



## MODELS FS 10SA/F S10SB

### 1. NOTES ON DISASSEMBLY AND REASSEMBLY:

The circled numbers in the descriptions below correspond to the part numbers in the Parts List.

#### 1-1. Disassembly:

##### 1-1-1. Disassembly of Housing(B):

First, loosen and remove the five D4 x 20 (+) Hd. Tapping Screws (2) which fasten Housing (A) (26) and Housing (B) (1). Then, as illustrated in Fig. 10, place your thumbs on the side of the Base Ass'y (12) and lift up on the notched portions of Housing (B) with your forefingers to remove it.

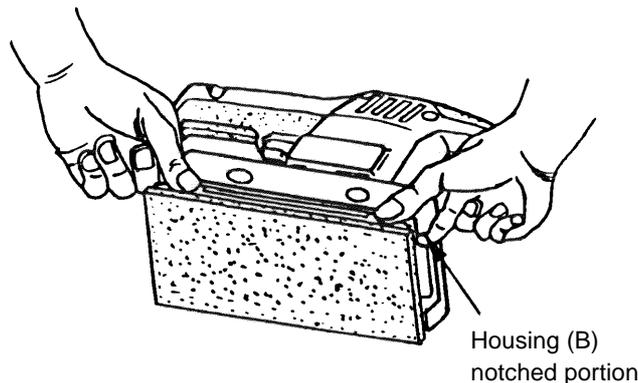


Fig. 10

##### 1-1-2. Remove of the Cord Clip:

Loosen the two (+) Hd. Tapping Screws (28), and remove the Cord Clip (29).

##### 1-1-3. Removal of the Carbon Brushes:

Remove the Brush Holders (17) from Housing (A) (26), and take out the Carbon Brushes (16).

##### 1-1-4. Disassembly of the Armature Ass'y and Stator Ass'y:

First, ensure that the Carbon Brushes (16) have been removed. Then, place your thumbs on the 608ZZC2 Ball Bearing (20) within Housing (A) (26), hook your forefingers on the two exposed Legs (5), and lift out the Armature Ass'y (12), Switch (24), Noise Suppressor Ass'y (23), and Cord (25) out of Housing (A) in a single body. Next, separate the Armature Ass'y from the Stator Ass'y. Finally, hold the Fan (6) firmly, and rotate the Armature Ass'y counter-clockwise, as seen from the commutator end, to separate the two parts.

**1-1-5. Disassembly of the Metal and 608ZZC2 Ball Bearing:**

Remove the Metal ②② from the armature shaft by hand. The 608ZZC2 Ball Bearing ②① is either inserted or lightly press-fitted onto the armature shaft. Depending on the fitting, it may be removed either by hand or with a bearing puller. After the 608ZZC2 Ball Bearing has been removed, Washer (D) ①⑨ can be taken off.

**1-1-6. Disassembly of the Leg Holders and Paper Holders:**

By loosening the four M4 x 10 ⊕ Hd. Machine Screws ⑦ that secure the Paper Holders ⑨; the Paper Holders ⑨, and Leg Holders ④ assembled together with the Legs ⑤ can be taken off. Then, remove the Paper Holders ④ by turning them.

**1-1-7. Removal of the Support:**

The Support ⑩ is fitted into the Base Ass'y ⑫, and can be taken out by prying it loose with a minus screwdriver.

**1-1-8. Removal of the Pad:**

As the Pad ⑬ is attached to the Base Ass'y ⑫ with adhesive only, simply peel the Pad from the Base Ass'y.

**1-1-9. Base Ass'y**

The Base Ass'y ⑫ is specially manufactured (the Bearing Cap is fitted by a super-sonic heating process) and should not be disassembled.

**1-1-10. Disconnection of Leadwires:**

The 50091 Connector ⑳, which connects the Leadwires of the Stator Ass'y ⑮, Noise Suppressor Ass'y ㉓, and Cord ㉕, is permanently sealed and cannot be removed. To disconnect the Leadwires, cut them off near the 50091 Connector, loosen the terminal screws at the Switch ㉔, and take out the individual parts.

