

SERVICE MANUAL

TWO-SPEED DIRECT-DRIVE TURNTABLE

SANSUI SR-333



SPECIFICATIONS

| | |
|-----------------------------|---|
| Type | Two-speed direct-driven |
| Speeds | 33-1/3, 45 rpm |
| Fine speed adjustment range | ±3.5% |
| Platter | Aluminum alloy die-cast 318 mm (12-9/16") diameter, 1.4 kg (3.1 lbs.) |
| Motor | 20-pole brushless DC servo-type |
| Wow and flutter | less than 0.035% (W.R.M.S.) |
| S/N | better than 60 dB (IEC-B) |
| Rumble | better than 70 dB (DIN-B) |
| Tonearm | Statically-balanced S-shaped tubular type |
| Tonearm length | 220 mm (8-11/16") |
| Overhang | 17.5 mm (3/4") |
| Applicable cartridge weight | 4 to 11 g |
| Dimensions | 460 mm (18-1/8") W 153 mm (6-1/16") H 373 mm (14-11/16") D |
| Weight | 8.2 kg (18.0 lbs) net 9.4 kg (20.7 lbs) packed |
| Power Consumption | 5W (rated) |

* Design and specifications subject to change without notice for improvements.

Sansui

SANSUI ELECTRIC CO., LTD.

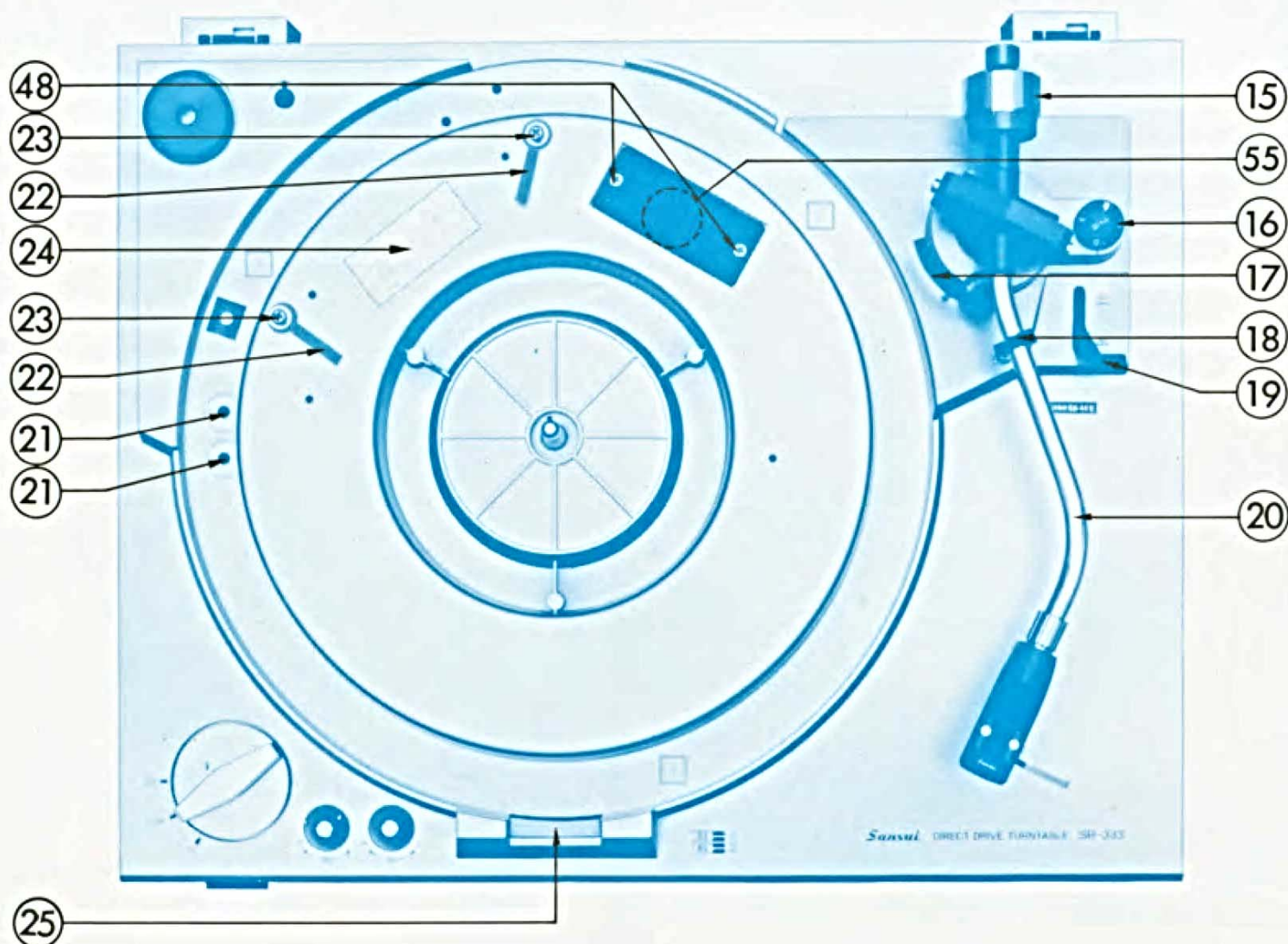
1. PARTS LOCATION & PARTS LIST

1) Top View



Note 1: There are three kinds of insulators, (7), (9), (11) and screws for mounting each insulator, (8), (10), (13) as shown above.

