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# 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.

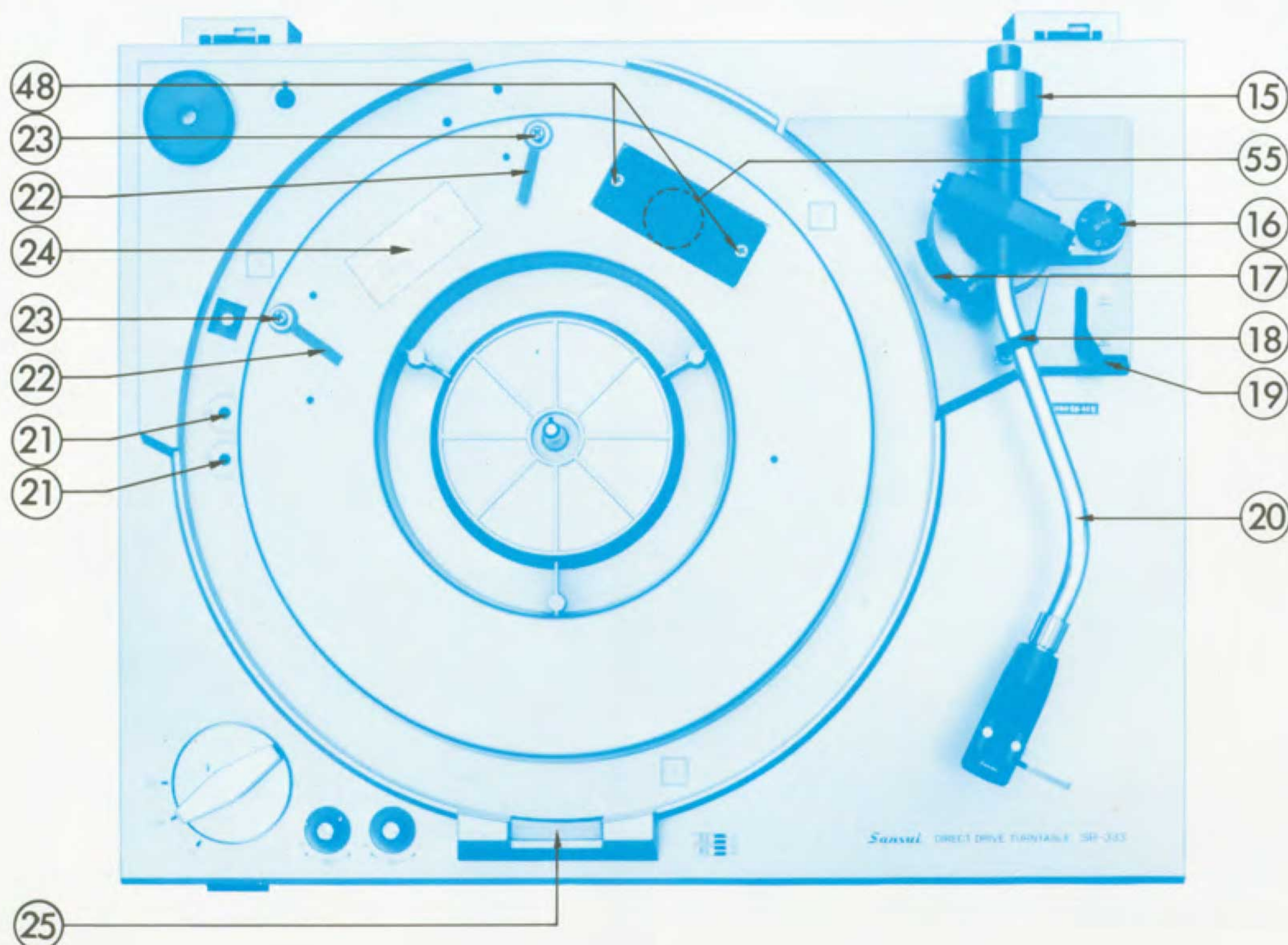
# 1. PARTS LOCATION & PARTS LIST

## 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.

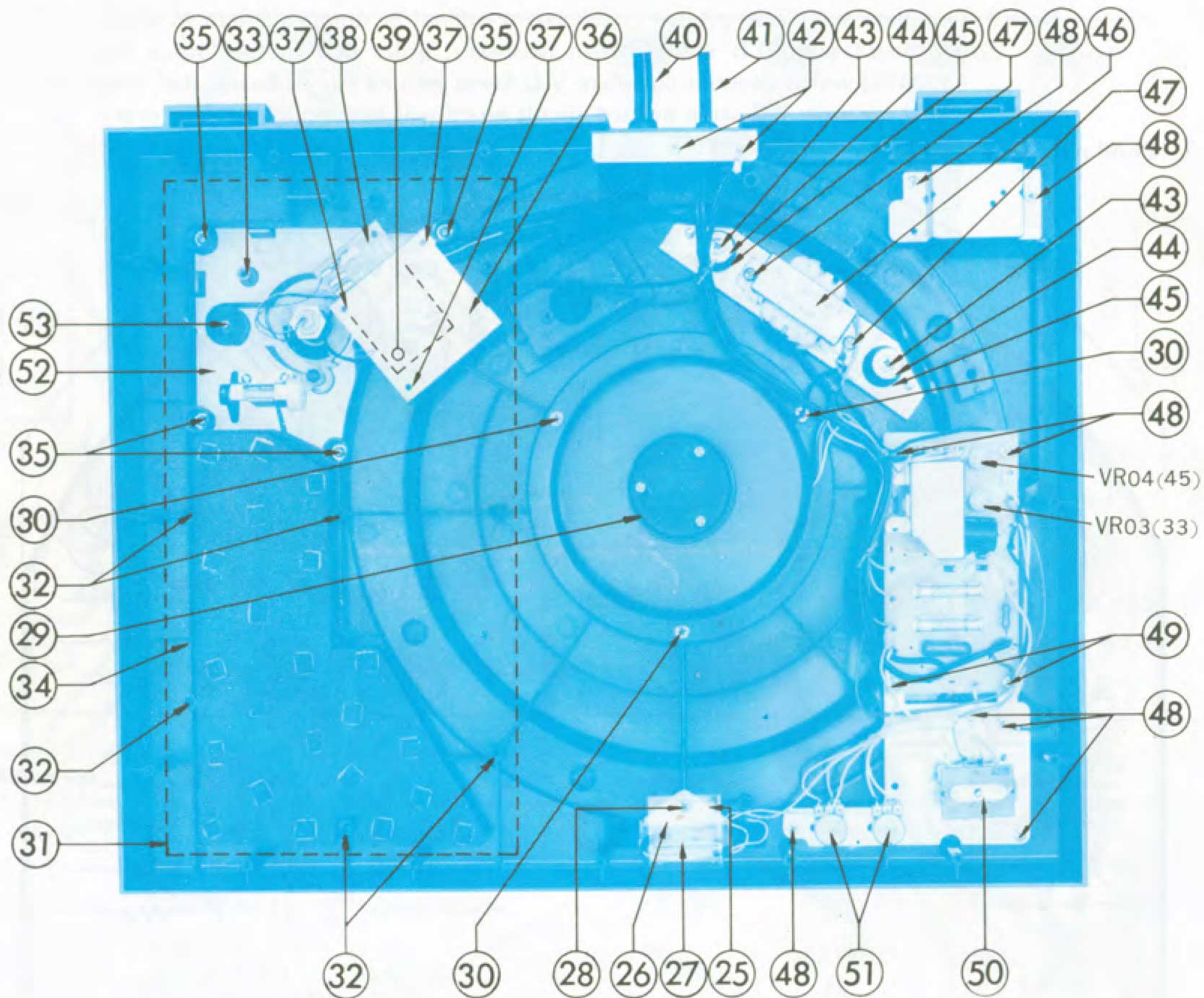
When dismantling these parts, please note the position of respective insulators and screws.



