

# T ECHNICAL INFORMATION



PRODUCT

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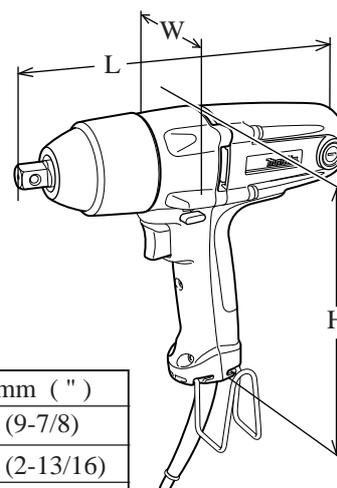
**Models No.** ▶ TW0200

**Description** ▶ Impact Wrench

## CONCEPTION AND MAIN APPLICATIONS

The advanced version of the existing model 6904VH has been released with the following features.

- \* Aluminum hammer case with high durability
- \* Compact body size ; 251mm (9-7/8")
- \* Ergonomical palm fitting soft grip



Dimensions : mm ( " )	
Length ( L )	251 (9-7/8)
Width ( W )	72 (2-13/16)
Height ( H )	220 (8-5/8)

### ► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output(W)
			Input	Output	
110	3.6	50 / 60	380	160	300
120	3.3	50 / 60	380	160	300
220	1.8	50 / 60	380	160	300
230	1.7	50 / 60	380	160	300
240	1.7	50 / 60	380	160	300

<b>No load speed (min.<sup>-1</sup>=rpm)</b>	0 - 2,200	
<b>Impact per minute (min.<sup>-1</sup>=bpm)</b>	0 - 2,200	
<b>Square drive : mm ( " )</b>	12.7 (1/2)	
<b>Capacities</b>	<b>Standard bolt</b>	M10 - M16 (3/8" - 5/8" )
	<b>High Tensile bolt</b>	M10 - M12 (3/8" - 1/2" )
<b>Max. fastening torque : N.m (ft.lbs)</b>	200 (150)	
<b>Power supply cord : m ( ft )</b>	2.5 (8.2)	
	2.0 (6.6) for Australia	
<b>Net weight: kg (lbs)</b>	2.1 (4.6)	

### ► Standard equipment

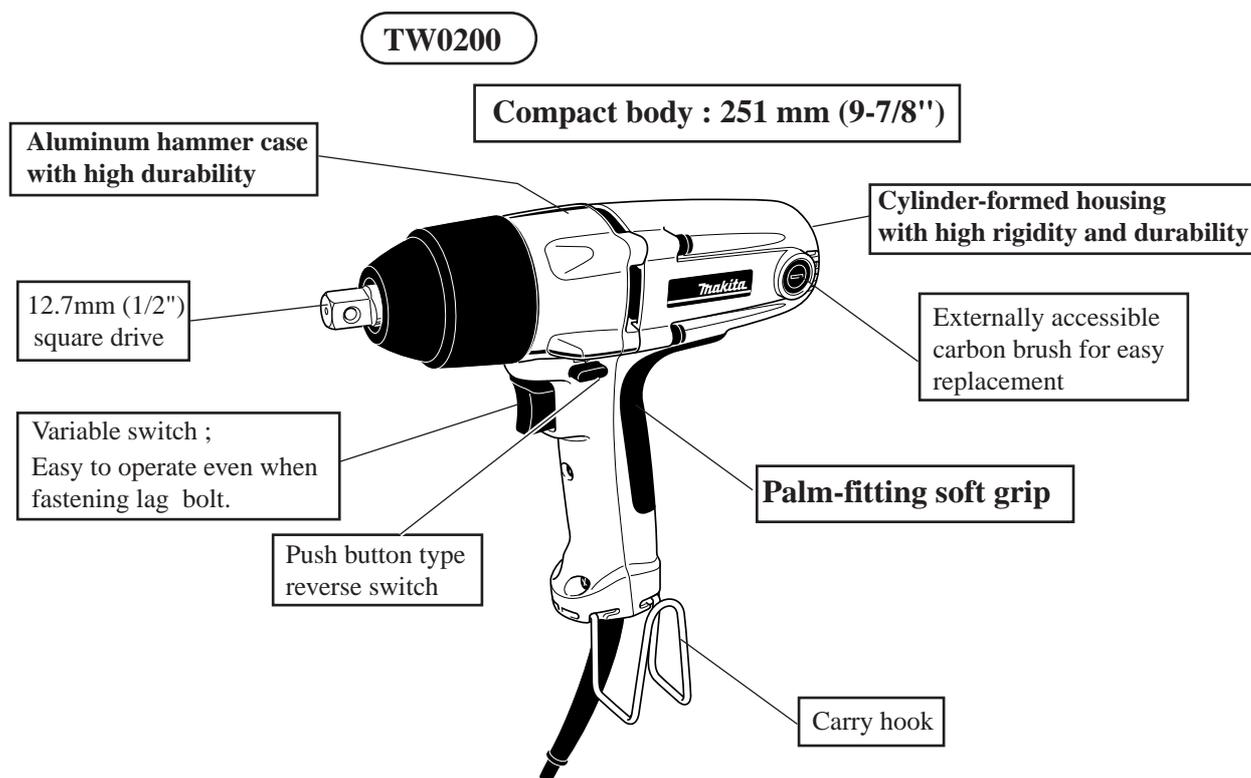
- \* Socket 17-38 ..... 1 pc.
- \* Socket 19-52 ..... 1 pc.
- \* Socket 21-38 ..... 1 pc.
- \* Plastic carrying case ..... 1 pc.

< Note > The standard equipment for the tool shown may differ from country to country.

### ► Optional accessories

- \* Socket 17-38
- \* Socket 17-52
- \* Socket 19-38
- \* Socket 19-52
- \* Socket 19-78
- \* Socket 21-38
- \* Socket 21-52
- \* Socket 21-78
- \* Socket 21-150
- \* Socket 22-38
- \* Socket 22-52
- \* Socket 23-38
- \* Socket 23-52
- \* Socket 24-45
- \* Socket 24-52
- \* Socket 26-50
- \* Socket 26-78
- \* Extension bar
- \* Universal joint
- \* Bit adaptor

► Features and benefits



► Comparison of products

Model No.	MAKITA		Competitor A
	TW0200	6904VH	Model A
Specifications			
Max. fastening torque : N.m (ft.lbs) in catalog	<b>200</b> <b>(150)</b>	196 (145)	196 (145)
Square drive : mm ( " )	<b>12.7</b> <b>(1/2)</b>	12.7 (1/2)	12.7 (1/2)
Power input : W	<b>380</b>	360	360
Rated amperage for North America : A	<b>3.3</b>	4.6	—
No load speed :min-1=rpm	<b>0 - 2,200</b>	0 - 2,400	0 - 2,400
		0 - 2,100	0 - 1,900
Impact per minute :min-1=bpm	<b>0 - 2,200</b>	0 - 3,000	0 - 3,000
		0 - 2,500	0 - 2,300
Material of hammer case	<b>Aluminum</b>	Plastic Clam shell type	Aluminum
Externally accessible brush	<b>Yes</b>	No	Yes
Soft grip	<b>Yes</b>	No	No
Electric brake	<b>No</b>	No	No
Overall length: mm ( " )	<b>251</b> <b>(9-7/8)</b>	265 (10-3/8)	264 (10-3/8)
Net weight: kg (lbs)	<b>2.1 (4.6)</b>	1.8 (4.0)	2.1 (4.6)

