

# Hitachi Power Tools

SERVICE MANUAL

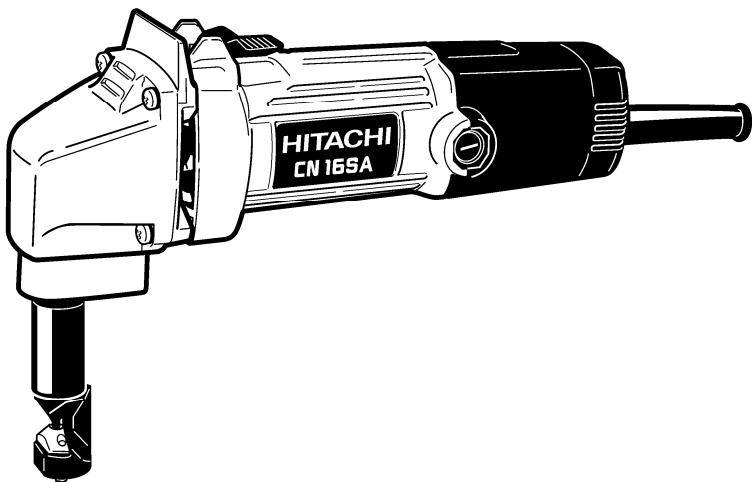
LIST No.  
CN 16SA: 0796  
Dec. 2003

PRODUCT NAME .....

Hitachi Nibbler  
Model CN 16SA

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CONTENTS	Page
PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY .....	1
1. Disassembly .....	1
2. Reassembly .....	2
3. Lubrication Points and Types of Lubricant .....	3
4. Tightening Torque .....	3
5. Wiring Diagrams .....	4
6. Insulation Tests .....	5
7. No-load Current Value .....	5
STANDARD REPAIR TIME (UNIT) SCHEDULES .....	6



## % 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.

### %1. Disassembly

#### (1) Disassembly of the Armature **[12]**:

- ① Loosen the Brush Caps **[39]** and take out the Carbon Brushes **[40]**.
- ② Loosen the four Tapping Screws D5 x 30 **[1]**, remove the Gear Cover **[2]**, and take out the Armature **[12]** together with the Inner Cover **[9]** in a single body from the Housing Ass'y **[30]**.
- ③ As illustrated in Fig. 1, support the Inner Cover **[9]** with an appropriate tubular jig (inner diameter: 63 mm to 72 mm), and press down on the pinion portion of the armature shaft with a hand press to loosen and remove the Armature **[12]**.

#### (2) Disassembly of the Stator **[15]**:

- ① After the Armature **[12]** has been disassembled, loosen the Tapping Screw (W/Flange) D4 x 45 **[49]**, and remove the Tail Cover **[48]**.
- ② Remove the four internal wires from the Stator **[15]** connected with the Brush Holder **[41]**, the Pillar Terminal **[37]** and the Switch **[42]**.
- ③ Remove the Fan Guide **[13]** from the Housing Ass'y **[30]**.
- ④ After removing the two Hex. Hd. Tapping Screws D4 x 70 **[14]**, gently tap the end surface of the Housing Ass'y **[30]** (gear cover side) with a wooden hammer to loosen and remove the Stator **[15]** from the Housing Ass'y **[30]**.

