ORDER NO. DAD84060094C0

A-2

Service Manual

Belt Drive Fully Automatic Turntable System

SL-J1

T4P is the standard mark for plug-in-connector type. Products carrying this mark are interchangeable and adaptable among each other.

Color

(S) ..... Silver Type
(K) ..... Black Type
(R) ..... Red Type
(W) ..... White Type

Color	Area
(S)	[M] .....U.S.A.
(S)	[MC] .....Canada
(S)(K)(R)(W)	[E] .....Switzerland and Scandinavia
(S)(K)(R)(W)	[EK] .....United Kingdom
(S)	[XL] .....Australia
(S)(K)(R)(W)	[EG] .....F.R. Germany
(S)(K)(R)(W)	[EB] .....Belgium
(S)(K)(R)(W)	[EH] .....Holland
(S)(K)(R)(W)	[EF] .....France
(S)(K)(R)(W)	[Ei] .....Italy
(S)(K)(R)(W)	[EC] .....Czechoslovakia
(S)	[XA] .....Southeast Asia, Oceania, Africa, Middle Near East and Central South America
(S)	[XM] .....Central South America

English

Specifications

■ General

Power supply:
For U.S.A. and Canada:
120V AC, 60 Hz
For United Kingdom and Australia:
240V AC, 50 Hz
For Continental Europe:
220V AC, 50 Hz
For others:
~110—120/220—240V, 50 or 60Hz

Power consumption:
9.5 W (For U.S.A. and Canada.)
8.5 W (For others)

Dimensions:
(W × H × D)
31.5 × 8.8 × 31.5 cm
(12-13/32" × 3-15/32" × 12-13/32")
31.5 × 39 × 31.5 cm
(12-13/32" × 15-11/32" × 12-13/32")
(Maximum height when dust cover is open.)

Weight:
3.5 kg (7.7 lb.)

■ Turntable section

Type:
Belt drive
Fully automatic turntable

Features:
Auto start/Auto lead-in
Auto return
Auto stop
Repeat play
Direct music select play
Forward and backward skip play
Forward and backward search play
Auto size select
Record presence detection

Drive method:
Belt drive

Motor:
DC motor

Turntable platter:
Aluminum die-cast
Diameter 30 cm (12")

Turntable speeds:
33-1/3 rpm and 45 rpm
Auto speed select
(Manual selection possible)

Wow and flutter:
0.045% WRMS (JIS C5521)
±0.06% peak
(IEC 98A Weighted)

Rumble:
−45 dB (IEC 98A Unweighted)
−70 dB (IEC 98A Weighted)

Matsushita Engineering and Service Company
50 Meadowland Parkway,
Secaucus, New Jersey 07094

Panasonic Hawaii Inc.
91-238, Kauhi St. Ewa Beach
P.O. Box 774
Honolulu, Hawaii 96808-0774

Matsushita Electric of Canada Limited
5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3

Panasonic Sales Company, Division of Matsushita Electric of Puerto Rico, Inc.
Ave, 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Technics

www.vinylengine.com

■ Tonearm section

Type:	Linear tracking tonearm 4-pivot gimbal suspension
Effective length:	10.5 cm (4-1/8")
Tracking error angle:	Within ±0.1°
Effective mass:	9 g (including cartridge)
Resonance frequency:	12 Hz
Tonearm drive motor:	DC motor
Stereo connection cable capacitance:	150 pF

■ Cartridge section (Except for U.S.A. and Canada)

Type:	Moving magnet stereo cartridge
Magnetic circuit:	All laminated core
Frequency response:	10 Hz ~ 35 kHz
Output voltage:	2.5 mV at 1 kHz 5 cm/s. zero to peak lateral velocity (7 mV at 1 kHz, 10 cm/s. zero to peak 45° velocity [DIN 45 500])
Channel separation:	22 dB at 1 kHz
Channel balance:	Within 2 dB at 1 kHz
Recommended load impedance:	47 kΩ~100 kΩ
Compliance (dynamic):	12×10^{-6}cm/dyne at 100 Hz
Stylus pressure range:	1.25±0.25 g (12.5±2.5 mN)
Weight:	6 g (cartridge only)
Replacement stylus:	EPS-30CS

Specifications subject to change without notice.
Weight and dimensions shown are approximate.

- The power supply for this unit varies depending upon the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and the replacement parts list.
  - ★ 120V (60 Hz) for U.S.A. and Canada.
  - ★ 220V (50 Hz) for Continental Europe.
  - ★ 240V (50 Hz) for United Kingdom and Australia.
  - ★ 110V—120V/220V—240V (50/60 Hz) for other areas.
  - ★ [XA] and [XM] areas are provided with voltage selector.

Deutsch

Technische Daten

■ Allgemeine Daten

Stromversorgung:	~220 V, 50 Hz Wechselstrom
Leistungsaufnahme:	8,5 W
Abmessungen: (B × H × T)	31,5 × 8,8 × 31,5 cm 31,5 × 39 × 31,5 cm (Maximale Höhe bei vollständig geöffnetem Gehäuseoberteil)
Gewicht:	3,5 kg

■ Plattenteller

Typ:	Riemenatrieb Automatischer plattenspieler
Eigenschaften:	Auto-Start/Auto-Zuführung Rückführautomatik Stopautomatik Wiederholtes Abspiel Abspiel mit Direktmusikwahl Vorwärts-und Rückwärtssprungabspiel Vorwärts- und Rückwartssuchspiel Autom.Plattengrößewahl Schallplattendetektion
Antrieb:	Riemenantrieb
Motor:	Gleichstrommotor
Plattenteller:	Aluminium-Druckguß Durchmesser 30 cm
Plattenteller-Drehzahlen:	33-1/3 und 45 U./min. Automatische Drehzahlwahl (manuelle Wahl möglich)
Gleichlaufschwankungen:	0,045% WRMS (JIS C5521) ±0,06% Spitze (IEC 98A bewertet)
Rumpeln:	−45 dB (IEC 98A unbewertet) −70 dB (IEC 98A bewertet)

■ Tonarm

Typ:	Linearabtastungs-Tonarm mit Kardanaufhängung mit 4-Punkt-Drehlager
Effektive Länge:	10,5 cm
Spurfehlwinkel:	Innerhalb ±0,1°
Effektive Masse:	9 g (einschließlich Tonabnehmer)
Resonanzfrequenz:	12 Hz
Tonarm-Antriebsmotor:	Gleichstrommotor
Phonokabel-Kapazität:	150 pF

■ Tonabnehmer

Typ:	Stereo-Magnet-Tonabnehmer
Magnetkreis:	Ganzlamellenkern
Frequenzgang:	10 Hz bis 35 kHz
Ausgangsspannung:	2,5 mV bei 1 kHz 5 cm/s. Null-zu-Spitze, lateral [7 mV bei 1 kHz 10 cm/s. Null-zu-Spitze, 45° (DIN 45 500)]
Kanaltrennung:	22 dB bei 1 kHz
Kanalabweichung:	Innerhalb 2 dB bei 1 kHz
Empfohlene Endimpedanz:	47 kΩ~100 kΩ
Nachgiebigkeit (dynamisch):	12×10^{-6}cm/dyn bei 100 Hz
Auflagekraft-Einstellbereich:	1,25±0,25 g (12,5±2,5 mN)
Gewicht:	6 g (nur Tonabnehmer)
Ersatznadel:	EPS-30CS

Änderungen der technischen Daten vorbehalten.
Die angegebenen Gewichts- und Abmessungsdaten sind ungefähre Werte.

www.vinylengine.com

■ CONTENTS

	Page
SAFETY PRECAUTION	5
LOCATION OF CONTROLS	6
DISASSEMBLY INSTRUCTIONS	7~9
HOW TO SET THE TONEARM DRIVE ROPE	10
MEASUREMENTS AND ADJUSTMENT (English)	10, 11
MESSUNGEN UND JUSTIERUNGEN (Deutsch)	11, 12
MESURAGES ET RÉGLAGES (Français)	12, 13
MEDICIONES Y AJUSTE (Español)	13, 14
ADJUSTMENT POINTS	15
BLOCK DIAGRAM	16, 17
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM	18~20
SCHEMATIC DIAGRAM	21~23
TROUBLE SHOOTING	24~26
RESISTORS AND CAPACITORS	27
REPLACEMENT PARTS LIST	28, 29
EXPLODED VIEWS	30, 31
PACKING	32

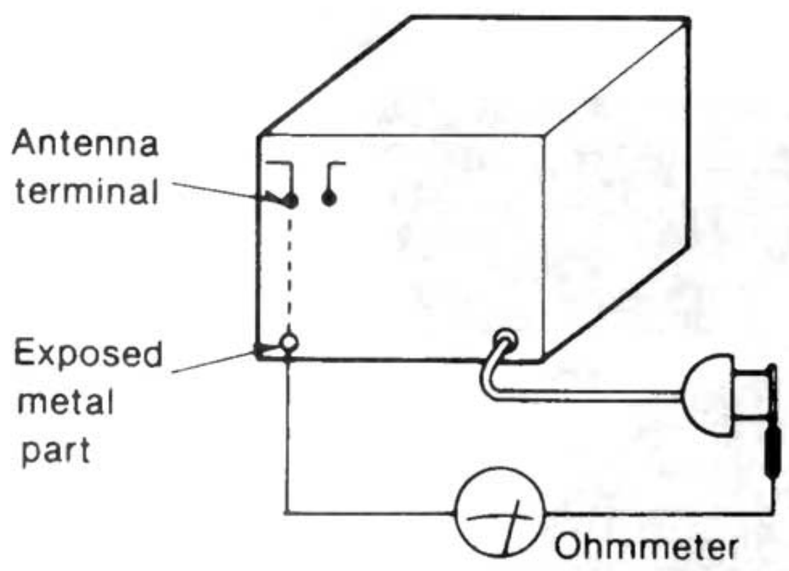
■ SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

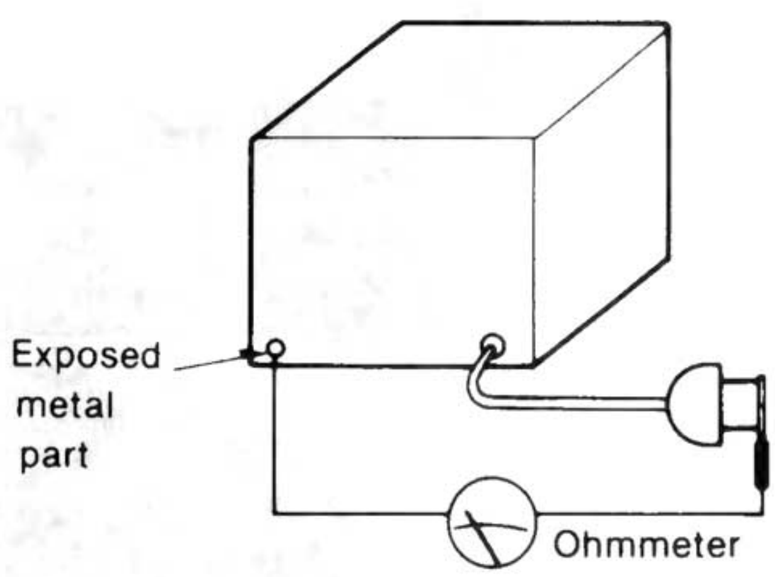
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ



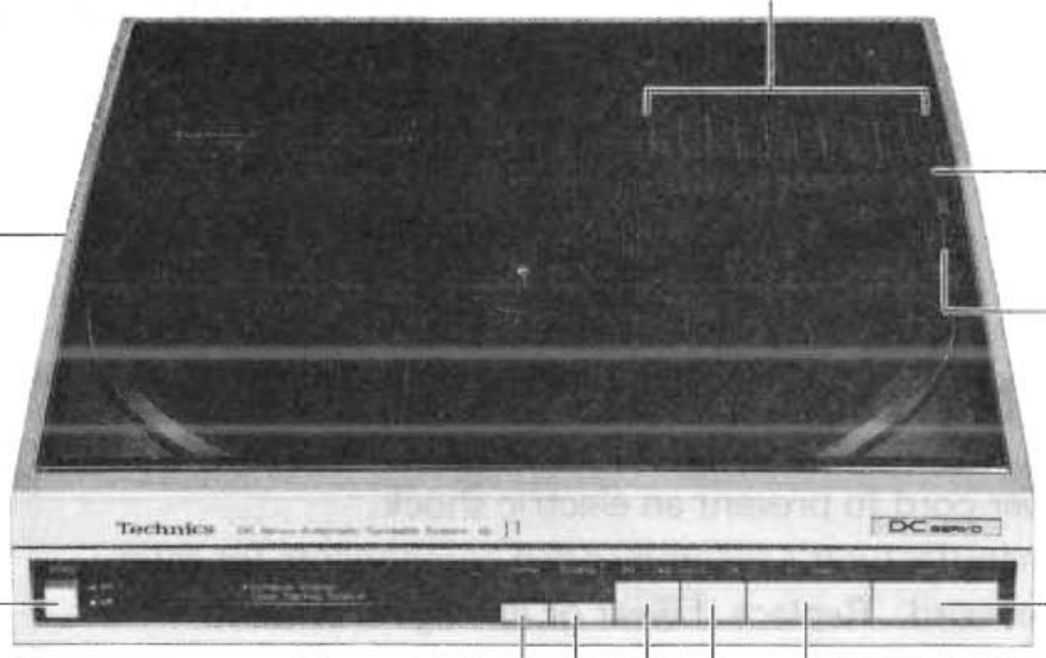
(Fig. B)

Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

www.vinylengine.com

■ LOCATION OF CONTROLS



Record groove scale

Tonearm position indicator LED

Upper cabinet (Dust cover)

Cartridge

The Cartridge for U.S.A. and Canada shown here is an option.

Power switch

Stop switch

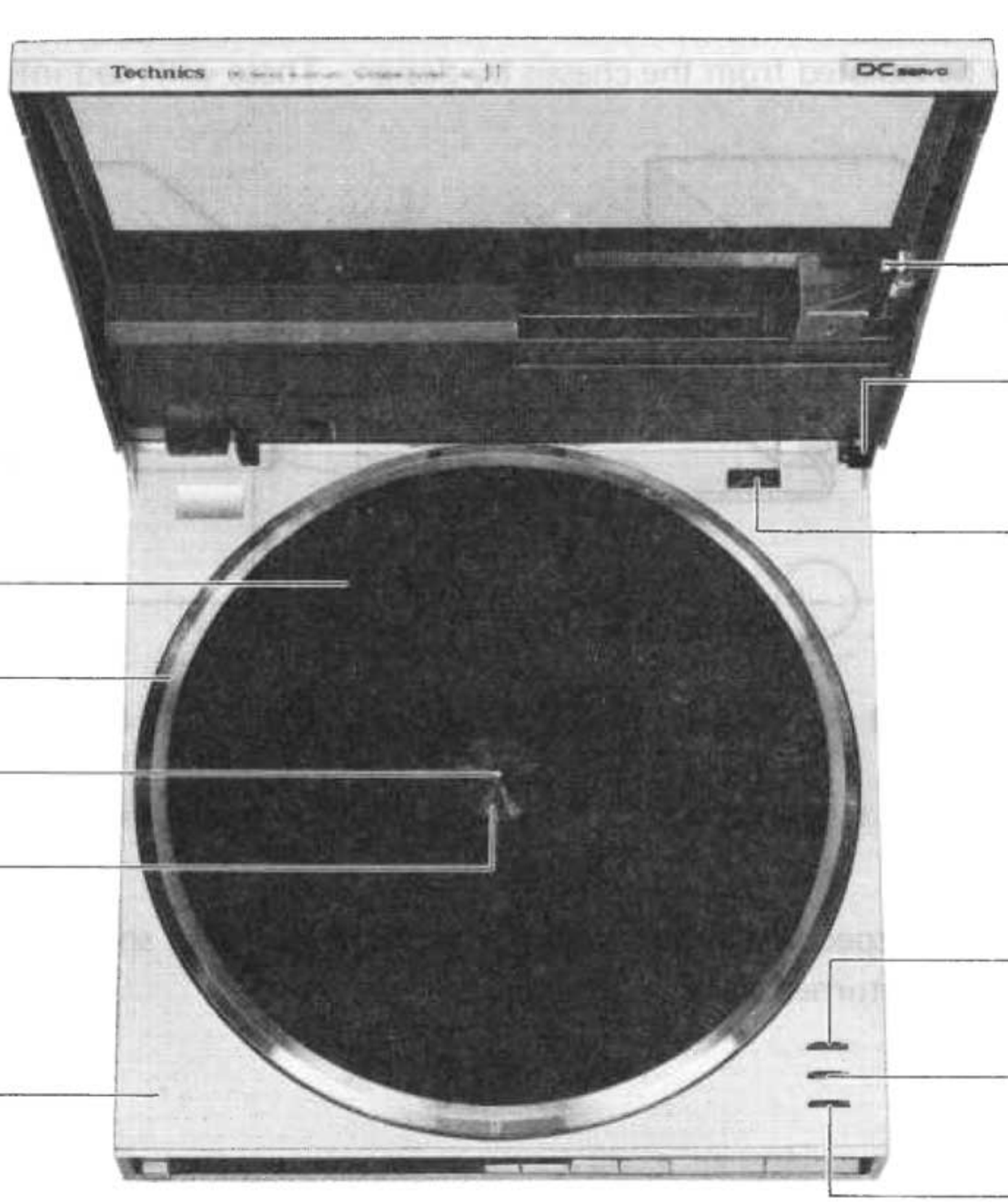
Start switch

Repeat switch

Backward skip/search button

Cueing control

Forward skip/search button



Optical sensor

Reset switch

Stylus set-down position adjustment knob

Turntable mat

Turntable platter

Center spindle

45-rpm adaptor

Record size selector

Lower cabinet

Sensitivity selector

Speed selector

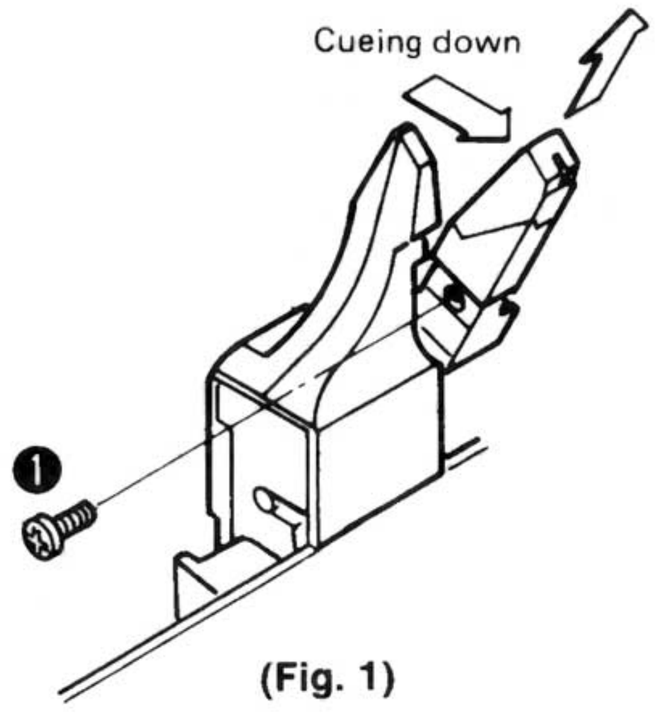
www.vinylengine.com

■ DISASSEMBLY INSTRUCTIONS

• How to remove the cartridge

1. Open the upper cabinet.
2. Down the tonearm by finger in order to make cueing down position.
3. Remove the cartridge setscrew (**Fig. 1**: ❶), and pull out the cartridge.