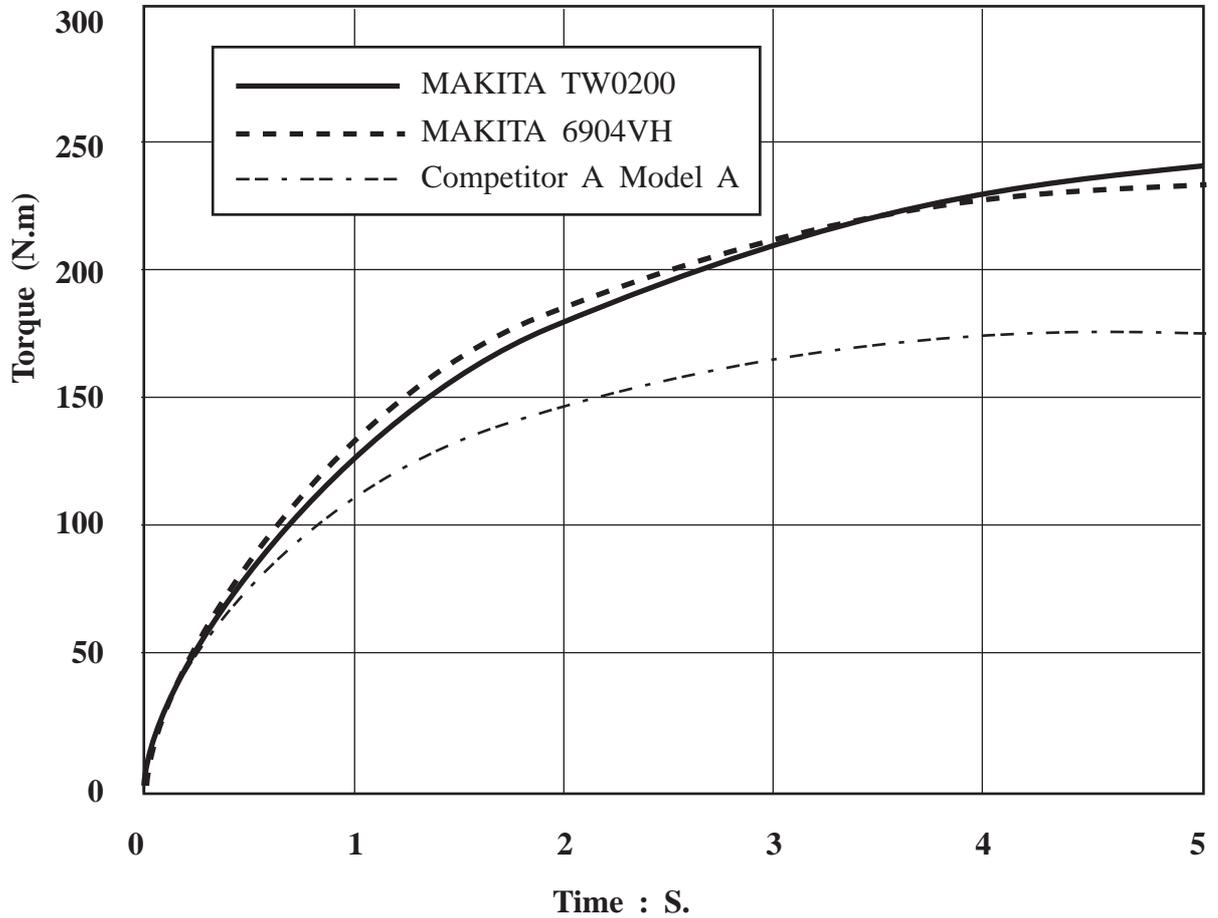
**Fastening high tensile bolt M16**

< Note >

The definition of the max. fastening torque according to MAKITA standard ;

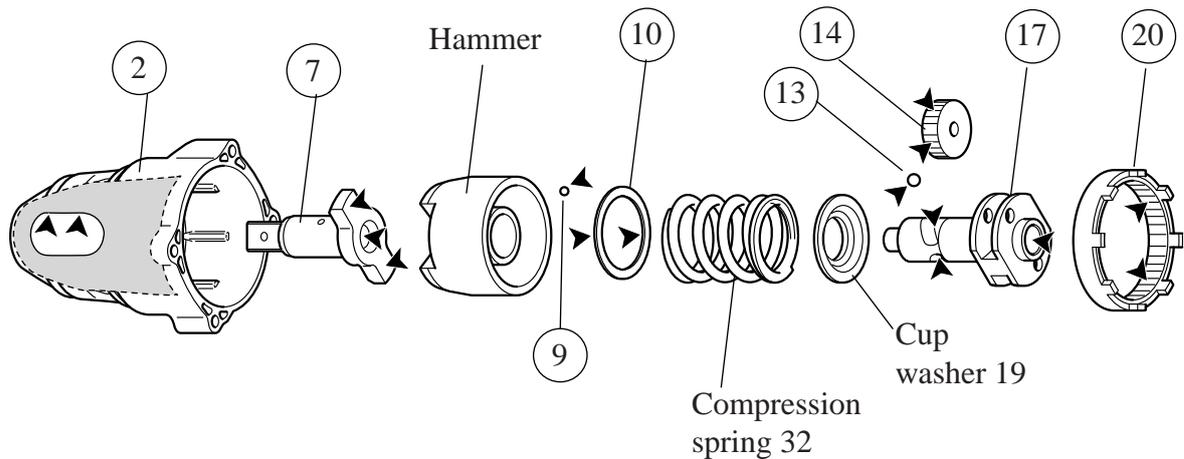
The figure which is measured at 3 seconds after start of driving, is the max. fastening torque in catalog.

The max. fastening torque of TW0200 is based on the same definition.



< 1 > Lubrication

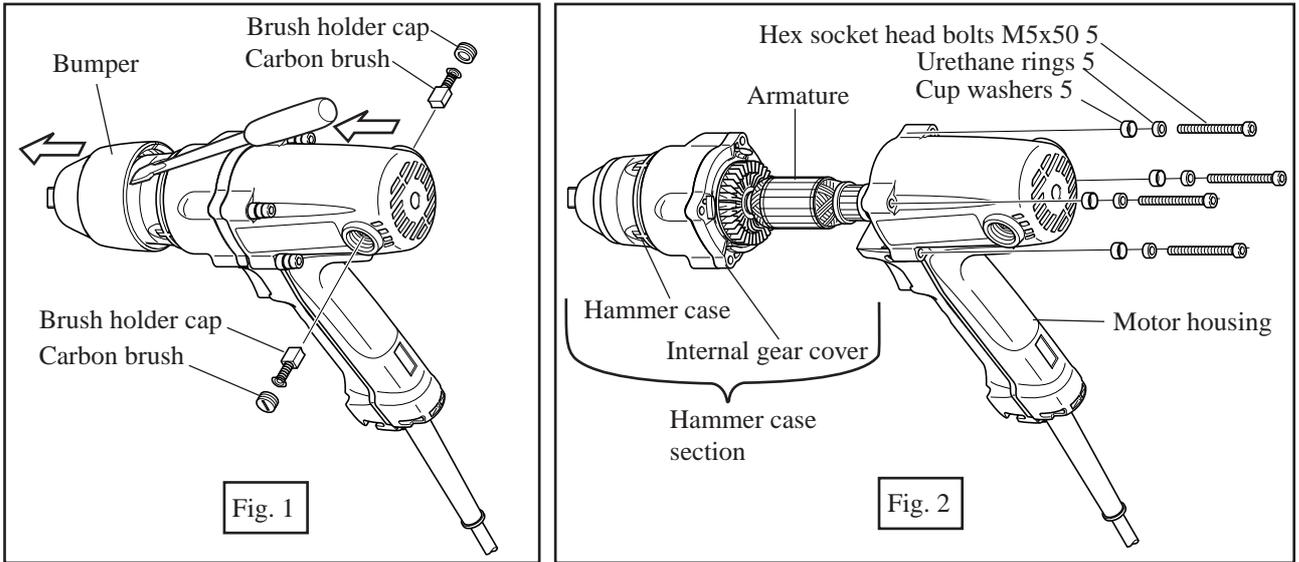
Apply MAKITA grease N. No.1 to the following portions marked with black triangle to protect parts and product from unusual abrasion.



