



MODEL FDS 10DVA

1. REPAIR GUIDE:

Without fail, remove Type FEB 9 Storage Battery from the main body of the tool before attempting repair work. Because the tool is cordless, if the battery is left in and the switch is activated inadvertently, the motor will start rotating unexpectedly and could cause serious injury.

1-1. Directions and Precautions 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 diagram for the Model FDS 10DVA.

1-1-1. Disassembly:

(1) Removal of the Drill Chuck (8) : (Fig.1)

Remove the Drill Chuck (8) from the Spindle Gear Set (13) of the fully assembled driver drill in accordance with the following procedures.

- (a) Set the Shift Knob (17) to the "L" position to shift the gears to the Low-speed setting.
- (b) Align the white line on the Cap (9) with the drill mark (A). (A)
- (c) Fully open the jaws of the Drill Chuck (8), and remove the M5 x 20 Flat Hd. Screw (7). (Be sure to remember that the M5 x 20 Flat Hd. Screw (7) is left-hand threaded, and must be loosened by turning it to the right [clockwise].)
- (d) Insert an M10 Hexagon Bar Wrench into the Drill Chuck (8), and strike it gently with a wooden or plastic hammer to loosen the Drill Chuck in a counterclockwise direction. After the Drill Chuck has been loosened, continue to rotate it counterclockwise by hand to remove it from the main body.

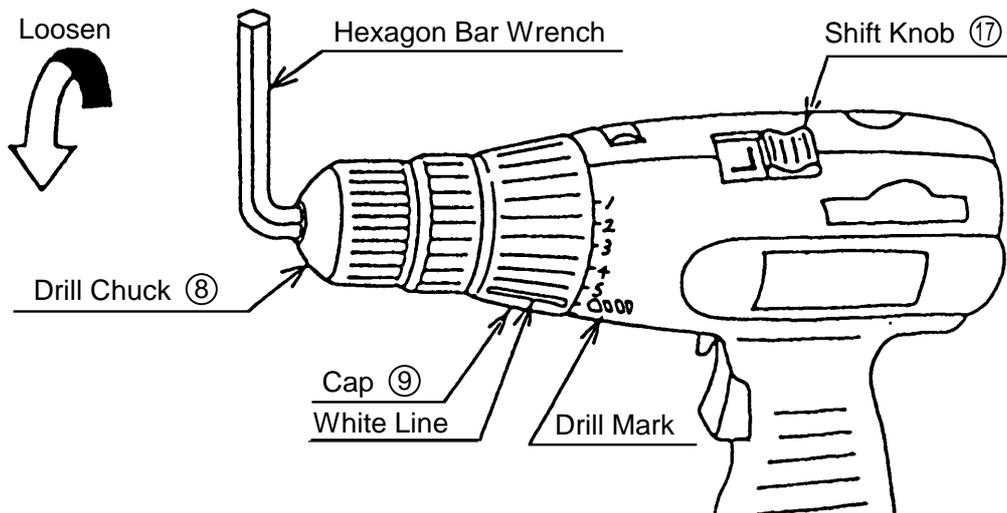


Fig. 1

(2) Disassembly of Housing (B):

Remove the seven D3 x 14 Tapping Screws (4) which fix the main body. Then grasp the lower portions of Housing (A) and Housing (B) where the battery is inserted, and gently separate them.

(3) After Housing (B) has been removed, the parts inside may either be removed together in an assembled state, or removed individually. First, remove the Shift Arm-Shift Knob Set (17), being very careful not to allow the Shift Spring (18) to fly out unexpectedly.

(4) Removal of the Motor (21) :

(a) Take off the Cap (9), Spring Holder (10), Spring (11), Thrust Plate (12), and Steel Balls (14), in that order. At this time, be particularly careful not to lose the four Steel Balls (14).

(b) Remove the four D3 x 8 Tapping Screws (16), and remove the Motor (21).

(5) Disassembly of Electrical Components:

[NOTE] The three lead wires from the FET (Field Effect Transistor) and the two lead wires from the Diode are permanently connected to the Switch Ass'y (22) and should not be detached.

Remove the single M3.5 x 8 Bind Screw (26). The FET of the Switch Ass'y (22) and the Fin can then be disassembled. Remove the single M3 x 10 Bind Screw (25). Then, use a soldering iron to disconnect the lead wires of the Switch Ass'y (22) from the Motor (21) and the lead wires of the Switch Ass'y (22) from the Terminal (28).

1-1-2. Reassembly:

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

(1) Reassembly of Electrical Components:

(a) Ensure that the wiring is connected as shown in the diagram in Fig. 2.

