Power Tools Service Manual

CONFIDENTIAL
Jan. 2021

PRODUCT NAME

Cordless Rotary Hammer

Models 18 V DH 18DPA
10.8 V DH 12DD

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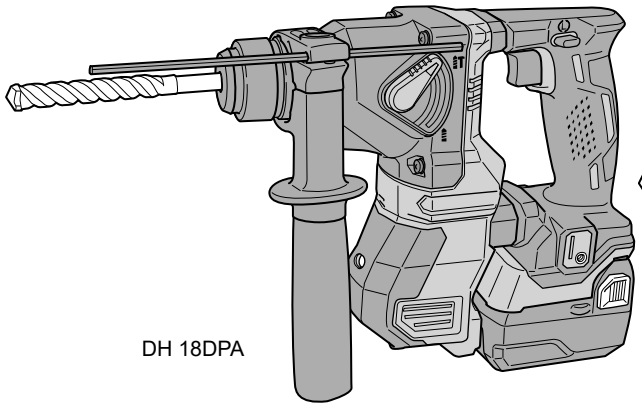
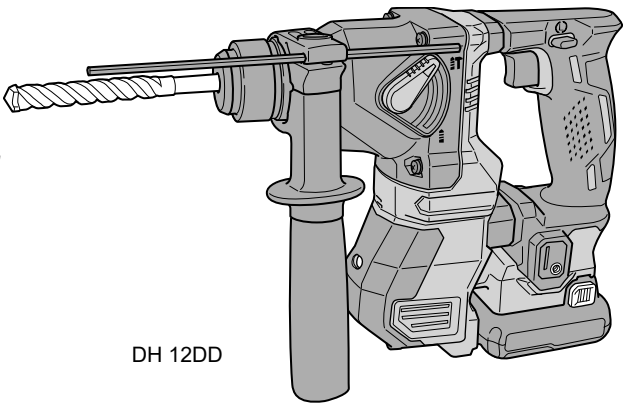
CONTENTS



DH 18DPA



DH 12DD

Koki Holdings Co., Ltd.

Overseas Sales Management Dept.

REPAIR GUIDE

WARNING: Be sure to remove the battery from the main body before starting repair or maintenance work. If the switch is activated inadvertently with the battery still mounted on the main body, the motor may turn 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 list and exploded assembly diagram for the Model DH 18DPA and **{Bold}** numbers to those for the Model DH 12DD.

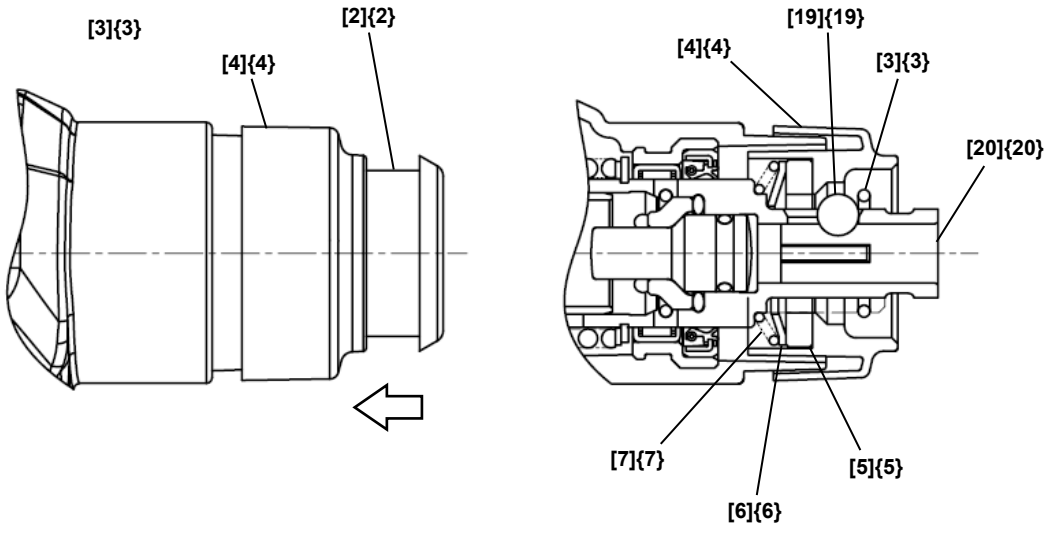
Disassembly

1. Disassembly of the tool retainer ass'y

Fully pull the Grip **[4]{4}** in the arrow direction and remove the Front Cap **[2]{2}**. Remove the Stopper Ring **[3]{3}** with a retaining ring puller while pulling the Grip **[4]{4}** in the arrow direction. Remove the Grip **[4]{4}**, Ball Holder **[5]{5}**, Steel Ball D7.0 **[19]{19}**, Holder Plate **[6]{6}**, and Holder Spring **[7]{7}** from the Cylinder **[20]{20}**.

NOTE: Do not reuse the removed Stopper Ring [3]{3} as it is deformed at disassembly. Be sure to use the new Stopper Ring [3]{3} at reassembly.

Fig. 1 • Disassembly of the tool retainer ass'y



2. Disassembly of the hammering mechanism

(1) Removal of the gear cover

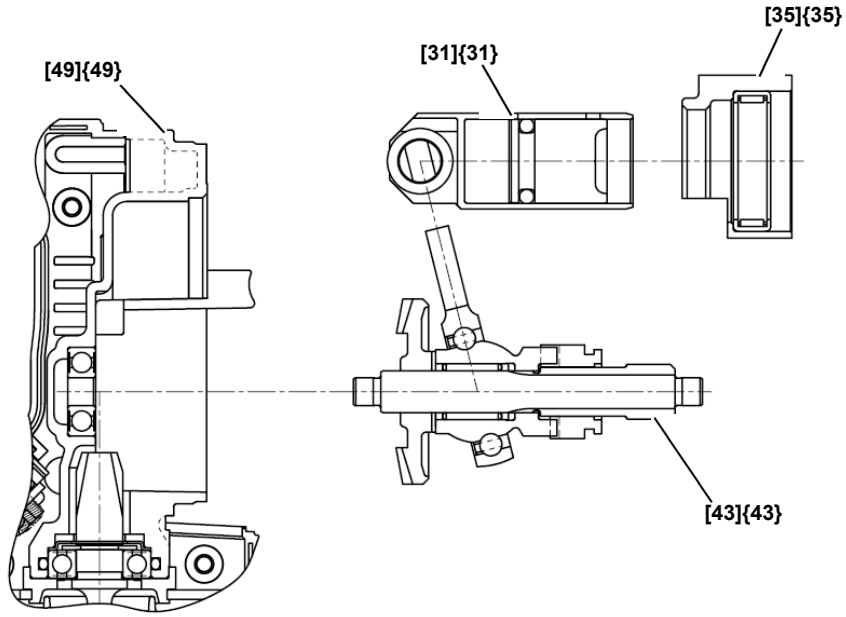
Set the Change Lever **[11]{11}** to the "Rotation + Hammering" (mark) position. Remove the four Tapping Screws (W/Flange) D4 x 30 (Black) **[8]{8}** to remove the Gear Cover **[9]{9}**.

(2) Disassembly of inner cover (B) ass'y

Remove the two Seal Lock Hex. Socket Hd. Bolts M5 x 14 **[34]{34}** from Inner Cover (B) **[35]{35}**. Remove the assembly of the Piston **[31]{31}** and Second Shaft (A) **[43]{43}** from Inner Cover (A) Ass'y **[49]{49}**.

NOTE: The Seal Lock Hex. Socket Hd. Bolt M5 x 14 [34]{34} loses its bonding force if removed. Use the new Seal Lock Hex. Socket Hd. Bolt M5 x 14 [34]{34} at reassembly.

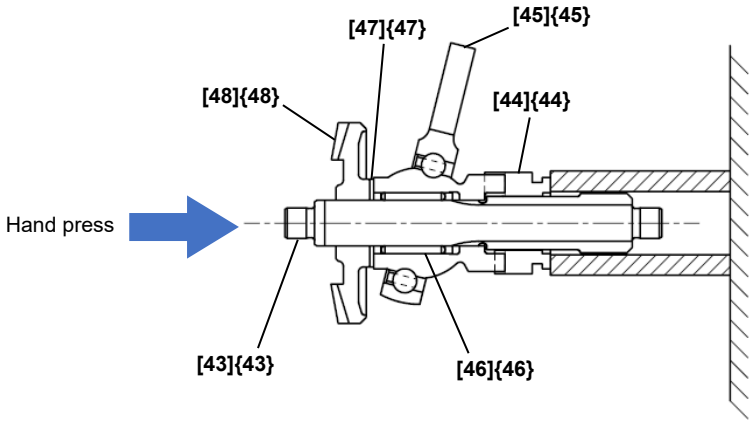
Fig. 2 • Disassembly of inner cover (B) ass'y



(3) Disassembly of second shaft (A) ass'y

Engage the claw of the Clutch **[44]{44}** with the claw of the Reciprocating Bearing **[45]{45}** and place the Clutch **[44]{44}** on a cradle as shown in Fig. 3. Push the rear end of Second Shaft (A) **[43]{43}** with a hand press to push out the Bevel Gear **[48]{48}** from Second Shaft (A) **[43]{43}**. Then, remove Thrust Washer (C) **[47]{47}**, Reciprocating Bearing **[45]{45}**, Needle Cage **[46]{46}**, and Clutch **[44]{44}** from Second Shaft (A) **[43]{43}**.

Fig. 3 • Disassembly of second shaft (A) ass'y



3. Disassembly of the cylinder assembly

(1) Disassembly of the slip clutch ass'y

Remove the Machine Screw M4 x 5 **[14]{14}** that fixes the Change Lever **[11]{11}** and Stopper **[13]{13}** in the Gear Cover **[9]{9}**. Pull out the Change Lever **[11]{11}** and Stopper **[13]{13}** from the Gear Cover **[9]{9}**. Push the tip of the Cylinder **[20]{20}** to remove it from the Gear Cover **[9]{9}**. Use the retaining ring puller to pull out the Retaining Ring for D25 Shaft **[15]{15}** from the Cylinder **[20]{20}**. Then remove the Second Gear **[18]{18}**, Spring (A) **[17]{17}**, and Washer **[16]{16}** from the Cylinder **[20]{20}**.

(2) Removal of the parts from the inside of the cylinder

NOTE: Use the special repair tools specified in the table for removal of the parts from the inside of the Cylinder [20]{20}.