**1-1-11. Removal of the Leadwire from the Stator Ass'y:**

The leadwire from the Stator Ass'y ⑮ is permanently installed and should not be removed.

**1-2. Reassembly:**

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

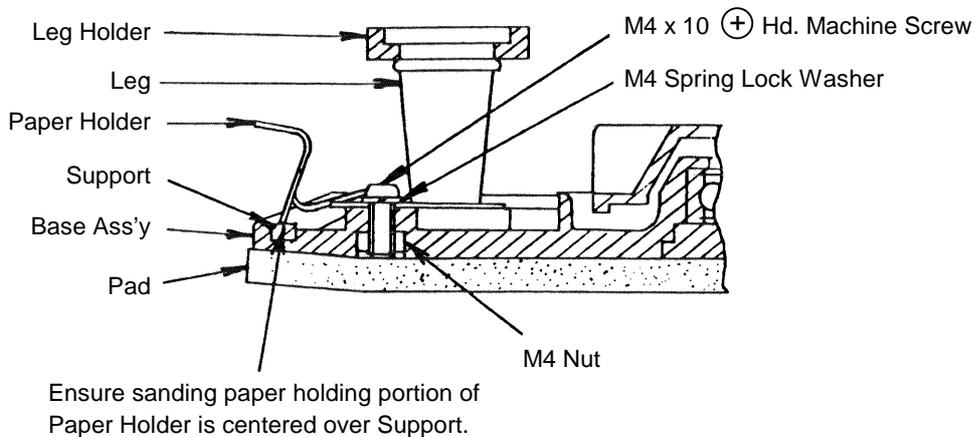
Tightening torques of various screws are described in Section 1-3. In addition, please study and fully understand the electrical wiring diagrams and leadwire arrangements in Section 1-4 before attempting reassembly.

**1-2-1. Lead Wire Arrangements:**

Connect the Cord (25), Stator Ass'y (15), and Noise Suppressor (23) leadwires to the Switch (24). (For details, see Section 1-4.)

**1-2-2. Reassembly of the Paper Holders to the Base Ass'y:**

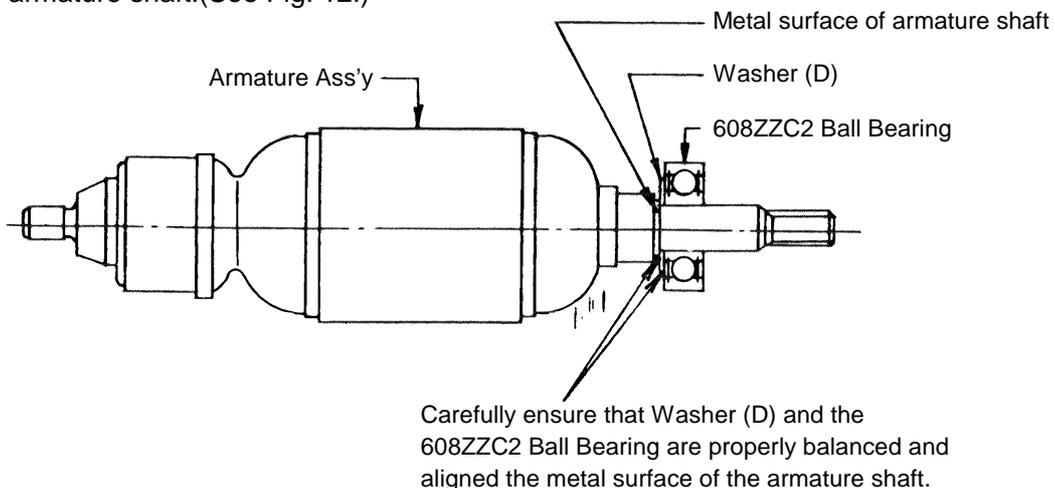
After mounting the Legs (5) on the Leg Holders (4) and clipping the Paper Holders (9) onto the Legs, attach the Paper Holders (9) to the Base Ass'y (12) with the four M4 x 10 (+) Hd. Machine Screws (7), M4 Spring Lock Washers (8), and M4 Nuts (11), so that the sanding paper holding portions of the Paper Holders are centered over the Supports (10). (See Fig. 11.)



