



## MODEL WH 12DH, WR 12DH

### 1. REPAIR GUIDE

**WARNING:** Without fail, remove the Model EB 12B or EB 12H Battery from the main body before starting repair or maintenance work. Because the tool is cordless, if the battery is left in and the switch is activated inadvertently, the motor will start rotating unexpectedly, which could cause serious injury.

#### 1-1. Precautions in Disassembly and Reassembly

The **[bold]** and **<bold>** numbers correspond to the item numbers in the Parts List and the exploded assembly diagram. ( [ ]: WH 12DH, < >: WR 12DH )

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

###### (1) Removal of the Hammer Case [6] <2> and the Inner Cover [21] <19>

Remove the four Tapping Screws D4 x 30 [5] <1> that connect the Hammer Case [6] <2> with the Housing (A).(B) Set [28] <26>. Remove the Hammer Case [6] <2>, the Inner Cover [21] <19> and the Damper [22] <20> together from the Housing (A).(B) Set [28] <26>.

###### (2) Removal of Housing (B)

Remove the seven Tapping Screws D4 x 20 [26] <24> from the main body to remove Housing (B).

###### (3) Remove the DC-Speed Control Switch [30] <28>, the Fin Ass'y [32] <30>, the Motor [23] [21], Grip (F) [33] [31] and Grip (R) [37] <35> together. Remove the Pushing Button [31] <29> and the Strap [35] <33>.

###### (4) Disassembly of the switch ass'y

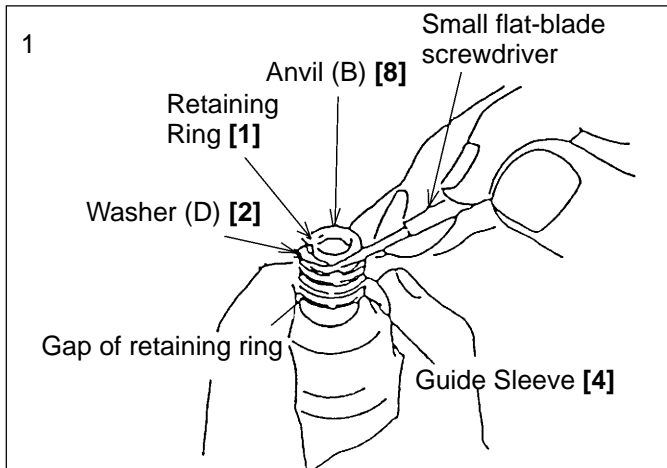
Remove the two Machine Screws M3 x 5 [29] <27> that secure the flag terminal and then disconnect the internal wires (purple and black) of the Motor [23] <21> from the DC-Speed Control Switch [30] <28>.

Remove the S-Tight Screw D3.5 x 6 [36] <34> to remove the Fin Ass'y [32] <30> from the FET of the DC-Speed Control Switch .

(Note) Do not disconnect the three FET internal wires soldered to the DC-Speed Control Switch.

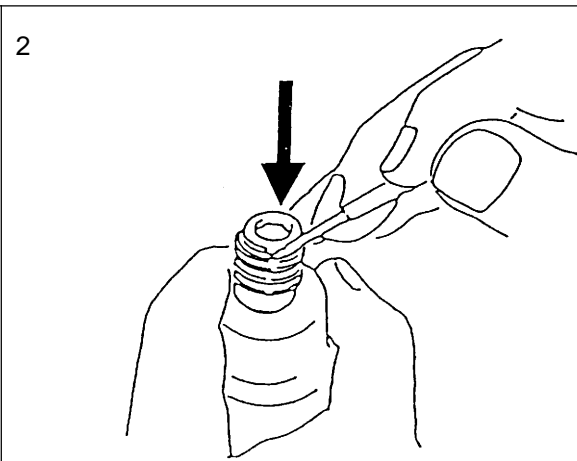
###### (5) Removal of the Guide Sleeve [4] (for WH 12DH only)

By following the procedure shown in Figs. 1-1 to 1-4, you can remove the Retaining Ring [1], Washer (D) [2], the Guide Spring [3] and the Guide Sleeve [4] in this order. Be sure not to lose the Steel Ball D3.5 [7] in Anvil (B) [8].



