

# TECHNICAL INFORMATION

**Makita**

PRODUCT

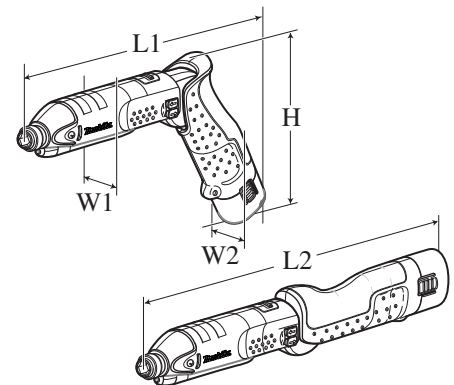
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**Models No.** ▶ TD020D

**Description** ▶ 7.2V Cordless Impact Driver

## CONCEPT AND MAIN APPLICATIONS

Model TD020D is a straight type cordless impact driver compact and lightweight for easy handling.  
Uses new 7.2V Li-ion battery of stick type as a power unit.  
Can be easily converted from straight- to pistol-type impact driver.



This product will be available in the following variations.

Model No.	Housing color	Battery BL7010	Charger DC07SA	Soft case
TD020DZ	Makita blue	No	No	No
TD020DS		Yes/ 1 pc	Yes	Yes
TD020DSE		Yes/ 2 pcs	Yes	Yes
TD020DZW	White	No	No	No
TD020DSW		Yes/ 1 pc	Yes	Yes
TD020DSEW		Yes/ 2 pcs	Yes	Yes

Dimensions: mm (")	
Length 1 (L1)	213 (8-3/8)
Length 2 (L2)	276 (10-7/8)
Width 1 (W1)*1	40 (1-9/16)
Width 2 (W2)*2	45 (1-3/4)
Height (H)	131 (5-1/8)

All models also include the accessories listed below in "Standard equipment".

\*1Width 1: width at tool head

\*2Width 2: width at grip

## ► Specification

Battery	Type of cell	Li-ion
	Voltage: V	7.2
	Capacity: Ah	1.0
Max. output: W		30
No load speed: min <sup>-1</sup> = rpm		2,300
Impacts per min: min <sup>-1</sup> = ipm		3,000
Driving shank: mm (")		6.35 (1/4) Hex
Max. fastening torque*3: N.m [kgf.cm] (in.lbs)		20 [204] (177)
Capacities	Machine screw	M3 - M8 (1/8" - 5/16")
	Standard bolt	M3 - M8 (1/8" - 5/16")
	High tensile bolt	M3 - M6 (1/8" - 1/4")
	Coarse thread (length)	22mm - 45mm (7/8" - 1-3/4")
Electric brake		No
Torque adjustment		No
Reverse switch		Yes
Net weight: kg (lbs) [with battery BL7010]		0.53 (1.17)

\*3: Max. fastening torque is the value of torque measured at 3 seconds after seating of M8 high tensile bolt.

## ► Standard equipment

Accessory	Area	North America	Europe/Oceania	Other countries
Bit holder		1pc	1pc	1pc
Holster		1pc	1pc	1pc
Phillips bit No.1, 50mm (double end bit)		1pc	1pc	1pc
Phillips bit No.2, 50mm (double end bit)		1pc	1pc	1pc
Slotted bit 50mm		1pc	1pc	1pc
Drill bit for wood and steel, 3mm (Hex shank)				1pc
Drill bit for wood and steel, 3.2mm (1/8") (Hex shank)		1pc		
Drill bit for wood, 3mm (Hex shank)			1pc	

**Note:** The standard equipment shown above may differ by country.

## ► Optional accessories

Assorted driver bits, Assorted drill bits, Charger DC07SA, Battery BL7010

► **Repair**

**CAUTION: Remove the battery from the machine for safety before repair/ maintenance !**

**[1] NECESSARY REPAIRING TOOLS**

Code No.	Description	Use for
1R004	Retaining ring pliers	Removing Retaining ring S-12 from Spindle M*
1R026	Bearing setting pipe 16-8.2	Mounting Ball bearing 6801LLU to Internal gear case
1R045	Gear extractor	Disassembling Hammer section
1R217	Ring 22	Removing Ball bearing 6801LLU from Internal gear case
1R232	Pipe 30	Supporting Internal gear case when mounting Ball bearing 6801LLU
1R288	Screwdriver magnetizer	Magnetizing screwdriver for removing Steel balls
1R291	Retaining ring S and R pliers	Disassembling Driver bit holder section
1R346	Center attachment	Disassembling Hammer section (modular use with 1R045)

