Power Tools Service Manual

CONFIDENTIAL
Jul. 2020

PRODUCT NAME

18 V Cordless Impact Driver

Models WH 18DD, WH 18DDX

WH 18DDX: For the UK
WH 18DD: For other regions

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WH 18DD

Koki Holdings Co., Ltd.

Overseas Sales Management Dept.

W

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

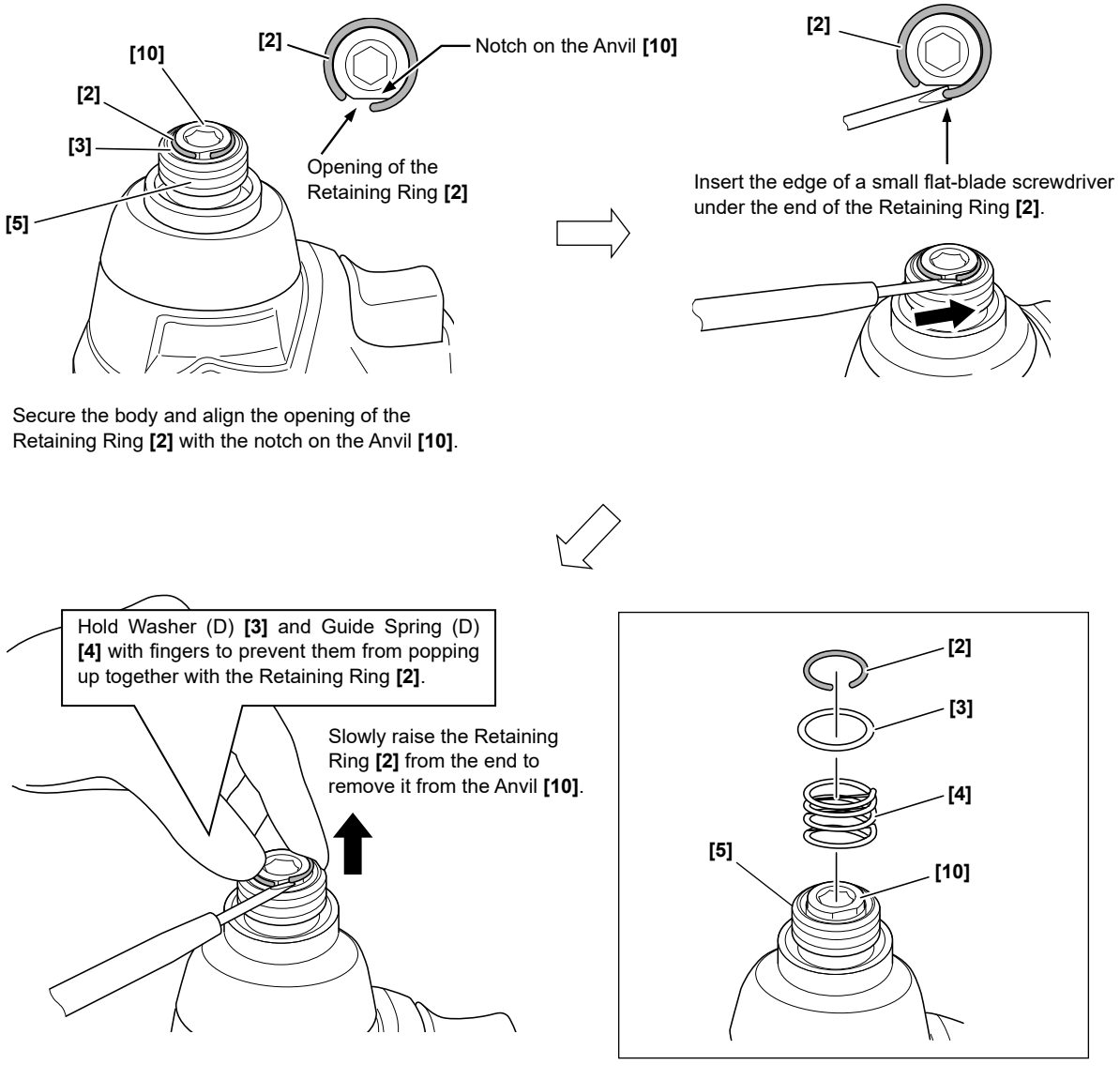
[Bold] numbers in the description below correspond to the item numbers in the parts lists and exploded assembly diagrams for the Models WH 18DD and WH 18DDX.

Disassembly

1. Removal of the guide sleeve

Remove the Retaining Ring **[2]**, Washer (D) **[3]**, Guide Spring (D) **[4]**, and Guide Sleeve (D) **[5]** in this order with a small flat-blade screwdriver. Do not work too quickly. Be careful not to let the Retaining Ring **[2]** pop up, and do not lose the two Steel Balls D3.5 **[9]** in the opening of the Anvil **[10]**.

• Removal of the guide sleeve



2. Removal of the exterior parts

Insert the edge of a small flat-blade screwdriver into the space between the Front Cap **[6]** and the Hammer Case **[7]**, and remove the Front Cap **[6]** from the Hammer Case **[7]**.

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

(1) Remove the nine Tapping Screws (W/Flange) D3 x 16 **[27]** to remove housing (B) of Housing (A).(B) Set **[33]**.

(2) Remove the Hammer Case **[7]**, hammer assembly, Inner Cover **[26]**, and Wiring Ass'y **[29]** together as one unit. Remove the Pushing Button **[30]**.

