

**Models No.** ▶ BJR181

**Description** ▶ Cordless Recipro Saw

## CONCEPT AND MAIN APPLICATIONS

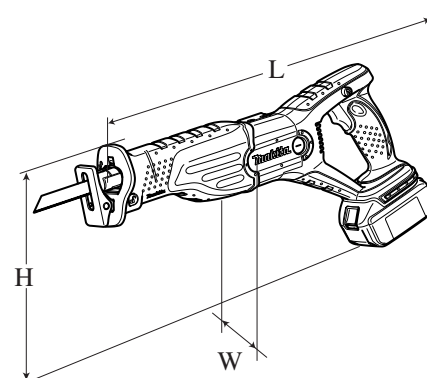
Model BJR181 has been developed as the first cordless jig saw that is powered by 18V/3.0Ah Li-ion battery.

Whilst having the same basic construction as our AC model JR3050T, features the additional and original advantages, for example, as follows;

- Ergonomic grip best-fitting to overhead application
- Two-light type LED job light for more illuminated work-surface
- Belt clip

See next page for detailed information on benefits.

This new product will be available in the following variations.



Model No.	Charger	Battery		Plastic carrying case	Offered to
		type	quantity		
BJR181Z	No	No	No	No	All countries
BJR181SF	DC18SC	BL1830	1	Yes	All countries other than USA, Canada, Mexico, Panama
BJR181SFE			2		
BJR181	No	No	No	No	USA, Canada, Mexico, Panama
	DC18SC	BL1830	2	Yes	

Dimensions: mm (")	
Length (L)	499 (19-5/8)
Width (W)	91 (3-5/8)
Height (H)	234 (9-1/4)

## ► Specification

Battery	Voltage: V		18
	Capacity: Ah		3.0
	Cell		Li-ion
Max output (W)			290
Length of stroke: mm (")			28 (1-1/8)
No load speed: min-1=spm			0 - 2,900
Max cutting capacities: mm (") [when cutting with a 300mm blade]		wood	255 (10)
		pipe	dia. 130 (5-1/8)
Variable speed			Yes
Electric brake			Yes
Net weight*: kg (lbs)			3.7 (8.1)

\*Includes battery BL1830

## ► Standard equipment

Jig saw blade for wood ..... 1 pc  
 Jig saw blade for metal ..... 1 pc  
 Plastic carrying case ..... 1 pc

**Note:** The standard equipment for the tool shown above may differ from country to country.

## ► Optional accessories

Charger DC18SC  
 Charger DC24SA  
 Charger DC24SC

Li-ion battery BL1830  
 Assorted jig saw blades

## ► Features and benefits

### Extra-High Cutting Efficiency

The cutting speed has been **increased by as much as 50%** compared with our current JR180D; also superior to the competitors' models both in work speed and work volume on a single battery charge.  
(See the comparison charts on page 4.)

### Two-Light Type LED Job Light with Afterglow Function

The shadow of shoe cast on the work surface is minimized thanks to each light located on the right and left of the center line of the tool.

### Large, Variable Speed Trigger Switch

Easy to operate even with gloved hand \*

### Rubberized Soft Grip

Provides more control and comfort. \*

### Belt Clip

### Best-Fitting Grip of New Design

Because use of Li-ion battery as power source allows for flexibility of designing grip, we have achieved the grip design best-fitting to;

- Operation with gloved hand
- Overhead application

### Toolless Blade Change \*

Simply insert the blade for installation. Removal can also be done with one touch.

### Toolless Shoe Adjustment \*

Shoe is adjustable to 5 positions by merely pushing a button.

### Reliable, Dust and Drip-Proof Tool Head Mechanism \*

1. Front side of the slider is protected against saw dust by;
  - 1) Air from the fan that sweeps away sawdust
  - 2) X ring and Seal plate that seal out sawdust from the gear room
2. Gear room is also protected against water drops by a rubber seal ring on the matching surface between gear housing and gear housing cover.

### 18V Li-ion Battery

- Its high power density allows compact and lightweight tool design without power reduction.
- Can be charged at any time because Li-ion battery is free from memory effect.

\*The same advantages as Model JR3050T

## ► Comparison of products

### Specification Comparison

Model No. Specifications		Makita		Competitor A	Competitor B
		BJR181	JR180D	Model A	Model B
Battery	Voltage: V	18	18	18	18
	Capacity: Ah	3.0	2.6	2.4	2.4
	Cell	Li-ion	Ni-MH	Ni-Cd	Ni-Cd
	Charging time: min.	45	60	60	60
Length of stroke: mm (")		28 (1-1/8)	23 (7/8)	25 (1)	25 (1)
No load speed: rpm=min <sup>-1</sup>		0 - 2,900	0 - 2,700	0 - 2,900	0 - 2,700
Orbital action		No	No	No	No
Toolless Blade Change		Yes	Yes	Yes	Yes
Toolless Shoe Adjustment		Yes	Yes	No	No
Externally accessible brush		Yes	Yes	No	No
LED Job Light		Yes (with afterglow function)	No	No	No
Belt clip		Yes	No	No	No
Soft grip		Yes	No	Yes	No
Dimensions: mm (")	Length	499 (19-5/8)	448 (17-5/8)	435 (17-1/8)	445 (17-1/2)
	Width	91 (3-5/8)	95 (3-3/4)	90 (3-1/2)	82 (3-1/4)
	Height	234 (9-1/4)	206 (8-1/8)	191 (7-1/2)	202 (8)
Weight w/battery: kg(lbs)		3.7 (8.1)	3.5 (7.7)	3.2 (7.1)	3.8 (8.3)
Standard equipment	Charger	DC18SC	DC1804	Yes	Yes
	Battery	BL1830/2pcs	1834/1pc	1 pc	2 pcs
	Blade	Yes	Yes	Yes	Yes
	Plastic carrying case	Yes	Yes	Yes	Yes

## ► Comparison of products

### Performance Comparison

Numbers in charts below are relative values when the capacities of Makita JR180D are indexed at 100.

**Note:** 1) The test tools were powered by the battery with the following capacity;

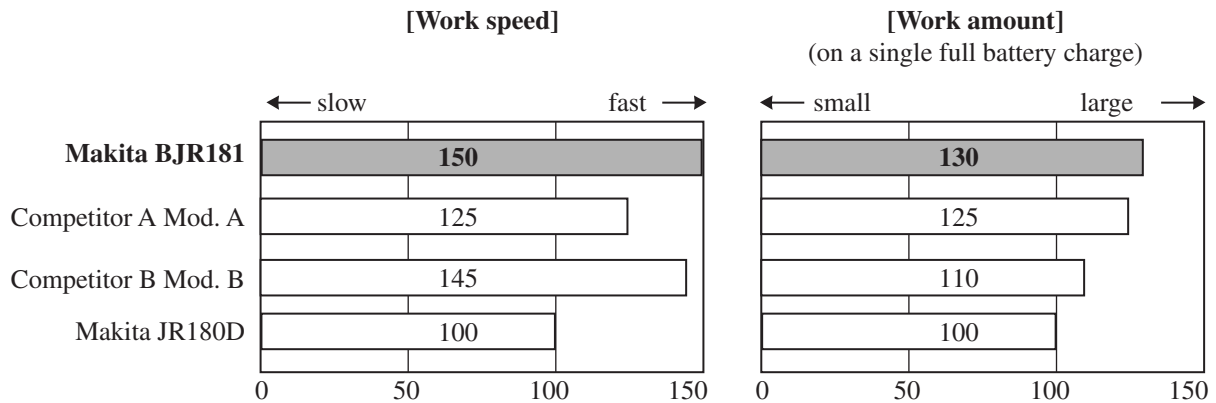
Makita BJR181: 3.0Ah, Makita JR180D: 2.6Ah,

Competitor A's Model A: 2.4Ah, Competitor B's Model B: 2.4Ah

2) The test results depend to a great extent on the hardness of the material, etc.

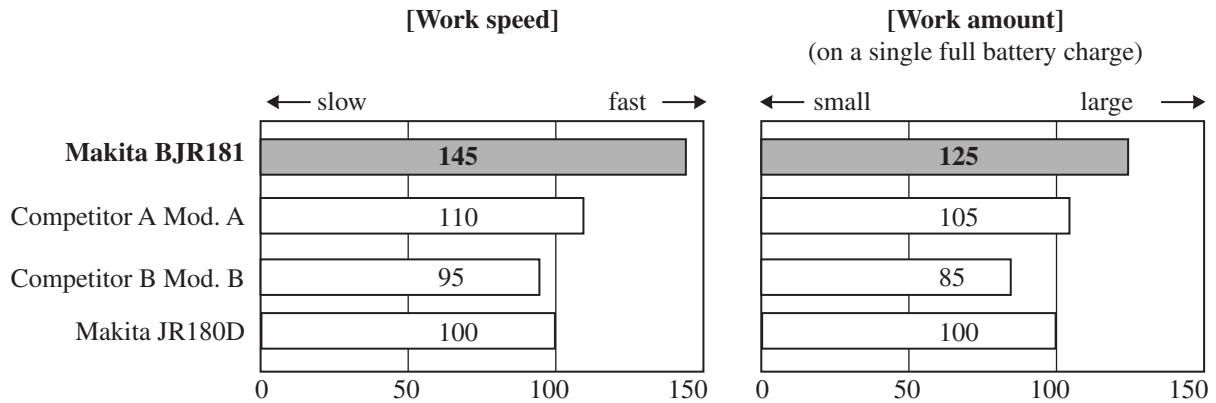
#### Wood Cutting

Cut through a 2"x10" SPF timber.



#### Metal Cutting

Cut through a 1" diameter steel pipe.



