



# MODEL CN 16

## 1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY:

The circled numbers in the descriptions below correspond to the item numbers in the Parts List and exploded assembly diagram.

### 1-1. Disassembly:

#### (1) Disassembly of the Armature (7):

- A. Loosen the Brush Caps (32), and take out the Carbon Brushes (33).
- B. Loosen the four D5 x 30 Tapping Screws (1), remove the Gear Cover (2), and take out the Armature (7) together with the Inner Cover (4) in a single body from the Housing Ass'y (28).
- C. As illustrated in Fig. 9, support the Inner Cover (4) with an appropriate tubular jig (inner diameter of  $\phi 63 - \phi 72$  mm), and press down on the pinion portion of the Armature Shaft with a hand press to loosen and remove the Armature (7).

#### (2) Disassembly of the Stator Ass'y (9):

- A. After the Armature (7) has been disassembled, loosen the D4 x 16 Tapping Screw (39), and remove the Tail Cover (44).
- B. Disconnect the leadwires of the Stator Ass'y (9) from the Slide Switch (37).
- C. Loosen the D4 x 12 Tapping Screw (36) so that Slide Switch (37) can be moved about.
- D. Loosen the two D4 x 16 Tapping Screws (39), and take out the Switch Holder (38).
- E. Disconnect the Brush Terminals (10) from the Brush Holders (34).
- F. After removing the two D4 x 60 Tapping Screws (8), gently tap the end surface of the Housing Ass'y (28) (gear cover side) with a wooden hammer to loosen and remove the Stator Ass'y (9) from the Housing Ass'y (28).

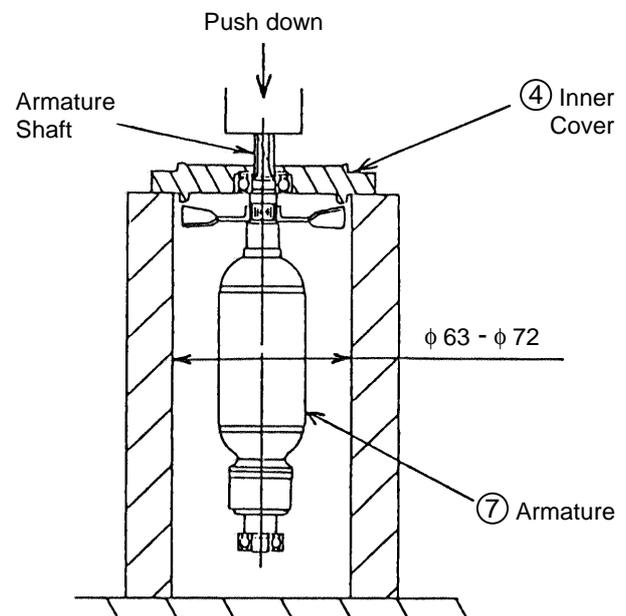


Fig. 9

#### (3) Disassembly of the Gear Cover Section:

- A. Loosen the four D5 x 30 Tapping Screws (1), and remove the Gear Cover (2).
- B. Remove the Second Pinion Gear (3) and the Spindle (23).
- C. Loosen the M8 x 20 Hexagon Socket Hd. Screw (20), and remove the Die Holder (16).
- D. From the Gear Cover (2), take out the Connecting Rod Ass'y (21), the Piston (13) and the Punch (15).
- E. Loosen the M5 x 6 Hexagon Socket Hd. Set Screw (14), and remove the Punch (15).
- F. Fit an appropriate slender against either end of the D6 Pin (12), press the slender rod through with a hand press to remove the D6 Pin, and separate the Connecting Rod Ass'y (21) and the Piston (13).

**1-2. Reassembly:**

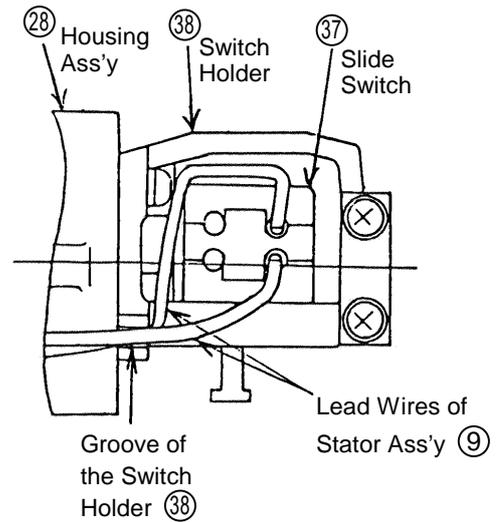
Reassembly can be accomplished by following the disassembly procedures in reverse. However, special attention should be given to the following items.

