

Hitachi Power Tools

SERVICE MANUAL

LIST No.
SP 18VA: 0352
Jun. 2002

PRODUCT NAME

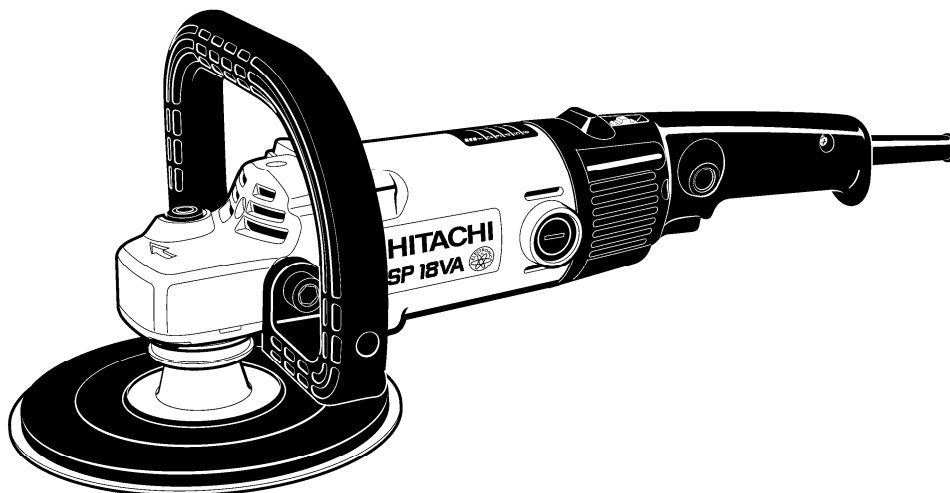
Hitachi Electronic Sander Polisher

Model SP 18VA

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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 exploded assembly diagram for the Model SP 18VA.

1-1. Disassembly of the Armature Ass'y

- (1) Loosen the two Brush Caps **[45]**, and take out the Carbon Brushes **[46]**.
- (2) Remove the four Tapping Screws (W/Flange) D5 x 30 **[2]**. The Armature Ass'y **[13]** can then be taken out simultaneously with the Gear Cover Ass'y **[5]**, Packing Gland **[30]** and related parts.
- (3) Remove the four Seal Lock Screws (W/Sp. Washer) M5 x 14 (Black) **[31]**, and remove the Packing Gland **[30]**, and related parts.
- (4) After removing the three Seal Lock Screws (W/Sp. Washer) M4 x 10 **[1]**, the Armature Ass'y **[13]** can be extracted together with the Bearing Cover (B) **[12]**, and related parts.
- (5) Carefully wrap the Armature Ass'y **[13]** with a soft, clean rag to protect it from being damaged, and clamp it securely in a vise. Remove the Retaining Ring for D8 Shaft.
- (6) As illustrated in Fig. 1, the Ball Bearing 6200DDCMPS2L **[9]** can be removed from the Armature Ass'y **[13]** by utilizing a J-204 Bearing Puller (special repair tool, Code No. 970982).
After the Ball Bearing has been removed, Bearing Cover (B) **[12]** can be easily taken off.

