

Service Manual

Turntable System

SL-1200MK2

(XG), (XA), (XGB)
(XAL), (E)

SL-1200MK2



- The model SL-1200MK2 (XG) is available in European only.
- The model SL-1200MK2 (XA) is available in Asia, Latin America, Middle East and Africa only.
- The model SL-1200MK2 (XGB) is available in Belgium only.
- The model SL-1200MK2 (XAL) is available in Australia only.
- The model SL-1200MK2 (E) is available in Scandinavia only.

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REPLACEMENT PARTS LIST (Mechanical)/СПИСОК ЗАПАСНЫХ ЧАСТЕЙ (механические)

Technics

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

SPECIFICATIONS

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

General

Power supply: ~110–120/220–240, 50 or 60 Hz
Power consumption: 13.5 W
Dimensions: 45.3 x 16.2 x 36 cm
(W x H x D) (17-27/32" x 6-19/64" x 14-11/64")
Weight: 12.5 kg (27.6 lb)

Turntable section

Type: Quartz direct drive
Manual turntable
Direct drive
Drive method: Brushless DC motor
Motor: Aluminum diecast
Turntable platter: Diameter 33.2 cm (13-5/64")
Weight 2 kg (4.4 lb)
Turntable speeds: 33-1/3 rpm and 45 rpm
Starting torque: 1.5 kg.cm (1.3 lb .in)
Build-up characteristics: 0.7 s. from standstill to 33-1/3 rpm
Braking system: Electronic brake
Wow and flutter: 0.01% WRMS*
0.025% WRMS (JIS C5521)
±0.035% peak (IEC 98A Weighted)

* This rating refers to turntable assembly alone, excluding effects of record, cartridge or tonearm, but including platter. Measured by obtaining signal from built-in frequency generator of motor assembly.

Rumble: -56 dB (IEC 98A Unweighted)
-78 dB (IEC 98A Weighted)

Tonearm section

Type: Universal
Effective length: 230 mm (9-1/16")
Arm height adjustment range: 0–6 mm
Overhang: 15 mm (19/32")

Effective mass: 12 g (without cartridge)
Offset angle: 22°
Friction: Less than 7 mg (lateral, vertical)
Tracking error angle: Within 2°32' (at the outer groove of 30 cm (12") record)
Within 0°32' (at the inner groove of 30 cm (12") record)

Stylus pressure Within 0°32' (at the inner groove of 30 cm (12") record)
0–2.5 g

adjustment range: 0–2.5 g
Applicable cartridge weight range: 6–10 g
13.5–17.5 g (including headshell)

(with auxiliary weight): 9.5–13 g
17–20.5 g (including headshell)
(with shell weight) 3.5–6.5 g
11–14 g (including headshell)

Headshell weight: 7.5 g

Cartridge section

Model No. EPC-207C
Type: Moving magnet
Frequency response: 20 Hz to 25 kHz
20 Hz to 15 kHz ±2 dB
3 mV at 1 kHz
Output voltage: 5 cm/s. zero to peak lateral velocity
[8.5 mV at 1 kHz 10 cm/s. zero to peak 45° velocity (DIN 45500)]
25 dB at 1 kHz

Channel separation: 25 dB at 1 kHz
Channel balance: Within 2 dB at 1 kHz
Compliance (dynamic): 10×10^6 cm/dyne at 100Hz
Stylus pressure: 1.75 ± 0.25 g (17.5 ± 2.5 mN)
Load impedance: 47 k Ω to 100 k Ω
Weight: 5.6 g (cartridge only)
Replacement stylus: EPS-207ED
(Elliptical stylus)

■ DISASSEMBLY PROCEDURE

How to remove panel cover

1. Remove head shell and turntable.
2. Secure arm with arm clamp.
3. Remove 5 screws **A** of the panel cover as shown in Fig. 1.

How to remove stater frame coil and F.G detector coil

4. Remove 3 connectors **B** and 2 read wires **C** from power transformer as shown in Fig. 2.
5. Remove 3 screws **D** of the drive circuit board and 3 screws **E** of the stater frame cover as shown in Fig. 2.
6. Disconnect 18 soldered parts **F** of the stater coil and 4 soldered parts **G** of the F.G detector coil as shown in Fig. 3.
7. Remove 3 screws **H** of the stater frame ass'y as shown in Fig. 3.

How to remove bottom base ass'y

8. Remove 4 audio insulators. (Counterclockwise rotation)
9. Remove 17 screws and spacer **I** as shown in Fig. 4.
10. Remove 11 screws **J** as shown in Fig. 4.

How to remove stylus-illuminator lamp

11. Remove 2 screws **K** of the stylus-illuminator lamp ass'y as shown in Fig. 5.
12. Remove 1 screw **L** as shown in Fig. 6.

How to remove neon-illuminator L.E.D.

13. Remove 4 screws **M** as shown in Fig. 5.
14. Remove 1 circlip **N** and switch cam **O** as shown in Fig. 5.
15. Remove strobo-illuminator case.

How to remove tone arm

16. Remove 4 screws **P** of the arm base cover as shown in Fig. 5.
17. Remove 2 screws **Q** of the phono cord clamber as shown in Fig. 5.
18. Remove phono cord clamber as shown in Fig. 7.
19. Remove 2 screws **R** of the phono cord p.c.b. as shown in Fig. 8.
20. Remove 2 screws **S** as shown in Fig. 8.
21. Remove 2 screws **T** of the silicon oil dumper as shown in Fig. 8.
22. Remove 3 screws **U** as shown in Fig. 8.
23. Remove 2 screws **X** of the tone arm as shown in Fig. 9.

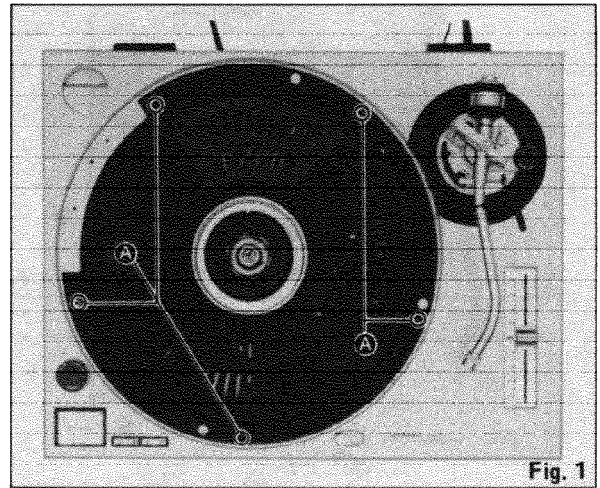


Fig. 1

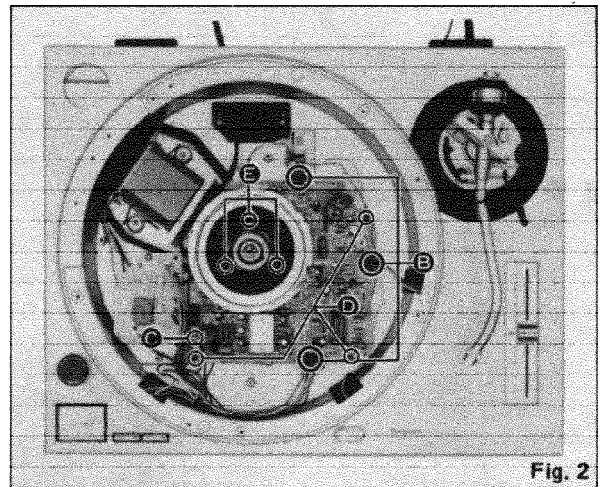


Fig. 2

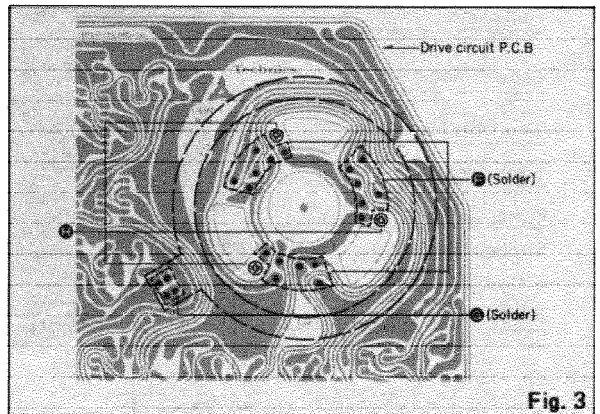


Fig. 3

SL-1200MK2

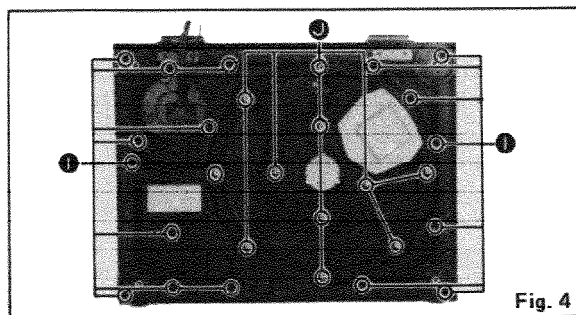


Fig. 4

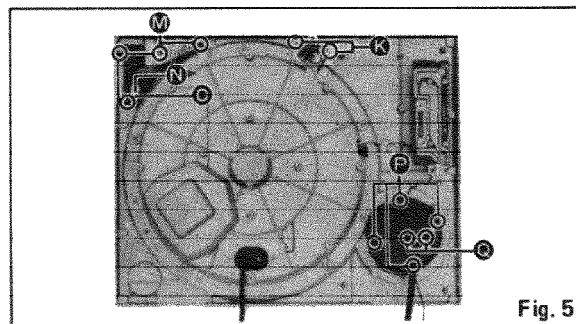


Fig. 5

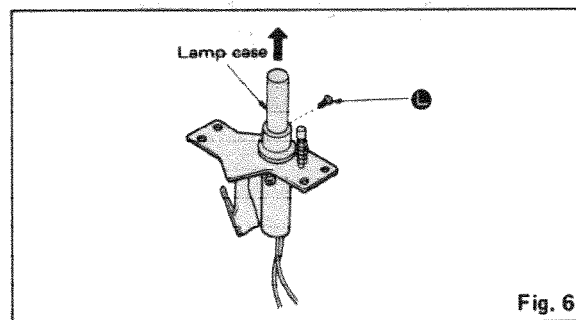


Fig. 6

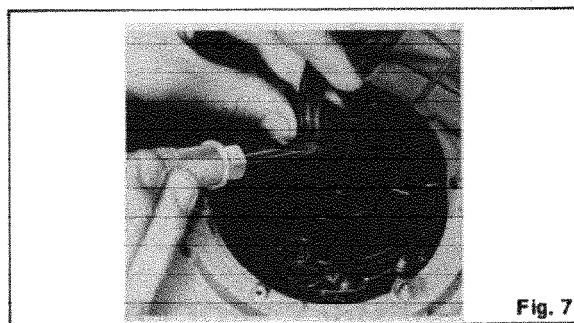


Fig. 7

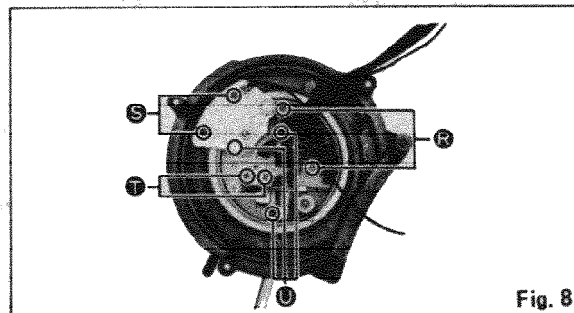


Fig. 8

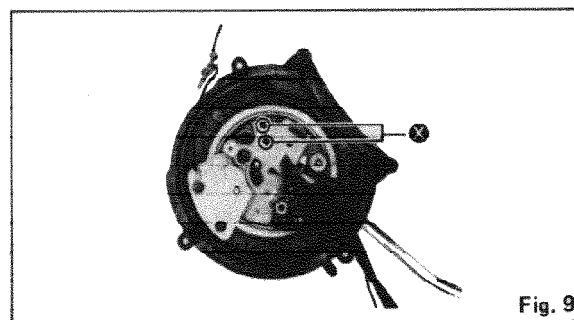
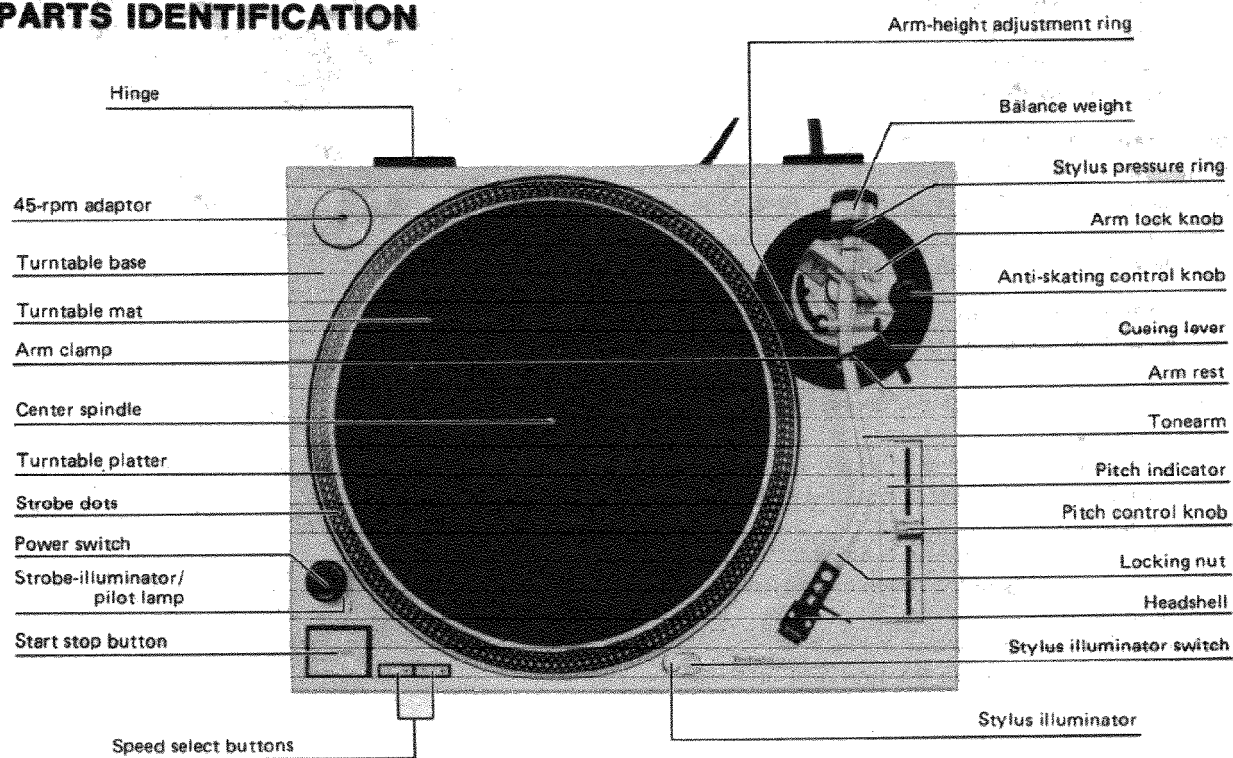


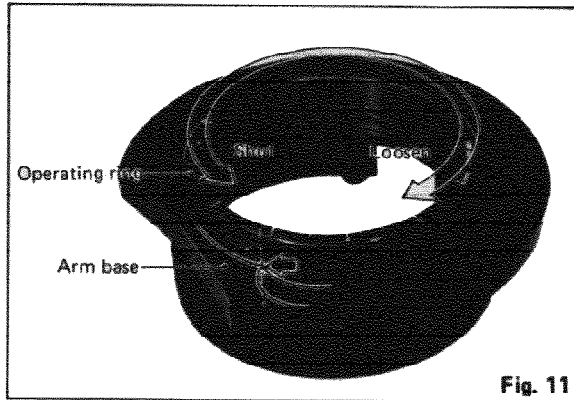
Fig. 9

■ PARTS IDENTIFICATION



■ ARM BASE ASSEMBLING PROCEDURE

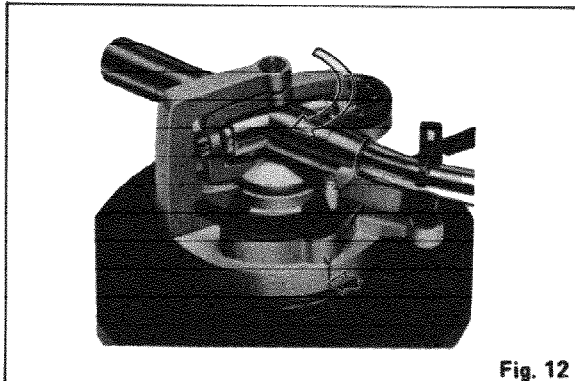
1. Attach the control ring to the arm base seat. (The control ring should be rotated counterclockwise.)
2. Completely tighten the control ring, and then loosen it 1.5~2.5 turns to set the scale to "3". (See Fig. 11)


Fig. 11

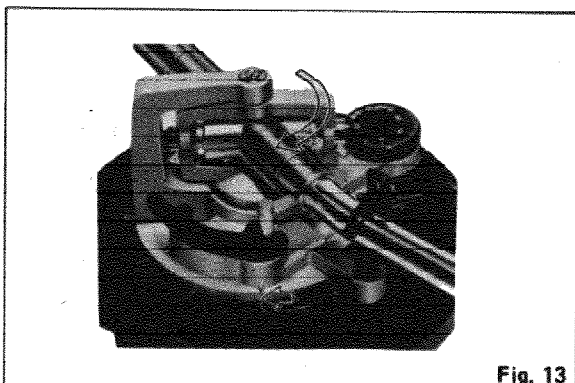
3. Hold the arm base and set the red line mark on the arm base to the scale near "2", then turn the arm base clockwise. (See Fig. 12)

Note:

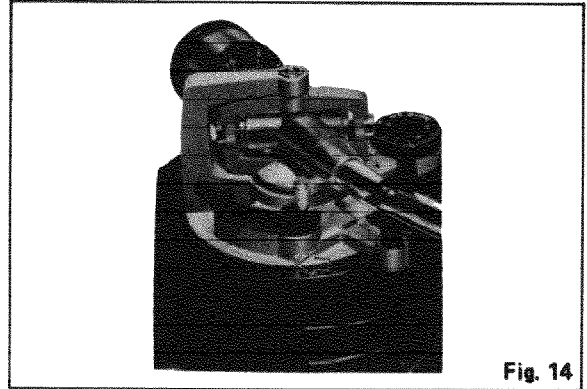
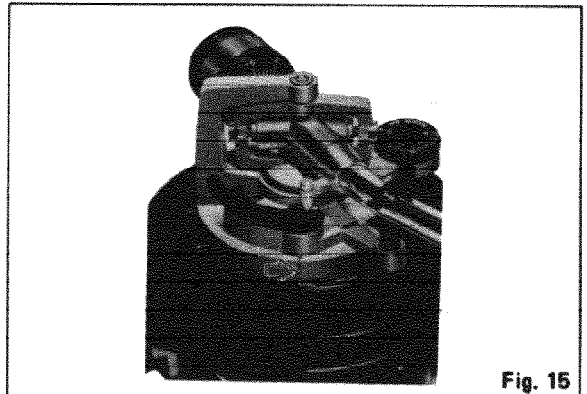
Take care not to allow deflection of the predetermined positions of the control ring and arm base seat.