Note: When attaching the cartridge again, match the tonearm connector with the cartridge pins, then completely insert it and tighten the screw.



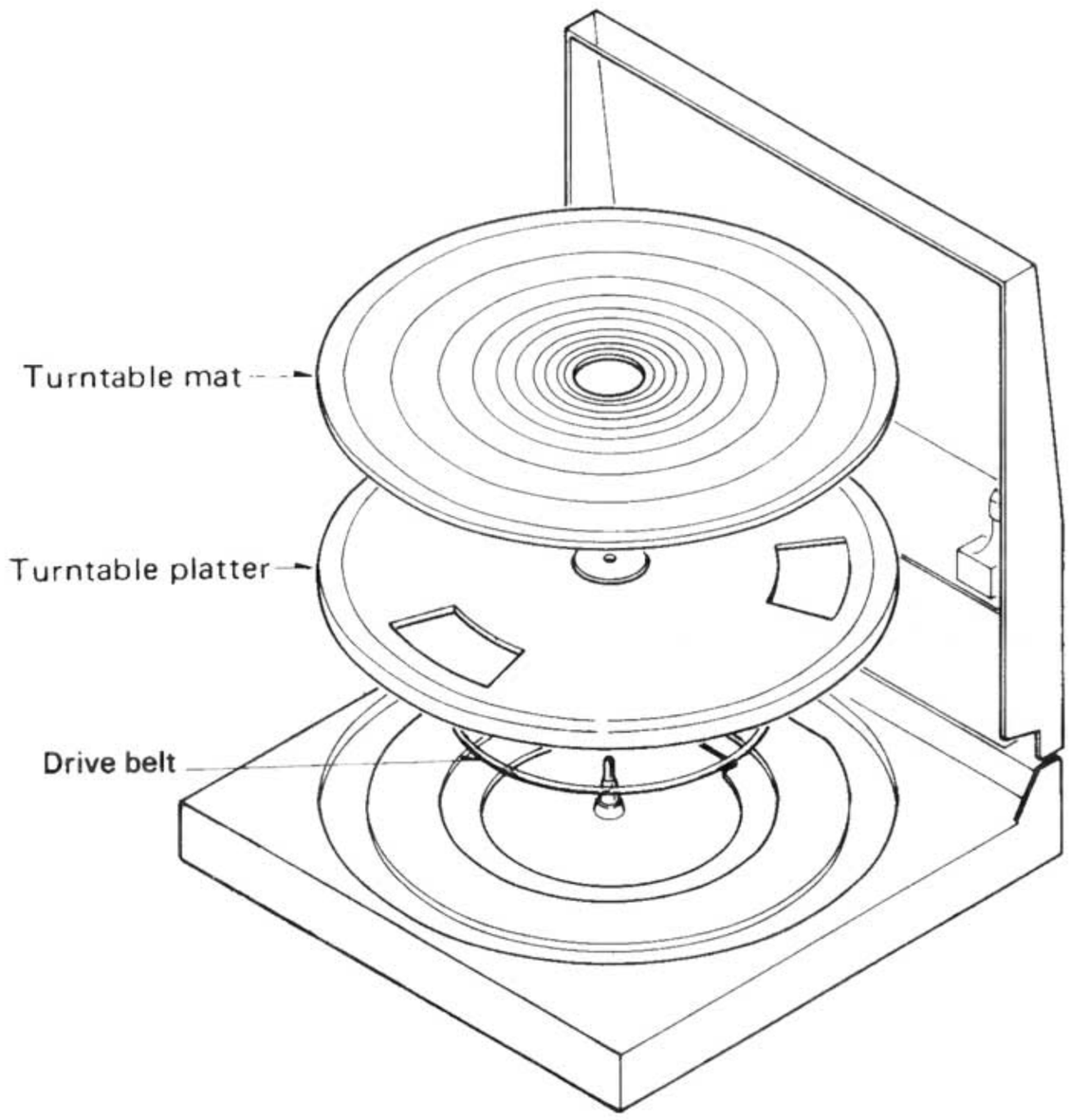
(Fig. 1)

• How to remove the turntable platter

1. Open the upper cabinet.
2. Remove the turntable mat, drive belt and lift the turntable platter. **(Fig. 2)**

Note:

(1) When removing the turntable platter, it is not necessary to remove the 45 r.p.m. adaptor.

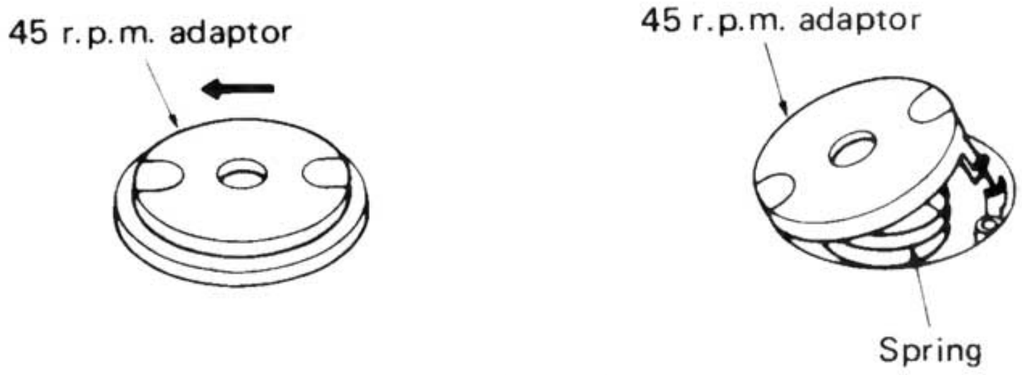


(Fig. 2)

• How to remove the 45 r.p.m. adaptor (Fig. 3)

1. Remove the turntable platter. (**Refer to "How to remove the turntable platter".**)
2. Turn the 45 r.p.m. adaptor counter clockwise to raise it from the turntable platter surface.
3. Push the claw by the blade screwdriver in the direction of the arrow, then remove the 45 r.p.m. adaptor.

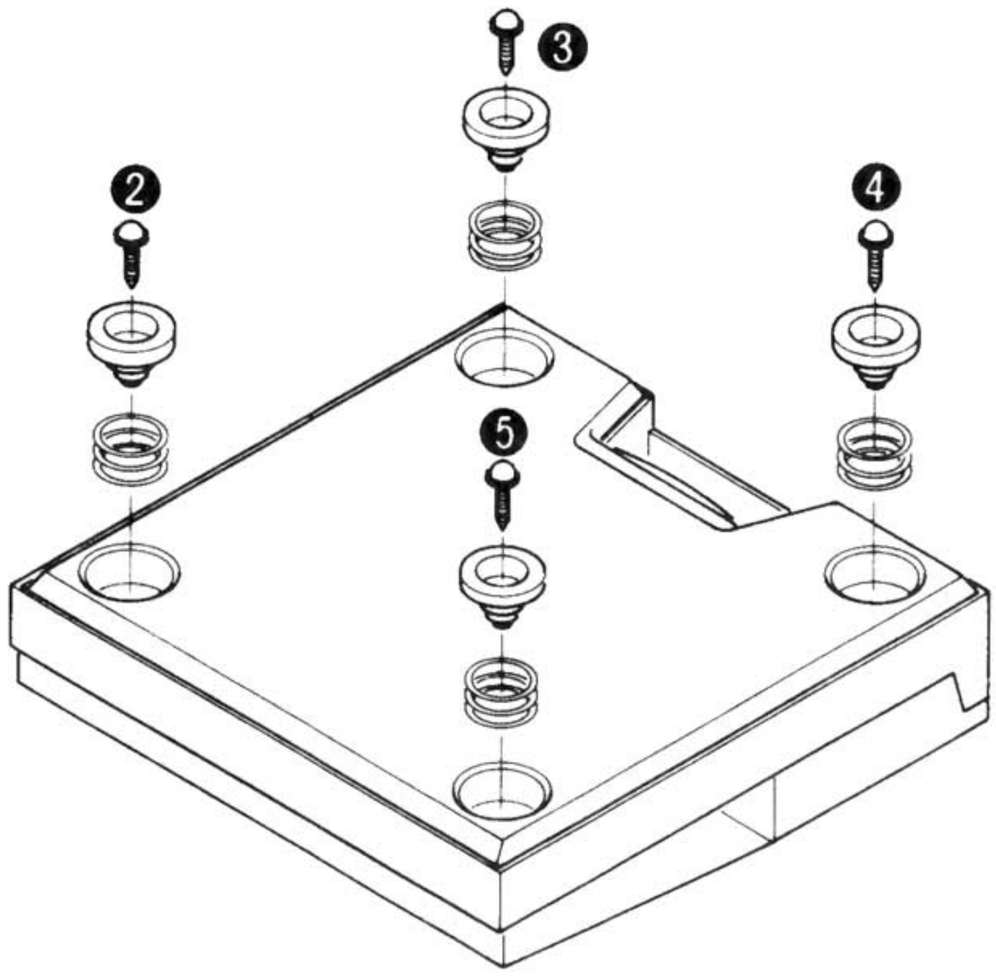
Note: When removing the 45 r.p.m. adaptor, remove the turntable platter, otherwise the 45 r.p.m. adaptor claws will be broken.



(Fig. 3)

• How to remove the bottom board

1. Remove the turntable platter. (**Refer to "How to remove the turntable platter".**)
2. Close the upper cabinet and turn over the unit on a soft cloth taking care not to damage the upper cabinet.
3. Remove the 4 bottom board setscrews. (**Fig. 4**: ❷ ~ ❺).

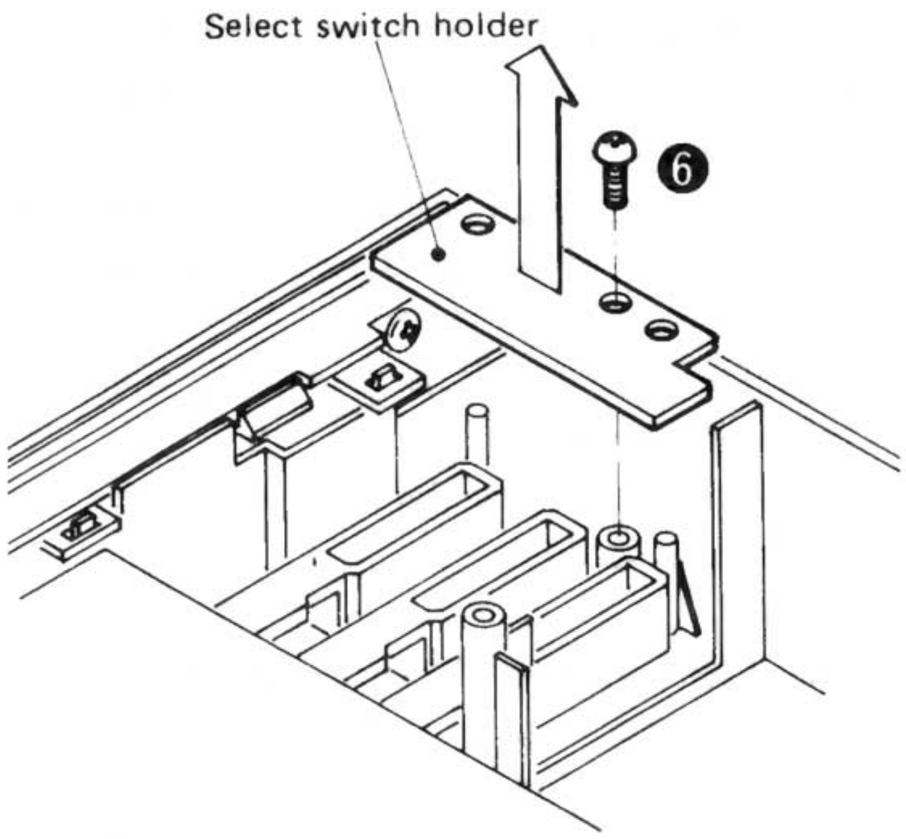


(Fig. 4)

www.vinylengine.com

• How to remove the main circuit board

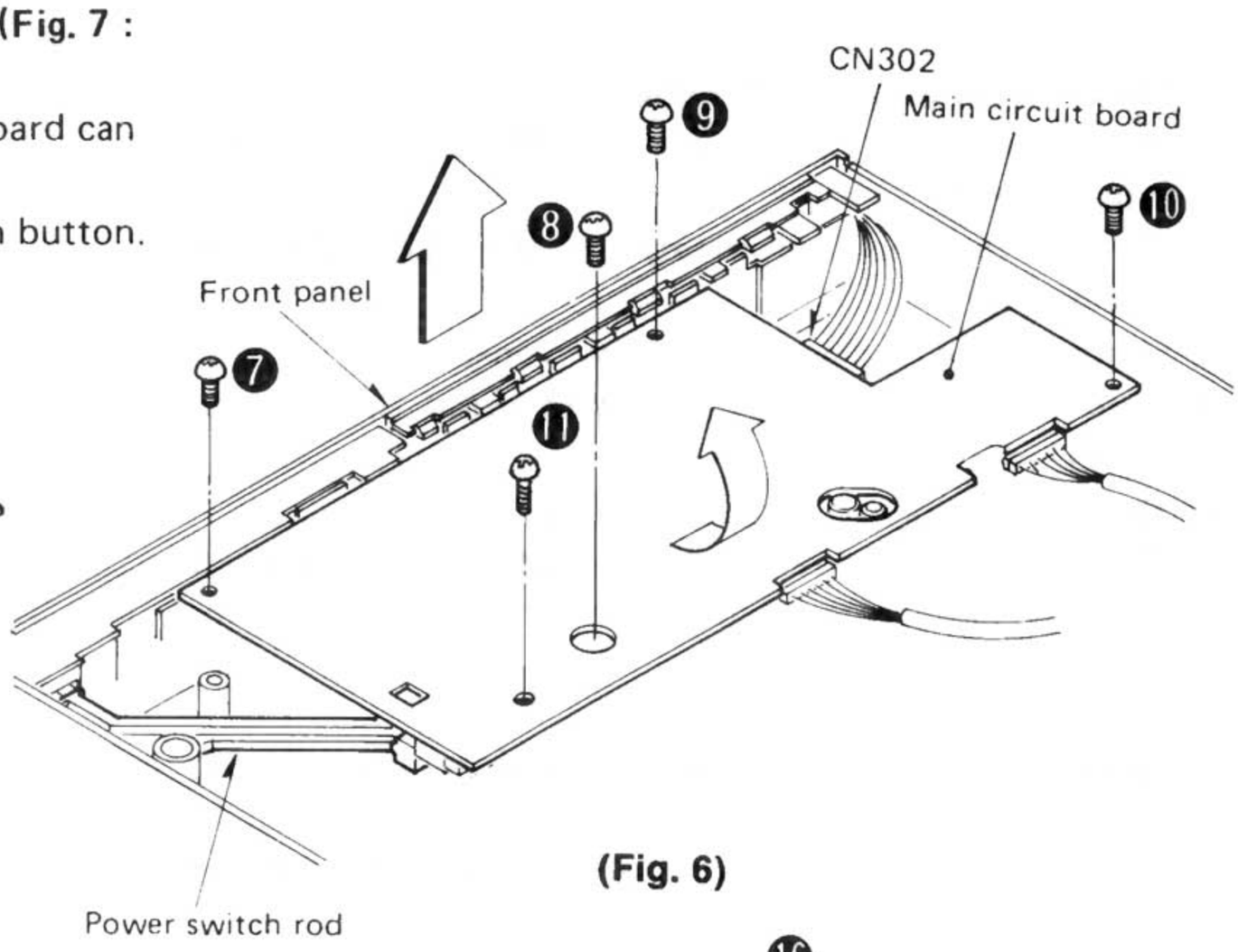
1. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
2. Remove the select switch holder setscrew **(Fig. 5 : ❻)** and the select switch holder. **(Fig. 5)**
3. Remove the 5 main circuit board setscrews **(Fig. 6 : ❼ ~ ⓫)**
4. Pull out the power switch knob from the power switch rod. Then, lift the main circuit board in the direction of the arrow.



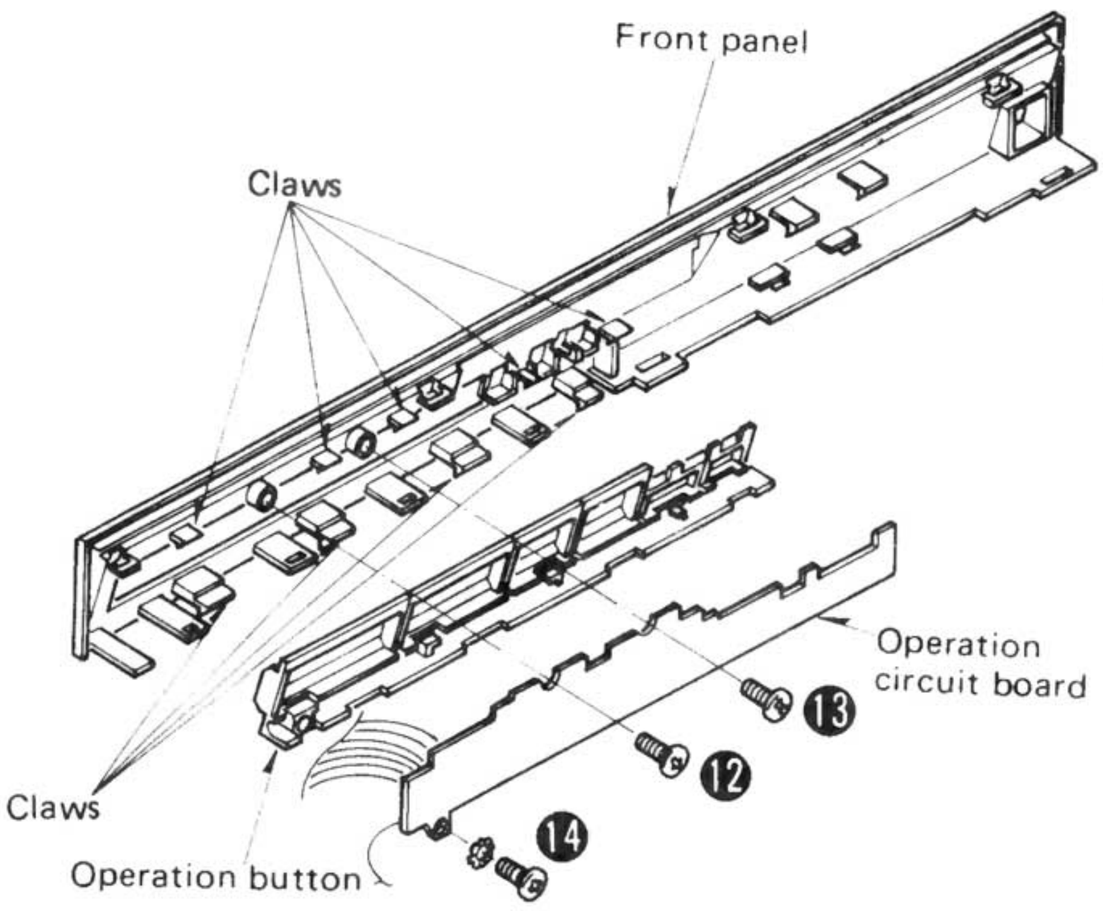
(Fig. 5)

