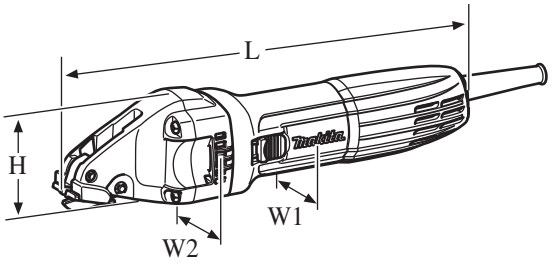
TECHNICAL INFORMATION

PRODUCT

Model No. ► JS1601
JS1000

Description ► Straight Metal Shear 1.6mm (16Ga)
Metal Shear 1.0mm (20Ga)



Dimensions: mm (")		
Model No.	**JS1601**	**JS1000**
Length (L)	320 (12-5/8)	322 (12-5/8)
Width 1 (W1)*1	56 (2-3/16)	
Width 2 (W2)*2	70 (2-3/4)	
Height (H)	78 (3-1/16)	

***1** diameter at barrel
***2** width at tool head, including the protruding portion of the vents

CONCEPT AND MAIN APPLICATIONS

Models JS1601 and JS1000 are aesthetic change models of the current JS1660 and JS1670.
Feature the same easy-to-grip, slim housing as used for GA4030 series angle grinders, providing more comfort and control and better maneuverability.
Model JS1601 is designed mainly for straight cutting, and JS1000 for curve cutting.

The different parts between JS1601 and JS1000 are Center blade and Side blades.

► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output (W)
			Input	Output	
110	3.6	50/60	380	160	280
120	3.3	50/60	---	160	280
220	1.8	50/60	380	160	280
230	1.7	50/60	380	160	280
240	1.7	50/60	380	160	280

Specification \ Model		**JS1601**	**JS1000**
No load speed: min-1= spm (strokes per minute)		4,500	
Max cutting capacities: mm (Ga)	Steel with tensile strength up to 400N/mm2	1.6 (16)	1.0 (20)
	Steel with tensile strength up to 600N/mm2	1.2 (18)	0.7 (23)
	Steel with tensile strength up to 800N/mm2	0.8 (21)	0.5 (26)
	Aluminum with tensile strength up to 200N/mm2	2.5 (12)	2.5 (12)
Minimum cutting radius: mm (")		250 (9-7/8)	30 (1-3/16)
Power supply cord: m (ft)		Europe: 4.0 (13.1) Australia, Brazil: 2.0 (6.6) Other countries: 2.5 (8.2)	
Net weight*: kg (lbs)		1.4 (3.1)	

* Weight according to EPTA-Procedure 01/2003, with Hex wrench

► Standard equipment

Hex wrench 3 1
Thickness gauge (= Feeler gauge) ..... 1 (for **JS1601**)

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

► Optional accessories

Center blade
Side blade (L)
Side blade (R)

► Repair

CAUTION: Repair the machine in accordance with "Instruction manual" or "Safety instructions".

[1] NECESSARY REPAIRING TOOLS

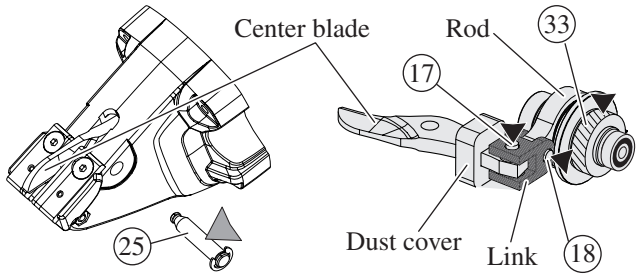
Code No.	Description	Use for
1R031	Bearing setting pipe 28-20.2	Removing Helical gear 40 from Crank shaft
1R269	Bearing extractor	Removing Ball bearings
1R281	Round bar for arbor 7-50	Blocking Switch knob when disassembling Switch lever
1R366	Feeler gauge set	Adjusting clearance between Center blade and Side blades

[2] LUBRICATIONS

Apply **the following lubricants** to the portions to protect the parts and product from unusual abrasion.

Item No.	Description	Portion to lubricate	Lubricant	Amount
(17)(18)	Pin 5	Whole portion	Makita grease FA No.2 ▼	a little
(25)	Shoulder pin 7	Drum portion where Center blade contacts	Lubricant VG100 ▽	
(33)	Helical gear 40	Gear teach where Armature gear teeth contact	Makita grease FA No.2 ▼	3g