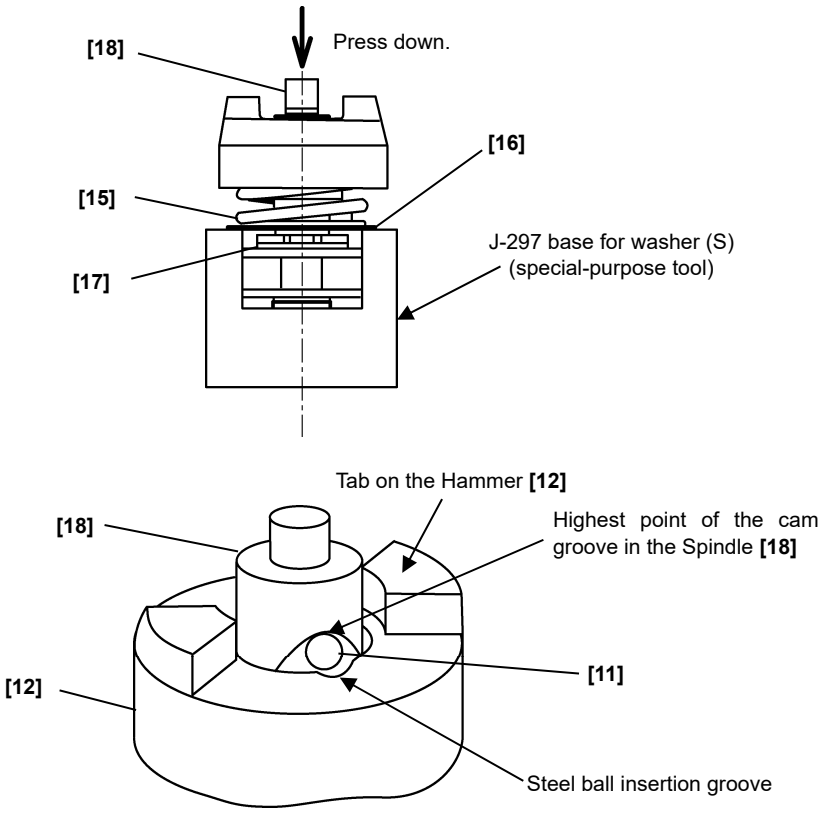
4. Disassembly of the hammer assembly

(1) Set the hammer assembly detached from the Hammer Case **[7]** on the J-297 base for washer (S) (special-purpose tool, Code No. 317063). Push down the end of the Spindle **[18]** with a hand press or similar tool to compress the Hammer Spring **[15]**, and then use a small flat-blade screwdriver or similar tool to take out Stopper (A) **[17]** in this state. Release the hand press.

(2) Remove the hammer assembly from the J-297 base for washer (S). Hold the end surface of the Spindle **[18]**. Then push down either of the tabs on the Hammer **[12]** with a hand press or similar tool to compress the Hammer Spring **[15]**. In this state, use a small flat-blade screwdriver or similar tool to remove the two Steel Balls D5.556 **[11]** from the cam groove in the Spindle **[18]** and Hammer **[12]**.

(3) Release the hand press, hold the Hammer **[12]** and Washer (S) **[16]** together, and then pull both out from the Spindle **[18]**. You can now take out the Hammer Spring **[15]**.

• Disassembly of the hammer assembly

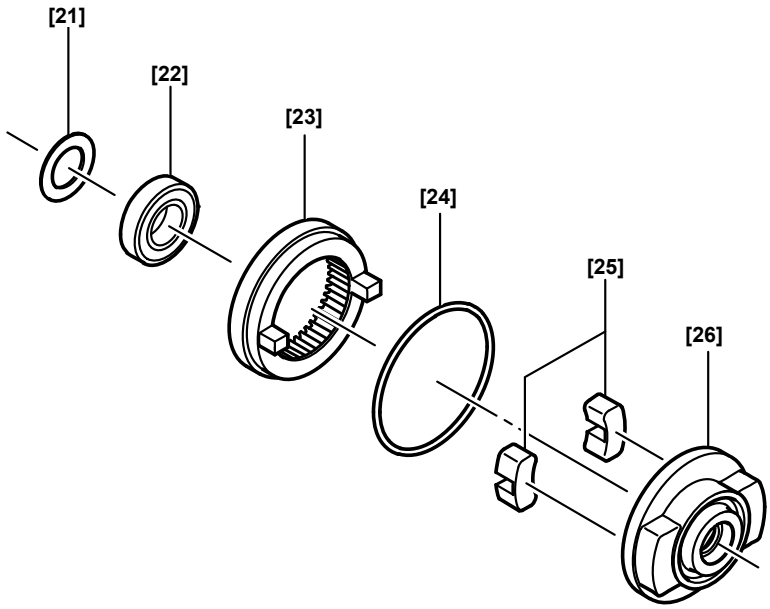


5. Removal of the inner cover

Detach Ring Gear (A) **[23]** and O-ring **[24]** from the Inner Cover **[26]**, and then use a small flat-blade screwdriver to remove Damper (A) **[25]**.

NOTE: Be careful not to damage the O-ring [24].

• Removal of the inner cover



Reassembly

Generally, perform reassembly by reversing the disassembly procedure. However, special attention should be given to the following items.