• How to remove the operation button

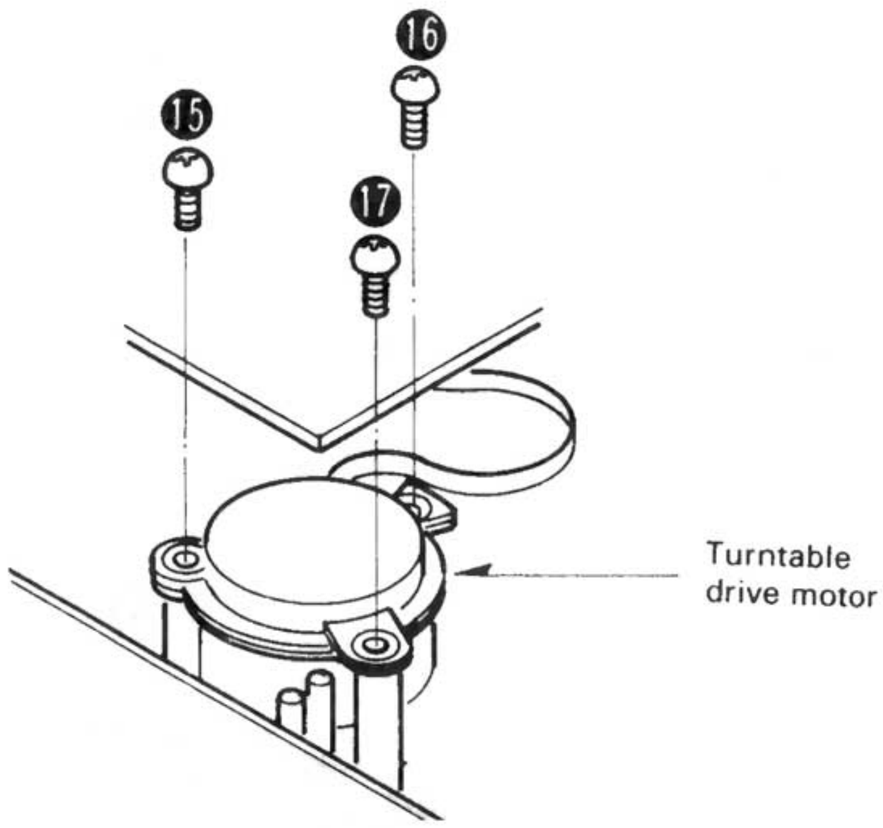
1. Remove the main circuit board. **(Refer to "How to remove the main circuit board.")**
2. Remove the connector (**Fig. 6** : CN302), and then, lift the front panel. **(Fig. 6)**
3. Remove the 3 operation circuit board setscrews **(Fig. 7 : ⓬ ~ ⓮)**.
4. Release the 5 claws, then the operation circuit board can be removed. **(Fig. 7)**
5. Release the 4 claws and gently pull the operation button. **(Fig. 7)**



(Fig. 6)



(Fig. 7)



(Fig. 8)

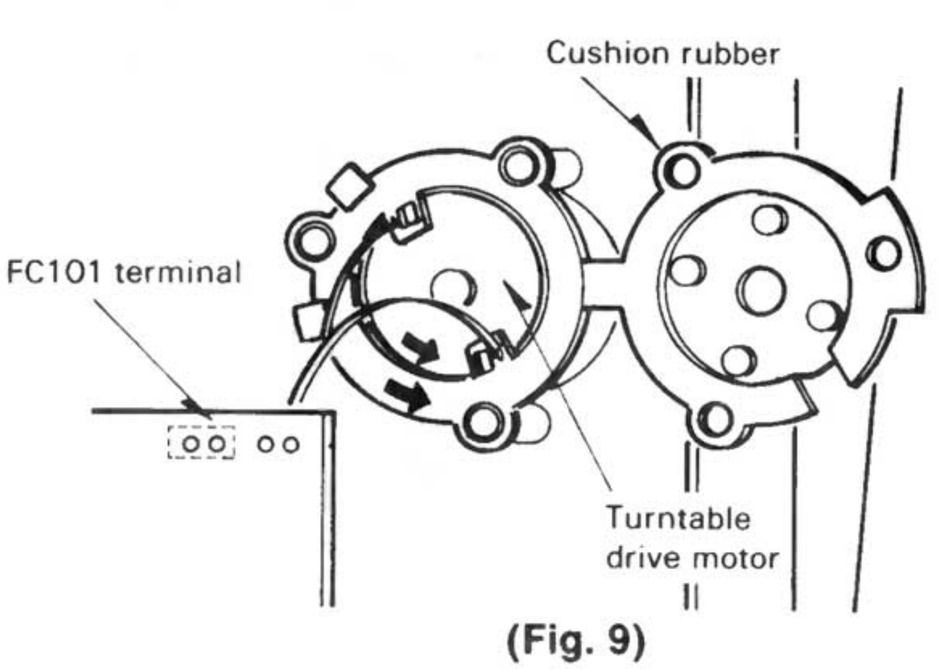
• How to remove the turntable drive motor.

1. Remove the bottom board (**Refer to "How to remove the bottom board"**).
2. Remove the 3 turntable drive motor setscrews. **(Fig. 8: ⓯ ~ ⓱)**
3. Open the cushion rubber, and unsolder of the terminals. **(Fig. 9)**
4. Pull out the turntable drive motor, and remove it from the cabinet.

Notes:

(1) When attach the turntable drive motor to the cushion rubber, fit the allow mark each other.

(2) Connection of the turntable drive motor is . . .
FC101 ① terminal — (+) terminal of the motor
FC101 ② terminal — (−) terminal of the motor
* An arrow mark is the minus (−) terminal.



(Fig. 9)

www.vinylengine.com

• How to remove the reset switch

1. Remove the bottom board. (**Refer to "How to remove the bottom board"**)
2. Remove the switch holder setscrew (**Fig. 10:** ⑱).
3. Release the 2 claws of switch holder and remove the reset switch circuit board.
4. Unsolder the 2 switch terminals, then the reset switch can be removed.

Note: When replacing the reset switch, be sure to open the upper cabinet.

• How to remove the dust cover

1. Pull out the 4 right and left rivets and 2 right and left rivet holders. (**Fig. 11**)
2. Lift the dust cover in the direction of the arrow. (**Fig. 11**) Then the dust cover can be removed.

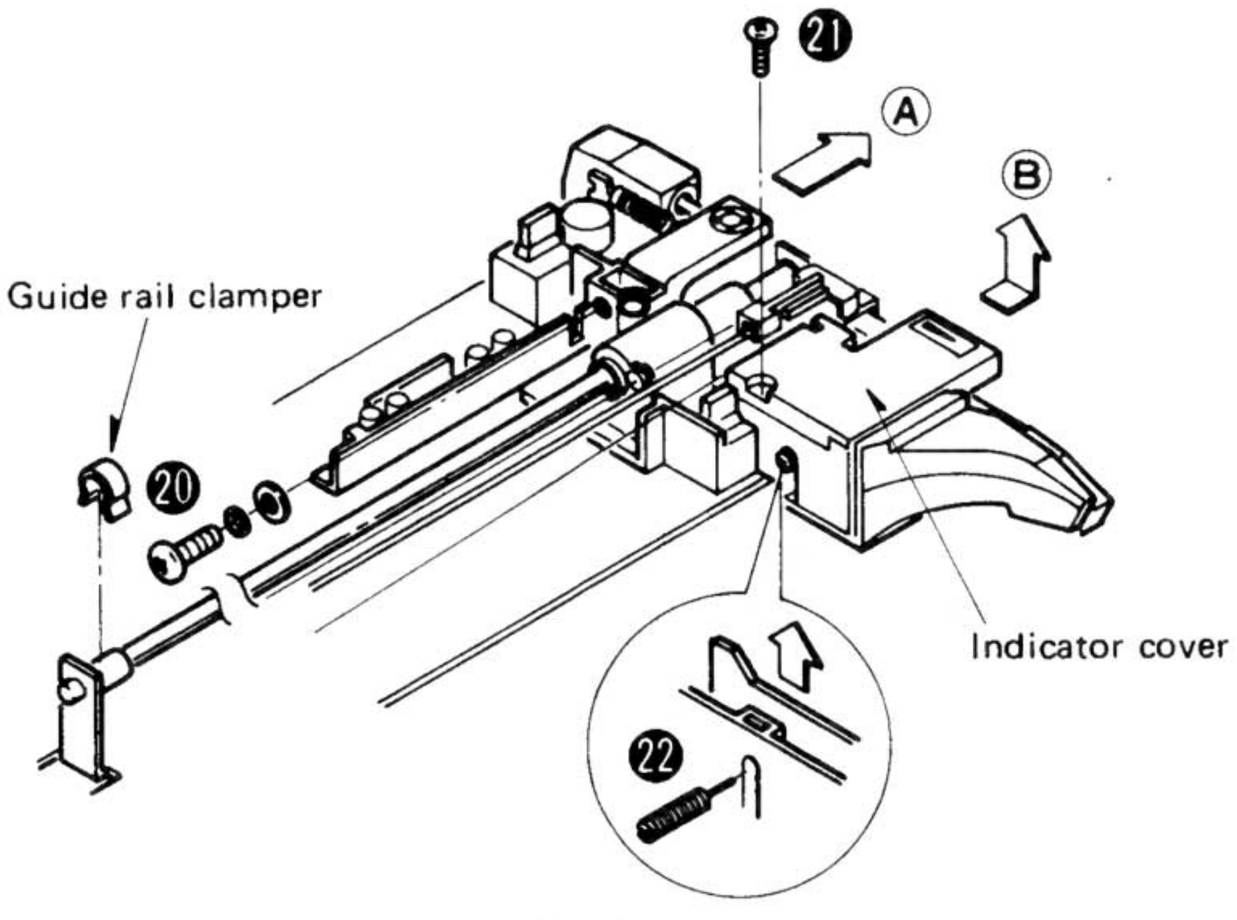
• How to remove the tonearm

1. Remove the dust cover. **(Refer to "How to remove the dust cover.")**
2. Remove the shield cover setscrew **(Fig. 12 :** ⑲ **)** and shield cover.
3. Unsolder the 5 lead wires from Tonearm.
4. Turn the worm gear by finger to move the tonearm center inward.
5. Remove the tonearm setscrew. **(Fig. 13 :** ⑳ **)**
6. Remove the guide rail clamper, and pull out the guide rail, the remove the tonearm in the direction of the arrow Ⓐ.

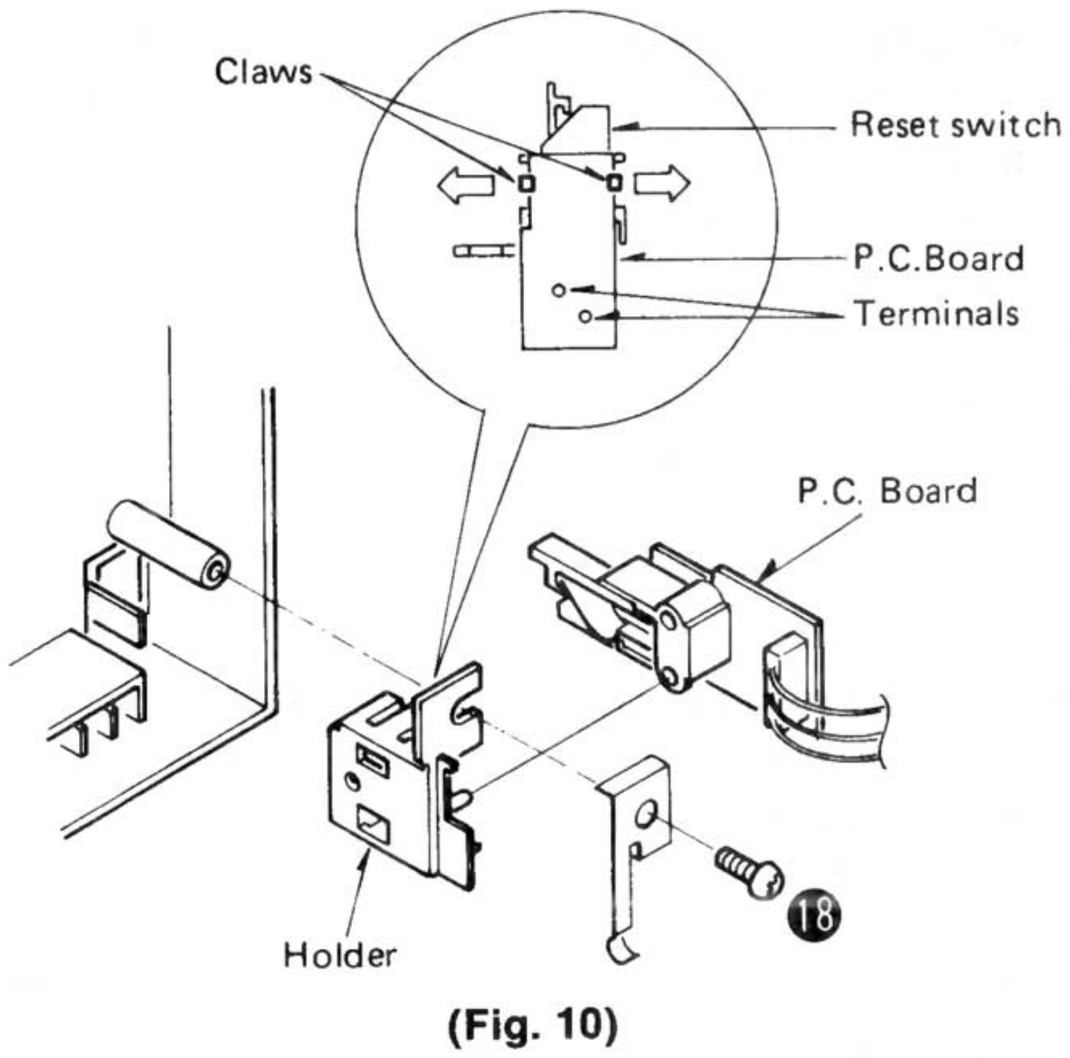
• How to remove the offset angle detection circuit board

1. Remove the dust cover. (**Refer to "How to remove the dust cover."**)
2. Remove the indicator cover setscrew **(Fig. 13:** ㉑ **)** and the indicator cover in the direction of the arrow Ⓑ. **(Fig. 13)**
3. Remove the offset angle detection circuit board adjustment screw **(Fig. 13:** ㉒), then the offset angle detection circuit board can be removed.

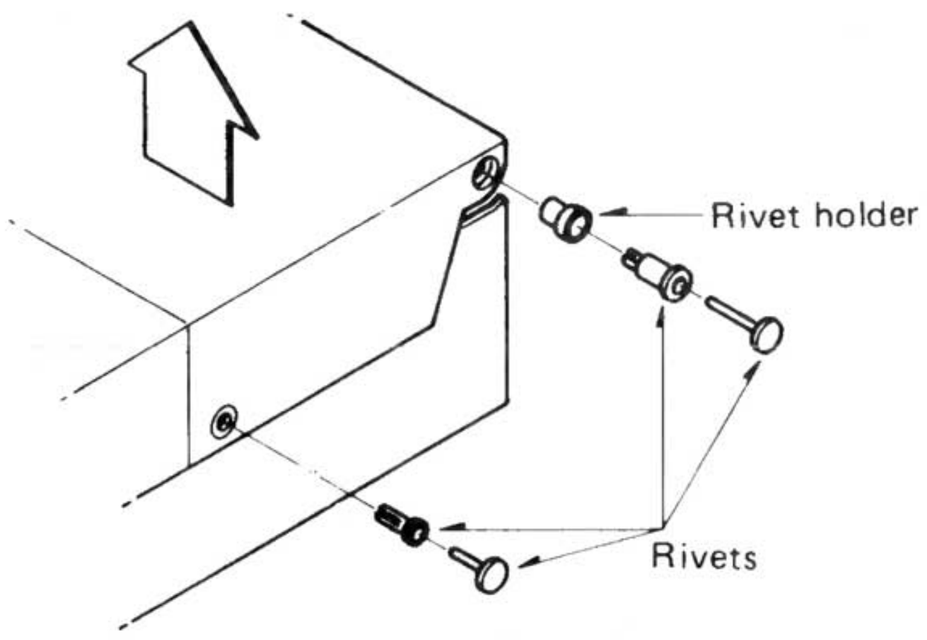
Note: When replacing the offset angle detection circuit board, be sure to adjust the servo gain and offset voltage.