Fig. 12

4. Adjust the arm base so that the red line mark on the arm base is set to the scale "3" of the control ring. Next, secure the positioning base plate with two setscrews. (See Fig. 13)


Fig. 13

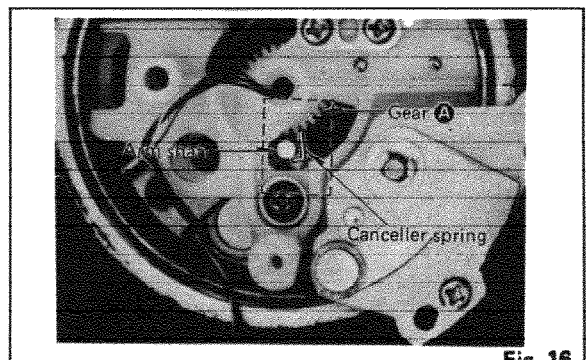
5. Rotate the control ring and make sure that the arm base shifts within the range of 0~6mm. (See Figs. 14 and 15) If it does not shift within the specified range, the arm base position is deflected. In that case, disassemble the parts and check as specified in step 3.


Fig. 14

Fig. 15

■ ADJUSTMENT OF CANCELLER SPRING POSITION

If the arm body or PU base plate is replaced, be sure to set the canceller knob to "0.5" and make sure that the canceller spring is in contact with the arm shaft. (See Fig. 16) If the canceller spring is deflected, adjust it as follows:

1. Clamp the arm on the rest.
2. Set the canceller knob to "0.5".
3. Remove the PU base plate, adjust gear A so that the canceller spring is in the position of Fig. 16.
4. Mount the PU base plate onto the arm base and check the spring position.


Fig. 16

■ ADJUSTMENTS

Pitch control (fine adjustment of speed) (See Figs. 18 and 19.)

When the pitch control knob is located at the center of the position after turning on the power, the green LED indicator is lit showing the operating condition for the predetermined speed (either 33-1/3 or 45 rpm). The pitch control is variable in a range of about $\pm 8\%$.

Adjustment should be done on the basis of indicator scale. Figures on the indicator show approximate percentages for variable pitch control.

When the strobe dots in 4 stages marked at the peripheral edge of the turntable appear to be stationary, variation of individual pitches is shown. (See Fig. 19.)

Note:

The strobe-illumination of this unit employs a strobe-illuminator LED synchronized with the precise quartz frequency.

For fine adjustment of the turntable speed, be sure to effect the adjustment according to the LED illumination.

The LED illumination is not synchronized with fluorescent lamps.

Adjustment of arm-lift height (See Figs. 20 and 21.)

The arm-lift height (distance between the stylus tip and record surface when cueing lever is raised) has been adjusted at the factory before shipping to approximately 8-13mm.

If the clearance becomes too narrow or too wide, turn the adjustment screw clockwise or counterclockwise, while pushing the arm lift down.

Clockwise rotation

—distance between the record and stylus tip is decreased.

Counterclockwise rotation

—distance between the record and stylus tip is increased.

Note:

As the adjusting screw has hexagonal head, be sure to make the adjustment while depressing the arm lift, or the screw will not move freely.

Also be sure that the hexagonal head retracts correctly into the arm lift when the latter is released.

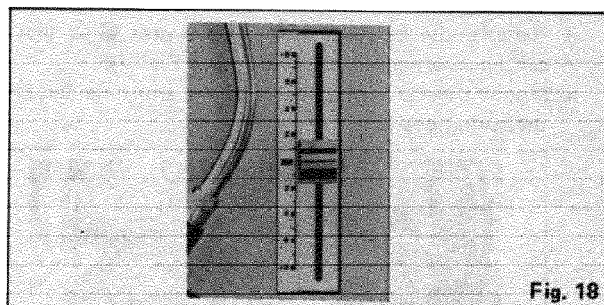


Fig. 18

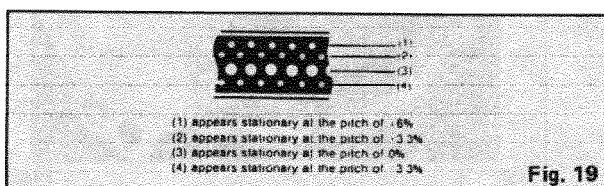


Fig. 19

Adjustment of the tonearm height (See Fig. 22.)

The height of the tonearm can be adjusted up to 6 mm, and a scale is provided on the adjust ring in 0.5 mm increments. Be sure to set the proper arm height using the adjust ring scale and referring to the table.

Height of cartridge (mm) (H)	Scale reading on the arm-height adjust ring
15	0
16	1
17	2
18	3
19	4
20	5
21	6

For example, if the cartridge height is 17.5 mm, the arm-height adjust ring should be positioned at the intermediate location between 2 and 3 on the scale. (See Fig. 22.)

Caution:

Be sure to lock the tonearm by turning the arm lock knob in the direction indicated by the arrow after finishing the height adjustment for the tonearm.

Lubrication (See Fig. 23.)

Apply 2 or 3 drops of oil once after every 2000 hours of operation.

The time interval is much longer than that for conventional type motors (200-500 hours).

Please purchase original oil. (Part number is SFWO 010.)

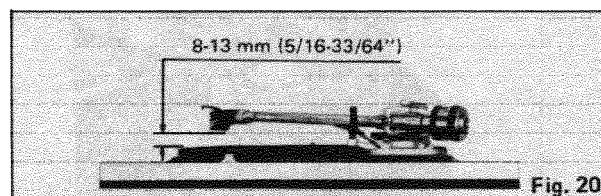


Fig. 20

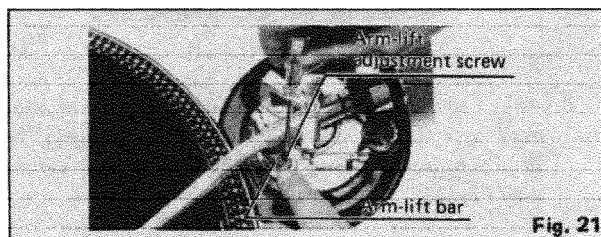


Fig. 21



Fig. 22

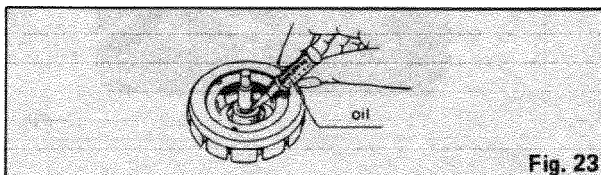
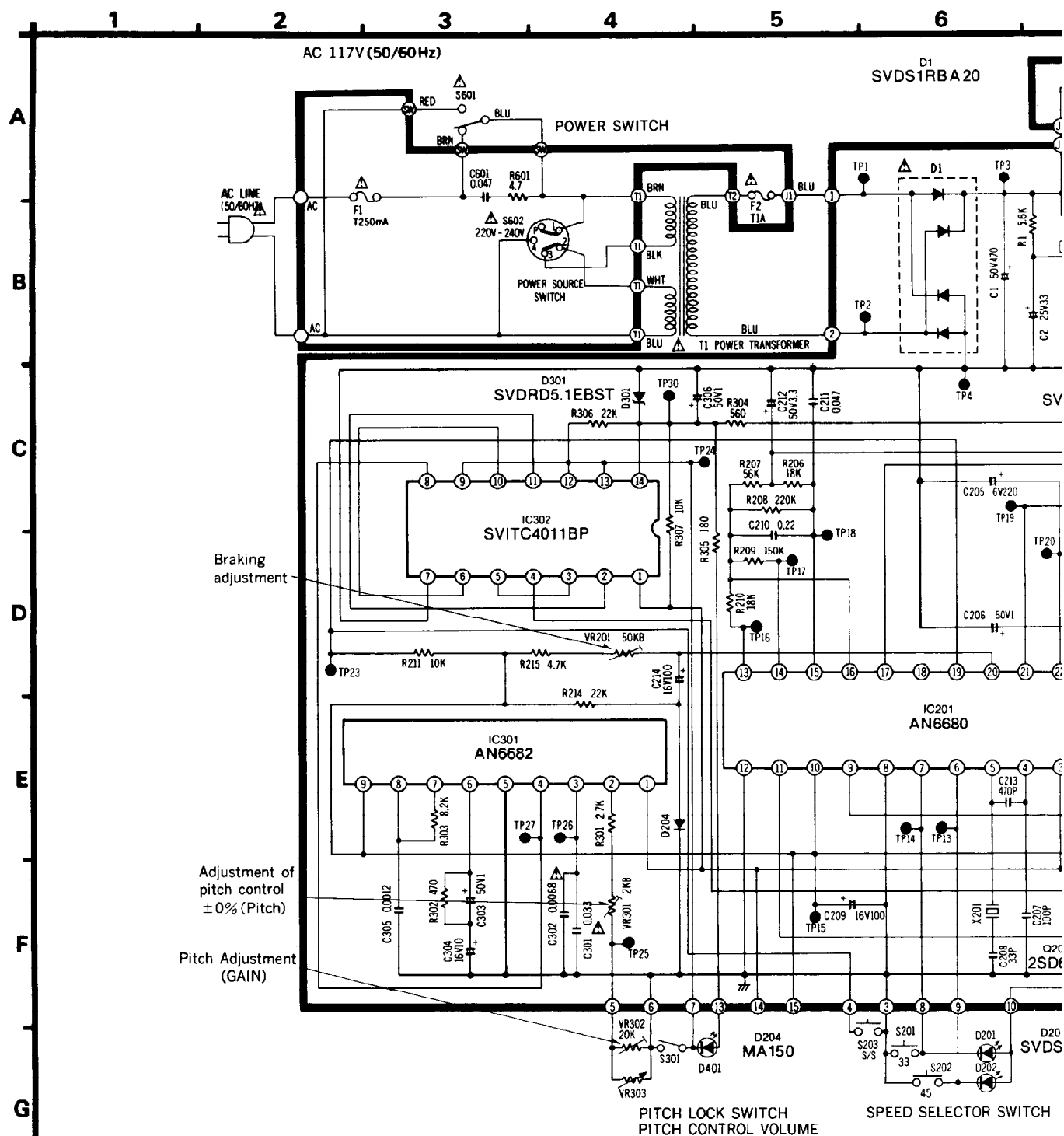


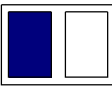
Fig. 23

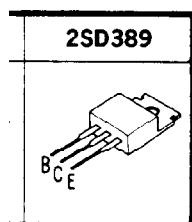
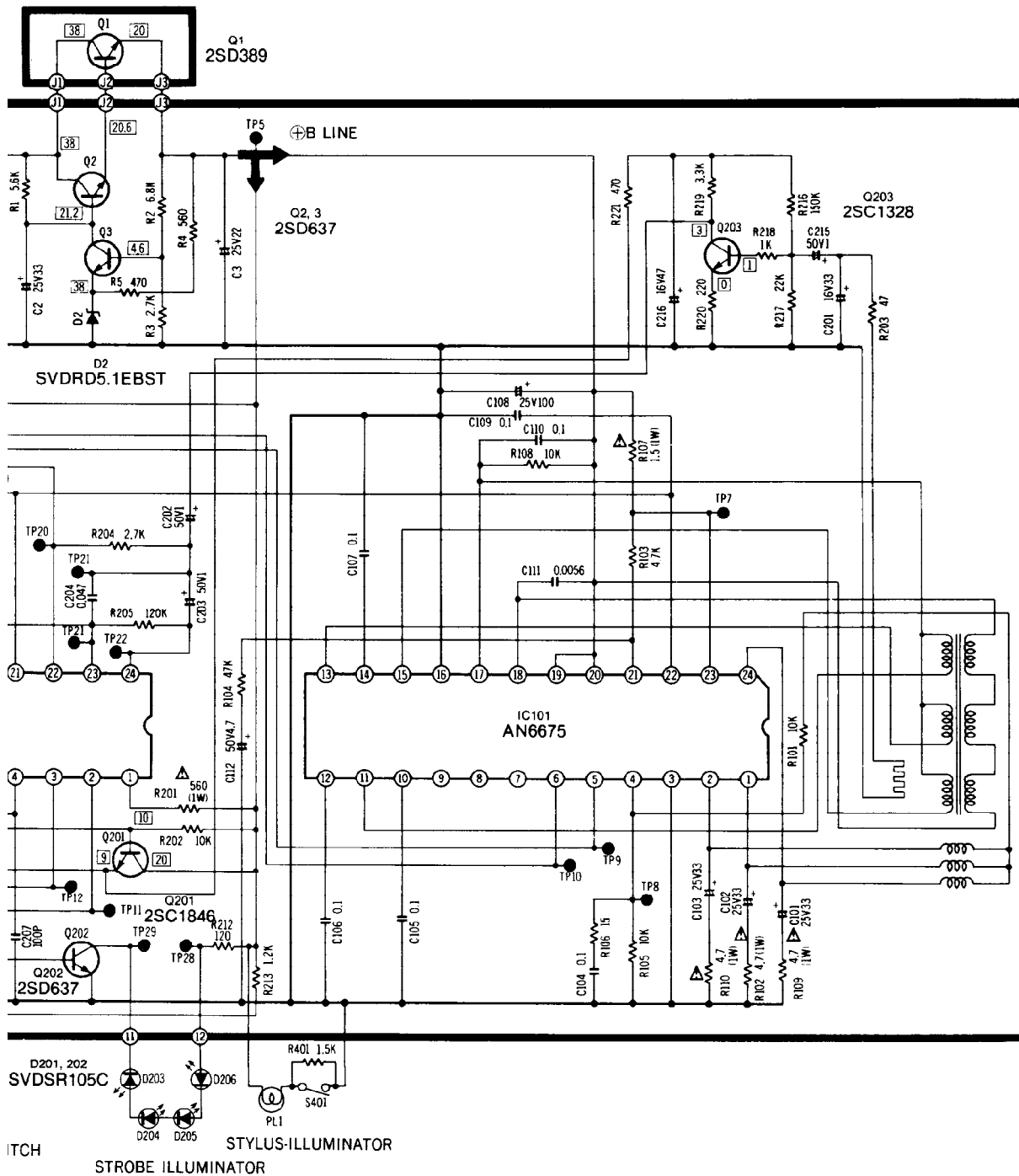
Schematic Diagram (This schematic diagram may be modified at any time with the develop



■ TERMINAL GUIDE OF TRANSISTOR AND IC

AN6675	AN6680	AN6682	SVITC4011BP	2SC1846	2SC1328	2SD637



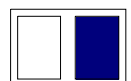


10

NOTE:

1. S201: Speed selector switch (33-1/3 r.p.m.) in "ON" position. (push condition)
2. S202: Speed selector switch (45 r.p.m.) in "OFF" position. (not-push condition)
3. S203: Start/Stop switch in "OFF" position. (not-push condition)
4. S301: Pitch lock switch in "ON" position. (center position)
5. S401: Stylus-illuminator switch in "OFF" position.
6. S601: Power switch in "ON" position.
7. S602: Power source switch in "220-240V" position.

8. The drive circuit IC voltage and wave form are not indicated in side the schematic diagram.
9. Indicated voltage value are the standard values for the unit measured by DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
10. Δ indicates that only parts specified by the manufacturer be used for safety.

