

**Model No.** ▶ BDF440

**Description** ▶ Cordless Driver Drill 13mm (1/2")

## CONCEPT AND MAIN APPLICATIONS

Model BDF440 has been developed as a sister model of Model BDF430F with the design concept of "More Control and Maneuverability".

Features lightweight and compact design achieved by using 4-pole motor and Lithium-ion battery as power unit.

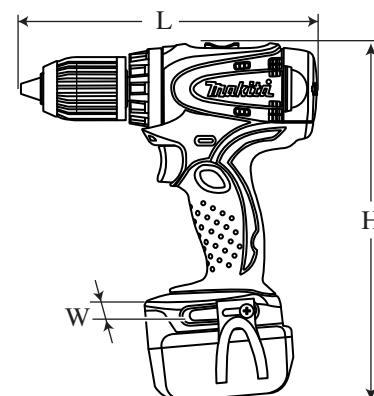
Additionally, equipped with rubberized soft grip contoured to perfectly fit operator hand and angled to provide best tool balance.

Also features the same advantages as BDF430F:

- All metal gear construction
- Job light with afterglow function
- Single sleeve chuck

This new product will be available in the following variations.

Model No.		Battery		Charger
		type	quantity	
BDF440SFE	Low voltage areas	BL1430 (Li-ion 3.0Ah)	2	DC18SC
	High voltage areas			DC14SC



Dimensions: mm (")	
Length (L)	186 (7-3/8)
Width (W)	79 (3-1/8)
Height (H)	242 (9-1/2)

## ► Specification

Battery	Voltage: V	14.4
	Capacity: Ah	3.0
	Cell	Li-ion
No load speed: min-1=rpm	High speed	0 - 1,400
	Low speed	0 - 400
Capacity of drill chuck: mm (")		1.5 - 13 (1/16 - 1/2)
Capacity: mm (")	Steel	13 (1/2)
	Wood	27 (1-1/16)
Torque setting		16 stage + drill mode
Max. clutch torque: N.m (in.lbs)		1.0 - 5.0 (8.9 - 44.3)
Max. fastening torque: N.m	Soft joint	25
	Hard joint	41
Electric brake		Yes
Constant speed control		Yes
Reversing switch		Yes
Net weight*: kg (lbs)		1.6 (3.5)

\*Includes battery BL1430

## ► Standard equipment

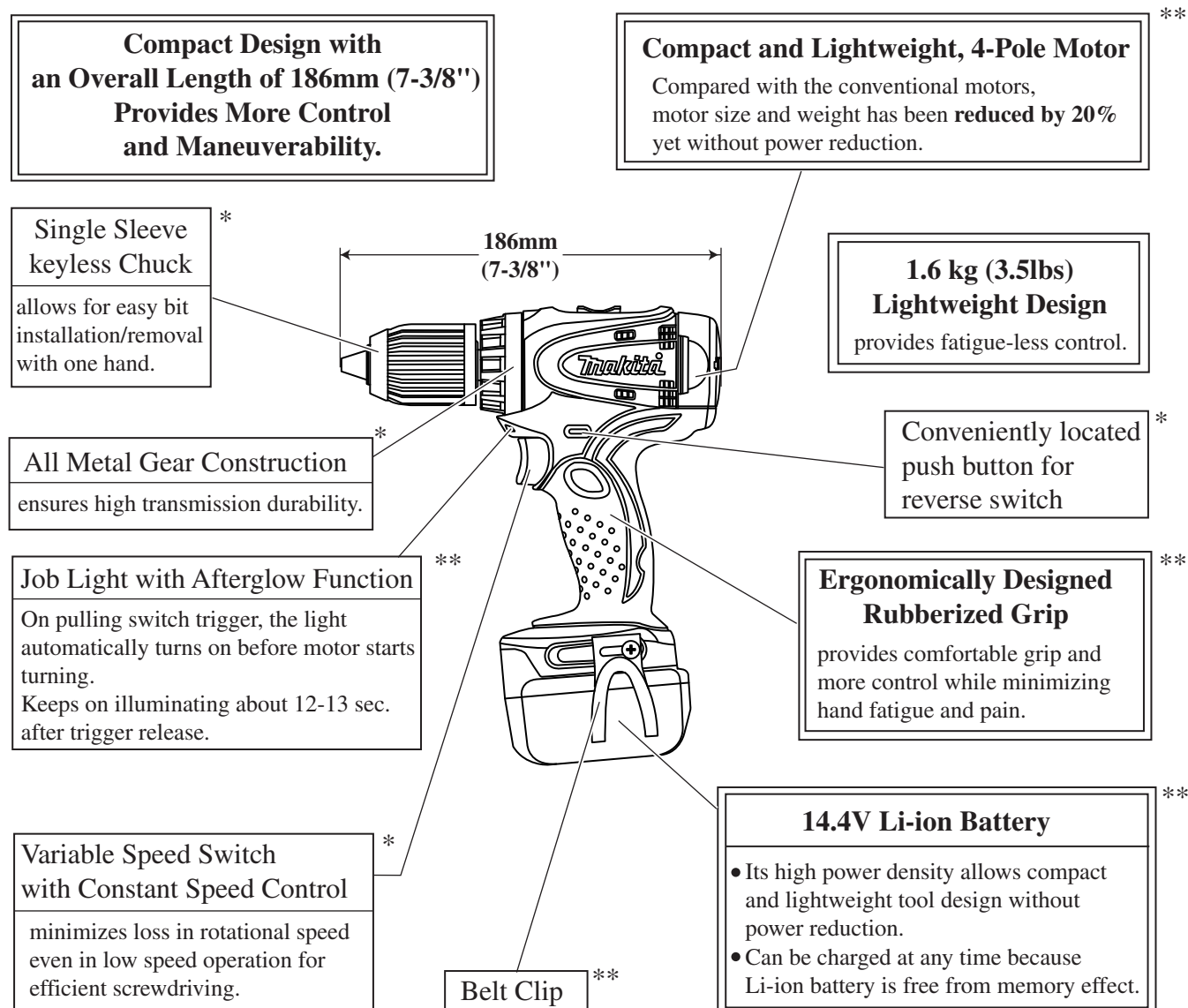
Philips bit 2-65 ..... 1 pc      Plastic carrying case ..... 1 pc  
Belt clip..... 1 pc

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

## ► Optional accessories

Charger DC18SC      Assorted drill bits for wood  
Charger DC14SC      Assorted drill bits for metal  
Charger DC24SA  
Charger DC24SC  
Li-ion battery BL1430

