



MODEL

WH 12D

1. MAINTENANCE AND REPAIR GUIDE:

Prior to attempting maintenance and repair, always remove the Model EB 12 Battery from the tool without fail. As the tool is cordless, if the battery is not removed and the trigger is pulled inadvertently, the motor will begin to rotate and could cause serious injury.

The numbers in circles and squares in the descriptions below correspond to the item numbers in the Parts Lists and exploded assembly diagrams. The numbers in circles are for the Model WH 12D, while those in squares are for the Model WH 12DB.

1-1. Disassembly:

(1) Disassembly of the Housing Section:

• Removal of the Switch:

Remove the four D4 x 40 Tapping Screws ① ⑤ Which fasten the Housing ③② ③⑦ and Hammer Case ② ⑥, and remove the Inner Cover ②③ ②⑧ and Hammer Case ② ⑥ together from the Housing ③② ③⑦. Next, remove the two D4 x 16 Tapping Screws ③④ ③⑨, and take off the Handle Cover. Tap gently on the side surface of the Housing ③② ③⑦ with a wooden or plastic hammer to loosen and remove the Motor ③⑩ ③⑤, Switch ③⑥ ④①, Fin ②⑦ ③②, and Terminal ④① ④⑤ in a single body. Be very careful not to lose Damper (A) ②⑨ ③④ mounted between the Motor ③⑩ ③⑤ and the Fin ②⑦ ③②, the two Rubber Pins ②⑥ ③① installed on the Fin ②⑦ ③②, and the Rubber Ring ③① ③⑥ installed in the chamber of the Motor ③⑩ ③⑤.

The two leadwires from the Motor ③⑩ ③⑤ (one red, one black) can be disconnected from the forward/reverse control section of the Switch by inserting a J-86 Pin (Special Repair Tool, Code No.970-828) into the holes provided beside each of the leadwires, as illustrated in Fig. 8, and bending the switch leaf springs as necessary so that the leadwires can be smoothly withdrawn.

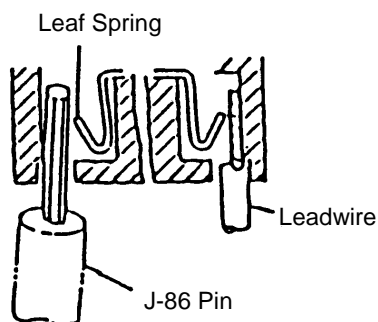


Fig. 8

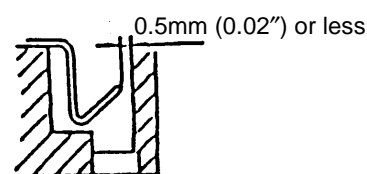


Fig.9

[CAUTION] Be very careful not to bend the leaf springs excessively. If bent excessively, they may become permanently deformed and lose their resiliency. If the clearance between the leaf spring and the inner wall of the terminal exceeds 0.5mm (0.02") (as illustrated in Fig. 9), the switch must be replaced with a new one.

Finally, remove the two D4 x 10 Tapping Screws ③⑦ ④② which fasten the Terminals ③⑨ ④④ and ④① ④⑥, and the M3.5 x 8 Machine Screw ②⑧ ③③ which fixes the FET of the Switch ③⑥ ④① to the Fin ②⑦ ③②, and disassemble the components.

(2) Disassembly of the Hammer Case Section:

• Removal of the Guide Sleeve [WH 12DB only]:

Push the Guide sleeve ② to the Hammer Case ⑥ side, and remove the Stop Washer ① from the groove of Anvil (C) ⑨ with a small minus-head screwdriver. The Guide Sleeve ②, Spring ③ and Washer (D) ④ can then be removed in that order. Be very careful not to lose the two D3.97 steel Balls ⑧ inserted in Anvil (C) ⑨.

- Removal of the Hammer Case:

Support the Hammer Case ② ⑥ with one hand, and tap gently on the end of the Anvil ④ ⑨ with a wooden or plastic hammer to remove it. Be very careful not to lose Washer (A) ③ ⑦.

