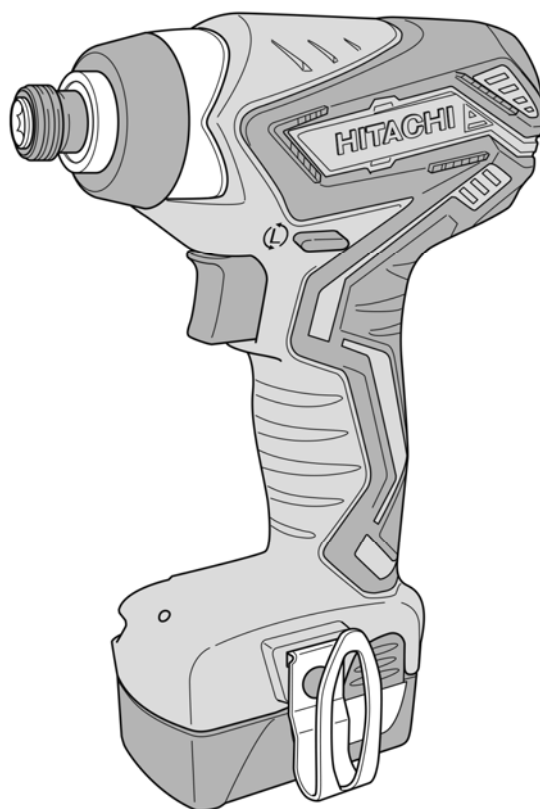


PRODUCT NAME

Hitachi 10.8 V Cordless Impact Driver

Model WH 10DAL

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REPAIR GUIDE

WARNING: Be sure to remove the Type BCL 1015 battery from the main body before starting repair or maintenance work. Because the tool is cordless, inadvertently activating the switch with the battery left in the main body will start the motor rotating unexpectedly, and could cause serious injury.

1. Precautions on disassembly and reassembly

[Bold] numbers in the description below correspond to item numbers in the Parts List and exploded assembly diagram for the Model WH 10DAL.

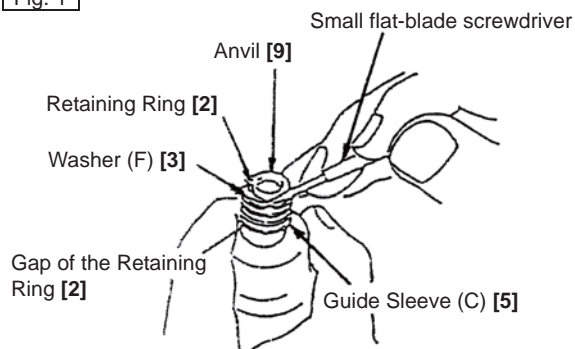
Disassembly

1. Removal of guide sleeve (C)

(1) Follow the procedure shown in Figs. 1 to 4 below to remove the Retaining Ring **[2]**, Washer (F) **[3]**, Guide Spring (C) **[4]** and Guide Sleeve (C) **[5]** in this order. Avoid quickly raising the Retaining Ring **[2]**; otherwise, it may suddenly spring out. Be sure not to lose the two Steel Balls D3.175 **[8]** in the Anvil **[9]**.

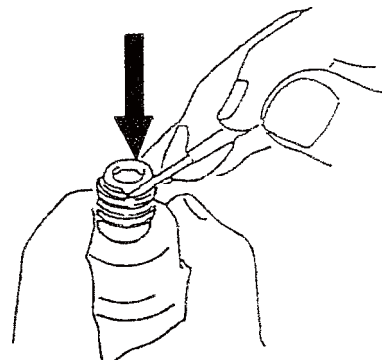
• Removal of guide sleeve (C)

Fig. 1



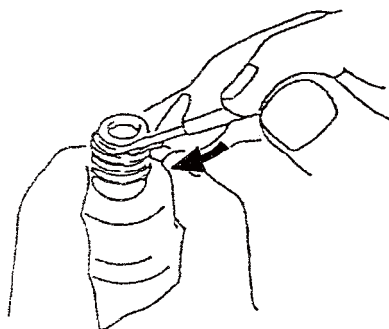
Hold the body and adjust the gap of the Retaining Ring **[2]** to the groove of the Anvil **[9]**, then insert a small flat-blade screwdriver into the groove at an angle.

Fig. 2



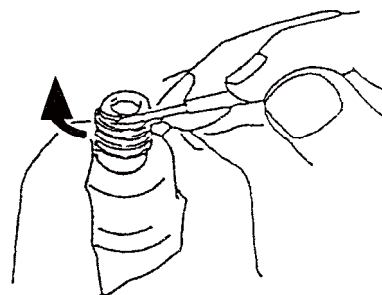
Press down Washer (F) **[3]** with the small flat-blade screwdriver.

Fig. 3



Slide the small flat-blade screwdriver under one side of the gap of the Retaining Ring **[2]**.

Fig. 4



Slowly raise the Retaining Ring **[2]** using the end face of Guide Sleeve (C) **[5]** as a fulcrum.