## ► Features and benefits

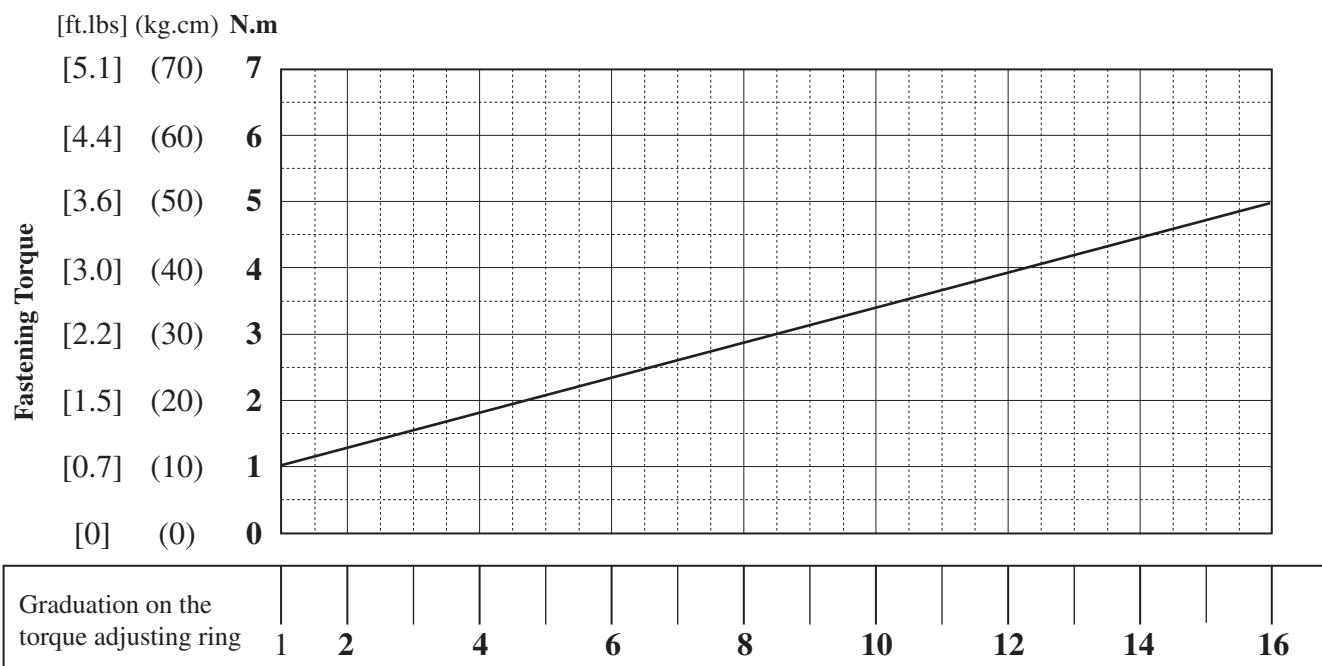


\*The same advantages as Model BDF430F

\*\*The same advantages as Model BTD130F

## ► Features and benefits

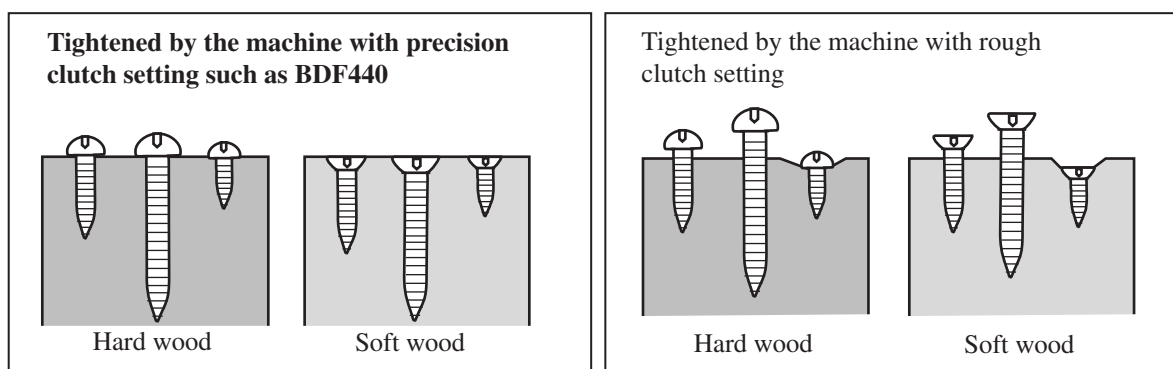
### The Graduation on Torque Adjusting Ring and Corresponding Fastening Torque (The Torque When Clutch Is Disengaged=Max. clutch torque)



Applicable screw	Machine screw		M4	M5		M6
	Wood screw	Soft wood (pine, etc.)	dia. 3.5x22mm		dia. 4.1 x 38mm	
		Hard wood (lauan, etc.)	dia. 3.5 x 22mm		dia. 4.1 x 38mm	

#### 16 Stage torque settings allows;

- 1) to perform appropriate torque setting in tightening M4 to M6 machine screws.
- 2) in tightening wood screws, to drive the screw heads to a uniform height regardless of the screw size or the hardness of wood. (See the figures below.)



