



# MODEL DH 24VB

## 1. REPAIR GUIDE:

### 1-1. Precautions and Suggestions for Disassembly and Reassembly of the Main Body:

The circled numbers in the descriptions below correspond to the item numbers in the parts List and exploded assembly diagrams.

#### 1-1-1. Disassembly:

##### (1) Disassembly of the Hammering Mechanism Section:

- With a drill bit or screwdriver, push in the Second Hammer (24) to release the Striker (27) from the RPM810 O-Ring (26).
- Set the Change Lever (11) to a position half way between the “Drill” and “Hammer” marks on the Gear Cover (7), insert a slender minus screwdriver into its flange portion, and pull it off. (It is very important to ensure that the Change Lever (11) is positioned half way between the “Drill” and “Hammer” marks when it is disassembled or assembled.)
- Loosen the four D5 x Tapping Screws (8), and remove the Gear Cover (7). The Inner Cover (32) and the Housing (52) are loosely fitted together. Attempting to pull them out first could cause the Armature (47) to be pulled out at the same time, causing damage to the Carbon Brushes (63).
- Remove Spring (B) (33) from the end of the Second Shaft (34), and turn the Second Shaft so that the Piston (29) moves to its maximum upper position (Inner Cover side). The arm of the Reciprocating Bearing (39) can then be disconnected from the Piston Pin (30), and the Second Shaft (34) and the components mounted on it can be removed from the Inner Cover (32) in a single body.
- With a bearing puller (the Special Repair Tool J-30 Bearing Puller Ass’y, Code No. 970804, is recommended), remove the First Gear (40) from the Second Shaft (34). Then take off the Reciprocating Bearing (39). At this time, carefully note that the First Gear must be aligned with and pressure fitted onto the 9 mm diameter end of the Second Shaft.
- Move the Clutch (37) to the pinion side of the Second Shaft (34), and pull off the S-8 O-Ring (38). The Clutch Spring (36) and Washer (B) (35) can then be removed from the Second Shaft.

##### (2) Disassembly of the Chuck Section:

As shown in Fig. 1, slide the Grip (2) in the direction indicated by the arrow mark, and remove the Front Cap (1). The Grip (2), Ball Holder (3) inside the Grip, Holder Spring (4), Washer (B) (5) and two Steel Balls (17) can then be removed from the Cylinder (19).

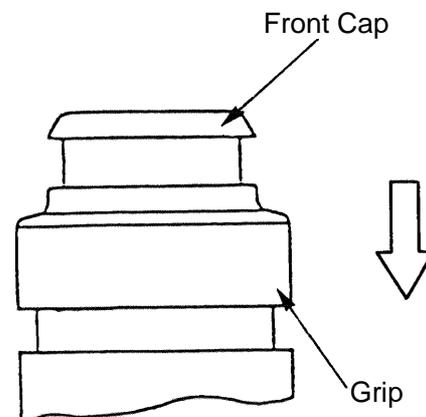


Fig. 1

(3) Disassembly of the Cylinder, Second Gear (Slip Mechanism Section) and related parts:

- Take the Gear Cover ⑦ off of the Inner Cover ⑳, and remove the entire Chuck section. Extract the C-Type Retaining Ring for D20 Shaft ⑦. (For easy removal of this retaining ring, use of Special Repair Tool J-200 Snap Ring Pliers [Code No. 970976] is recommended.) Then, turn the Gear Cover upright and use a hand press to extract the Cylinder ⑲ from the Gear Cover. The Sleeve ⑭ can then be extracted from the Cylinder. At this time, be very careful not to lose the four Steel Balls ⑱.