## ► Repair

**CAUTION:** Remove the recipro saw blade and battery cartridge from the machine for safety before repair/ maintenance !

### [1] NECESSARY REPAIRING TOOLS

Code No.	Description	Use for
1R146	L type torx wrench M6	Removing Shoe guide
1R232	Pipe 30	Removing/ installing Needle bearing 1012
1R242	Round bar foe arbor 13-100	Removing / installing Needle bearing 1012
1R250	Round bar foe arbor 26-100	Press-fitting Oil seal 14
1R267	Spring pin extractor 2.5	Removing Shift button
1R269	Bearing extractor	Removing Ball bearing 6001DDW
1R291	Retaining ring S and R pliers	Removing /installing Retaining rings S-18 and S-12
1R296	Spring pin extractor 1.5	Removing Pin 3 from the Blade clamp section
1R314	Torx bit VT-25	Removing /installing Torx socket head screw
---	Recipro saw blade	Assembling Pin 3 to the Blade clamp section

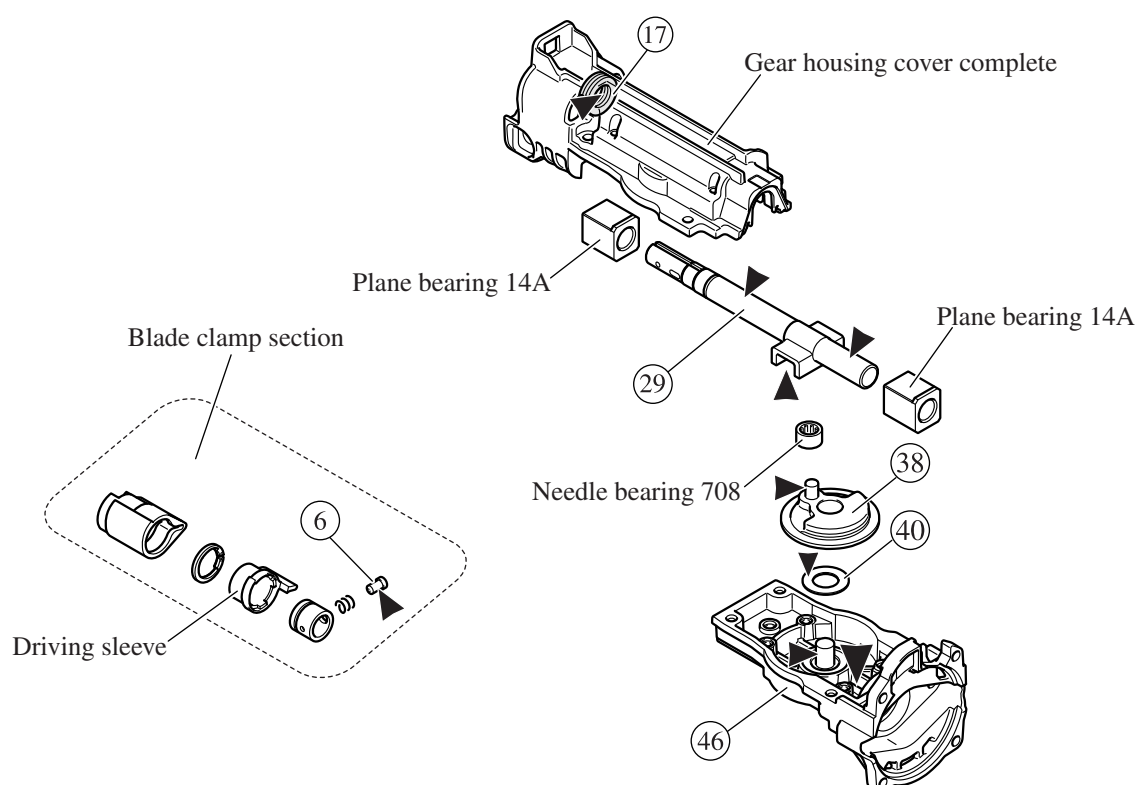
### [2] LUBRICATION and ADHESIVE

**Lubrication:** Apply Makita grease FA No.2 to the following portions designated with the black triangle to protect parts and product from unusual abrasion. (**Fig. 1**)

**Adhesive:** When reusing threadlocker coated screws, be sure to apply adhesive before tightening.  
Recommended adhesives are Threebond 1321B or 1342B, or Loctite 242.

Item No.	Description	Portion to be lubricate
6	Shoulder pin 5	Pin head that contacts Driving sleeve
17	X ring 14	Inside surface that contacts (29) Slider complete
29	Slider complete	Surface that contacts Plane bearing 14A Surface that contacts Needle bearing 708 (Put approx. 7g.)
38	Gear assembly	Surface of crank pin that contacts Needle nearing 708
40	Flat washer 14	Surface that contacts (38) Gear assembly
46	Gear housing complete	Pin 10 (the gear shaft for Gear assembly) Gear room (Put approx. 10g.)

**Fig. 1**



## ► Repair

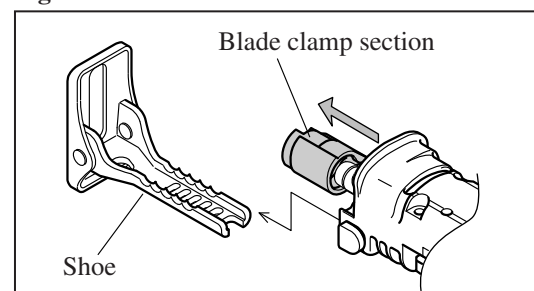
### [3] DISASSEMBLY/ASSEMBLY

#### [3] -1. Blade Clamp Section

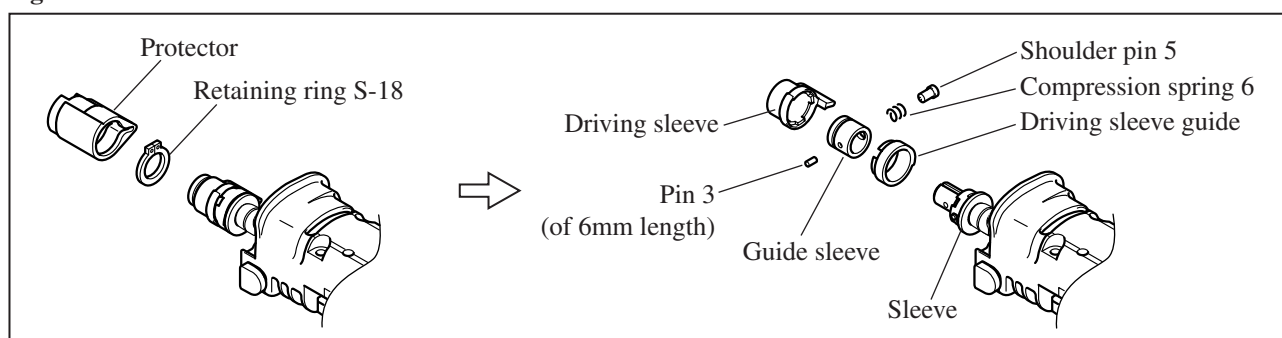
##### DISASSEMBLING

- 1) Remove Shoe. If the Blade clamp section is positioned inside Gear housing, pull it out of Gear housing. (**Fig. 2**)
- 2) After removing Protector, remove Retaining ring S-18 with Retaining Ring S and R pliers (No.1R291).  
Then remove the following parts:  
Driving sleeve, Shoulder pin 5, Compression spring 6,  
Pin 3 (of 6mm length), Guide sleeve, Driving sleeve guide  
Now Sleeve appears. (**Fig. 3**)

**Fig. 2**

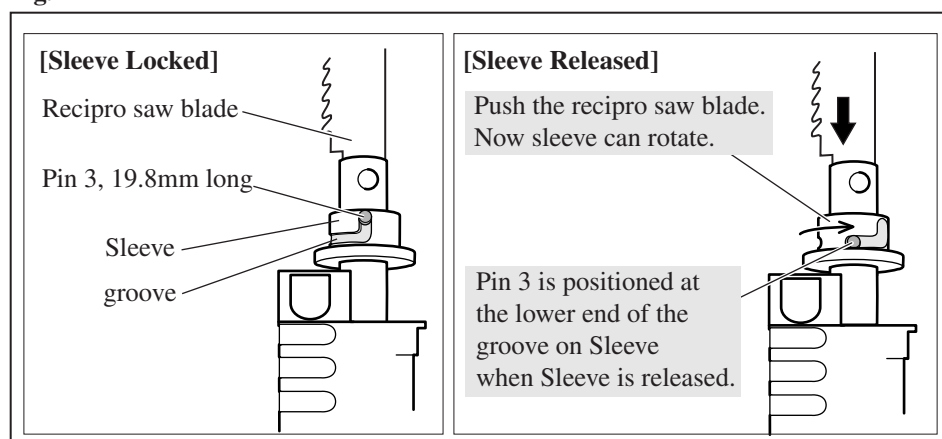


**Fig. 3**



- 3) Sleeve is still locked at this stage. Therefore, release it using a reciprocating saw blade as illustrated in **Fig. 4**.