2. Removal of the exterior parts

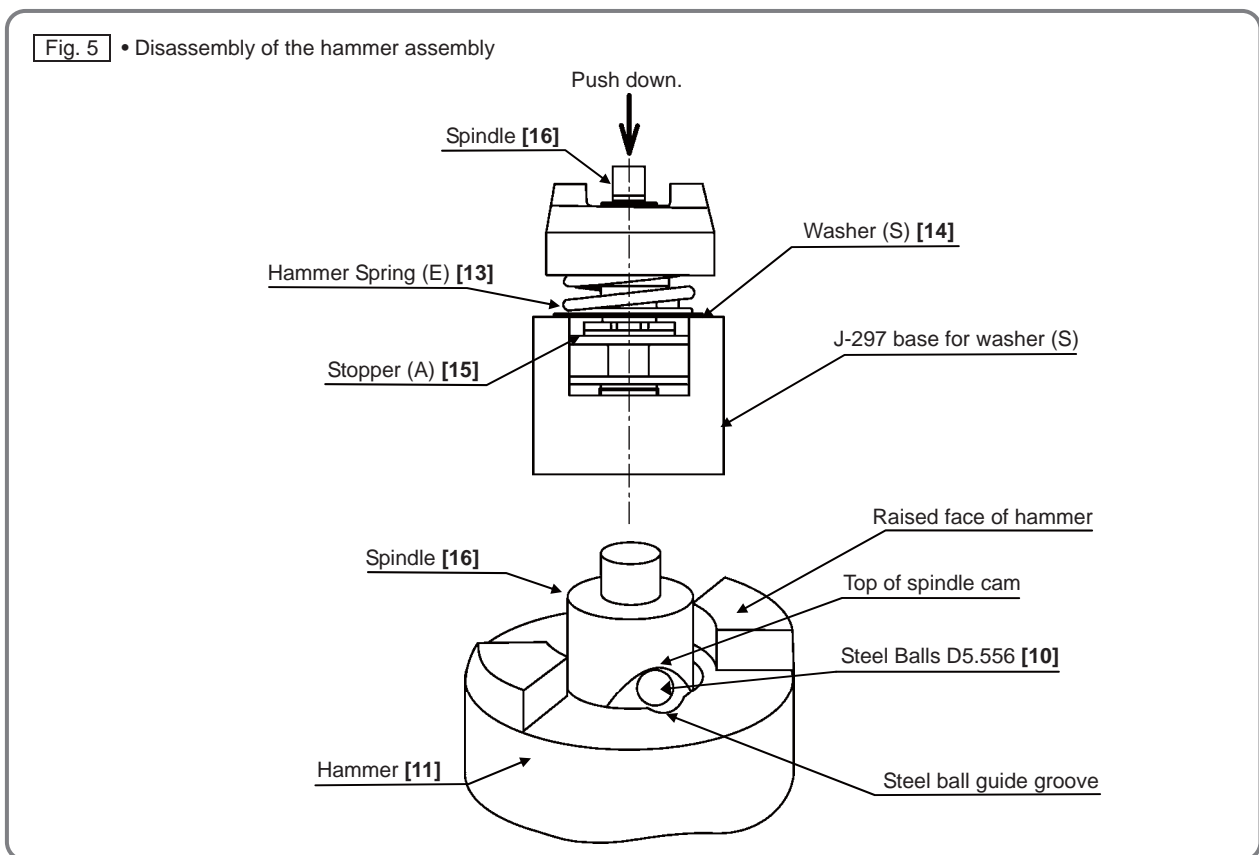
- (1) Insert a small flat-blade screwdriver between the Front Cap [6] and Hammer Case [7], and then remove the Front Cap [6] from the Hammer Case [7].

3. Removal of housing (A).(B) set

- (1) Remove the eight Tapping Screws (W/Flange) D3 x 16 (Black) [35] to remove housing (B) from the Housing (A).(B) Set [29].
- (2) Remove the Hammer Case [7], hammer assembly, Ring Gear [21], Motor DC 12V [23] and Switch Terminal Set [33] as one unit. Remove Pushing Button (A) [32].

4. Disassembly of the hammer assembly

- (1) Mount the hammer assembly onto the J-297 base for washer (S) (a special tool). With a hand press, push down the top of the Spindle [16] to compress Hammer Spring (E) [13]. In this position, remove Stopper (A) [15] with a small flat-blade screwdriver, and then release the hand press.
- (2) Remove the hammer assembly from the J-297 base for washer (S) and support the end surface of the Spindle [16]. With a hand press, push down either of the raised faces of the Hammer [11] to compress Hammer Spring (E) [13]. In this position, extract the two Steel Balls D5.556 [10] from the cam grooves of the Spindle [16] and Hammer [11] with a small flat-blade screwdriver.
- (3) Slowly release the hand press and lift the Hammer [11] and Washer (S) [14] together to extract both from the Spindle [16]. Remove Hammer Spring (E) [13].



5. Disassembly of the switch terminal set

Disconnect the internal wires (red and black) coming from the Motor DC 12V [23] from the Switch Terminal Set [33] by unsoldering.

NOTE: Do not remove the switch and controller from the Switch Terminal Set [33].

