

# Hitachi Power Tools

## SERVICE MANUAL

LIST Nos.  
WH 14DBDL: H886  
WH 18DBDL: H887  
WR 14DBDL: H884  
WR 18DBDL: H885  
May. 2011

PRODUCT NAME .....

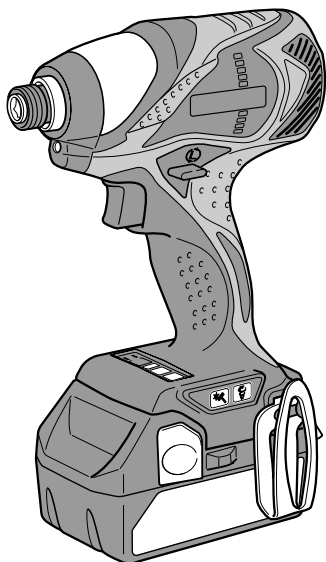
Hitachi 14.4 / 18 V Cordless Impact Driver

Models WH 14DBDL, WH 18DBDL

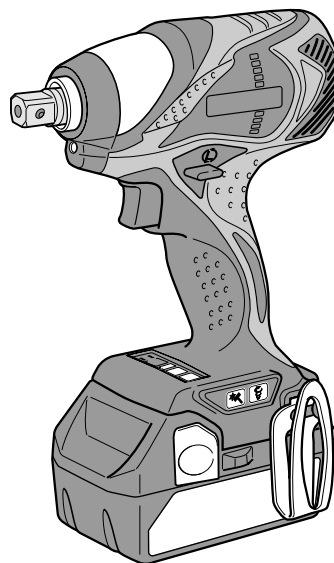
Hitachi 14.4 / 18 V Cordless Impact Wrench

Models WR 14DBDL, WR 18DBDL

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[WH 18DBDL]



[WR 18DBDL]

**HITACHI**

 **Hitachi Koki Co., Ltd.**  
International Sales Division

**W**

# TROUBLESHOOTING GUIDE

## 1. Troubleshooting and Repair

Symptom		Possible cause	Troubleshooting	Repairing
(1) No motor motion	High/Low indicator OFF	<ul style="list-style-type: none"> <li>Insufficient connection of flat cable (B) of switch</li> </ul>	<ul style="list-style-type: none"> <li>Check the connection of flat cable (B). (See [1. Reassembly of the Wiring Ass'y] on page 5.)</li> </ul>	<ul style="list-style-type: none"> <li>Securely connect flat cable (B).</li> </ul>
		<ul style="list-style-type: none"> <li>Switch connector failure due to dust or water</li> </ul>	<ul style="list-style-type: none"> <li>Check flat cable (B) contact (for corrosion, dust, water, and other contaminant).</li> <li>Check switch connector (for corrosion, dust, water, and other contaminant).</li> </ul>	<ul style="list-style-type: none"> <li>Replace the DC-Speed Control Switch and the controller.</li> </ul>
		<ul style="list-style-type: none"> <li>Controller failure due to dust or water</li> </ul>	<ul style="list-style-type: none"> <li>Check the PCB surface (for dust, water, and other contaminant).</li> </ul>	<ul style="list-style-type: none"> <li>Replace the controller.</li> </ul>
	High/Low indicator ON	<ul style="list-style-type: none"> <li>Stator FET PCB failure due to dust, water, or dropping</li> </ul>	<ul style="list-style-type: none"> <li>Check the PCB surface (for dust, water, and drop-caused damage).</li> </ul>	<ul style="list-style-type: none"> <li>Replace the Stator FET PCB.</li> </ul>
		<ul style="list-style-type: none"> <li>Controller failure due to dust, water, and dropping</li> </ul>	<ul style="list-style-type: none"> <li>Check the PCB surface (for dust, water, and drop-caused damage).</li> </ul>	<ul style="list-style-type: none"> <li>Replace the controller.</li> </ul>
		<ul style="list-style-type: none"> <li>Poor adhesion of rotor pinion magnet</li> </ul>	<ul style="list-style-type: none"> <li>Check whether the magnet is securely bonded to the rotor pinion.</li> </ul>	<ul style="list-style-type: none"> <li>Replace the rotor pinion.</li> </ul>
		<ul style="list-style-type: none"> <li>Insufficient connection of flat cable (B) of switch</li> </ul>	<ul style="list-style-type: none"> <li>Check the connection of flat cable (B). (See [1. Reassembly of the Wiring Ass'y] on page 5.)</li> </ul>	<ul style="list-style-type: none"> <li>Securely connect flat cable (B).</li> </ul>
		<ul style="list-style-type: none"> <li>Insufficient connection of connector cables (A) and (B)</li> </ul>	<ul style="list-style-type: none"> <li>Check connection of connector cables (A) and (B). (See [1. Reassembly of the Wiring Ass'y] on page 5.)</li> </ul>	<ul style="list-style-type: none"> <li>Securely connect connector cables (A) and (B).</li> </ul>
	(2) No switching between Forward and Reverse	<ul style="list-style-type: none"> <li>Insufficient connection of switch flat cable (B)</li> </ul>	<ul style="list-style-type: none"> <li>Check the flat cable (B) connection. (See [1. Reassembly of the Wiring Ass'y] on page 5.)</li> </ul>	<ul style="list-style-type: none"> <li>Securely connect flat cable (B).</li> </ul>
		<ul style="list-style-type: none"> <li>Switch connector failure due to dust and water</li> </ul>	<ul style="list-style-type: none"> <li>Check the flat cable (B) contact (for corrosion, dust, water, and other contaminant).</li> <li>Check the switch connector state (for corrosion, dust, water, and other contaminant).</li> </ul>	<ul style="list-style-type: none"> <li>Replace the DC-Speed Control Switch and the controller.</li> </ul>
<ul style="list-style-type: none"> <li>Switch contact failure</li> </ul>		<ul style="list-style-type: none"> <li>When flat cable (B) is not defective</li> </ul>	<ul style="list-style-type: none"> <li>Replace the DC-Speed Control Switch.</li> </ul>	

Symptom	Possible cause	Troubleshooting	Repairing
(3) No speed-up (Speed change disabled)	• Controller failure	• Visually check the PCB surface (for dust, water, and drop-caused damage).	• Replace the controller.
	• Insufficient connection of switch flat cable (B)	• Check the flat cable (B) connection. (See [1. Reassembly of the Wiring Ass'y] on page 5.)	• Securely connect flat cable (B).
	• Switch flat cable (B) connection failure by dust and water	• Check the flat cable (B) contact (for corrosion, water, and other contaminant). • Check the switch connector state (for corrosion, dust, water, and other contaminant).	• Replace the DC-Speed Control Switch and the controller.
	• Switch contact failure	• When flat cable (B) is not defective	• Replace the DC-Speed Control Switch.
(4) No switching between High and Low	• Controller failure	• Operate the High/Low selector switch and confirm its operation.	• Replace the controller.
(5) No switching between Single and Continuous	• Controller failure	• Operate the Single/Continuous selector switch and confirm its operation.	• Replace the controller.
(6) LED light OFF	• Controller failure	• Operate the light switch and confirm that the LED lights.	• Replace the controller.

# REPAIR GUIDE

**WARNING:** Always remove the 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.

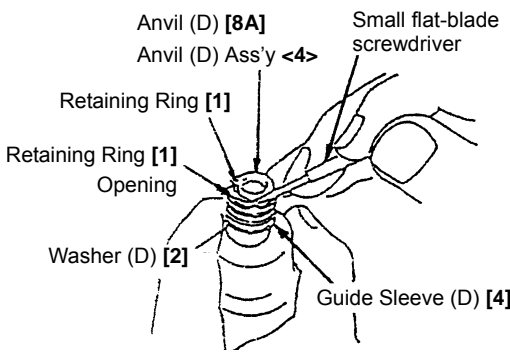
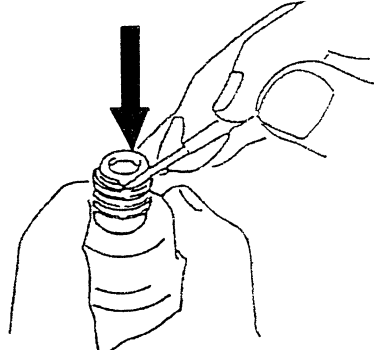
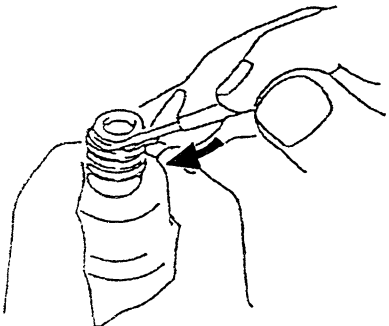
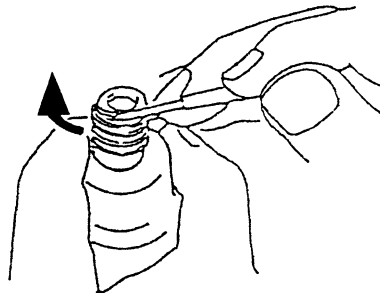
## 1. Precautions on Disassembly and Reassembly

Numbers enclosed in **[Bold]** and **<Bold>** correspond to item numbers in the Parts Lists and exploded assembly diagrams of these models. ( **[Bold]** : WH 14DBDL and WH 18DBDL, **<Bold>** : WR 14DBDL and WR 18DBDL)

### Disassembly

#### 1. Removal of Guide Sleeve (D) (Models WH 14DBDL, WH 18DBDL)

(1) Remove the Retaining Ring **[1]**, Washer (D) **[2]**, Guide Spring (D) **[3]**, and Guide Sleeve (D) **[4]** in this order with a small flat-head screwdriver. Do not work too quickly. Be careful not to let Retaining Ring **[1]** pop up. Be careful not to lose the two Steel Balls D3.5 **[7]** in the opening of Anvil (D) **[8A]**/Anvil (D) Ass'y **<4>**.

 <p style="text-align: center;"><b>Fig. 1-1</b></p> <p>Secure the body, align Retaining Ring <b>[1]</b> opening to Anvil (D) <b>[8A]</b>/Anvil (D) Ass'y <b>&lt;4&gt;</b> notch, and put screwdriver edge aslant here.</p>	 <p style="text-align: center;"><b>Fig. 1-2</b></p> <p>Press down Washer (D) <b>[2]</b> with the small flat-blade screwdriver.</p>
 <p style="text-align: center;"><b>Fig. 1-3</b></p> <p>Slide the small flat-blade screwdriver under one side of the gap of the Retaining Ring <b>[1]</b>.</p>	 <p style="text-align: center;"><b>Fig. 1-4</b></p> <p>Slowly raise the Retaining Ring <b>[1]</b> using the end face of Guide Sleeve (D) <b>[4]</b> as a fulcrum.</p>

#### 2. Removal of Exterior Parts

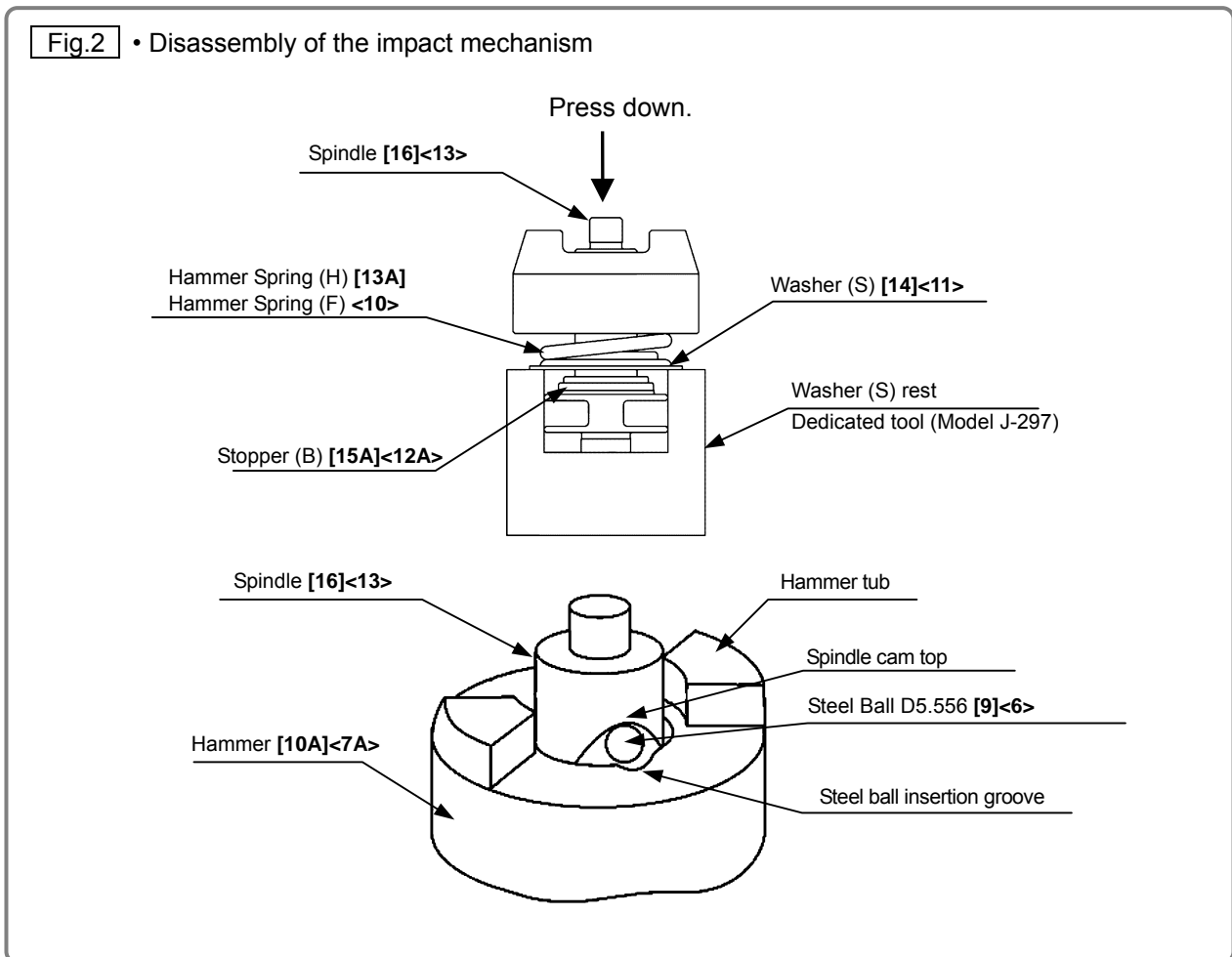
- (1) Insert the edge of a small flat-head screwdriver into the space between the Front Cap **[5]<1>** and Hammer Case **[6A]<2>**, and then remove the Front Cap **[5]<1>** from the Hammer Case **[6A]<2>**.
- (2) Remove the Truss Hd. Screw M4 (Black) **[29]<26>** and Hook **[30]<27>**. The Hook **[30]<27>** need not be removed but is removed here to facilitate disassembly work.

