Models No. ► BTD042, BTD062, BTW072

Description ► Cordless Impact Drivers, Cordless Impact Wrench

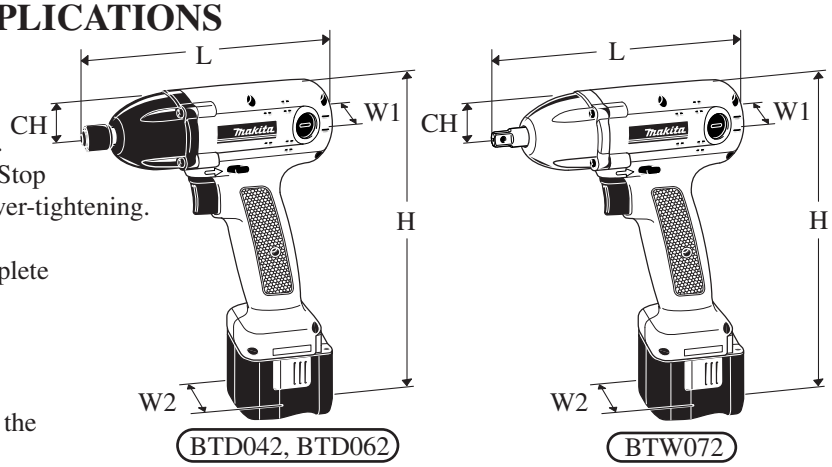
CONCEPTION AND MAIN APPLICATIONS

BTD042, BTD062

These models are the advanced type of the existing model BTD040 and BTD060. They are equipped with Automatic Blow-Stop System, with which you can prevent an over-tightening. And the indication lamp featuring these models shows you the complete or incomplete fastening of bolts or screws.

BTW072

This model is the 9.5mm(3/8") version of the existing model BTW062. Of course, it is equipped with Automatic Blow-Stop System and indication lamp showing complete and incomplete fastening like as BTD042 and BTD062.



BTD042, BTD062 BTW072

Dimensions : mm (")

	TD042Z TD062Z	TW072Z
Width 1 (W1)	55 (2-3/16)	
Width 2 (W2)	66 (2-5/8)	
Center Height (CH)	25 (1)	
Height (H)	236 (9-5/16)	
Length (L)	164 (6-7/16)	166 (6-1/2)

Note: Width 1 = Width of motor section
Width 2 = Width of battery

► Specification

Model No.		BTD042	BTD062	BTW072
Voltage (V)		9.6	9.6	9.6
No load speed (min-1=rpm)		0 - 2,500	0 - 2,500	0 - 2,500
Impact per minute (min-1=bpm)		0 - 3,500	0 - 3,000	0 - 3,000
Driving shank : mm (")		6.35 (1/4) Hex	6.35 (1/4) Hex	9.5 (3/8) square
Capacities	Machine screw	M4 - M8 (5/32" - 5/16")	M4 - M8 (5/32" - 5/16")	
	Standard bolt	M5 - M10 (3/16" - 3/8")	M5 - M12 (3/16" - 1/2")	M5 - M12 (3/16" - 1/2")
	High Tensile bolt	M5 - M8 (3/16" - 5/16")	M5 - M10 (3/16" - 3/8")	M5 - M10 (3/16" - 3/8")
Max. fastening torque		40N.m (408Kgf.cm) (354in.lbs)	65N.m (663Kgf.cm) (575in.lbs)	65N.m (663Kgf.cm) (575in.lbs)
Electric brake		Yes	Yes	Yes
Reverse switch		Yes	Yes	Yes
* Net weight: kg (lbs)		1.06 (2.4)	1.09 (2.5)	1.09 (2.5)

*** Net weight :** including battery B9017A

► Standard equipment

Battery B9017A ..... 1 pc.

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

► Optional accessories

* Battery B9017A for Mod.BTD042, BTD062 and BTW072
* Protector for Mod.BTD042, BTD062 and BTW072
* Fast charger DC14SA for Mod.BTD042, BTD062 and BTW072
* Refresh adaptor Model ADP02 for Mod.BTD042, BTD062 and BTW072

Features and benefits

BTD042 , BTD062

Light and compact body

Model No.	Overall length	Net weight
BTD042	164mm	1.06 Kg
BTD062		1.09 Kg

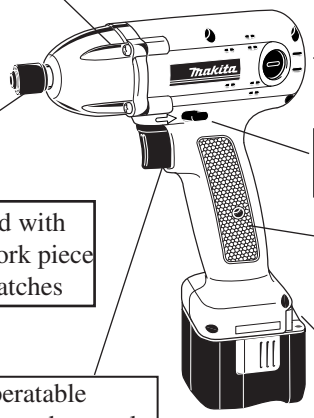
Automatic Blow-Stop System for prevention of over tightening

The machine is to be stopped automatically in accordance with the pre-set blowing time.

