

 **PIONEER®**



Service Manual

STEREO TURNTABLE

PL-400

KUT, KCT

PL-400X

KU

For descriptions and adjustment methods of the D.D. motor and the mechanism employed in this model, refer to the Supplementary Service Manual (ART-467) for the PL-200, PL-255, PL-300, and PL-400 models.

CONTENTS

- 1. SPECIFICATIONS 2
- 2. EXPLODED VIEWS
 - 2.1 Main Panel 3
 - 2.2 Sub Panel 6
 - 2.3 D.D. Motor 7
- 3. SCHEMATIC DIAGRAM AND PARTS LIST 8
- 4. P.C. BOARD CONNECTION DIAGRAM 11
- 5. PACKING 13

1. SPECIFICATIONS

Motor and Turntable

Drive System	Direct-drive
Motor	Quartz PLL Hall motor
Turntable Platter	310mm diam. aluminum alloy die-cast
Moment of Inertia	180kg-cm ² (including platter mat)
Speeds	33-1/3 and 45rpm
Wow and Flutter	Less than 0.025% (WRMS)
Signal-to-Noise Ratio	More than 75dB (DIN-B) (with Pioneer cartridge model PC-135)

Rotational Characteristics

Build-up Time	Within 120° rotation at 33-1/3rpm
Speed Deviation	Less than 0.002%
Speed Drift	Less than 0.00008%/h at 33-1/3rpm Less than 0.00003%/degree temp. change at 33-1/3rpm

Tonearm

Type	Static-balance type, S-shaped pipe arm
Effective Arm Length	221mm
Overhang	15.5mm
Usable Cartridge Weight	4g (min.) to 9g (max.)

Subfunctions

Full auto-mechanism, Anti-skating force control, Stylus pressure direct-readout counterweight, Cueing device, Strobe light, Free stop hinges

Semiconductors

ICs	3
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Transistors	3
Diodes	6
Hall Elements	3

Miscellaneous

Power Requirements	AC120V, 50, 60Hz
Power Consumption	.8W
Dimensions	420(W) x 96(H) x 365(D)mm 16-1/2(W) x 3-13/16(H) x 14-3/8(D)in.
Weight	.65kg/14 lb 5 oz.

Accessories

EP Adapter	1
Cartridge mounting parts	
Cartridge mounting screws	6
Cartridge mounting nuts	2
Cartridge mounting washers	2
Operating Instructions	1

PC-135 Specifications (PL-400X KU)

Type	Induced magnet type
Stylus	0.5 mil diamond (PN-135)
Output Voltage	3mV (1kHz, 50mm/s Peak velocity, LAT)
Tracking Force	1.5g to 2.3g (proper 2g)
Frequency Response	10 to 25,000Hz

NOTE:

Specifications and design subject to possible modification without notice, due to improvements.