### 3. Removal of the Housing (A). (B) Set

- (1) Remove the nine Tapping Screws (W/Flange) D4 x 20 (Black) [39]<36>. You can detach Housing (B) of the Housing (A),(B) Set [26]<23> and Strap (Black) [33]<30>.
- (2) You can remove the Hammer Case [6A]<2> and hammer assembly, Inner Cover [24]<21>, Rotor Pinion [25]<22>, Stator FET PCB [37A]<34>, and DC-Speed Control Switch [35]<32> together as one body. You can also remove Pushing Button (B) [36]<33>.

### 4. Disassembly of the Hammer Assembly

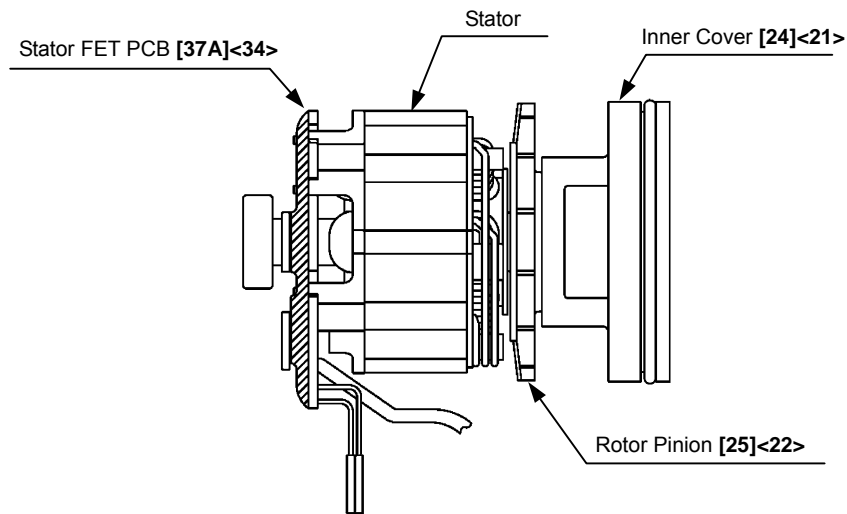
- (1) Set the hammer assembly (detached from the Hammer Case [6A]<2>) on the washer (S) rest (Model J-297). Push down the end of the Spindle [16]<13> with a hand press or similar tool to compress Hammer Spring (H) [13A]/Hammer Spring (F) <10>, and then take out the Stopper (B) [15A]<12A> with a small flat-head screwdriver or similar tool in this state. Release the hand press.
- (2) Remove the hammer assembly from the washer (S) rest, hold the end surface of the Spindle [16]<13>, push down one of the end tubs of the Hammer [10A]<7A> with a hand press or similar tool, and then compress Hammer Spring (H) [13A]/Hammer Spring (F) <10>. In this state, draw out the two Steel Balls D5.556 [9]<6> from inside the cam groove in the Spindle [16]<13> and Hammer [10A]<7A> with a small flat-head screwdriver or similar tool. Remove both from the steel ball insertion groove.
- (3) Release the hand press, hold the Hammer [10A]<7A> and Washer (S) [14]<11> together, and then pull both out from the Spindle [16]<13>. You can now take out Hammer Spring (H) [13A]/Hammer Spring (F) <10>.



## 5. Disassembly of the Stator FET PCB and Rotor Pinion

- (1) The Rotor Pinion [25]<22> has a strong magnetic force. Securely support the Inner Cover [24]<21> and pull out the Stator from the Stator FET PCB [37A]<34> in the direction of (B).

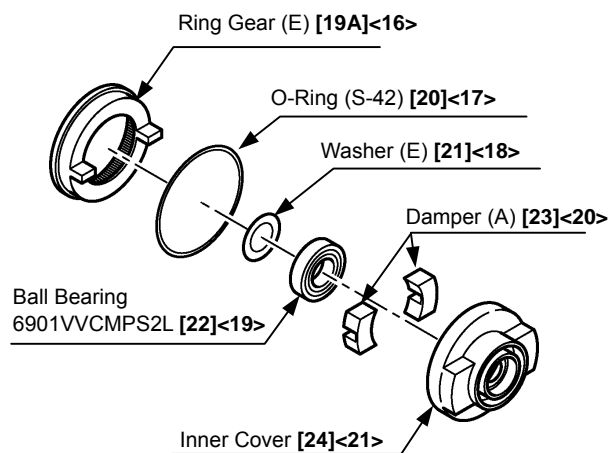
Fig.3 • Disassembly of the Stator FET PCB and Rotor Pinion



## 6. Disassembly of the Rotor Pinion and Inner Cover

- (1) Hold the Inner Cover [24]<21> to keep it away from the fan of the Rotor Pinion [25]<22>, and then push down the end of the Rotor Pinion [25]<22> to detach it.
- (2) Detach Ring Gear (E) [19A]<16> and the O-Ring (S-42) [20]<17> from the Inner Cover [24]<21>, and then demount Damper (A) [23]<20> with a small flat-head screwdriver. (Be careful not to damage the O-Ring (S-42) [20]<17>).

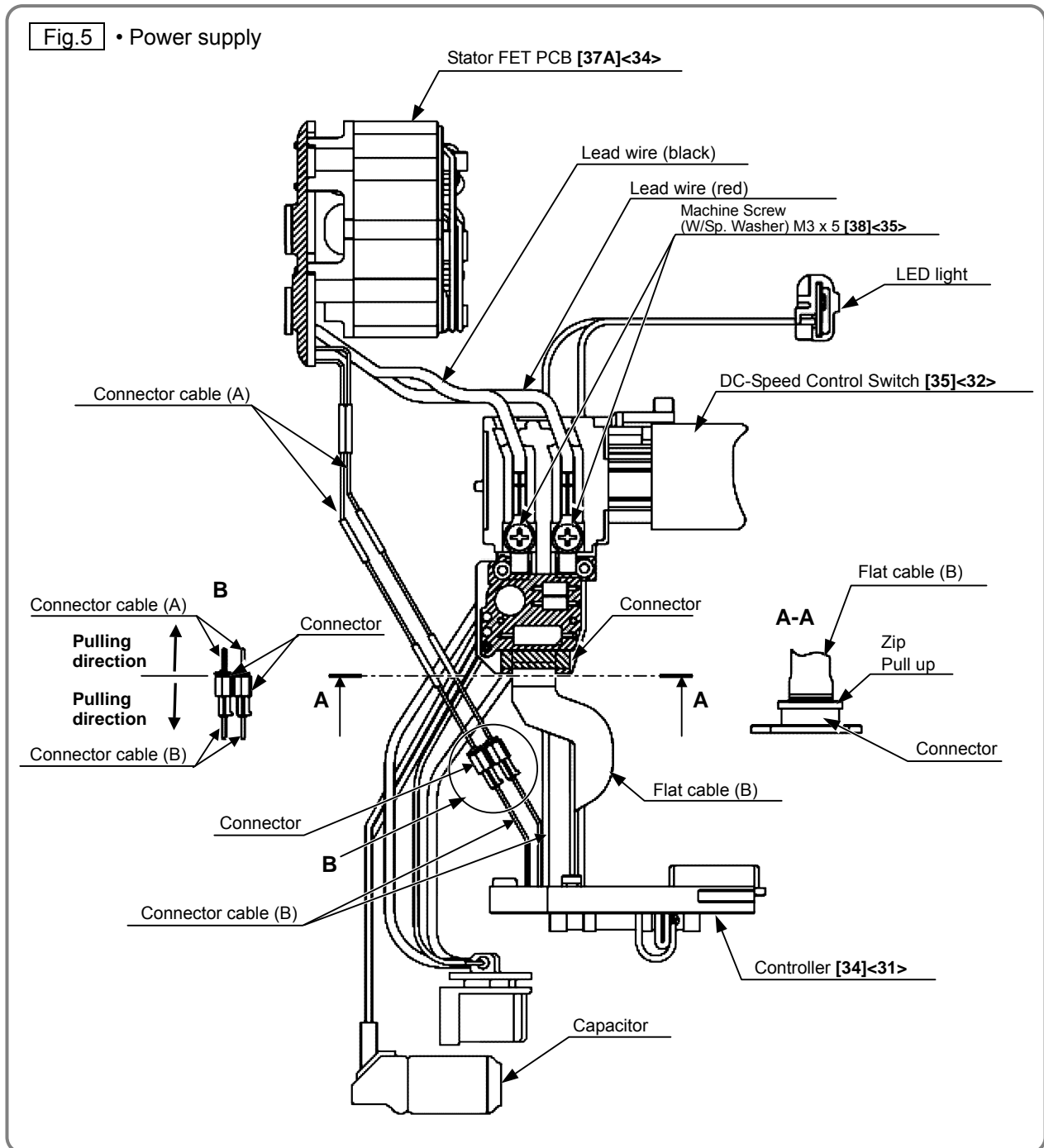
Fig.4 • Disassembly of the Rotor Pinion and Inner Cover



## 7. Disassembly of the Wiring Ass'y

- (1) Remove the two Machine Screws (W/Sp. Washer) M3 x 5 [38]<35> that fasten the terminals of lead wires (red and black) of the Stator FET PCB [37A]<34> and DC-Speed Control Switch [35]<32>.
- (2) Scrape away silicon grease on the connector of the DC-Speed Control Switch [35]<32> with the edge of a flat-edge screwdriver or similar tool, slowly pull up the connector zip and gradually pull out flat cable (B) of the Controller [34]<31>.
- (3) Cut open the SUMITUBE(R) that covers the joint of connector cables (A) and (B), and then slowly pull out the cable from the connector.

**NOTE:** Be careful not to damage the connector cable when cutting open the SUMITUBE(R).



# Reassembly

Notices on reassembly: For reassembly, reverse the disassembly steps but note the following:

## 1. Reassembly of the Wiring Ass'y

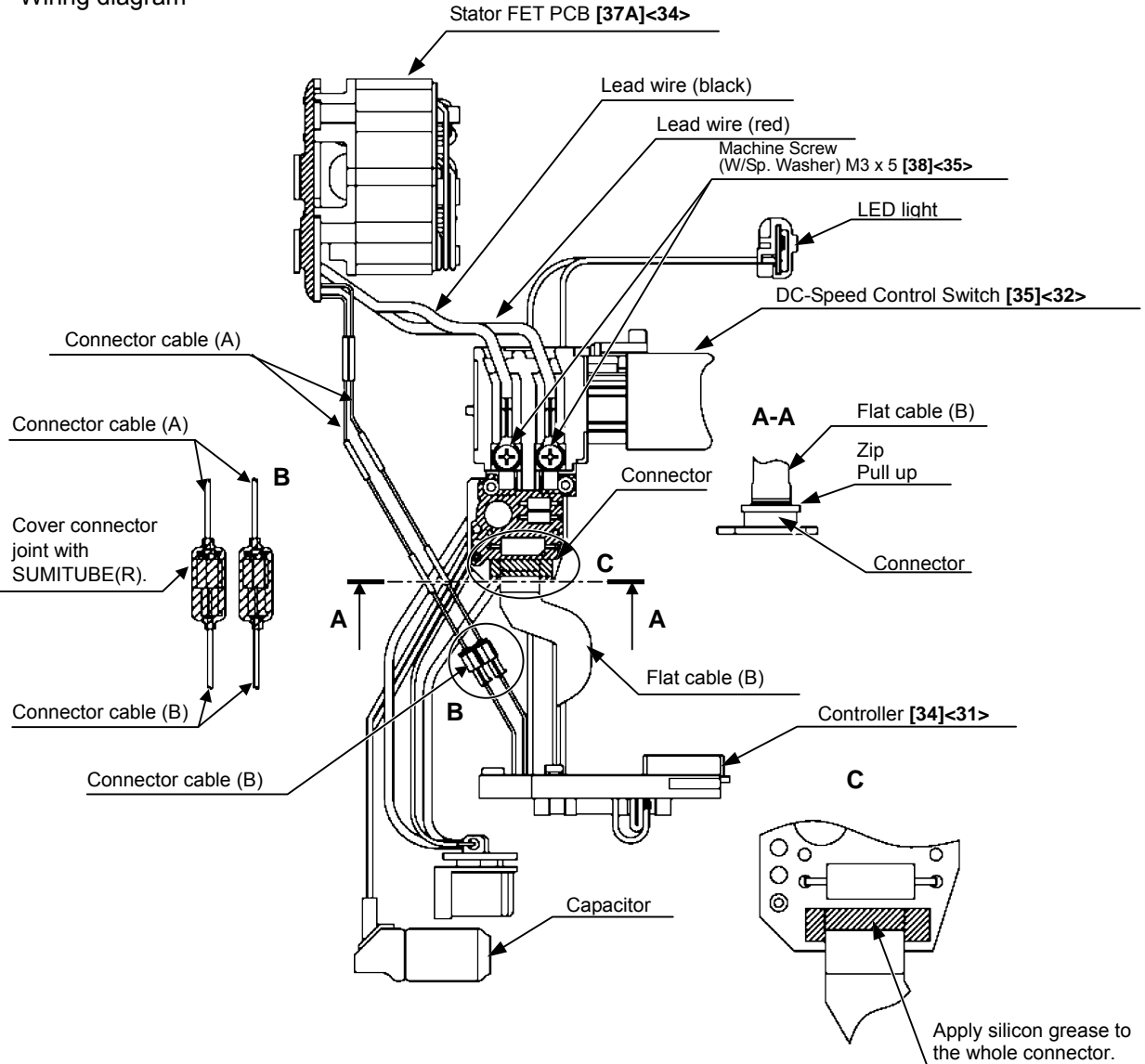
- (1) Reconnect the DC-Speed Control Switch [35]<32>, Controller [34]<31>, and Stator FET PCB [37A]<34> according to the wiring diagram when replacing those components.
- (2) Note the following when connecting flat cable (B) to the connector of the DC-Speed Control Switch [35]<32>.
  - Reassemble so that you can see the red wire of flat cable (B) when viewed along the A-A line in the figure.
  - Securely insert the wires of flat cable (B) until all are seated.
  - Securely insert the wires of flat cable (B) until all are seated.
  - Finally, apply silicon grease (ThreeBond TB1211) to the entire body of the connector.
- (3) Note the following when connecting connector cable (A) of the Stator FET PCB [37A]<34> and connector cable (B) of the Controller [34]<31>.
  - Match the connector colors when connecting connector cables (A) and (B).
  - Securely fit connector cables (A) and (B) to the connectors until the wires hit the innermost ends.
  - After connecting connector cables (A) and (B), cover the joint with a SUMITUBE(R).  
(Use a heat gun to heat up the SUMITUBE(R).)
- (4) Securely insert the lead wires of the Stator FET PCB [37A]<34> and DC-Speed Control Switch [35]<32> into the lead wire threading groove of housing (A) so that the wires will not get caught on the housings.
- (5) Securely fit flat cable (B) to the lead wire threading groove of housing (A) so that the cable will not get caught on the housings.
- (6) Fit the boss of the Forward/Reverse change-over lever on the upper part of the DC-Speed Control Switch [35]<32> to the hole of Pushing Button (B) [36]<33> when remounting the DC-Speed Control Switch [35]<32> on housing (A).
- (7) Thread the lead wires of the LED light through the ribs of the housing as shown in the figure.