### 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 Screw ..... FC Type
10. Round Head Wood Screw .... RH Type
11. Hex. Socket Setscrew .. SC Type
12. Slot Type Setscrew .. SS Type
13. Binding Head SEMS B Screw ..... BSB Type
14. Spring Washer ..... S Type
15. Plain Washer ..... P 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

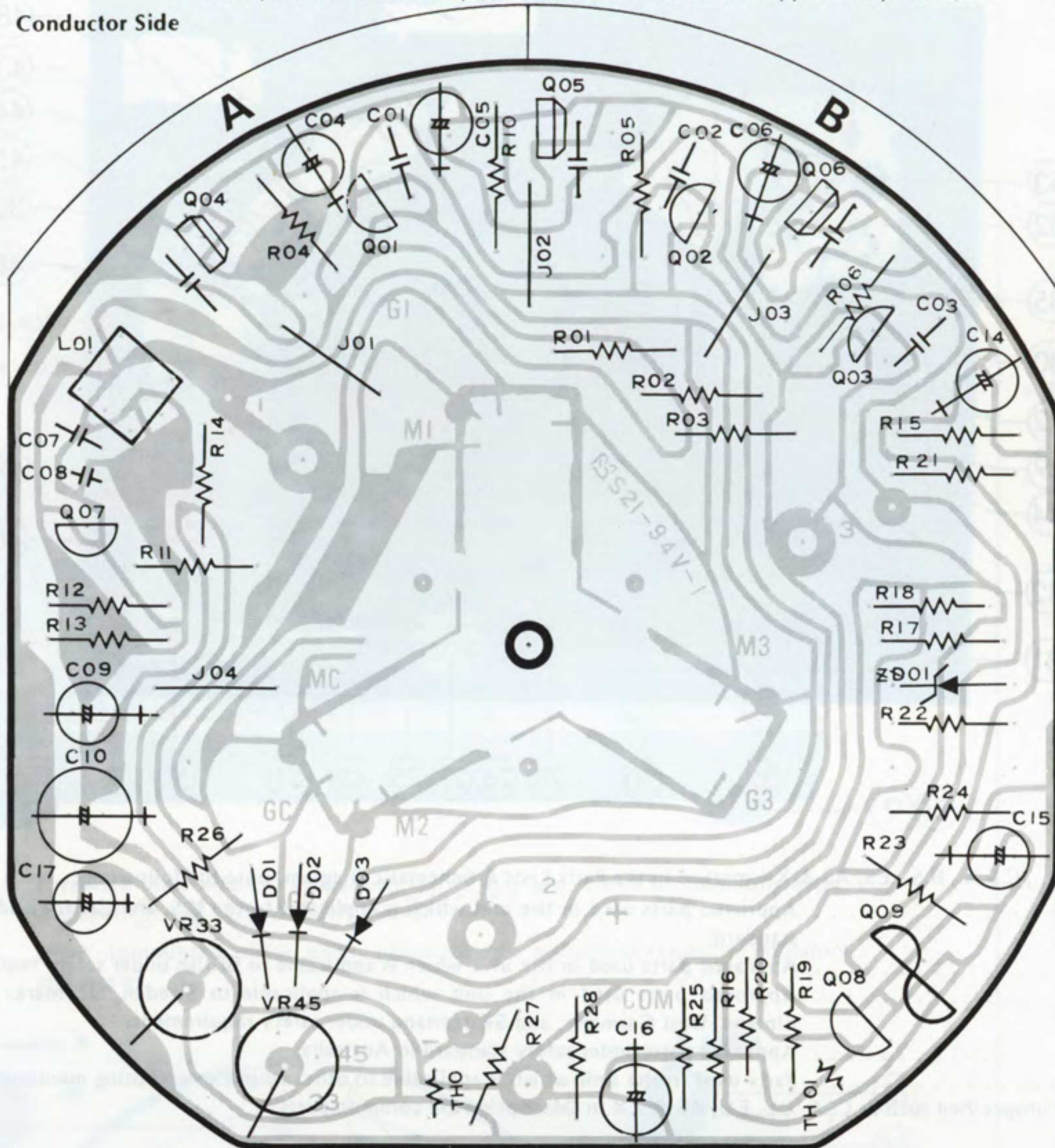
Parts No.	Stock No.	Description	Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
1	7012140	Dust Cover Ass'y	19	6502930	Lifter Lever	43	5162590	BT Type Screw, 4 x 12 m/m
	5062341	Dust Cover	20	7092620	Tonearm	44	5182930	P Type Washer
	6922330	Auto Hinge	21	1035130	10 kΩ (B) Semi-variable 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	24	9392730	Caution Sheet		4002620	Power Transformer . . . XX
		. . . EU, CSA, BS	25	5012030	Lamp Cover	47	5107862	PSA Type Screw, 4 x 6 m/m
	5502810	Rubber Mat, turntable	26	5262300	Lamp Holder			power transformer
		. . . UL, XX	27	0410130	Neon Lamp	48	5109122	BT Type Screw, 3 x 8 m/m
3	6112181	Turntable	28	5109123	BT Type Screw, 3 x 10 m/m	49	5101043	B Type Screw, 3 x 6 m/m
4	5312290	Knob, speed selector	29	4320470	DD Motor with V.G Servo	50	1101830	Rotary Switch, speed selector
5	5312280	Pitch Control Knob			printed circuit board			. . . EU, BS
6	5332091	Sansui Badge	30	5162590	BT Type Screw, 4 x 12 m/m		1101820	Rotary Switch, speed selector
7	7072010	Insulator (A)	31	5732581	Confirming Wood Board			. . . C.S.A., UL, XX
8	5101962	PSB Type Screw, 4 x 8 m/m, insulator (A)	32	5162670	WT Type Screw, 3 x 10 m/m	51	1005241	Pitch Control Volume, 2 kΩ (B)
9	7072020	Insulator (B)	33	5162680	PSB Type Screw, 4 x 40 m/m	52	7092630	Arm Base Ass'y
10	5109123	BT Type Screw, 3 x 10 m/m, insulator (B)	34	5502870	Howling Prevention Board		7082290	Lifter Plate
11	7072080	Insulator (H)	35	5101944	PSB Type Screw, 3 x 8 m/m for installing tonearm ass'y		6012490	Lifter Cam
12	4310370	Cartridge Ass'y, SC-50	36	5032030	Shield Plate		6502930	Lifter Lever
	4940230	Stylus, SN-50	37	5109122	BT Type Screw, 3 x 8 m/m, shield plate		6012500	Lifter Chip with Springs, Screws, Lifter Shaft
	5012090	Stylus Cover	38	2593680	Printed Board, S-0022 for wire connections between P.U Cord & tonearm	53	6903350	IFC Spring Ass'y
	5192160	Screws for installing cartridge	39	5109122	BT Type Screw, 3 x 8 m/m, Printed Board, S-0022			IFC Spring
		Nylon Washers	40	3810290	P.U Output Cord			String
		Nuts	41	3800120	Power Cord . . . EU			Ring for Clump
13	5140427	RH Type Screw 3, x 16 m/m, insulator (B & H)		3800320	Power Cord . . . BS			IFC Pulley
14	6642260	Head Shell		3800010, 4	Power Cord . . . C.S.A., UL, XX		5162660	Screw for mounting IFC Pulley
15	6912550	Main Weight		3800041	Power Cord . . . AS	54	6172040	45 r.p.m. Adaptor
16	5312380	I.F.C. (Inside Force Canceller) Knob (with screw)	42	5109122	BT Type Screw, 3 x 8 m/m	55	1190510	Voltage Selector Switch (220V/240V) . . . EU, BS
17	7082290	Lifter Plate					1190520	Voltage Selector Switch (100V/120V/220V/240V) . . . XX
18	6622250	Arm Rest						

\* 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.