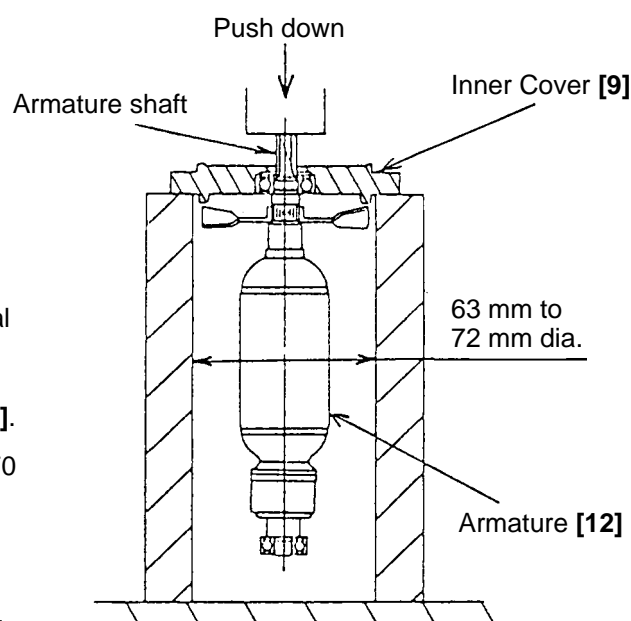


Fig. 1

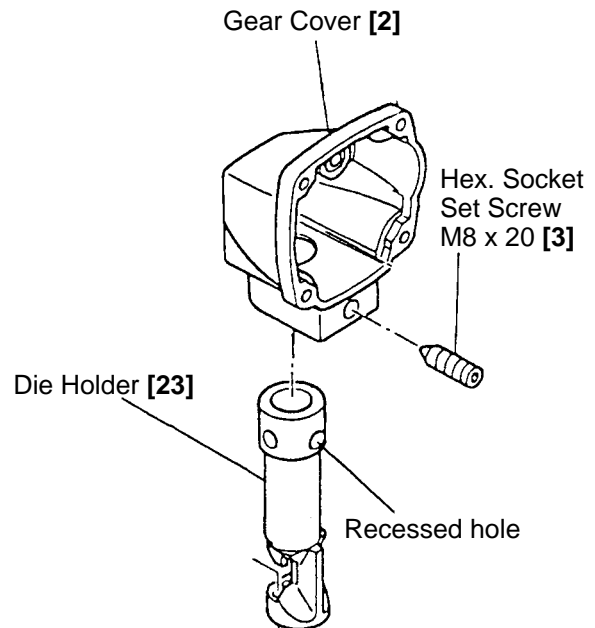
#### (3) Disassembly of the gear cover section:

- ① Loosen the four Tapping Screws D5 x 30 **[1]** and remove the Gear Cover **[2]**.
- ② Remove the Second Pinion and Gear Set **[5]** and the Spindle and Gear Set **[8]**.
- ③ Loosen the Hex. Socket Set Screw M8 x 20 **[3]**, and remove the Die Holder **[23]**.
- ④ From the Gear Cover **[2]**, take out the Connecting Rod Ass'y **[6]**, the Piston **[20]**, and the Punch **[22]**.
- ⑤ Loosen the Hex. Socket Set Screw M5 x 6 **[21]** and remove the Punch **[22]**.
- ⑥ Fit an appropriate slender rod against either end of the Pin D6 **[19]**, press the slender rod through with a hand press to remove the Pin D6 **[19]**, and separate the Connecting Rod Ass'y **[6]** and the Piston **[20]**.

## %2. Reassembly

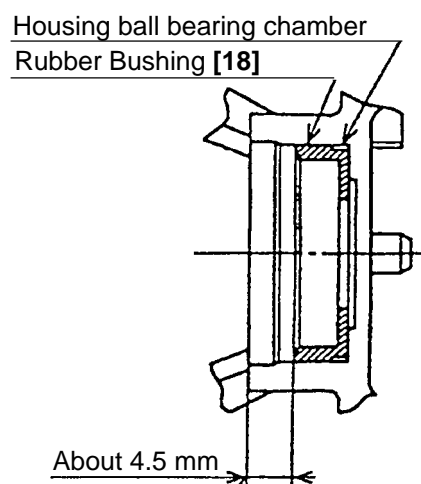
Reassembly can be accomplished by following the disassembly procedures in reverse. However, special attention should be given to the following items.

- (1) Grease (Nippeko Grease (SEP-3A) is recommended) is used inside the Gear Cover [2]. Prior to reassembly , thoroughly remove the old grease and apply fresh grease liberally to the following parts: the pinion portion of the Armature [12], the Second Pinion and Gear Set [5], the Spindle and Gear Set [8], the gear portion of the spindle, the Connecting Rod Ass'y [6], the Needle Bearing (M152112) [7], the needle bearing portion of the Inner Cover [9], the Piston [20], the Punch [22], and the inner circumference of the Die Holder [23] where the piston slides.



**Fig. 2**

- (2) When press-fitting the Needle Bearing (M152112) [7] into the Connecting Rod Ass'y [6] with a hand press, fit an appropriate jig against engraved surface end of the needle bearing to push it properly into the connecting rod ass'y.
- (3) When reassembling the Die Holder [23] into the Gear Cover [2] (see Fig. 2), carefully ensure that the Hex. Socket Set Screw M8 x 20 [3] is properly aligned with the recessed hole on the blade holder. Then, tighten the Hex. Socket Set Screw M8 x 20 [3] to rated torque.
- (4) Fit the Rubber Bushing [18] into the housing ball bearing chamber before installing the Armature [12] (see Fig. 3).