PL-400/KUT,KCT
PL-400X/KU

2. EXPLODED VIEWS

2.1 MAIN PANEL

A

B

C

D

A

B

C

D

1

2

3

4

5

6

1

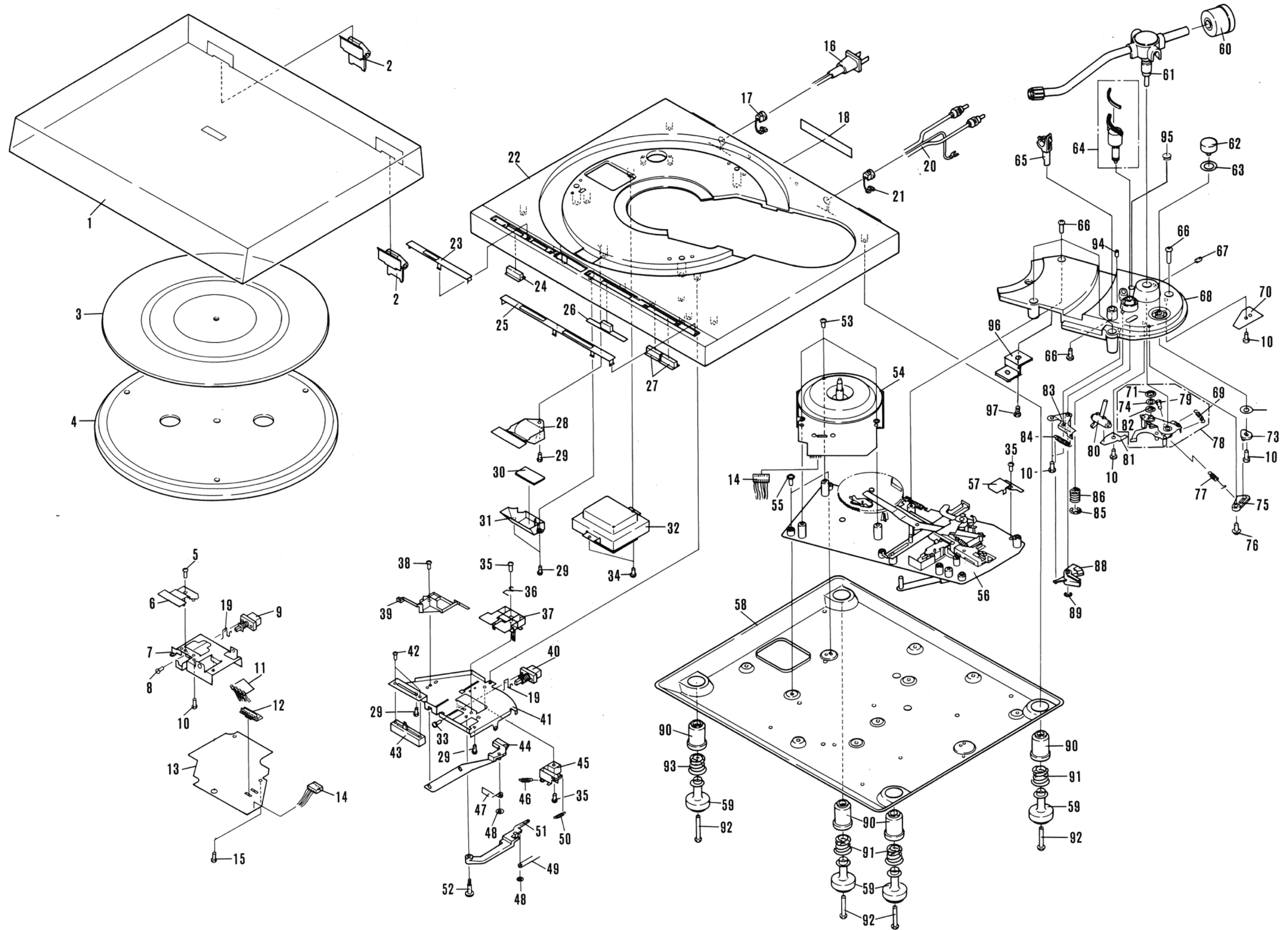