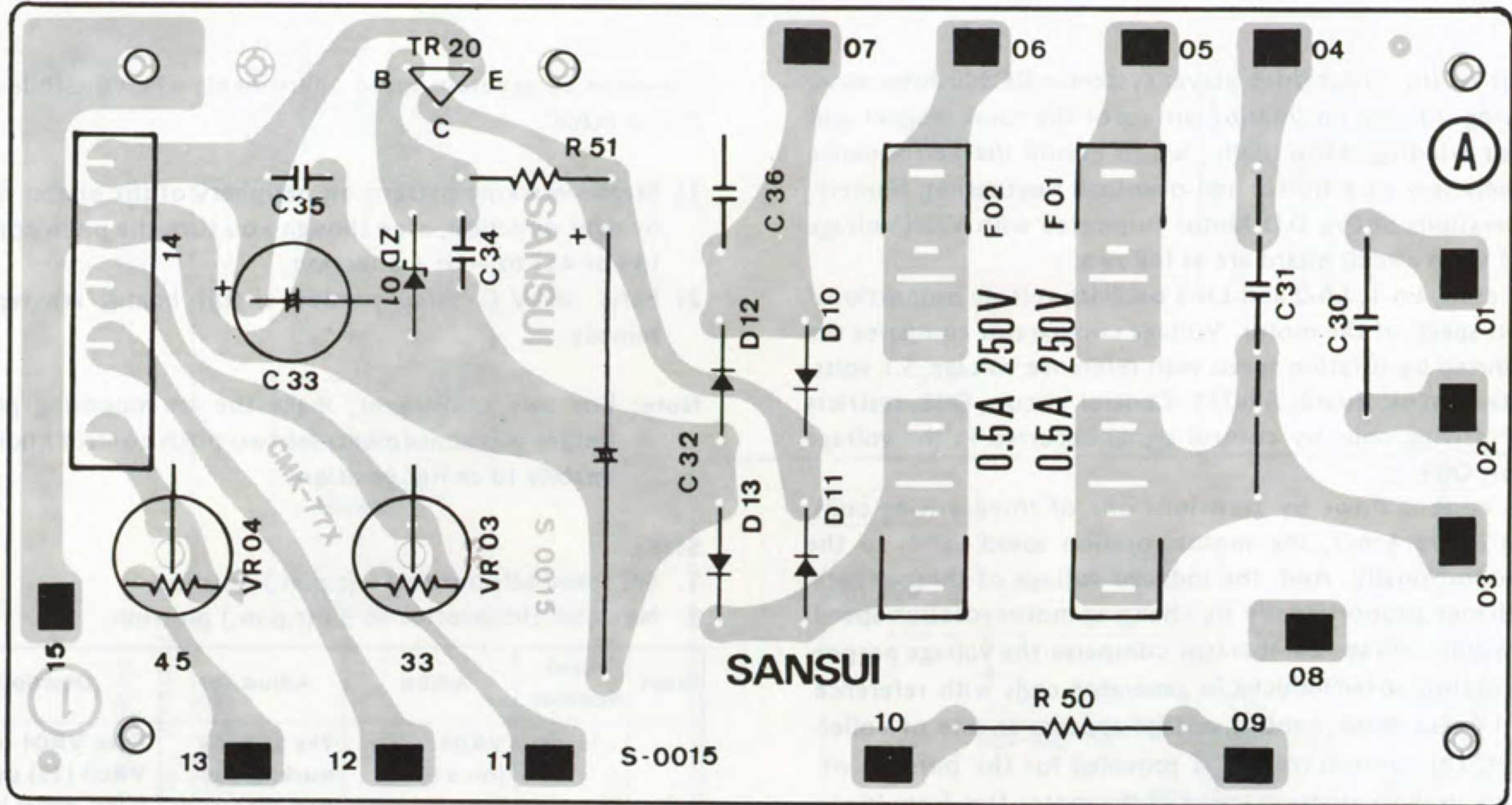
Conductor Side



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 ½W	N.I.R	A				

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

Conductor Side



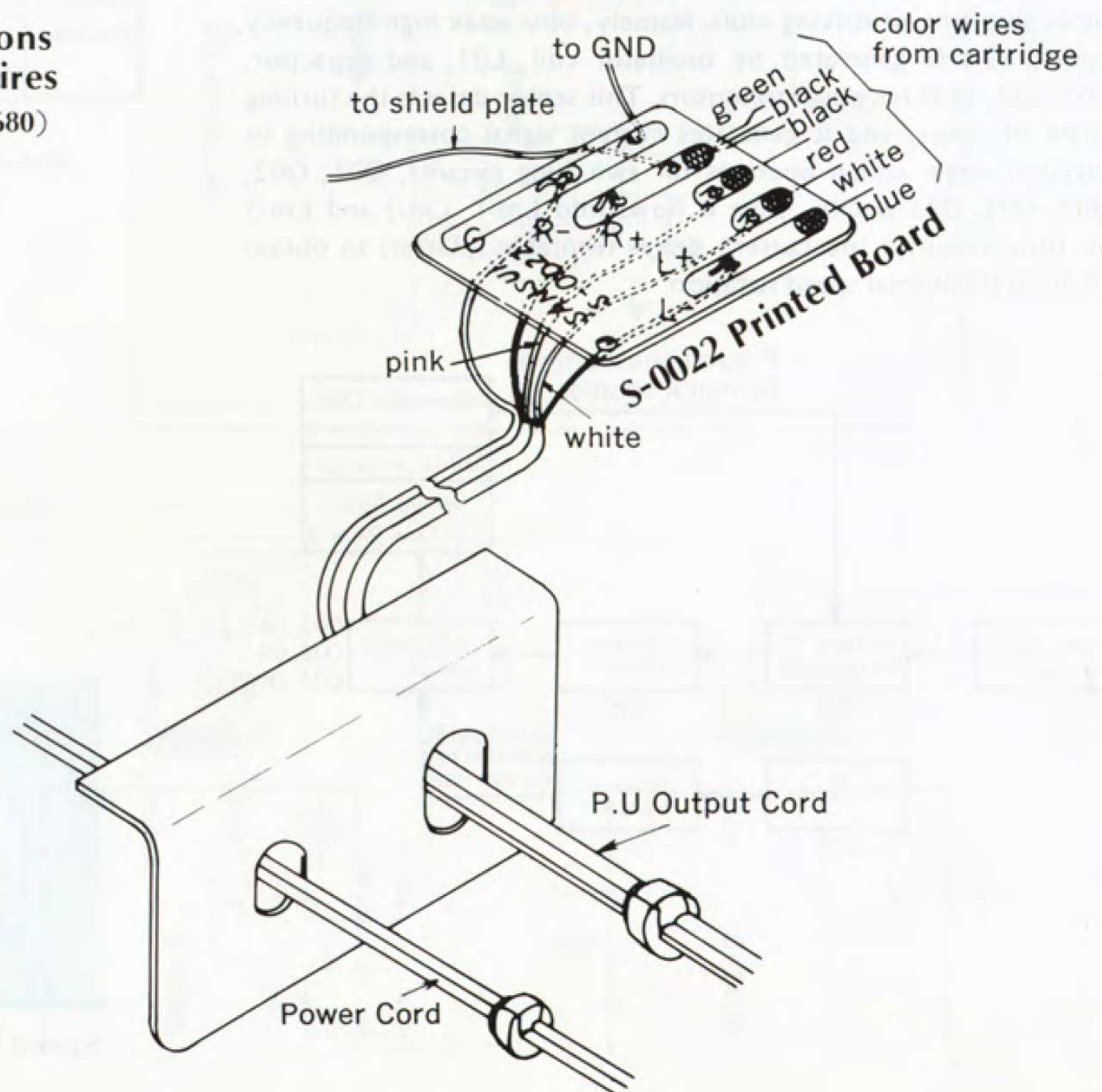
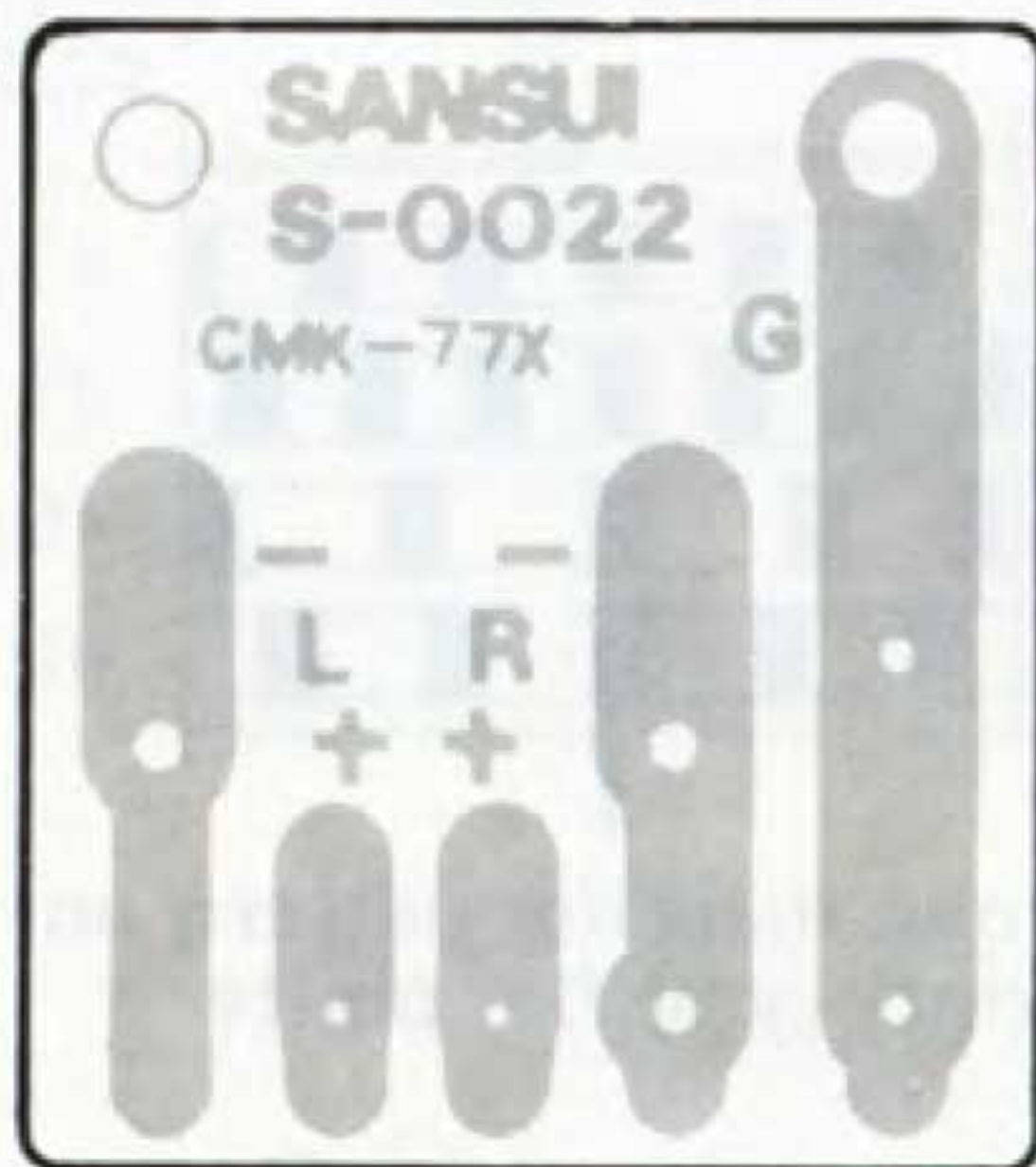
#### Parts List

