

TECHNICAL INFORMATION



PRODUCT

P 1 / 10

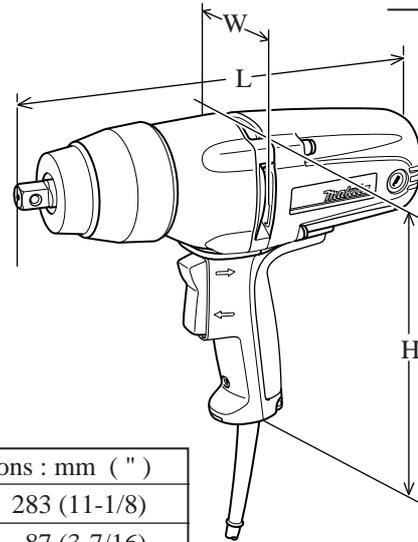
Models No. ▶ TW0350

Description ▶ Impact Wrench

CONCEPTION AND MAIN APPLICATIONS

In order to occupy the advantageous position in the market, we have developed the above impact wrench with the following features.

- * Incredibly high torque of 350 N.m (260 ft.lbs)
- * Equipped with palm-fitting soft grip for comfortable work.



Dimensions : mm (")	
Length (L)	283 (11-1/8)
Width (W)	87 (3-7/16)
Height (H)	233 (9-1/8)

► Specification

Voltage (V)	Current (A)	Cycle (Hz)	Continuous Rating (W)		Max. Output(W)
			Input	Output	
110	3.8	50 / 60	400	230	350
120	3.5	50 / 60	400	230	350
220	1.9	50 / 60	400	230	350
230	1.8	50 / 60	400	230	350
240	1.8	50 / 60	400	230	350

No load speed (min₋₁=rpm)	2,000	
Impact per minute (min₋₁=bpm)	2,000	
Square drive : mm (")	12.7 (1/2)	
Capacities	Standard bolt	M12 - M22
	High Tensile bolt	M12 - M16
Max. fastening torque : N.m (ft.lbs)	350 (260)	
Reverse switch	Yes (Rocker type)	
Power supply cord : m (ft)	2.0 (6.6) for Australia 2.5 (8.2) for other than Australia	
Net weight: kg (lbs)	2.9 (6.4)	

► Standard equipment

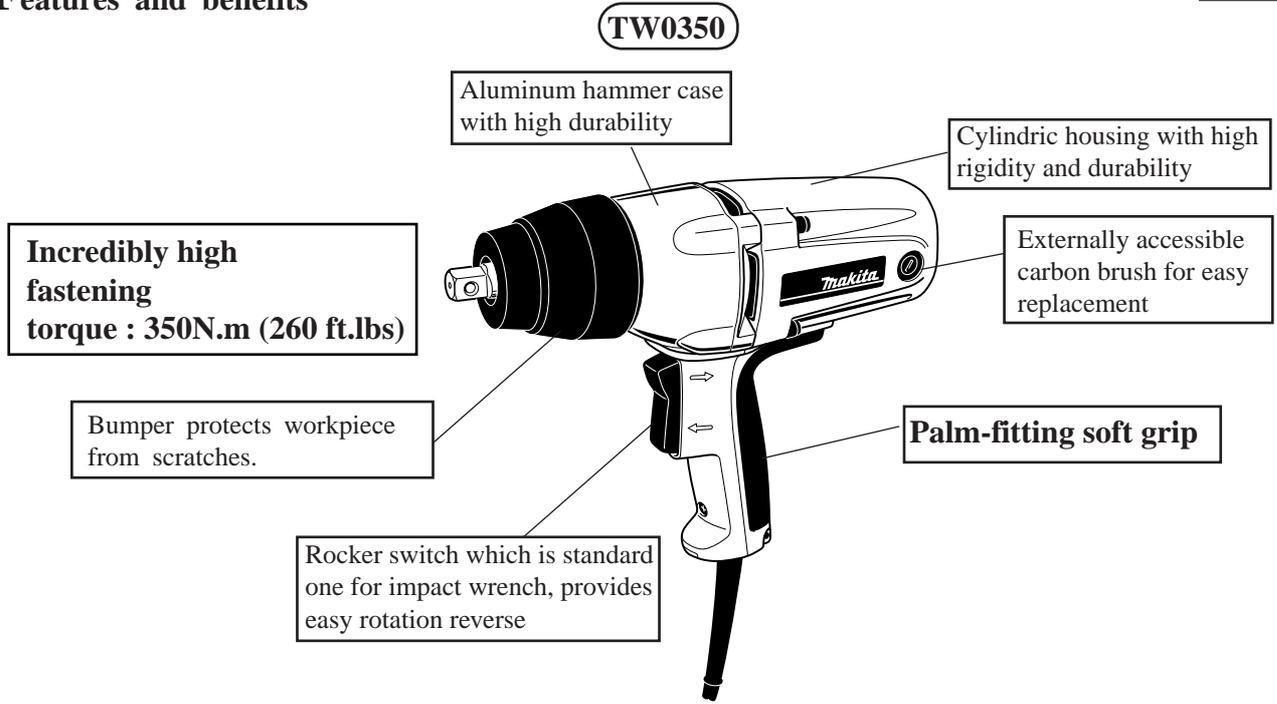
- * Socket 24-45 1 pc.
- * Plastic carrying case 1 pc.