Remove the C-Type Retaining Ring for D30 Shaft 00 from the upper part of the Cylinder ⑲. The Second Gear ⑳, Spring ㉑, and Washer ㉒ can then be removed from the Cylinder. Then, extract the O-Ring ㉓ from the inner part of the Cylinder, and the Second Hammer ㉔ can be extracted from the Cylinder. (For easy extraction of this O-Ring, fit a Special Repair Tool J-201 Spring Hook [Code No. 970977] onto the outer circumference of the O-Ring, and pull it out.) As the O-Ring ㉓ is employed to prevent idle hammering, please O-Ring ㉓ is employed to prevent idle hammering, please advise customers to replace it with a new one whenever it is disassembled.

Extract the C-Type Retaining Ring for D37 Hole ⑯, turn the Gear Cover so that its tip portion is upward, and use a hand press to extract the Ball Bearing ⑮ from the Gear Cover. Next, turn the Gear Cover over and use the hand press to extract the Oil Seal ⑬ from the Gear Cover. Ensure that the Oil Seal is replaced with a new one whenever it is disassembled.

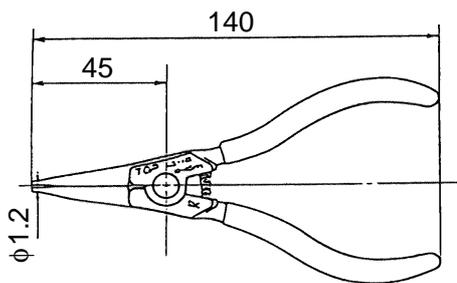
• Use of Special Repair Tools:

- Snap Ring Pliers [J-200]: (See Fig. 2)

Used to remove the C-Type Retaining Ring for D20 Shaft ⑥ which fixes the Cylinder ⑲ at the tip end of the Gear Cover ⑦.

- Spring Hook [J-201]: (See Fig. 3)

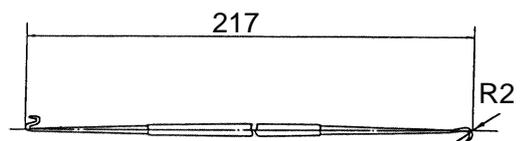
Used to extract the O-Ring ㉓ inserted at the inner part of the Cylinder ⑲ which is designed to catch and griop the Striker to preent idle hammering. As shown in Fig. 4, fit the Spring Hook [J-201] onto the O-Ring from its outer circumference, and pull it out.



(1) Snap Ring Pliers (J-200)

Code No. 970976

Fig. 2



(2) Spring Hook

Code No. 970977

Fig. 3

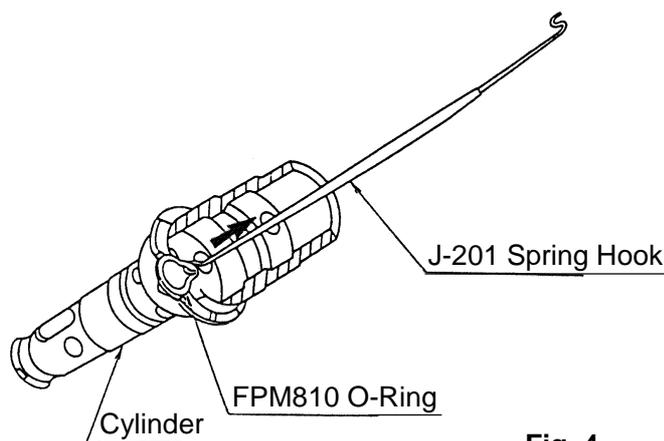


Fig. 4

### 1-1-2. Reassembly:

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

(1) Lubrication:

Apply special grease (N.P.C. FG-6A, Code No. 980927, is recommended) to the inner and outer circumstances of the Piston Pin (30), O-Ring (A) (28) mounted on the Striker (27), the Reciprocating Bearing (39), the Reciprocating Bearing mounting portion of the Second Shaft (34), the FPM810 O-Ring (26) and the clutch-claw portions of the Cylinder (19), the inner circumstance of the Metal inside the Inner Cover (32). Also, without fail, insert 70 g (0.15 lbs.) of special grease inside the Gear Cover (7).