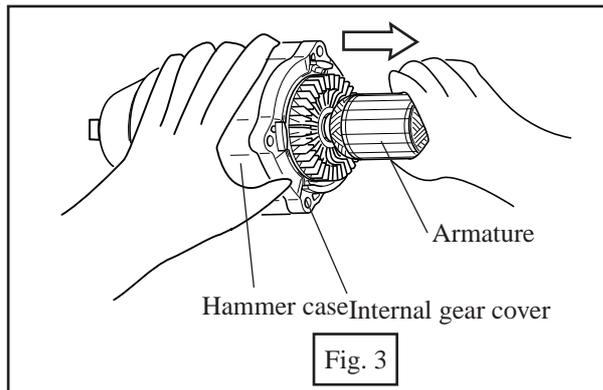
Position No.	Descriptions	The portion to be lubricated	Amount : g (oz)
2	Hammer case	Cylindric portion where ⑦ anvil reciprocates.	Approx. 0.1 (0.01)
7	Anvil	* The hole portion where ⑰ spindle contacts. * The portion where hammer contacts.	Approx. 0.5 (0.02)
9	31 pcs. of Steel balls 3.5		Approx. 0.5 (0.02)
10	Flat washer 32	* The side where ⑨ steel balls 3.5 contact.	in total
13	2 pcs. of Steel balls 6.4		Approx. 0.5 (0.02)
14	2 cps. of Spur gears 32	Teeth portion	Approx. 2.0 (0.07) in total
20	Internal gear 71		
17	Spindle	* The groove portion where ⑬ steel balls 6.4 move. * The hole portion where armature gear is inserted.	Approx. 0.5 (0.02)

< 2 > Removing armature

- ( 1 ) After removing brush holder cap and carbon brushes, remove bumper with a slotted head screwdriver. See Fig. 1.
- ( 2 ) Unscrew 4 pcs. of hex socket head bolts M5x50 together with urethane rings and cup washers each 4 pcs. Then, hammer case section can be removed from motor housing together with armature. See Fig. 2.



- ( 3 ) Do not separate internal gear cover from hammer case, because the grease leaks out, or inner parts can fall off the hammer case. Then, holding hammer case together with internal gear cover, pull off the armature as illustrated in Fig. 3.

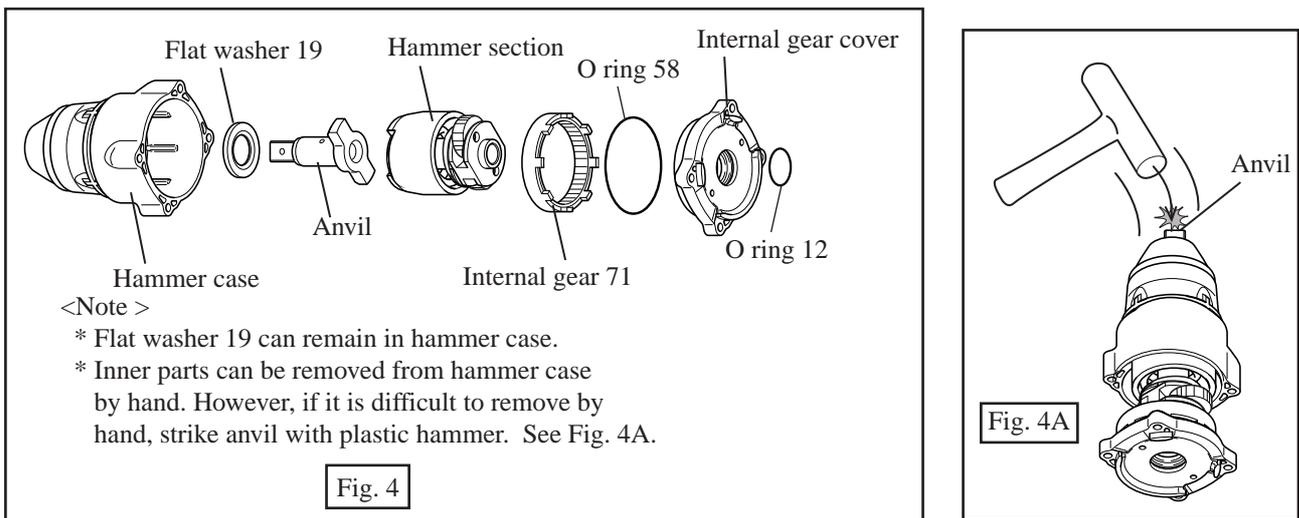


< 3 > Disassembling mechanical section

- ( 1 ) Separate internal gear cover from hammer case. Take off the following parts from hammer case. See Fig. 4.

- \* Flat washer 19
- \* Anvil
- \* Hammer section
- \* Internal gear 71
- \* O ring 58

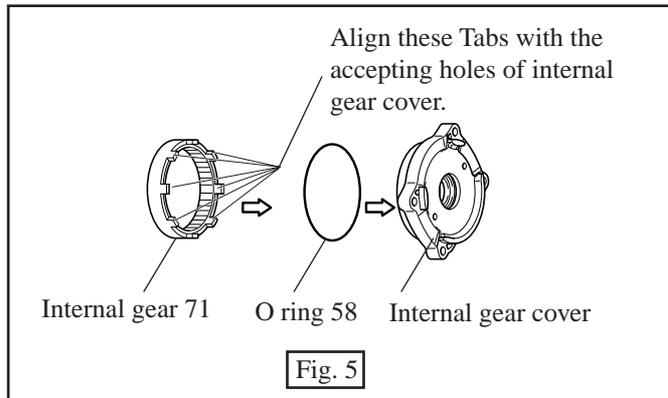
Remove O ring 12 from internal gear case.



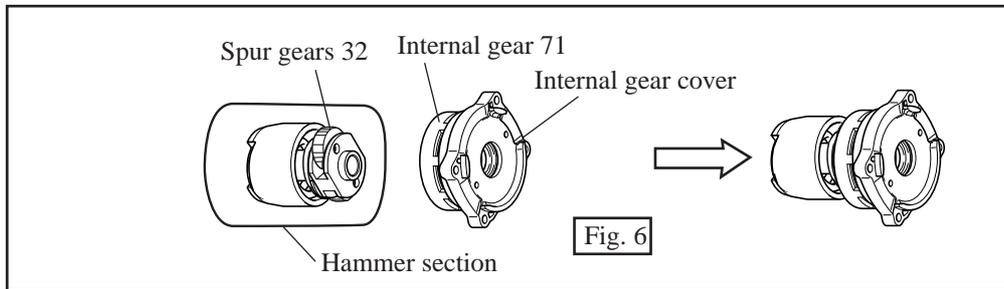
< 4 > Assembling mechanical section

Before assembling, apply MAKITA grease N. No.1 with referring to "< 1 > Lubrication" at page 4.