**Fig. 3**

- (5) When installing the Stator [15] into the Housing Ass'y [30], insert it while taking care of the placement of the internal wires of the stator [15] as indicated in Fig. 4. Connect the four internal wires of the Stator [15] with the parts indicated in Fig. 4.

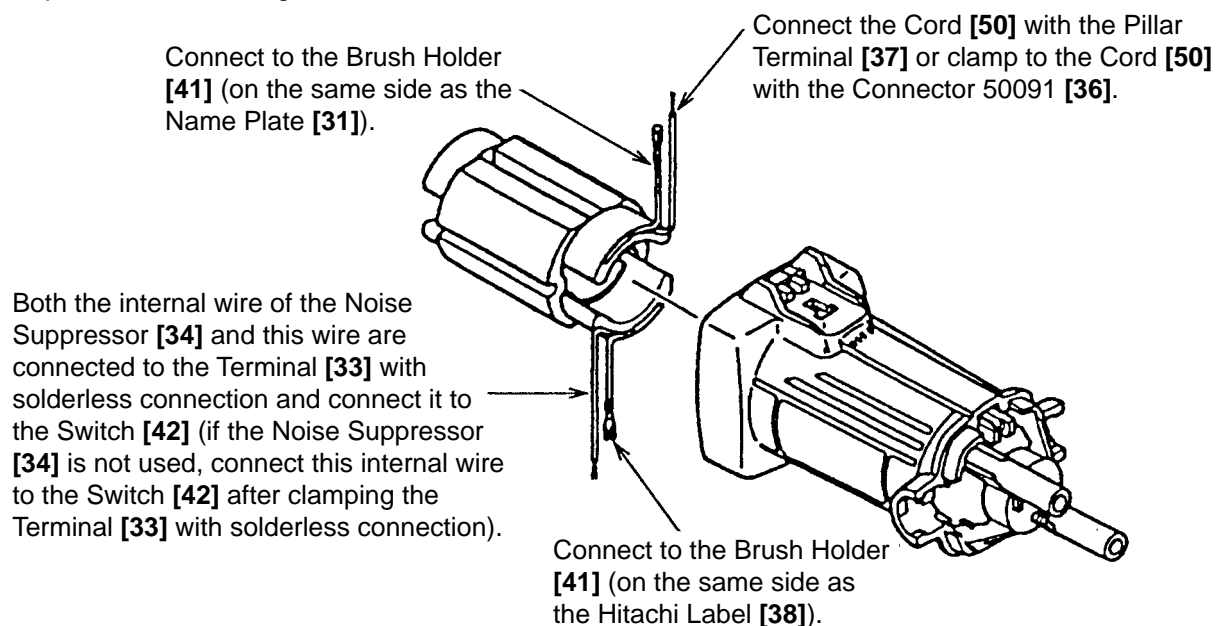


Fig. 4

- (6) When connecting the Earth Terminal [32] to the internal wire (the middle wire among three) of the Noise Suppressor [34], strip the insulation sheath on the internal wire by about 6 mm and press-connect it together with the Earth Terminal [32] with a clamping tool on the market.

