ORDER NO. SD7907-1586

Service Manual

SP-25

QUARTZ

Direct Drive Turntable

SP-25

(M), (MC)

- The model SP-25 (M) is available in U.S.A. only.
- The model SP-25 (MC) is available in Canada only.

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

General

Power supply:	120 V, 50 or 60 Hz
Power consumption:	11 W
Dimensions: (W x H x D)	34.9 x 9.3 x 37.2 cm (13-3/4 x 3-21/32 x 14-41/64 inches)
Weight:	4.8 kg (10.6 lb)

Turntable section

Type:	Quartz Direct drive
Drive method:	Direct Drive
Motor:	Brushless DC motor
Drive control method:	Quartz-phase-locked control
Turntable platter:	Aluminum die-cast, diameter 33.9 cm (13-11/32 inches) weight 1.85 kg (4 lb)
Moment of inertia:	250 kg·cm^2 (85 lb·in^2)
Turntable speeds:	33-1/3 rpm and 45 rpm
Turntable speed fine adjustment:	±6% adjustment range
Starting torque:	1.5 kg·cm (1.3 lb·in)
Build-up time:	0.7 s. from standsfill
Braking system:	Electrical braking
Speed fluctuation due to load torque:	0% within 1.0 kg·cm (at a stylus pressure of 200 g)
Speed drift:	Within ±0.002% (33-1/3, 45 rpm)
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)

SP-25 M MC

Technics

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Division of Matsushita Electric
Corporation of America
One Panasonic Way, Secaucus,
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Panasonic Hawaii, Inc.
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■ CONTENTS

■ FEATURES

Oversized turntable that cuts off and absorbs external vibrations

Based on analysis of the turntable vibration modes and vibrations in the sound range, a special viscoelastic material is applied to the reverse surface of the turntable platter for deadening.

The deadening material is applied to the undersurface and outer periphery of the turntable platter, with the rubber turntable mat on the surface settled into the turntable platter. This design is superior in accoustic characteristics even at high sound levels through elimination of turntable resonance and absorption of external vibration.

Moreover, the oversized aluminum die-cast turntable platter, 33.9 cm (13-11/32") in diameter, is heavy with a moment of inertia of 250 kg·cm^2 (85 lb·in^2) for large heavy weight 1.85 kg (4 lb) class design.

Vibration damping structure by the precision aluminum die-cast cabinet and TNRC

The acoustical characteristics of the player system are inevitably affected by the turntable platter and cabinet employed. The SP-25 adopts an aluminum die-cast cabinet superior in strength, with high processing accuracy. Through cutting-off and absorption of external vibrations, the unit is designed for improved acoustic characteristics, with susceptibility to feedback minimized.

Quartz Controlled Rotation Accuracy

The SP-25 utilizes the oscillation of a quartz crystal as a reference signal or source. This oscillation is not affected by temperature change or power fluctuations. By synchronizing the rotation of the turntable platter accurately to the reference signal, speed drift of the unit is held within ±0.002% (33-1/3 rpm.).

Technics' unique motor construction in which the rotor of the motor is integrally formed with the turntable.

High torque motor of 1.5 kg·cm with starting time of 0.7 second is capable of instant speed change-over (at 33-1/3 rpm.).

Stable and positive mechanism that can stand frequent use for business use, etc. and a switch section with point contacts.

Electronic brake.

■ ASSEMBLY AND SET-UP

Caution: Use care not to damage the power supply cord and bushing when setting up or installing the turntable into a supporting enclosure.

Assembling is explained based on the optional Technics turntable base SH-15B2 for reference in cases where the unit is installed in another cabinet.

SH-15B2 is provided with screw holes (4 places) for mounting SP-25.