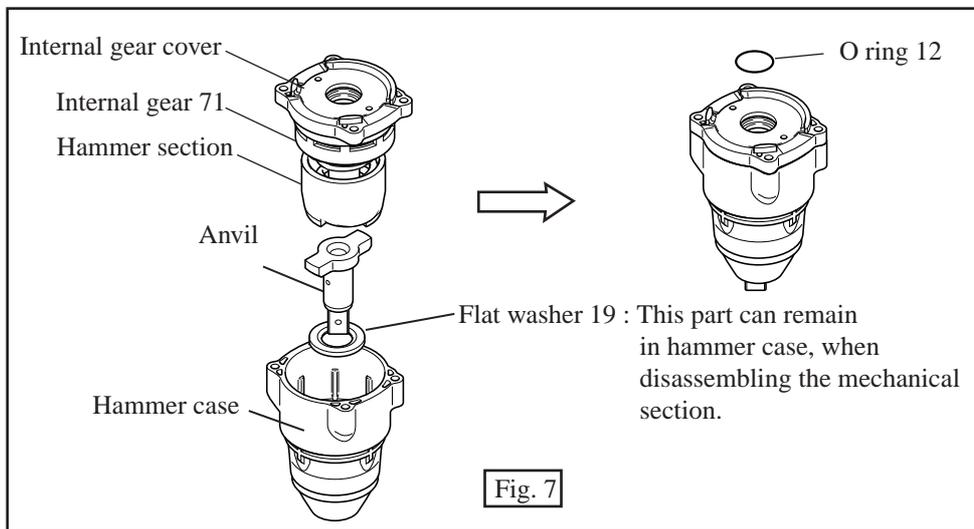
1. Mount O ring 58 to internal gear cover. Aligning the tabs of internal gear with the accepting holes of internal gear cover, mount internal gear 71 to internal gear cover. See Fig. 5.



2. Mount hammer section with engaging spur gears 32 with internal gear 71. see Fig. 6.

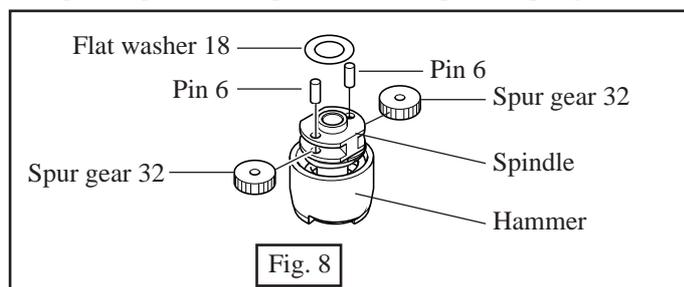


3. Mount flat washer 19 and anvil to hammer case. And mount hammer section, internal gear 71 and internal gear cover to hammer case. Mount O ring 12 to internal gear cover. See Fig. 7.

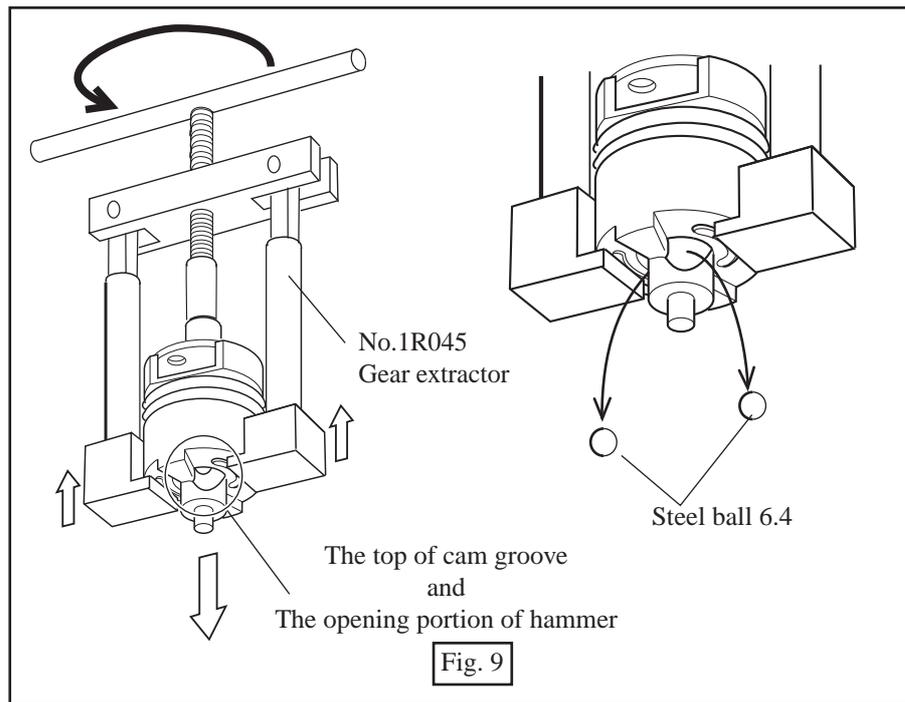


< 5 > Disassembling hammer section

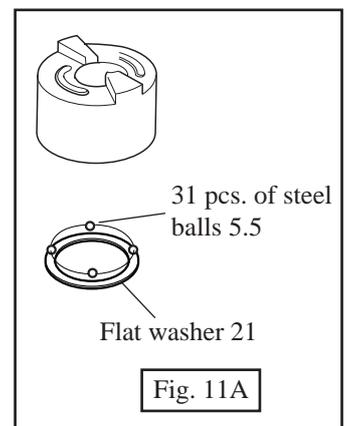
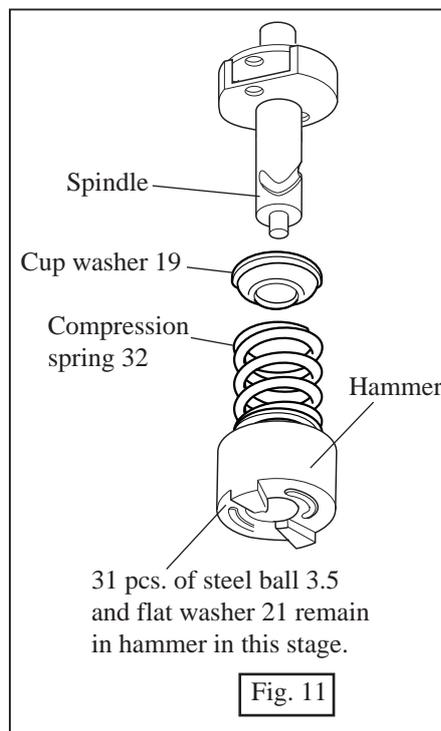
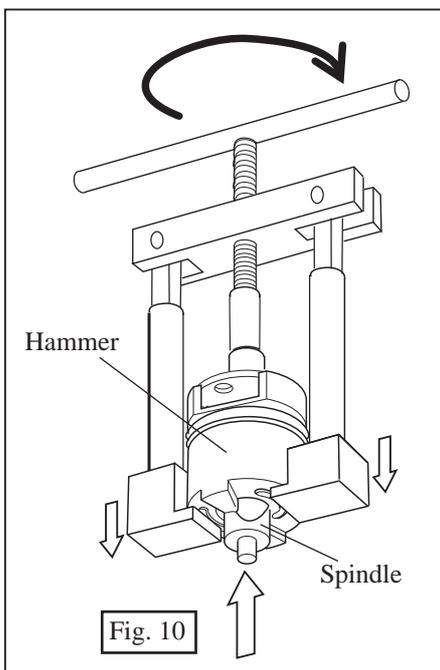
1. Remove flat washer 18 and 2 pcs. of pin 6 from spindle. Then, 2 pcs. of spur gear 32 can be removed. See Fig. 8.



