Hitachi Power Tools

SERVICE MANUAL

LIST No.
PDA-100M: E270
Sep. 2005

PRODUCT NAME

Hitachi Disc Grinder

Model PDA-100M

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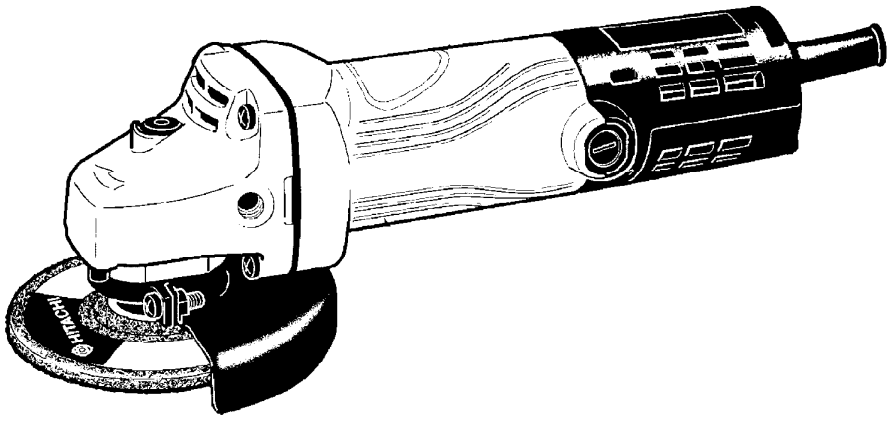

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HITACHI

Hitachi Koki Co., Ltd.
International Sales Division

1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

The **[Bold]** numbers in the descriptions below correspond to the item numbers in the Parts List and the exploded assembly diagram for Model PDA-100M.

1-1. Disassembly

(1) Disassembly of the armature

1) Remove the Brush Caps **[38]** and take out the Carbon Brushes **[39]**.
2) Loosen the four Tapping Screws D5 x 25 (Black) **[1]** which fix the Gear Cover Ass'y **[3]** to remove the Armature **[7]** from the Housing **[33]** together with the Bearing Holder **[6]**.
3) Loosen the Special Nut M7 **[4]** which fixes the pinion to remove the pinion.
4) Insert the hooks of the J-204 bearing puller between the Ball Bearing 628VVC2PS2-L **[5]** and the Bearing Holder **[6]** from both sides and fix the hooks with the wing bolts.
5) Place the J-204 bearing puller on a supporting jig and push down on the tip of the armature shaft with a hand press to remove the Ball Bearing 628VVC2PS2-L **[5]**. Then remove the Bearing Holder **[6]**.

(2) Disassembly of the dust seal

1) Insert the hooks of the J-204 bearing puller between the commutator and the Dust Seal **[11]** from both sides, and fix the hooks with the wing bolts.
2) Place the J-204 bearing puller on a supporting jig and push down on the armature shaft with a hand press to remove the Dust Seal **[11]** together with the Ball Bearing 608VVC2PS2L **[12]**. Replace the Dust Seal **[11]** with new one because it is damaged by the removal of the Ball Bearing 608VVC2PS2L **[12]**.

(3) Disassembly of stator (A)

1) Remove the Armature **[7]** and loosen the Tapping Screw (W/Flange) D4 x 25 (Black) **[47]** to remove Tail Cover (B) **[46]**.
2) Loosen the two Machine Screws (W/Washer) M3.5 x 6 **[48]** that secure the internal wire of the Cord **[54]** and Stator (A) **[10]** to the Switch (1P Screw Type) **[49]** and loosen the two screws of the Pillar Terminal **[43]**. Remove the two internal wires from the Cord **[54]** and the Pillar Terminal **[43]**.
3) Remove the Tapping Screw (W/Flange) D4 x 40 **[37]** and the Tapping Screw (W/Flange) D4 x 20 (Black) **[36]**. Remove Tail Cover (A) **[35]** then remove the Earth Terminal **[41]** from the Housing **[33]**.
4) Disconnect the two internal wires of Stator (A) **[10]** coming from the Brush Holder **[40]** of Stator (A) **[10]**.
5) Remove the Fan Guide **[8]** from the Housing **[33]**.
6) Loosen the Tapping Screw (W/Flange) D4 x 70 **[9]** securing Stator (A) **[10]**. Remove Stator (A) **[10]** from the Housing **[33]**.