Reassembly

Perform reassembly by reversing the order of the disassembly procedure. However, special attention should be given to the following items.

1. Reassembly of the power supply unit

NOTE: Perform wiring according to Figs. 6 and 7 being careful of the internal wiring and the connecting direction.

- (1) Solder the internal wires to the motor and the DC switch according to the following steps (a) and (b) being careful of the soldering terminals and color of internal wires. (See Figs. 6 and 7.)
 - (a) Solder the red internal wire of the Internal Wire Ferrite Set [30] to the positive side (red marked side) of the Motor DC 12 V [23] and the M1 terminal of the DC switch.
 - (b) Solder the black internal wire of the Internal Wire Ferrite Set [30] to the negative side (opposite to the red marked side) of the Motor DC 12 V [23] and the M2 terminal of the DC switch.
- (2) Push the internal wires of the Switch Terminal Set [33] in the ribs and grooves of housing (A) to prevent the internal wires from being caught. (See Figs. 6 and 7.)
- (3) Fit the protrusion of the forward/reverse changeover lever of the Switch Terminal Set [33] in the hole of Pushing Button (A) [32], and then mount it to housing (A).

NOTE: Black oxide or separated plating on terminal support contacts to be connected to the battery will increase the temperature of the contacts and damage the battery or driver body. Replace the Switch Terminal Set [33] with a new one.

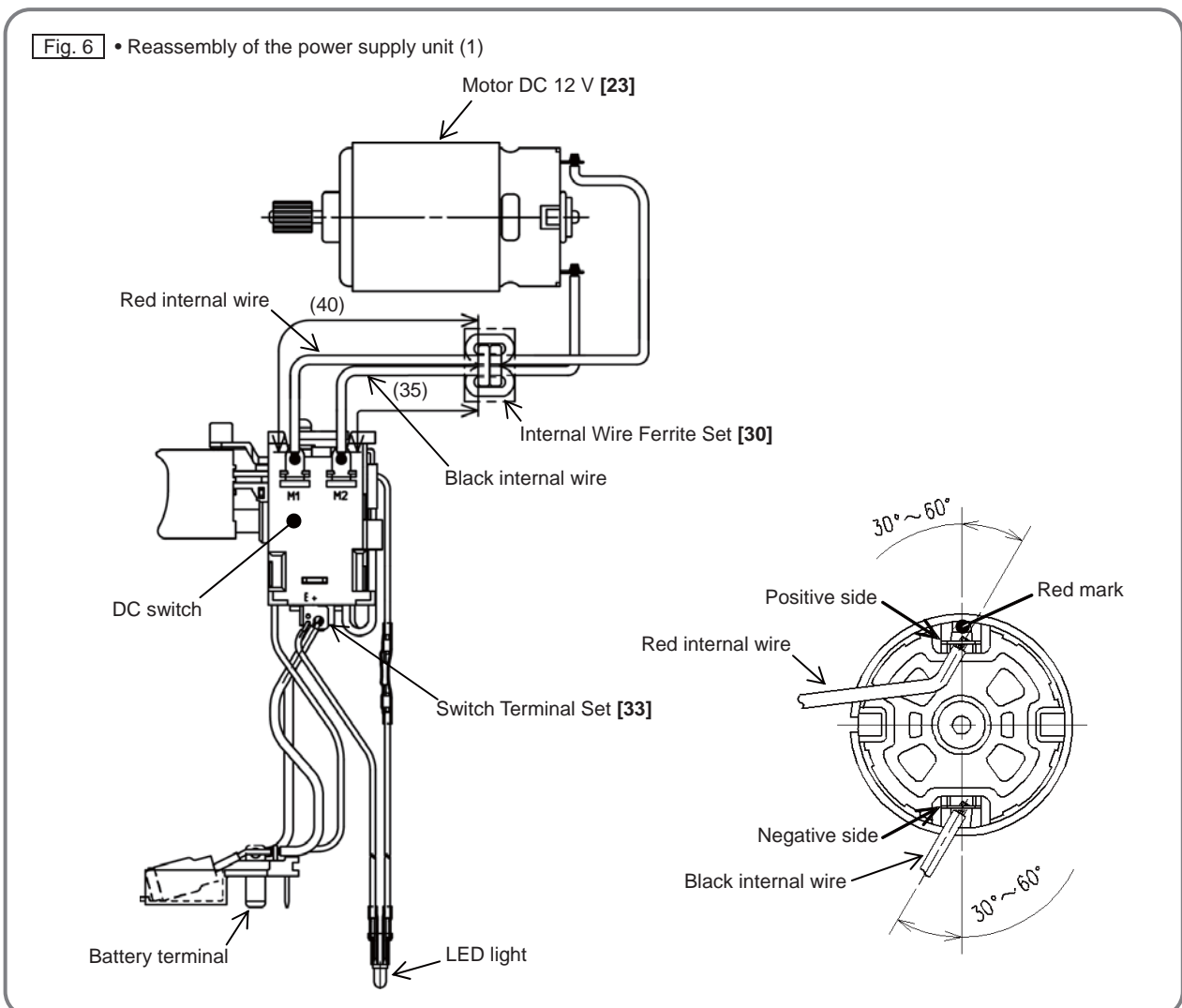
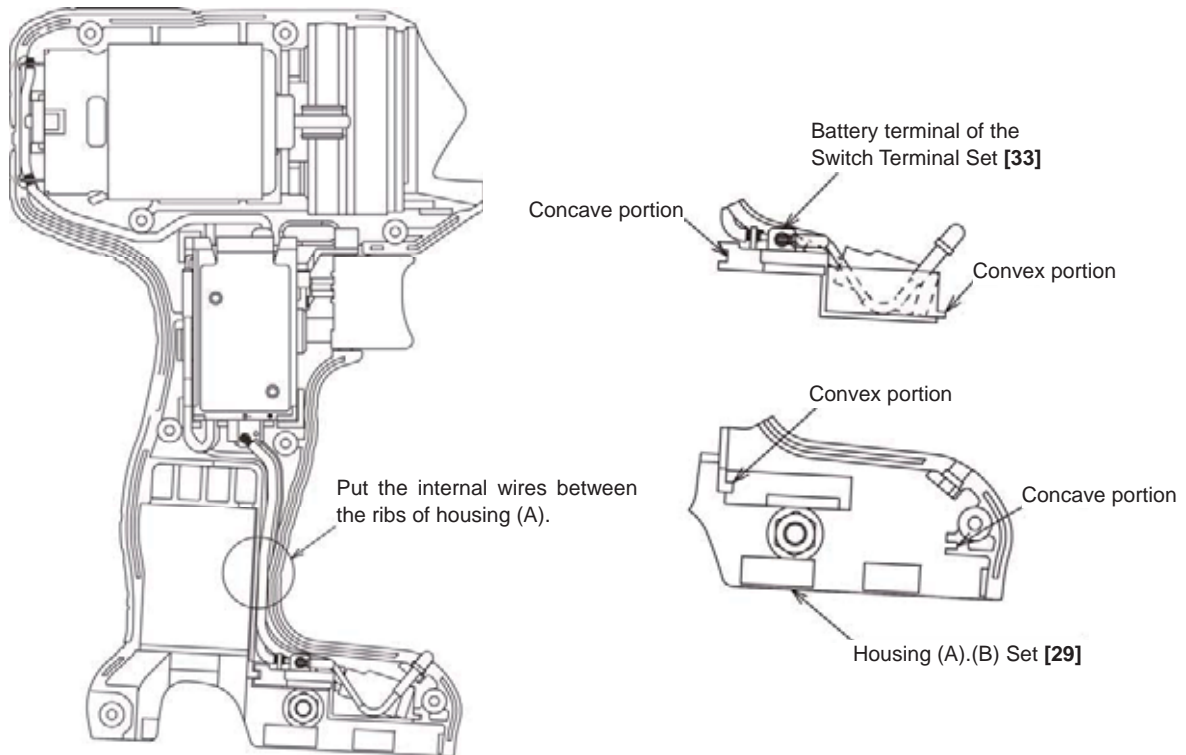


