

TECHNICAL INFORMATION



PRODUCT

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Models No. ▶ 6916FD

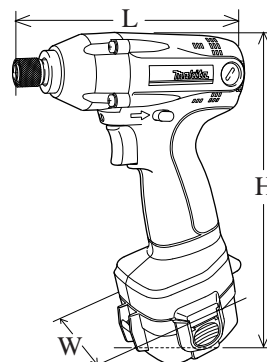
Description ▶ 12V Cordless Impact Driver

CONCEPT AND MAIN APPLICATIONS

In addition to all the powerful features of 6916D,
6916FD has a built-in LED job light.
(Max. fastening torque : 100 N.m and the lightest and
compact body in this class, etc.)

The variations of this model are as listed below.

Model No.	Battery	Q' ty	Charger
6916FDWE	1220 Ni-Cd 1.3Ah	2 pcs.	DC1414
6916FDWAE	1222 Ni-Cd 2.0Ah	2 pcs.	
6916FDWDE	1234 Ni-MH 2.6Ah	2 pcs.	
6916FDWFE	1235 Ni-MH 3.0Ah	2 pcs.	
These 4 models come with battery cover and plastic carrying case in addition to the above charger and battery.			



Dimensions : mm (")	
Length (L)	165 (6-1/2)
Width (W)	94 (3-11/16)
Height (H)	231 (9-1/8)

► Specification

Voltage (V)		12
No load speed (min.-1=rpm)		0 - 2,300
Impact per minute (min.-1=bpm)		0 - 3,000
Driving shank : mm (")		6.35 (1/4) hex
Capacities	Standard bolt	M5 - M12 (3/16" - 15/32")
	High Tensile bolt	M5 - M10 (3/16" - 3/8")
	Machine screw	M4 - M8 (5/32" - 5/16")
	Coarse thread	22 - 125 mm in length (7/8" - 5" in length)
	Self drilling screw	ø 4 - 6mm x 13 - 45mm (ø 5/32" - 1/4" x 1/2" - 1-3/4")
Max. fastening torque : N.m (in.lbs)		100 (887)
Built -in LED Job Light		Yes
Electric brake		Yes
Variable switch		Yes
Reverse switch		Yes
Net weight: kg (lbs)		1.5 (3.3)

► Standard equipment

- * Battery cover 2 pcs.
- * Plastic carrying case 1 pc.


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

► Optional accessories

- * Various philips bits
- * Various socket bits
- * Battery 1220 (Ni-Cd 1.3Ah)
- * Battery 1222 (Ni-Cd 2.0Ah)
- * Battery 1234 (Ni-MH 2.6Ah)
- * Battery 1235 (Ni-MH 3.0Ah)
- * Battery 1235A (Ni-MH 3.0Ah, w/Power display)
- * Charger DC1413
- * Charger DC1414
- * Charger DC1439
- * Charger DC1470
- * Charger DC1804
- * Automotive charger DC1422

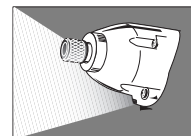
► Features and benefits

6916FD



Powerful, Max. Torque : 100 N.m

Magnesium alloy hammer case



Built-in LED Job Light
for shining your working
point in shadow

Variable speed control switch

Compact size in this class

Externally accessible carbon brush

Push button for reversing

Soft Grip for comfortable control

So long service life as to fasten 100,000 screws or bolts.

In case of the product of competitor D, the following troubles arise with the fastening of 10,000 - 40,000 screws or bolts.

- * Breakage of switch by the vibration
- * The end of the service life of carbon brush, in other words, the end of the service life of DC motor itself
- * The battery falls out of the machine easily, due to wear on the battery holder.

D28 Type DC motor with the following features.

- * Rare earth metal magnet
- * Efficient cooling
- * Externally accessible carbon brush extends the motor life 2 times longer than the competitor's product.

Furthermore MAKITA's replaceable armature makes the tool life even beyond the motor life.

► Comparison of products

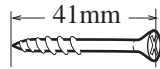
Model No.					Competitor A
		6916FD	6916D	6914D	Model A
Battery	Voltage : V	12	12	12	12
	Current capacity : Ah	2.6	2.6	2.2	1.7
	Energy capacity : Wh	31.2	31.2	26.4	20.4
	Battery cell	Ni-MH	Ni-MH	Ni-MH	Ni-Cd
Charging time : min.		Approx. 60	Approx. 60	Approx. 50	Approx. 45
Max. fastening torque : N.m (in.lbs)		100 (887)	100 (887)	98 (870)	115 (1,000)
No load speed (min. ⁻¹ =rpm)		0 - 2,300	0 - 2,300	0 - 2,200	0 - 2,400
Impact per minute (min. ⁻¹ =bpm)		0 - 3,000	0 - 3,000	0 - 3,000	0 - 3,000
Material of hammer case		Magnesium alloy	Magnesium alloy	Aluminum	Magnesium alloy
Built-in LED Job light		Yes	No	No	No
Externally accessible brush		Yes	Yes	Yes	No
Soft grip		Yes	Yes	No	Yes
Dimensions	Length : mm (")	165 (6-1/2)	168 (6-5/8)	176 (6-15/16)	167 (6-9/16)
	Width : mm (")	94 (3-11/16)	94 (3-11/16)	94 (3-11/16)	82 (3-1/4)
	Height : mm (")	231 (9-1/8)	231 (9-1/8)	232 (9-1/8)	235 (9-1/4)
Net weight		1.5 (3.3)	1.5 (3.3)	1.7 (3.7)	1.7 (3.7)
Standard equipments	Battery	Yes 2 pcs.	Yes 2 pcs.	Yes 2 pcs.	Yes 2 pcs.
	Battery cover	Yes	Yes	Yes	Yes
	Charger	Yes DC1414	Yes DC1413	Yes DC1413	Yes

Numbers in chart below are relative values when setting capacity of DeWALT model DW052 as 100.

