



# MODEL

# G 10SF2

## 1. PRECAUTIONS IN DISASSEMBLY AND REASSEMBLY

Procedures and precautions for disassembly and reassembly are described below. The circled numbers in the descriptions correspond to the item numbers in the Parts List and exploded assembly diagram.

### 1-1. Disassembly

#### (1) Disassembly of the armature and stator

- ① Remove the Brush Caps [34], and take out Carbon Brushes [35].
- ② Loosen the four D5 x 25 Tapping Screws [1] which fix the Gear Cover Ass'y [3], and remove the Inner Cover [8] together with the Armature [9] from the Housing [32].
- ③ Loosen the two D4 x 65 Hex. Hd. Tapping Screws [10], and remove the Stator [11] from the Housing [32].

#### (2) Disassembly of the pinion

Loosen the M7 Special Nut [4] on the Armature [9], and remove the Pinion [5].

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

- ① Loosen the M4 x 12 Seal Lock Screw [20] fixing the Packing Gland [19], and remove the Packing Gland [19] from the Gear Cover Ass'y [3].
- ② Support the bottom of the Packing Gland [19] with a jig, and push down on the upper portion of the Spindle [22] with a hand press until the end surface of the Woodruff Key [21] contacts the Ball Bearing [17] and the Spindle [22] cannot be pushed down any more. Be careful not to deform the Fringer [23].
- ③ Turn the Packing Gland [19] upside down and fix it, then push down the Spindle [22].
- ④ Insert the gear puller J-128 (use of a steel plate is permitted as a substitute) between the Gear [14] and the Packing Gland [19], and push down the Spindle [22] with a hand press to remove it.

- Replace the Ball Bearing [17] with new one every time the Gear is disassembled because the force to pull out the Gear is applied to the Ball Bearing [17].

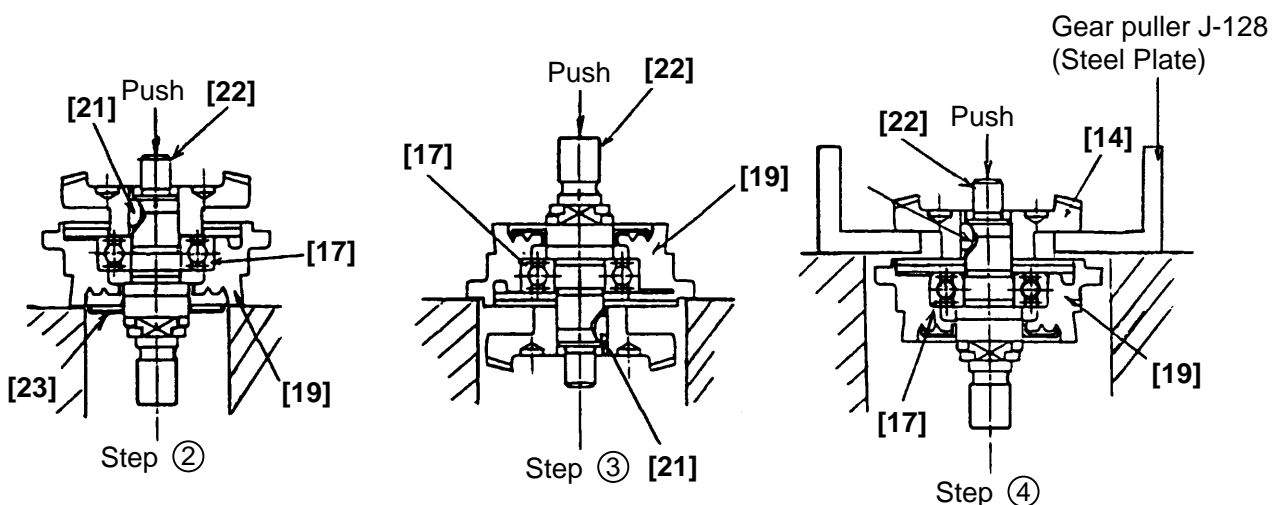


Fig. 3

(4) Disassembly of the cord, snap switch, and wiring block

Not: Before replacing the Wiring Block [36], remove the Stator [11] from the Housing [32].