Fig. 1



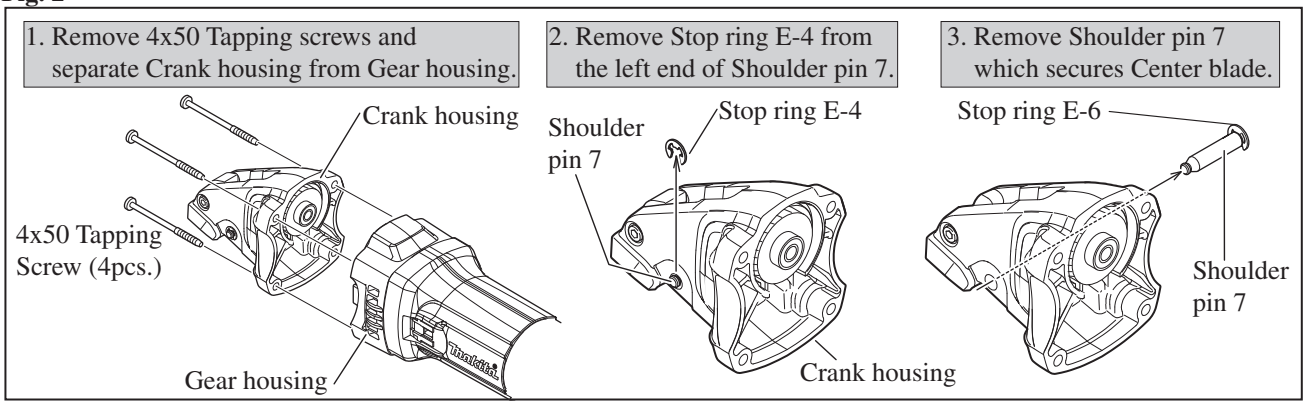
[3] DISASSEMBLY/ASSEMBLY

[3]-1. Center blade

DISASSEMBLING

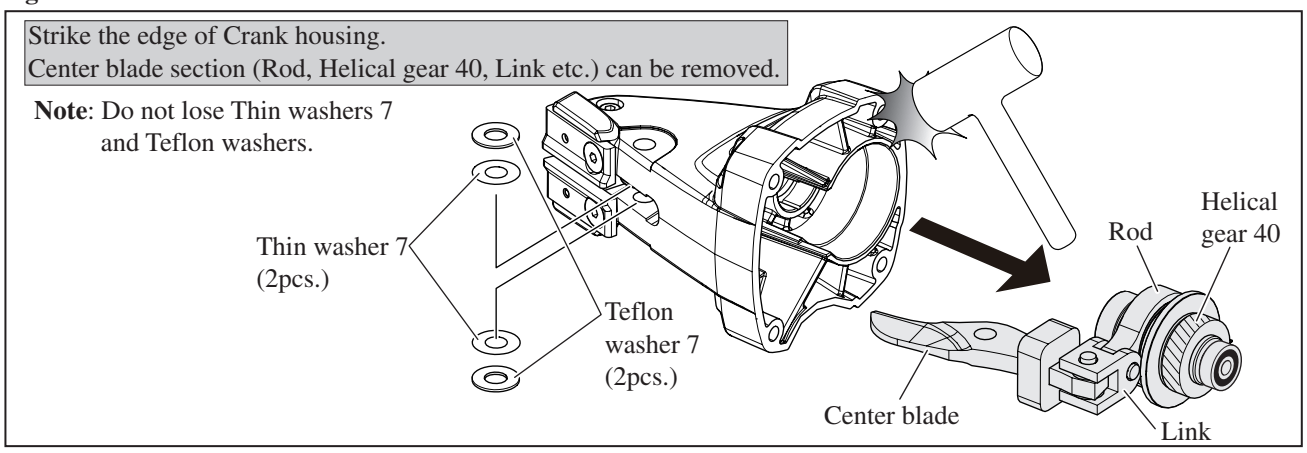
(1) Remove Crank housing complete from Gear housing complete. And then remove Shoulder pin 7 from Gear housing complete **(Fig. 2)**

Fig. 2



(2) Disassemble Center blade section as illustrated in **Fig. 3**.

Fig. 3



Repair

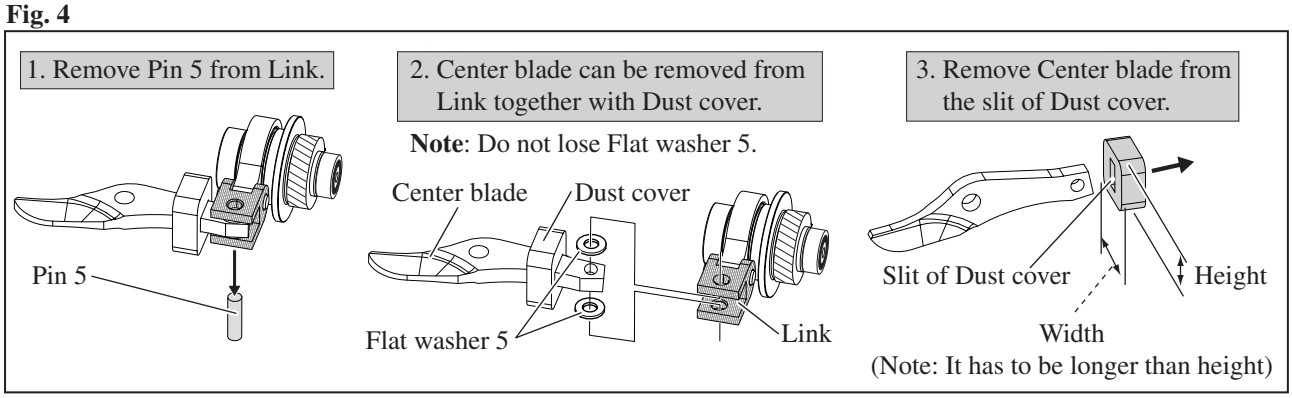
[3] DISASSEMBLY/ASSEMBLY

[3]-1. Center blade

DISASSEMBLING

(3) Center blade section can be disassembled as illustrated in **Fig. 4**.

Fig. 4

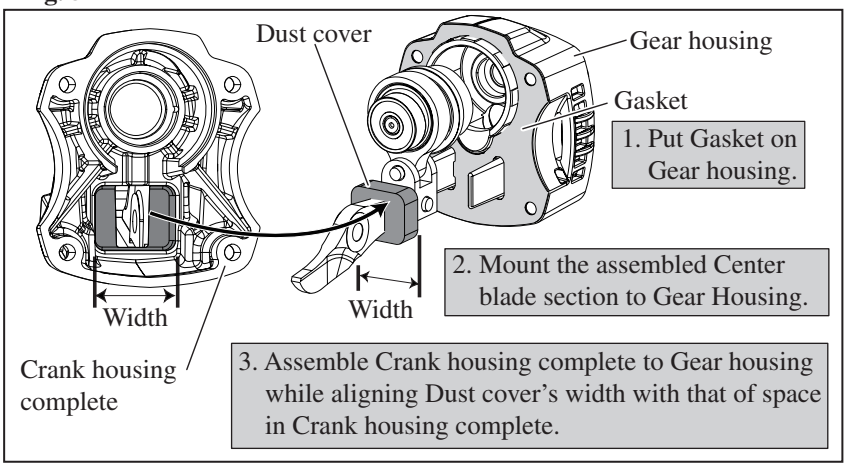


ASSEMBLING

(1) Reverse the disassembling step to assemble Center blade section. Be careful to the direction of Dust cover shown in **Fig. 4**,
Note: Do not forget to set two Flat washers 5 in place.

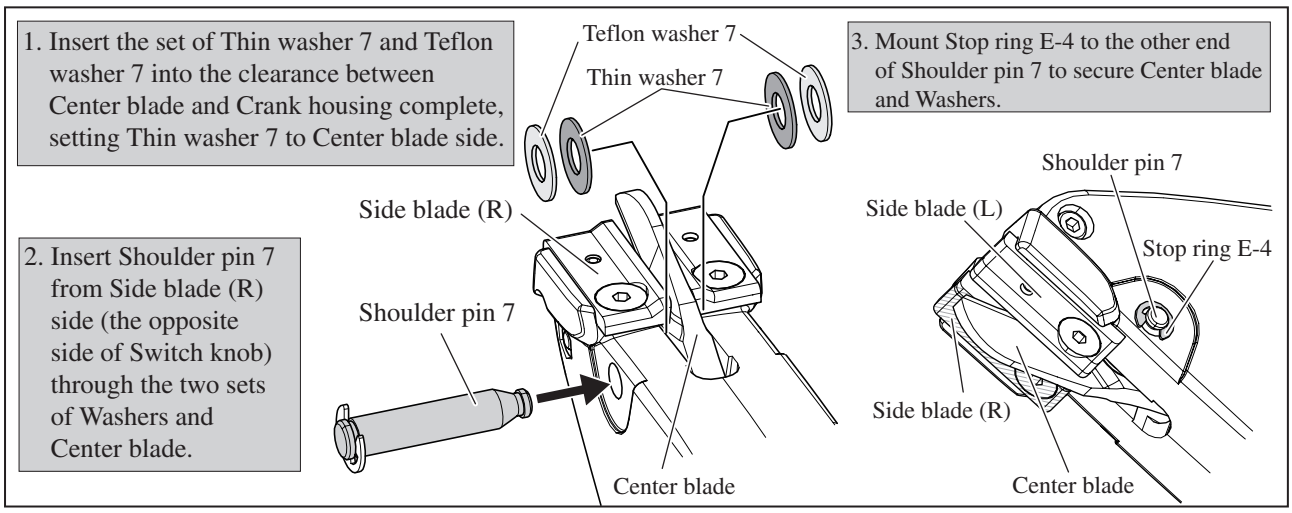
(2) Assemble Gear housing section with Center blade section to Crank housing as illustrated in **Fig. 5**.