1. Reassembly of the power supply unit and its vicinity

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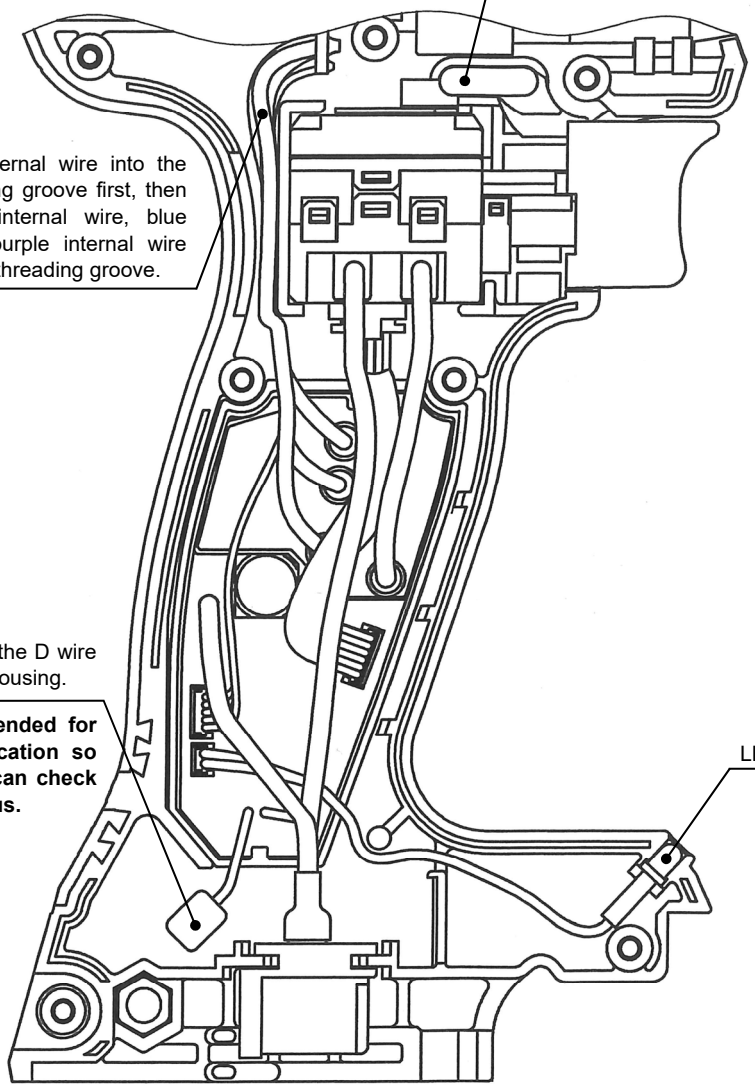


2. Mounting the mechanical parts

(1) Mount Washer (S) **[16]** to the Spindle **[18]**. Put the twenty-eight Steel Balls D3.175 **[13]**, Washer (J) **[14]**, and Hammer Spring **[15]** in the Hammer **[12]**, and mount it to the Spindle **[18]**.

(2) Align the highest point of the cam groove in the Spindle **[18]** with the steel ball insertion groove in the Hammer **[12]**. Push down the tabs on the Hammer **[12]** with a hand press or similar tool to compress the Hammer Spring **[15]** until it contacts the Spindle **[18]** and hold it there.

(3) Insert the two Steel Balls D5.556 **[11]** into the steel ball insertion groove. Check that the two Steel Balls D5.556 **[11]** are in the groove, and then loosen the hand press.

(4) Set the hammer assembly onto the J-297 base for washer (S) (special-purpose tool, Code No. 317063), press the hand press down on the edge of the Spindle **[18]** to compress the Hammer Spring **[15]**, and then mount Stopper (A) **[17]** to the Spindle **[18]**. Loosen the hand press to complete the procedure.

(5) Mount the Idle Gear Set (2 pcs.) **[19]** and two Needle Rollers (A) **[20]** to the Spindle **[18]** and insert Washer (E) **[21]** to assemble the hammer assembly.

(6) Press-fit the Ball Bearing 6901VV **[22]** into the Inner Cover **[26]** and fit two Dampers (A) **[25]** into the Inner Cover **[26]**. Then fit the O-ring **[24]** into Ring Gear (A) **[23]**, and fit the retaining rib of Ring Gear (A) **[23]** into the concave portion of Damper (A) **[25]**.

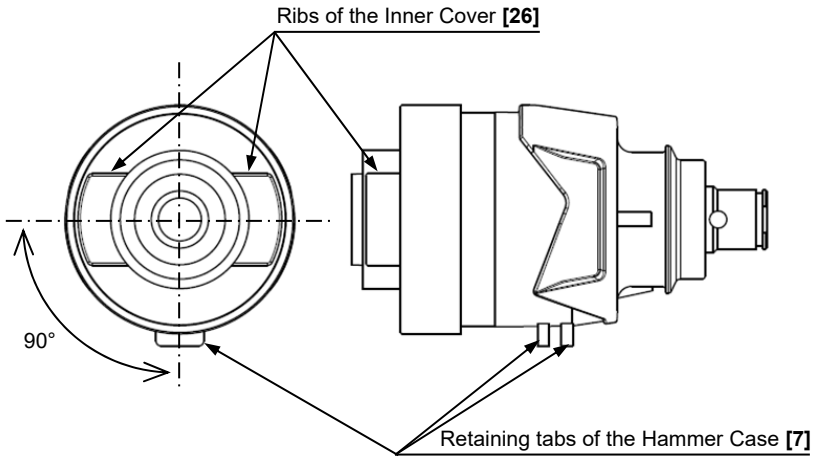
(7) Check the hammer assembly (whether Washer (E) **[21]** is inserted into the Spindle **[18]**) for proper engagement of the Idle Gear Set **[19]** with Ring Gear (A) **[23]**, and mount it to the Inner Cover **[26]**.