**NOTE: The contact between the terminal support and battery may be hot when covered with black metal oxides or when its plating is separated. In extreme cases, the battery and product may be damaged. Replace the DC-Speed Control Switch [35]<32> (cord No. 332187) with a new one.**



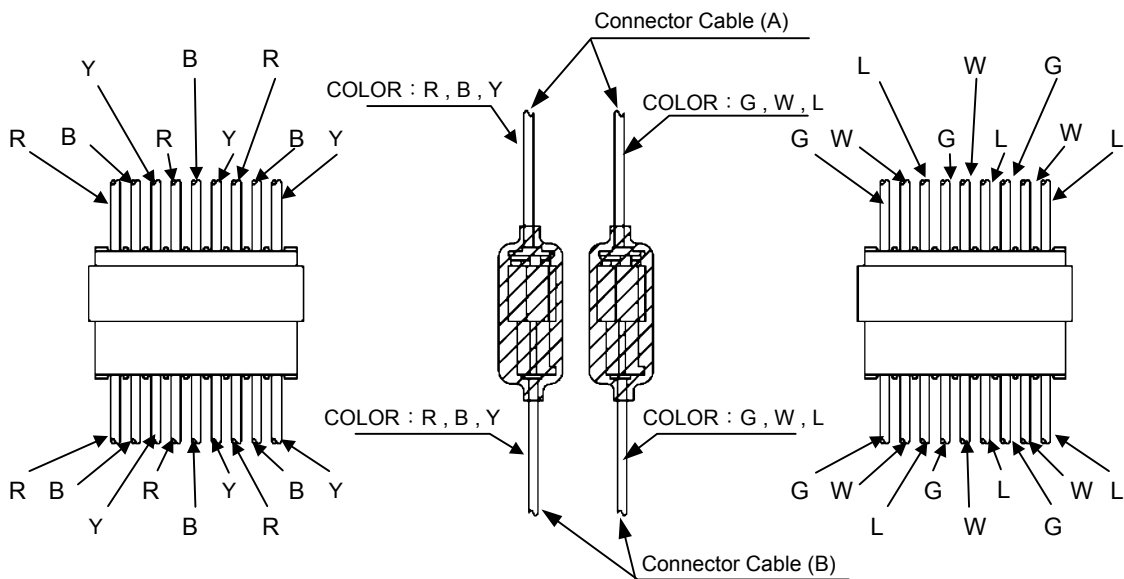
**Fig.6** • Reassembly of the power supply and its related parts

Wiring diagram

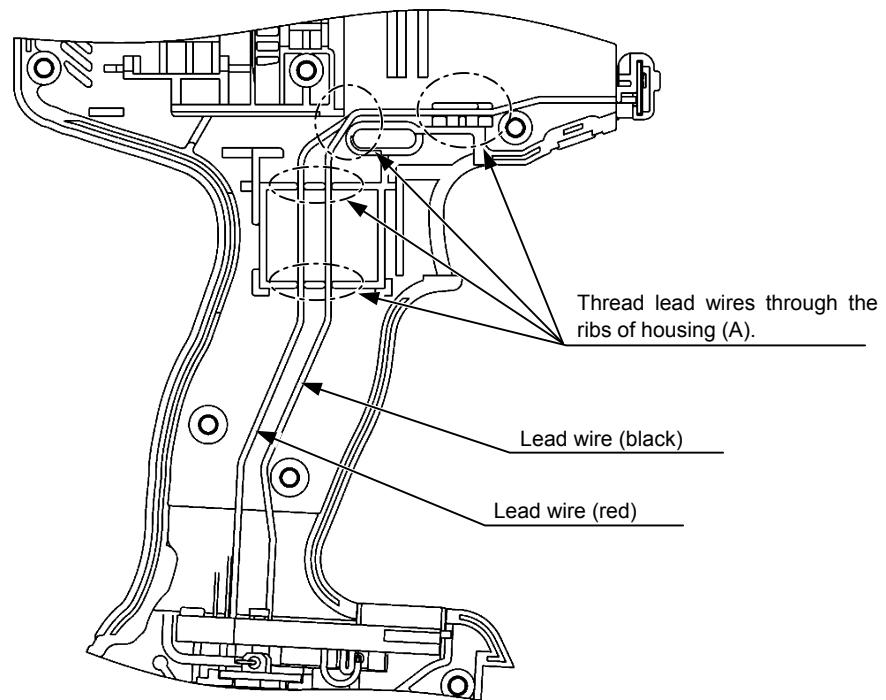


Color combinations of Connector Cables (A) and (B)

(R: red, B: blue, Y: yellow, G: green, W: white, L: black)



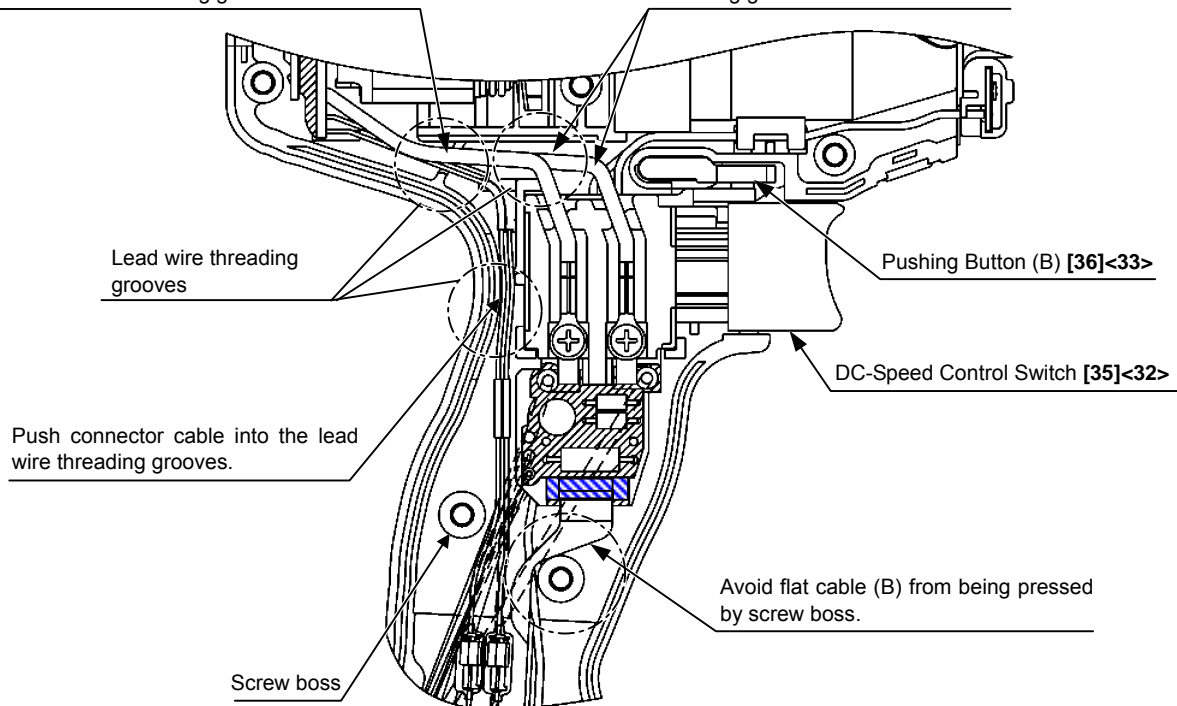
**Fig.7** • Reassembly of the power supply and its related parts



**Fig.8** • Reassembly of the power supply and its related parts

Push connector cable and lead wires into the lead wire threading grooves.

Push lead wires into the lead wire threading grooves.



## 2. Mounting the mechanical parts

(1-1) Model WH 14DBDL / WH 18DBDL

Load 28 Steel Balls D3.175 [11]<8> in the Hammer [10A]<7A> and then reassemble Washer (J) [12]<9>, Hammer Spring (H) [13A]/Hammer Spring (F) <10>, Washer (S) [14]<11>, and the Spindle [16]<13> in this order.

(1-2) Model WR 14DBDL type / WR 18DBDL

Load 28 Steel Balls D3.175 [11]<8> in the Hammer [10A]<7A> and then reassemble Washer (J) [12]<9>, Hammer Spring (H) [13A]/Hammer Spring (F) <10>, Washer (J) [12]<9>, Washer (S) [14]<11>, and the Spindle [16]<13> in this order.

(2) Match the top of the cam groove in the Spindle [16]<13> with the steel ball insertion groove in the Hammer [10A]<7A>, push down the end tub of the Hammer [10A]<7A> with a hand press or similar tool, compress Hammer Spring (H) [13A]/Hammer Spring (F) <10> until it hits Spindle [16]<13>, and then support it.

(3) Put two Steel Balls D5.556 [9]<6> in the steel ball insertion groove. Make sure the Steel Balls D5.556 [9]<6> are in the cam groove, and then release the hand press.

(4) Settle the hammer assembly on the dedicated tool washer (S) rest (Model J- 297), push down the end of the Spindle [16]<13>, compress Hammer Spring (H) [13A]/Hammer Spring (F) <10>, fit the Stopper (B) [15A]<12A> to the spindle shaft, and then release the hand press.

(5) Mount the two Idle Gear Sets [17]<14> and two Needle Rollers [18]<15> on the Spindle [16]<13>, and then insert Washer (E) [21]<18>.

(6) Press-fit the Ball Bearing 6901VVCMP52L [22]<19> to the Inner Cover [24]<21>, insert two Dampers (A) [23]<20> according to the shape of the Inner Cover [24]<21>, and then fit the O-Ring (S-42) [20]<17> to Ring Gear (E) [19A]<16>. Match the detent rib of Ring Gear (E) [19A]<16> with the depressed portion of Damper (A) [23]<20>.

(7) Make sure Washer (E) [21]<18> is inserted into the Spindle [16]<13>. Mount the Inner Cover [24]<21> and Hammer Case [6A]<2> with their ribs perpendicular to each other, while making sure the Idle Gear Set [17]<14> of the hammer assembly is engaged with Ring Gear (E) [19A]<16>.

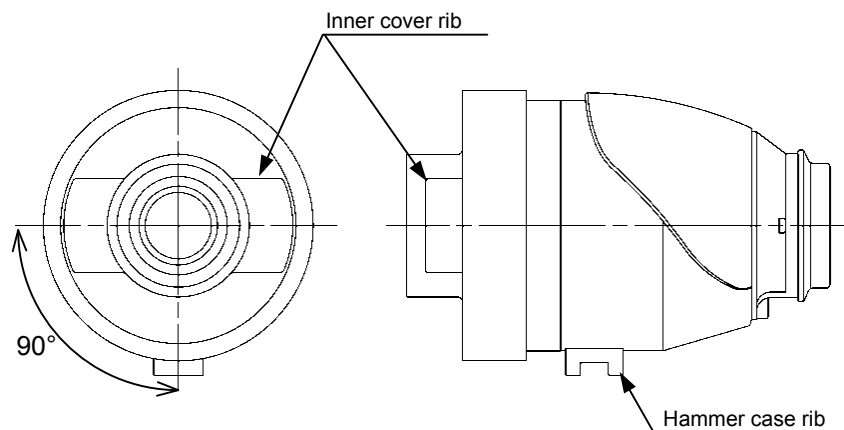
(8) Insert Anvil (D) [8A]/Anvil (D) Ass'y <4> to the end of the Spindle [16]<13> of the hammer assembly and then set the Hammer Case [6A]<2> in place.

Make sure the rib of the Inner Cover [24]<21> is perpendicular to the rib of the Hammer Case [6A]<2>.

(9) Mount the Rotor Pinion [25]<22> on the assembled Inner Cover [24]<21>.