(4) Disassembly of the gear

1) Loosen the four Seal Lock Screws (W/Sp. Washer) M4 x 12 **[21]** that secure the Packing Gland **[20]** to the Gear Cover Ass'y **[3]** and remove the Packing Gland **[20]** from the Gear Cover Ass'y **[3]**.

2) Remove the Retaining Ring for D11 Shaft **[13]** that secures the gear to the Spindle **[23]**.

3) Remove the Wave Washer **[14]** and the gear from the Spindle **[23]**.

1-2. Reassembly

Push the parts together in the reverse order of disassembly, with the precautions given below.

(1) Ensure that the terminals of the stator are not bent or otherwise damaged.

(2) Generously lubricate the teeth of the gear and the pinion with grease. Rub grease onto the teeth with your fingers so that the grease reaches each tooth bottom. Note that the gear and the pinion may wear faster than normal if under-lubricated.

(3) Be sure to soak the inner diameter of the Felt Packing **[19]** with machine oil. Otherwise, its dust-sealing function will fail to work properly, resulting in earlier damage of the Ball Bearing 6201VVCMPS2L **[18]**.

(4) When replacing the Armature **[7]** and the Ball Bearing 608VVC2PS2L **[12]** on the commutator side, press inward on the Dust Seal **[11]** while taking care of its direction until the end face of the Dust Seal **[11]** contacts against the end surface of the Armature **[7]** and make sure that Dust Seal **[11]** cannot be turned freely by hand. (See Fig. 1).

The Dust Seal **[11]** is an important element for improved dust protection of the Ball Bearing 608VVC2PS2L **[12]**. Be sure to replace with a new one each time.

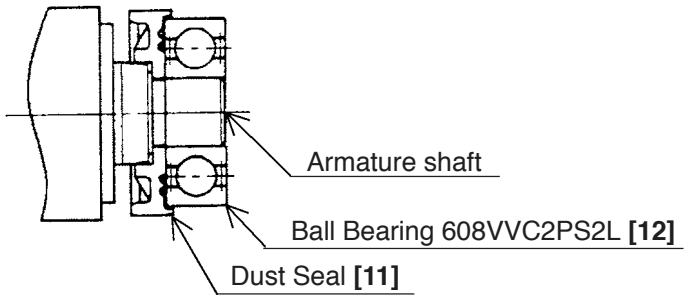


Fig. 1

(5) When connecting the Earth Terminal **[41]** to the internal wire (the middle wire among three) of the Noise Suppressor **[45]**, strip the insulation sheath on the internal wire by about 6 mm and press-connect it together with the Earth Terminal **[41]** with a clamping tool available on the market.

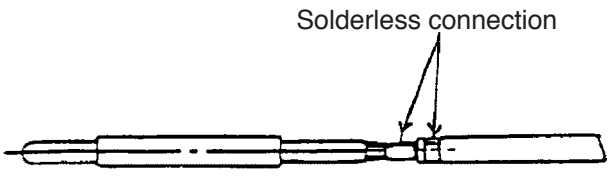


Fig. 2

(6) Mount the Cord **[54]** according to the following procedure when replacing the standard cord (cord armor is integrally molded).