- ① Loosen the D4 x 12 Tapping Screw (W/Flange) [41] and the D4 x 16 Tapping Screw (W/Flange) [40], and remove the Tail Cover [39].
- ② As illustrated in Fig. 4, loosen the terminal screw of the Wiring Block [36] and pull out the Cord [38].
- ③ Pull out the Switch [37] (snap switch) horizontally (laterally) to separate it from the Wiring Block [36], as illustrated in Fig. 4.
- ④ Finally, remove the Wiring Block [36] from the Housing [32].

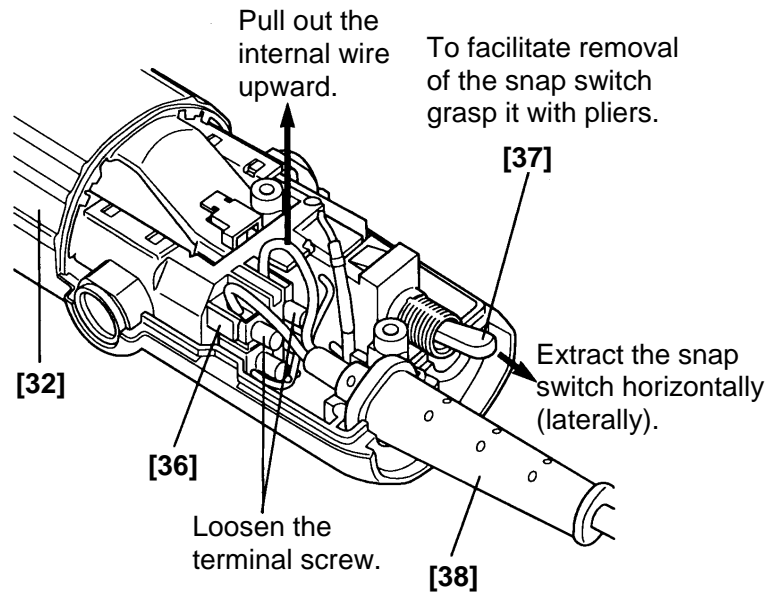


Fig. 4

Note: When disassembling the Switch [37] from the Wiring Block [36], gently press the Wiring Block forward toward the Housing [32] for easier disassembly.

## 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) General precautions

- ① Ensure that the terminals of the stator and the snap switch are not bent or otherwise damaged.
- ② Generously lubricate the teeth of Gear [14] and Pinion [5] with grease. Rub grease onto the teeth with your fingers so that the grease reaches each tooth bottom. Note that the Gear [14] and the Pinion [5] may wear faster than normal if under-lubricated.
- ③ Be sure to soak the inner diameter of the Felt Packing [18] with machine oil. Otherwise, its dust-sealing function will fail to work properly, resulting in earlier damage of the Ball Bearing [17].
- ④ When replacing the Armature [9] and the Ball Bearing [7] on the commutator side, press inward on the Dust Seal [12] while taking care of its direction until the end face of the Dust Seal [12] contacts against the end surface of the Armature [9] and make sure that Dust Seal [12] cannot be turned freely by hand. Keep the end face of the armature shaft approximately 0.2 mm (reference) distance inward of the end face of the Ball Bearing [7]. (See Fig. 5)

The Dust Seal [12] is an important element for improved dust protection of the Ball Bearing [7]. Be sure to replace with a new one each time.

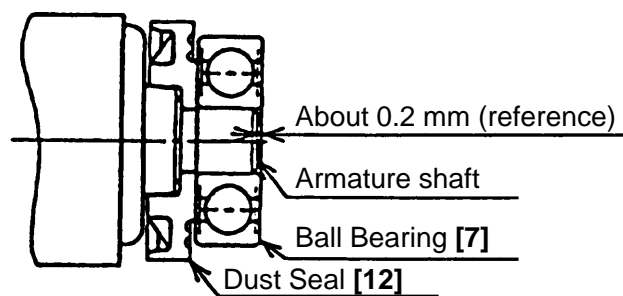


Fig. 5

- ⑤ When replacing the Gear Cover Ass'y [3], lubricate the metal 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 |
|-----------------|----------------------|------------|--------|

(2) Reassembly of the wiring block and snap switch

As illustrated in Fig. 6, insert the Switch [37] (snap switch) into the Wiring Block [36], and assemble them together into the Housing [32]. Be particularly careful to ensure the proper direction of assembly of the Wiring Block and Switch.