- Removal of the Spring:

- Take the impact section out of the Inner Cover ②③ ②⑧. Remove the Ball Bearing ①⑨ ②④, Washer ①⑧ ②③, two Needle Rollers ①⑦ ②②, and two Idle Gears ①⑥ ②① from the Spindle ①⑤ ②⑦. Next, set the Anvil ④ ⑨ onto the support base of a hand press, as shown in Fig. 10, and align the impact section with the Anvil ④ ⑨. Then, insert two M4 (5/32") or M5 (3/16") screws (30mm[1-3/16"] in length) into the needle roller holes of the Spindle ①⑤ ②⑦, and push down on the heads of the screws with the hand press to compress the Spring ①⑩ ①⑤. Holding the Spring compressed, use a small minus-head screwdriver to remove the two halved stopper Pieces ①④ ①⑨ from the gap between the Spindle ①⑤ ②⑦ and Washer (B) ①① ①⑥. Then release the hand press slowly, and extract the two screws.

Next, gently push down on either of the clicked portions of the Hammer ⑥ ①① in the Impact section with the hand press to compress the Spring ①⑩ ①⑤ so that the lower surface of the Hammer comes into contact with the Spindle. In this state, as illustrated in Fig. 11, extract the two Steel Balls (5.55mm[7/32"] in diameter) from the cam grooves with a small minus-head screwdriver. Then slowly release the hand press, and extract the Hammer Ass'y ⑥ ①① (including ⑦ ①②, ⑧ ①③, and ⑨ ①④) from the Spindle. The Spring ①⑩ ①⑤ can then be taken off. Be very careful not to lose Washer (B) ①① ①⑥.