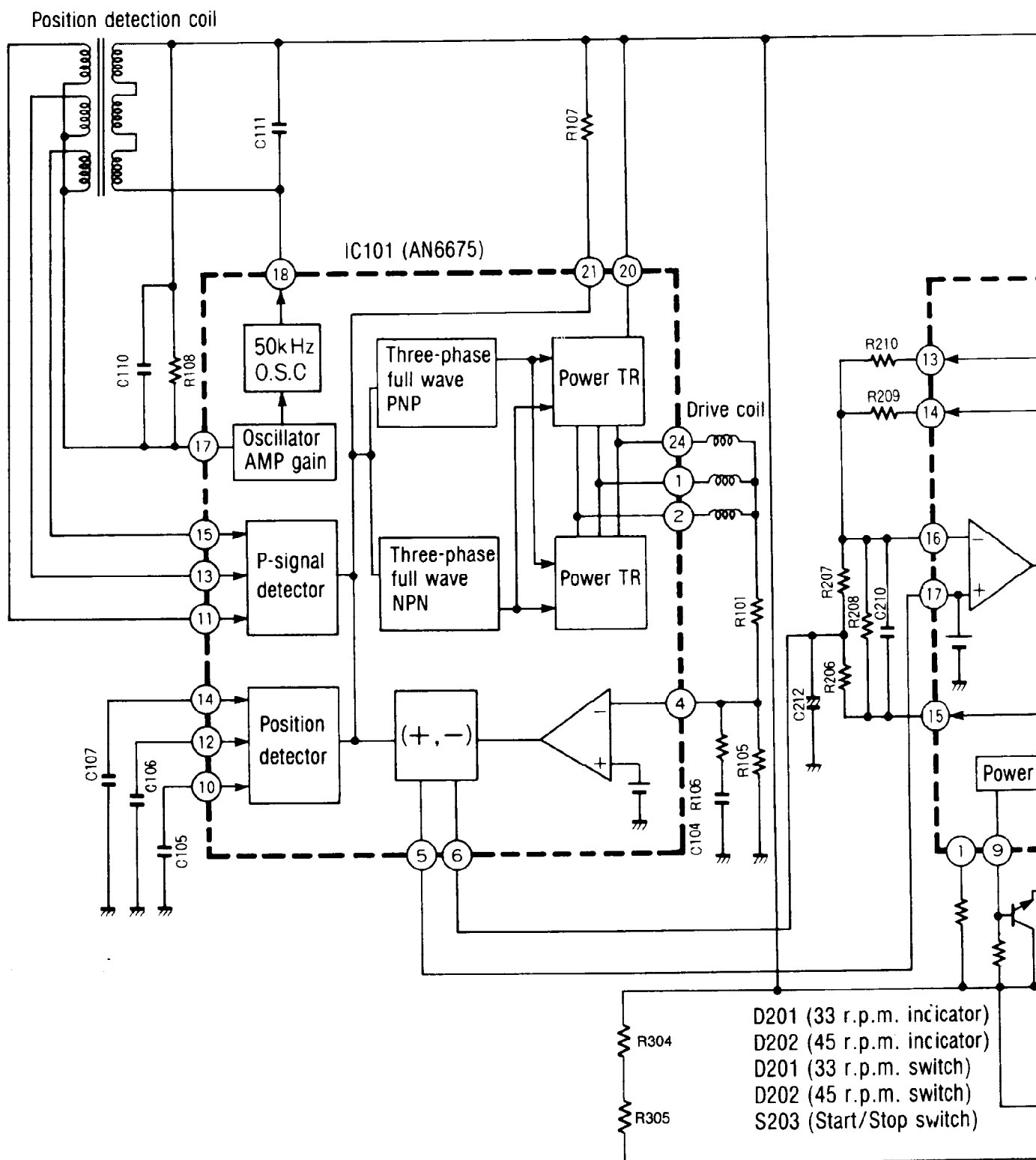


REPLACEMENT PARTS LIST (Electrical)

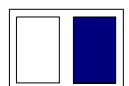
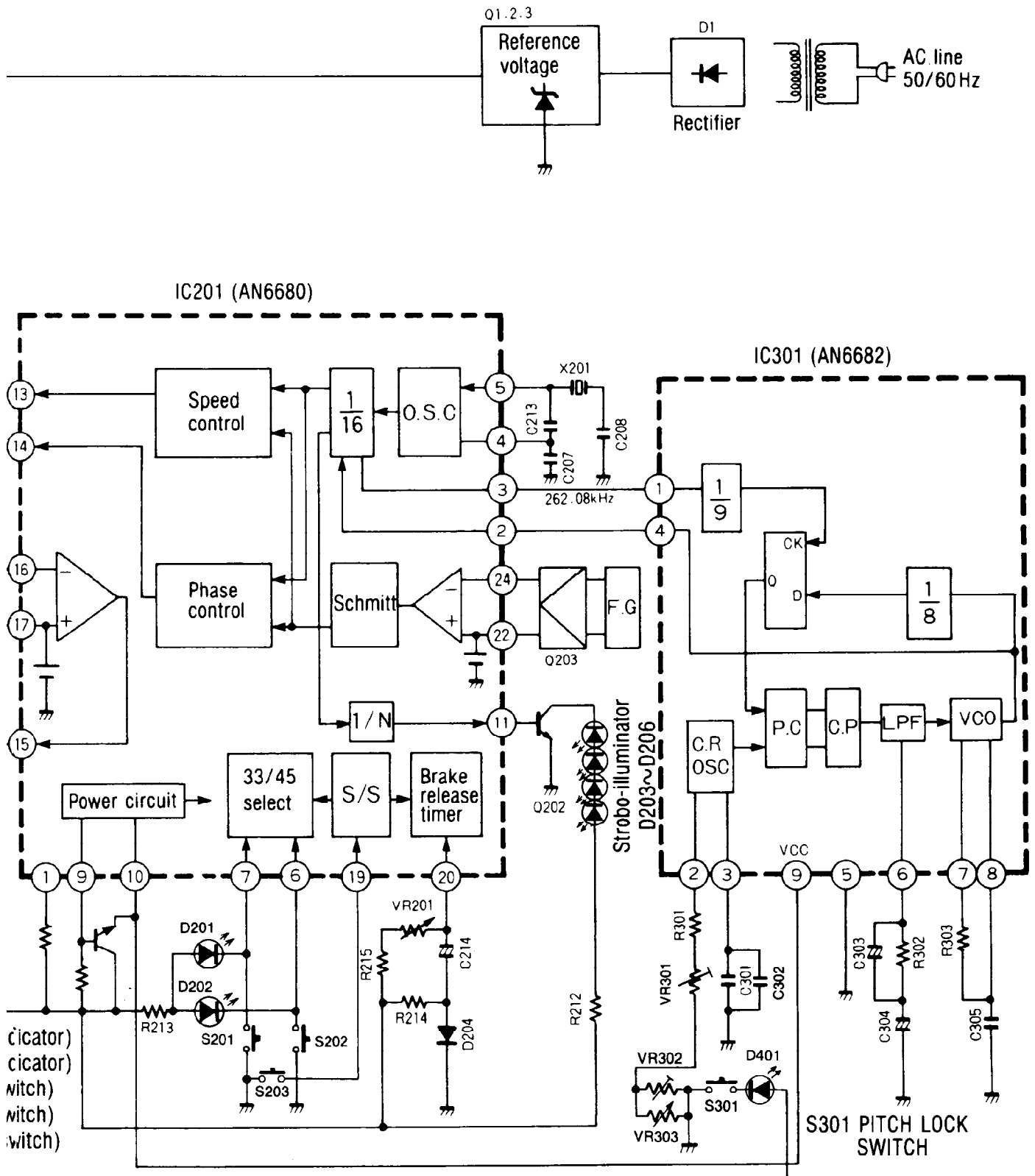
- Notes:** 1. Part numbers are indicated on most mechanical parts.
Please use this number for parts orders.
2. Δ indicates that only parts specified by manufacturer be used for safety.
3. SL-1200MK2 (XG) $\rightarrow$ [XG], SL-1200MK2 (XA) $\rightarrow$ [XA], SL-1200MK2 (XGB) $\rightarrow$ [XGB]
SL-1200MK2 (XAL) $\rightarrow$ [XAL], SL-1200MK2 (E) $\rightarrow$ [E]

Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS		
IC101 IC201 IC301 IC302	AN6875 AN6880 AN6882 SV1TC4011BP	Integrated Circuit Integrated Circuit Integrated Circuit Integrated Circuit
TRANSISTORS		
Q1 Q2, 3, 202 Q201 Q203	2SD389A-Q 2SD637 2SC1846-R 2SC1328-T	Transistor Transistor Transistor Transistor
DIODES		
D1 D2, 301 D204 D201, 202 D203~206 D401	Δ SVDS1RBA40 MA1051 MA182A SVDSR-105C SVDEBR5505S SVDGL-9PG2	Rectifier Diode, Zener 5.1V Diode Light Emitting Diode Light Emitting Diode Light Emitting Diode
CRYSTAL		
X201	SVQU306115	Crystal, 4.19328MHz Oscillator
VARIABLE RESISTORS		
VR201 VR301	EVLS3AA00B54 EVMH1GA00B23	Braking Adjustment (BRAKE), 50k Ω (B) Adjustment of Pitch Control $\pm$ 0%(PITCH), 5k Ω (B)
VR302 VR303	EVLS6AA00B54 EVBJ05C19ABE	Pitch Adjustment (Gain) 50k Ω Pitch Control Volume
SWITCHES		
S201 S202 S203 S401 S601 S602	EVQP5R04K EVQP5R04K SFDSS5GL13C SFDSD2MSL-4 Δ SFDSS5GL13S Δ SFDShXW01317	Switch, Speed Selector (33-1/3 r.p.m.) Switch, Speed Selector (45 r.p.m.) Switch, Start/Stop Switch, Stylus-Illuminator Switch, Power Switch, Power Source
LAMP		
PL1	SFDN122-01	Lamp, Stylus-Illuminator
TRANSFORMER		
T1	Δ SLTF5900	Power Transformer
FUSE		
F1 F2	Δ XBA2C025T1A Δ XBA2C10TRO	Fuse, T250 mA Fuse, T1A
RESISTORS		
R1 R2 R3 R4 R5 R101 R102 R103 R104 R105 R106	ERD25FJ562 ERD25FJ682 ERD25FJ272 ERD25FJ561 ERD25FJ471 ERD25FJ103 Δ ERX1ANJ4R7 ERD25FJ472 ERD25TJ473 ERD25FJ103 ERD25FJ150	Carbon, 5.6k Ω , 1/4W, $\pm$ 5% Carbon, 6.8k Ω , 1/4W, $\pm$ 5% Carbon, 2.7k Ω , 1/4W, $\pm$ 5% Carbon, 560 Ω , 1/4W, $\pm$ 5% Carbon, 470 Ω , 1/4W, $\pm$ 5% Carbon, 10k Ω , 1/4W, $\pm$ 5% Metal Film, 4.7 Ω , 1W, $\pm$ 5% Carbon, 4.7k Ω , 1/4W, $\pm$ 5% Carbon, 47k Ω , 1/4W, $\pm$ 5% Carbon, 10k Ω , 1/4W, $\pm$ 5% Carbon, 15 Ω , 1/4W, $\pm$ 5%

Ref. No.	Part No.	Part Name & Description
R107	Δ ERX1ANJ1R5	Metal Film, 1.5 Ω , 1W, $\pm$ 5%
R108 R109, 110 R201 R202 R203 R204 R205 R206 R207 R208	Δ ERD25FJ103 Δ ERX1ANJ4R7 Δ ERG1ANJ561 ERD25FJ103 ERD25FJ470 ERD25FJ272 ERD25TJ124 ERD25TJ183 ERD25TJ563 ERD25TJ224	Carbon, 10k Ω , 1/4W, $\pm$ 5% Metal Film, 4.7 Ω , 1W, $\pm$ 5% Metal Oxide, 560 Ω , 1W, $\pm$ 5% Carbon, 10k Ω , 1/4W, $\pm$ 5% Carbon, 47 Ω , 1/4W, $\pm$ 5% Carbon, 2.7k Ω , 1/4W, $\pm$ 5% Carbon, 120k Ω , 1/4W, $\pm$ 5% Carbon, 18k Ω , 1/4W, $\pm$ 5% Carbon, 56k Ω , 1/4W, $\pm$ 5% Carbon, 220k Ω , 1/4W, $\pm$ 5%
R209 R210 R211 R212 R213 R214 R215 R216 R217 R218	ERD25TJ154 ERD25TJ183 ERD25FJ103 ERD25FJ121 ERD25FJ122 ERD25TJ223 ERD25FJ472 ERD25TJ154 ERD25TJ223 ERD25FJ102	Carbon, 150k Ω , 1/4W, $\pm$ 5% Carbon, 18k Ω , 1/4W, $\pm$ 5% Carbon, 10k Ω , 1/4W, $\pm$ 5% Carbon, 120 Ω , 1/4W, $\pm$ 5% Carbon, 1.2k Ω , 1/4W, $\pm$ 5% Carbon, 22k Ω , 1/4W, $\pm$ 5% Carbon, 4.7k Ω , 1/4W, $\pm$ 5% Carbon, 150k Ω , 1/4W, $\pm$ 5% Carbon, 22k Ω , 1/4W, $\pm$ 5% Carbon, 1k Ω , 1/4W, $\pm$ 5%
R219 R220 R221 R301 R302 R303 R304 R306 R601	ERD25FJ332 ERD25FJ221 ERD25FJ471 ERD25CKF3301 ERD25FJ471 ERD25FJ822 ERD25FJ152 ERD25TJ223 ERD25FJ4R7	Carbon, 3.3k Ω , 1/4W, $\pm$ 5% Carbon, 220 Ω , 1/4W, $\pm$ 5% Carbon, 470 Ω , 1/4W, $\pm$ 5% Metal Film, 3.3k Ω , 1/4W, $\pm$ 1% Carbon, 470 Ω , 1/4W, $\pm$ 5% Carbon, 8.2k Ω , 1/4W, $\pm$ 5% Carbon, 1.5k Ω , 1/4W, $\pm$ 5% Carbon, 22k Ω , 1/4W, $\pm$ 5% Carbon, 4.7 Ω , 1/4W, $\pm$ 5%
CAPACITORS		
C1 C2 C3 C101, 102 C103 C104, 105 C106, 107 C108 C109, 110 C111	ECEB1H8471 ECEA1V8330 ECEA1E8220 ECEA1V8330 ECEA1V8330 ECQM1H104KZ ECQM1H104KZ ECEA1E8101 ECQM1H104KZ ECQM1H562KZ	Electrolytic, 470 μ F, 50V Electrolytic, 33 μ F, 35V Electrolytic, 22 μ F, 25V Electrolytic, 33 μ F, 35V Electrolytic, 33 μ F, 35V Polyester, 0.1 μ F, 50V, $\pm$ 10% Polyester, 0.1 μ F, 50V, $\pm$ 10% Electrolytic, 100 μ F, 25V Polyester, 0.1 μ F, 50V, $\pm$ 10% Polyester, 0.0056 μ F, 50V, $\pm$ 10%
C112 C201 C202, 203 C204 C205 C206 C207 C208 C209 C210 C211 C212 C213 C214 C215	ECEA1J84R7 ECEA1C8330 ECEA5021 ECQM1H473KZ ECEA1A8221 ECEA5021 ECCE1H101K ECCE1H390K ECEA1E8101 ECQM1H224KZ ECQM1H473KZ ECEA5023R3 ECCE1H471K ECEA1E8101 ECEA5021	Electrolytic, 4.7 μ F, 63V Electrolytic, 33 μ F, 16V Electrolytic, 1 μ F, 50V Polyester, 0.047 μ F, 50V, $\pm$ 10% Electrolytic, 220 μ F, 10V Electrolytic, 1 μ F, 50V Ceramic, 100pF, 50V, $\pm$ 10% Ceramic, 39pF, 50V, $\pm$ 10% Electrolytic, 100 μ F, 16V Polyester, 0.22 μ F, 50V, $\pm$ 10% Polyester, 0.047 μ F, 50V, $\pm$ 10% Electrolytic, 3.3 μ F, 50V Ceramic, 470pF, 50V, $\pm$ 10% Electrolytic, 100 μ F, 25V Electrolytic, 1 μ F, 50V
C216 C301, 302 C303 C304 C305 C306 C601	Δ ECEA1E8470 ECQK1123F-Z ECEA5021 ECEA1H8100 ECQM1H122KZ ECEA5021 ECNC4A473M	Electrolytic, 47 μ F, 25V Polyester, 0.012 μ F, 125V, $\pm$ 1% Electrolytic, 1 μ F, 50V Electrolytic, 10 μ F, 50V Polyester, 0.0012 μ F, 50V, $\pm$ 10% Electrolytic, 1 μ F, 50V Paper, 0.047 μ F, 400V, $\pm$ 20%

BLOCK DIAGRAM


SL-1200MK2



ADJUSTMENT (Electrical)

Notes: • Make the following adjustments after replacing parts such as IC's, transistors, diodes, etc.

- Condition of the set.
 1. Power switch ON
 2. Pitch control Center position
 3. Speed selector switch 33-1/3 r.p.m.
- Instruments to be used
 1. Tester
 2. Frequency counter

	Adjustment	Connection Points	Adjustment Point	Adjustment Method
A	Adjustment of pitch control $\pm 0\%$ (PITCH)	Frequency counter ⊕ — TP27 ⊖ — GROUND	VR301	1. Pitch control switch to center position. 2. Adjust VR301 for 262.08 kHz ± 0.05 kHz of frequency.
B	Adjustment of pitch control gain	Tester TP31 and TP32	VR302	Adjust VR302 for 2.7 k Ω ± 0.1 of resistance value
C	Braking adjustment (BRAKE)	—	VR201	Adjust VR201 for complete stop within 120° ~ 270° after stop signal initiated. (Turntable becomes free a few seconds after stop) STOP SIGNAL 270° Turntable 120°

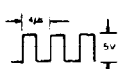
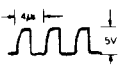
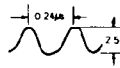
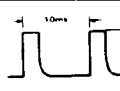
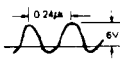
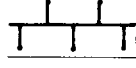
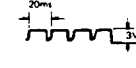
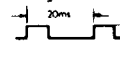
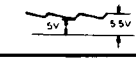
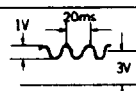
REFERENCE VOLTAGE AND WAVEFORM AT EACH IC PIN

IC101 (AN6675)

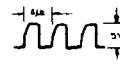
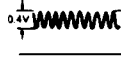
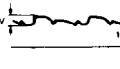
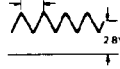
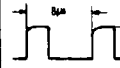
	Start	Stop		Start	Stop		Start	Stop
①	2V	2V	⑫		15V	⑮	Same as at right	
②	2V	2V						
③	0V	0V						
④	5V	5V	⑬			⑲	20V	20V
⑤	5V	5V				⑳	20V	20V
⑥	5V	6.6V				㉑	20V	20V
⑦	0V	0V	⑭	15V	15V	㉒	0.2V	0.2V
⑧	5V	5V	⑮			㉓	20V	20V
⑨	0V	0V				㉔	1.7V	1.7V
⑩		15V						
⑪			⑯	0V	0V			
			⑰	15V	15V			

SL-1200MK2

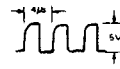
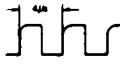
IC201 (AN6680)

	Start	Stop		Start	Stop		Start	Stop
①	2.5V	2.5V	⑧	0V	0V	⑯	5V	2.5V
②	Same as at right		⑨	9.8V	9.8V	⑰	5V	5V
③	Same as at right		⑩	10V	10V	⑱	0V	0V
④	Same as at right		⑪	Same as at right		⑲	7.5V	0V
⑤	Same as at right		⑫	0V	0V	⑳	0V	5V
⑥	3.4V	3.4V	⑬		0.2V	㉑	1.5V	0V
⑦	0V	0V	⑭			㉒	3V	3V
			⑮		8V	㉓		3V
						㉔	2.8V	2.8V

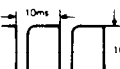
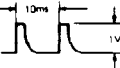
IC301 (AN6682)

	Start	Stop		Start	Stop		Start	Stop
①	Same as at right		④	Same as at right		⑧	Same as at right	
②	Same as at right		⑤	0V	0V	⑨	9V	9V
③	Same as at right		⑥	3.9V	3.9V			
			⑦	Same as at right				