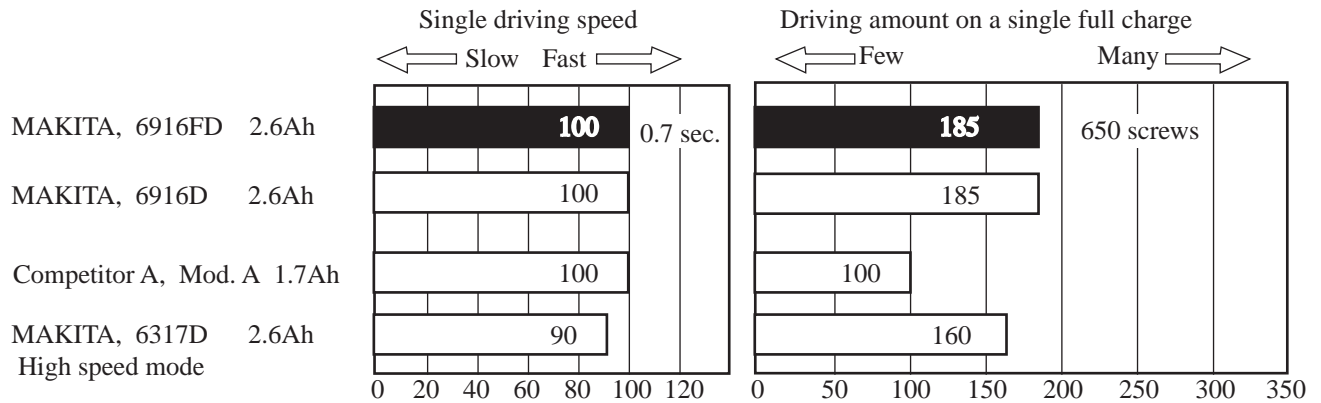
Comparison as an impact driver

Testing conditions

* Driving coarse thread of 41mm into spruce

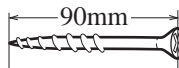


Coarse thread

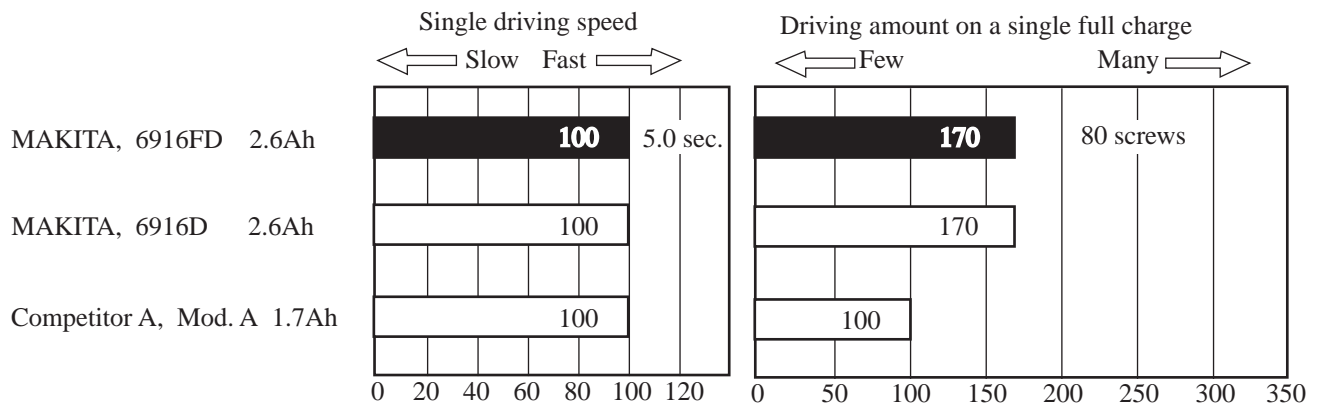


Testing conditions

* Driving coarse thread of 90mm into Lauan

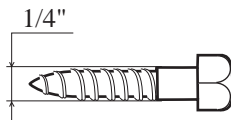


Coarse thread

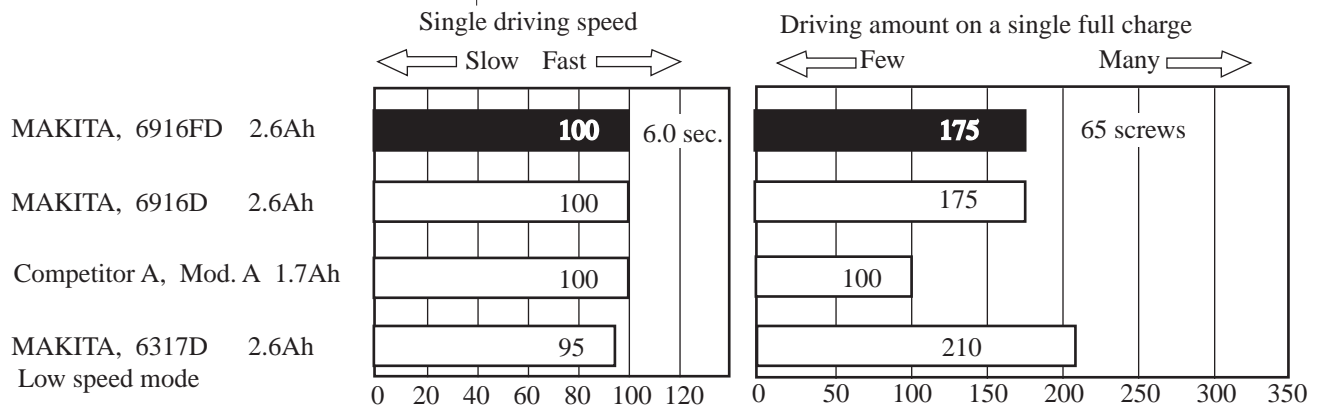


Testing conditions

