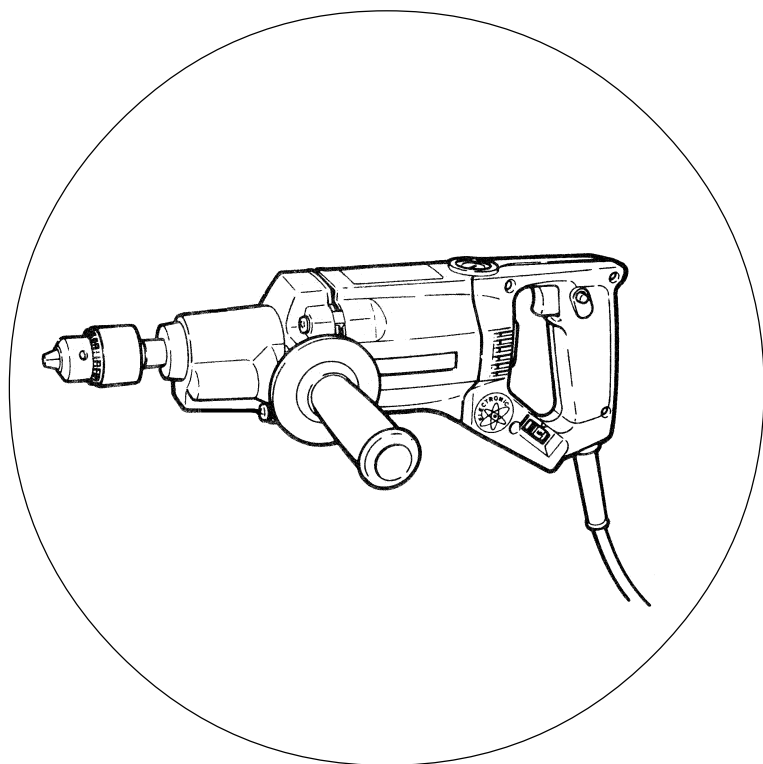


# HITACHI

## 日立牌攻丝机 ( 电子控制系统 ) Tapper (Electronic control system)

### UT 8V

使用说明书  
Handling instructions

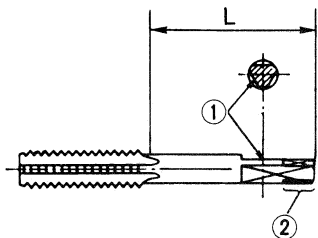


使用前务请详加阅读

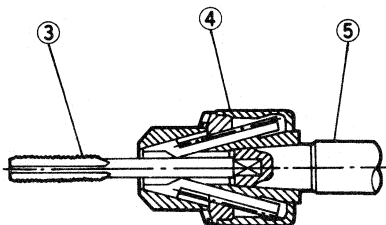
Read through carefully and understand these instructions before use.

**Hitachi Koki**

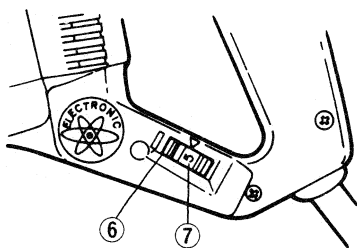
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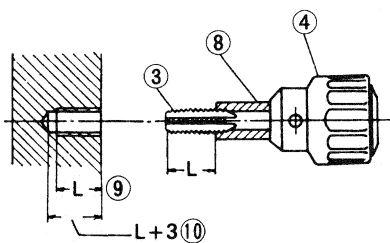
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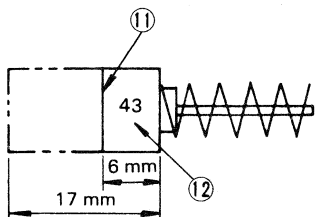
3



4



5



①	在螺丝攻的三个不同的位置上用砂轮或类似的工具切口。	Cut notches on three different places on the tap by a grinder or similar tool.
②	在丝锥的柄把上刃磨的切口将使它能被钩住。	Also grind the part of the tap on which the tap handle can be hooked.
③	螺丝攻（丝锥）	Tap
④	钻头夹持器	Drill chuck
⑤	滑动心轴	Floating Spindle
⑥	刻度盘	Dial
⑦	刻度	Graduation
⑧	橡胶或聚乙烯管	Rubber (or vinyl) tube
⑨	L...攻丝深度	L...the depth of tapping
⑩	L+3...配制孔的深度	L+3...the depth of prepared hole
⑪	磨损极限	Wear limit
⑫	碳刷号	No. of carbon brush