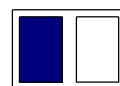
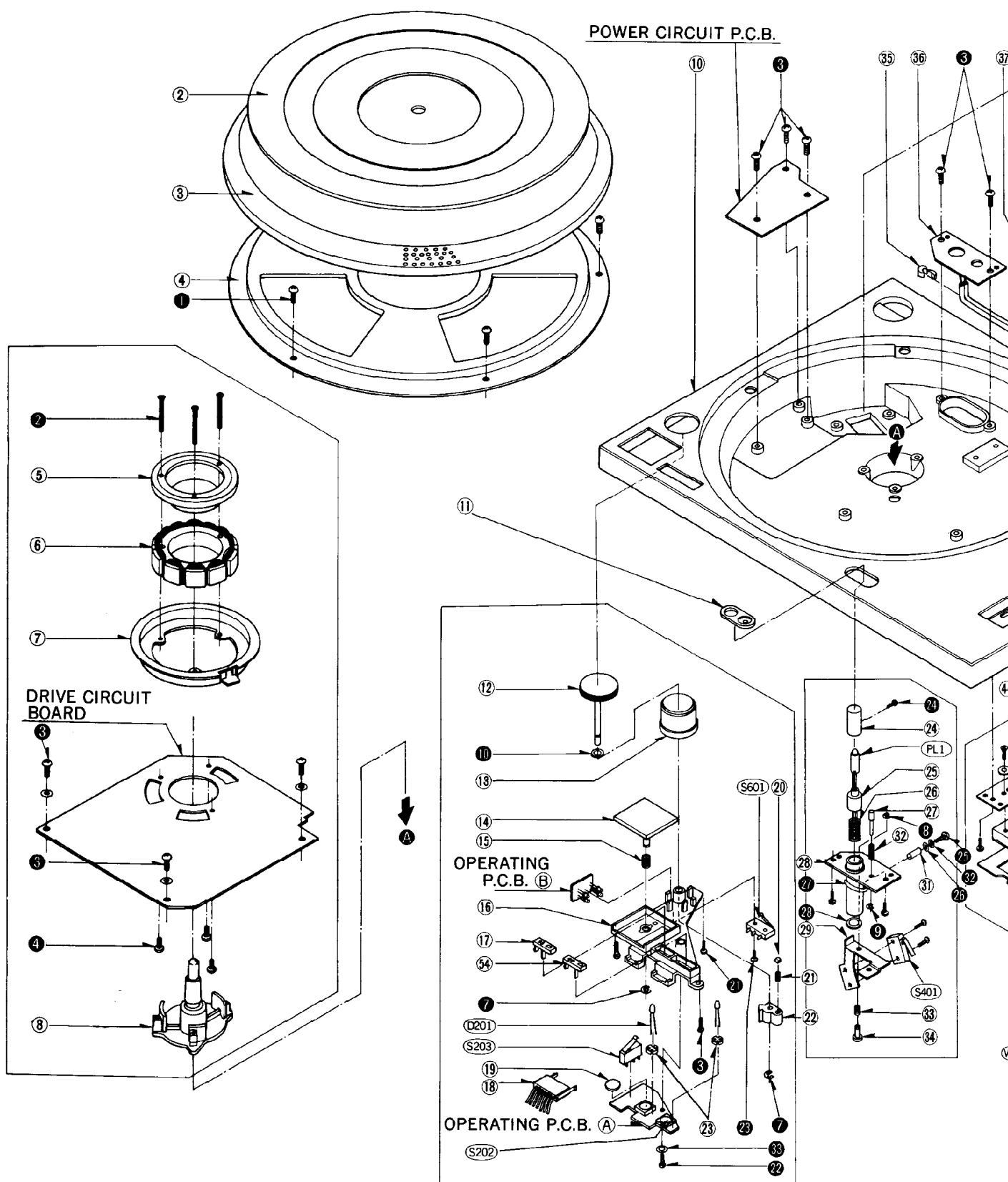
IC302 (SV1TC4011BP)

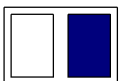
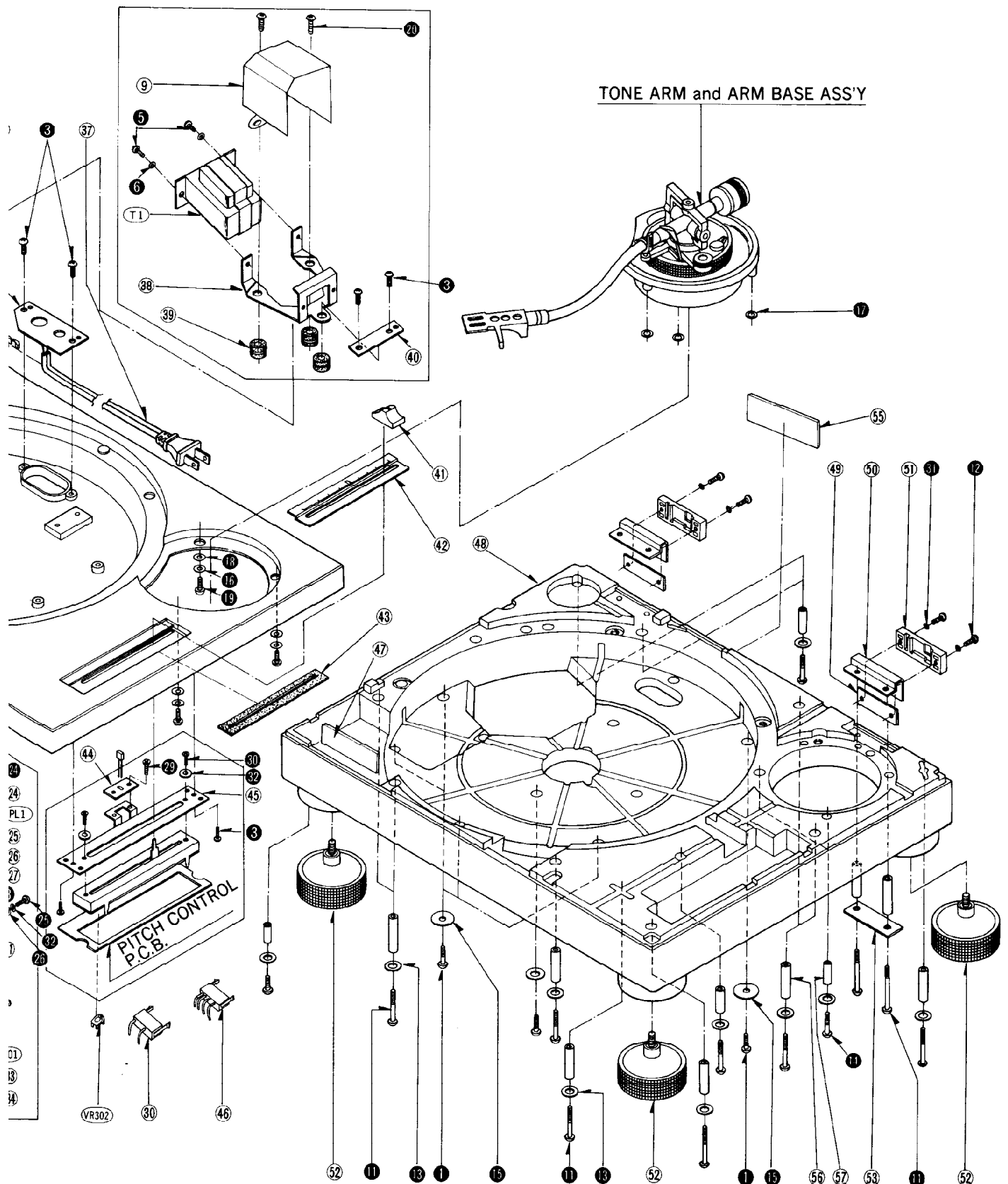
	Start	Stop		Start	Stop		Start	Stop
①	Same as at right		⑤	Same as at right		⑨	5V	5V
②	5V	5V	⑥	5V	5V	⑩	5V	5V
③	Same as at right		⑦	0V	0V	⑪	5V	5V
④	5V	5V	⑧	Same as at right		⑫	0.6V	0.6V
						⑬	0.6V	0.6V
						⑭	5V	5V

Q202 (2SD637)

	Start	Stop
E	0V	0V
C	Same as at right	
B	Same as at right	

■ EXPLODED VIEWS





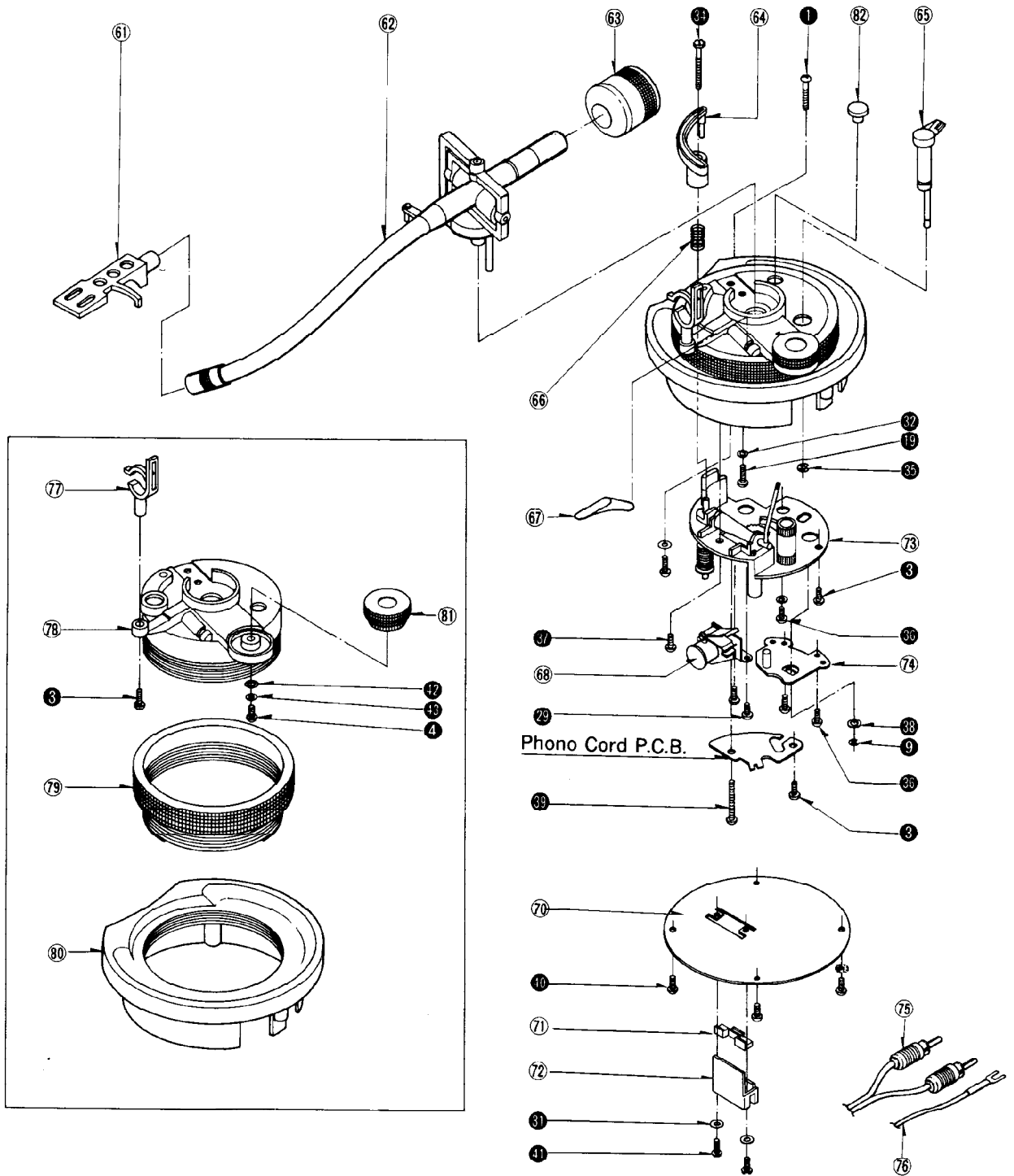
■ REPLACEMENT PARTS LIST (Mechanical)

- Notes:** 1. Part numbers are indicated on most mechanical parts.
Please use this number for parts orders.
2. **△** indicates that only parts specified by manufacturer be used for safety.
3. SL-1200MK2 (XG) → [XG], SL-1200MK2 (XA) → [XA], SL-1200MK2(XGB) → [XGB]
SL-1200MK2 (XAL) → [XAL], SL-1200MK2 (E) → [E]

Ref. No.	Part No.	Part Name & Description
CABINET and CHASSIS PARTS		
1	SFAD122-01A	Dust Cover
2	SFTG172-01	Turntable Mat
3	SFTE172-01Z	Turntable
4	SFUM172-05	Cover, Turntable
5	SFMGQ20-01	Cover, Stater Frame Ass'y
6	SFMG520-31A	Stater Frame
7	SFMZ172-01E	FG Detector Coil Ass'y
8	SFMZQ20-01A	Shaft, Stater Frame Ass'y
9	SFUP122-12	Plate, Shield
10	SFAC122-01	Cabinet
11	SFUM172-04	Ornament, Stylus-illuminator
12	SFKT122-01	Knob, Power Switch
13	SFKK122-01E	Case, Strobe-illuminator
14	SFKT015-06	Knob, Start/Stop Switch
15	SFQA122-01	Spring, Start/Stop Knob
16	SFUM122-01	Base, Operation
17	SFKT015-01E	Knob, Speed Selector (33-1/3 r.p.m.)
18	SFDJ122-02E	Connector, 7-PIN
19	SFGZ122-01	Spacer, Rubber (Speed Selector)
20	SFYB5-32	Ball, Switch Cam
21	SFQA520-01	Spring, Switch Cam
22	SFUM122-03	Cam, Switch
23	SFUM015-11	Spacer, LED
24	SFKK172-01	Cover, Lamp
25	SFXB122-02	Boss, Drive
26	SFQA172-01	Spring, Drive Boss
27	SFXJ172-01	Pin, Lock Canceler
28	SFUP122-02E	Bracket, Stylus-illuminator
29	SFUP122-03	Plate, Lock Operation
30	SFDJ122-03E	Connector, 3-PIN
31	SFXO172-01	Pin, Guide
32	SFQA520-01	Spring, Lock Canceler Pin
33	SFQA001-02	Spring, Lock Operating Plate M'tg
34	SFXJ172-05	Pin, Lock Operating Plate M'tg
35 except [XAL]	SFSR4N4	Clamper, AC Cord
35 [XAL] only	SFHK040L	Clamper, AC Cord
36 except [XAL]	SFUP025X01	Bracket, AC Cord
36 [XAL] only	SFUP025-01	Bracket, AC Cord
37 except [XAL]	RJA232C	AC Cord
37 [XAL] only	QFC1208M	AC, Cord
38	SFUP132-03	Bracket, Power Transformer
39	SFGC122-01	Cushion, Power Transformer
40	SFUP122-10	Spacer, Power Transformer
41	SFKT122-02	Knob, Pitch Control Volume
42	SFKK122-03	Ornament, Pitch Control Volume
43	SFUZ122-01	Shading Cloth, Pitch Control Volume
44	SFUP122-09	Holder, LED
45	SFUP122-01	Bracket, Pitch Control Volume
46	SFDJ122-01E	Connector, 4-PIN
47	SFUP122-13	Supporter, Bottom Base
48	SFAU122-01	Base, Bottom
49	SFUP122-05	Supporter (A), Hinge
50	SFUP122-04	Supporter (B), Hinge
51	SFUM170-07	Case, Hinge
52	SFGC122-02E	Audio Insulator
53	SFUP122-06	Supporter (C), Hinge
54	SFKT015-02E	Knob, Speed Selector (45 r.p.m.)
55 [XG, XA, XGB]	SFNN122N01	Name Plate
55 [XAL]	SFNN122L01	Name Plate
55 [E]	SFNN122S01	Instruction Book
56	SFXO122-01	Pipe (A)
57	SFXO122-02	Pipe (B)
58	SFAT122-01A	Hinge Ass'y
TONE ARM and ARM BASE		
61	SFPCC31001K	Head Shell
62	SFPAM18201K	Tone Arm Ass'y
63	SFPWG17201K	Balance Weight Ass'y
64	SFPRT18201K	Lift Ass'y
65	SFPZB17202	Knob, Arm Base Lock
66	SFQA829-03	Spring, Lift Ass'y
67	SFPAB13202	Knob, Arm Lift
68	SFPJL18202K	Oil Damper
69	SFPZB12203	Plate, Arm Base Cover
70	SFUM170-06	Spacer, Phono Cord
71	SFPZB12204	Clamper, Phono Cord
72	SFPAB18201K	Tone Arm Fixing Plate Ass'y

Ref. No.	Part No.	Part Name & Description
74	SFPZB12201K	Plate, Position Fix
75	SFDH028-01	Phono Cord
76	SFEL028-01E	Ground Wire
77	SFPRT17201K	Arm Rest
78	SFPKD17203	Arm Base
79	SFPKB17201S	Ring, Arm Base Operation
80	SFPKD12201	Bracket, Arm Base
81	SFPAB17206	Knob, Anti-skate Force Control
82	SFGK132-01	Cap, Rubber
SCREWS, WASHERS and CIRCLIPS		
●	XTN3+8BFZ	Screw
●	SFXGQ20-02	Screw
●	XTN3+8B	Screw
●	XTN26+6B	Screw
●	XTN4+10B	Screw
●	XWA4B	Washer
●	XUC3FT	Circlip
●	XUC2FT	Circlip
●	XUC26FT	Circlip
●	SFXW910J02	Washer
●	XTN3+40BFZ	Screw
●	XSN3+10BVS	Screw
●	XWE3F12FZ	Washer
●	XTN3+25BFZ	Screw
●	SFXW122-01	Washer
●	XWE3E10	Washer
●	SFPEW1100	Washer
●	SFPEW11003	Washer
●	XSN3+8S	Screw
●	SFXG132-01	Screw
●	XTV3+8BFN	Screw
●	XTN3+10B	Screw
●	XTN2+10B	Screw
●	XSN17+3FY	Screw
●	XSN3+14S	Screw
●	SFXW172-04	Washer
●	XUB14FT	Circlip
●	SFUZ172-05	O Ring
●	XTN3+6B	Screw
●	XSN3+6S	Screw
●	XWA3BFZ	Washer
●	XWA3B	Washer
●	XWG3	Washer
●	SFXG829 1	Screw
●	XUC5FT	Circlip
●	XTW3+6B	Screw
●	XTV3+6BFN	Screw
●	XWE4A10EW	Washer
●	XTN3+25B	Screw
●	XYN3+C6FZS	Screw
●	XSN3+12BVS	Screw
●	SFPEW17201	Washer
●	XWG26	Washer
ACCESSORIES		
A1 except [E]	SFNU122X01	Instruction Book
A1[E] only	SFNU122S01	Instruction Book
A2	SFWE010	Adaptor, 45 r.p.m.
A3	SFPEN3302	Nut, Cartridge
A4	SFPEW9601	Washer, Cartridge
A5	SFCZV8801	Screw, Cartridge
A6	SFPEV9801	Screw, Cartridge
A7	SFKO135-01	Overhang Gauge
A8	SFPZB3501	Shell Weight
A9 [XA] only	SFDK119118	Plug, 2-PIN
PACKINGS		
P1	SFHP122M01	Carton
P2	SFHH122-01	Pad, Front
P3	SFHH122-02	Pad, Rear
P4	SFHD122-01	Pad, Top
P5	SFHD122-02	Pad, (A), Turntable
P6	SFHD122-03	Pad, (B), Turntable
P7	SFYH60X60	Polyethylene Cover, Turntable Unit and Dust Cover
P8	SFYH40X45	Polyethylene Cover, Turntable

■ EXPLODED VIEWS



Service Manual

Turntable System

SL-1200MK2

[M], [MC],

[E], [EK], [XL], [EG], [EB], [EH],

[EF], [Ei], [XA], [PA], [PE], [PC]

SL-1210MK2

[E], [EG], [EH]



*SL-1200MK2 is the model for silver type.