2. Pull hammer toward spur 32 side with "No.1R045 Gear extractor", and in order to take out steel ball 6.4 align the top of cam groove of spindle with the opening portion of hammer. See Fig. 9.

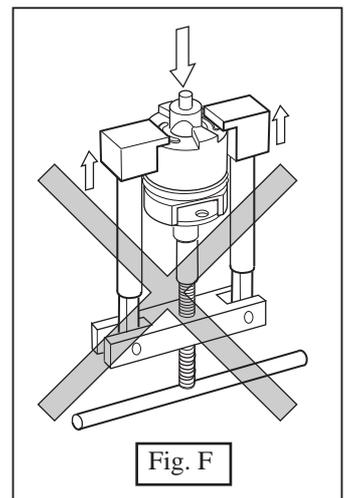


3. Loosen the handle of "No.1R045 Gear extractor" slowly until the spindle is free from the compression spring 32. See Fig. 10. Then, the hammer section can be disassembled as illustrated in Fig. 11. And then, 31 pcs.of steel ball 3.5 and flat washer 21 can be removed from hammer as illustrated in Fig. 11A.



< Note >

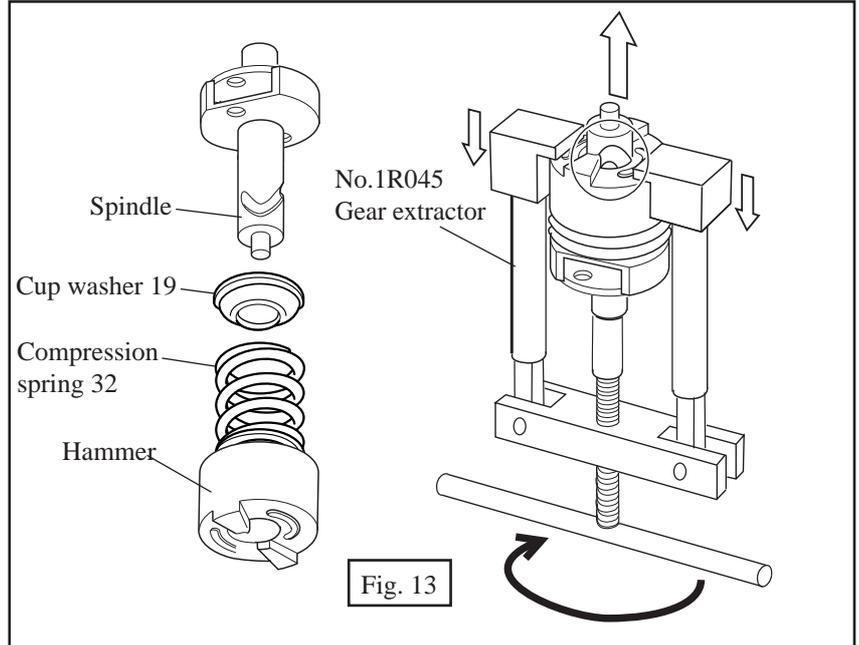
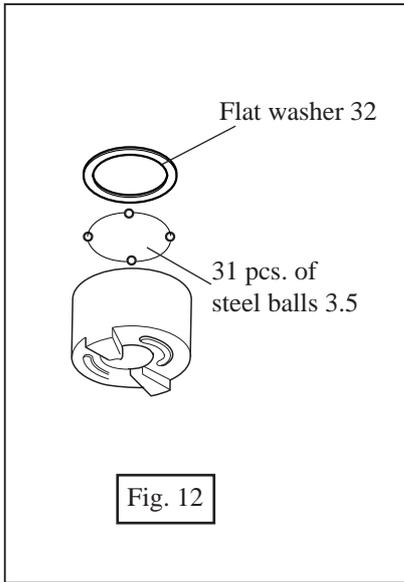
**Do not hold the hammer section as illustrated in Fig. F. Because, steel balls 3.5 fall off the hammer, when separating spindle from hammer.**



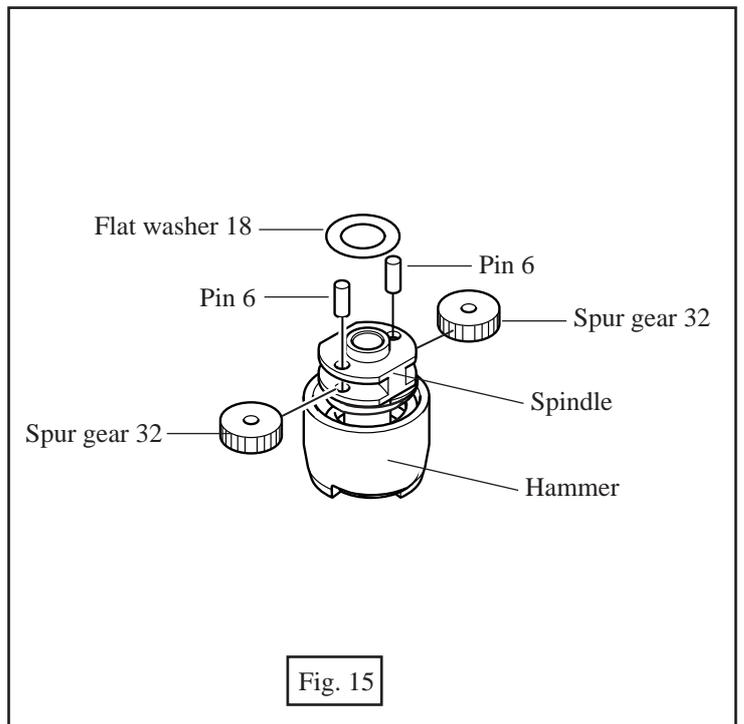
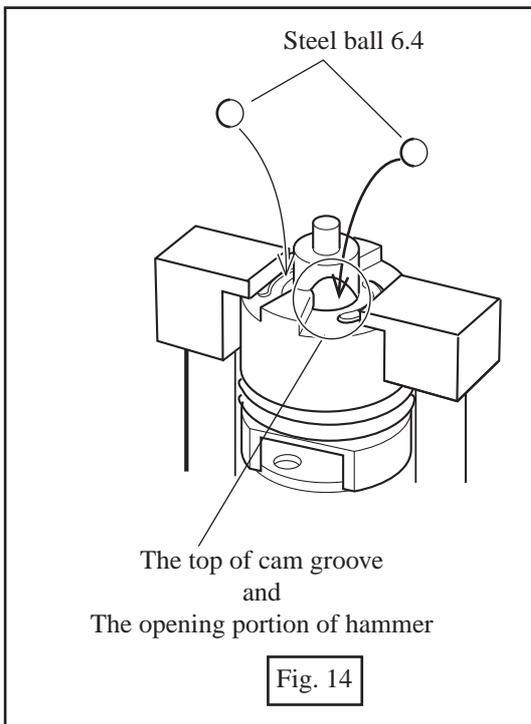
< 6 > Assembling hammer section

1. Put 31 pcs. of steel ball 3.5 and flat washer 32 into hammer. See Fig. 12

After mounting compression spring 32, cup washer 19 and spindle to hammer, press the hammer toward the spur gear installing side with "No.1R045 gear extractor". See Fig. 13.