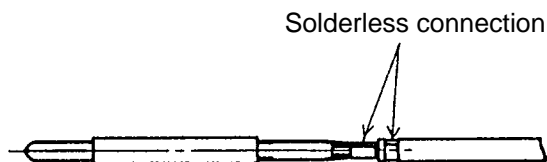


Fig. 5

### %3. Lubrication Points and Types of Lubricant

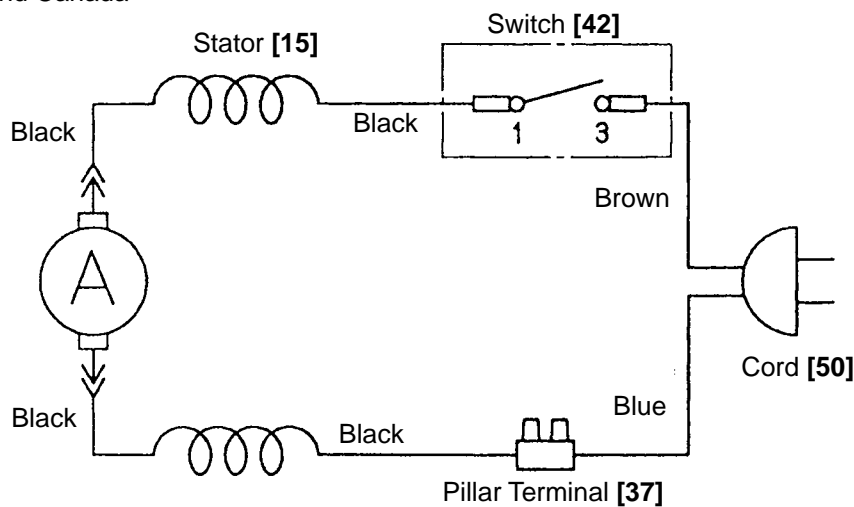
Anytime the Gear Cover [2] is disassembled, thoroughly clean out the old grease and insert 15 grams (.53 oz) of new grease (Nippeko grease (SEP-3A)) prior to reassembly.

### %4. Tightening Torque

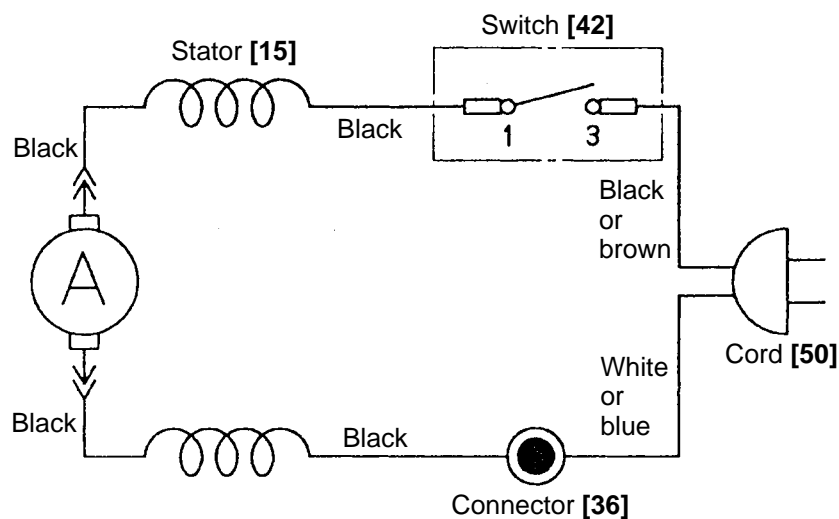
- |  |   |
|--|---|
| (1) Tapping Screws (W/Flange) D4 [46] [49] ..... | 2.0 ± 0.5 N·m (20 ± 5 kgf·cm, 1.5 ± 0.4 ft-lbs.)  |
| (2) Tapping Screw D5 x 30 [1] .....              | 2.9 ± 0.5 N·m (30 ± 5 kgf·cm, 2.2 ± 0.4 ft-lbs.)  |
| (3) Hex. Socket Set Screw M8 x 20 [3] .....      | 8.8 ± 1.0 N·m (90 ± 10 kgf·cm, 6.3 ± 0.7 ft-lbs.) |
| (4) Brush Cap [39] .....                         | 0.6 ± 0.2 N·m (6 ± 2 kgf·cm, 0.4 ± 0.1 ft-lbs.)   |

**%5. Wiring Diagrams**

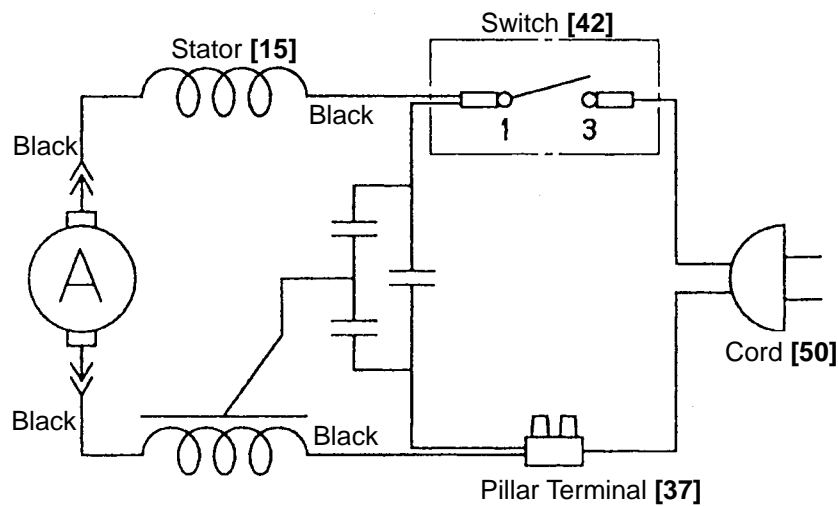
For the U.S.A. and Canada



For Hong Kong and Indonesia



For other countries



## %6. Insulation Tests

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

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

Dielectric strength: AC 4,000 V/1 minute, with no abnormalities ..... 220 V — 240 V  
(and 110 V for U.K. products)