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 $\mu$ F 250V MP Cap citor . . . . . EU, BS
C 31	0603337	0.033 $\mu$ F 125V MP Capacitor . . . . . UL only
	0635337	0.033 $\mu$ F 125V plastic film capacitor . . . C.S.A., only
	0605337	0.033 $\mu$ F 250V MP Capacitor . . . . . XX only
C 32	0505331	330 $\mu$ 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 $\Omega$ 1W M.R. . . . . UL, C.S.A., XX
	0211333	33 k $\Omega$ 1W M.R. . . . . BS, EU
VR 03, 04	1035110	4.7 k $\Omega$ (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

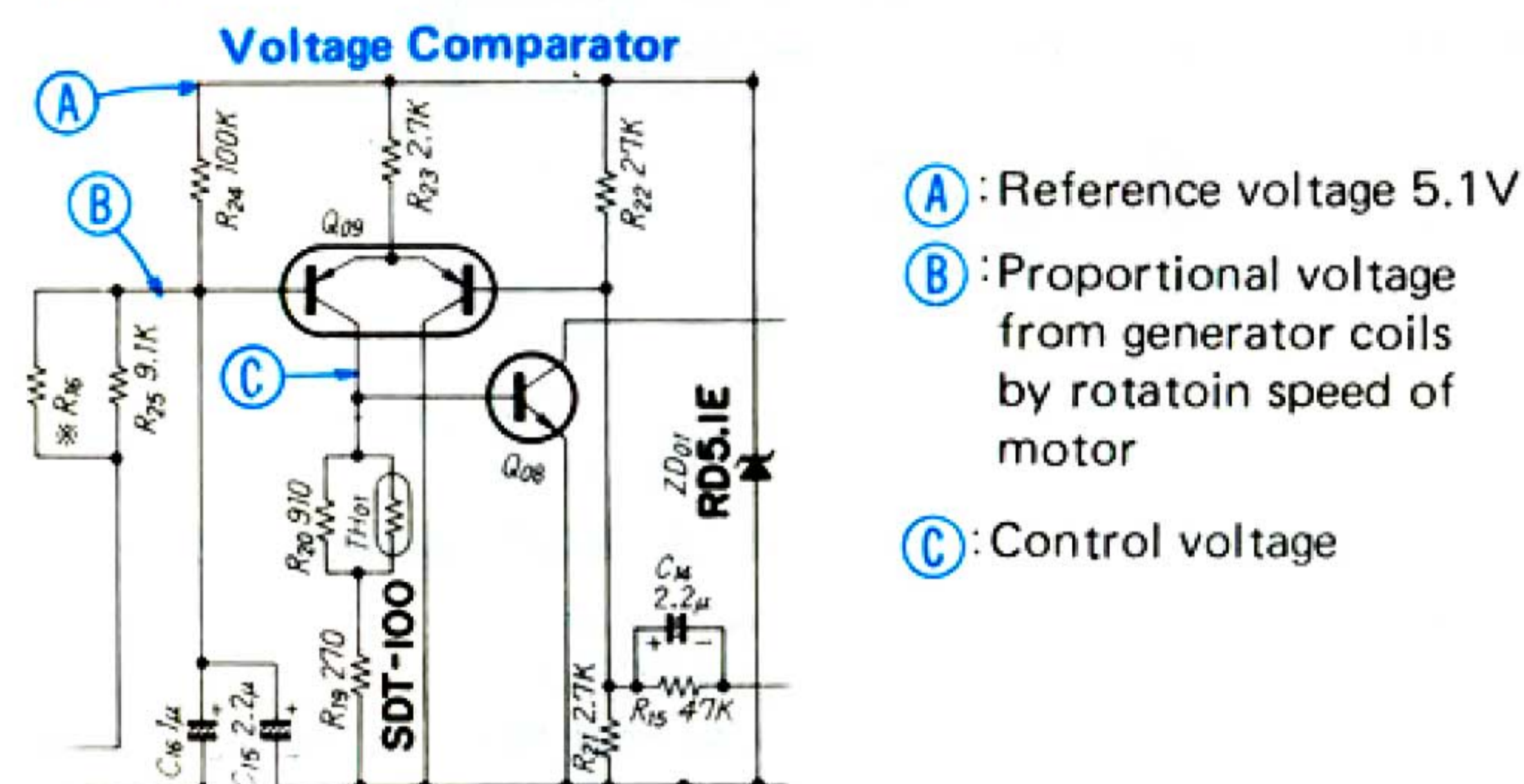


## 2. OPERATIONS

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.

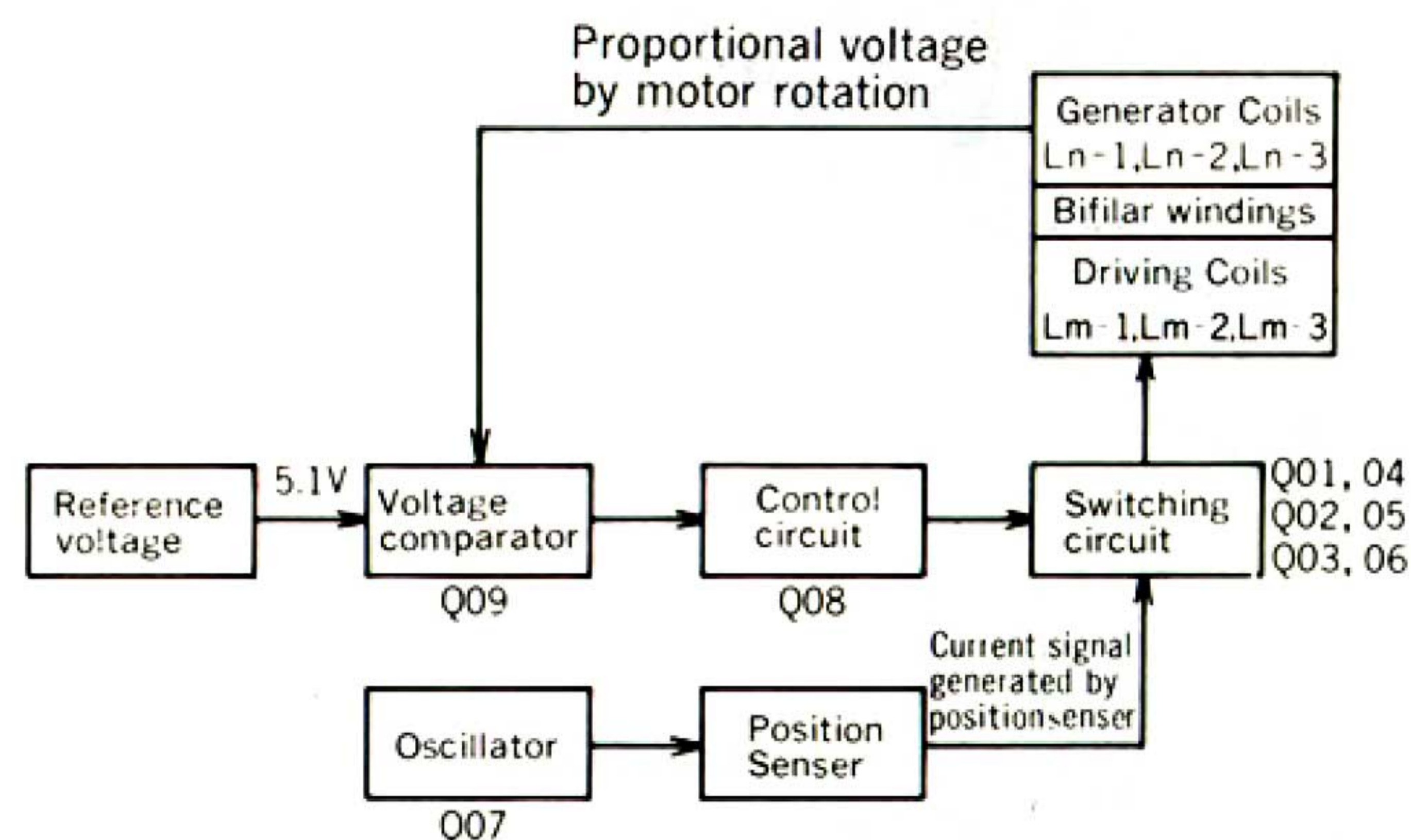
Generator coils, Ln-1, Ln-2 and Ln-3 oscillate voltage proportional by rotation speed of the motor. Voltage comparator compares the voltage induced by rotation speed with reference voltage, 5.1 volts, from printed circuit board, S-0015. Control circuit, Q08, restricts current of driving coils by control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



- (A) : Reference voltage 5.1V
- (B) : Proportional voltage from generator coils by rotation speed of motor
- (C) : Control voltage

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) Strobe-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.