(2) To make reassembly easier, coat grease on the Steel Balls (17) (18).

(3) Reassembly of the Change Lever (11):

With a minus screwdriver or similar tool, move the Clutch (37) and the Reciprocating Bearing (39) so that the claw (protruding portion) of the Reciprocating Bearing (39) and the claw (protruding portion) of the Clutch (37) are in contact. (See Fig. 5)

Apply grease to the pin portion of the Change Lever (11) into the Gear Cover (7) so that it is positioned midway between the "Hammer" mark and the "Drill" mark.

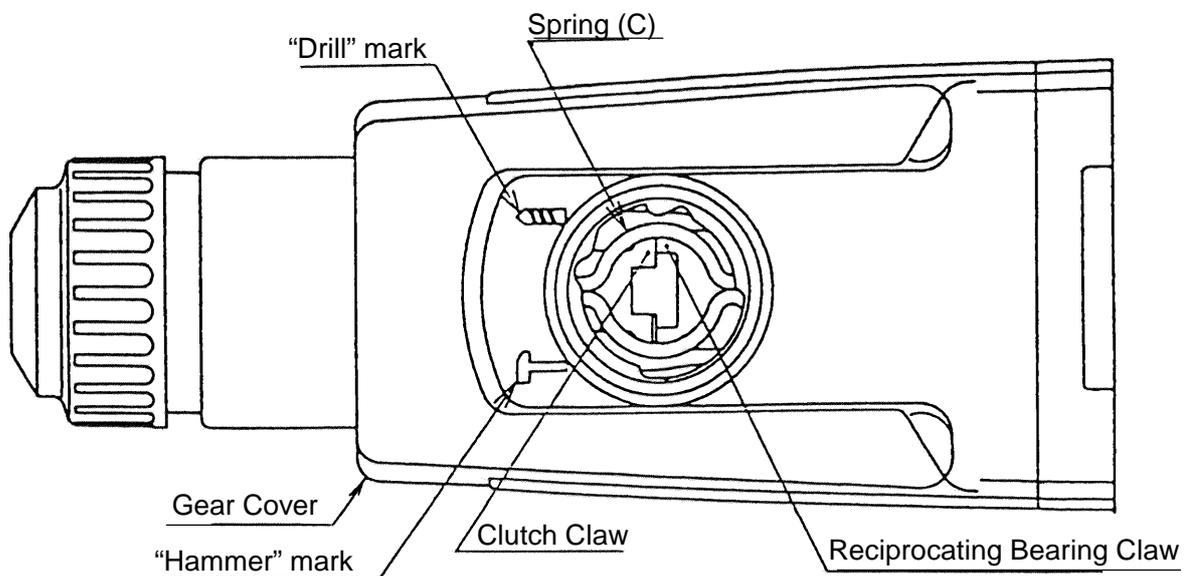


Fig. 5

(4) Reassembly of the Oil Seal (13):

Prior to reassembly, apply grease to the inner circumference of the Oil Seal (13); however, do not apply grease to its outer circumference. Also, when pressure fitting the Oil Seal (13), ensure it is straight and level.