# 一般安全规则

## 警告!

### 阅读说明

没有按照以下列举的说明而使用或操作将导致触电、着火和/或严重伤害。

在所有以下列举的警告中术语“电动工具”指市电驱动(有线)电动工具或电池驱动(无线)电动工具。

### 保存这些说明

#### 1) 工作场地

- a) 保持工作场地清洁和明亮。  
混乱和黑暗的场地会引发事故。
- b) 不要在易爆环境, 如有易燃液体、气体或粉尘的环境下操作电动工具。  
电动工具产生的火花会点燃粉尘或气体。
- c) 让儿童和旁观者离开后操纵电动工具。  
分心会使你放松控制。

#### 2) 电气安全

- a) 电动工具插头必须与插座相配。  
绝不能以任何方式改装插头。  
需接地的电动工具不能使用任何转换插头。  
未经改装的插头和相配的插座将减少触电危险。
- b) 避免人体接触接地表面, 如管道、散热片和冰箱。  
如果你身体接地会增加触电危险。
- c) 不得将电动工具暴露在雨中或潮湿环境中。  
水进入电动工具将增加触电危险。
- d) 不得滥用电线。  
绝不能用电线搬运、拉动电动工具或拔出其插头。  
让电动工具远离热、油、锐边或运动部件。  
受损或缠绕的电线会增加触电危险。
- e) 当在户外使用电动工具时, 使用适合户外使用的外接电线。  
适合户外使用的电线将减少触电危险。

#### 3) 人身安全

- a) 保持警觉, 当操作电动工具时关注所从事的操作并保持清醒。  
切勿在有疲倦, 药物、酒精或治疗反应下操作电动工具。  
在操作电动工具期间精力分散会导致严重人身伤害。
- b) 使用安全装置。始终配戴护目镜。  
安全装置, 诸如适当条件下的防尘面具、防滑安全鞋、安全帽、听力防护等装置能减少人身伤害。
- c) 避免突然起动。  
确保开关在插入插头时处于关断位置。  
手指放在已接通电源的开关上或开关处于接通时插入插头可能会导致危险。

- d) 在电动工具接通之前, 拿掉所有调节钥匙或扳手。  
遗留在电动工具旋转零件上的扳手或钥匙会导致人身伤害。
- e) 手不要伸得太长。  
时刻注意脚下和身体平衡。  
这样在意外情况下能很好地控制电动工具。
- f) 着装适当。  
不要穿宽松衣服或佩带饰品。  
让你的头发、衣服和袖子远离运动部件。  
宽松衣服、佩饰或长发可能会卷入运动部件。
- g) 如果提供了与排屑装置、集尘设备连接用的装置, 则确保他们连接完好且使用得当。  
使用这些装置可减少碎屑引起的危险。

#### 4) 电动工具使用和注意事项

- a) 不要滥用电动工具, 根据用途使用适当的电动工具。  
选用适当的设计额定值的电动工具会使你工作更有效、更安全。
- b) 如果开关不能接通或关断工具电源, 则不能使用该电动工具。  
不能用开关来控制的电动工具是危险的且必须进行修理。
- c) 在进行任何调节、更换附件或贮存电动工具之前, 必须从电源上拔掉插头和/或将电池盒脱开电源。  
这种防护性措施将减少电动工具突然起动的危险。
- d) 将闲置电动工具贮存在儿童所及范围之外, 并且不要让不熟悉电动工具或对这些说明不了解的人操作电动工具。  
电动工具在未经训练的用户手中是危险的。
- e) 保养电动工具。检查运动件的安装偏差或卡住、零件破损情况和影响电动工具运行的其他条件。  
如有损坏, 电动工具必须在使用前修理好。  
许多事故都是因工具维护不良引起的。
- f) 保持切削刀具锋利和清洁。  
保养良好的有锋利切削刃的刀具不易卡住而且容易控制。
- g) 按照使用说明书以及打算使用的电动工具的特殊类型要求的方式, 考虑作业条件和进行的作业来使用电动工具、附件和工具的刀头等。  
将电动工具用作那些与要求不符的操作可能会导致危险情况。