* Driving lag bolt of Ø 1/4" into Lauan



Lag bolt



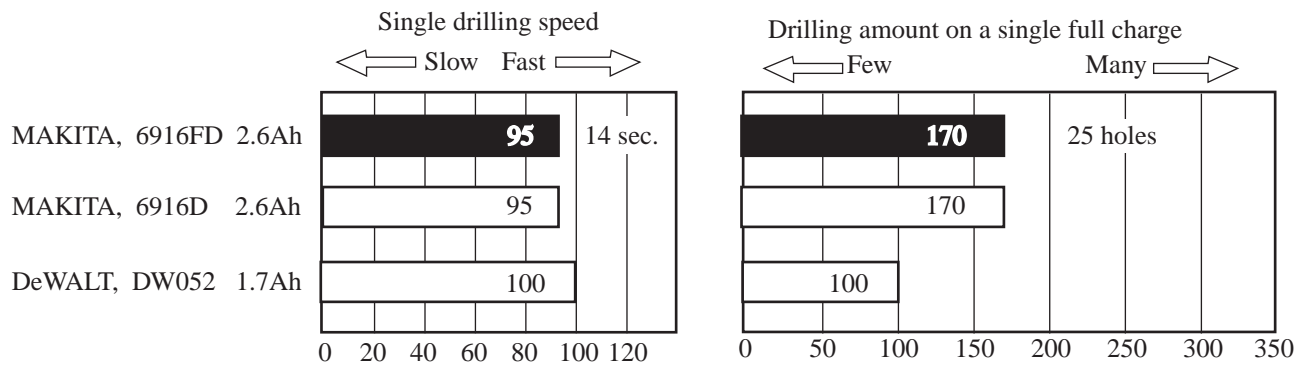
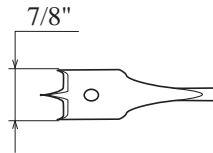
< Note >

All of the above data may depend on the hardness of the testing wooden materials.

Comparison as a drill

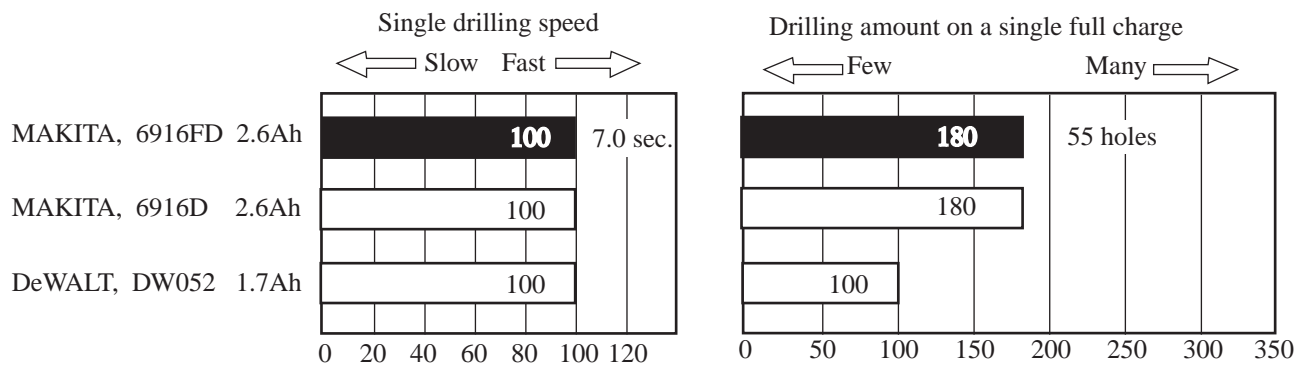
Testing conditions

* Drilling in spruce with spade bit of 7/8"



Testing conditions

* Drilling in spruce with auger bit of Ø 1"