## ► Comparison of products

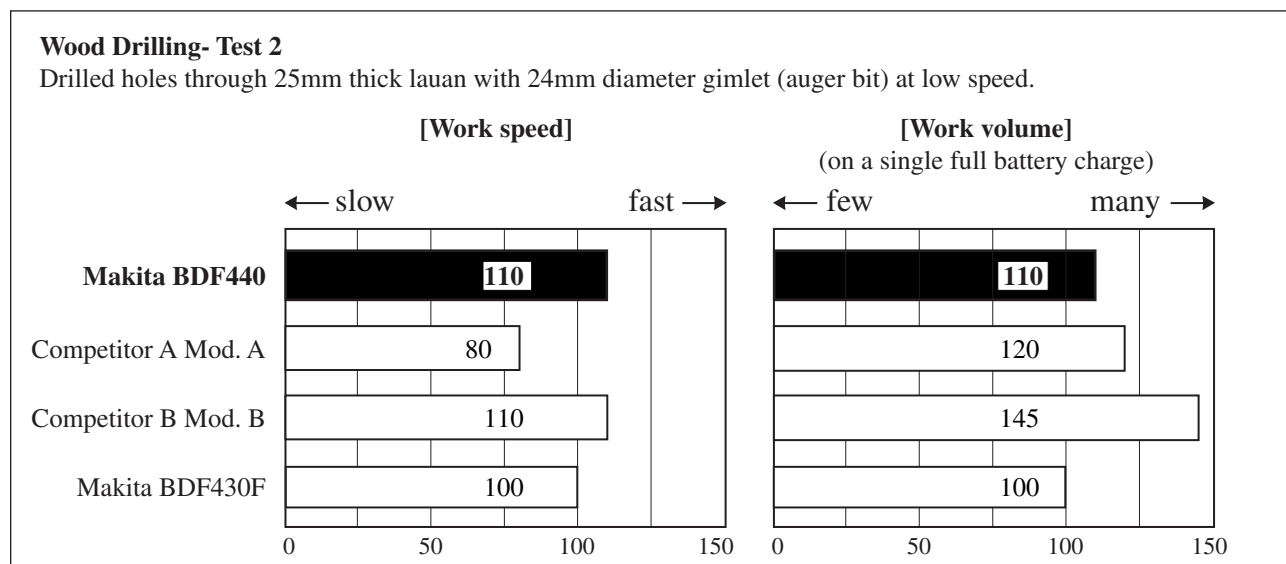
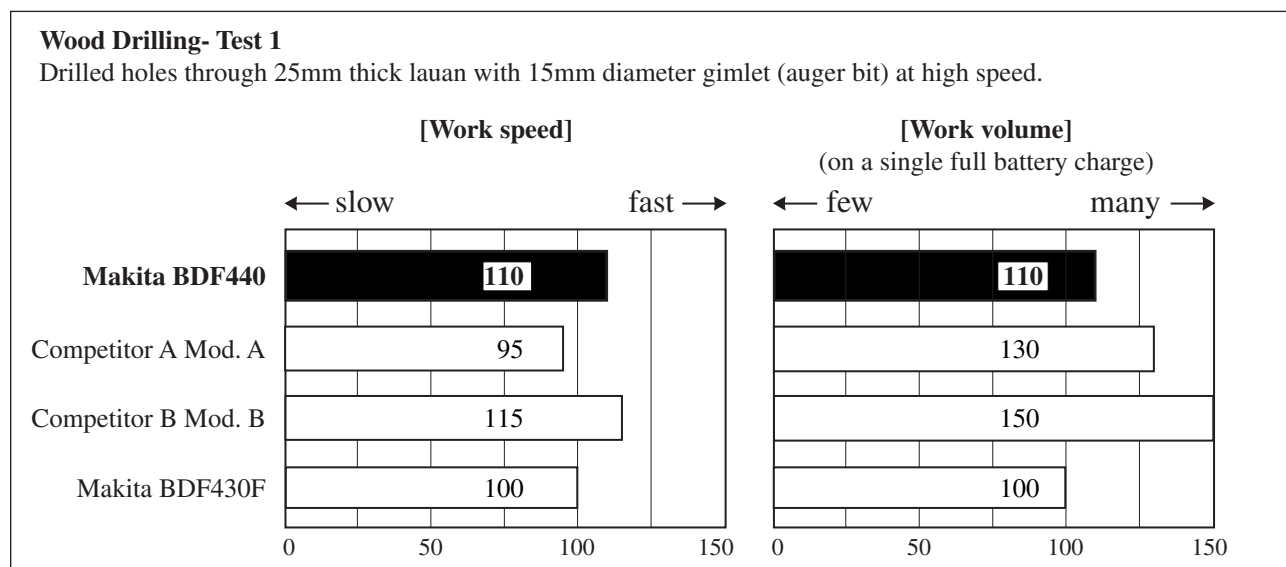
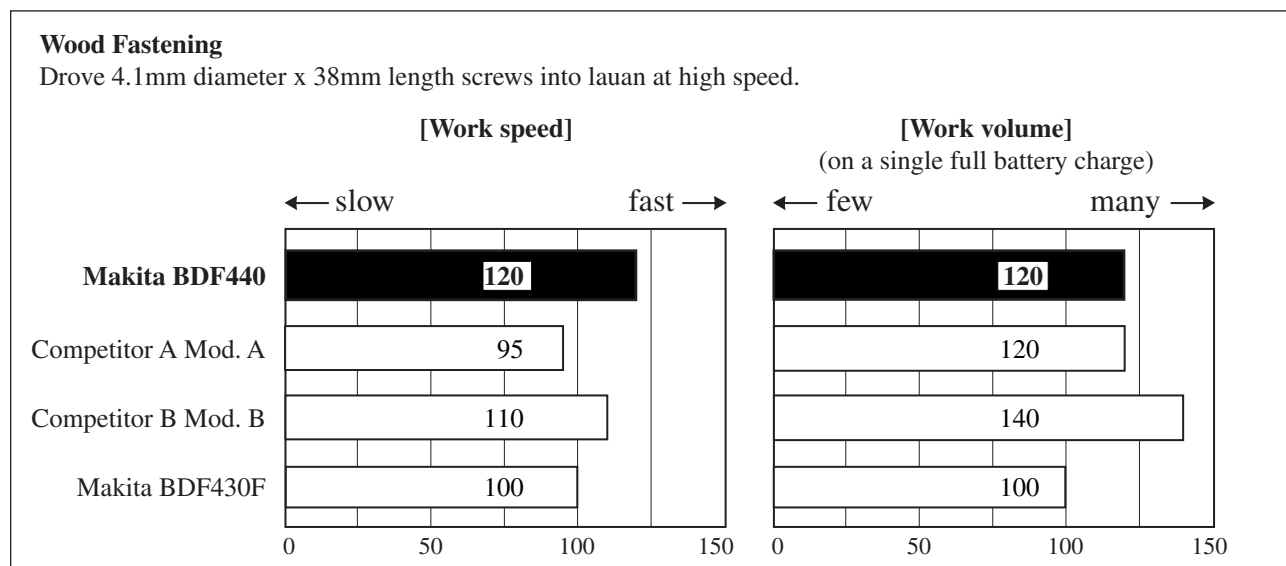
Model No. Specifications		Makita		Competitor A	Competitor B
		BDF440	BDF430F	Model A	Model B
Battery	Voltage: V	14.4	12	14.4	15.6
	Capacity: Ah	3.0	2.0 / 3.3	3.0	3.5
	Cell	Li-ion	Ni-MH	Ni-MH	Ni-MH
No load speed: min-1= rpm	High	0 - 1,400	0 - 1,300	0 - 1,200	200 - 1,450
	Low	0 - 400	0 - 380	0 - 350	65 - 450
Type of keyless drill chuck		Single sleeve	Single sleeve	Single sleeve	Single sleeve
Chuck Capacity: mm (")		13 (1/2)	13 (1/2)	13 (1/2)	13 (1/2)
Lock Torque: N.m (in.lbs)		36 (320)	35 (310)	39 (345)	44.1 (390)
Max. fastening torque: N.m	Hard joint	41	36	N/A	44.1
	Soft joint	25	22	N/A	31.9
Capacity: mm (")	Steel	13 (1/2)	13 (1/2)	13 (1/2)	13 (1/2)
	Wood	27 (1-1/16)	27 (1-1/16)	36 (1-7/16)	36 (1-7/16)
Torque adjustment		16 + Drill mode	16 + Drill mode	22 + Drill mode	21 + Drill mode
LED Job light	Afterglow type	Yes	Yes	No	No
	Normal type				
Belt clip		Yes	Yes	Yes	No
Replaceable carbon brush		Yes	Yes	No	No
Soft grip		Yes	Yes	Yes	No
Dimensions: mm (")	Length	186 (7-3/8)	198 (7-3/4)	250 (9-7/8)	208 (8-3/16)
	Width	79 (3-1/8)	80 (3-1/8)	76 (3)	58 (2-1/4)
	Height	242 (9-1/2)	228/ 236 (9)/ (9-3/8)	242 (9-1/2)	229 (9)
Net weight: kg (lbs)		1.6 (3.5)	1.6/ 1.8 (3.5)/ (4.0)	2.1 (4.6)	2.2 (4.9)
Standard equipment	Magnetic bit 2-65	○	○	○	○
	Plastic carrying case	○	○	○	○
	Belt clip	○	○	○	
	Battery cover			○	○
	Side grip				○

## ► Comparison of products

### Performance Comparison

Numbers in charts below are relative values when the capacity of Model BDF430F is indexed at 100.