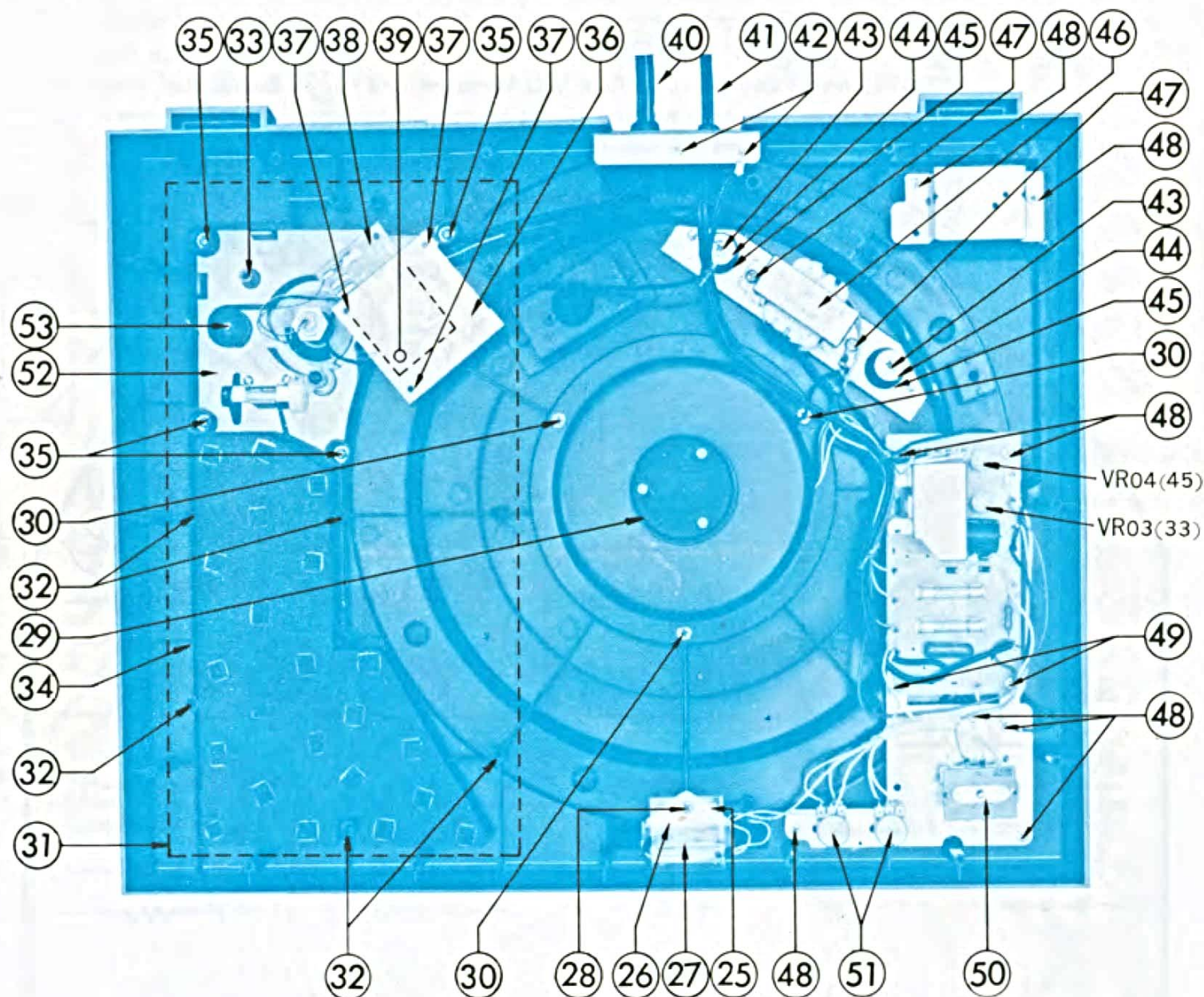
When dismantling these parts, please note the position of respective insulators and screws.



Abbreviations

1. Pan Head Tapping Screw PT Type
2. Washer Head Tapping Screw WT Type
3. Pan Head Screw P Type
4. Pan Head SEMS A Screw PSA Type
5. Pan Head SEMS B Screw PSB Type
6. Binding Head SEMS F Screw ..BSF Type
7. Binding Head Screw B TYPE
8. Flat Counter Sunk Head Screw ..F Type
9. Flat Counter Sunk Wood ScrewFC Type
10. Round Head Wood ScrewRH Type
11. Hex. Socket Setscrew ..SC Type
12. Slot Type Setscrew ..SS Type
13. Binding Head SEMS B ScrewBSB Type
14. Spring WasherS Type
15. Plain WasherP Type
16. Retaining Ring (E Washer) ..E Type
17. Toothed Lock Washer (External)TLE Washer
18. Wave Washer
19. Hexagon Nut H Type Nut

2) Bottom View



Note 2:

As to U.L., C.S.A., B.S., ES, AS & XX marked in the Parts Lists & Schematic Diagram, note the followings:

U.L., C.S.A. Approved parts used in the unit which is applicable to the U.S. and Canada under safety standard.

B.S. Approved parts used in the unit which is applicable to British under safety requirement.

E.U. Approved parts used in the unit which is applicable to Sweden, Denmark, Norway, Finland, West Germany, and Switzerland under safety requirement.

AS Approved parts under safety standard in Australia.

XX Parts used in the unit which is applicable to other countries excepting mentioned above.

* Parts unspecified such as CSA, UL, EU, AS & XX in Description are common parts.