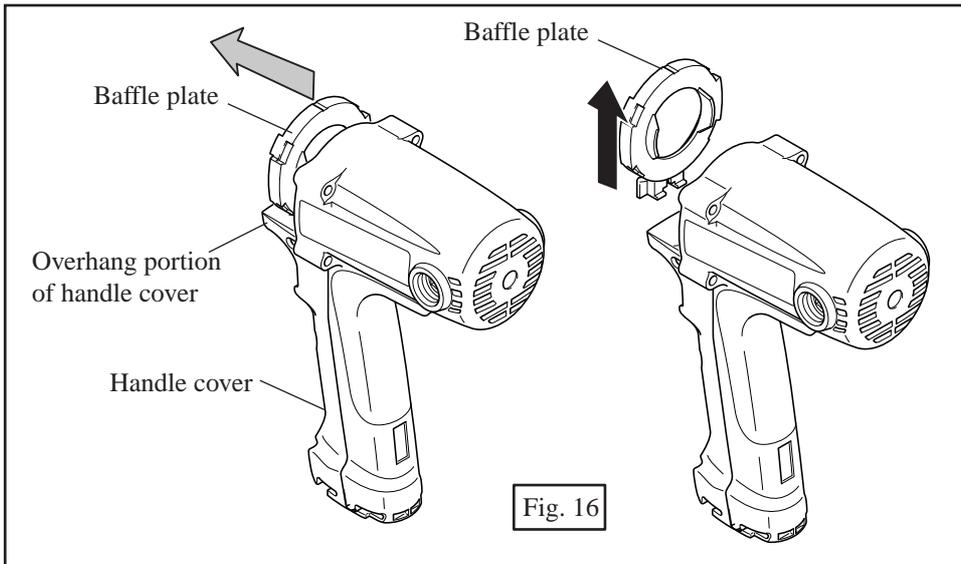
2. Align the top of cam groove of spindle with the opening portion of hammer. And then, mount 2 pcs. of steel ball 6.4 to spindle. See Fig. 14. Mount spur gears 32, pins 6 and flat washer 18 to spindle. See Fig. 15.



3. Mount the assembled hammer section to the machine with referring to "< 4 > Assembling mechanical section" at page 6.

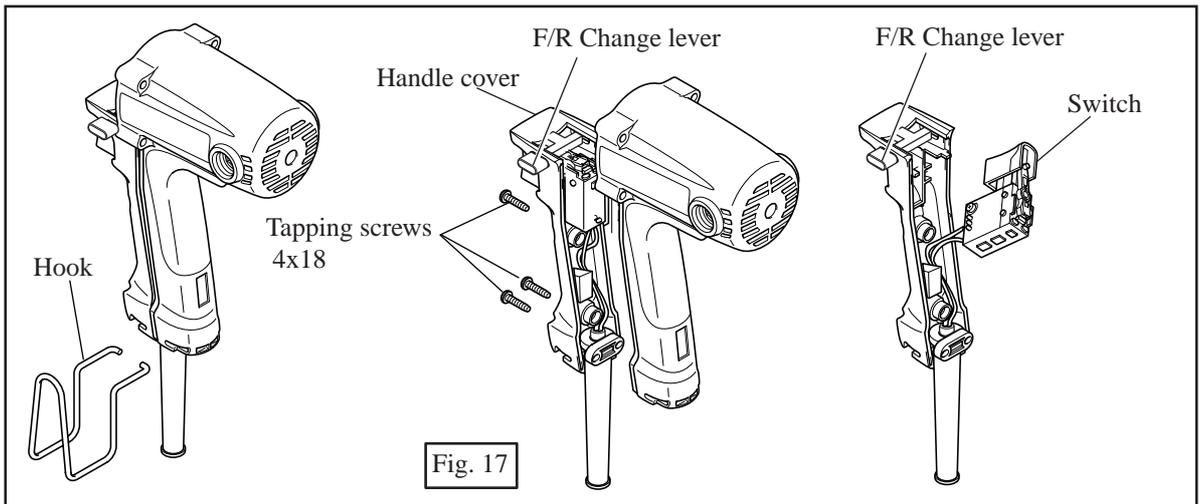
< 7 > Removing baffle plate

1. Slide baffle plate to the overhang portion of handle cover. And remove it by pulling in the direction of black arrow.

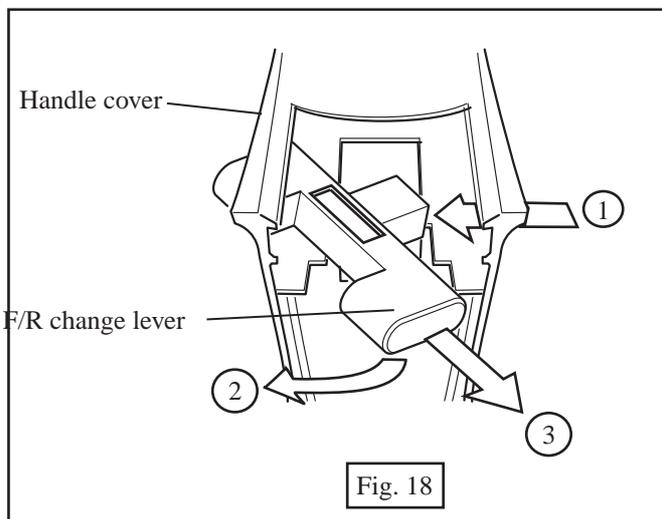


< 8 > Removing handle cover and F/R change lever

1. After removing hook, unscrew 3 pcs. of tapping screw 4x18, and disengage switch from F/R change lever. See Fig. 17.

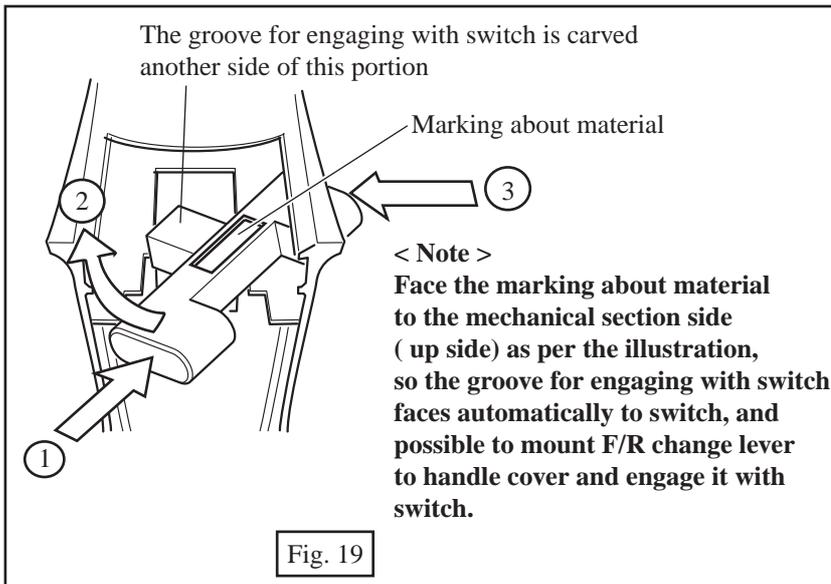


2. Push F/R change lever in the direction of the arrow 1. Pull the lever in the direction of 2, and then, pull out in the direction of 3. So, F/R change lever can be removed from handle cover. See Fig. 18.