Fig. 5



(3) Assemble Washers and Shoulder pin 7 as illustrated in **Fig. 6**.

Fig. 6



(4) Adjust the clearance between Center blade and Side blade, referring to " **Adjusting the Blade clearance**".

Repair

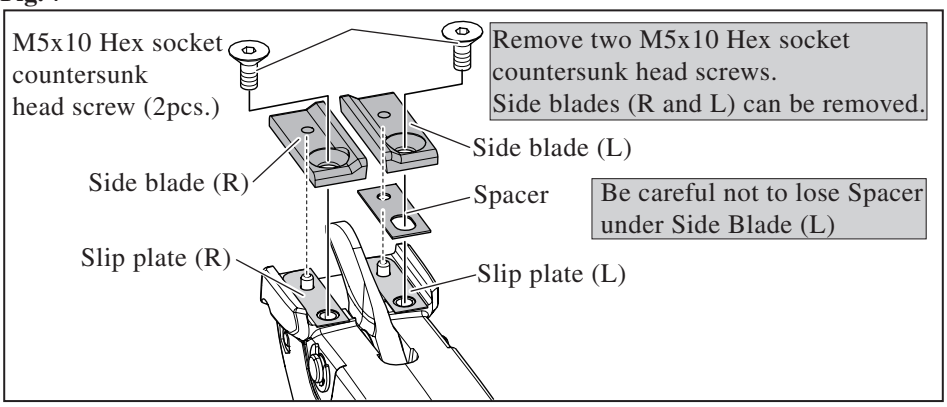
[3] DISASSEMBLY/ASSEMBLY

[3]-2 Side Blade R, L

DISASSEMBLING

Side blades can be removed as illustrated in **Fig. 7**.

Fig. 7



ASSEMBLING

(1) Do the reverse step of Disassembling. Do not forget to assemble Spacer under Side blade L. Refer to **Fig. 7**.
(2) Adjsut the clearance between Center blade and Side blade, referring to " **Adjsuting the Blade Clearance**".

[3]-3 Crank Shaft Section (Helical gear 40, Ball bearings, Sealing screw)

DISASSEMBLING

(1) Disassemble Center blade section as illustrated in **Fig.2**, **Fig. 3**.
(2) Crank shaft section can be disassembled as illustrated in **Fig. 8, 9 and 10**.

Fig. 8

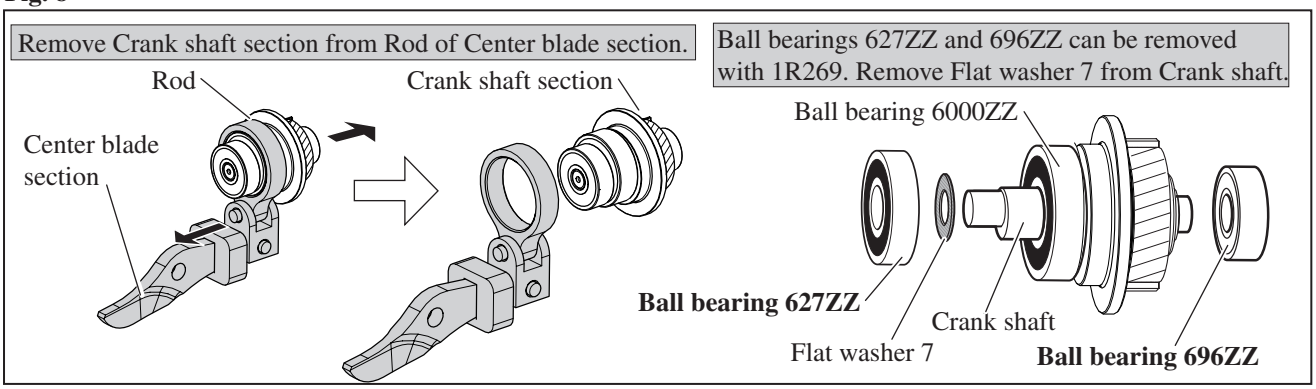


Fig. 9

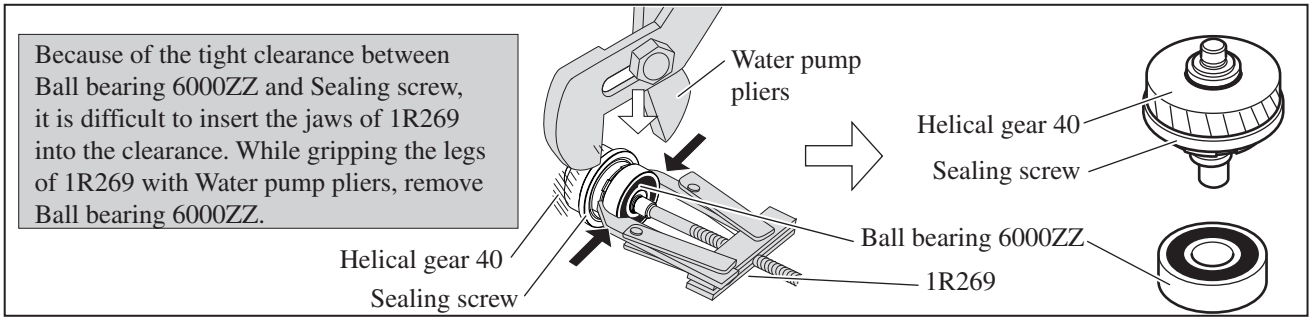
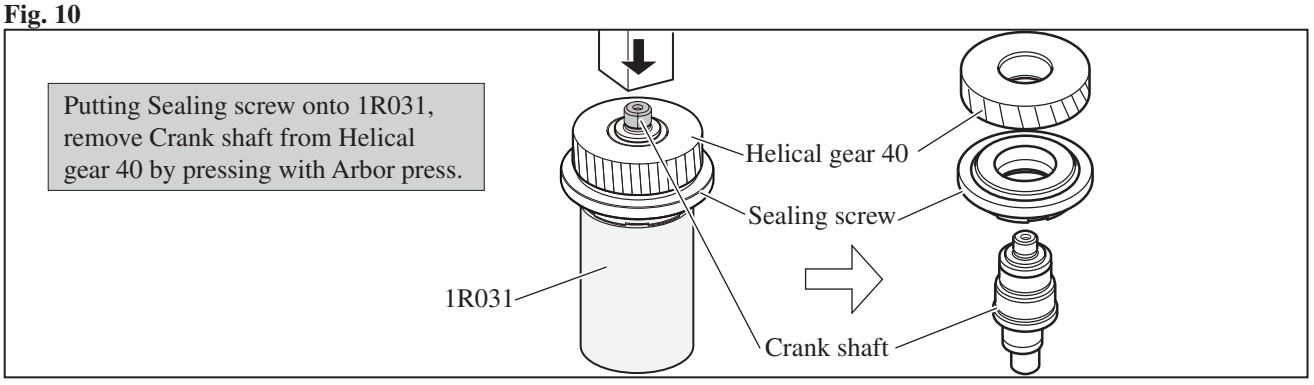


Fig. 10



Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-3 Crank shaft section (Helical gear 40, Ball bearings, Sealing screw (cont.)