**Fig. 4**

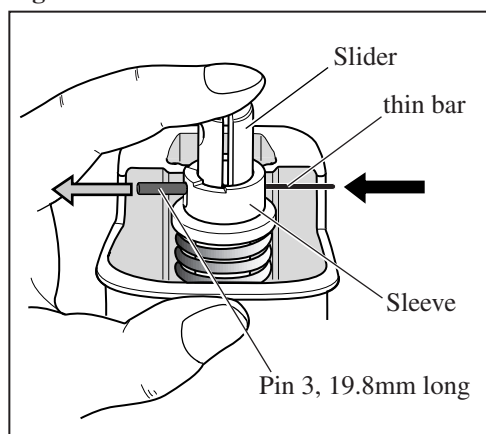


- 4) While putting your finger on the top of Slider to close the slit of Slider, remove Pin 3 (of 19.8mm length) by pushing with a thin bar. (**Fig. 5**)

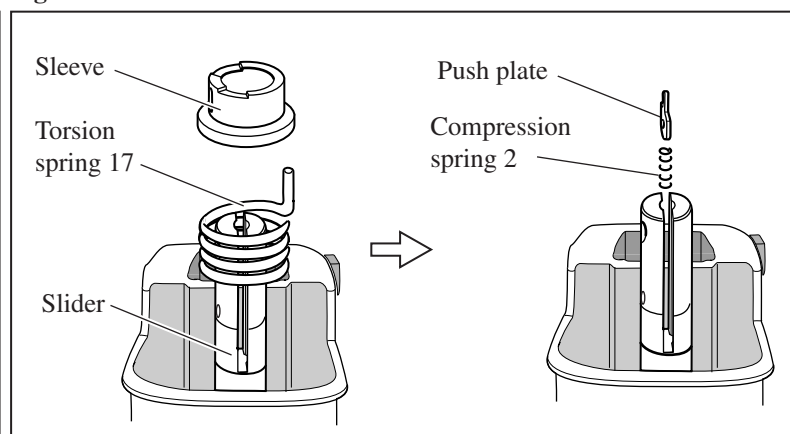
**Note:** Be sure to put your finger on the top of Slider or Push plate will pop out from the slit of Slider.

- 5) Remove Sleeve and Torsion spring 17 from Slider, then take Push plate and Compression spring 2 out of the slit of Slider. (**Fig. 6**)

**Fig. 5**



**Fig. 6**



## ► Repair

### [3] -1. Blade Clamp Section (cont.)

#### ASSEMBLING

- 1) Assemble Torsion spring 17 to Slider as illustrated in **Fig. 7**.

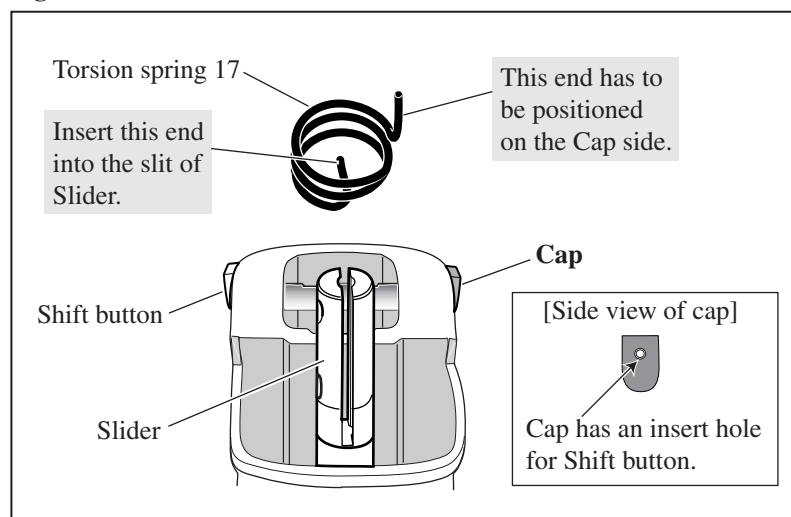
**Important:** Be sure that Torsion spring 17 is not reversible when assemble to Slider.

Follow the instruction described in **Fig. 7**.

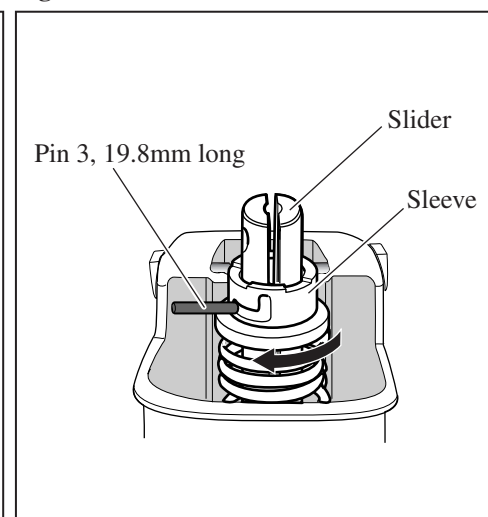
- 2) Insert Compression spring 2 into the slit of Slider.

- 3) Install Sleeve on Slider, and lock Pin 3 provisionally by turning Sleeve clockwise. (**Fig. 8**)

**Fig. 7**



**Fig. 8**



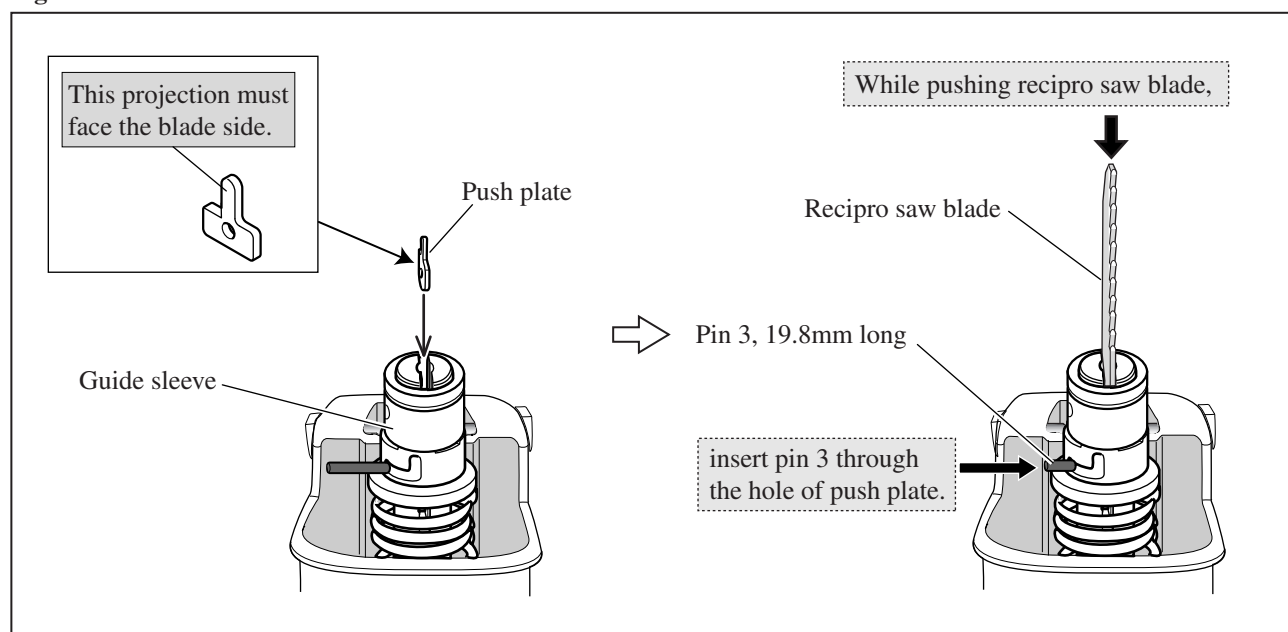
- 4) Mount Guide sleeve provisionally, then put Push plate into the slit of Slider as illustrated to left in **Fig. 9**.

**Important:** Be sure that Push plate is not reversible when installed.

While pushing Push plate straight into Slider with reciprocating saw blade, insert Pin 3 (of 19.8mm length) through the hole of Push plate as illustrated to right in **Fig. 11**. Then remove Guide sleeve.

**Note:** Guide sleeve is used as a jig, not assembled to Slider yet in this step.

**Fig. 9**



## ► Repair

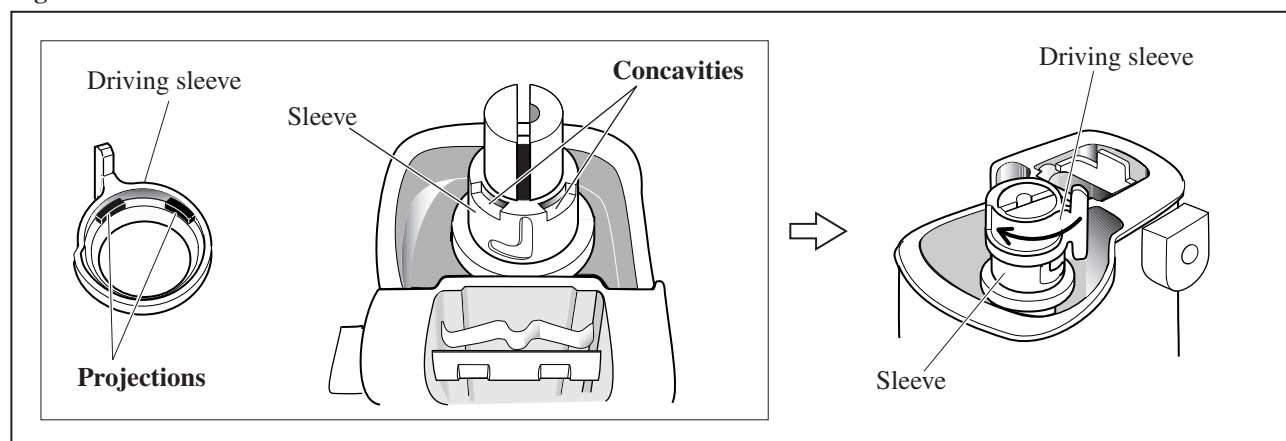
### [3] -1. Blade Clamp Section (cont.)

- 5) While fitting the two projections of Driving sleeve in the concavities of Sleeve, push Driving sleeve into Gear housing. At this time, turn Driving sleeve clockwise so that the protruding portion of Driving sleeve cannot be interfered by Gear housing. After Driving sleeve is pushed into Gear housing to the full, turn Driving sleeve clockwise to lock Pin 3 in place. (Fig. 10)

**Note:** Driving sleeve is used as a jig to lock Pin 3 in place, not assembled to Slider in this step.

- 6) Remove Driving sleeve.