*SL-1210MK2 is the model for black type of SL-1200MK2.

Areas

- * [M] is available in the U.S.A.
- * [MC] is available in Canada.
- * [E] is available in Switzerland and Scandinavia.
- * [EK] is available in United Kingdom.
- * [XL] is available in Australia.
- * [EG] is available in F.R. Germany.
- * [EB] is available in Belgium.
- * [EH] is available in Holland.
- * [EF] is available in France.
- * [Ei] is available in Italy.
- * [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
- * [PA] is available in far East PX.
- * [PE] is available in European Military.
- * [PC] is available in European Audio Club.

Please use this manual together with the service manual for Model No. SL-1200MK2/1210MK2.

SPECIFICATIONS\ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ
DISASSEMBLY INSTRUCTIONS\ИНСТРУКЦИЯ ПО РАЗБОРКЕ
REPLACEMENT PARTS LIST\СПИСОК ЗАПАСНЫХ ЧАСТЕЙ
ADJUSTMENT POINTS\ТОЧКИ РЕГУЛИРОВКИ
MEASUREMENTS AND ADJUSTMENTS\ИЗМЕРЕНИЯ И РЕГУЛИРОВКИ
RESISTORS AND CAPACITORS\СОПРОТИВЛЕНИЯ И КОНДЕНСАТОРЫ
REPLACEMENT PARTS LIST\СПИСОК ЗАПАСНЫХ ЧАСТЕЙ
EXPLODED VIEW\СБОРОЧНЫЕ ЧЕРТЕЖИ
SCHEMATIC DIAGRAM\ПРИНЦИПИАЛЬНАЯ СХЕМА
BLOCK DIAGRAM\БЛОК - СХЕМА
PACKING\УПАКОВОЧНЫЕ МАТЕРИАЛЫ

Technics

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

Panasonic Hawaii Inc.
91-238 Kauhū 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

Panasonic Tokyo
Matsushita Electric Industrial Co., Ltd.
1-2, 1-chome, Shibakoen, Minato-ku, Tokyo 105 Japan

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

Specifications

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

■ General

Power supply:	120V, AC 60 Hz (For [M], [MC] areas) ~110-120/220-240V, 50 or 60 Hz (For other areas)
Power consumption:	14 W (For [M], [MC] areas) 13.5 W (For other areas)
Dimensions: (W x H x D)	45.3 x 16.2 x 36 cm (17-27/32" x 6-19/64" x 14-11/64")
Weight:	12.5 kg (27.6 lb)

Turntable section

Type:	Quartz direct drive Manual turntable
Drive method:	Direct drive
Motor:	Brushless DC motor

Turntable platter:	Aluminum diecast Diameter 33.2 cm (13-5/64") Weight 2 kg (4.4 lb)
Turntable speeds:	33-1/3 rpm and 45 rpm
Starting torque:	1.5 kg · cm (1.3 lb · in)
Build-up characteristics:	0.7 s. from standstill to 33-1/3 rpm
Braking system:	Electronic brake
Wow and flutter:	0.01% WRMS* 0.025% WRMS (JIS C5521) ± 0.035% peak (IEC 98A Weighted)

* This rating refers to turntable assembly alone, excluding effects of record, cartridge or tonearm, but including platter.
Measured by obtaining signal from built-in frequency generator of motor assembly.

Rumble:	-56 dB (IEC 98A Unweighted) -78 dB (IEC 98A Weighted)
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■ Tonearm section

Type:	Universal
Effective length:	230 mm (9-1/16")
Arm height adjustment range:	0 — 6 mm
Overhang:	15 mm (19/32")
Effective mass:	12 g (without cartridge)
Offset angle:	22°
Friction:	Less than 7 mg (lateral, vertical)
Tracking error angle:	Within 2°32' (at the outer groove of 30 cm (12") record Within 0°32' (at the inner groove of 30 cm (12") record)

Stylus pressure adjustment range:	0 — 2.5 g
Applicable cartridge weight range:	6 — 10 g 13.5 — 17.5 g (including headshell)
(with auxiliary weight):	9.5 — 13 g 17 — 20.5 g (including headshell)
(with shell weight):	3.5 — 6.5 g 11 — 14 g (including headshell)
Headshell weight:	7.5 g

CHANGES

■ DISASSEMBLY INSTRUCTIONS

• How to remove the bottom cover and bottom base.

1. Remove the turntable mat and turntable.
2. Turn over the body on a soft cloth taking care not to damage the dust cover.
3. Remove the insulators and the 21 setscrews (Fig. 1 : ①, ②, ③) of the bottom cover.
4. Remove the 6 setscrews (Fig. 2 : ④) of the bottom base.

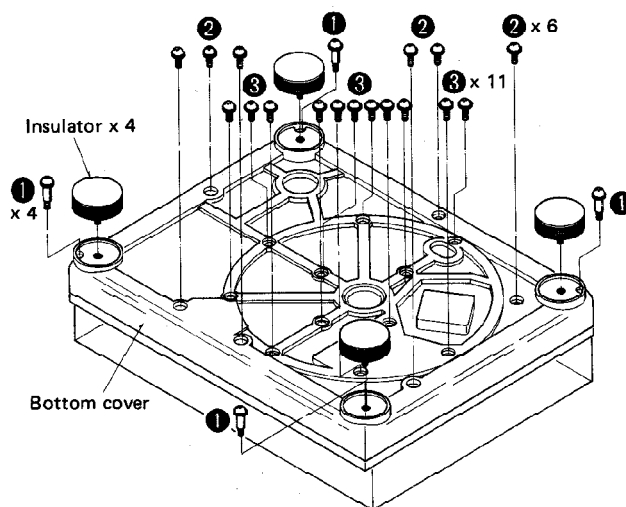


Fig. 1

• How to remove the hinge case

1. Remove the bottom cover. (Refer to "How to remove the bottom cover".)
 2. Remove the 4 setscrews (Fig. 2 : ⑤) of the hinge case bracket.
 3. Remove the 4 setscrews (Fig. 2 : ⑥) of the hinge case.
- Note:** The other disassembly procedure are the same as for before-change sets.

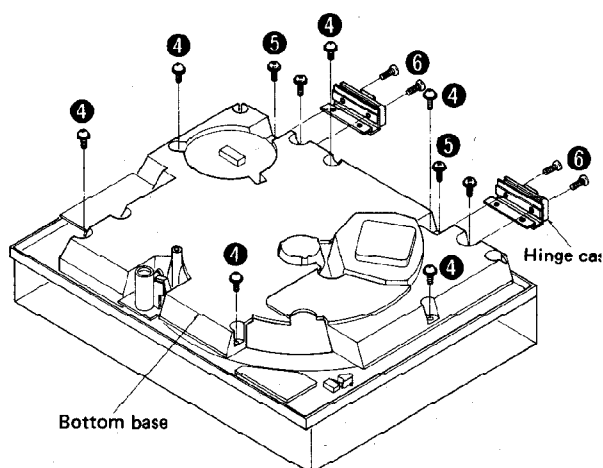


Fig. 2

■ REPLACEMENT PARTS LIST

Notes:

1. This parts list mentions only the difference between before and after change of SL-1200MK2/1210MK2.
2. (K)-marked parts are used only for SL-1210MK2 (black type). And (O)-marked parts are used for SL1200MK2 (silver type).
3. Parts other than (K) - and (O)-marked are used for both SL-1210MK2 and SL-1200MK2.
4. The "S" mark is service standard parts and may differ from production parts.

Areas

* [M]	is available in the U.S.A.
* [MC]	is available in Canada.
* [E]	is available in Switzerland and Scandinavia.
* [EK]	is available in United Kingdom.
* [XL]	is available in Australia.
* [EG]	is available in F.R. Germany.
* [EB]	is available in Belgium.
* [EH]	is available in Holland.
* [EF]	is available in France.
* [Ei]	is available in Italy.
* [XA]	is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [PA]	is available in far East PX.
* [PE]	is available in European Military.
* [PC]	is available in European Audio Club.

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SL-1200MK2 (Before Change)	SL-1200MK2/1210MK2 (After Change)			
INTEGRATED CIRCUIT					
IC302	SVITC4011BP	MN4011B	NAND Gate	1	
TRANSISTOR					
Q1	2SD389A-Q	2SD1265	Regulator	1	
DIODES					
D1	SVDS1RBA40	SVDS1RBA20Z	Rectifier	1	△
D201, 202	SVDSR-105C	SVDPR3902S-9	Speed Indicator	2	
D203 ~ 206	SVDEBR5505S	SVDSLH54VT3	Strobe	4	
D401	SVDGL-9PG2	SVDGL-9NG2	Pitch Indicator	1	
CRYSTAL					
X201	SVQU306115	SVQMS4193	4.193 MHz, Oscillator	1	
VARIABLE RESISTORS					
VR301	EVMH2GA00B53	EVMH1GA00B23	Pitch Control Adjustment, 2kΩ (B)	1	
VR303	EVBJ05C19ABE	SFDZ122N11	Pitch Control	1	
SWITCHES					
S203	SFDSS5GL13C	SFDSS01GL13	Start/Stop	1	
S601	SFDSS5GL13S	SFDSS5GL13P	Power	1	△
TRANSFORMER					
T1	SLT60EU7B	SLT66DTL3A [M]	Power Source	1	△
T1	SLT60E31C	SLT66DT14C [MC]	Power Source	1	△
T1	SLTF5900	SLT66DTE13A [Other areas]	Power Source	1	△

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SL-1200MK2 (Before Change)	SL-1200MK2/1210MK2 (After Change)			
RESISTORS					
R4	ERD25FJ561	ERD25FJ471	Carbon, 1/4W, 470Ω	1	Ⓢ
R209	ERD25TJ154	ERD25TJ334	Carbon, 1/4W, 330kΩ	1	Ⓢ
R211	ERD25FJ103	ERD25FJ472	Carbon, 1/4W, 4.7kΩ	1	Ⓢ
R212	ERD25FJ121	ERD25FJ151	Carbon, 1/4W, 150Ω	1	Ⓢ
R222	Addition	ERD25FJ391	Carbon, 1/4W, 390Ω	1	Ⓢ
R301	ERO25CKF3301	ERO25CKF2701	Metal Film, 1/4W, 2.7kΩ	1	Ⓢ
R304	ERD25FJ152	ERD25FJ561	Carbon, 1/4W, 560Ω	1	Ⓢ
R401	Addition	ERD50FJ152	Carbon, 1/2W, 1.5kΩ	1	Ⓢ
R601	ERD25FJ4R7	ERD50FJ4R7	Carbon, 1/2W, 4.7Ω	1	Δ Ⓢ
CAPACITORS					
C5, 6	Addition	ECQM1223KZ	Polyester, 125V, 0.022μF	1	Δ
C104 ~ 107	ECQM1H104KZ	ECQM1H104JZ	Polyester, 50V, 0.1μF	4	Ⓢ
C109, 110	ECQM1H104KZ	ECQM1H104JZ	Polyester, 50V, 0.1μF	2	Ⓢ
C111	ECQM1H562KZ	ECQM1H562JZ	Polyester, 50V, 0.0056μF	1	Ⓢ
C204	ECQM1H473KZ	ECQM1H473JZ	Polyester, 50V, 0.047μF	1	Ⓢ
C210	ECQM1H224KZ	ECQM1H224JZ	Polyester, 50V, 0.22μF	1	Ⓢ
C211	ECQM1H473KZ	ECQM1H473JZ	Polyester, 50V, 0.047μF	1	Ⓢ
C217 ~ 219	Addition	ECKD1H104ZF	Ceramic, 50V, 0.1μF	1	Ⓢ
C301	ECQK1123FZ	ECQK1333GZ	Polyester, 125V, 0.033μF	1	
C302	ECQK1123FZ	ECQK1682GZ	Polyester, 125V, 0.0068μF	1	
C305	ECQM1H122KZ	ECQM1H122JZ	Polyester, 50V, 0.0012μF	1	Ⓢ
CABINET and CHASSIS PARTS					
9	SFUP122-12	Deletion	-----	0	
10	SFAC122-01	SFAC122-01	Cabinet (Silver)	1	○
		SFAC124S01	Cabinet (Black)	1	Ⓚ
25	SFXB122-02	SFXB122-06	Boss, Drive	1	
33	SFQA001-02	SFQA122-03	Spring	1	
36	SFUP025-01	SFUP122-16 [M, MC, PA, PE, PC]	Bracket, AC Cord	1	
	SFUP025X01	SFUP122X01 [Other areas]	Bracket, AC cord	1	
38	SFUP132-03	SFGC122-03	Cushion	2	
40	SFUP122-10	Deletion	-----	0	
42	SFKK122-03	SFKK122-03	Plate (Silver)	1	
		SFKK124S01	Plate (Black)	1	
48	SFAU122-01	SFAU122-02	Bottom Base	1	
48-1	Addition	SFAU122-03	Bottom Cover	1	
49	SFUP122-05	SFUP122-23	Supporter (A), Hinge	2	
50	SFUP122-04	SFUP122-24	Supporter (B), Hinge	2	
51	SFUM170-07	SFUMM02N04	Case, Hinge	2	
55	SFNN122M01	SFNN122M10 [M]	Name Plate	1	○
	SFNN122C01	SFNN122C10 [MC]	Name Plate	1	○
	SFNN122S01	SFNN122S10 [E]	Name Plate	1	○
	SFNN122L01	SFNN122G10 [EK, XL]	Name Plate	1	○
	SFNN122X01	SFNN122X10 [XA]	Name Plate	1	○
	Addition	SFNN122P10 [PA, PE]	Name Plate	1	○
	Addition	SFNN122P11 [PC]	Name Plate	1	○
	SFNN122N01	SFNN122N10 [Other areas]	Name Plate	1	○
	Addition	SFNN124S10 [E]	Name Plate	1	Ⓚ
	Addition	SFNN124Q10 [EG, EH]	Name Plate	1	Ⓚ
56	SFX0122-01	Deletion	-----	0	
57	SFX0122-02	Deletion	-----	0	
58	SFAT122-01A	SFATM02N01A	Hinge	1	

Ref. No.	Change of Part No.		Part Name & Description	Per Set (Pcs.)	Remarks
	SL-1200MK2 (Before Change)	SL-1200MK2/1210MK2 (After Change)			
TONEARM PARTS					
62	SFPAM18201K	SFPAM18201K	Tonearm Ass'y (Silver)	1	○
		SFPAM18202K	Tonearm Ass'y (Black)	1	Ⓚ
79	SFPKB17201S	SFPKB17204E	Ring, Arm Base Operation	1	
82	SFGK132-01	SFGK132-01	Cap (Silver)	1	○
		SFGK133S01	Cap (Black)	1	Ⓚ
ACCESSORIES					
A1	SFNU122M01	SFNU122M06 [M]	Instruction Book	1	
	SFNU122C01	SFNU122C06	Instruction Book	1	
	SFNU122S01	SFNU122S01 [E]	Instruction Book	1	
	SFNU122G01	SFNU122G01 [EK]	Instruction Book	1	
	Addition	SFNU122P01 [PA, PE, PC]	Instruction Book	1	
	SFNU122X01	SFNU122X01 [Other areas]	Instruction Book	1	
A2	SFWE010	SFWE122-01	45 Adaptor	1	
PACKING PARTS					
P1	SFHP122C01	SFHP122C02 [MC, EF]	Carton Box (Silver)	1	○
	SFHP122M01	SFHP122M02 [Other areas]	Carton Box (Silver)	1	○
		SFHP124S02	Carbon Box (Black)	1	Ⓚ
P9	Addition	SPB1083	Polyethylene Bag, Accessories	2	
P10	Addition	SPJ15	Polyethylene Bag, Shell Weight	1	
P11	Addition	SFHZD03M01	Polyethylene Bag, Dust Cover	3	
P12	Addition	SFHZ122-01	Polyethylene Bag, 45 Adaptor	1	
P13	Addition	SPP189	Polyethylene Bag, Cords	2	

■ ADJUSTMENT POINTS

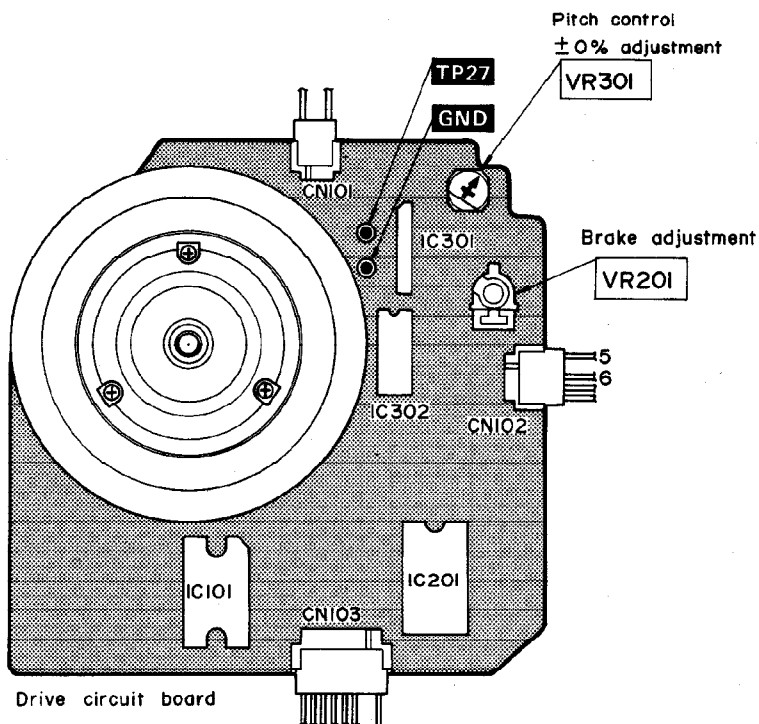


Fig. 3 (Abb. 3)

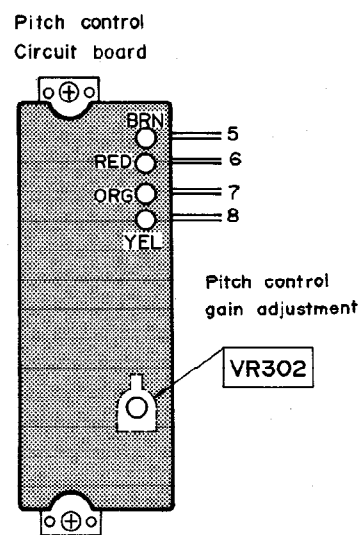


Fig. 4 (Abb. 4)

MEASUREMENTS AND ADJUSTMENTS English

- Conditions of set, and instruments used

1. Remove the panel cover.
2. Remove the bottom cover (when adjusting the pitch control gain).
3. Frequency counter
4. Tester

	Adjustment	Connection	Parts adjusted	Procedure
1	Pitch control $\pm 0\%$ adjustment	Frequency counter (+) – TP27 (–) – Earth point	VR301 (Fig. 3)	1. Connect the frequency counter and turn the power supply ON. 2. Set the pitch control knob to "0". (Indicator lights up.) 3. Adjust VR301 so that the frequency is $262.08 \text{ kHz} \pm 0.05 \text{ kHz}$.
2	Pitch control gain adjustment	Tester (+) – CN102 terminal ⑤ (–) – CN102 terminal ⑥	VR302 (Fig. 4)	1. Set the pitch control knob to "0". 2. Pull out the connector CN102 of drive P.C.B. 3. Connect the tester to terminals ⑤ and ⑥ of connector CN102 on the pitch control P.C.B. side. 4. Adjust VR302 so that the resistance value of the tester is $2.7 \text{ k}\Omega \pm 0.1 \text{ k}\Omega$.
3	Brake adjustment	_____	VR201 (Fig. 3)	1. Adjust VR201 so that the rotation at 33 r.p.m. stops within the angle of $90^\circ \sim 120^\circ$ after depressing the stop button.