AC 2,500 V/1 minute, with no abnormalities ..... 110 V — 120 V  
(except U.K. products)

## %7. No-load Current Value

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

Voltage	110 V	115 V	120 V	220 V	230 V	240 V
Current (Max.)	1.4 A	1.4 A	1.3 A	0.7 A	0.7 A	0.7 A

& STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
CN 16SA	General Assembly	Work Flow						
		Tail Cover Cord Armor		Switch Holder Snap Switch Cord				
				Slide Bar Spring Slide Knob	Housing Ass'y Stator			
				Armature Inner Cover Ball Bearing (608VV) Ball Bearing (626VV)				
				Connecting Rod Ass'y Ball Bearing (608VV) Second Pinion and Gear Set Needle Bearing Spindle and Gear Set	Gear Cover Piston			
		Die Holder						

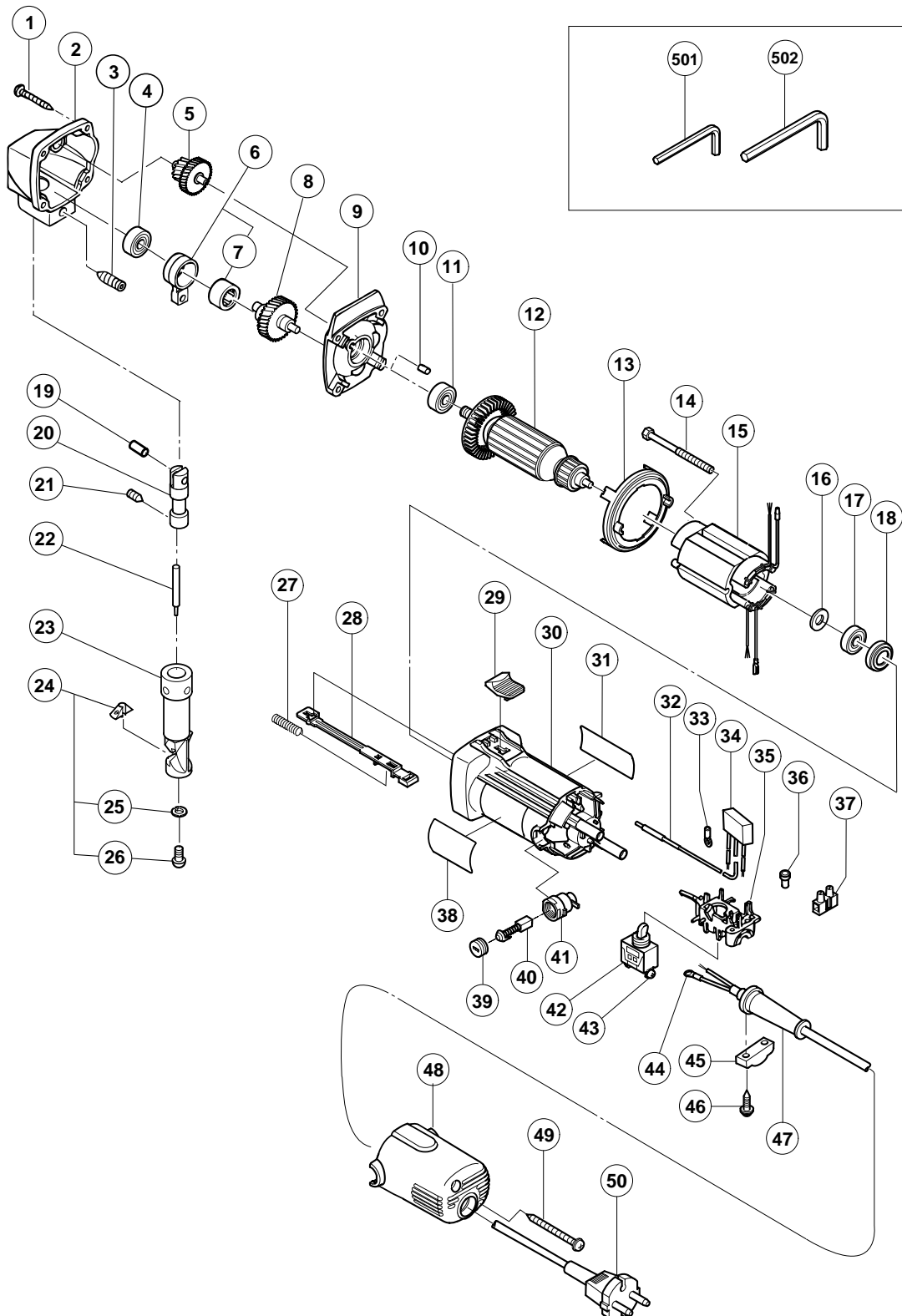
## ELECTRIC TOOL PARTS LIST

■ NIBBLER

2003 • 9 • 25

Model CN 16SA

(E1)





# PARTS

CN 16SA

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	957-580	TAPPING SCREW D5X30	4		
2	998-033	GEAR COVER	1		
3	998-008	HEX. SOCKET SET SCREW M8X20	1		
4	608-VVM	BALL BEARING 608VVC2PS2L	1		
5	998-036	SECOND PINION AND GEAR SET	1		
6	998-004	CONNECTING ROD ASS'Y	1	INCLUD. 7	
7	993-163	NEEDLE BEARING (M152112)	1		
8	998-035	SPINDLE AND GEAR SET	1		
9	998-032	INNER COVER	1		
10	931-701	BEARING LOCK	1		
11	608-VVM	BALL BEARING 608VVC2PS2L	1		
* 12	360-622C	ARMATURE 110V	1		
* 12	360-622U	ARMATURE ASS'Y 120V-127V	1	INCLUD. 11, 16, 17	