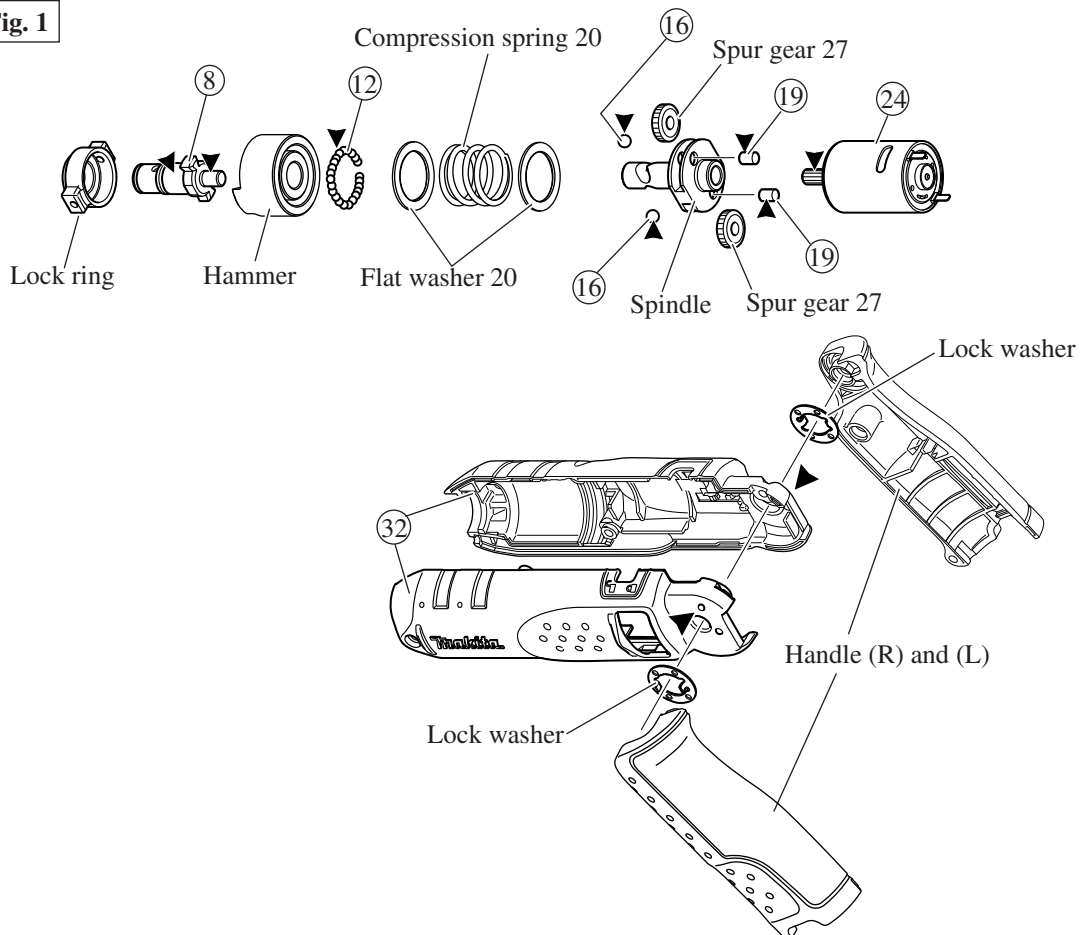
\*Spindle N is used for some countries.

**[2] LUBRICATION**

Apply Makita grease N. No.2 to the following portions designated with the black triangle to protect parts and product from unusual abrasion.

Item No.	Description	Portion to lubricate
⑧	Spindle M (Spindle N is used for some countries.)	Surface that contacts Lock ring Pin portion that is inserted into Spindle
⑫	Steel ball 3.0 (23 pcs)	Whole surface
⑯	Steel ball 4.8 (2 pcs)	Whole surface
⑲	Pin 5	Surface that contacts Spur gear 27
⑳	Motor	Teeth portion of pinion gear
㉓	Motor housing R and L	Each hinge portion that contacts Lock washer

**Fig. 1**



## ► Repair

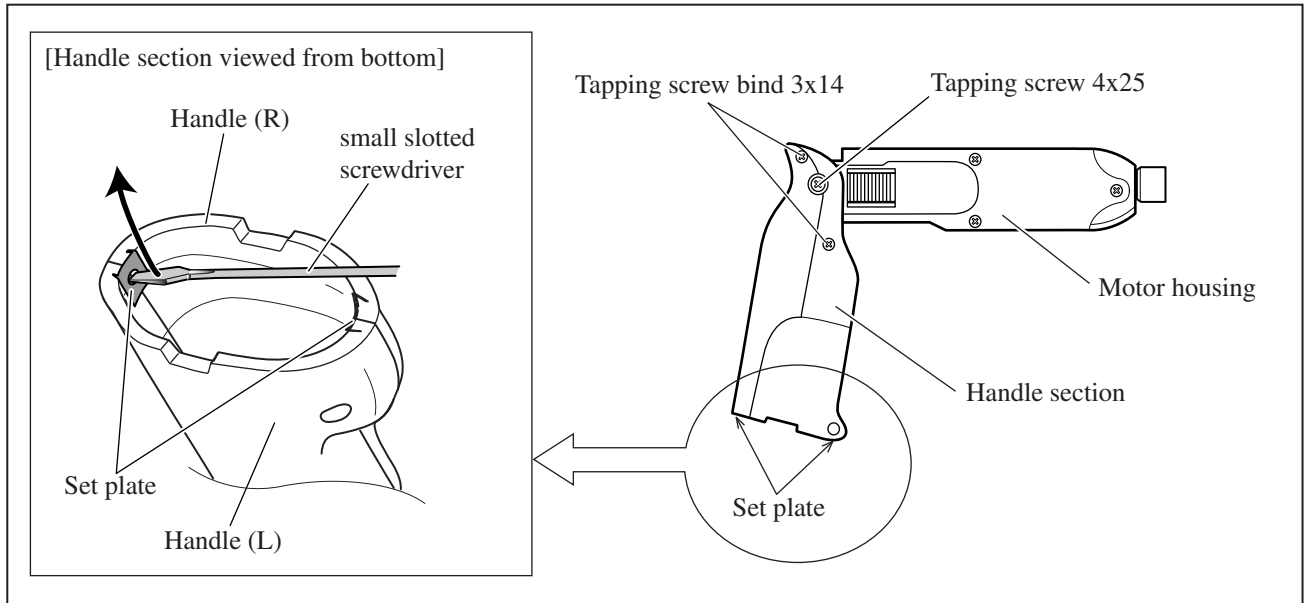
### [3] DISASSEMBLY/ASSEMBLY

**Note:** It is impossible to replace inner parts of Motor housing without removing Handle section.

#### [3] -1. Removing Handle Section from Motor Housing

- 1) Remove two Set plates with which Handles (L) and (R) are assembled to one another as follows;  
 Insert a small slotted screwdriver through the punched hole of set plate as illustrated to **left in Fig. 2**.  
 Move Set plate in the direction of the arrow using the screwdriver while pushing Set plate against Handles (L) and (R).
- 2) Handle section can now be removed from Motor housing by removing two bind 3x14 Tapping screws and one 4x25 Tapping screw from Handle section as illustrated to **right in Fig. 2**.