Parts List

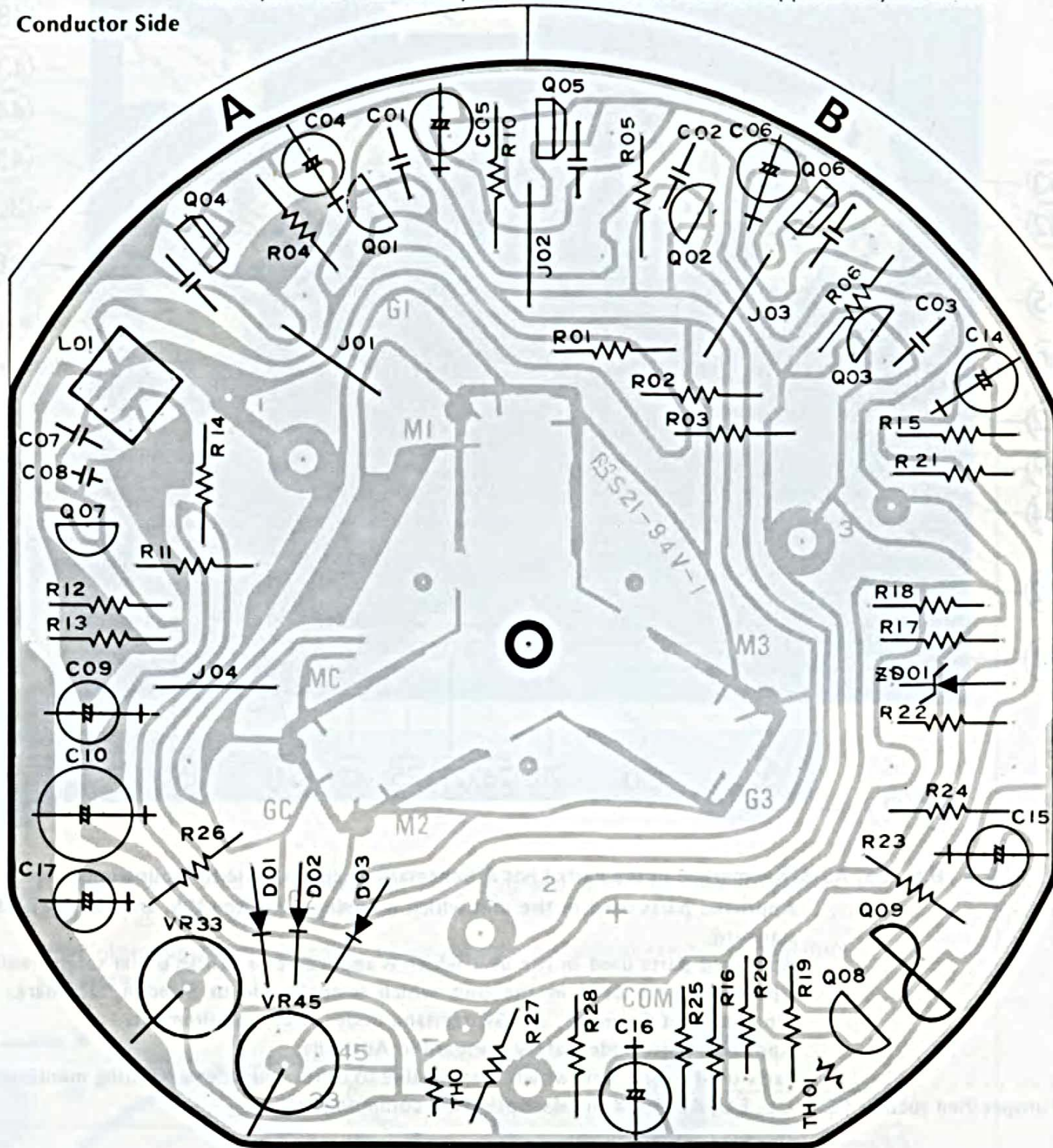
| Parts No. | Stock No. | Description | Parts No. | Stock No. | Description | Parts No. | Stock No. | Description |
|-----------|-----------|--|-----------|------------|---|-----------|-----------|---|
| 1 | 7012140 | Dust Cover Ass'y | 19 | 6502930 | Lifter Lever | 43 | 5162590 | BT Type Screw, 4 x 12 m/m |
| | 5062341 | Dust Cover | 20 | 7092620 | Tonearm | 44 | 5182930 | P Type Washer |
| | 6922330 | Auto Hinge | 21 | 1035130 | 10 k Ω (B) Semi-variable Resistor | 45 | 5502730 | Floating Cushion Rubber |
| | 6922360 | Lock Plate | 22 | 5182920 | Red Tag Washer | 46 | 4002624 | Power Transformer . . . EU, BS |
| | 5102663 | F Type Screw, dust cover | 23 | 5107768 | PSB Type Screw, 4 x 20 m/m | | 4002622 | Power Transformer . . . C.S.A., UL |
| 2 | 5502720 | Rubber Mat, turntable . . . EU, CSA, BS | 24 | 9392730 | Caution Sheet | | 4002620 | Power Transformer . . . XX |
| | 5502810 | Rubber Mat, turntable . . . UL, XX | 25 | 5012030 | Lamp Cover | 47 | 5107862 | PSA Type Screw, 4 x 6 m/m power transformer |
| 3 | 6112181 | Turntable | 26 | 5262300 | Lamp Holder | 48 | 5109122 | BT Type Screw, 3 x 8 m/m |
| 4 | 5312290 | Knob, speed selector | 27 | 0410130 | Neon Lamp | 49 | 5101043 | B Type Screw, 3 x 6 m/m |
| 5 | 5312280 | Pitch Control Knob | 28 | 5109123 | BT Type Screw, 3 x 10 m/m | 50 | 1101830 | Rotary Switch, speed selector . . . EU, BS |
| 6 | 5332091 | Sansui Badge | 29 | 4320470 | DD Motor with V.G Servo printed circuit board | | 1101820 | Rotary Switch, speed selector . . . C.S.A., UL, XX |
| 7 | 7072010 | Insulator (A) | 30 | 5162590 | BT Type Screw, 4 x 12 m/m | | 1005241 | Pitch Control Volume, 2 k Ω (B) |
| 8 | 5101962 | PSB Type Screw, 4 x 8 m/m, insulator (A) | 31 | 5732581 | Confirming Wood Board | 51 | 7092630 | Arm Base Ass'y |
| 9 | 7072020 | Insulator (B) | 32 | 5162670 | WT Type Screw, 3 x 10 m/m | | 7082290 | Lifter Plate |
| 10 | 5109123 | BT Type Screw, 3 x 10 m/m, insulator (B) | 33 | 5162680 | PSB Type Screw, 4 x 40 m/m | | 6012490 | Lifter Cam |
| 11 | 7072080 | Insulator (H) | 34 | 5502870 | Howling Prevention Board | | 6502930 | Lifter Lever |
| 12 | 4310370 | Cartridge Ass'y, SC-50 | 35 | 5101944 | PSB Type Screw, 3 x 8 m/m for installing tonearm ass'y | | 6012500 | Lifter Chip with Springs, Screws, Lifter Shaft |
| | 4940230 | Stylus, SN-50 | 36 | 5032030 | Shield Plate | | | |
| | 5012090 | Stylus Cover | 37 | 5109122 | BT Type Screw, 3 x 8 m/m, shield plate | 53 | 6903350 | IFC Spring Ass'y |
| | 5192160 | Screws for installing cartridge Nylon Washers Nuts | 38 | 2593680 | Printed Board, S-0022 for wire connections between P.U Cord & tonearm | | | IFC Spring String |
| 13 | 5140427 | RH Type Screw 3. x 16 m/m, insulator (B & H) | 39 | 5109122 | BT Type Screw, 3 x 8 m/m, Printed Board, S-0022 | | | Ring for Clump IFC Pulley |
| 14 | 6642260 | Head Shell | 40 | 3810290 | P.U Output Cord | | 5162660 | Screw for mounting IFC Pulley |
| 15 | 6912550 | Main Weight | 41 | 3800120 | Power Cord . . . EU | 54 | 6172040 | 45 r.p.m. Adaptor |
| 16 | 5312380 | I.F.C. (Inside Force Canceller) Knob (with screw) | | 3800320 | Power Cord . . . BS | 55 | 1190510 | Voltage Selector Switch (220V/240V) . . . EU, BS |
| 17 | 7082290 | Lifter Plate | | 3800010, 4 | Power Cord . . . C.S.A., UL, XX | | 1190520 | Voltage Selector Switch (100V/120V/220V/240V) . . . XX |
| 18 | 6622250 | Arm Rest | 42 | 5109122 | BT Type Screw, 3 x 8 m/m | | | |

* With units sold in U.S.A., Canada and certain European countries, no cartridge is provided.

3) V.G Servo Printed Circuit Board

Note 3: Complete V.G Servo printed circuit board will not be supplied due to an assembly board with D.D motor. When necessary, order D.D motor (Stock No. 4320470) which contains complete V.G Servo printed circuit board. But, individual parts on V.G servo printed circuit board will be supplied to your order.