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

► Optional accessories

- | | | | | |
|----------------|-----------------|----------------|----------------|-------------------|
| * Socket 19-38 | * Socket 21-150 | * Socket 24-52 | * Socket 30-78 | * Extension bar |
| * Socket 19-52 | * Socket 22-38 | * Socket 26-50 | * Socket 32-50 | * Universal joint |
| * Socket 19-78 | * Socket 22-52 | * Socket 26-78 | * Socket 32-78 | * Elliptic socket |
| * Socket 21-38 | * Socket 23-38 | * Socket 27-50 | | * Time switch |
| * Socket 21-52 | * Socket 23-52 | * Socket 27-78 | | |
| * Socket 21-78 | * Socket 24-45 | * Socket 30-50 | | |

► Features and benefits



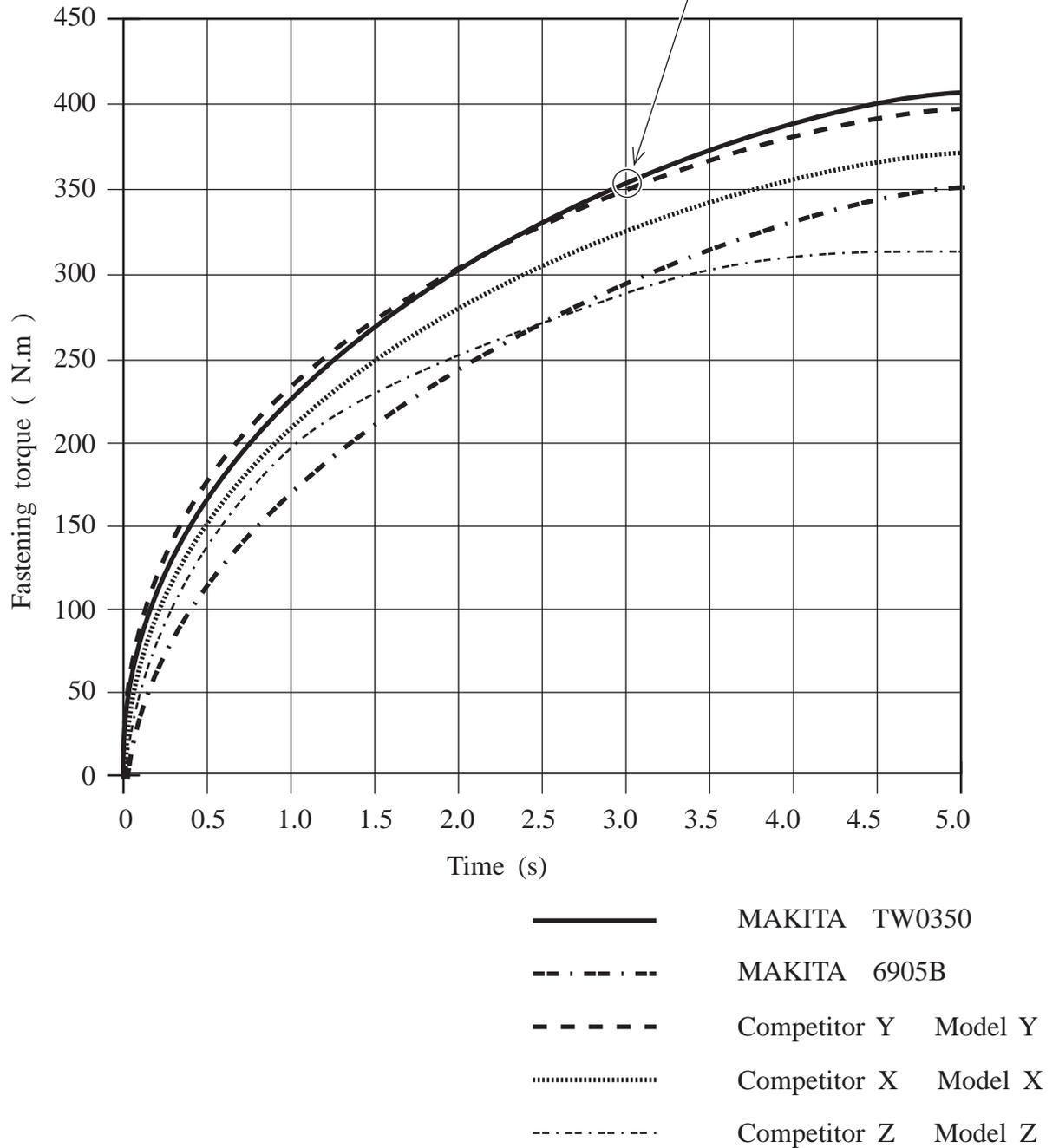
► Comparison of products

Model No. / Specifications	MAKITA			Competitor X	Competitor Y	Competitor Z
	TW0350	6905B	6905H	X	Y	Z
Max. fastening torque : N.m (ft.lbs) in catalogue	350 (260)	294 (217)	294 (217)	325 (240)	250	294 (217)
Square drive : mm (")	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)	12.7 (1/2)
Power input : W	400	380	470	—	500	380
Rated amperage for North America : A	3.5	4.0	6.0	7.5	—	5.0
No load speed :min-1=rpm	2,000	1,700	2,200	2,100	500 - 1,300	1,700
Impact per minute :min-1=bpm	2,000	2,200	2,600	2,700	1,800	2,000
Material of hammer case	Aluminum	Aluminum	Plastic Clam shell type	Aluminum	Aluminum	Aluminum
Externally accessible brush	Yes	Yes	No	Yes	No	Yes
Soft grip	Yes	No	No	No	No	No
Switch Type	Rocker	Rocker	Trigger	** Rocker	Trigger w/Dial	Rocker
Overall length: mm (")	282 (11-1/8)	270 (10-5/8)	275 (10-7/8)	276 (10-7/8)	320 (12-5/8)	270 (10-5/8)
Net weight: kg (lbs)	2.9 (6.4)	2.7 (6.0)	2.3 (5.1)	3.2 (7.0)	3.3 (7.3)	2.9 (6.4)