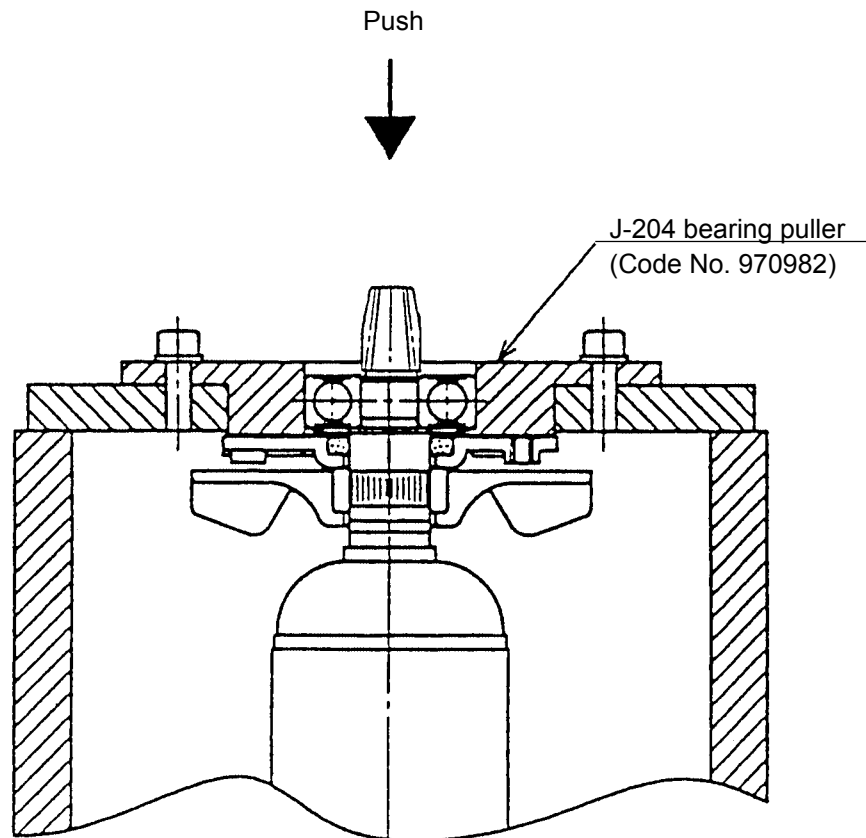


Fig. 1

1-2. Disassembly of the Stator Ass'y

- (1) After taking out the Armature Ass'y [13], loosen the four Tapping Screws (W/Flange) D5 x 20 (Black) [51], and the two Tapping Screws (W/Flange) D4 x 20 (Black) [52] and remove Handle (A) [50] and Handle (B) [49].
- (2) Disconnect the lead wires of the Stator Ass'y [16] from the Controller Switch [42].
- (3) Disconnect the Brush Terminal [17] from the Brush Holders [47] and take out the Bearing Bushing [41].
- (4) Finally, loosen the two Hex. Hd. Tapping Screws D5 x 60 [15], and the Stator Ass'y [16] can be taken out of the Housing Ass'y [35]. If the Stator Ass'y [16] cannot be easily taken out of the Housing Ass'y [35], disassembly can be facilitated by heating the Housing Ass'y to a temperature of approximately 60°C (140°F) with an appropriate heating device.

1-3. Disassembly of the Gear

- (1) Loosen the four Seal Lock Screws (W/Sp. Washer) M5 x 14 (Black) [31], and remove the Packing Gland [30] together with the Spindle [27] and the Gear [22] from the Gear Cover Ass'y [5] as a unit.
- (2) When it is necessary to remove the Gear [22] from the Spindle [27], it is highly recommended that the special repair tools described below be utilized.

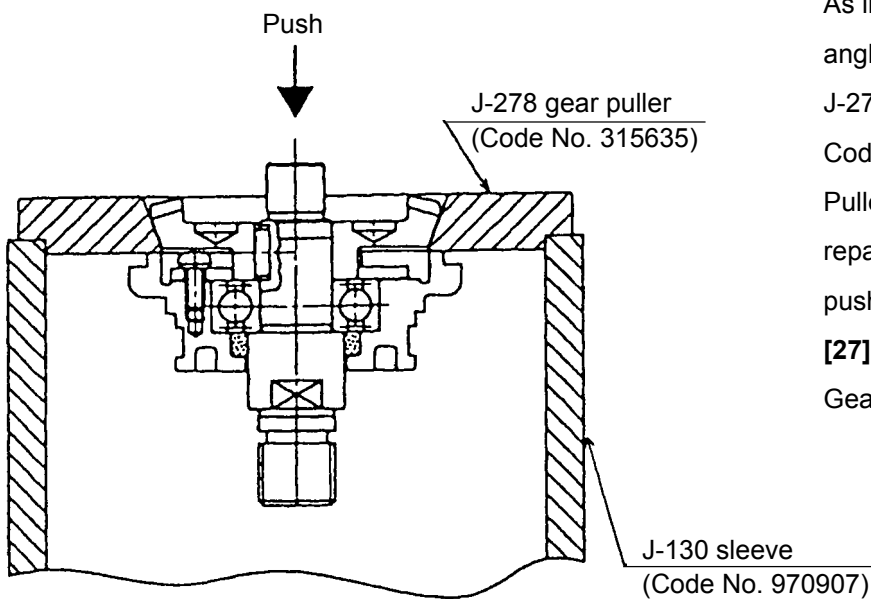


Fig. 2

As illustrated in Fig. 2, support the angled surface of the Gear [22] with a J-278 Gear Puller (special repair tool, Code No. 315635), rest the J-278 Gear Puller on the J-130 Sleeve (special repair tool, Code No. 970907), and push down on the tip of the Spindle [27] with a hand press to remove the Gear [22].