(8) Insert the Anvil **[10]** into the tip of the Spindle **[18]** of the hammer assembly, and then cover it with the Hammer Case **[7]**.

NOTE: At that time, make sure that the ribs of the Inner Cover [26] are positioned at 90° relative to the retaining tabs of the Hammer Case [7].

(9) Press-fit the Wiring Ass'y **[29]** all the way into the Inner Cover **[26]**. Make sure that the Wiring Ass'y **[29]** turns smoothly. If the Wiring Ass'y **[29]** does not turn smoothly, its gears could be improperly engaged. In such a case, mount the Wiring Ass'y **[29]** properly.

• Mounting the mechanical parts



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

(1) Before mounting the parts to housing (A), apply silicone rubber (Three Bond TB1211) to the specified locations shown in the figure below.

(2) Integrate the hammer assembly, Hammer Case **[7]**, Inner Cover **[26]**, Wiring Ass'y **[29]** (including the DC-speed control switch and controller), and Battery Terminal **[32]** as one unit, and then mount the unit to housing (A).

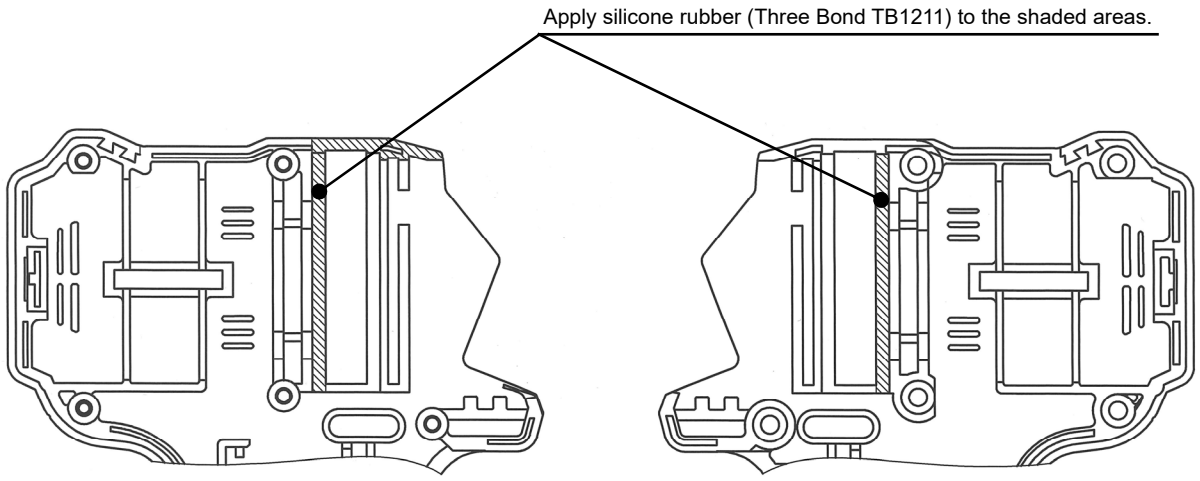
NOTE: • Fit the Hammer Case [7] into the housing so that the retaining tab of the Hammer Case [7] is in contact with the retainer receptor of the housing as shown in the figure below.

• Check whether the Hammer Case [7] is properly inserted into the housing. If the Hammer Case [7] does not fit into the specified groove of the housing, or if the ribs of the Inner Cover [26] are not positioned at 90° relative to the retaining tabs of the Hammer Case [7], reassemble it. The Models WH 18DD and WH 18DDX are structured so that the Hammer Case [7] will retain the parts axially when properly assembled. Therefore, make sure that the parts are properly mounted to the housing.

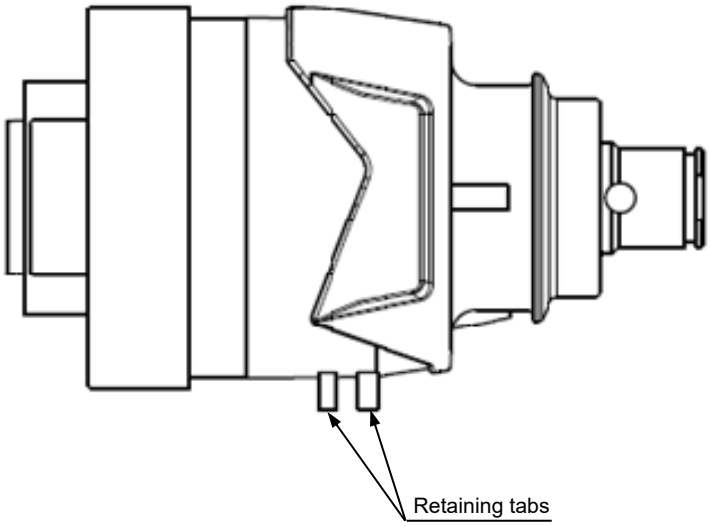
(3) Also coat housing (B) with silicone rubber (Three Bond TB1211) at the similar location. Mount housing (B) and fasten the nine Tapping Screws (W/Flange) D3 x 16 **[27]**.