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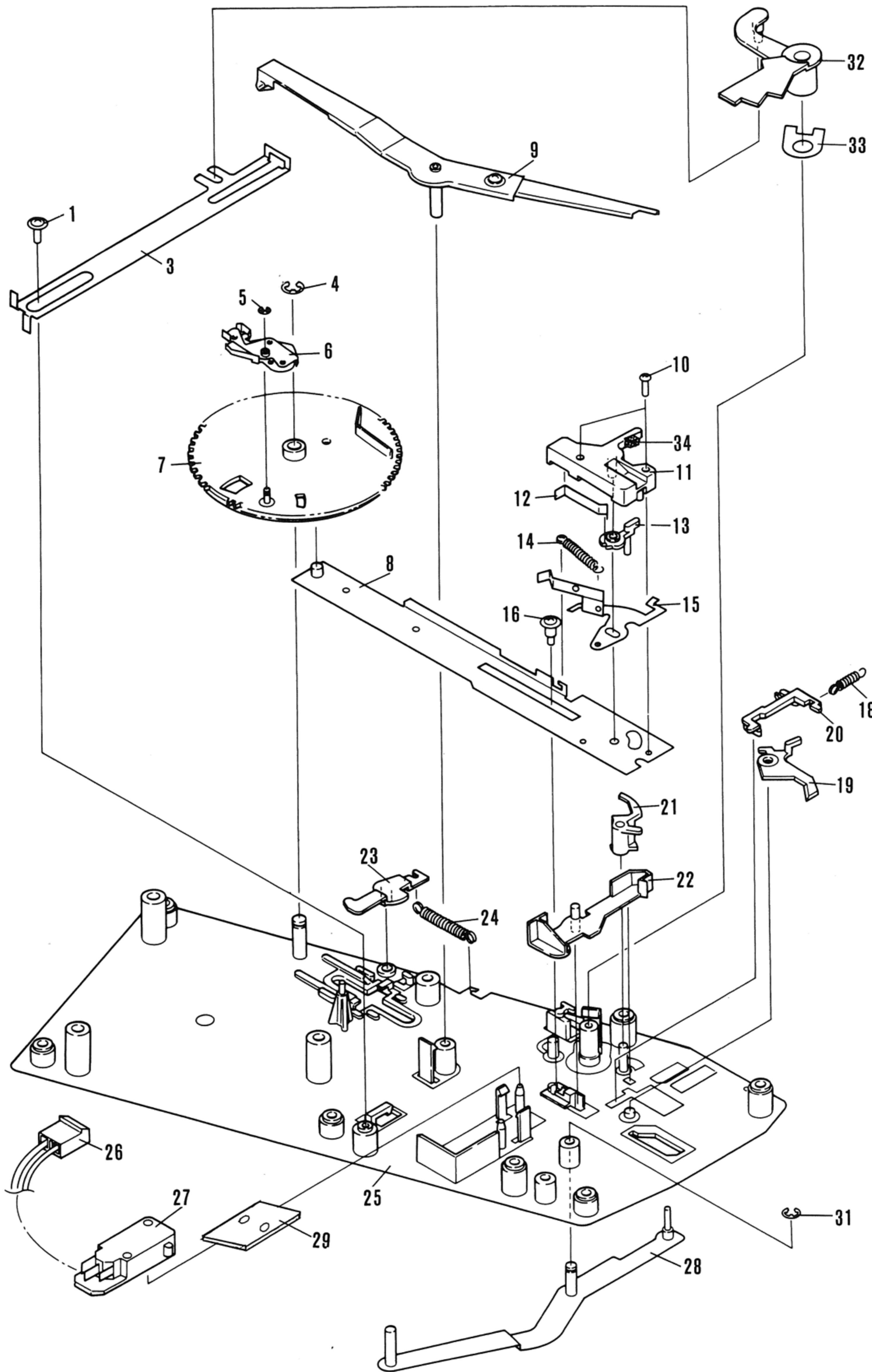
Parts List of Main Panel