<Note>
The required fastening torque (N.m) can not be set with this system.

Newly developed D-28 type motor making a feature of
* Externally accessible carbon brush
* Replaceable armature
* High efficiency in cooling
* Yoke unit (field) made of rare earth

Magnesium alloyed hammer case
* BTD042Z/ black,
* BTD062Z BTW072Z/ silver)



Indication lamp shows you the complete or incomplete fastening of bolts or screws.
* Green lamp : complete fastening
* Red lamp : incomplete fastening

Push button type reverse switch

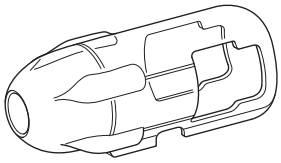
Bit sleeve is covered with rubber to protect work piece from accidental scratches

Slim shaped grip makes it easy to grip even with gloved hand, and small bosses are molded on it for nonslip operation

Easily operatable variable speed control switch

Assembled with machine screws for easy removing and repairing.

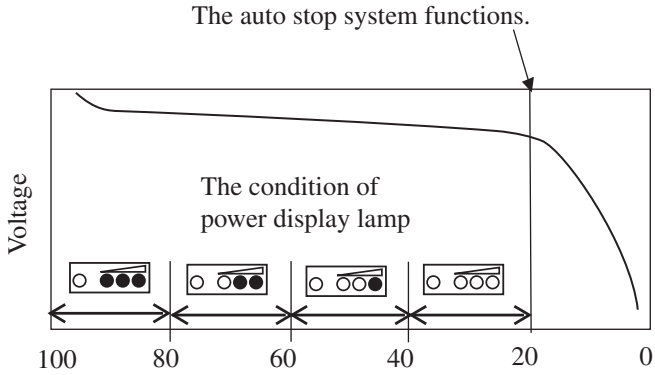
Rubber protector (optional accessory) can be installed for protecting work piece from the accidental scratch.



(Rubber protector)

Battery power warning lamp on B90117A

This lamp informs of the battery power remaining as per the diagram mentioned below.
And the machine is to be stopped automatically, when the power remainder decreases to 20%.
Thus, the incomplete fastening is avoided.



Mod. ADP02 Refresh Adaptor

Because of the auto stop system, approx. 20% of battery power always remains in battery cells, which can be cause of battery's inactivity.
In order to avoid such trouble, the battery has to be refreshed with refresh adaptor ADP02 every week.

Features and benefits

BTD072

Automatic Blow-Stop System for prevention of over tightening

The machine is to be stopped automatically in accordance with the pre-set blowing time.

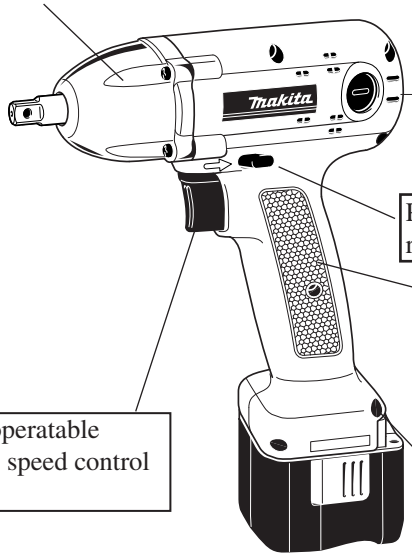
<Note>
The required fastening torque (N.m) can not be set with this system.

Light and compact body

Model No.	Overall length	Net weight
BTD072	162mm	1.09 Kg

Newly developed D-28 type motor making a feature of
* Externally accessible carbon brush
* Replaceable armature
* High efficiency in cooling
* Yoke unit (field) made of rare earth

Magnesium alloyed hammer case



Indication lamp shows you the complete or incomplete fastening of bolts or screws.
* Green lamp : complete fastening
* Red lamp : incomplete fastening

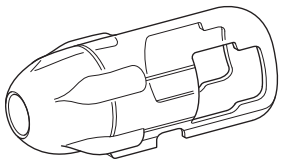
Push button type reverse switch

Slim shaped grip makes it easy to grip even with gloved hand, and small bosses are molded on it for nonslip operation

Easily operatable variable speed control switch

Assembled with machine screws for easy removing and repairing.