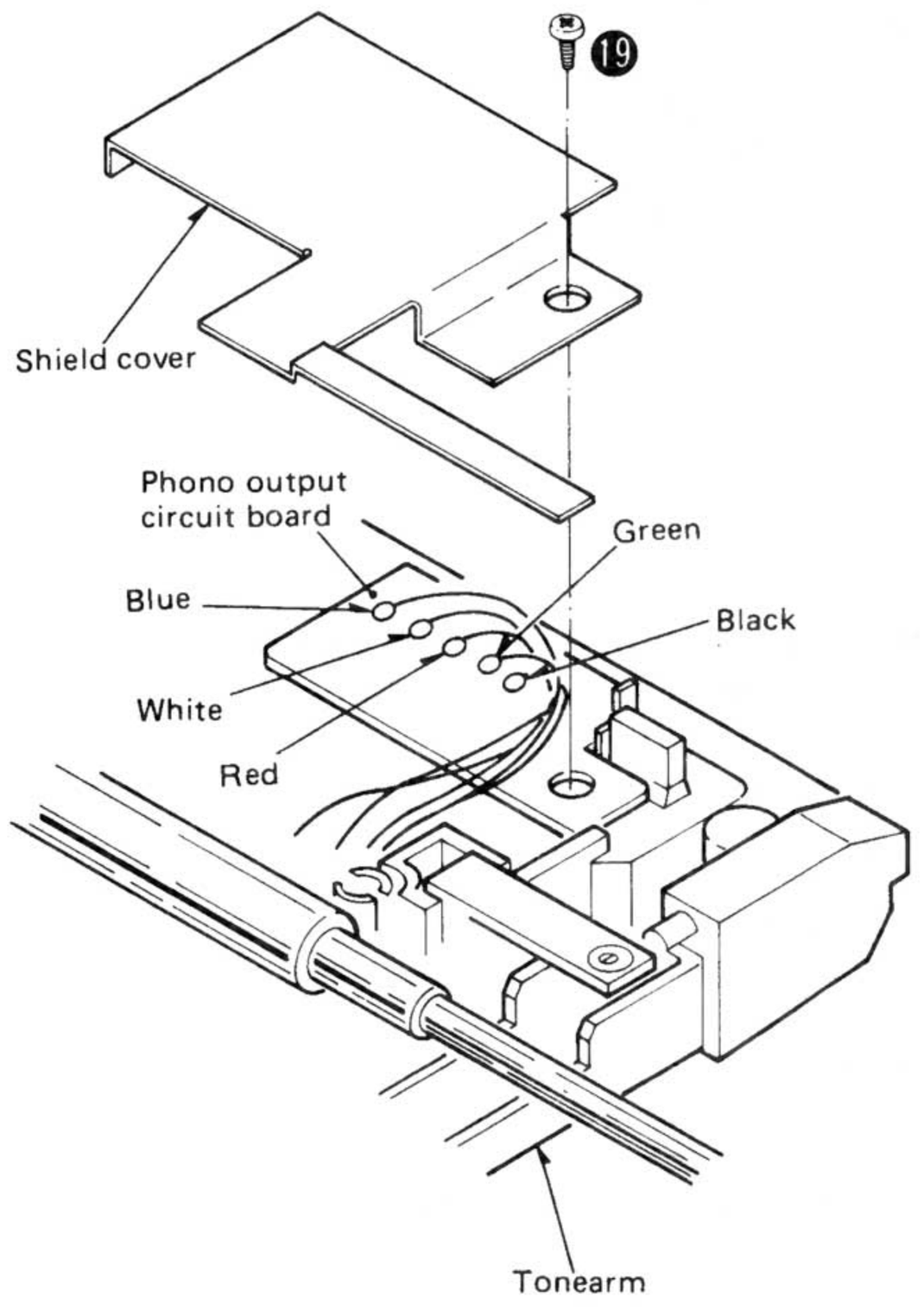
(Fig. 13)



(Fig. 10)



(Fig. 11)



(Fig. 12)

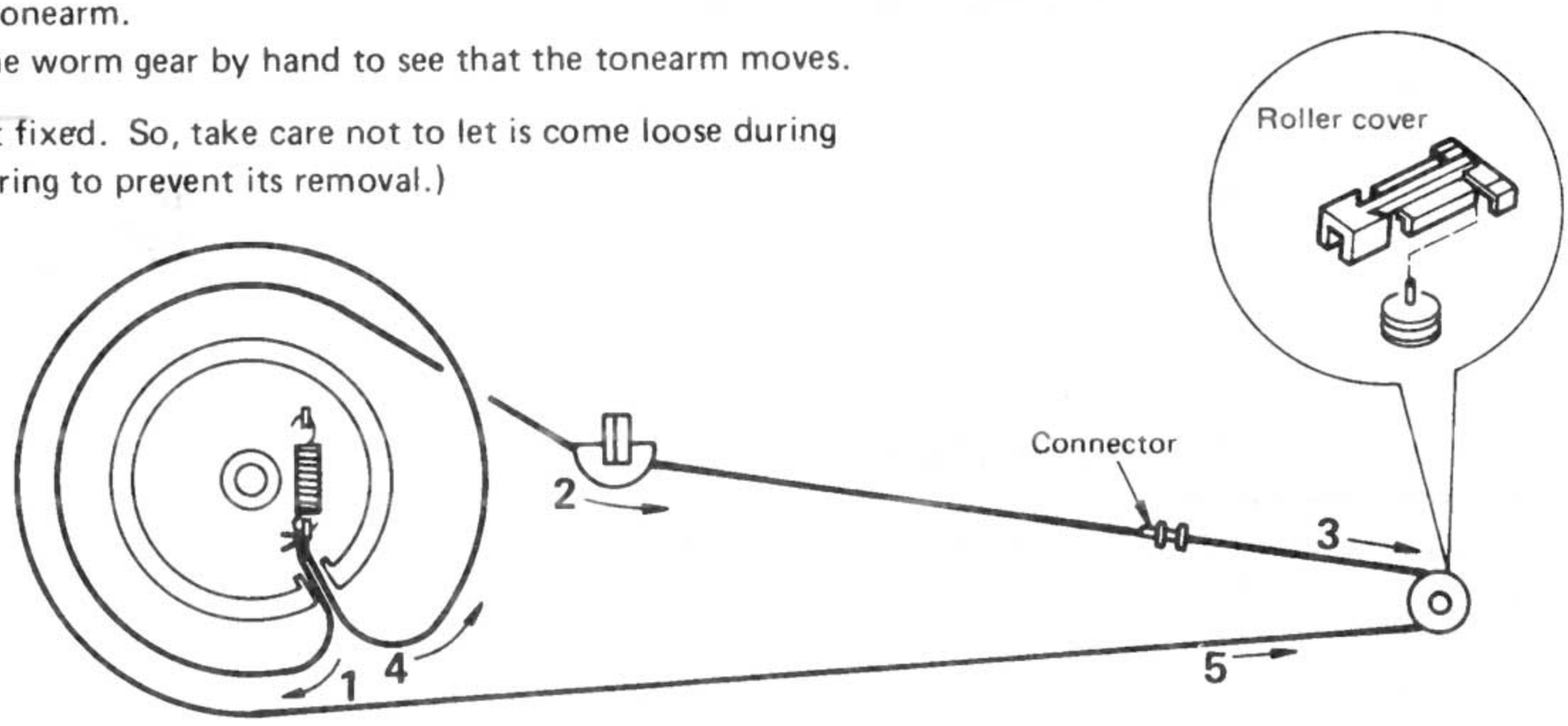
www.vinylengine.com

■ HOW TO SET THE TONEARM DRIVE ROPE

When setting the rope, follow the procedure given below.

1. Remove the dust cover and tonearm cover. **(Refer to "How to remove the dust cover.")**
2. Remove the roller cover. **(Fig. 14)**
3. Set the rope in the order of 1 ~ 5 **(Fig. 14)**
4. Fit the rope connector to the tonearm.
5. Set the roller cover and turn the worm gear by hand to see that the tonearm moves.

Note: The arm drive wheel is not fixed. So, take care not to let is come loose during servicing. (Stop it with C-ring to prevent its removal.)



(Fig. 14)

■ MEASUREMENTS AND ADJUSTMENT English

- **Equipment used and condition of the set**
  1. Oscilloscope
  2. DC voltmeter
  3. Record (SFTR007) for adjustment
  4. Set the optical sensor sensitivity selector to "M".

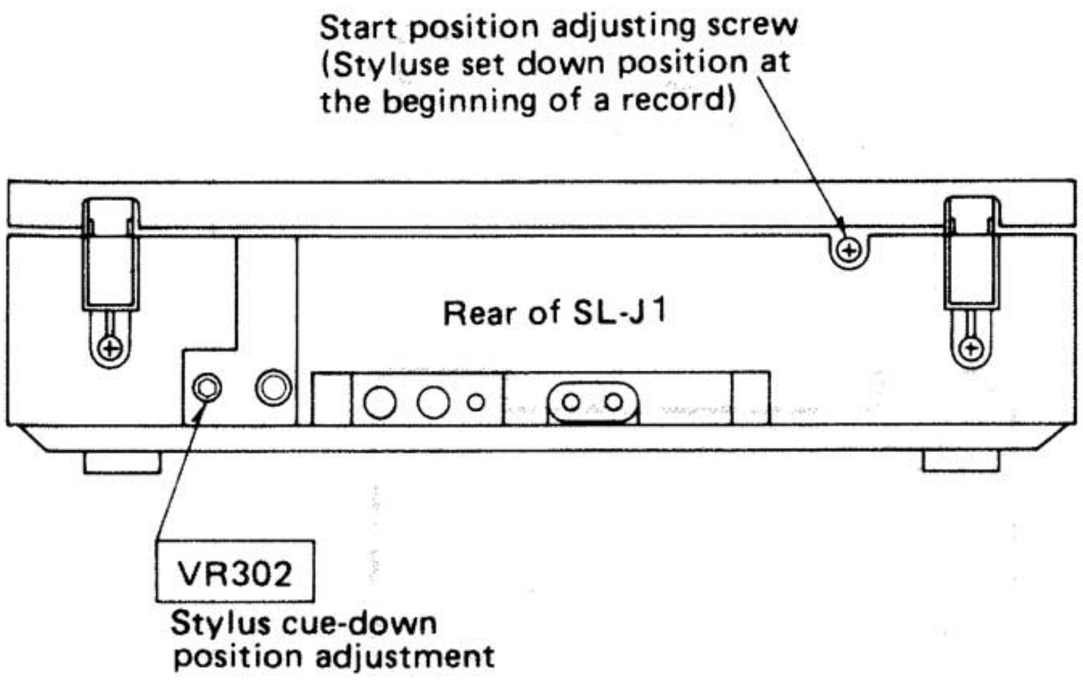
Step	Item	Preparations for adjustment	Adjusting portion	Adjusting method
1	**Start position**	1. Open the upper cabinet and put on the record. 2. Turn the power switch on. 3. Push the "start" switch.	Start position adjusting screw **(Fig. 15)**	• Turn the start position adjusting screw. If it descends between turnes, turn the screw counter clockwise.
2	**Clock frequency**	1. Connect lead wire with clip to IC301 29-pin and 1-pin of operation circuit board. 2. Connect the oscilloscope to IC301 8-pin.	VR301 **(Fig. 16)**	1. Turn the power switch on. 2. Adjust VR301 so that the cycle of output waveform is 1.36 msec. ±0.07 msec. **(Fig. 17)**
3	**Sensor gain**	1. Connect the DC voltmeter to IC401 12-pin (+) and 14-pin (−). 2. Put on the record for adjustment with side A up. 3. Close the upper cabinet.	VR401 **(Fig. 16)**	1. Turn the power switch on. 2. Tonearm is on the rest position. (Blank area of the record.) 3. Adjust VR401 so that the output voltage is 8V ±0.4V.
4	**Sensor resolution**	1. Connect the oscilloscope to IC401 9-pin (+) and 14-pin (−). 2. Put on the record for adjustment with side A up. 3. Close the upper cabinet.	VR402 **(Fig. 16)**	1. Turn the power switch on. 2. Keep the F skip switch depressed to move the tonearm. (Output is delivered between the turnes.) 3. Adjust VR402 so that the peak output between tunes is 3V ±0.3V. **(Fig. 18)**
5	**Stylus cue-down position**	1. Open the upper cabinet and hold the cabinet switch with tape. 2. Put on the record for adjustment with side B up. 3. Close the upper cabinet. 4. Connect the unit it the amplifier. (Connect the speakers to the speaker terminals.)	VR302 **(Fig. 15)**	1. Turn the power switch on. 2. Press the F skip switch twice and then press the start switch. 3. After completion of cueing, again press the B skip switch for the purpose of cueing down as previously mentioned. 4. Make sure that descending position is at count "18~19". 5. Adjust VR302 so that the descending position is at count "18~19".

www.vinylengine.com

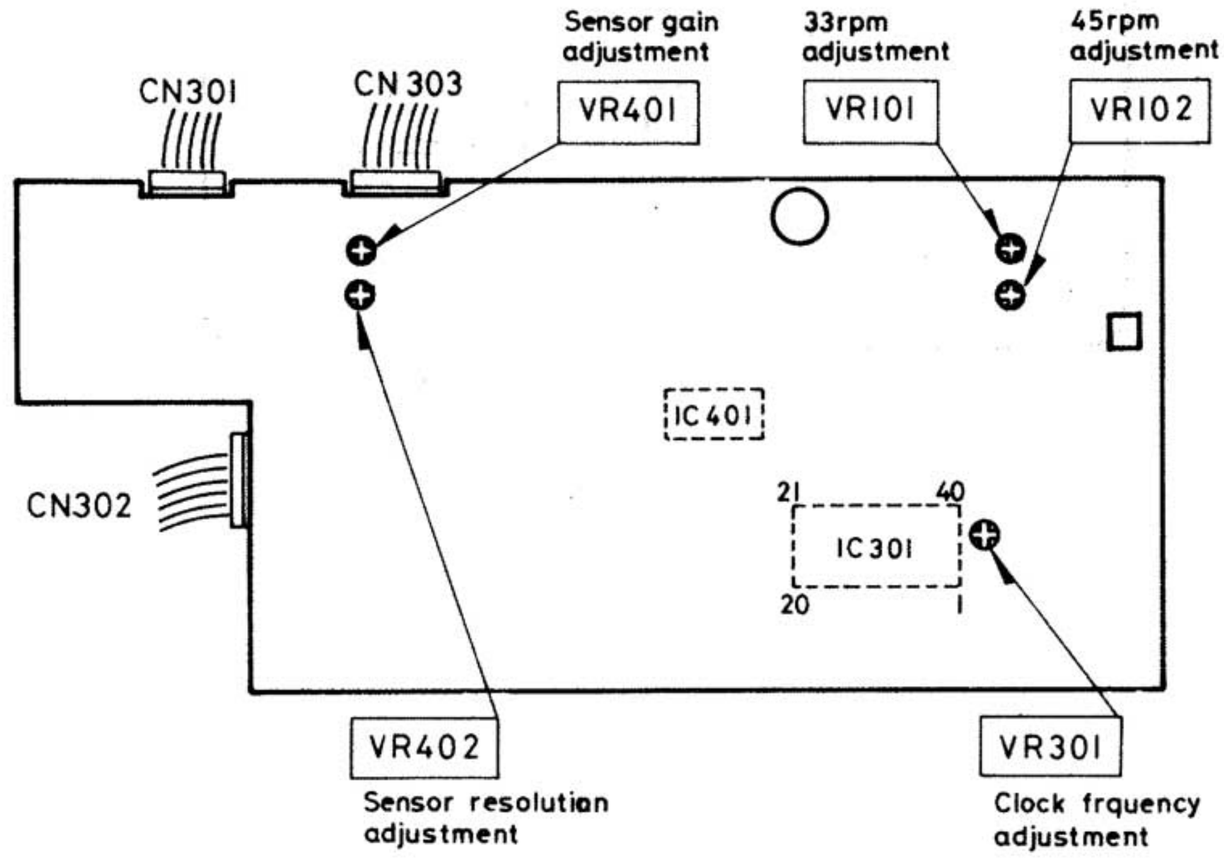
6	**Tonearm offset angle**	1. Remove the dust cover. (Refer to "DISASSEMBLY INSTRUCTION") 2. Open the upper cabinet and hold the cabinet switch with tape. 3. Close the upper cabinet. 4. Put on the record.	Adjusting screw **(Fig. 19)**	1. Turn the power switch on. 2. Keep the F skip switch depressed to move the tonearm. 3. Turn the adjusting screw so that the arm center matches the V-groove of the lift bar.
7	**Servo gain and offset voltage**	1. Remove the dust cover. (Refer to "DISASSEMBLY INSTRUCTION") 2. Open the upper cabinet and hold the cabinet switch with tape. 3. Connect the DC voltmeter to CN301 5-pin (+) and 2-pin (−). 4. Remove the sensor cover.	VR501 (Servo gain) Screw (Offset voltage) **(Fig. 20)**	1. Turn the power switch on. 2. Keep the F skip switch depressed to move the tonearm. 3. Open the upper cabinet. 4. Completely shift the tonearm to the left. Then, adjust VR501 so that the voltage is 3.6V. (Servo gain) 5. Set the tonearm to the center and make sure that the output voltage is 1.8V. 6. If the voltage is not 1.8V, adjust screw so that the output voltage is 1.8V. (Offset voltage)
8	**Rotating speed**	1. Open the upper cabinet and set speed selector switch to "33". 2. Turn the power switch "on" and push the start switch.	VR101 **(Fig. 16)**	• Adjust VR101 to obtain rated speed.
		1. Open the upper cabinet and set speed selector switch to "45". 2. Turn the power switch "on" and push the start switch.	VR102 **(Fig. 16)**	• Adjust VR102 to obtain rated speed.

■ MESSUNGEN UND JUSTIERUNGEN ■■■

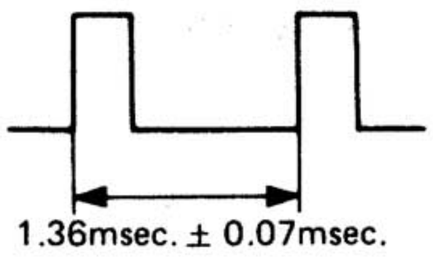
• Adjustment points



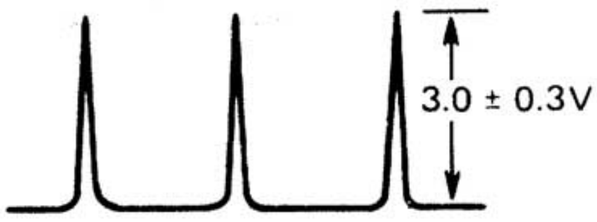
(Fig. 15)



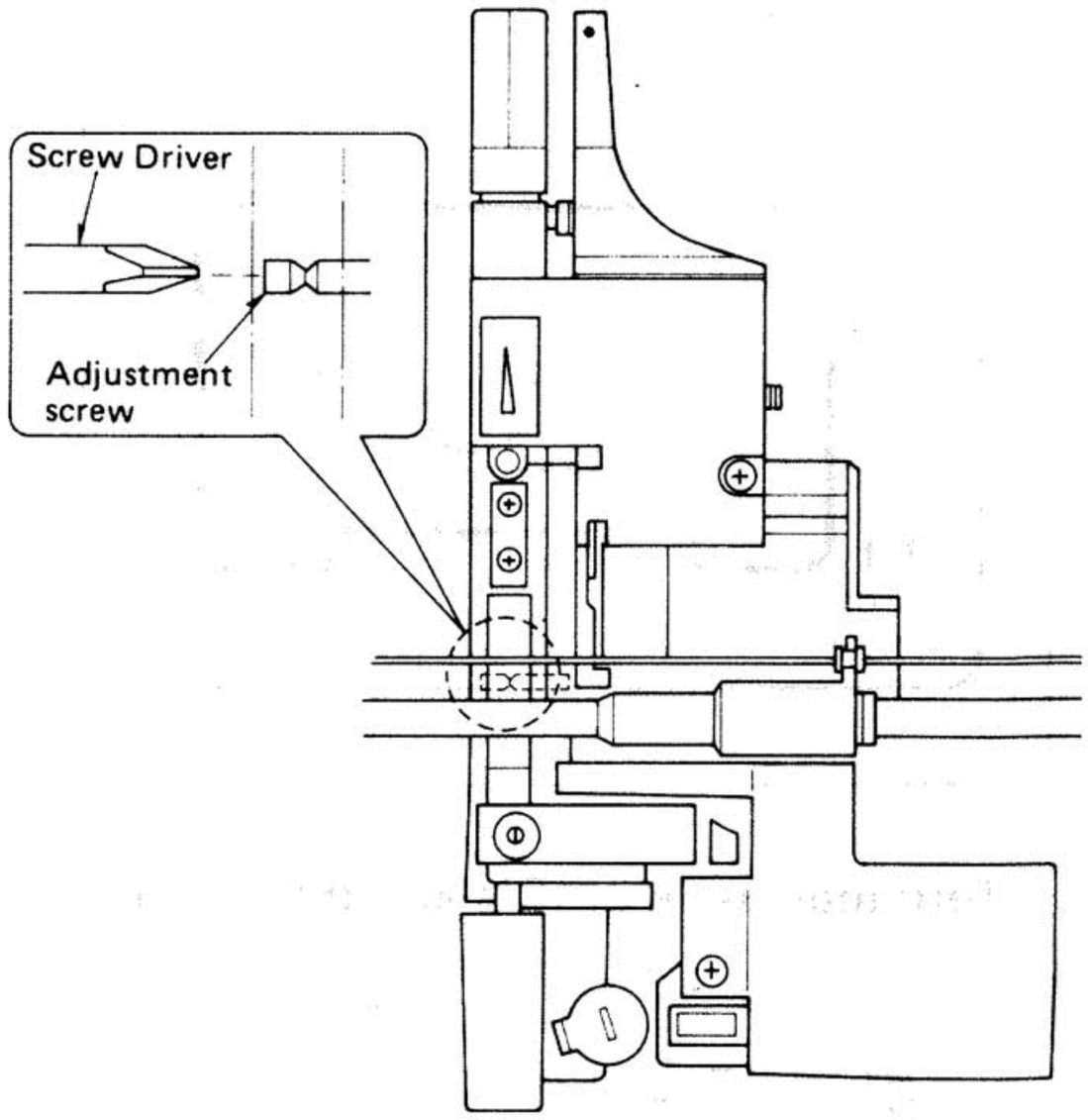
(Fig. 16)