1. Install SP-25, with the screw holes aligned.

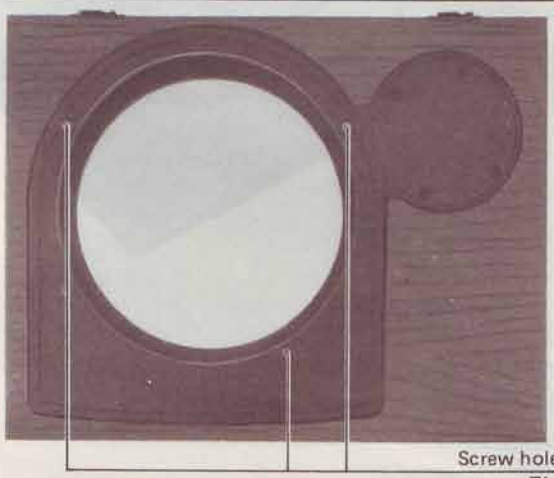


Fig. 1

2. Securely hold at 4 places by the screws supplied with SH-15B2. **(See Fig. 2.)**

Fig. 2

3. Pull out the power cord and ground wire (GND) from under the turntable base.

4. After the above, install the turntable platter and turntable mat.

■ PARTS IDENTIFICATION

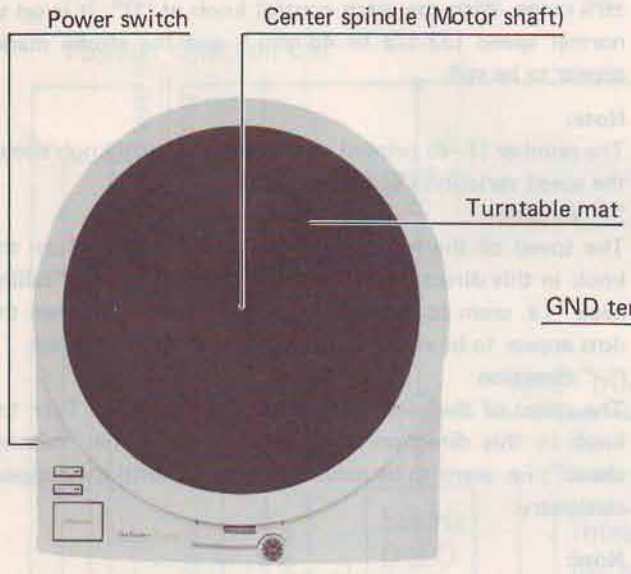


Fig. 3

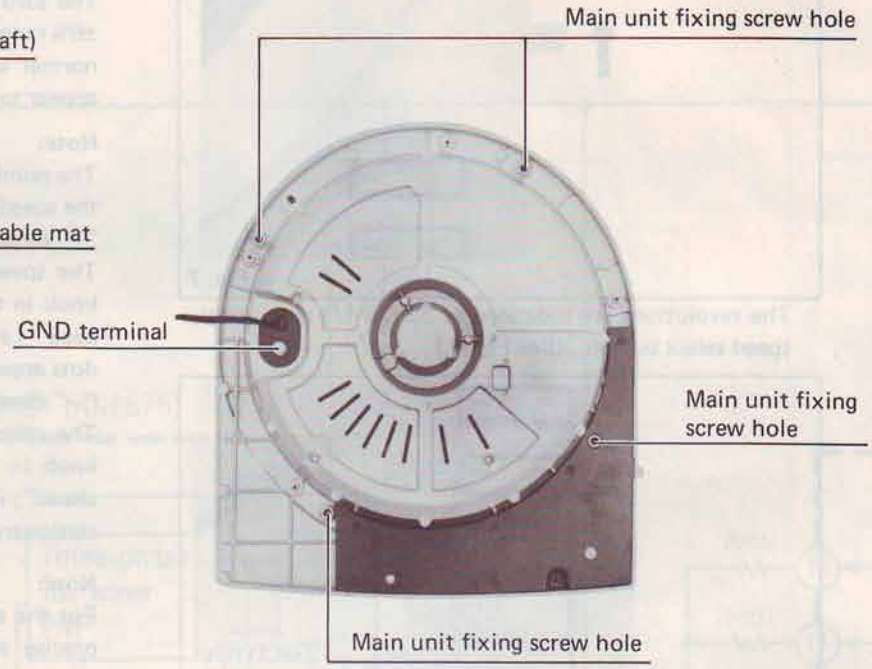


Fig. 4

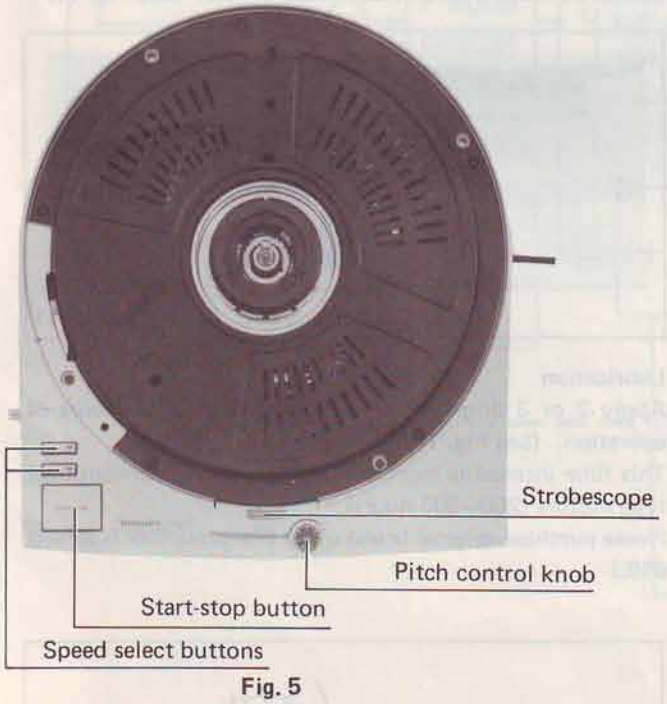


Fig. 5

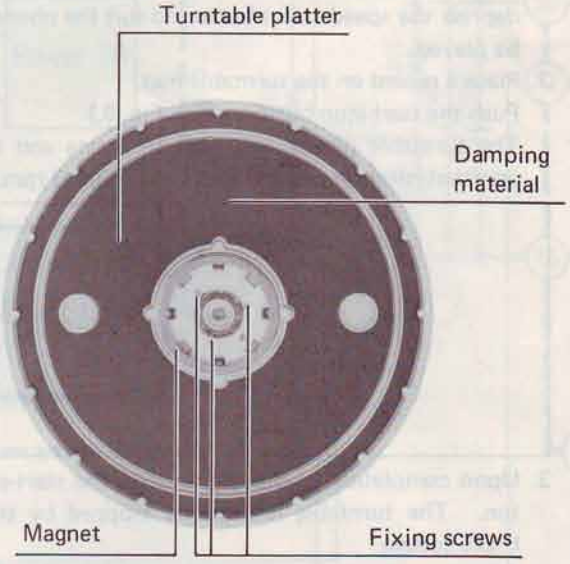


Fig. 6

■ HOW TO OPERATE

1. Set the power switch to the **"on"** position. **(See Fig. 7.)**

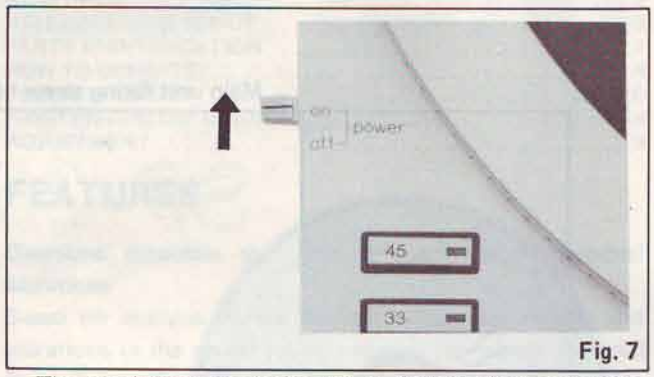


Fig. 7

The revolutions are indicated at 33 (33-1/3 rpm.) of the speed select button. **(See Fig. 8.)**

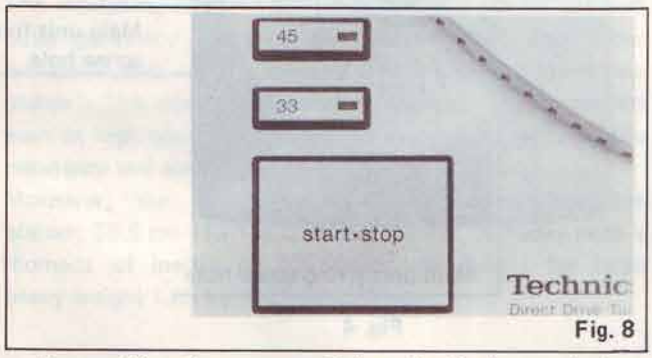


Fig. 8

Upon setting the power switch to **"on"**, the revolutions are changed over to 33-1/3 rpm. at all times.
If the record to be played is other than a 33-1/3 rpm., depress the speed select button to suit the phono disc to be played.

2. Place a record on the turntable mat.
Push the start-stop button. **(See Fig. 9.)**
The turntable platter will start to rotate and reach its constant rotation speed 0.7 second. (33-1/3 rpm.).

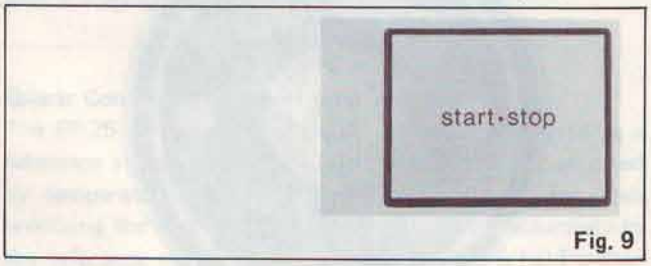


Fig. 9

3. Upon completion of playing, depress the start-stop button. The turntable is instantly stopped by electronic brake system.
After that, set the power switch to **"off"**. **(See Fig. 10.)**

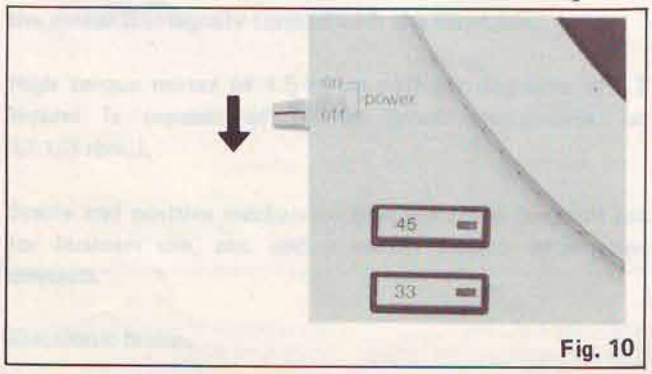


Fig. 10

Pitch control (turntable speed fine adjustment).

Fine adjustment of the turntable speed

The turntable speed of this unit can be fine-adjusted about ±6% range. With the pitch control knob at "0", it is set to normal speed (33-1/3 or 45 rpm.), and the strobe marks appear to be still.

Note:

The number (1–6) printed on the pitch control knob shows the speed variation (%) approximately.

"+" direction

The speed of the turntable platter will increase. Turn the knob in this direction if the strobe dots seem to be **"falling back"** i.e. seem to be moving counterclockwise. When the dots appear to be stationary, turntable speed is accurate.

"–" direction

The speed of the turntable platter will decrease. Turn the knob in this direction if the dots seem to be **"running ahead"**; i.e. seem to be moving clockwise, until they appear stationary.

Note:

For the strobe-illumination of this unit, a quartz controlled precise strobe-illuminator with red LED illumination is employed. It is essential to carry out turntable speed fine adjustment under the illumination of this LED light emission. Since synchronization is not possible with fluorescent lamps, use of a fluorescent lamp makes the strobe markings look as though they are flowing. Likewise adjustment cannot be made with an incandescent lamp. **(See Fig. 11)**

Fig. 11

Lubrication

Apply 2 or 3 drops of oil once after every 2000 hours of operation. **(See Fig. 12.)**
This time interval is much longer than that of conventional type motors (200–500 hours).
Please purchase original brand of oil (Parts number is **SFWO 010.)**