ASSEMBLING

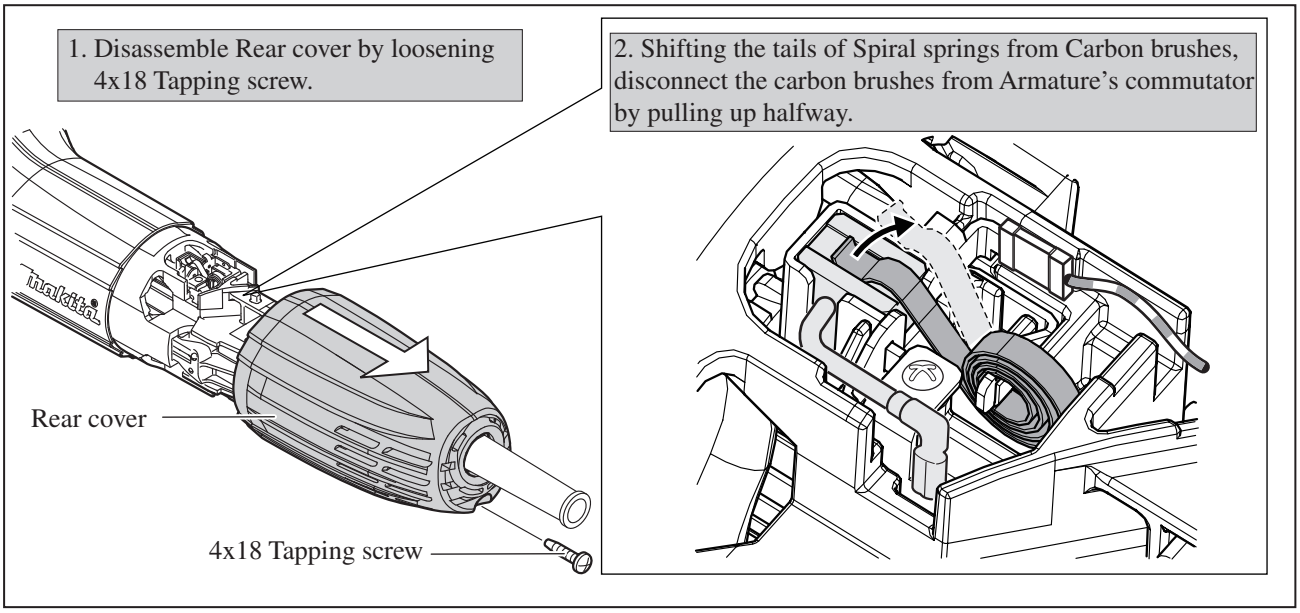
Assemble Crank shaft section by reversing the disassembling step. Refer to **Fig. 10, 9 and 8**.
Do not forget to mount Flat washer 7 to Crank shaft, before assembling Ball bearing 627ZZ.
Refer to **Fig. 8**.

[3]-4 Armature

DISASSEMBLING

(1) Removing Rear cover, disconnect Carbon brush from Armature's commutator to protect the Commutator against scratching by Carbon brush, as illustrated in **Fig. 11**.

Fig. 11



(2) Disassemble Armature as illustrated in **Figs. 12 and 13.**

Fig. 12

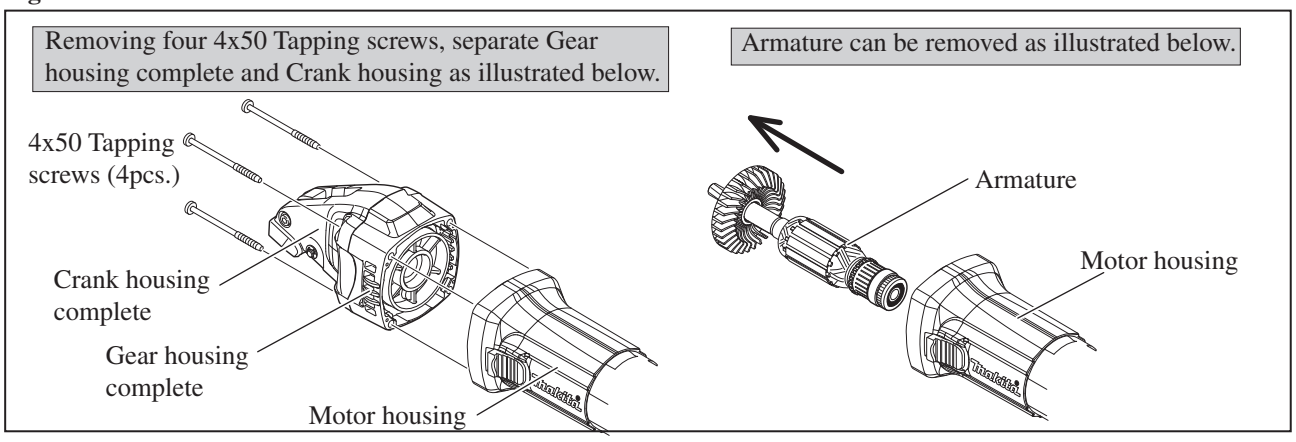
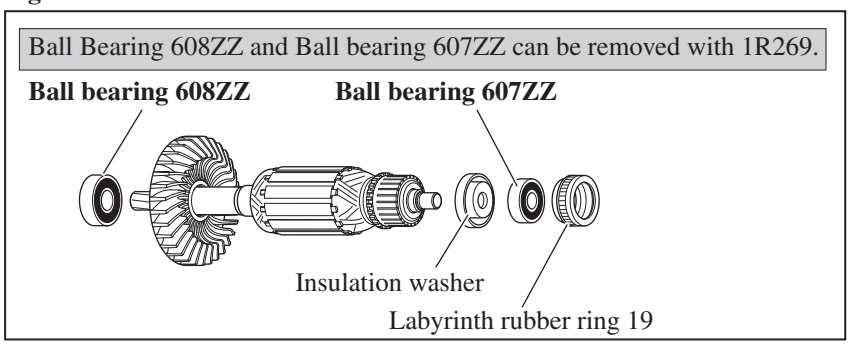


Fig. 13



Repair

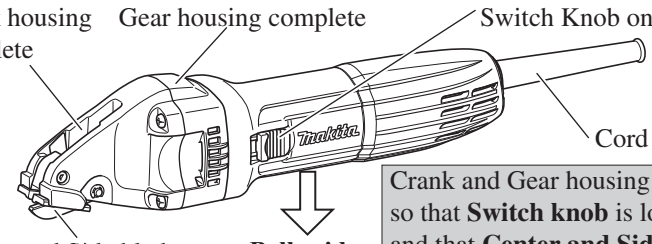
[3] DISASSEMBLY/ASSEMBLY

[3]-4 Armature

ASSEMBLING

(1) Assemble Armature, referring to **Fig. 13**.
(2) Assemble Crank and Gear housing completes to Motor housing as illustrated in **Fig. 14**.