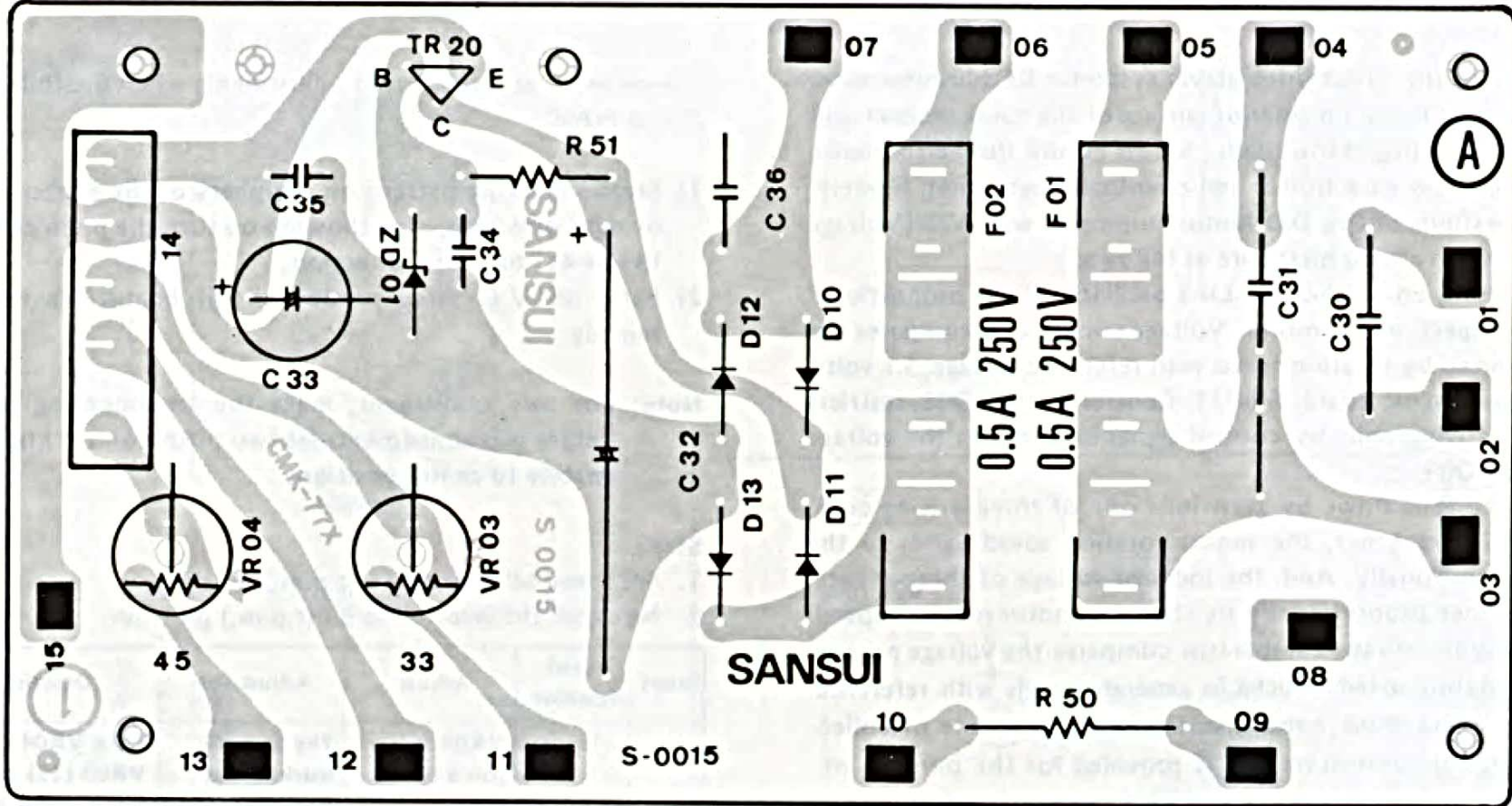
Conductor Side



| Parts No. | Stock No. | Description | Position | Parts No. | Stock No. | Description | Position | |
|-----------|---------------|----------------|-----------------|-----------|-----------|--------------|-----------------|---|
| Q01 ~ 03 | 0300680, 1 | 2SA733 (P, Q) | A, B | R11 ~ 12 | 0107823 | 82 kΩ ¼W C.R | A | |
| Q04 ~ 06 | 0308590, 1, 2 | 2SD471 (M.L.K) | | A, B | R13 | 0107121 | 120Ω ¼W C.R | A |
| Q07 ~ 08 | 0305951, 2, 3 | 2SC945 (Q.P.K) | | | R14 | 0107681 | 680Ω ¼W C.R | A |
| Q09 | 0360291, 2 | 2SA798 (G.H) | Dual Transistor | B | R15 | 0107473 | 47 kΩ ¼W C.R | B |
| ZD01 | 0316630 | RD5.1E | Zener Diode | B | R17 ~ 18 | 0107182 | 1.8 kΩ ¼W C.R | B |
| D01 ~ 03 | 0311180 | 1S1588 | Diode | A | R19 | 0107271 | 270Ω ¼W C.R | B |
| TH01 ~ 02 | 0320140 | SDT-100 | Thermistor | | R20 | 0240911 | 910Ω ¼W C.R | B |
| C01 ~ 03 | 0656473 | 0.047 μF 25V | C.C | A, B | R21 | 0107272 | 2.7 kΩ ¼W C.R | B |
| C04 ~ 06 | 0515229 | 2.2 μF 50V | E.C | A, B | R22 | 0107273 | 27 kΩ ¼W C.R | B |
| C07 | 0601107 | 0.01 μF 50V | M.C | A | R23 | 0107272 | 2.7 kΩ ¼W C.R | B |
| C08 | 0601226 | 0.0022 μF 50V | M.C | A | R24 | 0107104 | 100 kΩ ¼W C.R | B |
| C09 | 0515229 | 2.2 μF 50V | E.C | A | R25 | 0240912 | 9.1 kΩ ¼W C.R | B |
| C10 | 0513330 | 33 μF 25V | E.C | A | R26 | 0107272 | 2.7 kΩ ¼W C.R | A |
| C14, 15 | 0515229 | 2.2 μF 50V | E.C | B | R27 | 0107152 | 1.5 kΩ ¼W C.R | B |
| C16 | 0515109 | 1 μF 50V | E.C | B | R28 | 0107473 | 47 kΩ ¼W C.R | B |
| C17 | 0513479 | 4.7 μF 25V | E.C | A | L01 | 4220700 | Oscillator Coil | |
| R01 ~ 03 | 0107471 | 470Ω ¼W | C.R | A | | 2420480 | Connector | |
| R04 ~ 06 | 0107272 | 2.7 kΩ ¼W | C.R | A, B | | 2230170 | Chip terminal | |
| R10 | 0200229 | 2.2Ω ¼W | N.I.R | A | | | | |

4) S-0015 Power Supply Printed Circuit Board (Stock No. 7502421)

Conductor Side



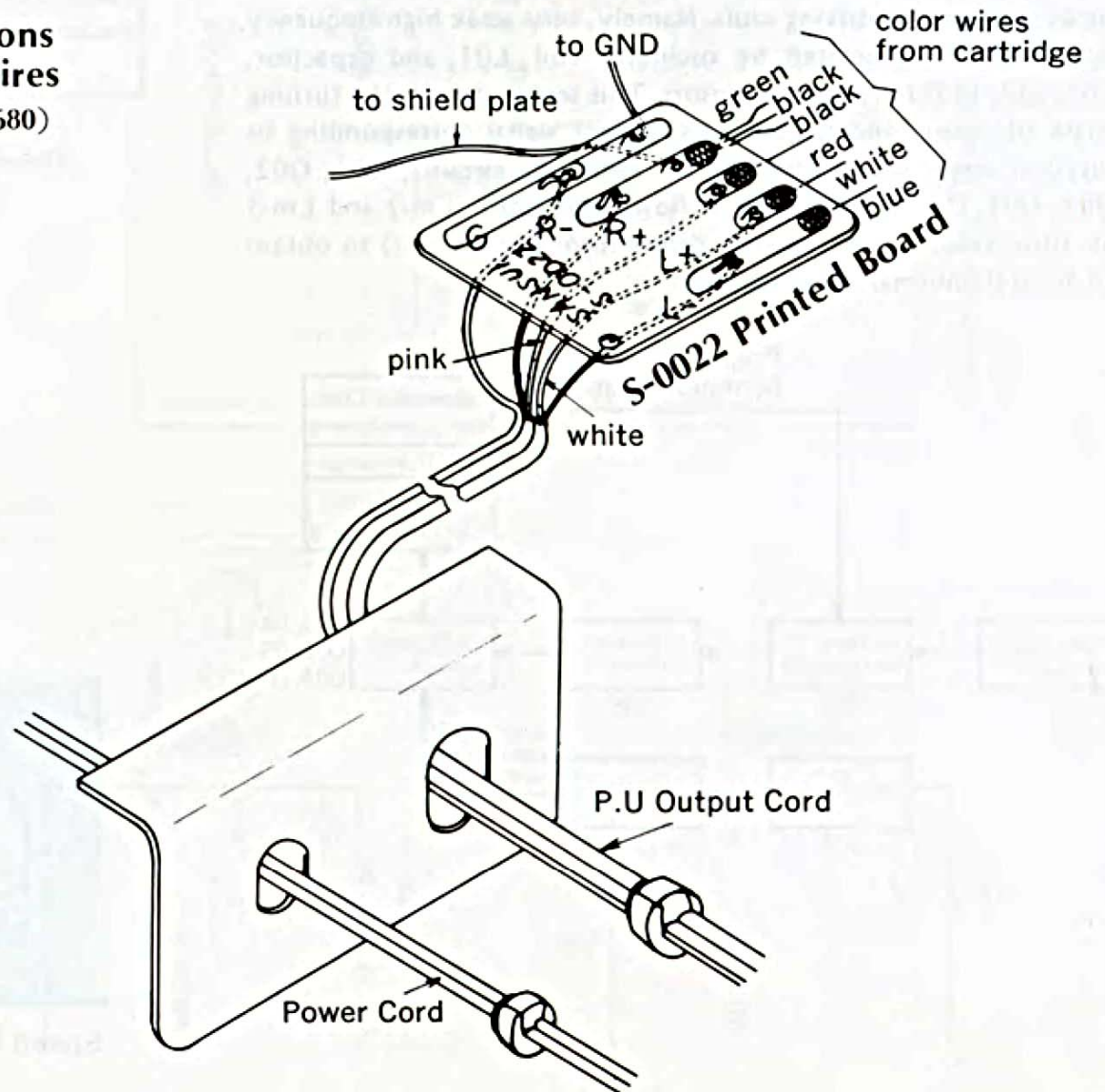
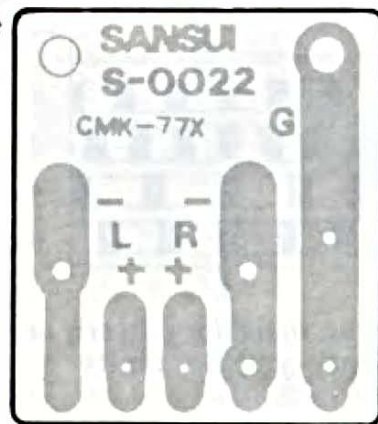
Parts List