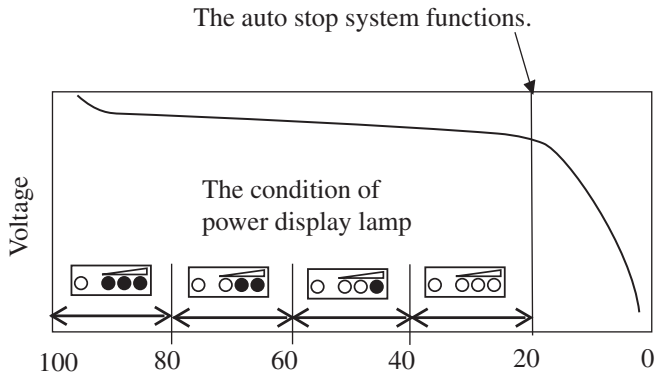
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● Automatic Blow-Stop System and How to Pre-set the Number of Blows

(1) What Is the Automatic Blow-Stop System

These three models have a new function that protects screws or bolts from over-tightening.
This practical function is the automatic blow stop system:
You can pre-set the number of blows to the optimum one for your application before starting operation.
And, immediately after the number of blows has reached to the pre-set one, the blow action can be automatically and instantly stopped, preventing you from over-tightening a screw or a bolt.

(2) How to Pre-set the Number of Hammer-blows

Follow the steps 1 to 8 listed below to pre-set the number of hammer-blows.
There is an LED on the back of the machine, and its two lights (green and red) can help you to confirm completion of each step.

Step	What to do	State of the LED	See Fig.
1	While pulling the switch trigger to the full, install the battery on the machine. **Note:** You must keep on pulling the switch trigger to the full until the 2nd step is completed.	After the lights blink ten times, they come to be on continuously.	Fig.1
2	Softly hit the foot of the machine only once with a driver. etc.	The lights turn off.	Fig.2
3	Release the switch trigger.	After the lights come to be on for 0.5sec., they turn off.	Fig.3
4	While pulling the switch trigger to the full, set the second digit of desired number of blows by hitting the machine as many times as the number of the second digit. (Do not hit the machine if the second digit is zero.) **eg:** If you set the number of blows to 12, hit the machine once.	On hitting the machine, the green light turns on.	Fig.2
5	Release the switch trigger.	The lights turn off.	Fig.3
6	While pulling the switch trigger to the full, set the first digit of desired number of blows by hitting the machine as many times as the number of the first digit. (Do not hit the machine if the second digit is zero.) **eg:** If you set the number of blows to 12, hit the machine twice.	On hitting the machine, the red light turns on.	Fig.2
7	Release the switch trigger.	The lights turn on.	Fig.3
8	Remove the battery from the machine, and pre-setting is successfully completed.	The lights turn off.	

Fig.1

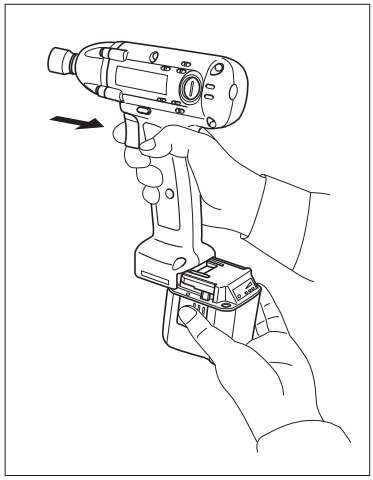


Fig.2

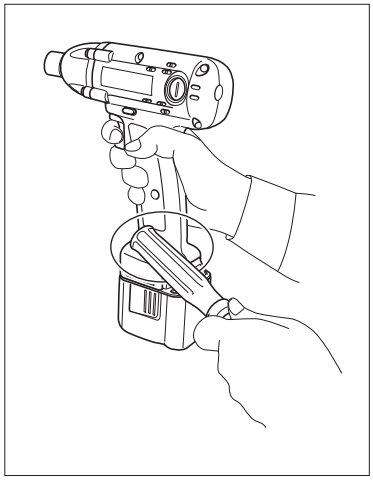
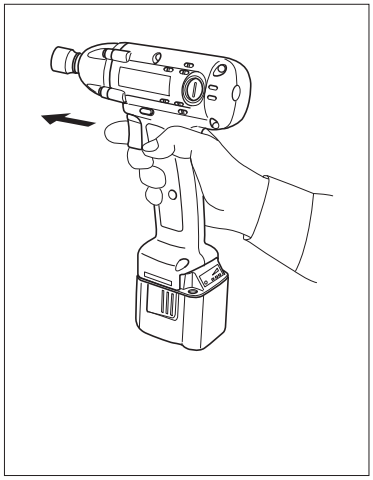


Fig.3



(3) How to Check the Pre-set Number of Blows

Release the switch trigger, install the battery on the machine, and then check how many times the green or the red light of the LED blinks.