**Fig. 2**

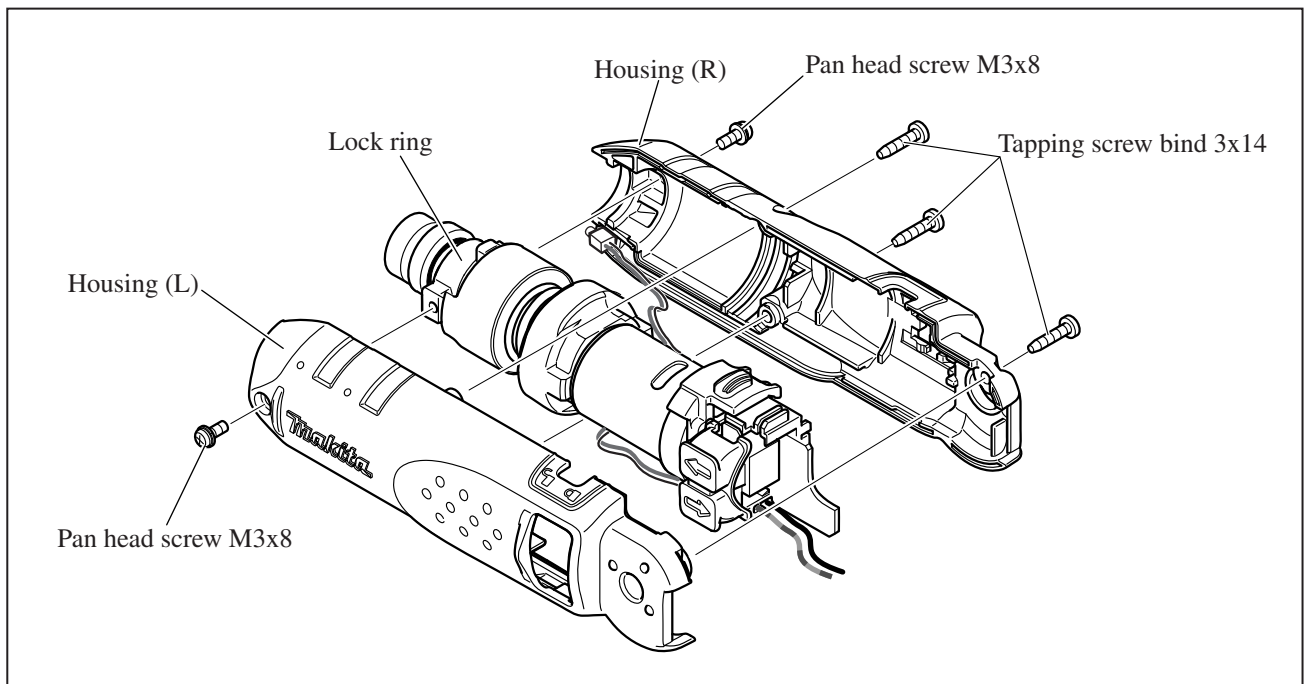


#### [3] -2. Motor Section

##### DISASSEMBLING

- 1) Separate Housings (R) and (L) by removing three bind 3x14 Tapping screws and two M3x8 Pan head screws. (**Fig. 3**)

**Fig. 3**



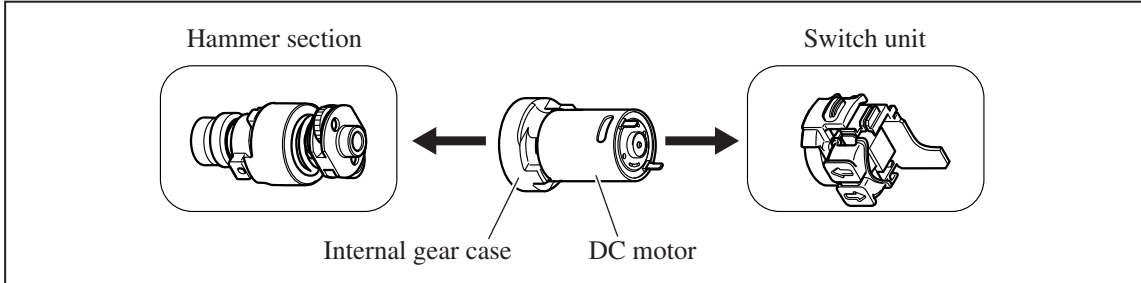
► **Repair**

**[3] DISASSEMBLY/ASSEMBLY**

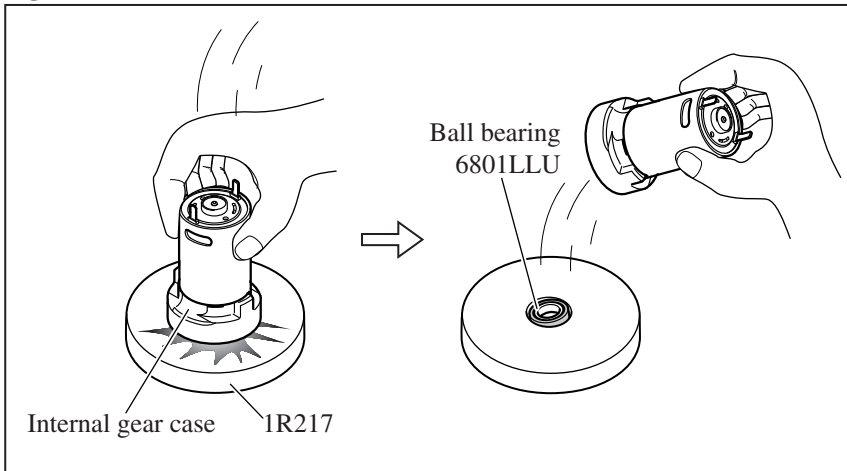
**[3] -2. Motor Section (cont.)**

- 2) Separate Hammer section from Internal gear case, and remove Switch unit from DC motor. (**Fig. 4**)
- 3) Remove Ball bearing 6801LLU from Internal gear case by striking Internal gear case against 1R217. (**Fig. 5**)
- 4) Remove Internal gear case from DC motor by unscrewing two M2.6x6 Pan head screws. (**Fig. 6**)