Fig. 14



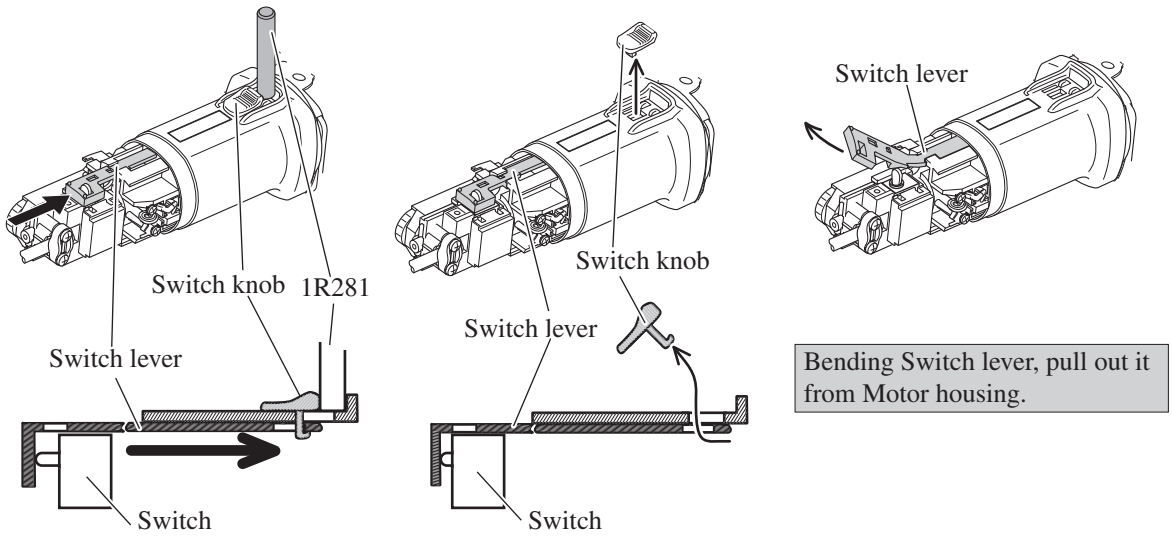
Crank and Gear housing completes have to be assembled to Motor housing so that **Switch knob** is located on **left side** viewed from Cord guard side, and that **Center and Side blades** are located on **belly side** viewed from Cord guard side.

[3]-5 Switch Lever

DISASSEMBLING

Refer to **Fig. 15.**

Fig. 15



Bending Switch lever, pull out it from Motor housing.

Blocking Switch knob to OFF position by inerting 1R281, push Switch lever strongly toward the 1R281.
Only Switch lever can be moved, while Switch konb can not move because of 1R281.

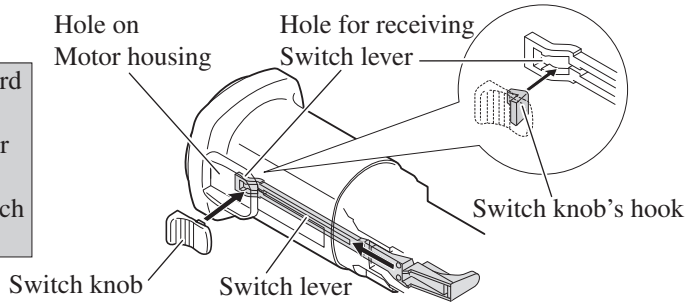
The linkage of Switch knob is disconnected from Switch lever. Consequently, Switch knob can be removed.

ASSEMBLING

Assemble Switch lever and Switch knob as illustrated in **Fig. 16.**

Fig. 16

Inserting Switch lever into Motor housing, push it toward Gear housing complete side until the hole for receiving Switch knob comes into sight through the hole of Motor housing.
And engage the Switch knob's hook to the hole of Switch lever then release Switch lever.



► Repair

[3] DISASSEMBLY/ASSEMBLY

[3]-6 Field

DISASSEMBLING

(1) Remove Rear cover and then disconnect Carbon brush from Armature's commutator to protect Commutator from being scratched.
Disconnect Field lead wire (red) from Brush holder. (**Fig. 17**)
(2) Remove four 4x50 Tapping screws and then separate Gear housing complete and Crank housing. And remove Armature from Motor housing as illustrated in **Fig. 11**.
(3) After removing Baffle plate, make preparation for removing Field as illustrated in **Fig. 18**.
(4) Remove Field from Motor housing as illustrated in **Fig. 19.**

Fig. 17

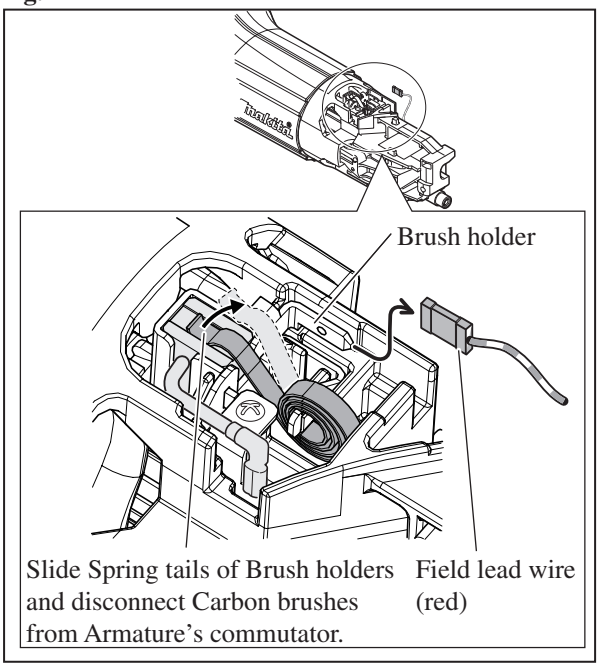


Fig. 18

1. Remove Baffle plate from Motor housing.
Remove 4x70 Tapping screws and Spacer from Motor housing.

Note: Do not strike the edge of Motor housing when removing Field. Because the thin portion on the edge is easy to broken.

2. To protect the edge of Motor housing from breakage, mount Gear housing complete and Crank housing completes to Motor housing temporarily.

