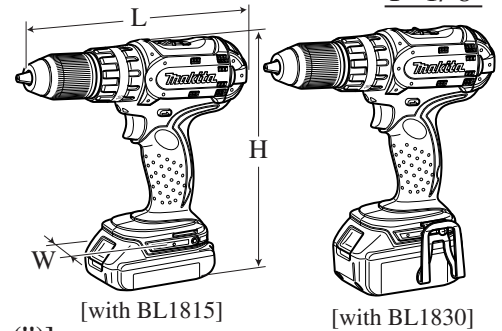


Model No. ▶ BHP452

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

[Dimensions: mm (")]

	North America, Latin America	Other countries
Length (L)	221 (8-3/4)	215 (8-1/2)
Width (W)	78 (3-1/16)	
Height (H)	with BL1815	234 (9-1/4)
	with BL1830	251 (9-7/8)

CONCEPT AND MAIN APPLICATIONS

Model BHP452 has been developed as a cost-competitive 18V cordless percussion driver drill, featuring:

- Compact and lightweight design achieved without power reduction by using 4-pole motor and Lithium-ion battery as a power unit
- Rubberized soft grip contoured to perfectly fit operator's hand and angled to provide best tool balance
- All metal gear construction
- LED Job light with afterglow function
- Single sleeve chuck

This product is available in the following variations.

Model No.	Battery		Battery cover	Charger	Plastic carrying case	Housing color	Offered to
	type	quantity					
BHP452HW	BL1815	2	1	DC18RA	Yes	white	North America
BHP452H	(Li-ion 1.5Ah)						
BHP452RFE	BL1830					Makita-blue	All countries except North America
	(Li-ion 3.0Ah)						

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

► Specification

Battery	Voltage: V		18
	Capacity: Ah		1.5/ 3.0
	Cell		Li-ion
	Charging time: min.		15/ 22 with DC18RA
Max output (W)			300
No load speed: min-1=rpm		Low/ High	0 - 400/ 0 - 1,500
Impacts per minute: min-1=ipm		Low/ High	0 - 6,000/ 0 - 22,500
Chuck capacity: mm (")			1.5 - 13 (1/16 - 1/2)
Capacity: mm (")	Steel		13 (1/2)
	Wood		38 (1-1/2)
	Masonry		13 (1/2)
Torque settings			16 stage + drill mode
Max. clutch torque: N.m (kgf.cm)			1.0 - 5.0 (9.8 - 51)
Max. fastening torque: N.m (in.lbs)	Soft joint		32 (280)
	Hard joint		50 (440)
Lock torque: N.m (in.lbs)			51 (450)
Electric brake			Yes
Variable speed control by trigger			Yes
Reverse switch			Yes
Net weight [with BL1815/ with BL1830]: kg (lbs)			1.6/ 1.8 (3.5/ 3.9)

► Standard equipment

Phillips bit 2-45 1 Belt clip 1 (for models with 3.0Ah battery [BL1830] only)

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

► Optional accessories

Fast charger DC18RA

Charger DC24SA (for North America only)

Charger DC24SC (for all countries except North America)

Battery BL1815

Battery BL1830

Drill bits for wood

Drill bits for metal

Drill bits for masonry

TCT drill bits

Belt clip

Bit holder

► Repair

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

[1] NECESSARY REPAIRING TOOLS

Code No.	Description	Use for
---	Hex wrench 10	Removing /mounting Drill chuck
1R359	Chuck removing tool	Removing Drill chuck (See "Note" on the bottom of this page.)

