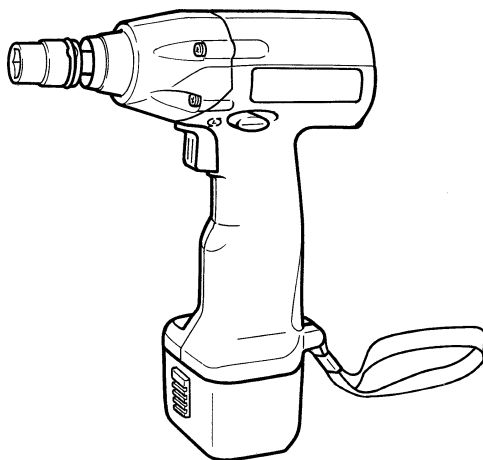


HITACHI

INSTRUCTION MANUAL AND SAFETY INSTRUCTIONS FOR CORDLESS IMPACT WRENCH

MODEL WH 8D2



⚠ WARNING:

Improper and unsafe use of this power tool can result in death or serious bodily injury!

This manual contains important information about product safety. Please read and understand this manual before operating the power tool. Please keep this manual available for others before they use the power tool.

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IMPORTANT INFORMATION

Read and understand all of the operating instructions, safety precautions and warnings in the Instruction Manual before operating or maintaining this power tool.

Most accidents that result from power tool operation and maintenance are caused by the failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing a potentially hazardous situation before it occurs, and by observing appropriate safety procedures.

Basic safety precautions are outlined in the "SAFETY" section of this Instruction Manual and in the sections which contain the operation and maintenance instructions.

Hazards that must be avoided to prevent bodily injury or machine damage are identified by WARNINGS on the power tool and in this Instruction Manual.

Never use this power tool in a manner that has not been specifically recommended by HITACHI, unless you first confirm that the planned use will be safe for you and others.

The warranty of this power tool is separately packed. Before using this power tool, make sure to thoroughly read and understand the content of the warranty.

MEANINGS OF SIGNAL WORDS


WARNING indicates a potentially hazardous situations which, if ignored, could result in serious personal injury.

CAUTION indicates a hazardous situations which, if ignored, could result in moderate personal injury, or could cause machine damage.

NOTE emphasizes essential information.

SAFETY

IMPORTANT SAFETY INSTRUCTIONS FOR USING ALL POWER TOOLS

 **WARNING:** Death or serious bodily injury could result from improper or unsafe use of power tools. To avoid these risks, follow these basic safety instructions:

READ ALL INSTRUCTIONS

1. NEVER TOUCH MOVING PARTS.

Never place your hands, fingers or other body parts near the tool's moving parts.

2. NEVER OPERATE WITHOUT ALL GUARDS IN PLACE.

Never operate this tool without all guards or safety features in place and in proper working order. If maintenance or servicing requires the removal of a guard or safety feature, be sure to replace the guard or safety feature before resuming operation of the tool.

3. ALWAYS WEAR EYE AND EAR PROTECTION.

Protect yourself from flying or expelled wood chips, metal particles or other debris by using safety goggles or equivalent eye protection. Wear ear protection to protect yourself from excessive noise.

4. AVOID UNINTENTIONAL STARTING.

Don't carry the tool with your finger near the power switch.

5. STORE TOOL PROPERLY.

When not in use, the tool should be stored in a dry place. Keep out of reach of children. Lock-out the storage area.

6. KEEP WORK AREA CLEAN.

Cluttered areas and benches invite injuries.

Clear all work areas and work benches of unnecessary tools, debris, furniture, etc.

7. CONSIDER WORK AREA ENVIRONMENT.

Don't expose power tools to rain.

Don't use power tools in damp or wet locations.

Keep work area well lit and well ventilated.


Don't use tool in presence of flammable liquids or gases.

Power tools produce sparks during operation. They also spark when switching ON/OFF. Never use power tools in sites containing lacquer, paint, benzene, thinner, gasoline, gases, adhesive agents, and other materials which are combustible or explosive.

- 8. KEEP CHILDREN AWAY.**
Do not let visitors contact tool.
All visitors should be kept safely away from work area.
- 9. DON'T FORCE TOOL.**
It will do the job better and safer at the rate for which it was intended.
- 10. USE RIGHT TOOL.**
Don't force small tool or attachment to do the job of a heavy-duty tool.
Don't use tool for purpose not intended-for example-don't use circular saw for cutting tree limbs or logs.
- 11. DRESS PROPERLY.**
Do not wear loose clothing or jewelry.
They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors.
Wear protective hair covering to contain long hair.
- 12. USE FACE OR DUST MASK IF OPERATION IS DUSTY.**
- 13. SECURE WORK.**
Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
- 14. DON'T OVERREACH.**
Keep proper footing and balance at all times.
- 15. MAINTAIN TOOLS WITH CARE.**
Keep tools sharp and clean for better and safer performance.
Follow instructions for lubricating and changing accessories.
Keep handles dry, clean, and free from oil and grease.
- 16. REMOVE ADJUSTING KEYS AND WRENCHES.**
Keys and adjusting wrenches remove from tool before turning it on.
- 17. STAY ALERT.**
Watch what you are doing. Use common sense. Do not operate tool when you are tired.
Tools should never be used by you if you are under the influence of alcohol, drugs or medication that makes you drowsy.
- 18. CHECK DAMAGED PARTS.**
Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this Instruction Manual.
Have defective switches replaced by authorized service center.
Do not use tool if switch does not turn it on and off.