** Rocker : for North America, Trigger type : for Europe

Fastening high tensile bolt M20

< Note on Max. fastening torque >
 MAKITA defines the max. fastening torque as follows ;
 The torque level measured 3 seconds after starting to drive a bolt.
 Therefore, as you see in the chart below, the max. fastening torque of TW0350 is 350 N.m.



< 1 > Lubrication

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

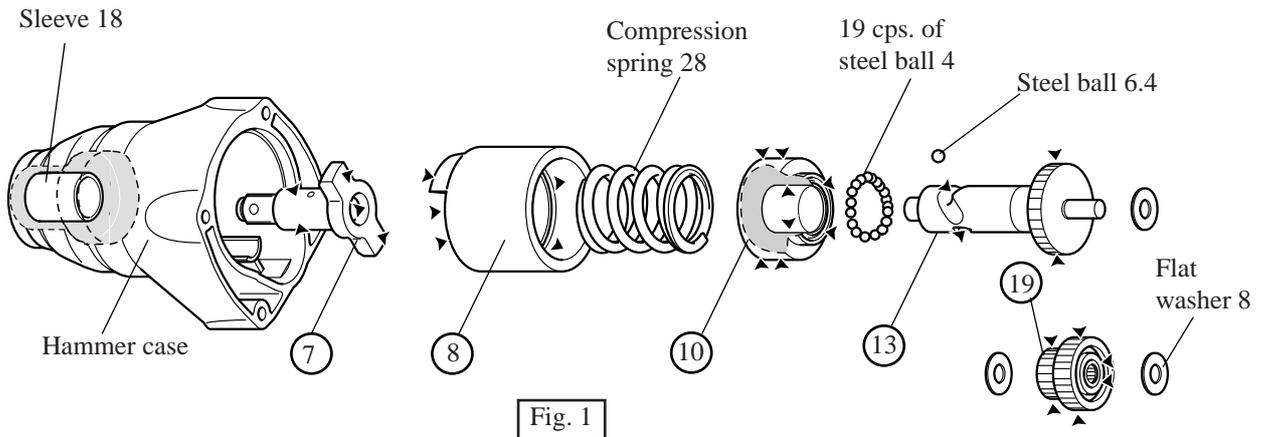


Fig. 1

Position No.	Parts item	Portion to be lubricated	Amount : g (oz)
⑦	Anvil	* The surface which contacts sleeve 18.	0.5 (0.02)
		* The wing portion which is percussed by cam portion of ⑧ Hammer.	3.5 (0.13)
		* The joining hole in which ⑬ Spindle is inserted.	1.0 (0.04)
⑧	Hammer	* The cam portion which transmits the percussion to ⑦ Anvil.	3.5 (0.13)
		* The inner surface where contacts ⑩ Spring holder.	3.0 (0.12)
		* The outer surface which contacts the inner surface of ⑧ Hammer	3.0 (0.12)
⑩	Spring holder	* The edge portion where 19 pcs.of steel ball 4 roll.	0.5 (0.02)
		* The inner surface where contacts ⑬ Spindle.	0.5 (0.02)
⑬	Spindle	* The groove where 2 pcs. of steel ball 6.4 roll.	2.0 (0.08)
		* The gear portion	10.0 (0.35)
⑰	Spur gear 19-41	* The teeth portion	10.0 (0.35)
		* The surface where flat washer 8 contacts.	0.1 (0.01)

< 2 > Removing armature

- (1) Remove brush holder cap and carbon brush. See Fig. 2.
- (2) Remove hex socket head bolt M5x50, cup washer and urethane ring 5 each 4 pcs. See Fig. 2.
- (3) Separate mechanical section (hammer case and hammer case cover) from motor housing. Then, armature can be separated from motor housing together with mechanical section. See Fig. 2.

< Note >

If the armature remains in the motor housing at the step (3), it can be removed by knocking the edge of motor housing with plastic hammer.