[2] LUBRICATION

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

[3] DISASSEMBLY/ASSEMBLY

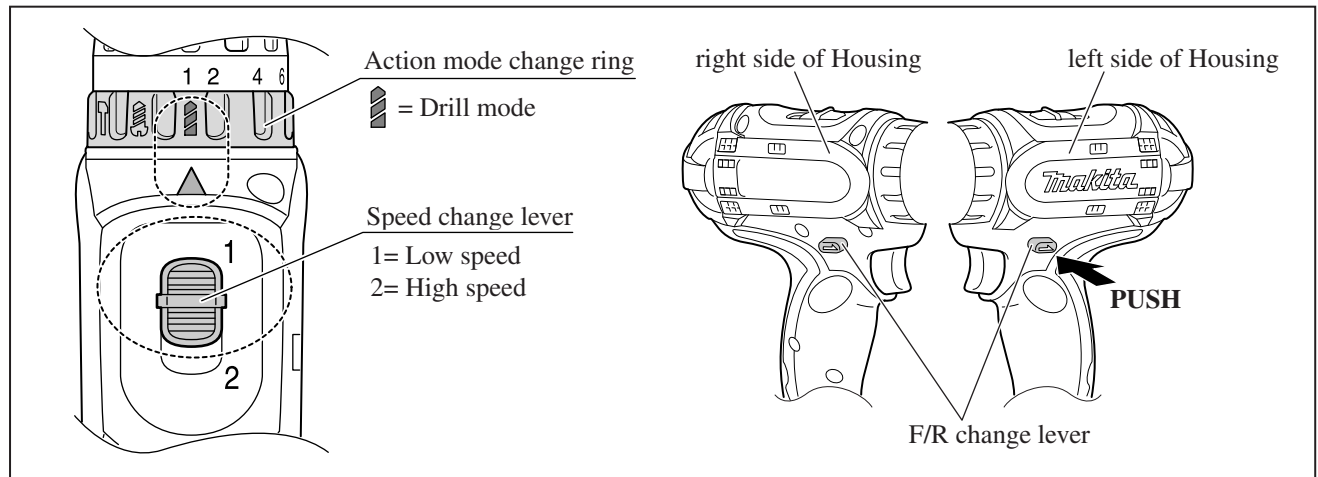
[3] -1. Drill Chuck

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) Set the Action mode change ring in Drill mode, the Speed change lever in Low speed as illustrated to **left in Fig. 1**, and push F/R change lever from the left side of Housing to set the direction of rotation to reverse as illustrated to **right in Fig. 1**.

Fig. 1



- 3) Fix the short leg of a hex wrench 10 in Drill chuck, then clamp the long leg of the hex wrench securely in vise as described in Fig. 2.
- 4) Hold the machine securely with both hands as illustrated in Fig. 2, then remove Drill chuck from Gear assembly by pulling Switch trigger slowly to minimize the impact of kickback.

Important 1:

For safety, before pulling trigger, make sure that:

1. Action mode change ring is in Drill mode position.
2. Speed change lever is in Low speed position.
3. F/R change lever is in Reverse rotation position.

Important 2:

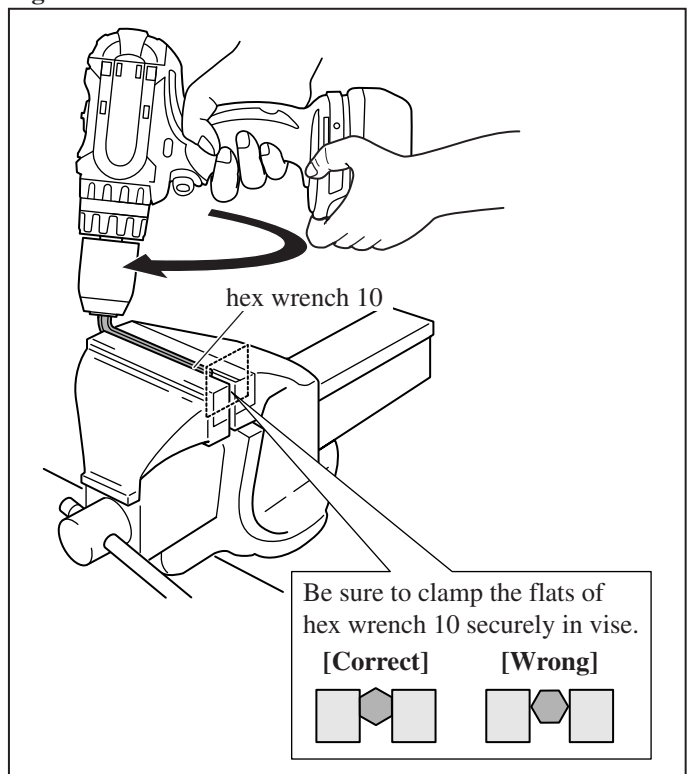
The machine rotates in the direction of the arrow with very strong force at the moment when Switch trigger is pulled. (Fig. 2)