#### 5) 维修

- a) 将你的电动工具送交专业维修人员, 必须使用同样的备件进行更换。  
这样将确保所维修的电动工具的安全性。

#### 注意事项

不可让儿童和体弱人士靠近工作场所。  
应将不使用的工具存放在儿童和体弱人士接触不到的地方。

## 使用攻丝机的注意事项

1. 装上侧柄并保证安全牢靠  
用一双手很危险，务必装上侧柄，用双手牢固地握住整个装置，若握得不牢，攻丝过程中产生的反作用力将使装置旋转。
2. 操作时不要戴手套  
不能戴由棉花、木材、布及纤维之类的容易被裹绕的填充物制成的手套。
3. 使螺丝攻和加工孔相配  
使螺丝攻和加孔对准后接通开关，否则没有负荷旋转主件将使螺丝攻摇动，使得它难于和加工孔对准，就是说若它没有和加工孔对准而是以一个角度攻丝，这样，可能导致损坏。
4. 千万不要接触旋转着的螺丝攻  
攻丝机旋转时不要让手或身体的任何部分和螺丝

- 攻、钻头夹持器、金属屑相接触，这可能导致被旋转部分周围部分切伤出现事故。螺丝攻及钻头夹持器在连续一段时间攻丝后会变得很热，此时若接触它们可能引起灼伤。
5. 当攻丝机旋转时不能松开你握着的手  
若你没有牢靠地用双手握住机器时千万不要让机器旋转。当攻丝机旋转时无人照管放在地板及其类似物品上也是极其危险的。
  6. 不要推压机器对材料施加任何不合理的力  
攻丝机的速度由它的转数决定，推压机器对材料施力将降低攻牙时间，会引起诸如损坏丝锥及螺纹之类事故。
  7. 不要让机器长时间低速运行，机器中有一个强功率马达，当机器长时间低速工作时将导致一个不合理的负荷加到马达上，可能损坏马达。特别要保证避免引起攻丝机中途停止工作的强制操作，请务必选择正确的转数以便进行平稳攻丝。

## 规格

电压（按地区）*	(110 伏, 127 伏, 220 伏, 230 伏, 240 伏) ~
输入功率	285 瓦*
空载转速	正转 60—330 /分 逆转 120—660 /分
能 力	钢 8 毫米 铝 10 毫米
重 量（不含线缆）	2.7 公斤

\* 当须改变地区时应检查产品上的铭牌。

## 标准附件

- (1) 卡盘扳手 ..... 1
  - (2) 边柄 ..... 1
- 标准附件可能不预先通告而径予更改。

## 用 途

- 可对各种类型的钢、铜合金及铝材料攻螺丝。

## 作业之前

1. 电源  
确认所使用的电源与产品铭牌上标示的规格相符。
2. 电源开关  
确认电源开关是否切断。若电源开关接通，则插头插入电源插座时电动工具将出其不意地立刻转动，从而招致严重事故。
3. 延伸线缆  
若作业场所移到离开电源的地点，应使用容量足够、铠装合适的延伸线缆，并且要尽可能地短些。

#### 4. 固定侧柄

把侧柄旋进齿轮罩。

#### 5. 夹持螺丝攻

务必用夹持器扳手紧固螺丝攻，夹持器扳手上三个孔，不要只通过一个孔去拧紧夹持器要一个接一个地通过三个孔以均等的转矩力拧紧夹持器。

#### 惯常使用中的螺丝攻

- (1) 仅使用一个粗型螺丝攻或者中型螺丝攻。
- (2) 常用一个L长度8毫米（直径）并如图1所示多于40毫米长的丝锥时，把丝锥的正方形尾端全部插入滑动心轴的方孔中，如图2所示。然后，在三个断面上以相同的力用卡盘手柄固定钻头卡盘。
- (3) 如果钻头卡盘和丝锥之间发生滑动，而用的是L长度8毫米直径小于如图1所示的40毫米的丝锥（或丝锥直径超过8毫米时），请按照以下的说明书进行。
  - 安全地给螺丝攻加切削液。
  - 首先，用粗螺丝攻。
  - 在螺丝攻的柄上开切一槽口使夹持器制转杆能钩住它。（图1）
  - 仅仅使用具有比较小的切削转矩的螺丝攻（例如螺旋螺丝攻或螺旋点螺丝攻。）