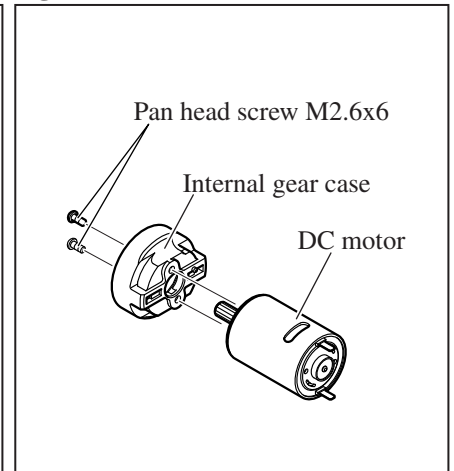
**Fig. 4**



**Fig. 5**



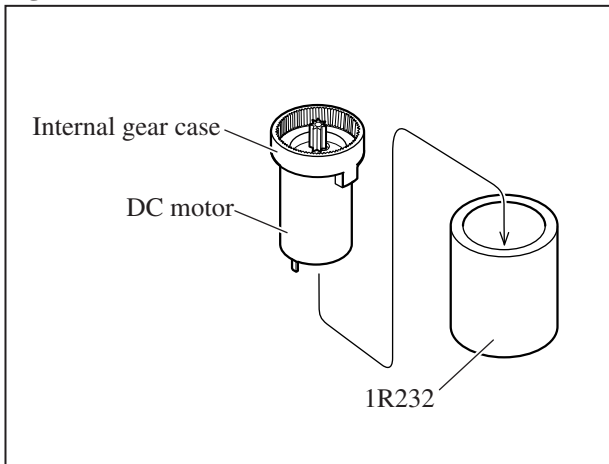
**Fig. 6**



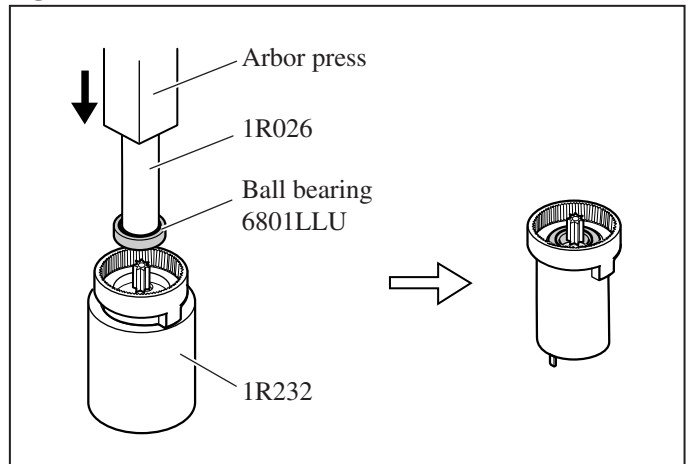
**ASSEMBLING**

- 1) Fasten Internal gear case to DC motor with two M2.6x6 Pan head screws. (**Fig. 6**)
- 2) Put DC motor into 1R232. (**Fig. 7**)
- 3) Applying 1R026 to Ball bearing 6801LLU, press-fit the Ball bearing into Internal gear case using arbor press. (**Fig. 8**)
- 4) Assemble Switch unit to DC motor. Then assemble Hammer section to Internal gear case while engaging Spur gear 27 with the pinion gear of DC motor. (**Fig. 4**)

**Fig. 7**



**Fig. 8**

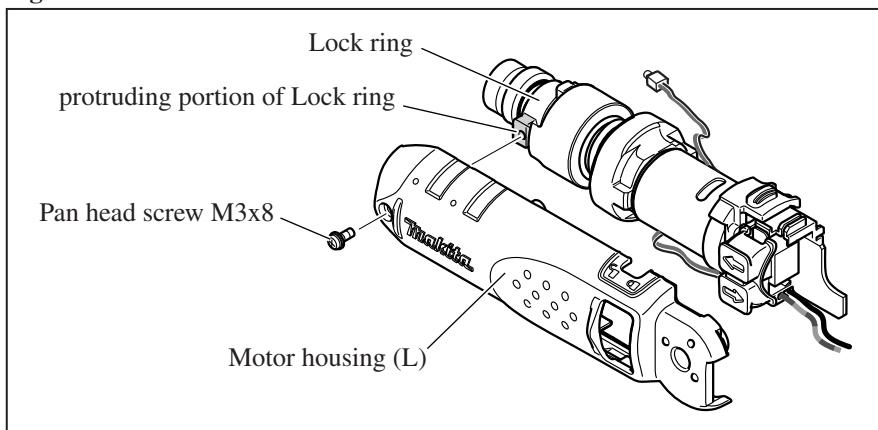


## ► Repair

### [3] DISASSEMBLY/ASSEMBLY

#### [3] -2. Motor Section (cont.) Fig. 9

5) Assemble the unit of inner parts to Motor housing (L) as illustrated in Fig. 9.



#### [3] -3. Bit Holder Section

##### DISASSEMBLING

1) Take out Hammer section from Motor housing. (See Figs. 2 and 3 in page 3 and Fig. 4 in page 4.) Remove Bit holder section from Hammer section. (Fig. 10)

2) Remove Anvil from Bit holder section. Two 3.5 Pins will fall off from Lock ring in this step. (Fig. 11)

**Note:** 1. Use the removed Anvil as a jig to stabilize Bit holder section when removing Ring spring 10. (Fig. 12)

2. Be careful not to loose Pin 3.5.

3) Put Bit holder section on the removed Anvil. While expanding Ring spring 10 with 1R291, remove it from Bit holder section with thumb and index finger. (Fig. 12)

4) The following parts can now be removed from Spindle M (or N) (Fig. 13); Flat washer 11, Compression spring 13, Bit sleeve, Steel ball 3 (2 pcs)