Therefore, be very careful not to pinch your hand or finger between the machine and the vise.

Note:

Use Chuck removing tool (1R359) if Drill chuck cannot be removed in the way as described above. "Repair Tool List" for how to use.

Fig. 2



► Repair

[3] DISASSEMBLY/ASSEMBLY

[3] -1. Drill Chuck (cont.)

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 Action mode change ring in Drill mode, the Speed change lever in Low speed, and F/R change lever in Forward (clockwise) rotation mode.
- 3) To minimize the impact of kickback, slowly pull the switch trigger to rotate Spindle until Motor is locked.
Note: Pull the trigger so that Motor reaches full speed in approximately one second.
Important: To protect your hands from injury, be sure to release the switch trigger just after Motor is locked.
- 4) Secure Drill chuck with the chuck screw by turning **counterclockwise** with impact driver.
Note: If you reuse the removed chuck screw, apply threadlocker to threaded portion.

Fig. 3

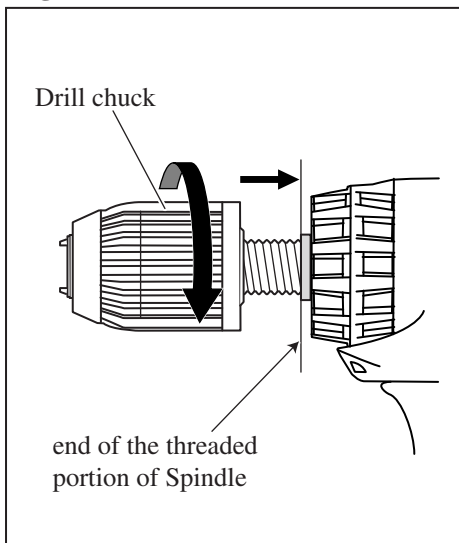
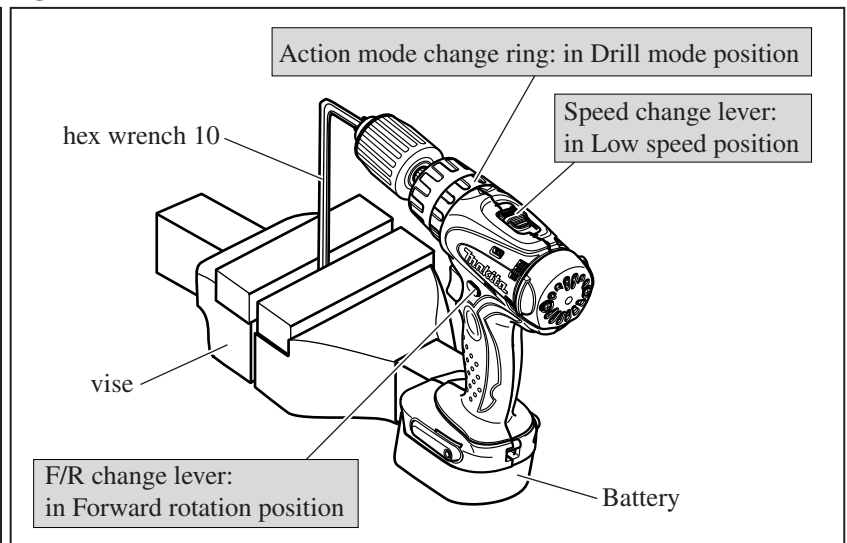