1) Remove the standard cord (cord armor is integrally molded) according to the procedure of 8-1 (3).
2) Strip the coating on the internal wire of the Cord **[54]** about 10 mm from the tip and crimp the Terminal **[50]** to the brown or black internal wire as shown in Fig. 3.
3) Insert the Cord **[54]** into the Cord Armor D8.8 **[51]**.
4) Cut off the rib for holding the cord of Tail Cover (B) **[46]** with nippers as shown in Fig. 4.
5) Mount the Cord **[54]** and the Cord Armor D8.8 **[51]** to Tail Cover (A) **[35]** and secure them with the Cord Clip **[52]** and two Tapping Screws (W/Flange) D4 x 16 **[53]** as shown in Fig. 5.
6) Mount each internal wire reversing the removal procedure. Then mount Tail Cover (B) **[46]** to Tail Cover (A) **[35]** and secure them with the Tapping Screw (W/Flange) D4 x 25 (Black) **[47]**.

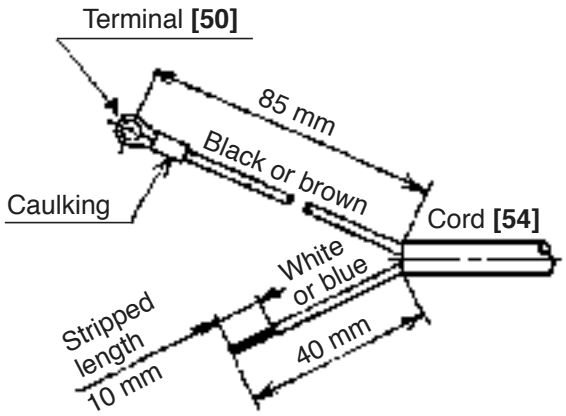


Fig. 3

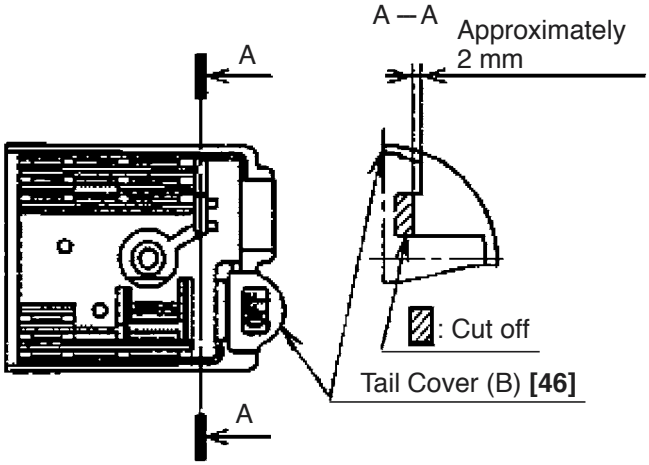
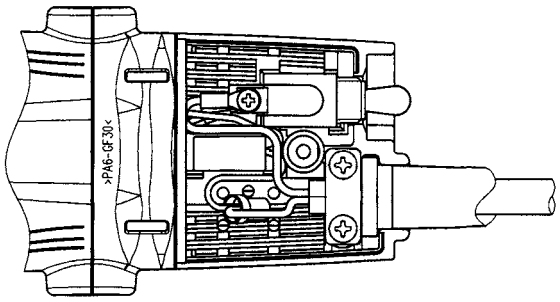
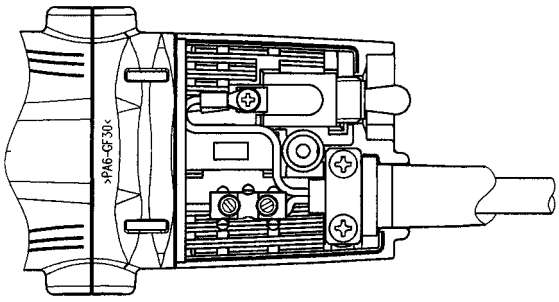


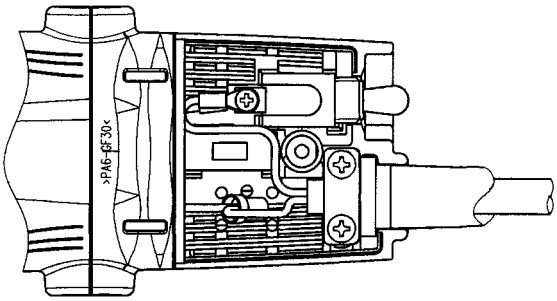
Fig. 4



(a) For Taiwan



(b) For Singapore and Malaysia



(c) For other countries

Fig. 5

(7) Connect the internal wires of Stator (A) **[10]** correctly as shown in Fig. 6 and Fig. 7.

