



# MODEL CM 4SB

## 1. DISASSEMBLY/REASSEMBLY GUIDE

Disassembly and reassembly procedures which require particular attention are described below. The numbers in **[bold]** in the descriptions and the circled numbers in the following figures correspond to the item numbers in the Parts List and the exploded assembly diagram.

### 1-1. Disassembly

#### (1) Removal of the diamond wheel.

Remove the diamond wheel, being very careful to avoid damaging it and causing possible injury.

(Note that the Bolt M7 x 15 **[51]** which fixes the diamond wheel is left-hand threaded.)

#### (2) Disassembly of the gear cover and the base (Fig. 1).

- ① Loosen the three Machine Screws M5 x 25 **[21]** which fasten the Housing Ass'y **[17]** and the Gear Cover **[43]**, and remove the Gear Cover.
- ② Loosen the Wing Bolt M6 x 37 **[57]** that couples the Base **[54]** and the Gear Cover **[43]**, and take off the Spring Washer M6 **[56]** and the Sleeve **[55]**.
- ③ Next, extract the Roll Pin D6 x 32 **[53]** which fastens the Base **[54]** and the Gear Cover **[43]** and remove the Base.

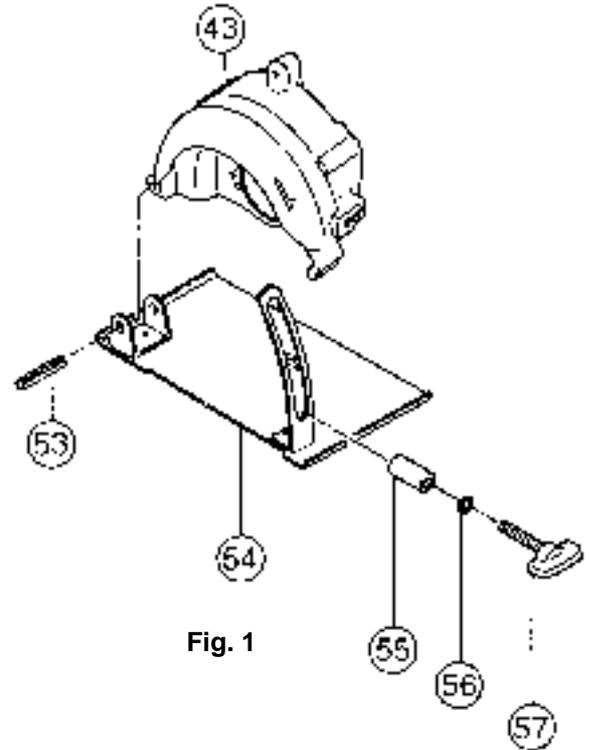


Fig. 1

#### (3) Disassembly of the spindle gear.

- ① Loosen the two Seal Lock Screws M5 x 25 **[50]**, and tap gently on the end surface of the Gear Cover **[43]** with a wooden or plastic hammer to loosen and remove the Bearing Holder **[40]**, the Spindle and Gear Set **[41]** and related parts, as shown in Fig. 2.
- ② Support the Bearing Holder **[40]** with an appropriate jig, and push down on the end surface of the spindle to take off the Spindle and Gear Set **[41]**, Distance Piece **[38]** and O-Ring **[36]** with a hand press.