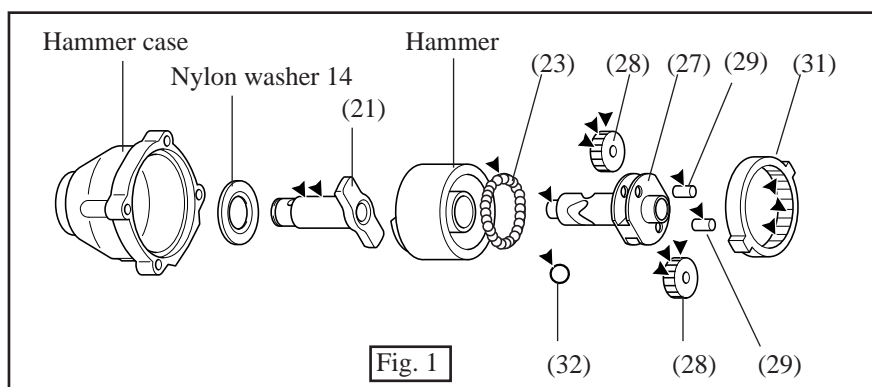


< Note >

All of the above data may depend on the hardness of the testing wooden materials.

< 1 > Lubrication

Apply MAKITA grease N. No.2 to the following portions designated by black triangle to protect parts and product from unusual abrasion.



Position No.	Parts item	Portion to be lubricated	Amount : g (oz)
21	Anvil	Cylindrical portion	0.5 (0.02)
23	26 pcs. of Steel ball 3.5		0.5 (0.02) in total
27	Spindle	The cylindrical portion where (21) anvil contacts	0.5 (0.02) in total
28	Spur gear 22	Teeth portion	2.0 (0.07)
29	Pin 5	Cylindrical portion	0.5 (0.02)
31	Internal gear 51	The portion where (28) spur gear 22 engages.	0.5 (0.02)

< 2 > Removing housing R and L

Remove hammer case from housing R and L.

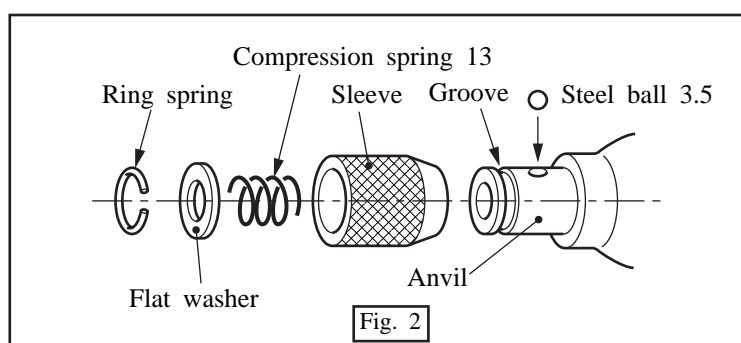
And then, housing R and L can be removed.

< 3 > Disassembling sleeve section

(1) Take off ring spring from the groove on anvil.

(2) Flat washer, compression spring 13, sleeve and 2 pcs. of steel ball 3.5 can be removed from anvil.

(3) Anvil can be removed from hammer case.



(4) When assembling anvil to hammer case, put MAKITA grease N No.2 by approx.0.5g to the cylindrical part of anvil.

< 4 > Assembling sleeve section

(1) Mount 2 pcs. of steel ball 3.5 to anvil.