(8) Connect each internal wire correctly as shown in Fig. 7 being careful not to put them between the parts.

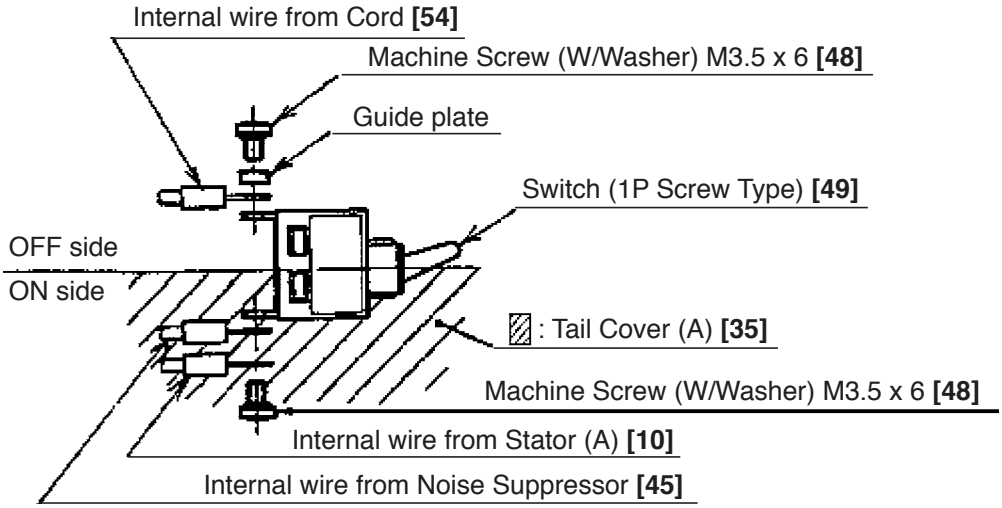


Fig. 6

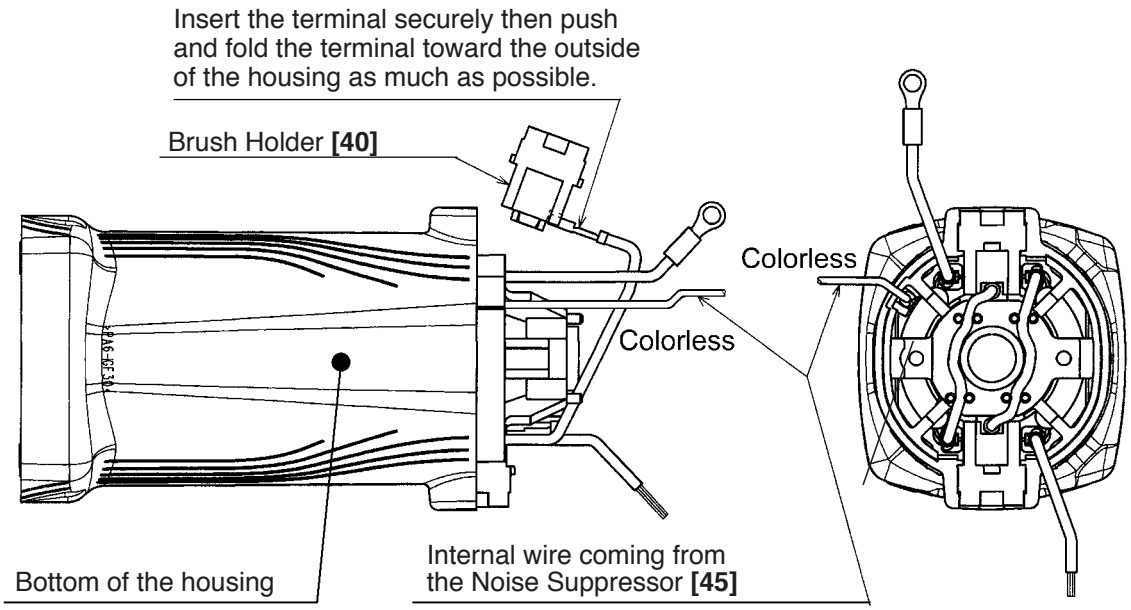


Fig. 7

(9) When replacing the Gear Cover Ass'y **[3]**, lubricate the needle bearing part with mixed oil.

Mixed oil: A mixture of Hitachi Power Tool Grease No. 2 (Unilube No. 00 Code No. 939302 is recommended) and turbine oil

- Mixture ratio ..... 1:1 (weight ratio)
- Quantity ..... 0.5 cc

1-3. Lubrication Points and Types of Lubricant

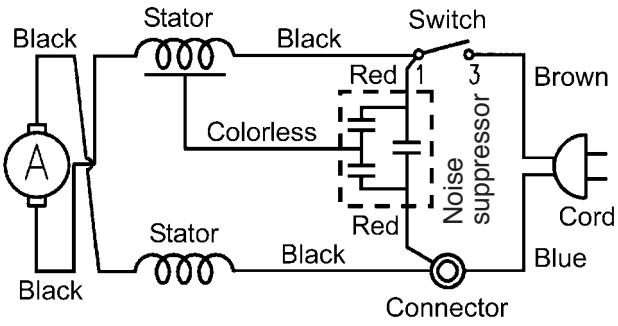
- Pinion chamber of Gear Cover Ass'y **[3]** ..... Nippeco grease (SEP-3A) 5 g
  (Code No. 930035 is recommended.)
  Generously rub grease onto the gear and pinion.
- Needle bearing ..... Mixed oil 0.5 cc