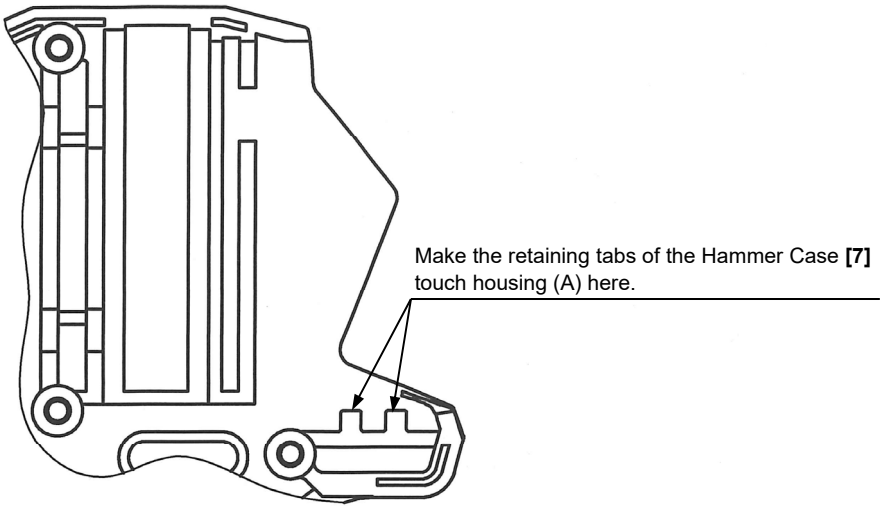
NOTE: Use a cloth to wipe off any silicone rubber adhering to the outer circumference of the housing.

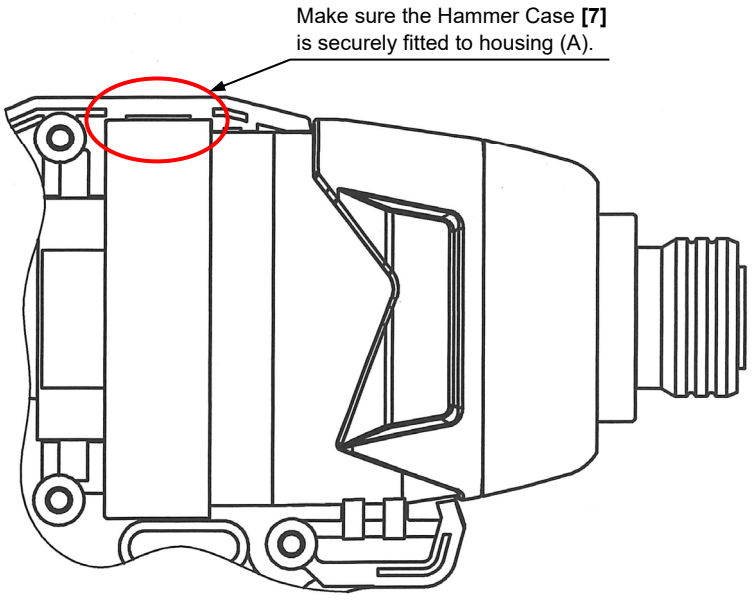
• Application of silicone rubber



• Mounting the hammer case







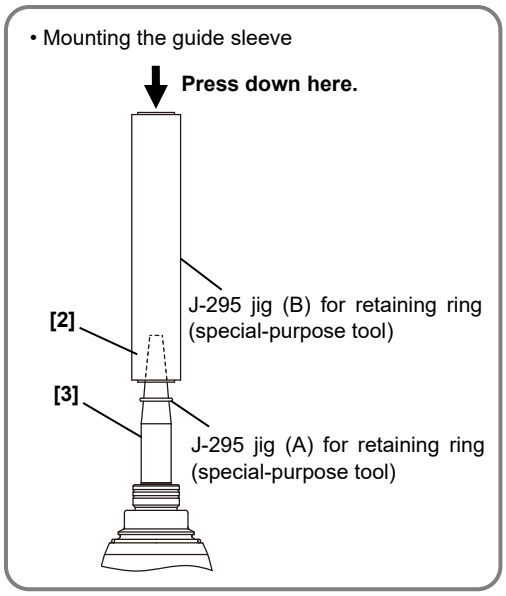
4. Mounting the exterior parts

Mount the Front Cap **[6]** to the Hammer Case **[7]**.

5. Mounting the guide sleeve

Put the two Steel Balls D3.5 **[9]** into the Anvil **[10]**. Mount Guide Sleeve (D) **[5]**, Guide Spring (D) **[4]**, and Washer (D) **[3]** in this order. Use the J-295 jigs (A) and (B) for retaining ring (special-purpose tools, Code No. 317060 and 317061) to mount the Retaining Ring **[2]** in the groove of the Anvil **[10]**.

NOTE: The Retaining Ring [2] may be deformed in the disassembly procedure and Guide Sleeve (D) [5] may come off if the deformed Retaining Ring [2] is reused. Be sure to replace the Retaining Ring [2] with a new one.



Type of silicone rubber

Please purchase the following silicone rubber as necessary.

Item	Registered part name	Net weight	Code No.
Three Bond 1211	Silicone rubber	100 g	306927

Lubrication points and type of lubricant

Apply specified amount of grease to the following portions.