- (2) 当攻丝到预定的深度时，轻轻地退回攻丝机以致浮动主轴以相反的转速转动，螺丝攻自动退出。

#### 4. 推压攻丝机的动力

即使推压螺丝攻的力超出了所需程度，也不能使攻丝加速，这因为攻丝的速度是由旋转的程度决定的，代替它的是导致丝锥破裂或者损坏螺纹，因此，只需轻轻推压攻丝机不让浮动主轴被推出。

#### 5. 使螺丝攻和加工孔对准

使螺丝攻对准加工孔，并直插入其中，若以一角度插入将会遭受到可能损坏螺丝攻的应力。

#### 6. 对盲孔攻丝要遵循图4所示的步骤

- (1) 测量对应于孔深的螺丝攻头的长度，并把它插入一个橡胶或且聚乙烯管中只精确地留下和所需螺丝攻头的长度。
- (2) 当橡胶管端接触到攻丝材料表面时退回螺丝攻，因此在不损坏螺丝攻的情况下能精确地用相等的深度攻丝。

#### 7. 螺纹直径和加工孔之间的关系

利用表1所示之规范制造最适合的加工孔。

表1

米制粗螺纹	
螺纹直径	加工孔的直径
3 毫米	2.5~2.6 毫米
4	3.3~3.4
5	4.2~4.3
6	5.0~5.1
8	6.8~6.9
10	8.5~8.6

## 使用方法

#### 1. 开关动作

在拉起开关的扳机后，按下开关停止器、即使手松开后仍然保持接通状态，这有利于机器连续操作，若要切断开关只需再按一下扳机则可使开关停止器弹回到原来的状态。

#### 2. 转速调整

机器中装有一个电子控制电路，它能无级调整螺丝攻的转数，调整转盘选择与螺丝攻尺寸及所攻丝材料相对应的转数及工作状态，刻度“1”表示最低速度“5”表示最高速（参考图3）当选择刻度“1”时可能由于电源供应情况有时机器并不转动。

#### 3. 攻丝

- (1) 当压螺丝攻到欲攻丝之孔时，浮动的主轴将变到正常攻丝时的转速被推进攻丝机，攻丝时轻轻地使螺丝攻压进孔里。

#### 8. 切削液

为了得到锋利的螺丝攻切削和延长螺丝攻的寿命，选择最适合被攻丝材料特性的切削液很重要。使用切削液将使攻丝比较容易。

表2表示切削液的类型和它的应用。

表2

被攻丝的材料性质	切削液
铸铁	不使用切削液
钢	菜子油、无水切削油
铜合金	轻油、轴油
铝	轻油

注意：不得把切削液弄到主要部件上。

## 9. 有关的钻头夹持器

钻头夹持器通过锥形附件固定在浮轴上，钻头夹持器应从组件上卸下，以去掉它的锥形部分以及主轴上的夹持器附着部分的油污时，要使夹持器的三个脚爪型器退开。在浮动主轴上安装钻头夹持器时，应用木槌撞打它的端面，要特别注意锥体的选择和细心地握住它以防擦伤和损坏。

**注：**

为求改进，本手册所载规格可能不预先通告而径予更改。

# 维护和检查

## 1. 检查螺丝攻

连续使用弄钝了的丝锥将会降低攻丝效率，并使马达承受额外的负荷，应尽可能快地更换用钝了的螺丝攻。

## 2. 检查安装螺钉

要经常检查安装螺钉是否紧固妥善。若发现螺钉松了，应立即重新扭紧，否则会导致严重的事故。

## 3. 电动机的维护

电动机绕线是电动工具的心脏部。应仔细检查有无损伤，是否被油液或水沾湿。

## 4. 检查碳刷（图5）

电动机上的碳刷是一种消耗品，其磨损度一旦超出了“磨损极限”，电动机将发生障碍。因此，磨损了的碳刷应立即更换新件。此外，碳刷必须常保干净状态，这样才能在刷握里自由滑动。

