ORDER NO. SD83042473C8

Service Manual

Turntable System

SL-Q200

[E], [EK], [XL], [EG], [EB]
[EH], [EF], [Ei], [EC], [XA], [XM]

T4P is the standard mark for the "P-mount" plug-in connector system. Products carrying this mark are interchangeable and compatible with each other.

Areas

* [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.
* [EC] is available in Czechoslovakia.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [XM] is available in Central South America.

Specifications

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

■General

Power supply: For United Kingdom and Australia : 240V, AC 50 Hz
For continental Europe: 220V, AC 50 Hz
For others: ~ 110-120/220-240V 50/60 Hz

Power consumption: 5 W

Dimensions: (W x H x D)
43 x 10 x 37.5 cm
(16-15/16" x 3-15/16" x 14-3/4")
Maximum height when top (dust cover) is open.
43 x 37 x 41 cm
(16-15/16" x 14-9/16" x 16-1/8")

Weight: 4.4 kg (9.7 lb.)

■Turntable section

Type: Quartz direct drive

Features: Automatic turntable
Auto return
Auto stop

Drive method: Direct drive

Motor: Brushless DC motor

Drive control method: Quartz-phase-locked control

Turntable platter: Aluminum die-cast
Diameter 31.2 cm

Turntable speeds: 33-1/3 rpm and 45 rpm

Wow and flutter: 0.012% 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: Statically-balanced straight tonearm
Plug-in connector cartridge system

Effective length: 230 mm (9-1/16")

Overhang: 15 mm (19/32")

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.

Effective mass: 7.5 g (without cartridge)
13.5 g (including cartridge)

Technics

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

Stylus pressure adjustment range:	1.25 ± 0.25 g	**Output voltage:**	2.5 mV at 1 kHz, 5 cm/s. zero to peak lateral velocity (7 mV at 1 kHz, 10 cm/s. zero to peak 45° velocity [DIN 45 500])
Applicable cartridge weight:	6 g	**Channel separation:**	22 dB at 1 kHz
Phono cable capacitance:	100pF	**Channel balance:**	Within 2 dB at 1 kHz
		Recommended load impedance:	47 kΩ ~ 100 kΩ
■ Cartridge section		**Compliance (dynamic):**	12 x 10^{-6} cm/dyne at 100 Hz
Type:	Moving magnet stereo cartridge	**Stylus pressure range:**	1.25 ± 0.25 g (12.5 ± 2.5 mN)
Magnetic circuit:	All laminated core	**Weight:**	6 g (cartridge only)
Frequency response:	10 Hz ~ 40 kHz 20 Hz ~ 10 kHz ± 1 dB	**Replacement stylus:**	EPS-P30ES

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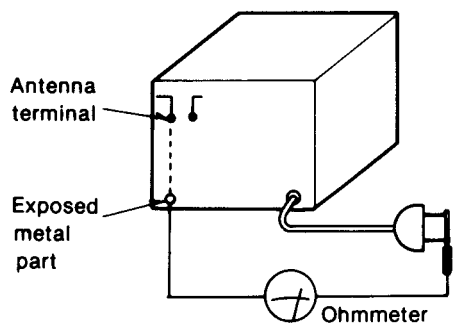
■ SAFETY PRECAUTIONS

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

• INSULATION RESISTANCE TEST

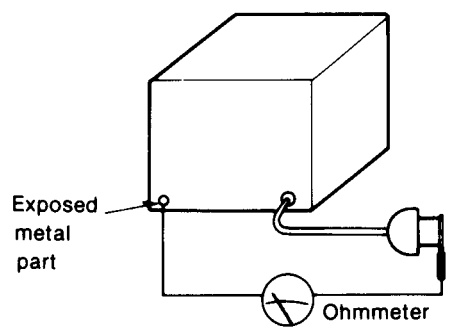
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with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

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



(Fig. A)

Resistance = 3MΩ—5.2MΩ

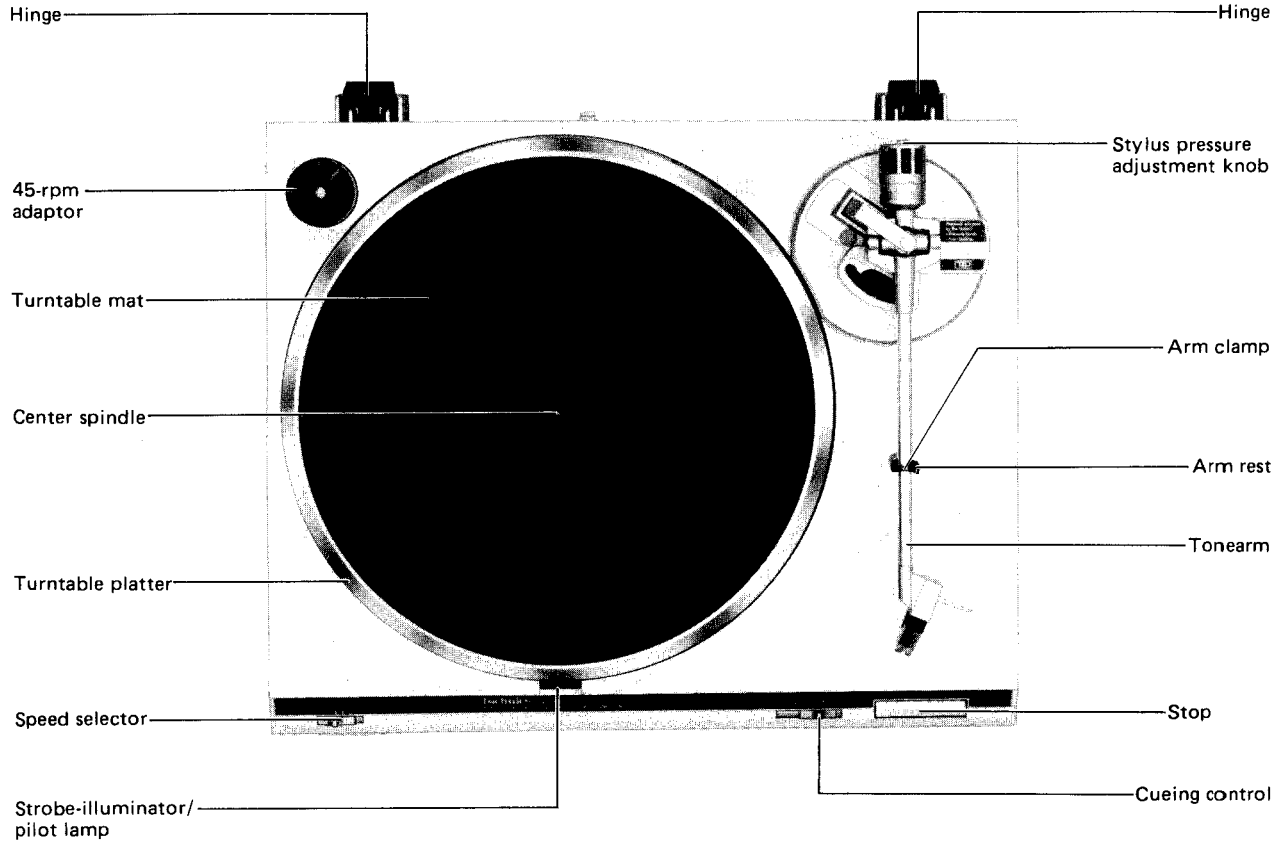


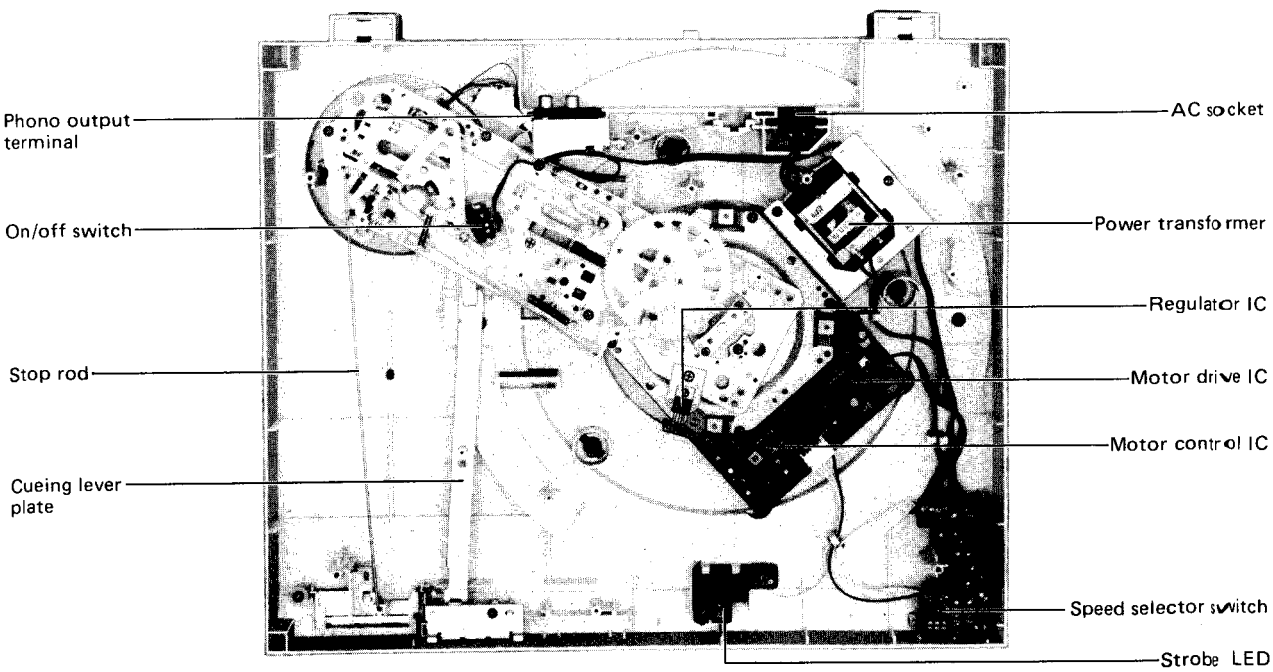
(Fig. B)

Resistance = Approx ∞

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

■ LOCATION OF CONTROLS





- The power supply for this unit varies depending upon the areas. Also the parts used for power supply are different. So, refer to the circuit diagram and the replacement parts list.

* [EK], [XA] and [XM] areas are provided with voltage selector.

■ DISASSEMBLY INSTRUCTIONS

• How to remove the cartridge

1. Open the dust cover.
2. Clamp the tonearm to the arm rest.
3. Remove the cartridge setscrew **(Fig. 1 : ❶)**, and then pull out the cartridge in the direction of the arrow.