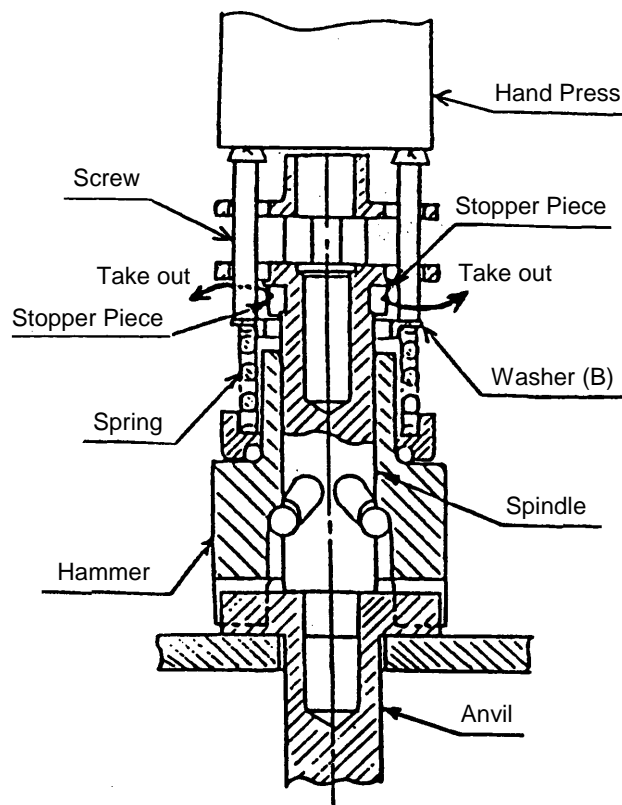


Fig. 10

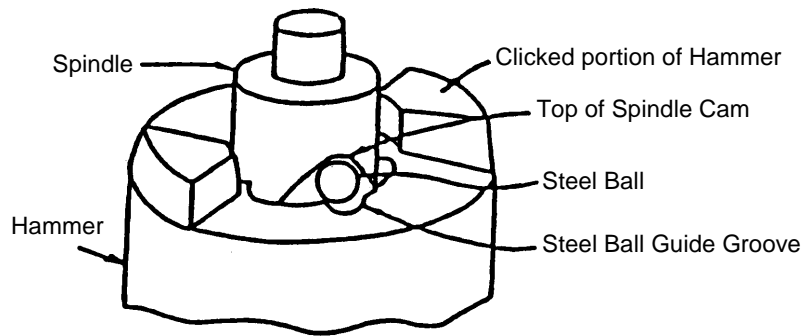


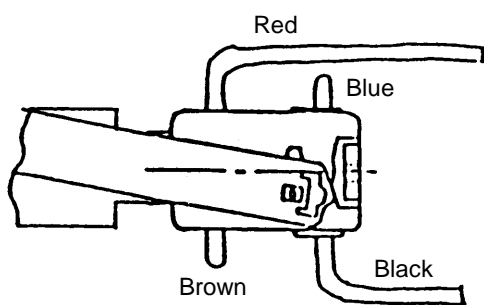
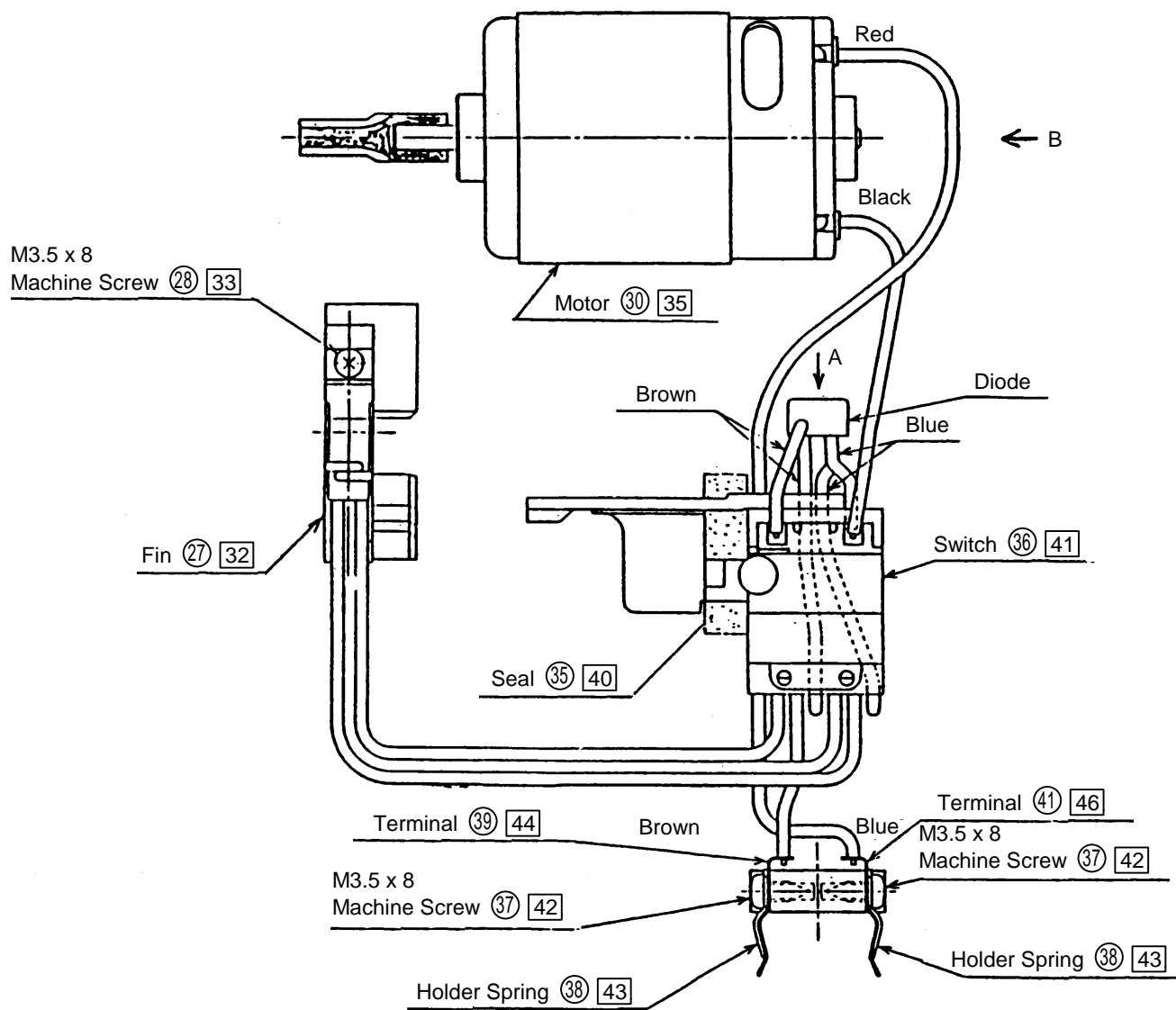
Fig. 11

1-2. Reassembly:

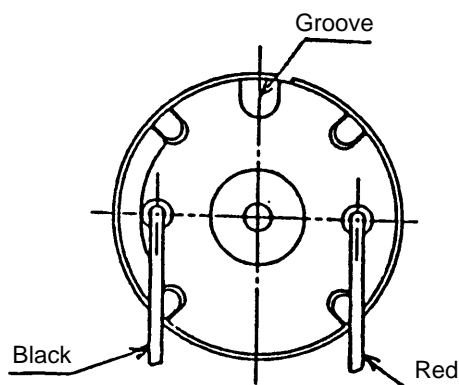
Reassembly can be accomplished by following the disassembly procedures in reverse. However, special attention should be given to the following items.