## 5. 碳刷的更换

用一字形头螺丝刀拆卸刷盖，碳刷就可简单地取下。

## 6. 维修部件目录

**注意：**

日立电动工具的修理、维护和检查必须由日立维修服务中心进行。

当寻求修理或其他维护时，将本部件目录与工具一起提交给日立维修服务中心会对您有所帮助。

在操作和维护电动工具中，必须遵守各国的安全规则和标准规定。

**改进：**

日立电动工具随时都在进行改进以适应最新的技术进步。

因此，有些部件可能未预先通知而进行改进。

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## GENERAL SAFETY RULES

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### WARNING!

#### Read all instructions

Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

The term "power tool" in all of the warnings listed below refers to your mains operated (corded) power tool or battery operated (cordless) power tool.

### SAVE THESE INSTRUCTIONS

#### 1) Work area

- a) **Keep work area clean and well lit.**

*Cluttered and dark areas invite accidents.*

- b) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.**

*Power tools create sparks which may ignite the dust of fumes.*

- c) **Keep children and bystanders away while operating a power tool.**

*Distractions can cause you to lose control.*

#### 2) Electrical safety

- a) **Power tool plugs must match the outlet.**

**Never modify the plug in any way.**

**Do not use any adapter plugs with earthed (grounded) power tools.**

*Unmodified plugs and matching outlets will reduce risk of electric shock.*

- b) **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.**

*There is an increased risk of electric shock if your body is earthed or grounded.*

- c) **Do not expose power tools to rain or wet conditions.**

*Water entering a power tool will increase the risk of electric shock.*

- d) **Do not abuse the cord. Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts.**

*Damaged or entangled cords increase the risk of electric shock.*

- e) **When operating a power tool outdoors, use an extension cord suitable for outdoor use.**

*Use of a cord suitable for outdoor use reduces the risk of electric shock.*

#### 3) Personal safety

- a) **Stay alert, watch what you are doing and use common sense when operating a power tool.**

**Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.**  
*A moment of inattention while operating power tools may result in serious personal injury.*

- b) **Use safety equipment. Always wear eye protection.**

*Safety equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries.*

- c) **Avoid accidental starting. Ensure the switch is in the off position before plugging in.**

*Carrying power tools with your finger on the switch or plugging in power tools that have the switch on invites accidents.*

- d) **Remove any adjusting key or wrench before turning the power tool on.**

*A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*

- e) **Do not overreach. Keep proper footing and balance at all times.**

*This enables better control of the power tool in unexpected situations.*

- f) **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing and gloves away from moving parts.**

*Loose clothes, jewellery or long hair can be caught in moving parts.*

- g) **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.**

*Use of these devices can reduce dust related hazards.*

#### 4) Power tool use and care

- a) **Do not force the power tool. Use the correct power tool for your application.**

*The correct power tool will do the job better and safer at the rate for which it was designed.*

- b) **Do not use the power tool if the switch does not turn it on and off.**

*Any power tool that cannot be controlled with the switch is dangerous and must be repaired.*

- c) **Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools.**

*Such preventive safety measures reduce the risk of starting the power tool accidentally.*

- d) **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.**

*Power tools are dangerous in the hands of untrained users.*

- e) **Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation.**

**If damaged, have the power tool repaired before use.**

*Many accidents are caused by poorly maintained power tools.*

- f) **Keep cutting tools sharp and clean.**

*Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.*

- g) **Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed.**

*Use of the power tool for operations different from intended could result in a hazardous situation.*

#### 5) Service

- a) **Have your power tool serviced by a qualified repair person using only identical replacement parts.**