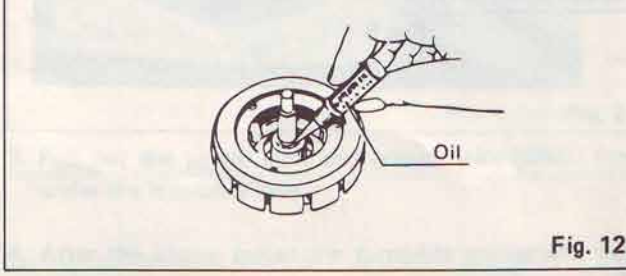
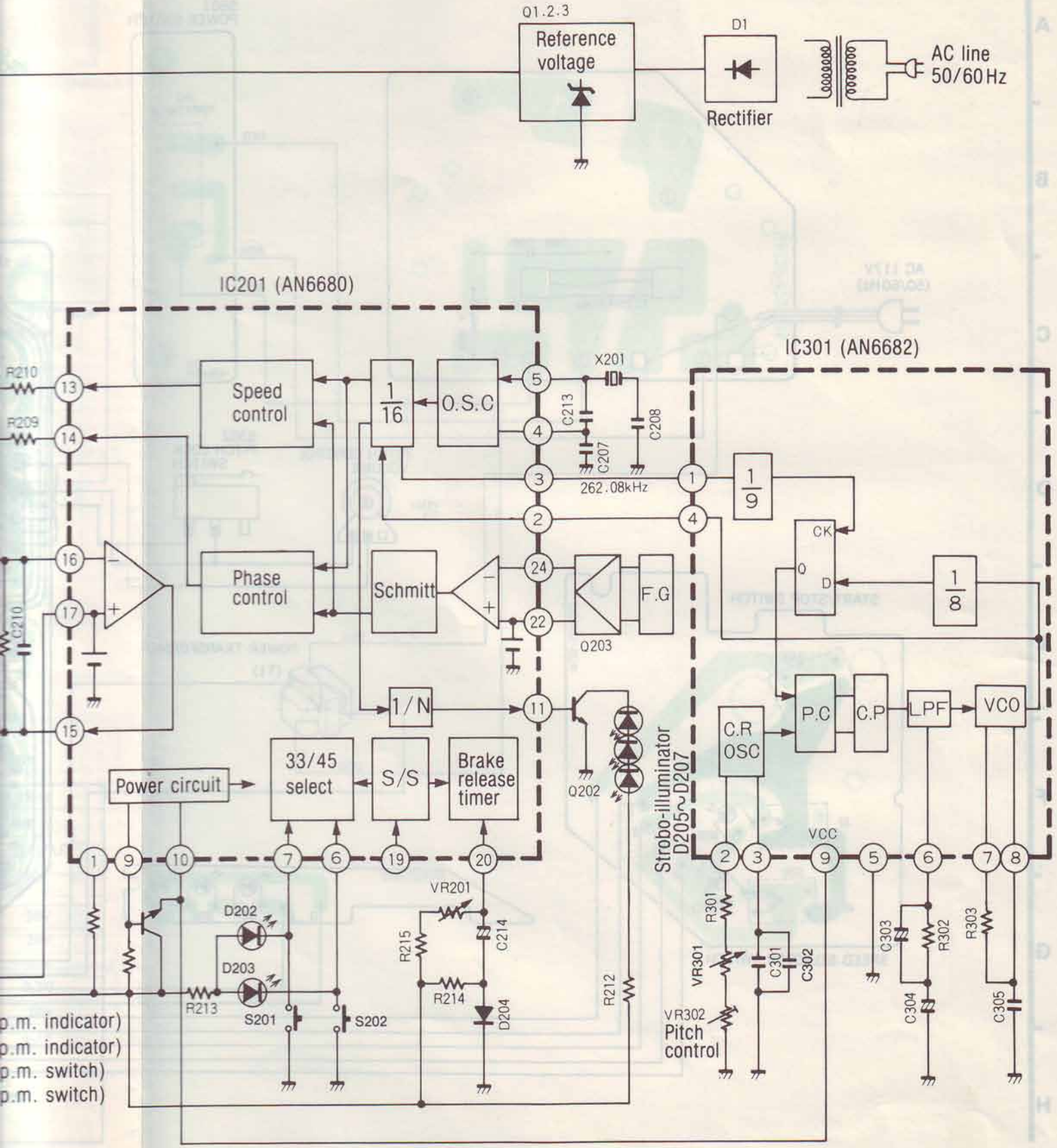
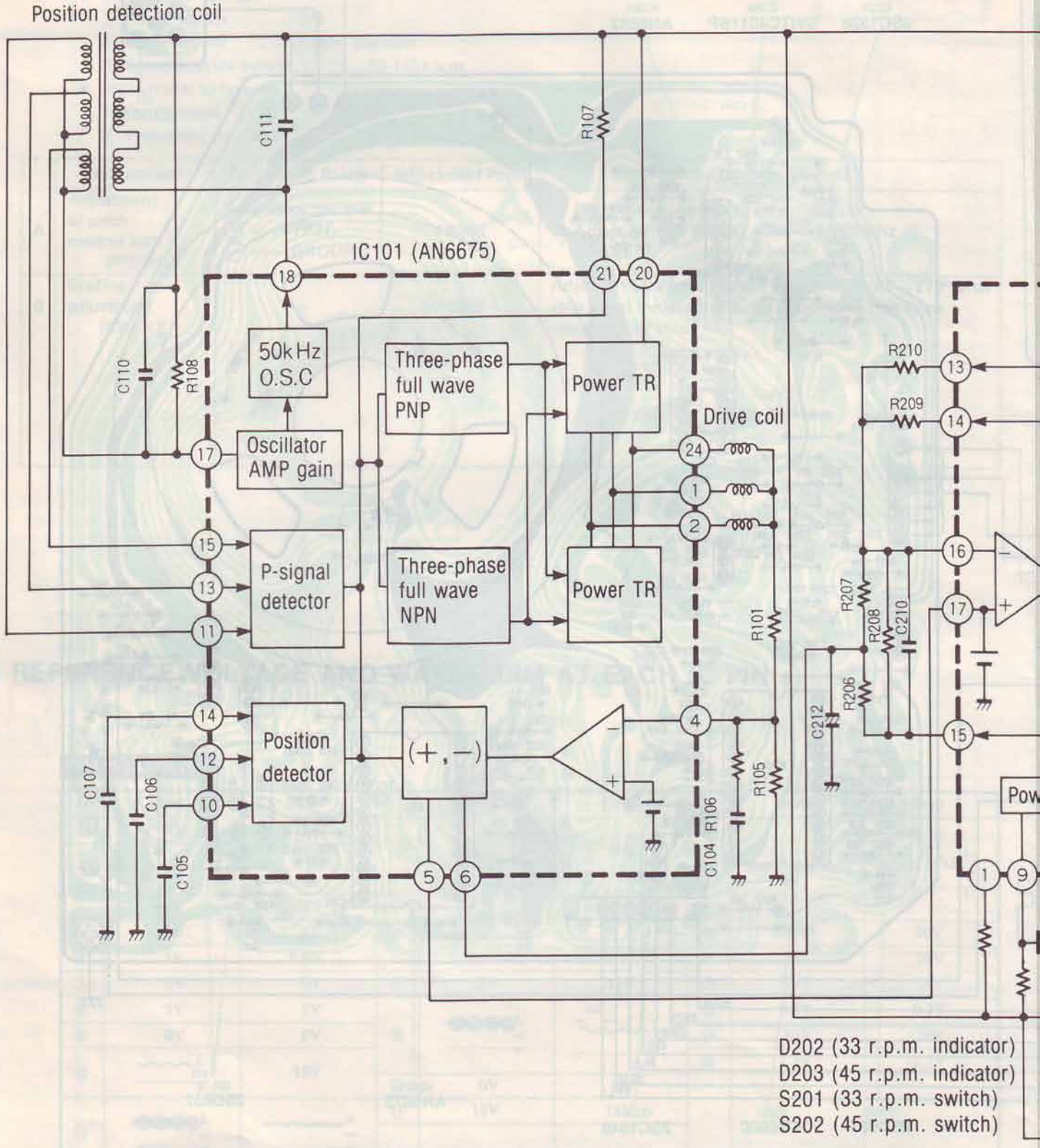
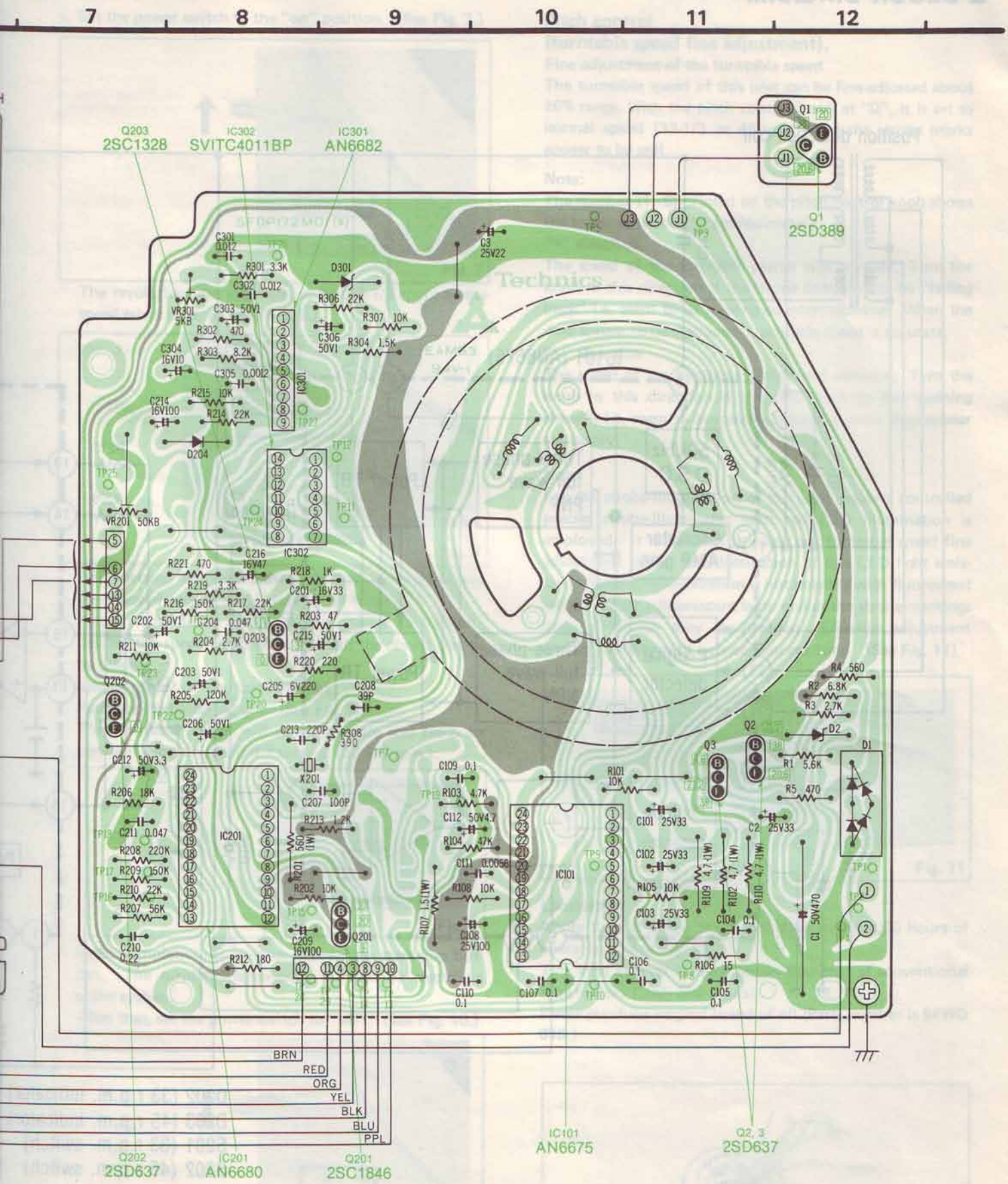


