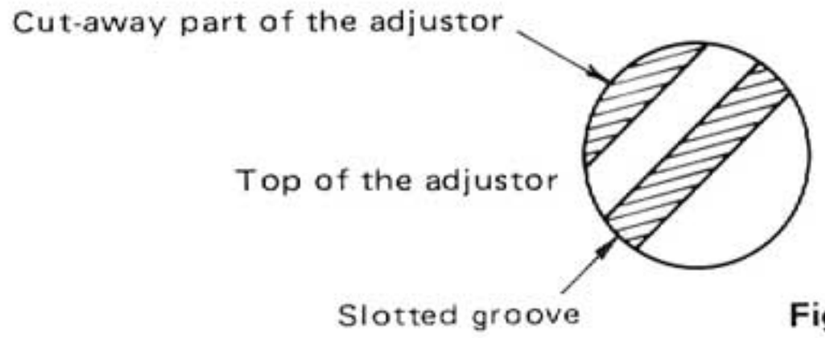


Fig. 25

2. Adjust the slotted goove direction until it is parallel to the tangential line of the tonearm base A as shown in Fig. 26.

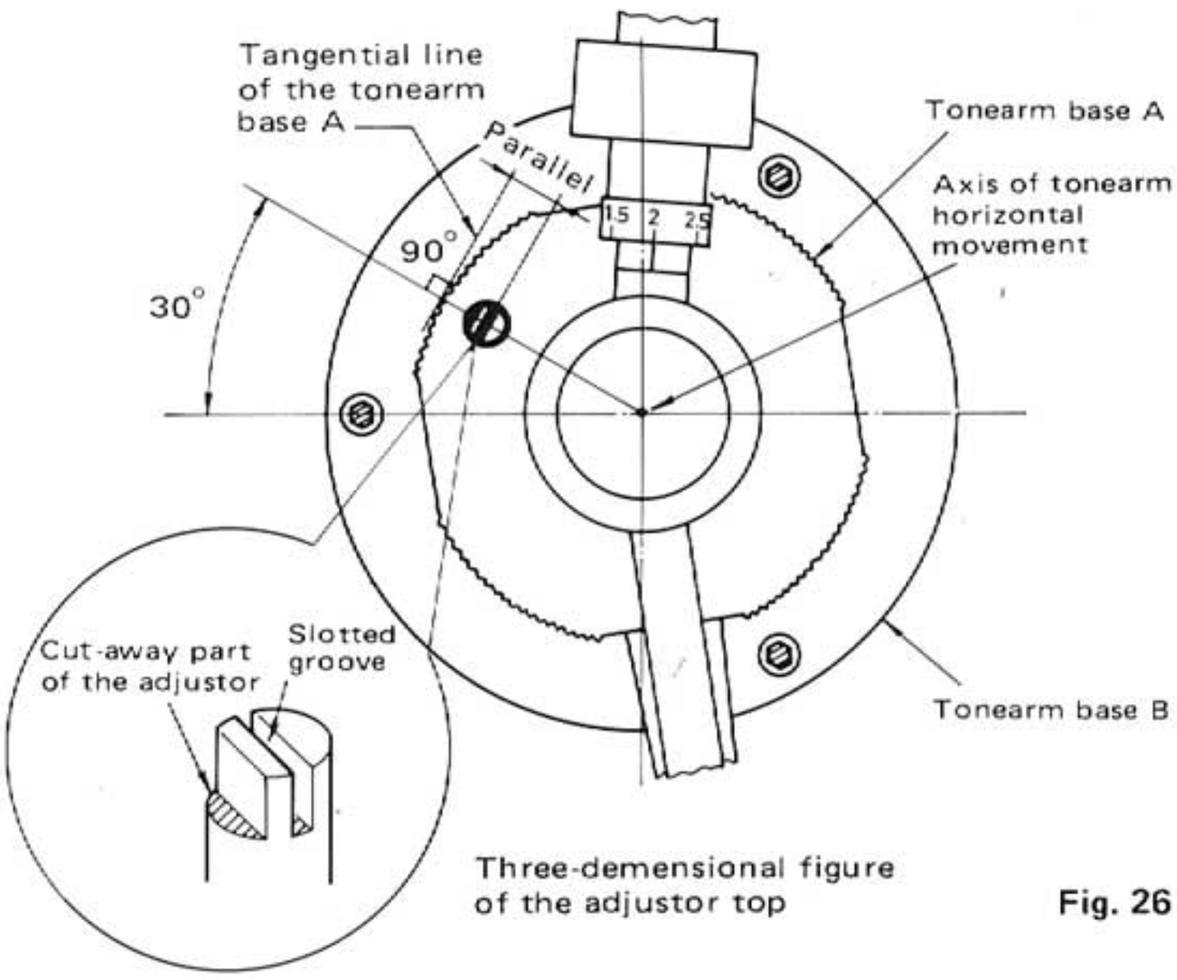


Fig. 26

Be sure to set the cut-away part of the adjustor positioned away from the tonearm horizontal movement axis.
In this way, the determined automatic arm-lifting position is approximately obtained.

3. Place a 30 cm record on the platter.
4. Set the record size select knob to "30".
5. Switch the turntable power on.
6. Touch the speed select switch "33" and the platter starts rotating.
7. Play the final part of the record from the point just before the stylus enters the lead-out groove by moving the tonearm lift lever (Fig. 24) downward.

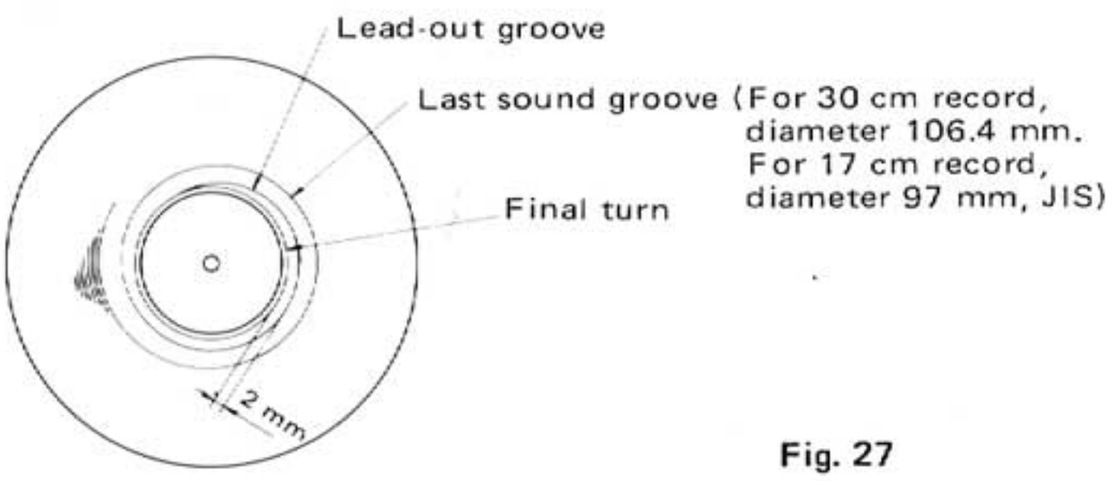


Fig. 27

8. As shown in Fig. 27, if the tonearm is lifted and the stylus is detached from the lead-out groove approx. 2 mm away from the final turn, the automatic arm-lifting position is correct.
9. If the automatic arm-lifting position is not obtained, perform the adjustment as follows:
   When the tonearm is not lifted, even if the stylus already enters the final turn, gradually turn the adjustor clockwise until the proper automatic arm-lifting position is obtained. When the tonearm rises before the stylus reaches in the proper point, gradually turn the adjustor counterclockwise.
   Note: The rotation range of this adjustor is 90° both clockwise and counterclockwise. Turning the adjustor more than 90° has no effect on the automatic adjusting range.
10. If the adjustment above is completed, check that the automatic arm-lifting position for 17 cm records is properly obtained.
    The automatic arm-lifting mechanism is designed that after the correct adjustment of the arm-lifting position for 30 cm records the tonearm is also lifted when playing 17 cm records with the stylus on the lead-out groove approx. 2 mm away from the last groove.
    However, if the correct position for 17 cm records is not obtained, it is because of incorrect adjustment for 30 cm records. Repeat the adjustment.

7-(12) Release Adjustment

Perform the release adjustment, if the screws on both ends of the release have been turned or removed.
Record size select release length adjustment

1. Adjust the slotted groove direction until it is parallel to the tangential line of the tonearm base A as shown in the figure. For details, refer to the "Automatic arm-lifting position adjustment".

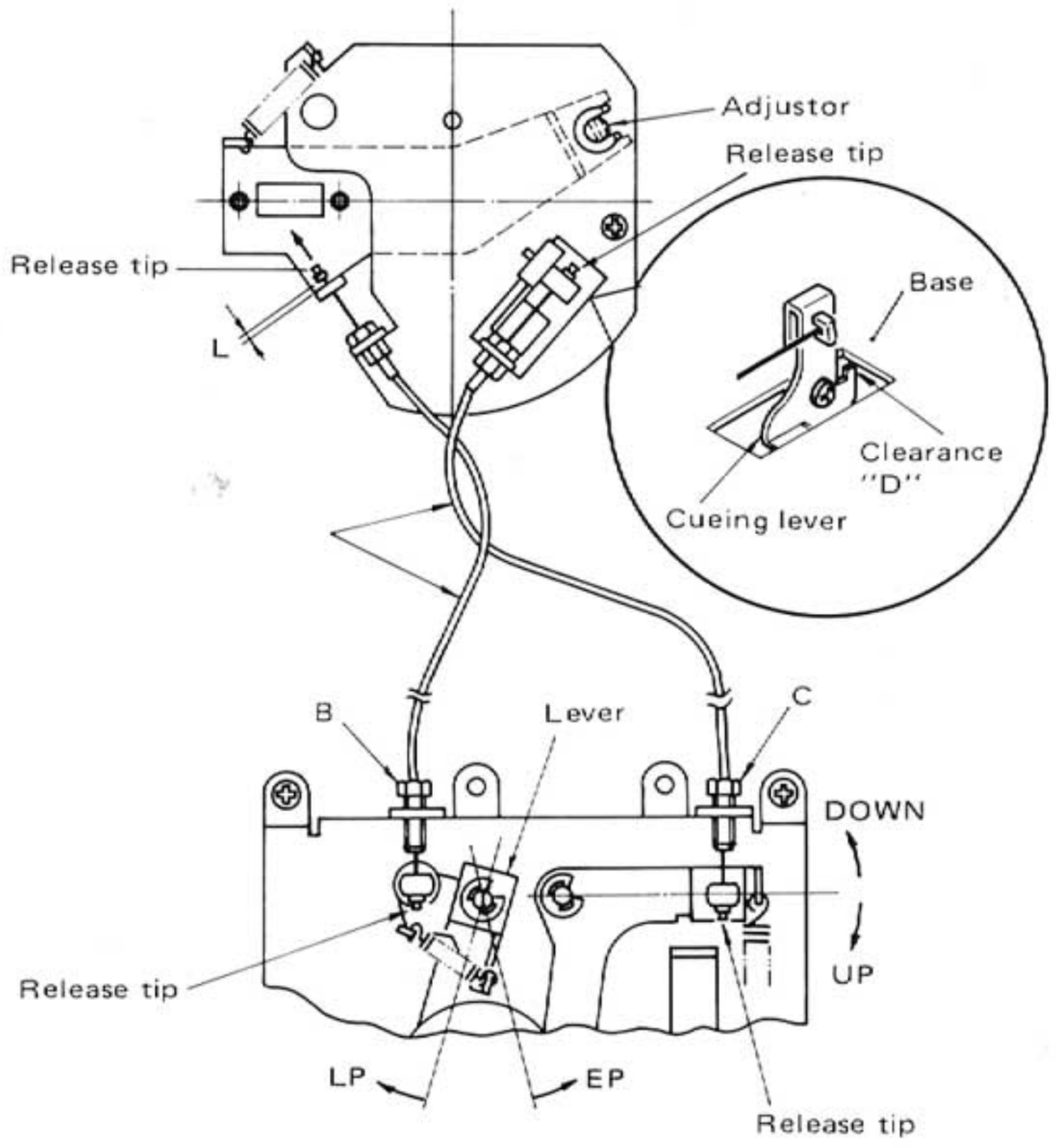


Fig. 28

2. Set the record size select lever to "LP".
   Turn the screw B clockwise or counterclockwise while gently pulling the release tip in the direction A until distance L becomes 1 – 1.5 mm.
3. After the adjustment, be sure to fix the screw B with screw bond. Adhesives available on the market can be used for this purpose, too.