* 12	360-622E	ARMATURE 220V-230V	1		
* 12	360-622F	ARMATURE 240V	1		
13	306-840	FAN GUIDE	1		
14	982-021	HEX. HD. TAPPING SCREW D4X70	2		
* 15	340-567C	STATOR 110V	1		
* 15	340-567D	STATOR 120V-127V	1		
* 15	340-567E	STATOR 220V-230V	1		
* 15	340-567F	STATOR 240V	1		
16	942-204	WASHER	1		
17	626-VVM	BALL BEARING 626VVC2PS2L	1		
18	309-929	RUBBER BUSHING	1		
19	993-546	PIN D6	1		
20	998-034	PISTON	1		
21	998-037	HEX. SOCKET SET SCREW M5X6	1		
* 22	998-030	PUNCH	1		
* 22	998-041	PUNCH (A)	1	FOR TPE	
23	998-038	DIE HOLDER	1		
24	998-039	DIE ASS'Y	1	INCLUD. 25, 26	
25	949-451	SPRING WASHER M3 (10 PCS.)	2		
26	949-206	MACHINE SCREW M3X14 (10 PCS.)	2		
27	314-429	SPRING	1		
28	314-427	SLIDE BAR	1		
29	314-428	SLIDE KNOB	1		
30	314-438	HOUSING ASS'Y	1	INCLUD.18	
* 31		NAME PLATE	1		
* 32	314-854	EARTH TERMINAL	1	FOR NOISE SUPPRESSOR	
33	311-741	TERMINAL	1		
* 34	994-273	NOISE SUPPRESSOR	1	FOR TPE, HKG, NGU, NZL, AUS, GBR, SAF, EUROPE, NOR, SWE, DEN, FIN, SUI, KOR	
35	314-432	SWITCH HOLDER	1		
* 36	959-140	CONNECTOR 50091 (10 PCS.)	1	EXCEPT FOR TPE, HKG, NGU, NZL, AUS, GBR, SAF, EUROPE, NOR, SWE, DEN, FIN, SUI, KOR	
* 37	938-307	PILLAR TERMINAL	1	FOR TPE, HKG, NGU, NZL, AUS, GBR, SAF, EUROPE, NOR, SWE, DEN, FIN, SUI, KOR	
38		HITACHI LABEL	1		
39	936-551	BRUSH CAP	2		
40	999-021	CARBON BRUSH (1 PAIR)	2		
41	313-777	BRUSH HOLDER	2		

**CN 16SA**

- 3 -

## STANDARD ACCESSORIES

**CN 16SA**

[illegible]