- 19. NEVER USE A POWER TOOL FOR APPLICATIONS OTHER THAN THOSE SPECIFIED.**
Never use a power tool for applications other than those specified in the Instruction Manual.
- 20. HANDLE TOOL CORRECTLY.**
Operate the tool according to the instructions provided herein. Do not drop or throw the tool. Never allow the tool to be operated by children, individuals unfamiliar with its operation or unauthorized personnel.
- 21. CHECK FOR LIVE WIRES.**
Avoid the risk of severe electrical shock by checking for live electrical wires that may be hidden by walls, floors or ceilings. The wires should be de-energized before work begins.
- 22. KEEP ALL SCREWS, BOLTS AND COVERS TIGHTLY IN PLACE.**
Keep all screws, bolts, and plates tightly mounted. Check their condition periodically.
- 23. DO NOT USE POWER TOOLS IF THE PLASTIC HOUSING OR HANDLE ARE CRACKED.**
Cracks in the tool's housing or handle can lead to electric shock. Such tools should not be used until repaired.
- 24. BLADES AND ACCESSORIES MUST BE SECURELY MOUNTED TO THE TOOL**
Prevent potential injuries to yourself or others. Blades, cutting implements and accessories which have been mounted to the tool should be secure and tight.
- 25. NEVER USE A TOOL WHICH IS DEFECTIVE OR OPERATING ABNORMALLY.**
If the tool appears to be operating unusually, making strange noises, or otherwise appears defective, stop using it immediately and arrange for repairs by an authorized Hitachi service center.
- 26. CAREFULLY HANDLE POWER TOOLS.**
Should a power tool be dropped or struck against hard materials inadvertently it may be deformed, cracked, or damaged.
- 27. DO NOT WIPE PLASTIC PARTS WITH SOLVENT.**
Solvents such as gasoline, thinner, benzine, carbon tetrachloride, and alcohol may damage and crack plastic parts. Do not wipe them with such solvents. Wipe plastic parts with a soft cloth lightly dampened with soapy water.
- 28. USE ONLY AUTHENTIC HITACHI REPLACEMENT PARTS.**
Replacement parts not manufactured by Hitachi may void your warranty and can lead to malfunction and resulting injuries. Authentic Hitachi parts are available from your dealer.

IMPORTANT SAFETY INSTRUCTIONS FOR USE OF THE CORDLESS IMPACT WRENCH

 **WARNING:** Death or serious bodily injury could result from improper or unsafe use of the cordless impact wrench. To avoid these risks, follow these basic safety instructions:

1. **Never** use this driver handle for any application other than those in this manual.
2. When working in high places, **always** make sure that there is no one below before starting to work.
3. **Always** wear eye and ear protection when you work.
4. Confirm whether the socket has any crack in it.
5. Attach the hex. socket securely onto the anvil. If the hex. socket is insufficiently secured, it may drop out and cause an accident. For hex. socket attachment refer to "PRIOR TO OPERATION" on page 19.
6. Confirm the tightening torque by a torque wrench before use in order to ascertain the correct tightening torque to be used.
7. If a universal joint is used, be sure not to operate the unit in a no-load condition. Operating in this condition is dangerous. When the socket section spins around it may cause injury to hands or bodies, or the resulting intense vibration may cause the user to drop the tool.
8. Be careful that foreign matters do not block the holes located on both sides of the handle. Also do not close the holes with a tape. The holes act an important role.

IMPORTANT SAFETY INSTRUCTIONS FOR BATTERY CHARGER

1. This manual contains important safety and operating instructions for battery charger Model UC 12Y.
2. Before using battery charger, read all instructions and cautionary markings on (1) battery charger, (2) battery, and (3) product using battery.
3. To reduce risk of injury, charge HITACHI rechargeable batteries type EB7, EB9, EB12, EB2, B-2, B-3 or B-4. Other type of batteries may burst causing personal injury and damage.
4. Do not expose battery charger to rain or snow.
5. Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock, or injury to persons.
6. To reduce risk of damage to electric plug and cord, pull by plug when disconnecting battery charger.
7. Make sure cord is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.

8. An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in a risk of fire and electric shock. If extension cord must be used make sure:
 - a. That blades of extension cord are the same number, size, and shape as those of plug on battery charger:
 - b. That extension cord is properly wired and in good electrical condition; and
 - c. That wire size is large enough for AC ampere rating of battery charger as specified in Table 1.

Table 1
RECOMMENDED MINIMUM AWG SIZE FOR
EXTENSION CORDS FOR BATTERY CHARGERS

AC Input Rating Amperes*		AWG Size of Cord			
Equal to or greater than	but less than	Length of Cord, Feet (Meter)			
		25 (7.5)	50 (15)	100 (30)	150 (45)
0	2	18	18	18	16
2	3	18	18	16	14
3	4	18	18	16	14

- * If the input rating of a battery charger is given in watts rather than in amperes, the corresponding ampere rating is to be determined by dividing the wattage rating by the voltage rating-for example:

$$\frac{1250\text{watts}}{125\text{ volts}} = 10\text{ amperes}$$


9. Do not operate battery charger with damaged cord or plug-replace them immediately.
10. Do not operate battery charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
11. Do not disassemble battery charger; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
12. To reduce risk of electric shock, unplug charger from receptacle before attempting any maintenance or cleaning. Removing the battery will not reduce this risk.

IMPORTANT SAFETY INSTRUCTIONS FOR USE OF THE BATTERY AND BATTERY CHARGER

You must charge the battery before you can use the cordless impact wrench. Before using the model UC12Y battery charger, be sure to read all instructions and cautionary statements on it, the battery and in this manual.


REMEMBER: USE ONLY HITACHI BATTERIES TYPES EB7, EB9, EB12, EB2, B-2, B-3 or B-4. OTHER TYPES OF BATTERIES MAY BURST AND CAUSE INJURY!