MOLUB-ALLOY 777-1

- Convex portion (8 mm in dia.) on the Anvil **[10]**
- Sliding portion between the Anvil **[10]** and the needle bearing
- Two Steel Balls D5.556 **[11]**
- Cam groove, oiled groove, and tabs on the Hammer **[12]**
- Cam groove and sliding portion of the Spindle **[18]**
- Hole (5 mm in dia.) in the Idle Gear Set (2 pcs.) **[19]**
- Entire circumference of Needle Roller (A) **[20]**
- Twenty-eight Steel Balls D3.175 **[13]**
- Top surface of the tabs on the Anvil **[10]** and sliding portion of Washer (F) **[8]**
- Inner circumference of the needle bearing of the Hammer Case **[7]**

NIPPECO SEP-3A

- Two Steel Balls D3.5 **[9]**
- Sliding portion of the Anvil **[10]** and Guide Sleeve (D) **[5]**
- Press-fitting portion (rotor side) of the Inner Cover **[26]**

ATTOLUB MS NO. 2

- Toothed surfaces of the Wiring Ass'y **[29]** pinions, toothed surface of Ring Gear (A) **[23]**, and toothed part of the Idle Gear Set **[19]**.

Please purchase the following grease as necessary.

Item	Registered part name	Net weight	Code No.
MOLUB-ALLOY 777-1	Grease (Molub-Alloy No. 777-1) 75 g	75 g	325149
NIPPECO SEP-3A	Grease (SEP-3A) (100 g)	100 g	930035
	Grease (SEP-3A) (2.5 kg)	2.5 kg	930038
ATTOLUB MS NO. 2	Grease (Attolub MS No. 2) 500 g	500 g	302922

Tightening torque

Item No.	Part name	No. used	Tightening torque	
			N•m	kgf•cm
[27]	Tapping Screws (W/Flange) D3 x 16 (Black)	9	1.3±0.3	13±3

Checking after reassembly

After reassembly, check the following.

(1) Check that the Models WH 18DD and WH 18DDX run smoothly and start, stop, change speed, and change direction securely.

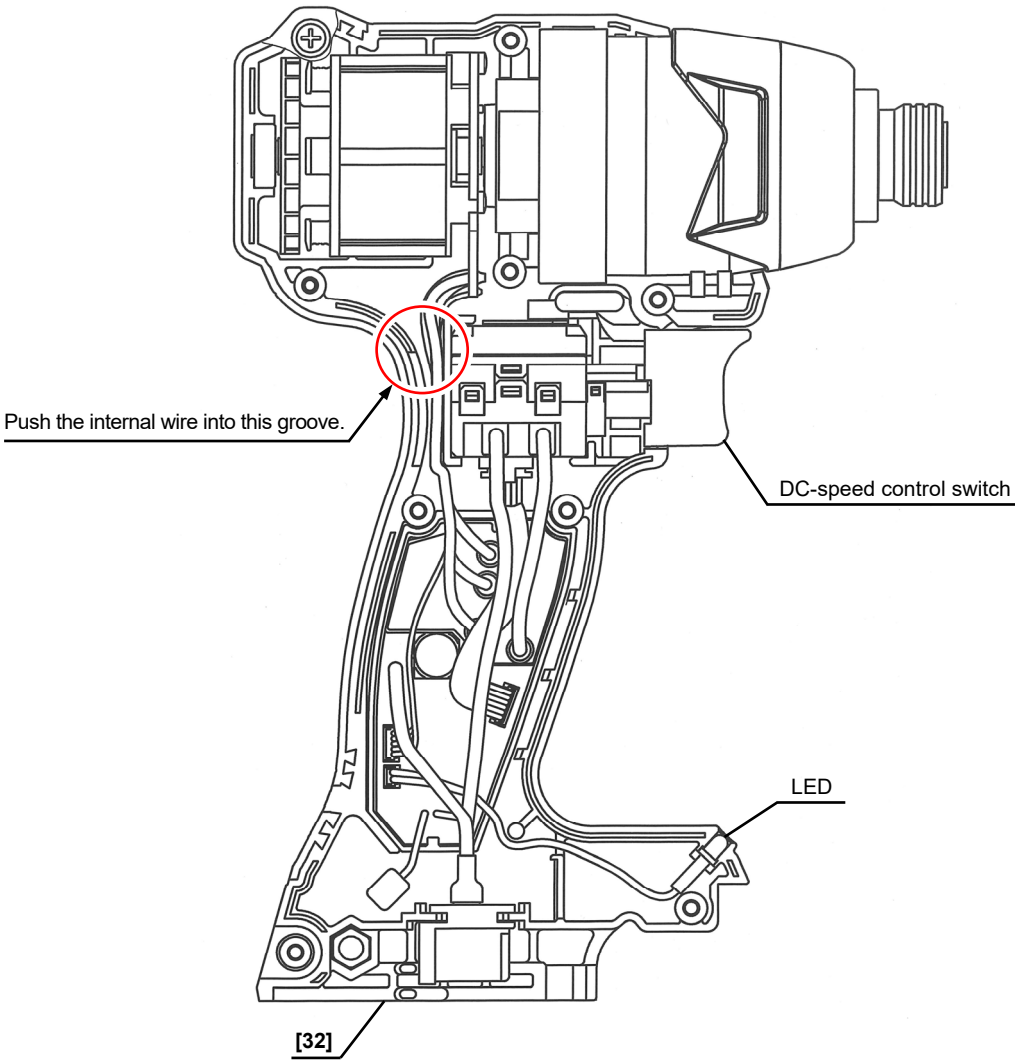
(2) Check that the rotating direction of the Anvil **[10]** matches that of the pushed side of the Pushing Button **[30]**.