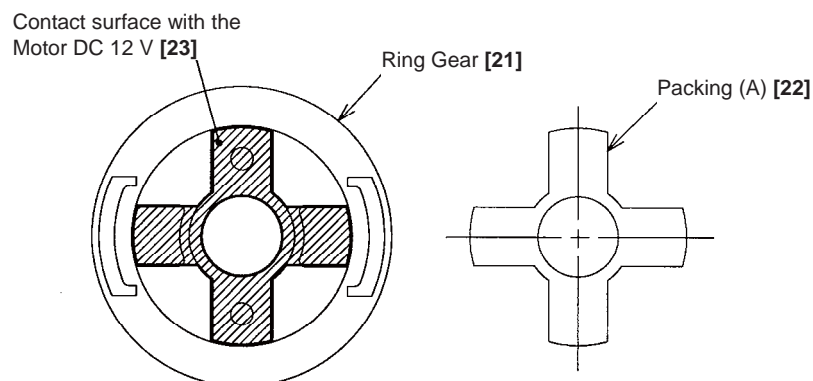
Fig. 7 • Reassembly of the power supply unit (2)



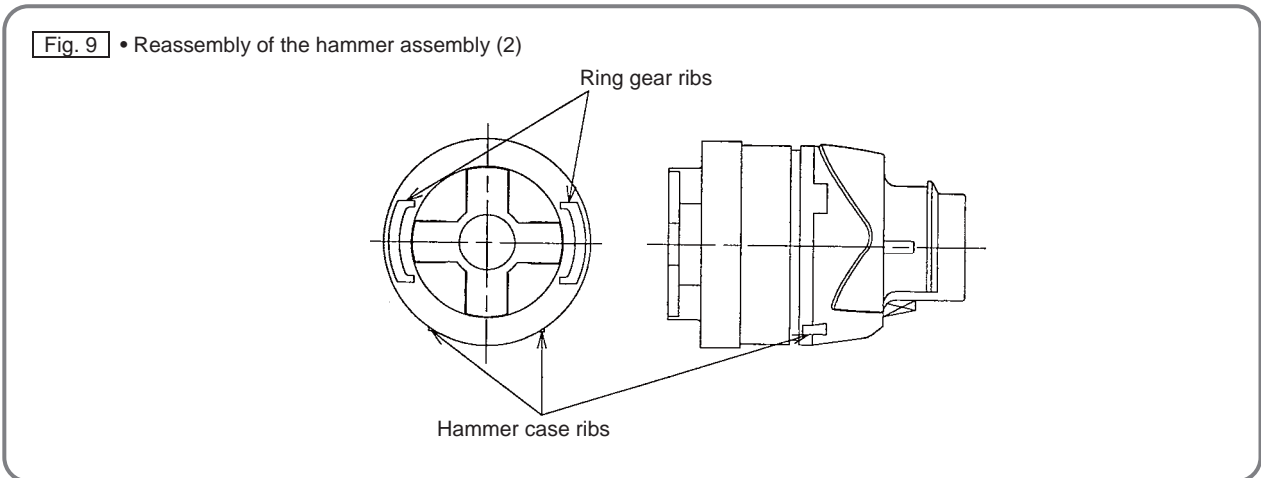
2. Reassembly of the hammer assembly

- (1) Put Washer (S) [14] onto the shaft of the Spindle [16] and mount the Hammer [11] containing the twenty-eight Steel Balls D3.175 [8], Washer (J) [12] and Hammer Spring (E) [13] to the Spindle [16].
- (2) Align the top of the cam groove on the Spindle [16] with the steel ball guide groove on the Hammer [11]. Press down either of the raised faces of the Hammer [11] with a hand press to compress Hammer Spring (E) [13] until the end surface of the hammer contacts the flange of the Spindle [16].
- (3) Insert the two Steel Balls D5.556 [10] into the steel ball guide groove. Confirm that the Steel Balls D5.556 [10] are properly inserted in the cam groove. Then release the hand press.
- (4) Mount the hammer assembly onto the J-297 base for washer (S). With a hand press, push down the top of the Spindle [16] to compress Hammer Spring (E) [13]. In this condition, mount Stopper (A) [15] onto the spindle shaft, and then release the hand press.
- (5) Insert the tip of the Spindle [16] into the Anvil [9] and cover it with the Hammer Case [7].
- (6) Fit Packing (A) [22] onto the contact surface with the Motor DC 12 V [23] of the Ring Gear [21], by aligning the center hole and the cross-shaped portion.

Fig. 8 • Reassembly of the hammer assembly (1)



- (7) Confirm that the Spindle [16] is inserted into Washer (G) [19]. Mount the Ring Gear [21] so that its ribs are perpendicular to the ribs of the Hammer Case [7], while being careful of meshing between the Idle Gear [17] of the hammer assembly and the Ring Gear [21].
- (8) Mount Packing (A) [22] to the Ring Gear [21]. Then check that the Motor DC 12 V [23] turns smoothly. If not, the gears are meshing improperly. Check the meshing condition.



3. Reassembly of housing (A). (B) set

- (1) Apply silicone rubber (Three Bond 1211) to the shaded areas shown in Fig. 10 before mounting the parts to housing (A).
- (2) Mount a unit of the Hammer Case [7], Ring Gear [21] (including the Motor DC 12V [23]) and Switch Terminal Set [33] into housing (A).
- (3) Pay attention to the following when mounting:
 - Mount the Hammer Case [7] to the housing so that the protrusion of the Hammer Case [7] (for locking) contacts the concave portion of the housing as shown in Fig. 10.
 - Confirm that the Hammer Case [7] is mounted to the housing properly. If the Hammer Case [7] is not fitted in the specified groove of the housing or the ribs of the Ring Gear [21] are not perpendicular to the ribs of the Hammer Case [7], properly remount the Hammer Case [7]. Be sure to properly mount the Hammer Case [7] to the housing to prevent it from slipping off in the axial direction.
- (4) Fit the convex portion of the battery terminal of the Switch Terminal Set [33] in the concave portion of Housing (A).(B) Set [29], and fit the convex portion of Housing (A).(B) Set [29] in the concave portion of the battery terminal of the Switch Terminal Set [33]. (See Fig 7.)
- (5) Apply silicone rubber (Three Bond 1211) to housing (B) in the same area as for housing (A). Mount housing (B) and secure it with the eight Tapping Screws (W/Flange) D3 x 16 (Black) [35]. Use a cloth to wipe off all jammed-out silicone rubber (Three Bond 1211) on the housing.