(1) Reassembly of the Housing Section:

- Ensure that wiring is connected as shown in the wiring illustrations in Fig. 12.
- Confirm that the two Rubber Pins ②⑥ ③① are properly installed in the holes of the Fin ②⑦ ③②.
- When inserting the leadwires into the terminals of the Switch ③⑥ ④①, confirm that the leaf spring connectors are not excessively deformed (refer to Fig. 9). After the leadwires have been connected, confirm that they cannot be pulled easily out of the Switch when gently pulled by hand.
- Confirm that the Seal ③⑤ ④① is properly mounted on the Switch ③⑥ ④①.
- When reassembling the Motor ③① ③⑤ into the Housing ③② ③⑦, carefully ensure that the grooves on the Motor are correctly aligned with and fitted onto the ribs within the Housing (refer to Fig. 12). Confirm that the Motor cannot be turned in either direction by hand after the grooves on the Motor are locked with the ribs on the Housing. When the Motor is correctly installed, the threaded holes on the end surface of the Motor should be horizontally aligned as shown in Fig. 12.
- Ensure that Damper (A) ②⑨ ③④ is properly installed between the end surface of the Motor ③① ③⑤ and the Fin ②⑦ ③②.
- Ensure that the Fin ②⑦ ③②, Switch ③⑥ ④①, and Terminal ④① ④⑤ are installed and arranged in the Housing as shown in Fig. 13.
- Ensure that Damper (B) ②④ ②⑨ is properly installed on the Handle Cover ③④ ③⑨.
- Ensure that the Handle Cover ③④ ③⑨ is mounted before the tip section of the Hammer Case ② ⑥. This is very important: if the tip portion of the Hammer Case is mounted first, the Handle Cover cannot be properly installed.



Leadwire Connections Viewed from 'A'



Leadwire Connections Viewed from 'B'

Fig. 12

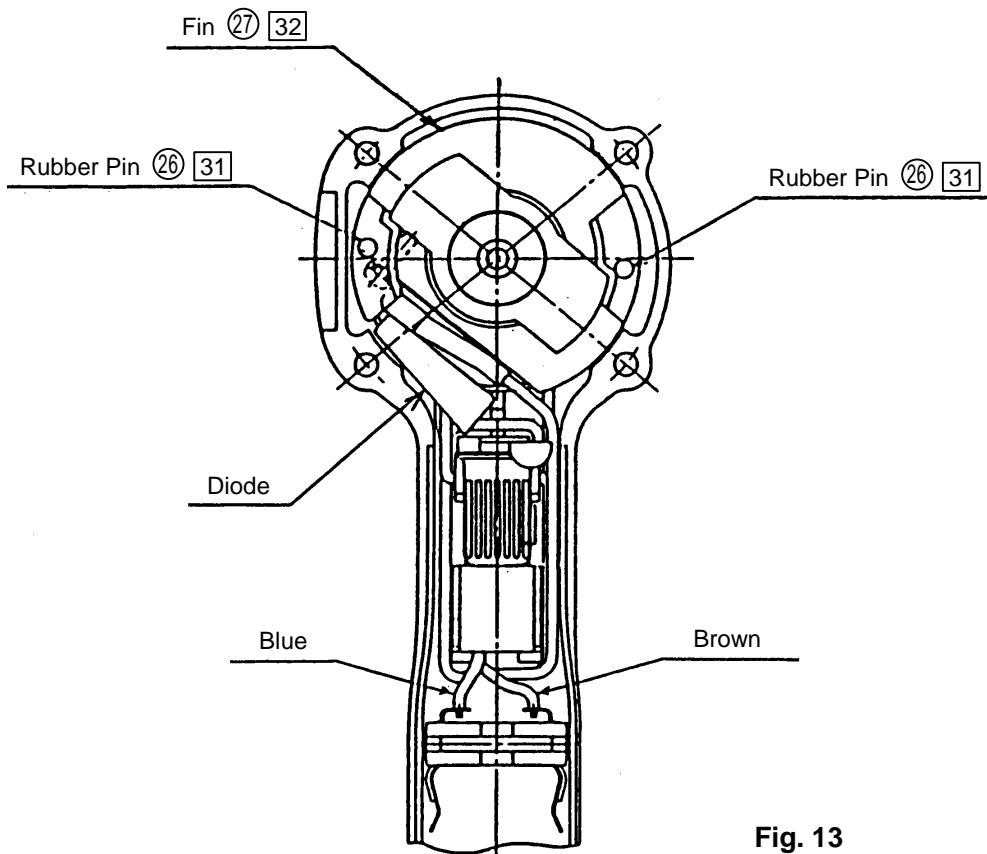


Fig. 13

(2) Reassembly of the Hammer Case Section:

• Reassembly of the Hammer:

- ① Fit Washer (B) (11) [16] to the Spindle (15) [20], mount the Spring (10) [15], and install the Hammer Ass'y (6) [11] (including (7) [12], (8) [13], and (9) [14]). (Be sure to apply a thin coat of grease.)
- ② After carefully aligning the cam grooves of the Spindle with the steel ball guide grooves on the Hammer (see Fig. 11), gently push down on the end of the Hammer with a hand press until the Spring is fully compressed, and support it in that position.
- ③ Insert the two Steel balls (5.55mm[7/32"] diameter) through the steel ball guide grooves. After confirming that the steel balls are properly inserted, gently release the hand press to complete the assembly.

• Reassembly of the Stopper Piece:

As shown in Fig. 10, fit the impact section onto the Anvil (4) [9], and push down the screws with a hand press to compress and support the Spring (10) [15]. Then, as illustrated in Fig. 14, install the Stopper Pieces (14) [19] in the gap between the Spindle (15) [20] and Washer (B) (11) [16] so that the stepped surfaces of the Stopper Pieces are directed toward Washer (B), and gently release the hand press.

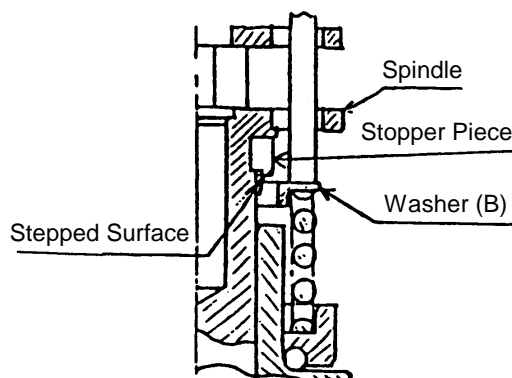


Fig. 14

- **Lubrication:**

Apply grease (JF-375, Code No. 930-036) around the Gears, to the inside and cam grooves of the Hammer, the cam grooves of the Spindle, the sliding portions of the Hammer and Spindle, the sliding portions of the Anvil and Spindle, and the needle bearing portion of the Hammer Case.

- **Reassembly of the Inner Cover into the Housing:**

Install the Ball Bearing ①⑨ ②④ into the Inner Cover ②③ ②⑧, and reassemble the Inner Cover into the Housing. Confirm that the clearance between the end surface of the Housing and the Inner Cover is approximately 0.5mm (0.02"). If this clearance is approximately 2mm (0.08"), the Motor has not been correctly positioned in the Housing. In such a case, refer to Paragraph 1-1-(2), and reinstall the motor correctly into the Housing.

- **Reassembly of the Hammer Case Section:**

- ① Assemble the Ring Gear ⑬ ①⑧ and Washer (A) ③ ⑦ into the Hammer Case ② ⑥. Ensure that the O-Ring ⑫ ①⑦ is properly mounted on the outer circumference of the Ring Gear ⑬ ①⑧.
- ② Assemble the Idle Gear ⑯ ②①, Needle Roller ⑰ ②②, and Washer (C) ⑱ ②③ to the Hammer and Spindle, and assemble them to the Inner Cover Ball Bearing.
- ③ Install the Hammer Case, and confirm that the Anvil rotates lightly and smoothly. If it does not rotate, the meshing of the gears is not correct and must be reassembled.

- **Screws Tightening Torques:**

- D4 x 40 Tapping Screws (w/Washer)
 - D4 x 16 Tapping Screws (Flanged)
 - D4 x 10 Tapping Screws
 - M3.5 x 8 Machine Screws (w/Washer) 3 - 4 kg-cm (0.2 - 0.3 ft · lb)
- } 20 ± 5 kg-cm (1.1 - 1.8 ft · lb)

- Confirm that the Anvil ④ ⑨ rotation direction matches the positioning of the forward/reverse selector lever of the Switch ⑳ ④①. When the forward/reverse selector lever is set to the 'R' side, the Anvil must rotate to the right (clockwise) when viewed from the back end of the tool (the end opposite from the Anvil).

1-3. Charger Disassembly, Reassembly and Precautions:

For disassembly, reassembly and precautions in handling of the 1-hour battery charger (Model UC 12Y), please refer to the Model UC 12Y Charger Technical Data and Service Manual (No. E830).