Cueing mechanism release length adjustment

1. Set the cueing knob to "DOWN".
2. Turn the screw C until the clearance "D" between the cueing lever and its base becomes 0. (See Fig. 28.)
3. After the adjustment, be sure to set the screw C with screw bond. Adhesives available on the market can be used for this purpose, too.
4. Mount the cartridge properly onto the headshell and leave the set screws slightly loosened, then, after completing the "Overhang adjustment", tighten them firmly.
5. After each cartridge replacement, be sure to perform tracking force and overhang adjustments.

Note: If a heavy cartridge or headshell is employed, "Zero balance" may not be obtained with the specified counterweight.
In this case, use an optional counterweight.
(SW-71, for cartridge of 14.5 ~ 22 g including headshell)
(SW-37, for cartridge of 24 ~ 37 g including headshell)

8. Parts Replacement

8-(1) Cartridge

Removal and mounting of the headshell (Fig. 29)
Turn the connector nut in the direction of "A" to remove the headshell from the tonearm. Turn it in the direction of "B" for mounting the headshell.

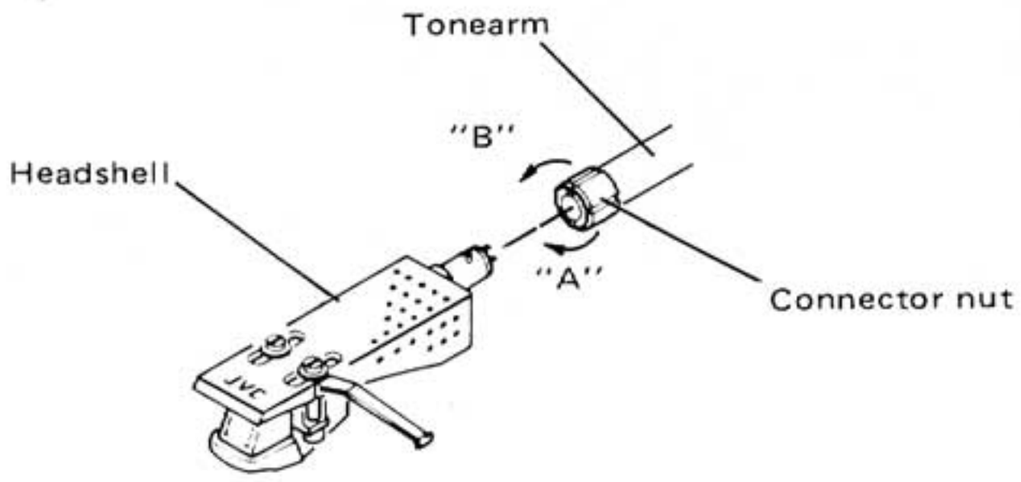


Fig. 29

Cartridge replacement (Fig. 30)

1. Remove the 2 screws securing the cartridge on the headshell.
2. Reinstall a cartridge onto the headshell.
3. The four cartridge lead wires are colour-coded as follows: Connect them correctly.

White (+)	L
Blue (–)	LE
Red (+)	R
Green (–)	RE

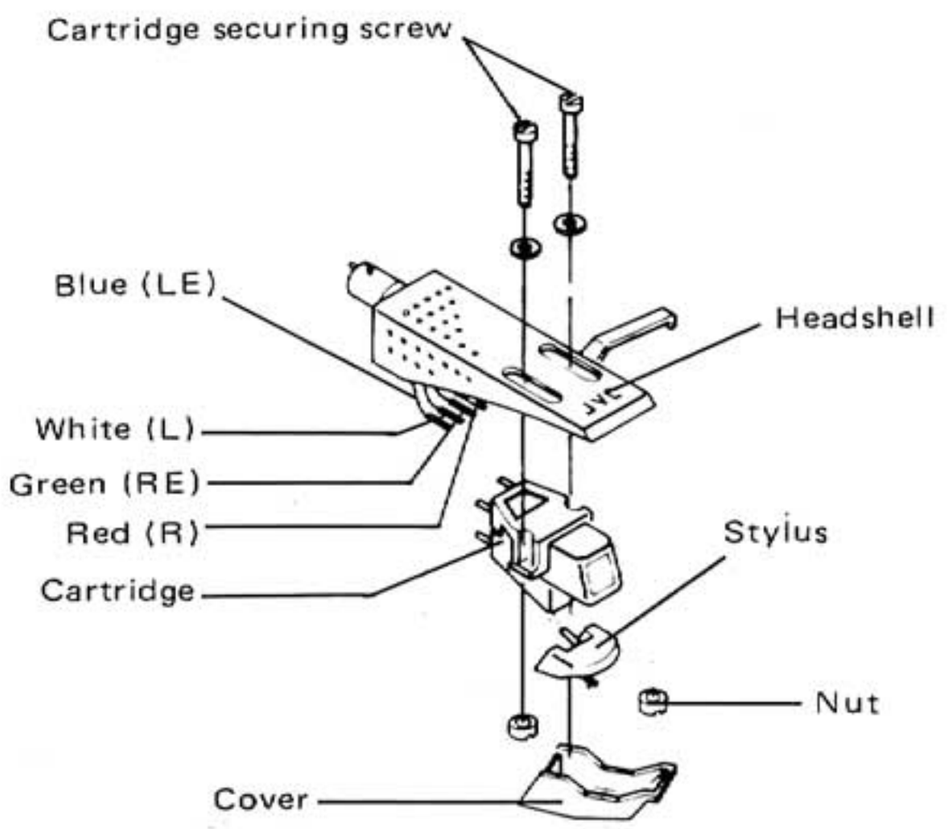


Fig. 30

8-(2) Voltage Setting

Checking your line voltage (for U.S. Military Market and Other Countries)
Before inserting the power plug, please check this setting to see that it corresponds with the line voltage in your area. If it doesn't, be sure to adjust the voltage selector switch to the proper setting before operating this equipment. The voltage selector switch is located either on the set's rear panel or on the chassis. Simply insert a screw driver into the voltage selector switch and turn it in either direction while pressing slightly and in such a way that the desired voltage marked on the rear panel or the chassis. The voltage selector switch accommodates up to three turns in either direction.

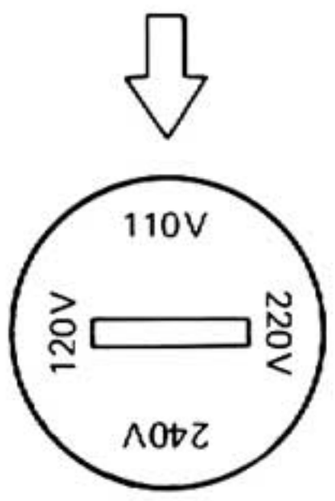


Fig. 31

9. Lubrication

The direct drive motor employed in the unit does not require the lubrication.

10. Exploded Views and Parts List

10-(1) Turntable Baseboard (Cabinet) Ass'y

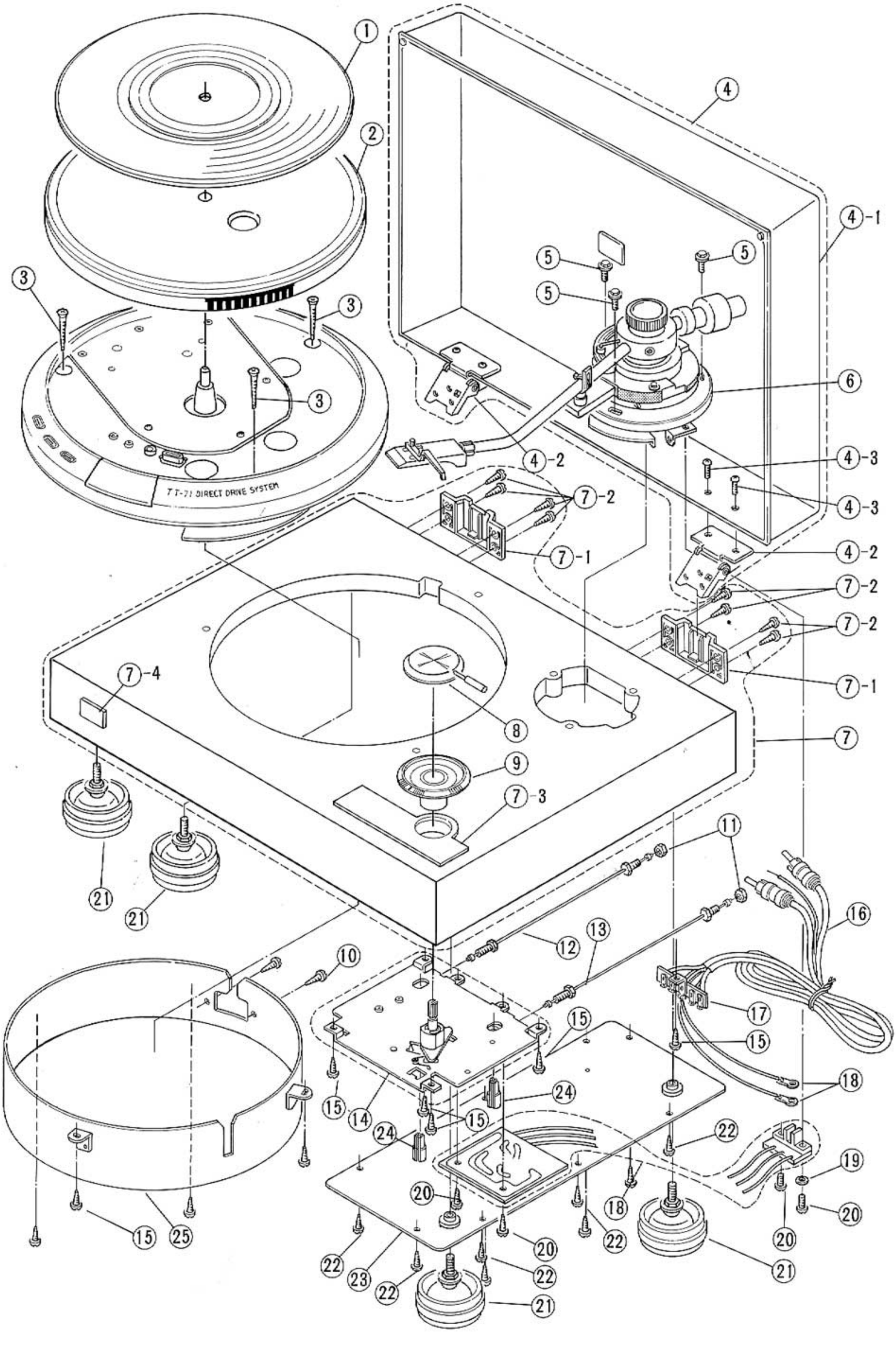


Fig. 32

Item No.	Part Number	Description	Q'ty
1	See table below.	Turntable covering	1
2	E22193-001	Platter	1
3	MSSP4125Z	Screw	3
4	E35263-002	Dust cover	1
4-1	ED20946-005	"	1
4-2	E61992-001	Hinge	2
4-3	SDSP3008M	Screw	4
5	E60331-002	"	3
6	See table below.	Tonearm ass'y	1
7	"	Cabinet ass'y	1
7-1	E61195-001	Lock plate	2
7-2	SBSB3012M	Tapping screw	8
7-3	E35439-001	Name plate	1
7-4	E65480-001	Mark (JVC)	1
8	E65202-001	Cueing knob ass'y	1
9	E65207-001	Knob ass'y	1
10	SBSB3008M	Tapping screw	2

Item No.	Part Number	Description	Q'ty
11	NTB4000	Nut	2
12	E65210-002	Release ass'y	1
13	E65210-001	"	1
14	E22692-001	Base ass'y	1
15	SBSA3012M	Tapping screw	4+4+1
16	E03724-001	Signal cord	1
17	QML1010-051	Lug strip ass'y	1
18	52863-3	Terminal	2
19	Q03095-206	Washer	1
20	LPSP3008ZS	Ass'y screw	2
21	See table below.	Foot ass'y	4
22	SBSA3012M	Tapping screw	9
23	E22639-001	Bottom cover	1
24	E65216-001	Release holder	3
25	E22666-001	Cover ass'y	1