*This will ensure that the safety of the power tool is maintained.*

### PRECAUTION

**Keep children and infirm persons away.**

**When not in use, tools should be stored out of reach of children and infirm persons.**



## PRECAUTIONS ON USING TAPPER

1. Attach side handle and secure firmly. Using only one hand is dangerous. Be sure to attach the side handle and hold the unit firmly with both hands. If not held firmly, the reaction force that develops during tapping will spin the unit around.
2. Do not wear gloves in operating. Do not wear gloves made of stuff liable to roll up such as cotton, wool, cloth or string, etc.
3. Conform the tap to the prepared hole. Turn on the switch after the tap has been conformed to the prepared hole. Rotating the main unit with no load will waver the tap, making it difficult to conform it to the prepared hole. Also, tapping it at an angle without conforming it to the prepared hole may result in tap breakage.
4. Never touch the tap while it is rotating. Do not allow hands or any part of the body to come into contact with the tap, drill chuck or filings while the tapper unit is rotating. This could result in cuts or things being wound around the rotating parts. The tap and drill chuck will be very hot after continuous

- periods of tapping, so touching them may result in burns.
5. Do not release your hold of the machine while it is rotating. Never let the machine rotate unless you are holding it firmly with both hands. Allowing it to be left alone on the floor and the like while it is rotating is extremely dangerous.
  6. Do not apply any unreasonable force by pressing the machine against the material. The tapping rate of this machine is determined by its number of revolution. Pressing the machine against the material will not reduce the tapping time but will cause troubles such as breaking taps and damaging threads.
  7. Do not operate the machine for a long time in low speed. A powerful motor is incorporated in this machine. However, continued operation of the machine for a long time using low speed will cause an unreasonable load to be applied to the motor, possibly damaging the motor. In particular, be sure to avoid any forceful operation of the machine which will cause the tap to stop midway. Make sure to select a correct number of revolution for smooth tapping to be performed.

## SPECIFICATIONS

Voltage (by areas)*	(110V,127V, 220V, 230V, 240V) ~
Power input	285 W*
No load speed	Forward 60 ~ 330/min Reverse 120 ~ 660/min
Capacity	Steel 8 mm Alumminium 10 mm
Weight (without cord)	2.7 kg

\* Be sure to check the nameplate on product as it is subject to change by areas.

## STANDARD ACCESSORIES

- (1) Chuck Wrench ..... 1  
(2) Side Handle ..... 1  
Standard accessories are subject to change without notice.

## APPLICATION

- Tapping with all types of steel, copper alloy and aluminum materials.

## PRIOR TO OPERATION

1. **Power source**  
Ensure that the power source to be utilized conforms to the power requirements specified on the product nameplate.
2. **Power switch**  
Ensure that the power switch is in the OFF position. If the plug is connected to a receptacle while the power switch is in the ON position, the power tool will start operating immediately, inviting serious accident.

3. **Extension cord**  
When the work area is removed from the power source, use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.

4. **Fixing the side handle**  
Screw the side handle into the gear cover.

5. **To hold the tap**  
Be sure to fasten the tap tightly with a chuck wrench. There are three holes on the chuck wrench. Instead of fastening it tightly at only one hole, fasten the tap evenly at all three holes, one after another.

### Tap to be used

- (1) Only use a preceding tap or a medium tap.
- (2) When a 8 mm-dia. tap for which the L-length is more than 40 mm as shown in **Fig. 1** is used, insert the square back end of the tap all the way into the square hole of the floating spindle as shown in **Fig. 2**. Next, fasten the drill chuck with the chuck handle at three sections with equal force.
- (3) When a slip occurs between the drill chuck and the tap when it is fastened with an 8 mm -dia. tap for which L-length is less than 40 mm as in **Fig. 1** and a tap that is larger than 8 mm in dia., perform anyone of the following.

- Apply cutting fluid to the tap sufficiently.
- First, use preceding tap.
- Cut a notch on the shank of a tap so that pawl of the chuck can be hooked on. (Fig. 1)
- Only use a tap with a smaller cutting torque (such as a spiral tap or a spiral-point tap).

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## HOW TO USE

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### 1. Switch operation

After pulling back the trigger of the switch, depress the switch stopper. Even after the finger is removed, the switch will remain ON, proving convenient for machine continuous operation. To turn OFF the switch, by merely pulling the trigger again and releasing it, the switch stopper will be released.

### 2. Adjusting the number of revolution

This machine incorporates an electronic control circuit which can adjust the number of tap's revolution by non-step. Adjust the dial to select the correct number of revolution, corresponding with the tap's size, the material to be tapped, and the working condition. Graduation "1" stands for the lowest speed ; and "5" for the top speed. (See Fig. 3) When graduation "1" is selected, there may be times when the machine will not rotate due to the power supply conditions.