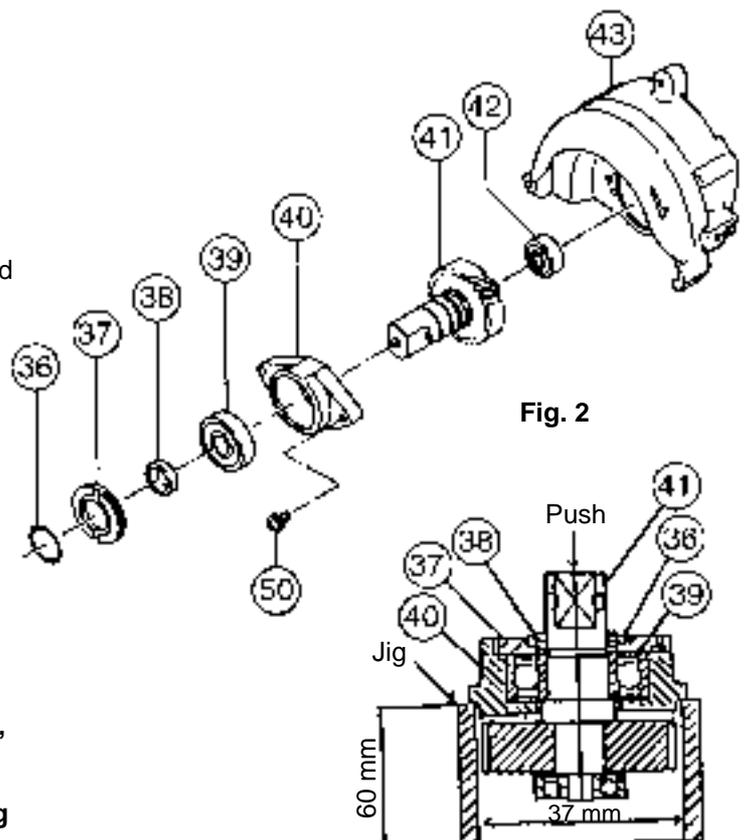


Fig. 2

**(CAUTION)** If the spindle must be replaced, replace both the spindle and the gear without fail. As they are joined by keyless pressure fitting, attempting to join old and new components will reduce the fitting strength.

(4) Disassembly of the armature (Fig. 3)

- ① Tap gently on the end surface of the Housing Ass'y [17] with a wooden or plastic hammer to loosen and remove the Armature [49].
- ② Extract the Pinion [44] and the Ball Bearing 629VVMC2EPS2L [45] with a bearing puller, and take off Washer (A) [47] and the Woodruff Key [48].
- ③ Finally, with a bearing puller, extract the Ball Bearing 608VVMC2EPS2L [9], and take off the Dust Seal [8].

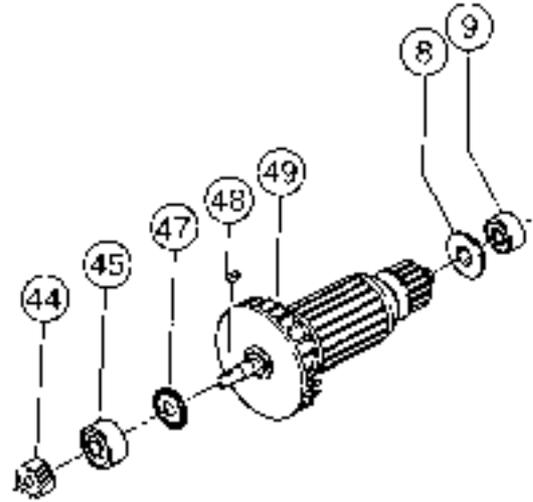
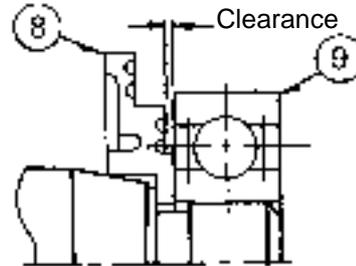
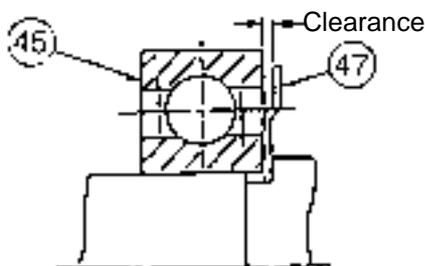


Fig. 3

**1-2. Reassembly**

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

- (1) Ensure that the Rubber Ring [46] is properly inserted into the bearing chamber of the Gear Cover [43]. During reassembly, be very careful not to damage the Rubber Ring.
- (2) When replacing the Ball Bearings [45] [9] only, be very careful to ensure that Washer (A) [47] and the Dust Seal [8] are reassembled in the proper direction.



**1-3. Lubrication**

- Insert 5 g of grease (Nippeco SEP-3A, Code No. 930035, is recommended) into the gear chamber of the Gear Cover [43].
- Liberally apply grease (Nippeco SEP-3A, Code No. 930035, is recommended) to the inner and outer surfaces of the Rubber Ring [46] and the O-Ring (1AP-20) [36].