Fig. 12

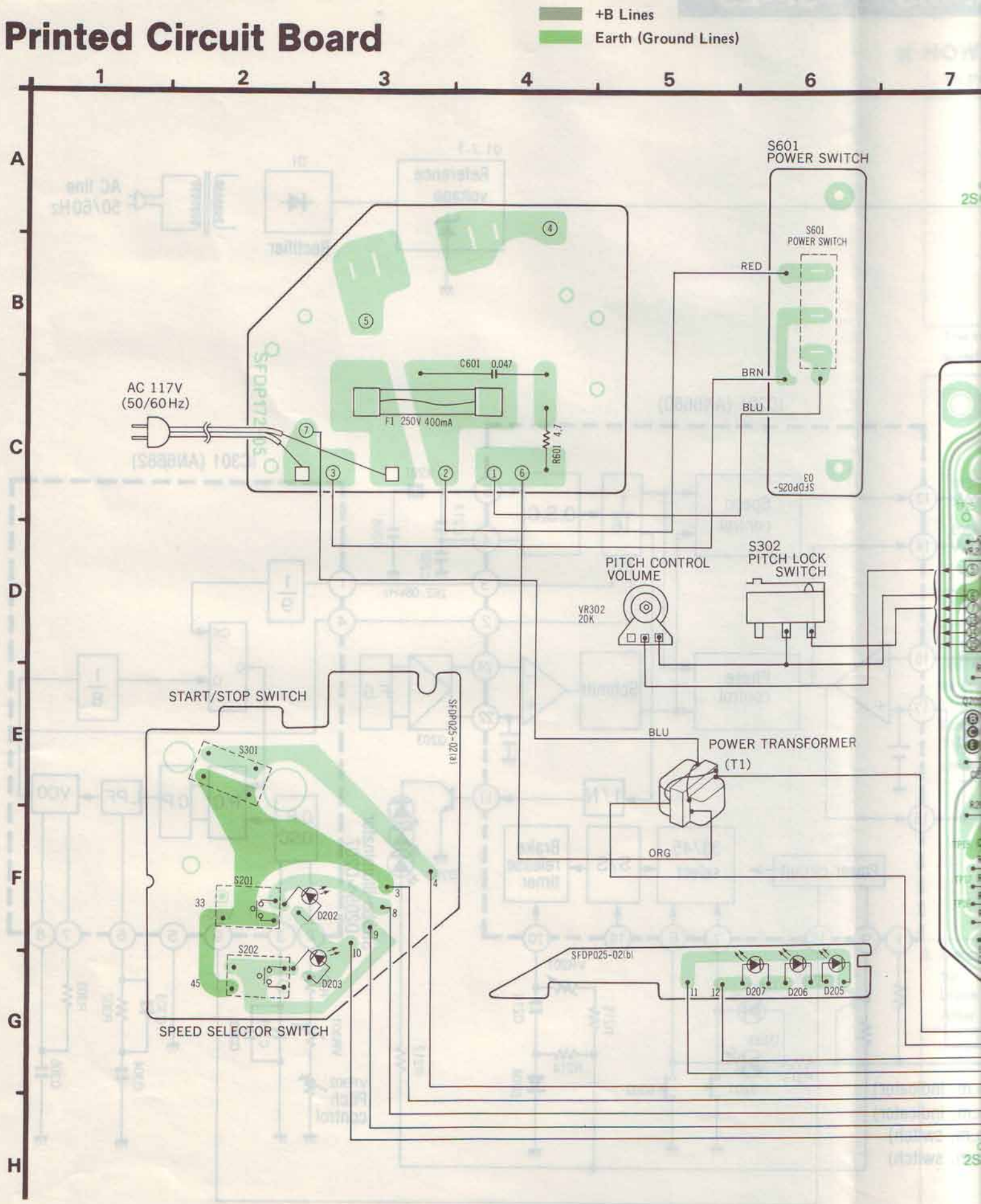

Q1.2.3
Reference voltage
D1
Rectifier
AC line 50/60Hz
IC201 (AN6680)
IC301 (AN6682)
Speed control
1/16
O.S.C
X201
C213
C207
C208
262.08kHz
1/9
Phase control
Schmitt
F.G
Q203
1/8
CK
D
1/N
Q202
Power circuit
33/45 select
S/S
Brake release timer
C.R OSC
P.C
C.P
LPF
VCO
Strobo-illuminator D205~D207
VCC
VR201
VR301
VR302
Pitch control
D202
D203
D204
S201
S202
R210
R209
C210
R213
R214
R215
R212
R301
R302
R303
C214
C301
C302
C303
C304
C305
p.m. indicator)
p.m. indicator)
p.m. switch)
p.m. switch)

■ BLOCK DIAGRAM




7
8
9
10
11
12
Q203
2SC1328
IC302
SVITC4011BP
IC301
AN6682
Q1
2SD389
J3
J2
J1
C301 0.012
R301 3.3K
C302 0.012
VR301 5KB
C303 50V1
R302 470
R303 8.2K
C304 16V10
C305 0.0012
R306 22K
R307 10K
C306 50V1
R304 1.5K
C3 25V22
D301
R215 10K
R214 22K
C214 16V100
D204
IC301
VR201 50KB
C216 16V47
IC302
R221 470
R219 3.3K
R216 150K
R217 22K
C202 50V1
C204 0.047
Q203
R204 2.7K
R211 10K
R218 1K
C201 16V33
R203 47
C215 50V1
R220 220
C203 50V1
R205 120K
C205 6V220
C208 39P
C206 50V1
C213 220P
R308 390
Q202
C212 50V3.3
R206 18K
C211 0.047
R208 220K
R209 150K
R210 22K
R207 56K
C210 0.22
IC201
X201
C207 100P
R213 1.2K
R201 560 (1W)
R202 10K
C209 16V100
Q201
R212 180
C109 0.1
R103 4.7K
C112 50V4.7
R104 47K
C111 0.0056
R108 10K
C108 25V100
R107 1.5 (1W)
C110 0.1
C107 0.1
IC101
R101 10K
C101 25V33
C102 25V33
R105 10K
C103 25V33
C106 0.1
R106 15
C105 0.1
R109 4.7 (1W)
R102 4.7 (1W)
R110 4.7 (1W)
C104 0.1
C1 50V470
C2 25V33
Q2
Q3
R4 560
R2 6.8K
R3 2.7K
D2
D1
R1 5.6K
R5 470
BRN
RED
ORG
YEL
BLK
BLU
PPL
Q202
2SD637
IC201
AN6680
Q201
2SC1846
IC101
AN6675
Q2, 3
2SD637