After remounting, make sure the Rotor Pinion [25]<22> rotates smoothly. If it does not rotate smoothly, the gears are not properly engaged. In such case, correctly remount the Rotor Pinion [25]<22>.

Fig.9 • Reassembly of the impact mechanism



### 3. Reassembly of the Housing

- (1) Bond Damper (A) [23]<20> to housings (A) and (B) with adhesives before remounting parts on housing (A).  
(Fit the groove of Damper (A) [23]<20> to the rib of the housing.)  
Apply silicon rubber (ThreeBond 1211) to the specified points in the figure.
- (2) Assemble the hammer assembly, Hammer Case [6A]<2>, Inner Cover [24]<21> (including Rotor Pinion [25]<22>), and Wiring Ass'y [42]<39> together as one body onto housing (A).
- (3) Note the following when remounting these components:
  - Make the detent boss of the Hammer Case [6A]<2> touch the detent receiver of the housing as shown in the figure when fitting the Hammer Case [6A]<2> to the housing.
  - Make sure the Hammer Case [6A]<2> is correctly set in the housing. If the Hammer Case [6A]<2> is not set in the preset grooves of the housing or the rib of the Inner Cover [24]<21> is not perpendicular to the rib of the hammer case, you must reassemble the component concerned. The product is structured so that the Hammer Case [6A]<2> does not move axially when fitted to the housing.
  - Securely fasten the lead wires of the LED light of the Controller [34]<31> to the rib of housing (A).
- (4) Apply silicon rubber (ThreeBond 1211) to housing (A) and insert the Strap (Black) [33]<30> to the screw boss. Similarly apply silicon rubber (ThreeBond 1211) to the same positions on housing (B).  
Insert the Lock Nut M4 (Black) [31]<28> and Packing [32]<29> into the Housing (A).(B) Set [26]<23>, remount housing (B) on housing (A), and then tighten the nine Tapping Screws (W/Flange) D4 x 20 (Black) [39]<36>.(Wipe off all jamming-out silicon rubber on the housings with rags.)

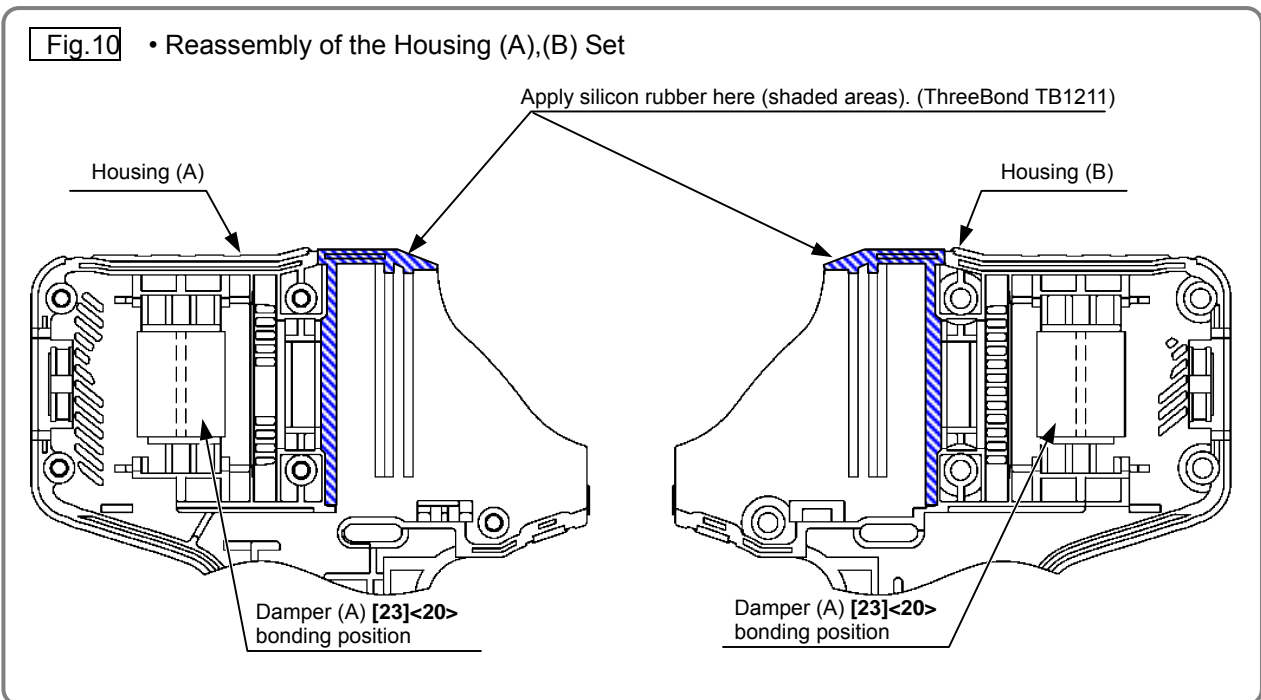


Fig.11 • Reassembly of the Housing (A),(B) Set

Make sure the Hammer Case [6A]<2> is securely fitted to housing (A).

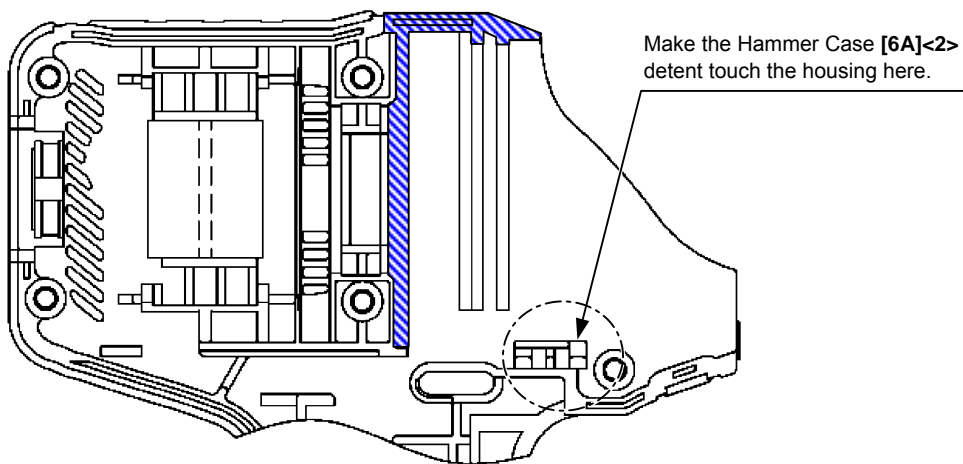
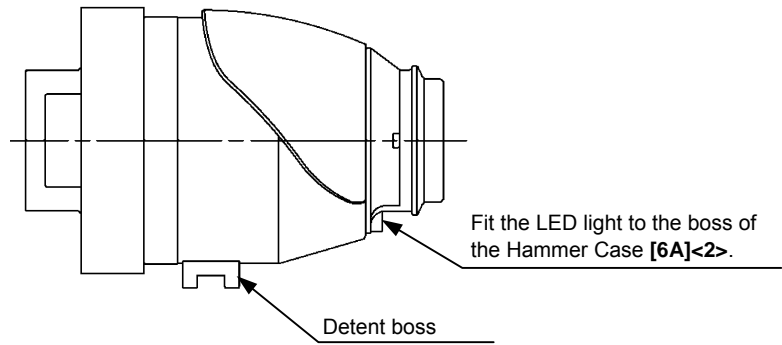
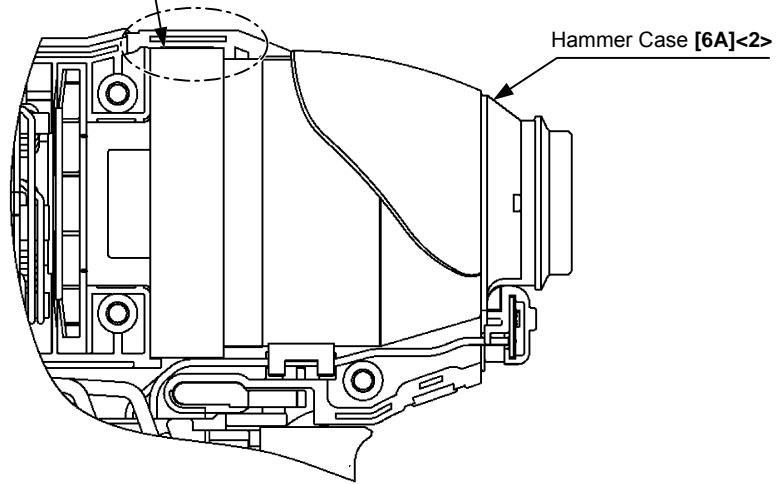
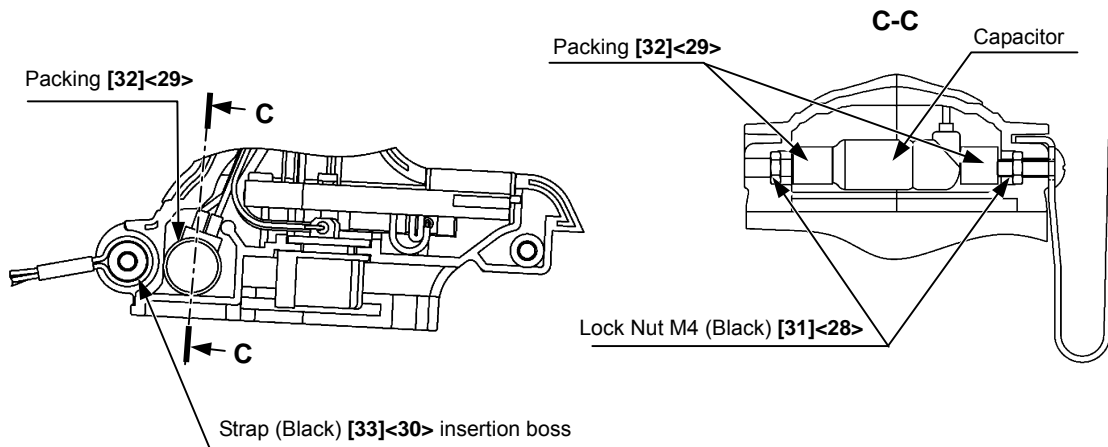


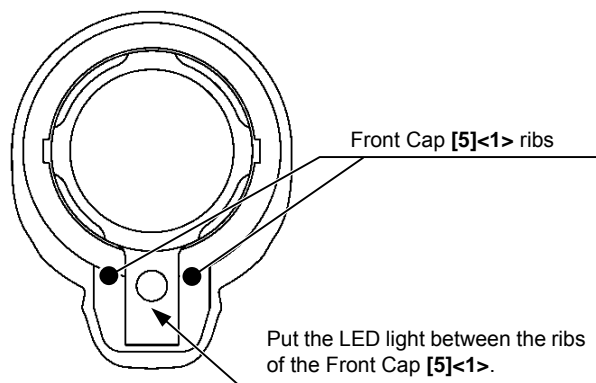
Fig.12 • Reassembly of the Housing (A),(B) Set



#### 4. Reassembly of Exterior Parts

- (1) Place the Front Cap [5]<1> over the assembled housing. Make sure the LED light PCB is within the LED holder, and then fit the depressed portion of the LED holder to the boss of the Hammer Case [6A]<2>.
- (2) Make sure the LED light is between the ribs of the Front Cap [5]<1> when setting the Front Cap [5]<1> in place.
- (3) Insert the Hook [30]<27> into the groove under the side of the Housing (A).(B) Set [26]<23>, and then tighten Truss Hd. Screw M4 (Black) [29]<26> to secure. Do not turn Truss Hd. Screw M4 (Black) [29]<26> quickly. Doing so may cause Lock Nut M4 (Black) [31]<28> in the housing to run idle. Slowly tighten Truss Hd. Screw M4 (Black) [29]<26> so that it turns together with Lock Nut M4 (Black) [31]<28>. You can mount the Hook [30]<27> on either side of the housing.

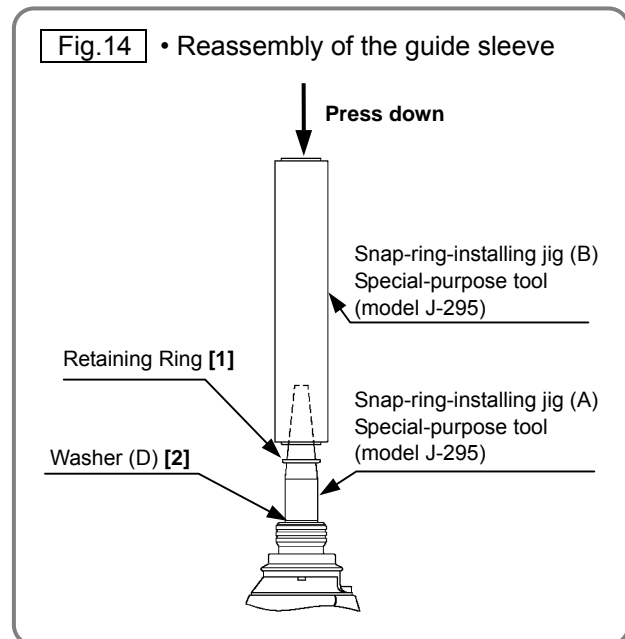
Fig.13 • Reassembly of exterior parts



## 5. Mounting Guide Sleeve (D) (Models WH 14DBDL and WH 18DBDL)

(1) Put two Steel Balls D3.5 [7] into the hole of Anvil (C) [8A], reassemble Guide Sleeve (D) [4], Guide Spring (D) [3], and Washer (D) [2] in this order, and then mount the Retaining Ring [1] on the anvil groove by using snap-ring-installing jig (A), (B) (model J-295).