**Fig. 10**



- 7) Assemble the following parts to Slider (Refer to Fig. 3.):

Driving sleeve guide, Guide sleeve, Pin 3 (of 6mm length), Shoulder pin 5, Compression spring 6

- 8) Put Driving sleeve over Guide sleeve and secure with Retaining ring S-18 using No.1R291.

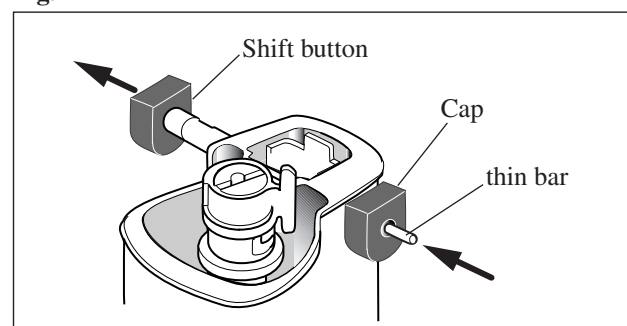
Then cover Driving sleeve with Protector. (When installing Driving sleeve, fit its projections in the concavities of Sleeve and Driving sleeve guide.)

### [3] -2. Shift Button and Cap

#### DISASSEMBLING

Shift button can be removed from Gear housing cover by inserting a thin bar into the hole of Cap and push the bar. (Fig. 11)

**Fig. 11**



#### ASSEMBLING

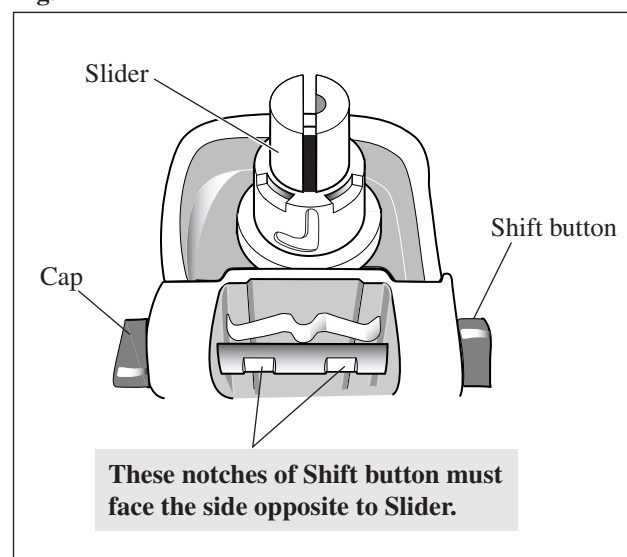
- 1) Replace Cap by new one because removal of Shift button damages the inside surface of Cap.
- 2) From Shift button, remove all the plastic dust scraped off the removed Cap. Insert Shift button through the holes in the both sides of Gear housing cover.

Then press-fit Shift button in the new Cap by hand.

#### **Important:**

Be sure to assemble Shift button to Gear housing cover so that the two notches of Shift button face the side opposite to slider as illustrated in Fig. 12.

**Fig. 12**





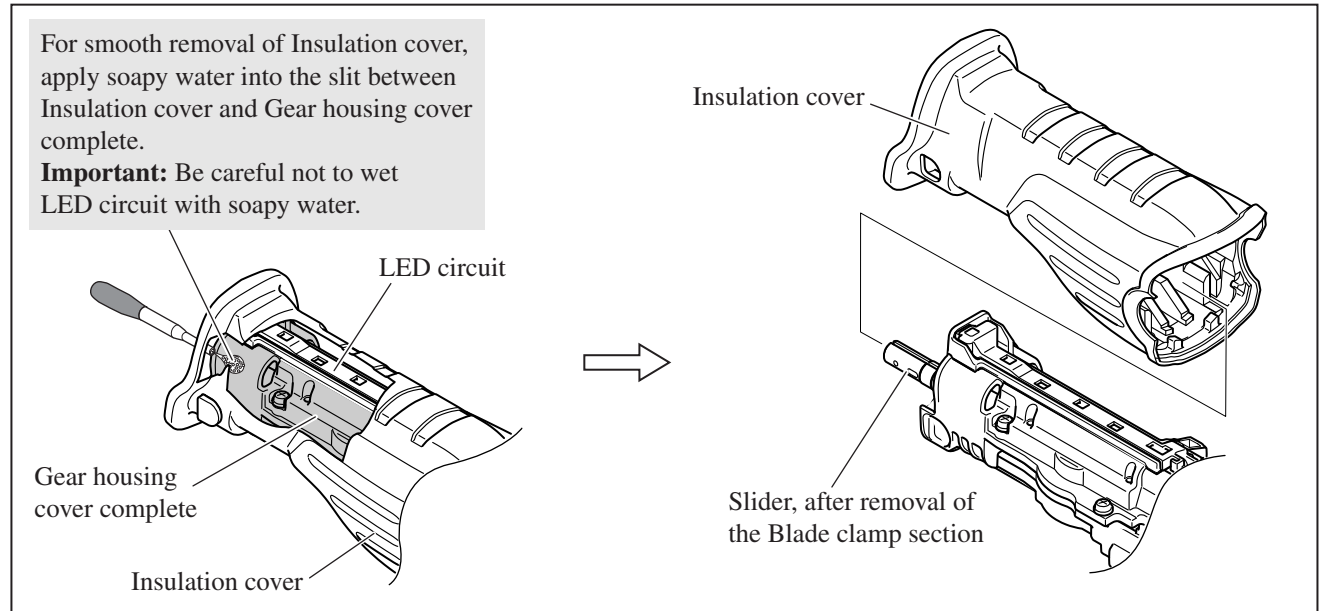
## ► Repair

### [3] -3. Slider Section

#### DISASSEMBLING

- 1) After removing Shoe, then Insulation cover. (Fig. 13)
- 2) Remove the Blade clamp section. (See "[3] -1. Blade Clamp Section.)

Fig. 13



- 3) Remove Cover from LED circuit, then disconnect the connector from the connector of Power supply unit. (Fig. 14)
- 4) Remove LED circuit from Gear housing cover complete by lifting up as illustrated in Fig. 15,
- 5) Remove Gear housing cover complete from Gear housing complete by unscrewing four M5x25 Pan head screws. (Fig. 16)

Fig. 14

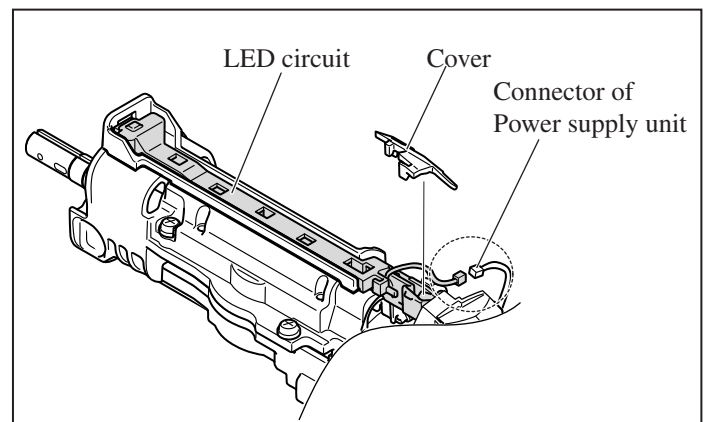


Fig. 15

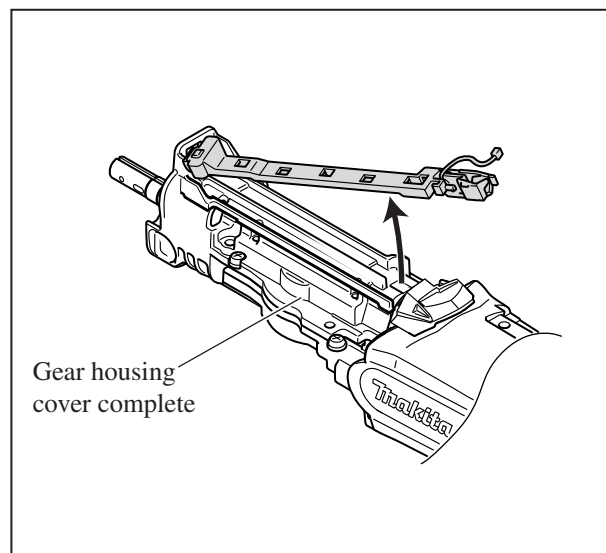
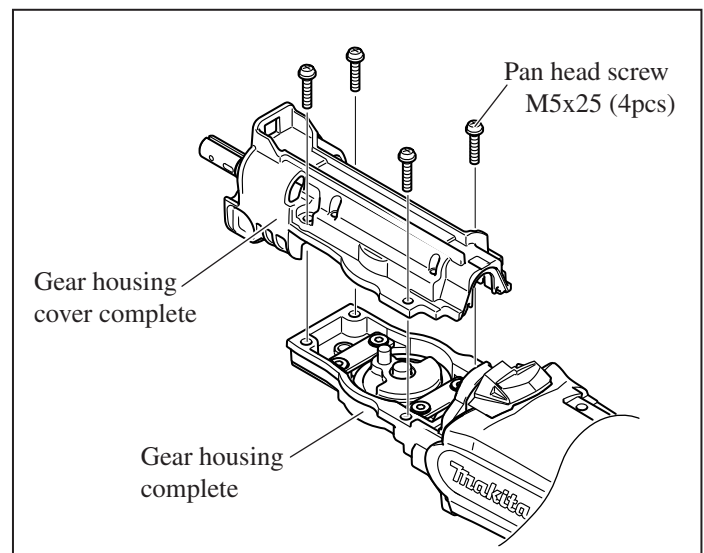


Fig. 16



## ► Repair

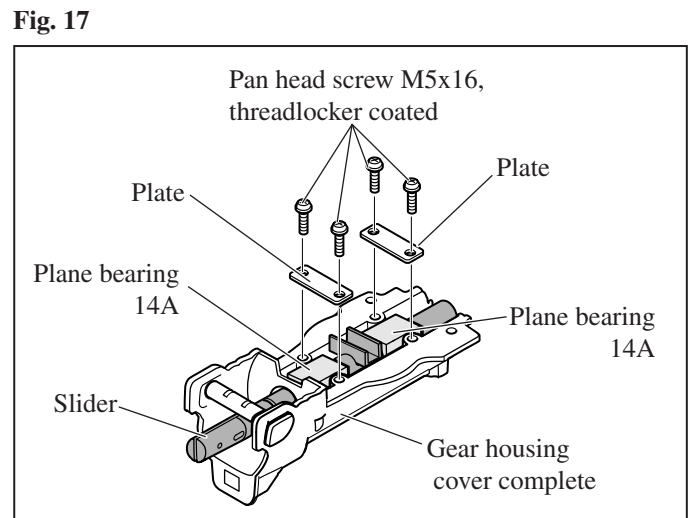
### [3] -3. Slider Section (cont.)