Fig. 10

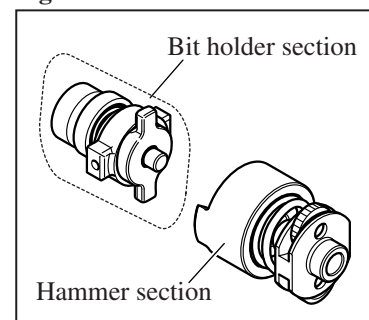


Fig. 11

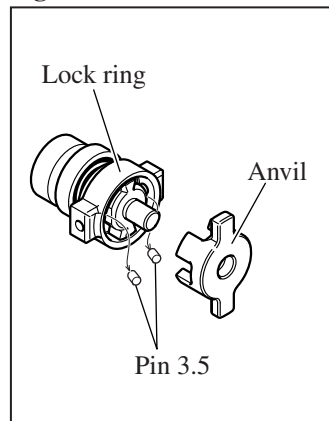


Fig. 12

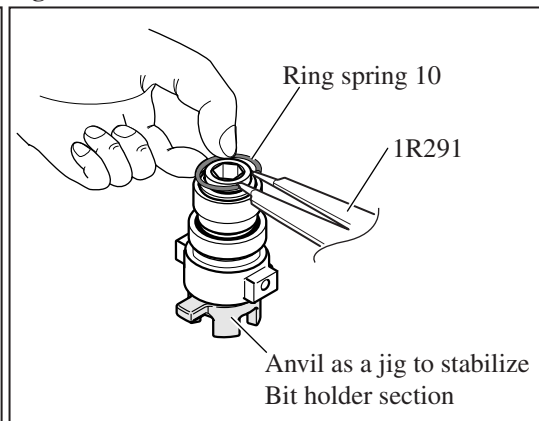
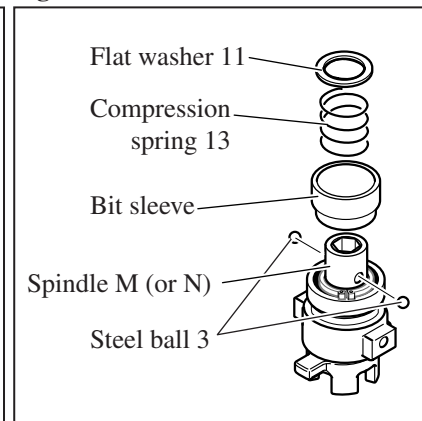
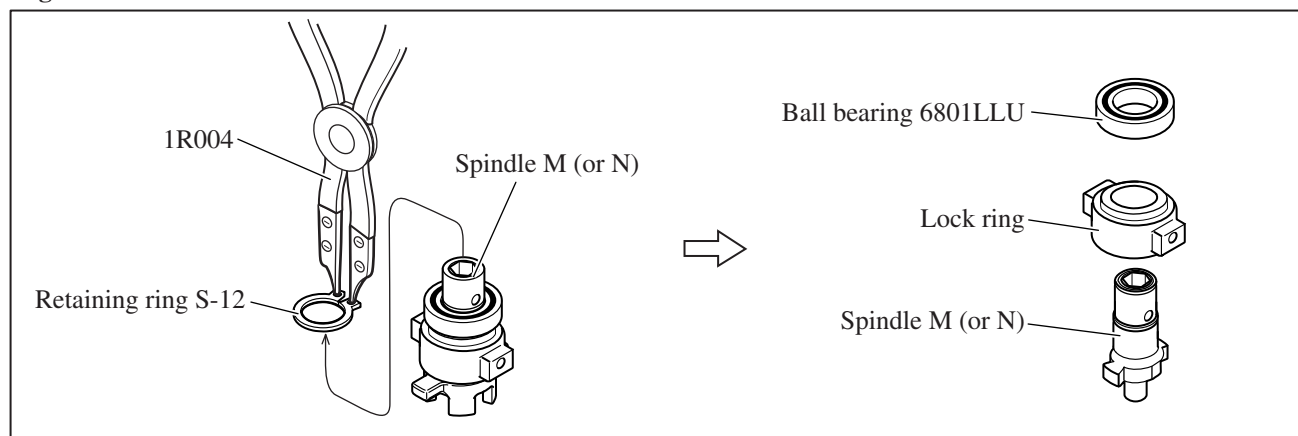


Fig. 13



5) Remove Retaining ring S-12 from Spindle M (or N) with 1R004. Ball bearing 6801LLU and Spindle M (or N) can now be removed from Lock ring by hand. (Fig. 14)

Fig. 14



► **Repair**

**[3] DISASSEMBLY/ASSEMBLY**

**[3] -3. Bit Holder Section (cont.)**

**ASSEMBLING**

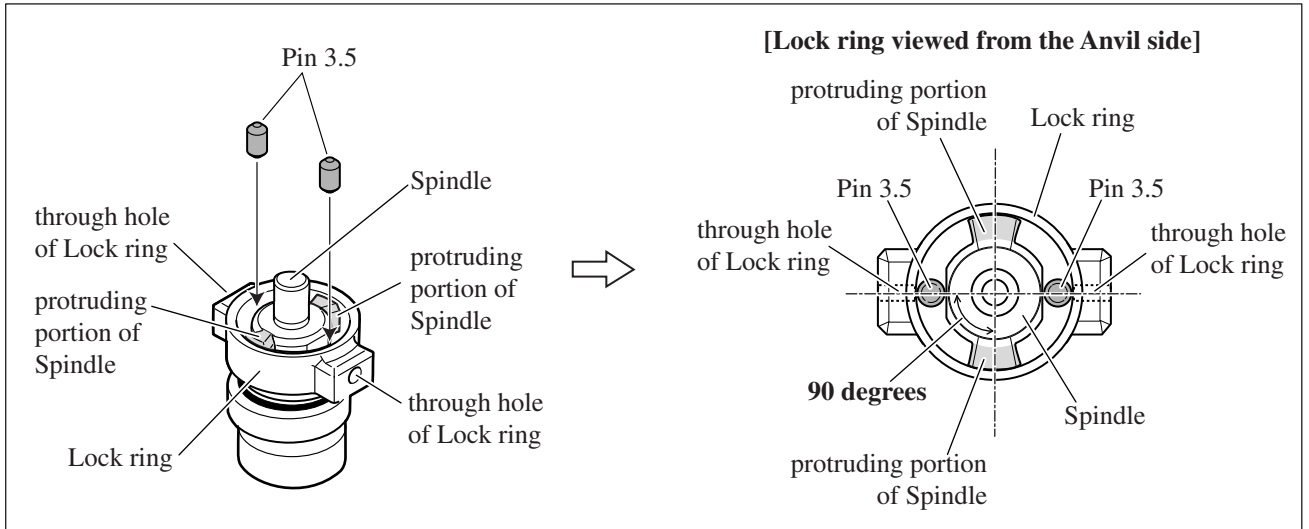
Do the reverse of the disassembling steps.