As mentioned in page I-3, the green light blinking indicates the second digit of the pre-set number of blows, and the red light blinking indicates the first digit.

Therefore, when the pre-set number of blows is 12, you can see the following states on the LED:

First, the green light blinks once.

Second, the red light blinks twice.

Third, the lights turn off.

(4) Relation Between Pre-set Number of Blows and its function

Forward or Reverse / Pre-set number of blows	On Forward Rotation	On Reverse Rotation
00	Automatic Blow-Stop System does not work.	Automatic Blow-Stop System does not work.
01 to 99	• When you keep on pulling the trigger until the blow action finish the pre-set number of blows, the green light turns on to notify you that the bolt has been completely tightened. • When you release the trigger before the blow action finish the pre-set number of blows, the red light turns on to notify you that the bolt has been poorly tightened.	Automatic Blow-Stop System does not work.

(5) Relation Between Preset Number of Blows and Time Required to Finish the Blows

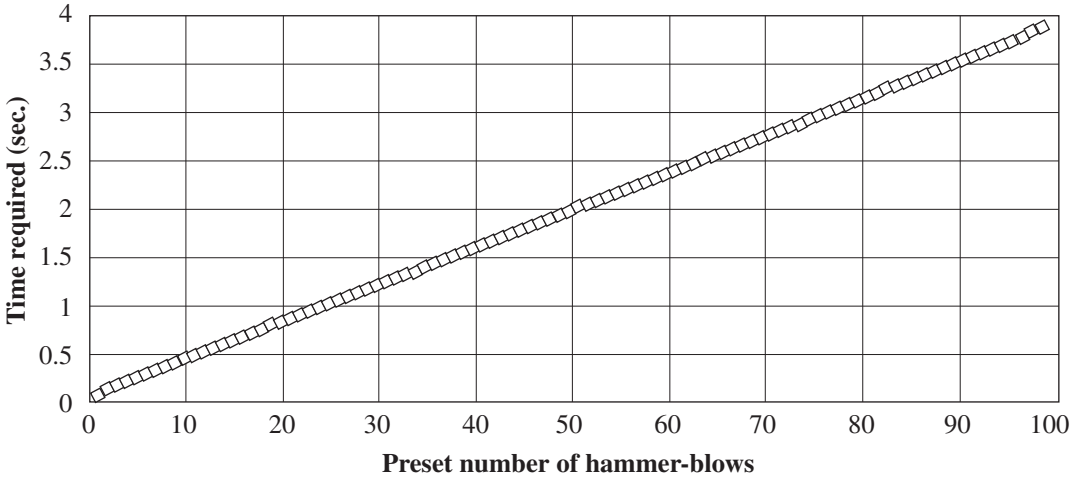
The equation for this relation is:

Time required = (Preset number of hammer blows X *2) X **20ms

Note* : "X2" means two blows per spindle rotation.
Consequently, when the preset number of hammer-blows is 10, the hammer actually blows 20 times.

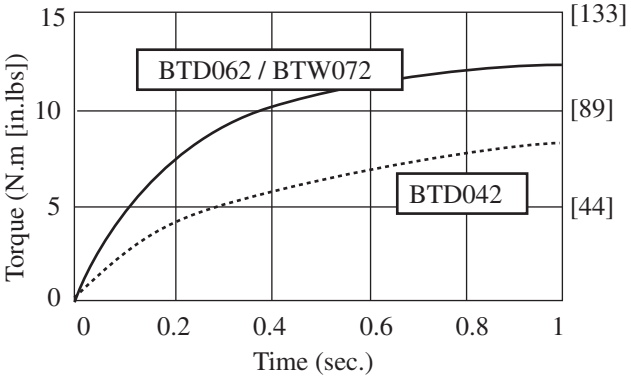
Note**: ms = micro second

The following graph shows this relation.