**NOTE: The Retaining Ring [1] may be deformed during disassembly and Guide Sleeve (D) [4] may fall away. Be sure to reassemble using a new Retaining Ring [1].**



## Application of lubricant

### ATTOLUB MS No.2

- Tooth flanks of Rotor Pinion [25]<22>, Ring Gear (E) [19A]<16>, and Idle Gear Set (2 pcs.) [17]<14>

### HITACHI MOTOR GREASE No. 29 (Models WH 14DBDL, WH 18DBDL)

- Two Steel Balls D3.5 [7]
- Sliding section between Anvil (D) [8A]/Anvil (D) Ass'y <4> and Guide Sleeve (D) [4]

### MOLUB-ALLOY 777-1

- 8 mm diameter hole of Anvil (C) [8A], sliding section between Anvil (D) [8A]/Anvil (D) Ass'y <4> and the metal, and upper surface of the claw
- Two Steel Balls D5.556 [9]<6>
- Metal oil groove of Hammer Case [6A]<2>
- Cam groove, oil groove and claw of Hammer [10A]<7A>
- Cam groove and sliding section of Spindle [16]<13>
- 5 mm diameter hole of Idle Gear Set (2 pcs.) [17]<14>
- All around the Needle Roller [18]<15>
- Twenty-eight Steel Balls D3.175 [11]<8>

## Screw tightening torque

- Tapping Screw (W/Flange) D4 x 20 (Black) [39]<36> ----- 1.96 ± 0.49 N·m {20 ± 5 kgf·cm}
- Machine Screw (W/Sp. Washer) M3 x 5 [38]<35> ----- 0.29 to 0.39 N·m {3 to 4 kgf·cm}
- Truss Hd. Screw M4 (Black) [29]<26> ----- 1.8 ± 0.40 N·m {18 ± 4 kgf·cm}

## Checking after reassembly

Check and confirm the following at the end of reassembly.

- (1) Operate the Variable Speed and Forward/Reverse switches and make sure that the switches move smoothly and switch operations (ON, OFF, Variable Speed, Forward, and Reverse) are normal.
- (2) Press the High/Low selector switch and make sure the rotation speed changes in sequence (four steps) each time you press the switch.
- (3) Press the Single/Continuous mode selector switch and make sure the selected mode is set.
- (4) Press the Battery Level Check switch and make sure the Battery Level Check indicators go on and off.
- (5) Press the LED light switch and make sure the indicator goes on and off.
- (6) Make sure the rotational direction of the anvil matches the direction of rotation made when you press the Pushing Button (B) **[36]<33>**.  
(When you set the pushbutton **(B)** to the **(R)** position, the anvil must rotate right (clockwise) as viewed from the rear side (opposite to the anvil).

## No-load current

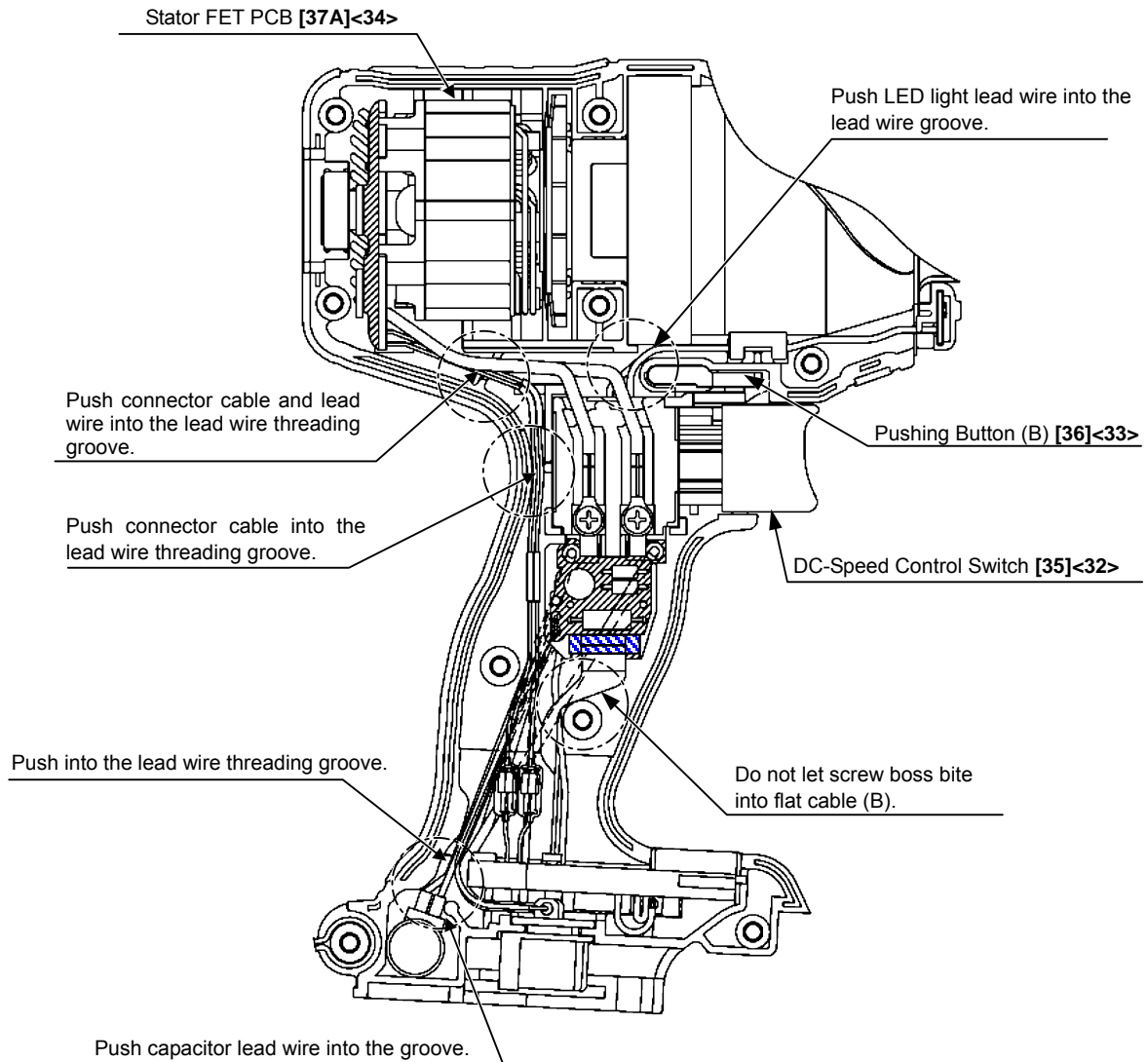
No-load current

- WH 14DBDL: 3.5A ± 1.0A (DC 15.8V [equivalent to voltage of a fully charged battery])
- WH 18DBDL: 2.5A ± 1.0A (DC 19.8V [equivalent to voltage of a fully charged battery])
- WR 14DBDL: 3.5A ± 1.0A (DC 15.8V [equivalent to voltage of a fully charged battery])
- WR 18DBDL: 3.0A ± 1.0A (DC 19.8V [equivalent to voltage of a fully charged battery])

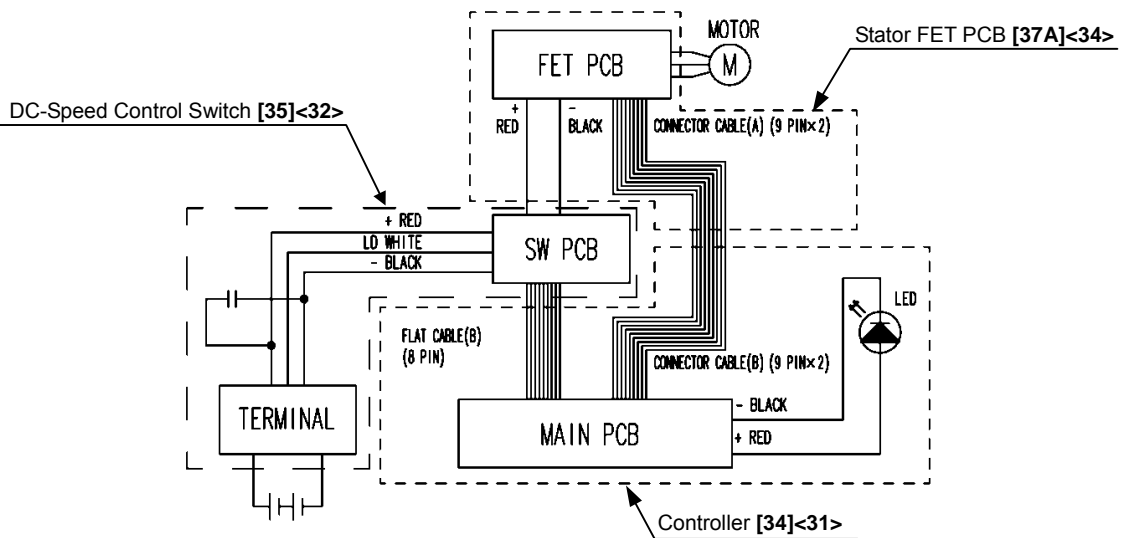


# Connecting Diagram

## • Wiring diagram



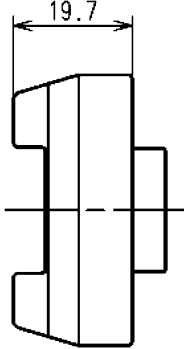
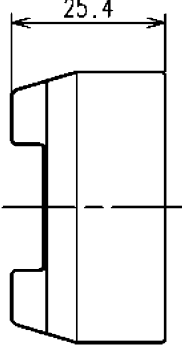
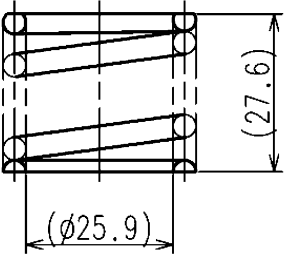
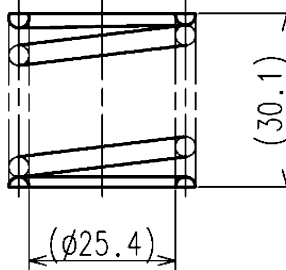
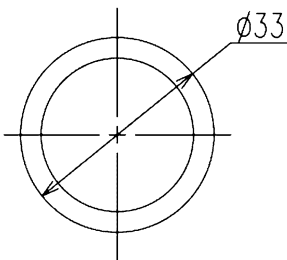
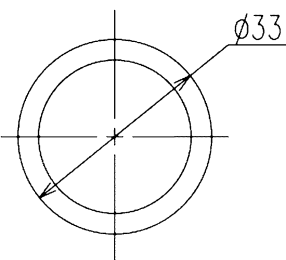
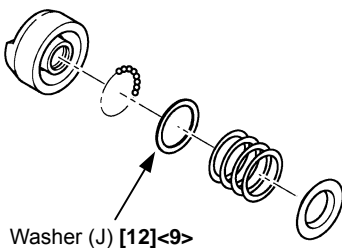
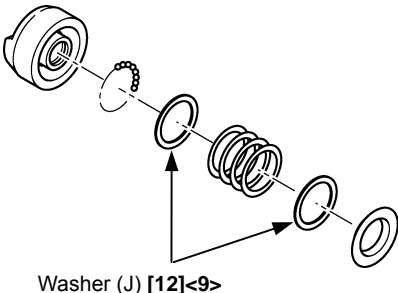
## • Connection diagram

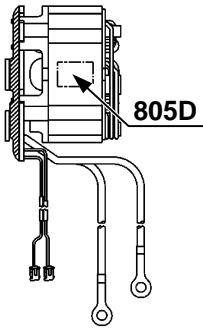
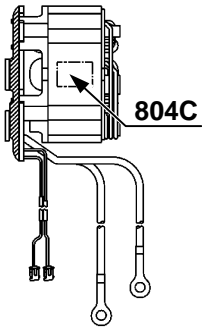
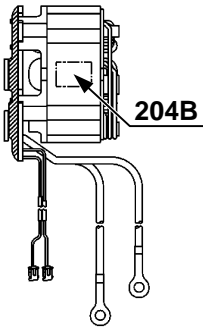
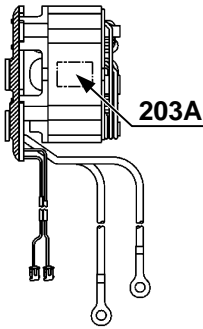
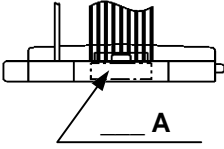
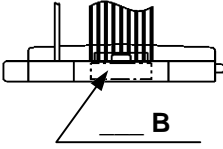
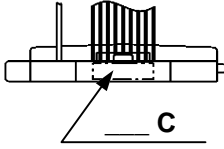
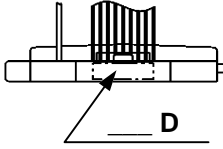


## Compatibility

Almost all components of the Models WH 14DBDL, WH 18DBDL, WR 14DBDL and WR 18DBDL are common and sharable. However, some parts are not interchangeable as listed below.

Do not mix these parts up for disassembly and reassembly.