Parts List with Specified Numbers for Designated Areas

Item No.	Description	For U.S.A. & Canada	For Europe	For U.K.	For Australia	For U.S. Military Market = EP Other Countries = EU
1	Turntable Covering	E22375-004	E22375-003	E22375-003	E22375-003	E22375-003
6	Tonearm Ass'y	ARM-521	MP-181S	ARM-521	ARM-521	ARM-521 (EP) MP-181S (EU)
7	Cabinet Ass'y	DL-ED92774	DL-ED92774	DL-ED92781	DL-ED92774	DL-ED92774
21	Foot Ass'y	E35280-002	E35280-001	E35280-001	E35280-001	E35280-001
30	Spacer	E61580-002	E61580-001	E61580-001	E61580-001	E61580-001

10-(2) Servomotor Ass'y

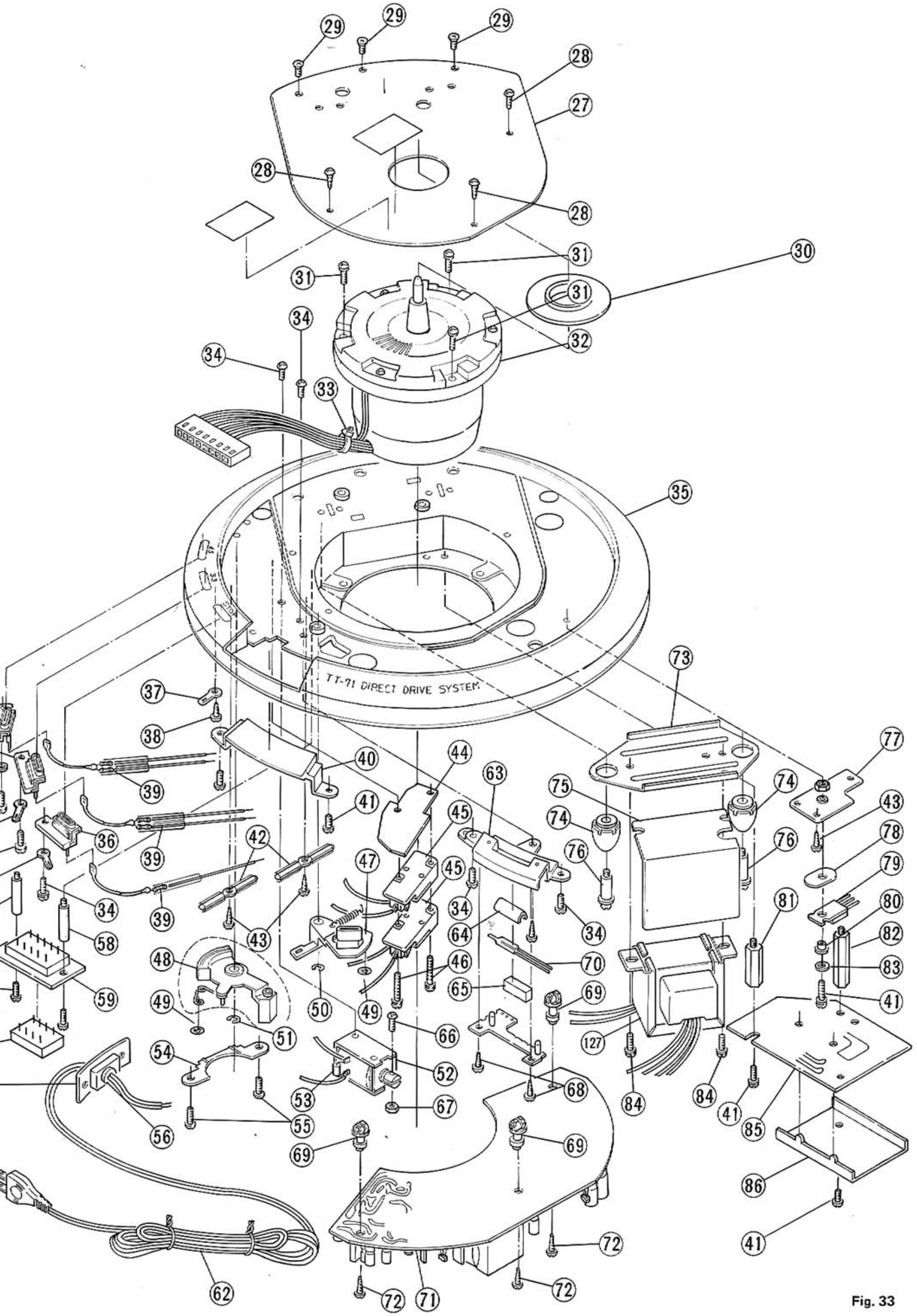


Fig. 33

Item No.	Part Number	Description	Q'ty
27	E34770-001	Shield cover	1
28	SBSB3008M	Tapping screw	3
29	SSSB3008M	"	3
30	See page 16(below)	Spacer	1
31	LPSP4016ZS	Ass'y screw	3
32	See table below.	Hall D.D. motor	1
33	E33754-002	Tie band	2
34	LPSP3006ZS	Ass'y screw	2
35	E10138-004	Motor board ass'y	1
36	E34766-001	Switch ass'y	3
37	52868-3	Terminal	4
38	SBSB3008N	Tapping screw	1
39	QRD141J-475	Carbon resistor	5
40	E34762-002	Window	1
41	LPSP3008ZS	Ass'y screw	2
42	E47203-004	Wire clamp	2
43	SBSB3008Z	Tapping screw	2
44	See table below.	Insulator	1
45	"	Micro switch	
46	"	Screw	2
47	E61407-001	Brake lever ass'y	1
	E34768-001	Brake lever	1
	E60790-001	Rubber tube	1
	E61408-001	Brake lining	1
	E61410-001	Spring	1
48	E61404-002	Switch lever ass'y	1
	E34764-002	Switch lever	1
	E60790-001	Rubber tube	1
	E60912-001	Speed nut	1
	E60791-001	Spring	1
49	RDS2000F	C. S. ring	2
50	REE5000	E ring	1
51	REE3000	"	1
52	E61409-001	DC solenoid	1
53	SIB01-02	Silicon diode	1
54	E34765-001	Cover	1
55	LPSP3006ZS	Ass'y screw	2

Item No.	Part Number	Description	Q'ty
56	QHF3876-162	Cord stopper	1
57	E34197-001	Bracket	1
58	See table below.	Stud	2
59	"	Voltage selector socket	1
60	"	Ass'y screw	1
61	"	Voltage selector plug	1
62	"	Power cord	1
63	E35037-001	Lamp base ass'y	1
	E34763-001	Lamp base	1
	E34992-001	Frame	1
64	E61402-001	Lamp mask	1
65	E61403-001	Lamp holder	1
66	LPSP3012ZS	Ass'y	1
67	NTS3000ZS	Nut	1
68	SBSB3006Z	Tapping screw	2
69	See table below	P.C. Board holder	3
71	"	P.C. Board ass'y	1
72	GBSB3008N	Tapping screw	3
73	E34769-002	Mounting plate	1
74	E49631-003	Rubber bushing	2
75	E34900-002	Shield cover	1
76	E49633-001	Motor holder	2
77	E61466-002	Heat sink	1
78	IS-313A	Insulation sheet	1
79	2SD313V (D,E)	Transistor	1
80	E41541-21	Bushing	1
81	E61602-001	Stud	1
82	E61602-002	"	1
83	WSS3000N	Washer	1
85	See table below.	P.C. Board ass'y	1
86	"	Cover	1
127	"	Power transformer	1

Precaution:
When the heatsink (item no. 77) including 2SD313V is removed from the motor board to permit repair of the circuit board, the transistor temperature may increase due to the lack of heat radiation. Attach a aluminum plate (approx. 100(W) x 100(D) x 1(H) mm to the motor board.)

Parts List with Specified Numbers for Designated Areas

Item No.	Description	For U.S.A. & Canada	For Europe	For U.K.	For Australia	For U.S. Military Market = EP Other Countries = EU
32	Hall D.D. Motor	M-932B	M-932A	M-932A	M-932A	M-932A
44	Insulator	—	E61603-002	E60603-002	E61603-002	—
45	Micro Switch ⚠	QSM1V01-001	QSM1V01-22	QSM1V01-22	QSM1V01-22	QSM1V01-001
46	Screw	LPSP3014ZS	SPKP3015S	SPKP3025S	SPKP3015S	LPSP3014ZS
58	Stud	—	—	—	—	E61602-002
59	Voltage Selector Socket⚠	—	—	—	—	E03676-002
60	Ass'y Screw	—	—	—	—	LPSP3008MS
61	Voltage Selector Plug ⚠	—	—	—	—	E03676-001
62	Power Cord ⚠	QMP1200-244	QMP3910-244	QMP9017-008	QMP2500-200	QMP1200-244
69	P.C. Board Holder	E49946-001	E49946-002	E49946-002	E49946-002	E49946-002
71	P.C. Board Ass'y	TXX-38B	TXX-38C	TXX-38E	TXX-38C	TXX-38E
85	P.C. Board Ass'y ⚠	TSC-80A (U.S.A.)⚠ TSC-80B (Canada)⚠	TSC-80D	TSC-80E	TSC-80D	TSC-80C
86	Cover	—	E61903-001	E61903-001	E61903-001	—
127	Power Transformer	E03032-25E	E03032-25D	E03032-25DBS	E03032-25D	E03032-25C

Warning: When replacing the parts marked with ⚠, be sure to use the designated parts to ensure sefety.

10-(3) Tonearm Ass'y

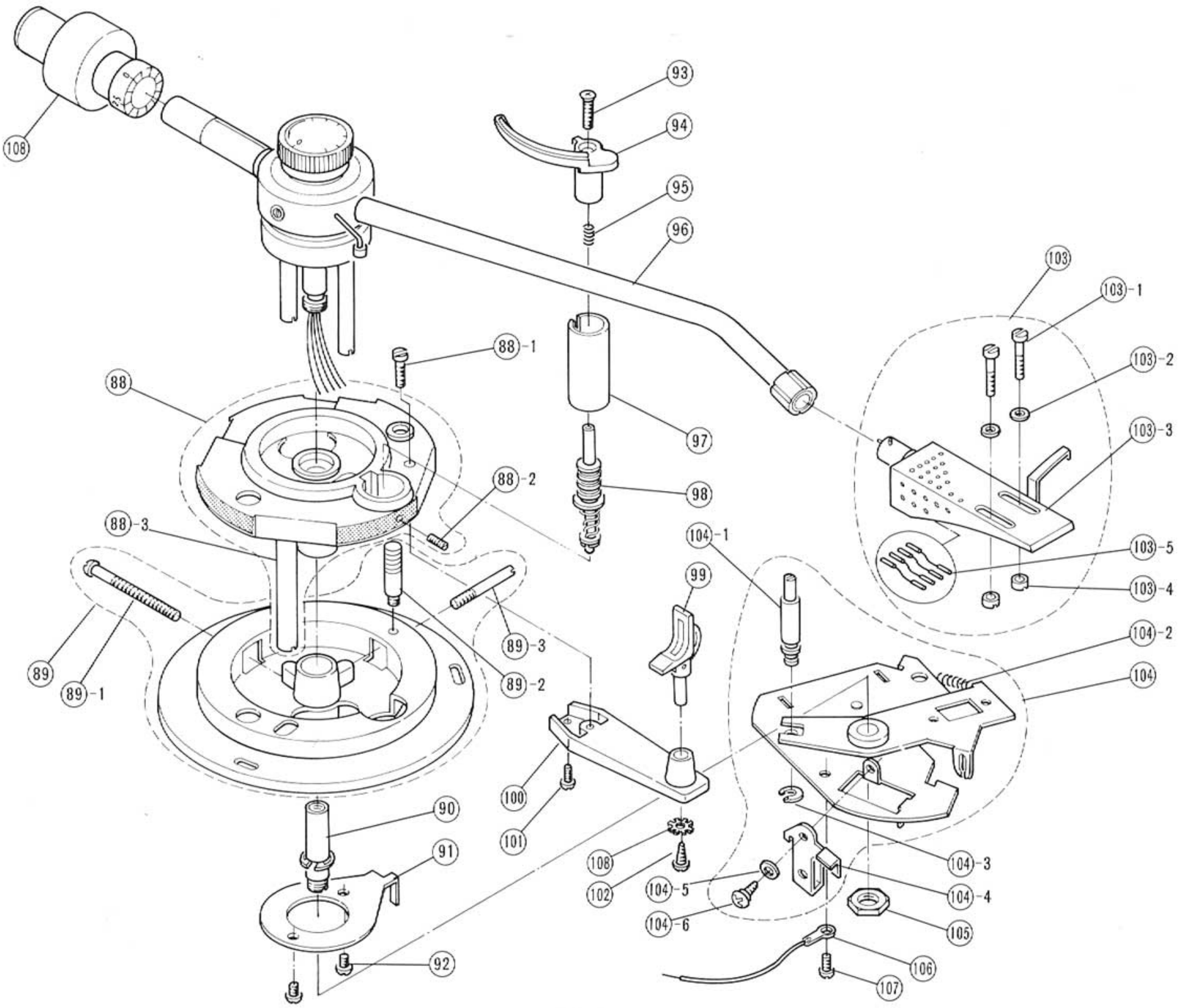


Fig. 34

Item No.	Part Number	Description
87	E34253-002	Main weight ass'y
88	E35446-001	Tonearm base sub ass'y
88-1	E60540-002	Screw
88-2	YRS300MS	Set screw
88-3	E65228-001	Stud
89	E35442-001	Tonearm base ass'y
89-1	SPSP4050AS	Screw
89-2	E65239-001	Indicator
89-3	E65238-001	Screw
90	E61263-002	Nut ass'y
91	E35441-001	Interruptor
92	LPSP3006ZS	Screw
93	SSBP3016RS	"
94	E65243-001	Tonearm lifter ass'y
95	E49649-002	Spring
96	E35513-001	Arm ass'y
97	E65232-001	Cylinder