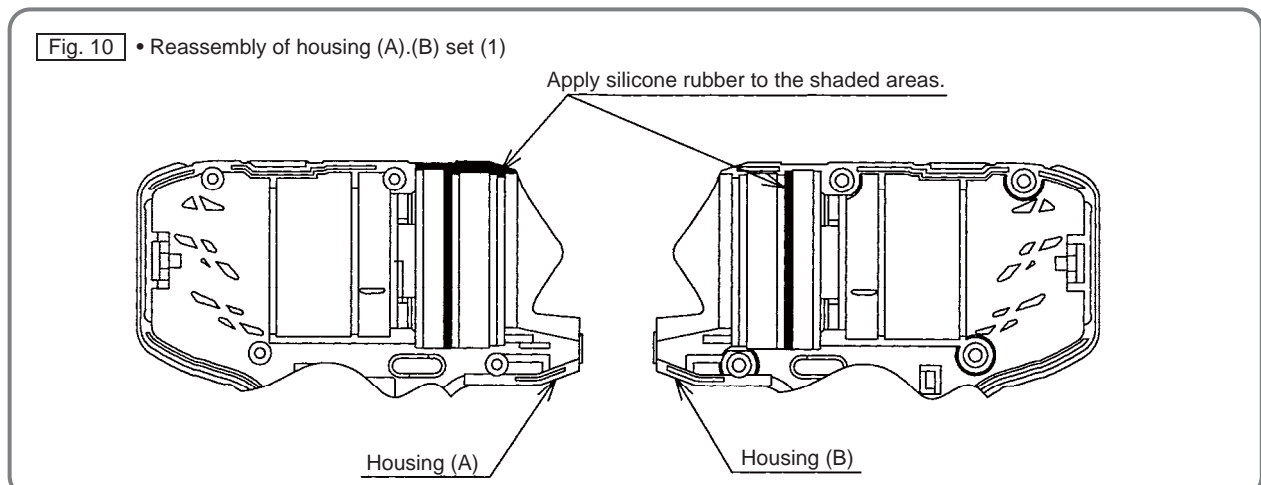
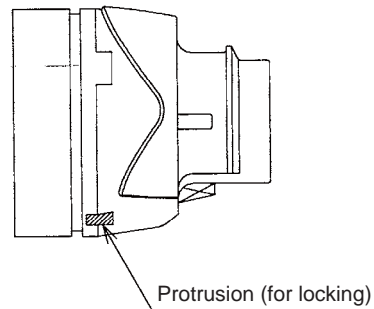
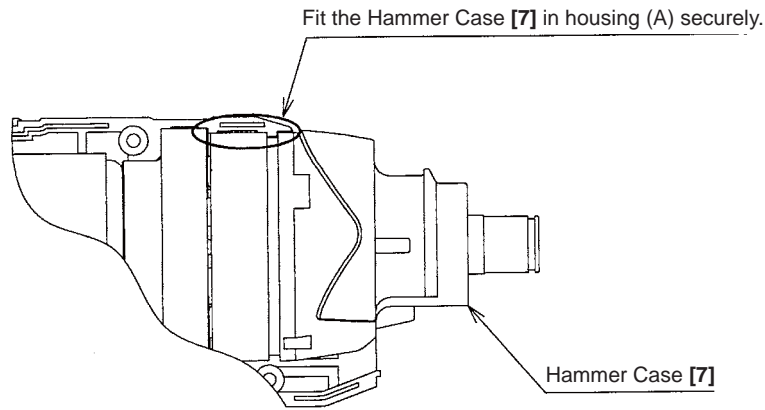
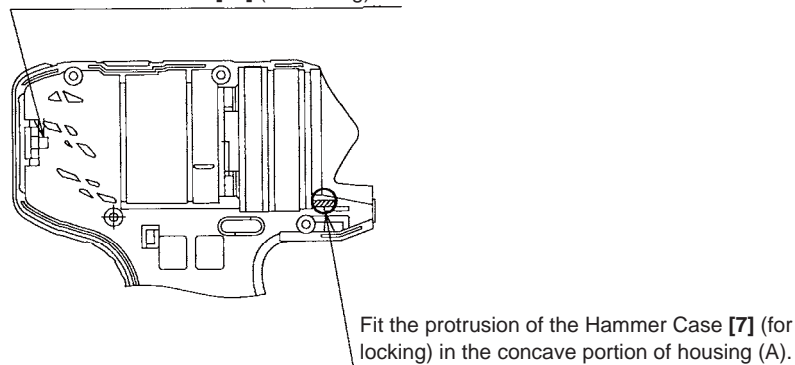


Fig. 11 • Reassembly of housing (A).(B) set (2)



Fit the protrusion of housing (A) in the notch of the Motor DC 12 V [23] (for locking).



4. Mounting the exterior parts

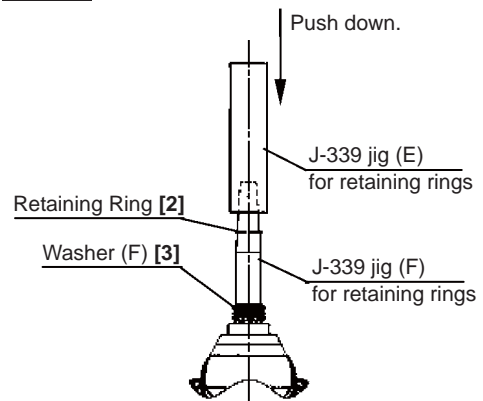
Cover the assembled housing with the Front Cap [6].