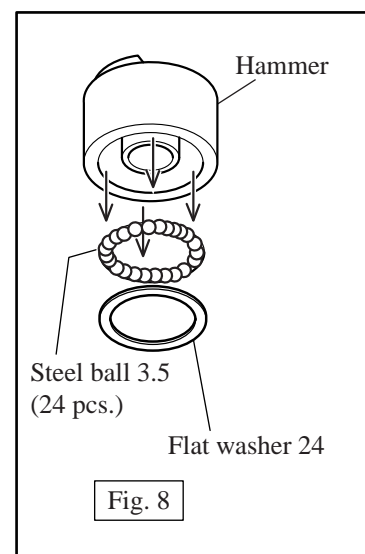
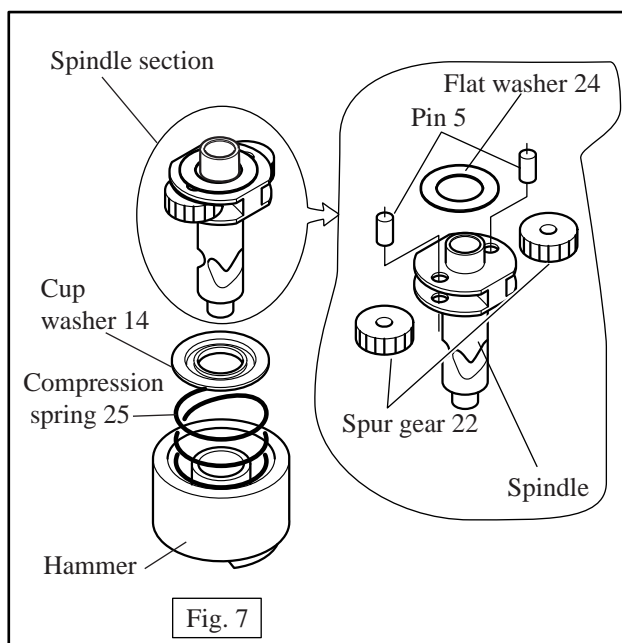
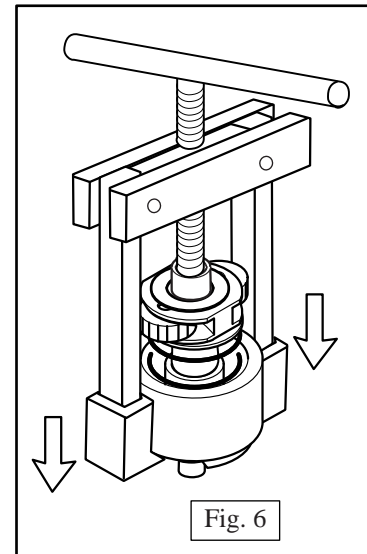
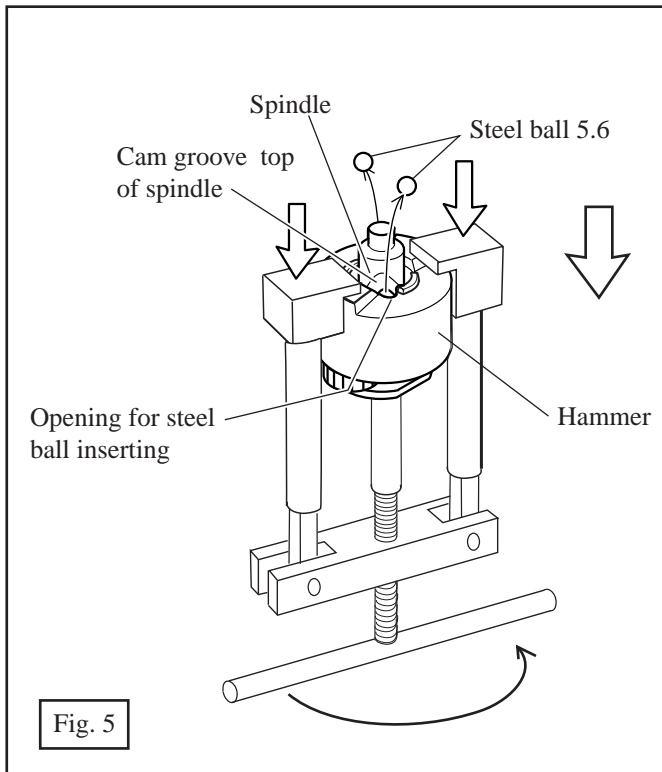
(2) Mount sleeve. And then, insert compression spring 13 into sleeve.

(3) Mount flat washer 12.

(4) While pressing flat washer 12 and sleeve toward hammer case side, mount ring spring 12 to the groove of spindle for securing the parts on spindle.