Fig. 4

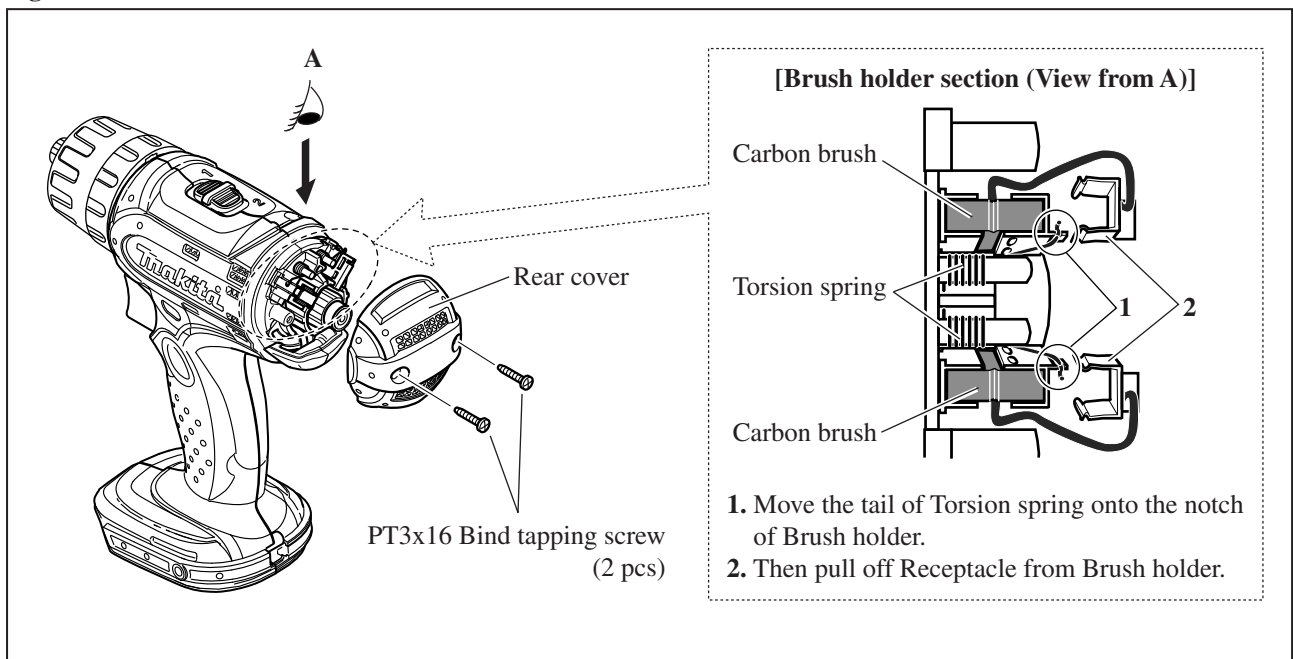


[3] -2. Gear Assembly and Motor Section

DISASSEMBLING

- 1) Remove Rear cover by unscrewing two PT3x16 Bind tapping screws, and take off Carbon brush from Brush holder complete. (**Fig. 5**)

Fig. 5



► Repair

[3] DISASSEMBLY/ASSEMBLY

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

DISASSEMBLING

- 2) Separate Housing (R) from Housing (L) by unscrewing nine PT3x16 Bind tapping screws, then remove Gear assembly and Motor section as an assembly. (Fig. 6)
- 3) Pull off Heat sink from Motor section. Remove Speed change lever assembly from Gear assembly, and remove Brush holder complete from Motor section. Then separate Motor section from Gear assembly. (Fig. 7)