No-load current

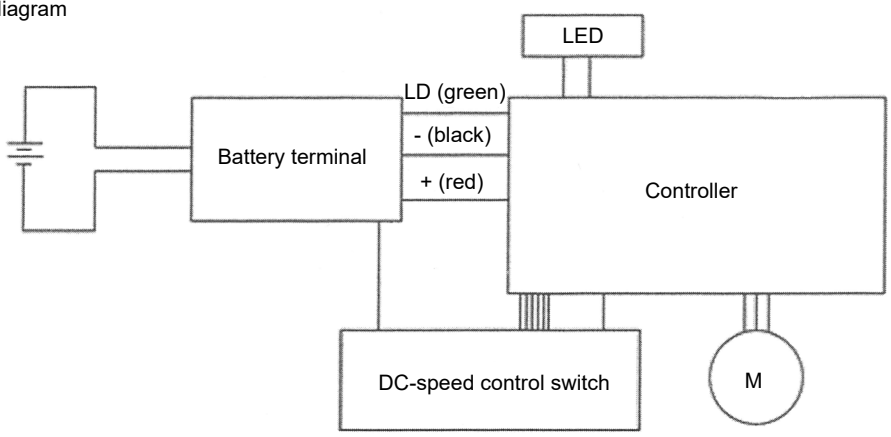
No-load current: 2.3±1.0 A (DC 19.8 V—equivalent to the voltage of a fully charged battery)

Wiring diagram

• Wiring diagram

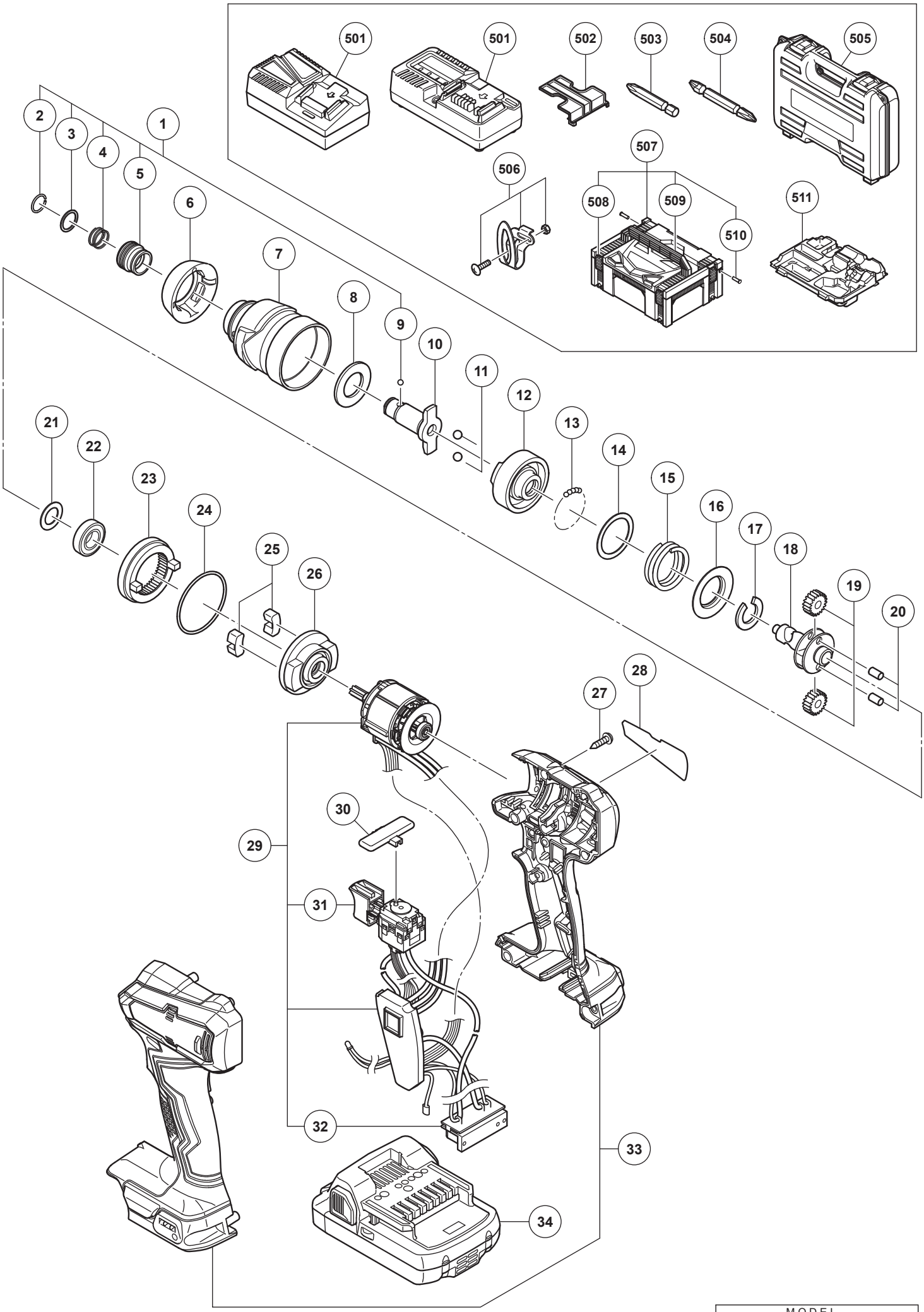


• Connecting diagram



2. Precautions on disassembly and reassembly of the charger

Refer to the Service Manual for precautions on disassembly and reassembly of the charger Models UC 18YFSL and UC 18YKSL.