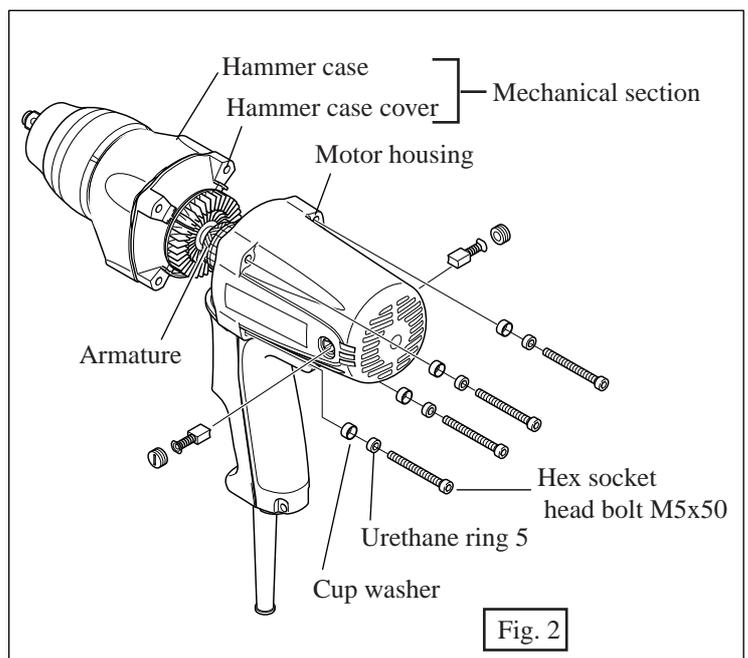
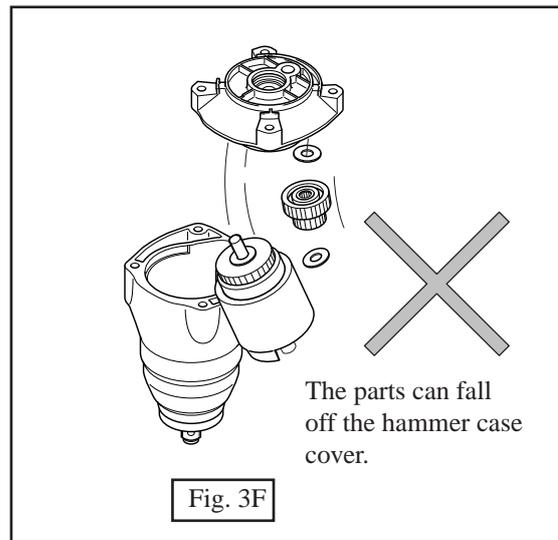
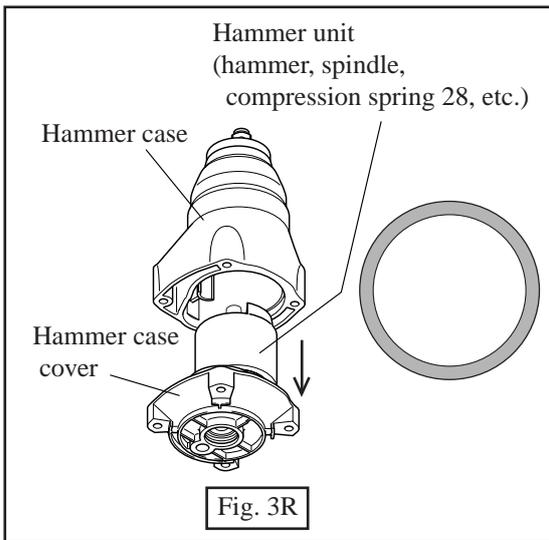


Fig. 2

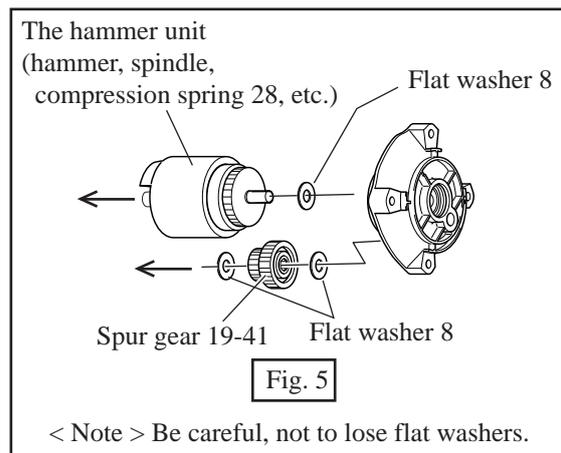
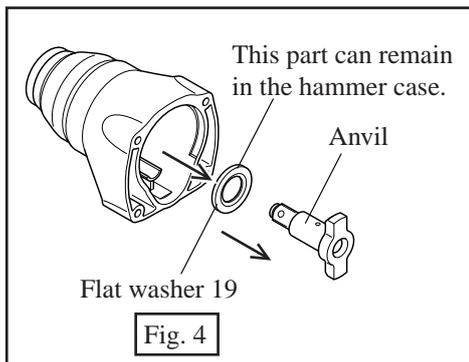
< 3 > Disassembling the mechanical section

(1) Separate hammer case cover from hammer case by pulling in the vertical direction as illustrated in Fig. 3R in stead of Fig. 3F.



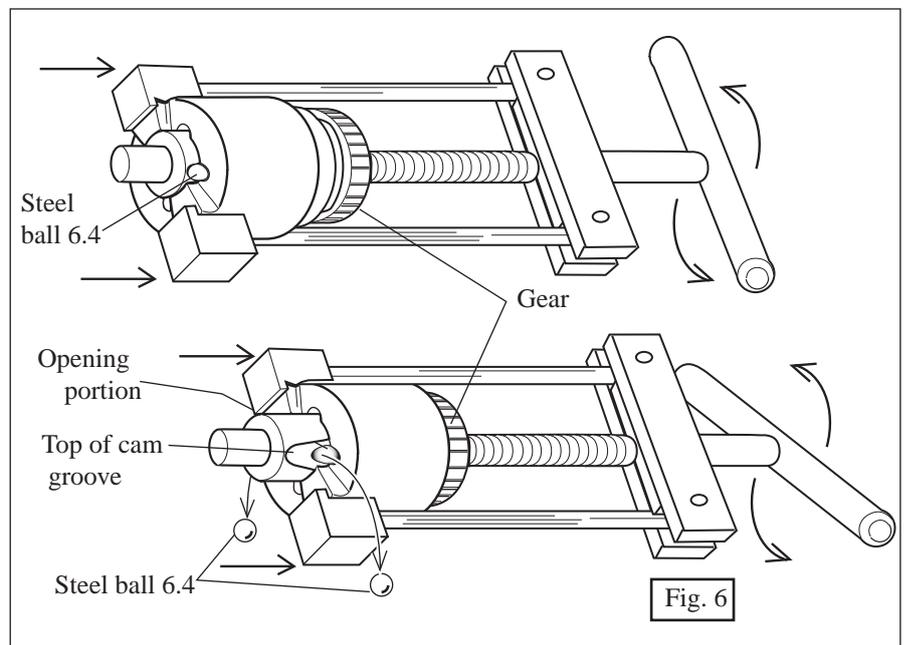
(2) Remove anvil and flat washer 19 from hammer case. See Fig. 4.