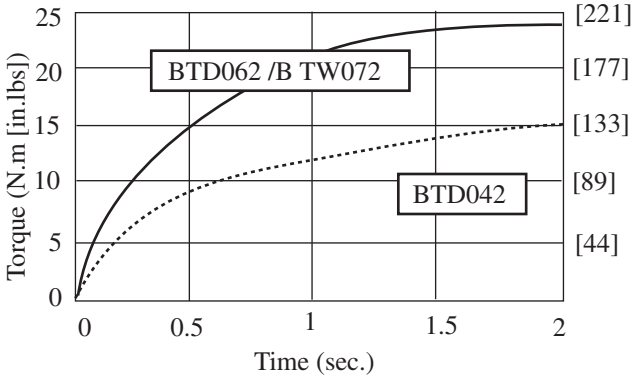


● The Relation Between Fastening Torque and Fastening Time

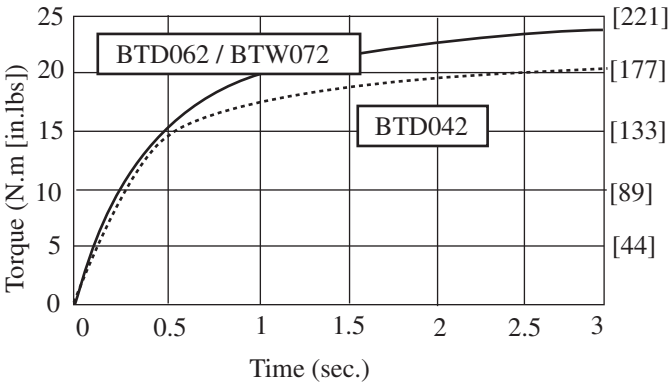
When Fastening Standard Bolt M6



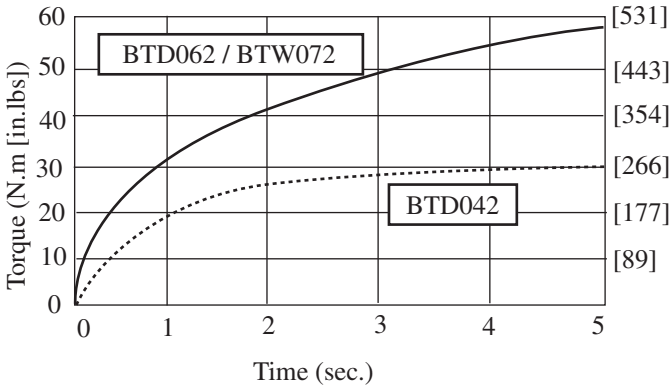
When Fastening High Tensile Bolt M6



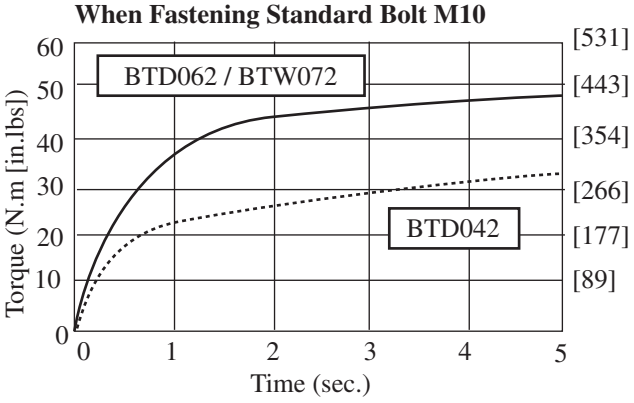
When Fastening Standard Bolt M8



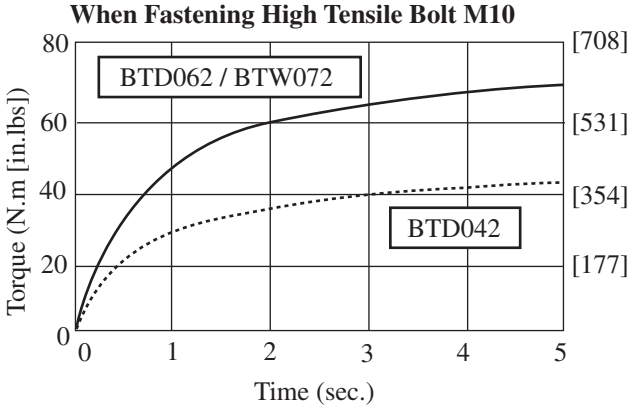
When Fastening High Tensile Bolt M8



When Fastening Standard Bolt M10



When Fastening High Tensile Bolt M10



Comparison of products

Model No. / Specifications		Impact driver		Impact wrench
		MAKITA		
		BTD042	BTD062	BTW072
Battery	Voltage (V)	9.6		
	Capacity (Ah)	1.7		
	Energy (Wh)	16.3		
	Kind of cell	Ni-MH		
Charging time with DC14SA		30 minutes		
No load speed (min-1=rpm)		0 - 2,500		
Impact per minute (min-1=bpm)		0 - 3,500	0 - 3,000	
Max. fastening torque		40N.m (408Kgf.cm) (354in.lbs)	65N.m (663Kgf.cm) (575in.lbs)	
Dimensions : mm (")	Length	164 (6-7/16)		162 (6-3/8)
	Width	66 (2-5/8)		66 (2-5/8)
	Height	236 (9-5/16)		236 (9-5/16)
Net weight including battery B9017A: kg (lbs)		1.06 (2.4)	1.09 (2.5)	

Repair

<1> Disassembling housing R and L
Remove hammer case from housing by taking off 4 pan head screws M4x20, and disassemble housing R and L as illustrated in Fig. 1.