| Parts No. | Stock No. | Description |
|-----------|---------------|--|
| TR 20 | 0308391, 2, 3 | 2SD313 (D, E, F) Transistor |
| D 10 ~ 13 | 0310340 | 10D1 (1S2226) Diode |
| ZD01 | 0315380 | RD-19AM Zener Diode |
| C 30, 31 | 0598337 | 0.033 μ F 250V MP Cap citor EU, BS |
| C 31 | 0603337 | 0.033 μ F 125V MP Capacitor UL only |
| | 0635337 | 0.033 μ F 125V plastic film capacitor . . . C.S.A., only |
| | 0605337 | 0.033 μ F 250V MP Capacitor XX only |
| C 32 | 0505331 | 330 μ F 50V E.C. |

| Parts No. | Stock No. | Description |
|-----------|-----------|--|
| C 34 | 0656473 | 47,000 pF 25V C.C. |
| C 35 | 0656223 | 22,000 pF 25V C.C. |
| R 50 | 0211123 | 12 k Ω 1W M.R. UL, C.S.A., XX |
| | 0211333 | 33 k Ω 1W M.R. BS, EU |
| VR 03, 04 | 1035110 | 4.7 k Ω (B), Semi-variable Resistor |
| F 01, 02 | 0432210 | AC Fuse 0.5A 250V UL, C.S.A., XX |
| | 0435070 | Time-Lag Fuse 500 mA 250V BS, EU |

5) S-0022 Printed Board for connections between P.U output cord & color wires from cartridge (Stock No. 2593680)

Conductor Side

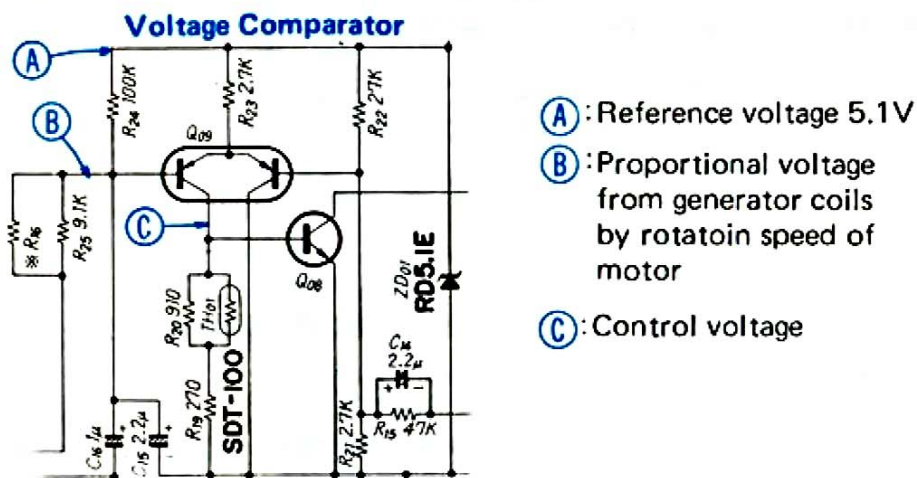


2. OPERATIONS

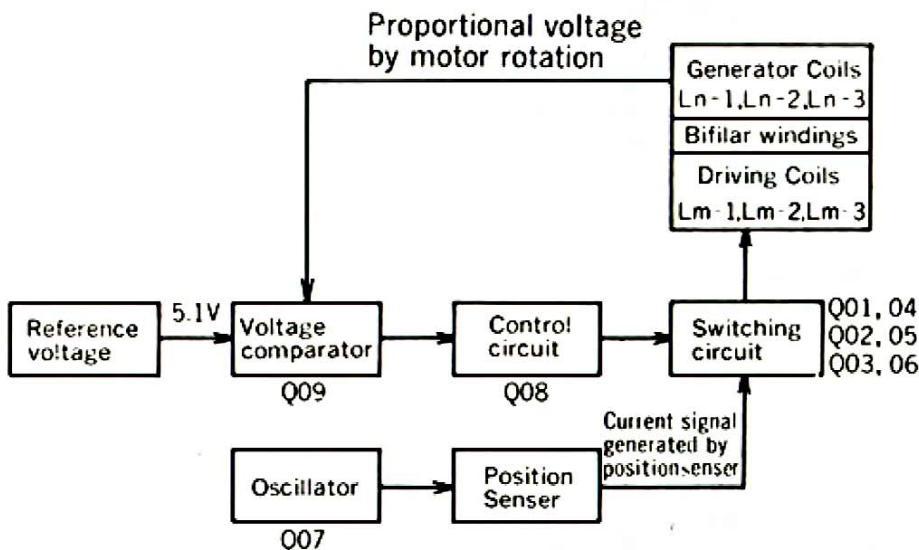
D.D. Motor of this direct-drive player system is DC brushless servo motor having 20-pole on interior surface of the rotor magnet and 30 slots for winding stator coils, which ensure the performance for extremely less wow-flutter and over-load fluctuation. Namely, driving operations of this D.D. Motor connected with V.G (Voltage Generator) servo circuit board are as follows.