**Note:** The test results depend to a great extent on the hardness of the material, etc.



## ► Repair

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

### [1] NECESSARY REPAIRING TOOLS

Description	Use for
Hex wrench 10	Removing /mounting Drill chuck
Plastic hammer	Removing Drill chuck

### [2] LUBRICATION

It is not required to lubricate the gear section because the portion is replaced as a factory-lubricated gear unit.

### [3] DISASSEMBLY/ASSEMBLY

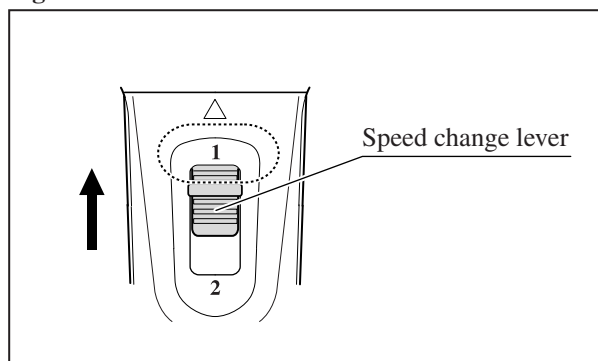
#### [3] -1. Drill Chuck

##### DISASSEMBLING

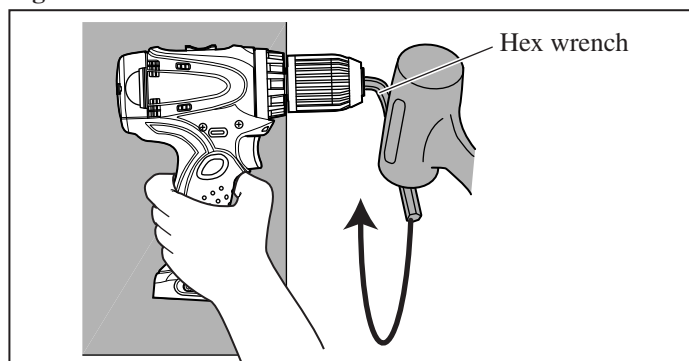
**Note:** It is required to remove Drill chuck when replacing Gear assembly, but you need not when replacing only Housing.

- 1) Open the jaws of Drill chuck fully, and remove the chuck screw (Flat head screw M6x22, left-handed and threadlocker coated) by turning **clockwise** with impact driver in Forward rotation mode.
- 2) Insert a hex wrench into Drill chuck. Then set the Speed change lever in Low speed as illustrated in **Fig. 1**.  
Holding the machine on work bench firmly, turn Drill chuck counterclockwise by tapping the hex wrench. (**Fig. 2**)  
Now Drill chuck can be removed from Spindle.

**Fig. 1**



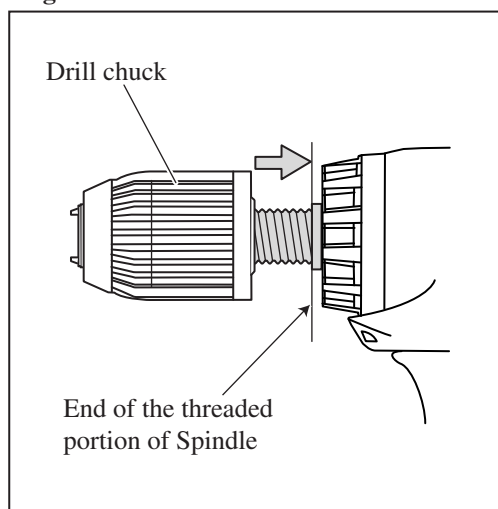
**Fig. 2**



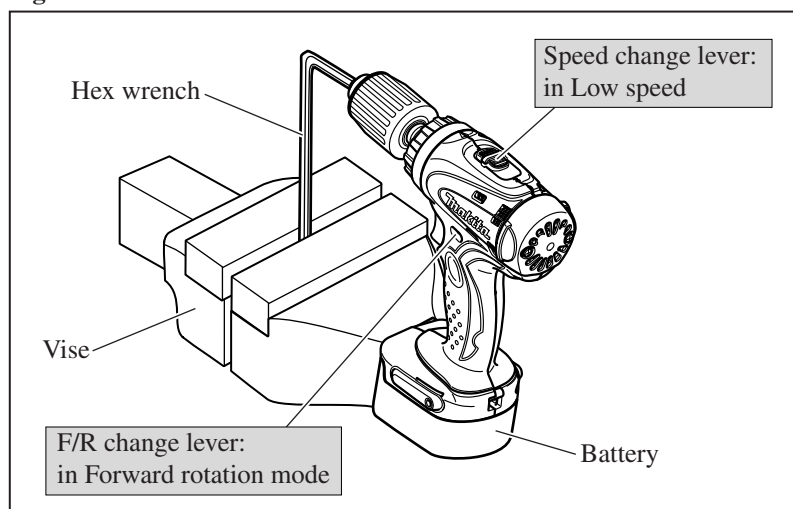
##### ASSEMBLING

- 1) Turn Drill chuck clockwise until it sits on the end of the threaded portion of Spindle. (**Fig. 3**)
- 2) See **Fig. 4**. Insert a hex wrench into drill chuck, and fix the other end of hex wrench in vise. Install battery. Then set the Speed change lever in Low speed, and F/R change lever in Forward (clockwise) rotation mode.
- 3) Slowly pull the switch trigger to rotate Spindle until the motor is locked.  
**Note:** Pull the trigger so that Spindle reaches full speed in one second.  
**Important:** Be sure to release the switch trigger just after Spindle is locked.
- 4) Secure Drill chuck with the chuck screw by turning **counterclockwise** with impact driver.  
**Note:** If you reuse the removed Flat head screw M6x22, apply threadlocker to threaded portion.