Fig. 6

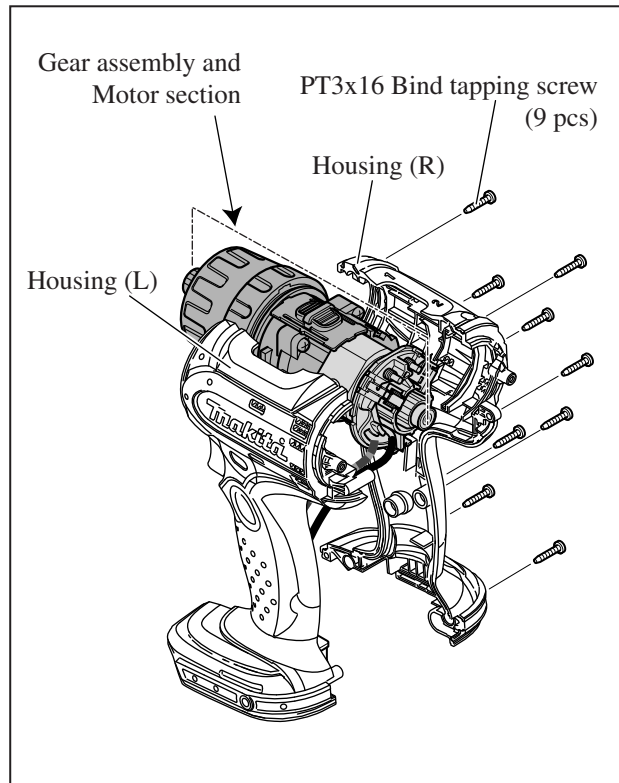
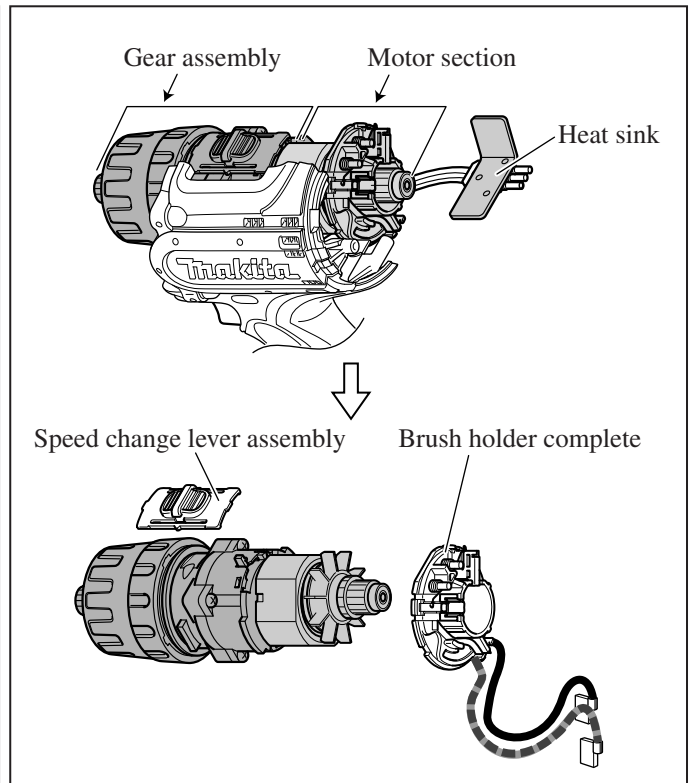
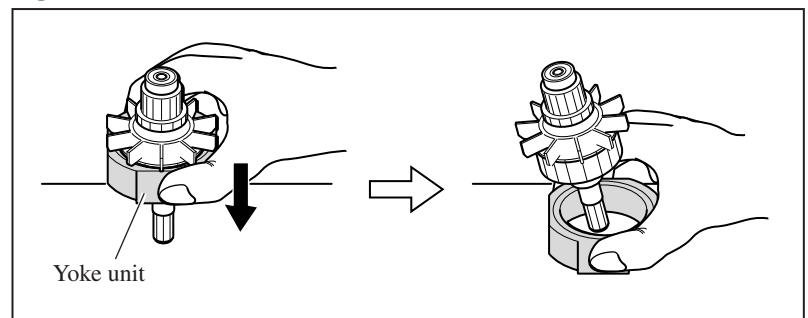