### 3. To tap

- (1) When the tap is pressed to the hole which is to be tapped, the floating spindle is pushed into the tapper, converting the revolution to normal for tapping. While tapping, press the tap lightly to the hole.
- (2) When tapping is completed to the prescribed depth, pull back the tapper lightly, so that the floating spindle turns in reverse revolution and the tap comes off automatically.

### 4. Power to press the tapper

Tapping cannot be speeded up, even if the tap is pressed beyond the necessary degree, because tapping speed is decided by the degree of revolution. Instead, it will result in breaking the tap or damaging the tap threads. Therefore, press the tapper lightly so that the floating spindle is not pushed out.

### 5. Conform the tap to the prepared hole.

Conform the tap to the prepared hole and insert it directly in. Inserting it at an angle will exert undue stress, possible breaking the tap.

### 6. When tapping a blind hole, follow the procedure as shown in Fig. 4.

- (1) Measure the length from the head of the tap corresponding to the depth of the hole, inserting the tap into a rubber or vinyl tube leaving exactly the same length as the tap.
- (2) Pull back the tapper when the end of the rubber tube touches the surface of the material to be tapped, so that it then can be tapped to exactly the same depth without breaking the tap.

## 7. Relationship between thread diameter and prepared hole

Use the specifications in **Table 1** to create the most suitable prepared hole.

**Table 1**

Metric coarse thread	
Thread dia.	Prepared hole dia.
3 mm	2.5 ~ 2.6mm
4	3.3 ~ 3.4
5	4.2 ~ 4.3
6	5.0 ~ 5.1
8	6.8 ~ 6.9
10	8.5 ~ 8.6

## 8. Cutting fluid

In order to get the sharp tap cutting and life of the tap, it is important to select cutting fluid that best suits the properties of the material to be tapped. Use of a cutting fluid will get more easy tapping.

**Table 2** shows the types of cutting fluids and their applications.

**Table 2**

Properties of tapped material	Cutting fluid
Cast iron	Cutting fluid is not used
Steel	Rapeseed oil, non-water based cutting oil
Copper alloys	Light oil, Spindle oil
Aluminum	Light oil

### CAUTION

Make sure no cutting fluid is attached to the main unit.

## 9. Concerning drill chucks

A drill chuck is fixed to the floating spindle by means of the taper attachment. In case a drill chuck should be disengaged from the unit, remove oil and dirt from the taper section of the chuck and the chuck attaching section of the spindle, let three claws of the chuck withdraw, and mount the chuck onto the floating spindle by hammering its end surface with a wooden hammer. Pay special attention to the taper section and handle it with care to prevent it from being scratched or damaged.

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## MAINTENANCE AND INSPECTION

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### 1. Inspecting taps

Continued use of a tap with a dull cutting edge will decrease tapping efficiency and put extra load on the motor. Dull taps should be replaced as quickly as possible.

### 2. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loose, retighten them immediately. Failure to do so could result in serious hazard.

### **3. Maintenance of the motor**

The motor unit winding is the very "heart" of the power tool. Exercise due care to ensure the winding does not become damaged and/or wet with oil or water.

### **4. Inspecting the carbon brushes (Fig. 5)**

The motor employs carbon brushes which are consumable parts. Since an excessively worn carbon brush can result in motor trouble, replace the carbon brush with a new one having the same carbon brush No. shown in the figure when it becomes worn to or near the "wear limit". In addition, always keep carbon brushes clean and ensure that they slide freely within the brush holders.

### **5. Replacing carbon brushes**

Disassemble the brush cap with a screwdriver. The carbon brush can then easily be removed.

### **6. Service parts list**

#### **CAUTION**

Repair, modification and inspection of Hitachi Power Tools must be carried out by a Hitachi Authorized Service Center.

This Parts List will be helpful if presented with the tool to the Hitachi Authorized Service Center when requesting repair or other maintenance.

In the operation and maintenance of power tools, the safety regulations and standards prescribed in each country must be observed.

#### **MODIFICATIONS**

Hitachi Power Tools are constantly being improved and modified to incorporate the latest technological advancements.

Accordingly, some parts may be changed without prior notice.