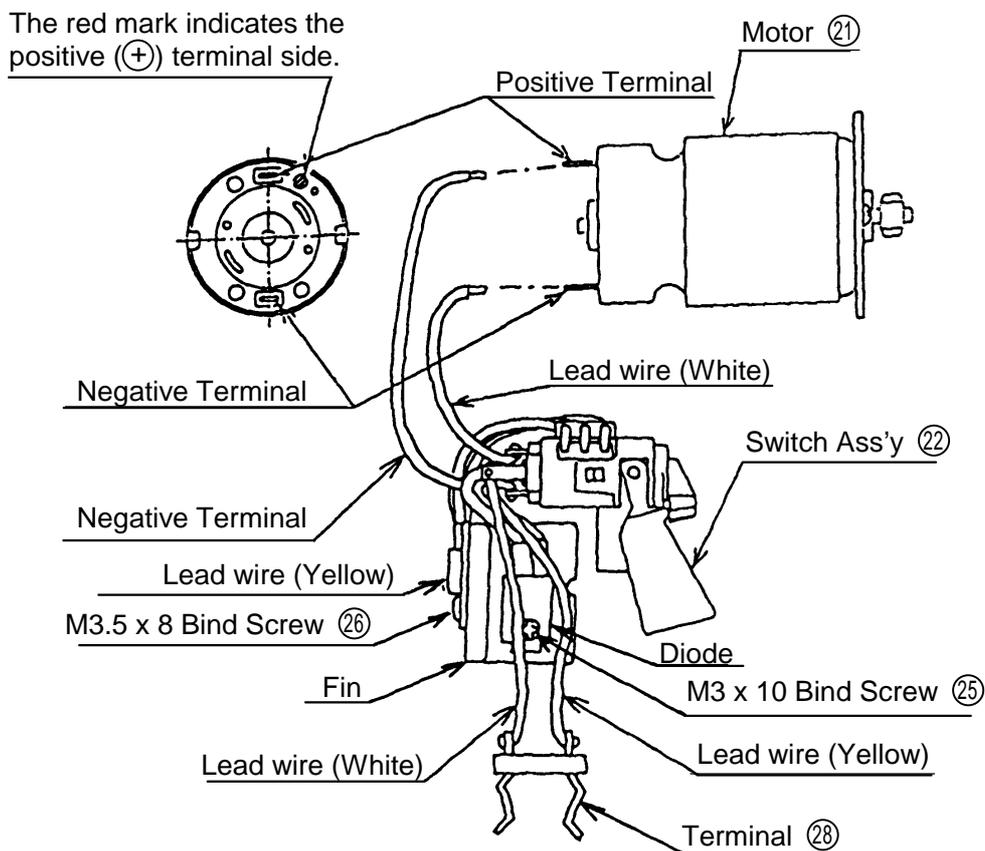


Fig. 2

(2) Connecting the Spindle Gear Set ⑬ and the Electrical Components Assembled as Described in Para. (1):

When connecting the Spindle Gear Set ⑬ and the electrical components assembled as described in Para. (1) above, ensure that the colored lead wires soldered to the Motor ⑳ are correctly positioned with relation to the notched portion of the Spindle Gear Set ⑬ before fastening the two sections with the four D3 x 8 Tapping Screws ㉑.

(See Fig. 3)

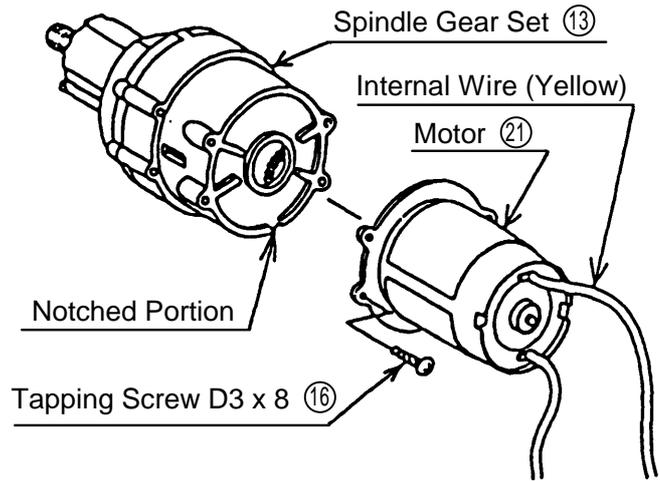


Fig. 3

(3) Reassembly of the Clutch Section:

Assemble the Cap ⑨ and Shift Arm ⑮ onto the Spindle Gear Set ⑬. (See Fig. 4)

During assembly, be very careful not to allow the four Steel Balls ⑭ to drop out of the Spindle Gear Set ⑬.