Special repair tool		Code No.
J-407	Stopper ring jig	376747
J-341	Ring puller jig (B)	324203
	Punch (C)	324204

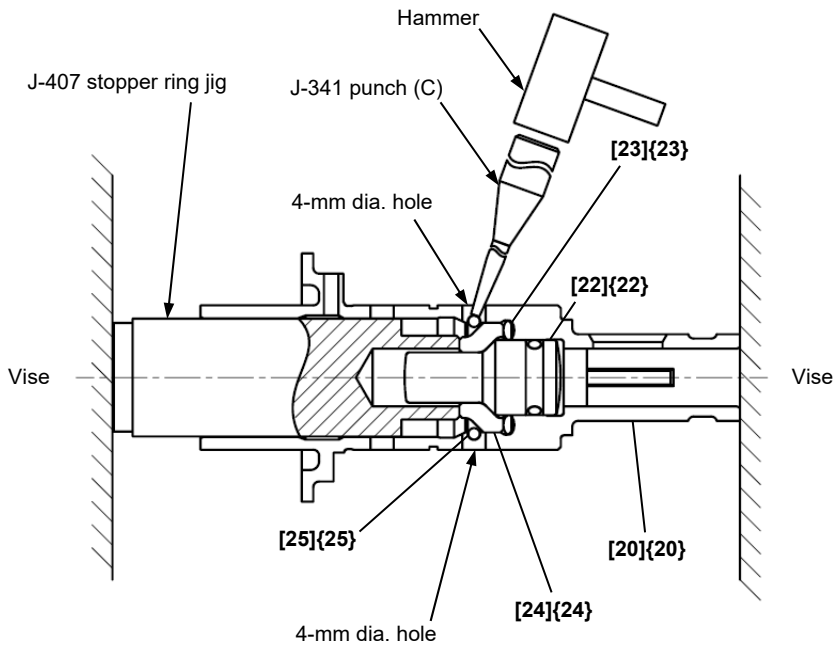
Insert the J-407 stopper ring jig into the Cylinder **[20]{20}** as shown in Fig. 4 until it contacts the end of the Hammer Holder **[24]{24}**.

Clamp the ends of the Cylinder **[20]{20}** and J-407 stopper ring jig with a vise to compress the O-ring **[23]{23}**. Insert the J-341 punch (C) into the two 4-mm dia. hole (2 places) on the Cylinder **[20]{20}** and hammer the punch head to give force to the periphery of the Stopper Ring **[25]{25}** in order to detach the Stopper Ring **[25]{25}** from the bore groove of the Cylinder **[20]{20}**. At this time, fully hammer along the periphery of the Stopper Ring **[25]{25}** until the Stopper Ring **[25]{25}** disappears from the two 4-mm dia. holes. Then unclamp the Cylinder **[20]{20}** from the vise and use J-341 ring puller jig (B) to pull out the Stopper Ring **[25]{25}** from the inner circumference of the Cylinder **[20]{20}**.

NOTE: • Be careful not to let the Stopper Ring [25]{25} pop out. Once the Stopper Ring [25]{25} is detached from the Cylinder [20]{20}, the Hammer Holder [24]{24}, O-ring [23]{23}, and Second Hammer [22]{22} can be removed from the Cylinder [20]{20}.

• Do not reuse the removed Stopper Ring [25]{25} and O-ring (C) [23]{23} as they are deformed at disassembly. Be sure to use the new Stopper Ring [25]{25} and O-ring (C) [23]{23} at reassembly.

Fig. 4 • Removal of the parts from the inside of the cylinder



Reassembly

Reassembly can generally be conducted by reversing the disassembly procedure. However, special attention should be given to the following items.

1. Reassembly of the cylinder ass'y

NOTE: Use the special repair tool specified in the table for mounting the parts to the inside of the Cylinder [20]{20}.

Special repair tool		Code No.
J-407	Stopper ring jig	376747

(1) Insert the new O-ring **[23]{23}** into the Cylinder **[20]{20}** as shown in Fig. 5. Then, insert the assembly of the Hammer Holder **[24]{24}**, O-ring (B) **[21]{21}**, and Second Hammer **[22]{22}** into the Cylinder **[20]{20}** as shown in Fig. 5.

NOTE: • Insert the Second Hammer [22]{22} into the Cylinder [20]{20} without tilting so that O-ring (B) [21]{21} is not damaged.

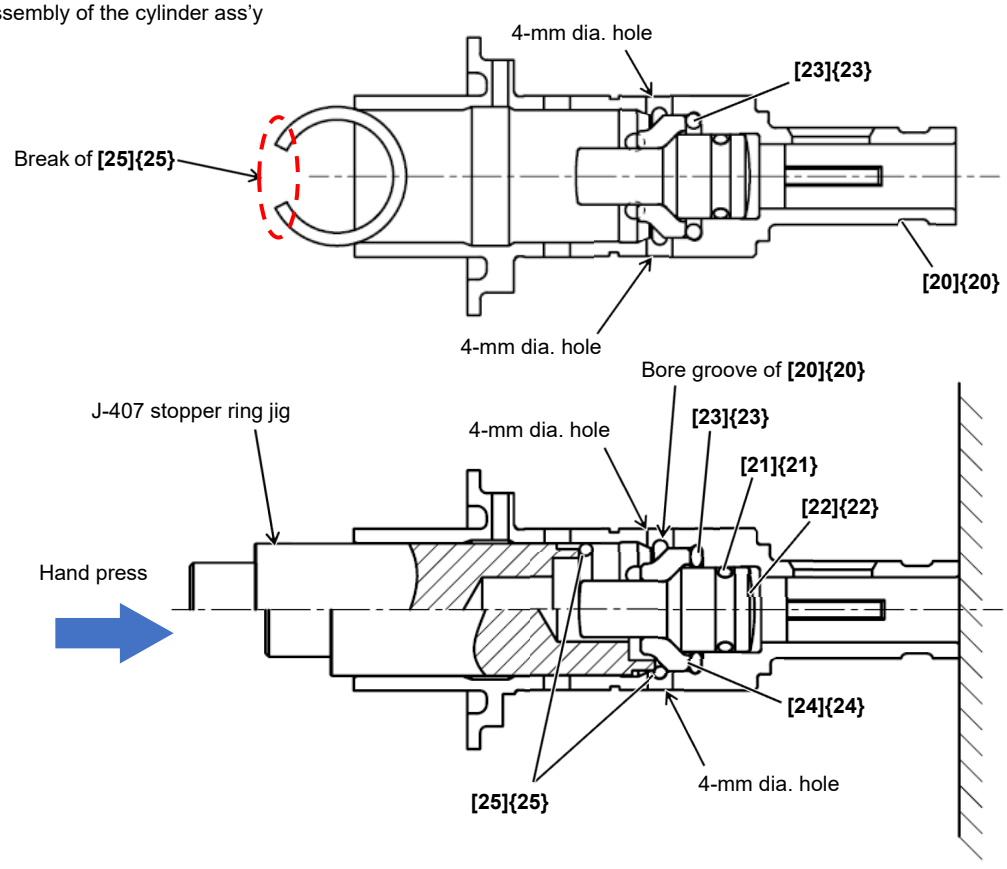
(2) Push the new Stopper Ring **[25]{25}** into the Cylinder **[20]{20}** and then insert the J-407 stopper ring jig into the Cylinder **[20]{20}** as shown in Fig. 5.

NOTE: • The Stopper Ring [25]{25} has a white mark to differentiate from the Stopper Ring [3]{3}.
• Push the new Stopper Ring [25]{25} into the Cylinder [20]{20} with the break of the Stopper Ring [25]{25} facing away from the 4-mm dia. hole on the Cylinder[20]{20} as shown in Fig. 5. If the ring break is faced toward the 4-mm dia. hole, it may be hard to disassemble the cylinder ass'y.

(3) Use a hand press to press against the upper end of the J-407 stopper ring jig until the Stopper Ring **[25]{25}** is fitted into the bore groove of the Cylinder **[20]{20}**.

NOTE: Check that the Stopper Ring [25]{25} is fitted securely into the bore groove of the Cylinder [20]{20} through the two 4-mm dia. holes on the periphery of the Cylinder [20]{20}.

Fig. 5 • Reassembly of the cylinder ass'y



2. Reassembly of the gear cover and cylinder ass'y

(1) Mount the Second Gear **[18]{18}**, Spring (A) **[17]{17}**, and Washer **[16]{16}** on the Cylinder **[20]{20}** ass'y and fix them with the Retaining Ring for D25 Shaft **[15]{15}**. Mount the Damper **[26]{26}**, Thrust Washer (A) **[27]{27}**, and Thrust Washer (B) **[28]{28}** from the rear end of the Cylinder **[20]{20}**. Then, push this ass'y into the Gear Cover **[9]{9}** as far as it will go.

NOTE: Be sure to mount the parts in the correct order as shown in Fig. 6.

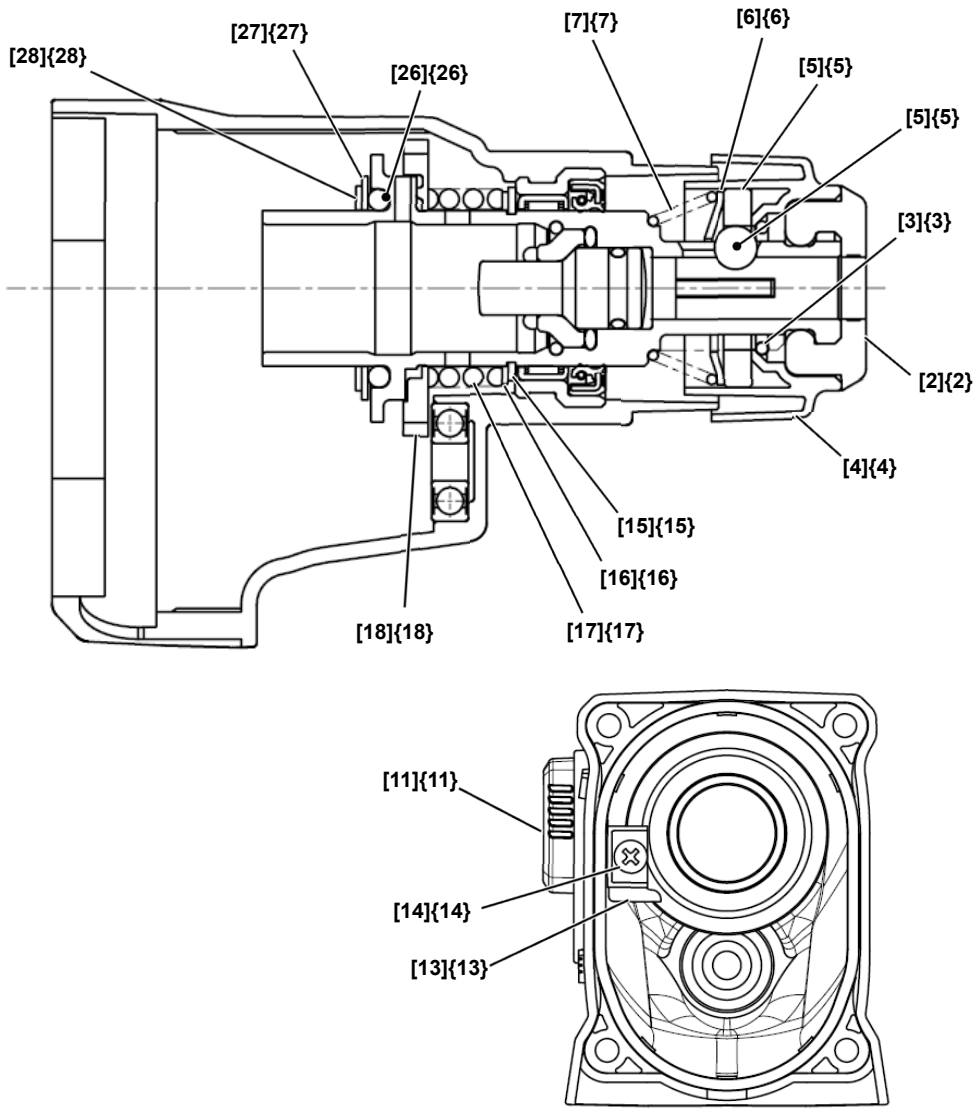
(2) Mount the O-ring **[12]{12}** to the Change Lever **[11]{11}** and put it in the hole on the Gear Cover **[9]{9}**. Insert the Stopper **[13]{13}** into the groove inside the Change Lever **[11]{11}**. Then, push the Change Lever **[11]{11}** in the hole of the Gear Cover **[9]{9}** as far as it will go.