Printed Circuit Board



■ ADJUSTMENT

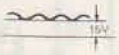
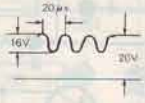
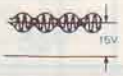
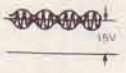
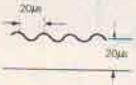
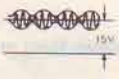
Adjustments (Electrical)

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. Oscilloscope
  2. Frequency counter

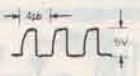
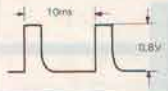
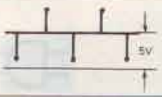
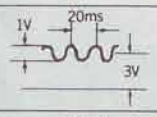
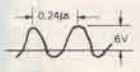
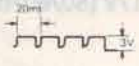
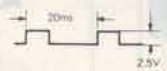
	Adjustment	Connection Points	Adjustment Point	Adjustment Method
A	Adjustment of pitch control ±0% (PITCH)	Frequency counter ⊕ —— TP27 ⊖ —— GROUND	VR301	1. Pitch control switch to center position. 2. Adjust VR301 for 262.08 kHz ±0.05 kHz of frequency.
B	Braking adjustment (BRAKE)	—	VR201	Adjust VR201 for complete stop within 120° ~ 270° after stop signal initiated. (Turntable becomes free a few seconds after stop) 

■ REFERENCE VOLTAGE AND WAVEFORM AT EACH IC PIN

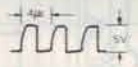
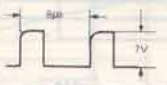
IC101 (AN6675)

	Start	Stop		Start	Stop		Start	Stop
①	2V	2V	⑫		15V	⑱	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	⑯	0V	0V			
⑪			⑰	15V	15V			

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
			⑩	10V	10V	⑱	0V	0V
③	Same as at right		⑪	Same as at right		⑲	7.5V	0V
						⑳	0V	5V
						㉑	1.5V	0V
			⑫	0V	0V	㉒	3V	3V
④	Same as at right		⑬		0.2V	㉓		3V
⑤	Same as at right		⑭			㉔	2.8V	2.8V
⑥	3.4V	3.4V	⑮		8V			
⑦	0V	0V						

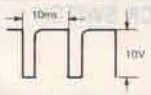
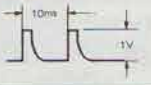
IC301 (AN6682)

	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
			⑥	3.9V	3.9V			
③	Same as at right		⑦	Same as at right				

IC302 (SVITC4011BP)

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

Q202 (2SD637)

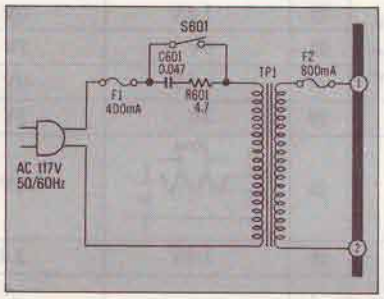
	Start	Stop
E	0V	0V
C	Same as at right	
B	Same as at right	

Schematic Diagram

(This schematic diagram may be at any time the development of new technol

• Power source . .

. . . only set for Canada [MC]



AC 117V (50/60Hz)

S601
C601 0.047
F1 400mA
R601 4.7
TP1
WHT
BRN
BLU
BLU
AC 32V
TP1
D1
TP3
TP2
R1 5.6K
C1 50V470
C2 25V33
D1 SVDS1RBA20
TP4
D301 SVDRD5.1EBST
D301
TP30
C306 50V1
R304 1.5K
C212 50V3.3
C211 0.047
R306 22K
TP24
R207 56K
R206 18K
R208 220K
C210 0.22
TP18
R209 150K
TP17
R210 22K
TP16
IC302 SVITC4011BP
R307 10K
C205 6V220
TP19
TP20
C206 50V1
C204 0.047
TP23
BRAKING ADJUSTMENT (BRAKE)
S301
START/STOP SWITCH
VR201 50KB
R211 10K
R215 10K
C214 16V100
R214 22K
IC201 AN6680
IC301 AN6682
C213 220P
TP14
TP13
TP12
R303 8.2K
TP27
TP26
R301 3.3K
D204
D204 MA150
ADJUSTMENT OF PITCH CONTROL ±0%
C305 0.0012
R302 470
C303 50V1
C304 16V10
C302 0.012
C301 0.012
VR301 5KB
TP25
C209 16V100
TP15
X201
C207 100P
R308 390
C208 39P
Q202
Q202 2SD637
S302
VR302 20KB
PITCH LOCK SWITCH
S201
S202
D202
D203
D202, 203 SVDSR10
SPEED SELECTOR SWITCH

IMPORTANT SAFETY NOTICE

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR SAFETY.
WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTUR'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

NOT
1. S
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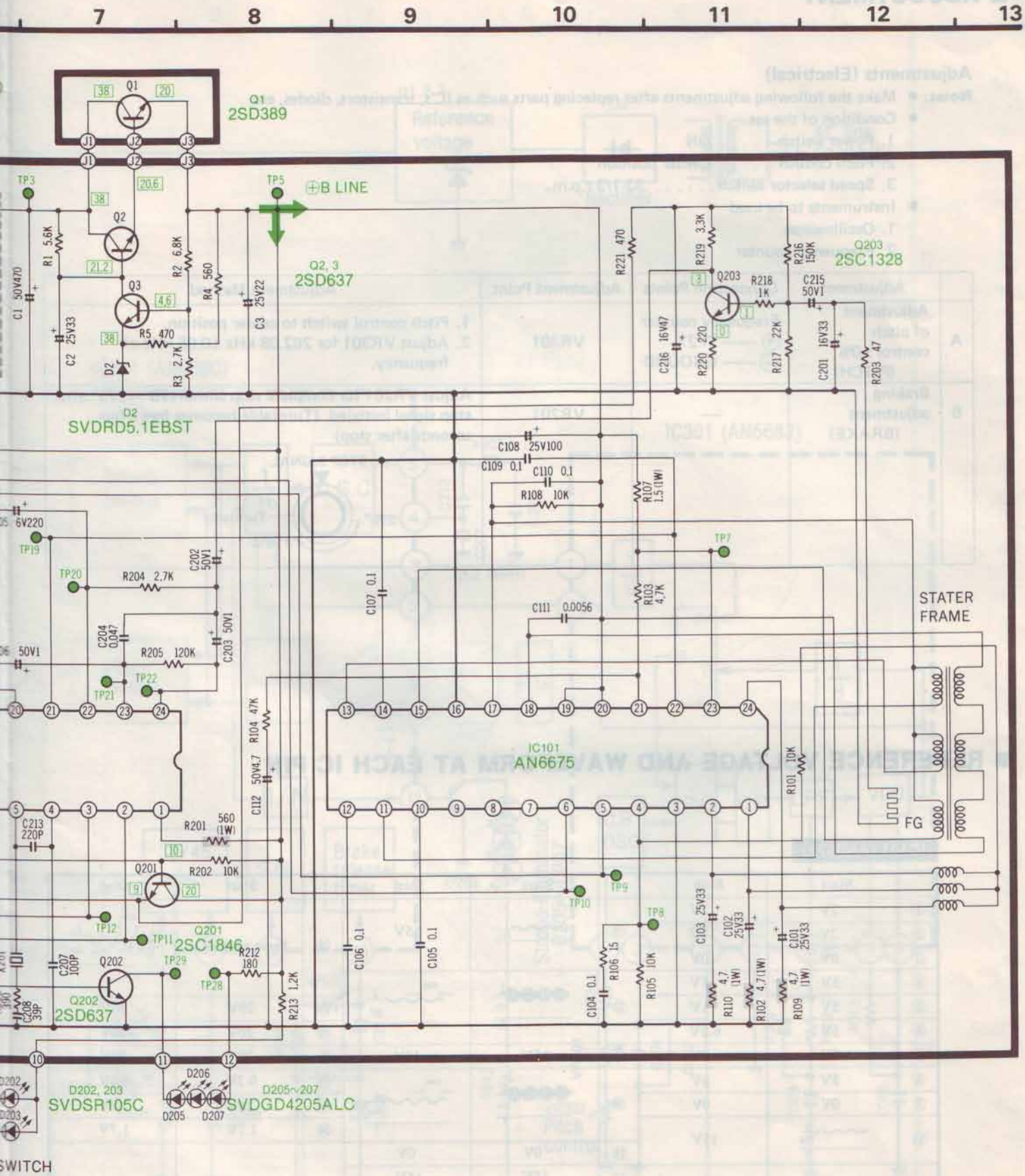
of new technology.)