(3) Remove the hammer unit and spur gear 19-41 and 3 pcs. of flat washer 8 from hammer case cover. See Fig. 5.



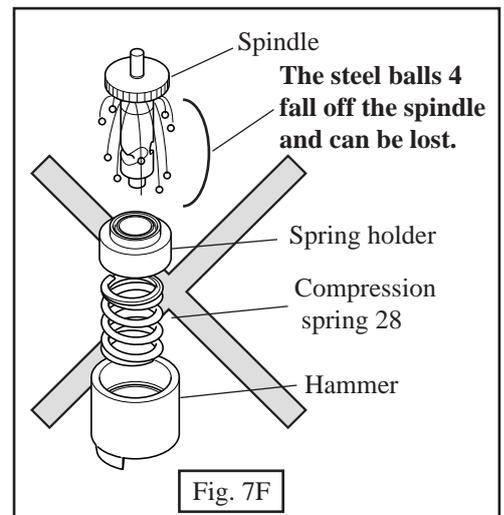
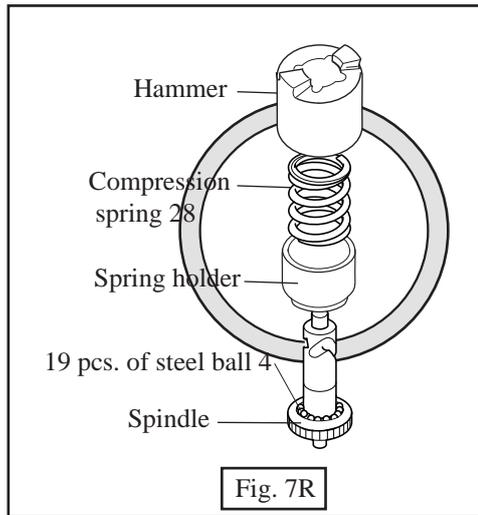
< 4 > Disassembling hammer unit

(1) Pull hammer toward gear 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. 6.



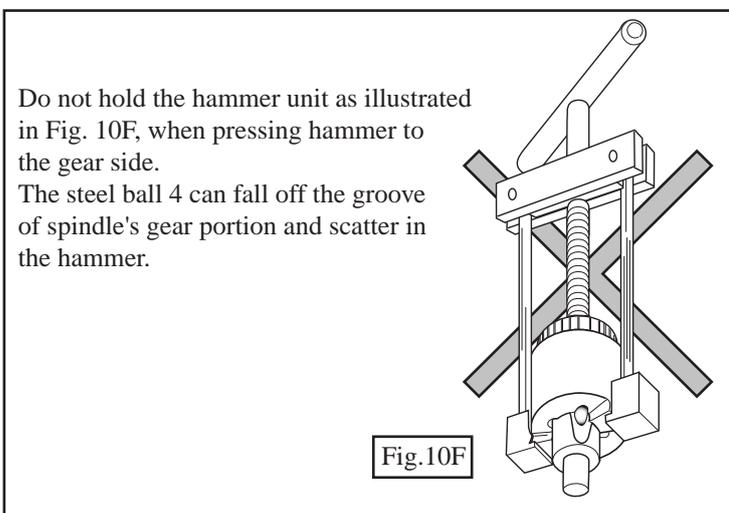
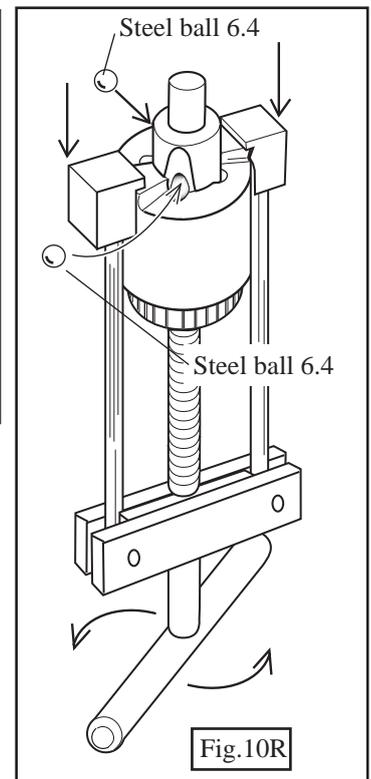
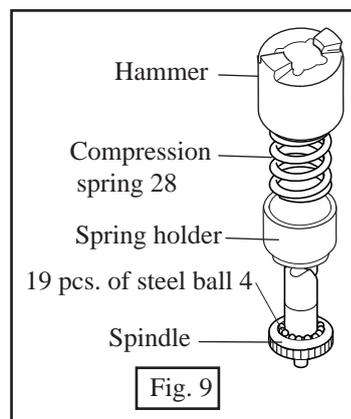
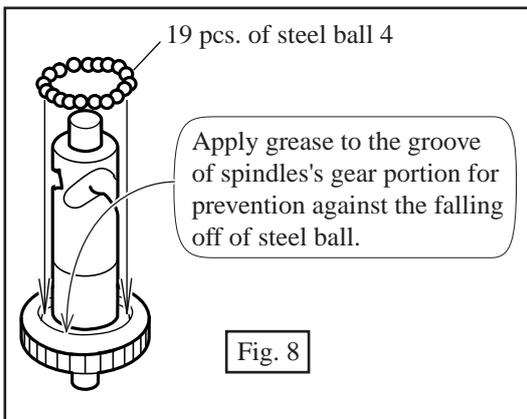
- (2) After removing steel ball 6.4, loosen the handle of "No.1R045 Gear extractor" slowly until the spindle is free from the compression spring 28.
- (3) Putting the hammer unit as illustrated in Fig. 7R, remove the following parts.