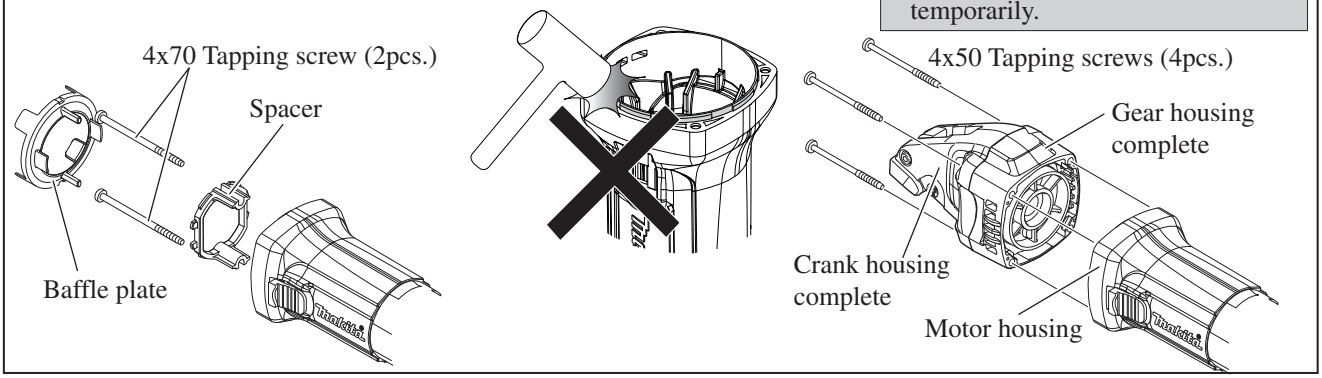
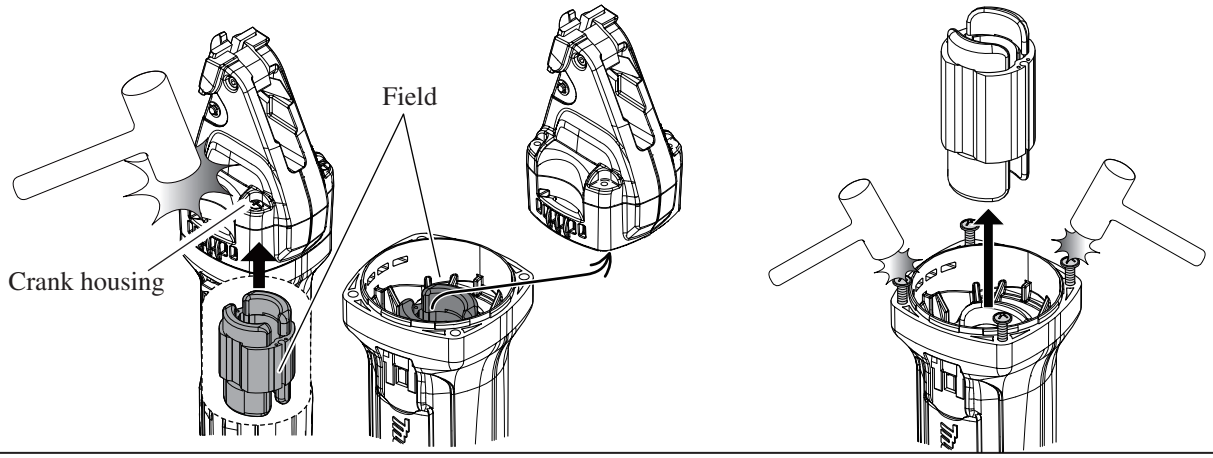


Fig. 19

1. Strike Crank housing complete with Plastic hammer to shift Field from the original position.
2. Disassemble Crank and Gear housing completes again, if Field is shifted halfway out of Motor housing.

3. Screwing four 4x50 Tapping screws to Motor housing, strike the screw heads with plastic hammer.
Field can be removed from Motor housing.



Repair

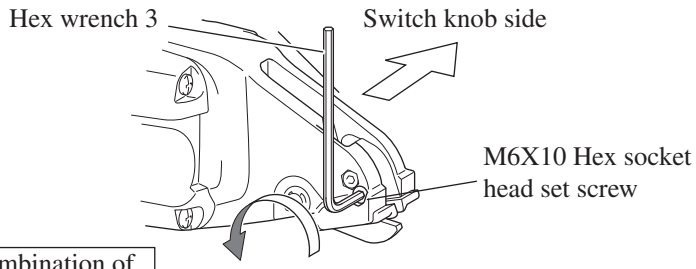
[4] ADJUSTMENT

Adjust the clearance between Center blade and Side blades as illustrated in **Figs. 20, 21 and 22.**

Fig. 20

1. Loosen M6x10 Hex socket head set screw, turning it by 360 degrees with Hex wrench in order to reserve the turning angle for adjustment.

2. Select the proper Leaves of 1R366, according to the following table.



Workpiece Thickness (mm)	Clearance (mm) between Center and Side blades	Combination of Leaves of 1R366
less than 0.8	0.1	0.04 + 0.06
0.8 - 1.29	0.2	0.05 + 0.15
More than 1.3	0.3	0.1 + 0.2

Fig. 21

Inserting Leaves of 1R366 between Center blade and Side blades, adjust the clearance by turning M4x25 Hex socket head. bolt (on Switch knob side) with Hex wrench 3.

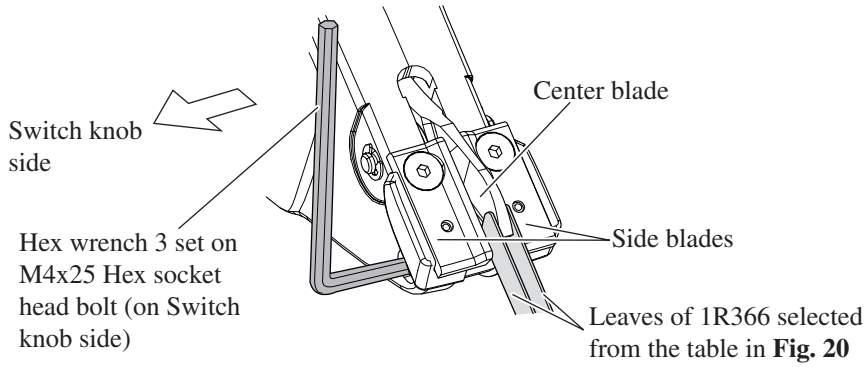
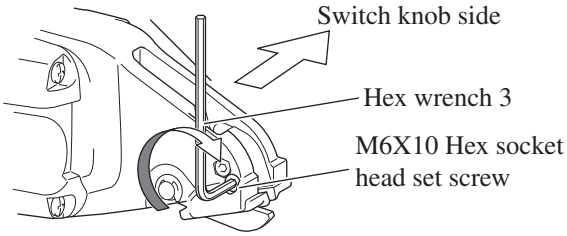