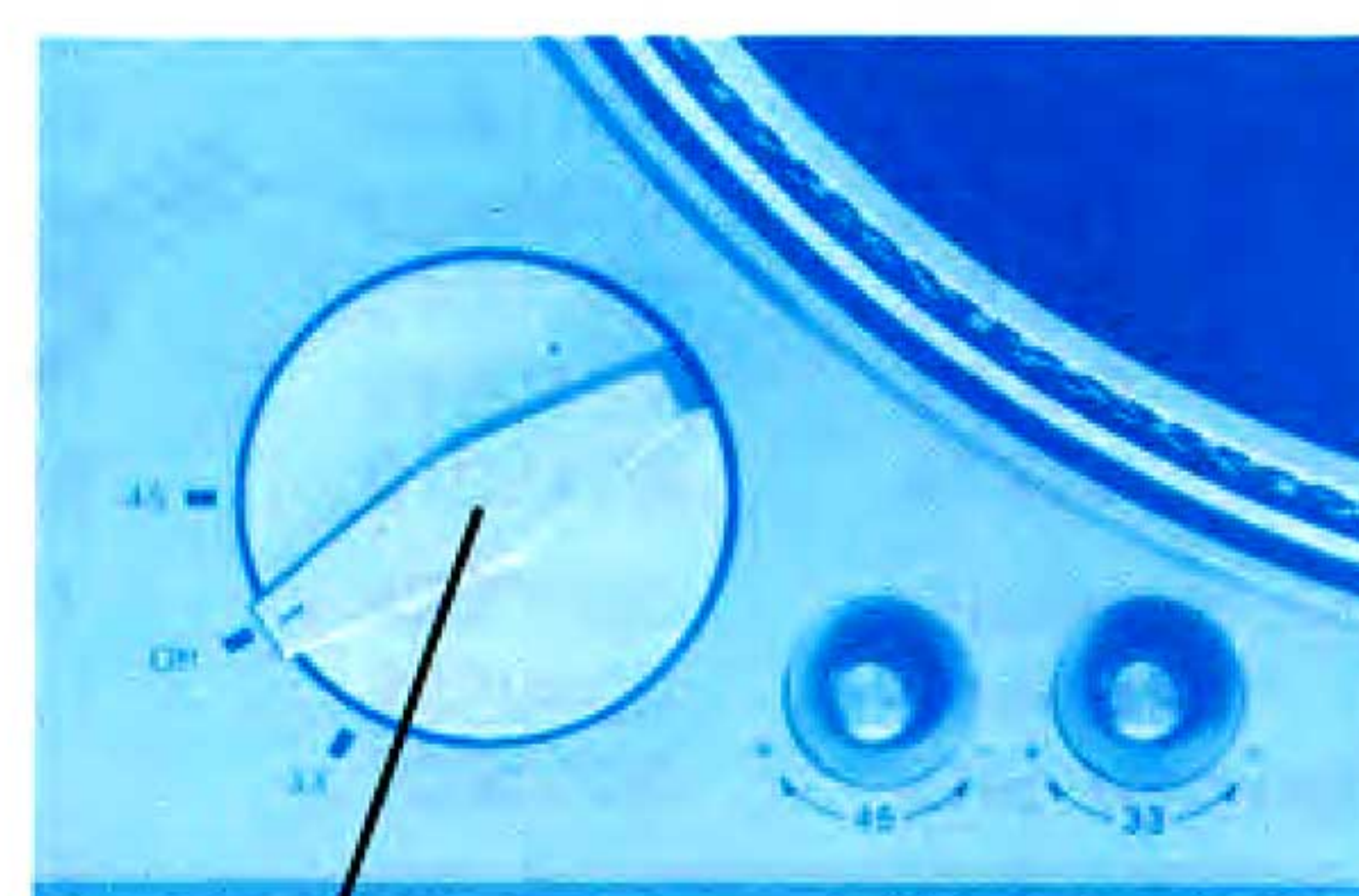
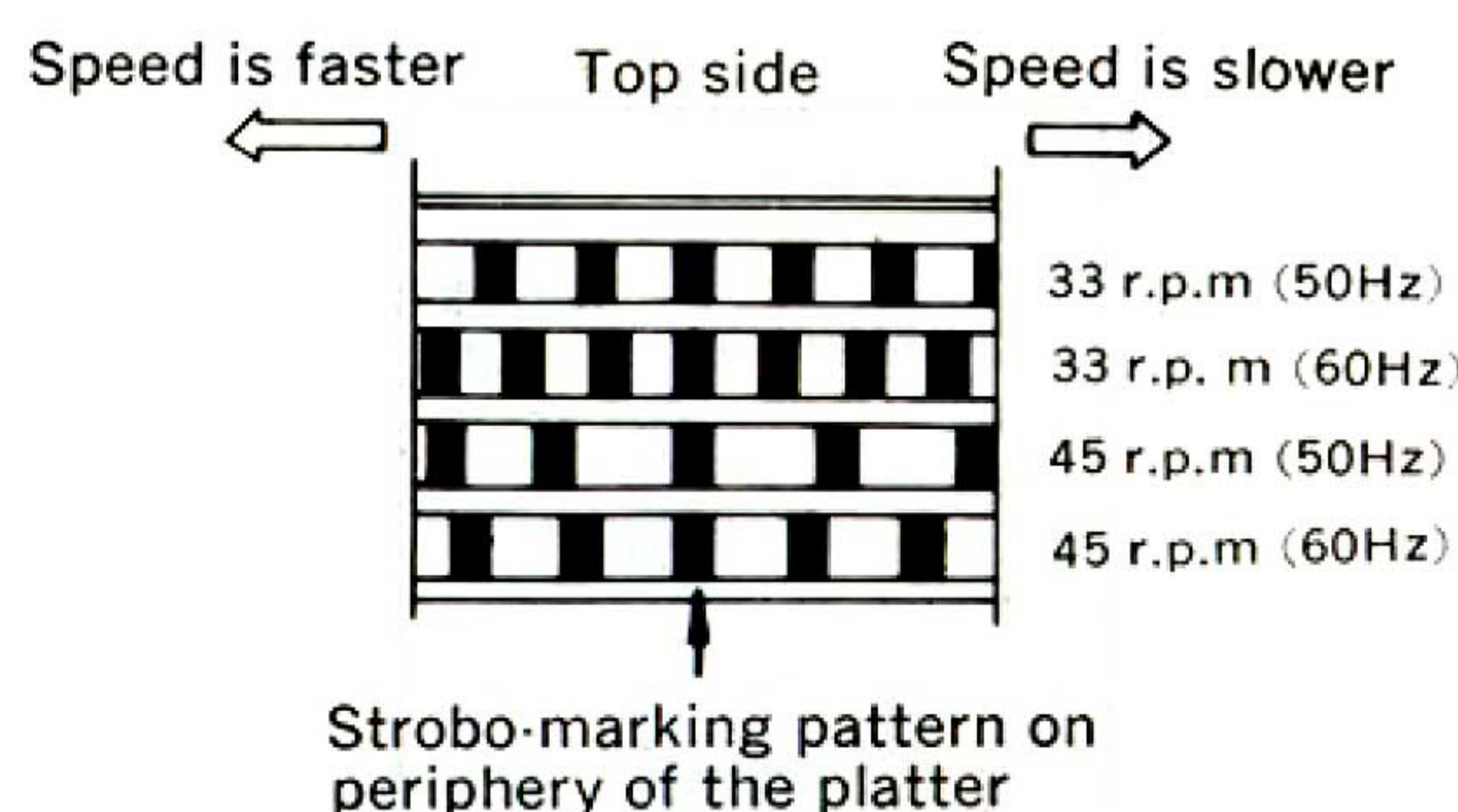
### Steps

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 Strobe-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 strobe-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 strobe-marking patterns appear to stand still respectively.		

• Refer to the followings.