1-4. Reassembly

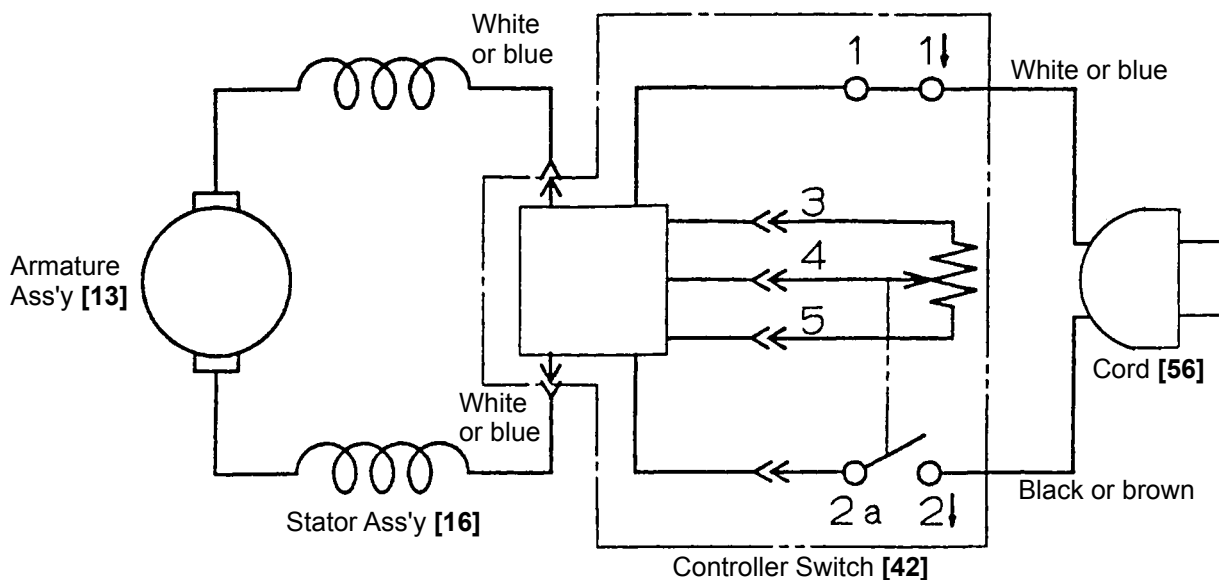
Perform reassembly in the reverse order of disassembly while observing the given precautions and taking care of the following points.

- (1) After disassembly, thoroughly remove old grease from the inside of the Gear Cover Ass'y [5], and insert 25 g of new grease (Nippeco JF-375, Code No. 930036, is recommended.) prior to reassembly. When inserting grease, apply it to the pinion gear teeth surfaces, and to the needle bearing inside the gear cover.
- (2) When replacing the ball bearing on the commutator side of the Armature Ass'y [13], be very careful to ensure that the Dust Seal [34] is assembled in the proper direction. The Dust Seal [34] plays an important role in dustproofing of the ball bearing, and must be replaced with a new one if disassembled.
- (3) Apply Three Bond TB 1406 Screw Locking Agent to the following screws.
 - Three Seal Lock Screws (W/Sp. Washer) M4 x 10 [1] which fix Bearing Cover (B) [12] in place.
 - Three Seal Lock Screws (W/Sp. Washer) M4 x 10 [23] which fix Bearing Cover (A) [24] in place.
 - Four Seal Lock Screws (W/Sp. Washer) M5 x 14 (Black) [31] which fix Packing Gland [30] in place.

1-5. Tightening Torque

D4 Tapping Screws (W/Flange) [53], [52], [43]	2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs.)
D5 Tapping Screws (W/Flange) [51] [2]	}	2.9 ± 0.5 N·m (30 ± 5 kgf·cm, 2.2 ± 0.4 ft-lbs.)
D5 Hex. Hd. Tapping Screw [15]		
M4 Seal Lock Screw (W/Sp. Washer) [23], [1]	1.8 ± 0.4 N·m (18 ± 4 kgf·cm, 1.3 ± 0.3 ft-lbs.)
M5 Seal Lock Screw (W/Sp. Washer) [31]	3.4 ± 0.7 N·m (35 ± 7 kgf·cm, 2.5 ± 0.5 ft-lbs.)