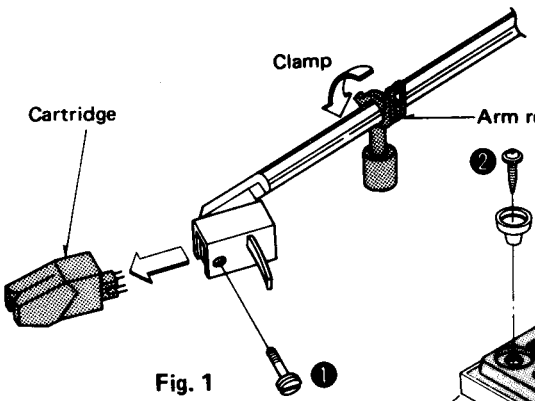


Fig. 1

• How to remove the bottom board

1. Clamp the tonearm to the arm rest.
2. Remove the turntable pllater, and close the dust cover.
3. Turn over the unit on a soft cloth taking care not to damage the cabinet and dust cover.
4. Remove the 5 setscrews **(Fig. 2 : ❷ ~ ❻)** of the bottom board.

Please note that the front and rear insulators are different from each other.

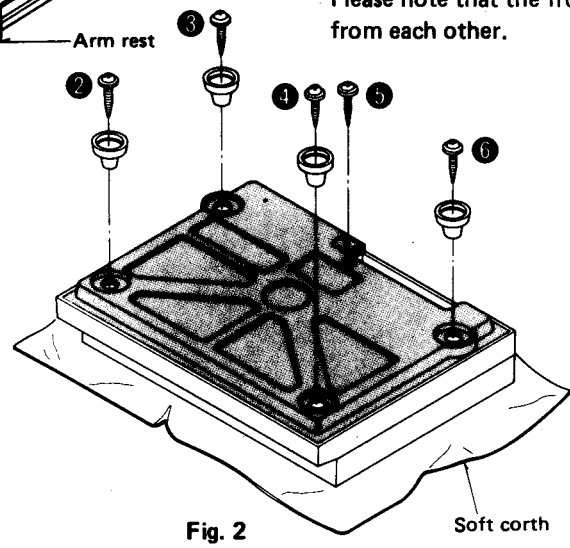
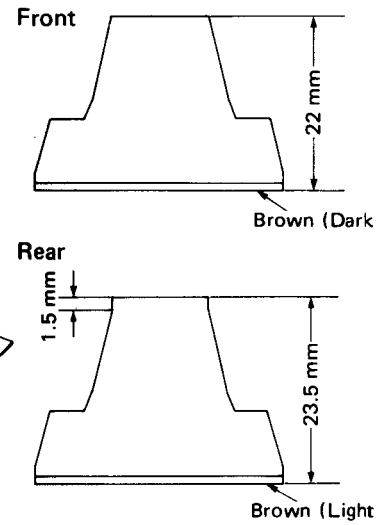


Fig. 2



• How to remove the automatic mechanism plate

1. Move the cueing control knob to "**cueing down**" position.
2. Remove the bottom board. **(Refer to "How to remove the bottom board.")**
3. Remove the 6 setscrews **(Fig. 3 : ❼ ~ ⓬)** of the automatic mechanism plate.
4. Remove the stop rod, and lift the automatic mechanism plate. **(Fig. 3)**

* When fitting the automatic mechanism plate, check the following points.

(1) Turn the main gear until it comes to the no gear part.

(2) Shift the cueing lever plate in the direction of the arrows. **(Fig. 3)**

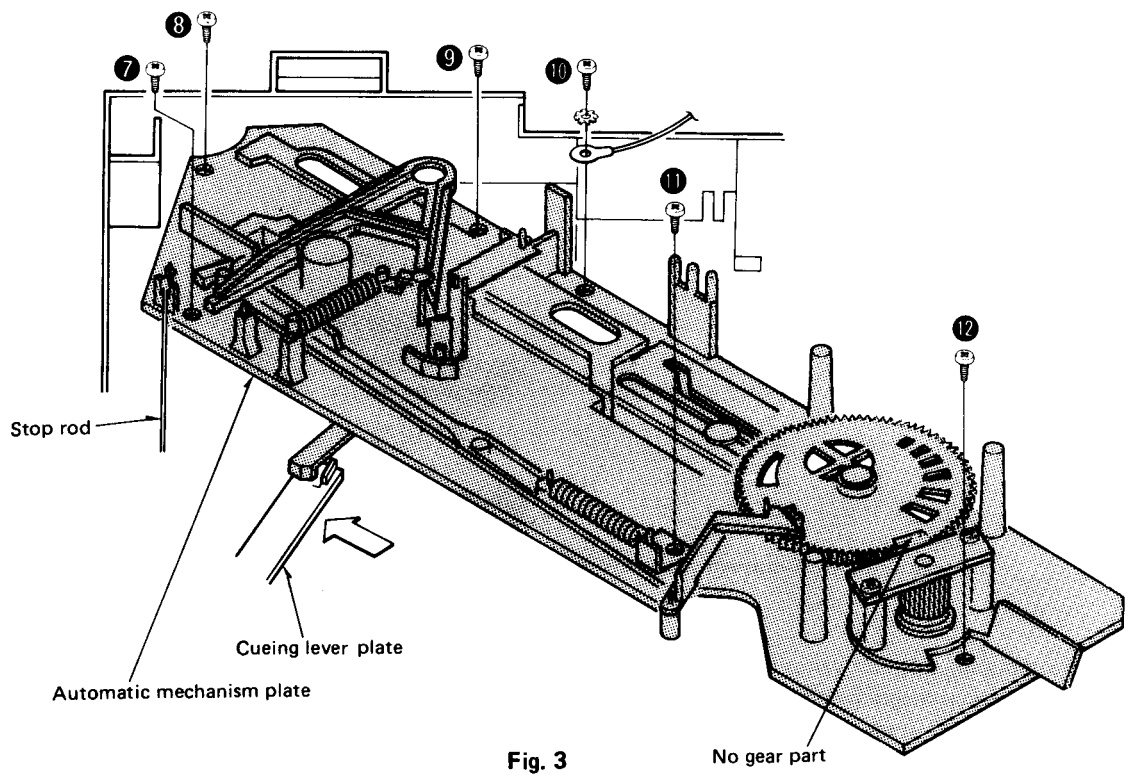


Fig. 3

• How to remove the stator frame

1. Remove the automatic mechansim plate. **(Refer to "How to remove the automatic mechanism plate.")**
2. Remove the 4 setscrews **(Fig. 4 : ⑬ ~ ⑯)** of the stator frame.
3. Remove the stator frame from the 2 claws in the direction of the arrow. **(Fig. 4)**

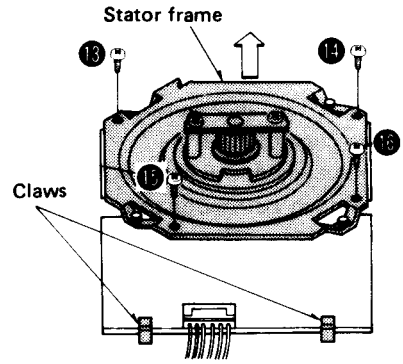


Fig. 4

• How to remove the PU fixing plate

1. Remove the automatic mechanism plate. **(Refer to "How to remove the automatic mechanism plate.")**
3. Remove the PU fixing plate setscrew **(Fig. 5 : ⑰)**. Then the PU fixing plate can be removed.

• How to remove the tonearm

1. Remove the PU fixing plate. **(Refer to "How to remove the PU fixing plate.")**
2. Remove the shielding plate setscrew **(Fig. 5 : ⑱)**.
3. Unsolder the 5 lead wires of the phono output terminal. **(Fig. 5)**
4. Remove the tonearm setscrews **(Fig. 5 : ⑲ , ⑳)**. Then the tonearm can be removed.

• How to remove the lift base and arm lift

1. Remove the tonearm. **(Refer to "How to remove the tonearm".)**
2. Remove the 2 setscrews **(Fig. 6 : ㉑ , ㉒)** of the lift base. Then the lift base can be removed.
3. Remove the screw **(Fig. 6 : ㉓)** of the arm lift. Then the arm lift can be removed.

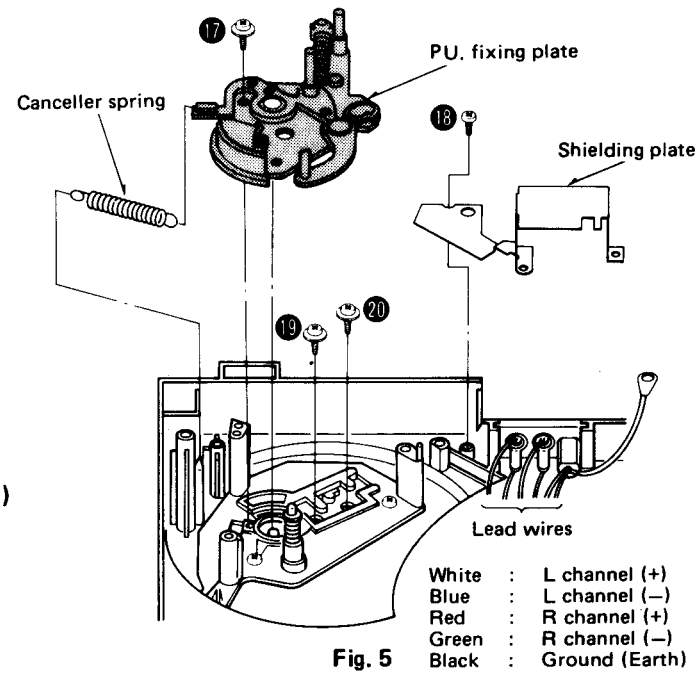


Fig. 5

• How to remove the Hall element

1. Remove the turntable platter.
2. Remove the terminal solder by use of solder sucker.
3. Hold the Hall element with a tweezers and remove it while touching the soldering iron to the terminal. **(Fig. 7)**

Note: Fit the Hall element with the part No, print up. The reverse in terminal position is allowable provided that the printed side is up.