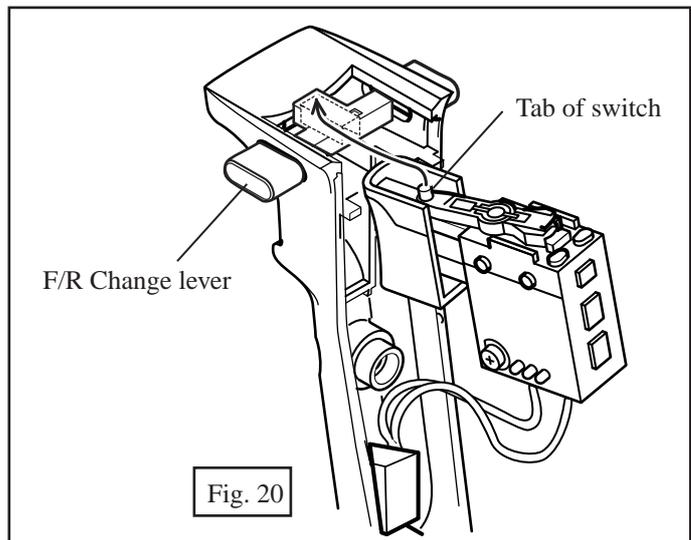


< 9 > Mounting handle cover and F/R change lever

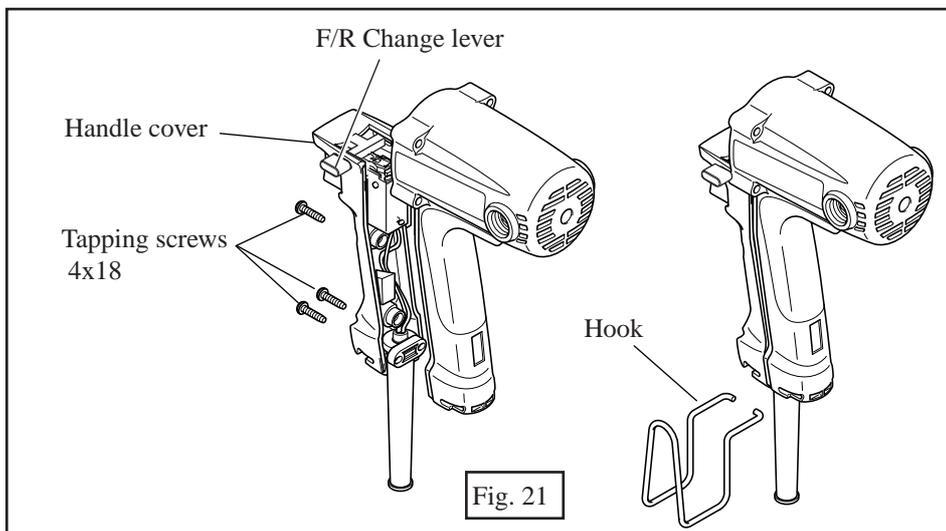
1. Push F/R change lever in the direction of the arrow 1. Push the lever in the direction of 2, and then, push in the direction of 3. So, F/R change lever can be mounted to handle cover. See Fig. 19.

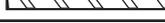
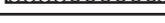
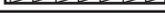


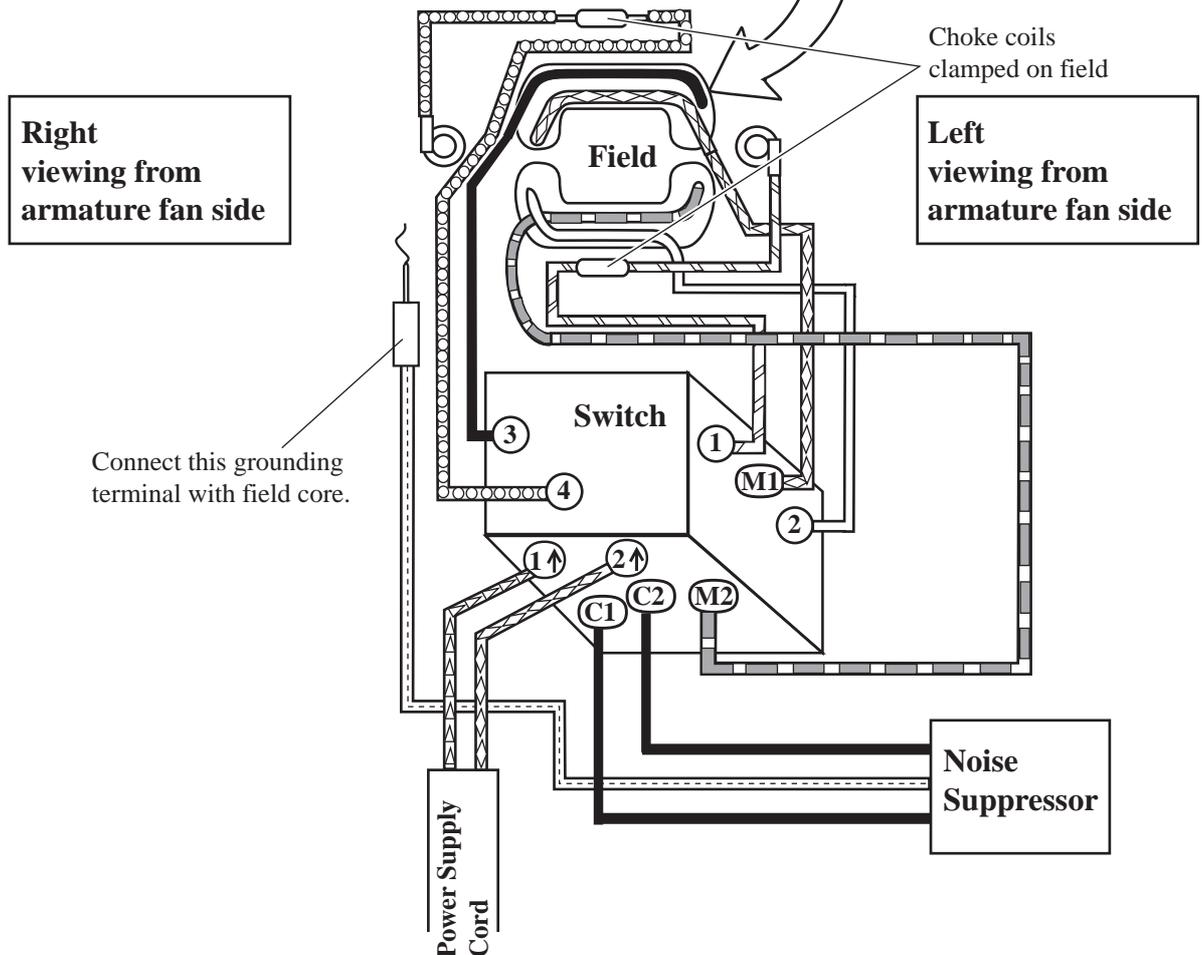
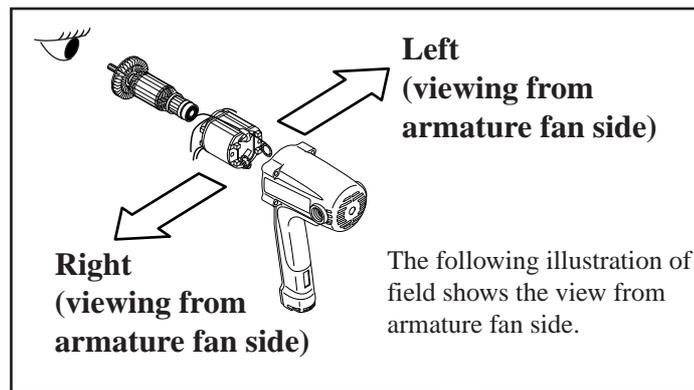
2. Engaging the tab of switch with the groove of F/R change lever, mount switch to handle cover. See Fig. 20.