MODEL
WH18DD

Rev.1

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	375143	GUIDE SLEEVE ASS'Y	1	INCLUD. 2-5, 9
2	330619	RETAINING RING	1	
3	330856	WASHER (D)	1	
4	331284	GUIDE SPRING (D)	1	
5	322717	GUIDE SLEEVE (D)	1	
6	337360	FRONT CAP	1	
7	375003	HAMMER CASE	1	
8	336639	WASHER (F)	1	
9	319535	STEEL BALL D3.5 (10 PCS.)	2	
*10	374395	ANVIL (A)	1	
*10	374396	ANVIL (B)	1	FOR EUROPE, AUS, NZL
11	959154	STEEL BALL D5.556 (10 PCS.)	2	
12	375958	HAMMER	1	
13	959148	STEEL BALL D3.175 (10 PCS.)	28	
14	315978	WASHER (J)	1	
15	376565	HAMMER SPRING	1	
16	316172	WASHER (S)	1	
17	322740	STOPPER (A)	1	
18	375957	SPINDLE	1	
19	376564	IDLE GEAR SET (2 PCS.)	2	
20	324234	NEEDLE ROLLER (A)	2	
21	319911	WASHER (E)	1	
22	6901VV	BALL BEARING 6901VV	1	
23	331858	RING GEAR (A)	1	
24	334412	O-RING	1	
25	329517	DAMPER (A)	2	
26	374393	INNER COVER	1	
27	313687	TAPPING SCREW (W/FLANGE) D3 X 16 (BLACK)	9	
28		NAME PLATE	1	
29	376562	WIRING ASS'Y	1	INCLUD. 31, 32
30	374399	PUSHING BUTTON	1	
31	376362	DC-SPEED CONTROL SWITCH	1	
32	376361	BATTERY TERMINAL	1	
33	376561	HOUSING (A).(B) SET	1	
*34	333352	BATTERY BSL 1815 (EUROPE)	2	INCLUD. 502
*34	334725	BATTERY BSL 1815 (CHN)	2	INCLUD. 502
*34	334726	BATTERY BSL 1815 (TPE)	2	INCLUD. 502
*34	339783	BATTERY BSL 1830C (EUROPE, AUS, NZL)	2	INCLUD. 502
*34	376029	BATTERY BSL 1850C (EUROPE, AUS, NZL)	2	INCLUD. 502
		STANDARD ACCESSORIES		
*501		CHARGER (MODEL UC18YKSL)	1	
*501		CHARGER (MODEL UC18YFSL)	1	
502	329897	BATTERY COVER	1	
*503	992671	+ DRIVER BIT (B) NO. 2 50L	1	FOR EUROPE, AUS, NZL
*504	983006	+ DRIVER BIT NO. 2 65L	1	FOR CHN, TPE, SIN, MAL
505	336642	CASE	1	
506	376358	HOOK SET	1	
507	336471	CASE ASS'Y (STACKABLE 2)	1	INCLUD. 508-510
508	336472	LATCH	4	
509	336473	HANDLE	1	
510	336474	HINGE	2	
511	376502	INNER TRAY	1	
		OPTIONAL ACCESSORIES		
*601	992672	+ DRIVER BIT (B) NO. 3 50L	1	FOR EUROPE, AUS, NZL
*602	983011	+ DRIVER BIT NO. 3 65L	1	FOR CHN, TPE, SIN, MAL
*603	955657	- DRIVER BIT (A) 3 MM X 70L	1	FOR CHN, TPE, SIN, MAL
*604	955659	- DRIVER BIT (A) 4 MM X 70L	1	FOR CHN, TPE, SIN, MAL
*605	955674	- DRIVER BIT (A) 6 MM X 70L	1	FOR CHN, TPE, SIN, MAL
606	321823	DRILL CHUCK AND ADAPTER SET	1	INCLUD. 607, 608
607	307543	CHUCK ADAPTER	1	
608	987575	CHUCK WRENCH FOR 10VLB-D,10VLR-D	1	
609	309922	GREASE (ATTOLUB MS NO. 2) 500G	1	
610	325149	GREASE (MOLUB-ALLOY NO. 777-1) 75G	1	
611	306927	SILICONE RUBBER	1	
*612	996177	NON-MAGNETIC HEX. SOCKET 8 MM 65L	1	FOR EUROPE, AUS ,NZL
*613	985329	NON-MAGNETIC HEX. SOCKET 10 MM 65L	1	FOR EUROPE, AUS, NZL
*614	996178	NON-MAGNETIC HEX. SOCKET 12 MM 65L	1	FOR EUROPE, AUS, NZL
*615	996179	NON-MAGNETIC HEX. SOCKET 13 MM 65L	1	FOR EUROPE, AUS, NZL
*616	996180	NON-MAGNETIC HEX. SOCKET 14 MM 65L	1	FOR EUROPE, AUS, NZL
*617	996181	NON-MAGNETIC HEX. SOCKET 16 MM 65L	1	FOR EUROPE, AUS, NZL
*618	996182	NON-MAGNETIC HEX. SOCKET 17 MM 65L	1	FOR EUROPE, AUS, NZL
*619	996197	HEX. SOCKET (LONG) 21 MM X 166L	1	FOR EUROPE, AUS, NZL