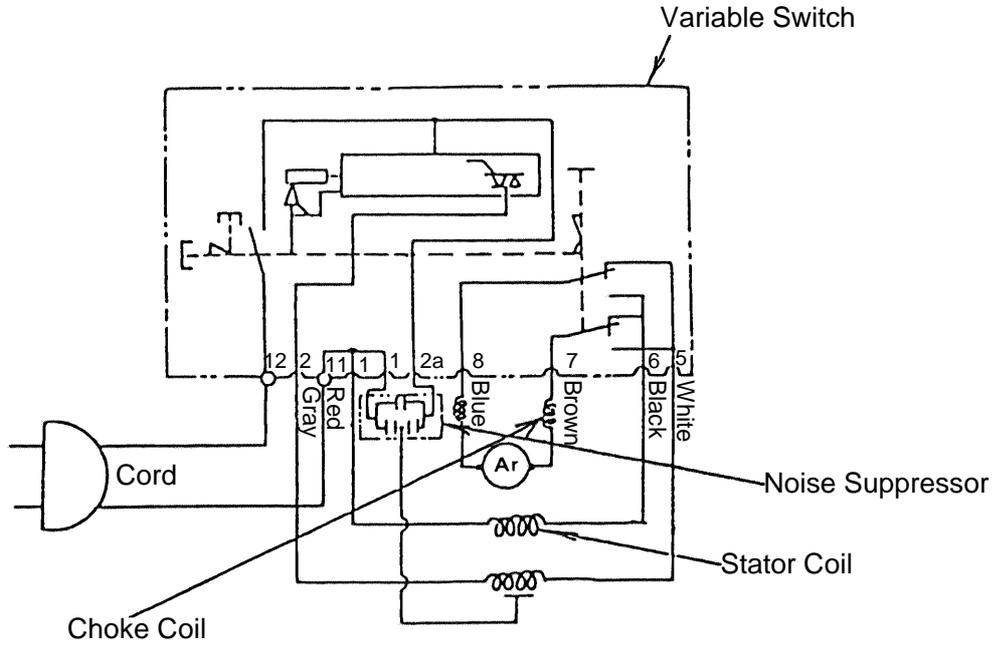
### 1-1-3. Tightening Torques:

- M4 Tapping Screws (54) (69)..... 1.47 - 2.45 N·m (15 - 25 kgf·cm)
- M5 Tapping Screws (8)..... 2.45 - 3.43 N·m (25 - 35 kgf·cm)

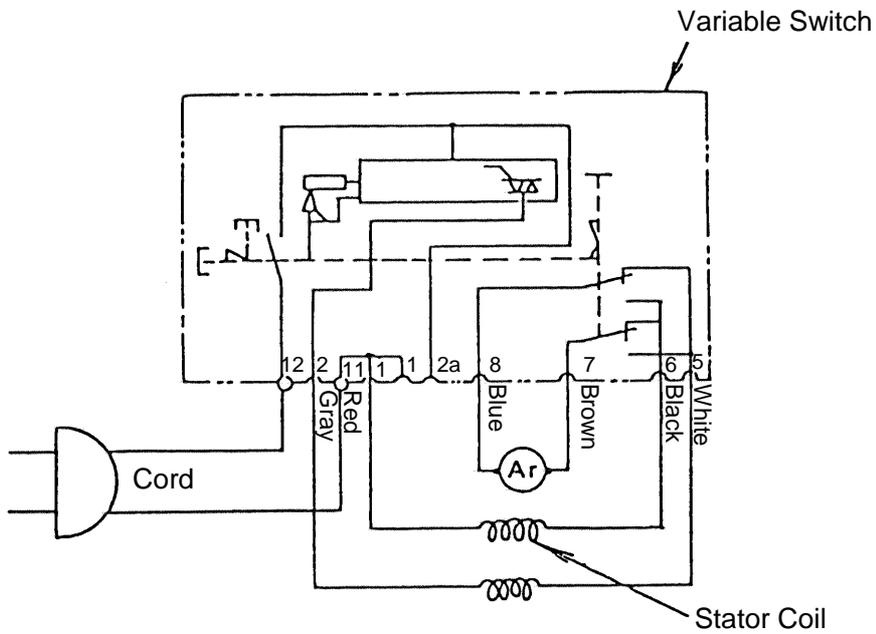
**1-1-4. Wiring Diagrams:**

The wiring should be conducted by referring to Fig. 6 or Fig. 7.

[A] For F.R. Germany, U.K., France, Sweden, Norway, Denmark, Italy, Holland, Austria, Finland, New Zealand, South Africa, Switzerland.