  Mixed oil: Mixture of Hitachi Power Tool Grease No. 2
  (Unilube No. 00, Code No. 939302) and
  turbine oil
  Mixture ratio .....1:1 (weight ratio)

1-4. Tightening Torque

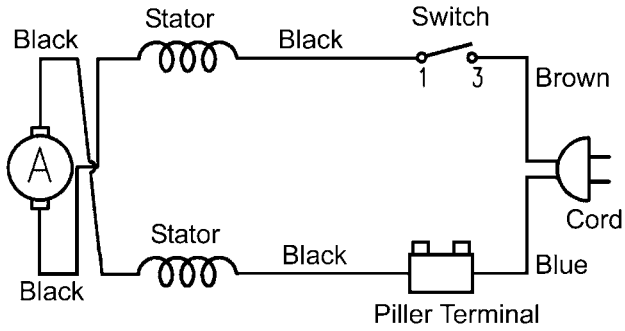
Tapping Screws D4 **[9] [36] [37] [47] [53]** ..... 2.0 ± 0.5 N·m (20± 5 kgf·cm, 1.5 ± 0.4 fb-lbs.)
Seal Lock Screws (W/Sp. Washer) M4 **[16] [21]** ..... 1.8 ± 0.4 N·m (18± 4 kgf·cm, 1.3 ± 0.3 fb-lbs.)
Tapping Screw D5 x 25 (Black) **[1]** ..... 2.9 ± 0.5 N·m (30± 5 kgf·cm, 2.2 ± 0.4 fb-lbs.)
Machine Screw (W/Sp. Washer) M5x16 (Black) **[25]** ..... 1.6 ± 0.4 N·m (16 ± 4 kgf·cm, 1.2 ± 0.3 fb-lbs.)
Special Nut M7 **[4]** ..... 6.4 ± 1.0 N·m (65± 10 kgf·cm, 4.7 ± 0.7 fb-lbs.)
Brush Cap **[38]** ..... 0.6 ± 0.2 N·m (6 ± 2 kgf·cm, 0.4 ± 0.1 fb-lbs.)