(1) Reassembly of the Housing Section:

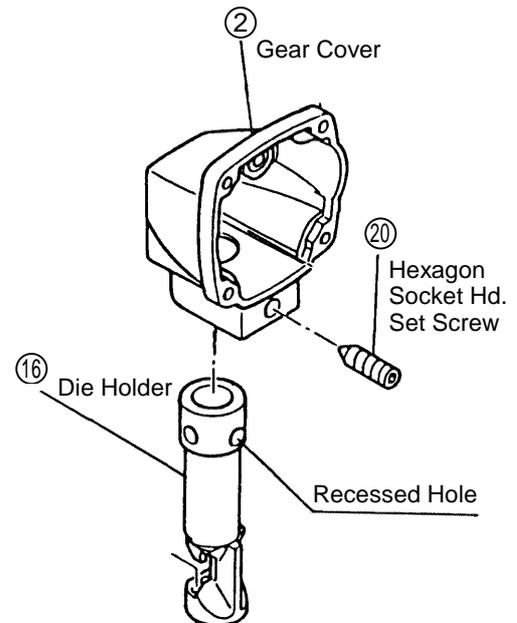
- A. Prior to reassembly of the Stator Ass'y (9), insert the Slide Bar (25) into the Housing Ass'y (28), mount Slide Switch Knob (B) (27) so that it is properly aligned with the Slide Bar (25), and assemble them tightly with the M4 x 12 Flat Hd. Screw (26).
- B. After connecting the two leadwires of the Stator Ass'y (9) to the Slide Switch (37) as illustrated in Fig. 10, push them into the groove provided on the Switch Holder (38) as shown.

(2) Reassembly of the Gear Cover Section:

- A. Grease (Hitachi Motor Grease No. 29, Code No. 930035, 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 (7), the Second Pinion Gear (3), the Spindle (23), the gear portion of the Spindle, the Connecting Rod Ass'y (21), the M152112 Needle Bearing (22), the needle bearing portion of the Inner Cover (4), the Piston (13), the Punch (15), and the inner circumference of the Die Holder (16) where the Piston slides.
- B. When press-fitting the M152112 Needle Bearing (22) into the Connecting Rod Ass'y (21) 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.
- C. When reassembling the Die Holder (16) into the Gear Cover (2) (see Fig. 11), carefully ensure that the M8 x 20 Hexagon Socket Hd. Screw (20) is properly aligned with the recessed hole on the Die Holder. Then, tighten the M8 x 20 Socket Hd. Screw (20) to rated torque.



**Fig. 10**



**Fig. 11**

**1-3. Lubrication:**

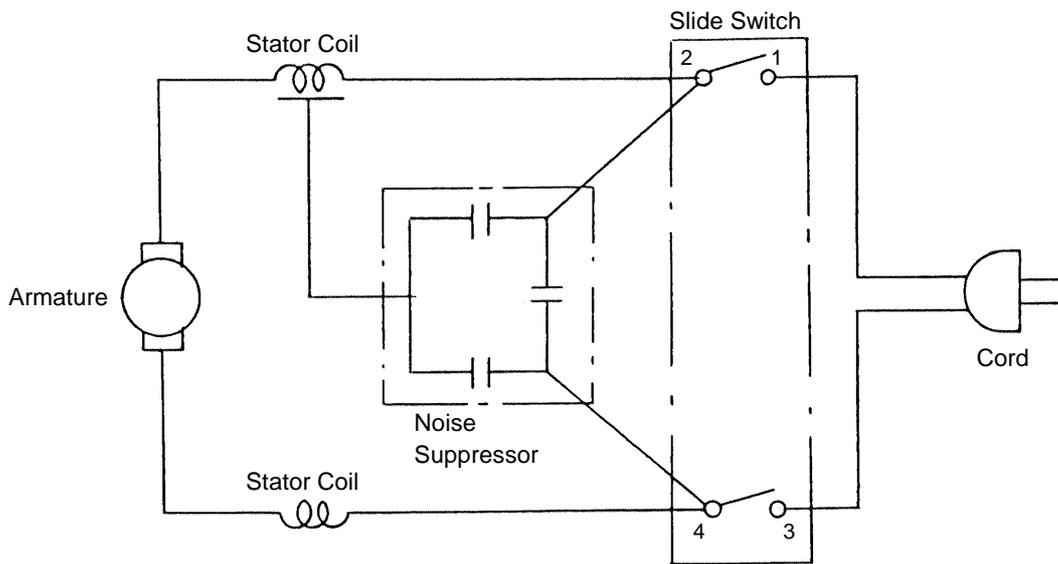
Within the Gear Cover ②, the grease (Hitachi Motor Grease No. 29, Code No. 930035, is recommended) is utilized. Apply 15 grams (.53 oz) of grease within the Gear Cover ②.