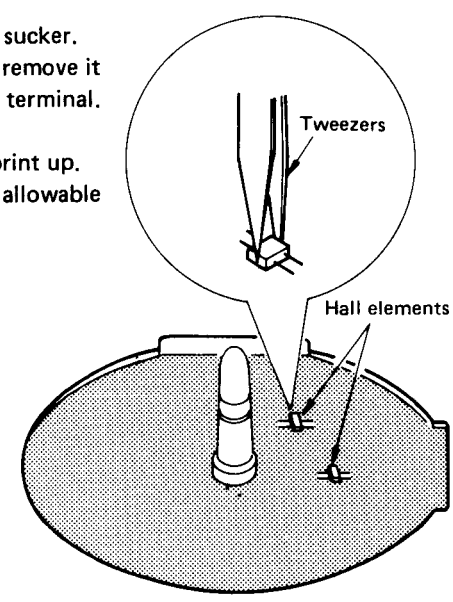


Fig. 7

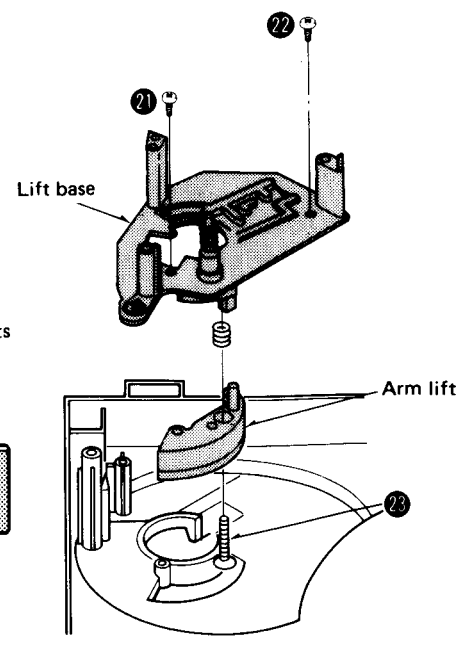


Fig. 6

■ MEASUREMENTS AND ADJUSTMENT

• Arm-lift height adjustment

The arm-lift height (distance between the stylus tip and the record surface when the cueing control is at the " ▼ " position) has been adjusted at the factory to aproximately 4 to 6 mm (5/32" ~ 1/4"). **(Fig. 8)**

If the clearance is too narrow or too wide, turn the adjustment screw clockwise or counterclockwise. **(Fig. 9)**

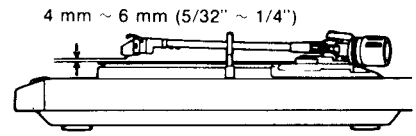
Clockwise rotation

—distance between the record and stylus tip is decreased.

Counterclockwise rotation

—distance between the record and stylus tip is increased.

Fig. 8



• Adjustment of automatic return position

(Fig. 10)

(Remove the rubber cap.)

1. Put the stylus protector on the cartridge.
2. Move the tonearm toward the center of the record.
   The auto-return adjustment screw will appear.

If the tonearm tends to return to the arm rest before the play has finished.

—turn counterclockwise.

If the toenarm fails to return after the final groove.

—turn clockwise.

Fig. 9

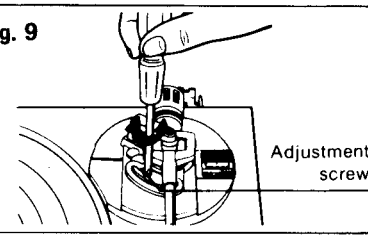
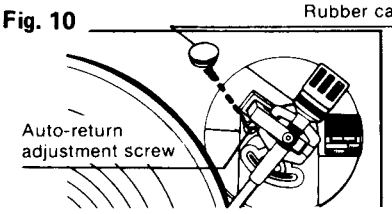


Fig. 10

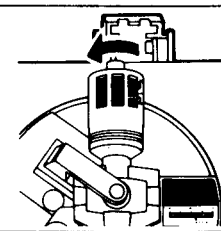


■ ABOUT STYLUS PRESSURE (TRACKING FORCE)

The tracking force is already set to 1.25 g so no adjustment is necessary. When records with a high modulation level are played or when the turntable is used where the temperature is low or in a location subject to vibrations, sound may be distorted and the stylus may skip. If this occurs, rotate the stylus-pressure adjustment knob at the rear to the "1.5" setting. **(Fig. 11)**

If the knob is set to "1.0" the tracking force will be lighter.

Fig. 11



■ TROUBLE SHOOTING

Turntable does not rotate

→ AC voltage of FC5 terminal (AC18V)
- NO → T1, F1, AC cord
- YES ↓

DC voltage of regulator IC (IC1)
① 22V, ② 0V, ③ 12V
- NO → S1, D1, C4, IC1
- YES ↓

Power supply input terminal
DC voltage of drive and control IC's
IC101 ① pin 12V
IC201 ⑱ pin 8.5V
- NO → IC101, IC201, R204, R208
- YES ↓

Brake circuit
DC voltage of IC201 pin ⑫ 0.6V
- NO → IC201, IC101, C107
- YES ↓

Drive coil and Hall element
1. Conduction check of drive coils (A1 ~ A4)
※1
2. DC voltage of Hall elements (H101, H102)

	1	2	3	4
Voltage	3.8	7.6	3.8	0

- NO → Drive coil, H101, H102, IC101
- YES ↓

Drive circuit
1. DC voltage at each pin of drive IC (IC101)

	2	3	8	10	11
Voltage	0.6	12	0	4.9	4.7

2. Waveform between pins ④ and ⑤ (⑥and ⑦) of drive IC

33rpm. 303ms
- NO → IC101

※1
1 When the voltage at pins ① and ③ is about 1/2 of the voltage at pin ②, the Hall element is normal.
2 If the voltage is abnormal, unsolder the pins ① and ③, and check the voltage again. (When it is 1/2 of the voltage at pin ②, the Hall element is normal but drive IC is defective.)
3 If one Hall element is defective, the rotation is turntable position cannot be detected.

Speed cannot be changed

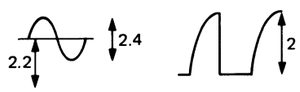
→ **Speed selector circuit**
DC voltage of pin ⑨ of control IC (IC201)
33rpm 0V
45rpm 5.3V
- NO → S2, IC201

Unsatable rotation

→ **FG amplifier circuit**
1. Conduction check of FG coil.
2. Waveform of pin ⑮ of control IC (IC201)

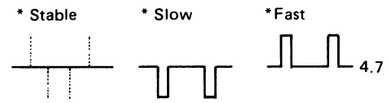
33rpm 20ms, 45rpm 14ms
- NO → FG coil, IC201, C201 ~ C203, R203, R205
- YES ↓

Quartz oscillator circuit
Waveforms of pins ③ and ④ of control IC (IC201)



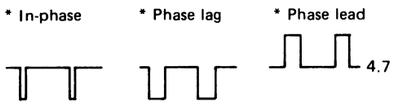
③ pin 0.24μs, ④ pin 1.9μs
- NO → X201, IC201, C204 ~ C206
- YES ↓

Speed control circuit
Waveform of pin ⑭ of control IC (IC201)



33rpm 20ms (50.5 Hz)
- NO → IC201, IC101
- YES ↓

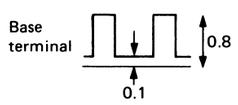
Phase control circuit
Waveform of pin ⑬ of control IC (IC201)



33rpm 10ms (101 Hz)
- NO → IC201, IC101

Strobe dones light up

→ **Strobe drive circuit**
Waveform of strobe drive transistor (Q11)



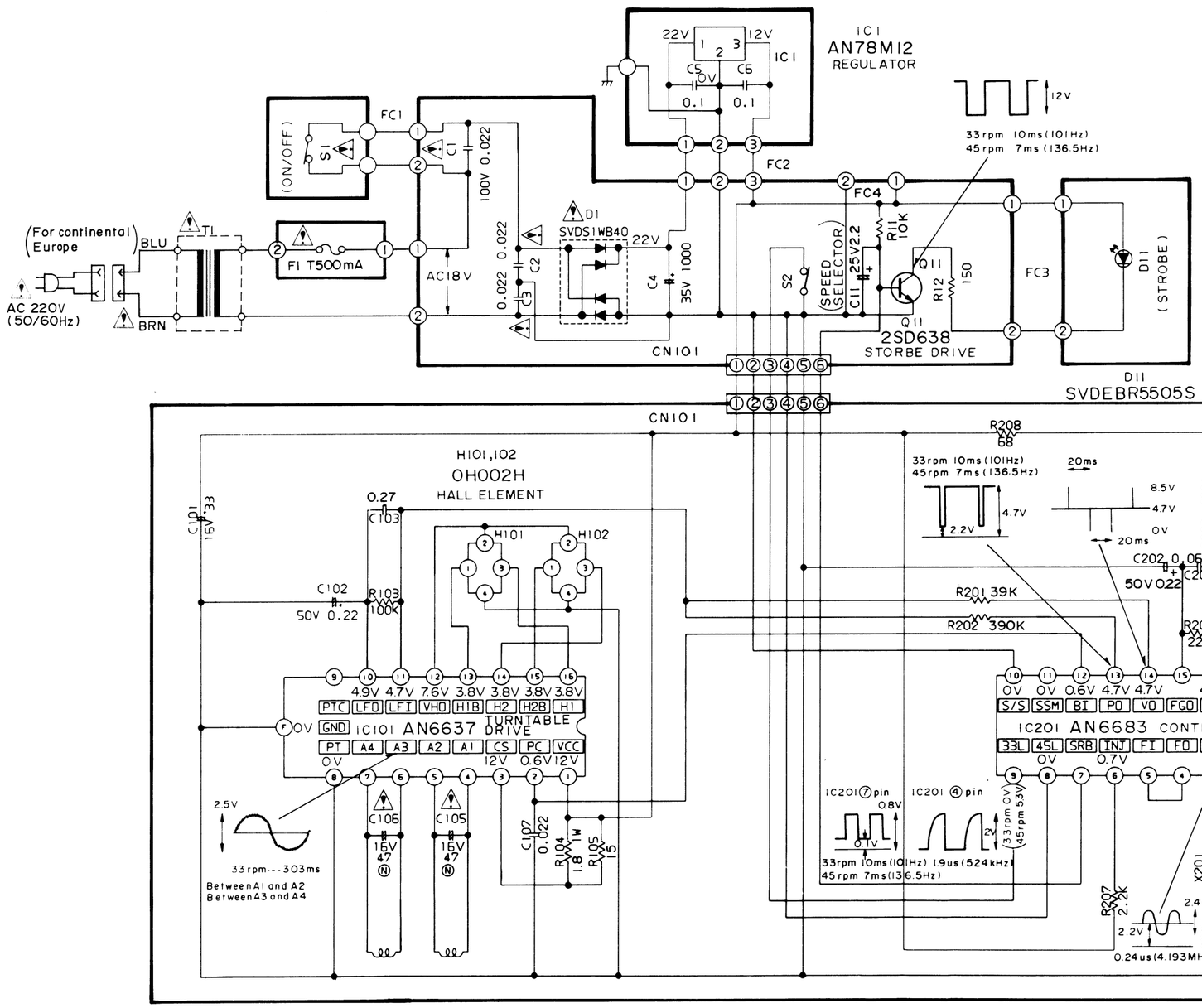
33rpm 10ms, 45rpm 7ms
- NO → IC201, Q11, D11

■ SCHEMATIC DIAGRAM

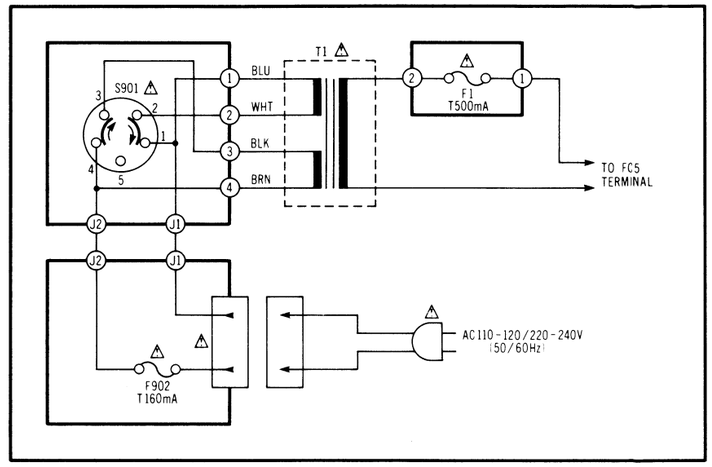
(This schematic diagram may be modified at any time with the development of new technology.)