- * Hammer
- * Compression spring 28
- * Spring holder
- * 19 pcs. of steel ball 4
- * Spindle



< 5 > Assembling hammer unit

- (1) Put 19 pcs. of steel ball 4 in the groove of spindle's gear portion. See Fig. 8.
- (2) Put spring holder, compression spring 28 and hammer on the spindle. See Fig. 9.
- (3) Pressing the hammer to the gear side, align the top of cam groove of spindle with the opening of hammer. And mount 2 pcs. of steel ball 6.4 as illustrated in Fig. 10R. The assembling of hammer unit has been finished at this step.



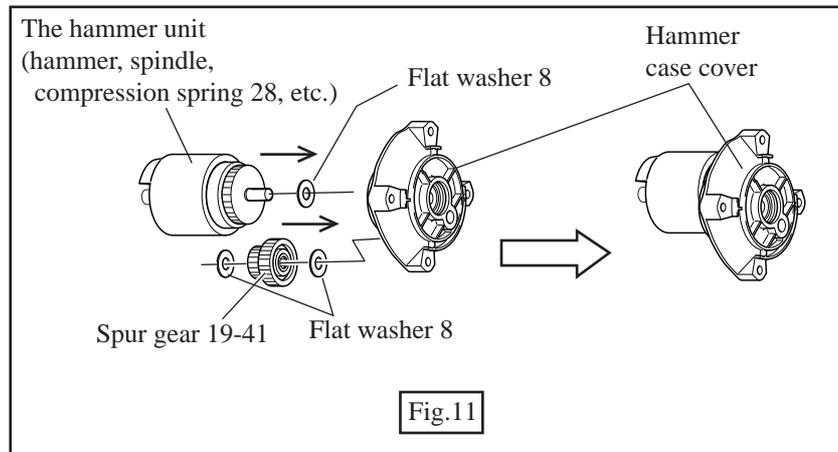
(4) Mount the hammer unit and spur gear 19-41 to the hammer case cover. See Fig. 11.

< Note >

Do not forget to mount flat washers 8 to the following portion.

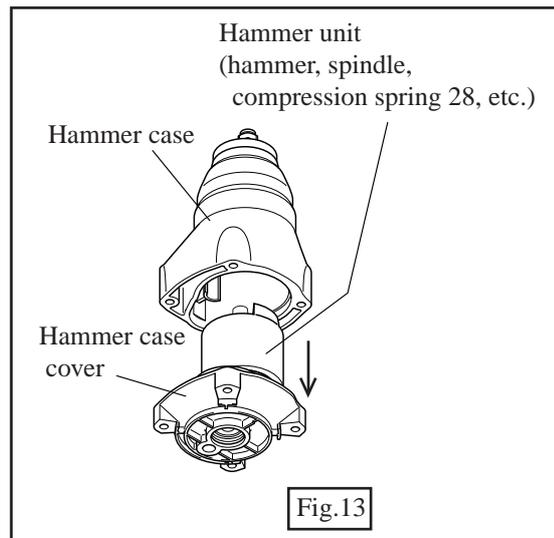
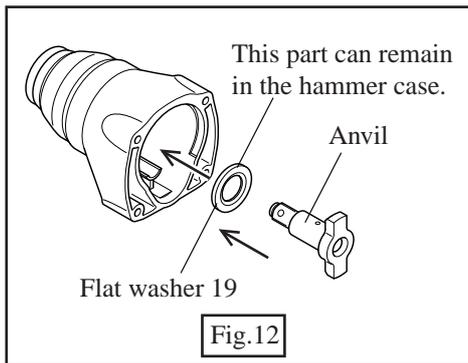
* Spindle of hammer unit

* Shaft of hammer case cover for spur gear 19-41 (both side of spur gear 19-41)