5. Mounting the guide sleeve

Insert one Steel Ball D3.175 [8] into the hole of the Anvil [9]. Mount Guide Sleeve (C) [5], Guide Spring (C) [4] and Washer (F) [3] in sequence. Mount the Retaining Ring [2] into the groove of the anvil using J-339 jigs (E) and (F) for retaining rings.

NOTE: Be sure to replace the Retaining Ring [2] with a new one because it may be deformed and Guide Sleeve (C) [5] could come off if the deformed Retaining Ring [2] is used again.

Fig. 12 • Mounting the guide sleeve



Application of lubricant

ATTOLUB MS No. 2

- Pinion tooth flanks of the Motor DC 12 V [23], Ring Gear [21] and Idle Gear [17]

HITACHI MOTOR GREASE No. 29

- One Steel Ball D3.175 [8]
- Sliding section between the Anvil [9] and Guide Sleeve (C) [5]

MOLUB-ALLOY 777-1

- 8 mm diameter hole of the Anvil [9], sliding section between the Anvil [9] and the metal, oil groove, and upper surface of the claw
- Two Steel Balls D5.556 [10]
- Cam groove, oil groove and claw of the Hammer [11]
- Cam groove and sliding section of the Spindle [16]
- 5 mm diameter hole of Idle Gear [17]
- All around Needle (C) [18]
- Twenty-eight Steel Balls D3.175 [8]

Screw tightening torque

- Tapping Screw (W/Flange) D3 x 16 (Black) [35] ----- $1.5 \pm 0.4 \text{ N}\cdot\text{m}$ ($15 \pm 4 \text{ kgf}\cdot\text{cm}$)

Checking after reassembly

Check the following after reassembly:

- (1) Confirm that the switching operation is smooth and the Model WH 10DAL can start, stop, change speed and perform forward/reverse operation reliably.
- (2) Confirm that the LED light goes on when the switch is turned on.
- (3) Confirm that the rotation direction of the anvil coincides with the push-on side of pushing button (A).
(When pushing button (A) is turned to the (R) side, the rotation direction of the anvil should be clockwise as viewed from behind.)

No-load current

No-load current: $4.0 \pm 1 \text{ A}$ (DC 12.2 V [equivalent to the voltage of a fully charged battery])

2. Precautions on disassembly and reassembly of the battery charger

Refer to the Service Manual for precautions on disassembly and reassembly of the Model UC 10SL2 charger.

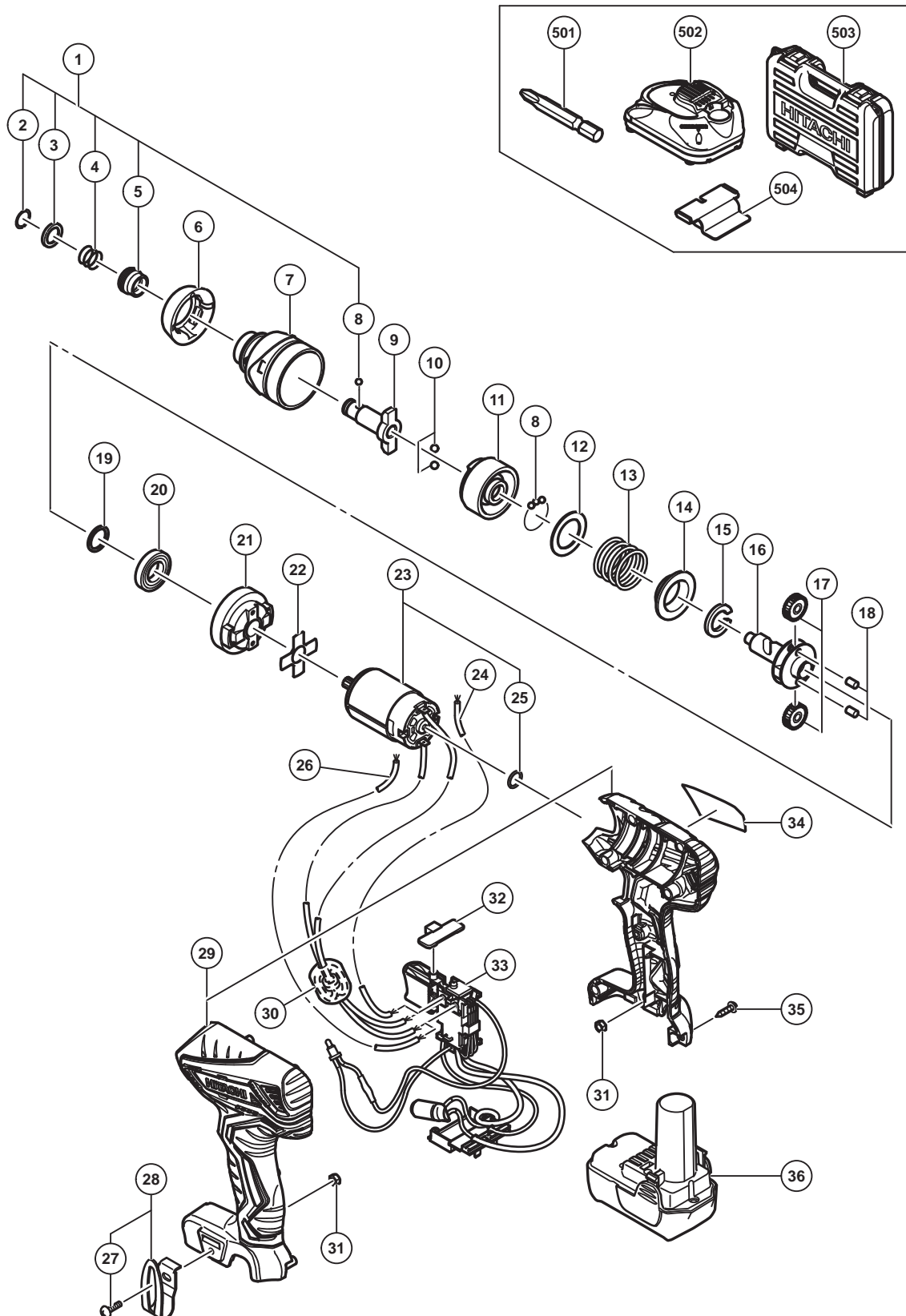
STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable Fixed	10	20	30	40	50	60 min.
WH 10DAL	General assembly	Work Flow					
		Switch Terminal Set					
		Motor DC 12 V					
		Guide Sleeve Ass'y	Hammer Case Anvil Ring Gear	Hammer Steel Ball D5.556 Hammer Spring (E) Spindle Idle Gear Needle (C) Ball Bearing (6803VV)			