**Note:**

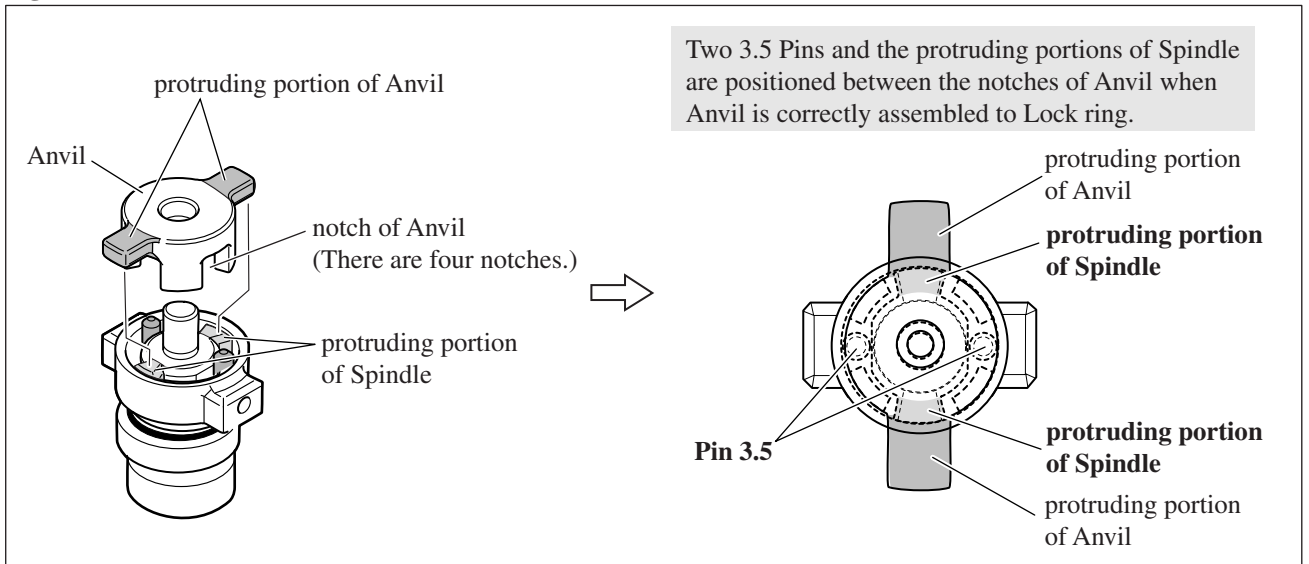
When assembling Anvil to Lock ring;

- 1) Put two 3.5 Pins into Lock ring and align them with the through holes of Lock ring.  
Be sure that Spindle is positioned at 90 degrees to the line between the two Pins. (**Fig. 15**)
- 2) Assemble Anvil to Lock ring as illustrated in **Fig. 16**.