(a) When assembling the Spindle Holder ⑫ onto the Spindle Gear Set ⑬, ensure that the notched portions of the Spindle Gear Set ⑬ are properly aligned with the matching protruding portions of the Spring Holder ⑫. (See Fig. 5)

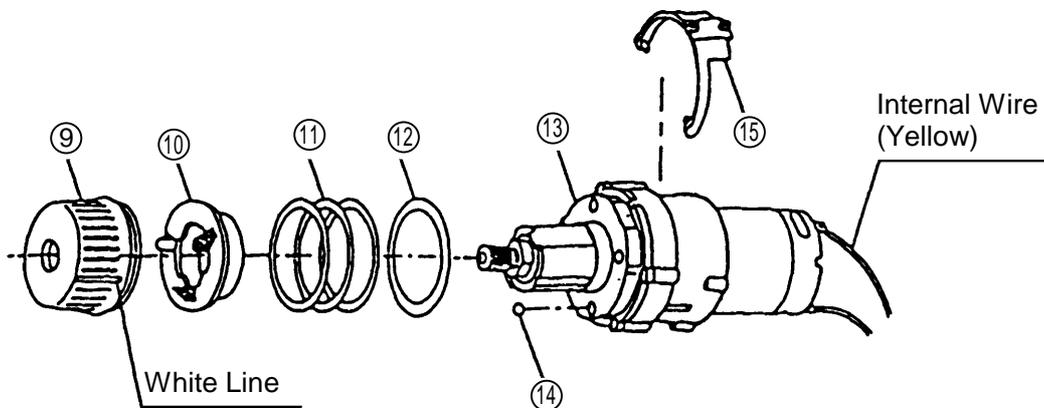


Fig. 4

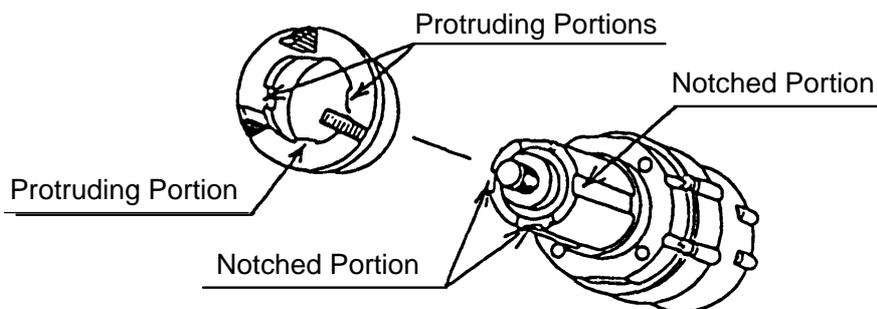


Fig. 5

(b) When assembling the Cap ⑨ onto the components assembled as described in Para. (a) above, ensure that the white line on the Cap ⑨ is properly aligned with relation to the colored lead wires soldered to the Motor ⑳. (See Fig. 4)

(c) When assembling the Shift Arm ⑮ onto the Spindle Gear Set ⑬, ensure that the protruding portions of the Shift Arm ⑮ are properly fitted into the matching grooves of the ring gear inside the Spindle Gear Set ⑬. (See Fig. 6)

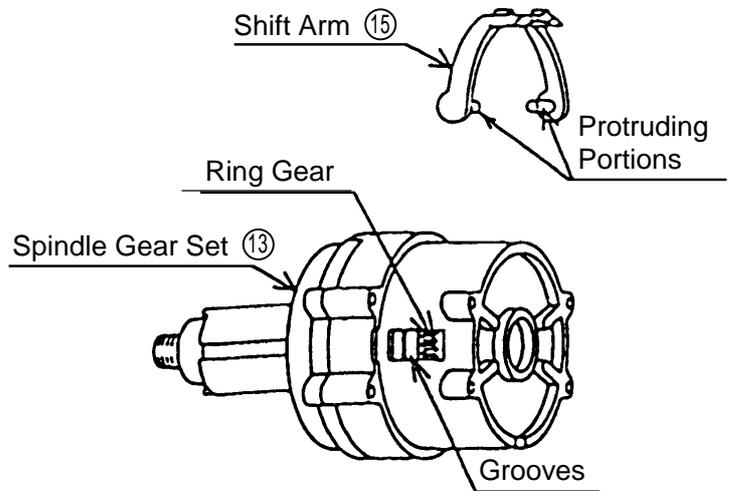


Fig. 6

(d) Insert the Shift Spring ⑱ into the Shift Knob ⑰. (See Fig. 7)