NOTES:

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. S301: Start/Stop switch in **"OFF"** position. (not-push condition)
4. S302: Pitch lock switch in **"OFF"** position.
5. S601: Power switch in **"ON"** position.
6. The drive circuit IC voltage and wave form are not indicated in side the schematic diagram.
   So, refer to the voltage and wave form of each IC terminal.
7. Indicated voltage values 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.

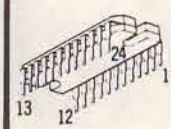
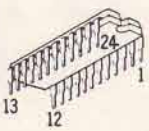
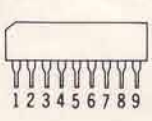
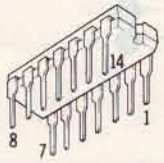
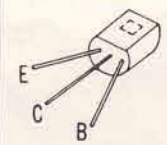
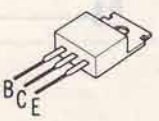
■ REPLACEMENT PARTS LIST (Electrical)

Notes: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. ⚠ indicates that only parts specified by the manufacturer be used for safety.
3. SP-25 (M)⟶ [M] , SP-25 (MC)⟶ [MC]

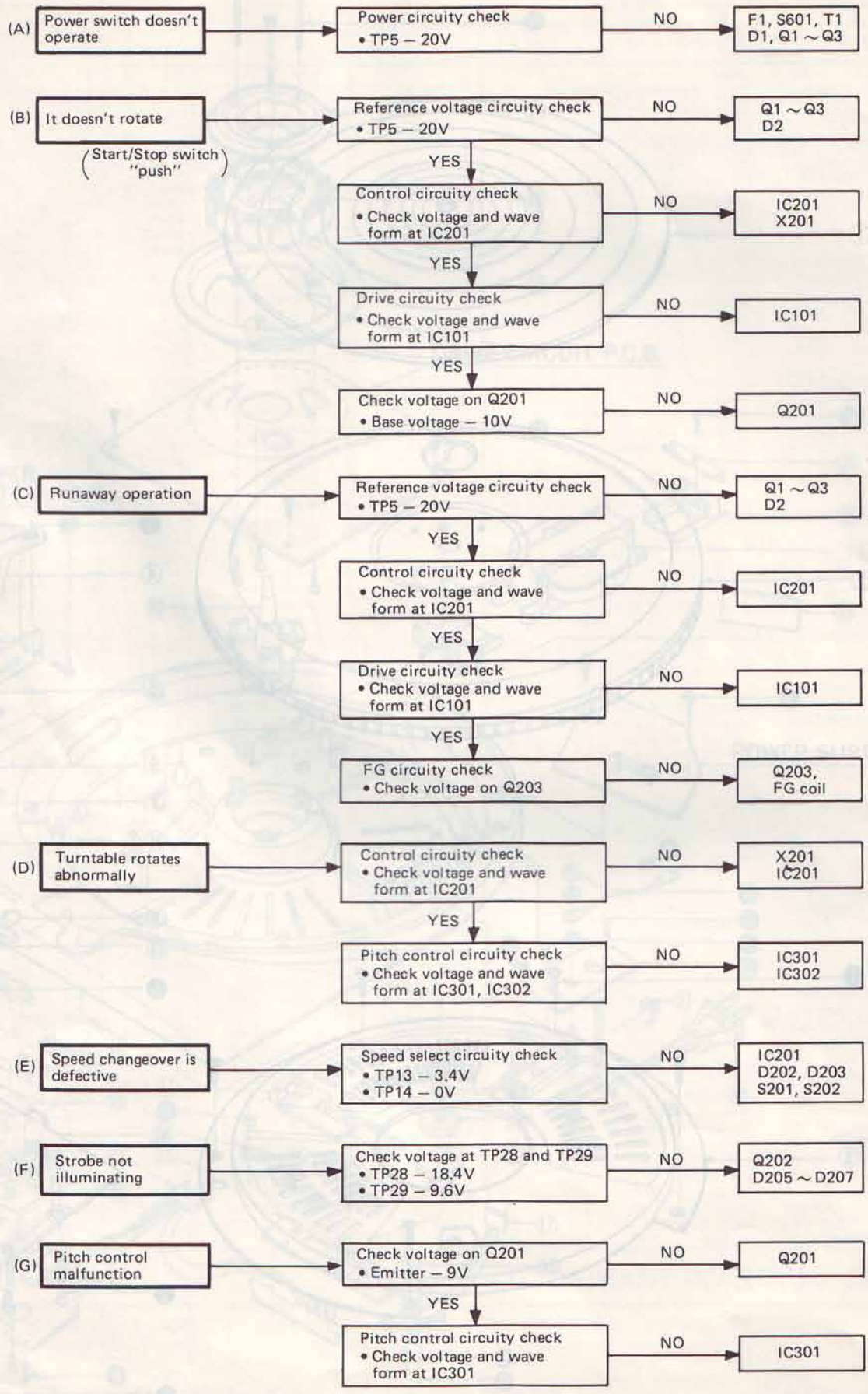
Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC101		AN6675	Integrated Circuit
IC201		AN6680	Integrated Circuit
IC301		AN6682	Integrated Circuit
IC302		SVITC4011BP	Integrated Circuit
TRANSISTORS			
Q1		2SD389A-Q	Transistor
Q2, 3, 202		2SD637	Transistor
Q201		2SC1846-R	Transistor
Q203		2SC1328-T	Transistor
DIODES			
D1	⚠	**SVDS1RBA40**	Rectifier
D2, 301		**MA1051**	Diode, Zener 5.1V
D204		**MA161**	Diode
D202, 203		SVDSR-105C	Light Emitting Diode
D205 ~ 207		SVDGD4205ALC	Light Emitting Diode
CRYSTAL			
X201		SVQU306115	Crystal, 4.19328MHz Oscillator
VARIABLE RESISTORS			
VR201		EVLS6AA00B54	Braking Adjustment (BRAKE), 50KΩ (B)
VR301		EVMH2GA00B53	Adjustment of Pitch Control ±0% (PITCH), 5KΩ (B)
VR302		EWJ30AF01A24	Pitch Control, 20KΩ
SWITCHES			
S201		EVQP1R04K	Switch, Speed Selector, (33-1/3 r.p.m.)
S202		EVQP1R04K	Switch, Speed Selector, (45 r.p.m.)
S301		EVQP1R04K	Switch, Start/Stop
S302		SFDSSS5GL13C	Switch, Pitch Lock
S601	⚠	SFDSSS5GL13	Switch, Power Switch
TRANSFORMER			
T1	⚠	SLT12SL1A	Power Transformer
FUSES			
F1 [M]	⚠	XBA2F04NU100	Fuse, 400mA
F2 [MC]	⚠	XBA2F08NU100	Fuse, 800mA
RESISTORS			
R1		**ERD25FJ562**	Carbon, 5.6kΩ, 1/4W, ± 5%
R2		**ERD25FJ682**	Carbon, 6.8kΩ, 1/4W, ± 5%
R3		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%
R4		**ERD25FJ561**	Carbon, 560Ω, 1/4W, ± 5%
R5		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R101		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R102	⚠	ERX1ANJ4R7	Metal Film, 4.7Ω, 1W, ± 5%
R103		**ERD25FJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%
R104		**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%
R105		**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R106		**ERD25FJ150**	Carbon, 15Ω, 1/4W, ± 5%
R107	⚠	ERX1ANJ1R5	Metal Film, 1.5Ω, 1W, ± 5%
R108		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R109, 110	⚠	ERX1ANJ4R7	Metal Film, 4.7Ω, 1W, ± 5%
R201	⚠	ERG1ANJ561	Metal Oxide, 560Ω, 1W, ± 5%
R202		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%