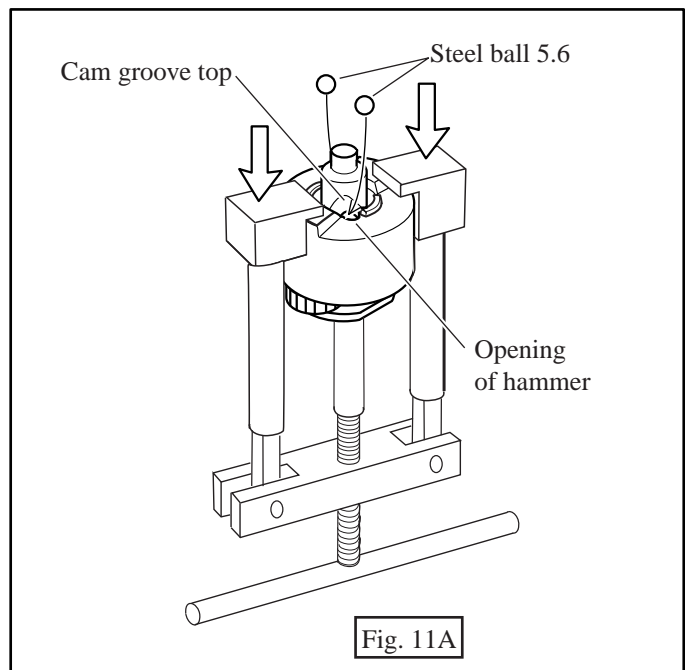
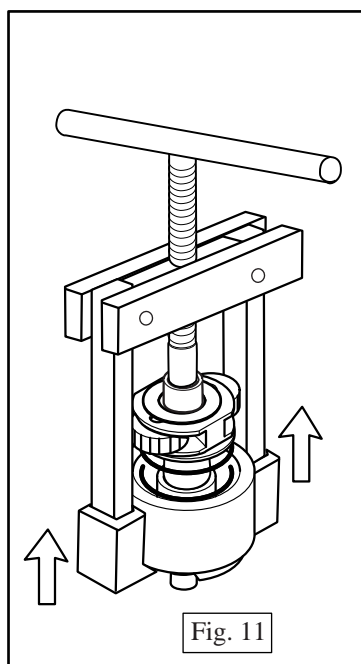
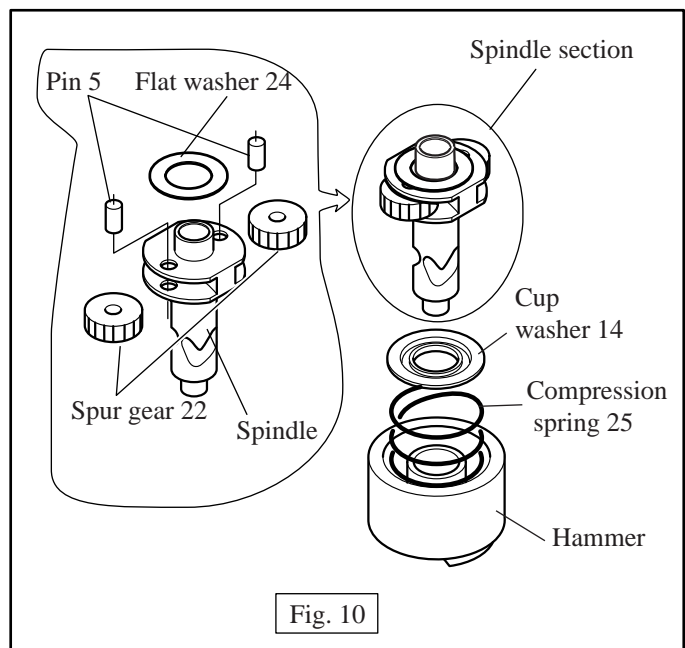
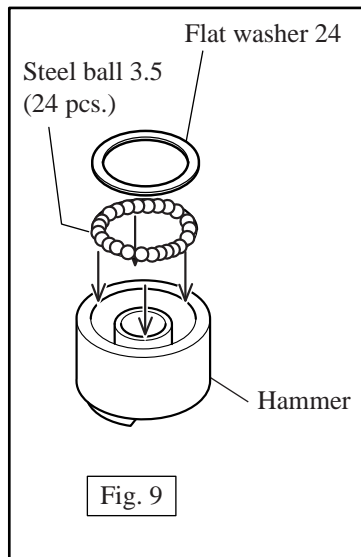
< 5 > Disassembling hammer and spindle section

- (1) Press down hammer with 1R045: Large gear extractor by turning the handle.
- (2) Adjust the opening for steel ball inserting to the cam groove top of spindle.
- (3) Take off 2 pcs. of steel ball 5.6 from spindle. See Fig. 5.
- (4) Hold the hammer section as illustrated in Fig. 6. And loose the handle of large gear extractor.
 - < Caution > Do not hold gear extractor as illustrated in Fig. 5, when loosening the handle of gear extractor.
 - Because, steel balls 3.5 can fall out of hammer unintentionally.
- (5) Now hammer section can be disassembled as illustrated in Fig. 7.
- (6) After removing flat washer 24, steel balls 3.5 can be taken out from hammer. See Fig. 8.