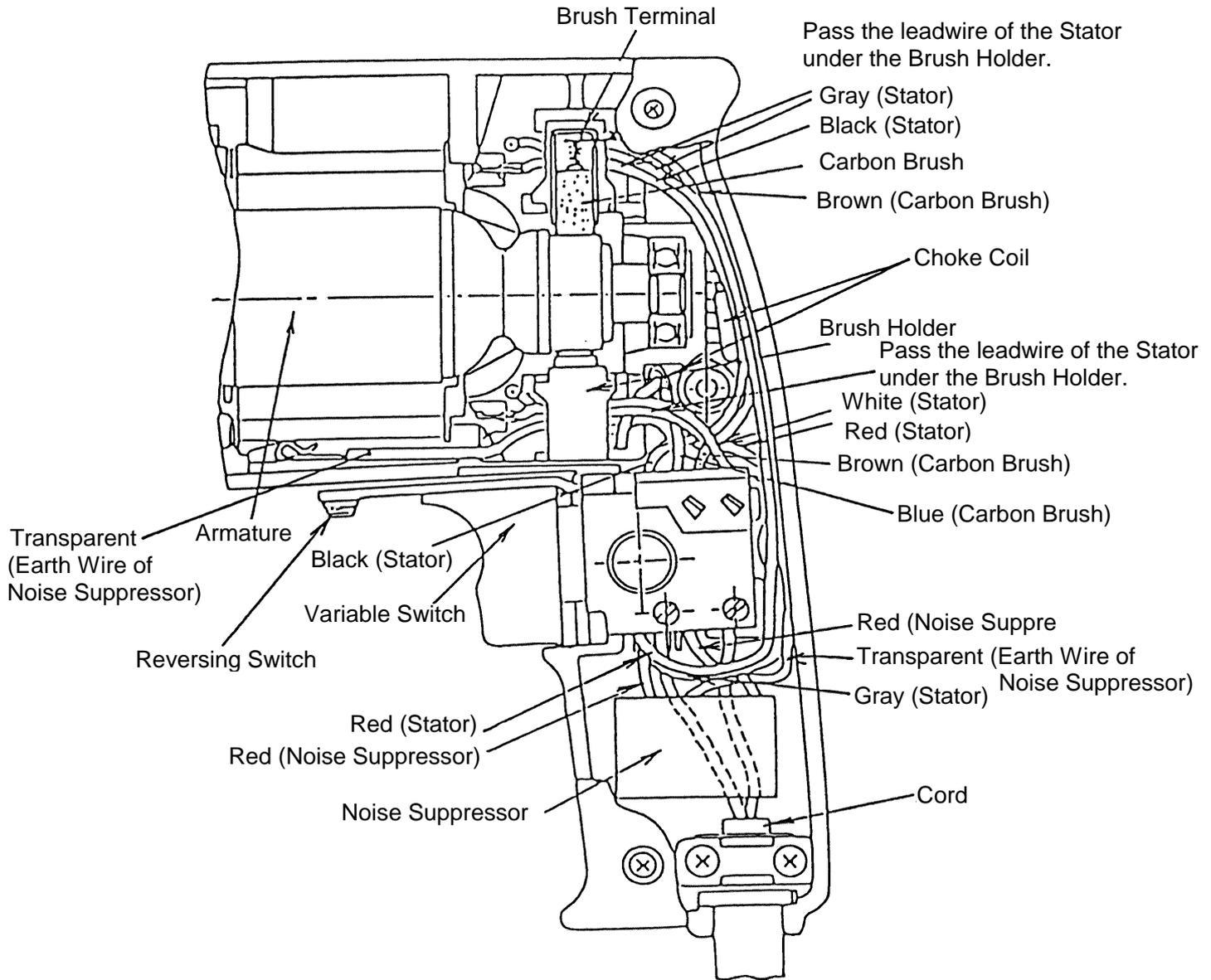
**Fig. 6**



**Fig. 7**

**1-1-5. Internal Wire Arrangement and Wiring Work:**

**A. Internal Wire Arrangement**



**Fig. 8**

**B. Additional Wiring Work:**

General internal wiring can be accomplished by referring to paragraph 1-1-4 and 1-1-5. The following are special instructions for switch-released wiring.