Follow these instructions to avoid the risk of injury:

 **WARNING:** Improper use of the battery or battery charger can lead to serious injury. To avoid these injuries:

1. **NEVER** disassemble the battery.
2. **NEVER** incinerate the battery, even if it is damaged or is completely worn out.
The battery can explode in a fire.
3. **NEVER** short-circuit the battery.
4. **NEVER** insert any objects into the battery charger's air vents. Electric shock or damage to the battery charger may result.
5. **NEVER** charge outdoors. Keep the battery away from direct sunlight and use only where there is low humidity and good ventilation.
6. **NEVER** charge when the temperature is below 41°F (5°C) or above 104°F (40°C).
7. **NEVER** connect two battery chargers together.
8. **NEVER** insert foreign objects into the hole for the battery or the battery charger.
9. **NEVER** use a booster transformer when charging.
10. **NEVER** use an engine generator or DC power to charge.
11. **NEVER** store the battery or battery charger in places where the temperature may reach or exceed 104°F (40°C).
12. **ALWAYS** operate charger on standard household electrical power (120 volts).
Using the charger on any other voltage may overheat and damage the charger.
13. **ALWAYS** wait at least 15 minutes between charges to avoid overheating the charger.
14. **ALWAYS** disconnect the power cord from its receptacle when the charger is not in use.

DISPOSAL OF THE EXHAUSTED BATTERY

 **WARNING:** Do not dispose of the exhausted battery. The battery must explode if it is incinerated. The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

**SAVE THESE INSTRUCTIONS
AND
MAKE THEM AVAILABLE TO
OTHER USERS OF THIS TOOL!**

OPERATION AND MAINTENANCE

NOTE: The information contained in this Instruction Manual is designed to assist you in the safe operation and maintenance of the power tool.

Some illustrations in this Instruction Manual may show details or attachments that differ from those on your own power tool.

MODEL

WH8D2: with charger and case

NAME OF PARTS

1. Impact Wrench (WH8D2)

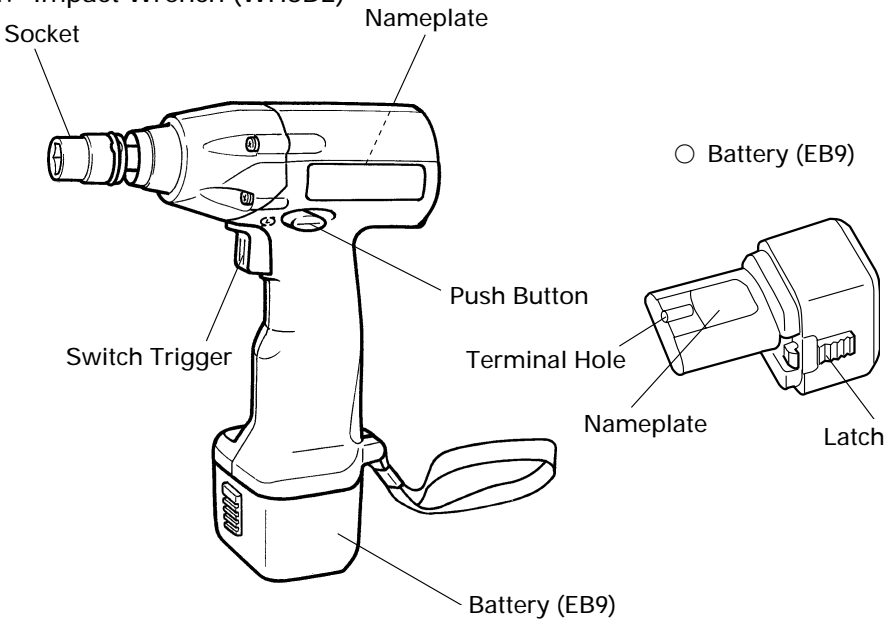


Fig. 1

2. Battery Charger (UC12Y)

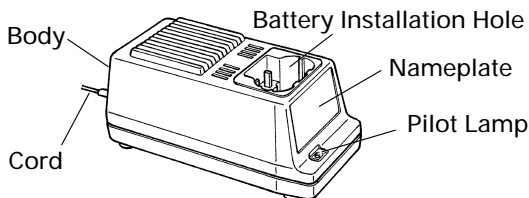


Fig. 2

SPECIFICATIONS

1. Cordless Impact Wrench (WH8D2)

Motor	DC Motor
No-load speed	2200 rpm
Capacity	5/32" (M4) – 15/32" (M12) (Ordinary bolt)
Tightening torque	Maximum 66 ft-lb (900 kg-cm) Tightening is M12 high tensile bolt, when fully charged in 68°F (20°C) temp. Tightening time: 3 sec. (Use hexagonal socket.)
Square drive	3/8" (9.5 mm)
Battery (EB9)	Nickel cadmium battery Voltage DC9.6V Charging & discharging frequency about 500 times
Weight	3.1 lbs (1.4kg)

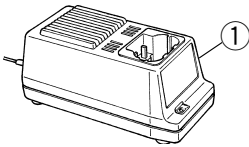
2. Battery Charger (UC12Y)

Input power source	Single phase: AC 120V 60Hz
Charging time	Approx. One hour (At a temperature of 68°F (20°))
Charger	Charging voltage DC 2.4 – 12V Charging current DC 1.3A
Weight	2.9 lbs (1.3kg)

ACCESSORIES

⚠ WARNING: Accessories for this power tool are mentioned in this Instruction Manual.
The use of any other attachment or accessory can be dangerous and could cause injury or mechanical damage.

STANDARD ACCESSORIES



① Battery Charger (UC12Y) 1

Fig. 3

OPTIONAL ACCESSORIES...sold separately

1. Battery (EB9) (Code No. 991644Z)

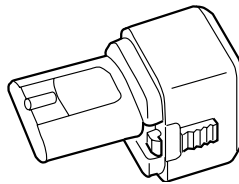


Fig. 4

2. Sockets

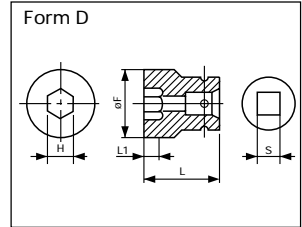
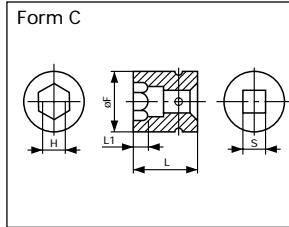
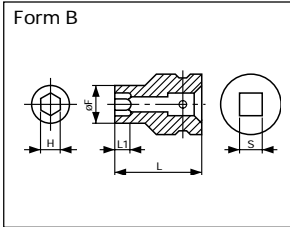