**Fig. 3**



**Fig. 4**



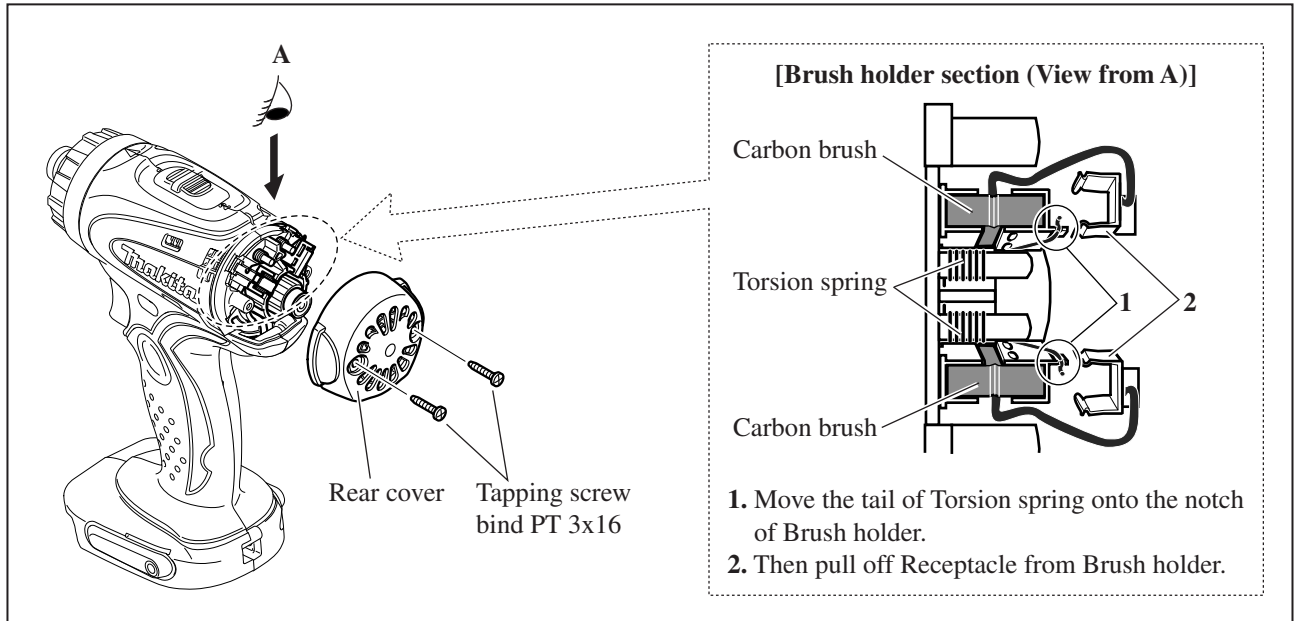
## ► Repair

### [3] -2. Gear Assembly and Motor Section

#### DISASSEMBLING

1) Remove Rear cover and take off Carbon brush from Brush holder complete. (Fig. 5)

Fig. 5



2) Separate Housing R from Housing L, then remove the assembly of the Gear section and the Motor section. (Fig. 6)

3) Remove Brush holder complete from Armature, then separate the Motor section from the Gear section. (Fig. 7)

4) Put the Motor section on a work bench so that the drive end of Armature touches the work bench.

Then separate yoke unit from armature by pulling it down towards the work bench. (Fig. 8)

Fig. 6

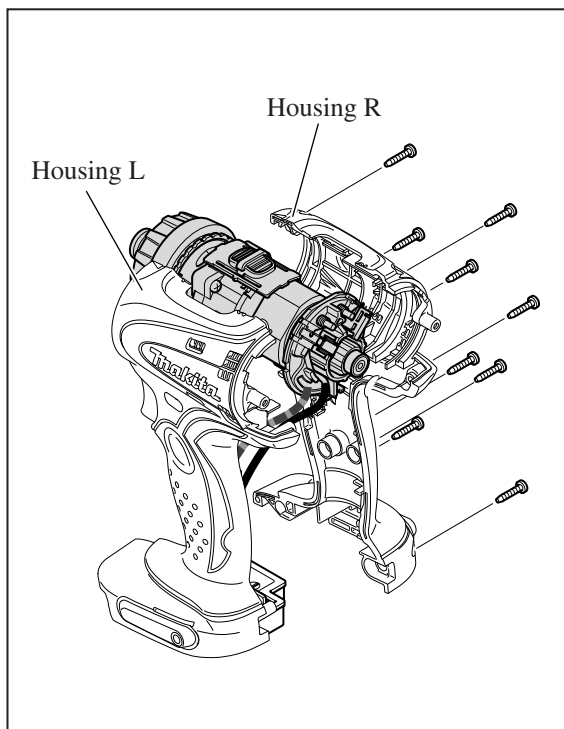


Fig. 7

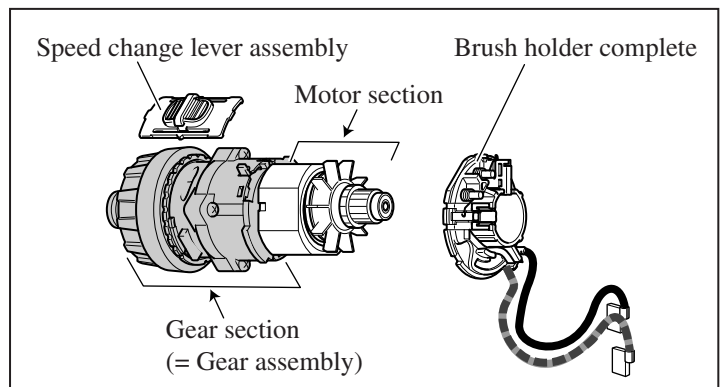
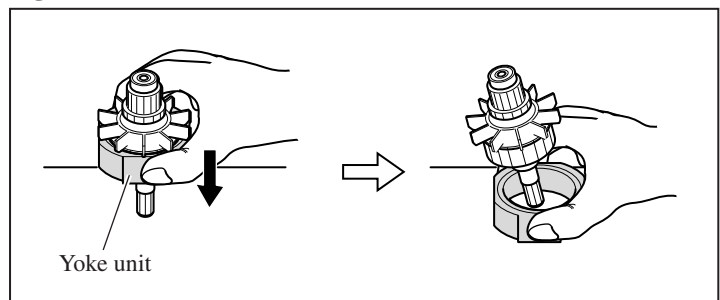


Fig. 8



## ► Repair

### [3] -2. Gear Assembly and Motor Section (cont.)

#### ASSEMBLING

- 1) Assemble the motor section.

**Note 1.** Yoke unit is not reversible when assembled to Armature. Be sure to assemble so that the notch in Yoke unit is positioned on the drive-end of Armature as illustrated to **left in Fig. 9**. If assembled wrong, the Motor section cannot be assembled to Housing (L).

**Note 2.** Because Yoke unit is a strong magnet, when assembling Armature to Yoke unit, be sure to hold the commutator portion as illustrated to **left in Fig. 10**. Do not hold the Armature core as illustrated to right or your fingers will be pinched between Yoke unit and the fan of Armature that is pulled strongly by the magnet force.

Fig. 9

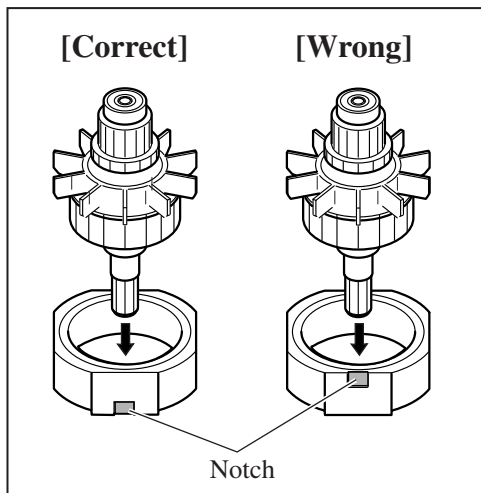
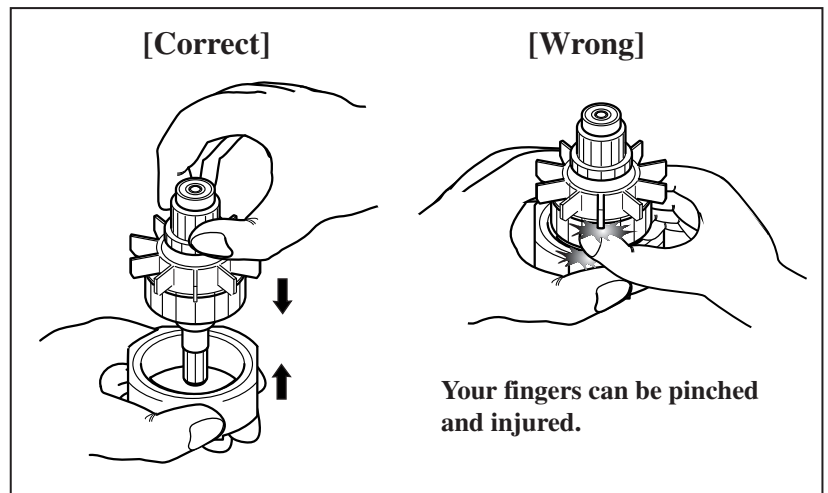