#### DISASSEMBLING

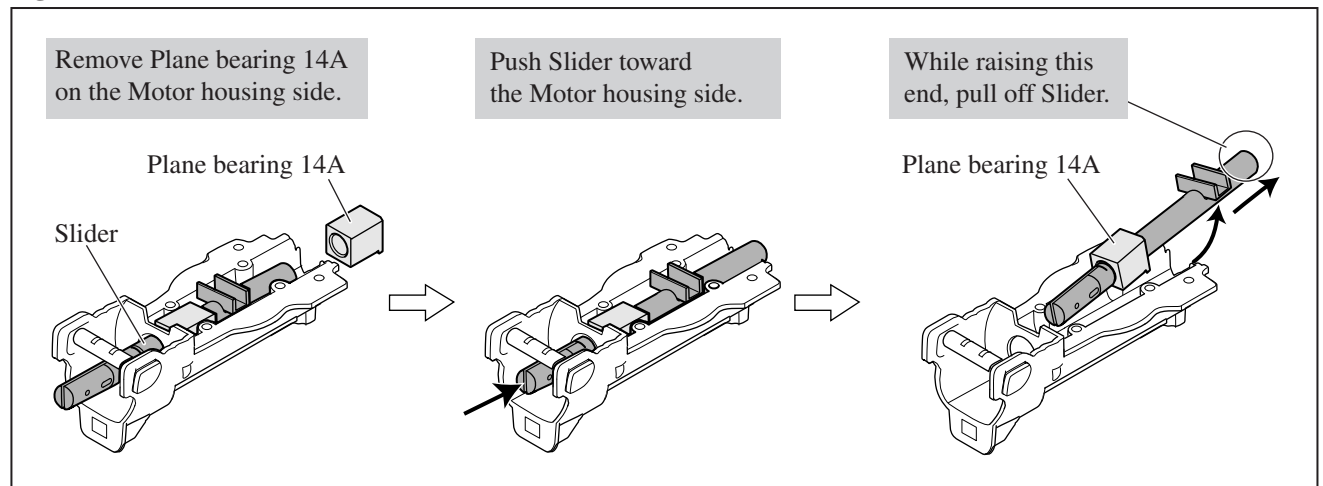
- 6) Remove two Plates from Gear housing cover complete by unscrewing four M5x16 Pan head screws. (Fig. 17)

**Note:** It is recommended to use impact driver to remove the screws because they are coated with threadlocker.

- 7) Disassemble Slider as illustrated in Fig. 18.



**Fig. 18**



#### ASSEMBLING

Do the reverse of disassembling steps.

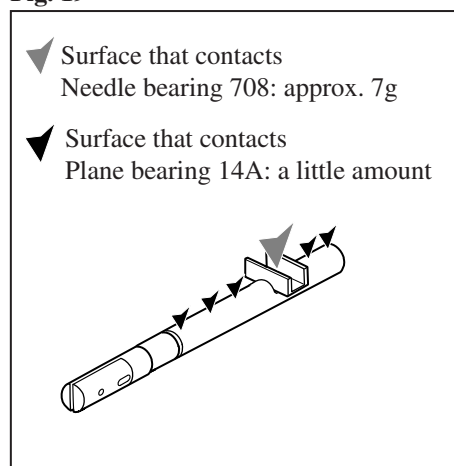
**Note:**

- a) Do not forget to apply Makita grease FA No.2 to slider before assembling. (Fig. 19)

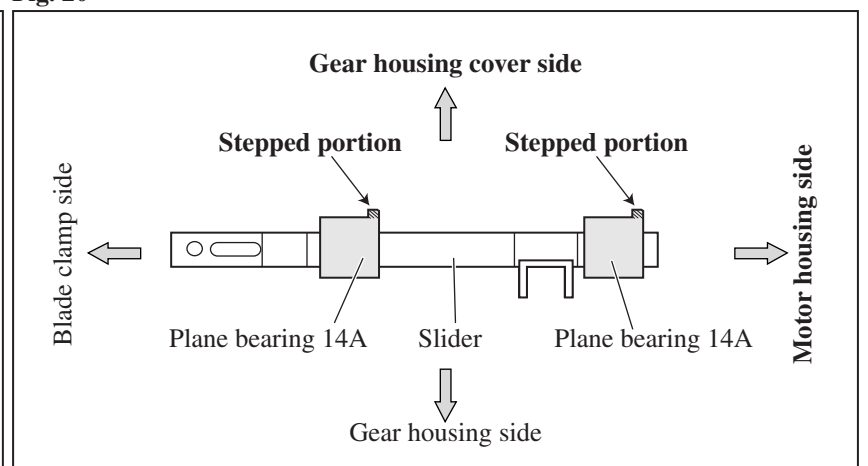
- b) Both of the two 14A Plane bearings are not reversible when assembled to Slider.

Be sure to assemble as illustrated in Fig. 20.

**Fig. 19**



**Fig. 20**



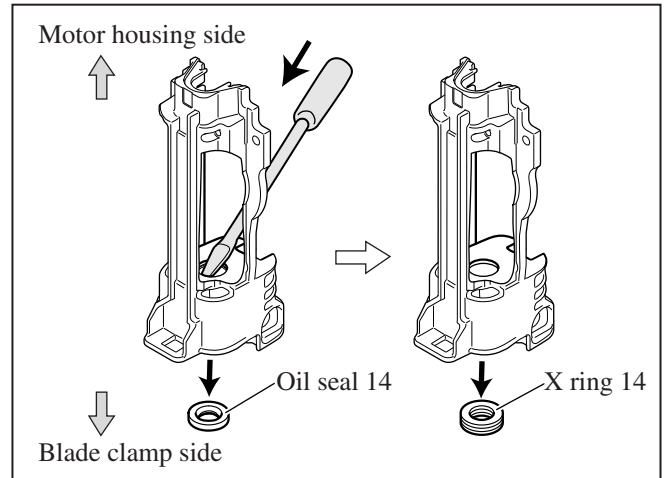
## ► Repair

### [3] -4. Oil Seal 14, X Ring 14

#### DISASSEMBLING

- 1) Referring to "[3]- 3. Slider Section", separate Gear housing cover complete from the tool.
- 2) Oil seal 14 can be removed by pushing X ring 14 toward the Blade clamp side using a slotted screwdriver as illustrated to **left in Fig. 21**.
- 3) X ring 14 can now be removed by pushing toward the Blade clamp side by hand as illustrated to **right in Fig. 21**.