Pitch Control Knobs	Strobe-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

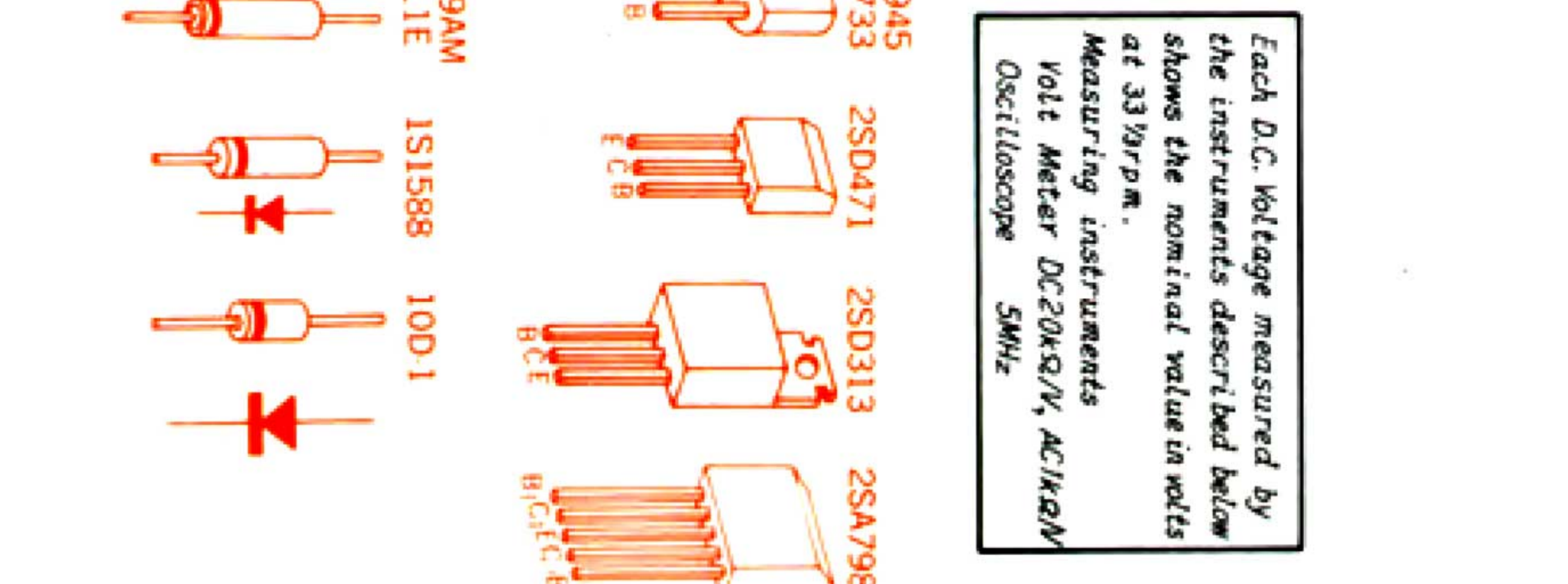