Item No.	Part Number	Description
98	E65237-001	Piston ass'y
99	E65230-001	Rest bracket
100	E65230-001	"
101	LPSP2605ZS	Ass'y screw
102	SBSB2606Z	Tapping screw
103	See page 20.	Headshell ass'y
104	E35430-001	Base sub ass'y
104-1	E65195-001	Adjustor
104-2	E65193-001	Spring
104-3	52514	Spring washer
104-4	E65194-001	Cueing lever
104-5	Q03091-137	Washer
104-6	G41507-2	Tapping screw
105	E65240-001	Nut
106	E65230-001	Lug ass'y
107	LPSP3006ZS	Ass'y screw
108	WBS2600Z	Washer

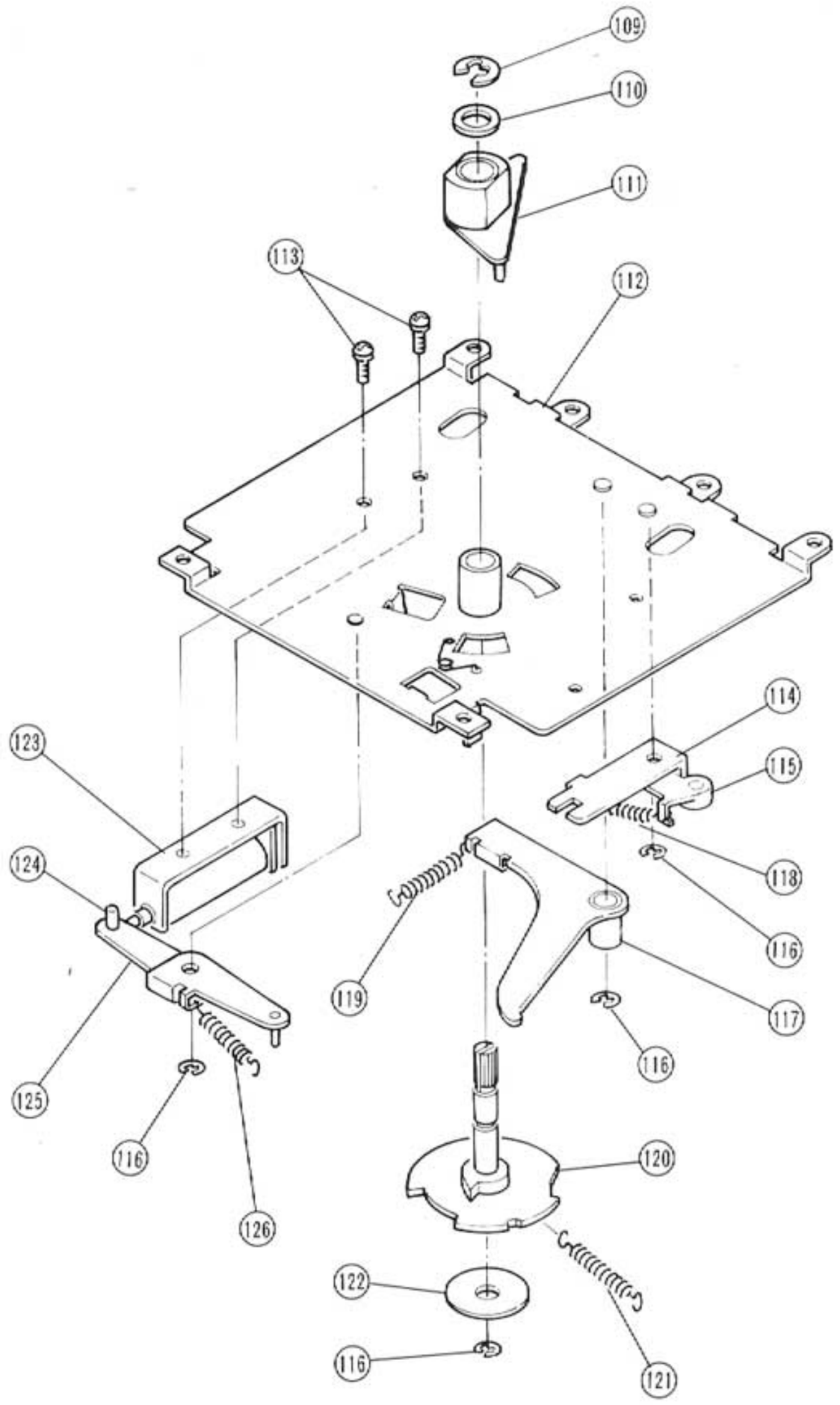


Fig. 35

Item No.	Part Number	Description
109	REE5000	E ring
110	G4517-3	Thrust washer
111	E65214-001	Knob lever ass'y
112	E35436-001	Base sub ass'y
113	LPSP3006ZS	Ass'y screw
114	E65219-001	Change lever
115	E65218-001	Lever
116	REE3000	E ring
117	E65220-001	Cueing lever ass'y

Item No.	Part Number	Description
118	E65244-004	Spring
119	E65244-001	"
120	E35438-001	Cam ass'y
121	E65244-003	Spring
122	E03091-112	Washer
123	E65245-001	DC solenoid
124	E65217-001	Hook
125	E65223-001	Trigger ass'y
126	E65244-002	Spring

Parts List with Specified Numbers for Designated Areas

Item No.	Description	For U.S.A. & Canada	For Europe	For U.K.	For Australia	For U.S. Military Market = EP Other Countries = EU
103	Headshell Ass'y	E34991-003	E22388-003 (with Cartridge & Stylus)	E34991-003	E34991-003	E22388-003 (EU) (with Cartridge & Stylus) E34991-003 (EP)
103-1	Screw	E61844-001	E61844-001	E61844-001	E61844-001	E61844-001
103-2	Washer	EG82971	EG82971	EG82971	EG82971	EG82971
103-3	Head Case Ass'y	E34990-002	E34990-002	E34990-002	E34990-002	E34990-002
103-4	Nut	E60503-001	E60503-001	E60503-001	E60503-001	E60503-001
103-5	Wire Ass'y	E60501-002	E60501-002	E60501-002	E60501-002	E60501-002
	Cartridge Body	—	MD-1025Z	—	—	MD-1025Z
	Needle Ass'y	—	DT-Z1TE	—	—	DT-Z1TE (Only EU)
	Needle Cover	—	E34268-001	—	—	E34268-001

11. Connection Diagram of TXX-38 P.C.Board Ass'y

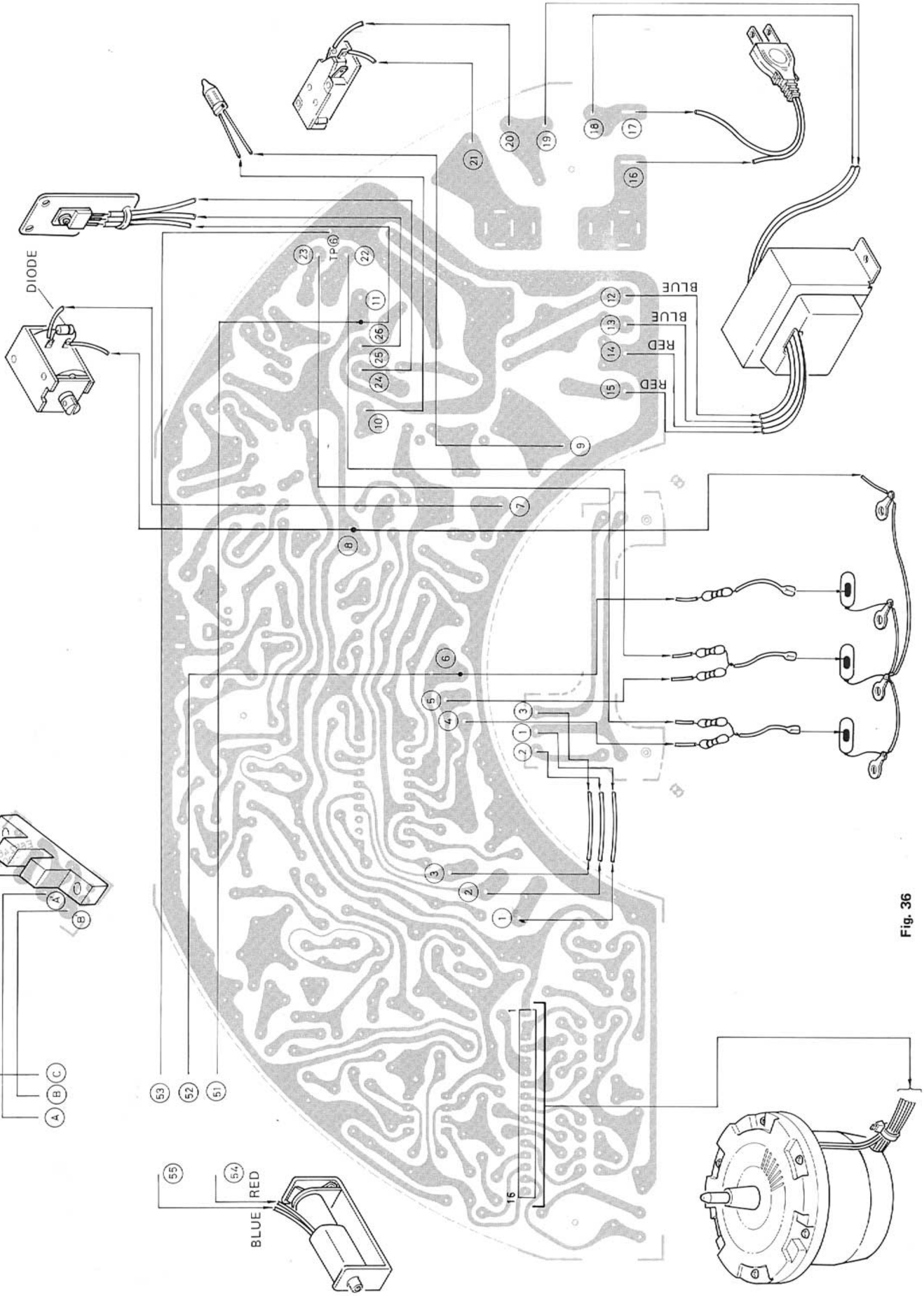
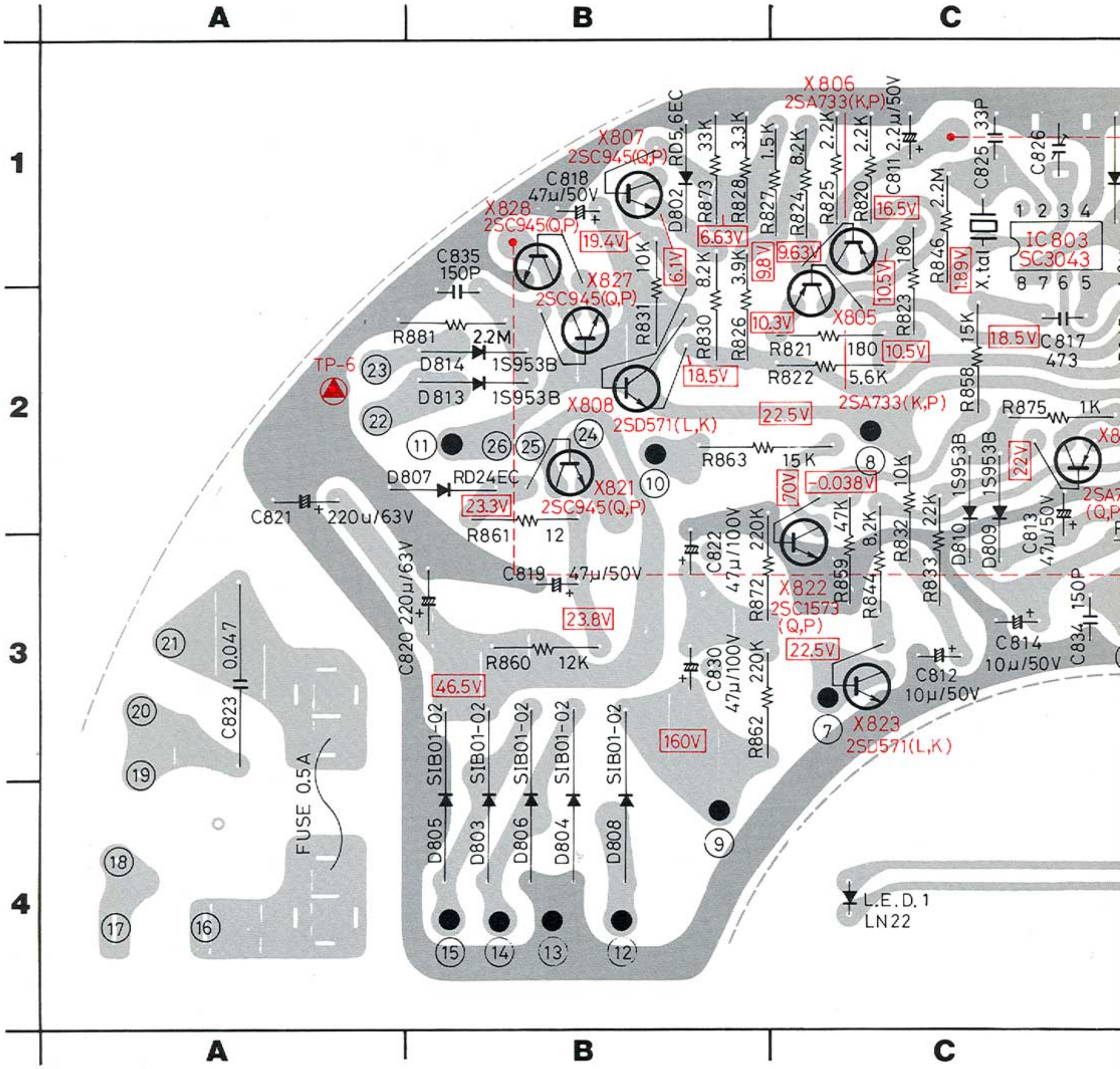