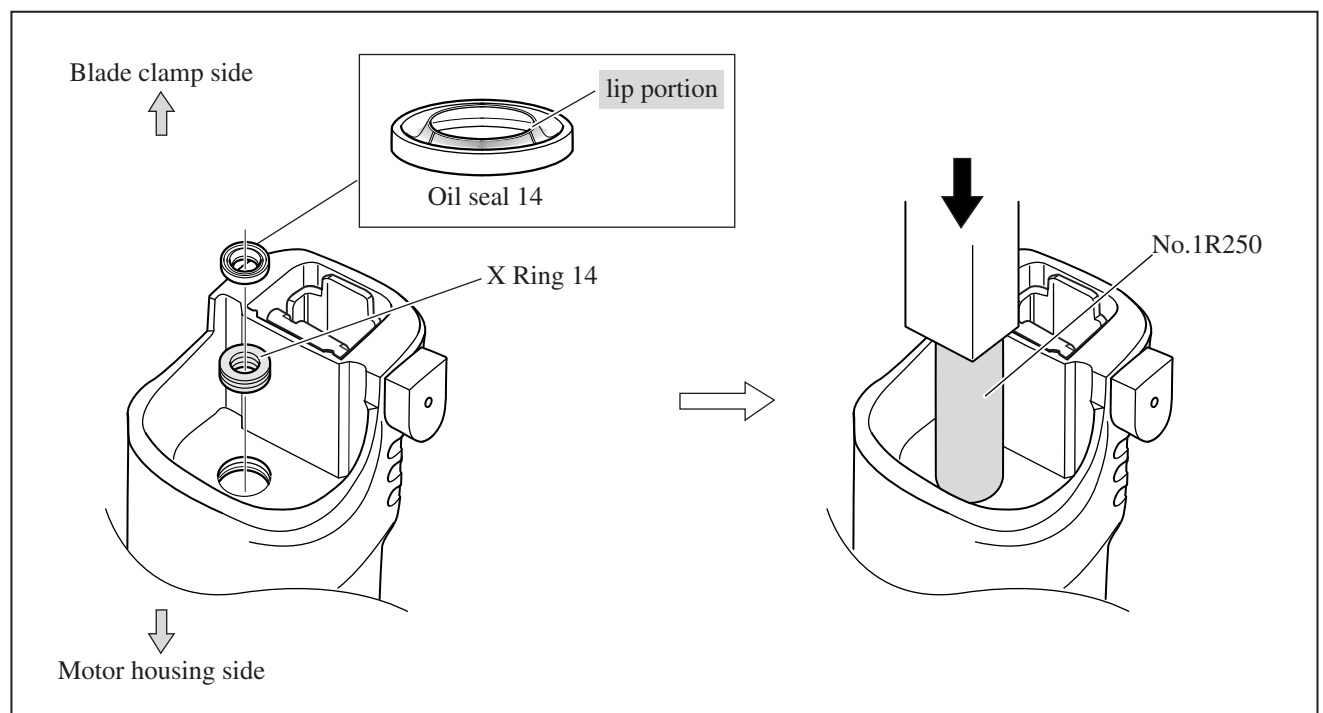
Fig. 21



#### ASSEMBLING

- 1) As illustrated to **left in Fig. 22**, assemble X ring 14 to Gear housing cover complete from the Blade clamp side, then put Oil seal 14 onto X ring 14.  
**Note:** Oil seal 14 is not reversible when assembled to Gear housing complete. Be sure to assemble so that the lip portion of Oil seal 14 faces toward the Blade clamp side.
- 2) As illustrated to **right in Fig. 22**, set Round bar for arbor 26-100 (No.1R250) on Oil seal 14, then press down with arbor press until the end of the lip portion of Oil seal 14 gets is flush with the top surface of the ring installation hole of Gear housing cover complete.

Fig. 22



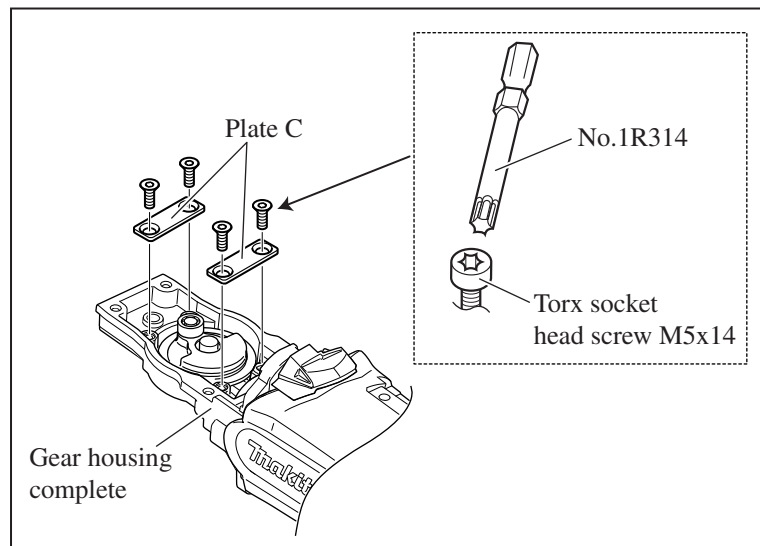
## ► Repair

### [3] -5. Gear Assembly

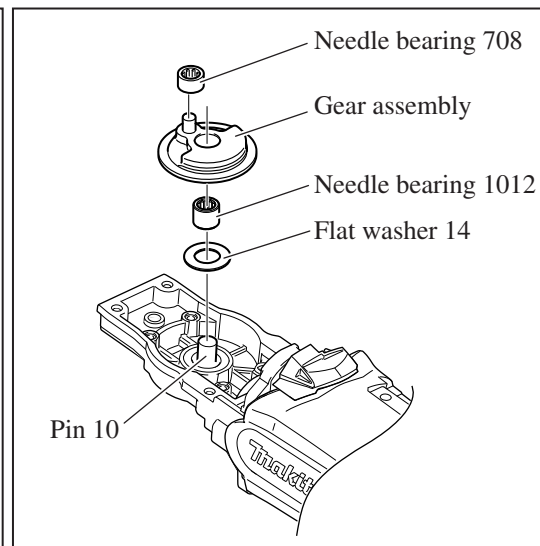
#### DISASSEMBLING

- 1) Referring to "[3]- 3. Slider Section", remove Gear housing cover complete from Gear housing complete.
- 2) Remove two C Plates by unscrewing four M5x14 Torx socket head screws with Torx bit VT-25 (No.1R314). (**Fig. 23**)  
**Note:** It is recommended to use impact driver to remove the screws because they are coated with threadlocker.
- 3) The following parts can now be removed from Gear housing complete (**Fig. 24**);  
 Gear assembly, Needle bearing 708, Needle bearing 1012, Flat washer 14

**Fig. 23**



**Fig. 24**



#### ASSEMBLING

Do the reverse of the disassembling steps.

**Note:** a) Apply Makita grease FA No.2 to the following parts, before assembling:

\*Flat washer 14: the surface that contacts Gear assembly

\*Pin 10 (of Gear housing complete): surface that contacts Gear assembly

- b) Torx socket head screw M5x14 is threadlocker coated. Therefore, if reusing the screw, be sure to apply adhesive before tightening.

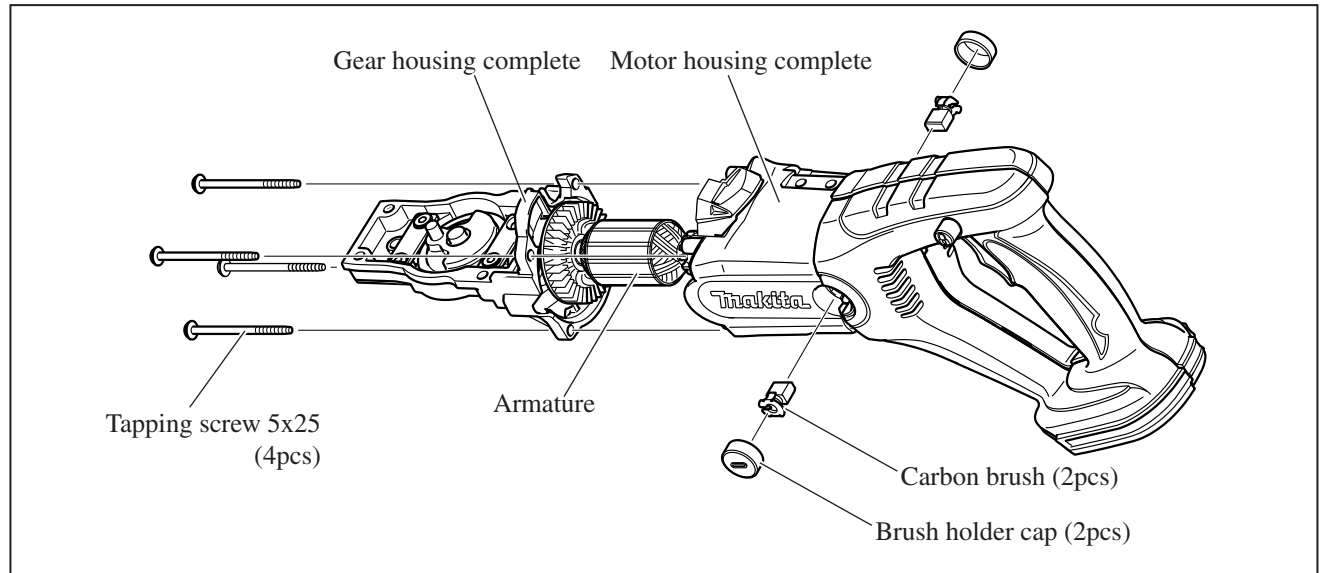
## ► Repair

### [3] -6. Armature

#### DISASSEMBLING

- 1) Separate Gear housing cover complete from Gear housing complete. (fFig. 13 to Fig. 16)
- 2) Remove Carbon brushes. Then separate the assembly of Armature and Gear housing complete from Motor housing complete by unscrewing four 5x25 tapping screws. (Fig. 25)

Fig. 25



- 3) Remove two M5x16 Pan head screws that fasten Bearing retainer 63 to Gear housing complete. The assembly of Armature and Bearing retainer 63 can now be removed from Gear housing complete by tapping the end surface of Gear housing complete. (Fig. 26)
- 4) Remove Retaining ring S-12 using Retaining ring S and R pliers (No.1R291), then Ball bearing 6001DDW using Bearing extractor (No.1R269). Bearing retainer 63 can now be removed. (Fig. 27)

Fig. 26

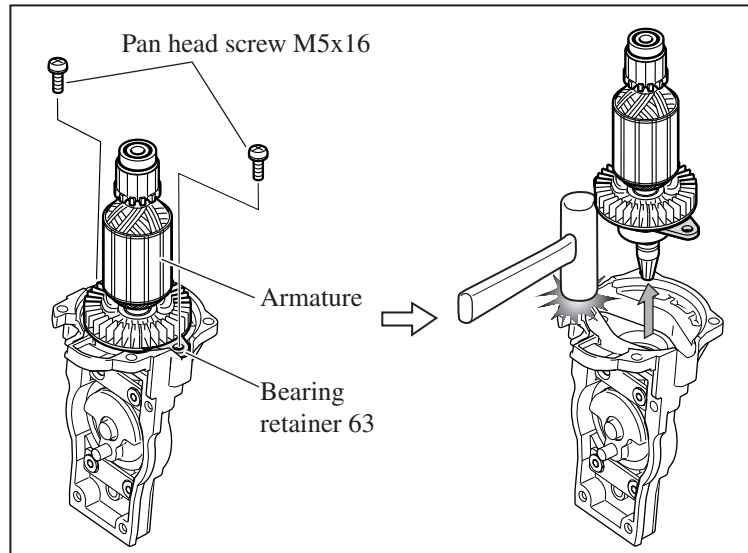
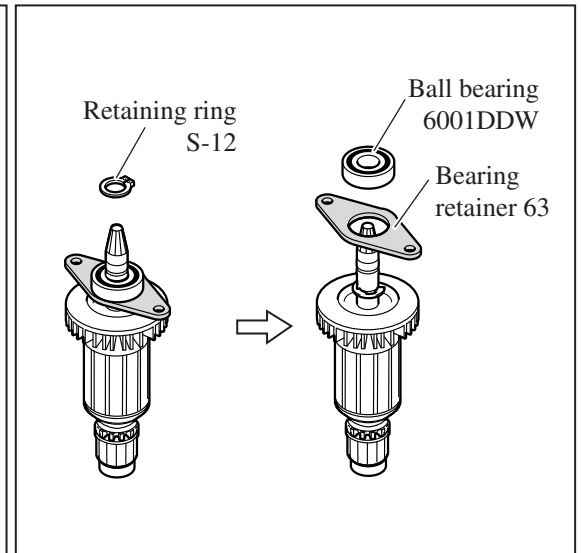