Part name	WH 14DBDL	WH 18DBDL	WR 14DBDL	WR 18DBDL
Hammer				
Hammer Spring	 <p style="text-align: center;">Wire size <math>\phi</math> 4.0</p>		 <p style="text-align: center;">Wire size <math>\phi</math> 3.5</p>	
Washer (J)	 <p style="text-align: center;">1 pc.</p>		 <p style="text-align: center;">2 pcs.</p>	
Hammer assembly	 <p style="text-align: center;">Washer (J) [12]&lt;9&gt;</p> <p>Only one Washer (J) [12]&lt;9&gt; for Steel Ball D3.175 [11]&lt;8&gt; of Hammer Spring (H) [13A]/Hammer Spring (F) &lt;10&gt; (Same as the conventional product)</p>		 <p style="text-align: center;">Washer (J) [12]&lt;9&gt;</p> <p>Two Washers (J) [12]&lt;9&gt; for both upper and lower ends of Hammer Spring (H) [13A]/Hammer Spring (F) &lt;10&gt;</p>	

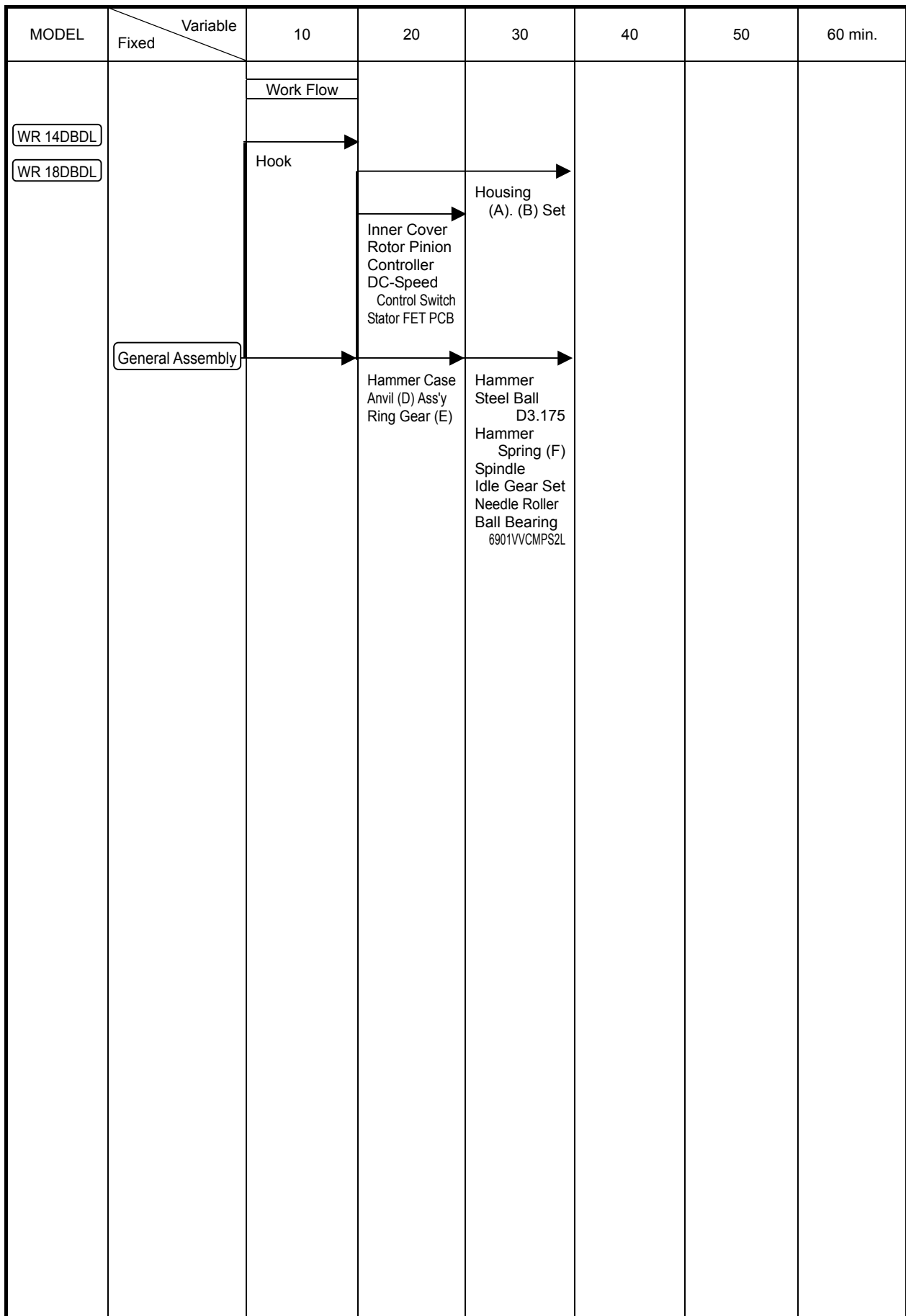
Part name	WH 14DBDL	WH 18DBDL	WR 14DBDL	WR 18DBDL
Stator FET PCB	 <p>Symbol on Stator FET PCB [37A]&lt;34&gt; side (on 2nd line) <b>[805D]</b></p>	 <p>Symbol on Stator FET PCB [37A]&lt;34&gt; side (on 2nd line) <b>[804C]</b></p>	 <p>Symbol on Stator FET PCB [37A]&lt;34&gt; side (on 2nd line) <b>[204B]</b></p>	 <p>Symbol on Stator FET PCB [37A]&lt;34&gt; side (on 2nd line) <b>[203A]</b></p>
Controller	 <p>Last digit of symbol on Controller [34]&lt;31&gt; side <b>[A]</b></p>	 <p>Last digit of symbol on Controller [34]&lt;31&gt; side <b>[B]</b></p>	 <p>Last digit of symbol on Controller [34]&lt;31&gt; side <b>[C]</b></p>	 <p>Last digit of symbol on Controller [34]&lt;31&gt; side <b>[D]</b></p>

## 2. Precautions on Disassembly and Reassembly of Battery Charger

Refer to the Technical Data and Service Manual for precautions on the disassembly and reassembly of the Models UC 18YRSL and UC 18YML2 Battery Charger.

# STANDARD REPAIR TIME (UNIT) SCHEDULES

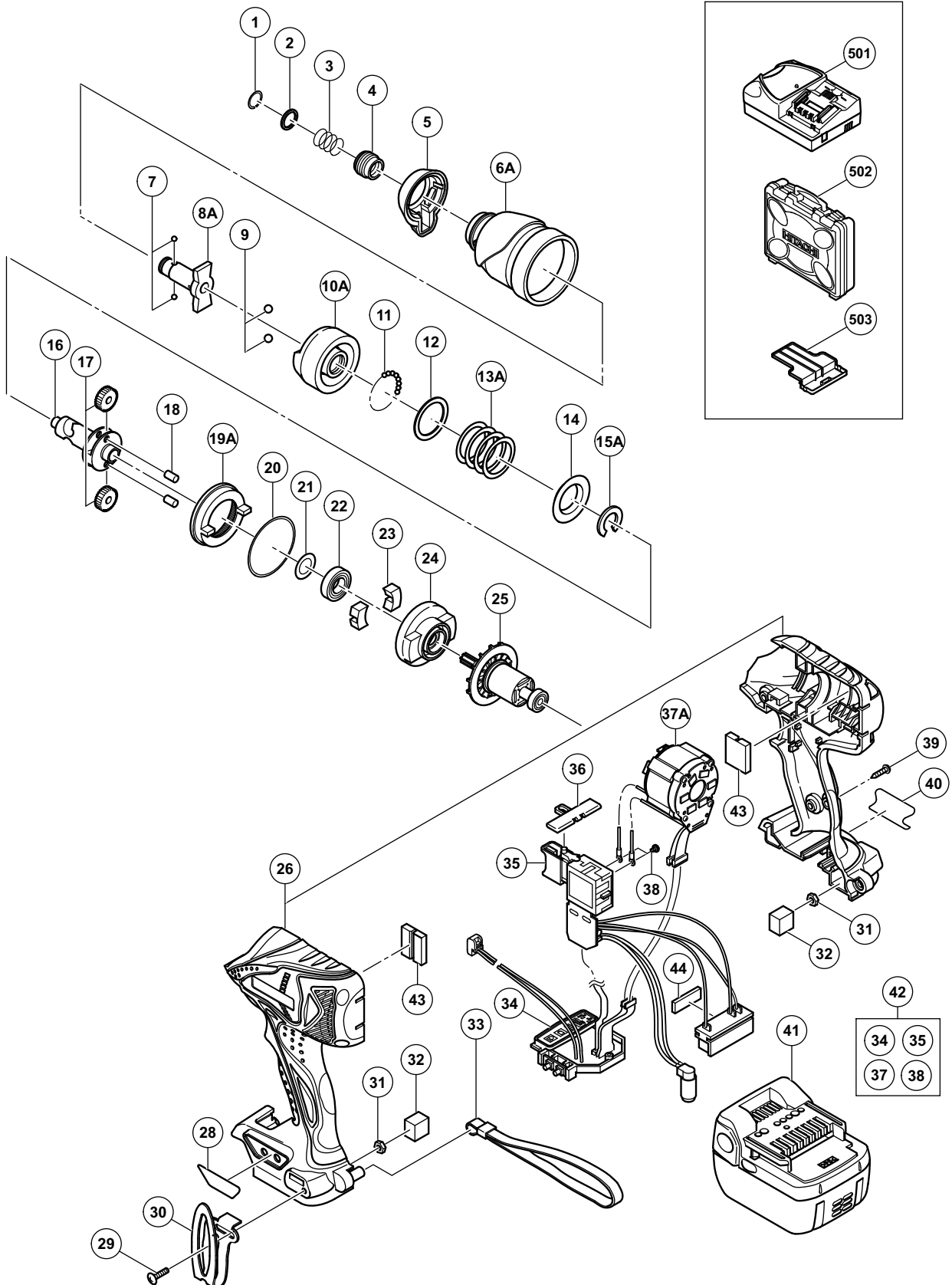
MODEL	Fixed	Variable	10	20	30	40	50	60 min.
			Work Flow					
<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">WH 14DBDL</div> <div style="border: 1px solid black; padding: 2px;">WH 18DBDL</div>			Hook  General Assembly	Inner Cover Rotor Pinion Controller DC-Speed Control Switch Stator FET PCB  Hammer Case Anvil (D) Ring Gear (E)	Housing (A). (B) Set  Hammer Steel Ball D3.175 Hammer Spring (H) Spindle Idle Gear Set Needle Roller Ball Bearing 6901VCMPS2L			



## ELECTRIC TOOL PARTS LIST

**■ CORDLESS IMPACT DRIVER**  
**Model WH 14DBDL**

**2011·5·12**  
**(E2)**



**PARTS**

WH 14DBDL

<b>ITEM NO.</b>	<b>CODE NO.</b>	<b>DESCRIPTION</b>	<b>NO. USED</b>	<b>REMARKS</b>
1	330-619	RETAINING RING	1	
2	330-856	WASHER (D)	1	
3	331-284	GUIDE SPRING (D)	1	
4	322-717	GUIDE SLEEVE (D)	1	
5	332-198	FRONT CAP	1	
6A	333-745	HAMMER CASE	1	
7	319-535	STEEL BALL D3.5 (10 PCS.)	2	
* 8A	333-744	ANVIL (D)	1	
* 8A	333-743	ANVIL (C)	1	FOR ASIA
9	959-154	STEEL BALL D5.556 (10 PCS.)	2	
10A	333-748	HAMMER	1	
11	959-148	STEEL BALL D3.175 (10 PCS.)	28	
12	315-978	WASHER (J)	1	
13A	333-746	HAMMER SPRING (H)	1	
14	316-172	WASHER (S)	1	
15A	324-222	STOPPER (B)	1	
16	332-186	SPINDLE	1	
17	326-295	IDLE GEAR SET (2 PCS.)	2	
18	319-914	NEEDLE ROLLER	2	
19A	333-747	RING GEAR (E)	1	
20	983-852	O-RING (S-42)	1	
21	319-911	WASHER (E)	1	
22	690-1VV	BALL BEARING 6901VVCMP2L	1	
23	324-230	DAMPER (A)	2	
24	332-185	INNER COVER	1	
25	332-188	ROTOR PINION	1	
26	332-190	HOUSING (A). (B) SET	1	
28	332-207	PANEL SHEET (B)	1	
29	327-001	TRUSS HD. SCREW M4 (BLACK)	1	
30	330-666	HOOK	1	
31	327-002	LOCK NUT M4 (BLACK)	2	
32	330-854	PACKING	2	
33	306-952	STRAP (BLACK)	1	
34	332-206	CONTROLLER	1	
35	332-187	DC-SPEED CONTROL SWITCH	1	
36	324-225	PUSHING BUTTON (B)	1	
37A	340-805	STATOR FET PCB	1	
38	994-532	MACHINE SCREW (W/SP. WASHER) M3 X 5	2	
39	301-653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	9	
40		NAME PLATE	1	
41	329-083	BATTERY BSL 1430 (EUROPE, AUS, NZL)	2	INCLUD. 503
42	332-202	WIRING ASS'Y	1	INCLUD. 34, 35, 37A, 38
43	333-750	DAMPER (A)	2	
44	331-101	CUSHION	1	

**STANDARD ACCESSORIES**

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
* 501		CHARGER (MODEL UC 18YRSL)	1	
* 501		CHARGER (MODEL UC 18YML2)	1	
502	330-592	CASE	1	
503	329-897	BATTERY COVER	1	

**OPTIONAL ACCESSORIES**

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
601	321-823	DRILL CHUCK AND ADAPTER SET	1	INCLUD. 616, 618
602	309-922	GREASE FOR IMPACT DRIVER (500G)	1	
603	992-671	+ DRIVER BIT (B) NO.2 50L	1	
604	992-672	+ DRIVER BIT (B) NO.3 50L	1	
605	996-177	NON-MAGNETIC HEX. SOCKET 8MM 65L	1	
606	985-329	NON-MAGNETIC HEX. SOCKET 10MM 65L	1	
607	996-178	NON-MAGNETIC HEX. SOCKET 12MM 65L	1	
608	996-179	NON-MAGNETIC HEX. SOCKET 13MM 65L	1	
609	996-180	NON-MAGNETIC HEX. SOCKET 14MM 65L	1	
610	996-185	NON-MAGNETIC HEX. SOCKET 15MM 65L	1	
611	996-181	NON-MAGNETIC HEX. SOCKET 16MM 65L	1	
612	996-182	NON-MAGNETIC HEX. SOCKET 17MM 65L	1	
613	996-186	NON-MAGNETIC HEX. SOCKET 19MM 65L	1	
614	996-197	HEX. SOCKET (LONG) 21MM X 166L	1	
615	996-184	BIT PIECE	1	
616	987-575	CHUCK WRENCH FOR 10VLB-D, 10VLR-D	1	
617	930-119	CHUCK WRENCH 6.5G	1	
618	307-543	CHUCK ADAPTER	1	