1-6. Wiring Diagram



1-7. Insulation Tests

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

Insulation resistance: 10 M Ω or more with DC 500V megohm tester

Dielectric strength test: AC 4,400 V for 1 minute, with no abnormalities 220 V – 240 V

AC 3,000 V for 1 minute, with no abnormalities 110 V – 120 V

1-8. Gear Backlash Value

Gear backlash should be maintained at a value of 2 mm or less measured at the outer edge of a fresh depressed center wheel.

1-9. No-Load Current Value

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

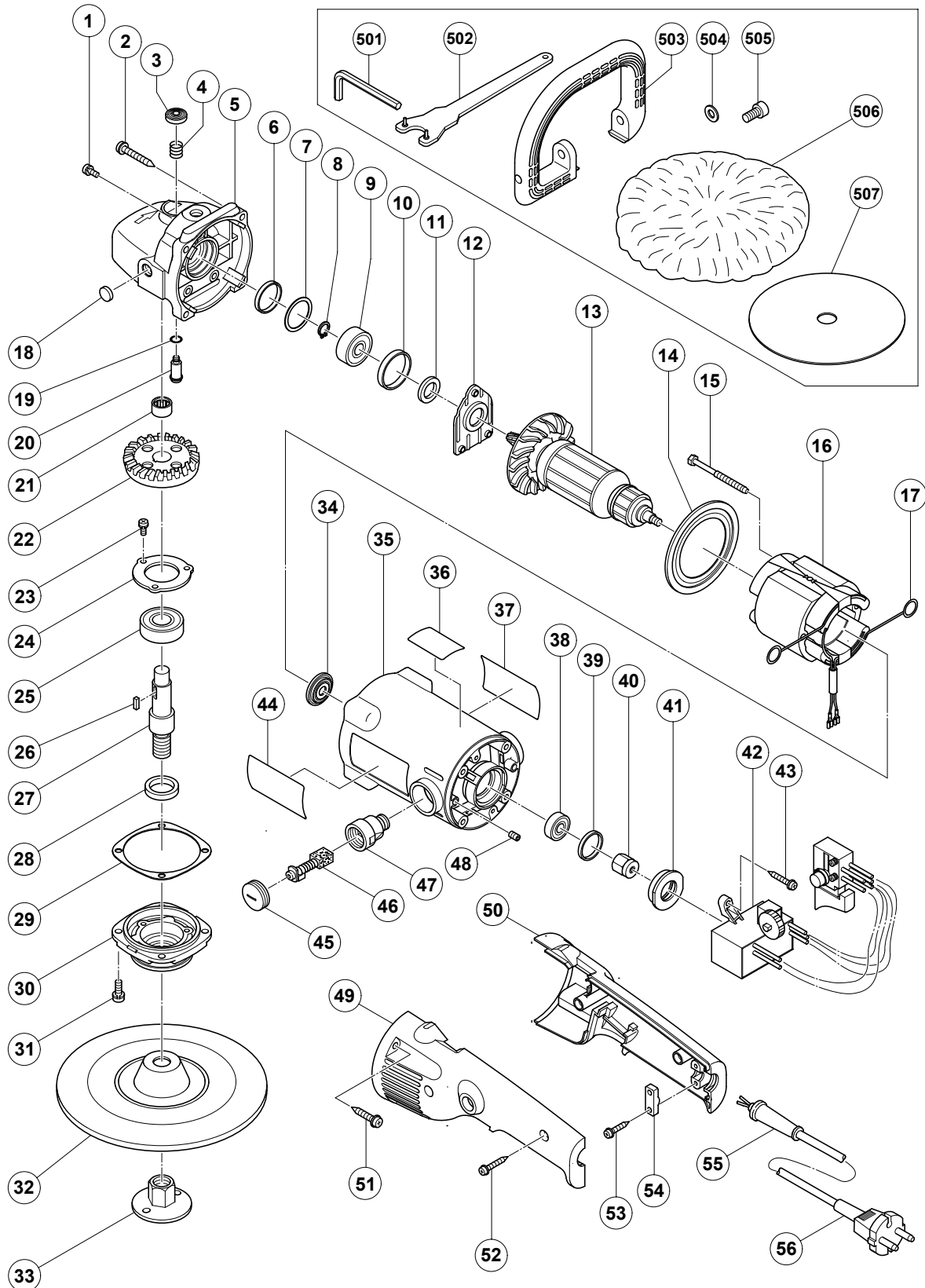
Voltage (V)	110	120	220	230	240
Current (A) max.	6.8	6.8	3.9	3.9	3.9

2. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
SP 18VA		Work Flow						
	General Assembly				Armature Ass'y Gear Cover Ass'y Ball Bearing (6200DD) Ball Bearing (608VV) Dust Seal Felt Packing (B)			
				Needle Bearing Seal Packing Lock Pin	Gear		Ball Bearing (6202DD) Spindle Felt Packing (A) Packing Gland	
		Handle (B)		Handle (A) Control Switch Cord				

ELECTRIC TOOL PARTS LIST

■ ELECTRONIC SANDER POLISHER 2002 · 6 · 20 Model SP 18VA (E1)



PARTS

SP 18VA

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	303-255	SEAL LOCK SCREW (W/SP. WASHER) M4X10	3	
2	305-507	TAPPING SCREW (W/FLANGE) D5X30	4	
3	306-888	PUSHING BUTTON	1	
4	306-889	SPRING	1	
5	320-936	GEAR COVER ASS'Y	1	INCLUD.3,4,18-21
6	315-055	SEAL RING (A)	1	
7	315-054	WASHER (A)	1	
8	939-540	RETAINING RING FOR D10 SHAFT (10 PCS.)	1	
9	620-0DD	BALL BEARING 6200DDCMPS2L	1	
10	315-053	RUBBER RING (A)	1	
11	315-052	FELT PACKING (B)	1	
12	315-051	BEARING COVER (B)	1	
* 13	360-576U	ARMATURE ASS'Y 110V-120V	1	INCLUD.9,11,34,38
* 13	360-576E	ARMATURE 220V-240V	1	
14	315-046	FAN GUIDE	1	
15	961-501	HEX. HD. TAPPING SCREW D5X60	2	
* 16	340-526C	STATOR ASS'Y 110V	1	INCLUD.17
* 16	340-526D	STATOR ASS'Y 120V	1	INCLUD.17
* 16	340-526E	STATOR ASS'Y 220V-240V	1	INCLUD.17
17	930-703	BRUSH TERMINAL	2	
18	315-049	FELT WASHER	1	
19	320-218	O-RING	1	
20	315-050	LOCK PIN	1	
21	871-397	NEEDLE BEARING (NTN HK1210)	1	
22	320-937	GEAR	1	
23	987-201	SEAL LOCK SCREW (W/SP. WASHER) M4X10	3	
24	937-077	BEARING COVER (A)	1	
25	620-2DD	BALL BEARING 6202DDCMPS2L	1	
26	940-533	FEATHER KEY 3X3X10	1	
* 27	320-943	SPINDLE	1	
* 27	320-944	SPINDLE	1	FOR USA,CAN
28	315-062	FELT PACKING (A)	1	
29	315-060	SEAL PACKING	1	
30	315-061	PACKING GLAND	1	
31	315-636	SEAL LOCK SCREW (W/SP.WASHER)M5X14(BLACK)	4	
* 32	953-255	RUBBER PAD (D16 HOLE)	1	FOR USA,CAN
* 32	953-247Z	RUBBER PAD (D14 HOLE)	1	FOR USA,CAN
* 33	953-246Z	WASHER NUT M14	1	
* 33	953-254P	WASHER NUT 5/8"-11UNC	1	FOR USA,CAN
34	315-047	DUST SEAL	1	
35	320-945	HOUSING ASS'Y	1	INCLUD.39,41,47,48
36	320-948	SETTING LABEL	1	
* 37		NAME PLATE	1	
38	608-VVM	BALL BEARING 608VVC2PS2L	1	
39	995-662	RUBBER RING	1	
40	318-721	MAGNET	1	
41	320-946	BEARING BUSHING	1	
* 42	320-941	CONTROLLER SWITCH	1	
* 42	320-940	CONTROLLER SWITCH	1	FOR GBR (110V),USA,CAN
43	305-095	TAPPING SCREW (W/FLANGE) D4X20	2	
44		HITACHI LABEL	1	