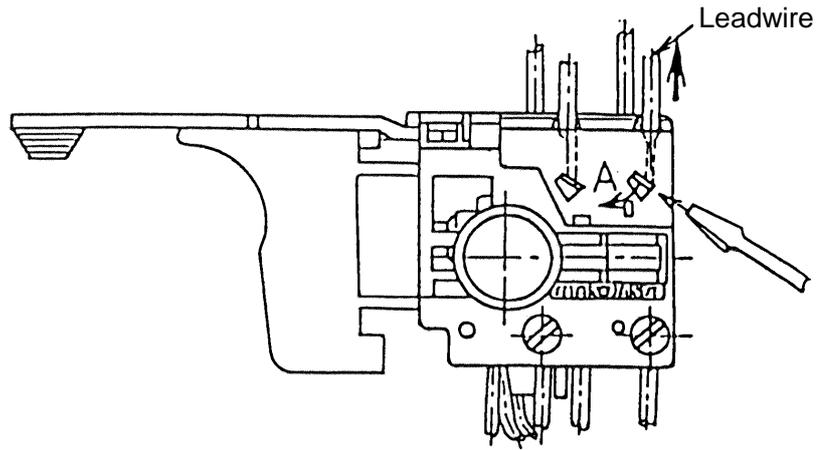
(1) Removal of Leadwires from the Forward/Reverse Switch:  
As illustrated in Fig. 9, insert a very small minus screwdriver into the openings provided on the sides of the forward/reverse switch, and open the terminals in the arrow 'A' direction (not marked on the switch) to release the leadwire so that it can be withdrawn.

(2) Removal of Leadwires from the Speed Control Switch:  
As illustrated in Fig. 10, insert a very small minus screwdriver into openings a, b, and c (not marked on the switch) to release each leadwire so that it can be withdrawn.

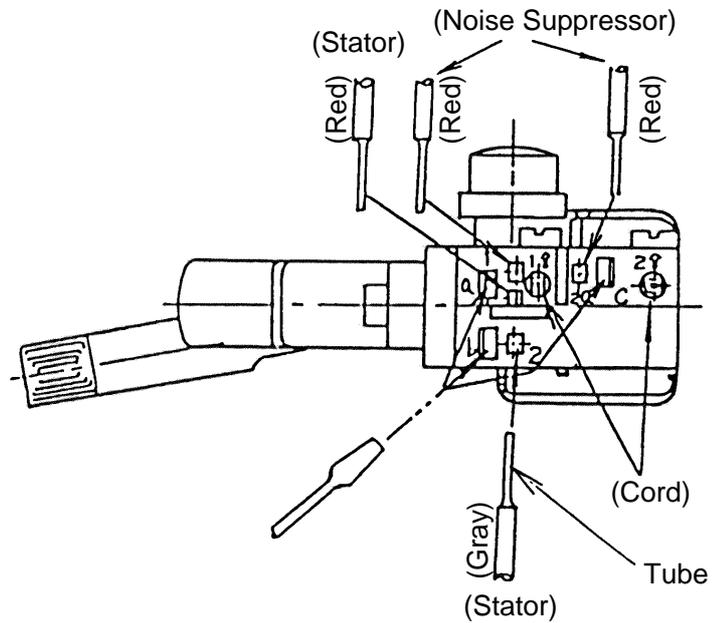
Remove any silicon rubber adhering to the inside of terminals No. 2 and 2a and to the tubes of the red (noise suppressor) and gray (stator) leadwires.

(3) Connection of Leadwires to the Forward/Reverse Switch:  
As illustrated in Fig. 11, insert the white leadwire from the Stator into terminal 5, and the black leadwire from the Stator into terminal 6. Insert the brown leadwire from the Carbon Brush into terminal 7, and the blue leadwire from the Carbon Brush into terminal 8. On completion, lightly pull each leadwire to ensure that it will not come loose.