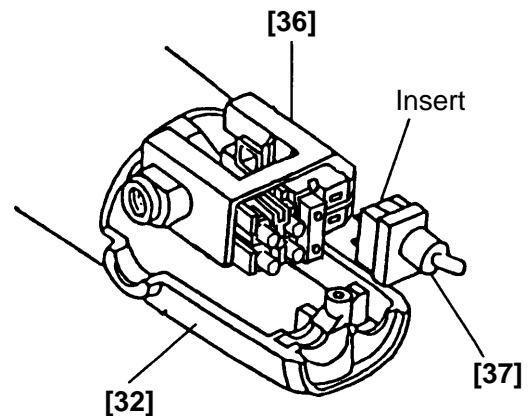


Fig. 6

(3) Reassembly of the stator

① Assemble the Stator [11] into the Housing [32].

Assembly can be more easily accomplished if the Housing is heated to a temperature of approx. 70 - 80 °C in a heating furnace.

**Caution: As illustrated in Fig. 7, the male terminals of the Stator [11] must be aligned so that they can be properly inserted into the female terminals of the Wiring Block [36]. Carefully confirm that the Stator is properly positioned before inserting the terminals.**

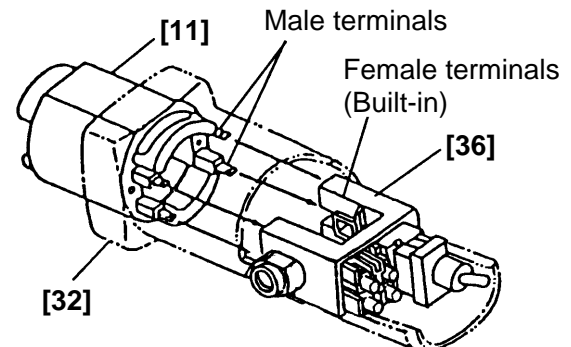


Fig. 7

② On completion of assembly, fix the Stator [11] into the Housing [32] with the two D4 x 65 Hex. Hd. Tapping Screws [10].

(4) Reassembly of the cord (Fig. 8)

① Insert the internal wire of the Cord [38] into the terminal of the Wiring Block [36].

② Tighten the terminal screw of the Wiring Block [36] and fix the internal wire of the Cord [38].

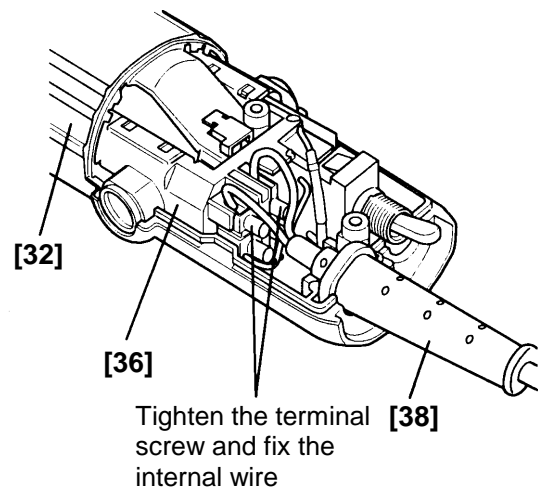


Fig. 8

### 1-3. Lubrication Points and Types of Lubricant

- Pinion chamber of Gear Cover Ass'y [3]

Nippeko grease (SEP-3A) 10g

(Code No. 930035 is recommended.)

Generously rub grease onto the Gear and Pinion.