(e) Assemble Bit Holder (A) ⑲ and Bit Holder (B) ⑤ respectively into Housing (A) and Housing (B) of the Housing (A) (B) Set ③. At this time, ensure that the insert portions of the Bit Holders are properly installed into the insert receiving sockets of the Housings. (See Fig. 8)

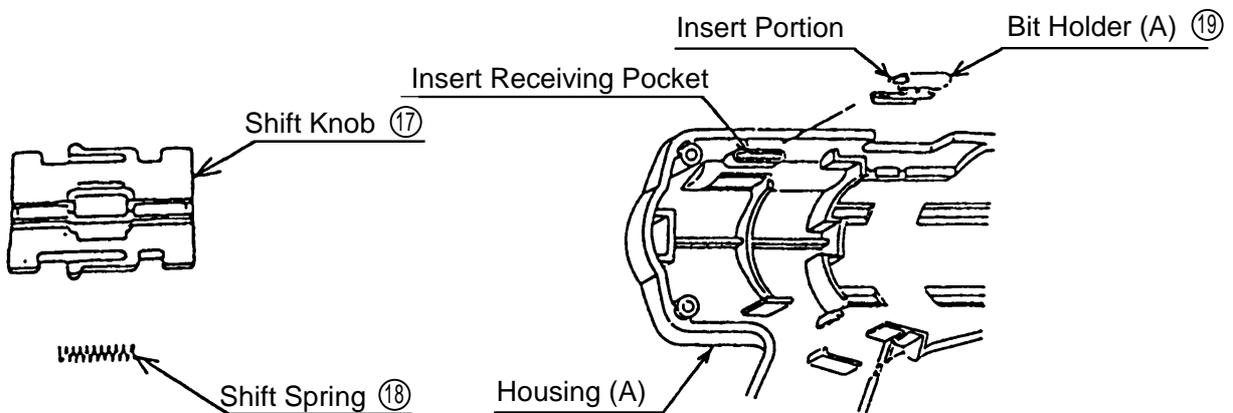


Fig. 7

Fig. 8

(f) Mount the components assembled as described in Para. (d) onto the protruding portions of the Shift Arm ⑮ that is mounted on the components assembled as described in Para. (a). (See Fig. 9)

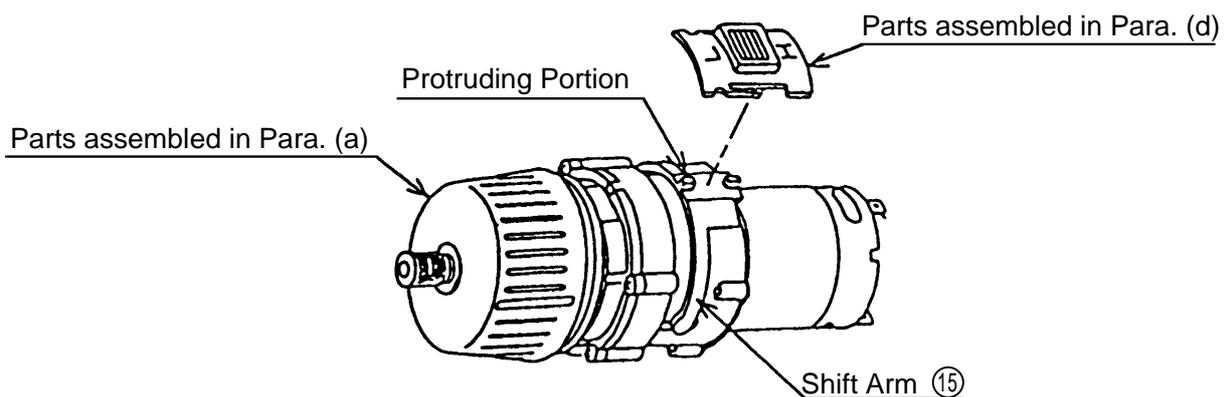


Fig.9

(g) Mount the components assembled as described in Para. (f) onto the components assembled as described in Para. (e). At this time, ensure that colored leadwires soldered to the Terminals ⑳ are properly aligned with relation to Housing (A) and Housing (B). (See Fig. 10)