Fig. 27

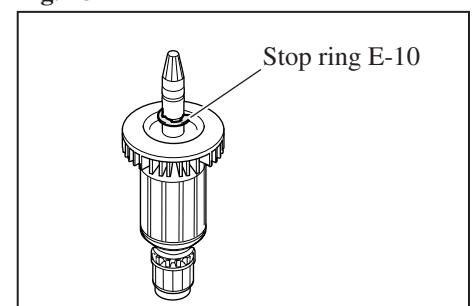


#### ASSEMBLING

Do the reverse of the disassembling steps.

**Note:** Make sure that Stop ring E-10 is assembled in place on Aarmature shaft to secure Ball bearing 6001DDW. (Fig. 28)

Fig. 28



## ► Repair

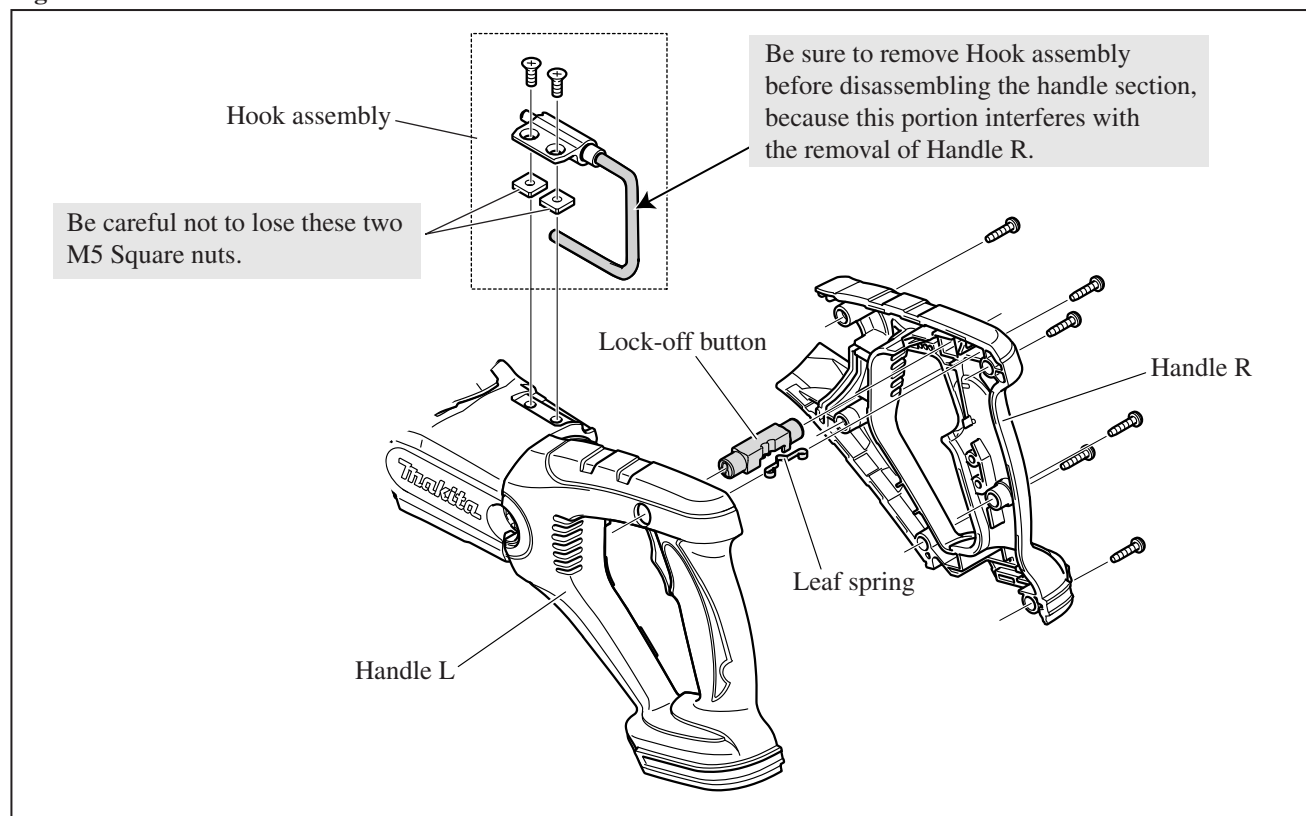
### [3] -7. Handle Section

#### DISASSEMBLING

See **Fig. 29**.

- 1) Removing Hook assembly.
- 2) Remove Handle R by unscrewing six 4x20 Tapping screws.

**Fig. 29**

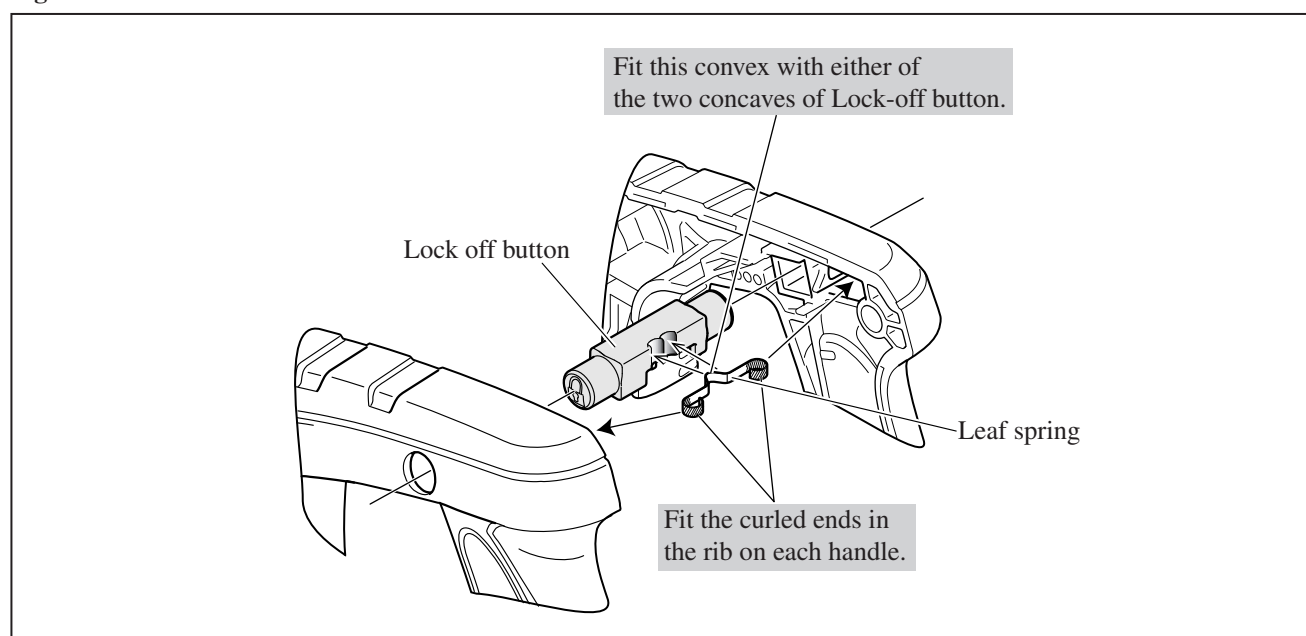


#### ASSEMBLING






Do the reverse of the assembling steps.