Table 2

Square head drive dimensions S	Part Name	Code No.	Suitable Bolt Diameter			Hexagonal width across flats H	From	Main Socket Dimensions				
			ISO (ordinary)	ISO (small)	Inch bolts			L	L1	ϕF		
3/8" (9.5 mm)	Hexagonal Socket	8 mm	996125	M5 (3/16")		5/16" (8 mm)	B	1-5/16" (33 mm)	3/16" (5 mm)	1/2" (13 mm)		
		10 mm	996126	M6 (3/4")		3/8" (10 mm)	B	1-5/16" (33 mm)	1/4" (6 mm)	5/8" (16 mm)		
		12 mm	996127		M8 (5/16")	W5/16"	15/32" (12 mm)	C	1-5/16" (33 mm)	9/32" (7 mm)	3/4" (19 mm)	
		13 mm	996128		M8 (5/16")		1/2" (13 mm)	B	1-5/16" (33 mm)	5/16" (8 mm)	25/32" (20 mm)	
		14 mm	996129		M10 (3/8")		9/16" (14 mm)	B	1-5/16" (33 mm)	5/16" (8 mm)	13/16" (21 mm)	
		16 mm	996130		M10 (3/8")		5/8" (16 mm)	D	1-5/16" (33 mm)	11/32" (9 mm)	15/16" (24 mm)	
		17 mm	996131		M10 (3/8")	M12 (15/32")	W3/8"	21/32" (17 mm)	D	1-5/16" (33 mm)	3/8" (10 mm)	1" (25 mm)
		18 mm	996132		M12 (15/32")		23/32" (18 mm)	D	1-5/16" (33 mm)	3/8" (10 mm)	1-1/32" (26 mm)	
		19 mm	996133		M12 (15/32")		W7/16"	3/4" (19 mm)	D	1-5/16" (33 mm)	15/32" (12 mm)	1-1/16" (27.5 mm)

3. Long Socket

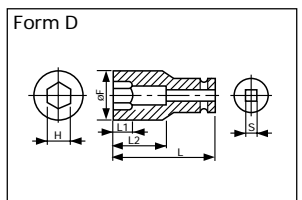
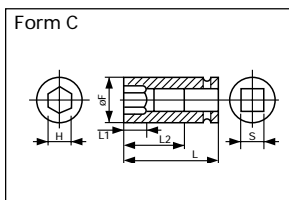
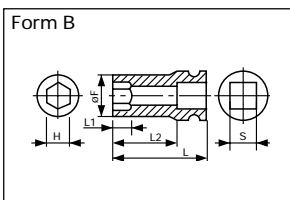


Table 3

Square head drive dimensions S	Part Name	Code No.	Suitable Bolt Diameter			Hexagonal width across flats H	From	Main Socket Dimensions						
			ISO (ordinary)	ISO (small)	Inch bolts			L	L1	L2	φF			
3/8" (9.5 mm)	Long Socket	8 mm	996134	M5 (3/16")				B	2-3/8" (60 mm)	15/32" (12 mm)	1-7/8" (48 mm)	1/2" (13 mm)		
		10 mm	996135	M6 (1/4")					B	2-3/8" (60 mm)	15/32" (12 mm)	1-7/8" (48 mm)	5/8" (16 mm)	
		12 mm	996136		M8 (5/16")		W5/16"			C	2-3/8" (60 mm)	9/16" (14 mm)	1-7/8" (48 mm)	23/32" (18.4 mm)
		13 mm	996137		M8 (5/16")					B	2-3/8" (60 mm)	9/16" (14 mm)	1-7/8" (48 mm)	3/4" (18.9 mm)
		14 mm	996138			M10 (3/8")				B	2-3/8" (60 mm)	19/32" (15 mm)	1-7/8" (48 mm)	49/64" (19.5 mm)
		16 mm	996139		M10 (3/8")					D	2-3/8" (60 mm)	19/32" (15 mm)	1-7/8" (48 mm)	15/16" (24 mm)
		17 mm	996140		M10 (3/8")	M12 (15/32")		W3/8"		D	2-3/8" (60 mm)	19/32" (15 mm)	1-7/8" (48 mm)	1" (25 mm)
		18 mm	996141		M12 (15/32")					D	2-3/8" (60 mm)	5/8" (16 mm)	1-7/8" (48 mm)	1-1/32" (26 mm)
		19 mm	996142		M12 (15/32")			W7/16"		D	2-3/8" (60 mm)	21/32" (17 mm)	1-7/8" (48 mm)	1-1/16" (27.5 mm)

4. Extension bar: Code No. 996143

The extension bar is convenient for working in very restricted spaces or when the socket provided cannot reach the bolt to be tightened.

⚠ CAUTION:

When the extension bar is used the tightening torque is reduced slightly compared with the ordinary socket. So it is necessary to operate the tool a little longer to get the same torque.

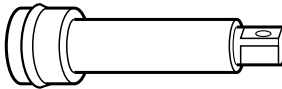


Fig. 5

5. Universal joint: Code No. 996147

The universal joint is convenient for impacting nuts when there is an angle between the socket and wrench, or when working in a very narrow space.

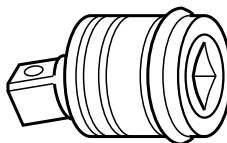


Fig. 6

6. 12.7 mm (1/2") Square adaptor: Code No. 996145

This is used when using a socket with square hole dimensions of 1/2" (12.7 mm)

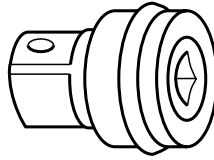


Fig. 7

7. Bit adaptor: Code No. 996144

This is used for tightening small screws (3/16" (M5) – 5/16" (M8)) Before using please refer to the item "OPERATIONAL CAUTIONS".