3. Mount handle cover to motor housing and fasten it with 3 pcs. of tapping screw 4x18. Mount hook. See Fig. 21.



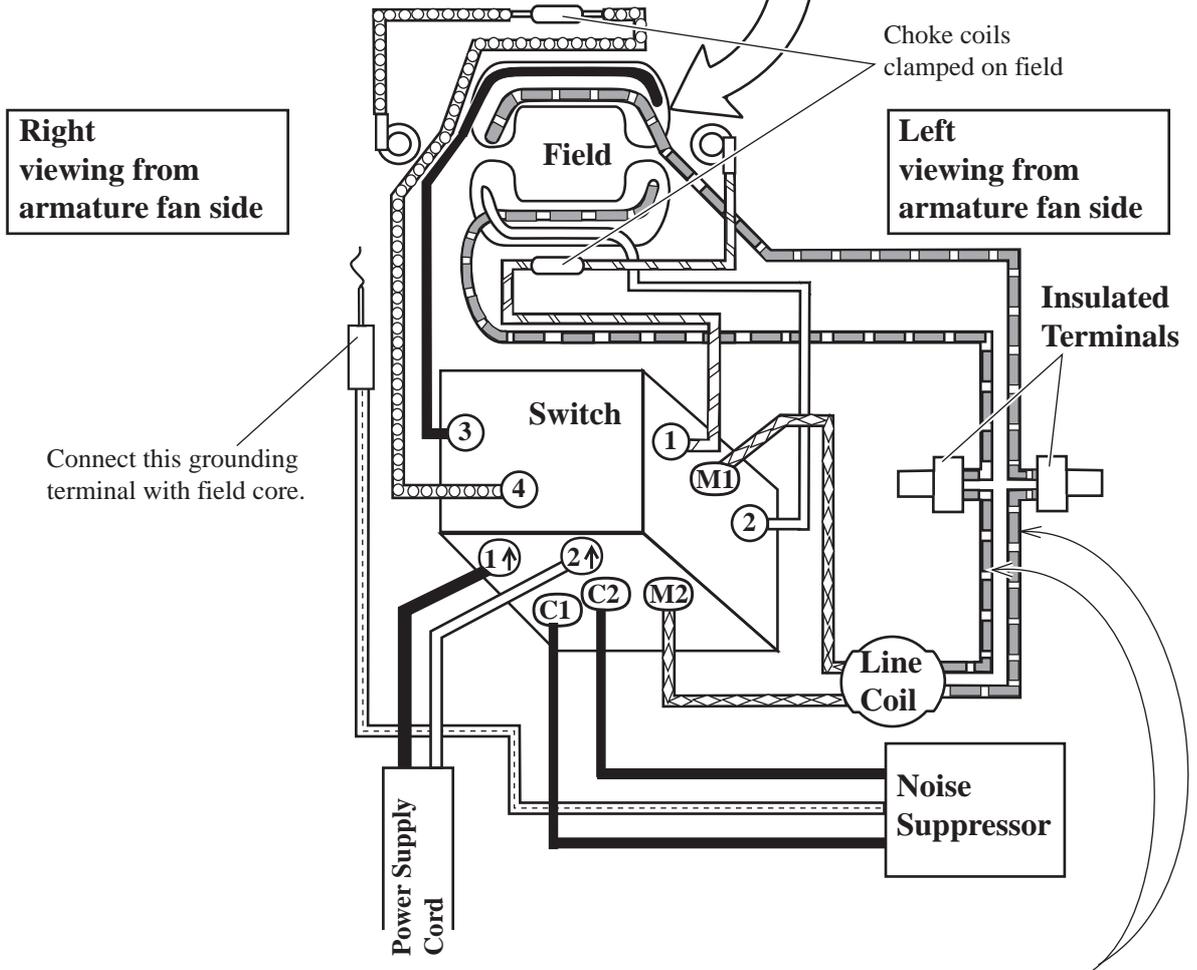
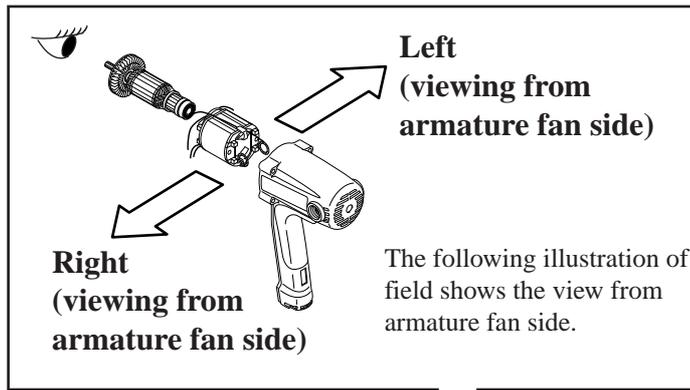
Color index of lead wires	
Black	
White	
Red	
Orange	
Blue	
Purple	
Brown	
See-through	



< Note >

- \* Choke coils are not used for all countries.
- \* Noise suppressor is not used for all countries.
- \* Noise suppressor of two lead wire type is used for some countries in stead of three lead wire type.

Color index of lead wires	
Black	
White	
Red	
Orange	
Blue	
Purple	
Brown	
See-through	



White lead wires can be used for connecting insulated terminals to line coil.

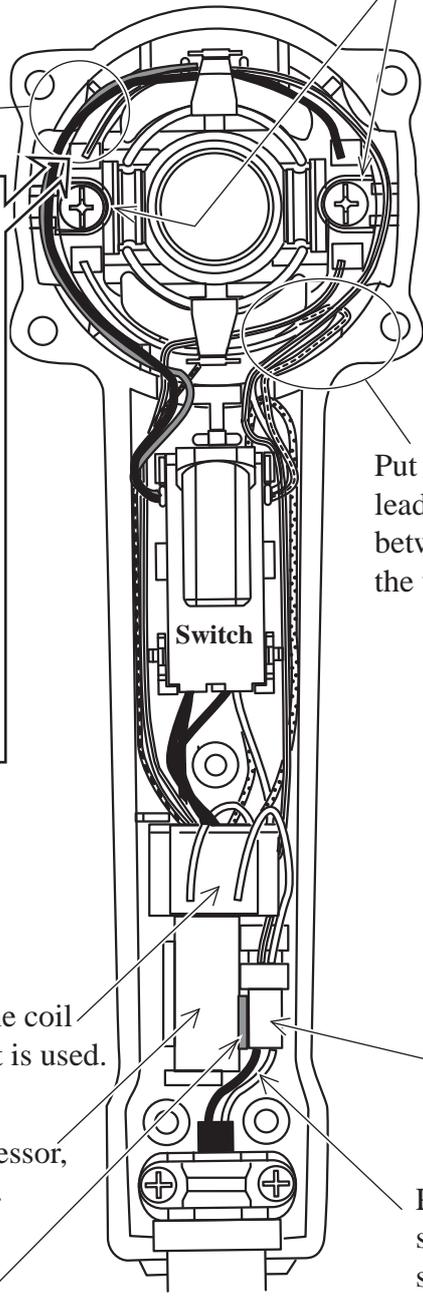
Mount field paying attention to the following matters.

1. Poke in terminal side has to be faced to armature fan side.
2. Orange lead wire side has to be located on switch side.

Insulation covers have to be mounted as per Fig. A.  
Do not mount them as per Fig. B.

Pass the field lead wires along the wall of motor housing.

The lead wire of tab terminal has to be put in the space between rib and wall of motor housing. Do not put on the rib.



Put the slack portion of lead wires into the space between field core and the wall of motor housing.

Put sponge sheet into the illustrated position

Line coil if it is used.

Noise suppressor, if any.

Rib

Insulated terminal

Put lead wires of power supply cord on the right side of rib.