Generator coils, Ln-1, Ln-2 and Ln-3 oscillate voltage proportional by rotation speed of the motor. Voltage comparator compares the voltage induced by rotation speed with reference voltage, 5.1 volts, from printed circuit board, S-0015. Control circuit, Q08, restricts current of driving coils by control signal occurred in the voltage comparator, Q09.

When this current flows by turn into one of three driving coils, Lm-1, Lm-2 and Lm-3, the motor rotation speed varies to the current proportionally. And, the induced voltage of three generator coils change proportionally by changing motor rotation speed. In other words, voltage comparator compares the voltage proportional by rotation speed induced in generator coils with reference voltage, 5.1V, as a result, control voltage appears at one of collectors of Q09. This control voltage is provided for the purpose of obtaining an accurate rotation speed of the motor free from load-fluctuation of motor revolution.



As mentioned above, the motor is brushless outer rotor motor and this outer rotor on interior surface is magnetized in order of N-S-N-S poles regularly. The induced current by the rotor-turn flows into one of driving coils. Namely, very weak high-frequency signal, 83 kHz generated by oscillator coil, L01, and capacitor, C07, adds to three position sensors. This sensor detects the turning angle of rotor, and it generates current signal corresponding to rotation angle which operates for switching circuits, Q01, Q02, Q03, Q04, Q05 & Q06, then it flows into Lm-1, Lm-2 and Lm-3 by turn, resultly, the current drives turntable (platter) to obtain an accurate normal speed rotation.



3. SPEED ADJUSTMENT

Complete an accurate speed adjustment, when the following 1) or 2) was made.

- 1) Strobo-marking pattern on periphery of the platter runs to left or right direction, even though you turn the pitch control knob (33 or 45) to - or + direction.
- 2) Parts on V.G servo printed circuit board, are replaced for remedy.

Note: For this adjustment, make the set mounting platter flat. Before this adjustment, set two pitch control knobs approximately to center position.

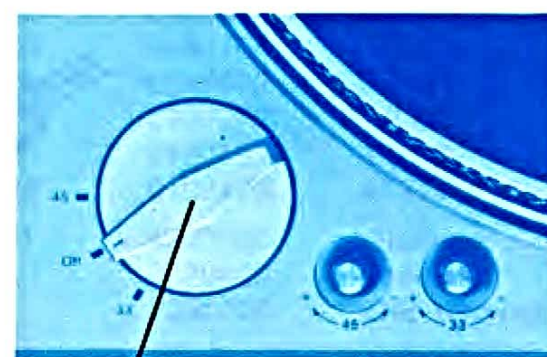
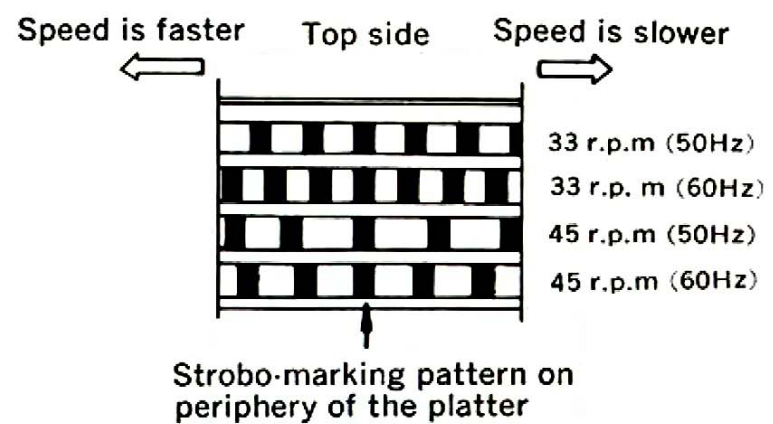
Steps

1. Set speed selector to 45 (r.p.m.) position.
2. Next, set the selector to 33 (r.p.m.) position.

| Steps | Speed Selector | Adjust | Adjust for | Description |
|-------|------------------------|---|--|---|
| 1 | 45 r.p.m. | VR04 (on S-0015, Power Supply Circuit Board) | The Strobo-marking pattern appears to stand still. | Turn VR04 (45), & VR03 (33) by small screw driver into holes which are the bottom side of this set. |
| 2 | 33 r.p.m. | VR03 (on S-0015, Power Supply Circuit Board) | The strobo-marking pattern appears to stand still. | Locations of VR03 & VR04 see the picture of on page 2. |
| 3 | 45 r.p.m. 33 r.p.m. | 1. Confirm that both pitch control knobs are at center position, and that the strobo-marking patterns appear to stand still respectively. | | |

• Refer to the followings.

| Pitch Control Knobs | Strobo-marking Pattern | Speed | Correct Adjustment |
|---------------------|--------------------------------------|--------|--|
| Center Position | The pattern runs to left direction. | Faster | Turn VR03 (or VR04) to - mark direction gradually. |
| | The pattern runs to right direction. | Slower | Turn VR03 (or VR04) to + mark direction gradually |

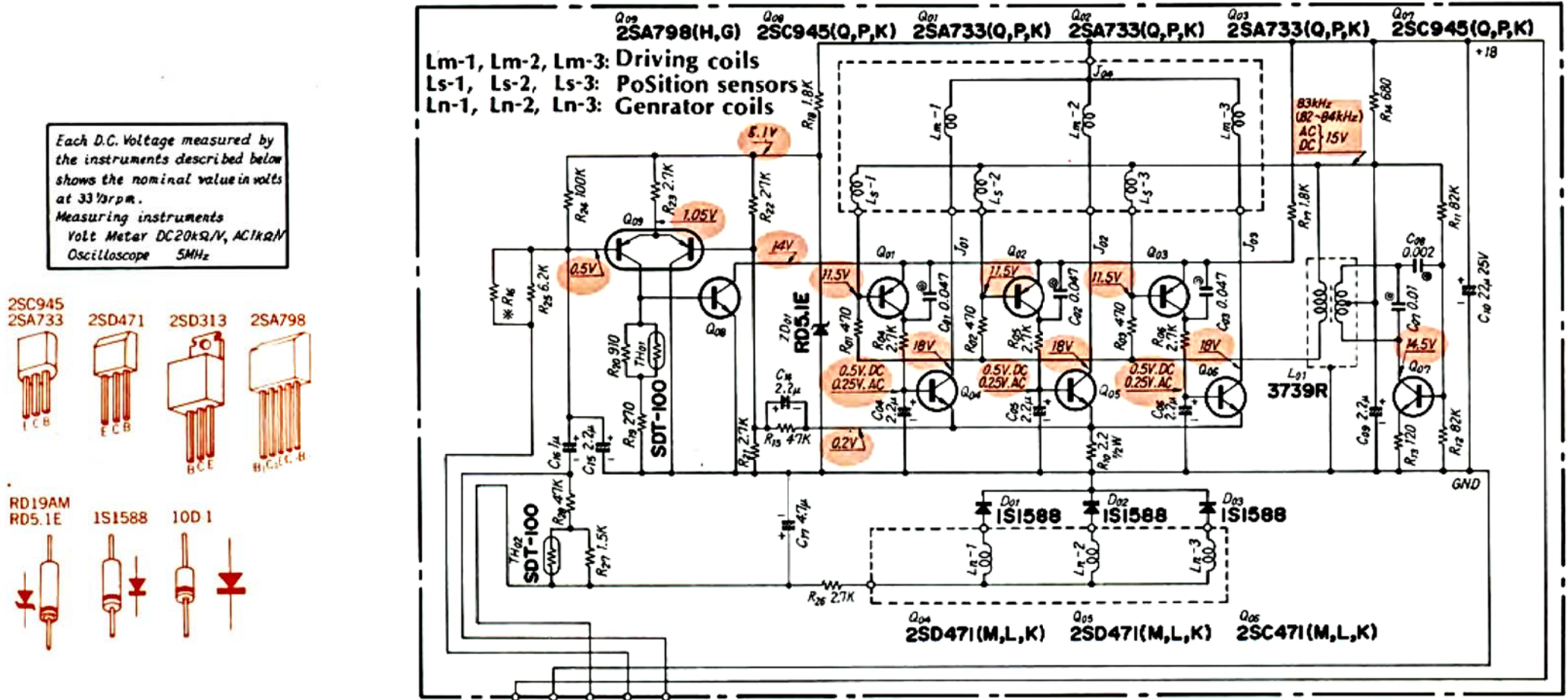


- When turning + mark direction, rotation speed becomes faster.
- When turning - mark direction, rotation speed becomes slower.