NOTE: Push the Change Lever [11]{11} in the Gear Cover [9]{9} without tilting so that the O-ring [12]{12} is not twisted.

(3) Set the Change Lever **[11]{11}** to the "Rotation + Hammering" (mark) position. Tighten the Machine Screw M4 x 5 **[14]{14}** to fix the Change Lever **[11]{11}** to the Gear Cover **[9]{9}**.

(4) Mount the Holder Spring **[7]{7}**, Holder Plate **[6]{6}**, and Steel Ball D7.0 **[19]{19}** to the tip of the Cylinder **[20]{20}**. Mount the Ball Holder **[5]{5}** to the Grip **[4]{4}** and mount it to the Cylinder **[20]{20}**. Then, mount the Stopper Ring **[3]{3}** and Front Cap **[2]{2}** to the Cylinder **[20]{20}**.

Fig. 6 • Reassembly of the gear cover and cylinder ass'y



3. Reassembly of the second shaft ass'y

NOTE: Use the special repair tool specified in the table for reassembly of the second shaft ass'y.

Special repair tool		Code No.
J-408	Bevel gear jig	376748

(1) Mount the Clutch **[44]{44}**, Reciprocating Bearing **[45]{45}**, Needle Cage **[46]{46}**, and Thrust Washer (C) **[47]{47}** on Second Shaft (A) **[43]{43}**. Then, mount the Bevel Gear **[48]{48}** and the J-408 bevel gear jig on Second Shaft (A) **[43]{43}** as shown in Fig. 7. Push Second Shaft (A) **[43]{43}** with a hand press until the end of Second Shaft (A) **[43]{43}** contacts the end of the J-408 bevel gear jig. Then, remove the J-408 bevel gear jig and mount it in reverse direction as shown in Fig. 8 and push Second Shaft (A) **[43]{43}** with a hand press until the end of Second Shaft (A) **[43]{43}** contacts the end of the J-408 bevel gear jig.

NOTE: After reassembly of the second shaft ass'y, check the following.

- **Check that the Reciprocating Bearing [45]{45} rotates around Second Shaft (A) [43]{43} smoothly.**
- **Check that the Reciprocating Bearing [45]{45} has an appropriate clearance by moving it back and forth.**

Fig. 7 • Reassembly of the second shaft ass'y (1)

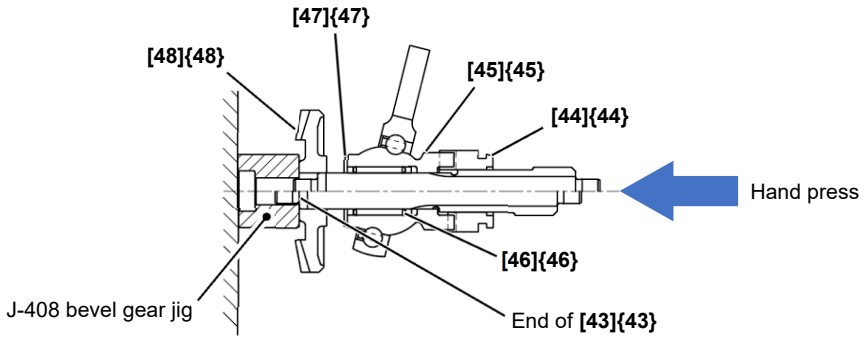
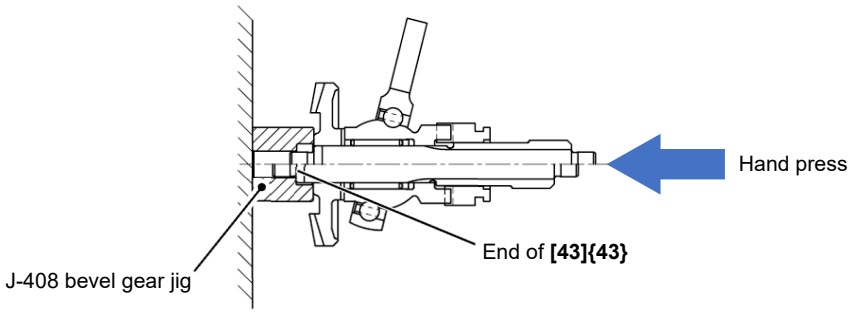


Fig. 8 • Reassembly of the second shaft ass'y (2)



4. Reassembly of the hammering mechanism

NOTE: Degrease the M5 screw hole on Inner Cover (A) Ass'y [49]{49} using the parts cleaner before reassembly of the hammering mechanism. Otherwise, the screw may be loosened and it may cause troubles.

(1) Mount O-ring (A) **[30]{30}** to the Striker **[29]{29}** and push it in the Piston **[31]{31}** as shown in Fig. 9. Mount the two Washers **[42]{42}** to the Piston **[31]{31}** and insert the Piston Pin **[41]{41}** into the Piston **[31]{31}**.

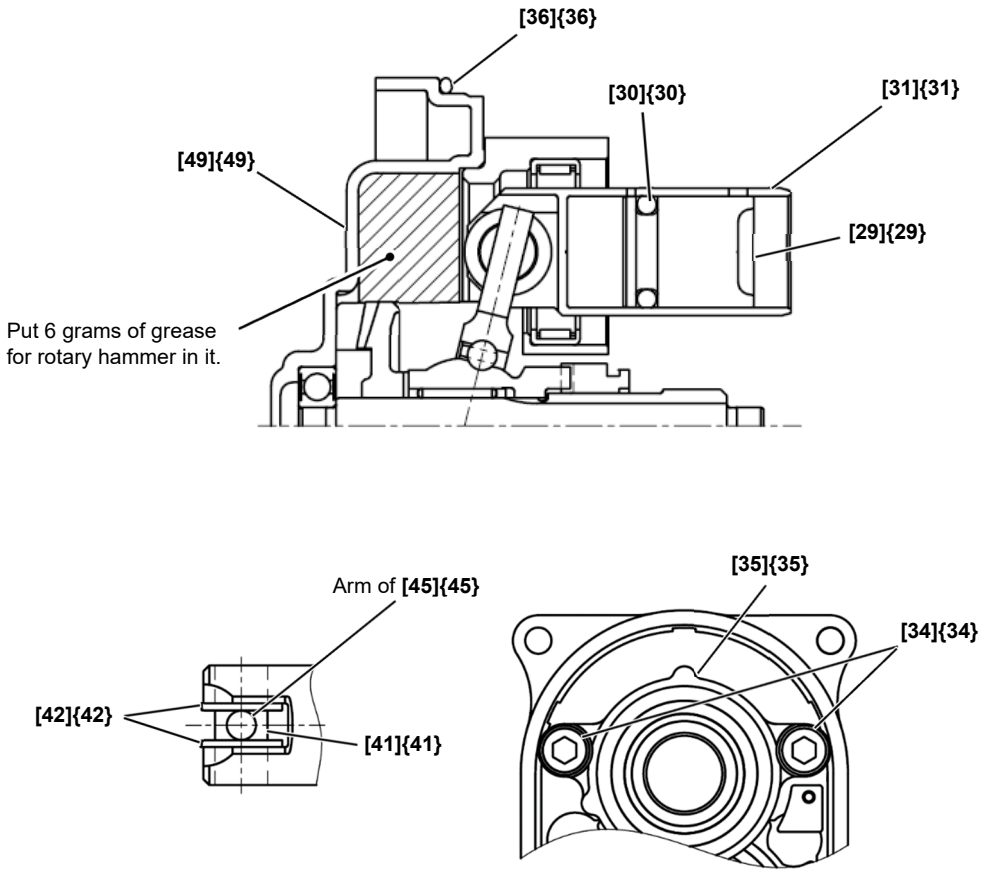
(2) Mount O-ring (A) **[36]{36}** to Inner Cover (A) Ass'y **[49]{49}**. Put 6 grams of grease for rotary hammer in the cylinder of Inner Cover (A) Ass'y **[49]{49}**.

(3) Insert the arm of the Reciprocating Bearing **[45]{45}** of the second shaft ass'y into the Piston **[31]{31}** so that the arm of the Reciprocating Bearing **[45]{45}** is sandwiched between the two Washers **[42]{42}** as shown in Fig. 9. Insert the rear end of Second Shaft (A) **[43]{43}** into Inner Cover (A) Ass'y **[49]{49}**.

(4) Allow the inner ring of the Reciprocating Bearing **[45]{45}** to make one rotation and check that the Piston **[31]{31}** makes one reciprocation. Pull the Piston **[31]{31}** to check that it does not come off.

(5) Fit Inner Cover (B) **[35]{35}** in Inner Cover (A) Ass'y **[49]{49}** and tighten the two Seal Lock Hex. Socket Hd. Bolts M5 x 14 **[34]{34}**.