■ RESISTORS AND CAPACITORS

- Notes:**
- Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
 - Important safety notice:
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
 - The "S" mark is service standard parts and may differ from production parts.
 - Bracketed indications in Ref. No. column specify the area. Parts without these indications can be used for all area.
 - The unit of resistance is Ω (ohm).
K = 1000 Ω , M = 1000k Ω
 - The unit capacitance is μ F (microfarad).
P = 10⁻⁶ μ F

Areas

- * [M] is available in the U.S.A.
- * [MC] is available in Canada.
- * [E] is available in Switzerland and Scandinavia.
- * [EK] is available in United Kingdom.
- * [XL] is available in Australia.
- * [EG] is available in F.R. Germany.
- * [EB] is available in Belgium.
- * [EH] is available in Holland.
- * [EF] is available in France.
- * [Ei] is available in Italy.
- * [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
- * [PA] is available in far East PX.
- * [PE] is available in European Military.
- * [PC] is available in European Audio Club.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value
ERX	2	AN	J	2R2
Type	Wattage	Shape	Tolerance	Value

Resistor type	Wattage	Tolerance
ERD: Carbon	25 : 1/4W	F : $\pm$ 1%
ERG: Metal Oxide	50 : 1/2W	J : $\pm$ 5%
ERO: Metal Film	1A: 1W	
ERX: Metal Film	2A: 2W	

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 : Electrolytic	OJ : 6.3V	J : $\pm$ 5%
ECEB : Electrolytic	1C : 16V	K : $\pm$ 5%
ECCD : Ceramic	1E : 25V	M : $\pm$ 20%
ECQM : Polyester	1H : 50V	Z : +80%, -20%
ECQU : Polyester	1 : 100V	
ECQF : Polyester	1A : 125V	
ECNC : Polyester	4A : 400V	

Ref. No	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
RESISTORS			CAPACITORS								
R1	ERD25FJ562	5.6K	R210	ERD25TJ183	18K	C1	ECEB1HU471	470	C210	ECQM1H224JZ	0.22
R2	ERD25FJ682	6.8K	R211	ERD25FJ472	4.7K	C2	ECEA1EU330	33	C211	ECQM1H473JZ	0.047
R3	ERD25FJ272	2.7K	R212	ERD25FJ151	150	C3	ECEA1EU220	22	C212	ECEA1HU3R3	3.3
R4,5	ERD25FJ471	470	R213	ERD25FJ122	1.2K	C5,6	ECQM1223KZ	0.022	C213	ECQD1H471K	470P
R101	ERD25FJ103	10K	R214	ERD25TJ223	22K	C101,102	ECEA1EU330	33	C214	ECEA1CU101	100
R102	ERX1ANJ4R7	4.7	R215	ERD25FJ472	4.7K	C103	ECEA1EU330	33	C215	ECEA1HU010	1
R103	ERD25FJ472	4.7K	R216	ERD25TJ154	150K	C104,105	ECQM1H104JZ	0.1	C216	ECEA1CU470	47
R104	ERD25TJ473	47K	R217	ERD25TJ223	22K	C106,107	ECQM1H104JZ	0.1	C217,218	ECKD1H104ZF	0.1
R105	ERD25FJ103	10K	R218	ERD25FJ102	1K	C108	ECEA1EU101	100	C219	ECKD1H104ZF	0.1
R106	ERD25FJ150	15	R219	ERD25FJ332	3.3K	C109,110	ECQM1H104JZ	0.1	C301	ECQK1333GZ	0.033
R107	ERX1ANJ1R5	1.5	R220	ERD25FJ221	220	C111	ECQM1H562JZ	0.0056	C302	ECQK1082GZ	0.0068
R108	ERD25FJ103	10K	R221	ERD25FJ471	470	C112	ECEA1HU4R7	4.7	C303	ECEA1HU010	1
R109,110	ERX1ANJ4R7	4.7	R222	ERD25FJ391	390	C201	ECEA1CU330	33	C304	ECEA1CU100	10
R201	ERG1ANJ561	560	R301	ERD25CKF2701	2.7K	C202,203	ECEA1HU010	1	C305	ECQM1H122JZ	0.0012
R202	ERD25FJ103	10K	R302	ERD25FJ471	470	C204	ECQM1H473JZ	0.047	C306	ECEA1HU010	1
R203	ERD25FJ470	47	R303	ERD25FJ822	8.2K	C205	ECEA0JU221	220	C601 [M] Δ C601 (MC) Δ C601 (Other areas) Δ	ECQF1A473MD	0.047
R204	ERD25FJ272	2.7K	R304	ERD25FJ561	560	C206	ECEA1HU010	1		ECQU1A47ME	0.047
R205	ERD25TJ124	120K	R305	ERD25FJ181	180	C207	ECCD1H101K	100P		ECNC4A473M	0.047
R206	ERD25TJ183	18K	R306	ERD25TJ223	22K	C208	ECCD1H220K	22P			
R207	ERD25TJ563	56K	R307	ERD25FJ272	2.7K	C209	ECEA1CU101	100			
R208	ERD25TJ224	220K	R401	ERD50FJ152	1.5K						
R209	ERD25TJ334	330K	R601	ERD50FJ4R7	4.7						

■ 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 Δ 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 "S" mark is service standard parts and may differ from production parts.
 5. The parenthesized numbers in the column of description stand for the quantity per set.
 6. $\odot$ -marked parts are used only for SL-1210MK2 (black type). And $\circ$ -marked parts are used for SL-1200MK2 (silver type).
 7. Parts other than $\odot$ - and $\circ$ -marked are used for both SL-1210MK2 and SL-1200MK2.

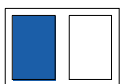
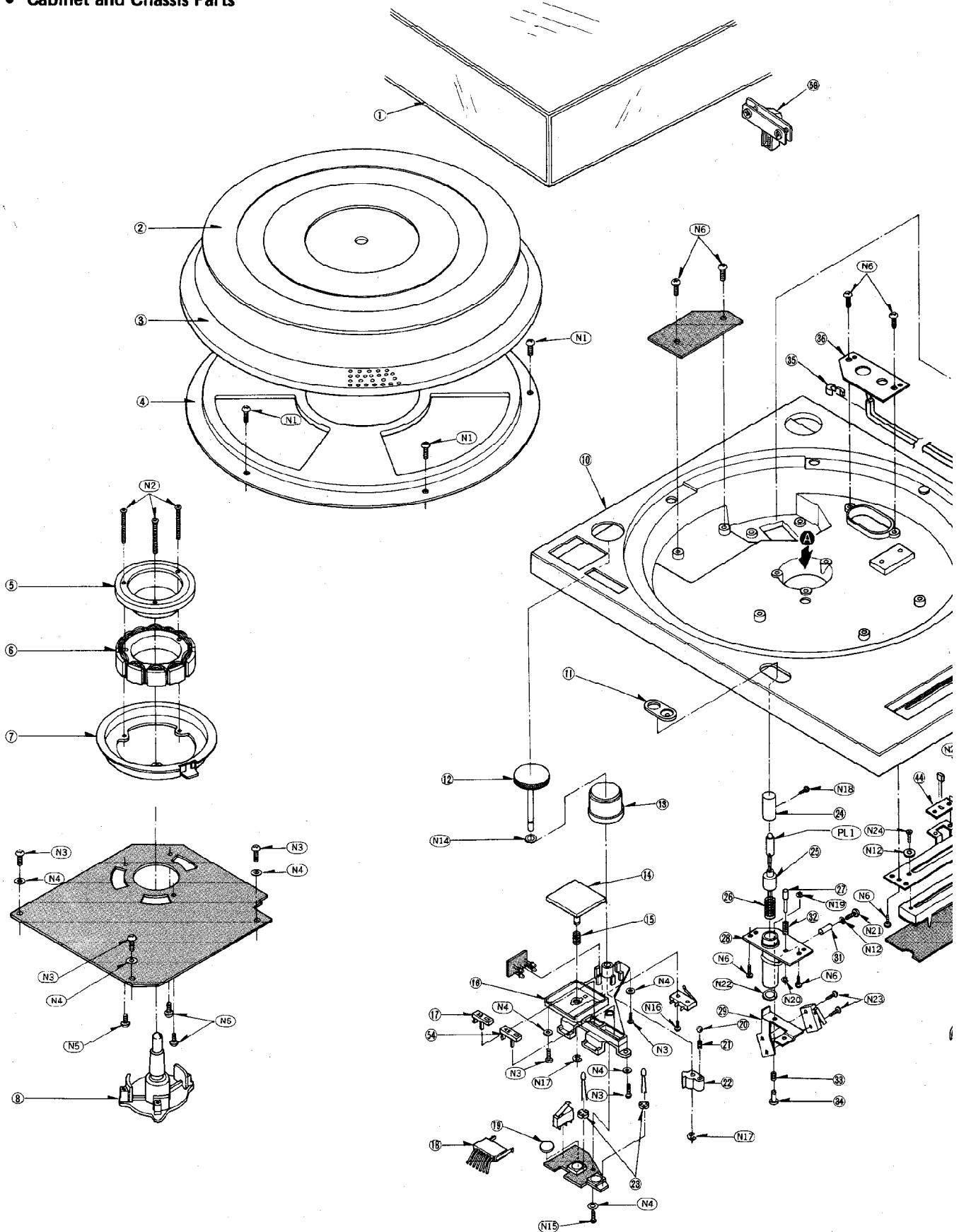
Areas

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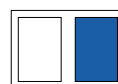
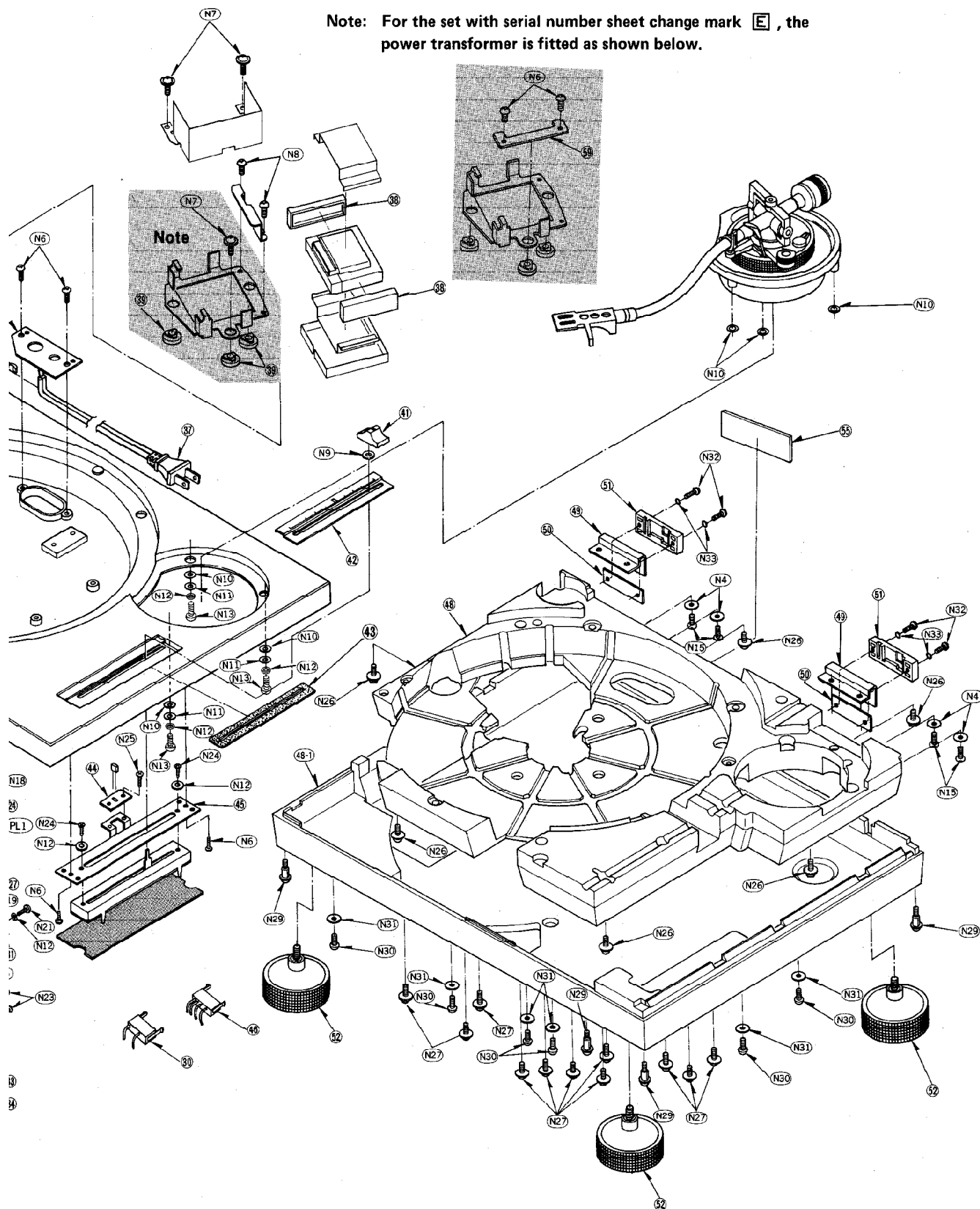
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
INTEGRATED CIRCUITS			CRYSTAL			LAMP		
IC101	AN6675	Turntable Drive	X201	SVQMS4193	4.193MHz Oscillator	PL1	Δ SFDN122-01	Stylus Illuminator
IC201	AN6680	Turntable Control	VARIABLE RESISTORS			TRANSFORMER		
IC301	AN6682	Pitch Control	VR201	$\odot$ EVTS3MA00B54	Brake Adjustment, 50k Ω (B)	T1(M)	Δ SLT66DTL3A	Power Source
IC302	MN4011B	NAND Gate	VR301	EVMH1GA00B23	Pitch Control $\pm 0\%$ Adjustment, 2k Ω (B)	T1(MC)	Δ SLT66DT14C	Power Source
TRANSISTORS			VR302	$\odot$ EVTS3MA00B54	Pitch Control Gain Adjustment, 50k Ω (B)	T1(Other areas)	Δ SLT66DTE13E	Power Source
Q1	2SD1265	Regulator	VR303	SFDZ122N11	Pitch Control	FUSES		
Q2,3	2SD637	Regulator	SWITCHES			F1(MC)	Δ XBA1F12NU14	125V, 1.2A
Q201	$\odot$ 2SC1846-R	Regulator	S201,202	EVQP5R04K	Speed Selector	F1 Except for (M,MC)	Δ XBA2C025T1A	250V, T250mA
Q202	2SD637	LED Driver	S203	SFDSS01GL13	Start/Stop	F2 Except for (M,MC)	Δ XBA2C10TR0	250V, T1A
Q203	$\odot$ 2SC1328-T	FG Amp.	S401	SFDS02MSL-C	Stylus-Illuminator			
DIODES			S601	SFDS05SGL13P	Power Voltage Selector			
D1	Δ SVDS1RBA20Z	Rectifier	S602 Except for (M,MC)	Δ SFDSHXW01317				
D2	MA1051	5.1V Zener						
D201,202	SVDPR3902S-9	Speed Indicator						
D203~206	SVDSLH54VT3	Strobe						
D204A	MA162A	Switching						
D301	MA1051	5.1V Zener						
D401	SVDGL-9NG2	Pitch Indicator						