ELECTRIC TOOL PARTS LIST

■ CORDLESS IMPACT DRIVER
Model WH 10DAL

2014-6-26
(E1)



PARTS

WH 10DAL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	329538	GUIDE SLEEVE ASS'Y	1	INCLUD.2-5,8
2	995933	RETAINING RING	1	
3	331959	WASHER (F)	1	
4	322737	GUIDE SPRING (C)	1	
5	329537	GUIDE SLEEVE (C)	1	
6	337360	FRONT CAP	1	
7	330955	HAMMER CASE	1	
8	959148	STEEL BALL D3.175 (10 PCS.)	29	
* 9	329554	ANVIL (L)	1	
* 9	329555	ANVIL (S)	1	FOR EUROPE,RUS,NZL,TUR,ISR,SAF
10	959154	STEEL BALL D5.556 (10 PCS.)	2	
11	330965	HAMMER	1	
12	315978	WASHER (J)	1	
13	322741	HAMMER SPRING (E)	1	
14	316172	WASHER (S)	1	
15	322740	STOPPER (A)	1	
16	330960	SPINDLE	1	
17	330958	IDLE GEAR	2	
18	980258	NEEDLE (C)	2	
19	330961	WASHER (G)	1	
20	330962	BALL BEARING 6803VV	1	
21	331019	RING GEAR	1	
22	331448	PACKING (A)	1	
23	337361	MOTOR DC 12V	1	INCLUD.25
* 24	331449	INTERNAL WIRE (C)	1	EXCEPT FOR EUROPE,RUS,TUR
25	987105	O-RING (S-10)	1	
* 26	306041	INTERNAL WIRE (B) (BLACK)	1	EXCEPT FOR EUROPE,RUS,TUR
* 27	337357	TRUSS HD. SCREW M4 (BLACK)	1	FOR EUROPE
* 28	337362	HOOK (A) ASS'Y	1	INCLUD.27 FOR EUROPE
29	337355	HOUSING (A).(B) SET	1	INCLUD.31
* 30	334866	INTERNAL WIRE FERRITE SET	1	FOR EUROPE,RUS,TUR
31	327002	LOCK NUT M4 (BLACK)	2	
32	329548	PUSHING BUTTON (A)	1	
33	337359	SWITCH TERMINAL SET	1	
34		NAME PLATE	1	
35	313687	TAPPING SCREW (W/FLANGE) D3 X 16 (BLACK)	8	
* 36	331067	BATTERY BCL 1015 (EUROPE,AUS,NZL)	2	INCLUD.504
* 36	331069	BATTERY BCL 1015 (CHN)	2	INCLUD.504
* 36	331068	BATTERY BCL 1015 (TPE)	2	INCLUD.504
* 36	337391	BATTERY BCL 1015 (THA)	2	INCLUD.504

STANDARD ACCESSORIES

WH 10DAL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
* 501	983006	+ DRIVER BIT NO.2 65L	1	
* 501	992671	+ DRIVER BIT (B) NO.2 50L	1	FOR EUROPE,RUS,NZL,TUR,ISR,SAF
502		CHARGER (MODEL UC 10SL2)	1	
503	336642	CASE	1	
504	331086	BATTERY COVER	1	

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
* 601	337362	HOOK (A) ASS'Y	1	INCLUD.602 EXCEPT FOR EUROPE
* 602	337357	TRUSS HD. SCREW M4 (BLACK)	1	EXCEPT FOR EUROPE
603	306927	SILICONE RUBBER	1	
604	996184	BIT PIECE	1	
* 605	337384	BATTERY BCL 1030 (EUROPE)	1	INCLUD.504 FOR EUROPE,RUS,NZL