1 2 3 4 5 6 7 8 9

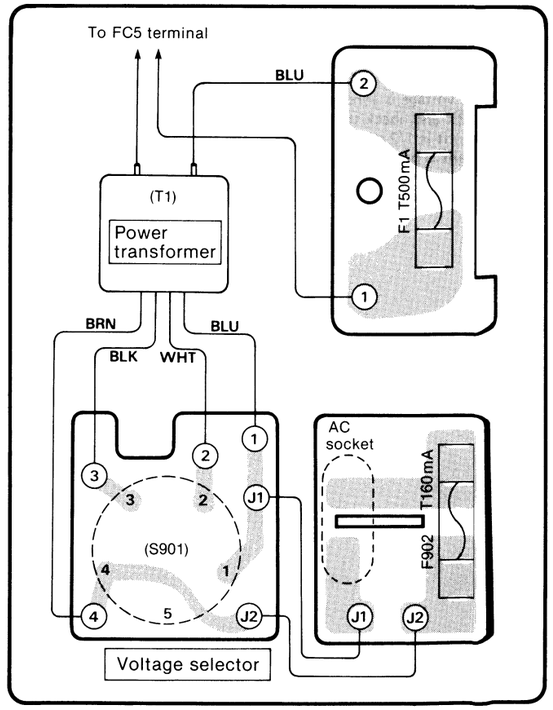
A B C D E F



• Power source circuit
For [EK], [XA] and [XM] areas



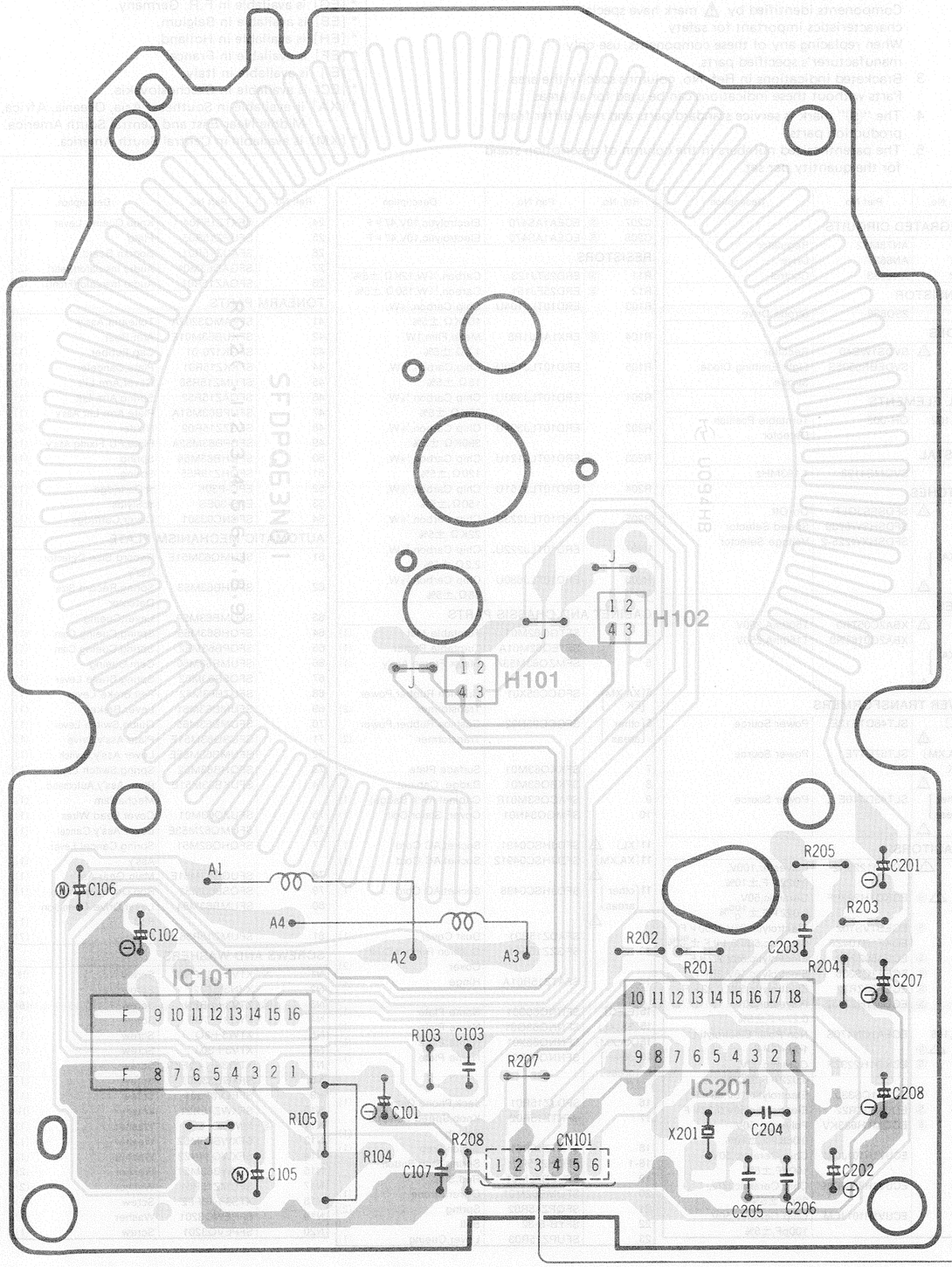
• Power source circuit P.C.B.
For [EK], [XA] and [XM] areas

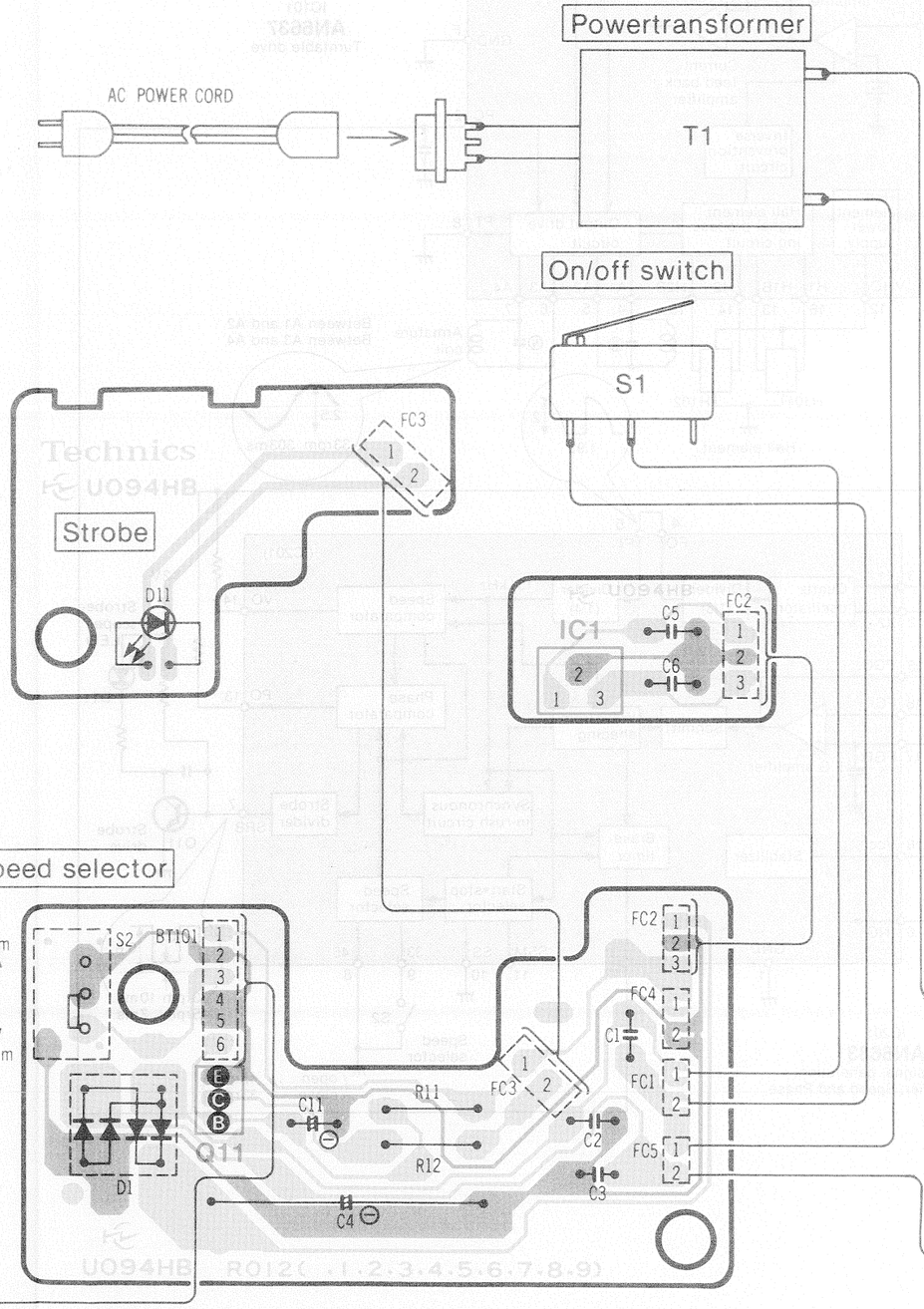


Notes:
1. **S1** : On/off (power) switch in "**on**" position.
2. **S2** : Speed selector switch in "**33 rpm**" position.
3. **S901** : Voltage selector switch in "**110-120V**" position.
4. The voltage value, and waveforms are the reference voltage values of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis when the unit is in play.
5. ——— +B voltage lines.
6. Important safety notice:
   Components identifier by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacture's specified parts.