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
CHABINET AND CHASSIS PARTS			TONEARM PARTS			ACCESSORIES		
1	SFAD122-01A	Dust Cover (1)	61	SFPC31001K	Headshell (1)	A1(M)	SFNU122M06	Instruction Book (1)
2	SFTG172-01	Turntable Mat (1)	62	SFPAM18201K	Tonearm Ass'y (Silver) (1)	A1(MC)	SFNU122C06	Instruction Book (1)
3	SFTE172-01	Turntable Platter Ass'y (1)	62	SEPAM18202K	Tonearm Ass'y (Black) (1)	A1(E,EB,EC)	SFNU122S01	Instruction Book (1)
4	SFUM172-05	Cover, Cabinet (1)	63	SFPWG17201K	Balance Weight (1)	A1(EK)	SFNU122G01	Instruction Book (1)
5	SFMGQ20-01	Cover, Drive Coil (1)	64	SFPRT18201K	Lift Ass'y (1)	A1(PA, PE,PC)	SFNU122P01	Instruction Book (1)
6	SFMG520-31A	Drive Coil Ass'y (1)	65	SFPZB17202	Knob, Arm Base Lock (1)	A1(Other areas)	SFNU122X01	Instruction Book (1)
7	SFMZ172-01E	FG Coil Ass'y (1)	66	SFQA829-03	Spring, Lift Ass'y (1)	A2	SFWE010	45 Adaptor (1)
8	SFMZC20-01A	Shaft Ass'y, Turntable (1)	67	SFPAB13202	Knob, Arm Lift (1)	A3	SFPE3302	Nut, Cartridge (2)
10	○ SFAC122-01	Cabinet (Silver) (1)	68	SFPJL18202K	Oil Damper (1)	A4	SFPEW9601	Washer, Cartridge (2)
10	⊗ SFAC124S01	Cabinet (Black) (1)	70	SFPZB12203	Plate, Arm Base Cover (1)	A5	SFQZV8801	Screw, Cartridge (2)
11	SFUM172-04	Ornament, Stylus Illuminator (1)	71	SFUM170-06	Spacer, Phono Cord (1)	A6	SFPEV9801	Screw, Cartridge (2)
12	SFKT122-01	Knob, Power Switch (1)	72	SFPZB12204	Clamper, Phono Cord (1)	A7	SFK0135-01	Overhang Gauge (1)
13	SFKK122-01E	Case, Strobe Illuminator (1)	73	SFPAB18201K	Tonearm Fixing Plate (1)	A8	SFPZB3501	Shell Weight (1)
14	SFKT015-06	Button, Start/Stop (1)	74	SFPZB12201K	Plate (1)	A9	SFDK19118	2pin Plug (1)
15	SFQA122-01	Spring, Start/Stop Button (1)	75	SFDH122-05	Phono Cord (1)	[XA] Only		
16	SFUM122-01	Base, Operation (1)	76	SFEL028-01E	Ground Wire (1)	A10	SFPWG17202	Sub-weight (1)
17	SFKT015-01E	Button, Speed (3) (1)	77	SFPRT17201K	Arm Rest (1)	A11	QJP0603S	Adaptor, Gimens (1)
18	SFDJ122-02E	Connector, 7pin (1)	78	○ SFPKD17203	Arm Base (Silver) (1)	[PA, PE, PC] Only		
19	SFGZ122-01	Spacer, Rubber (1)	78	⊗ SFPKD17205	Arm Base (Black) (1)			
20	SFYB-5-32	Ball, Switch Cam (1)	79	SFPKB17204E	Ring, Arm Base Operation (1)	PACKING PARTS		
21	SFQA520-01	Spring, Switch Cam (1)	80	SFPKD12201	Bracket, Arm Base (1)	P1(MC, EF)	SFHP122C02	Carton Box (Silver) (1)
22	SFUM122-03	Cam, Power Switch (1)	81	SFPAB17206	Knob, Anti-Skating (1)	P1(Other areas)	SFHP122M02	Carton Box (Silver) (1)
23	SFUM015-11	Spacer, Speed Indicator (2)	82	○ SFGK132-01	Cap (Silver) (1)	P1	SFHP124S02	Carton Box (Black) (1)
24	SFKK172-01	Cover, Stylus Illuminator (1)	82	⊗ SFGK133S01	Cap (Black) (1)	P2	SFHH122-01	Pad, Front (1)
25	SFXB122-06	Boss, Drive (1)	SCREW, NUT AND WASHERS			P3	SFHH122-02	Pad, Rear (1)
26	SFQA172-01	Spring, Drive Boss (1)	N1	⊗ XTN3+8BFZ	Screw (5)	P4	SFHD122N05	Pad, Top (1)
27	SFXJ172-01	Pin, Lock Canceler (1)	N2	⊗ SFXGQ20-02	Screw (3)	P5	SFHD122-02	Pad (A), Turntable (1)
28	SFUP122-02E	Bracket, Stylus Illuminator (1)	N3	⊗ XTN3+8B	Screw (8)	P6	SFHD122N06	Pad (B), Turntable (1)
29	SFUP122-03	Plate, Lock Operation (1)	N4	⊗ XWG3	Washer (12)	P7	SFYH60X60	Polyethylene Bag, Unit& Dust Cover (2)
30	SFDJ122-03E	Connector, 3pin (1)	N5	⊗ XTN26+6B	Screw (3)	P8	SFYH40X45	Polyethylene Bag, Turntable (1)
31	SFX0172-01	Pin, Guide (1)	N6	⊗ XTV3+8BFN	Screw (8)	P9	SPB1083	Polyethylene Bag, Accessories (3)
32	SFQA520-01	Spring, Lock Canceler (1)	N7	SFXG172-01	Screw (3)	P10	SPJ15	Polyethylene Bag, Shell Weight (1)
33	SFQA122-02	Spring, Lock Operation Plate (1)	N8	XTN3+5J	Screw (2)	P11	SFHZD03M01	Cover Sheet, Dust Cover (1)
34	SFXJ172-05	Pin, Lock Operation Plate (1)	N9	SFXW172-03	Washer (1)	P12	SFHZ122-01	Cover Sheet, 45Adaptor (1)
35(M,MC,PA PE,PC)	SFHK040L	Clamper, AC Cord (1)	N10	SFPEW11003	Washer (6)	P13	SPP189	Cover Sheet, Cords (2)
35(EK)	SFSR-5N-4	Clamper, AC Cord (1)						
35(Other areas)	SFSR-4N-4	Clamper, AC Cord (1)						
36(M,MC,PA PE,PC)	SFUP122-16	Bracket, AC Cord (1)						
36(Other areas)	SFUP122X01	Bracket, AC Cord (1)						
37	△⊗ RJA9Y	AC Cord (1)						
37(M,MC)	QFC1205M	AC Cord (1)						
37(EK) △⊗	SJAG23	AC Cord (1)						
37(XL) △⊗	SJA83	AC Cord (1)						
37 △⊗	SJA88	AC Cord (1)						
37(PA,PE,PC) △⊗								
37(Other areas)								
38	SFGC122-03	Rubber, Power Transformer (2)						
39	SFGC122-01	Cushion, Power Transformer (3)						
41	SFKT122-02	Knob, Pitch Control (1)						
42	○ SFKK122-03	Ornament (Silver), Pitch Control (1)						
42	⊗ SFKK124S01	Ornament (Black), Pitch Control (1)						
43	SFUZ122-01	Felt (1)						
44	SFUP122-09	Holder, LED (1)						
45	SFUP122-01	Bracket, Pitch Control (1)						
46	SFDJ122-01E	Connector, 4pin (1)						
48	SFAU122-03	Bottom Base (1)						
48-1	SFAU122-02	Bottom Cover (1)						
49	SFUP122-23	Supporter (A), Hinge (2)						
50	SFUP122-24	Supporter (B), Hinge (2)						
51	SFUMM02N04	Case, Hinge (2)						

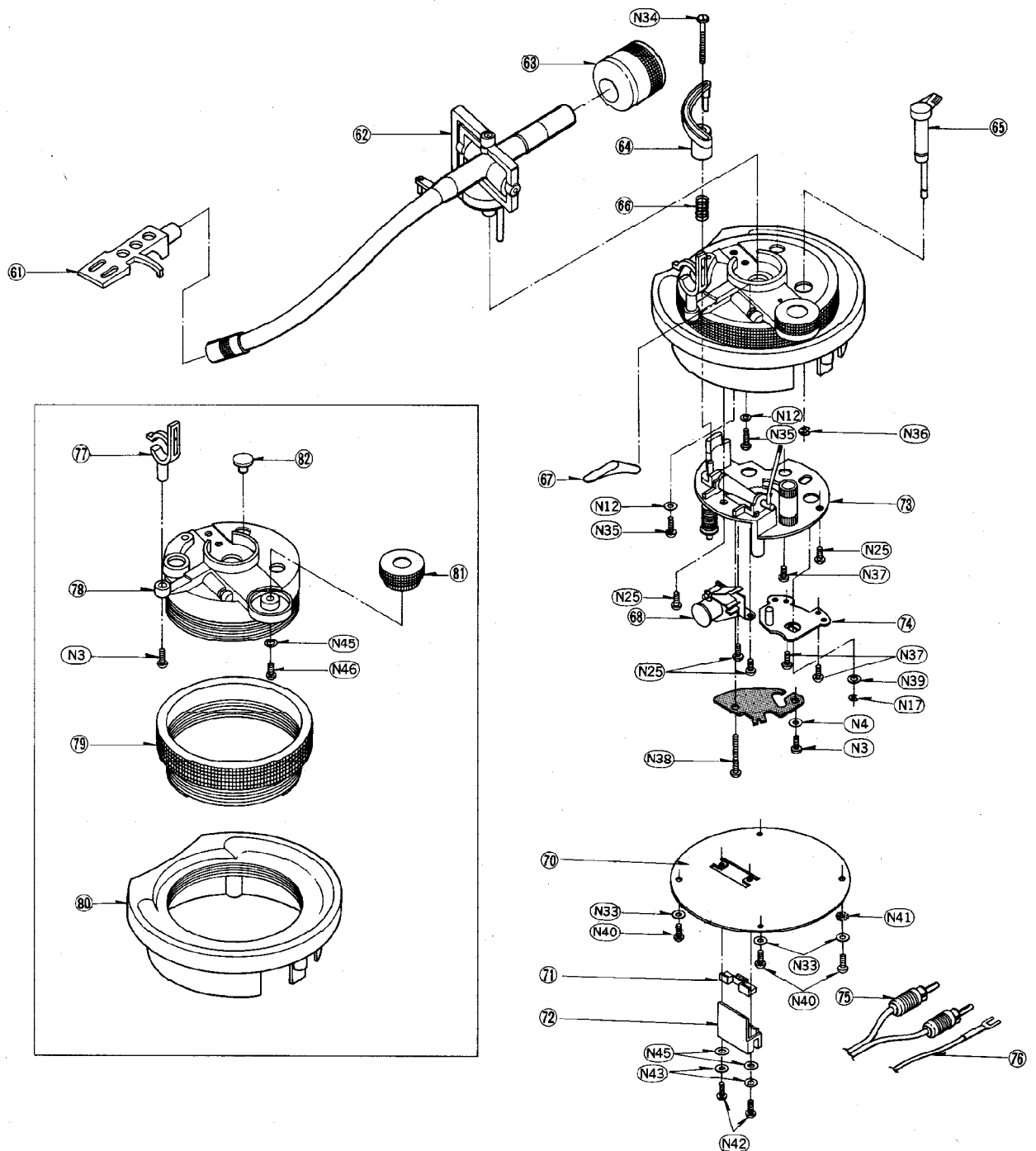
■ **EXPLODED VIEWS** • Cabinet and Chassis Parts



Note: For the set with serial number sheet change mark **E** , the power transformer is fitted as shown below.



• Tonearm Parts



■ SCHEMATIC DIAGRAM

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

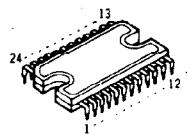
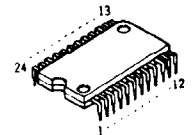
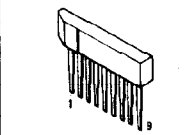
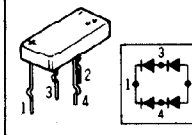
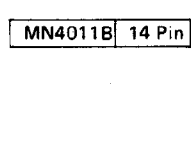
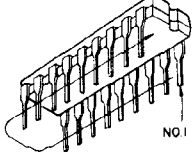
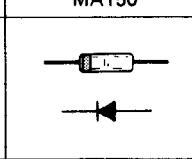
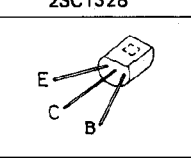
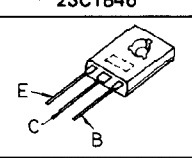
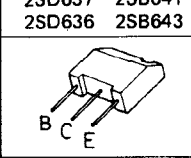
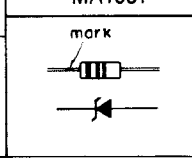
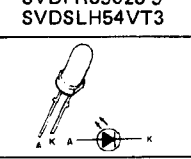
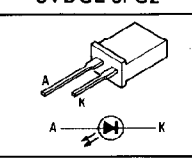
Notes:

1. **S201, 202** : Speed selector switch.
2. **S203** : Start/stop switch.
3. **S301** : Pitch control reset switch in "off" position.
4. **S401** : Stylus illuminator switch in "off" position.
5. **S601** : Power switch in "on" position.
6. **S602** : Voltage selector in "220 - 240" position.
7. The voltage value, and waveforms are the reference voltage values of this unit measured by DC electronic voltmeter (high-impedance) and oscilloscope on the basis of chassis. Therefore, the voltage value and waveform may include some error due to the internal impedance of the tester or the measuring set.
 *  is the voltage when turntable is in stop.
 *  is the voltage when turntable is in rotation. (at 33 rpm)
8.  +B voltage lines.
9. 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.
10. 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.

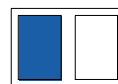
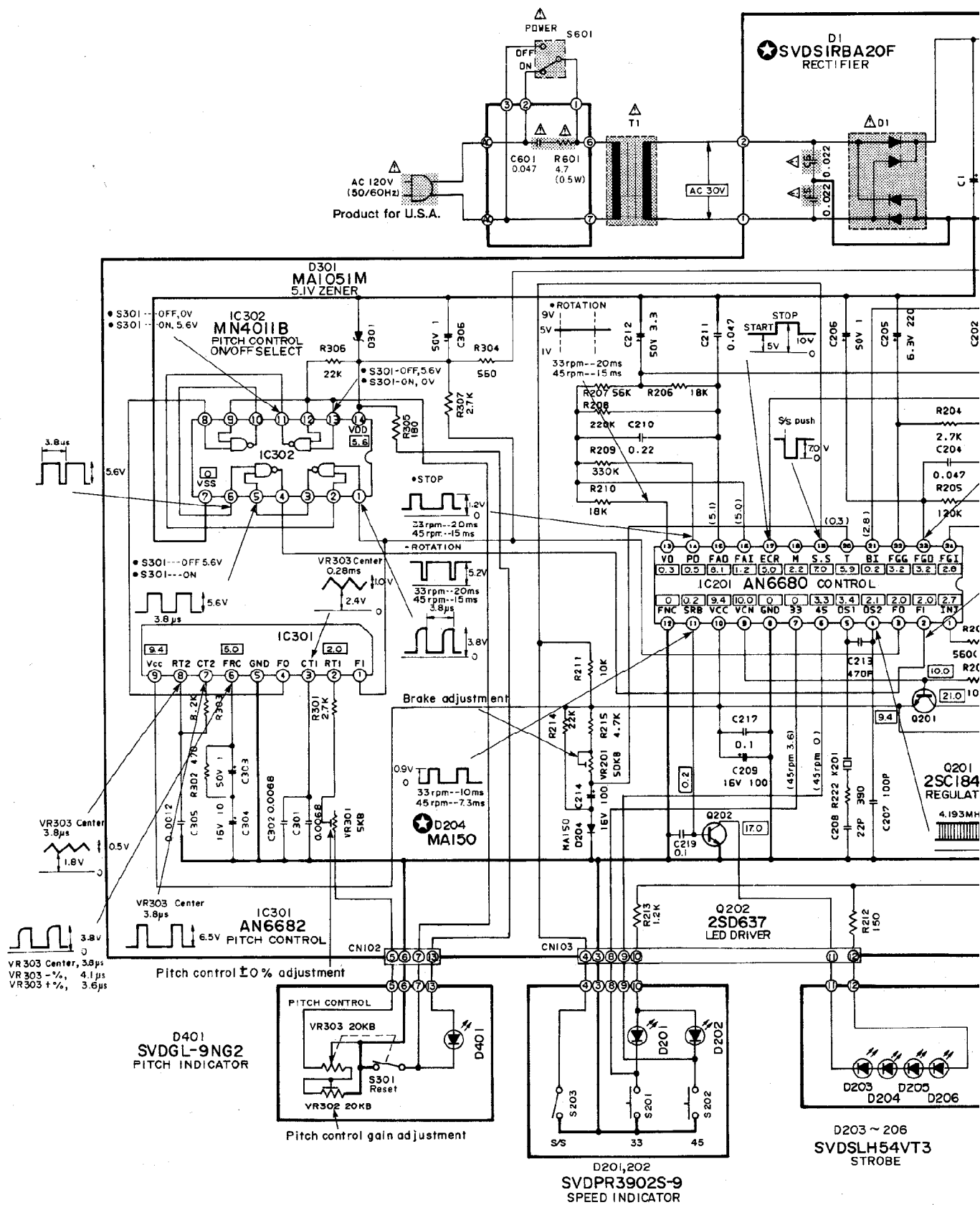
IMPORTANT SAFETY NOTICE

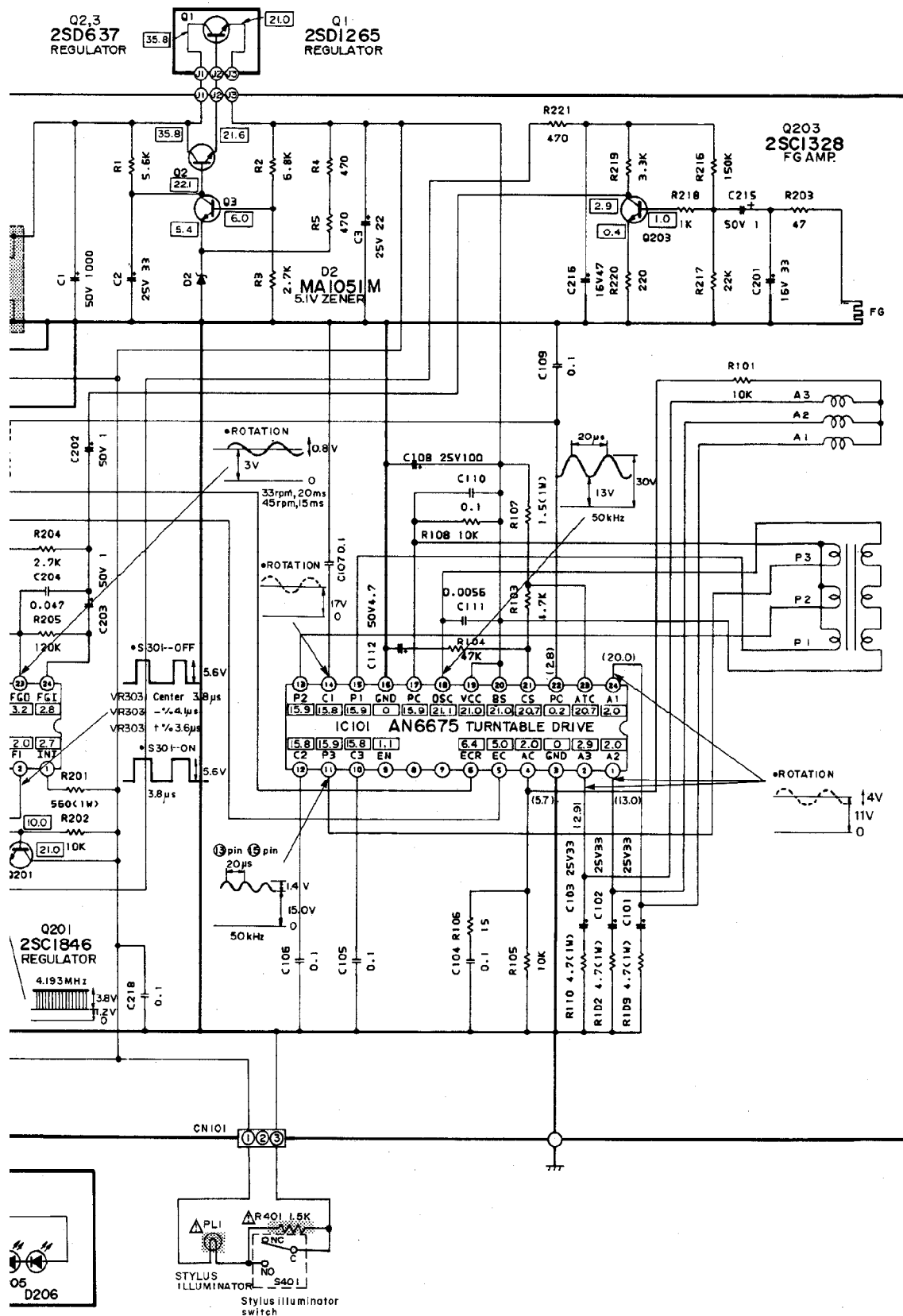
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