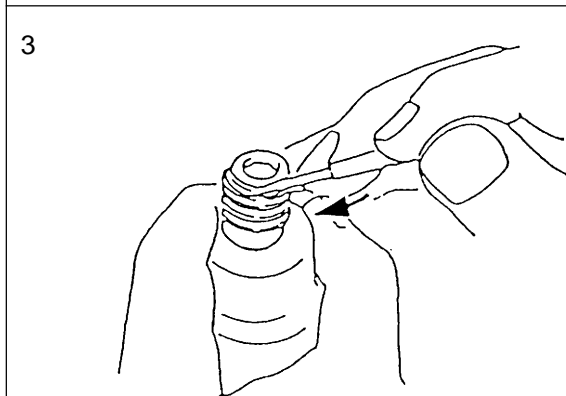
**Fig. 1-1**

Hold the body and adjust gap of the retaining ring to groove of the anvil (B), then insert a small flat-blade screwdriver into the groove at an angle.



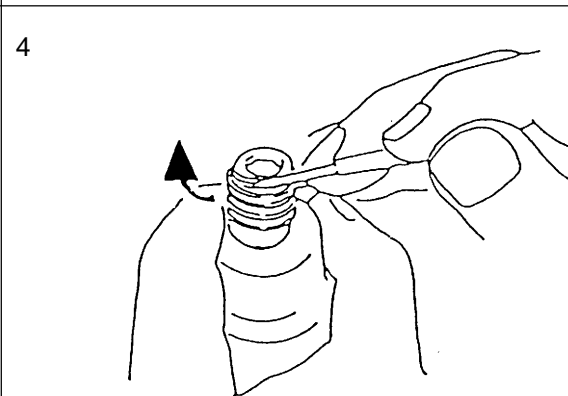
**Fig. 1-2**

Press down the washer (D) with the screwdriver.



**Fig. 1-3**

Slide the screwdriver under one side of the gap of the retaining ring.



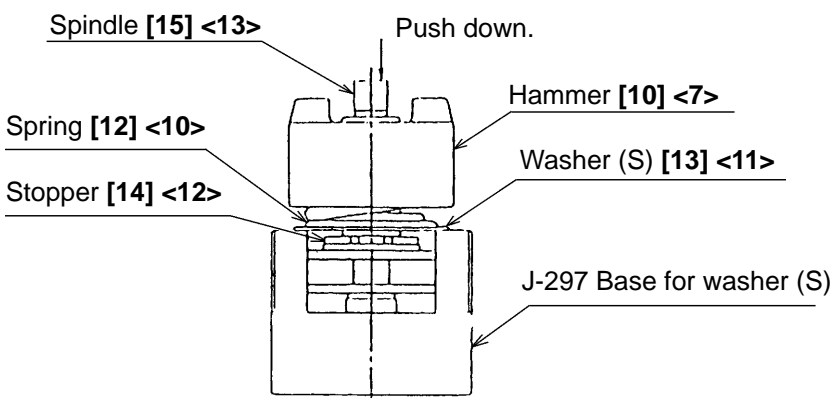
**Fig. 1-4**

Slowly raise the retaining ring using the end face of the guide sleeve as a fulcrum.

Then slowly raise the other side of the retaining ring with the screwdriver until it is free. The Guide Sleeve [4] can now be removed. Avoid quickly raising the retaining ring or it may fly out forcefully.

The retaining ring can also be easily removed by widening the gap of the retaining ring with the jig for retaining ring and slowly raising the retaining ring with a small flat-blade screwdriver.

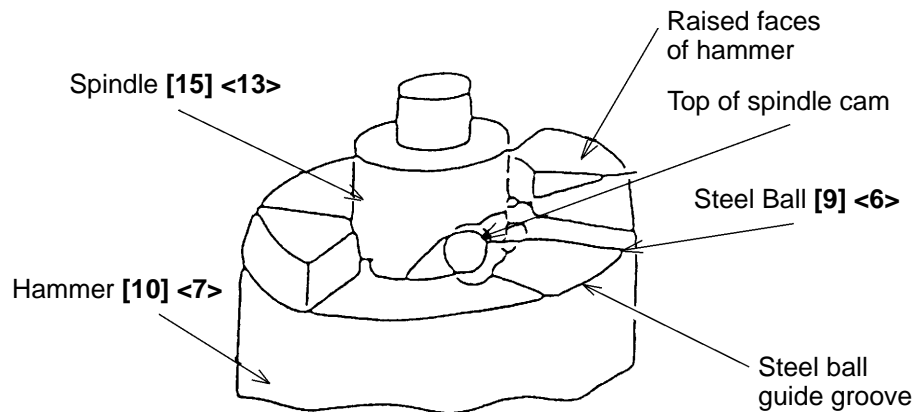
(6)



**Fig. 2**

Mount the hammer assembly onto the J-297 base for washer (S). With a hand press, push down the top of the Spindle [15] <13> to compress the Spring [12] <10>. In this position, remove the Stopper [14] <12> with a flat-blade screwdriver, then release the hand press. (See Fig. 2.)