Fig. 9 • Reassembly of the hammering mechanism



5. Reassembly of the gear cover ass'y

(1) After mounting the hammering mechanism to Inner Cover (A) Ass'y **[49]{49}**, insert Spring (B) **[33]{33}** into the tip of Inner Cover (B) **[35]{35}**. Mount the Thrust Plate **[32]{32}** to the Piston **[31]{31}** fitting its bottom in the outside groove on the Clutch **[44]{44}**. At this time, mount the Thrust Plate **[32]{32}** so that its notch is aligned with the Change Lever **[11]{11}** receiving portion of Inner Cover (A) Ass'y **[49]{49}**.

(2) Check that Thrust Washer (A) **[27]{27}** and Thrust Washer (B) **[28]{28}** are mounted to the rear of the Cylinder **[20]{20}** in the Gear Cover **[9]{9}**. Put 15 grams of grease for rotary hammer in the Gear Cover **[9]{9}**.

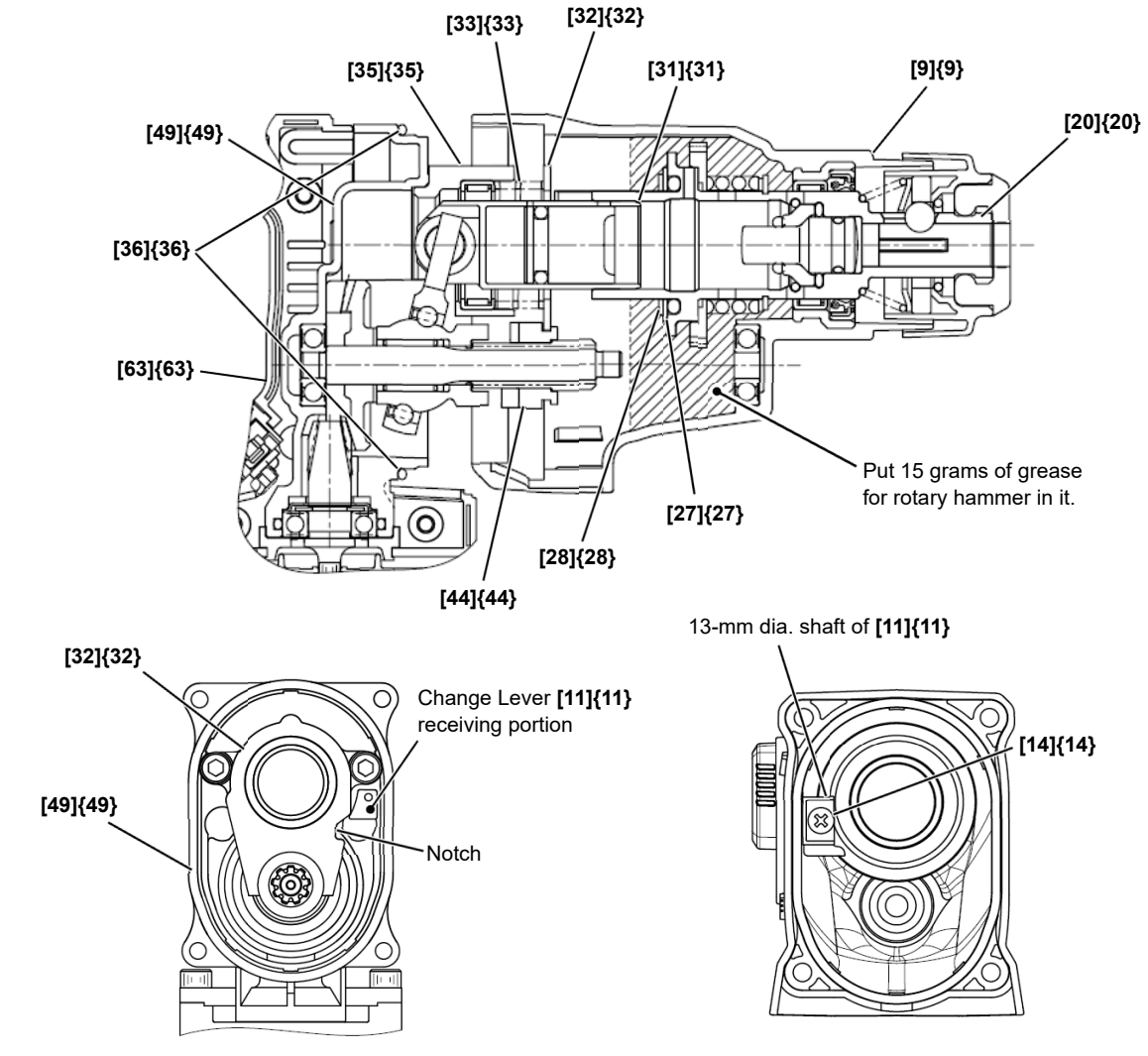
NOTE: When putting grease for rotary hammer in the Gear Cover [9]{9}, do not put grease in the Cylinder [20]{20}. Do not apply grease to the 13-mm dia. shaft of the Change Lever [11]{11} and Machine Screw M4 x 5 [14]{14}.

(3) Set the Change Lever **[11]{11}** on the Gear Cover **[9]{9}** to the "Rotation + Hammering" (mark) position. Press the Gear Cover **[9]{9}** against Housing (A).(B) Set **[63]{63}** so that they are properly mounted. At this time, check that the Piston **[31]{31}** is inserted into the Cylinder **[20]{20}**.

NOTE: • Be careful not to get O-ring (A) [36]{36} caught between the Gear Cover [9]{9} and Housing (A).(B) Set [63]{63}.

• If the Gear Cover [9]{9} cannot be mounted to Housing (A).(B) Set [63]{63} due to improper engagement between the Second Gear [18]{18} and Second Shaft (A) [43]{43}, insert the SDS-plus shank into the Cylinder [20]{20} and turn the Cylinder [20]{20} to properly engage the Second Gear [18]{18} with Second Shaft (A) [43]{43}.

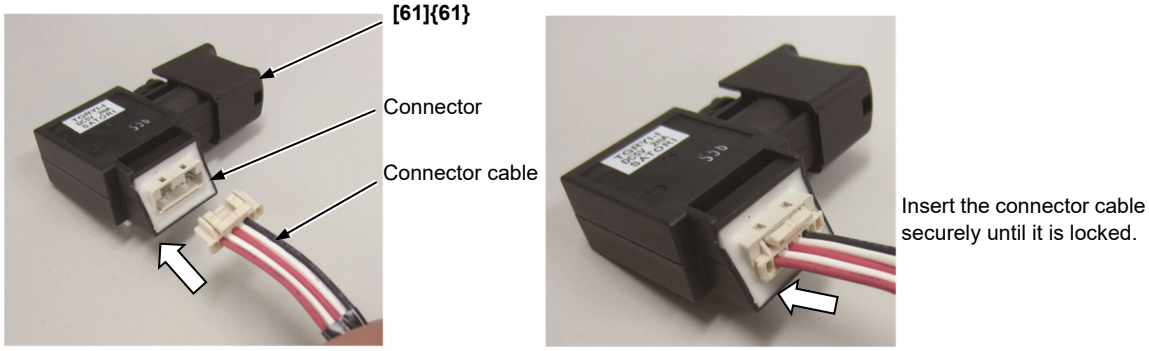
Fig. 10 • Reassembly of the gear cover ass'y



6. Wiring of the wiring ass'y

(1) Insert the connector cable into the connector of the DC-Speed Control Switch **[61]{61}** until it is securely locked.

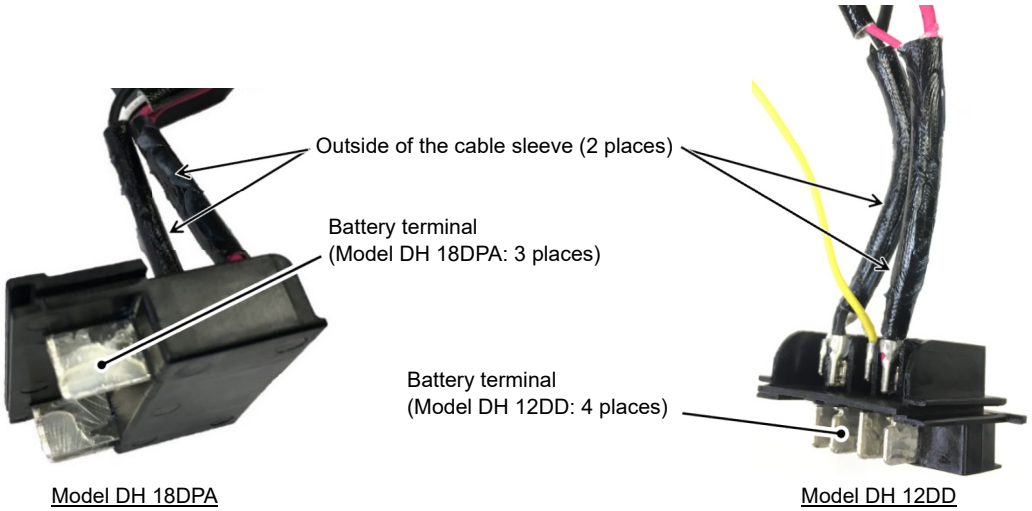
Fig. 11



(2) Apply grease for cordless rotary hammer to the Wiring **[65]{64}** as specified in Fig. 12.

CAUTION: The grease for cordless rotary hammer is a special grease having conducting properties. Do not apply any grease other than the grease for rotary hammer to the battery terminals. Otherwise, it may cause a malfunction or accident.

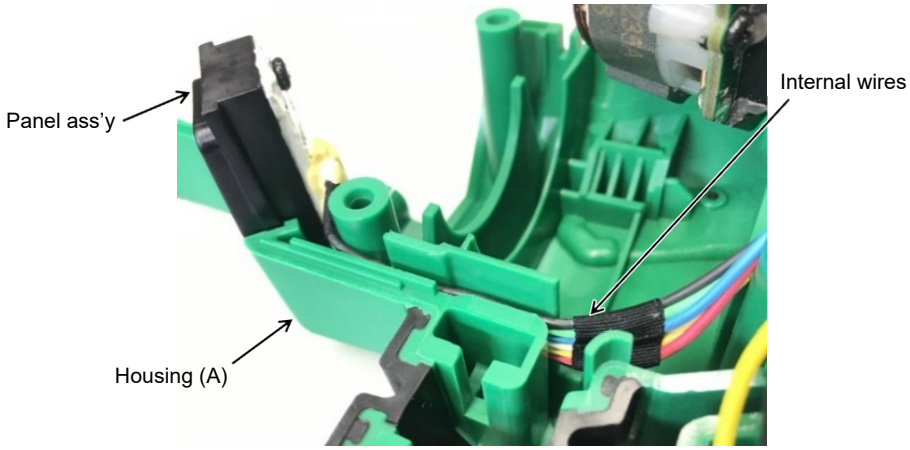
Fig. 12



(3) Put the panel ass'y in housing (A) so that the internal wires between the panel ass'y and the main PCB ass'y are positioned as shown in Fig. 13.