**Fig. 11**

**1-2-3. Mounting Washer (D) and the 608ZZC2 Ball Bearing on the Armature Shaft:**

In most assemblies, the fitting of Washer (D) (19) and the 608ZZC2 Ball Bearing (20) on the armature shaft is not exceptional tight. However, there are cases in which minor tolerance differences make press-fitting necessary. If re-assembly is difficult, use an arbor press to mount Washer (D) and the 608ZZC2 Ball Bearing onto the armature shaft, being very careful to ensure that they are properly balanced and aligned on the metal surface of the armature shaft. Also, when press-fitting the 608ZZC2 Ball Bearing, be very careful not to damage the metal surface of the armature shaft. (See Fig. 12.)



**Fig. 12**

**1-2-4. Assembly of the Armature Ass'y and Fan:**

When the Armature Ass'y (18) is screwed onto the Fan (6), the end surface of the boss of the Fan should lightly contact the 608ZZC2 Ball Bearing (20). Be very careful not to excessively tighten the Armature Ass'y onto the Fan (please refer to the tightening torque listed in Section 1-3).

**1-2-5. Lubrication of the Metal:**

Prior to reassembly, the Metal (22) should be soaked in oil (SAE #30 Type A turbine oil is recommended) for an hour or more, and then its recessed portion should be coated with approximately 0.1g of grease (Hitachi Motor Grease No. 29 is recommended).

**1-2-6. Installation of Major Parts:**

Assemble the Stator Ass'y (15) onto the Armature Ass'y (18), mount the Metal (22) onto the armature shaft so that its lubricated recessed surface is directed upward, and place the completed assembly into Housing (A) (26). At this time, position the Stator Ass'y (15) so that its red and black leadwires are on the left side, and its white and grey leadwires are on the right side when viewed from the front of Housing (A) (26). Then, confirm that the Stator Ass'y (15), 608ZZC2 Ball Bearing (20), and Metal (22) are properly assembled by rotating the armature shaft lightly. Finally, position the Noise Suppressor Ass'y (23) so that its earth terminal is located between the earth terminal chamber of Housing (A) (26) and the Stator core (please refer to the leadwire installation method illustration in Section 1-4).

**1-2-7. Installation of the Carbon Brushes:**

When viewed from the front of the tool, the black leadwire from the upper left side of the Stator Ass'y (15) must be connected to the right-hand side Carbon Brush (16), and the red leadwire from the lower left side of the Stator Ass'y (15) must be connected to the left-hand side Carbon Brush (16). If these leadwires are reversed, the Armature Ass'y (18) will rotate in reverse (counter-clockwise when viewed from the commutator end), and the Fan (6) could come loose, causing serious damage and possible injury. Accordingly, be very careful in making leadwire connections (please refer to the leadwire installation method illustration in Section 1-4).

**1-2-8. Installing Housing(B):**

When installing Housing (B) (1), be very careful not to pinch any of the leadwires.

**1-3. Tightening Torques:**

Part Name	Tightening Torque
Armature Ass'y (26)	} 15 - 25 kgf·cm
D4 x 20 (+) Hd. Tapping Screws (2)	
M4 x 10 (+) Hd. Machine Screws (7)	

**1-4. Wiring Diagrams and Leadwire Arrangements:**

Arrange and connect wiring in accordance with the following illustrations.

1-4-1. For units with a 50091 Connector (21), refer to Figs. 13 and 14.

1-4-2. For Units without a 50091 Connector (21), refer to Figs. 15 and 16.