Remove the hammer assembly from the J-297 base for washer (S) and support the end surface of the Spindle [15] <13>. With a hand press, push down either of the raised faces of the Hammer [10] <7> to compress the Spring [12] <10>. In this position, extract the two Steel Balls D5.556 [9] <6> from the cam grooves of the Spindle [15] <13> and the Hammer [10] <7> with a small flat-blade screwdriver or a similar tool. Then, slowly release the hand press and lift the Hammer [10] <7> and Washer (S) [13] <11> together to extract them from the Spindle [15] <13>. The Spring [12] <10> can then be removed.



**Fig. 3**

### **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) Reassembly of Housing (A) assembly**

- (a) Be sure to follow the wiring diagram (Fig. 4-1) for proper wiring.
- (b) When connecting the internal wires of the Motor [23] <21> to the DC-Speed Control Switch [30] <28>, tightly fasten them with the Machine Screw M3 x 5 [29] <27> paying close attention to the direction of the flag terminal (Fig. 4-2).
- (c) Mount the Motor [23] <21> into Housing (A) so that the CB cap of the Motor [23] <21> and the rib for preventing motor body from rotating fit in Housing (A).

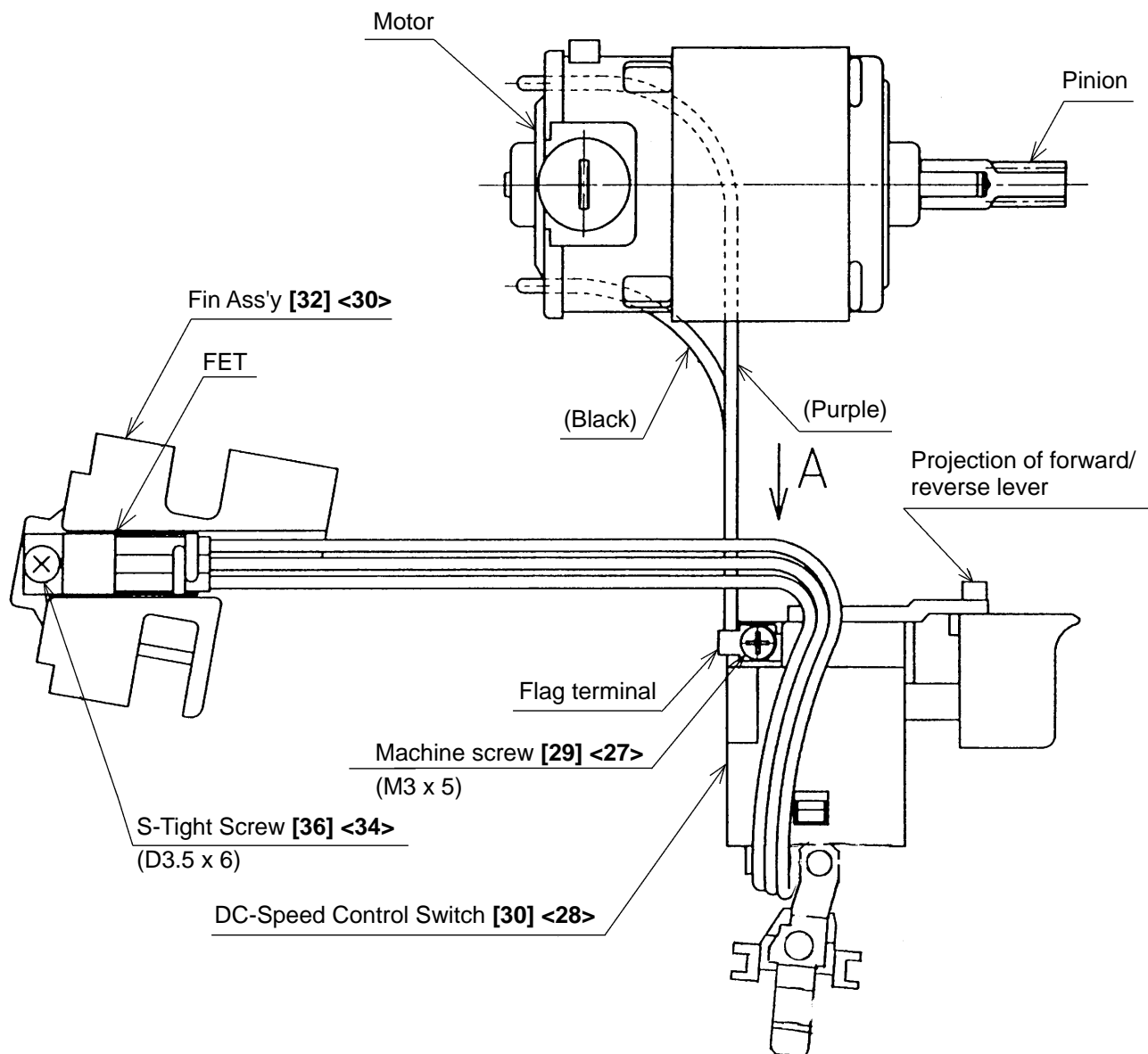
(Note) Make sure that the internal wire (purple) is passed under the Motor so that it is not caught between the Motor and Housing (A).