Fig. 10



- 2) Insert the pinion gear on Armature shaft into Gear assembly, and engage it with the plant gears in Gear assembly. Making sure that the pinion gear is engaged in Gear assembly, push Armature into Gear assembly. (**Fig. 11**)
- 3) See **Fig. 12**. Assemble Speed change lever assembly to the protrusion on Gear assembly.

**Note:** Before installing Gear assembly, make sure that two Compression springs are set in place in the groove on the back of Speed change lever.

- 4) Slide Speed change lever assembly to the position of either "low" or "high". Then assemble Brush holder complete to the Motor section. (**Fig. 13**)

Fig. 11

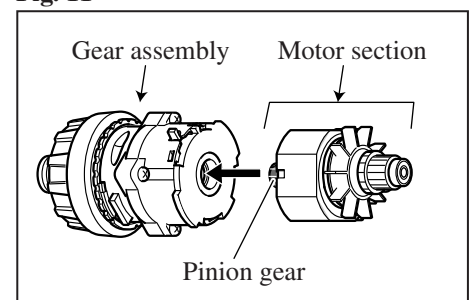


Fig. 12

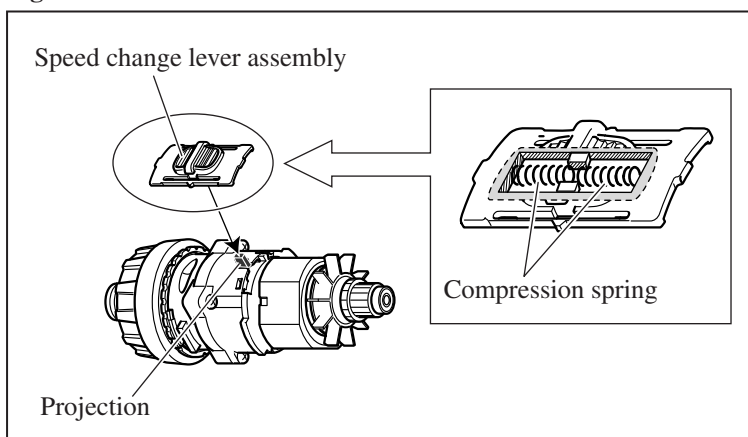
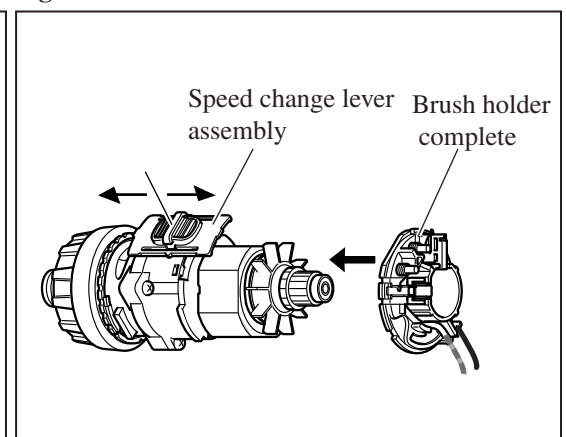


Fig. 13





## ► Repair

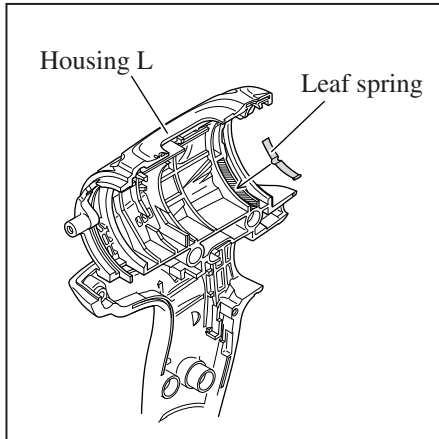
### [3] -2. Gear Assembly and Motor Section (cont.)

#### ASSEMBLING

5) Assemble Leaf spring to Housing L. (**Fig. 14**)

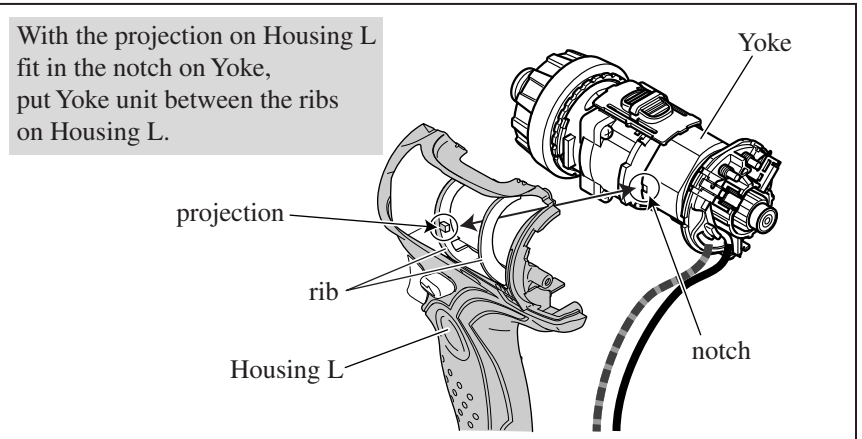
6) Assemble the unit of the Gear section and the Motor section as illustrated in **Fig. 15, 16**.