Fig. 7



- 4) Put 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. 8



► Repair

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

ASSEMBLING

1) Assemble 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, 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

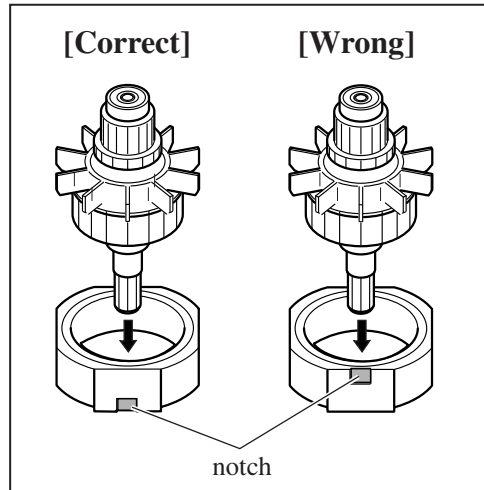
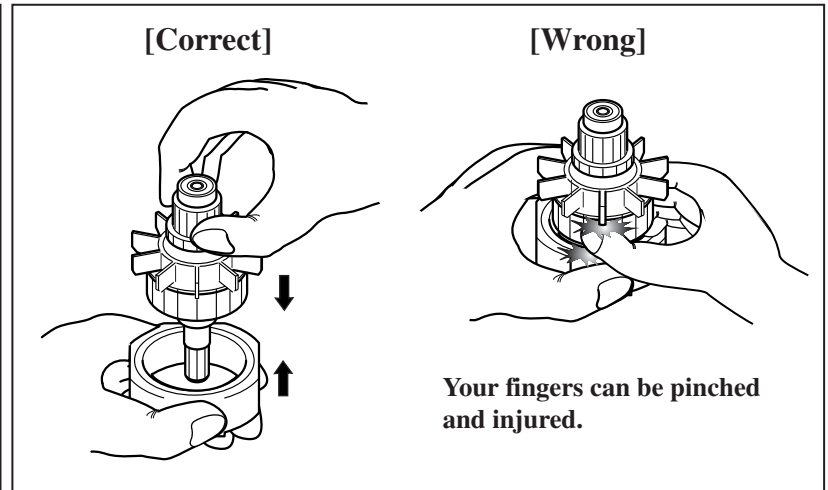


Fig. 10



2) Insert the pinion gear on Armature shaft into Gear assembly, and engage it with the planet gears in Gear assembly. Making sure that the pinion gear is engaged in Gear assembly, push Armature into Gear assembly. (**Fig. 11**)

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 Motor section. (**Fig. 13**)