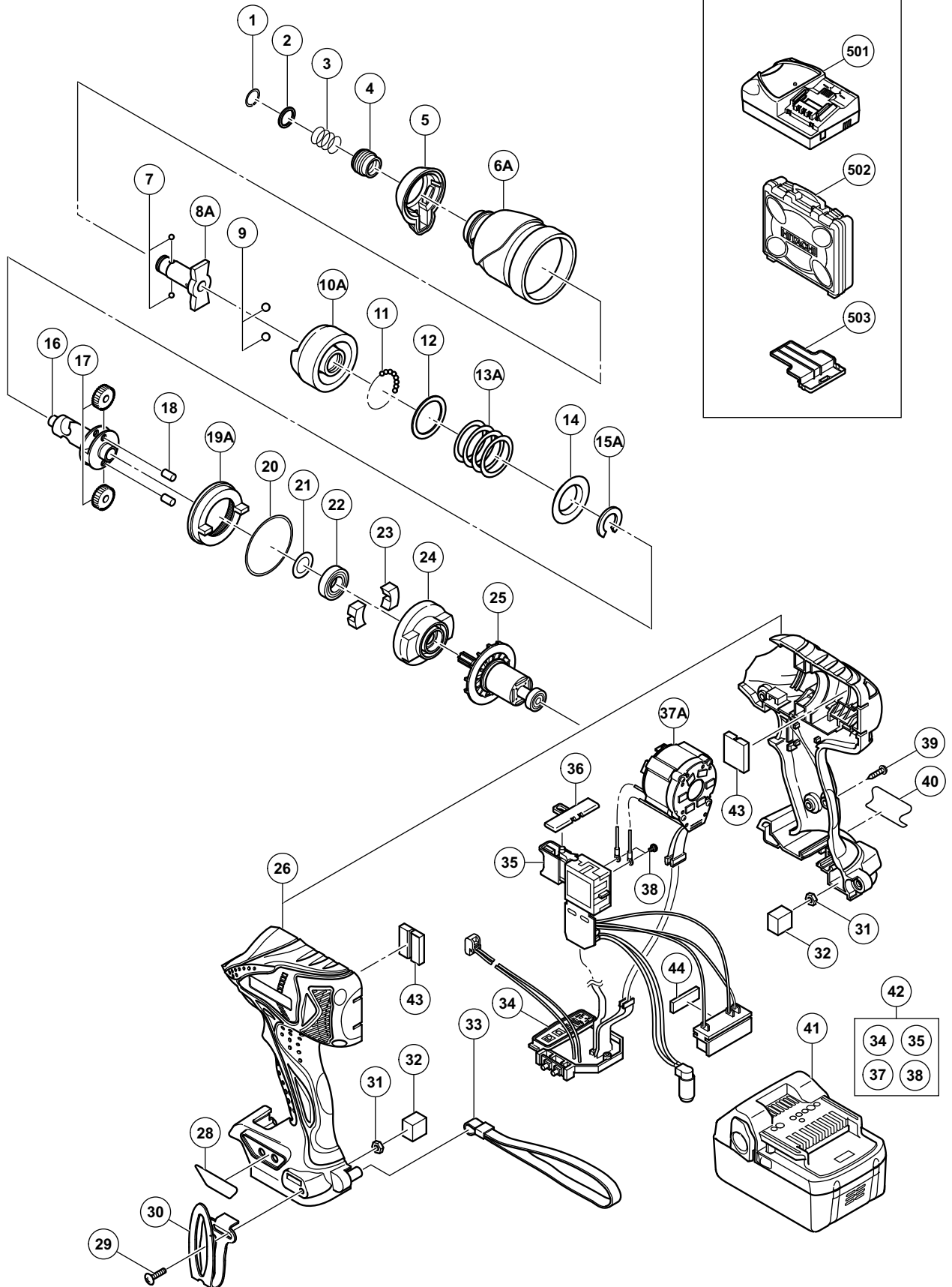




## ELECTRIC TOOL PARTS LIST

■ CORDLESS IMPACT DRIVER  
Model WH 18DBDL

2011·5·12  
(E2)



**PARTS**

WH 18DBDL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	330-619	RETAINING RING	1	
2	330-856	WASHER (D)	1	
3	331-284	GUIDE SPRING (D)	1	
4	322-717	GUIDE SLEEVE (D)	1	
5	332-198	FRONT CAP	1	
6A	333-745	HAMMER CASE	1	
7	319-535	STEEL BALL D3.5 (10 PCS.)	2	
8A	333-744	ANVIL (D)	1	
9	959-154	STEEL BALL D5.556 (10 PCS.)	2	
10A	333-748	HAMMER	1	
11	959-148	STEEL BALL D3.175 (10 PCS.)	28	
12	315-978	WASHER (J)	1	
13A	333-746	HAMMER SPRING (H)	1	
14	316-172	WASHER (S)	1	
15A	324-222	STOPPER (B)	1	
16	332-186	SPINDLE	1	
17	326-295	IDLE GEAR SET (2 PCS.)	2	
18	319-914	NEEDLE ROLLER	2	
19A	333-747	RING GEAR (E)	1	
20	983-852	O-RING (S-42)	1	
21	319-911	WASHER (E)	1	
22	690-1VV	BALL BEARING 6901VVCMP2L	1	
23	324-230	DAMPER (A)	2	
24	332-185	INNER COVER	1	
25	332-188	ROTOR PINION	1	
26	332-189	HOUSING (A). (B) SET	1	
28	332-207	PANEL SHEET (B)	1	
29	327-001	TRUSS HD. SCREW M4 (BLACK)	1	
30	330-666	HOOK	1	
31	327-002	LOCK NUT M4 (BLACK)	2	
32	330-854	PACKING	2	
33	306-952	STRAP (BLACK)	1	
34	332-205	CONTROLLER	1	
35	332-187	DC-SPEED CONTROL SWITCH	1	
36	324-225	PUSHING BUTTON (B)	1	
37A	340-804	STATOR FET PCB	1	
38	994-532	MACHINE SCREW (W/SP. WASHER) M3 X 5	2	
39	301-653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	9	
40		NAME PLATE	1	
41	330-068	BATTERY BSL 1830 (EUROPE, AUS, NZL)	2	INCLUD. 503
42	332-201	WIRING ASS'Y	1	INCLUD. 34, 35, 37A, 38
43	333-750	DAMPER (A)	2	
44	331-101	CUSHION	1	

**STANDARD ACCESSORIES**

WH 18DBDL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
*	501	CHARGER (MODEL UC 18YRSL)	1		
*	501	CHARGER (MODEL UC 18YML2)	1		
	502	330-592 CASE	1		
	503	329-897 BATTERY COVER	1		

**OPTIONAL ACCESSORIES**

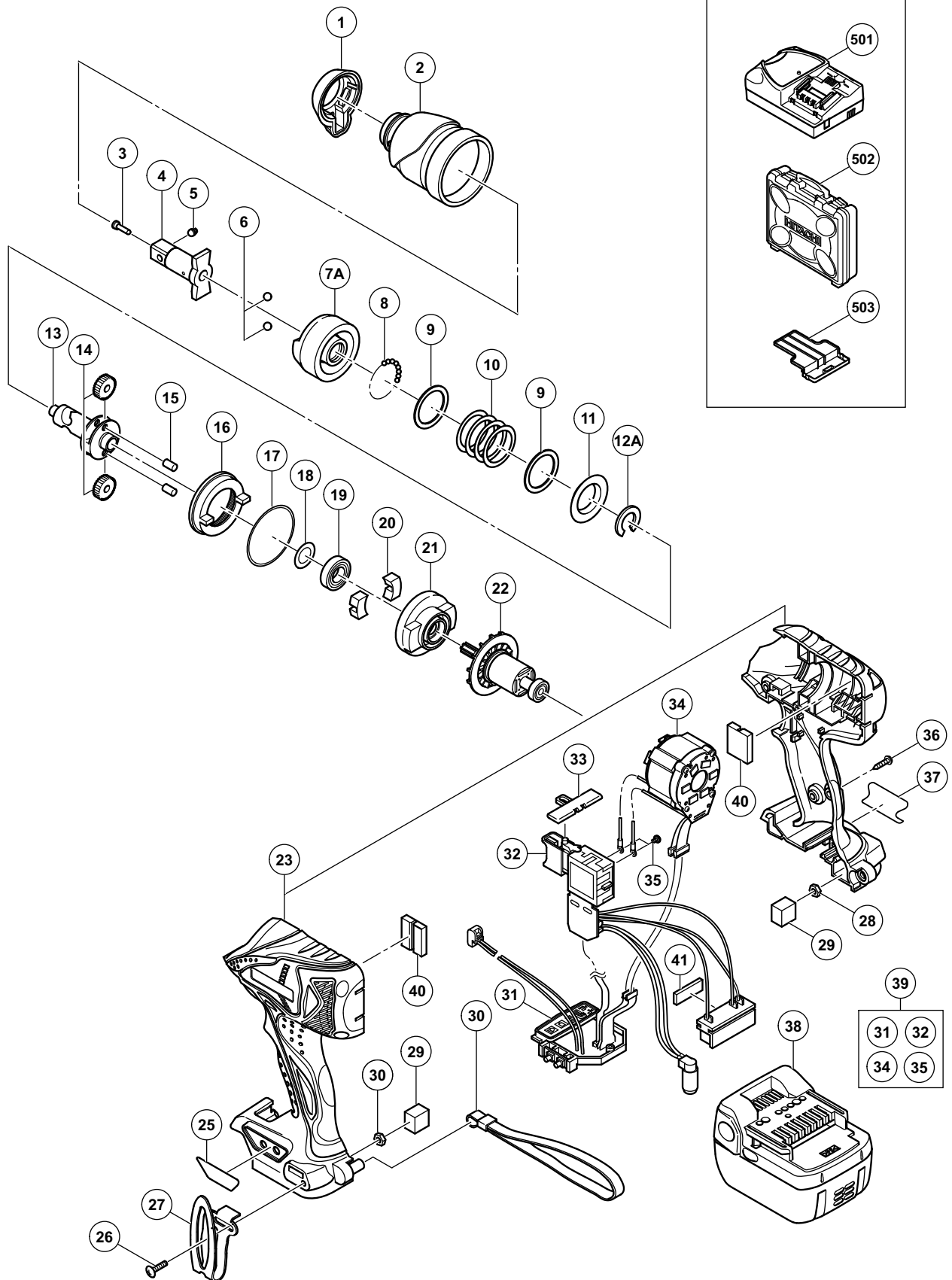
ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
601	321-823	DRILL CHUCK AND ADAPTER SET	1	INCLUD. 616, 618	
602	309-922	GREASE FOR IMPACT DRIVER (500G)	1		
603	992-671	+ DRIVER BIT (B) NO.2 50L	1		
604	992-672	+ DRIVER BIT (B) NO.3 50L	1		
605	996-177	NON-MAGNETIC HEX. SOCKET 8MM 65L	1		
606	985-329	NON-MAGNETIC HEX. SOCKET 10MM 65L	1		
607	996-178	NON-MAGNETIC HEX. SOCKET 12MM 65L	1		
608	996-179	NON-MAGNETIC HEX. SOCKET 13MM 65L	1		
609	996-180	NON-MAGNETIC HEX. SOCKET 14MM 65L	1		
610	996-185	NON-MAGNETIC HEX. SOCKET 15MM 65L	1		
611	996-181	NON-MAGNETIC HEX. SOCKET 16MM 65L	1		
612	996-182	NON-MAGNETIC HEX. SOCKET 17MM 65L	1		
613	996-186	NON-MAGNETIC HEX. SOCKET 19MM 65L	1		
614	996-197	HEX. SOCKET (LONG) 21MM X 166L	1		
615	996-184	BIT PIECE	1		
616	987-575	CHUCK WRENCH FOR 10VLB-D, 10VLR-D	1		
617	930-119	CHUCK WRENCH 6.5G	1		
618	307-543	CHUCK ADAPTER	1		



## ELECTRIC TOOL PARTS LIST

### ■ CORDLESS IMPACT WRENCH Model WR 14DBDL

2011·5·12  
(E2)



**PARTS**

WR 14DBDL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	332-198	FRONT CAP	1	
2	332-200	HAMMER CASE	1	
3	324-257	PIN RETAINER (B)	1	
4	332-196	ANVIL (D) ASS'Y	1	INCLUD. 3, 5
5	324-256	PLUNGER (B)	1	
6	959-154	STEEL BALL D5.556 (10 PCS.)	2	
7A	333-749	HAMMER	1	
8	959-148	STEEL BALL D3.175 (10 PCS.)	28	
9	315-978	WASHER (J)	2	
10	324-224	HAMMER SPRING (F)	1	
11	316-172	WASHER (S)	1	
12A	324-222	STOPPER (B)	1	
13	332-186	SPINDLE	1	
14	326-295	IDLE GEAR SET (2 PCS.)	2	
15	319-914	NEEDLE ROLLER	2	
16	326-787	RING GEAR (E)	1	
17	983-852	O-RING (S-42)	1	
18	319-911	WASHER (E)	1	
19	690-1VV	BALL BEARING 6901VVCMP52L	1	
20	324-230	DAMPER (A)	2	
21	332-185	INNER COVER	1	
22	332-188	ROTOR PINION	1	
23	332-190	HOUSING (A). (B) SET	1	
25	332-207	PANEL SHEET (B)	1	
26	327-001	TRUSS HD. SCREW M4 (BLACK)	1	
27	330-666	HOOK	1	
28	327-002	LOCK NUT M4 (BLACK)	2	
29	330-854	PACKING	2	
30	306-952	STRAP (BLACK)	1	
31	333-362	CONTROLLER	1	
32	332-187	DC-SPEED CONTROL SWITCH	1	
33	324-225	PUSHING BUTTON (B)	1	
34	332-204	STATOR FET PCB	1	
35	994-532	MACHINE SCREW (W/SP. WASHER) M3 X 5	2	
36	301-653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	9	
37		NAME PLATE	1	
38	329-083	BATTERY BSL 1430 (EUROPE, AUS, NZL)	2	INCLUD. 503
39	333-363	WIRING ASS'Y	1	INCLUD. 31, 32, 34, 35
40	333-750	DAMPER (A)	2	
41	331-101	CUSHION	1	