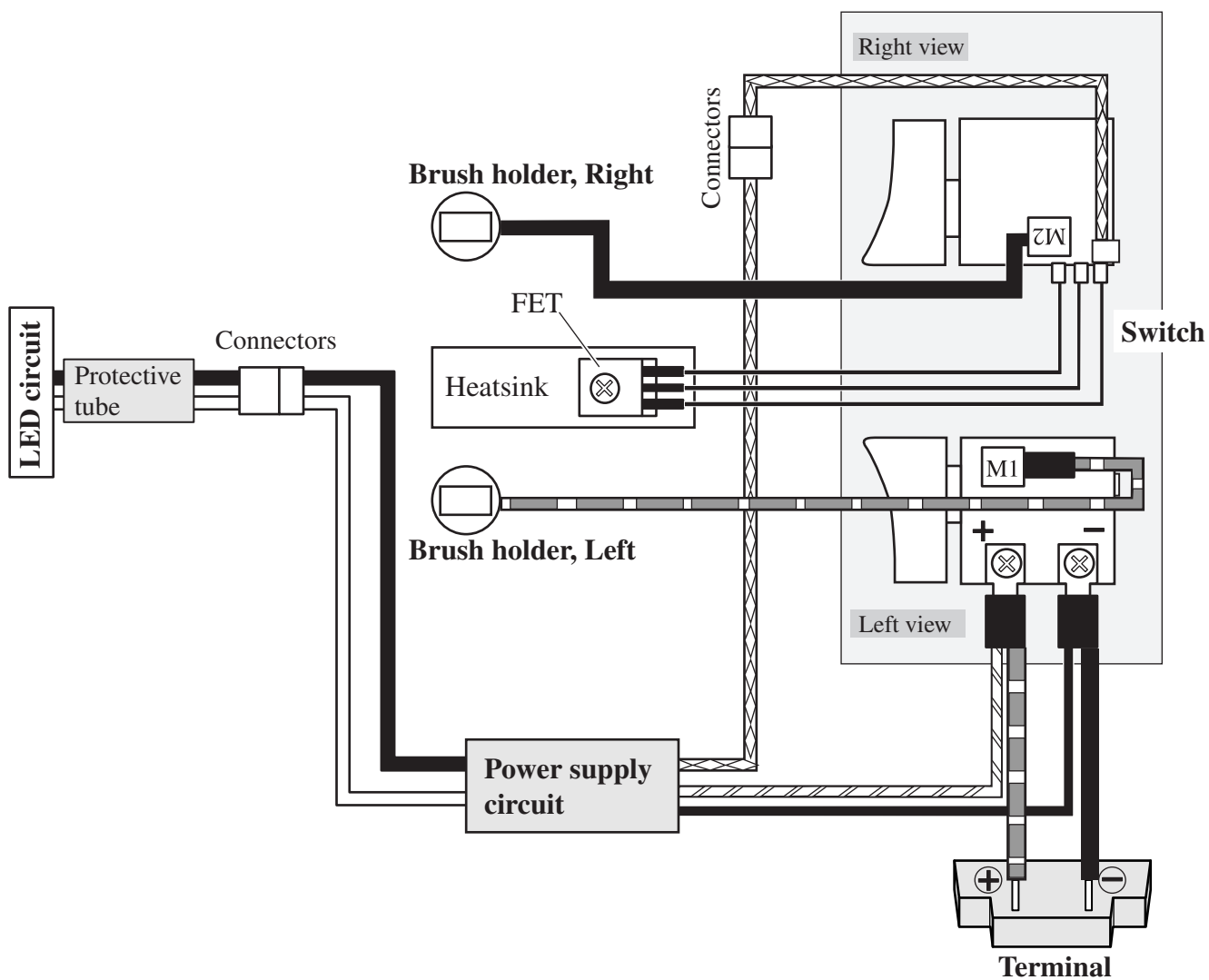
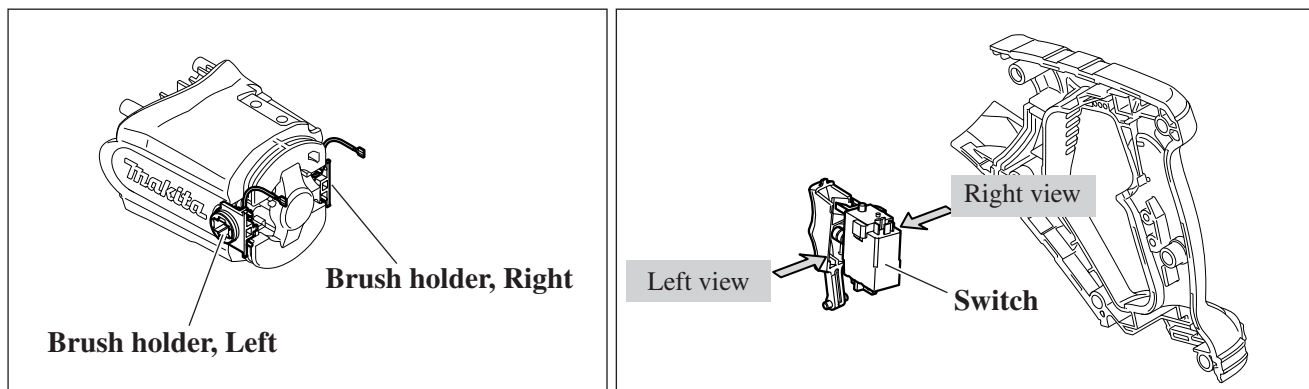
**Note:** When assembling Lock-off button to the Handle section, do as illustrated in **Fig. 30**.

**Fig. 30**



## ► Circuit diagram

Color index of lead wires' sheath	
Black	
White	
Red	
Orange	
Blue	





## ► Wiring diagram

### 1) Handle L

Be careful not to route Brush holder lead wire (red) over this boss.

**Handle L**

Fix Brush holder lead wire (black) with this lead wire holder.

#### Fastening Connecting Terminals to Switch

See bottom left of this page.

Be careful not to route lead wire (blue) over this rib.

**Switch**

boss

rib

Fix the following lead wires with these lead wire holders:

- \* Lead wire (blue) from Power supply circuit to Connector
- \* Lead wire (blue) from Switch to Connector

**Power supply circuit**

**Connector**

#### Connecting Flag Connector to Terminal

See bottom right of this page.

**Terminal**

boss

Lead wire holder

With this lead wire holder, fix the following lead wires from Power supply circuit:

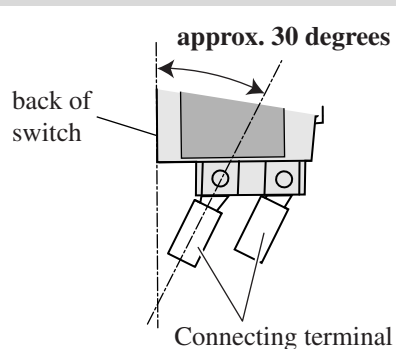
- \*2 Lead wires (black, orange) to Switch
- \*Lead wire (blue) to Connector

Between this boss and the inside wall of Handle, route the following lead wires from Power supply circuit:

- \*2 Lead wires (black, orange) to Switch
- \*Lead wire (blue) to Connector

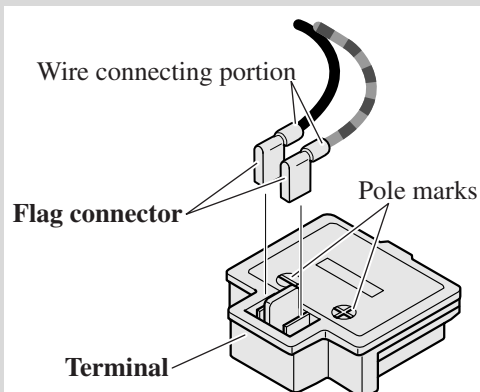
#### Fastening Connecting Terminals to Switch

Assemble the Connecting terminals to Switch as illustrated below.



#### Connecting Flag Connector to Terminal

The flag connector has to be so connected that the wire connecting portion is positioned on the side of pole marks of Terminal.

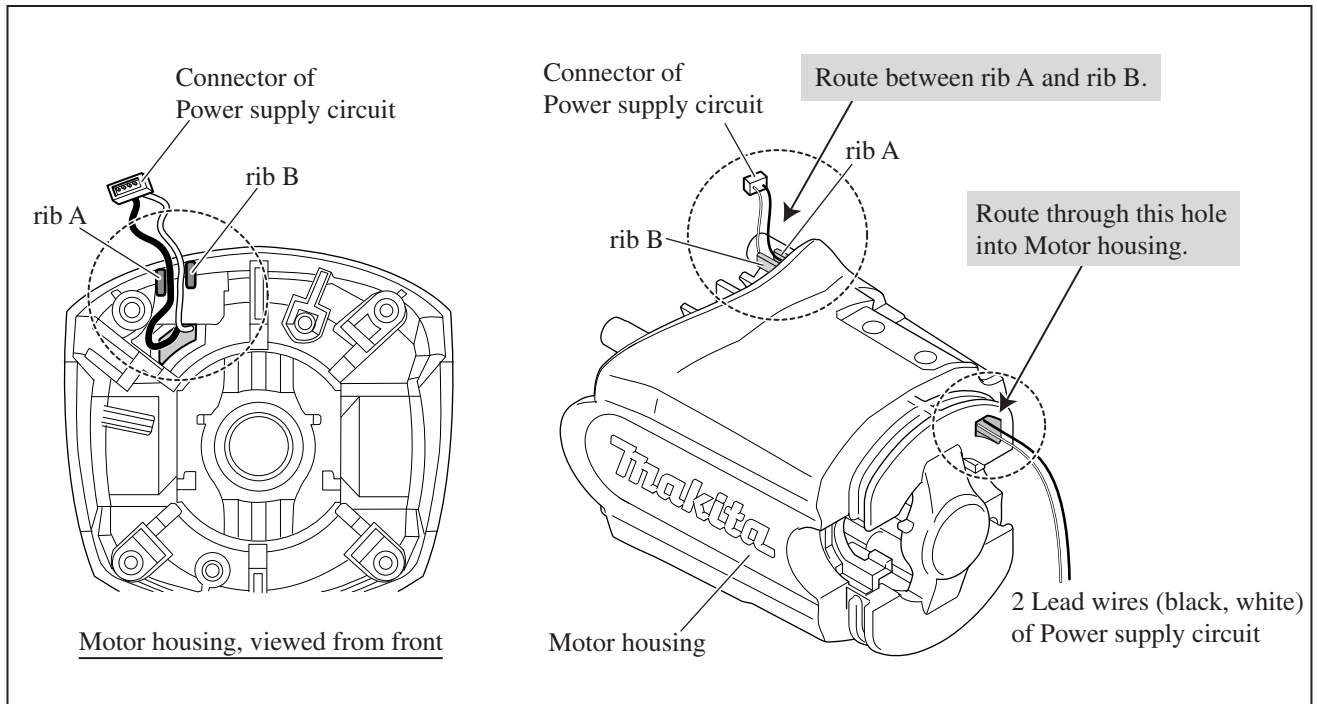




## ► Wiring diagram

### 2) Motor Section

Route the two Lead wires (black, white) of Power supply circuit as illustrated below.



### 3) LED Circuit

Put the connectors (connector of LED circuit and that of Power supply circuit) in place as illustrated below.