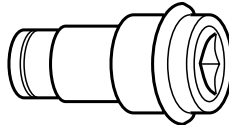


Fig. 8

● Applicable bit

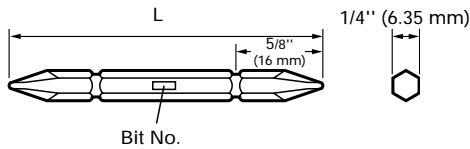


Fig. 9

Bit No.	L	Code No.
No. 2	1 – 3/4" (45 mm)	955229
	2 – 3/4" (70 mm)	955654
No. 3	1 – 3/4" (45 mm)	955230
	2 – 3/4" (70 mm)	955655

⚠ CAUTION

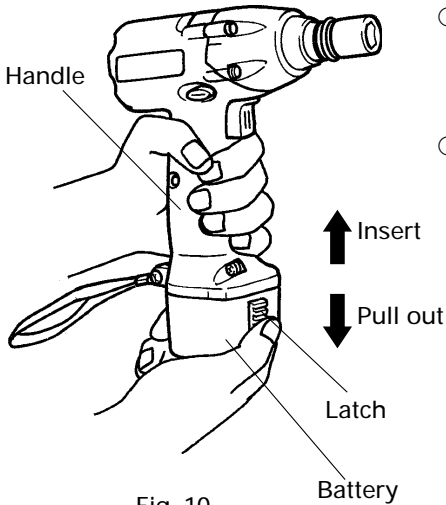
Recommended accessories for this Electric Power Tool are mentioned in this manual.

The use of any other attachment or accessory might be hazardous.

APPLICATIONS

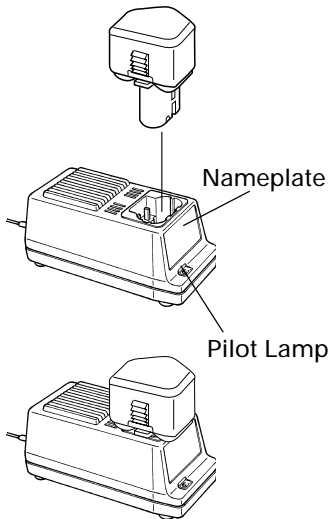
- Tightening and loosening of all types of bolts and nuts, used for securing structural items.

REMOVAL AND INSTALLATION METHOD OF BATTERY



- How to remove the battery.
Hold the handle tight.
Press the latch located at the front of the battery and pull out the battery. (Fig. 10)
- How to install the battery.
Position the battery so that the latch faces toward the switch trigger in the handle and insert the battery. (Fig. 10)

CHARGING METHOD



NOTE:

Before plugging into the receptacle, make sure the following points.

- The power source voltage is stated on the nameplate.
- The cord is not damaged.



WARNING:

Do not charge at voltage higher than indicated on the nameplate.

If charged at voltage higher than indicated on the nameplate, the charger will burn up.

1. Insert the plug of battery charger into the receptacle.

When the plug of battery charger has been inserted into the receptacle, pilot lamp will blink slowly. (At 1-second intervals.)

⚠ WARNING: Do not use the electrical cord if damaged. Have it repaired immediately.

2. Insert the battery to the battery charger.
Insert the battery into the battery charger as shown in Fig. 11. Make sure it contacts the bottom of the battery charger.





3. Charging

- When the battery is connected to the battery charger, charging will commence and the pilot lamp will light on. (See Table 4)

NOTE: If the pilot lamp blinks, pull out the plug from the receptacle and check if the battery is properly mounted.

- In approx. one hour, when the battery is fully charged, the pilot lamp will blink slowly (At 1-second intervals.) (See Table 4)

Table 4

Indications of the pilot lamp		
Before charging	Blinks	Lights for 0.5 seconds. Goes out for 0.5 seconds. 
While charging	Lights	Lights continuously 
Charging complete	Blinks	Lights for 0.5 seconds. Goes out for 0.5 seconds. 
Charging impossible	Blinks	Lights for 0.1 seconds. Goes out for 0.1 seconds. 

4. Disconnect battery charger from the receptacle.

⚠ CAUTION: Do not pull the plug out of the receptacle by pulling on the cord. Make sure to grasp the plug when removing from receptacle to avoid damaging cord.

5. Remove the battery from the battery charger.
Supporting the battery charger with hand, pull out the battery from the battery charger.

⚠ CAUTION:

- When the battery charger has been continuously used, the battery charger will be heated, thus constituting the cause of failures. Once the charging has been completed, give 15 minutes rest until the next charging.
- If the battery is recharged when it is warm due to battery use or exposure to sunlight, the pilot lamp may not light. The battery will not be recharged. In such a case, let the battery cool before charging.
- If the pilot lamp blinks quickly (at 0.2-second intervals), check for and take out any foreign objects in the charger's battery installation hole. If there are no foreign objects, it is probable that the battery or charger is malfunctioning. Bring them to HITACHI AUTHORIZED SERVICE CENTER.

PRIOR TO OPERATION

1. Confirm that the battery is mounted correctly
2. Selecting the socket to be matched to the bolt

Be sure to use a socket which is matched to the bolt to be tightened. Using an improper socket will result not only in insufficient tightening but also in damage to the socket or nut.

A worn or deformed hex or square-holed socket will not give an adequate tightness for fitting to the nut or anvil, consequently resulting in loss of tightening torque.

Pay attention to wear of socket hole, and replace before further wear has developed.

Matching socket and bolt sizes are shown in Tables 2 and 3.

The numerical value of a socket designation denotes the side-to-side distance (H) of its hex hole.

3. Mounting the socket (Fig. 12)
Align the plunger located in the square part of the anvil with the hole in the hex. socket and mount the hex. socket on the anvil. Check that the plunger is fully engaged in the hole.