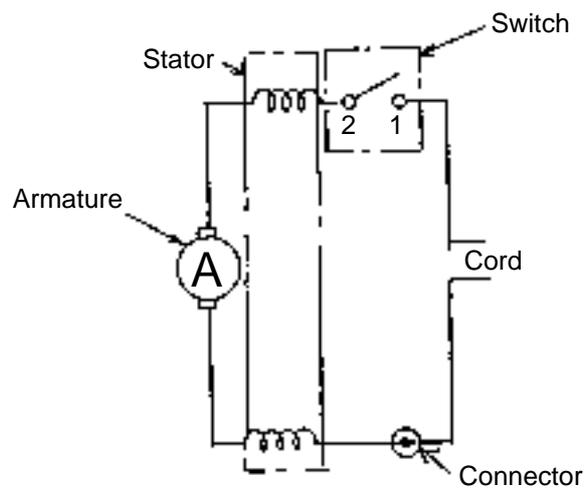
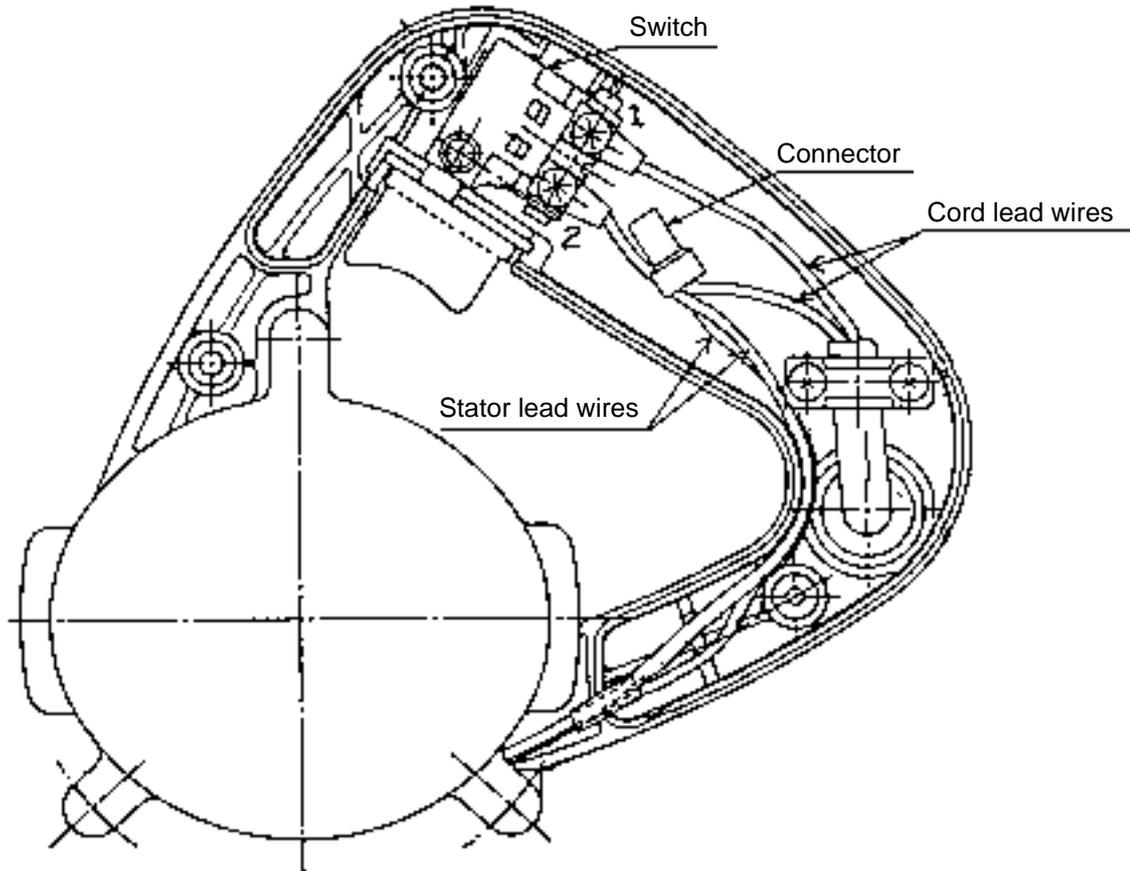
**1-4. Tightening Torque**

- D4 Tapping screws ..... 20 ± 5 kgf-cm (13 – 22 in-lbs)
- D5 Machine screws ..... 39 ± 11 kgf-cm (24 – 43 in-lbs)
- D5 Tapping screws ..... 35 ± 5 kgf-cm (26 – 35 in-lbs)