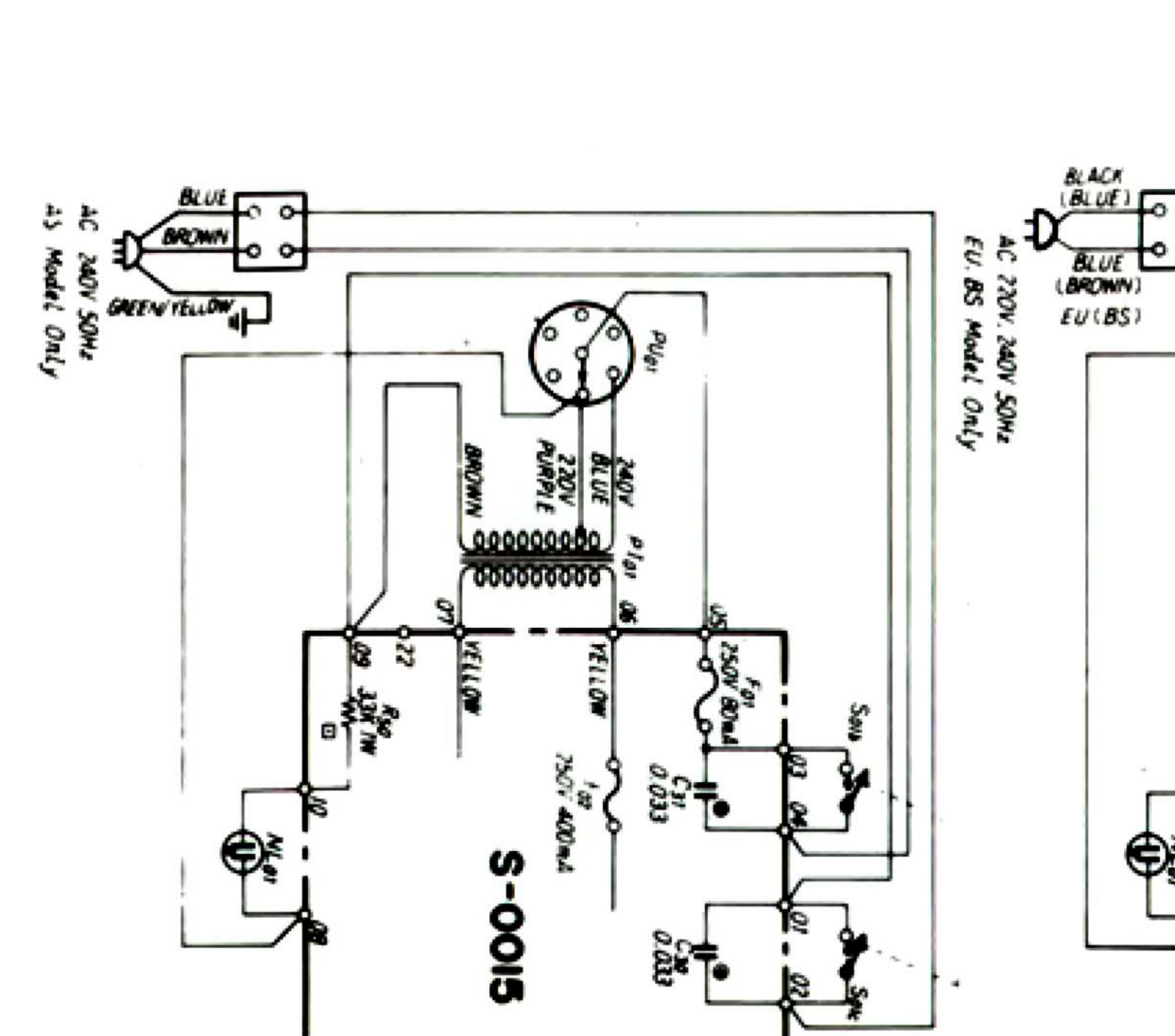
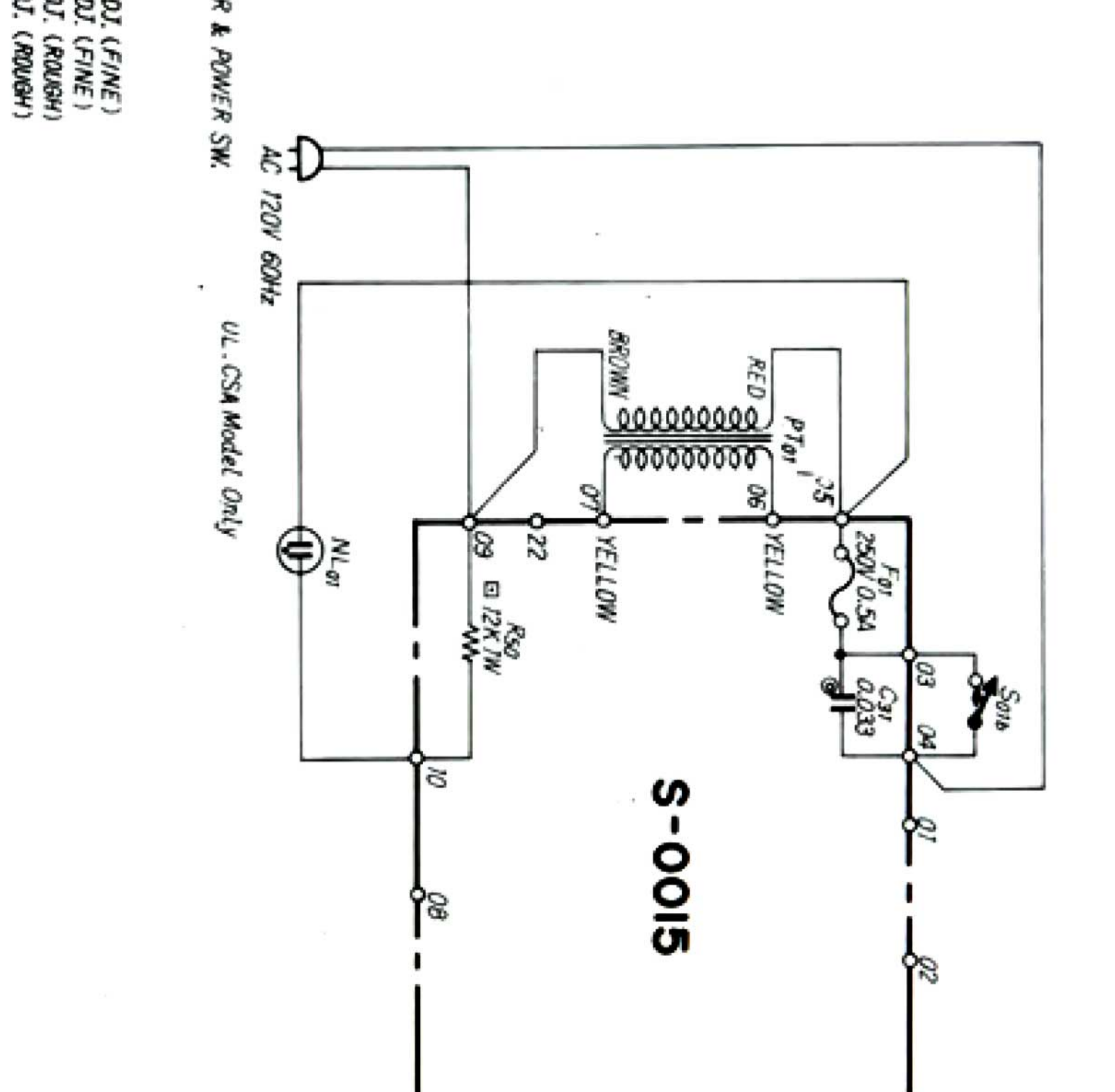
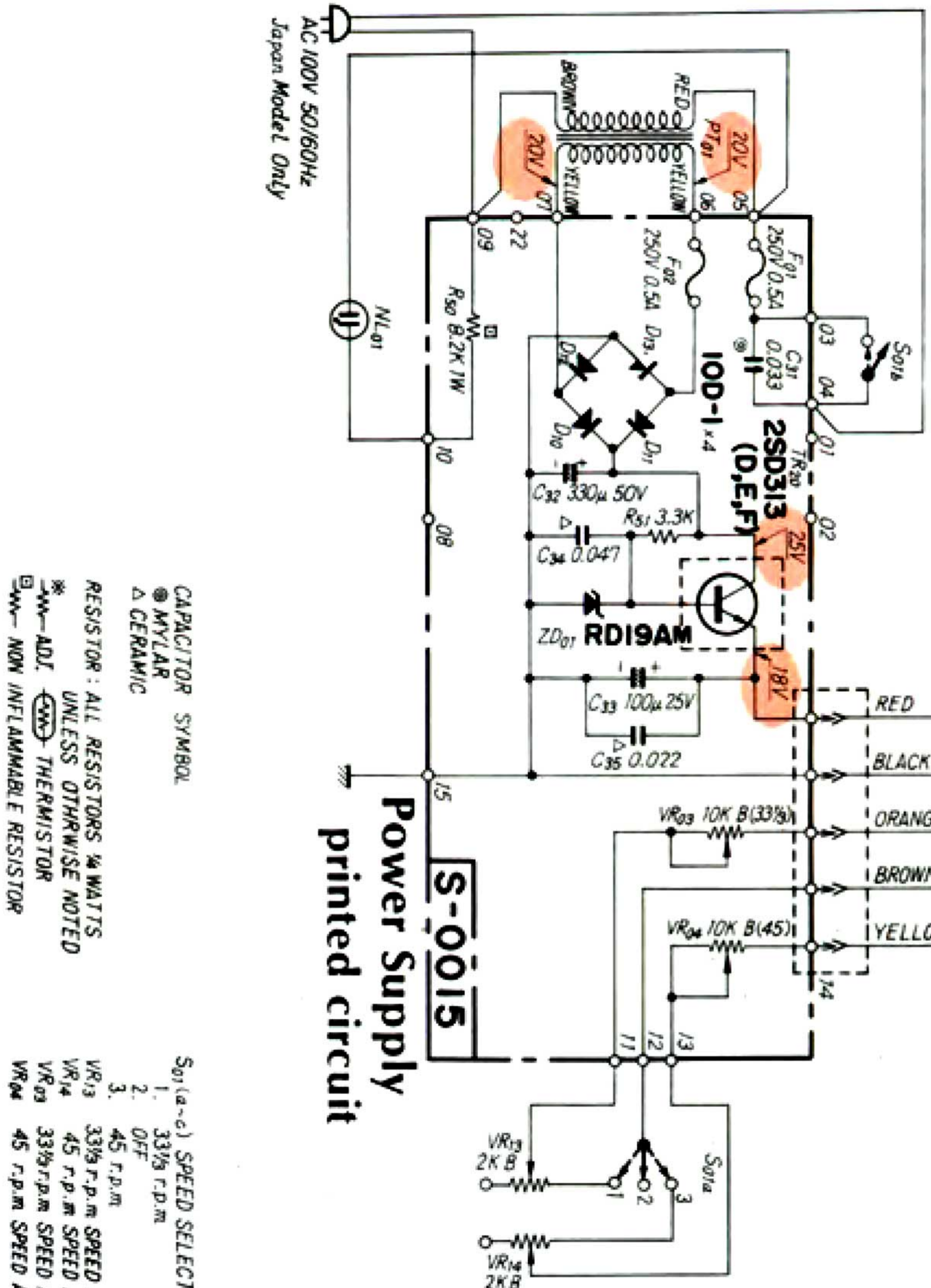