1-5. Wiring Diagram

(1) For Taiwan



(2) For Singapore



(3) For other countries

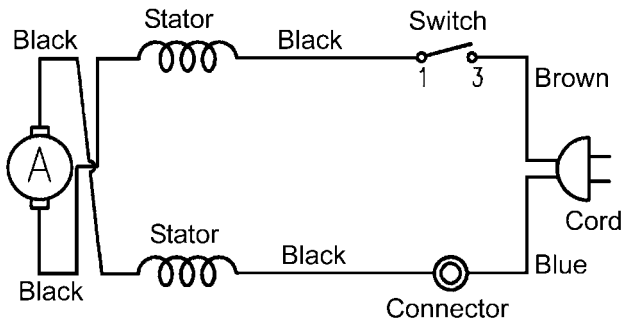


Fig. 8

1-6. Insulation Tests

On completion of disassembly and repair, carefully measure the insulation resistance and conduct a dielectric strength test.

Insulation resistance: 7 M Ω or more with 500 V DC megohm tester

Dielectric strength test: AC 4,000 V/1 minute with no abnormalities ..... 220 V — 240 V products

AC 3,500 V/1 minute with no abnormalities ..... 110 V — 127 V products

1-7. No-load Current Value

After no-load running for 30 minutes, the no-load current value should be as follows.

Voltage (V)	110	220	230	240
Current (A) max.	2.6	1.2	1.2	1.2

2. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable / Fixed	10	20	30	40	50	60 min.
PDA-100M	General Assembly	Work Flow Switch Tail Cover (A) Tail Cover (B) Cord Cord Armor Wheel Guard Ass'y	Armature Ball Bearing (628VV) Bearing Holder Dust Seal Ball Bearing (608VV) Gear Cover Ass'y Pushing Button Lock Pin	Housing Ass'y Stator Packing Gland Ball Bearing (6201VV) Spindle Gear and Pinion Set			