Fig. 36

12. Printed Circuit Board Ass'y and Parts List

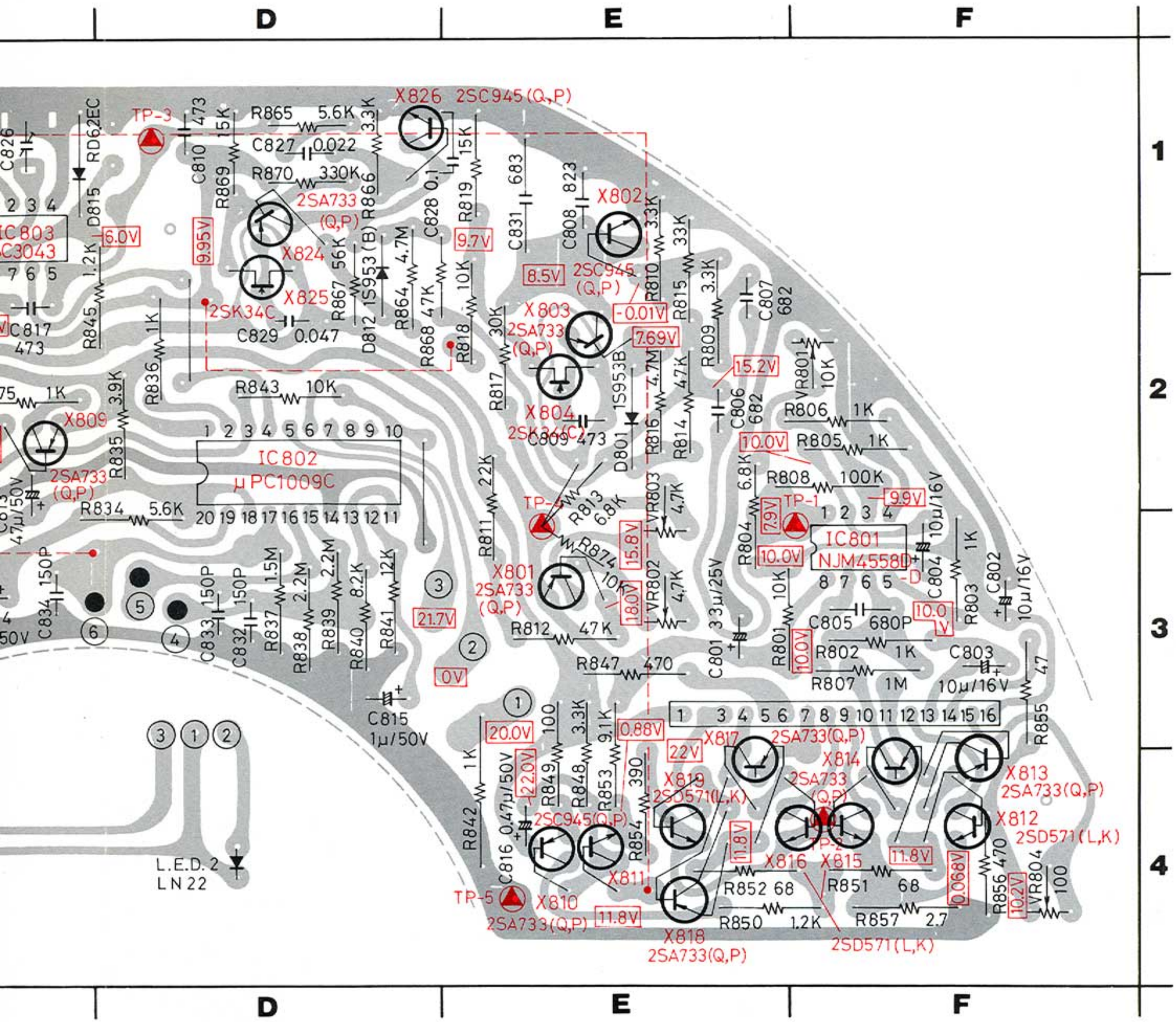
12-(1) TXX-38B (or C) Servo Control P.C. Board Ass'y



Note : This assembly varies according to the area where the unit is sold.

For U.S.A. & Canada	For Europe	For U.K.	For Australia	For U.S. Military Market & Other Countries
TXX-38B	TXX-38C	TXX-38C	TXX-38C	TXX-38C

When a motor c
it is recommende
(TXX-38B or C)
current adjustm
motor or motor
the "7-(3) Balanc

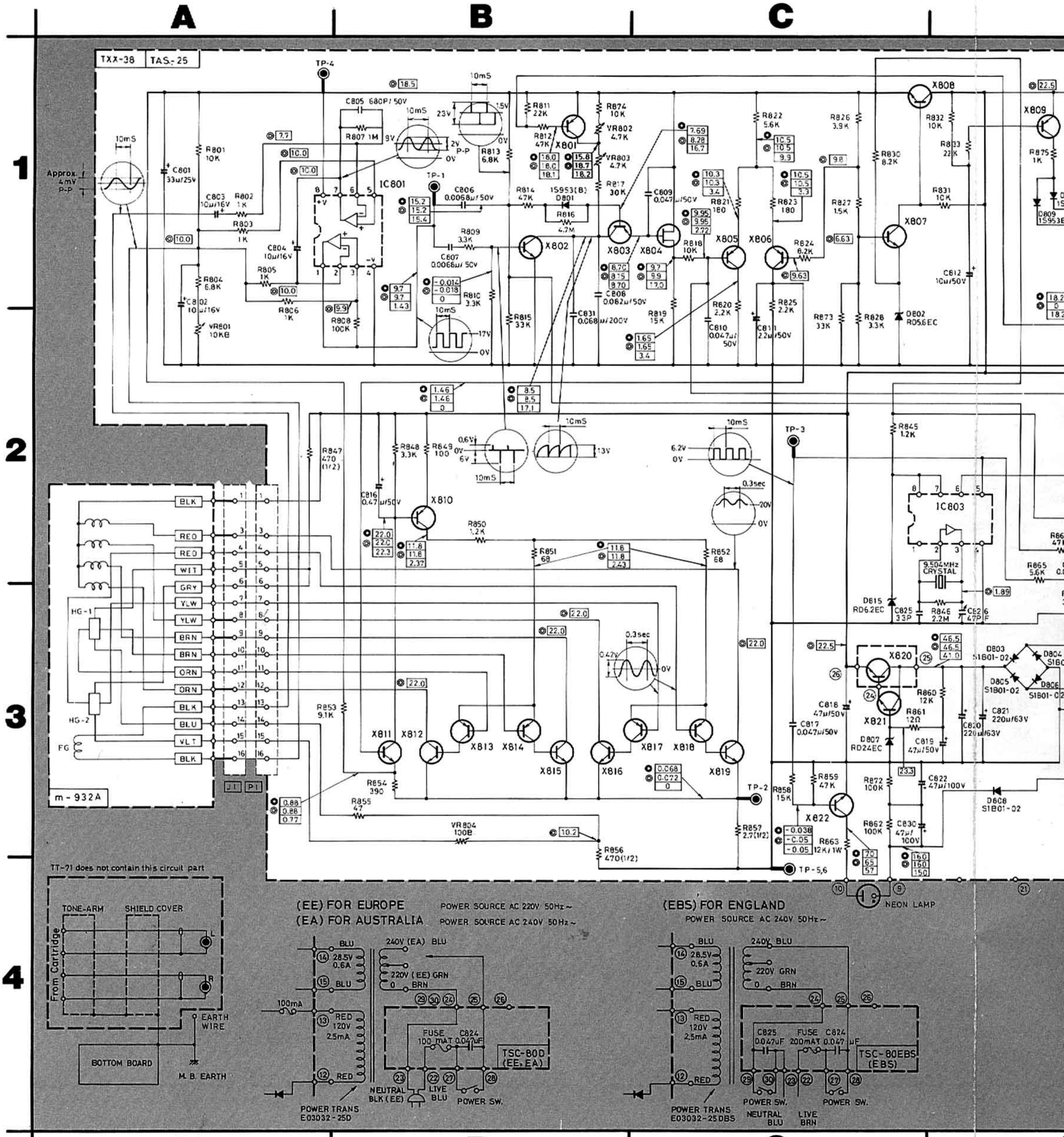


a motor cannot be repaired and must be replaced, ecommended that the motor and motor circuit board 38B or C) be replaced at the same time. Hall element t adjustment is required for replacement of the or motor circuit board only is performed. Refer to -(3) Balance adjustment of drive circuit".

Notes:

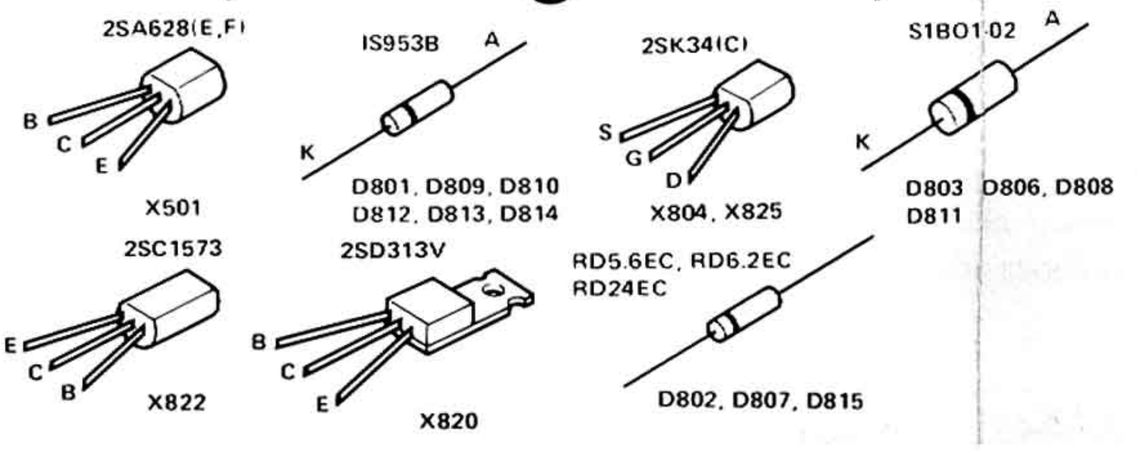
1. Voltage values in [ ] are measured with a tester (impedance 20 kΩ/V) without a signal applied to the unit.
2. ▒ indicates ground.
   ▒ indicates the others.