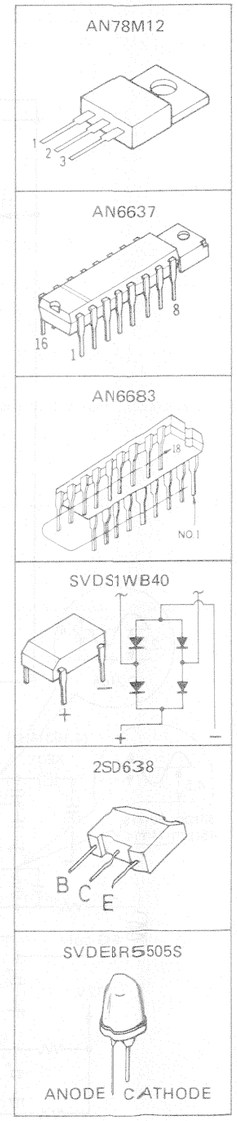
■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

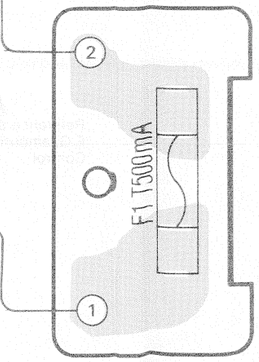
Ground (Earth) line



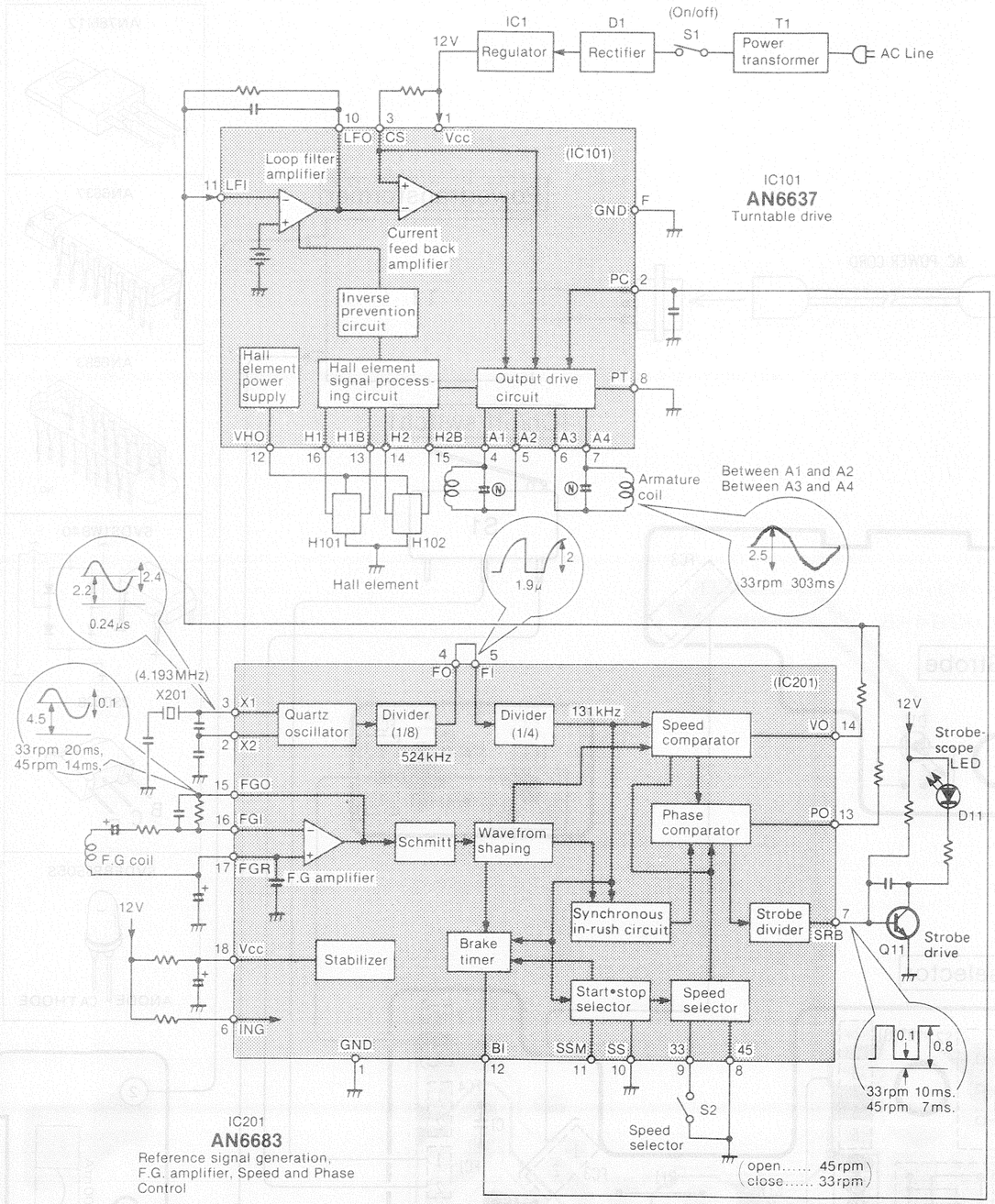


- Terminal guide of IC's transistor and diodes





BLOCK DIAGRAM



REPLACEMENT PARTS LIST

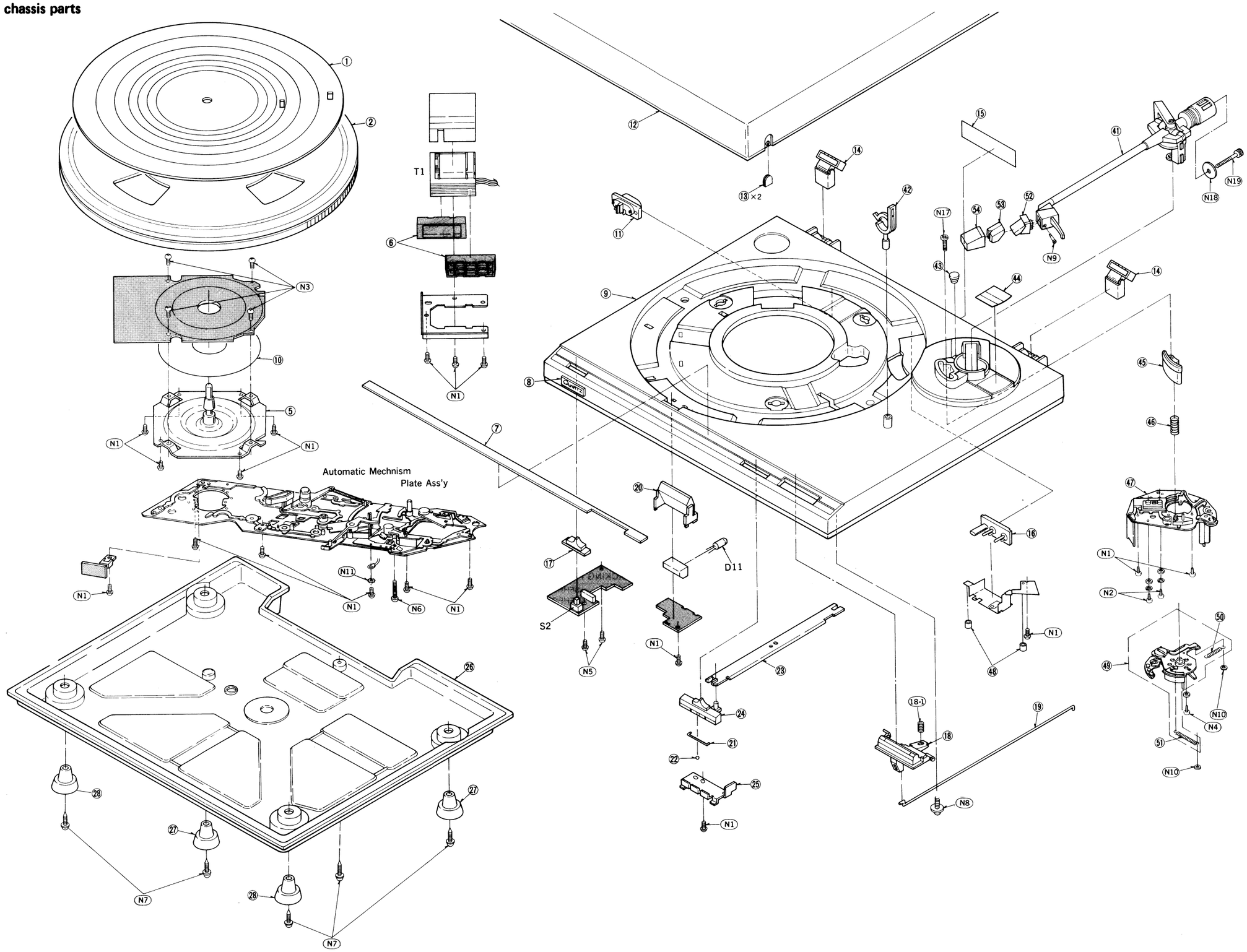
Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The "Ⓢ" mark is service standard parts and may differ from production parts.
5. The parenthesized numbers in the column of description stand for the quantity per set.

Areas
* [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.
* [EC] is available in Czechoslovakia.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [XM] is available in Central South America.