Hitachi Power Tools

LIST NO. E270

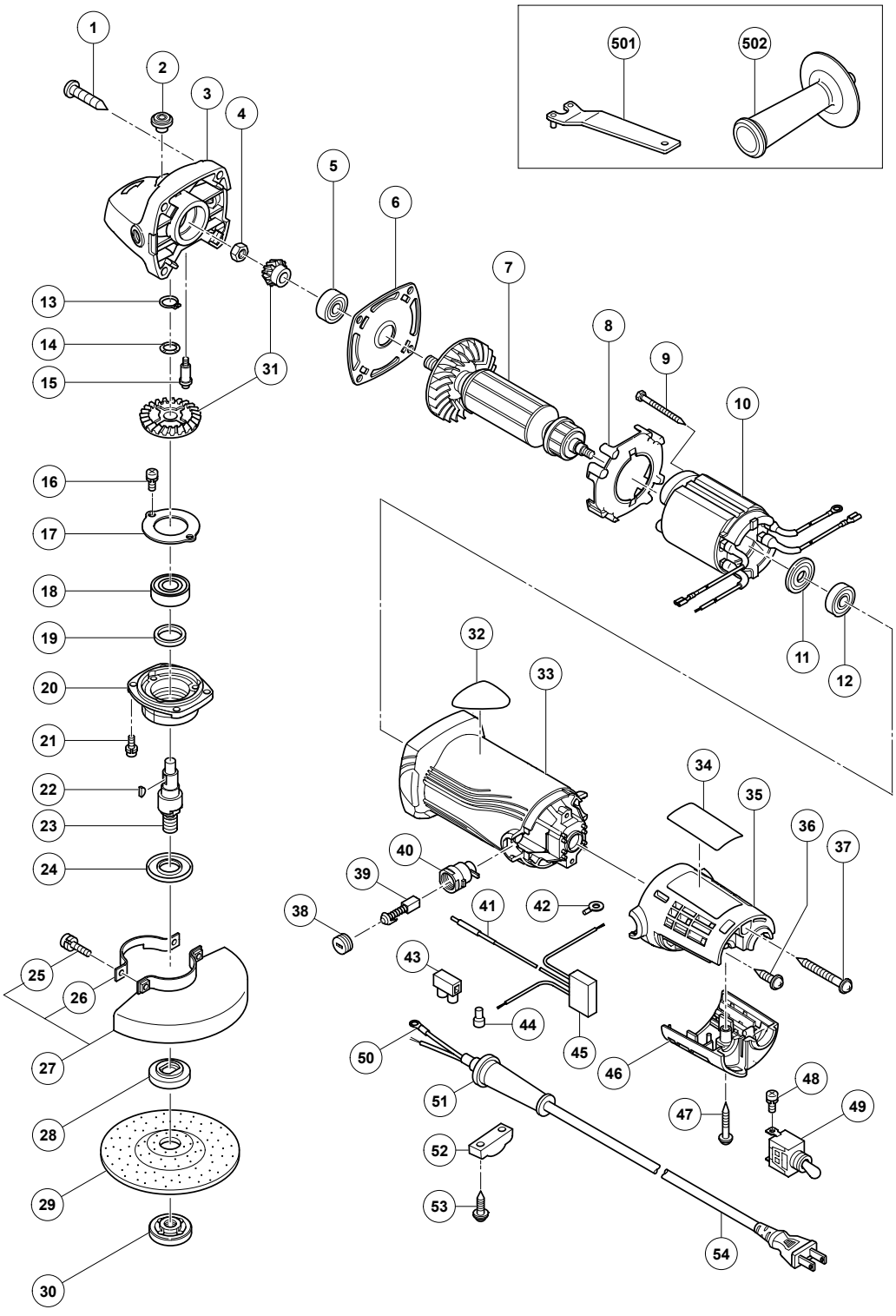
ELECTRIC TOOL PARTS LIST

■ DISC GRINDER

2005・9・5

Model PDA-100M

(E1)



	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	1	320-523	TAPPING SCREW D5X25 (BLACK)	4		
	2	301-944	PUSHING BUTTON	1		
	3	316-484	GEAR COVER ASS'Y	1	INCLUD. 2, 15	
	4	301-941	SPECIAL NUT M7	1		
	5	628-VVC	BALL BEARING 628VVC2PS2-L	1		
	6	316-480	BEARING HOLDER	1		
*	7	360-744C	ARMATURE 110V	1		
*	7	360-744G	ARMATURE 220V	1		
*	7	360-744E	ARMATURE 230V	1		
*	7	360-744F	ARMATURE 240V	1		
	8	319-898	FAN GUIDE	1		
	9	319-358	TAPPING SCREW (W/FLANGE) D4X70	2		
*	10	340-649C	STATOR (A) 110V	1		
*	10	340-649E	STATOR (A) 220V-240V	1		
	11	315-877	DUST SEAL	1		
	12	608-VVM	BALL BEARING 608VVC2PS2L	1		
	13	316-487	RETAINING RING FOR D11 SHAFT	1		
	14	316-486	WAVE WASHER	1		
	15	301-943	LOCK PIN	1		
	16	997-263	SEAL LOCK SCREW (W/SP. WASHER) M4X10	2		
	17	316-490	BEARING COVER	1		
	18	620-1VV	BALL BEARING 6201VVCMPS2L	1		
	19	301-946	FELT PACKING	1		
	20	316-489	PACKING GLAND	1		
	21	307-127	SEAL LOCK SCREW (W/SP. WASHER) M4X12	4		
	22	302-047	WOODRUFF KEY	1		
	23	316-485	SPINDLE	1		
	24	301-945	FRINGER	1		
	25	308-386	MACHINE SCREW (W/SP. WASHER) M5X16 (BLACK)	2		
	26	301-949	SET PLATE	1		
	27	301-948	WHEEL GUARD ASS'Y	1	INCLUD. 25, 26	
	28	320-497	WHEEL WASHER	1		
	29	316-820	D. C. WHEELS 100MMX4T A36Q (25 PCS.)	1		
	30	321-795	WHEEL NUT (C)	1		
	31	321-450	GEAR AND PINION SET	1		
	32		HITACHI LABEL	1		
	33	325-140	HOUSING	1		
	34		NAME PLATE	1		
	35	325-143	TAIL COVER (A)	1		
	36	302-086	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	1		
	37	306-664	TAPPING SCREW (W/FLANGE) D4X40	1		
	38	936-551	BRUSH CAP	2		
	39	999-021	CARBON BRUSH (1 PAIR)	2		
	40	313-777	BRUSH HOLDER	2		
*	41	314-854	EARTH TERMINAL	1	FOR TPE	
*	42	980-063	TERMINAL	1	FOR NOISE SUPPRESSOR	
*	43	938-307	PILLAR TERMINAL	1	FOR SIN, IND	
*	44	959-140	CONNECTOR 50091 (10 PCS.)	1	EXCEPT FOR SIN, IND	
*	45	994-273	NOISE SUPPRESSOR	1	FOR TPE	
*	46	325-141	TAIL COVER (B)	1		
*	46	325-142	TAIL COVER	1	FOR SYR	