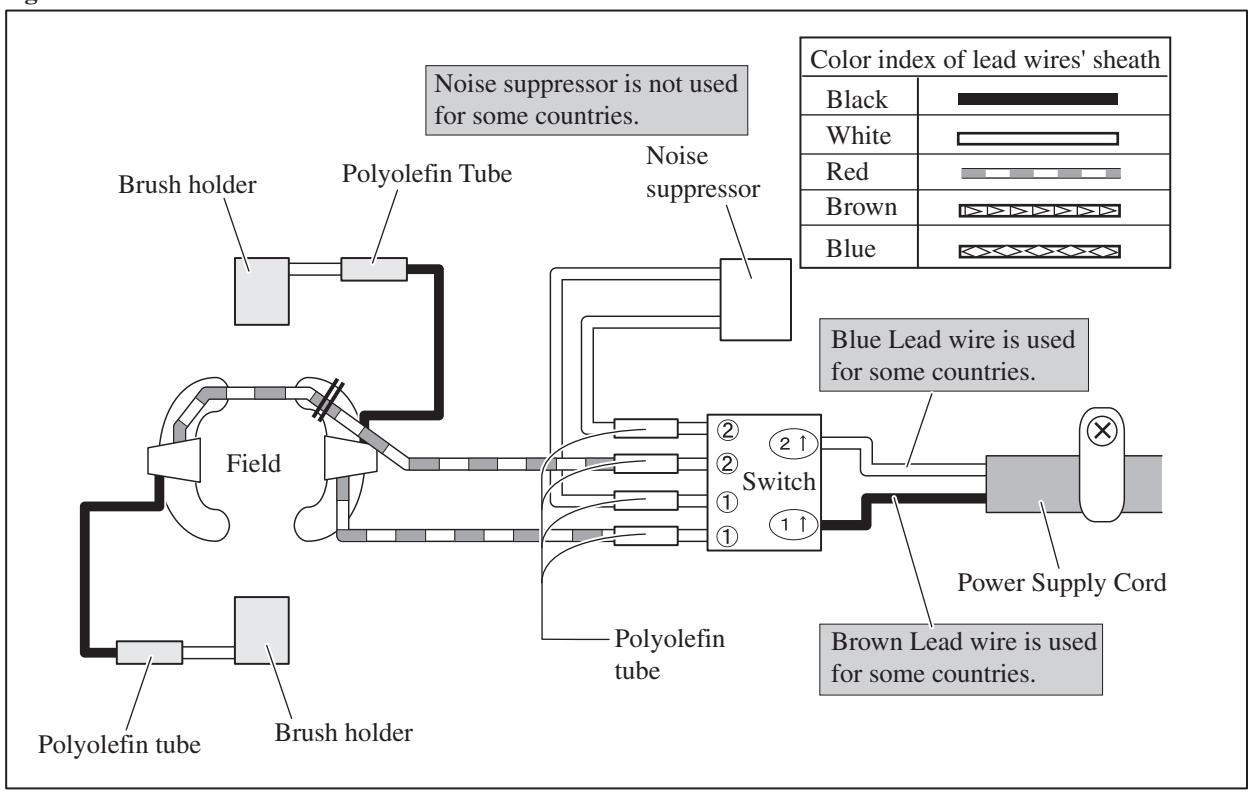
Fig. 22

After adjusting the clearance, tighten M6x10 Hex socket head set screw with Hex wrench 3.



► Circuit diagram

Fig. D-1



► Wiring diagram

Connect the Lead wires of Power supply cord to Switch, as illustrated in **Fig. D-2R**.

Fig. D-2R

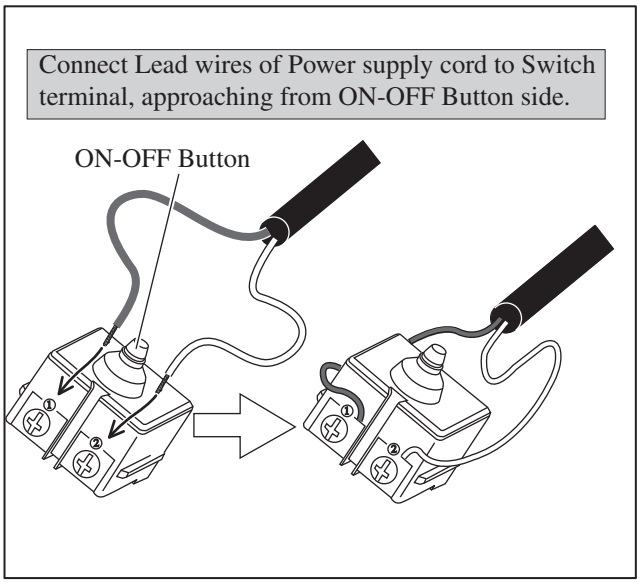
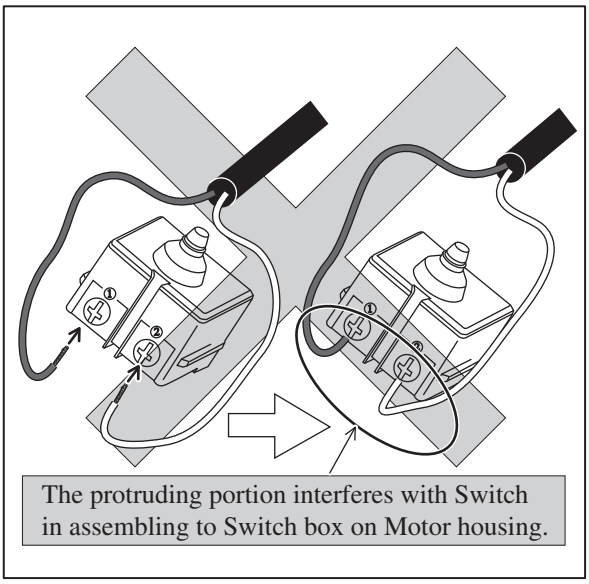
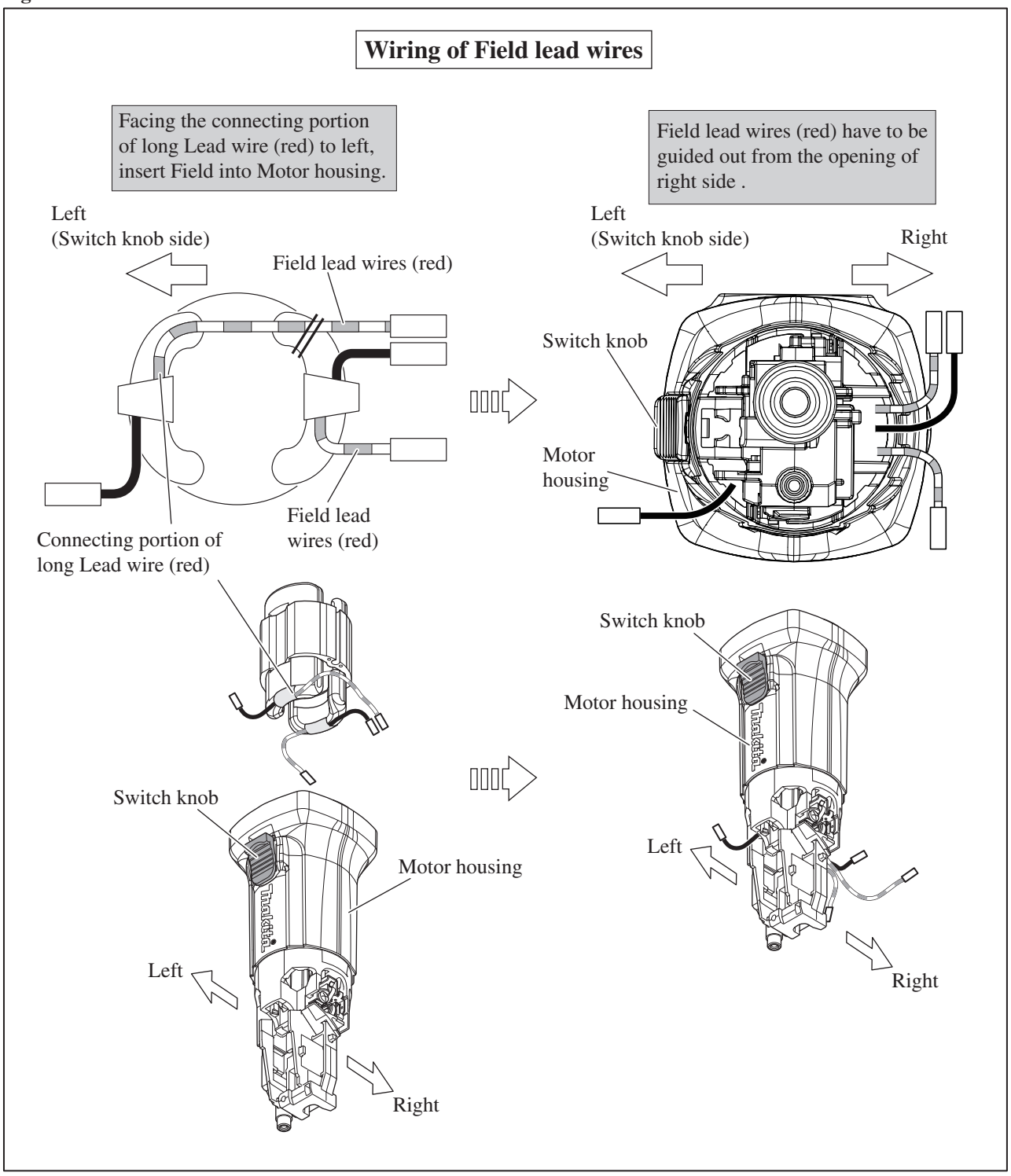