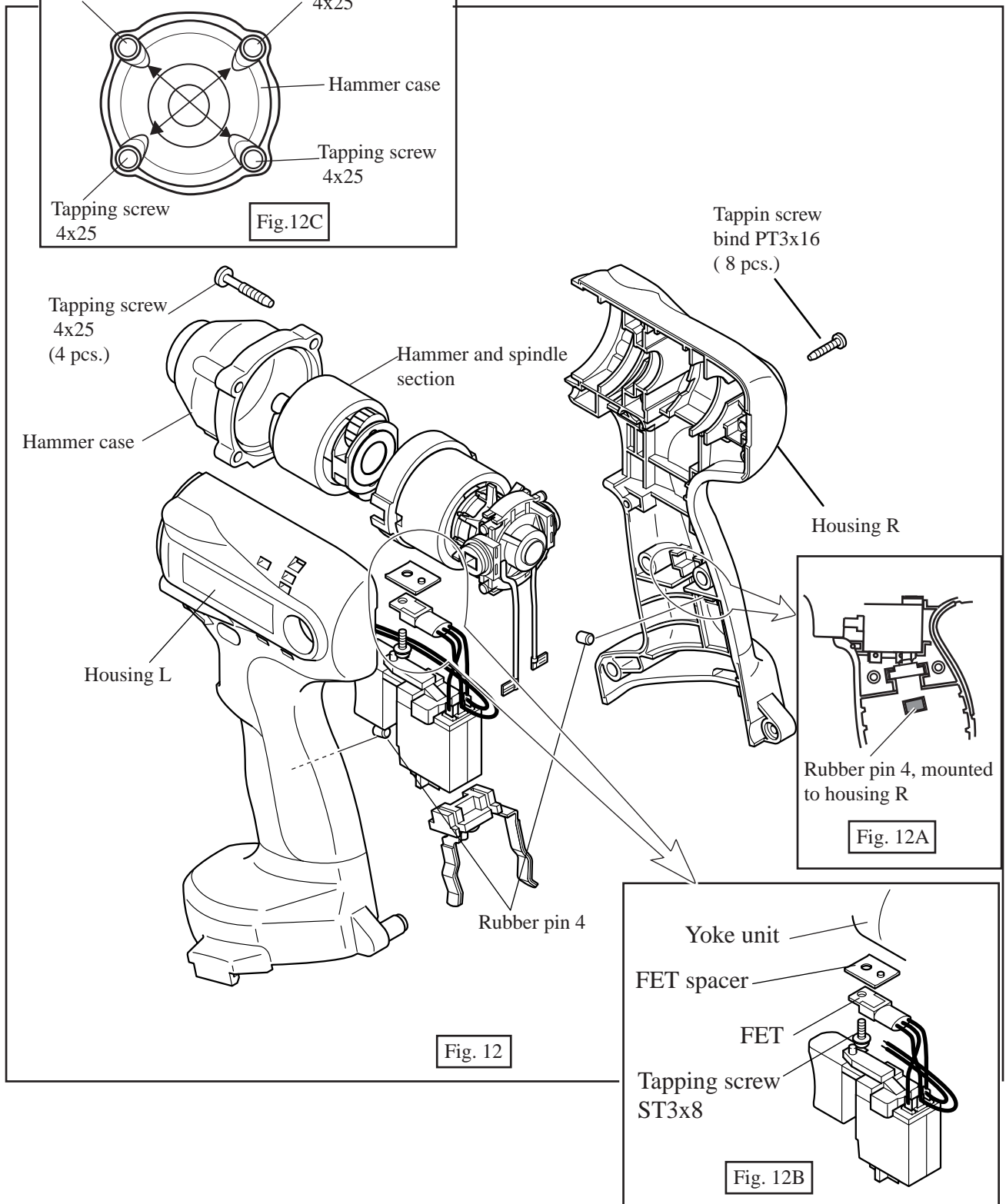
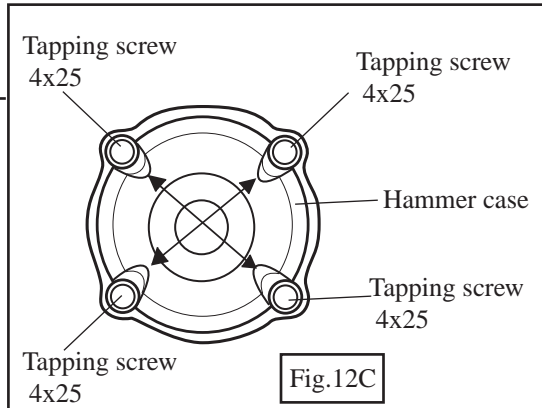
< 6 > Assembling hammer and spindle section

- (1) Put 24 pcs. of steel ball 3.5 into hammer, and cover them with flat washer 24. See Fig. 9.
- (2) Mount 2 pcs. of spur gear 22 to spindle and pass 2 pcs. of pin 5 (as a gear shaft) through spindle and spur gears 22. Mount flat washer 24 to the spindle. Now the spindle section has been completed. See Fig. 10.
Put compression spring 25 and cup washer 14 on the hammer. Mount the spindle section to the hammer as illustrated in Fig. 10.
- (3) Press the hammer toward the spur gear 22 side with No.1R045 "Large Gear Extractor" in order to reserve the opening for mounting steel balls 5.6. See Fig. 11.
- (4) Mount 2 pcs. of steel ball 5.6 to the cam groove top which has been aligned with the opening of hammer, while holding the large gear extractor as illustrated in Fig. 11A.



< 7 > Assembling the body

- (1) Mount a rubber pin 4 to housing R, and another rubber pin 4 to housing L. See Fig. 12A
- (2) When securing housing R and L with 8 pcs. of tapping screw bind PT3x16, fasten the screws with the fastening torque of 1.1 - 1.3N.m (11 - 13 kgf.cm).
- (3) When securing hammer case with 4 pcs. of tapping screw 4x25, fasten the screws with the fastening torque of 1.76 - 2.16N.m (18 - 22 kgf.cm). The 4 pcs. of tapping screw 4x25 have to be fastened diagonally. See Fig. 12C.
- (4) When securing FET and FET spacer with tapping screw ST3x8, fasten the screw with the fastening torque of 1.1 - 1.5N.m (11 - 15 kgf.cm). See Fig. 12B



Tapping screw
bind PT3x16
(8 pcs.)