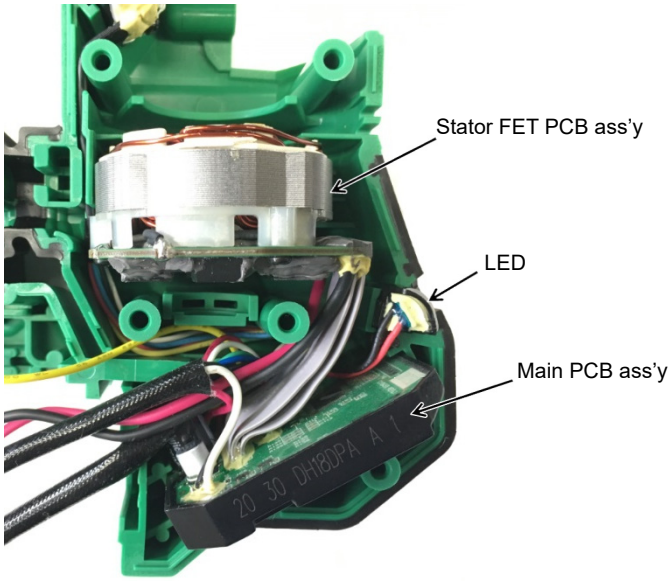
NOTE: Align the internal wires between the panel ass'y and the main PCB ass'y horizontally to prevent disconnection.

Fig. 13



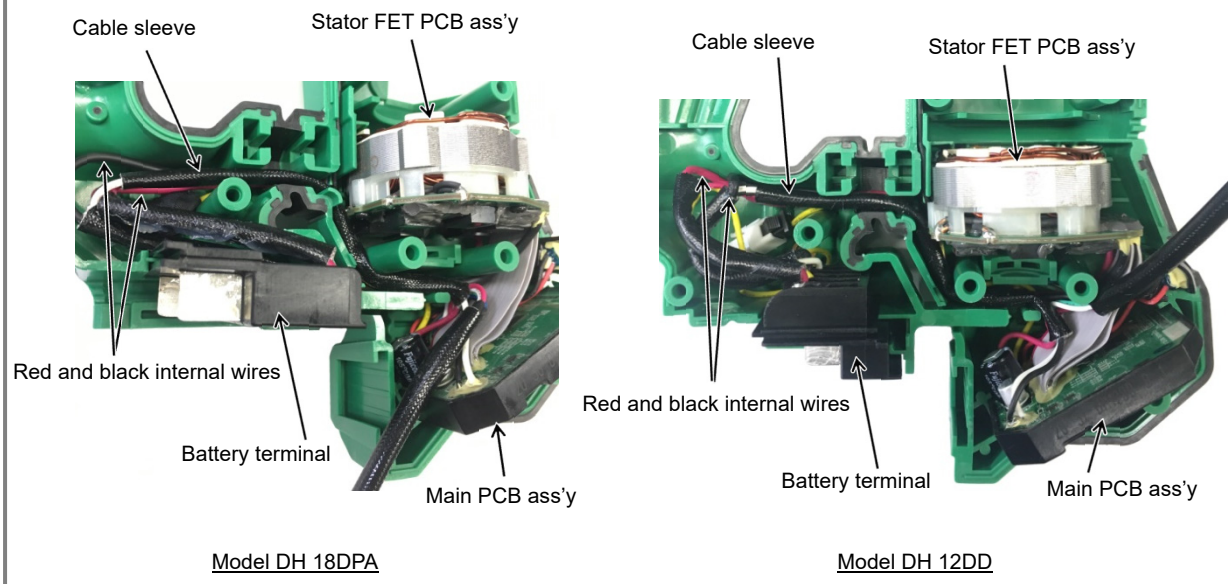
(4) Put the LED, main PCB ass'y, and stator FET PCB ass'y in housing (A) in this order.

Fig. 14



(5) Mount the battery terminal to housing (A). Put the red and black internal wires between the stator FET PCB ass'y and battery terminal in housing (A). Then, put the cable sleeve sheathed internal wire between the main PCB ass'y and battery terminal in housing (A).

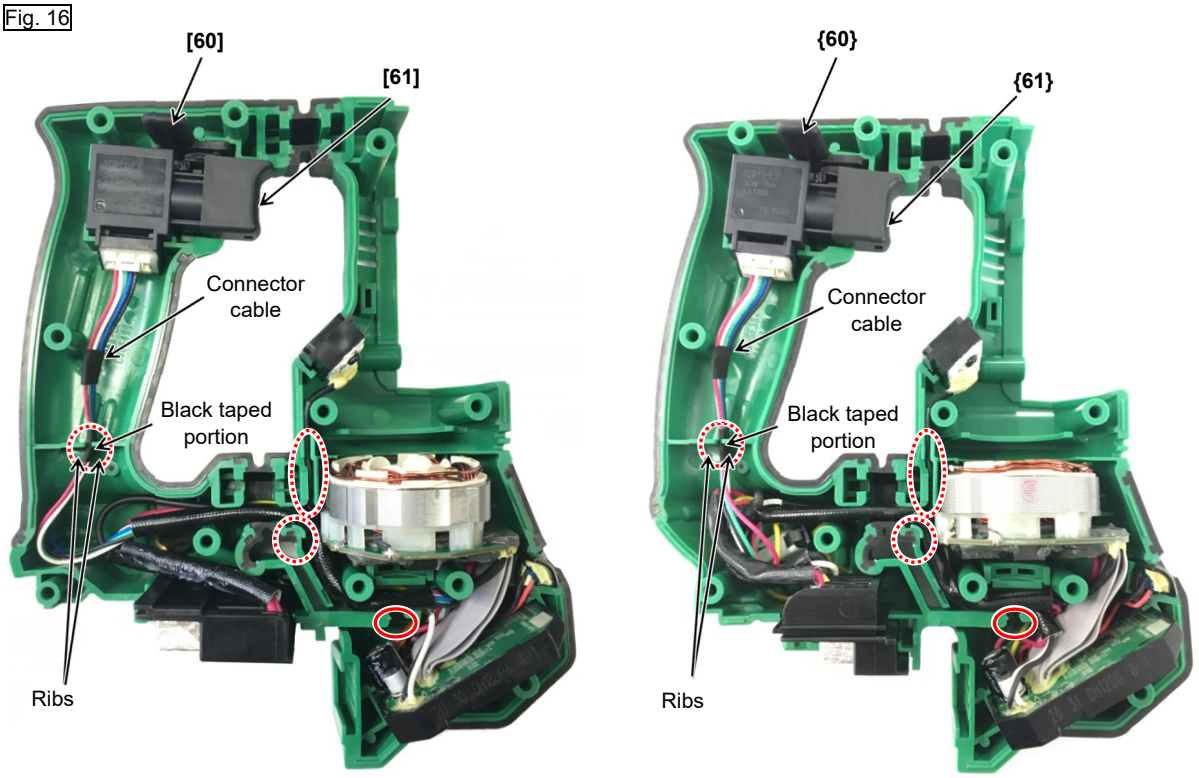
Fig. 15



(6) Mount the Pushing Button (B) **[60]{60}**, DC-Speed Control Switch **[61]{61}**, and connector cable to housing (A).

NOTE: Align the cables of the connector cable horizontally and fit the black taped portion between the ribs to prevent disconnection.

Fig. 16



Model DH 18DPA

Model DH 12DD

: Be careful not to get the internal wires and cables caught between housings (A) and (B) (3 places).

: Do not put any internal wire or cable in this space (1 place).

NOTE: Put the internal wires in housing (A) in the following order from 1 to 4.

1. Internal wires between the panel ass'y and main PCB ass'y

2. Red and black internal wires between the stator FET PCB ass'y and battery terminal

3. Cable sleeve sheathed internal wire between the main PCB ass'y and battery terminal

4. Internal wire between the DC-Speed Control Switch [61]{61} and stator FET PCB ass'y

7. Operation check

If an improperly assembled product is powered on and its motor runs, the components may be damaged. To prevent this, be sure to check the operation of the assembled product by following the procedure below.

(1) After reassembly, check that the Change Lever **[11]{11}** is switchable between the "Rotation + Hammering" (mark) position and "Rotation only" (mark) position.

(2) Set the Change Lever **[11]{11}** to the "Rotation + Hammering" (mark) position. Insert the SDS-plus shank into the Cylinder **[20]{20}**. Let the Cylinder **[20]{20}** make one rotation and check that the fan rotates.

(3) Set the Change Lever **[11]{11}** to the "Rotation only" (mark) position. Insert the SDS-plus shank into the Cylinder **[20]{20}**. Let the Cylinder **[20]{20}** make one rotation and check that the fan rotates.

(4) Check that there is a proper clearance between the battery terminal and Housing (A).(B) Set **[63]{63}**.

Checking after reassembly

After reassembly, install the battery in the tool body and check the following.

(1) Check that the LED light turns on while pulling the switch and automatically turns off in about ten seconds when you release your finger from the switch.

(2) Insert the SDS-plus bit into the Cylinder **[20]{20}** and pull the switch to check that the SDS-plus bit rotates in the direction as indicated on Pushing Button (B) **[60]{60}**. When you press the "R" side of Pushing Button (B) **[60]{60}**, the SDS-plus bit rotates clockwise as viewed from the rear of the tool body.

(3) Insert the SDS-plus bit into the Cylinder **[20]{20}** and hold the tip of the SDS-plus bit with a vise. Holding the handle and the side handle securely, pull the switch to check that the slip clutch operates.

(4) Check that the Change Lever **[11]{11}** turns smoothly and the operating mode properly switches between "Rotation only" (mark) and "Rotation + Hammering" (mark) according to the operation of the Change Lever **[11]{11}**.

Tightening torque

- Tapping Screw (W/Flange) D4 x 30 (Black) **[8]{8}** ····· 2.0±0.5 N•m (20±5 kgf•cm)
- Machine Screw M4 x 5 **[14]{14}** ····· 0.8±0.2 N•m (8±2 kgf•cm)
- Seal Lock Hex. Socket Hd. Bolt M5 x 14 **[34]{34}**····· 5.9 to 7.3 N•m (60 to 75 kgf•cm)
- Tapping Screw (W/Flange) D4 x 20 (Black) **[40]{40}** ····· 2.0±0.5 N•m (20±5 kgf•cm)

No-load current

No-load current should be as follows using a fully charged battery after no-load operation for five minutes in "Rotation + Hammering" mode.