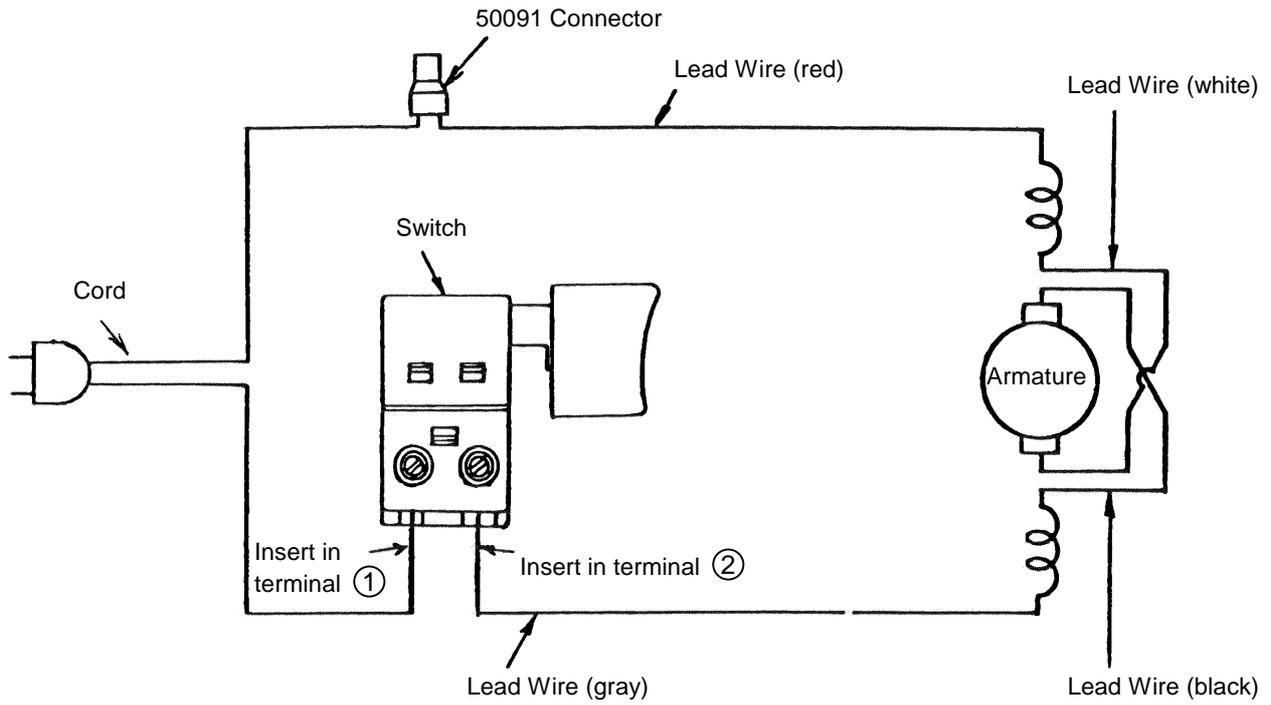


Fig. 13

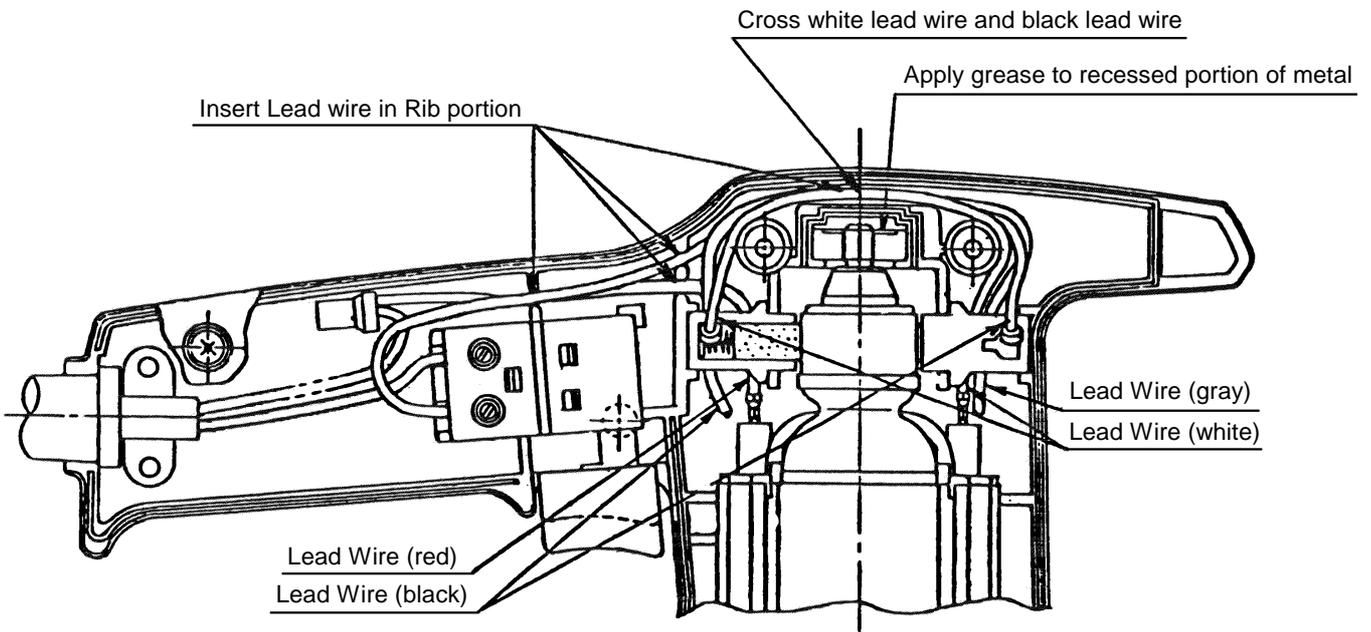


Fig. 14

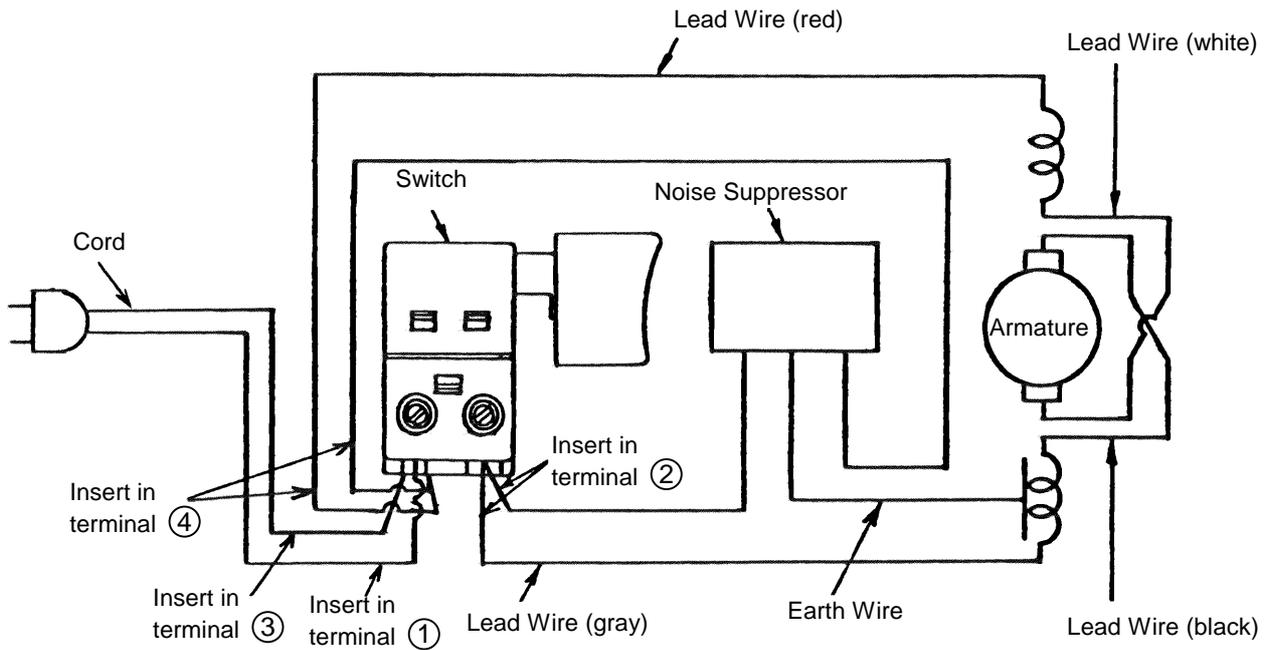


Fig. 15

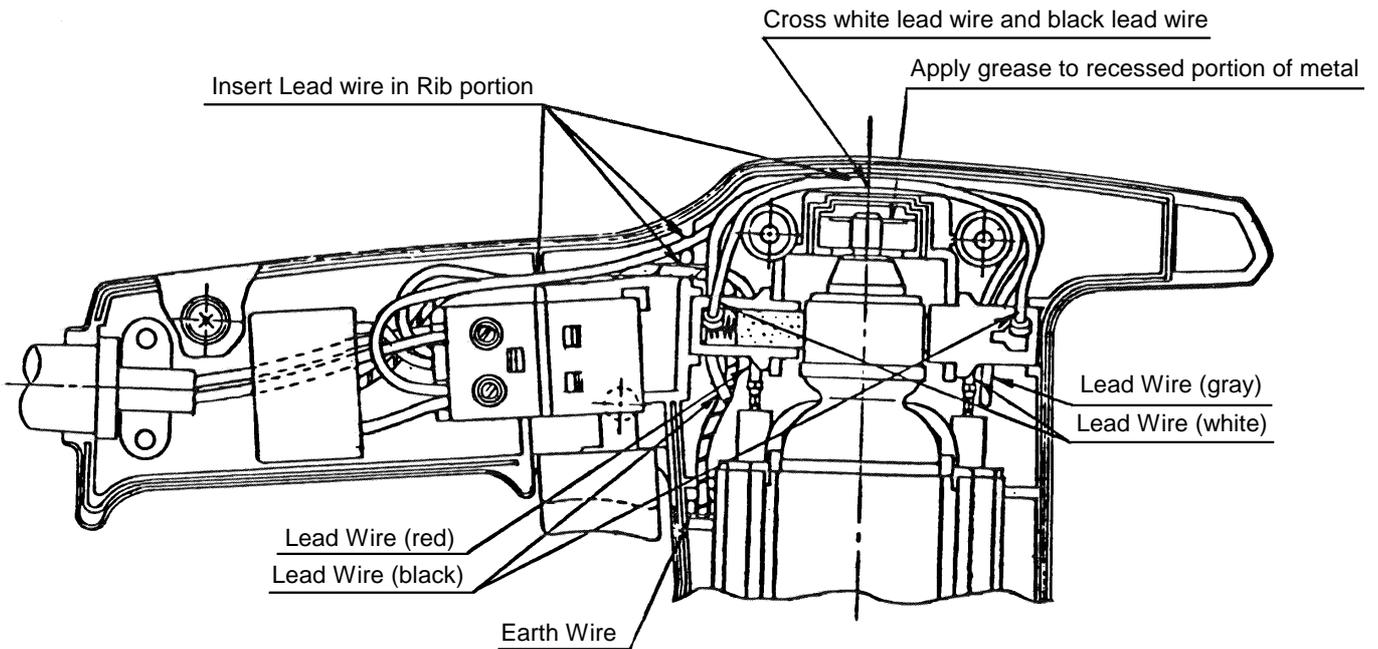


Fig. 16

**1-5. Insulation Tests:**

On completion of repair (in disassembled state), measure the insulation resistance and conduct dielectric strength test.

**1-6. No-Load Current Values:**

In factory tests, the no-load current values after 30 minutes of no-load operation are as follows:

110V .....	less than 1.18A	220V .....	less than 0.65A
115V .....	less than 1.13A	230V .....	less than 0.62A
120V .....	less than 1.08A	240V .....	less than 0.60A
127V .....	less than 1.02A		