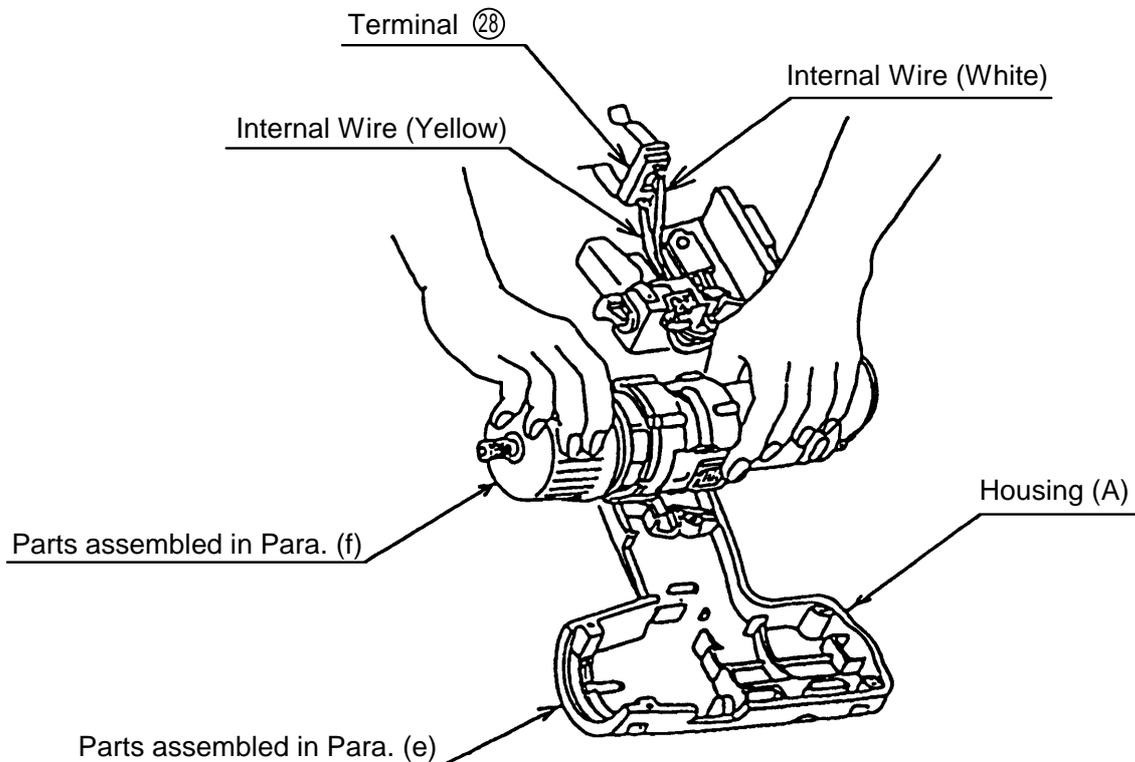


Fig. 10

(4) Other Precautions on Reassembly:

(a) On completion of reassembly, set the Shift Knob ⑰ to the “H” position, and confirm that the Spindle rotates smoothly when the Drill Chuck ⑧ is moved by hand. Also, before turning the Switch ON, confirm that the Cap ⑨ can be properly aligned with the clutch number positions, marked on the Housing (A)-(B) Set ③.

Confirm that the Drill Chuck ⑧ rotation conforms with the setting position of the Reversing Switch. When the Reversing Switch is set to the (R) side, the Drill Chuck ⑧ must rotate to the right (clockwise) when viewed from the rear (the end opposite from the Drill Chuck).

Also, confirm that the rotation speed of the Drill Chuck ⑧ changes properly between high and low speeds when the Shift Knob ⑰ position is changed.

Check the run-out of the Drill Chuck ⑧ . With a 6mm test bar (Special Repair Tool J-223-2, Code No. 305-713.) mounted in the Drill Chuck ⑧ , ensure that run-out is not more than 0.5mm when measured at a distance of 50mm from the end of the chuck.

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|------------------------|------------|---|
| (b) (+) Tapping Screws | D3 x 8 ⑰ | 0.59 - 0.78 N·m (6 - 8 kgf·cm, 5.2 - 6.9 In·lb) |
| (+) Tapping Screws | D3 x 14 ④ | 0.98 - 1.5 N·m (10 - 15 kgf·cm, 8.7 - 13.0 In·lb) |
| (+) Bind Screw | M3.5 x 8 ⑳ | 0.88 - 1.1 N·m (9 - 11 kgf·cm, 7.8 - 11.3 In·lb) |
| (+) Bind Screw | M3 x 10 ㉑ | 0.88 - 1.1 N·m (9 - 11 kgf·cm, 7.8 - 11.3 In·lb) |
| Flat Head Screw | M5 x 20 ⑦ | 3.9 N·m (40 kgf·cm, 34.7 In·lb) |
| Drill Chuck ⑧ | | 3.9 N·m (40 kgf·cm, 34.7 In·lb) |