Fig. D-2F



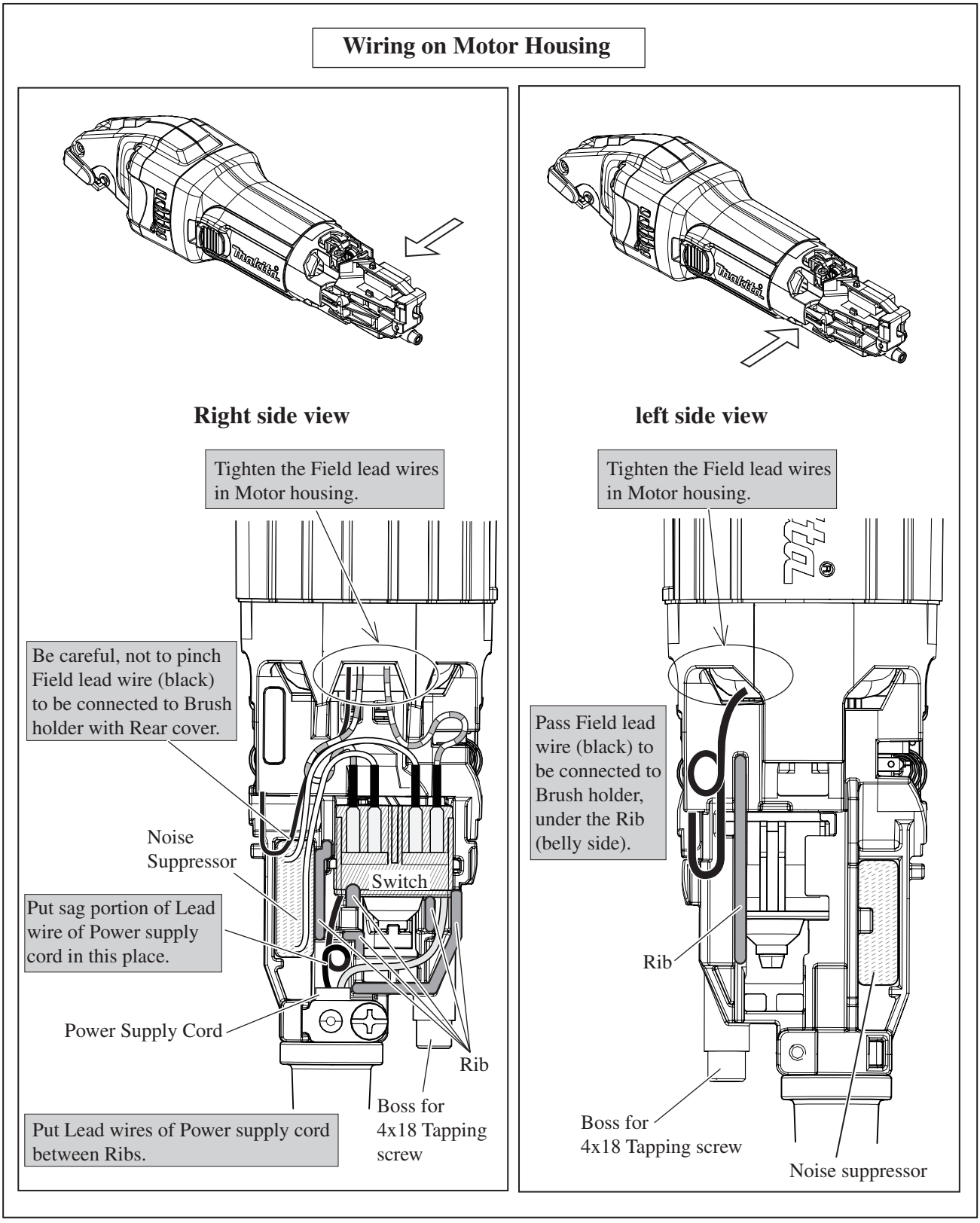
Wiring diagram

Fig. D-3



Wiring diagram

Fig. D-4



Wiring diagram

Fig. D-5