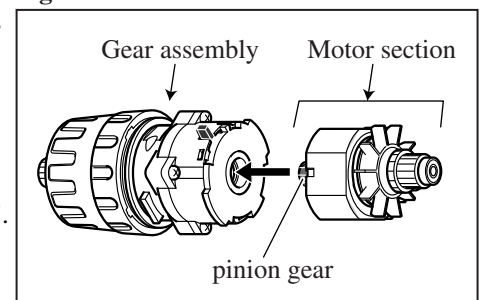


Fig. 12

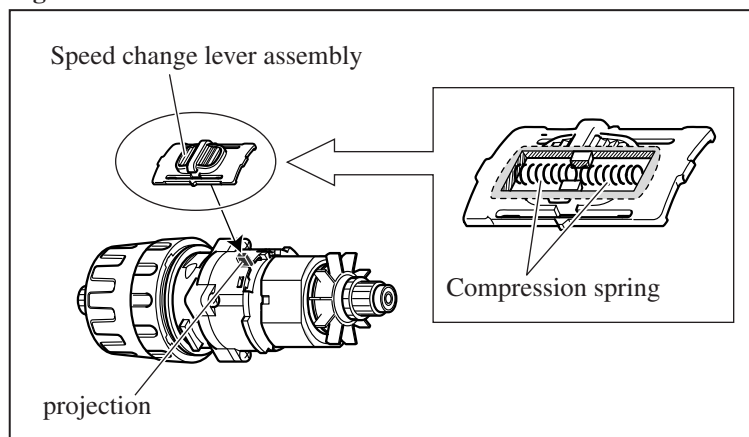
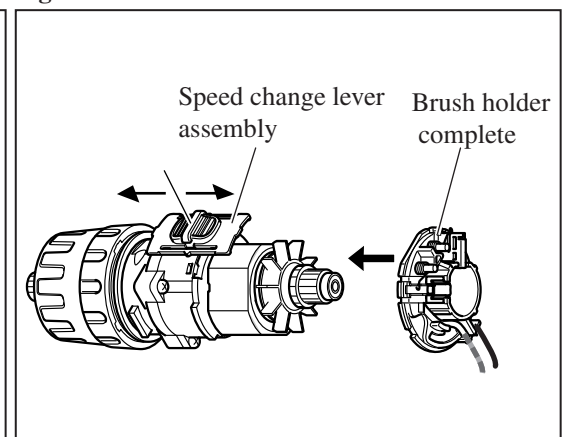


Fig. 13



► **Repair**

[3] DISASSEMBLY/ASSEMBLY

[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

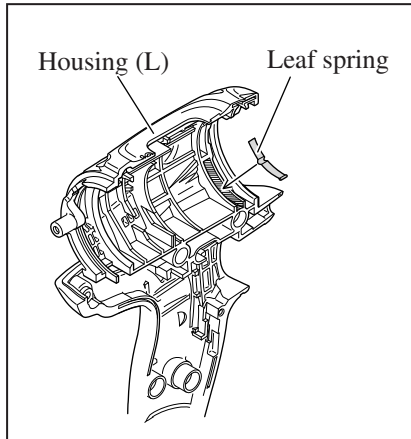


Fig. 15

With the projection on Housing (L) fitting in the notch on Yoke, put Yoke unit between the ribs on Housing (L).