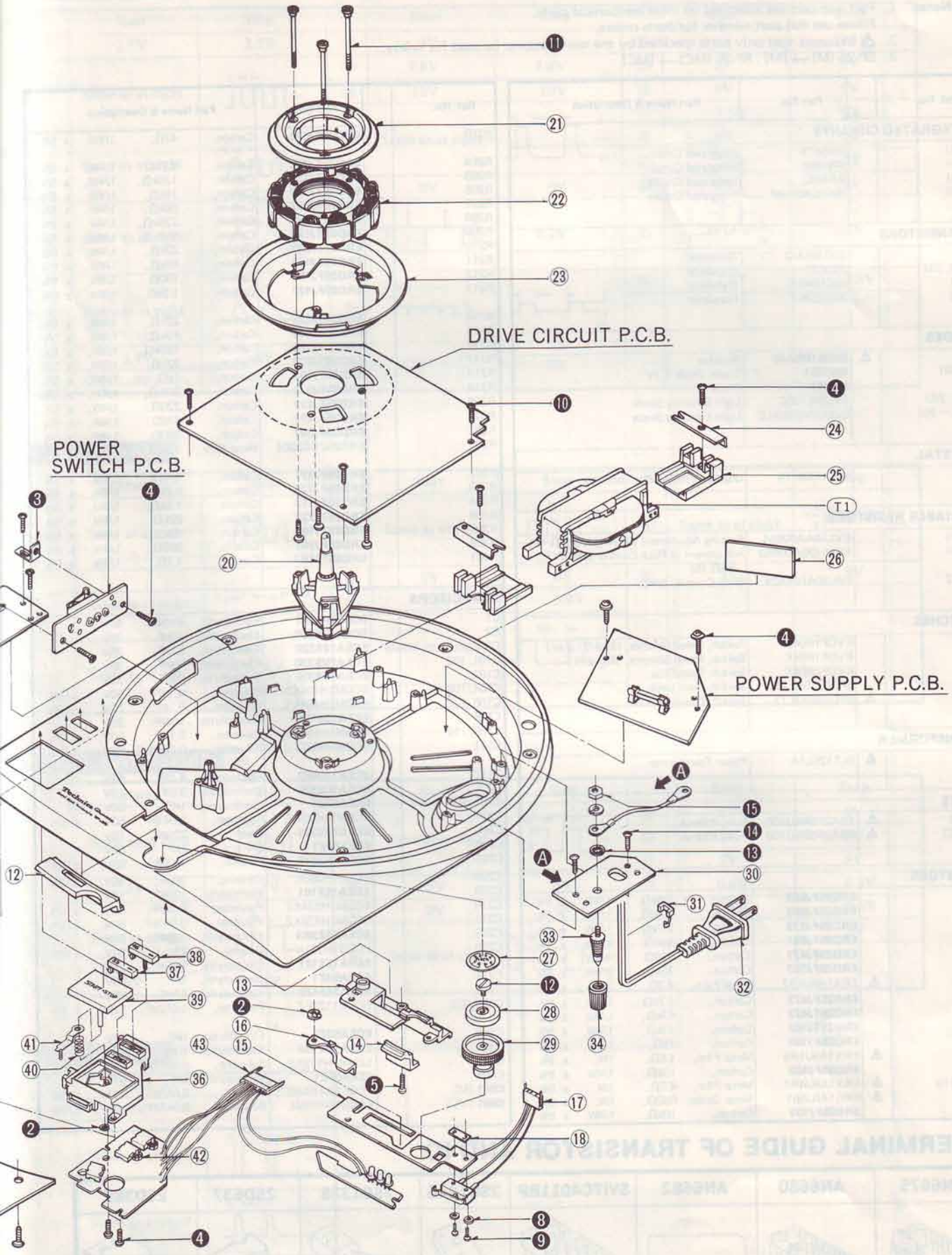
Ref. No.		Part No.	Part Name & Description
R203		**ERD25FJ470**	Carbon, 47Ω, 1/4W, ± 5%
R204		**ERD25FJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%
R205		**ERD25TJ124**	Carbon, 120kΩ, 1/4W, ± 5%
R206		**ERD25TJ183**	Carbon, 18kΩ, 1/4W, ± 5%
R207		**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%
R208		**ERD25TJ224**	Carbon, 220kΩ, 1/4W, ± 5%
R209		**ERD25TJ154**	Carbon, 150kΩ, 1/4W, ± 5%
R210		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R211		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R212		**ERD25FJ181**	Carbon, 180Ω, 1/4W, ± 5%
R213		**ERD25FJ122**	Carbon, 1.2kΩ, 1/4W, ± 5%
R214		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R215		**ERD25FJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R216		**ERD25TJ154**	Carbon, 150kΩ, 1/4W, ± 5%
R217		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R218		**ERD25FJ102**	Carbon, 1kΩ, 1/4W, ± 5%
R219		**ERD25FJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%
R220		**ERD25FJ221**	Carbon, 220Ω, 1/4W, ± 5%
R221		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R222		**ERD25FJ391**	Carbon, 390Ω, 1/4W, ± 5%
R301		ERO25CKG3301	Metal Film, 3.3kΩ, 1/4W, ± 2%
R302		**ERD25FJ471**	Carbon, 470Ω, 1/4W, ± 5%
R303		**ERD25FJ822**	Carbon, 8.2kΩ, 1/4W, ± 5%
R304		**ERD25FJ152**	Carbon, 1.5kΩ, 1/4W, ± 5%
R306		**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%
R307		**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%
R308		**ERD25FJ391**	Carbon, 390Ω, 1/4W, ± 5%
R601		**ERD25TJ4R7**	Carbon, 4.7Ω, 1/4W, ± 5%
CAPACITORS			
C1		**ECEB1HS471**	Electrolytic, 470μF, 50V
C2		**ECEA1VS330**	Electrolytic, 33μF, 35V
C3		**ECEA1ES220**	Electrolytic, 22μF, 25V
C101, 102		**ECEA1VS330**	Electrolytic, 33μF, 35V
C103		**ECEA1VS330**	Electrolytic, 33μF, 35V
C104, 105		ECQM1H104KS	Polyester, 0.1μF, 50V, ±10%
C106, 107		ECQM1H104KS	Polyester, 0.1μF, 50V, ±10%
C108		**ECEA1ES101**	Electrolytic, 100μF, 25V
C109, 110		ECQM1H104KS	Polyester, 0.1μF, 50V, ±10%
C111		ECQM1H562KZ	Polyester, 0.0056μF, 50V, ±10%
C112		**ECEA1JS4R7**	Electrolytic, 4.7μF, 63V
C201		**ECEA1CS330**	Electrolytic, 33μF, 16V
C202, 203		**ECEA50Z1**	Electrolytic, 1μF, 50V
C204		ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%
C205		**ECEA1AS221**	Electrolytic, 220μF, 10V
C206		**ECEA50Z1**	Electrolytic, 1μF, 50V
C207		ECCD1H101K	Ceramic, 100pF, 50V, ±10%
C208		ECCD1H390K	Ceramic, 39pF, 50V, ±10%
C209		**ECEA1ES101**	Electrolytic, 100μF, 16V
C210		ECQM1H224KZ	Polyester, 0.22μF, 50V, ±10%
C211		ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%
C212		**ECEA50Z3R3**	Electrolytic, 3.3μF, 50V
C213		ECCD1H221K	Ceramic, 220pF, 50V, ±10%
C214		**ECEA1ES101**	Electrolytic, 100μF, 25V
C215		**ECEA50Z1**	Electrolytic, 1μF, 50V
C216		**ECEA1ES470**	Electrolytic, 47μF, 25V
C301, 302		ECQK1123FZ	Polyester, 0.012μF, 125V, ± 1%
C303		**ECEA50Z1**	Electrolytic, 1μF, 50V
C304		**ECEA1HS100**	Electrolytic, 10μF, 50V
C305		ECQM1H122KZ	Polyester, 0.0012μF, 50V, ±10%
C306		**ECEA50Z1**	Electrolytic, 1μF, 50V
C601 [M]		ECQF1A473MD	Polyester, 0.047μF, 400V, ±20%
C601 [MC]		ECQU1A473ME	Polyester, 0.047μF, 400V, ±20%