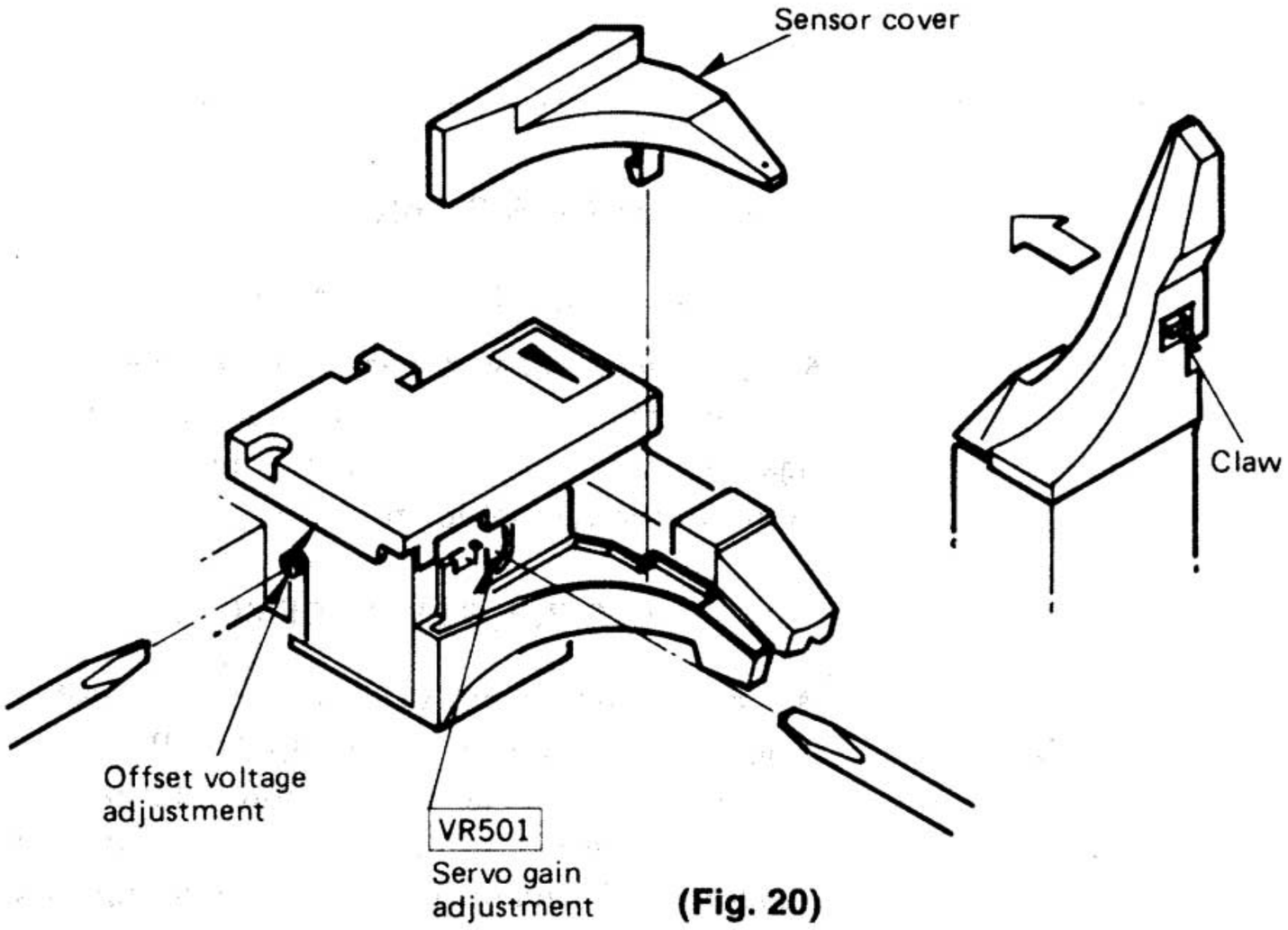
(Fig. 17)



(Fig. 18)



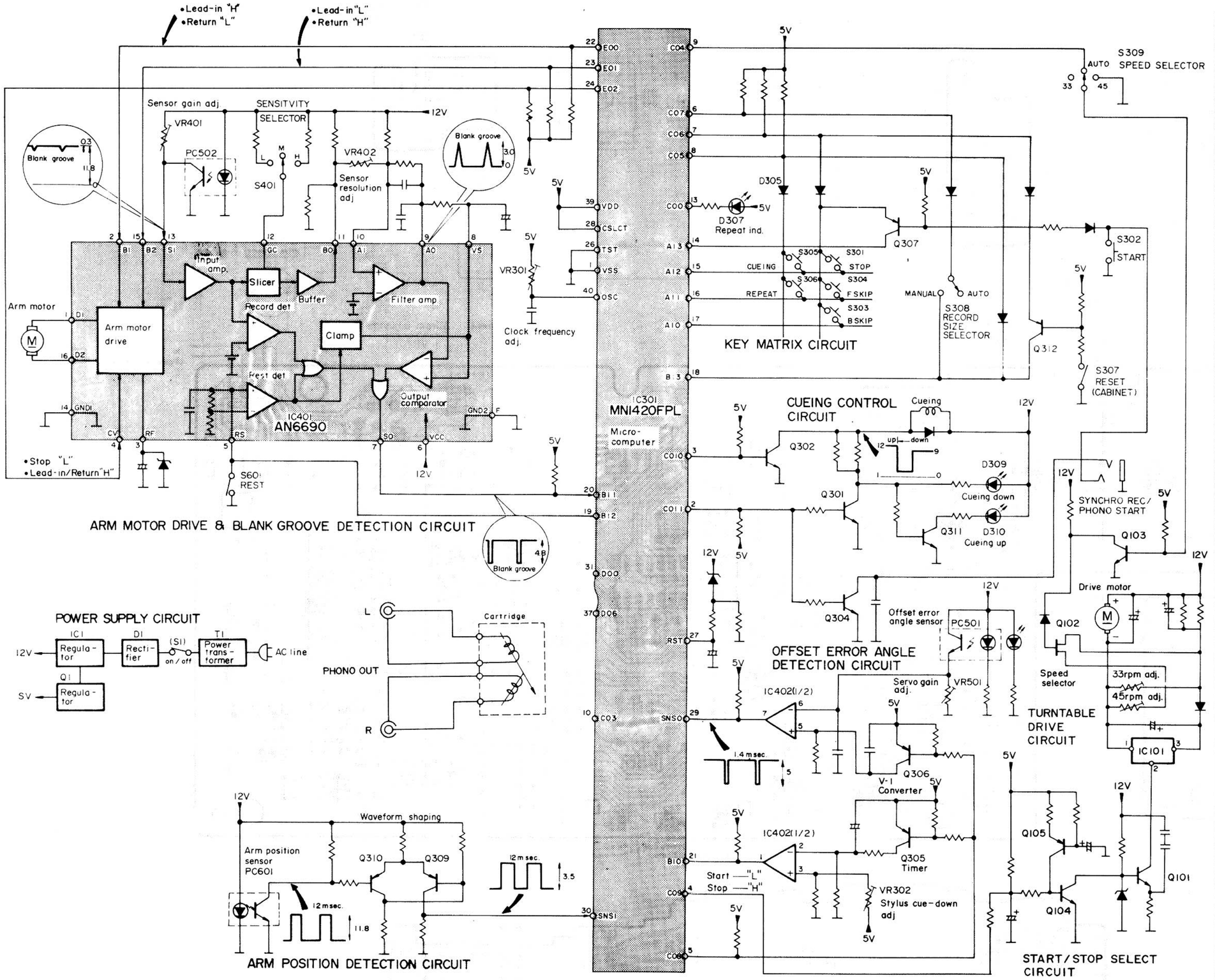
(Fig. 19)



(Fig. 20)

www.vinylengine.com

■ BLOCK DIAGRAM

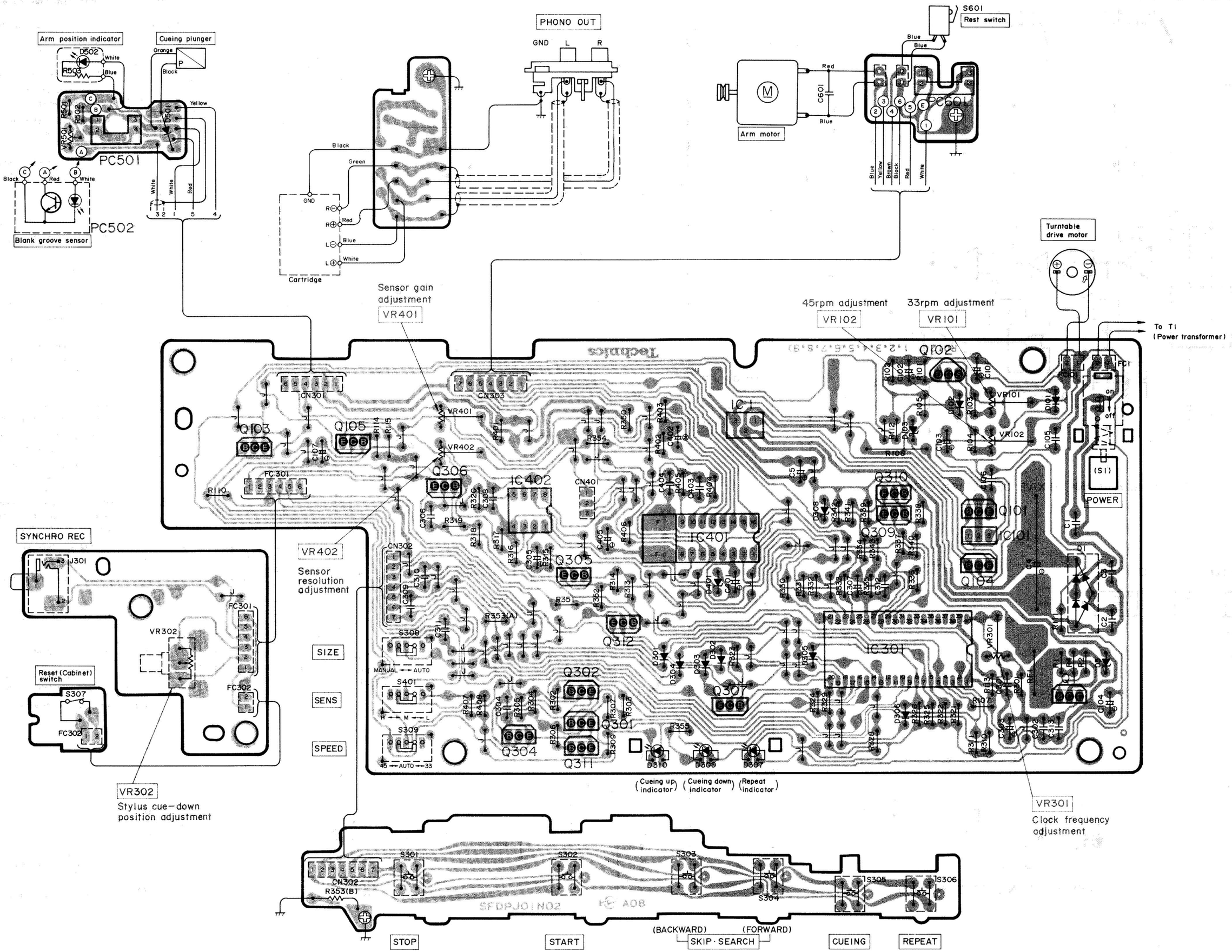


• Function of terminal (MN1420FPL)

Pin No.	Symbol	Description
1	VSS	Ground terminal
2	CO11	Cueing control terminal ("H" during cueing and cueing down)
3	CO10	Cueing control terminal ("H" only cueing down)
4	CO9	Turntable start/stop select terminal (Start/at "L", stop at "H")
5	CO8	Key scan output terminal (Each key is read in through key scan with A-port)
6	CO7	
7	CO6	
8	CO5	
9	CO4	Turntable speed select output terminal (45 rpm "L", 33 rpm "H")
10	CO3	Not used in this unit
11	CO2	
12	CO1	
13	CO0	Repeat indicator output terminal (Indicator ON at "L")
14	AI3	Key scan input terminal (Each key is read in through key scan with C-port)
15	AI2	
16	AI1	
17	AI0	
18	BI3	Record size selector input terminal (Read in through key scan with C-port)
19	BI2	Rest position detection input terminal ("L" when tonearm is on rest)
20	BI1	Blank detection and record detection terminal (Blank pulse is active at "L"; 30 cm record is present with "H" at rest position; 30 cm record is not present with "L". When it is at "L" outside the rest position, 17 cm is present; and no record is present at "H".)
21	BI0	Cueing time read input terminal
22	EO0	Arm motor drive control terminal
23	EO1	
24	EO2	
25	EO3	Not used in this unit
26	TST	Test terminal
27	RST	Reset terminal (Micom is reset at "L")
28	CSLCT	Select terminal
29	SNSO	Offset angle detection signal input terminal
30	SNSI	Arm position detection signal input terminal
31	DO0	Not used in this unit
32	DO1	
33	DO2	
34	DO3	
35	DO4	
36	DO5	
37	DO6	
38	DO7	
39	VDD	Power supply terminal
40	OSC	Oscillation circuit (Clock frequency is adjusted to 1.36 ms)

www.vinylengine.com

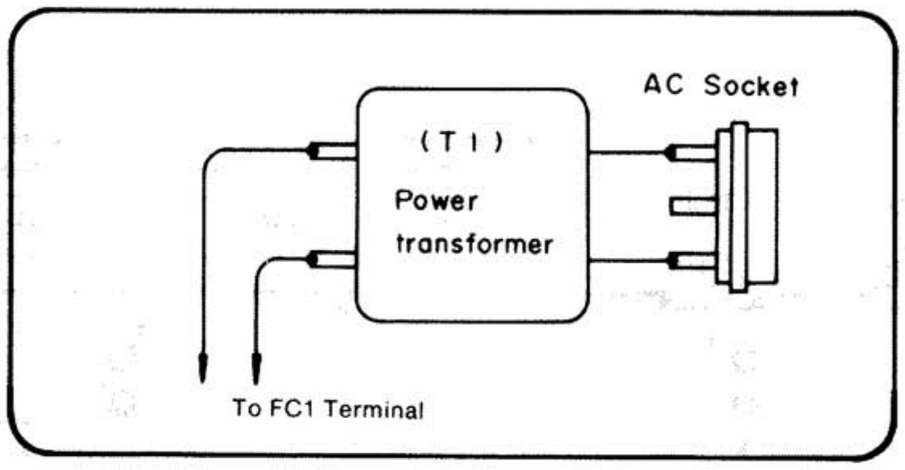
■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



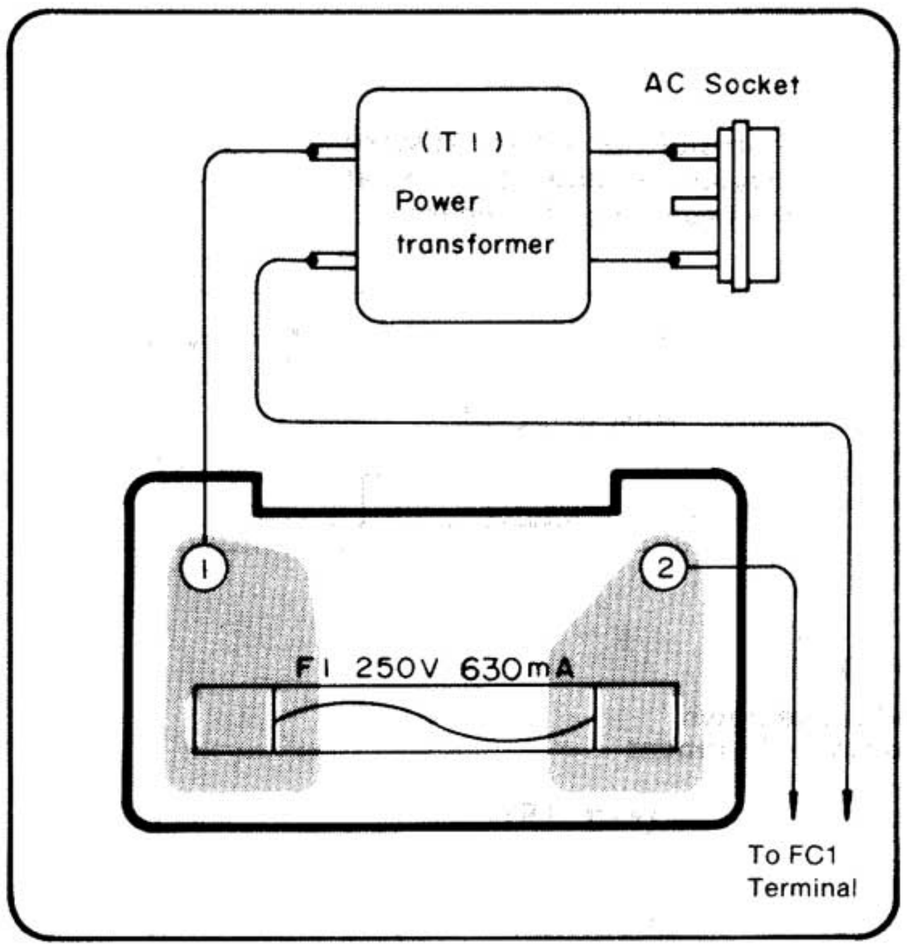
www.vinylengine.com

• Power source circuit

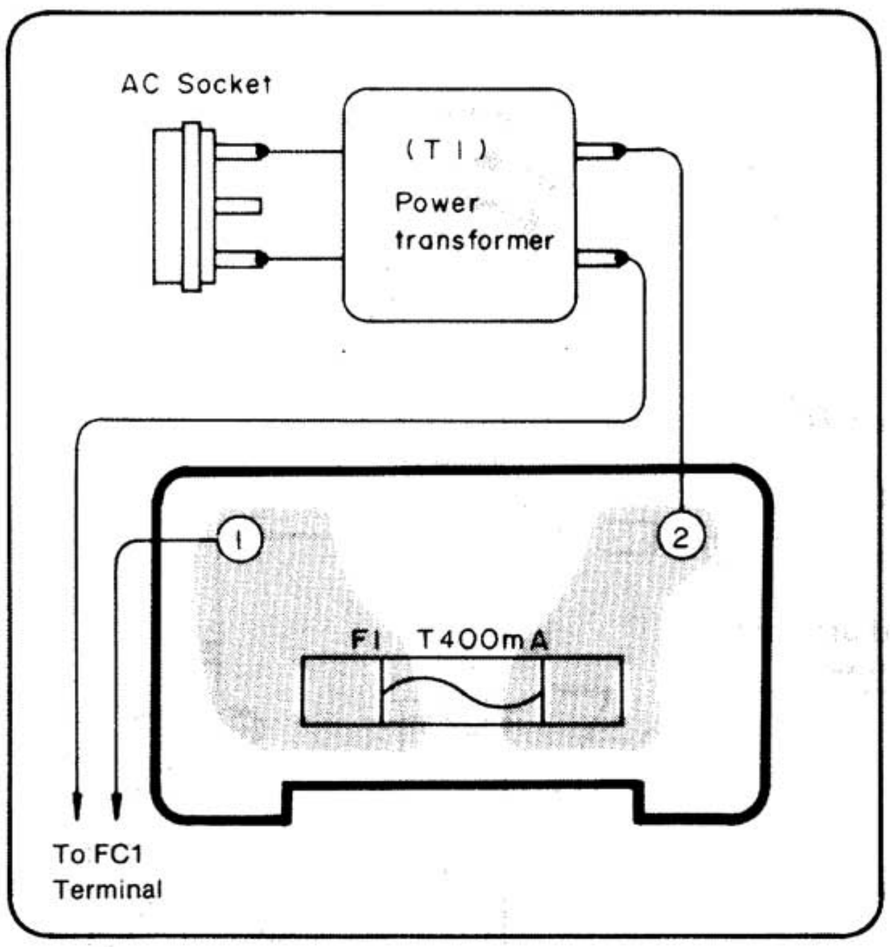
★ Product for U.S.A.