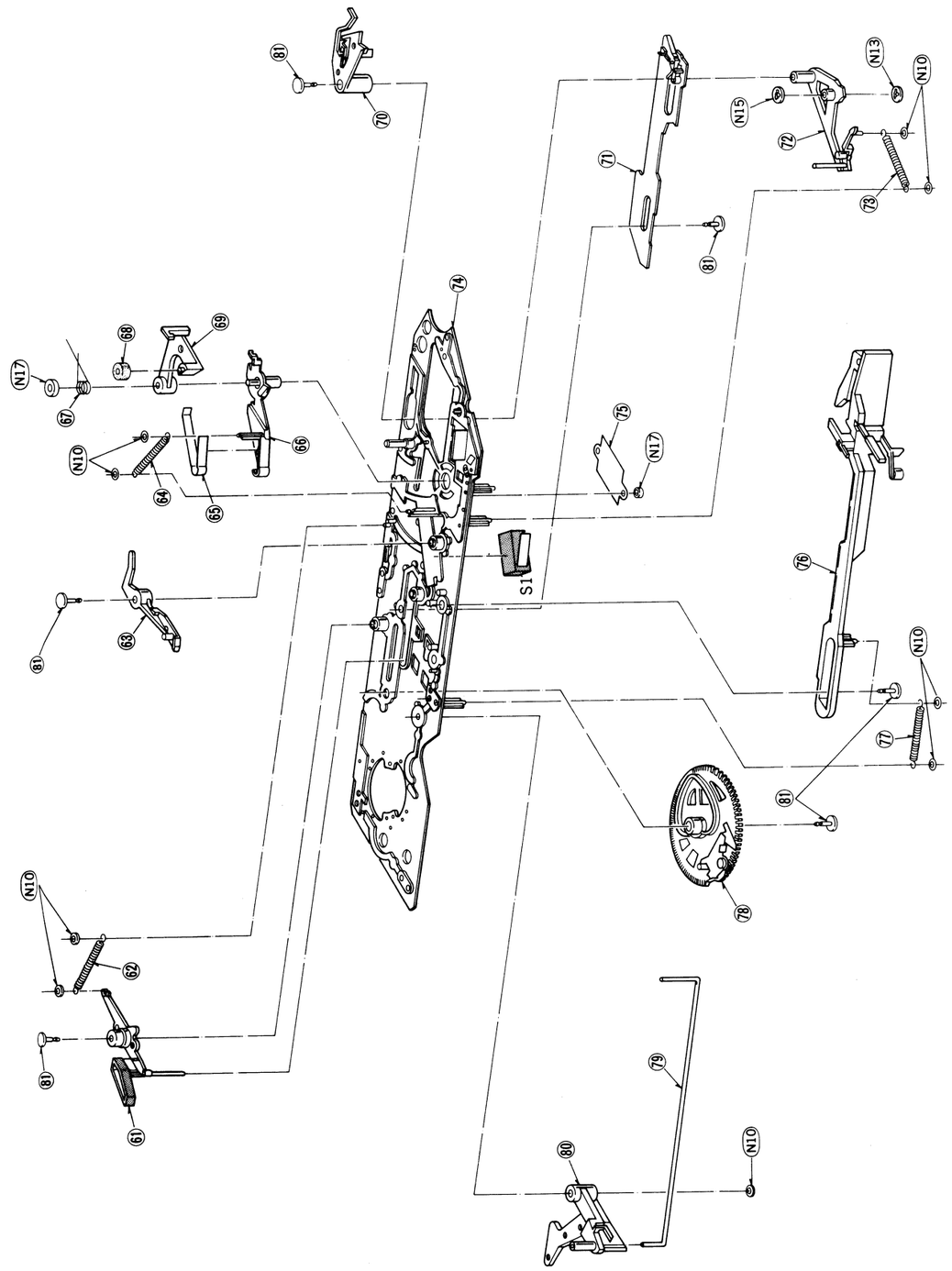
Ref. No.		Part No.	Description
INTEGRATED CIRCUITS			
IC1		AN78M12	Regulator
IC101		AN6637	Drive
IC102		AN6683	Control
TRANSISTOR			
Q11		2SD638	Strobe Drive
DIODES			
D1	⚠	SVDS1WB40	Rectifier
D11		SVDEBR5505S	Light Emitting Diode, Strobe
HALL ELEMENTS			
H101,102		OH-002	Turntable Position Detector
CRYSTAL			
X201		SVQMS4193	4.193MHz
SWITCHES			
S1	⚠	SFDSSS5GLP	On/Off
S2		SFDSHSW0739	Speed Selector
S901		SFDSHXW225-2	Voltage Selector
[EK,XA XM]	⚠		
FUSES			
F1	⚠	XBA2C05TR0	T500mA,250V
F902		XBA2C016TR0	T160mA,250V
[EK,XA XM]	⚠		
POWER TRANSFORMERS			
T1 [XL]	⚠	SLT48DTE13E	Power Source
T1 [XA,XM EK]	⚠	SLT57DT7E	Power Source
T1 [other areas]	⚠	SLT48DT10E	Power Source
CAPACITORS			
C1	⚠	ECQM1223KZ	Polyester,100V, 0.022μF,±10%
C2,3	⚠ Ⓢ	ECKD1H223PF	Ceramic,50V, 0.022μF,$\pm^{100}_{0}$%
C4	Ⓢ	ECEB1VS102	Electrolytic,35V,1000μF
C5,6		ECKF1H104ZF	Ceramic,50V,0.1μF,$\pm^{80}_{20}$%
C11	Ⓢ	ECEA50Z2R2	Electrolytic,50V,2.2μF
C101	Ⓢ	ECEA1CS330	Electrolytic,16V,33μF
C102	Ⓢ	ECEA50ZR22	Electrolytic,50V,0.22μF
C103	Ⓢ	ECQM1H274JZ	Polyester,50V, 0.27μF,±5%
C105,106	⚠ Ⓢ	ECEA1CN470S	Non Polar Electrolytic, 16V,47μF
C107	Ⓢ	ECKD1H223ZF	Ceramic,50V, 0,022μF,$\pm^{80}_{20}$%
C201	Ⓢ	ECEA1CS330	Electrolytic,16V,33μF
C202	Ⓢ	ECEA50ZR22	Electrolytic,50V,0.22μF
203	Ⓢ	ECQM1H683KV	Polyester,50V, 0.068μF,±10%
C204		ECUV1H101JCM	Chip Ceramic,50V, 100pF,±5%
C205		ECUV1H330JCM	Chip Ceramic,50V, 33pF,±5%
C206		ECUV1H101JCM	Chip Ceramic,50V, 100pF,±5%
C207	Ⓢ	ECEA1AS470	Electrolytic,10V,47μF
C208	Ⓢ	ECEA1AS470	Electrolytic,10V,47μF
RESISTORS			
R11	Ⓢ	ERD25TJ123	Carbon,¼W,12KΩ,±5%
R12	Ⓢ	ERD25FJ151	Carbon,¼W,150Ω,±5%
R103		ERD10TLJ104U	Chip Carbon,⅛W, 100KΩ,±5%
R104	Ⓢ	ERX1ANJ1R8	Metal,Film,1W, 1.8Ω,±5%
R105		ERD10TLJ150U	Chip,Carbon,⅛W, 15Ω,±5%
R201		ERD10TLJ393U	Chip Carbon,⅛W, 39KΩ,±5%
R202		ERD10TLJ394U	Chip Carbon,⅛W, 390KΩ,±5%
R203		ERD10TLJ121U	Chip Carbon,⅛W, 120Ω,±5%
R204		ERD10TLJ151U	Chip Carbon,⅛W, 150Ω,±5%
R205		ERD10TLJ223U	Chip Carbon,⅛W, 22KΩ,±5%
R207		ERD10TLJ222U	Chip Carbon,⅛W, 2.2Ω,±5%
R208		ERD10TLJ680U	Chip Carbon,⅛W, 68Ω,±5%
CABINET AND CHASSIS PARTS			
1		SFTGQ62M01	Turntable Mat (1)
2		SFTEQ62M01A	Turntable Platter (1)
5		SFMZQ63M53A	Stator Frame Ass'y (1)
6 [XA,XM EK]		SFGCC05X01	Cushion Rubber,Power Transformer (2)
6 [other areas]		SFGCC05N02	Cushion Rubber,Power Transformer (2)
7		SFKKQ63M01	Surface Plate (1)
8		SFKBQ63M01	Badge, Cabinet (1)
9		SFACQ63M01R	Cabinet (with Badge) (1)
10		SFMGQ34N01	Cover, Stator Coil (1)
11 [XL]	⚠	SFDJHSC0491	Socket,AC Cord (1)
11 [XA,XM]	⚠	SFDJHSC04912	Socket,AC Cord (1)
11 [other areas]	⚠	SFDJHSC0498	Socket,AC Cord (1)
12		SFADZ15R01	Dust Cover (1)
13		SFGZZ15R01	Cushion Rubber,Dust Cover (2)
14		SFATZ15R01A	Hinge (2)
15 [E,EC]		SFNNQ63S01	Name Plate (1)
15 [EK,XL]		SFNNQ63G01	Name Plate (1)
15 [XA,XM]		SFNNQ63X01	Name Plate (1)
15 [other areas]		SFNNQ63R01	Name Plate (1)
16		SFDJZ15R01	Jack,Phono Output (1)
17		SFKTZ15R02	Knob,Speed Selector Switch (1)
18		SFKTZ15R01	Button,Stop (1)
18-1		SFQHZ15R01	Spring,Stop Button (1)
19		SFUZB63M01	Rod,Stop (1)
20		SFUMB62M01	Cover,Strobe (1)
21		SFQPZ15R02	Spring (2)
22		SFYB-5-32	Ball (2)
23		SFUPZ15R03	Lever,Cueing (1)
24		SFKTZ15R04	Knob,Cueing Lever (1)
25		SFUPZ15R05	Plate (1)
26		SFAUZ15R01	Bottom Board (1)
27		SFGAQ63M01	Audio Insulator(Rear) (2)
28		SFGAZ15R01	Audio Insulator(Front) (2)
TONEARM PARTS			
41		SFPAMQ3202A	Tonearm Ass'y (1)
42		SFKUB63M01E	Arm Rest (1)
43		SFGK170-01	Cap,Rubber (1)
44		SFKKZ15R01	Plate,Canceler (1)
45		SFUMZ15R58	Cover,Arm Lift (1)
46		SFQAZ15R52	Spring,Arm Lift (1)
47		SFUPB63M51A	Plate,Arm Lift Ass'y (1)
48		SFGZZ15R02	Holder (2)
49		SFUPB63M52A	Plate,PU Fixing Ass'y (1)
50		SFQHB63M56	Spring (1)
51		SFQHZ15R55	Spring (1)
52		EPC-P30K	★Cartridge (1)
53		EPS-30ES	★Stylus (1)
54		SFCNC03301	Cover,Cartridge (1)
AUTOMATIC MECHANISM PLATE			
61		SFUMQ63M51E	Record Size Detector Ass'y (1)
62		SFQHB63M53	Spring,Record Size Detector (1)
63		SFUMB63M59	Lever,Cueing (1)
64		SFQHB63M55	Spring,Cueing Cam (1)
65		SFQPB63M52	Spring,Cueing Cam (1)
66		SFUMB63M60	Cam,Cueing (1)
67		SFQSB63M52	Spring,Brake Lever (1)
68		SFUZB63M52	Felt,Brake Lever (1)
69		SFUMB63M61	Lever,Brake (1)
70		SFUMB63M65	Guide,Switch Lever (1)
71		SFUBQ63M51E	Plate Ass'y,Drive (1)
72		SFUMB63M55E	Lever Ass'y,Switch (1)
73		SFQHB63M52	Spring,Switch Lever (1)
74		SFUKB63M51E	Plate Ass'y,Automatic Mechanism (1)
75		SFUZQ63M01	Cover,Lead Wires (1)
76		SFUMQ62M53E	Lever Ass'y,Cancel (1)
77		SFQHQ62M51	Spring,Cancel Lever Ass'y (1)
78		SFUGB63M51E	Main Gear Ass'y (1)
79		SFQSB63M51	Rod,Drive Operation (1)
80		SFUMB63M54	Lever,Drive Operation Rod (1)
81		SFUMZ15R56	Pin (7)
SCREWS AND WASHERS			
N1	Ⓢ	XTV3+8BFN	Screw (19)
N2		XYN3+F12	Screw (2)
N3	Ⓢ	XTV3+6BFN	Screw (6)
N4		XYC3+CG8	Screw (1)
N5		XTW3+8Q	Screw (1)
N6		XTV3+30J	Screw (1)
N7		XTW3+14QFYR	Screw (5)
N8		SFXGB33N01	Screw (1)
N9		SFPEV0P301	Screw (1)
N10		SFXWZ15R51	Washer (11)
N11	Ⓢ	XWC3C	Washer (1)
N13		SFXWB63M52	Washer (1)
N14		SFXWQ34N22	Washer (1)
N15		SFXWB63M51	Washer (2)
N17		SFUMZ15R61	Washer (2)
N18		XTS3+16FFZ	Screw (1)
N19		SFPEWQ3201	Washer (1)
N20		SFPEVQ3201	Screw (1)