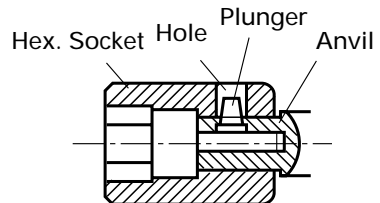


Fig. 12

HOW TO USE

1. Check the direction of rotation.
The socket rotates clockwise (viewed from the rear side) by pushing the R-side of the push button.
The L-side of the push button is pushed to turn the socket counterclockwise. (See Fig. 13) (The R: and L marks are provided on the body.)

⚠ CAUTION: The push button can not be switched while the impact wrench is turning. To switch the push button, stop the impact wrench, then set the push button.

2. Switch operation
 - When the switch trigger is pulled, the socket rotates.
When trigger is let loose, the socket stops.

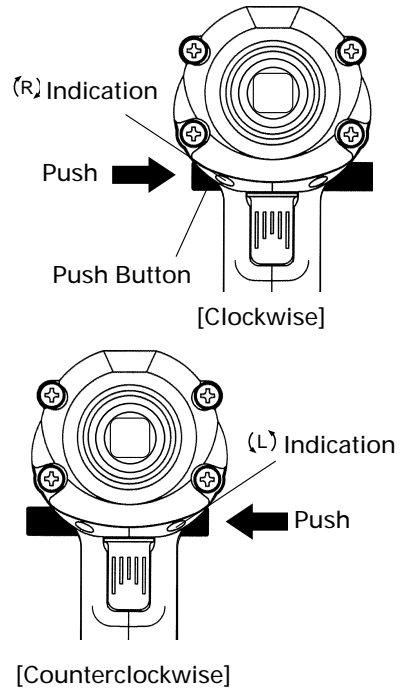


Fig. 13

3. Tightening and loosening bolts
A hex socket matching the bolt or nut must first be selected. Then mount the socket on the anvil, and grip the nut to be tightened with the hex socket. Holding the wrench in line with the bolt, press the power switch to impact the nut for several second.
If the nut is only loosely fitted to the bolt, the bolt may turn with the nut, therefore preventing proper tightening. In this case, stop impact on the nut and hold the bolt head with a wrench before restarting impact, or manually tighten the bolt and nut to prevent them slipping.

4. Number of bolt tightenings possible (with one charge)

Please refer to the table below for the number of bolt tightenings possible with one charge.

*Bolt used	Tightening time	No. of tightenings
3/8" (M10) High tensile bolt	1 sec	Approx. 220

*Use hexagonal socket

As shown above, the longer tightening time is, the fewer the number of tightenings, and the shorter the time is, the greater the number of tightenings possible. These values may vary slightly, according to surrounding temperature and battery characteristics.

OPERATIONAL CAUTIONS

1. After continuous work, allow the unit to rest

When you replace the batteries after continuously using the unit to tighten bolts, let the unit rest for about 15 minutes.

If you continue using the unit immediately after replacing the batteries, the motor and switch etc. may become very hot, and may burn out.

2. Tightening torque

Refer to Fig. 14, 15, 16 and 17 for the tightening torque of bolts (according to size), under the conditions shown in Fig. 18.

Please use this example as a general reference, as tightening torque will vary according to tightening conditions.



CAUTION

If a long tightening time is used when tightening small diameter 3/16" (M5) or 1/4" (M6) bolts or small screws, there is a danger of the bolt or screw breaking, so please confirm the tightening time and the tightening torque beforehand.