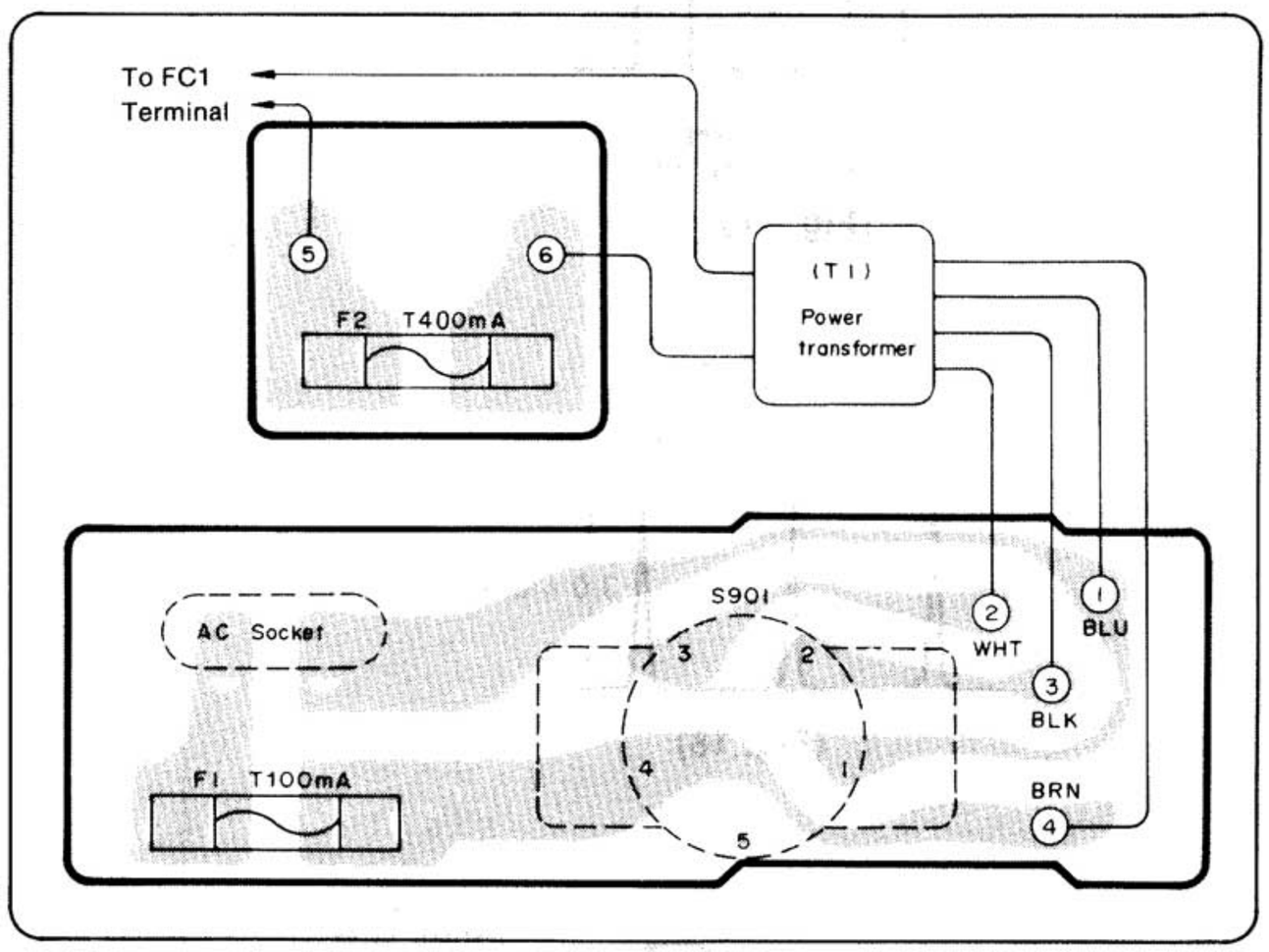
★ Product for Canada.



★ Product for Continental Europe, United Kingdom and Australia.

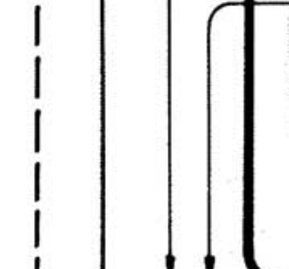


★ Product for Southeast Asia, Oceania, Africa, Middle Near East and Central South America.



• Terminal guide of IC's and transistors

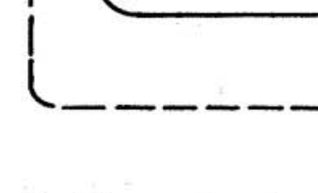
AN6914	8 pin
MN1420	40 pin



2SD592
2SD892

AN6610

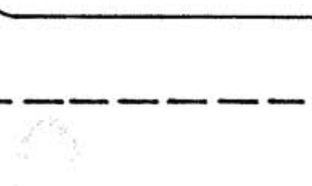
AN6690



2SB641, 2SD638
2SD636

AN7812

2SK301



• Product for MC only

FUSE REPLACEMENT

Symbol located near the fuse indicates fast operating type. For continued protection against fire hazard, replace with same type fuse. Refer to the symbol for fuse rating.

FUSIBLE REMPLACEMENT

Le symbole qui se trouve près du fusible singifie un fusible à action rapide. Pour une protection contiue contre les risques d'incendie, n'utiliser que des fusibles du même type. Se rapporter au symbole pour la valeur des fusibles.

www.vinylengine.com

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

1. **S1** : Power switch in "**on**" position.
2. **S301** : Stop switch.
3. **S302** : Start switch.
4. **S303** : Backward skip/search switch.
5. **S304** : Forward skip/search switch.
6. **S305** : Cueing control switch.
7. **S306** : Repeat switch.
8. **S307** : Cabinet (Reset) switch in "**on**" position, (Upper cabinet is closed)
9. **S308** : Record size selector switch in "**auto**" position.
10. **S309** : Speed selector switch in "**auto**" position.
11. **S401** : Sensitivity selector switch in "**M**" position.
12. **S601** : Rest switch in "**off**" position. (Presently tonearm is on rest.)
13. The voltage value and waveform are the standard values of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the bais of chassis. Therefore, the voltage value and waveform may include some error due to the internal impedance of the tester or the measuring unit.

- ▭ is the voltage when turntable is stop.
- ⌒ is the voltage when turntable is in rotation.
- ⌐ is the voltage when tonearm is in lead-in mode.
- < > is the voltage when tonearm is in return mode.
- (( )) is the voltage at 45 rpm.

14. —— Positive voltage lines.
15. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

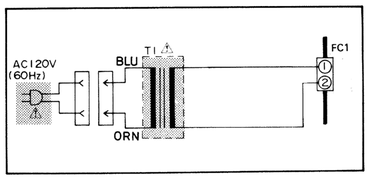
*The part No. of diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement parts list.

IMPORTANT SAFETY NOTICE

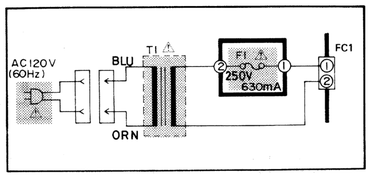
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

• Power source circuit

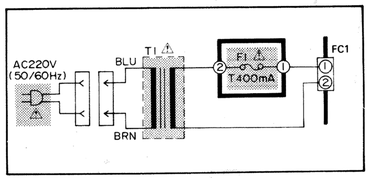
★ **Product for U.S.A.**



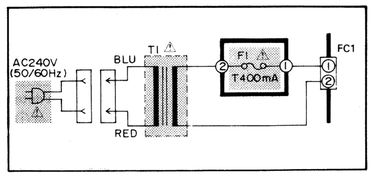
★ **Product for Canada.**



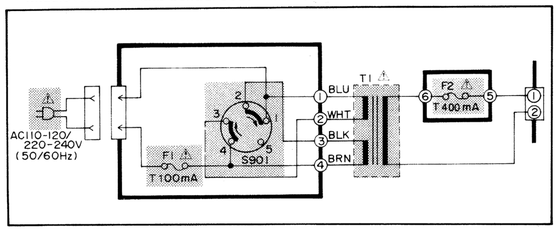
★ **Product for Continental Europe.**

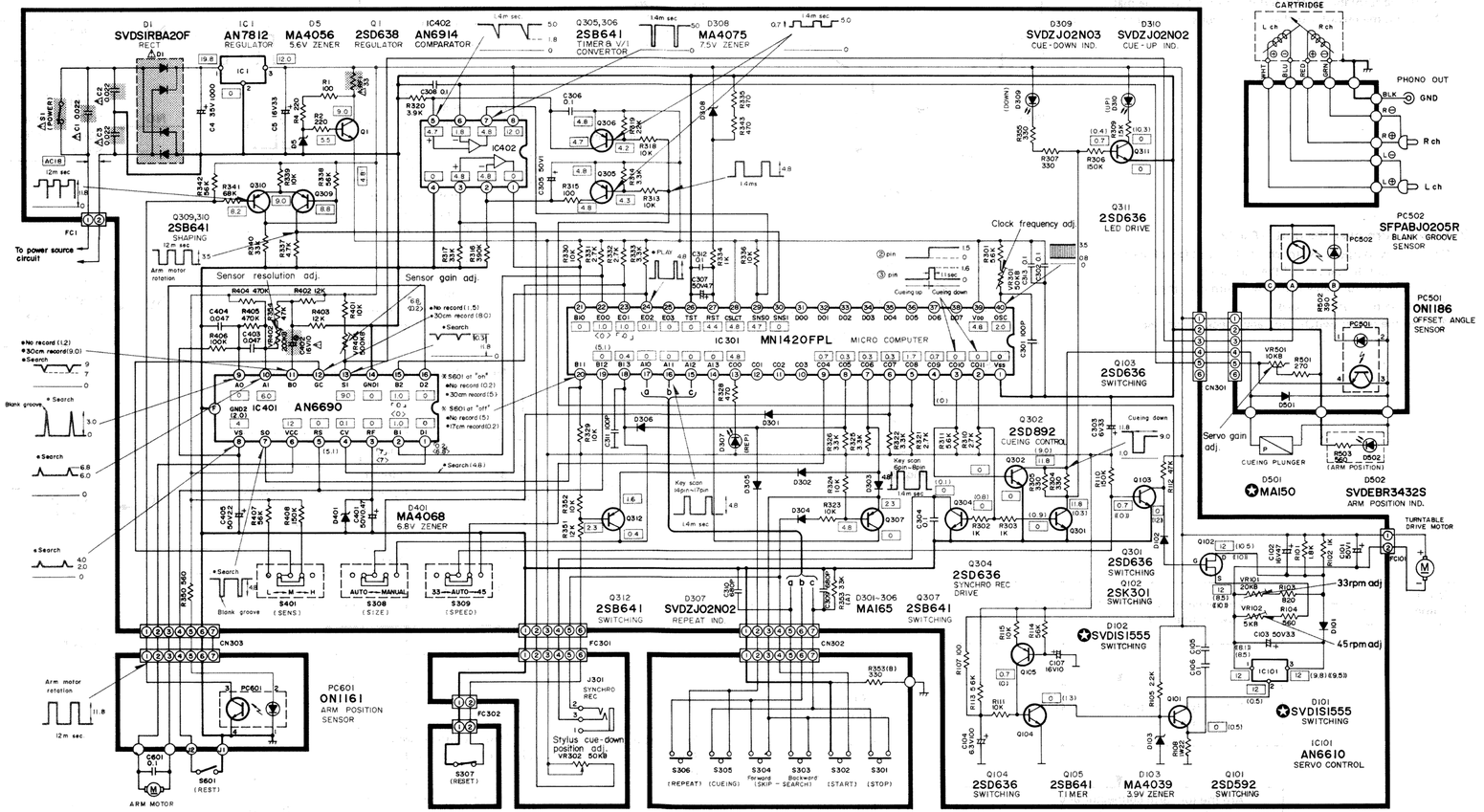


★ **Product for United Kingdom and Australia.**



★ **Product for Southeast Asia, Oceania, Africa, Middle Near East and Central South America.**



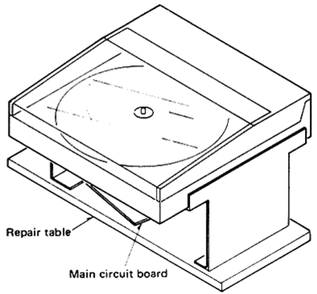


www.vinylengine.com

■ TROUBLE SHOOTING

1. How to use the repair table (Fig. 21)

① Remove the bottom board.
② Remove the main circuit board and connect the P.C.B. ground terminal to the chassis (Stator frame).
③ Put the unit on the repair table.
④ Fit the turntable platter and put on the turntable mat.
⑤ Put on the record and check the circuits from under the unit.

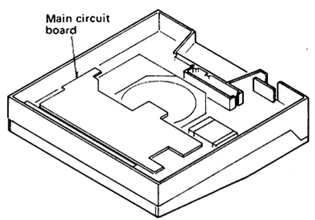


(Fig. 21)

2. How to turn over the unit (Fig. 22)

Note: This purpose is to check the voltage of each circuit during stop of the turntable.

① Remove the turntable platter and turn over the unit.
② Remove the bottom board.
③ Turn the power switch "on" and check the voltage.



(Fig. 22)

No sound comes out.

- Are tonearm connector and PU lead wires connected.
  - NO → PU lead wires broken.
  - YES →
- Is the stylus completely connected to the cartridge.
  - NO → Check if stylus is broken or plugged in incorrectly.
  - YES →
- Are the tonearm connector and cartridge pins connected completely.
  - NO → Confirm.
  - YES →

Turntable does not rotate.

Ⓒ, Ⓑ, Ⓔ of transistor are as follows:
Ⓒ: Collector
Ⓑ: Base
Ⓔ: Emitter

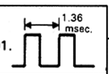
Check points in [ ] are common to all symptoms.

Power source circuit
1. AC 18V between FC1 terminals ① and ②.
2. DC voltage of regulator IC (IC1)
   ① 19.8V, ② 0V, ③ 12.0V
3. DC voltage of regulator transistor (Q1)
   Ⓒ 9.0V, Ⓑ 5.5V, Ⓔ 4.8V

NO → AC cord, S1, T1, D1, IC1, Q1, C1 ~ C5, R1 ~ R3, RF1, D5

YES

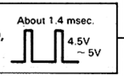
Clock frequency
1. Waveform of terminal ⑧ of IC301.



NO → IC301, VR301, R301, C301

YES

Key scan signal
1. Waveform of terminals ⑤ ~ ⑧, ⑭ ~ ⑰ of IC301.



NO → IC301, D301 ~ D306, S301 ~ S306, S307

YES

Record detection circuit
1. DC voltage of terminal ⑳ of IC301.
   • 30 cm record is present with 5V at rest position.
   • Record is not present with 0.2V at rest position.
2. DC voltage of terminal ⑫ of IC401.
   • Adjustment record is present with 8V at rest position. (Side A up)
   • Record is not present with 1.5V at rest position.

Note: When checking, be sure to close the upper cabinet.
Sensitivity selector switch (S401) is in M position.

NO → IC301, IC401, PC502, VR401, R401 ~ R408, S401

YES

Push start switch (S302).

Start·stop select circuit
1. DC voltage at terminal ④ of IC301 (0V), At stop 0.7V.
2. DC voltage at terminal ⑦ of IC101 (0.5V,) At stop 12V.

NO → IC301, Q101, Q104, IC101

YES

Drive circuit
1. DC voltage at each terminal of IC101.

	①	②	③
Stop	12V	12V	12V
33 rpm	8.5V	0.5V	9.8V
45 rpm	8.1V	0.5V	9.5V

NO → IC101, D101, Drive Motor

Arm motor does not rotate.

Motor control circuit
1. DC voltage at each terminal of IC301

	㉒	㉓	㉔
Stop	1.0V	1.0V	0V
Lead-in	1.0V	0V	*
Return	0V	1.0V	*

* About 1.4 msec. 4.8V

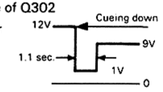
2. DC voltage at each terminal of IC401

	①	⑯	③
Stop	0V	0V	0V
Lead-in	0.2V	6.8V	7V
Return	6.8V	0.2V	7V

NO → IC301, 401, Arm Motor

Cueing down/up does not work.

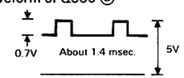
Cueing control circuit
1. DC voltage at terminal ② and ③ of IC301
   Terminal ②...During cueing and down (1.5V)
   Terminal ③...Only during cueing down (1.6V)
2. DC voltage of Q302 of collector



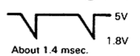
NO → IC301, S305, Q301, 302, Cueing plunger

Offset angle does not detection.

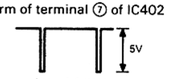
Offset error angle detection circuit
1. Waveform of Q306 Ⓑ



2. DC voltage at terminal ⑥ of IC402 (1.8V)
3. Waveform of terminal ⑤ of IC402



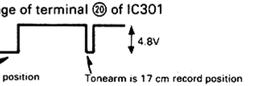
4. Waveform of terminal ⑦ of IC402



NO → IC301, Q306, R318, R319, IC402, C306

Lead-in return defective with 17 cm record.