NOTE:

- Parts without part number cannot be supplied.
- The \triangle mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Key No.	Part No.	Description	Key No.	Part No.	Description
1.	PNV-034	Dust cover	51.	PNX-069	Lever B
2.	PXB-155	Hinge assembly	52.	PBA-102	Shaft
3.	PEB-152 (KUT, KC) PEB-150 (KCT)	Rubber mat assembly	53.	PBA-108	Brazier deltite screw 3 x 25
4.	PNR-115	Turntable platter	54.	PXM-075	Motor
5.		Deltite screw 3 x 8	55.	PBA-109	Deltite screw (in flat washer) 3 x 17
6.		Button guide C	\triangle 56.		Sub panel assembly
7.		Angle	57.		Protector
8.		Semes A screw 3 x 5	58.		base
9.	PSG-020	Push switch	59.	PNX-062	Foot case
10.		Taptite P screw 3 x 8	60.	PXB-092	Weight assembly
11.	BR5504S	LED	61.	PPD-591 (PL-400) PPD-593 (PL-400X)	Arm assembly
12.		LED base	62.	PAC-045 (PL-400) PAC-041 (PL-400X)	AS knob
\triangle 13.		Power supply assembly	63.	PBF-005	AS washer
14.	PDE-062	Connector assembly	64.	PXB-107	EV sheet assembly
15.		Taptite P screw 3 x 8	65.	PXB-094	Arm rest assembly
\triangle 16.	PDG-017	AC power cord	66.	PBA-108	Brazier deltite screw 3 x 25
17.	PEC-058	Strain relief	67.		Hexagon socket headless set screw 4 x 8
18.		Label	68.	PNX-053 (PL-400) PNX-085 (PL-400X)	Arm base
19.	PBH-261	Spring	69.	PBH-244	Spring
20.	PDE-064	OUTPUT cord	70.		OUTPUT terminal
21.	PEC-056	Strain relief	71.		CS type washer CSTW-4SUS
22.	PNX-112 (PL-400) PNX-113 (PL-400X)	Panel	72.	PBE-012	Washer
23.	PAM-062 (PL-400) PAM-066 (PL-400X)	Name plate	73.	PNX-054	AS adjusting plate
24.	PAC-043	Push button	74.		Flat washer 4
25.	PAM-063 (PL-400) PAM-067 (PL-400X)	Name plate	75.	PNX-055	Lever
26.	PAC-046	Knob	76.		Washer faced taptite P screw 3 x 10
27.	PAC-043	Push button	77.	PBH-236	Spring
28.	PNX-082	Lens	78.	PXB-097	PU plate assembly
29.		Taptite P screw 3 x 8	79.		Pan head screw 4 x 8
30.		Mirror	80.	PXT-382	Lever
31.		Lens holder	81.	PBK-042	Plate spring A
\triangle 32.	PTT-078 (KU, KUT) PTT-091 (KCT)	Power transformer	82.	PNB-405	PU washer
33.		Semes A screw 3 x 5	83.	PXT-385	Plate spring B
34.		Taptite P screw 4 x 10	84.	PBH-238	EV cam spring
35.		Deltite screw 3 x 8	85.		E type washer 7
36.	PBH-260	Spring	86.	PBH-237	Spring
37.	PNX-076	Button guide B	87.		-----
38.		Deltite screw 3 x 8	88.	PNX-059	Cam
39.	PNX-071	Guide	89.		E type washer 3
40.	PSG-018	Push switch	90.	PEB-163	Rubber cushion
41.		Control base	91.	PBH-241	Foot spring B
42.		Pan head screw 2.6 x 5	92.	PBA-099	Screw
43.	PCS-017	Volume	93.	PBH-240	Foot spring A
44.	PNX-072	Slider	94.		Hexagon socket headless set screw 3 x 12
45.	PNX-070	Lever	95.	PEB-114 (KU, KUT)	Rubber bush
46.	PBH-245	Spring A	96.		Holder
47.	PBH-248	Spring	97.		Taptite B screw 3 x 12
48.		Push nut 3 ϕ			
49.	PBH-247	Operating spring A			
50.	PBH-246	Spring B			