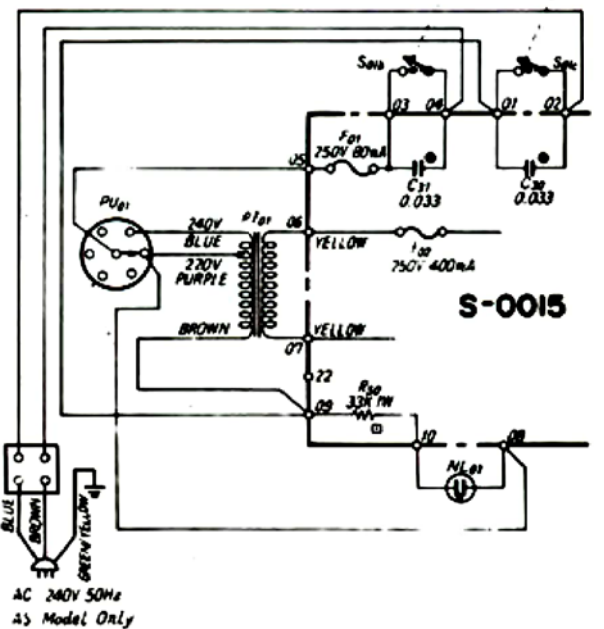
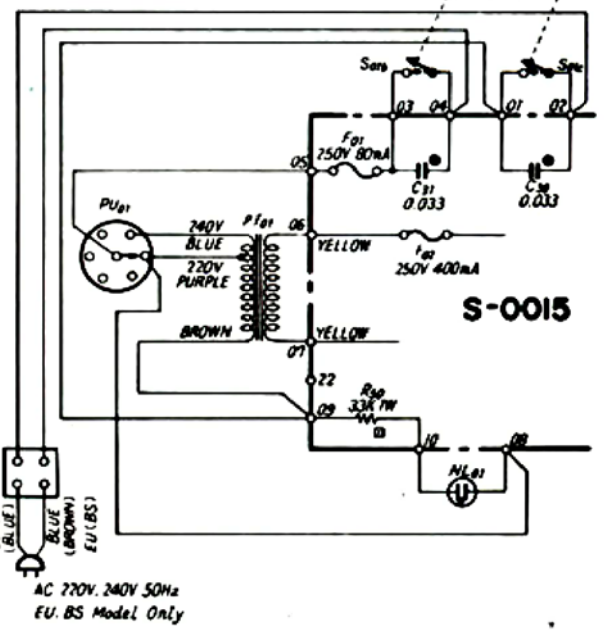
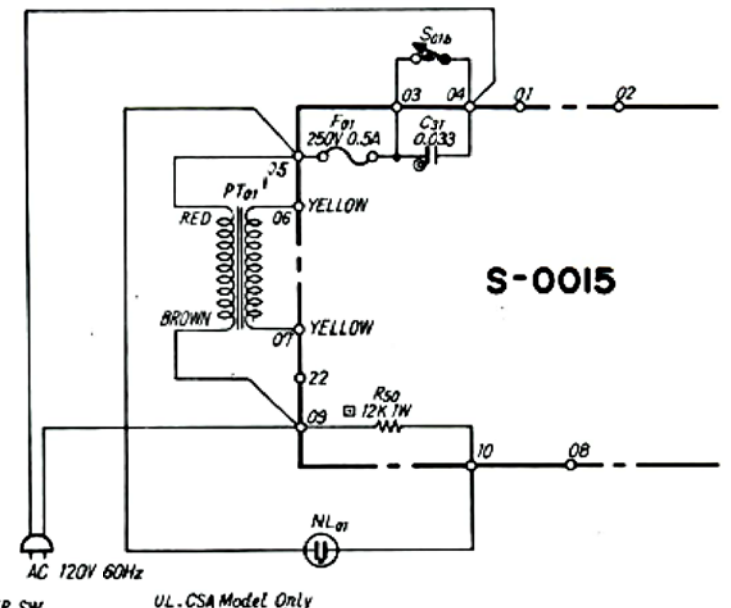
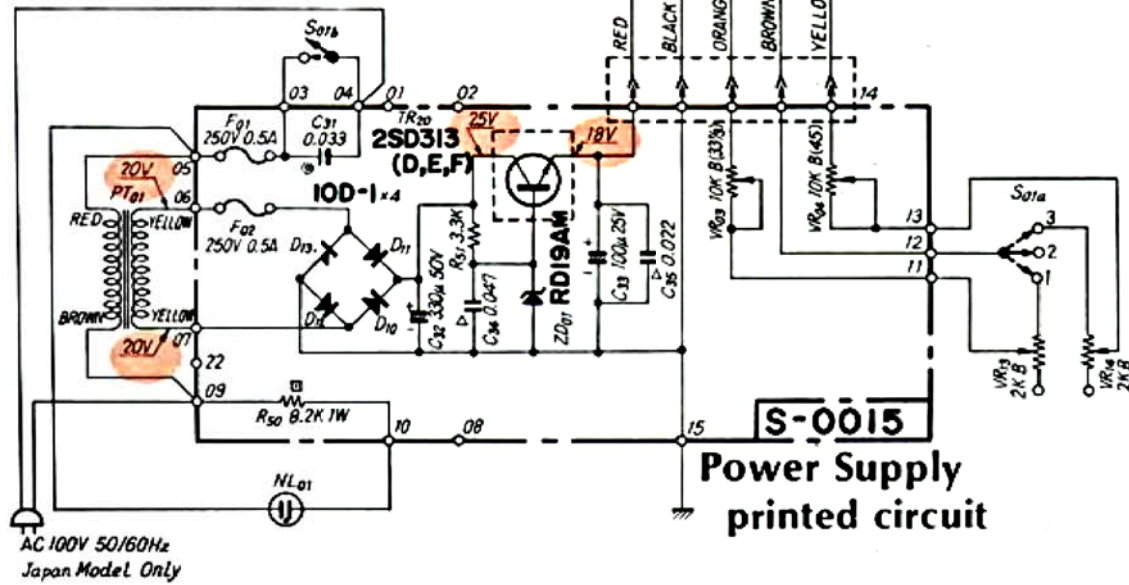
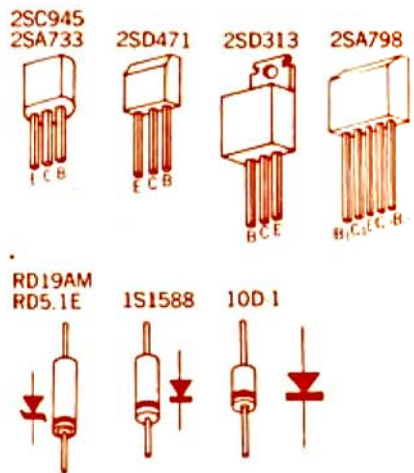
Speed Selector Pitch Control Knobs

* La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
 • Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.
 • Design and specifications subject to change without notice for improvement.