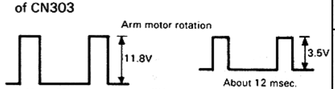
Record detection circuit
1. DC voltage of terminal ⑳ of IC301



NO → IC301, IC401, PC502

YES

Arm position detection circuit
1. Waveform of ① pin of CN303
2. Waveform of Q309 Ⓒ



NO → PC601, Q309, Q310, IC301, R337 ~ R342

www.vinylengine.com

■ RESISTORS AND CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. This "Ⓢ" mark is service standard parts and may differ from production parts.
4. Unless otherwise specified. All resistors are in OHMS (Ω) K = 1000Ω, M = 1000kΩ All capacitors are in MICROFARADS(μF), P = 10^{-6} μF.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

ERG	1	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon	25 : 1/4W	F : ±1%
ERG : Metal Oxide	1 : 1W	J : ±5%
ERX : Metal Film	2 : 2W	G : ±2%

ERD2FCG□□□ ⟶ Fuse type carbon (1/4W)
ERD10TLJ□□□ ⟶ Chip type carbon (1/8W)
ERDS2TJ□□□ ⟶ Small type carbon (1/4W)
ECUV1H□□□ ⟶ Chip type ceramic capacitor

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Capacitor Type	Voltage		Tolerance
	ECEA Type	Others	
ECEA : Electrolytic	1A : 10V	1H : 50V DC	J : ±5%
ECKD : Ceramic	1C : 16V	2H : 500V DC	K : ±10%
ECQM : Polyester	1E : 25V	1 : 100V	Z : +80%, −20%
ECCD : Ceramic	1V : 35V		P : +100%, −0%
ECKF : Ceramic	1H : 50V		M : ±20%
ECEB : Electrolytic	1J : 63V		
	50 : 50V		

Ref. No.	Part No.	Value
RESISTORS		
RF1 ⚠	ERD2FCG330	33
R1	ERDS2TJ101	100
R2, 4	ERDS2TJ221	220
R101	ER0S2TKG1801	1.8K
R102	ER0S2TKG1001	1K
R103	ERDS2TJ821	820
R104	ERDS2TJ561	560
R105	ERDS2TJ222	2.2K
R107	ERDS2TJ101	100
R108	ERG1ANJ220	22
R110	ERDS2TJ154	150K
R111	ERDS2TJ103	10K
R112	ERDS2TJ473	47K
R113, 114	ERDS2TJ563	56K
R115	ERDS2TJ103	10K
R301	ERDS2TJ562	5.6K
R302, 303	ERDS2TJ102	1K
R304, 305	ERDS2TJ331	330
R306	ERDS2TJ154	150K
R307	ERDS2TJ331	330
R309	ERDS2TJ152	1.5K
R310	ERDS2TJ272	2.7K
R311	ERDS2TJ562	5.6K
R313	ERDS2TJ103	10K
R314	ERDS2TJ332	3.3K
R315	ERDS2TJ101	100
R316	ERDS2TJ394	390K
R317	ERDS2TJ333	33K
R318	ERDS2TJ103	10K
R319	ERDS2TJ223	22K
R320	ERDS2TJ392	3.9K
R321	ERDS2TJ272	2.7K
R322	ERDS2TJ332	3.3K
R323, 324	ERDS2TJ103	10K
R325, 326	ERDS2TJ332	3.3K
R328	ERDS2TJ471	470
R329, 330	ERDS2TJ103	10K
R331, 332	ERDS2TJ272	2.7K
R333	ERDS2TJ332	3.3K
R334	ERDS2TJ102	1K
R335	ERDS2TJ471	470
R336	ERDS2TJ103	10K
R337	ERDS2TJ472	4.7K
R338	ERDS2TJ563	56K
R339	ERDS2TJ103	10K
R340	ERDS2TJ333	33K
R341	ERDS2TJ683	68K
R342	ERDS2TJ563	56K
R343	ERDS2TJ471	470
R350	ERDS2TJ561	560
R351	ERDS2TJ123	12K
R352	ERDS2TJ103	10K
R353 (A)	ERDS2TJ333	33K
R353 (B)	ERDS2TJ331	330
R354	ERDS2TJ473	47K
R355	ERDS2TJ331	330
R401	ERDS2TJ103	10K
R402, 403	ERDS2TJ123	12K
R404, 405	ERDS2TJ474	470K
R406	ERDS2TJ104	100K
R407	ERDS2TJ563	56K
R408	ERDS2TJ154	150K
R501 Ⓢ	ERD25FJ271	270
R502 Ⓢ	ERD25FJ391	390
R503 Ⓢ	ERD25FJ561	560
CAPACITORS		
C1~3 ⚠	ECQM1223KZ	0.022
C4 Ⓢ	ECEB1VU102	1000
C5 Ⓢ	ECEA1CU330	33
C101 Ⓢ	ECEA1HU010	1
C102 Ⓢ	ECEA1CU470	47
C103 Ⓢ	ECEA1HU3R3	3.3
C104	ECEA0JU101	100
C105, 106	ECFR1H104ZF	0.1
C107	ECEA1CU100	10
C301 Ⓢ	ECCD1H101K	100P
C302	ECFR1H104ZF	0.1
C303 Ⓢ	ECEA0JU330	33
C304	ECFR1H104ZF	0.1
C305 Ⓢ	ECEA50M1R	1
C306 Ⓢ	ECQM1H104JZ	0.1
C307 Ⓢ	ECEA1HU4R7	4.7
C308	ECFR1H104ZF	0.1
C309, 310 Ⓢ	ECKD1H681K	680P
C311 Ⓢ	ECCD1H101K	100P
C312, 313	ECFR1H104ZF	0.1
C401 ⚠ Ⓢ	ECEA1HUR47	0.47
C402 Ⓢ	ECEA1CN100S	10
C403, 404 Ⓢ	ECQM1H473JZ	0.047
C405 Ⓢ	ECEA1CU220	22
C601	ECFB1B104ZM	0.1

www.vinylengine.com

■ REPLACEMENT PARTS LIST

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "Ⓢ" mark is service standard parts and may differ from production parts.
5. The parenthesized numbers in the columns of desciption stand for the quantity per set.
6. ○-marked parts are used for silver type only.
   Ⓚ-marked parts are used for black type only.
   Ⓡ-marked parts are used for red type only.
   Ⓦ-marked parts are used for white type only.
7. Parts other than ○-, Ⓚ-, Ⓡ- and Ⓦ-marked are used for all silver, black, red and white types.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC1	AN7812	Regulator, 12V
IC101	AN6610	Turntable Drive
IC301	MN1420FPL	Micro Computer
IC401	AN6690	Arm Motor Drive & Blank Groove Detection
IC402	AN6914	Comparator
TRANSISTORS		
Q1	2SD638	Regulator, 5V
Q101	2SD592	Switching
Q102	2SK301	Switching
Q103, 104	2SD636	Switching
Q105	2SB641	Timer
Q301	2SD636	LED Drive
Q302	2SD892	Cueing Control
Q304	2SD636	Synchro Rec Drive
Q305~307	2SB641	Switching
Q309, 310	2SB641	Shaping
Q311	2SD636	LED Drive
Q312	2SB641	Switching
DIODES		
D1 ⚠	SVDS1RBA20F	Rectifier
D5	MA4056	Zener, 5.6V
D101	MA162A	Switching
D102	MA165	Switching
D103	MA4039	Zener, 3.9V
D301~306	MA165	Switching
D307	SVDZJ02N02	Repeat, Indicator
D308	MA4075	Zener, 7.5V
D309	SVDZJ02N03	Cue-down Indicator
D310	SVDZJ02N02	Cue-up Indicator
D401	MA4068	Zener, 6.8V
D501	MA162A	Switching
D502	SVDEBR3432S	Tonearm Position Indicator
SWITCHES		
S1 ⚠	SFDSC02N02	Power Source
S301~306	EVQQS405K	Stop, Start, Skip-Search, Cueing & Repeat
S307	SFDSC05N01	Reset
S308,309	SFDSHSW0699	Size Selector & Speed Selector
S401	SFDSHSW0699	Sensor Gain Selector
S601	SFDSC02N03	Rest
S901 [XA, XM] only ⚠	SFDSHXW225-2	Voltage Selector
VARIABLE RESISTORS		
VR101	EVN61AA00B24	Speed Adj. (33), 20 kΩ (B)
VR102	EVN61AA00B53	Speed Adj. (45), 5 kΩ (B)
VR301	EVN61AA00B54	Clock Frequency Adj., 50 kΩ (B)
VR302	EVJE1AF20B54	Stylus Cue-down Position Adj., 50 kΩ (B)
VR401	EVN61AA00B55	Sensor Gain Adj., 500 kΩ (B)
VR402	EVN61AA00B25	Sensor Resolution Adj., 200 kΩ (B)
VR501	EVNK0AA00B14	Servo Gain Adj., 10 kΩ (B)
PHOTO INTERRUPTERS		
PC501	0N1186	Offset Angle Sensor
PC502	SFPABJ0205R	Blank Groove Sensor
PC601	0N1161	Tonearm Position Sensor
POWER TRANSFORMER		
T1 [M] ⚠	SLT48DTL4D	Power Source
T1 [MC] ⚠	SLT48DT18F	Power Source
T1 [EK, XL] ⚠	SLT48DTE16G	Power Source
T1 [XA, XM] ⚠	SLT48DT25E	Power Source
T1 [Other Areas] ⚠	SLT48DT15G	Power Source
FUSES		
F1 [MC] ⚠	XBA2F06NU100	250V, 630 mA
F1 [XA, XM] ⚠	XBA2C01T1B	250V, T100 mA
F1 [Other Areas] ⚠	XBA2C04T1B	250V, T400 mA
F2 [XA, XM] only ⚠	XBA2C04T1B	250V, T400 mA
CABINET AND CHASSIS PARTS		
1 ○	SFADJ01N01E	Dust Cover (Silver) (1)
1 Ⓚ	SFADJ01N21E	Dust Cover (Black) (1)
1 Ⓡ	SFADJ01N22E	Dust Cover (Red) (1)
1 Ⓦ	SFADJ01N23E	Dust Cover (White) (1)
1-1	SFGZJ02N01	Cushion Rubber (2)
1-2	SFKKJ01N02	Badge (1)
2 ○	SFGZQ06N01	Rubber, Lutch (Silver) (2)
2 ⓀⓇⓌ	SFGZC02N01	Rubber, Lutch (Black, Red and White) (2)
3 ○	SFUMD04N07	Lutch, Dust Cover (Silver) (2)
3 ⓀⓇⓌ	SFUMC02N14	Lutch, Dust Cover (Black, Red and White) (2)
4 ○	SFUMQ06N08	Lutch, Dust Cover (Silver) (2)
4 ⓀⓇⓌ	SFUMQ06N22	Lutch, Dust Cover (Black, Red and White) (2)
5	SFTGJ01N01	Turntable Mat (1)
6	SFWEN05N01	Adaptor, 45 rpm (1)
7	SFQAN05N01	Spring, 45 rpm Adaptor (1)
8	SFTEJ01N01	Turntable Platter (1)
9	SFGBZ15R01	Belt, Turntable Platter (1)
10	SFAUJ01N01	Bottom Board (1)
11	SFGAC05N02	Insulator (4)

Ref. No.	Part No.	Description
12	SFQCC05N01	Spring, Insulator (4)
13	SFUMJ02N02	Rod, Power Switch (1)
14	SFKTJ02N02	Knob, Selector Switches (3)
15	SFMHJ01N01E	Motor Ass'y, Turntable Drive (1)
16 [M, MC] only ○	SFKKJ01N01	Ornament Plate, Front Panel (1)
16 [Other Areas] ○ⓇⓌ	SFKKJ01S01	Ornament Plate, Front Panel (Silver, Red and White) (1)
16 [Other Areas] Ⓚ	SFKKJ01S21	Ornament Plate, Front Panel (Black) (1)
17 ○	SFUMJ02N01	Front Panel, (Silver) (1)
17 Ⓚ	SFUMJ02N21	Front Panel, (Black) (1)
17 Ⓡ	SFUMJ01N22	Front Panel, (Red) (1)
17 Ⓦ	SFUMJ01N23	Front Panel, (White) (1)
18	SFKTJ02N01	Operation Button (1)
19	SFKTC06N04	Knob, Power Switch (1)
20 ○	SFACJ01N01	Cabinet, (Silver) (1)
20 Ⓚ	SFACJ01N21	Cabinet, (Black) (1)
20 Ⓡ	SFACJ01N22	Cabinet, (Red) (1)
20 Ⓦ	SFACJ01N23	Cabinet, (White) (1)
21	SFGCQ06N02	Cushion Rubber, Power Transformer (2)
22	SFGZBL3N02	Rubber Spacer, Power Transformer (1)
23 [M, MC, XL] ⚠	SFDJHSC0491	AC Socket (1)
23 [XA, XM] ⚠	SFDJHSC04912	AC Socket (1)
23 [Other Areas] ⚠	SFDJHSC0516	AC Socket (1)
24	SFATQ06N01E	Hinge Ass'y (2)
25 [M]	SFNNJ01M01	Name Plate (1)
25 [MC]	SFNNJ01C01	Name Plate (1)
25 [E, EC]	SFNNJ01S01	Name Plate (1)
25 [EK]	SFNNJ01G01	Name plate (1)
25 [XA, XM]	SFNNJ01X01	Name Plate (1)
25 [XL]	SFNNJ01L01	Name Plate (1)
25 [Other Areas]	SFNNJ01R01	Name Plate (1)
26	SFGKQ06N01	Cap, Adjustment Hole (1)
27	SFUML11R03	Wheel, Tonearm Drive (1)
28	SFUZC05N02E	Rope Ass'y, Tonearm Drive (1)
29	SFUMV05N23	Cap, Pulley (1)
30	SFUMC05N22	Pulley (1)
31	SFMHJ02N01E	Motor Ass'y, Tonearm Drive (1)
32	SFGBC10-01	Belt, Tonearm Drive Motor (1)

www.vinylengine.com

Ref. No.	Part No.	Description
33	SFUMQ06N06A	Worm Gear Ass'y (1)
34	SFUPBL3N11E	Base Ass'y, Tonearm Drive Motor (1)
35	SFQHQ34N22	Spring, Rest Switch Lever (1)
36	SFUMC02N05	Lever, Rest Switch (1)
37	SFUMC02N06	Base, Reset Switch (1)
38	SFUZC02N01	Rod, Rest Switch (1)
40	SFUMQ06N09	Holder, Reset Switch (1)
41	SFQA913-01	Spring, Adjustment Screw (1)
42	SFUMQ06N07	Clamper, Guide Rail (1)
43	SFGCQ06N01	Cushion Rubber, Guide Rail (1)
44	SFGCC05N05	Cushion Rubber, Guide Rail (1)
45	SFXJQ06N01	Guide Rail (1)
46	SFUMC02N12	Holder, Lead Wires (1)
47	SFUKQ06N02E	Base Ass'y, Tonearm (1)
48	SFGCQ06N04	Cushion Rubber (2)
49	SFUMC02N10	Rope Guide (1)
50	SFQPC05N01	Spring, Reset Switch (1)
51	SFUMC05N15	Holder, Reset Switch (1)
53	SFKTQ06N02	Knob, Adjustment Volume (1)
54	SFDJJ02N04E	Jack, Phono Output (1)
57	SFUKJ01N01A	Stator Frame Ass'y (1)

TONEARM PARTS

61	SFPAK0Q601	Indicator Plate (1)
62	SFPCS0Q601	Indicator Cover (1)
63	SFPGM0Q601	Rubber (1)
64	SFDZC05N01E	Solenoid Ass'y (1)
65	SFPSP00302	Spring, Adjustment (2)
66	SFPKD00301R	Base, Tonearm (1)
67	SFPAMJ0201A	Tonearm Ass'y (1)
68	SFPGML1101	Cushion Rubber (2)
70	SFPCS00502	Light Connentrator (1)
71	SFPABJ0205R	Blank Groove Sensor Ass'y (1)
72 Except for [M, MC]	EPC-P30S	★Cartridge (1)
73 Except for [M, MC]	EPS-30CS	★Stylus (1)

SCREWS, WASHERS AND NUTS

N1	Ⓢ	XTV3+8BFZ	Screw, ⊕3×8 (12)
N2	Ⓢ	XTV3+6BFZ	Screw, ⊕3×6 (2)
N3	Ⓢ	XTV3+6BFZ	Screw, ⊕3×6 (4)
N4		XTV3+5J	Screw, ⊕3×5 (2)
N5		XTW3+14QFYR	Screw, ⊕3×14 (4)
N6	Ⓢ	XTN3+6B	Screw, ⊕3×6 (2)
N7	Ⓢ	XWC3B	Washer, φ3 (1)
N8		SFXGQ06N01	Screw (2)
N9		XTWS3+14TFZ	Screw, ⊕3×14 (2)
N10	Ⓢ	XWE3A8BW	Washer, φ3 (2)
N11		CSTW3	Washer, φ3 (2)
N12		XTW3+8Q	Screw, ⊕3×8 (3)
N13		XTN16+10G	Screw, ⊕1.6×10 (1)
N14	Ⓢ	XSN3+30S	Screw, ⊕3×30 (1)
N15		XWE3D10	Washer, φ3 (1)
N16		XNC3HS	Nut, φ3 (1)
N17	Ⓢ	XTV3+20BFN	Screw, ⊕3×20 (1)
N18	Ⓢ	XTN2+8B	Screw, ⊕2×8 (1)
N19		SFPEV0Q601	Screw, Cartridge (1)
N20		XTN23+6JFZ	Screw, ⊕2.3×6 (1)
N21		SFPTN00301	Screw, Offset Adjustment (1)
N22		SFXN623-1	Nut (1)

Ref. No.		Part No.	Description
N23	Ⓢ	XSN3+12S	Screw, ⊕3×12 (1)
N24	Ⓢ	XWA3B	Washer, φ3 (1)
N25		XTS26+6JFZ	Screw, ⊕2.6×6 (1)
N26		XYN2+C4FZ	Screw, ⊕2×4 (1)

ACCESSORIES

A1 [M]		SFNUJ01M01	Instruction Book (1)
A1 [MC]		SFNUJ01C01E	Instruction Book (1)
A1 [EI]		SFNUJ01I01	Instruction Book (1)
A1 [EK]		SFNUJ01G01	Instruction Book (1)
A1 [EF]		SFNUJ01F01	Instruction Book (1)
A1 [EG]		SFNUJ01R01	Instruction Book (1)
A1 [XL, XA, XM]		SFNUJ01X01	Instruction Book (1)
A1 [Other Areas]		SFNUJ01S01	Instruction Book (1)
A2		SFDHC05N01	Cord, Phono Output (1)
A3 [M, MC]	⚠	SFDAC05M01	Cord, AC Power (1)
A3 [EK]	⚠	SFDAC05G02	Cord, AC Power (1)
A3 [XL]	⚠	SFDAC05L01	Cord, AC Power (1)
A3 [XA, XM]	⚠	SFDAC05X02	Cord, AC Power (1)
A3 [Other Areas]	⚠	SFDAC05E02	Cord, AC Power (1)
A4	⚠	SFDLJ02N01	Ground Wire (1)
A5 [XA, XM] only	⚠	SFDKI19118	Plug, 2 Pins (1)