2.2 SUB PANEL

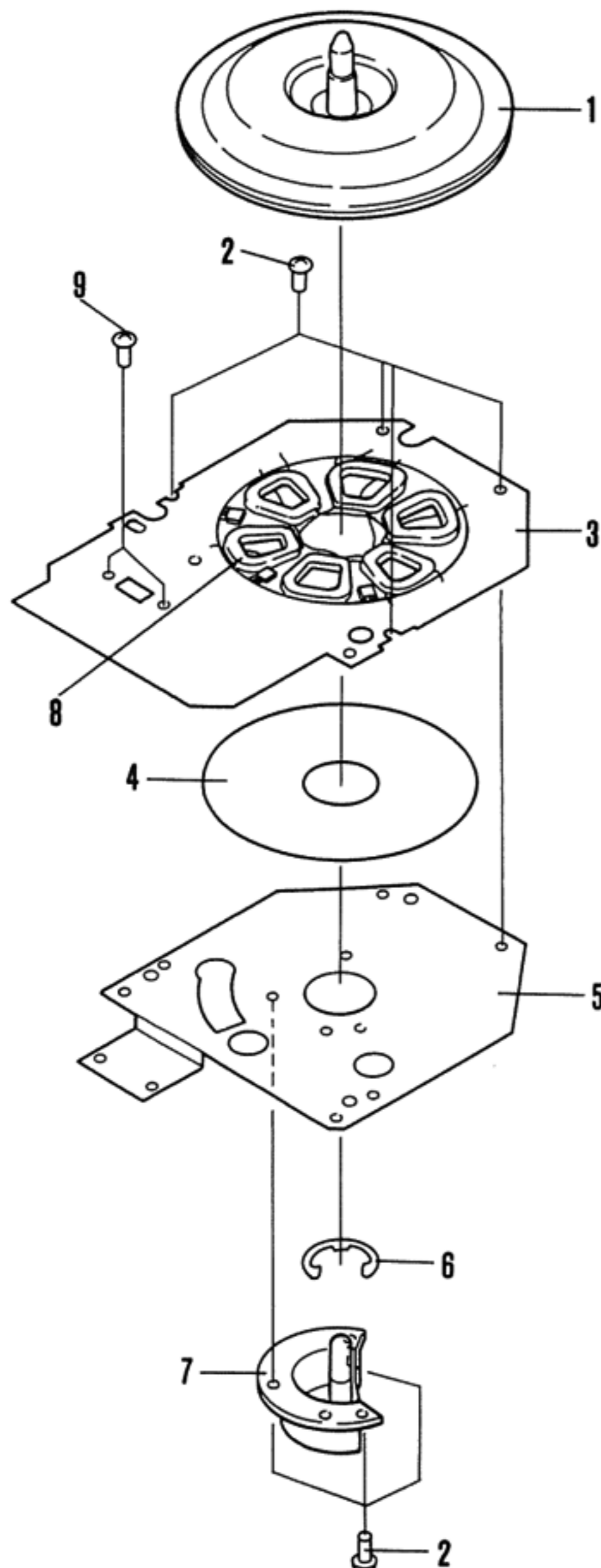


Parts List of Sub Panel

Key No.	Part No.	Description
1.		Washer faced taptite P screw 3 x 10
2.		-----
3.	PNC-103	Lever
4.		E type washer 4
5.		E type washer 1.5
6.	PYY-058	Return signal unit
7.	PNX-036	Cam
8.	PXT-356	Plate
9.	PXT-390	Detector lever
10.		Pan head screw 2.6 x 10
11.	PNX-033	EV cam
12.	PBK-038	Plate spring
13.	PNX-032	Cam
14.	PBH-224	Spring
15.	PXT-357	START unit
16.	PBA-103	Screw
17.		
18.	PBH-223	Spring
19.	PNX-028	Plate
20.	PNX-029	Selector

Key No.	Part No.	Description
21.	PNX-031	Switch plate
22.	PNX-030	Switch lever
23.	PNX-035	Plate
24.	PBH-225	Spring
25.		Sub panel unit
⚠ 26.	PDE-070	Connector assembly
⚠ 27.	PSF-006	Microswitch
28.	PXT-388	START lever unit
29.	PEC-057	Insulator
30.		-----
31.		E type washer 3
32.	PNX-034	Cam
33.	PBK-039	Washer
34.	PEC-064	EV cam cushion

2.3 D.D. MOTOR



Key No.	Part No.	Description
1.		Rotor unit
2.		Taptite screw 3x5
3.		Control assembly
4.		Insulator
5.		Base unit
6.		EW12
7.		Shaft holder
8.		Coil
9.		Taptite screw 3x12