Speed Selector Pitch Control Knobs

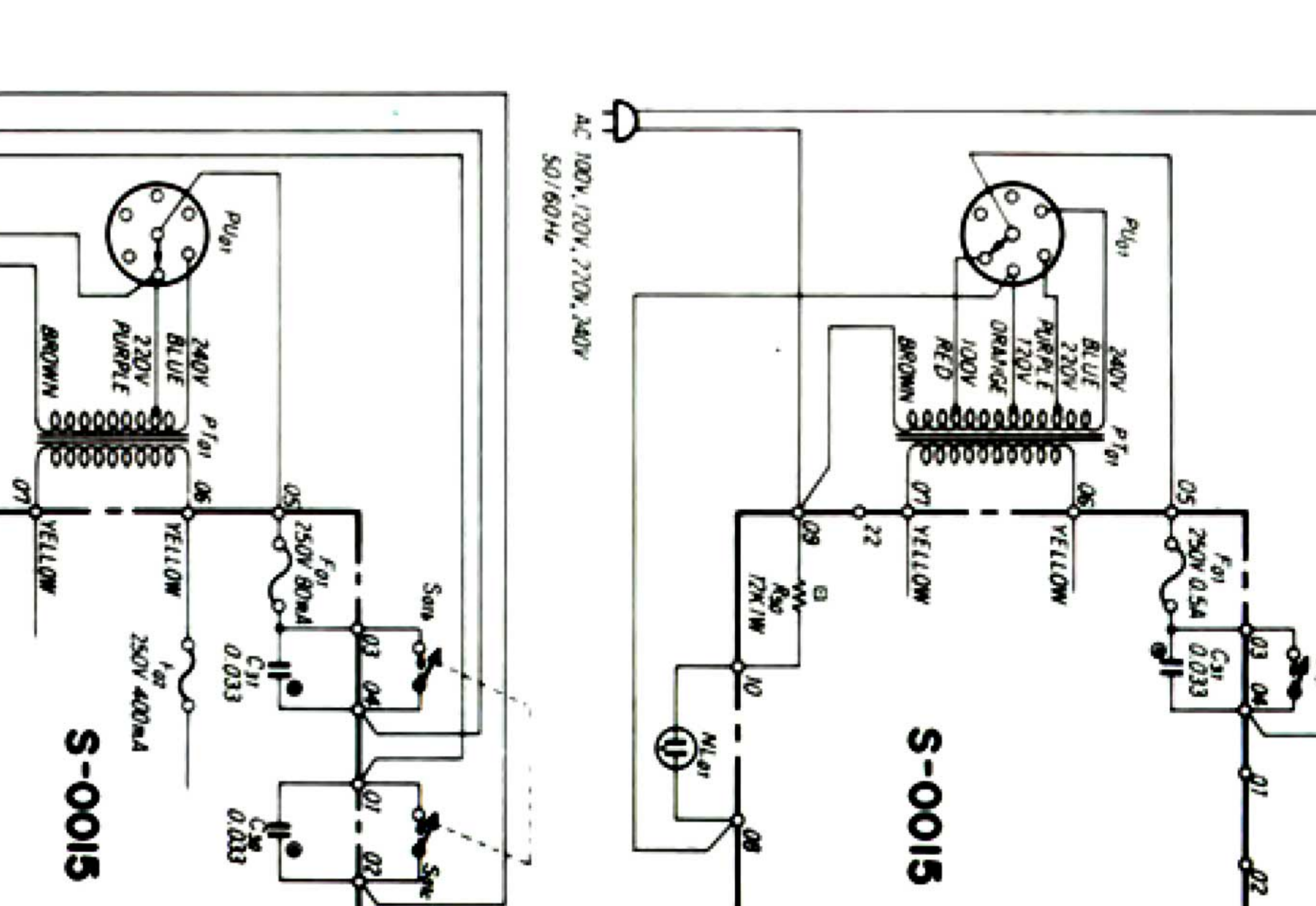
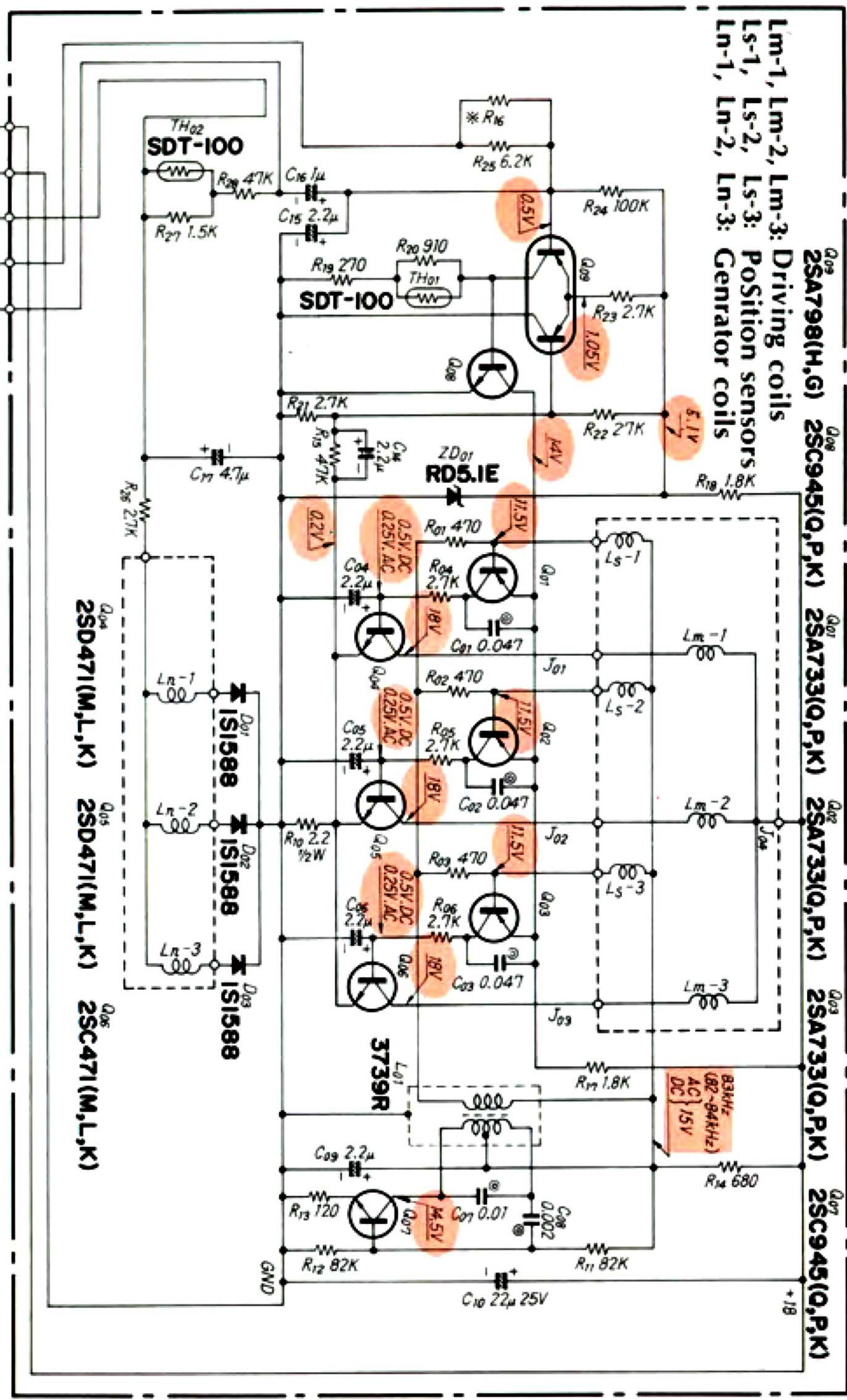
- When turning + mark direction, rotation speed becomes faster.
- When turning - mark direction, rotation speed becomes slower.

• 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 r.p.m.  
 Measuring instruments  
 Volt Meter DC20kV/V, AC1kV/V  
 Oscilloscope 5MHz



CAPACITOR SYMBOL  
 MNYLAR  
 CERAMIC  
 RESISTOR: ALL RESISTORS 1/4 WATTS  
 UNLESS OTHERWISE NOTED  
 ADI THERMISTOR  
 NON INFLAMMABLE RESISTOR

Sol(a-o) SPEED SELECTOR & POWER SW.  
 1. 33 1/3 r.p.m.  
 2. OFF  
 3. 45 r.p.m.  
 45 r.p.m. SPEED ADJ. (FINE)  
 45 r.p.m. SPEED ADJ. (FINE)  
 33 1/3 r.p.m. SPEED ADJ. (ROUGH)  
 45 r.p.m. SPEED ADJ. (ROUGH)

AC 230V, 240V 50Hz  
 EU (BS) Model Only  
 AC 240V 50Hz  
 25 Model Only

V.G servo printed circuit (connected with D.D motor)

1 2 3 4 5 9



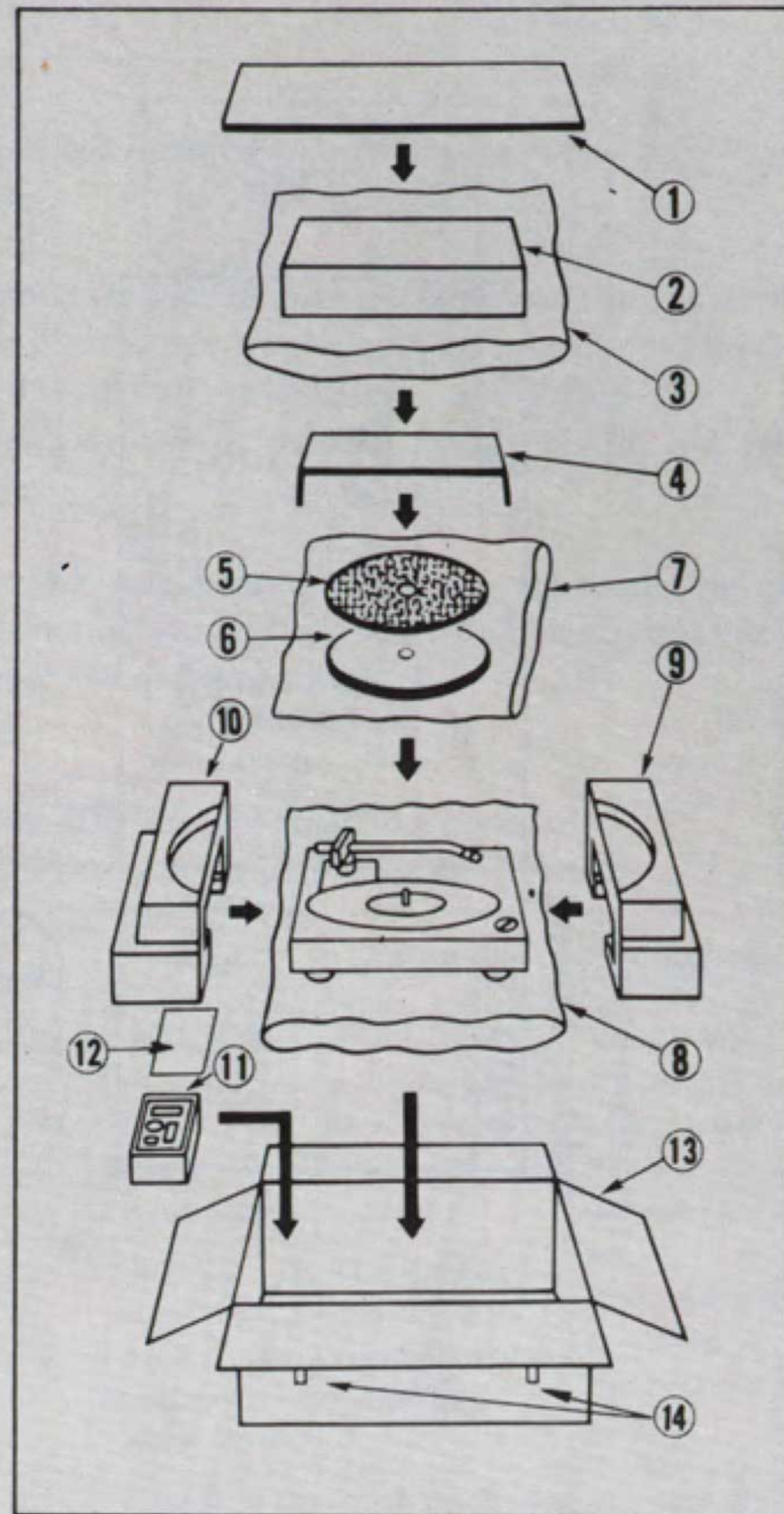
## 5. PACKING LIST

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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