**STANDARD ACCESSORIES**

WR 14DBDL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
* 501		CHARGER (MODEL UC 18YRSL)	1	
* 501		CHARGER (MODEL UC 18YML2)	1	
502	330-592	CASE	1	
503	329-897	BATTERY COVER	1	

**OPTIONAL ACCESSORIES**

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
601	873-537	SOCKET PIN	1	
602	873-187	O-RING (J1SW1516)	1	
603	991-481	FORM TIE SOCKET ASS'Y 11.3MM X 95L	1	INCLUD. 601, 602
604	992-610	UNIVERSAL JOINT ASS'Y	1	INCLUD. 601, 602
605	955-153	UNIVERSAL JOINT PIN	1	
606	991-476	BIT ADAPTER ASS'Y	1	INCLUD. 601, 602
607	944-291	HEX. SOCKET ASS'Y 10MM X 40L	1	INCLUD. 601, 602
608	873-632	HEX. SOCKET ASS'Y 12MM X 40L	1	INCLUD. 601, 602
609	873-539	HEX. SOCKET ASS'Y 13MM X 40L	1	INCLUD. 601, 602
610	873-540	HEX. SOCKET ASS'Y 14MM X 40L	1	INCLUD. 601, 602
611	873-536	HEX. SOCKET ASS'Y 17MM X 32L	1	INCLUD. 601, 602
612	873-624	HEX. SOCKET ASS'Y 19MM X 34L	1	INCLUD. 601, 602
613	873-626	HEX. SOCKET ASS'Y 21MM X 36L	1	INCLUD. 601, 602
614	873-627	HEX. SOCKET ASS'Y 22MM X 40L	1	INCLUD. 601, 602
615	986-058	HEX. SOCKET FOR PLASTIC CONE 12MM X 70L	1	INCLUD. 601, 602
616	873-633	EXTENSION BAR ASS'Y (SQUARE) 12.7MM X 100L	1	INCLUD. 601, 602
617	955-138	HEX. SOCKET ASS'Y (LONG) 12MM X 52L	1	INCLUD. 601, 602
618	955-139	HEX. SOCKET ASS'Y (LONG) 13MM X 52L	1	INCLUD. 601, 602
619	955-140	HEX. SOCKET ASS'Y (LONG) 14MM X 52L	1	INCLUD. 601, 602
620	955-141	HEX. SOCKET ASS'Y (LONG) 17MM X 52L	1	INCLUD. 601, 602
621	955-149	HEX. SOCKET ASS'Y (LONG) 17MM X 75L	1	INCLUD. 601, 602
622	955-142	HEX. SOCKET ASS'Y (LONG) 19MM X 52L	1	INCLUD. 601, 602
623	955-150	HEX. SOCKET ASS'Y (LONG) 19MM X 75L	1	INCLUD. 601, 602
624	955-143	HEX. SOCKET ASS'Y (LONG) 21MM X 52L	1	INCLUD. 601, 602
625	955-151	HEX. SOCKET ASS'Y (LONG) 21MM X 75L	1	INCLUD. 601, 602
626	991-480	HEX. SOCKET ASS'Y (LONG) 21MM X 125L	1	INCLUD. 601, 602
627	955-144	HEX. SOCKET ASS'Y (LONG) 22MM X 52L	1	INCLUD. 601, 602
628	993-658	SOCKET ASS'Y FOR DUCT 12MM X 95L	1	INCLUD. 601, 602, 629
629	993-659	SOCKET FOR DUCT 12MM X 52L	1	
630	992-613	SOCKET ASS'Y FOR DUCT 13MM X 95L	1	INCLUD. 601, 602, 631
631	992-614	SOCKET FOR DUCT 13MM X 52L	1	
632	992-615	SOCKET ASS'Y FOR DUCT 14MM X 95L	1	INCLUD. 601, 602, 633
633	992-616	SOCKET FOR DUCT 14MM X 52L	1	
634	309-922	GREASE FOR IMPACT DRIVER (500G)	1	

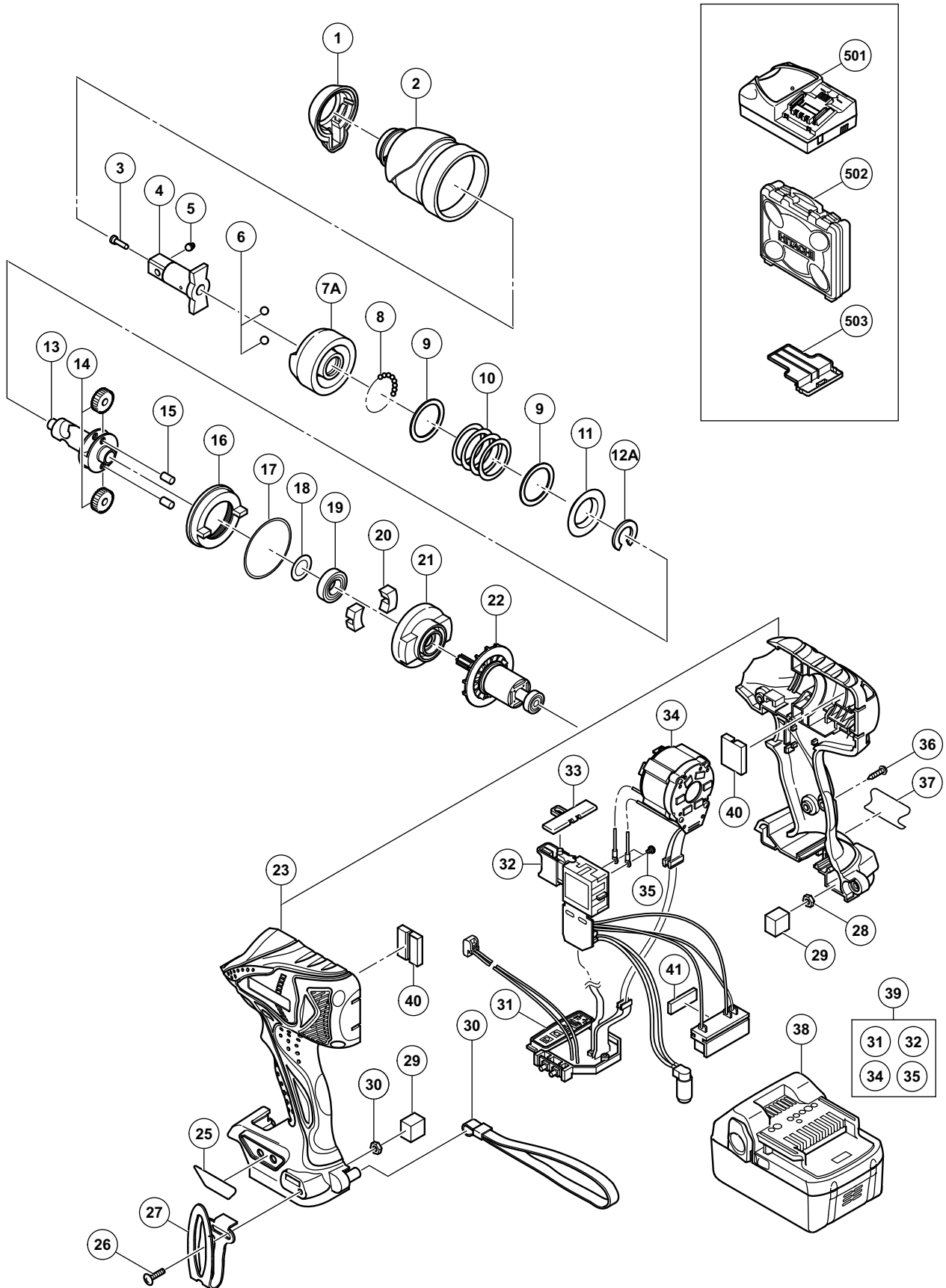




## ELECTRIC TOOL PARTS LIST

### ■ CORDLESS IMPACT WRENCH Model WR 18DBDL

2011·5·12  
(E2)



## PARTS

WR 18DBDL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	332-198	FRONT CAP	1	
2	332-200	HAMMER CASE	1	
3	324-257	PIN RETAINER (B)	1	
4	332-196	ANVIL (D) ASS'Y	1	INCLUD. 3, 5
5	324-256	PLUNGER (B)	1	
6	959-154	STEEL BALL D5.556 (10 PCS.)	2	
7A	333-749	HAMMER	1	
8	959-148	STEEL BALL D3.175 (10 PCS.)	28	
9	315-978	WASHER (J)	2	
10	324-224	HAMMER SPRING (F)	1	
11	316-172	WASHER (S)	1	
12A	324-222	STOPPER (B)	1	
13	332-186	SPINDLE	1	
14	326-295	IDLE GEAR SET (2 PCS.)	2	
15	319-914	NEEDLE ROLLER	2	
16	326-787	RING GEAR (E)	1	
17	983-852	O-RING (S-42)	1	
18	319-911	WASHER (E)	1	
19	690-1VV	BALL BEARING 6901VVCMP52L	1	
20	324-230	DAMPER (A)	2	
21	332-185	INNER COVER	1	
22	332-188	ROTOR PINION	1	
23	332-189	HOUSING (A). (B) SET	1	
25	332-207	PANEL SHEET (B)	1	
26	327-001	TRUSS HD. SCREW M4 (BLACK)	1	
27	330-666	HOOK	1	
28	327-002	LOCK NUT M4 (BLACK)	2	
29	330-854	PACKING	2	
30	306-952	STRAP (BLACK)	1	
31	333-360	CONTROLLER	1	
32	332-187	DC-SPEED CONTROL SWITCH	1	
33	324-225	PUSHING BUTTON (B)	1	
34	332-203	STATOR FET PCB	1	
35	994-532	MACHINE SCREW (W/SP. WASHER) M3 X 5	2	
36	301-653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	9	
37		NAME PLATE	1	
38	330-068	BATTERY BSL 1830 (EUROPE, AUS, NZL)	2	INCLUD. 503
39	333-361	WIRING ASS'Y	1	INCLUD. 31, 32, 34, 35
40	333-750	DAMPER (A)	2	
41	331-101	CUSHION	1	

**STANDARD ACCESSORIES**

WR 18DBDL

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
* 501		CHARGER (MODEL UC 18YRSL)	1	
* 501		CHARGER (MODEL UC 18YML2)	1	
502	330-592	CASE	1	
503	329-897	BATTERY COVER	1	

**OPTIONAL ACCESSORIES**

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
601	873-537	SOCKET PIN	1	
602	873-187	O-RING (J1SW1516)	1	
603	991-481	FORM TIE SOCKET ASS'Y 11.3MM X 95L	1	INCLUD. 601, 602
604	992-610	UNIVERSAL JOINT ASS'Y	1	INCLUD. 601, 602
605	955-153	UNIVERSAL JOINT PIN	1	
606	991-476	BIT ADAPTER ASS'Y	1	INCLUD. 601, 602
607	944-291	HEX. SOCKET ASS'Y 10MM X 40L	1	INCLUD. 601, 602
608	873-632	HEX. SOCKET ASS'Y 12MM X 40L	1	INCLUD. 601, 602
609	873-539	HEX. SOCKET ASS'Y 13MM X 40L	1	INCLUD. 601, 602
610	873-540	HEX. SOCKET ASS'Y 14MM X 40L	1	INCLUD. 601, 602
611	873-536	HEX. SOCKET ASS'Y 17MM X 32L	1	INCLUD. 601, 602
612	873-624	HEX. SOCKET ASS'Y 19MM X 34L	1	INCLUD. 601, 602
613	873-626	HEX. SOCKET ASS'Y 21MM X 36L	1	INCLUD. 601, 602
614	873-627	HEX. SOCKET ASS'Y 22MM X 40L	1	INCLUD. 601, 602
615	986-058	HEX. SOCKET FOR PLASTIC CONE 12MM X 70L	1	INCLUD. 601, 602
616	873-633	EXTENSION BAR ASS'Y (SQUARE) 12.7MM X 100L	1	INCLUD. 601, 602
617	955-138	HEX. SOCKET ASS'Y (LONG) 12MM X 52L	1	INCLUD. 601, 602
618	955-139	HEX. SOCKET ASS'Y (LONG) 13MM X 52L	1	INCLUD. 601, 602
619	955-140	HEX. SOCKET ASS'Y (LONG) 14MM X 52L	1	INCLUD. 601, 602
620	955-141	HEX. SOCKET ASS'Y (LONG) 17MM X 52L	1	INCLUD. 601, 602
621	955-149	HEX. SOCKET ASS'Y (LONG) 17MM X 75L	1	INCLUD. 601, 602
622	955-142	HEX. SOCKET ASS'Y (LONG) 19MM X 52L	1	INCLUD. 601, 602
623	955-150	HEX. SOCKET ASS'Y (LONG) 19MM X 75L	1	INCLUD. 601, 602
624	955-143	HEX. SOCKET ASS'Y (LONG) 21MM X 52L	1	INCLUD. 601, 602
625	955-151	HEX. SOCKET ASS'Y (LONG) 21MM X 75L	1	INCLUD. 601, 602
626	991-480	HEX. SOCKET ASS'Y (LONG) 21MM X 125L	1	INCLUD. 601, 602
627	955-144	HEX. SOCKET ASS'Y (LONG) 22MM X 52L	1	INCLUD. 601, 602
628	993-658	SOCKET ASS'Y FOR DUCT 12MM X 95L	1	INCLUD. 601, 602, 629
629	993-659	SOCKET FOR DUCT 12MM X 52L	1	
630	992-613	SOCKET ASS'Y FOR DUCT 13MM X 95L	1	INCLUD. 601, 602, 631
631	992-614	SOCKET FOR DUCT 13MM X 52L	1	
632	992-615	SOCKET ASS'Y FOR DUCT 14MM X 95L	1	INCLUD. 601, 602, 633
633	992-616	SOCKET FOR DUCT 14MM X 52L	1	
634	309-922	GREASE FOR IMPACT DRIVER (500G)	1	