- (d) Mount the DC-Speed Control Switch [30] <28> to Housing (A) so that the projection of the forwarding/reversing lever at the top of the Switch is inserted into the U-shaped groove of the Pushing Button [31] <29>. Secure the Fin Ass'y [32] <30> to the FET of the DC-Speed Control Switch [30] <28> with the S-Tight Screw D3.5 x 6 [36] <34>.

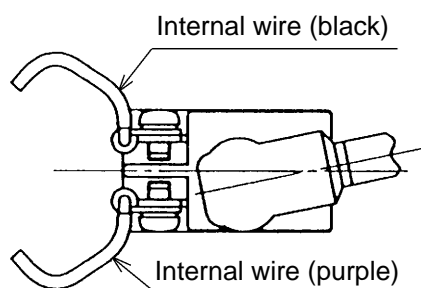
(Note) Make sure that the three internal wires from the FET are passed above the DC-Speed Control Switch [30] <28>.

#### **(2) Reassembly of the Housing (A).(B) Set [28] <26>**

Mount the Strap [35] <33>, Grip (F) [33] <31>, Grip (R) [37] <35> and Housing (B) to Housing (A), and secure them with the seven Tapping Screws D4 x 20 [26] <24>.



**Fig. 4-1**



Schematic diagram viewed from A

**Fig. 4-2**

### (3) Reassembly of the Mechanical Parts

- (a) Put the Washer (S) [13] <11> onto the shaft of the Spindle [15] <13> and mount the Hammer [10] <7> containing the twenty-five Steel Balls D3.5 [7] <8>, Washer (J) [11] <9> and the Spring [12] <10> to the Spindle [15] <13>.
- (b) Align the top of the cam groove on the Spindle [15] <13> with the steel ball guide groove on the Hammer [10] <7> as illustrated in Fig. 3. Press down either of the raised faces of the Hammer [10] <7> with a hand press to compress the Spring [12] <10> until the end surface of the Hammer contacts the flange of the Spindle [15] <13>.
- (c) Insert the two Steel Balls D5.556 [9] <6> into the steel ball guide groove. Check that the Steel Balls are properly inserted in the cam groove. Then release the hand press.
- (d) Mount the hammer assembly onto the J-297 base for washer (S). With a hand press, push down the top of the Spindle [15] <13> to compress the Spring [12] <10>. On this condition, mount the Stopper [14] <12> onto the spindle shaft and then release the hand press.
- (e) Mount the Ring Gear [18] <16>, the Ball Bearing [20] <18>, the Inner Cover [21] <19> and the Damper [22] <20> to the above reassembly. Furthermore, mount the other mechanical parts and Anvil (B) [8] or Anvil (K) Ass'y <4>, then the Hammer Case [6] <2>. When mounting Anvil (B) [8], use the J-296 anvil cap (Fig. 5).

(Note) The oil seal may be turned inside out if the anvil cap is not used.

- (4) Mounting the assembly from the Hammer Case [6] <2> to Inner Cover [21] <19> to the housing assembly  
Push the assembly from the Hammer Case [6] <2> to the Inner Cover [21] <19> into the housing assembly by turning them clockwise and counterclockwise. Check that the Anvil can be easily turned. (If it cannot be turned, check for correct mesh of the gears.) Secure the above assembly with the four Tapping Screws D4 x 30 [5] <1>.

### (5) Reassembly of the Guide Sleeve [4] (for WH 12DH only)

Insert the Steel Ball D3.5 [7] into the hole of the Anvil (B) [8]. Mount the Guide Sleeve [4], the Guide Spring [3] and Washer (D) [2] in sequence. Mount the Retaining Ring [1] into the groove of Anvil (B) using the J-295 jigs (A) and (B) for retaining ring as illustrated in Fig. 6.