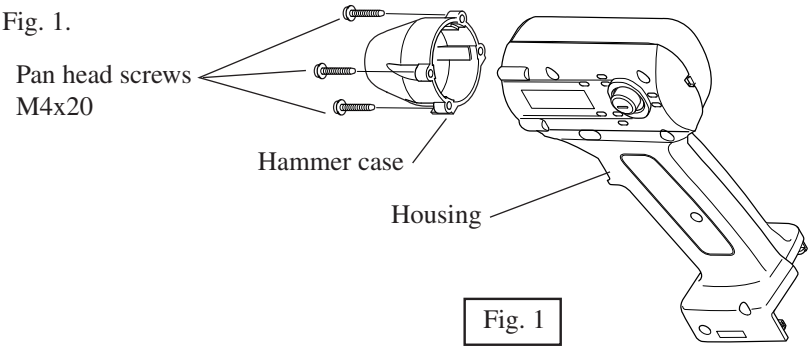


Fig. 1

<2> Disassembling bit holder section (anvil section)
Take off ring spring 10 from the groove on anvil. Then flat washer 11, compression spring 13 and sleeve can be removed from anvil by pulling them in the direction of the arrow in Fig.2.
Anvil can be separated from hammer case after disassembling sleeve section.

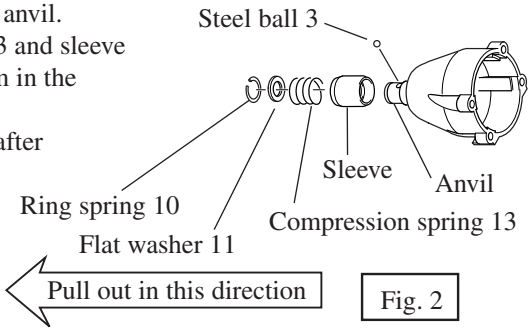


Fig. 2

<3> Apply 0.5g of MAKITA grease N No.2 on the cylindric part of anvil, when inserting it into hammer case.

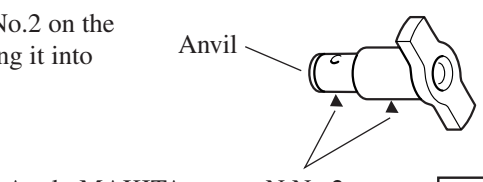


Fig. 3

< 4 > Removing hammer

(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.

(3A) Take 2 off steel balls 5.6 from spindle. (Mod.BTD062, BTW072)

(3B) Take 2 off steel balls 4.8 from spindle. (Mod.BTD042)

< Note > 29 pcs. of steel balls 3 are installed in hammer. Check the quantity when assembling.