**Fig. 15**



**Fig. 16**



► **Repair**

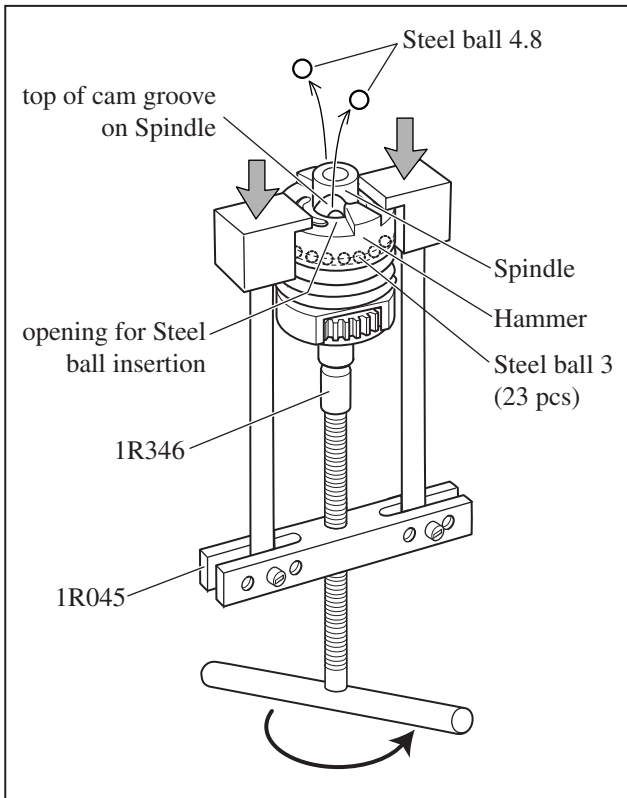
**[3] DISASSEMBLY/ASSEMBLY**

**[3] -4. Hammer Section**

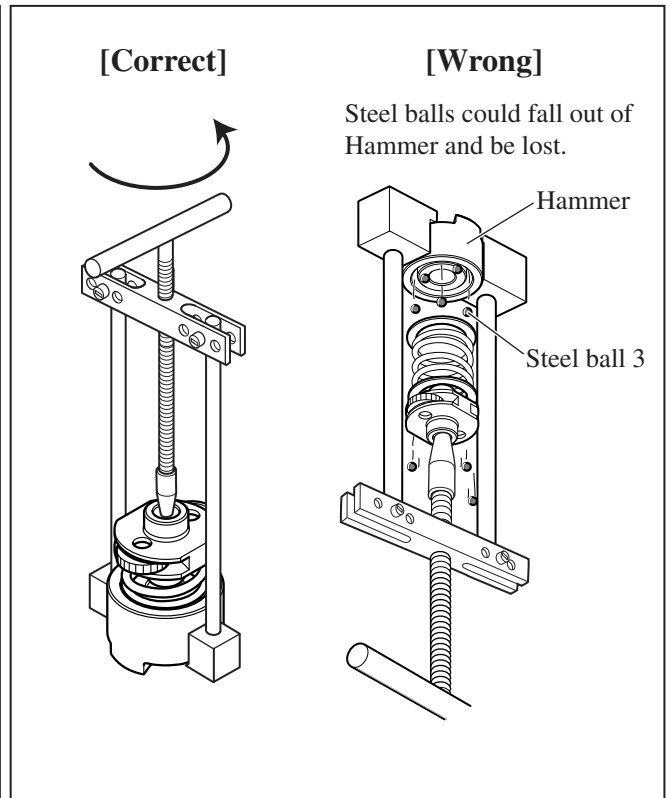
**DISASSEMBLING**

- 1) Take out Hammer section from Motor housing. (See **Figs. 2 and 3** in page 3 and **Fig. 4** in page 4.)  
Remove Hammer section from Bit holder section. (**Fig. 10** in page 5)
- 2) Install 1R045 and 1R346 on Hammer section as illustrated in **Fig. 17**.
- 3) Press down Hammer to the full by turning the handle of 1R045 in the direction of the black arrow.  
Then adjust the opening for Steel ball insertion to the top of cam groove on Spindle by turning the handle in the opposite direction. Two 4.8 Steel balls can now be removed from Spindle using tweezers or a slotted screwdriver magnetized with 1R288.
- 4) Hold Hammer section as illustrated to **left in Fig. 18**, and release Hammer section from 1R045 by turning the handle.  
**Caution:** Do not hold 1R045 as illustrated to **right in Fig. 39** when releasing Hammer section.  
Failure to follow this instruction could cause most of twenty-three 3 Steel balls to fall out of Hammer.

**Fig. 17**

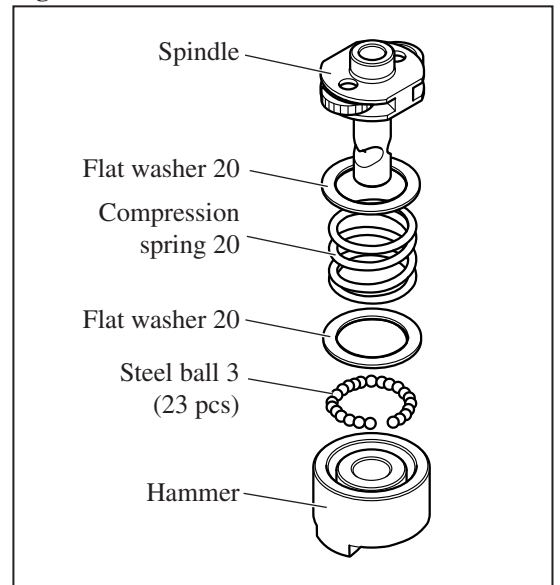


**Fig. 18**



- 5) Hammer section can now be disassembled as illustrated in **Fig. 19**. **Fig. 19**

**Note:** Twenty-three 3 steel balls must be installed in hammer.  
Check the quantity when assembling.



► **Repair**

**[3] DISASSEMBLY/ASSEMBLY**

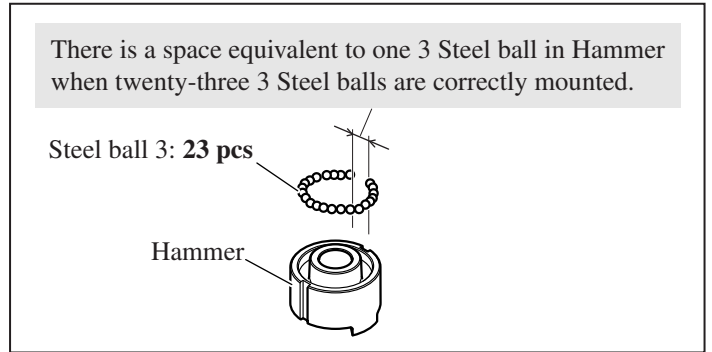
**[3] -4. Hammer Section (cont.)**

**ASSEMBLING**

Do the reverse of the disassembling steps.  
(Refer to **Figs. 17, 18, 19.**)

**Note:** Make sure that twenty-three 3 Steel balls are prepared before assembling. (**Fig. 20**)

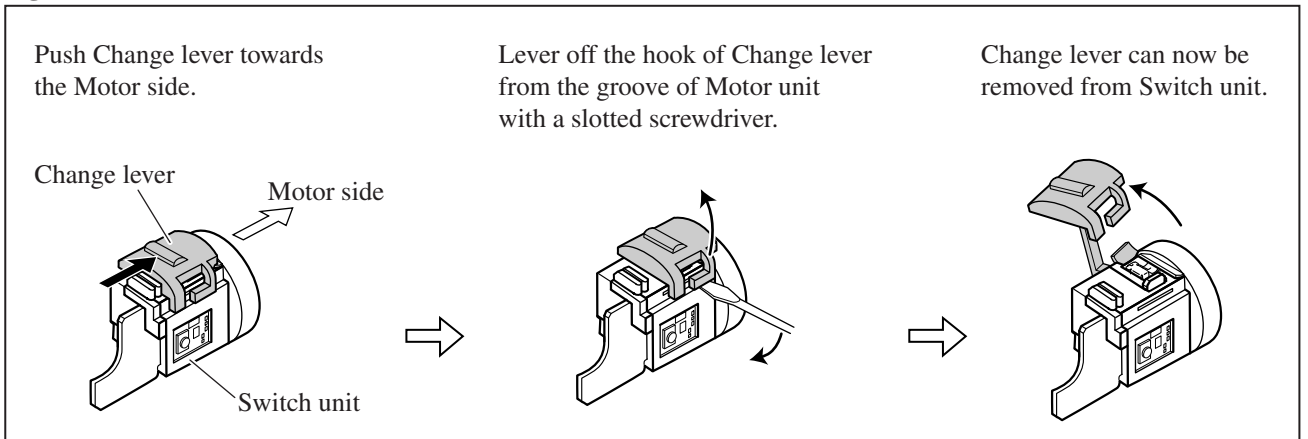
**Fig. 20**



**[3] -5. Disassembling Change Lever**

Remove Change lever from Switch unit as illustrated in **Fig. 21**.