TXX-38B Schematic Diagram



Printed Circuit Board Ass'y Locations

P.C. Board Ass'y	Description	Page
TXX-38B (or C)	Servo Control P.C. Board Ass'y	22
TSC-80A (to E)	Power Supply P.C. Board Ass'y	27
TXX-120A	Auto Mechanism Control P.C. Board Ass'y	28



IC801	NJM4558D-D
IC802	μPC1009C
IC803	SC3043
X804, X825	2SK34(C)
X802, X807, X811, X821, X826, X827, X828	2SC945(Q or P)
X820	2SD313V (D,E)
X801, X803, X809, X810, X813, X814, X817, X818, X824	2SA733(Q or P)
X808, X812, X815, X816, X819, X823, X502	2SD571(L or K)
X822	2SC1573 (Q or P)
X805, X806	2SA733 (P or K)
X501	2SA628 (E,F)

TOUCH SW

R877 4.7M
R878 4.7M — 45
R879 4.7M — 33 1/3
R876 4.7M
R880 4.7M — STOP

LED 1 LN23
LED 2 LN23
TXX-38D
TSC-71D

SOLENOID E61409-001
DC 22V
D811 S1B01-02
X823
R843 10K
R644 8.2K

IC802

X827 X828
C835 150P
R881 2.2M
R837 15M
C834 150P
R838 2.2M
C833 150P
R839 2.2M
C832 150P
R840 8.2K
R841 12K
C815 + 1μ/50V
D814 1S953B
D813 1S953B
R875 1K
R835 3.9K
R834 5.6K
D810 1S953B
D809 1S953B
C813 47μ/50V
C814 10μ/50V
X809
R836 1K
R842 1K/2W

TXX-120A-1
E65245 SOLENOID
D502 S1B01-02
R505 220
R503 22K
X501
X502
R507 4.7K
R508 2.2M
D501 1S2473
C501 0.022
R506 10K
R504 4.7K
R502 10K
R501 1.2K (1W)
TP-5,6
TXX-120A-2
R54001

R868 47K
R867 56K
R864 4.7M
D812 1S953(B)
C829 0.047/50V
R870 330K
X826
X824
X825
R865 5.6K
C827 0.022/50V
R866 3.3K
C828 0.1μ/50V
R869 15K

D803 S1B01-02
D804 S1B01-02
D805 S1B01-02
D806 S1B01-02
D808 S1B01-02
C821 220μ/63V
AC 28.5V 0.6A
AC 120V 2.5mA
BLU
RED
BRN
120V ORG
POWER TRANS E03032-25E
FUSE C824 0.5A 0.047μF
TSC-80A(EJ)
TSC-80B(EC)
POWER SW.

(EJ, EC) FOR USA & CANADA
POWER SOURCE AC 120V 60Hz

(EU, EP) FOR PACEX & OTHER COUNTRIES
POWER SOURCE AC 100, 120, 220, 240V 50/60Hz
BLU 28.5V 0.6A
RED 120V 2.5mA
100V GRN
YLW
100V RED
BRN
POWER TRANS E03032-25C
VOLTAGE SELECT SOCKET E03676-002
VOLTAGE SELECT PLUG E03676-001
C824 FUSE 0.047μF 0.5/0.2A
TSC-80C (EU, EP)
POWER SW.

PS4001

2SA733 2SC945(Q,P)
X801, X802, X803
X805, X806, X807
X809, X810, X811
X813, X814, X817
X818, X821, X824
X826, X827, X828

NJM4558D-D
IC801

SC3043
IC803

μPC1009
IC802

Transistors

Item No.	Part Number	Rating		Description	Maker
		Pc	fT		
X801	2SA733 (P,Q)	250 mW	180 MHz	Silicon	NEC
X802	2SC945 (P,Q)	"	250 MHz	"	"
X803	2SA733 (P,Q)	"	180 MHz	"	"
X804	2SK34 (C)			F.E.T.	Mitsubishi
X805	2SA733 (P,K)	250 mW	180 MHz	Silicon	"
X806	2SA733 (P,K)	"	"	"	"
X807	2SC945 (P,Q)	"	250 MHz	"	NEC
X808	2SD571 (L,K)	800 mW	110 MHz	"	"
X809	2SA733 (P,Q)	250 mW	180 MHz	"	Mitsubishi
X810	2SA733 (P,Q)	"	"	"	"
X811	2SC945 (P,Q)	"	250 MHz	"	NEC
X812	2SD571 (L,K)	800 mW	110 MHz	"	"
X813	2SA733 (P,Q)	250 mW	180 MHz	"	"
X814	2SA733 (P,Q)	"	"	"	"
X815	2SD571 (L,K)	800 mW	110 MHz	"	"
X816	2SD571 (L,K)	"	"	"	"
X817	2SA733 (P,Q)	250 mW	180 MHz	"	"
X818	2SA733 (P,Q)	"	"	"	"
X819	2SD571 (L,K)	800 mW	110 MHz	"	"
X820	2SD313V	30 W	8 MHz	"	Sanyo
X821	2SC945 (P,Q)	250 mW	250 MHz	"	NEC
X822	2SC1573 (Q)	600 mW	80 MHz	"	Matsushita
X823	2SD571 (L,K)	800 mW	110 MHz	"	NEC
X824	2SA733 (P,Q)	250 mW	180 MHz	"	"
X825	2SK34 (C)			F.E.T.	Mitsubishi
X826	2SC945 (P,Q)	250 mW	250 MHz	Silicon	NEC
X827	2SC945 (P,Q)	"	"	"	"
X828	2SC945 (P,Q)	"	"	"	"

Integrated Circuits

Item No.	Part Number	Rating	Description	Maker
IC801	NJM4558D-D		I.C.	Shin-nihon-musen
IC802	MPC1009C		"	NEC
IC803	SC3043		"	Nihon Precision Circuits

Diodes

Item No.	Part Number	Rating		Description	Maker
D801	IS953B			Silicon	NEC
D802	RD5.6EC		5.6 V	Zener	Fuji Denki
D803	SIB01-02			Silicon	"
D804	SIB01-02			"	"
D805	SIB01-02			"	"
D806	SIB01-02			"	"
D807	RD24EC		24 V	Zener	"
D808	SIB01-02			Silicon	"
D809	IS953B			"	NEC
D810	IS953B			"	"
D811	IS953B			"	"
D812	IS953B			"	"
D813	IS953B			"	"
D814	IS953B			"	"
LED1	LN-22			LED	Matsushita
LED2	LN-22			"	"

Capacitors

Item No.	Part Number	Rating		Description
C801	QEW41EA-336	33 μF	25 V	Electrolytic
C802	QEW41CA-106	10 μF	16 V	"
C803	QEW41CA-106	"	"	"
C804	QEW41CA-106	"	"	"
C805	QCS11HJ-681	680 pF	50 V	Ceramic
C806	QFM41HK-682	6800 pF	"	Mylar
C807	QFM41HK-682	"	"	"
C808	QFM41HK-823	0.082 μF	"	"
C809	QFM41HK-473	0.047 μF	"	"
C810	QFM41HK-473	"	"	"
C811	QEW41HK-225	2.2 μF	50 V	Electrolytic
C812	QEW41HA-106	10 μF	"	"
C813	QEW41HA-476	47 μF	"	"
C814	QEW41HA-106	10 μF	"	"
C815	QEW41HA-105	1 μF	"	"
C816	QEW41HA-474	0.47 μF	"	"
C817	QFM41HK-473	0.047 μF	"	Mylar
C818	QEW41HA-476	47 μF	50 V	Electrolytic
C819	QEW41HA-476	"	"	"
C820	QEW41JA-227	220 μF	63 V	"
C821	QEW41JA-227	"	"	"
C822	QEW42AA-476	47 μF	100 V	"
C825	QCT05UJ-330	33 pF		Ceramic
C826	QAT3001-006	47 pF		Trimmer
C827	QFM41HK-223	0.022 μF	50 V	Mylar
C828	QFM41HK-104	0.1 μF	"	"
C829	QFM41HK-473	0.047 μF	"	"
C830	QEW42AA-476	47 μF	100 V	Electrolytic
C831	QFP32DK-683	0.068 μF		Polypropyle
C832	QCS11HJ-151	150 pF	50 V	Ceramic
C833	QCS11HJ-151	"	"	"
C834	QCS11HJ-151	"	"	"
C835	QCS11HJ-151	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R801	QRD141J-103	10 kΩ	1/4 W	Carbon
R802	QRD141J-102	1 kΩ	"	"
R803	QRD141J-102	"	"	"
R804	QRD141J-682	6.8 kΩ	"	"
R805	QRD141J-102	1 kΩ	"	"
R806	QRD141J-102	"	"	"
R807	QRD141J-105	1 MΩ	"	"
R808	QRD141J-104	100 kΩ	"	"
R809	QRD141J-332	3.3 kΩ	"	"
R810	QRD141J-332	"	"	"
R811	QRD141J-223	22 kΩ	"	"
R812	QRD141J-473	47 kΩ	"	"
R813	QRD141J-682	6.8 kΩ	"	"
R814	QRD141J-473	47 kΩ	"	"
R815	QRD141J-333	33 kΩ	"	"
R816	QRD141J-475	4.7 MΩ	"	"
R817	QRD141J-303	30 kΩ	"	"
R818	QRD141J-103	10 kΩ	"	"
R819	QRD141J-153	15 kΩ	"	"
R820	QRD141J-222	2.2 kΩ	"	"
R821	QRD141J-181	180 Ω	"	"
R822	QRD141J-562	5.6 kΩ	"	"
R823	QRD141J-181	180 Ω	"	"
R824	QRD141J-822	8.2 kΩ	"	"
R825	QRD141J-222	2.2 kΩ	"	"