- Metal

Mixed oil 0.5 cc

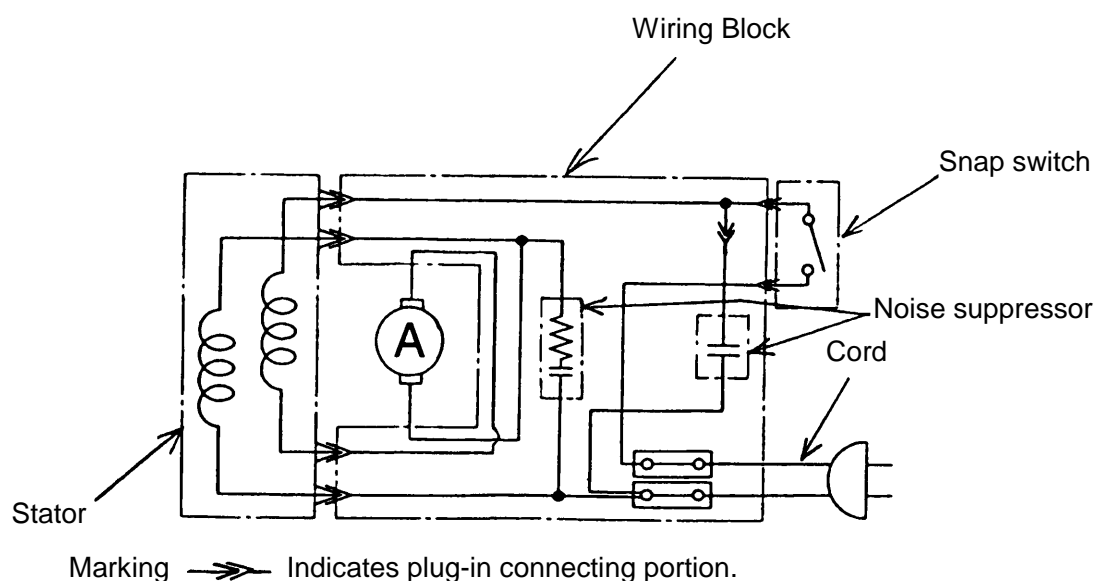
Mixed oil: Mixtue of Hitachi Power Tool Grease No. 2 (Unilube No. 00, Code No. 939302) and turbine oil

Mixture ratio 1 : 1 (weight ratio)

#### 1-4. Tightening Torque

D4 Tapping Screw [10] [40] [41]	$2.0 \pm 0.5 \text{ N}\cdot\text{m}$ ( $20 \pm 5 \text{ kgf}\cdot\text{cm}$ , $1.5 \pm 0.4 \text{ ft}\cdot\text{lbs.}$ )
M4 Slotted Hd. Screw (Seal Lock) [6]	$1.8 \pm 0.4 \text{ N}\cdot\text{m}$ ( $18 \pm 4 \text{ kgf}\cdot\text{cm}$ , $1.3 \pm 0.3 \text{ ft}\cdot\text{lbs.}$ )
M4 Seal Lock Screw (W/Sp. Washer) [15] [20]	$1.8 \pm 0.4 \text{ N}\cdot\text{m}$ ( $18 \pm 4 \text{ kgf}\cdot\text{cm}$ , $1.3 \pm 0.3 \text{ ft}\cdot\text{lbs.}$ )
D5 Tapping Screw [1]	$2.9 \pm 0.5 \text{ N}\cdot\text{m}$ ( $30 \pm 5 \text{ kgf}\cdot\text{cm}$ , $2.2 \pm 0.4 \text{ ft}\cdot\text{lbs.}$ )
M5 Machine Screw [24]	$1.6 \pm 0.4 \text{ N}\cdot\text{m}$ ( $16 \pm 4 \text{ kgf}\cdot\text{cm}$ , $1.2 \pm 0.3 \text{ ft}\cdot\text{lbs.}$ )
M7 Special Nut [4]	$6.4 \pm 1.0 \text{ N}\cdot\text{m}$ ( $65 \pm 10 \text{ kgf}\cdot\text{cm}$ , $4.7 \pm 0.7 \text{ ft}\cdot\text{lbs.}$ )
Brush Cap [34]	$0.6 \pm 0.2 \text{ N}\cdot\text{m}$ ( $6 \pm 2 \text{ kgf}\cdot\text{cm}$ , $0.4 \pm 0.1 \text{ ft}\cdot\text{lbs.}$ )

#### 1-5. Wiring Diagram



#### 1-6. Insulation Tests

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

Insulation resistance:	7M $\Omega$ or more with 500 V DC Megohm Tester.
Dielectric strength:	AC 4,000 V/1 minute with no abnormalities.

#### 1-7. No-Load Current Value

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

Voltage (V)	220	230
Current (A) Max.	1.1	1.2

## 2. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
G 10SF2	General Assembly	Work Flow						
		Switch Cord Tail Cover Wiring Block		Housing Stator				
				Pinion Bearing Cover Ball Bearing (608VVMC)x2 Inner Cover Armature Dust Seal				
				Pushing Button Gear Cover Ass'y Lock Pin Gear	Bearing Cover (B) Ball Bearing (6001VVMC) Felt Packing Packing Gland Spindle Fringer			
		Wheel Guard Ass'y						