Ref. No.	Part No.	Description
PACKING PARTS		
P1 [MC, EF] ○	SFHPJ01C01	Carton Box (Silver) (1)
P1 [Other Areas] ○	SFHPJ01M01	Carton Box (Silver) (1)
P1 [EF] Ⓚ	SFHPJ01C21	Carton Box (Black) (1)
P1 [Other Areas] Ⓚ	SFHPJ01M21	Carton Box (Black) (1)
P1 [EF] Ⓡ	SFHPJ01C22	Carton Box (Red) (1)
P1 [Other Areas] Ⓡ	SFHPJ01M22	Carton Box (Red) (1)
P1 [EF] Ⓦ	SFHPJ01C23	Carton Box (White) (1)
P1 [Other Areas] Ⓦ	SFHPJ01M23	Carton Box (White) (1)
P2	SFHHJ02N01	Pad, Front (1)
P3	SFHHJ02N02	Pad, Rear (1)
P4	SFHKJ01N01	Clamper, Turntable Platter (2)
P5	SFHKQ06N01	Spacer, Tonearm (1)
P6	SFHSC06N01	Spacer, Dust Cover (1)
P7	SFHDN05M01	Sheet, Dust Cover (1)
P8	SFYH45×60	Polyethylene Bag, Set (1)
P9	SFYH17×16	Polyethylene Bag, Cords (1)
P10	SFHDD04N01	Pad, Turntable Mat (1)
P11	SFYF32A35	Polyethylene Bag, Turntable Mat (1)

Color

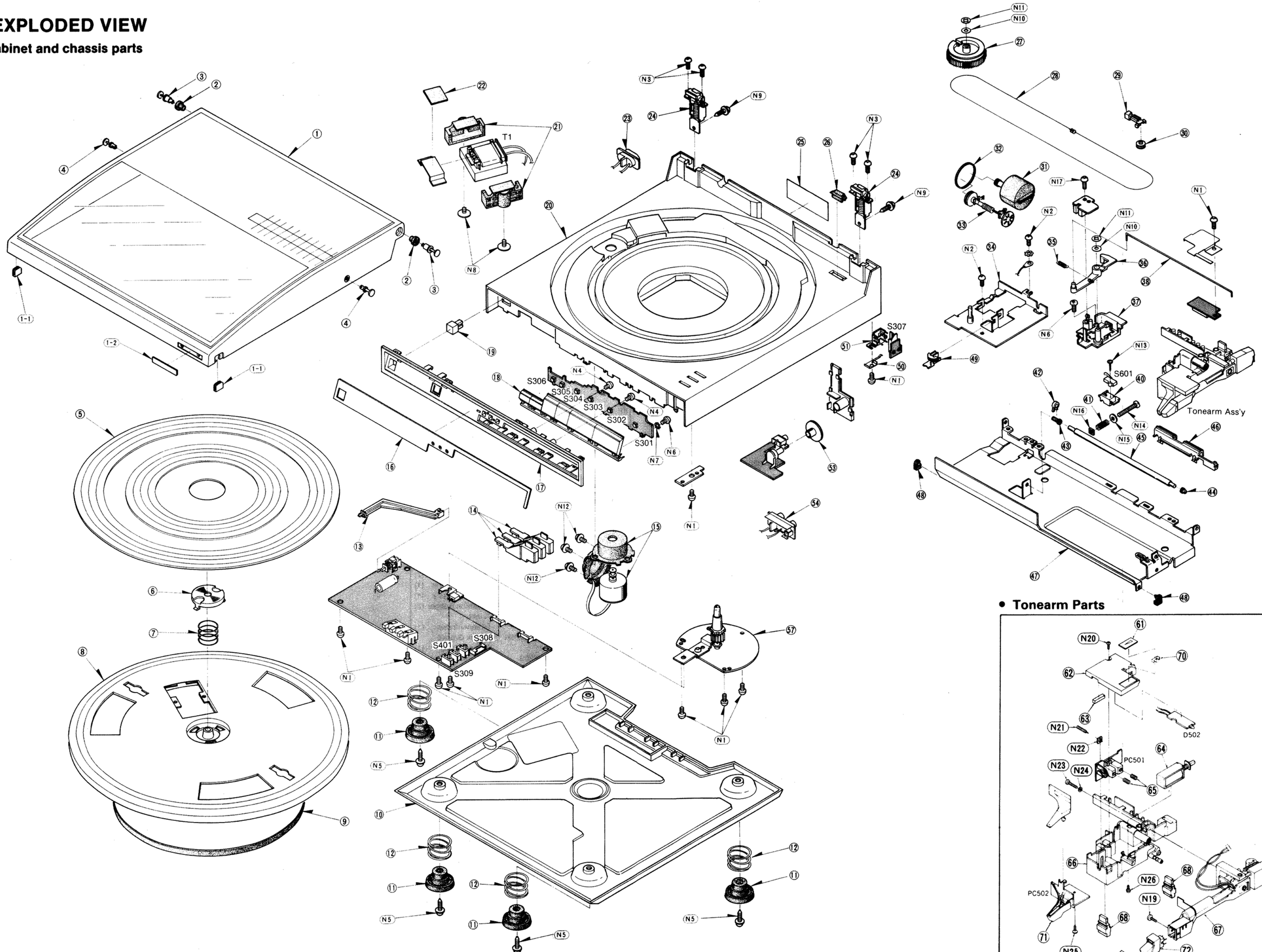
(S) ..... Silver Type
(K) ..... Black Type
(R) ..... Red Type
(W) ..... White Type

Color	Area
(S)	[M] .....U.S.A.
(S)	[MC] .....Canada
(S)(K)(R)(W)	[E] .....Switzerland and Scandinavia.
(S)(K)(R)(W)	[EK] .....United Kingdom
(S)	[XL] .....Australia
(S)(K)(R)(W)	[EG] .....F.R. Germany
(S)(K)(R)(W)	[EB] .....Belgium
(S)(K)(R)(W)	[EH] .....Holland
(S)(K)(R)(W)	[EF] .....France
(S)(K)(R)(W)	[EI] .....Italy
(S)(K)(R)(W)	[EC] .....Czechoslovakia
(S)	[XA] .....Southeast Asia, Oceania, Africa, Middle Near East and Central South America
(S)	[XM] .....Central South America

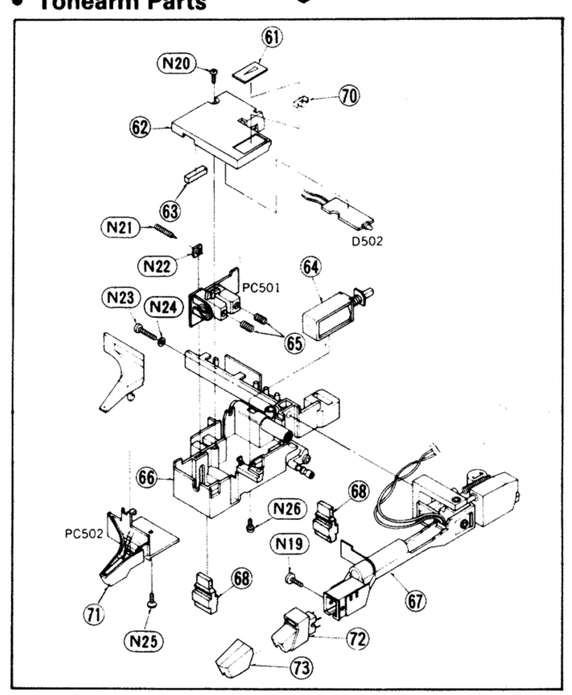
www.vinylengine.com

■ EXPLODED VIEW

- **Cabinet and chassis parts**



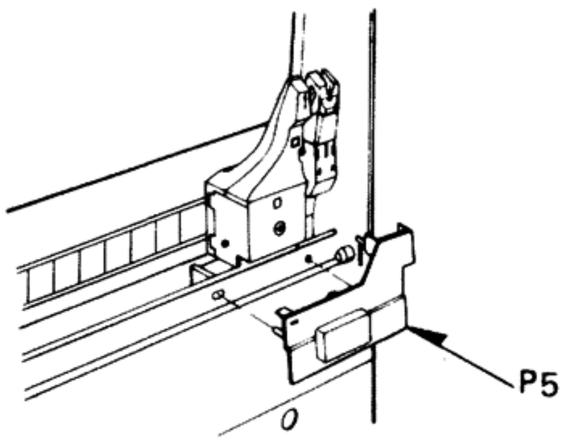
- **Tonearm Parts**



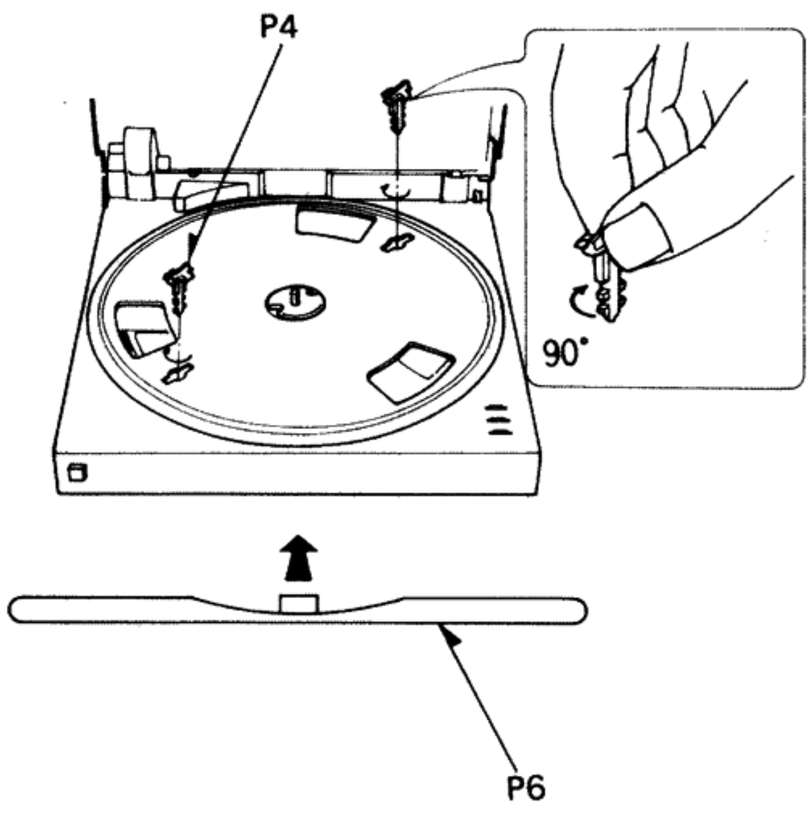
www.vinylengine.com

■ PACKING

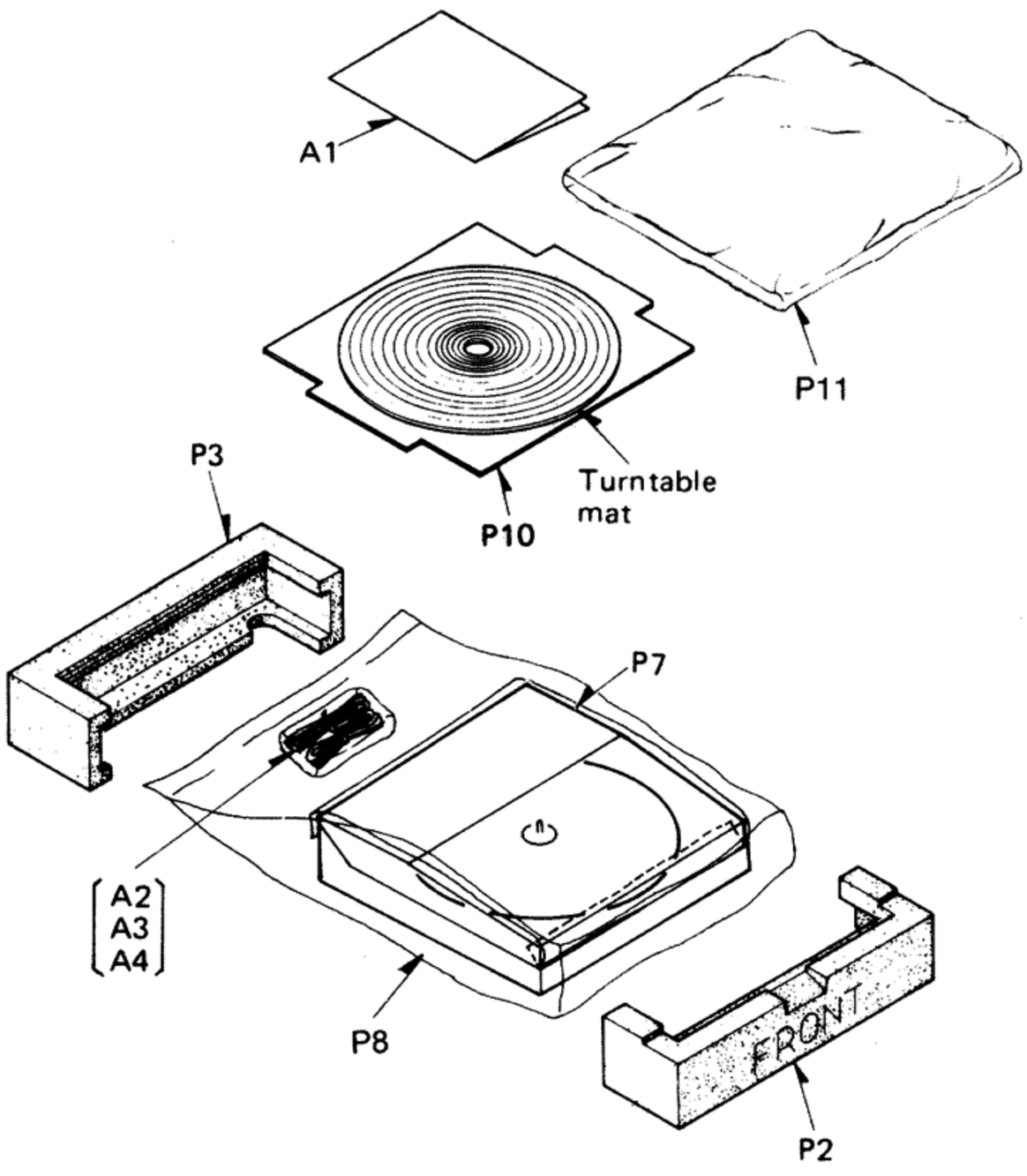
1. Open the upper cabinet and fit the spacer in place.



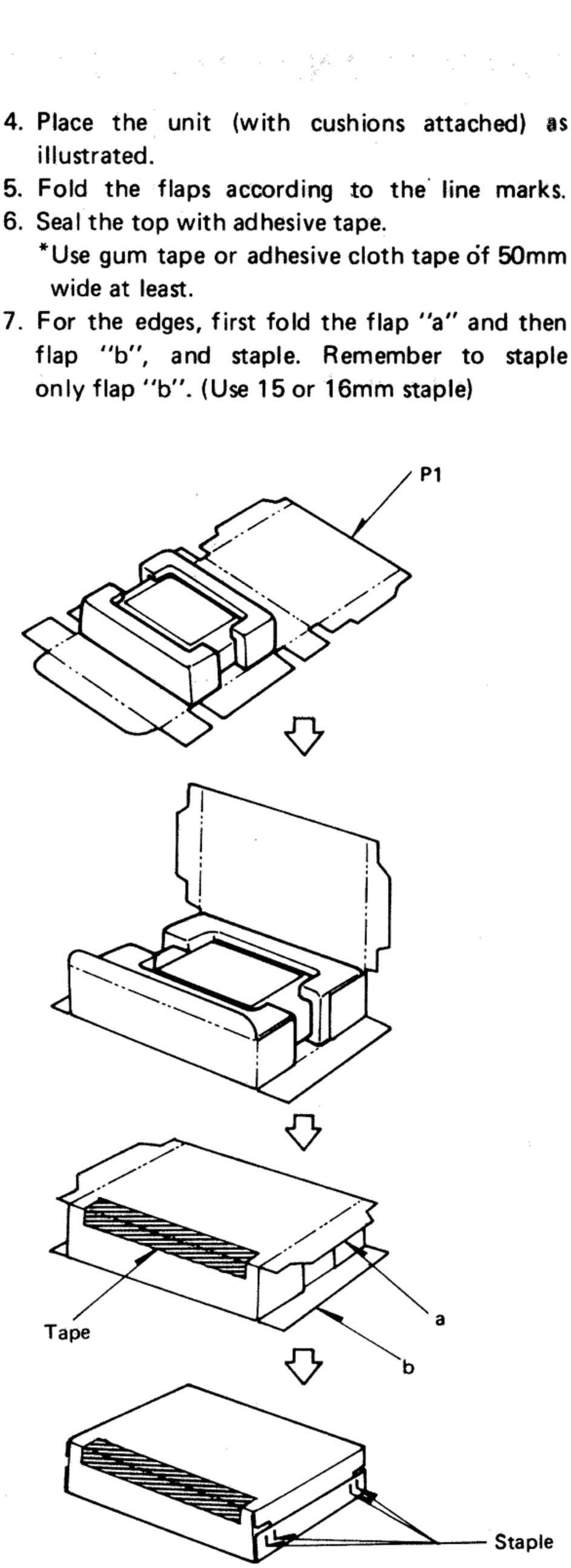
2. Fit the turntable platter clamper and dust cover spacer in place.



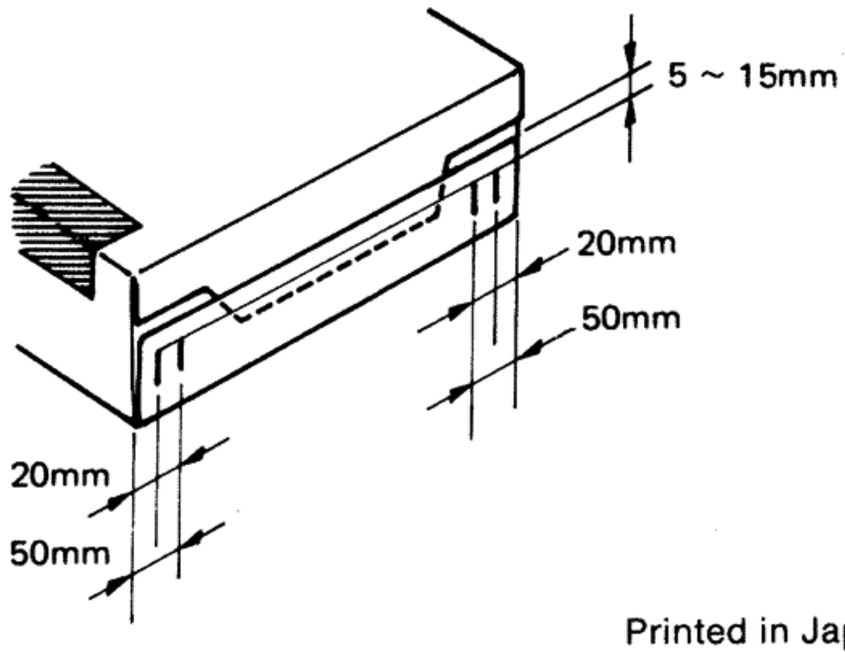
3. Put the into polyethylene bag, and make the package as shown below.



4. Place the unit (with cushions attached) as illustrated.
5. Fold the flaps according to the line marks.
6. Seal the top with adhesive tape.
   *Use gum tape or adhesive cloth tape of 50mm wide at least.
7. For the edges, first fold the flap "a" and then flap "b", and staple. Remember to staple only flap "b". (Use 15 or 16mm staple)



*Stapling positions are shown below.



Printed in Japan
840610520Ⓢ AM,TK/YW

www.vinylengine.com