- DH 18DPA: 5.6±1.0 A
- DH 12DD: 11.1±2.0 A

Lubrication points and types of lubricant

Put grease for rotary hammer (Code No. 335782 (60 g) or 335781 (500 g)) in the following portions.

- Ball portion of the Reciprocating Bearing **[45]{45}** (Fig. 21) ····· 2 g
- Cylinder of Inner Cover (A) Ass'y **[49]{49}** (Fig. 26) ····· 6 g
- Gear Cover **[9]{9}** (Fig. 27) ····· 15 g

NOTE: • Be careful not to leak grease into the Cylinder [20]{20}.

• Put grease in the Gear Cover [9]{9} so that the tooth plane of the Second Gear [18]{18} is covered with grease.

Apply grease for rotary hammer to the following portions.

- Periphery of the Second Hammer **[22]{22}** (Fig. 18), O-ring (B) **[21]{21}**, O-ring **[23]{23}**, and Hammer Holder **[24]{24}**
- Clutch claws of the Second Gear **[18]{18}** and Cylinder **[20]{20}** (Fig. 19)
- Tooth plane of the Second Gear **[18]{18}** ····· 1.5 g
- Inner circumference of the Cylinder **[20]{20}** (sliding portion of the Piston **[31]{31}**) (Fig. 20)
- Oil seal lip in the Gear Cover **[9]{9}** and the inner circumference of the 13 mm dia. hole of the Gear Cover **[9]{9}**
- Damper **[26]{26}**, Thrust Washer (A) **[27]{27}**, and Thrust Washer (B) **[28]{28}**
- Steel Ball D7.0 **[19]{19}**
- Bore surface and arm of the Reciprocating Bearing **[45]{45}** (Fig. 21), inner and outer surfaces of the Needle Cage **[46]{46}**, Thrust Washer (C) **[47]{47}**
- Reciprocating Bearing **[45]{45}** rotating shaft and spline of Second Shaft (A) **[43]{43}** (Fig. 22)
- Tooth plane of the Bevel Gear **[48]{48}** (Fig. 23) ····· 1.5 g
- Tooth plane of the rotor ass'y pinion of Inner Cover (A) Ass'y **[49]{49}** (Fig. 26)
- Inner circumference of the needle bearing of Inner Cover (B) **[35]{35}**
- Outer surfaces of the Piston **[31]{31}**, inner and outer surfaces of the Piston Pin **[41]{41}**, and Washer **[42]{42}** (Fig. 24)
- Outer surface of the Striker **[29]{29}** and O-ring (A) **[30]{30}** for the Striker **[29]{29}** (Fig. 25)

Apply grease SEP-3A (Code No. 930035 (100 g) or 930038 (2.5 kg)) to the following portion.

- O-ring (1AP-10) **[12]{12}** for the Change Lever **[11]{11}**

Apply grease for cordless rotary hammer (Code No. 376690 (50 g)) to the following portion.

- Terminal area of the battery terminal and the specified area of the cable sleeve surface (Fig. 12) ···· 0.3 g

Fig. 17 • Grease for rotary hammer

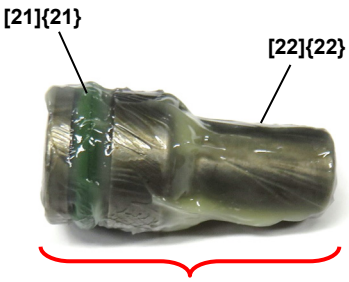
500 g　　60 g

Net weight	Code No.
500 g	335781
60 g	335782

CAUTION: The viscosity and consistency of this grease are optimized for our rotary hammers in order to prolong the service life. Therefore, applying other grease to the Models DH 18DPA and DH 12DD may significantly shorten the service life.

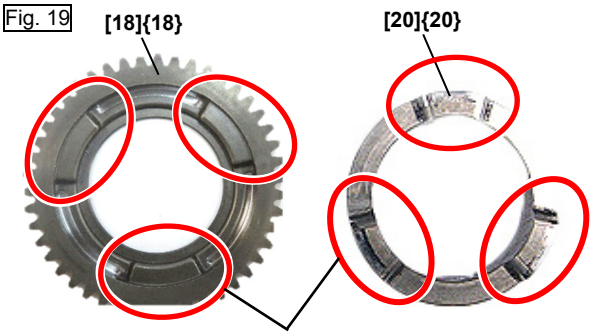
* Apply grease for rotary hammer unless otherwise specified.

Fig. 18



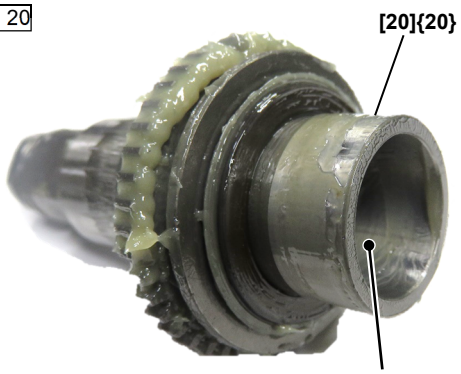
Apply to the entire periphery.

Fig. 19



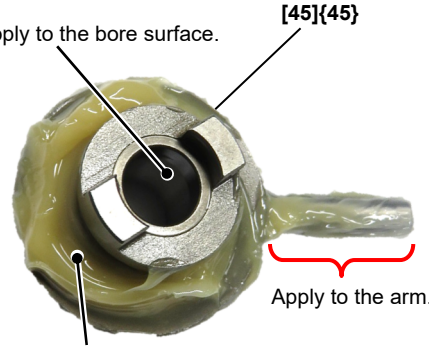
Apply to the claws.

Fig. 20



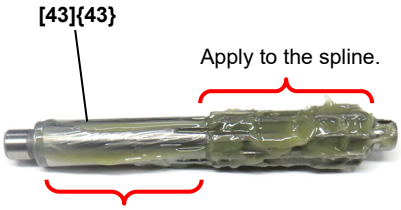
Apply to the bore surface
(sliding portion of the piston).

Fig. 21



Put 2 grams of grease in the ball portion.

Fig. 22



Apply to the rotating shaft of the
Reciprocating Bearing **[45]{45}**.

Fig. 23

Apply 1.5 grams of grease to the tooth plane of the Bevel Gear **[48]{48}**.

Fig. 24

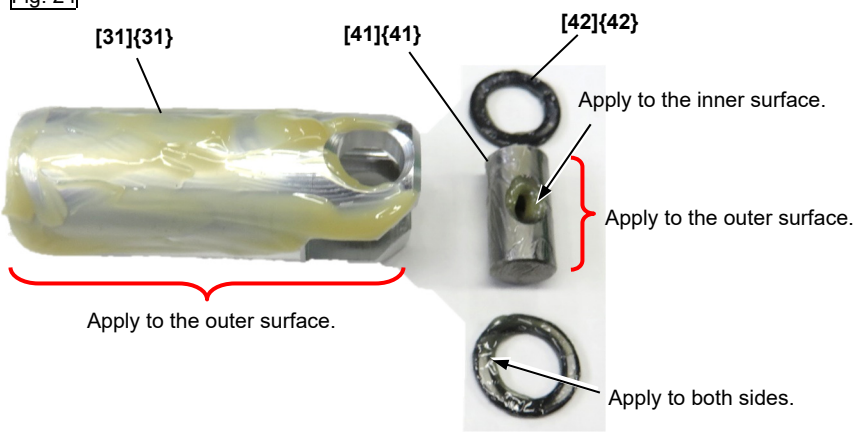


Fig. 25

Fig. 26

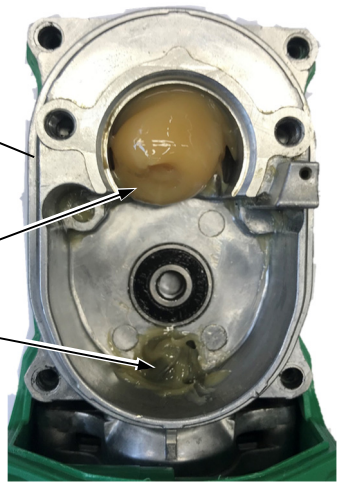

[49]{49}
Put 6 grams of grease in the rear of the piston.
Apply grease to the tooth plane of the rotor ass'y pinion.

Fig. 27


Put 15 grams of grease in the Gear Cover **[9]{9}**.