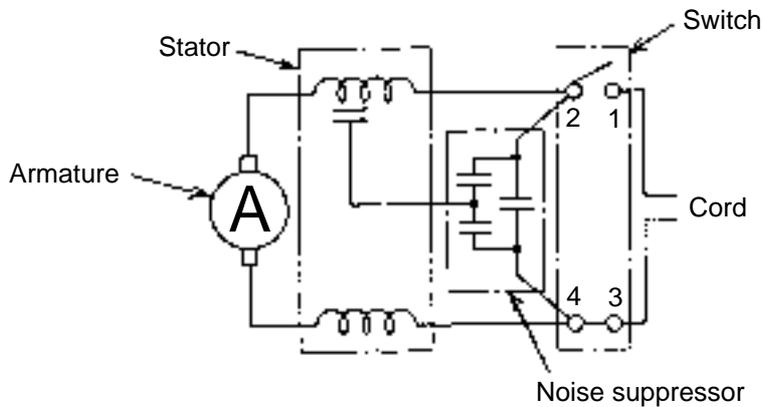
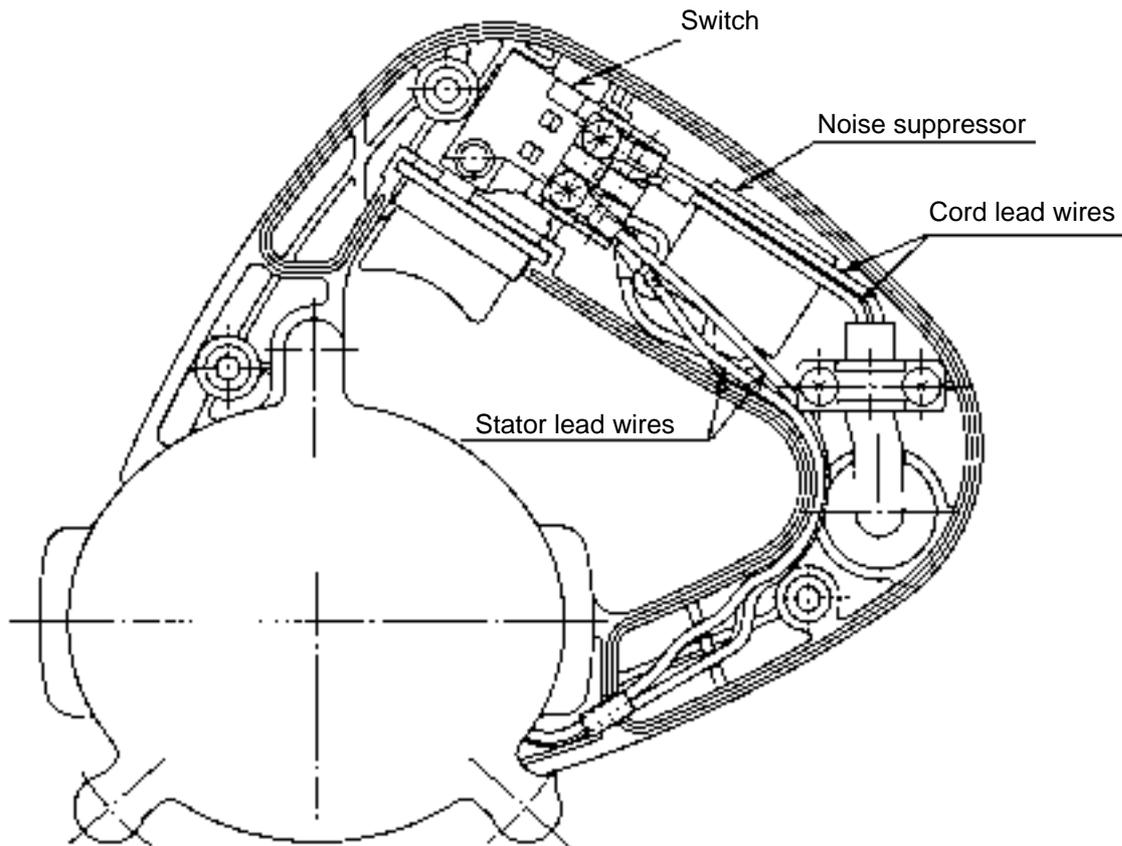
### 1-5. Wiring Diagram

To prevent rotation failure or reverse rotation, be very careful to ensure that wiring is connected properly.

(1) TYPE I.



(2) TYPE II



**1-6. Insulation Resistance Measurement and Dielectric Strength Test**

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

Insulation resistance: 7M $\Omega$  or more with DC 500V Megohm Tester

Dielectric strength: AC 4000V/1 minute, with no abnormalities ..... 220 V – 240 V products

AC 2500V/1 minute, with no abnormalities ..... 110 V – 127 V products

Runout of the diamond wheel: 0.6 mm maximum at the 100 mm dia. points

No-load current (after 30-minutes no-load operation): 110V 4.2A, 230 V 2.4 A  
220 V 2.1 A, 240 V 2.1 A

**2. STANDARD REPAIR TIME (UNIT) SCHEDULES**

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
CM 4SB		Work Flow						
		Cord Switch			Housing Ass'y Stator Ass'y			
	General Assembly			Armature Ball Bearing (608VV) Ball Bearing (629VV)				
		Base		Pinion Gear Cover Spindle and Gear Set Bearing Holder Bearing Cap Ball Bearing (606ZZ) Ball Bearing (6002VV)				