**Fig. 14**

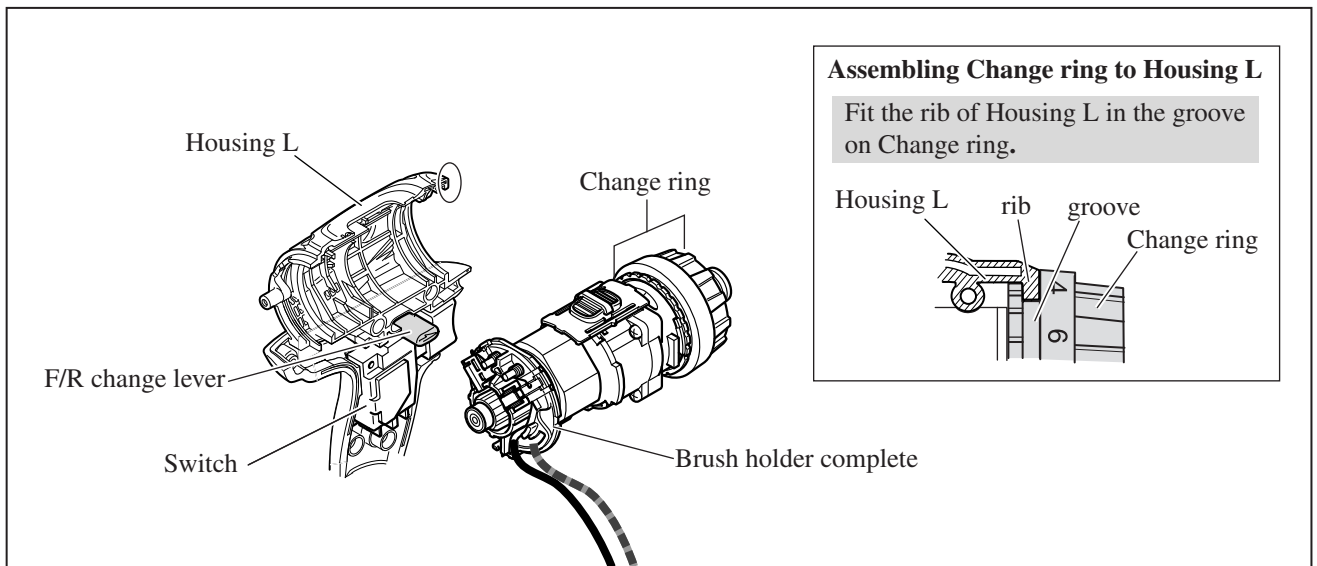


**Fig. 15**

With the projection on Housing L fit in the notch on Yoke, put Yoke unit between the ribs on Housing L.

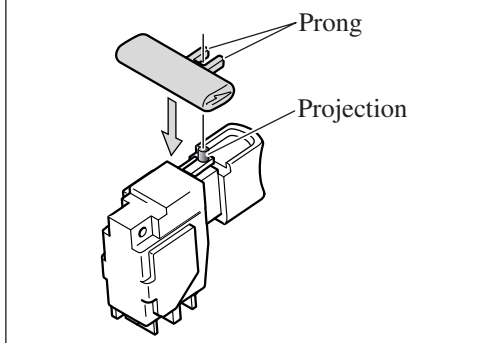


**Fig. 16**



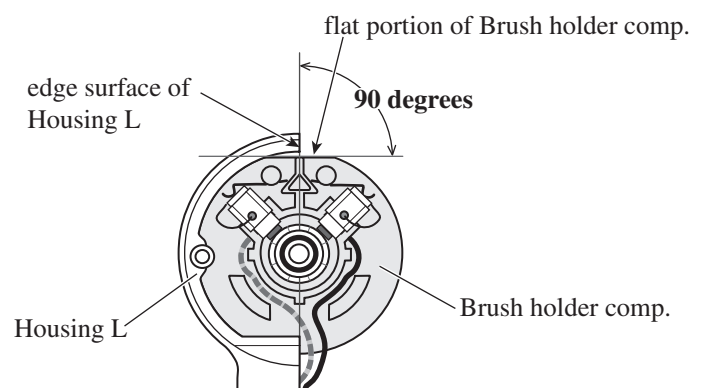
#### Assembling F/R change lever to Switch

put the projection on Switch between the prongs of F/R change lever.



#### Assembling Brush holder complete to Housing L

The flat portion of Brush holder complete must be at 90 degrees to the edge surface of Housing L.



## ► Repair

### [3] -2. Gear Assembly and Motor Section (cont.)

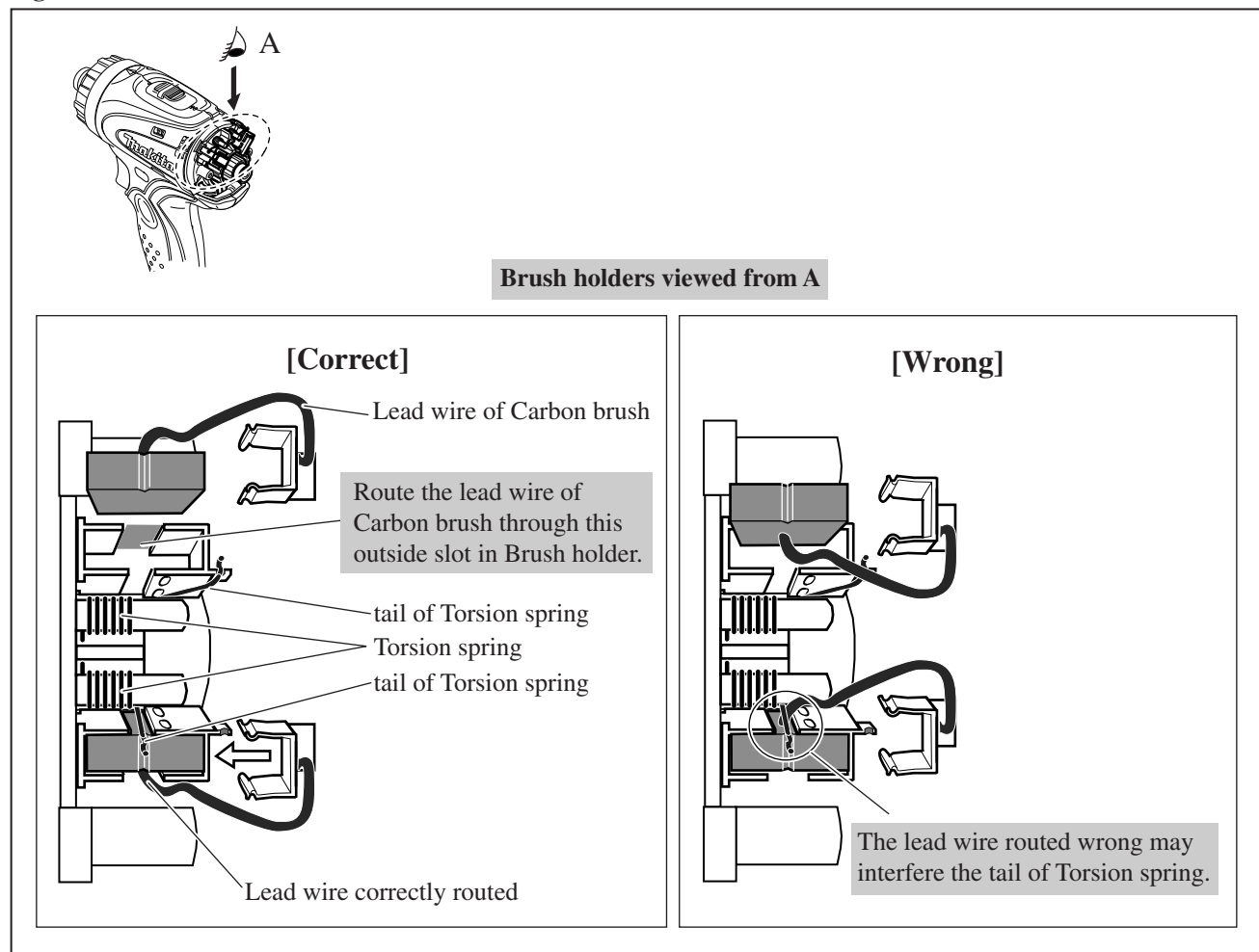
#### ASSEMBLING

7) Assemble Housing R to Housing L. (Fig. 6)