Resistors

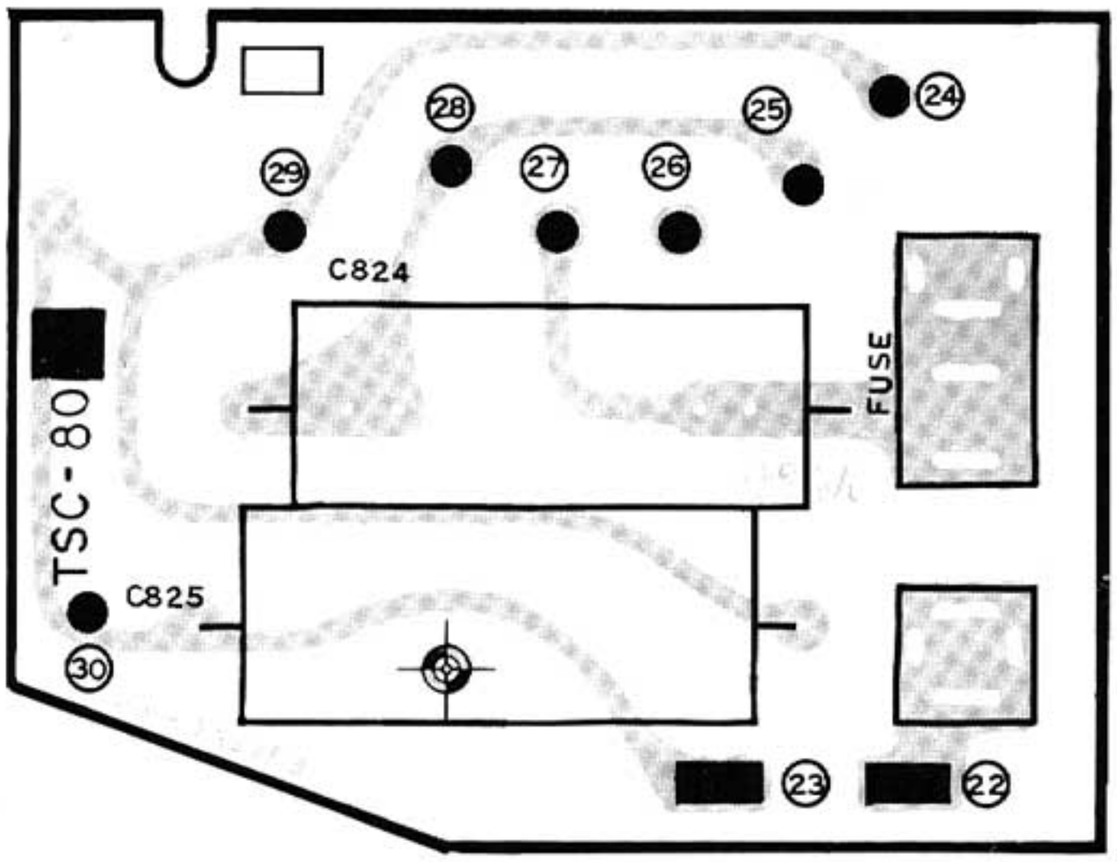
Item No.	Part Number	Rating		Description
R826	QRD141J-392	3.9 kΩ	1/4 W	Carbon
R827	QRD141J-152	1.5 kΩ	"	"
R828	QRD141J-332	3.3 kΩ	"	"
R830	QRD141J-822	8.2 kΩ	1/4 W	Carbon
R831	QRD141J-103	10 kΩ	"	"
R832	QRD141J-103	"	"	"
R833	QRD141J-223	22 kΩ	"	"
R834	QRD141J-562	5.6 kΩ	"	"
R835	QRD141J-392	3.9 kΩ	"	"
R836	QRD141J-102	1 kΩ	"	"
R837	QRD141J-155	1.5 MΩ	"	"
R838	QRD141J-225	2.2 MΩ	"	"
R839	QRD141J-225	"	"	"
R840	QRD141J-822	8.2 kΩ	"	"
R841	QRD141J-123	12 kΩ	"	"
R842	QRG027J-102	1 kΩ	2 W	Uninflammable O.M.
R843	QRD141J-103	10 kΩ	1/4 W	Carbon
R844	QRD141J-822	8.2 kΩ	"	"
R845	QRD141J-122	1.2 kΩ	"	"
R846	QRD141J-225	2.2 MΩ	"	"
R847	QRG129J-471	470 Ω	1/2 W	Uninflammable O.M.
R848	QRD141J-332	3.3 kΩ	1/4 W	Carbon
R849	QRD141J-101	100 Ω	"	"
R850	QRD141J-122	1.2 kΩ	"	"
R851	QRD141J-680	68 Ω	"	"
R852	QRD141J-680	"	"	"
R853	QRD181J-912	9.1 kΩ	1/8 W	"
R854	QRD141J-391	390 Ω	1/4 W	"
R855	QRD141J-470	47 Ω	"	"
R856	QRG129J-471	470 Ω	1/2 W	Uninflammable O.M.
R857	QRX129J-2R7	2.7 Ω	"	"
R858	QRD141J-153	15 kΩ	1/4 W	Carbon
R859	QRD141J-473	47 kΩ	"	"
R860	QRD141J-123	12 kΩ	"	"
R861	QRD141J-120	12 Ω	"	"
R862	QRD141J-104	100 kΩ	"	"
R863	QRG017J-153	15 kΩ	1 W	Uninflammable O.M.
R864	QRD141J-475	4.7 MΩ	1/4 W	Carbon
R865	QRD181J-562	5.6 kΩ	1/8 W	"
R866	QRD181J-332	3.3 kΩ	"	"
R867	QRD181J-563	56 kΩ	"	"
R868	QRD181J-473	47 kΩ	"	"
R869	QRD181J-153	15 kΩ	"	"
R870	QRD181J-334	330 kΩ	"	"
R872	QRD141J-104	100 kΩ	1/4 W	"
R873	QRD141J-333	33 kΩ	"	"
R874	QRD141J-103	10 kΩ	"	"
R875	QRD141J-102	1 kΩ	"	"
R881	QRD141J-225	2.2 MΩ	"	"
VR801	QVP4A0B-103	10 kΩ		Variable
VR802	QVZ3501-472	4.7 kΩ		"
VR803	QVZ3501-472	"		"
VR804	QVP4A0B-101	100 Ω		"

Others

Item No.	Part Number	Rating		Description
	E04300-001		9.504 MHz	Crystal
	E03686-16A		15 pins	Plug
	E60448-001			L.E.D. Spacer
	E43727-002			Tab

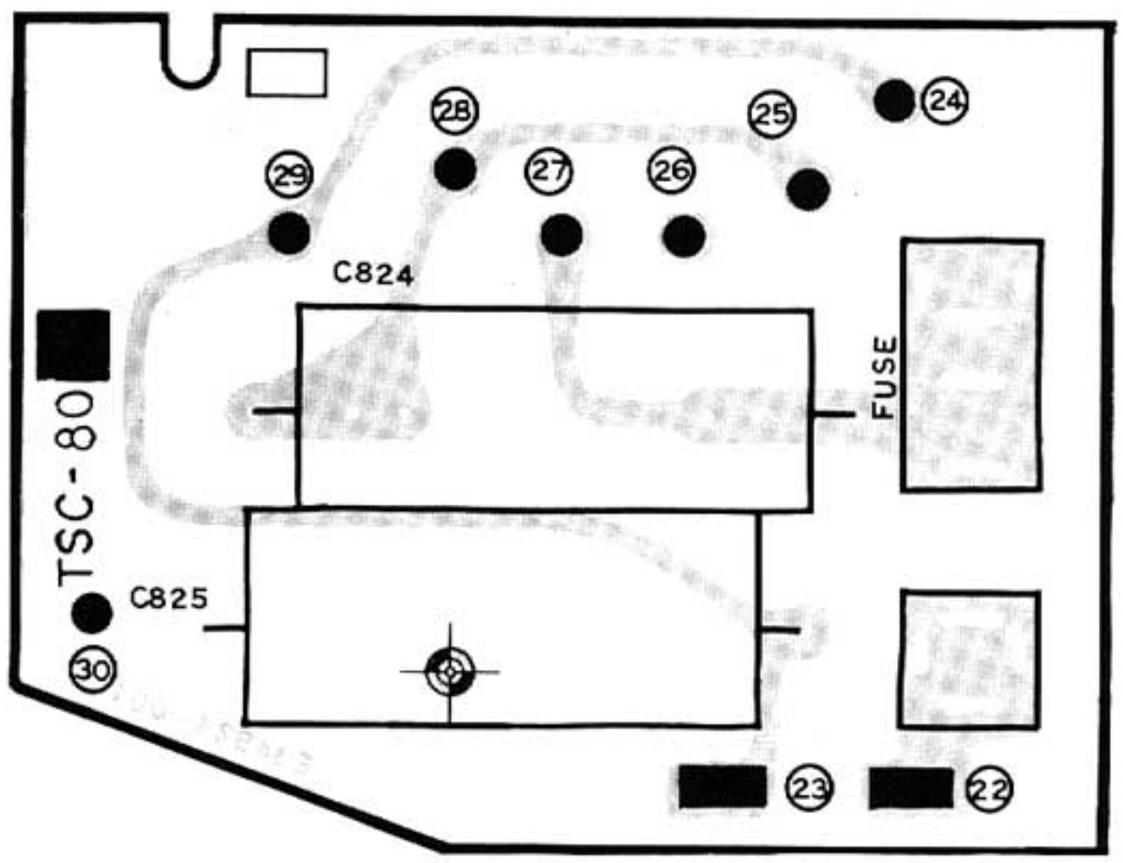
12-(2) TSC-80A (to E) Power Supply P.C. Board Ass'y

Note: The assembly varies according to the area where the unit is sold. Refer to the table shown below.



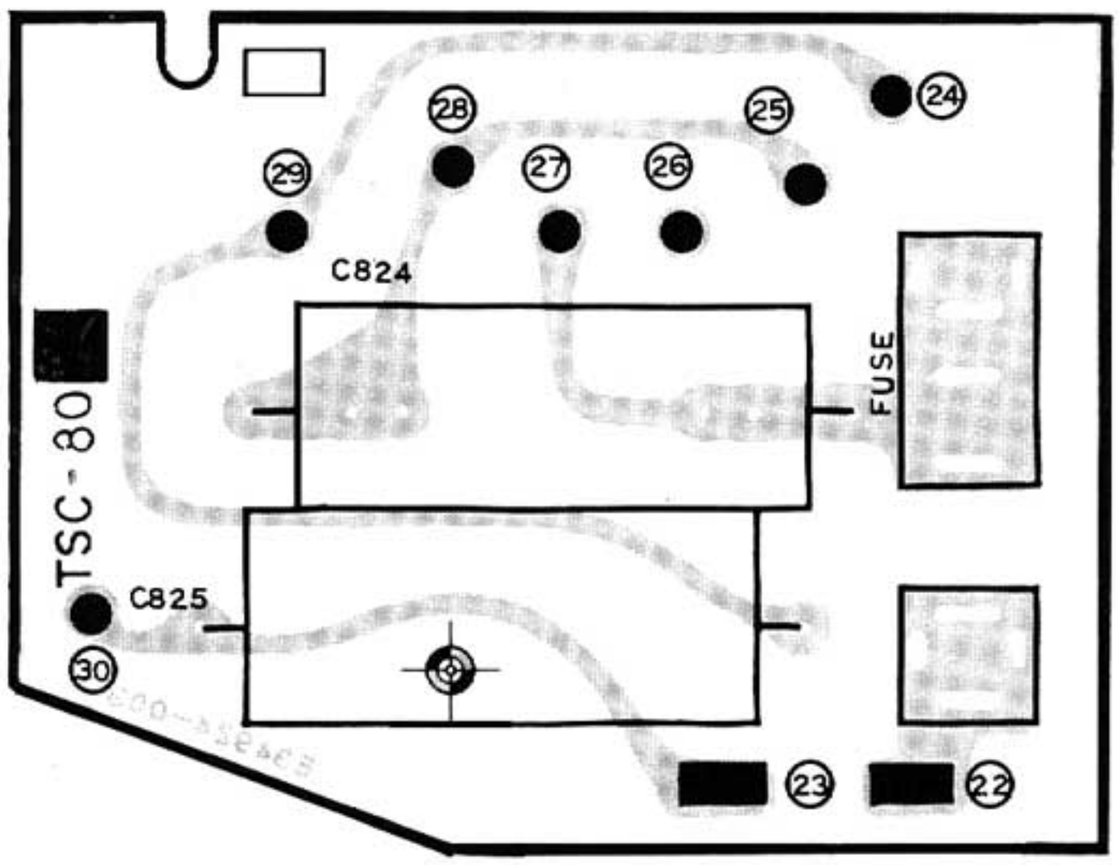
Applies to: TSC-80A (for U.S.A.)
TSC-80B (for Canada)

Fig. 39



Applies to: TSC-80C (for U.S. Military Market and Other Countries)
TSC-80D (for Australia and Europe)

Fig. 40



Applies to: TSC-80E (for U.K.)

Fig. 41

When replacing the parts marked with ⚠, be sure to use the designated parts to ensure safety.