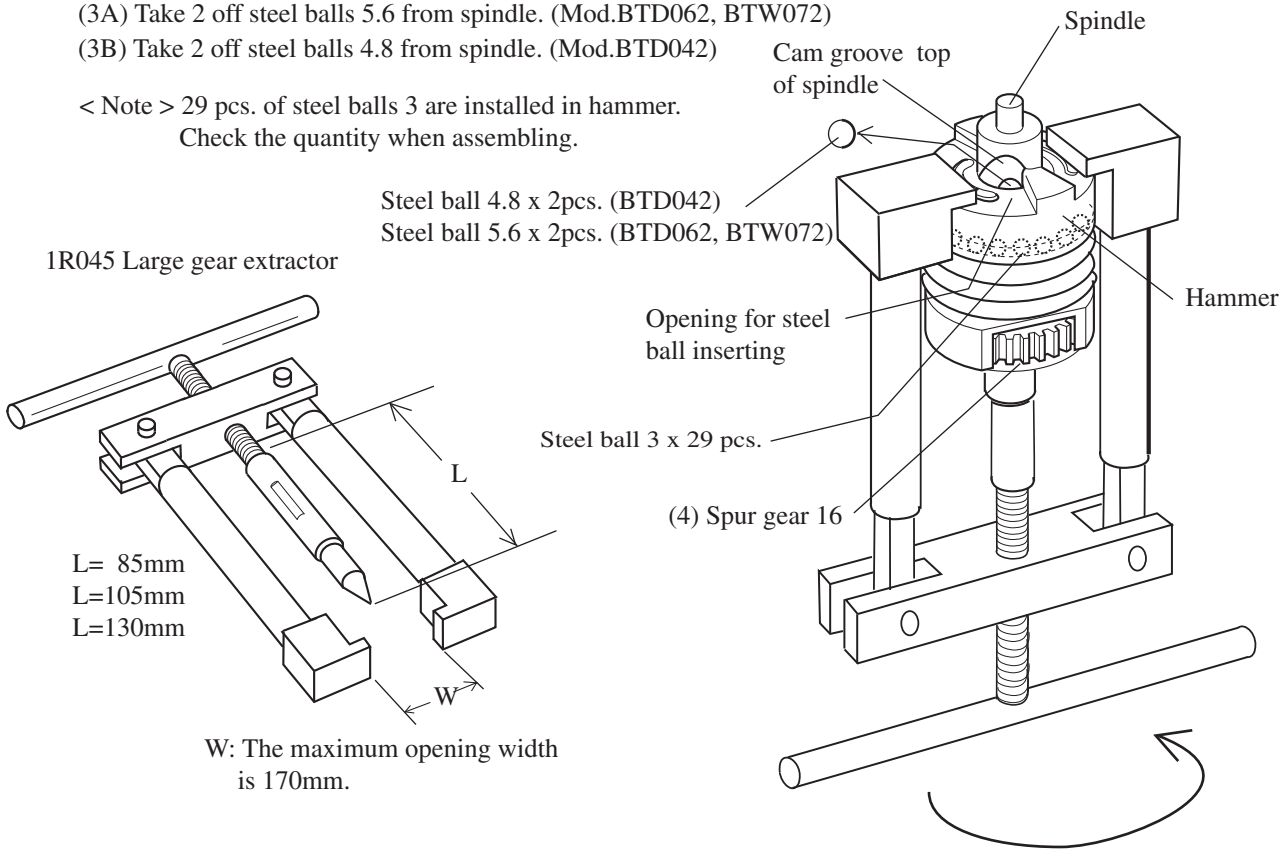
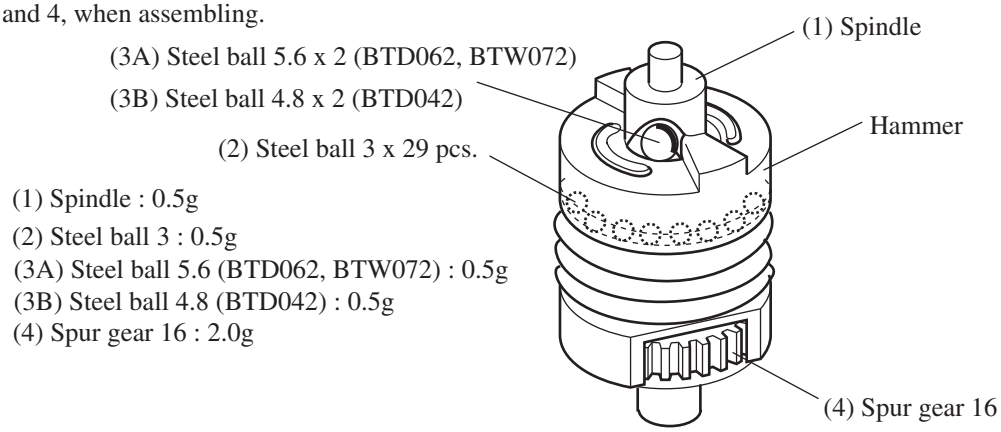


Fig. 4

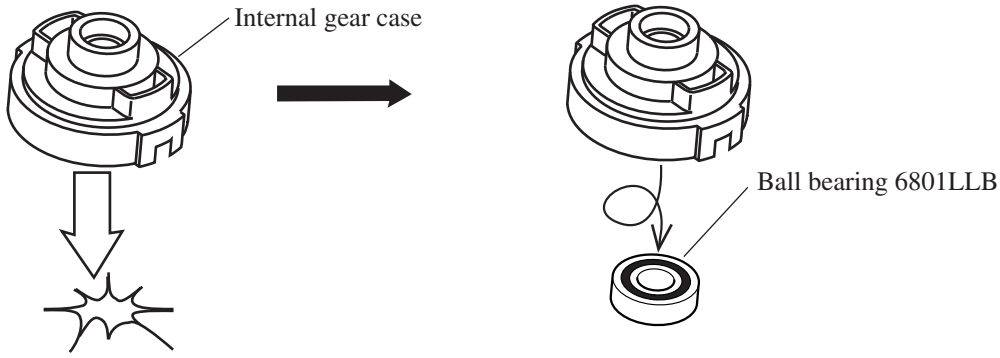
(4) Apply MAKITA grease N No.2 to the position No. 1, 2, 3 and 4, when assembling.