■ EXPLODED VIEWS

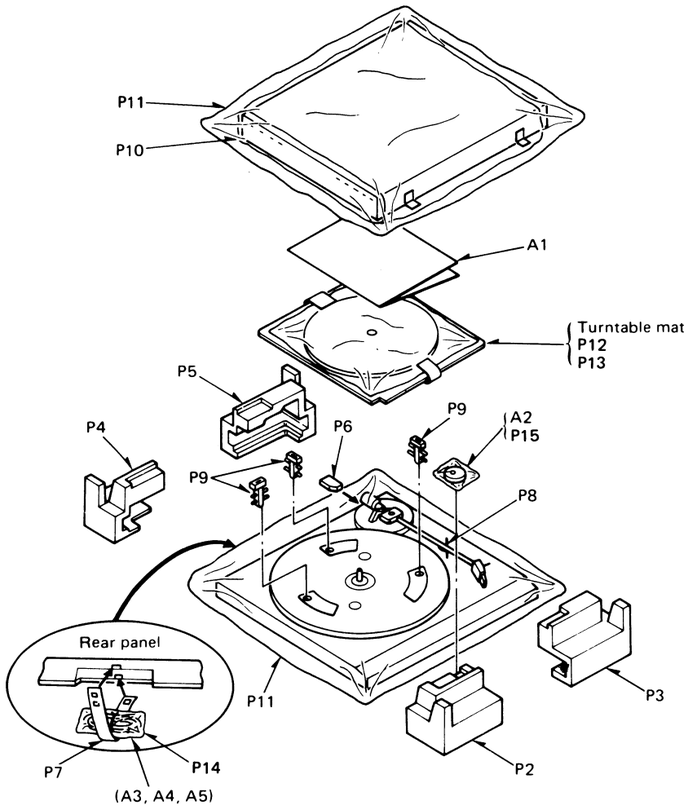
• Cabinet and chassis parts



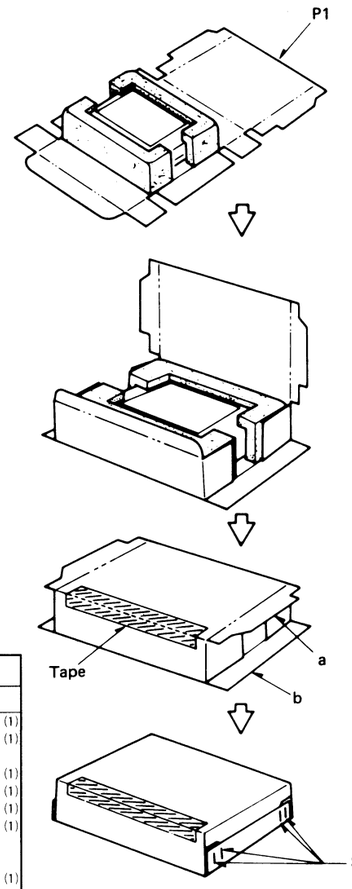
• Automatic mechanism plate parts



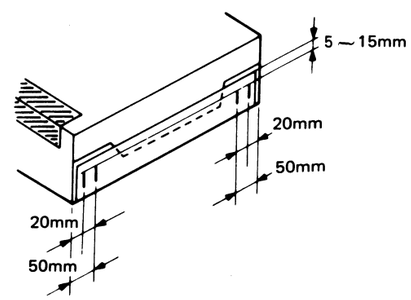
■ PACKINGS



1. Plase 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.



Ref. No.	Part No.	Description	
PACKING PARTS			
P1 (EF)	SFHPQ62C01	Carton Box	(1)
P1 (other areas)	SFHPQ62M01	Carton Box	(1)
P2	SFHHQ63M01	Pad,Front(Left)	(1)
P3	SFHHQ63M02	Pad,Front(Right)	(1)
P4	SFHHQ63M03	Pad,Rear(Left)	(1)
P5	SFHHQ63M04	Pad,Rear(Right)	(1)
P6	SFHZZ15R01	Pad,Tonearm	(1)
P7	SFHZZ15R02	Stopper,AC Cord	(1)
P8	SFHZZ15R03	Clamper,Tonearm	(1)
P9	SFHKB63M01	Clamper,Turntable	
		Platter	(3)
P10	SFHZD03M01	Sheet	(1)
P11	SFYH60×60	Polyethylene Bag, Unit/Dust Cover	(2)
P12	SFYF30B35	Polyethylene Bag, Turntable Mat	(1)
P13	SFHDZ15R01	Pad,Turntable Mat	(1)
P14	SFYH17×16	Polyethylene Bag,Cord	(1)
P15	SPJ15	Polyethylene Bag, 45r.p.m.Adaptor	(1)

Ref. No.	Part No.	Description	
ACCESSORIES			
A1 (EK)	SFNUQ62G01	Instruction Book	(1)
A1 (XL,XA XM)	SFNUQ62X01	Instruction Book	(1)
A1 (EG)	SFNUQ62R01	Instruction Book	(1)
A1 (EF)	SFNUQ62F01	Instruction Book	(1)
A1 (EI)	SFNUQ62I01	Instruction Book	(1)
A1 (other areas)	SFNUQ62S01	Instruction Book	(1)
A2	SFWE212-01	Adaptor,45r.p.m.	(1)
A3 (XL) △	SFDAC05L01	AC Cord	(1)
A3 (EK) △	SFDAC05G02	AC Cord	(1)
A3 (XA,XM) △	SFDAC05L01	AC Cord	(1)
A3 (other areas) △	SFDAC05E02	AC Cord	(1)
A4	SFDHC05N01	Phono Cord	(1)
A5 (XL)	SFDLC05N01	Ground Wire	(1)
A5 (other areas)	SFDLZ15R01	Ground Wire	(1)
A6 (XA,XM only) △	SFDKI19118	2Pin Plug	(1)

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ORDER NO. SD83052484C8

Service Manual

Turntable System

SL-Q200(K)

[E], [EK], [XL], [EG], [EB],
[EH], [EF], [Ei], [XA], [XM]

Areas

* [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.
* [XM] is available in Central South America.

***The colors of this model include silver and black.**
***The black type model is provided with (K) in the Service Manual.**

Please use this manual together with the service manual for Model No. SL-Q200, Order No. SD83042473C8.

CHANGES

■ REPLACEMENT PARTS LIST

Note:
Ⓚ-marked parts are used for black only, while
○-marked parts are for silver type only.

Ref. No.	Change of Part No. SL-Q200 (ORDER NO. SD83042473C8)	→ SL-Q200 (K)		Part Name & Description	Per Set (Pcs.)	Remarks
CABINET and CHASSIS PARTS						
9	SFACQ62M01R	SFACQ62M01R	○	Cabinet (Silver Type)	1	
		SFACQ62M21R	Ⓚ	Cabinet (Black Type)	1	
TONEARM PARTS						
41	SFPAMQ3202A	SFPAMQ3202A	○	Tonearm (Silver Type)	1	
		SFPAMQ3204A	Ⓚ	Tonearm (Black Type)	1	
43	SFGK170–01	SFGK170–01	○	Rubber Cap (Silver Type)	1	
		SFGK171F01	Ⓚ	Rubber Cap (Black Type)	1	
PACKING PARTS						
P1	SFHPQ62C01 [EF] only	SFHPQ62C01 [EF]	○	Carton Box (Silver Type)	1	
		SFHPQ62C21 [EF]	Ⓚ	Carton Box (Black Type)	1	
	SFHPQ62M01 [Other areas]	SFHPQ62M01 [Other areas]	○	Carton Box (Silver Type)	1	
		SFHPQ62M21 [Other areas]	Ⓚ	Carton Box (Black Type)	1	

Technics

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

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ORDER NO. SD83042473C8-A

DEUTSCH

Turntable System SL-Q200

- This booklet contains the specifications and adjusting procedures for SL-Q200, written Germany, French and Spanish.
- File this manual together with the SL-Q200 service manual (Order No. SD83042473C8).

- Diese Broschüre enthält die technischen Daten und die Beschreibungen der Justiermethoden für SL-Q200 in deutscher, französischer und spanisher Sprache.
- Bewahren Sie das Büchlein zusammen mit der Bedienungsanleitung für SL-Q200 (Betstell-Nr. SD83042473C8) auf.

- Cette brochure contient les spécifications et les procédures de réglage pour le SL-Q200, écrites en allemand, en français et en espagnol.
- Classer ce manuel en même temps qu'avec le manuel de service du SL-Q200 (N° d'ordre: SD83042473C8).

- Este librito contiene las especificaciones y procedimientos de ajuste para SL-Q200, escritas en alemán, francés y español.
- Guardar este manual juntamente con el manual de servicio de SL-Q200 (Pedido N°. SD83042473C8)

DEUTSCH

■ TECHNISCHE DATEN

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

■ Allgemeine Daten

Stromversorgung:	
Für Kontinentaleuropa:	Wechselstrom 50 Hz, 220 V
Für andere Länder:	Wechselstrom 50/60 Hz, 110~120/220~240 V
Leistungsaufnahme:	5 W
Abmessungen (B×H×T):	43×10×37,5 cm 43×37×41 cm Maximale Höhe bei geöffnetem Oberteil (staubabdeckung)
Gewicht:	4,4 kg

■ Plattenspieler

Typ:	Quarz-Direktantrieb Automatischer Plattenspieler Rückführautomatik Stopautomatik
Antrieb:	Direktantrieb
Motor:	Kollektorloser Gleichstrommotor
Antriebsregel-Methode:	Quarz-Steuerung (QPL)
Plattenteller:	Aluminium-Spritzguß Durchmesser 31,2 cm
Plattenteller-Drehzahlen:	33-1/3 und 45 U/min
Gleichlaufschwankungen:	0,012% WRMS* 0,025% WRMS (JIS C5521) ±0,035% Spitze (IEC 98A bewertet)

*Diese Nennleistung bezieht sich auf das Laufwerk-Bauteil allein, ausschließlich Einflüsse von Schallplatte, Tonabnehmer oder Tonarm, aber einschließlich Plattenteller. Gemessen anhand von Signalen vom eingebauten Frequenzgenerator des Motorbauteils.