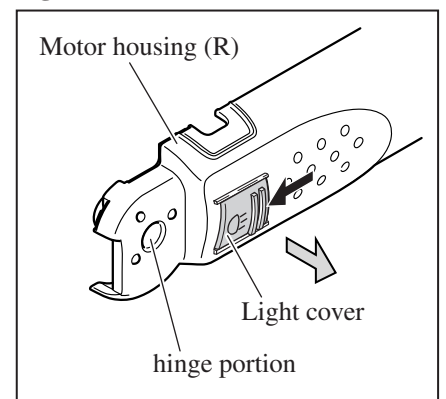
**Fig. 21**



**[3] -6. Disassembling Light Cover**

Push Light cover towards the hinge portion of Motor housing (R) until it stops. Light cover can now be removed by pulling in the direction of the gray arrow. (**Fig. 22**)

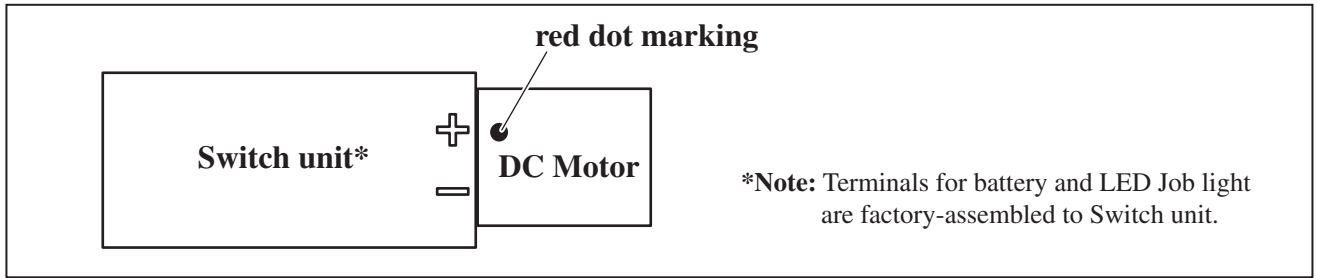
**Fig. 22**





▶ **Circuit diagram**

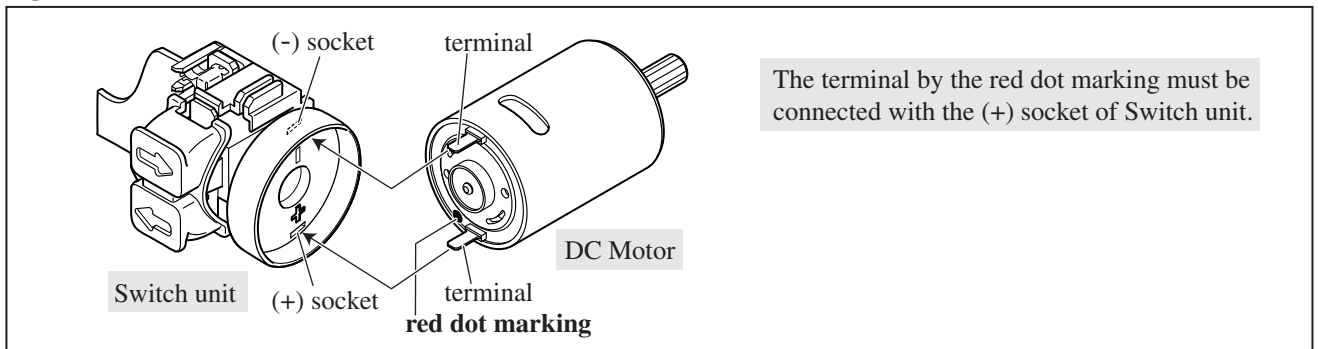
Fig. 23



▶ **Wiring diagram**

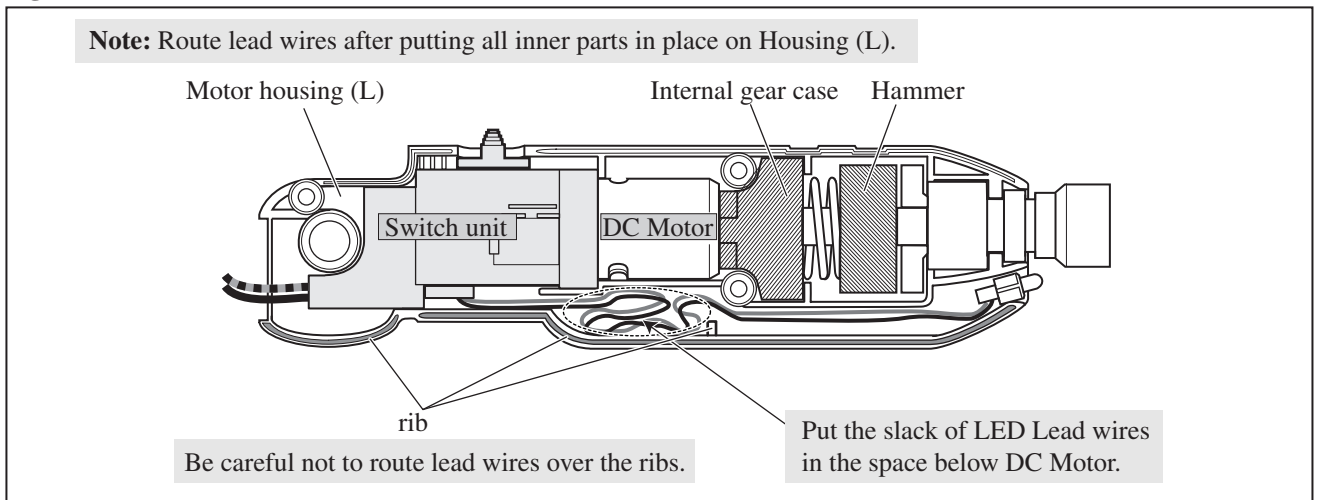
[1] **Connecting DC Motor with Switch Unit**

Fig. 24



[2] **Wiring in Motor Housing**

Fig. 25



[3] **Wiring in Handle Section**

Fig. 26