• Terminal guide of transistors, diodes and IC's

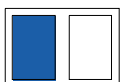
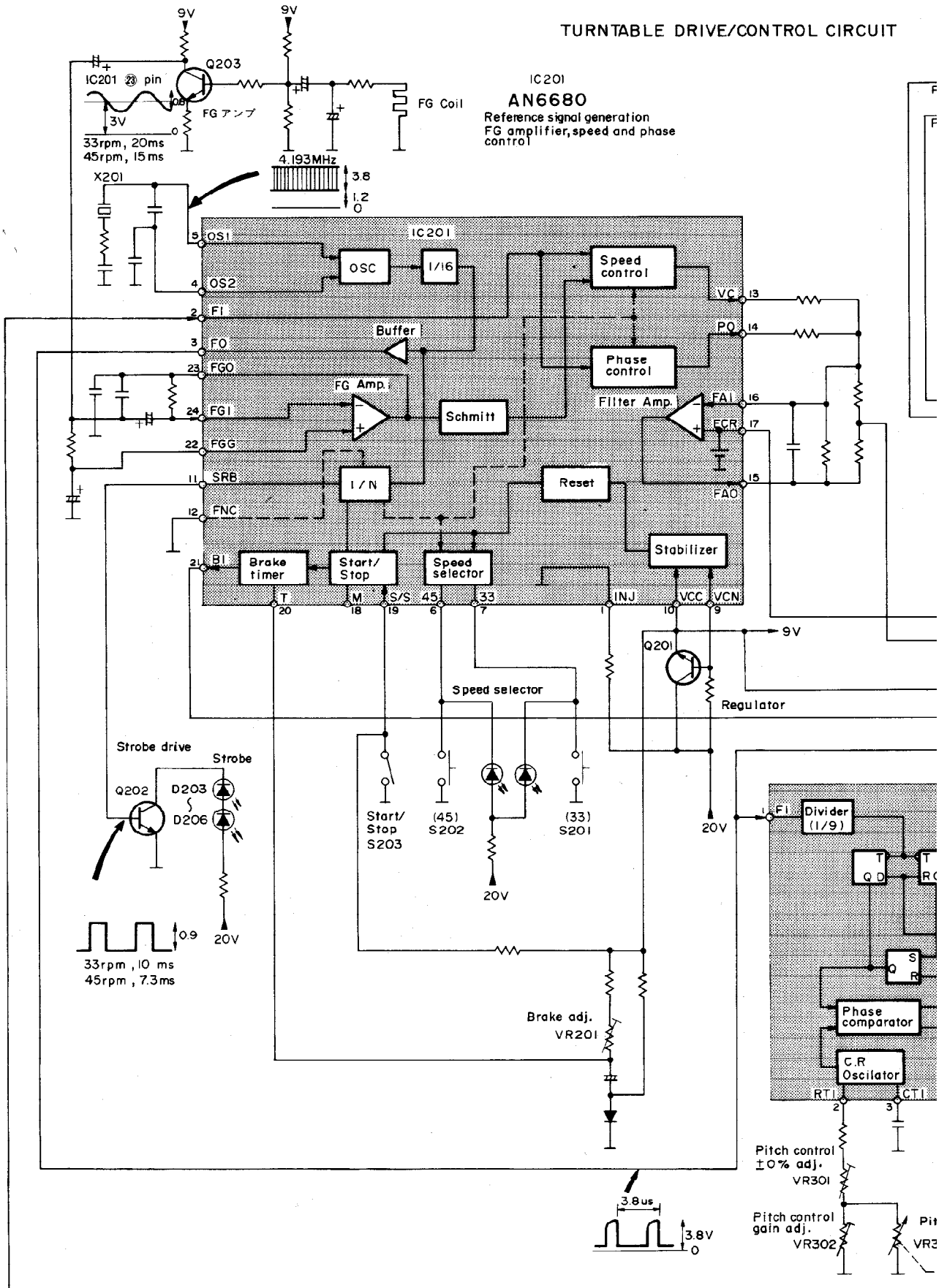
AN6675 	AN6680 	AN6682 	SVDS1RBA20F 
MN4011B 14 Pin 	2SD1265 	MA150 	
2SC1328 	2SC1846 	2SD637 2SB641 2SD636 2SB643 	MA1051 
SVDPR3902S-9 SVDSLH54VT3 	SVDGL-9PG2 		

POWER SOURCE CIRCUIT

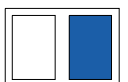
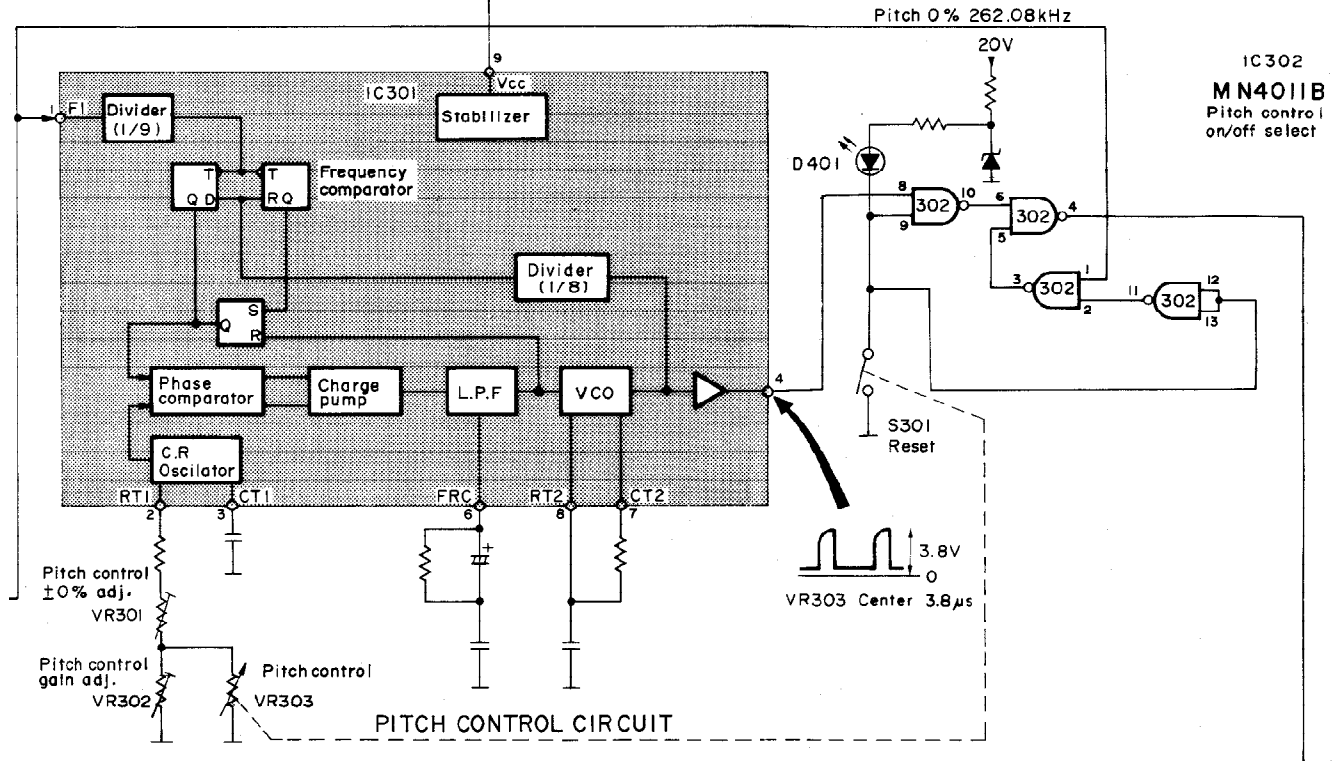
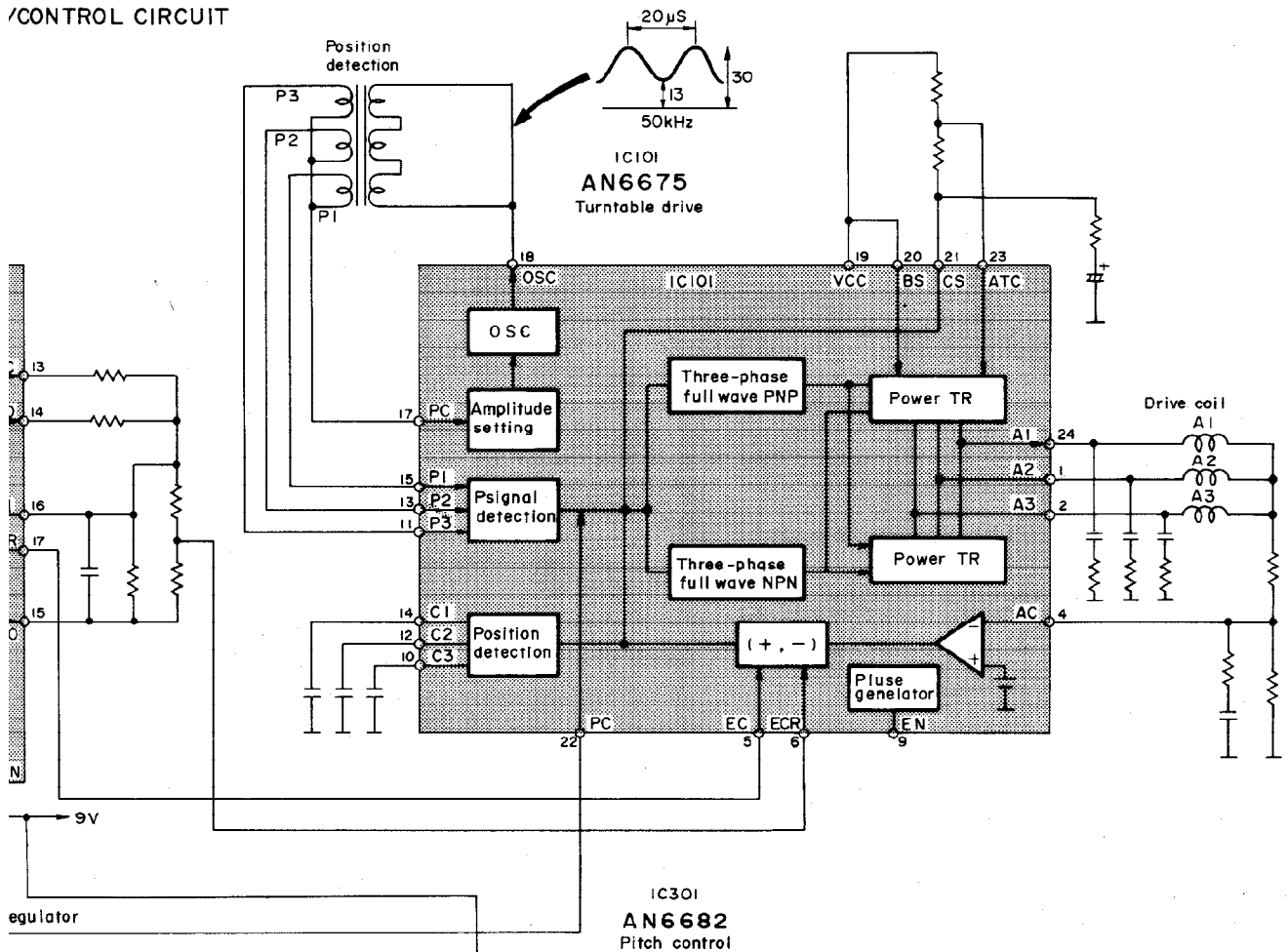




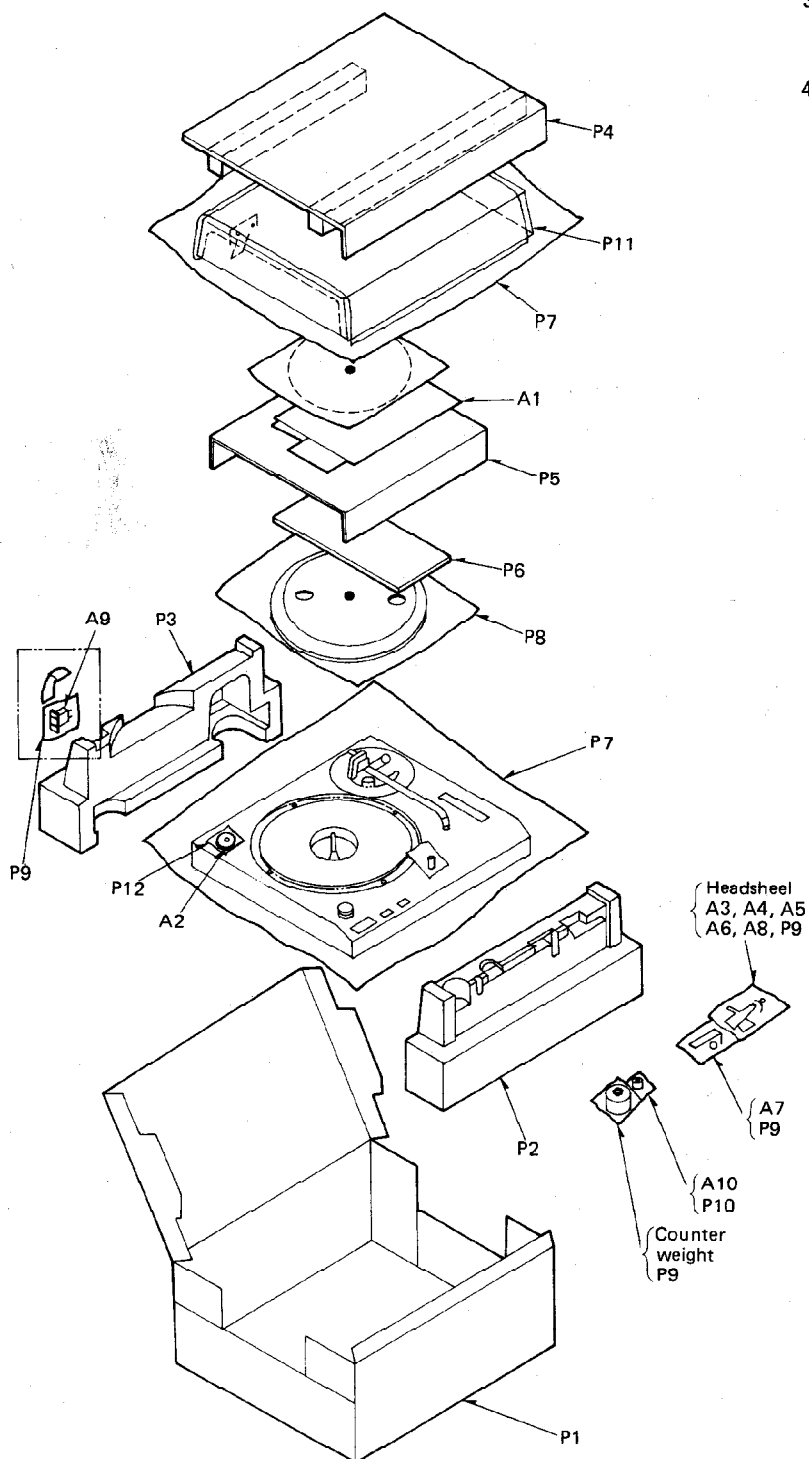
■ BLOCK DIAGRAM



CONTROL CIRCUIT



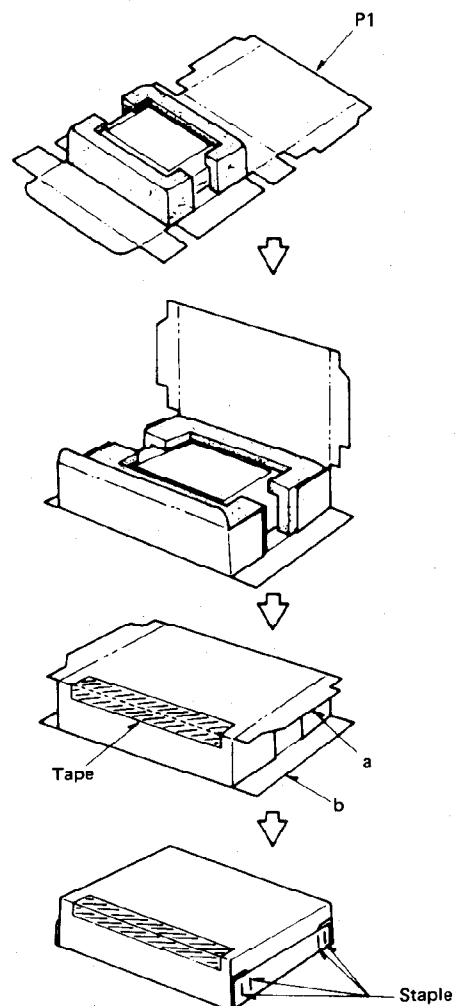
■ PACKING



1. Place the unit (with cushions attached) as illustrated.
2. Fold the flaps according to the line marks.
3. Seal the top with adhesive tape.

* Use gum tape or adhesive cloth tape of 50mm wide at least

4. 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.