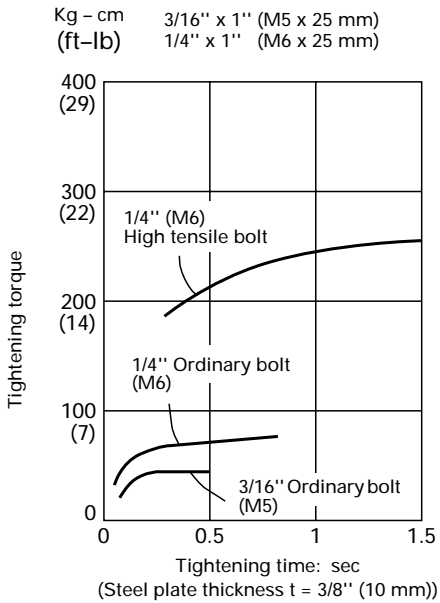


Fig. 14

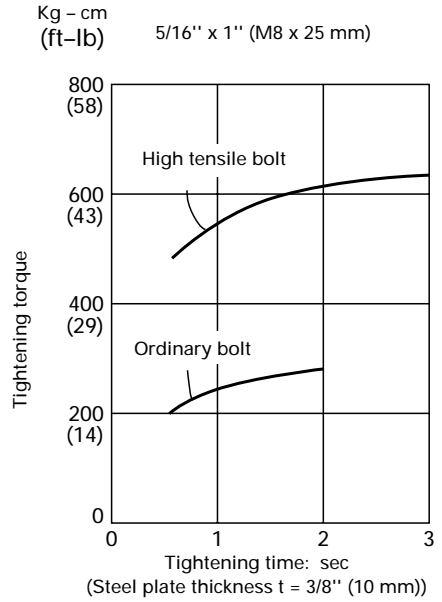


Fig. 15

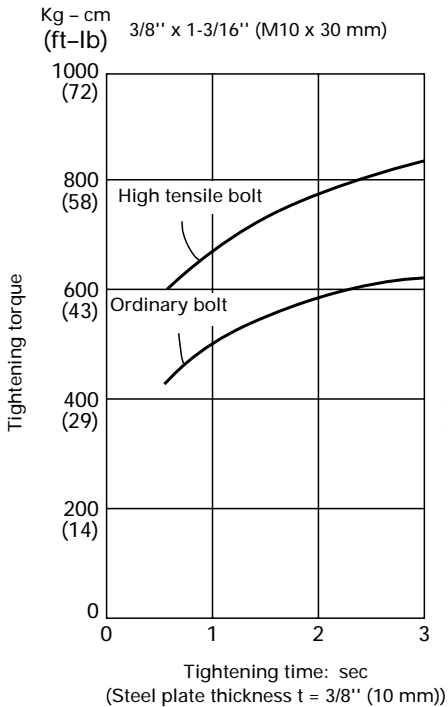


Fig. 16

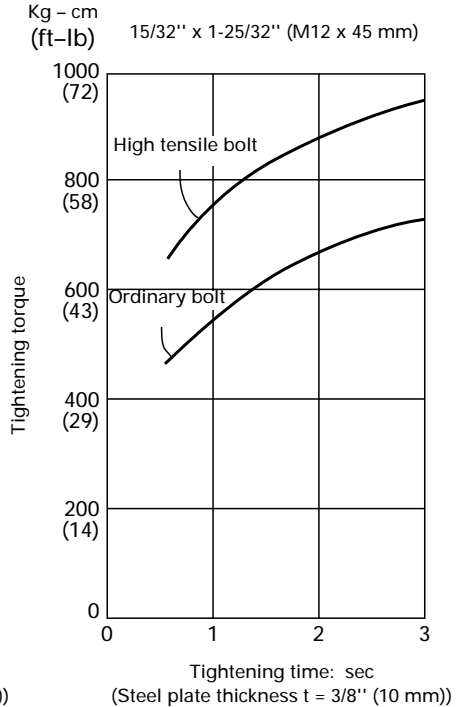
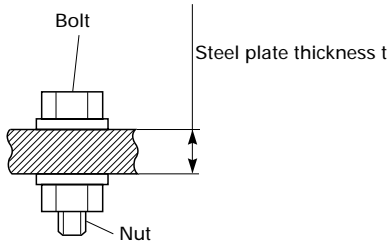


Fig. 17



The following bolt is used.
 Ordinary bolt: Hardness division 4.8
 High tensile bolt: Hardness division 12.9

Fig. 18

Tightening torque varies, depending on the battery's charge level. Fig. 19 shows an example of the relationship between tightening torque and the number of tightenings, for a 3/8" (M10) high tensile bolt. As shown, tightening torque gradually weakens with the increase in the number of tightenings. In particular, as the level decreases very close to the complete discharge ("a" margin in graph), the unit's impact weakens, the number of time impacts declines and tightening torque drops off sharply. If this occurs, check torque level, then recharge the battery if necessary.

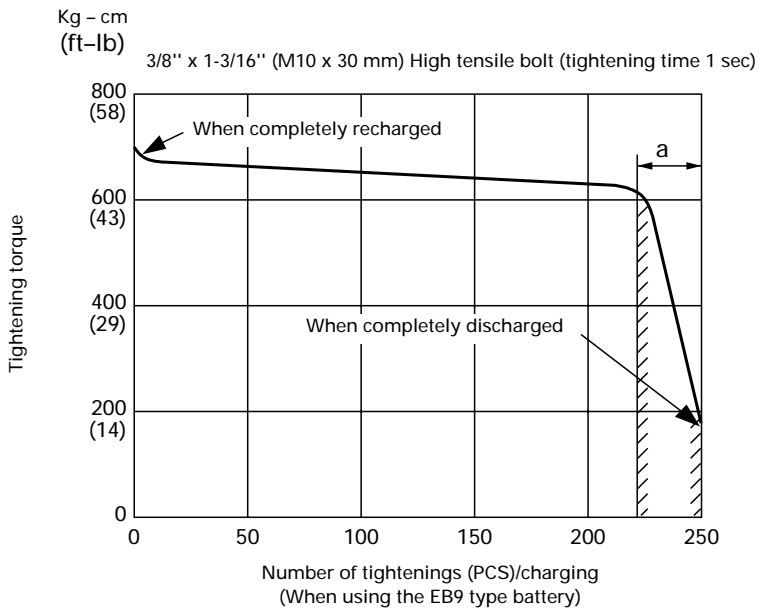



Fig. 19

3. **Work at a tightening torque suitable for the bolt under impact**
The optimum tightening torque for nuts and bolts differs with material and size of the nuts and bolts. An excessively large tightening torque for a small bolt may stretch or break the bolt. The tightening torque increases proportionally to the operating time. Use the correct operating time for the bolt.
4. **Holding the tool**
Hold the Impact Wrench firmly with both hands by the body handle and the side handle. In this case hold the wrench in line with the bolt.
It is not necessary to push the wrench very hard. Hold the wrench with a force just sufficient to counteract the impact force.
5. **Confirm the tightening torque**
The following factors contribute to a reduction of the tightening torque. So confirm the actual tightening torque needed by screwing up some bolts before the job with hand torque wrench. Factors affecting the tightening torque are as follows.
 - (1) **Voltage:**
When the discharge margin is reached, voltage decreases and tightening torque declines.
 - (2) **Operating time:**
The tightening torque increases when the operating time increases. But the tightening torque does not increase above a certain value even if the tool is driven for a long time. (See Figs. 14, 15, 16 and 17)
 - (3) **Diameter of bolt:**
The tightening torque differs with the diameter of the bolt as shown in Figs. 14, 15, 16 and 17. Generally a larger diameter bolt has a larger tightening torque.
 - (4) **Tightening conditions:**
The tightening torque differs according to the torque ratio: class, and length of bolts even when bolts with the same size threads are used. The tightening torque also differs according to the condition of the surface of metal through which the bolts are to be tightened.
 - (5) **Using optional parts:**
The tightening torque is reduced a little when an extension bar, universal joint or a long socket is used.

MAINTENANCE AND INSPECTION

 **CAUTION: Pull out battery before doing any inspection or maintenance.**

1. Checking the condition of the socket.

A worn or deformed hex or a square-holed socket will not give an adequate tightness to the fitting between the nut or anvil, consequently resulting in loss of tightening torque. Pay attention to wear of a socket holes periodically, and replace with a new one if needed.