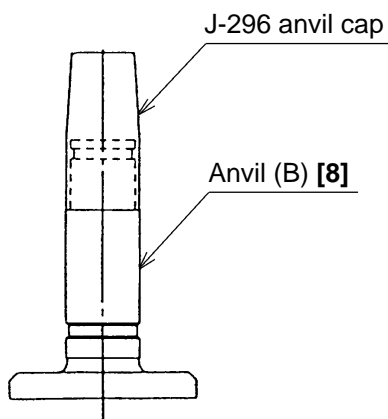


Fig. 5

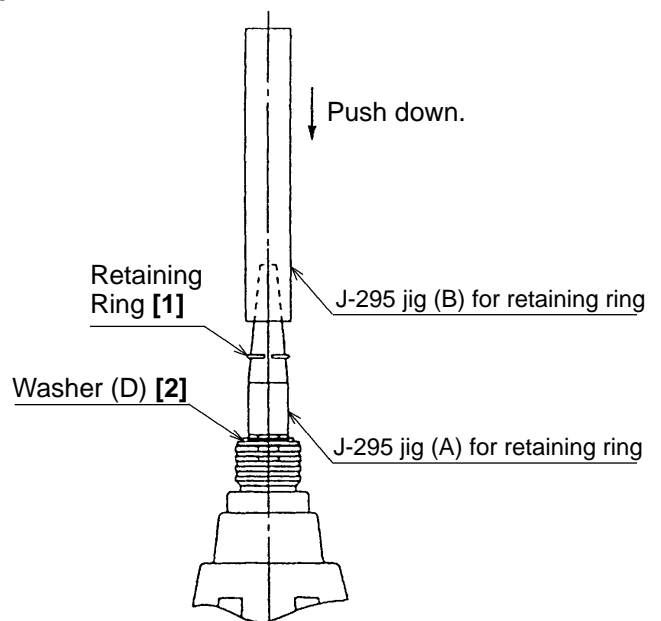


Fig. 6

(6) Check whether the direction of rotation of Anvil (B) [8] or Anvil (K) Ass'y <4> coincides with the directional markings on the push-on side of the Pushing Button [31] <29>. When the Pushing Button [31] <29> is turned to the (R) side, the direction of rotation of Anvil (B) [8] or Anvil (K) Ass'y <4> should be clockwise, as viewed from behind.

(7) Lubrication

(a) ATTOLUB MS No. 2

- Cam groove of the Spindle [15] <13>
- Cam groove of the Hammer [10] <7>
- Sliding section of the Hammer and the Spindle
- 8 mm Diameter hole of Anvil (B) [8] or Anvil (K) Ass'y [4]
- Sliding section between Anvil (B) [8] or Anvil (K) Ass'y [4] and the metal
- Two Steel Balls D5.556 [9] <6>
- Pinion tooth flanks of the Motor [23] <21>
- Tooth flanks of the Ring gear [18] <16>
- Twenty-five Steel Balls D3.5 [7] <8>

(b) HITACHI MOTOR GREASE No. 29 (for WH 12DH only)

- Steel Ball D3.5 [7]
- Sliding section of Anvil (B) [8] and the Guide Sleeve [4]

(8) Screw tightening torque

- Tapping Screw (with sp. washer) D4 x 30 ..... 20 ± 5 kgf·cm (1.96 ± 0.49 N·m, 1.44 ± 0.36 ft-lbs)
- Tapping Screw (with flange) D4 x 20 ..... 20 ± 5 kgf·cm (1.96 ± 0.49 N·m, 1.44 ± 0.36 ft-lbs)
- S-Tight Screw D3.5 x 6 ..... 15 – 20 kgf·cm (1.47 – 1.96 N·m, 1.08 – 1.44 ft-lbs)
- Machine Screw M3 x 5 ..... 3 – 4 kgf·cm (0.294 – 0.392 N·m, 0.22 – 0.29 ft-lbs)

## 1-2. Precautions in Disassembly and Reassembly of Battery Charger

Refer to the Technical Data and Service Manual for precautions in disassembly and reassembly of the Model UC 14YF or UC 14YF2 Battery Charger.

## 2. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable		10	20	30	40	50	60 min.
	Fixed							
<div>WH 12DH</div> <div>WR 12DH</div>		Work Flow						
		Handle Cover Switch Terminal Piece	→		Housing			
		Inner Cover Motor O-Ring Rubber Ring	→					
		General Assembly						
		Fixed Cost		Hammer Case	Steel Ball			
Handle Cover	} 0 min.	Washer	Hammer Ass'y					
Switch		Anvil	Spring Sheet					
Terminal Piece		Ring Gear	Spring					
Others	20 min.		Spindle					
			Idle Gear					
			Needle Roller					
			Ball Bearing (6001)					