3. SCHEMATIC DIAGRAM AND PARTS LIST

NOTE:

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω — 56 × 10¹ — 561 RD¼PS 561 J
 47kΩ — 47 × 10³ — 473 RD¼PS 473 J
 0.5Ω — 0R5 RN2H 0R5 K
 1Ω — 010 RS1P 010 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ 562 × 10¹ 5621 RN¼SR 5621 F

- The \triangle mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

Parts List of D.D. motor (PXM-075)

CAPACITORS

Part No.	Symbol & Description
CEA 101M 6,3NP	C1
CKDYF 403Z 50	C2
CKDYB 681K 50	C3
CQMA 104J 50	C4
CSZA R47K 35	C5
CKDYF 103Z 50	C6, C13, C16–C18
CQMA 104K 50	C7, C20
CEA 010P 50	C8
CEA 100P 16	C9
CEA 471P 25	C10–C12
CCDCH 330J 50	C14
CCDCH 560J 50	C15
CEA 100P 25	C19

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

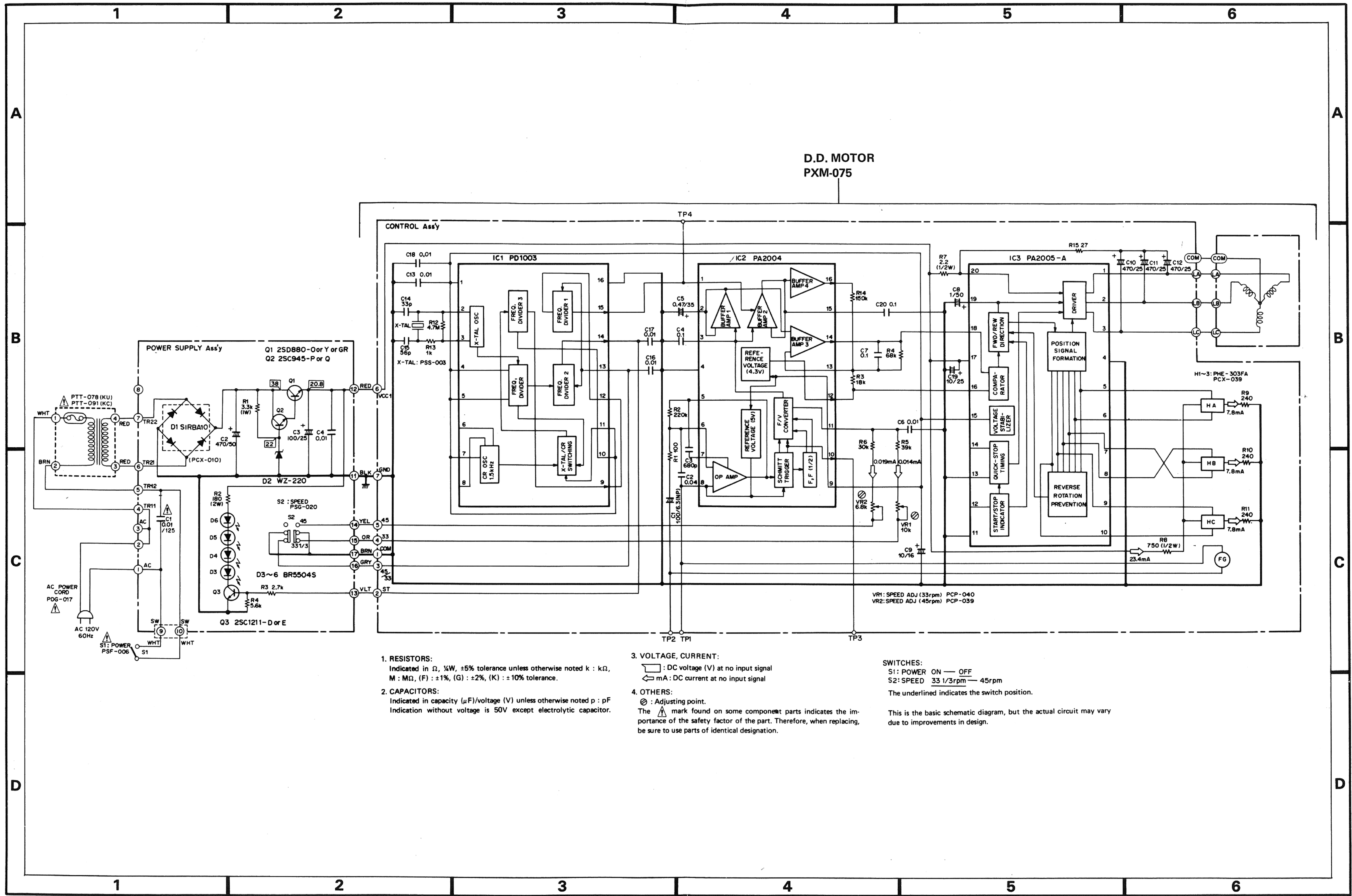
Part No.	Symbol & Description
RD¼PS □□□J	R1–R6, R9–R15
RD½PS □□□J	R7, R8
PCP-040	VR1 (10k-B)
PCP-039	VR2 (6.8k-B)