■ TERMINAL GUIDE OF TRANSISTOR AND IC

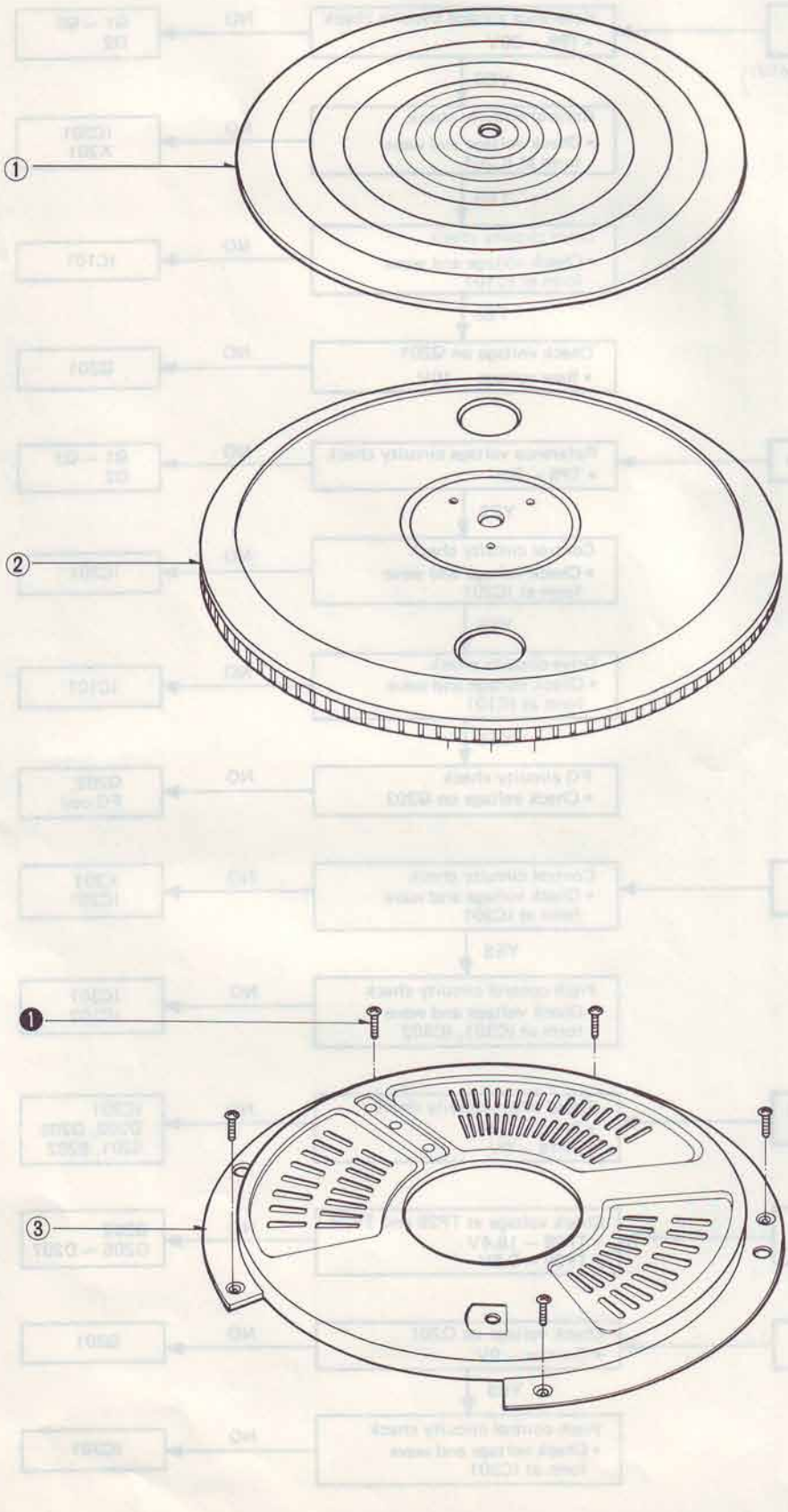
AN6675	AN6680	AN6682	SVITC4011BP	2SC1846	2SC1328	2SD637	2SD389
							

■ TROUBLE SHOOTING




DRIVE CIRCUIT P.C.B.
POWER SWITCH P.C.B.
POWER SUPPLY P.C.B.
T1

■ EXPLODED VIEWS



■ REPLACEMENT PARTS LIST (Mechanical)

Notes: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. ⚠ indicates that only parts specified by the manufacturer be used for safety.
3. SP-25 (M)⟶ [M] , SP-25 (MC)⟶ [MC]

Ref. No.		Part No.	Part Name & Description
CABINET and CHASSIS PARTS			
1		SFTG015-01	Turntable Mat
2		SFTE025-01A	Turntable
3		SFUM172-05	Panel, Cover
4		SFUM025-02	Cam, Power Switch
5		SFUP025-03E	Plate, Power Switch
6		SFQA015-02	Spring, Power Switch Cam
7		SFYB-M30	Ball, Power Switch Cam
8		SFUP025-05	Bracket, Power Supply P.C.B.
9		SFKT015-07	Knob, Power Switch
10		SFUP025-02E	Plate, Bottom
11		SFAC025-01	Cabinet
12		SFUM025-06	Cover, (B) Operation
13		SFUM025-03	Cover, (A) Operation
14		SFUM025-04	Cover, Neon
15		SFUP025-04E	Plate, Operation
16		SFUM025-05	Cam, Pitch Lock Switch
17		SFDJ025-02E	Connector, 3-PIN
18		SFUP172-59	Spacer, Point Adjustment
19		SFUP015-08Z	Plate, Slider Ass'y
20		SFMZQ20-01A	Shaft, Stater Frame Ass'y
21		SFMGQ20-01	Cover, Stater Frame Ass'y
22		SFMG520-31A	Stater Frame
23		SFMZ172-01E	FG Detector Coil Ass'y
24		SFUP025-06	Bracket, Power Transformer
25		SFGZ025-02	Cushion, Power Transformer
26 [M]		SFNN025M01	Name Plate
26 [MC]		SFNN025C01	Name Plate
27		SFNP025-01	Ornament, Pitch Control Knob
28		SFXW025-01	Spacer, Pitch Control Knob
29		SFKT025-01	Knob, Pitch Control
30		SFUP025-01	Plate, AC Cord
31		SFHK040L	Bushing, AC Cord
32		RJA9YA	AC Cord
33		SNE271S	Screw, Ground Terminal
34		SNE273-1	Knob, Ground Terminal
36		SFUM025-01	Holder Ass'y, Operation
37		SFKT015-01E	Knob, Speed Selector (33 r.p.m.)
38		SFKT015-02E	Knob, Speed Selector (45 r.p.m.)
39		SFKT015-06	Knob, Start/Stop
40		SFQA015-01	Spring, Start/Stop Knob
41		SFUP015-07	Supporter, Start/Stop Switch
42		SFUM015-11	Spacer, LED
43		SFDJ172-02E	Connector, 7-PIN
SCREWS, WASHERS, CIRCLIP and NUT			
❶		**XTN3+8BFZ**	Screw
❷		**XUC3FT**	Circlip
❸		**XTV3+8BFN**	Screw
❹		**XTN3+8B**	Screw
❺		**XTN3+6B**	Screw
❻		**XTS3+10BFZ**	Screw
❼		**XTS3+12BFZ**	Screw
❽		**XWA2B**	Washer
❾		**XSN2+12**	Screw
❿		**XTN3+8B**	Screw
⓫		SFXGQ20-02	Screw
⓬		SFPEV50003	Screw
⓭		**XWC4B**	Washer
⓮		**XWA4B**	Washer
⓯		**XNG4ES**	Nut
⓰		SFRTN30115B	Screw
⓱		**XWG3**	Washer
ACCESSORIES			
A1 [M]		SFNU025M01	Instruction Book
A1 [MC]		SFNU025C01	Instruction Book
A2		SFWE010	Adaptor, 45 r.p.m.
A3		SFEL028-01E	Ground Wire
A4		XMM41+32	Screw
A5		SFXW028-01	Washer
A6		SFNU025-03	Instruction, Dimension Drawing
PACKING PARTS			
P1 [M]		SFHP025M01	Carton
P1 [MC]		SFHP025C01	Carton
P2		SFHH015-01	Pad, Left Side
P3		SFHH015-02	Pad, Right Side
P4		SFHD015-01	Pad, Top
P5		SFHH015-03	Pad, Front Side
P6		SFYF60A60	Polyethylene Bag, Unit
P7		SFYH40X45	Polyethylene Bag, Turntable
P8		SFYF07A10	Polyethylene Bag, Accessories
P9		SFYF09A15	Polyethylene Bag, Accessories