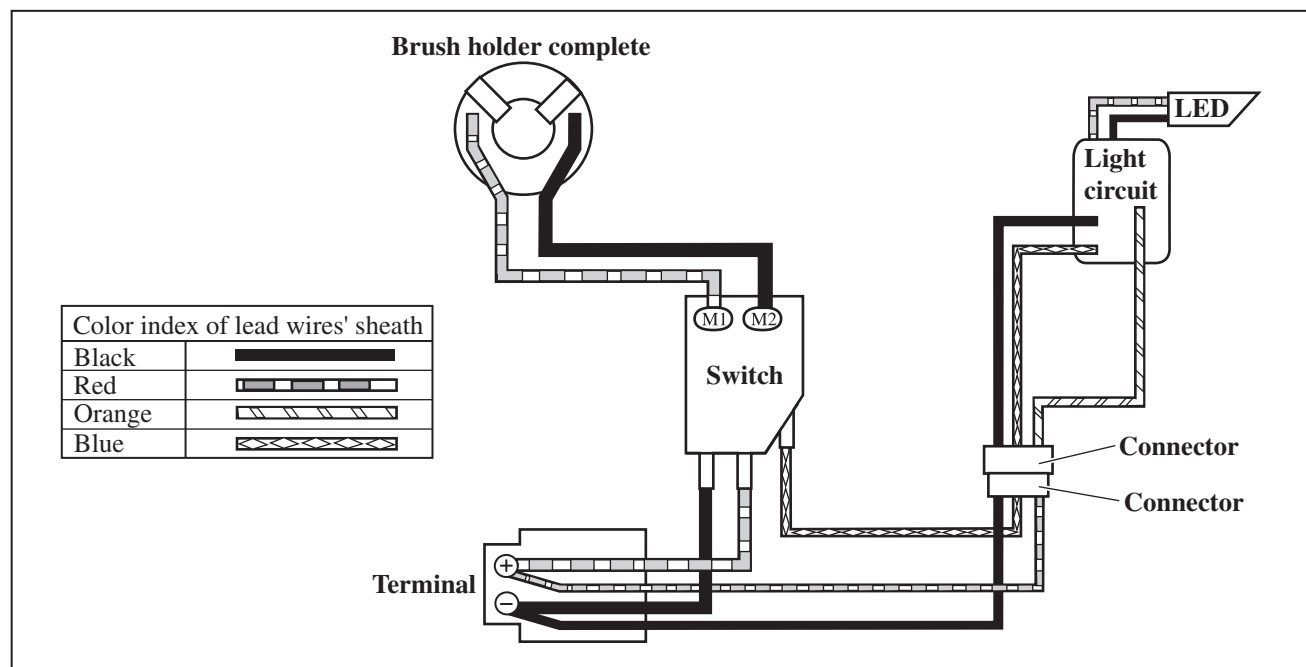
8) Install Carbon brush. (Fig. 17)

9) Mount Rear cover.

Fig. 17

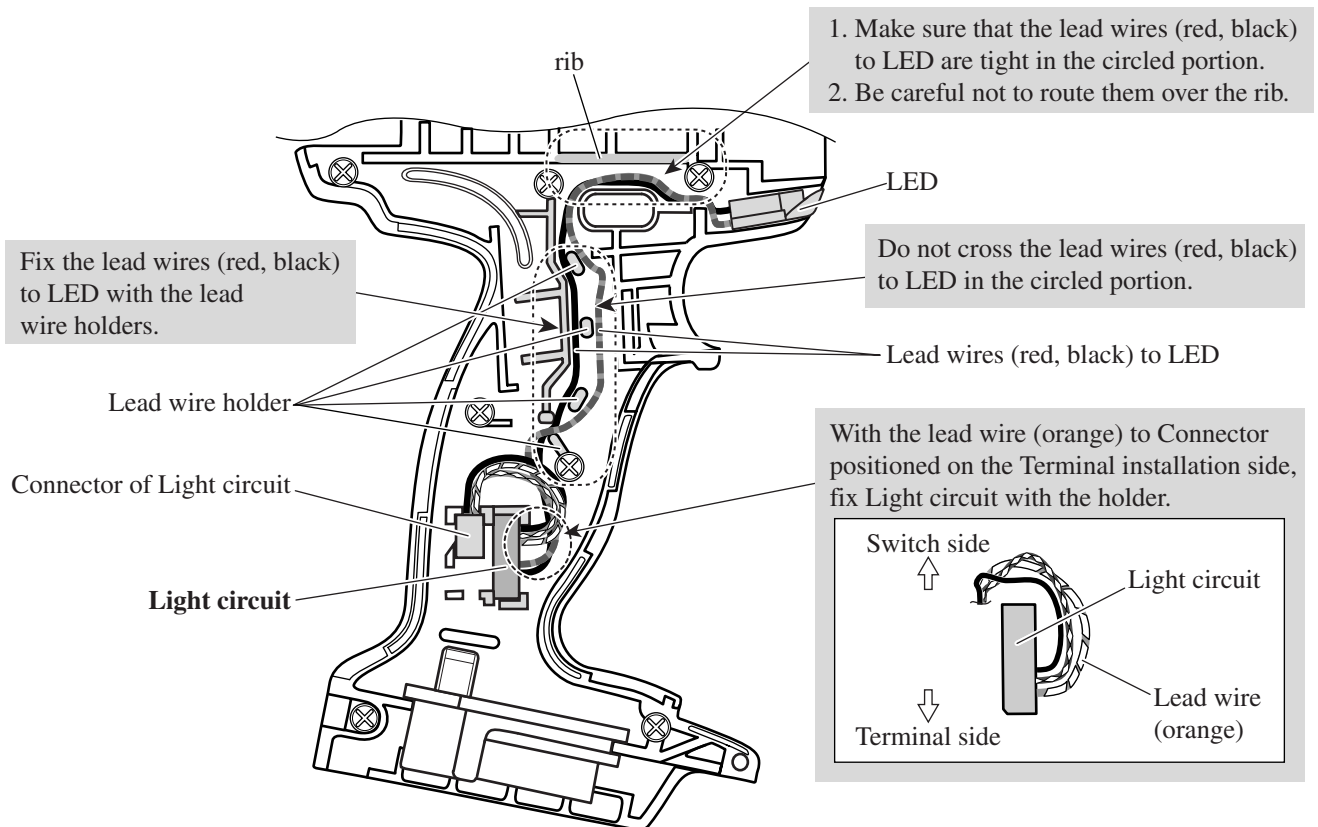


## ► Circuit diagram



## ► Wiring diagram

### [1] Lead Wires of Light Circuit



### [2] Lead Wires of Switch and Brush Holder Complete