Rumpel-Fremdspannungsabstand:	−56 dB (IEC 98A unbewertet)
Rumpel-Geräuschspannungsabstand:	−78 dB (IEC 98A bewertet)

■ Tonarm

Typ:	Statisch balancierter, gerader Tonarm Tonabnehmersystem vom Einsteck-Typ
Effektive Länge:	230 mm
Überhang:	15 mm
Spurfehlwinkel:	2°32′ bei der Einlaufrille einer 30 cm-Platte 0°32′ bei der Auslaufrille einer 30 cm-Platte
Effektive Masse:	7,5 g (ohne Tonabnehmer) 13,5 g (einschließlich Tonabnechmer)
Auflagekraft-Einstellbereich:	1,25±0,25 g
Zulässiger Tonabnehmer-Gewichtbereich:	6 g

■ Tonabnehmer

Typ:	Stereo-Magnet-Tonabnehmer mit Einpunkt-Aufhängungssystem
Magnetkreis:	Ganzlamellenkern
Frequenzgang:	10 Hz bis 40 kHz 20 Hz bis 10 kHz ±1 dB
Ausgangsspannung:	2,5 mV bei 1 kHz 5 cm/s. Null-zu-Spitze, lateral [7 mV bei 1 kHz 10 cm/s. Null-zu-Spitze, 45° (DIN 45 500)]
Kanaltrennung:	22 dB bei 1 kHz
Kanalabweichung:	Innerhalb 2 dB bei 1 kHz
Empfohlene Endimpedanz:	47 kΩ~100 kΩ
Nachgiebigkeit (dynamisch):	12×10^{-6}cm/dyn bei 100 Hz
Auflagekraft-Einstellbereich:	1,25 ±0,25 g (12,5 ±2,5 mN)
Gewicht:	6 g (nur Tonabnehmer)
Ersatznadel:	EPS-30ES

■ JUSTIERUNGEN

- **Justierung der Tonarmlifthöhe**

Die Tonarmilifthöhe, d.h. der Abstand zwischen Nadelspitze und Schallplattenoberfläche bei Liftsteuerungs-Position "▼", wurde werkseitig auf ca. 4 ~ 6 mm eingstellt. **(Abb. 8)**

Falls der Abstand zu groß oder zu klein ist (z.B. wegen unterschiedlicher Tonabnehmergröße), drehen Sie die Justierschraube im Uhrzeigersinn oder entgegen dem Uhrzeigersinn. **(Abb. 9)**

Drehung im Uhrzeigersinn

— Der Abstand zwischen der Platte und der Nadelspitze wird kleiner.

Drehung entgegen dem Uhrzeigersinn

— Der Abstand zwischen der Platte und der Nadelspitze wird größer.

- **Justierung des Abschaltpunktes der Automatik (Abb. 10)**

(Die Gummikappe abnehmen)

1. Setzen Sie den Nadelschutz auf den Tonabnehmer auf.
2. Führen Sie den Tonarm gegen die Plattenmitte.
   Die Justierschraube für den Abschaltpunkt der Automatik wird dann sichtbar.

Falls der Tonarm zu früh zurückkehrt.

—Entgegen dem Uhrzeigersinn drehen.

Falls der Tonarm nach Erreichen der Auslaufrille nicht zurückkehrt.

—Im Uhrzeigersinn drehen.

FRANÇAIS

■ CARACTERISTIQUES

Les spécifications sont susceptibles d'être modifiées sans préavis.
Le poids et les dimensions donnés sont approximatifs.

■ Généralités

Alimentation:	
Pour l'Europe:	CA 50 Hz, 220 V
Autres:	CA 50/60 Hz, 110~120/220~240 V
Consommation:	5 W
Dimensions:	43×10×37,5 cm
(L×H×P)	[Hauteur maximum lorsque les dessus (couvercle protège-poussière) est ouvert. 43×37×41 cm]
Poids:	4,4 kg

■ Platine de lecture

Type:	Entraînement direct à quartz Platine automatique Retour automatique Arrêt automatique
Système d'entraînement:	Entraînement direct
Moteur:	Moteur C.C. sans balai
Groupe de réglage:	Réglage d'accrochage de phase par quartz
Plateau de lecture:	En aluminium moulé sous pression Diamètre 31,2 cm
Vitesses de rotation:	33-1/3 et 45 t/p.m
Pleurage et scintillement:	0,012% de valeur efficace* 0.025% de valeur efficace (JIS C5521) ±0,035% de crête (IEC 98A Pondéré)

*Ce régime nominal se rapporte à l'ensemble du tourne-disque seul, excluant les effets du disque, de la cellule pick-up ou du bras de lecture, mais comprenant le plateau, Mesuré par l'obtention d'un signal provenant du générateur de fréquences incorporé de l'ensemble du moteur.

Ronflement:	−56 dB (IEC 98A Non pondéré) −78 dB (IEC 98A Pondéré)

■ Bras de lecture

Type:	Bras de lecture rectiligne statiquement équilibré. Système de cellule de lecture à connecteur enfichable.
Longueur effective:	230 mm
Porte-à-faux:	15 mm
Angle d'erreur de piste:	En deçà de 2° 32' au sillon extérieur d'un disque de 30 cm. En deçà de 0° 32' au sillon intérieur d'un disque de 30 cm.
Masse réelle:	7,5 g (sans la cellule pick-up) 13,5 g (y compris la cellule pick-up)
Plage de réglage de la pression d'appui:	1,25±0,25 g
Gamme du poids des cellules pick-up utilisables:	6 g

■ Cellule pick-up

Type:	Cellule pick-up stéréo à aimant mobile
Circuit magnétique:	Noyau entièrement feuilleté
Réponse en fréquence:	10 Hz à 40 kHz 20 Hz à 10 kHz±1 dB
Tension de sortie:	2,5 mV à 1kHz 5 cm/s., zéro à vitesse latérale de crête [7 mV à 1 kHz 10 cm/s., zéro à vitesse 45° de crête (DIN 45 500)]
Séparation des canaux:	22 dB à 1 kHz

Equilibrage des canaux:	En deçà de 2 dB à 1kHz	**Poids:**	6 g (cellule seule)
Impédance de charge recommandée:	47 kΩ~100 kΩ	**Pointe de lecture de remplacement:**	EPS-30ES
Elasticité (dynamique):	12×10^{-6} cm/dyne à 100 Hz		
Plage de la force verticale d'appui:	1,25±0,25 g (12,5±2,5 mN)		

■ RÉGLAGES

• Mise au point de la hauteur de l'élévateur du bras

La hauteur de l'élévateur du bras (distance entre l'extrémité de la pointe de lecture et la surface du disque, lorsque la commande de pose et de relevage est à la position "▼") a été réglée en usine sur approximativement 4 à 6 mm. **(Fig. 8)**
Si l'écartement est trop étroit ou trop large, tourner la vis de réglage dans le sens des aiguilles d'une montre ou dans le sens contraire. **(Fig. 9)**

Rotation dans le sens des aiguilles d'une montre.
– La distance entre la surface du disque et l'extrémité de la pointe de lecture diminue.

Rotation dans le sens contraire des aiguilles d'une montre.
– La distance entre la surface du disque et l'extrémité de la pointe de lecture augmente.

• Mise au point de la position de retour automatique (Fig. 10)

(Retirer le tapis du plateau de lecture.)
1. Placer le capot protecteur de la pointe de lecture sur la cellule pick-up.
2. Déplacer le bras de lecture vers le centre du disque.
   Alors, la vis de réglage du retour automatique apparaîtra.

Si le bras de lecture tend à revenir vers le support du bras avant que l'audition ne soit terminée.
–tourner dans le sens contraire des aiguilles d'une montre.
Si le bras de lecture ne peut revenir en arrière après le dernier sillon.
–tourner dans le sens des aiguilles d'une montre.

ESPAÑOL

■ ESPECIFICACIONES

Las especificaciones quedan sujetas a cambios sin aviso previo.
El peso y las dimensiones indicados son apromimados.

■ En general

Alimentación de corriente:	
Para Europa continental:	CA 50 Hz, 220 V
Para otros paises:	CA 50/60 Hz, 110~120/220~240 V
Consumo de corriente:	5 W
Dimensiones: (Ancho × Alto × Prof.)	43×10×37,5 cm 43×37×41 cm Altura máxima cuando la parte de arriba (tapa contra el polvo) está abierta.
Peso:	4,4 kg

■ Sección del plato giratorio

Tipo:	Accionamiento directo por cuarzo Plato giratorio automático Retorno automático Parada automática
Método de accionamiento:	Accionamiento directo
Motor:	Motor de corriente continua sin escobillas
Método de control de accionamiento:	Control enclavado de fase de cuarzo
Platillo del plato giratorio:	Aluminio fundido Diámetro 31,2 cm
Velocidades del plato giratorio:	33-1/3 y 45 rpm
Ululaciones y trémolo:	0,012% WRMS* 0,025% WRMS (JIS C5521) ±0,035% cresta (IEC 98A Ponderado)

*Estas características se refieren únicamente al conjunto del plato giratorio, con exclusión de los efectos provenientes del disco, cartucho o del brazo sonoro, incluyendo, empero, el platillo. La medida fue tomada por medio de la señal obtenida del generador de frecuencia incorporado del conjunto del motor.

Ruido de rodadura:	–56 dB (IEC 98A No ponderado) –78 dB (IEC 98A Ponderado)

■ Sección del brazo sonoro

Tipo:	Brazo sonoro recto equilibrado estáticamente Sistema de cartucho con conector enchufable
Longitud efectiva:	230 mm
Proyección:	15 mm
Angulo de error de seguimiento:	Inferior a 2°32′ en el surco exterior de un disco de 30 cm Inferior a 0°32′ en el surco interior de un disco de 30 cm
Masa efectiva:	7,5 g (sin cartucho) 13,5 g (incluyendo el cartucho)
Radio de ajuste de la presión de la aguja:	1,25±0,25 g
Radio de peso de cartucho utilizable:	6 g

■ Sección del cartucho

Tipo:	Cartucho estereofónico de imán móvil
Circuito magnético:	Núcleo totalmente laminado
Respuesta de frecuencia:	10 Hz a 40 kHz 20 Hz a 10 kHz ±1 dB
Voltaje de salida:	2,5 mV a 1 kHz Con velocidad lateral de cero a cresta de 5 cm/s [7 mV a 1 kHz velocidad de 45° de cero a cresta de 10 cm/s (DIN 45 500)]
Separación de canales:	22 dB a 1 kHz
Equilibrio de canales:	Sin exceder 2 dB a 1 kHz
Impedancia de carga recomendada:	47 kΩ a 100 kΩ
Elasticidad (dinámica):	12×10^{-6} cm/dina a 100 Hz
Radio de presión de la aguja:	1,25±0,25 g (12,5±2,5 mN)
Peso:	6 g (cartucho sólo)
Aguja de recambio:	EPS-30ES

■ AJUSTES

• Ajuste de la altura de elevación del brazo

La altura de elevación del brazo (o sea, la distancia entre la punta de la aguja y la superficie del disco cuando el control de colocación está en la posición "▼") has sido regulada en la fábrica aproximadamente entre 4 y 6 mm. **(Fig. 8)**

En caso que la distancia fuese demasiado abundante o demasiado escasa, girar el tornillo de ajuste hacia la derecha o hacia la izquierda. **(Fig. 9)**

Rotación hacia la derecha

— reduce la distancia entre el disco y la punta de la aguja.

Rotación hacia la izquierda

— aumenta la distancia entre el disco y la punta de la aguja.

• Ajuste de la posición para retorno automático (Fig. 10)

(Quitar la almohadilla del plato giratorio.)

1. Colocar la protección de la aguja en el cartucho.
2. Mover el brazo sonoro hacia el centro del disco.
   Con ello, aparecerá el tornillo de ajuste del retorno automático.
   Cuando el brazo sonoro tienda a volver a su apoyo antes de terminar la ejecución:
   —Girar hacia la izquierda.
   En caso que el brazo sonoro no vuelva después de haber tocado el último surco del disco:
   —Girar hacia la derecha.

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