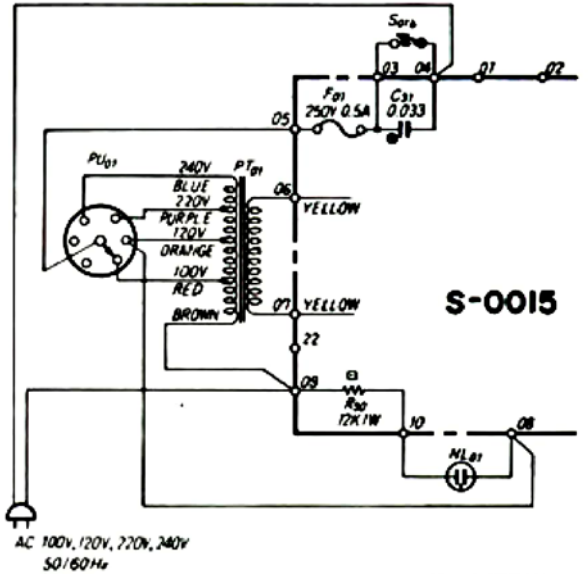
4. SCHEMATIC DIAGRAM



Each D.C. Voltage measured by the instruments described below shows the nominal value in volts at 33 1/3 rpm.
 Measuring instruments
 Volt Meter DC 20kΩ/V, AC 1kΩ/V
 Oscilloscope 5MHz



- CAPACITOR SYMBOL
 ● MYLAR
 △ CERAMIC
- RESISTOR: ALL RESISTORS 1/4 WATTS UNLESS OTHERWISE NOTED
 * ADJ. (THERMISTOR)
 □ NON INFLAMMABLE RESISTOR
- S01(a-c) SPEED SELECTOR & POWER SW.
 1. 33 1/3 r.p.m.
 2. OFF
 3. 45 r.p.m.
- VR13 33 1/3 r.p.m. SPEED ADJ. (FINE)
 VR14 45 r.p.m. SPEED ADJ. (FINE)
 VR03 33 1/3 r.p.m. SPEED ADJ. (ROUGH)
 VR04 45 r.p.m. SPEED ADJ. (ROUGH)



A
 B
 C
 D
 1
 2
 3
 4
 5

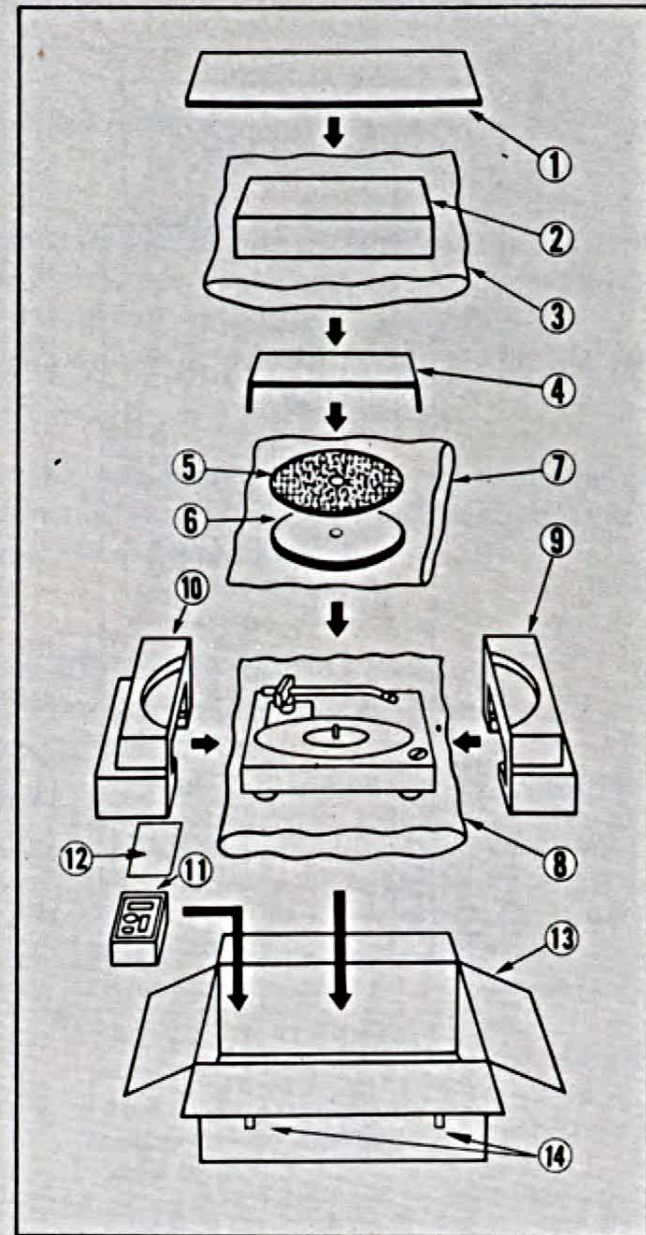
5. PACKING LIST

| Parts No. | Stock No. | Description |
|-----------|-----------|-------------------------------------|
| 1 | 9012260 | Upper Sheet |
| 2 | 7012140 | Dust Cover Ass'y |
| 3 | 9112220 | Polyethylene Bag for dust cover |
| 4 | 9012270 | Protector Sheet |
| 5 | 5502720 | Rubber Mat EU, C.S.A., BS |
| | 5502810 | Rubber Mat UJ, XX |
| 6 | 6112181 | Turntable (platter) |
| 7 | 9116600 | Vinyl Bag for rubber mat & platter |
| 8 | 9112210 | Vinyl Bag for turntable unit |
| 9 | 9022610 | Stylofoam Packing (Front) |
| 10 | 9022620 | Stylofoam Packing (Rear) |
| 11 | 9022630 | Accessories Package |
| 12 | 9082110 | Plastic Cover Sheet |
| 13 | 9002620 | Carton Case |
| 14 | 5996080 | Curl Stopper |

6. ACCESSORY PARTS LIST

| Parts No. | Stock No. | Description | | | |
|-----------|-----------|---|---------------------|---------|------------------------|
| | 6642260 | Head Shell | | | |
| | 4310370 | Cartridge Ass'y, SC-50 | | | |
| | 4940230 | Stylus, SN-50 | | | |
| | 5012090 | Stylus Cover | | | |
| | 5192160 | { Screws for mounting } { cartridge } { Nylon Washers } { Nuts } | EU XX model only | | |
| | | | | 6912550 | Main Weight |
| | | | | 6172040 | 45 r.p.m. Adaptor |
| | | | | 9203020 | Operating Instructions |
| | 9232130 | Schematic Diagram | | | |

* With units sold in U.S.A., Canada and certain European countries, no cartridge is provided.



MEMO



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