(1) Spindle : 0.5g
(2) Steel ball 3 : 0.5g
(3A) Steel ball 5.6 (BTD062, BTW072) : 0.5g
(3B) Steel ball 4.8 (BTD042) : 0.5g
(4) Spur gear 16 : 2.0g

Fig. 5

< 5 > Removing ball bearing 6801LLB



Give a shock by knocking internal gear case on the table.

Ball bearing 6801LLB can be removed from internal gear case by the shock.

Fig. 6

< 6 > Fastening FET spacer with tapping screw ST 3x8
When assembling FET spacer, the fastening torque of tapping screw ST 3x8 is approx. 1.1 Nm - 1.5 Nm (11Kgf.cm - 15 Kgf.cm).

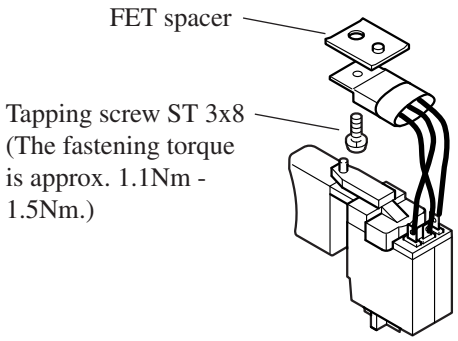


Fig. 7

< 7 > Hammer case has to be fastened diagonally as illustrated in in Fig.8.

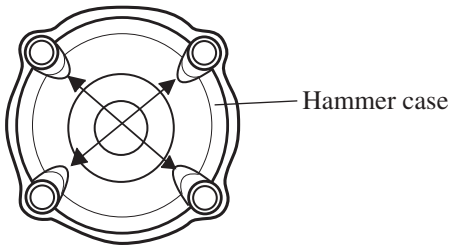
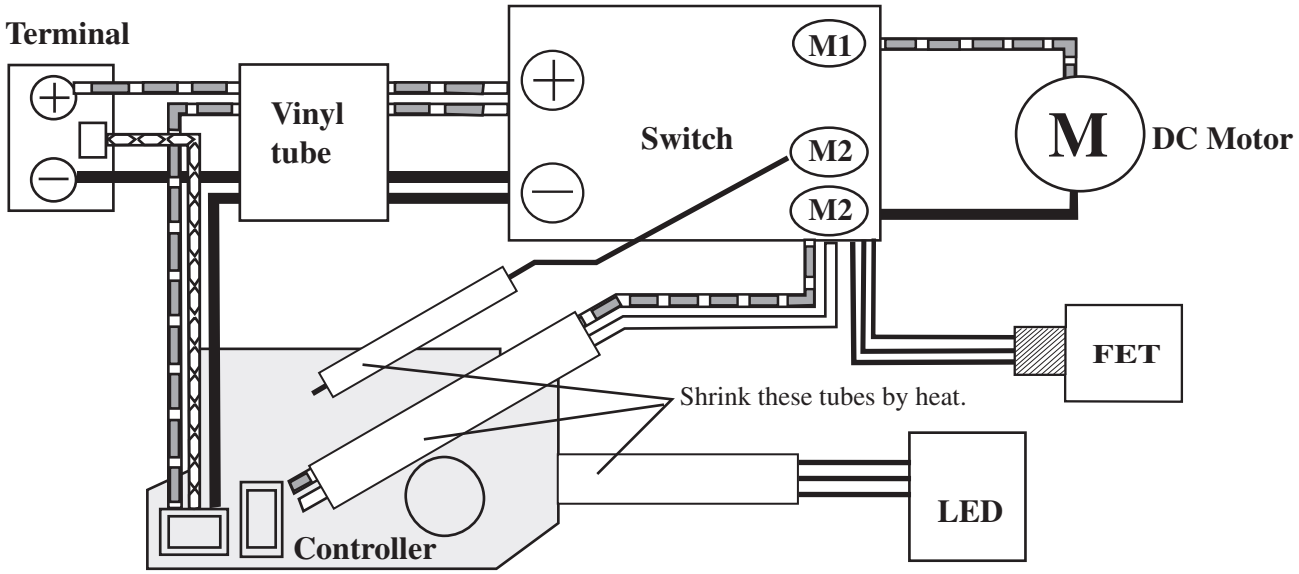


Fig.8

Circuit diagram

Color index of lead wires	
Black	
Red	
White	
Yellow	



Wiring diagram