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	47	304-035	TAPPING SCREW (W/FLANGE) D4X25 (BLACK)	1		
	48	305-499	MACHINE SCREW (W/WASHER) M3.5X6	2		
	49	955-509	SWITCH (1P SCREW TYPE)	1		
*	50	980-063	TERMINAL	1	FOR CORD	
	51	953-327	CORD ARMOR D8.8	1		
	52	937-631	CORD CLIP	1		
*	53	984-750	TAPPING SCREW (W/FLANGE) D4X16	2	FOR SYR	
*	54	500-231Z	CORD	1		
*	54	500-409Z	CORD	1	FOR INA, IND	
*	54	500-447Z	CORD	1	FOR SYR	
*	54	500-468Z	CORD	1	FOR THA	
*	54	500-470Z	CORD	1	FOR TPE	

STANDARD ACCESSORIES

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	501	313-933	WRENCH	1		
*	502	302-142	SIDE HANDLE	1	FOR TPE, SIN, KUW	

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
601	302-098	GUIDE BASE	1		
602	302-099	WHEEL GUARD FOR 100MM CUT-OFF WHEEL	1		
603	984-646	WHEEL NUT FOR 100MM CUT-OFF WHEEL	1		
604	323-918	DUST COLLECTION ADAPTER (DISC GRINDER)	1		
605	314-053	SANDING DISCS 100MM C-P24 (10 PCS.)	1		
606	314-054	SANDING DISCS 100MM C-P30 (10 PCS.)	1		
607	314-057	SANDING DISCS 100MM C-P50 (10 PCS.)	1		
608	314-059	SANDING DISCS 100MM C-P80 (10 PCS.)	1		
609	314-061	SANDING DISCS 100MM C-P120 (10 PCS.)	1		
610	314-051	SANDING DISCS 100MM C-P16 (10 PCS.)	1		
611	314-052	SANDING DISCS 100MM C-P20 (10 PCS.)	1		
612	314-055	SANDING DISCS 100MM C-P36 (10 PCS.)	1		
613	314-056	SANDING DISCS 100MM C-P40 (10 PCS.)	1		
614	314-058	SANDING DISCS 100MM C-P60 (10 PCS.)	1		
615	314-060	SANDING DISCS 100MM C-P100 (10 PCS.)	1		
616	954-021	SIDE HANDLE	1		
617	935-513	WASHER NUT M10XP1.5	1		
618	936-548	WASHER	1		
619	936-558Z	RUBBER PAD	1		

* ALTERNATIVE PARTS

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