Housing R

Rubber pin 4, mounted
to housing R

Fig. 12A

Yoke unit

FET spacer



FET

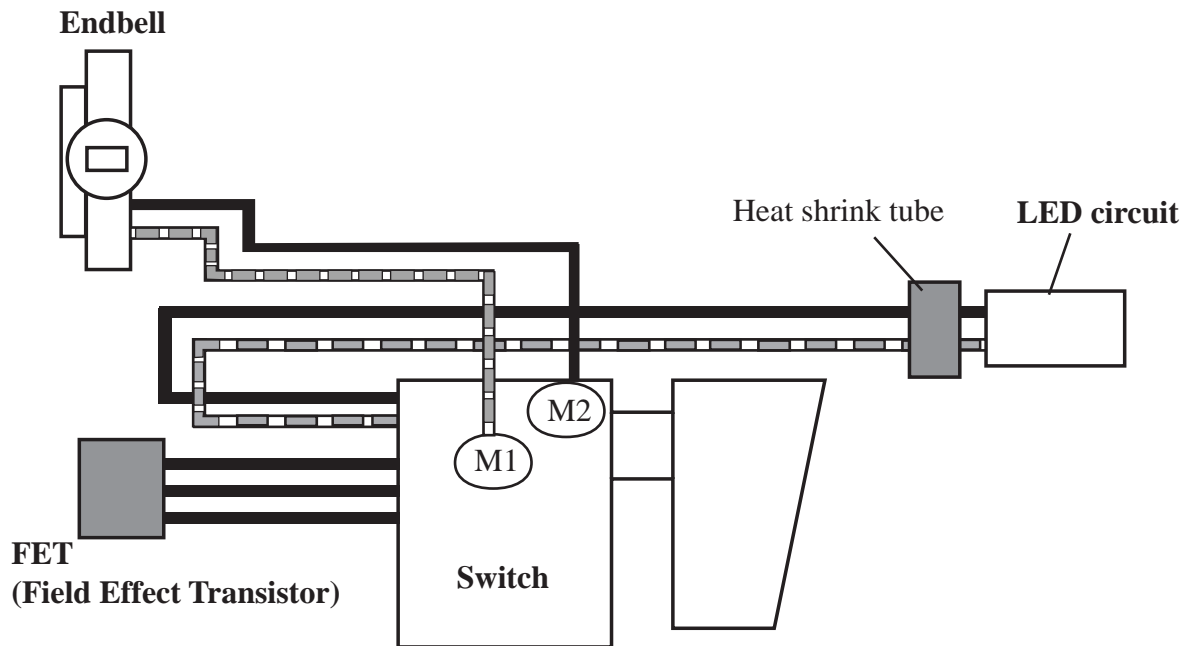
Tapping screw
ST3x8

Fig. 12B

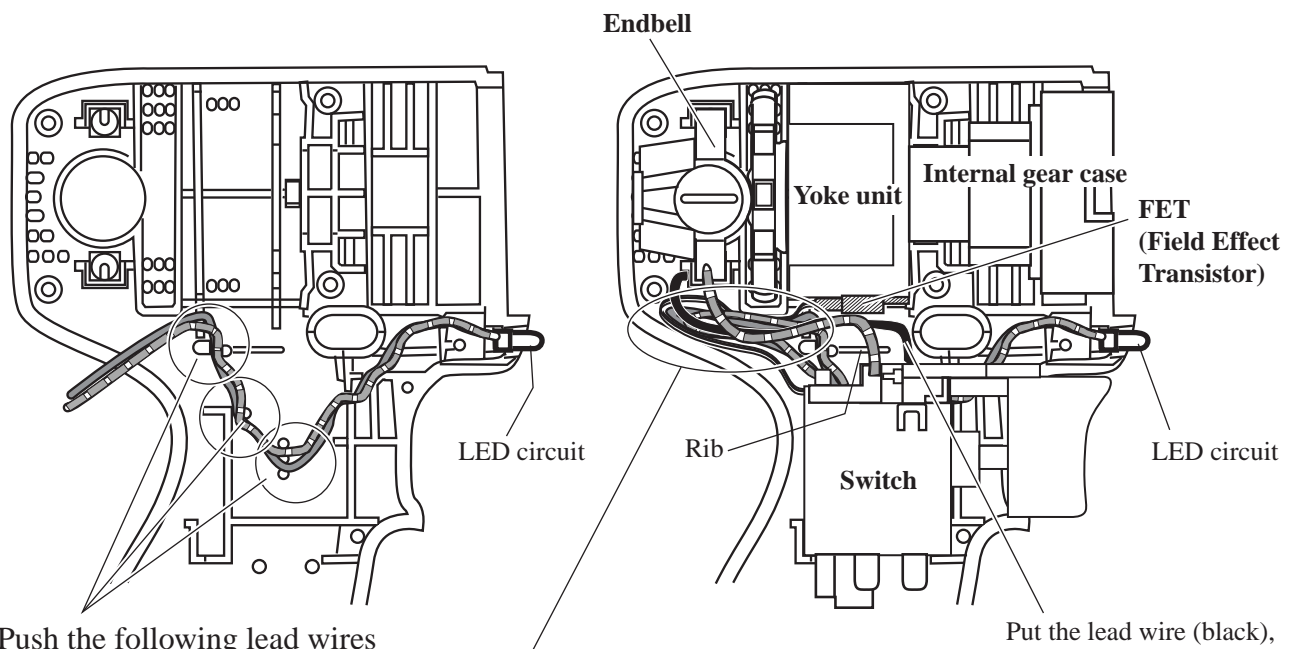
▶ Circuit diagram

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Color index of lead wires' sheath	
Black	
Red	



▶ Wiring diagram



Push the following lead wires deep into the lead holders as illustrated above.

- * LED lead wire (black)
- * LED lead wire (red)

Put the slack portion of the following lead wires in this space.

- * FET lead wires (black)
- * LED lead wire (red)
- * LED lead wire (black)

Put the lead wire (black), connecting endbell and switch, under the same lead wire (red) and pass it through the space between rib and FET.