2 Check the Mounting Screws

Loose mounting screws are dangerous. Regularly inspect them and make sure they are tight.

 **CAUTION: Using this power tool with loosen, screws is extremely dangerous.**

3 Check for Dust

Dust may be removed with a soft cloth or a cloth dampened with soapy water. Do not use bleach, chlorine, gasoline or thinner, for they may damage the plastics.

STORAGE

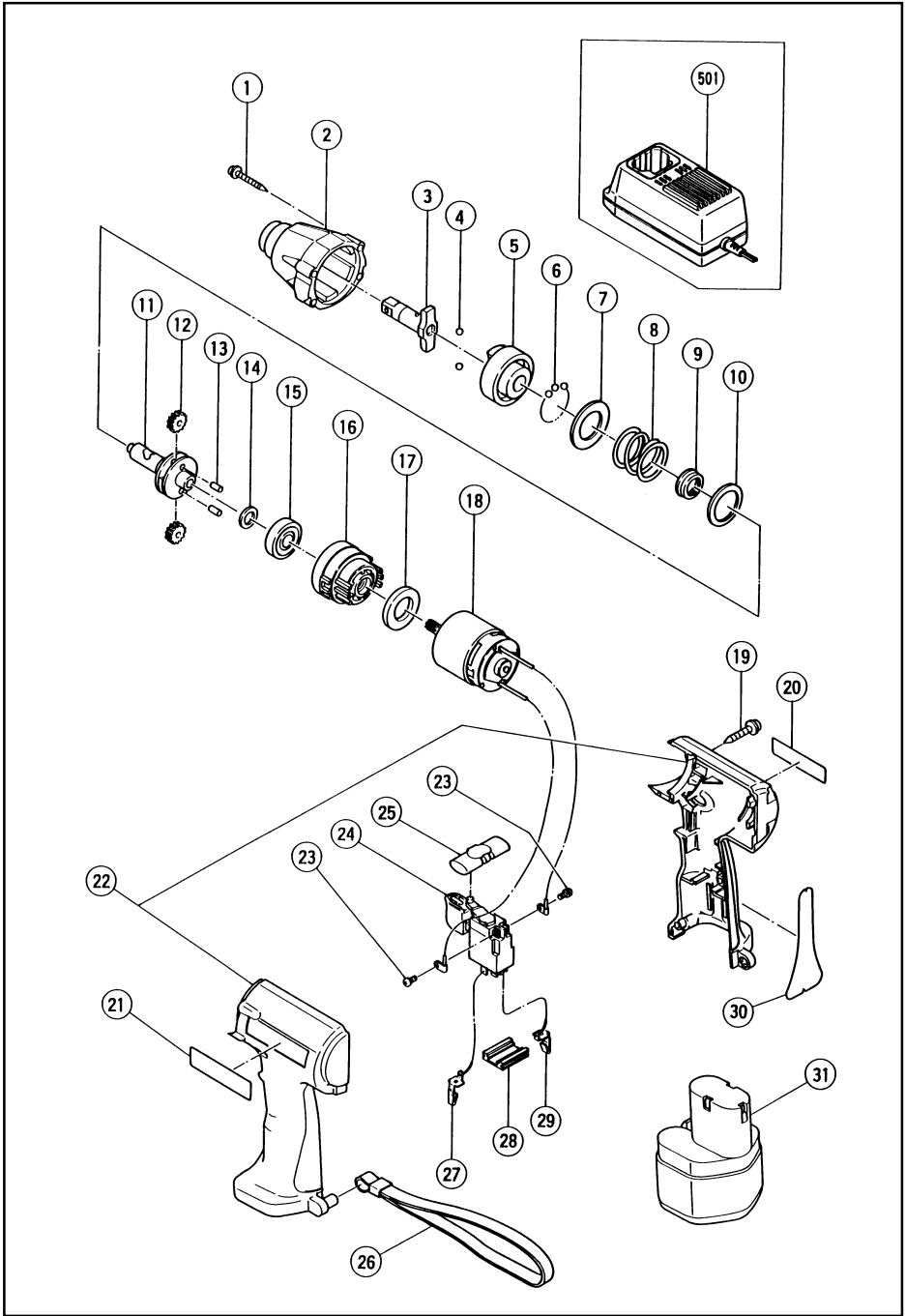
Storing in a place below 104°F (40°C) and out of the reach of children.

SERVICE AND REPAIRS

All quality power tools will eventually require servicing or replacement of parts because of wear from normal use. To assure that only authorized replacement parts will be used, all service and repairs must be performed by a HITACHI AUTHORIZED SERVICE CENTER, ONLY.

NOTE:

Specifications are subject to change without any obligation on the part of the HITACHI.



Item No.	Part Name
1	Tapping Screw (W/Sp. Washer) D4x30
2	Hammer Case
3	Anvil (K)
4	Steel Ball D5.556
5	Hammer
6	Steel Ball D3.97
7	Washer (G)
8	Spring
9	Stopper (A)
10	Washer (H)
11	Spindle
12	Idle Gear
13	Needle Roller
14	Washer (C)
15	Ball Bearing (6001VVCMP52L)
16	Inner Cover
17	Damper
18	Motor
19	Tapping Screw (W/Flange) D4x20
20	Nameplate
21	HITACHI Label
22	Housing (A) · (B) Set
23	Machine Screw (W/Sp. Washer) M3x5
24	Switch Ass'y
25	Pushing Button
26	Strap
27	Terminal (C) (Brown)
28	Terminal Support
29	Terminal (C) (Blue)
30	Grip Tape
31	Battery EB9
501	Charger (Model UC12Y)

Parts are subject to change without any obligation on the part of the HITACHI due to improvements.



NICKEL-CADMIUM
BATTERY MUST BE RE-
CYCLED OR
DISPOSED OF
PROPERLY.

Please contact HITACHI KOKI U.S.A.
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HITACHI AUTHORIZED POWER TOOL
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