Capacitors (Item No. C824 & C825)

P.C. Board Ass'y	Designated Areas	Part Number	Rating		Description
TSC-80A ⚠	for U.S.A.	QFM72BM-473	0.047 μF	AC 125 V	Mylar
TSC-80B ⚠	for Canada	QFM72BM-473	"	"	"
TSC-80C ⚠	for U.S. Military Market and Other Countries	QFH53AM-473	"	AC 1 kV	"
TSC-80D ⚠	for Europe and Australia	QFZ9007-473	"	AC 450 V	"
TSC-80E ⚠	for U.K.	QFZ9007-473BS	"	"	"

Others

Description	for U.S.A. and Canada	for Europe and Australia	for U.K.	for U.S. Military and Other Countries
Fuse Clip	E45524-001	E48965-002	E48965-002	E45524-001
Tab (Power Cord)	E40130-001	E40130-001	E40130-001	E40130-001
Fuse Label	E61378-014	E61381-013	E61381-013BS	E45314-001
Fuse ⚠	QMF61U2-R50 (0.5A)	QMF51A2-R20 (0.2AT)	QMF51A2-R20 (0.2AT)	QMF61U2-R50 (0.5A/AC 120 V) or QMF61U2-R20 (0.2A/AC 240 V)

NOTE: ⚠ SAFETY PARTS

12-(3) TXX-120A Auto Mechanism Control P.C. Board Ass'y

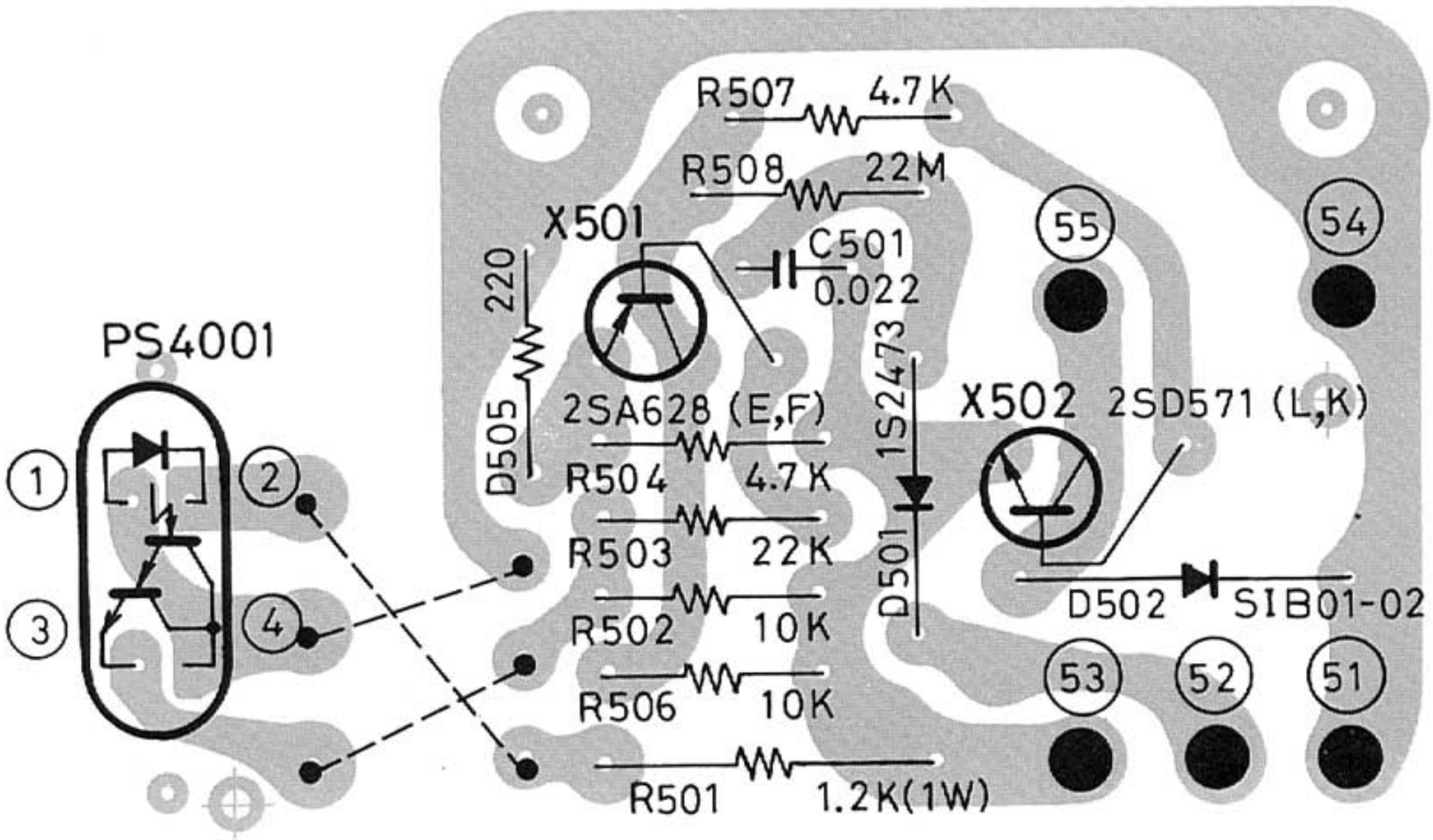


Fig. 42

Transistors

Item No.	Part Number	Rating		Description	Maker
		Pc	fT		
X501	2SA628(E, F)	150 mW	100 MHz		Mitsubishi
X502	2SD571(L, K)	800 mW	110 MHz		NEC

Diodes

Item No.	Part Number	Rating	Description	Maker
D501	1S2473		Silicon	Toyo Dengu
D502	SIB01-02		"	Fuji Denki

Capacitor

Item No.	Part Number	Rating	Description
C501	QFM31HK-223	0.022 μF 50 V	Mylar

Resistors

Item No.	Part Number	Rating		Description
R501	QRG017J-122S	1.2 kΩ	1 W	Uninflammable O.M.
R502	QRD141J-103S	10 kΩ	1/4 W	Carbon
R503	QRD141J-223S	22 kΩ	"	"
R504	QRD141J-472S	4.7 kΩ	"	"
R505	QRD141J-221S	220 Ω	"	"
R506	QRD141J-103S	10 kΩ	"	"
R507	QRD141J-472S	4.7 kΩ	"	"
R508	QRD141J-225S	2.2 MΩ	"	"

Others

Item No.	Part Number	Rating	Description	Maker
	E43727-002		Tab	
	E65246-001		Circuit board	
	PS4001(K)		Photo interrupter	NEC

13. Packing Materials and Part Numbers

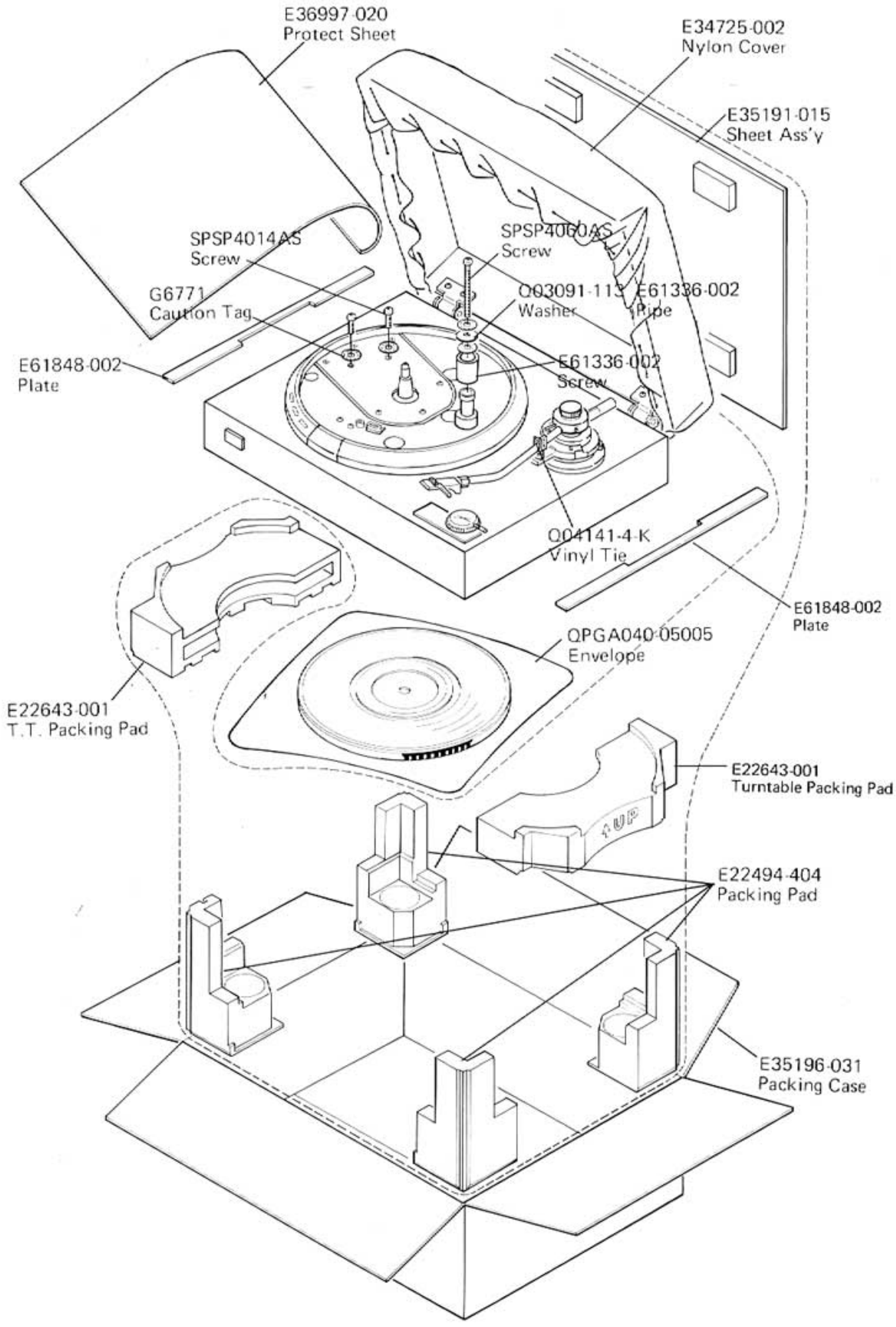


Fig. 43

14. Accessories List

Item No.	Part Number	Description	Q'ty
1	E30580-684A	Instruction Book	1
2	See below	Warranty Card	1
3	E48820-001	EP Adaptor	1
4	E64207-001	Envelope for Instruction Book and Others	1
5	E04056	Siemens Plug (for Other Countries)	1
6	BT20023	Service Procedure (for U.S.A. only)	1
7	BT20024B	"Do It Better" (for U.S.A. only)	1

Item No.	Description	U.S.A. & Canada	Europe	U.K.	Australia	U.S. Military Market & Other Countries
2	Warranty Card	BT20032 (U.S.A.) BT20025B (Canada)	Not enclosed	BT20013B	BT20029	BT20032

16. Parts List with Specified Numbers for Designated Areas

Page	Item No.	Description	For U.S.A. & Canada	For Europe	For U.K.	For Australia	For U.S. Military Market = EP Other Countries = EU
16	1	Turntable Covering	E22375-004	E22375-003	E22375-003	E22375-003	E22375-003
16	6	Tonearm Ass'y	ARM-521	MP-181S	ARM-521	ARM-521	ARM-521 (EP) MP-181S (EU)
16	7	Cabinet Ass'y	DL-ED92774	DL-ED92774	DL-ED92781	DL-ED92774	DL-ED92774
16	21	Foot Ass'y	E35280-002	E35280-001	E35280-001	E35280-001	E35280-001
16	30	Spacer	E61580-002	E61580-001	E61580-001	E61580-001	E61580-001
18	32	Hall D.D. Motor	M-932B	M-932A	M-932A	M-932A	M-932A
18	44	Insulator	–	E61603-002	E61603-002	E61603-002	–
18	45	Micro Switch ⚠	QSM1V01-001	QSM1V01-022	QSM1V01-022	QSM1V01-022	QSM1V01-001
18	46	Screw	LPSP3014ZS	SPKP3015S	SPKP3025S	SPKP3015S	LPSP3014ZS
18	58	Stud	–	–	–	–	E61602-002
18	59	Voltage Selector Socket ⚠	–	–	–	–	E03676-002
18	60	Ass'y Screw	–	–	–	–	LPSP3008MS
18	61	Voltage Selector Plug ⚠	–	–	–	–	E03676-001
18	62	Power Cord ⚠	QMP1200-244	QMP3910-244	QMP9017-008	QMP2500-200	QMP1200-244
18	69	P.C. Board Holder	E49946-001	E49946-002	E49946-002	E49946-002	E49946-002
18	71	P.C. Board Ass'y	TXX-38B	TXX-38C	TXX-38E	TXX-38C	TXX-38E
18	85	P.C. Board Ass'y ⚠	TSC-80A (U.S.A.) TSC-80B (Canada)	TSC-80D	TSC-80E	TSC-80D	TSC-80C
18	86	Cover	–	E61903-001	E61903-001	E61903-001	–
20	103	Headshell Ass'y	E34991-003	E22388-003 (with Cartridge & Stylus)	E34991-003	E34991-003	E22388-003 (EU) (with Cartridge & Stylus) E34991-003 (EP)
20	103-1	Screw	E61844-001	E61844-001	E61844-001	E61844-001	E61844-001
20	103-2	Washer	EG82971	EG82971	EG82971	EG82971	EG82971
20	103-3	Head Case Ass'y	E34990-002	E34990-002	E34990-002	E34990-002	E34990-002
20	103-4	Nut	E60503-001	E60503-001	E60503-001	E60503-001	E60503-001
20	103-5	Wire Ass'y	E60501-002	E60501-002	E60501-002	E60501-002	E60501-002
		Cartridge Body	–	MD-1025	–	–	MD-1025 (Only EU)
		Needle Ass'y	–	DT-Z1TE	–	–	DT-Z1TE (Only EU)
		Needle Cover	–	E34268-001	–	–	E34268-001 (Only EU)
18	127	Power Transformer	E03032-25E	E03032-25D	E03032-25DBS	E03032-25D	E03032-25C

Warning:
When replacing the parts marked with ⚠ , be sure to use the designated parts to ensure safety.

JVC

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