Wiring diagram

Fig. 28 • Wiring diagram of the Model DH 18DPA

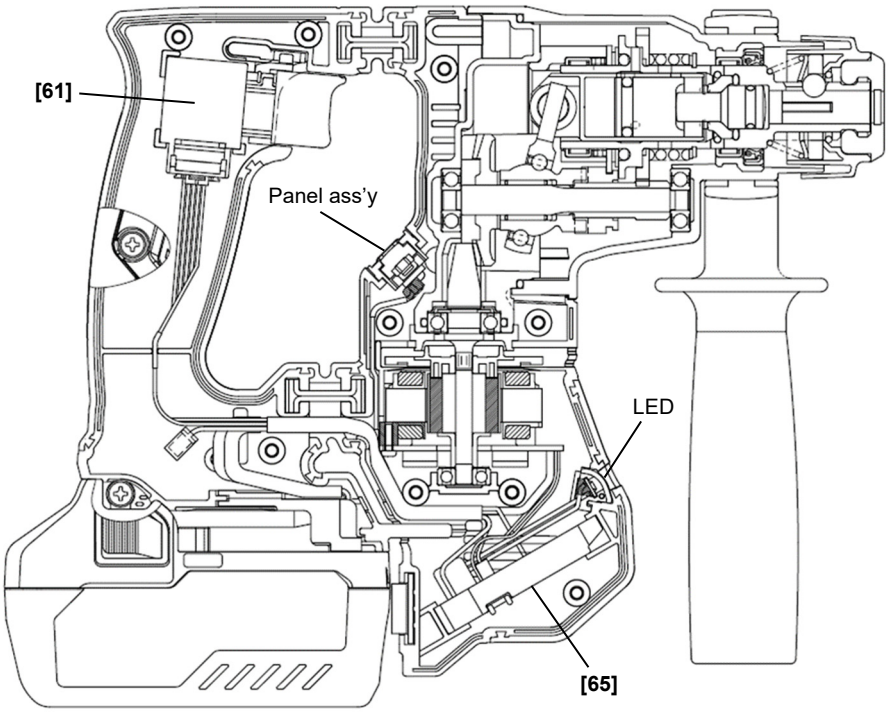


Fig. 29 • Wiring diagram of the Model DH 12DD

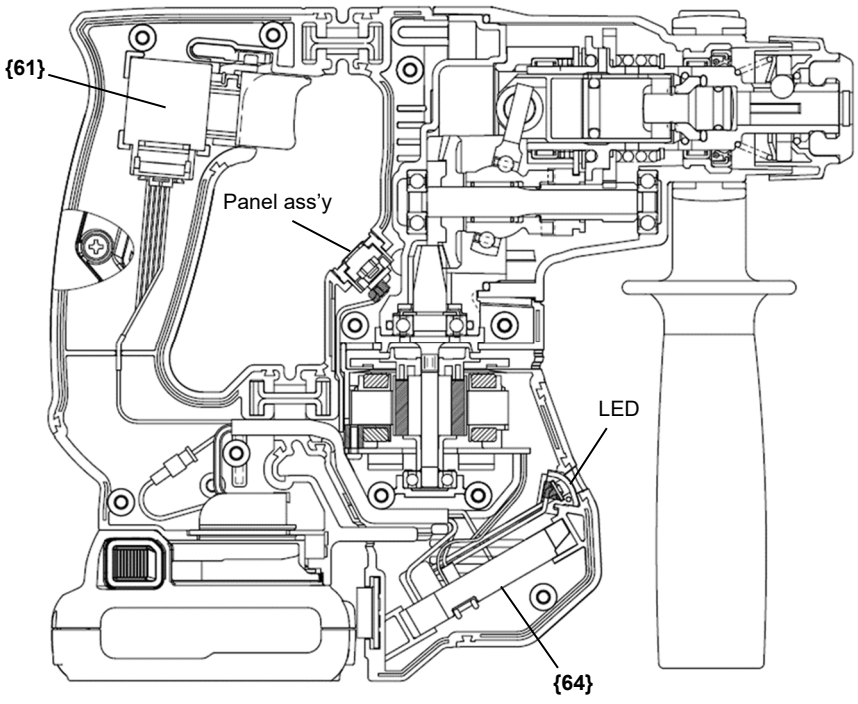
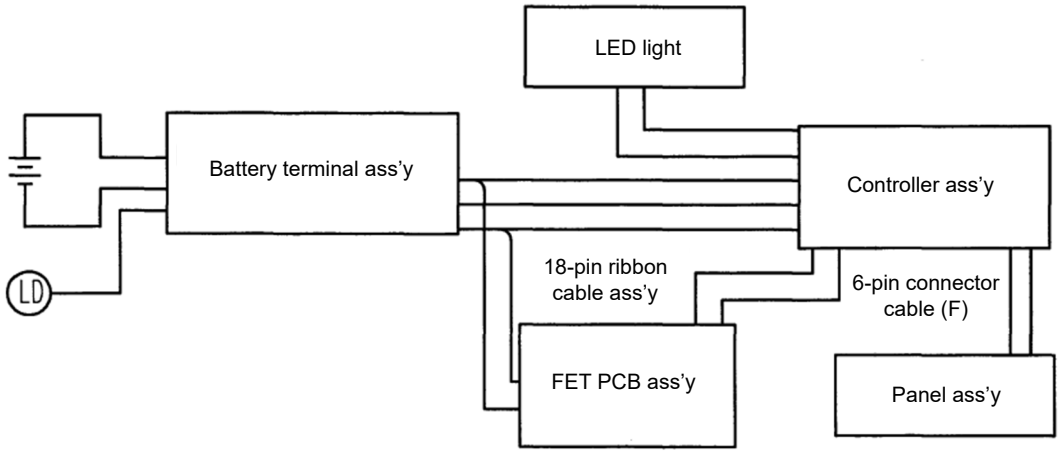
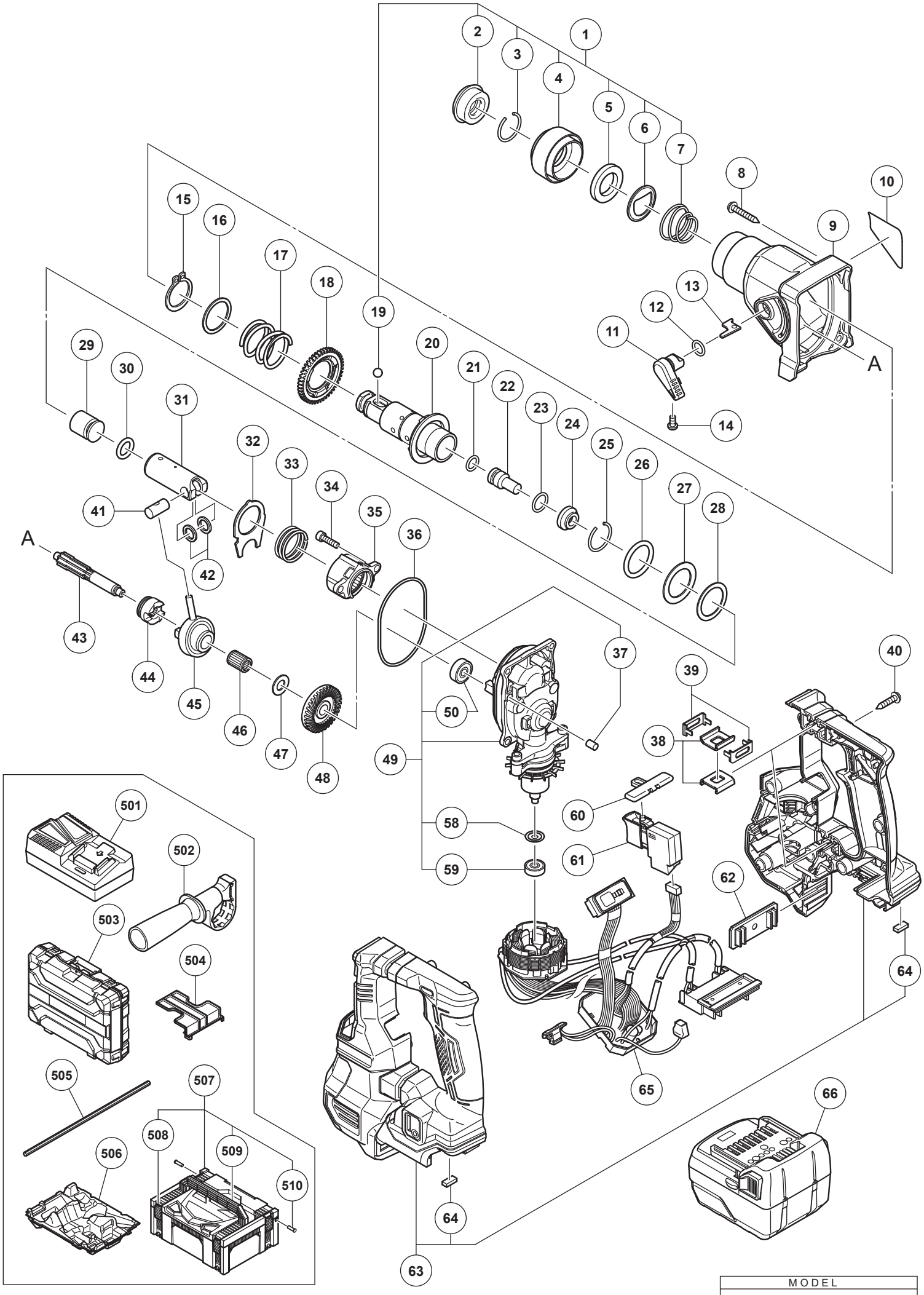


Fig. 30 • Connecting diagram



2. Precautions on disassembly and reassembly of the charger

Please refer to the service manuals for precautions on disassembly and reassembly of the charger Models UC 18YFSL and UC 12SL.