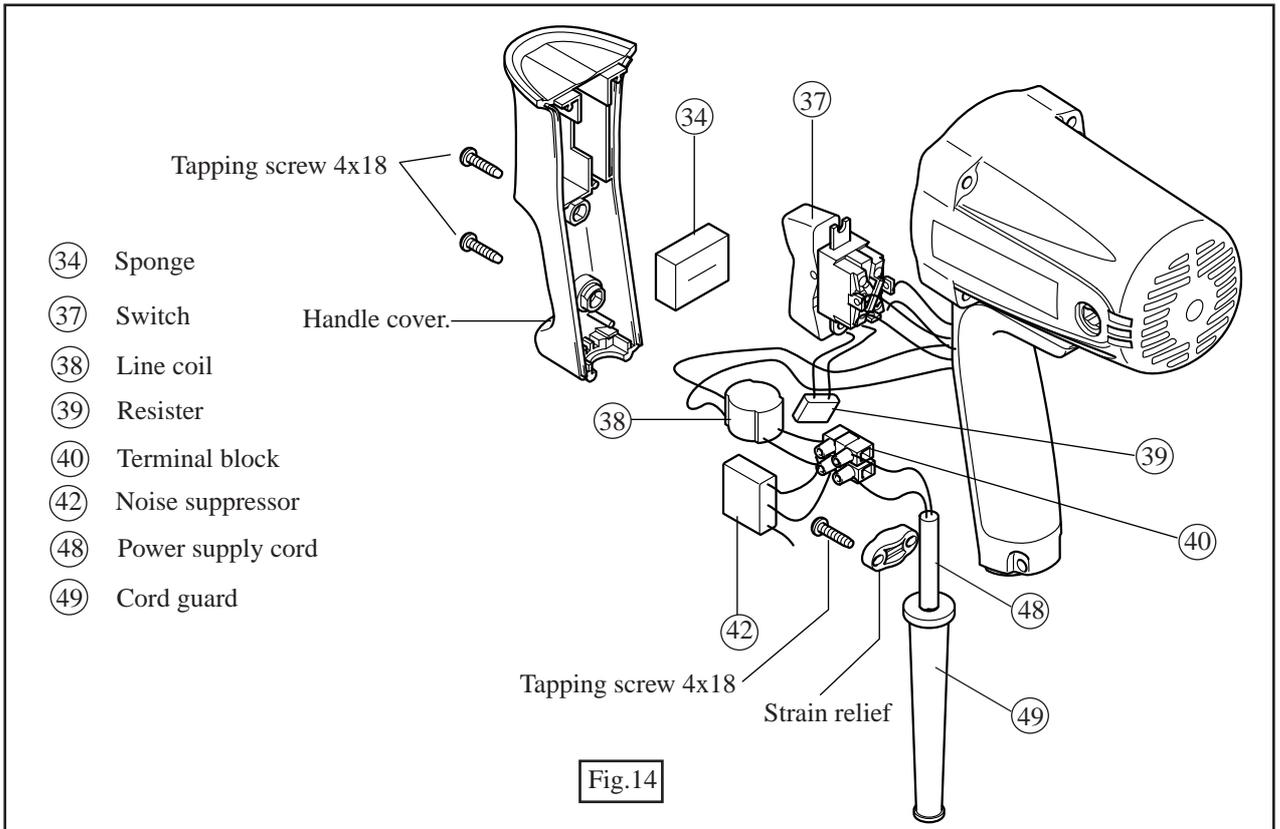
(5) Mount flat washer 19 and anvil to the hammer case. See Fig. 12.

(6) Mount hammer case cover as illustrated in Fig. 13. The assembling of mechanical section has been finished at this step.



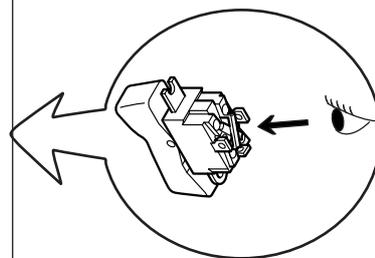
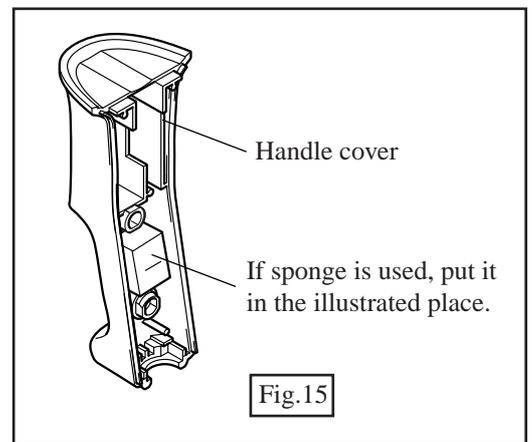
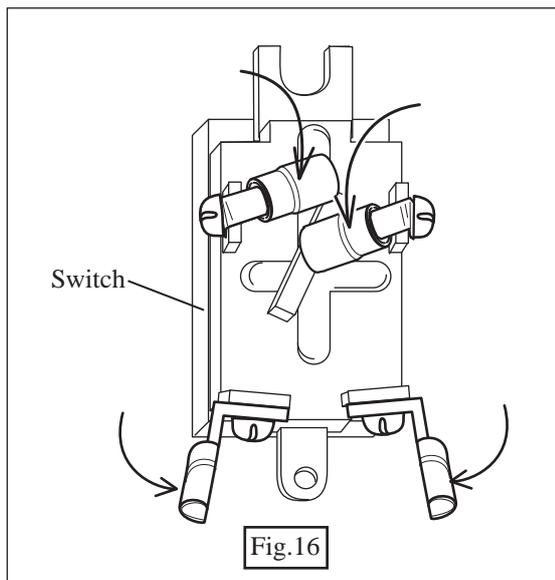
< 7 > Replacing electrical parts in the handle

(1) Unscrew 2 pcs. of tapping screw 4x18 and remove handle cover. Then, the electrical parts (switch, line coil, resister, etc.) can be replaced. See Fig.14.