**1-4. Screw Tightening Torques:**

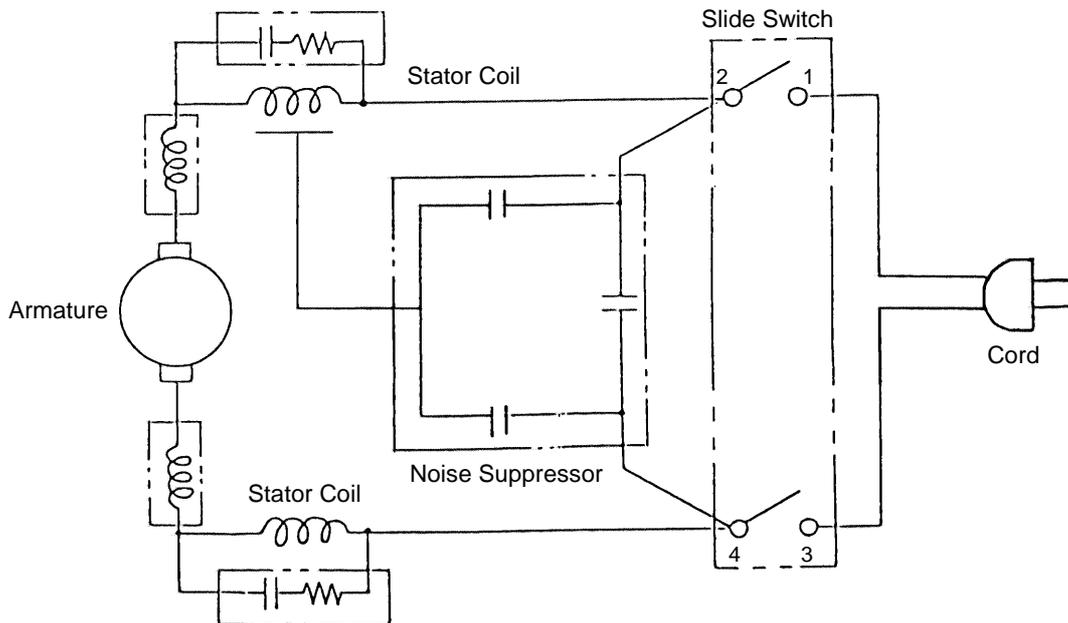
- (1) D5 Tapping Screws ① ..... 25 - 35 kg-cm (22 - 30 lb-in)
- (2) D4 Tapping Screws ⑧ ③⑥ ③⑨ ..... 15 - 25 kg-cm (13 - 22 lb-in)
- (3) M4 Flat Hd. Screw ②⑥ ..... 6 - 9 kg-cm ( 5 - 8 lb-in)
- (4) M5 Hexagon Socket Hd. Set Screw ①④ ..... 20 - 30 kg-cm (17 - 26 lb-in)
- (5) M8 Hexagon Socket Hd. Set Screw ②⑩ ..... 80 -100 kg-cm (70 - 90 lb-in)

**1-5. Wiring Diagram :**

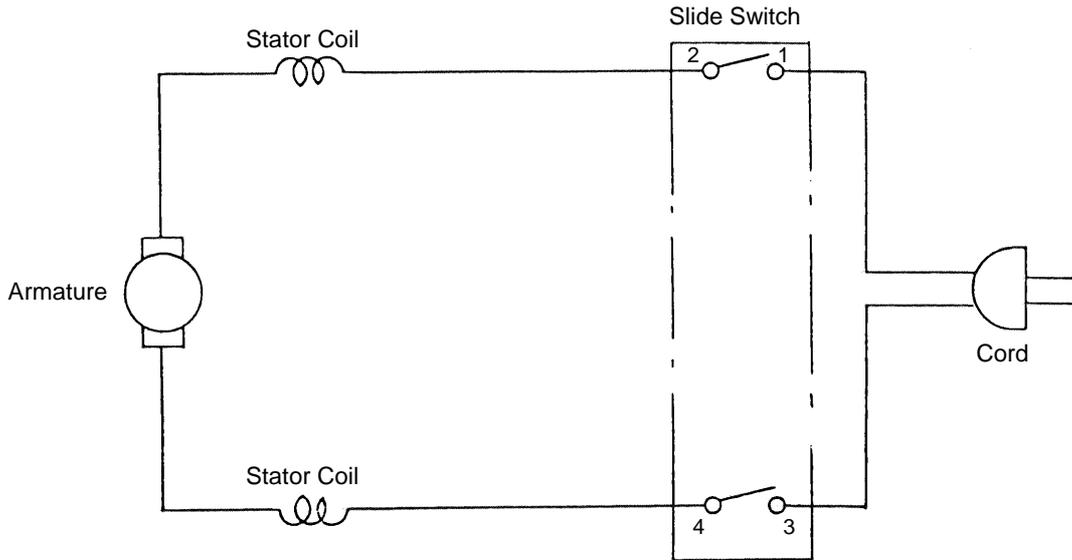
(1) For European countries (except Finland and New Zealand)



(2) For Finland and New Zealand



(3) For other countries



**1-6. Insulation Tests:**

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

Insulation Resistance: 7MΩ or more with DC500 V Megohm Tester.

Dielectric Strength: AC4000 V/1 minute, with no abnormalities ..... 220 V - 240 V (and 110V for U. K. products)  
 AC2500 V/1 minute, with no abnormalities ..... 110 V - 127 V (except U. K. products)

**1-7. 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	127 V	220 V	230 V	240 V
Current (Max.)	1.6 A	1.6 A	1.5 A	1.4 A	0.85 A	0.85 A	0.8 A