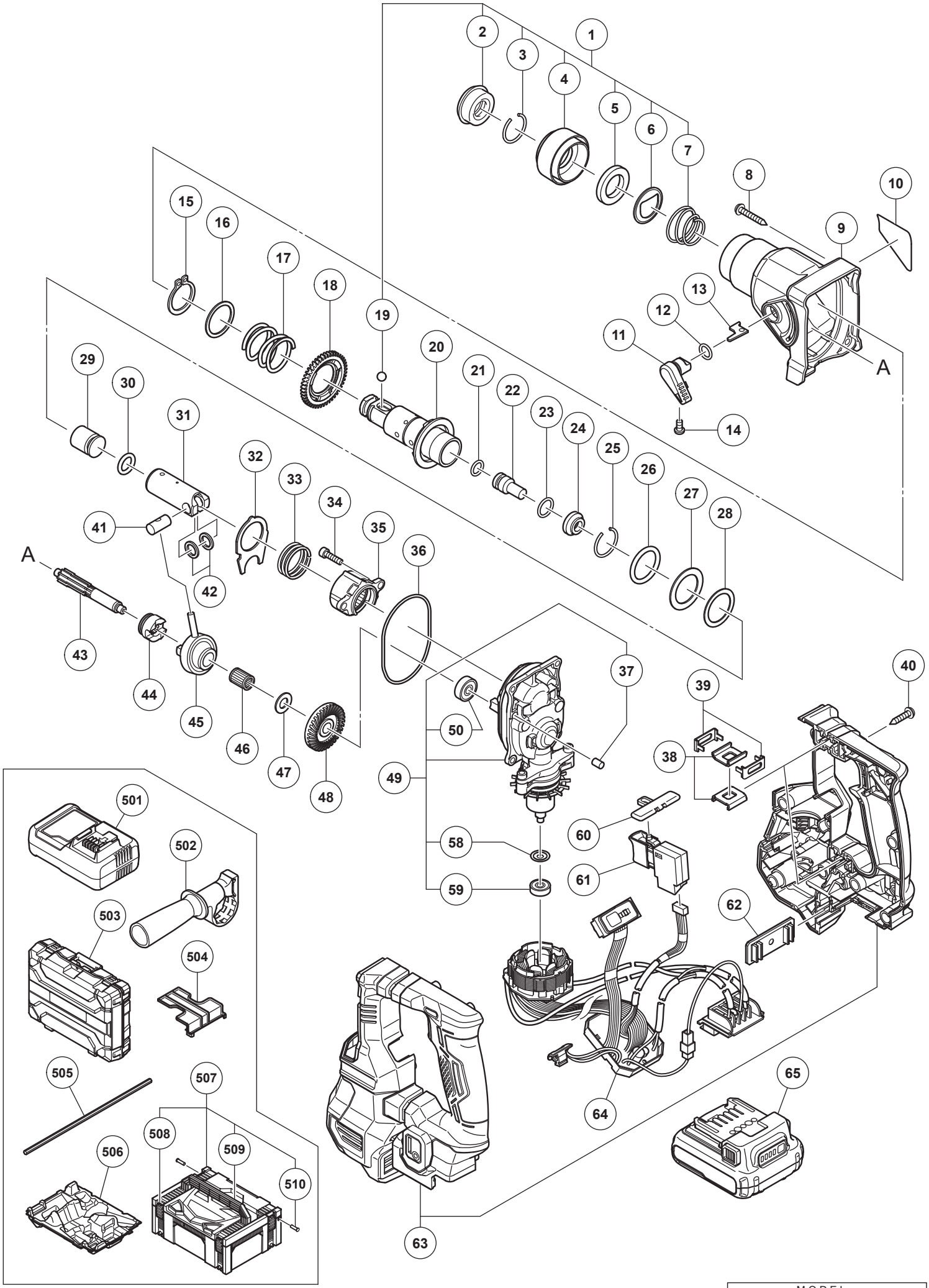
MODEL

DH18DPA

Rev.1

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	376603	GRIP SET	1	INCLUD. 2-7, 19
2	306345	FRONT CAP	1	
3	306340	STOPPER RING	1	
4	376338	GRIP	1	
5	324528	BALL HOLDER	1	
6	374435	HOLDER PLATE	1	
7	322812	HOLDER SPRING	1	
8	305490	TAPPING SCREW (W/FLANGE) D4 X 30 (BLACK)	4	
9	376342	GEAR COVER	1	
10		NAME PLATE	1	
11	376334	CHANGE LEVER	1	
12	872654	O-RING (1AP-10)	1	
13	327875	STOPPER	1	
14	949213	MACHINE SCREW M4 X 5 (10 PCS.)	1	
15	965469	RETAINING RING FOR D25 SHAFT	1	
16	944274	WASHER	1	
17	376743	SPRING (A)	1	
18	376676	SECOND GEAR	1	
19	335300	STEEL BALL D7.0 (10 PCS.)	1	
20	376335	CYLINDER	1	
21	301672	O-RING (B)	1	
22	376336	SECOND HAMMER	1	
23	311814	O-RING (P-15)	1	
24	376337	HAMMER HOLDER	1	
25	376673	STOPPER RING	1	
26	376339	DAMPER	1	
27	376340	THRUST WASHER (A)	1	
28	376674	THRUST WASHER (B)	1	
29	376325	STRIKER	1	
30	306326	O-RING (A)	1	
31	376326	PISTON	1	
32	376327	THRUST PLATE	1	
33	306976	SPRING (B)	1	
34	984509	SEAL LOCK HEX. SOCKET HD. BOLT M5 X 14	2	
35	376321	INNER COVER (B)	1	
36	327870	O-RING (A)	1	
37	376318	FELT PACKING (A)	1	
38	376328	HANDLE PLATE (A)	4	
39	376329	HANDLE PLATE (B)	4	
40	301653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	11	
41	306322	PISTON PIN	1	
42	328660	WASHER	2	
43	376322	SECOND SHAFT (A)	1	
44	376593	CLUTCH	1	
45	325585	RECIPROCATING BEARING	1	
46	306320	NEEDLE CAGE	1	
47	376675	THRUST WASHER (C)	1	
48	376324	BEVEL GEAR	1	
49	377012	INNER COVER ASS'Y (A)	1	INCLUD. 37, 50, 58, 59
50	626VVM	BALL BEARING 626VVC2PS2L	1	
58	376332	DUST WASHER (B)	1	
59	333826	BALL BEARING 625DD	1	
60	324225	PUSHING BUTTON (B)	1	
61	376527	DC-SPEED CONTROL SWITCH	1	
62	376703	BATTERY RUBBER	1	
63	376346	HOUSING (A).(B) SET	1	INCLUD. 64
64	376702	DAMPER (A)	2	
65	376355	WIRING	1	
*66	376029	BATTERY BSL 1850C (EUROPE, AUS, NZL)	2	INCLUD. 504
*66	371750	BATTERY BSL 36A18 (EUROPE, AUS, NZL)	2	INCLUD. 504
STANDARD ACCESSORIES				
501		CHARGER (MODEL UC 18YFSL)	1	
502	324548	SIDE HANDLE	1	
503	376556	CASE	1	
504	329897	BATTERY COVER	1	
505	303709	DEPTH GAUGE	1	
506	376557	INNER TRAY	1	
507	336471	CASE ASS'Y (STACKABLE 2)	1	INCLUD. 508-510
508	336472	LATCH	4	
509	336473	HANDLE	1	
510	336474	HINGE	2	
OPTIONAL ACCESSORIES				
601	303332	HAMMER DRILL CHUCK SET 13 MM	1	INCLUD. 602, 603

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
602	303334	CHUCK HANDLE	1	
603	303335	RUBBER CAP	1	
604	321825	DRILL CHUCK AND ADAPTER SET	1	INCLUD. 605, 606
605	303623	CHUCK ADAPTER (G) (SDS PLUS)	1	
606	321814	DRILL CHUCK 13VLRB-D	1	INCLUD. 607, 608
607	331966	FLAT HD. SCREW (LEFT HAND) M6 X 20	1	
608	987576	CHUCK WRENCH FOR 13VLB-D,13VLR-D	1	
609	971787	DUST CUP	1	
610	372200	HOOK	1	
611	337357	TRUSS HD. SCREW M4 (BLACK)	1	
612	335782	GREASE FOR ROTARY HAMMER (60 G)	1	
613	335781	GREASE FOR ROTARY HAMMER (500 G)	1	
614	376690	GREASE FOR CORDLESS ROTARY HAMMER (50 G)	1	
615	306885	DUST COLLECTOR (B) ASS'Y	1	INCLUD. 616
616	306910	SOCKET ADAPTER (B)	1	
617	321813	DRILL CHUCK 13VLD-D	1	INCLUD. 602
618	971511Z	+ DRIVER BIT (A) NO. 2 25L	1	
619	971512Z	+ DRIVER BIT (A) NO. 3 25L	1	



MODEL

DH12DD

Rev.1

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
1	376603	GRIP SET	1	INCLUD. 2-7, 19
2	306345	FRONT CAP	1	
3	306340	STOPPER RING	1	
4	376338	GRIP	1	
5	324528	BALL HOLDER	1	
6	374435	HOLDER PLATE	1	
7	322812	HOLDER SPRING	1	
8	305490	TAPPING SCREW (W/FLANGE) D4 X 30 (BLACK)	4	
9	376342	GEAR COVER	1	
10		NAME PLATE	1	
11	376334	CHANGE LEVER	1	
12	872654	O-RING (1AP-10)	1	
13	327875	STOPPER	1	
14	949213	MACHINE SCREW M4 X 5 (10 PCS.)	1	
15	965469	RETAINING RING FOR D25 SHAFT	1	
16	944274	WASHER	1	
17	376743	SPRING (A)	1	
18	376676	SECOND GEAR	1	
19	335300	STEEL BALL D7.0 (10 PCS.)	1	
20	376335	CYLINDER	1	
21	301672	O-RING (B)	1	
22	376336	SECOND HAMMER	1	
23	311814	O-RING (P-15)	1	
24	376337	HAMMER HOLDER	1	
25	376673	STOPPER RING	1	
26	376339	DAMPER	1	
27	376340	THRUST WASHER (A)	1	
28	376674	THRUST WASHER (B)	1	
29	376325	STRIKER	1	
30	306326	O-RING (A)	1	
31	376326	PISTON	1	
32	376327	THRUST PLATE	1	
33	306976	SPRING (B)	1	
34	984509	SEAL LOCK HEX. SOCKET HD. BOLT M5 X 14	2	
35	376321	INNER COVER (B)	1	
36	327870	O-RING (A)	1	
37	376318	FELT PACKING (A)	1	
38	376328	HANDLE PLATE (A)	4	
39	376329	HANDLE PLATE (B)	4	
40	301653	TAPPING SCREW (W/FLANGE) D4 X 20 (BLACK)	11	
41	306322	PISTON PIN	1	
42	328660	WASHER	2	
43	376322	SECOND SHAFT (A)	1	
44	376593	CLUTCH	1	
45	325585	RECIPROCATING BEARING	1	
46	306320	NEEDLE CAGE	1	
47	376675	THRUST WASHER (C)	1	
48	376324	BEVEL GEAR	1	
49	377012	INNER COVER ASS'Y (A)	1	INCLUD. 37, 50, 58, 59
50	626VVM	BALL BEARING 626VVC2PS2L	1	
58	376332	DUST WASHER (B)	1	
59	333826	BALL BEARING 625DD	1	
60	324225	PUSHING BUTTON (B)	1	
61	376527	DC-SPEED CONTROL SWITCH	1	
62	376703	BATTERY RUBBER	1	
63	376348	HOUSING (A).(B) SET	1	
64	376356	WIRING	1	
*65	374404	BATTERY BSL 1240M (EUROPE)	2	INCLUD. 504
*65	374405	BATTERY BSL 1240M (THA)	2	INCLUD. 504
		STANDARD ACCESSORIES		
501		CHARGER (MODEL UC 12SL)	1	
502	324548	SIDE HANDLE	1	
503	376556	CASE	1	
504	374778	BATTERY COVER	1	
505	303709	DEPTH GAUGE	1	
506	376557	INNER TRAY	1	
507	336471	CASE ASS'Y (STACKABLE 2)	1	INCLUD. 508-510
508	336472	LATCH	4	
509	336473	HANDLE	1	
510	336474	HINGE	2	
		OPTIONAL ACCESSORIES		
601	303332	HAMMER DRILL CHUCK SET 13 MM	1	INCLUD. 602, 603
602	303334	CHUCK HANDLE	1	

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS
603	303335	RUBBER CAP	1	
604	321825	DRILL CHUCK AND ADAPTER SET	1	INCLUD. 605, 606
605	303623	CHUCK ADAPTER (G) (SDS PLUS)	1	
606	321814	DRILL CHUCK 13VLRB-D	1	INCLUD. 607, 608
607	331966	FLAT HD. SCREW (LEFT HAND) M6 X 20	1	
608	987576	CHUCK WRENCH FOR 13VLB-D, 13VLR-D	1	
609	971787	DUST CUP	1	
610	372200	HOOK	1	
611	337357	TRUSS HD. SCREW M4 (BLACK)	1	
612	335782	GREASE FOR ROTARY HAMMER (60 G)	1	
613	335781	GREASE FOR ROTARY HAMMER (500 G)	1	
614	376690	GREASE FOR CORDLESS ROTARY HAMMER (50 G)	1	
615	306885	DUST COLLECTOR (B) ASS'Y	1	INCLUD. 616
616	306910	SOCKET ADAPTER (B)	1	
617	321813	DRILL CHUCK 13VLD-D	1	INCLUD. 602
618	971511Z	+ DRIVER BIT (A) NO. 2 25L	1	
619	971512Z	+ DRIVER BIT (A) NO. 3 25L	1	