SEMICONDUCTORS AND OTHERS

Part No.	Symbol & Description
PD1003	IC1
PA2004	IC2
PA2005A	IC3
PHE-303FA	H1–H3 Hall element
PSS-003	Crystal

Parts List of Power Supply Assembly

Part No.	Symbol & Description
2SD880	Q1
2SC945	Q2
2SC1211	Q3
PCX-010	D1
WZ-220	D2
BR5504S	D3–D6
CKDYF 103Z 50	C4
CEA 471M 50L	C2
CEA 101M 25L	C3
\triangle PCL-036	C1
RD¼PS 272J	R3
RS2PF 181J	R2
RS1PF 332J	R1
RD¼PS 562J	R4
PSG-020	S2 Speed selector
PDE-062	Connector assembly
PNX-015	Insulator
PBH-261	Push button spring



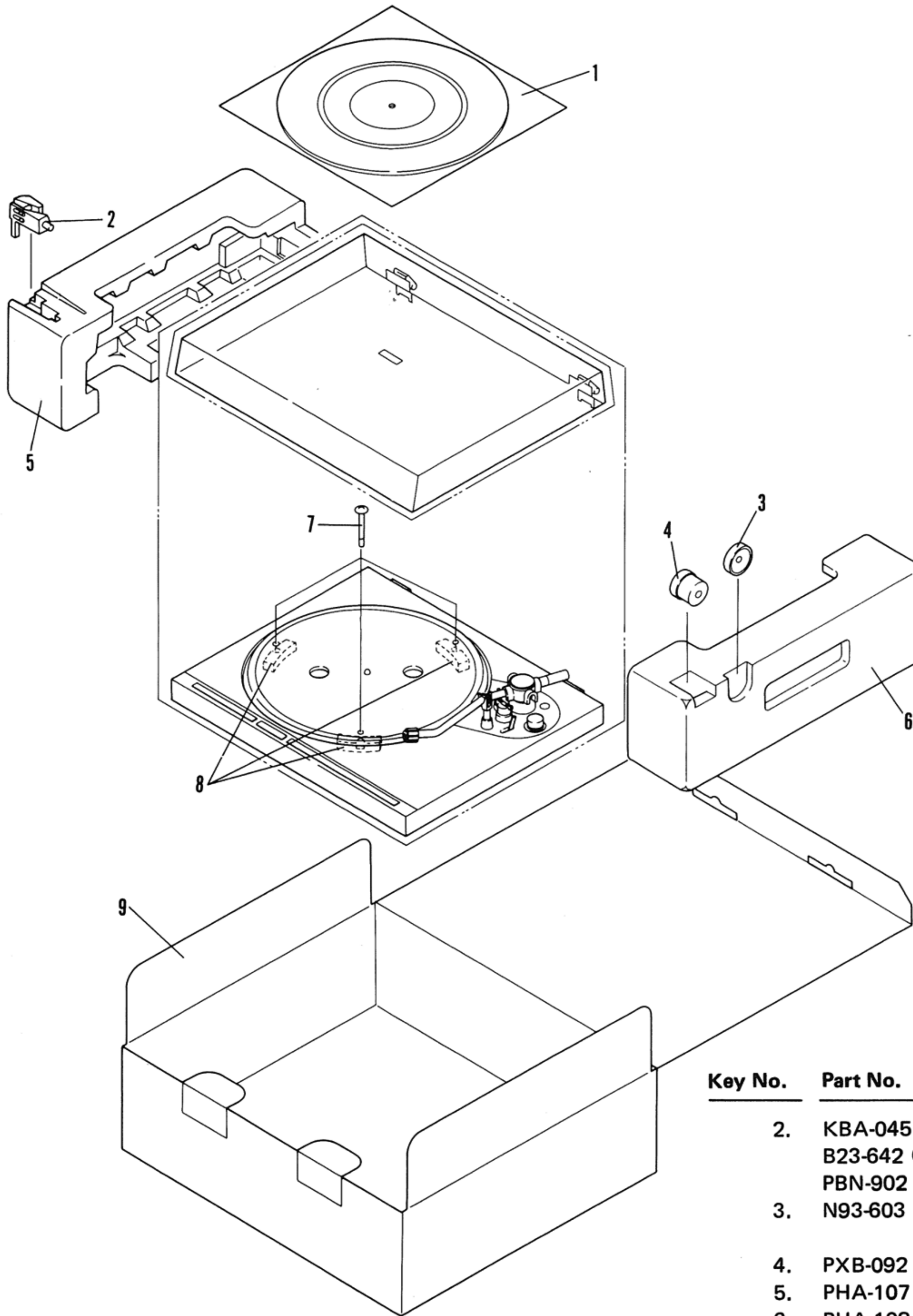
D.D. MOTOR
PXM-075

1. RESISTORS:
Indicated in Ω , $\frac{1}{2}W$, $\pm 5\%$ tolerance unless otherwise noted k : k Ω , M : M Ω , (F) : $\pm 1\%$, (G) : $\pm 2\%$, (K) : $\pm 10\%$ tolerance.
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
 : DC voltage (V) at no input signal
 : DC current (mA) at no input signal
4. OTHERS:
 : Adjusting point.
 The mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

- SWITCHES:
 S1: POWER ON — OFF
 S2: SPEED 33 1/3rpm — 45rpm
 The underlined indicates the switch position.
- This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

5. PACKING



Key No.	Part No.	Description
2.	KBA-045 (PL-400X)	Cartridge mounting screw
	B23-642 (PL-400X)	Cartridge mounting washer
	PBN-902 (PL-400X)	Cartridge mounting nut
3.	N93-603	45 adaptor
4.	PXB-092	Weight assembly
5.	PHA-107	Side protector L
6.	PHA-108	Side protector R
7.	PBA-100	Screw
8.	PNX-064	Turntable protector
9.	PHG-394 (PL-400/KCT)	Packing case
	PHG-393 (PL-400/KUT)	
	PHG-395 (PL-400X)	
	PRB-146 (PL-400)	Operating instructions
	PRB-147 (PL-400X)	
	PXB-125	Cartridge mounting screw assembly
	H56-603	Vinyl bag

Parts List

Key No.	Part No.	Description
1.	PEB-150 (KCT)	Rubber mat assembly
	PEB-152 (KUT, KU)	
2.	PXA-792 (PL-400)	Headshell assembly
	PXA-791 (PL-400X)	
	PXT-941 (PL-400X)	Cartridge assembly