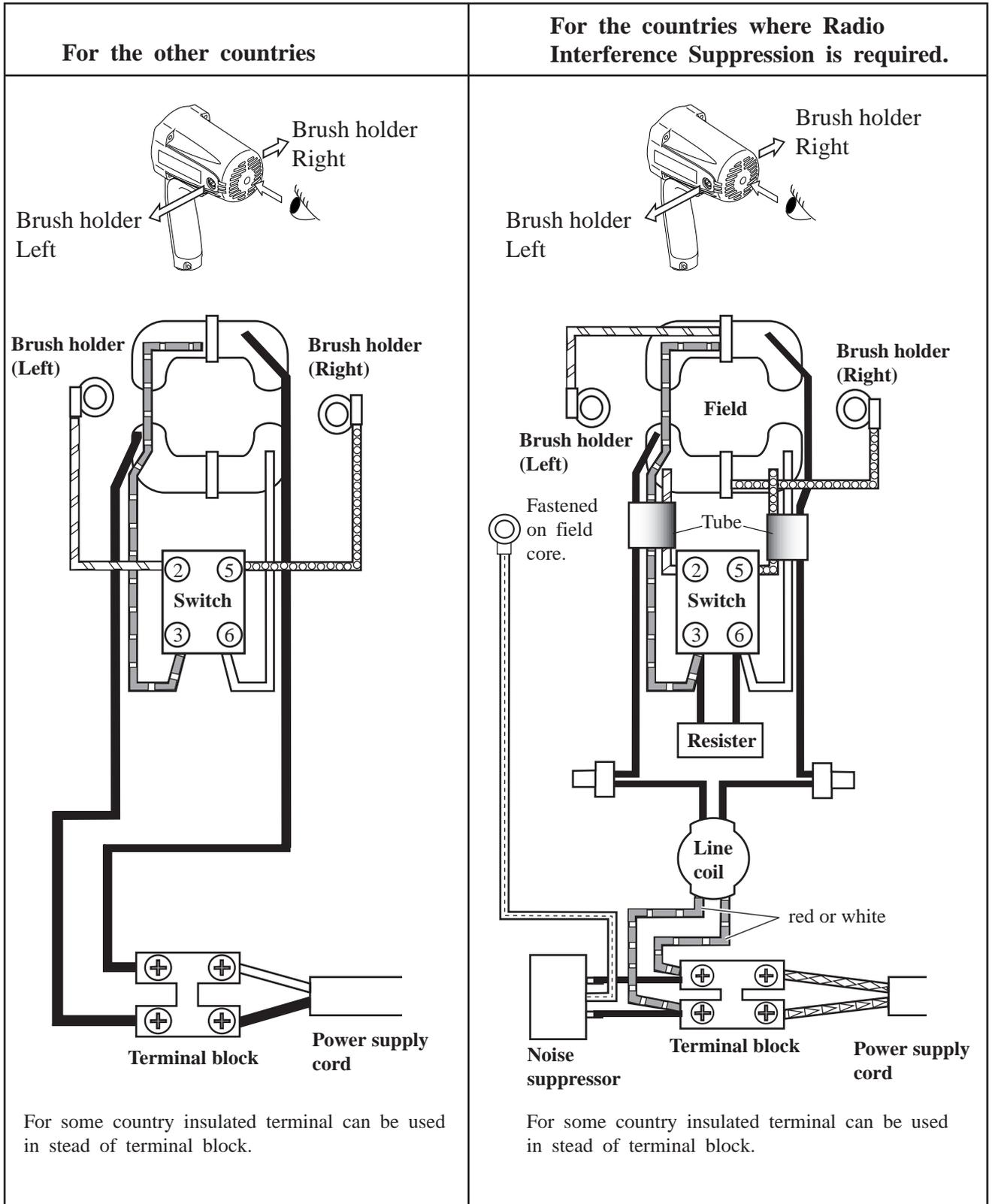


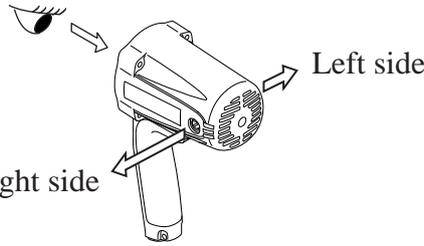
(2) Put the sponge into the position as illustrated in Fig. 15.

(3) Inflect the insulated terminals as illustrated in Fig. 16, when connecting with switch terminals.



Color index of lead wires			
Black		Purple	
White		Clear	
Red		Brown	
Orange		Blue	





Fasten the lead wire (clear) of noise suppressor with screw.

Insert the tube for protecting lead wires, deep in the motor housing.

Lead holder
 Hold the following lead wires with this lead holder.
 * Lead wire (see through) of noise suppressor
This lead wire has to be put in the bottom of lead holder.
 * Field lead wire (purple) to be connected to switch
 * Field lead wire (white) to be connected to switch
 * Field lead wire (black) to be connected to insulated terminal

Lead holder
 Hold the following lead wires with lead holder.
 * Field lead wire (red) to be connected to switch
 * Field lead wire (orange) to be connected to switch
 * Field lead wire (black) to be connected to insulated terminal

Resister
 The lead wires (red or white) for connecting line coil with terminal block have to be put as shown. (between resister and noise suppressor.

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

Noise suppressor

Rib

Put the insulated terminals under the lead wires of power supply cord.

Line coil

Terminal block