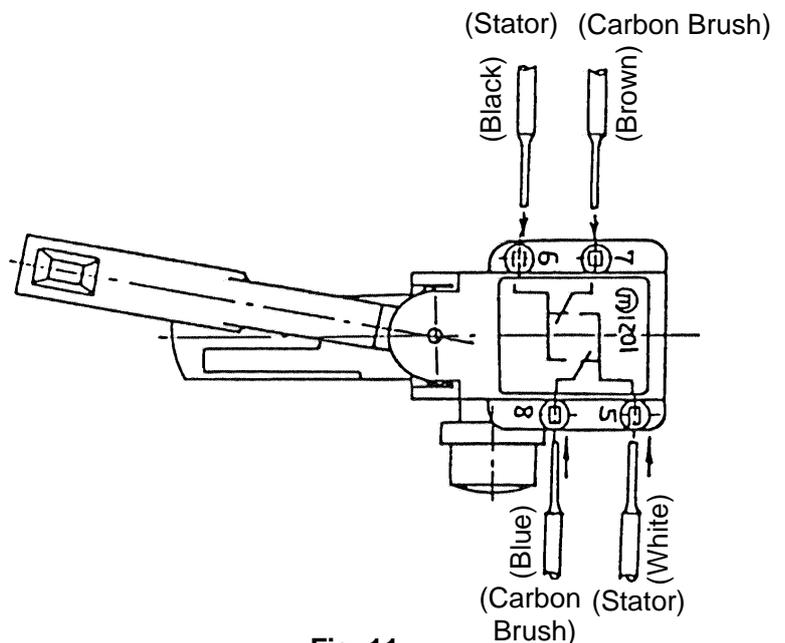
(4) Connection of Leadwires to the Speed Control Switch:  
As illustrated in Fig. 10, insert the leadwires from the Cord into terminals No.1 ↑, and 2 ↑ tighten the screws to a torque of 2.5 - 3.0 kgf-cm (2.2 - 2.6 in-lbs). Insert the red leadwire from



**Fig. 9**



**Fig. 10**



**Fig. 11**

the Stator and the red leadwire from the Noise Suppressor into terminal No. 1, as indicated; insert the gray leadwire from the Stator into terminal No. 2, and the red leadwire from the Noise Suppressor into terminal No. 2a. On completion lightly pull each leadwire to ensure that it will not come lose.

Be sure to plug the terminal portions of terminals No. 2 and 2a and the side window portions with silicon rubber (ThreeBond 1211 [Code No.306927]).

**1-1-6. Insulation Tests:**

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

Insulation Resistance: 7 MΩ or more with DC500V Megohm Tester.

Dielectric Strength: AC 4000V/1 minute, with no abnormalities 220V - 240V  
 (and 110V for U.K. products)  
 AC 2500V/1 minute, with no abnormalities 110V - 127V  
 (except U.K. products)

**STANDARD REPAIR TIME SCHEDULES:**

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
DH 24VB			Work Flow					
			Switch 100V Code 100V	Armature ass'y 100V				
				Inner Cover O-ring (--22) BB (608DDMC) Casing (B) Seal Plate Dust Fan Dust Shaft BB (6001DDCM) Casing (A)				
			Change Lever O-Ring (S-30)	Front Cap Grip Needle Holder C-type Spring Oil Seal Steel Ball Needle Holder ( x 2)	C-type retaining ring for shaft Steelball ( x 4) Second gear Spring (A) Second Hammer O-ring (B) O-ring (FPM)			
	Fixed Time Switch Cord Others	(min.) 0 10 20		Striker O-ring (A) Piston Piston Pin Washer (C) Spring (C)	Spring (B) Second shaft Washer (B) Clutch spring Clutch Reciprocating bearing First gear Key (3 x 3 x 8) Spacer BB (626VVMC)			