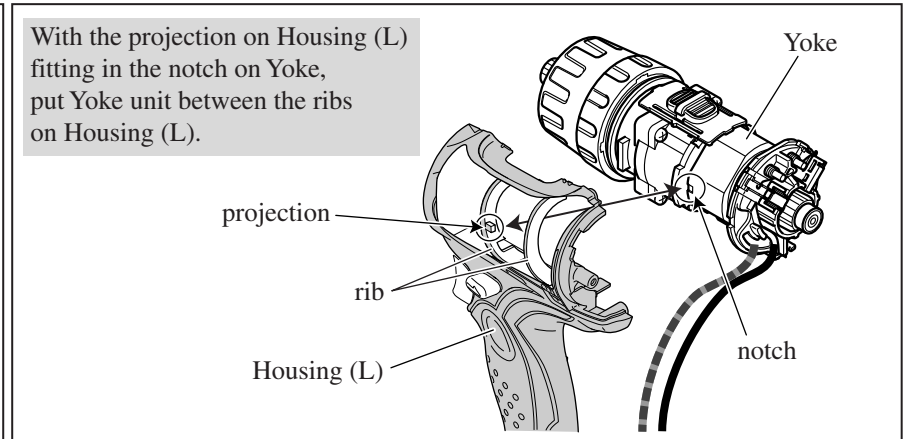
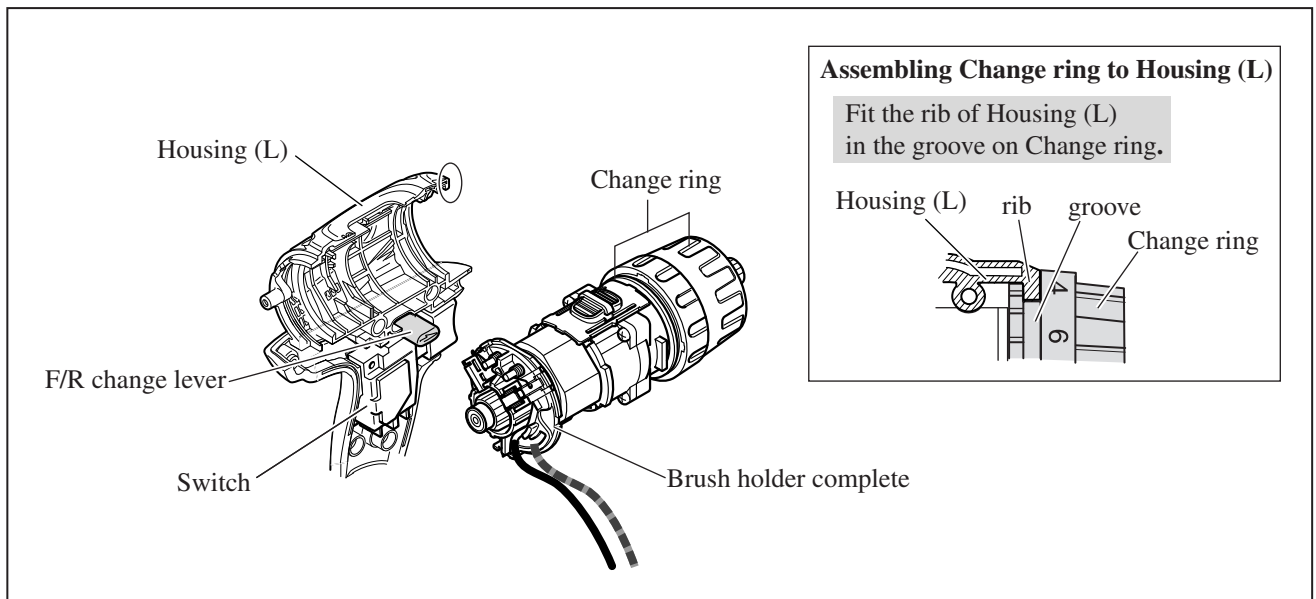
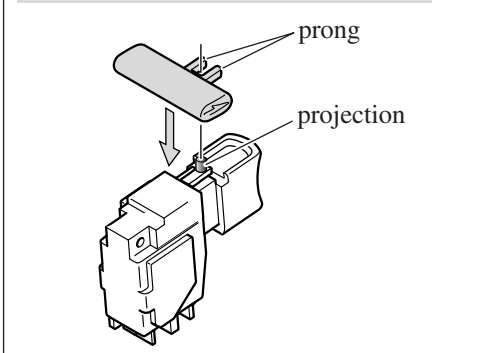


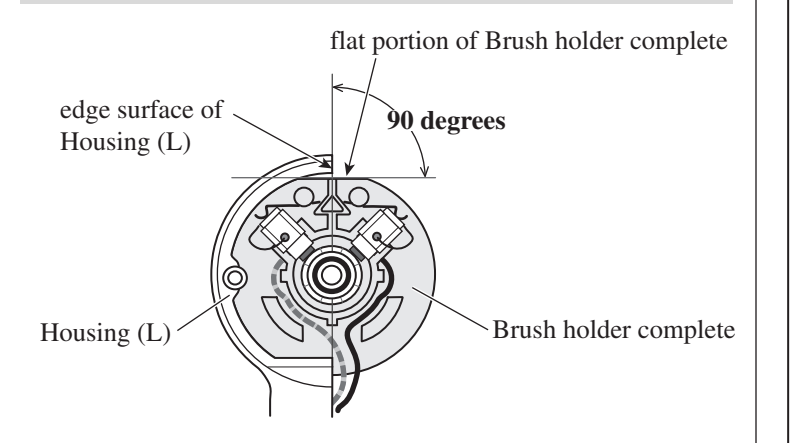
Fig. 16



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] DISASSEMBLY/ASSEMBLY

[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