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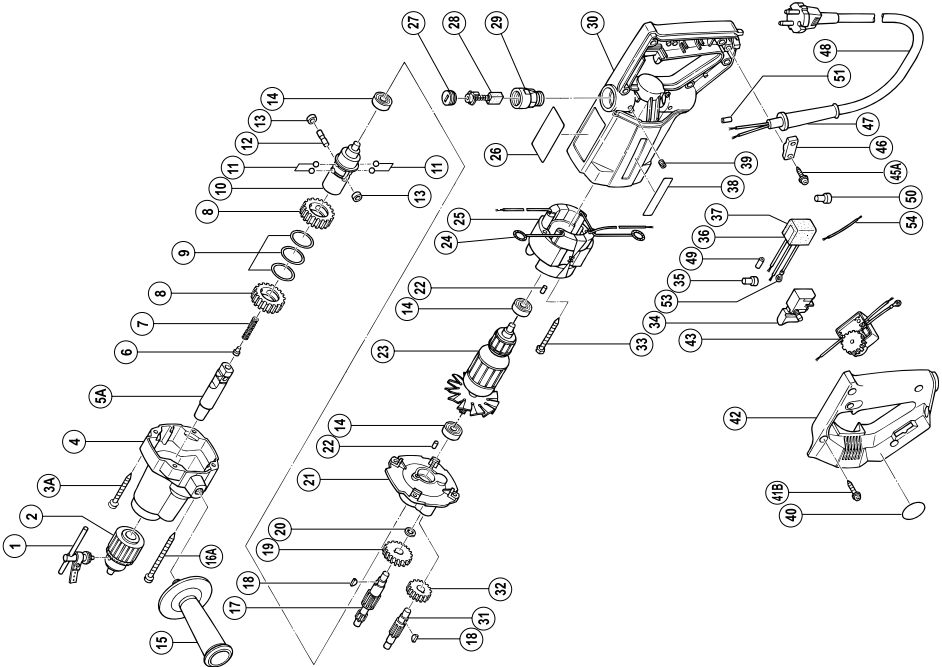
#### **NOTE**

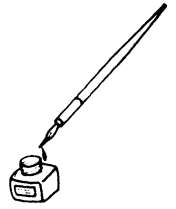
Due to HITACHI's continuing program of research and development, the specifications herein are subject to change without prior notice.

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Item No.	Part Name	Q'TY
39	HEX. SOCKET SET SCREW M4x5	2
40	MARK PLATE	1
41B	TAPPING SCREW (W/FLANGE) D4x20	5
42	HANDLE COVER	1
43	CONTROLLER CIRCUIT	1
45A	TAPPING SCREW (W/FLANGE) D4x16	2
46	CORD CLIP	1
47	CORD ARMOR	1
48	CORD	1
49	TUBE (D)	2
50	CONNECTOR 50092	2
51	TUBE (D)	2
53	TERMINAL	1
54	INTERNAL WIRE	1

Item No.	Part Name	Q'TY
1	CHUCK WRENCH 6.5G	1
2	DRILL CHUCK 10EL	3
3A	TAPPING SCREW D5x40	3
4	GEAR COVER	1
5A	FLOATING SPINDLE	1
6	SPRING PIN	1
7	SPRING	2
8	FINAL GEAR	1
9	WASHER	3
10	SPINDLE	1
11	STEEL BALL D6.35	4
12	GUIDE PIN	1
13	GUIDE ROLLER	2
14	BALL BEARING 608VVC2PS2L	3
15	SIDE HANDLE	1
16A	TAPPING SCREW D5X65	1
17	FIRST SHAFT	1
18	WOODRUFF KEY	2
19	FIRST GEAR	1
20	WASHER (B)	1
21	INNER COVER	1
22	BEARING LOCK	2
23	ARMATURE	1
24	BRUSH TERMINAL	2
25	STATOR ASSY	1
26	NAME PLATE	1
27	BRUSH CAP	2
28	CARBON BRUSH	2
29	BRUSH HOLDER	2
30	HOUSING ASSY	1
31	SECOND SHAFT	1
32	SECOND GEAR	1
32	HEX. HD. TAPPING SCREW D5x45	2
34	SWITCH	1
35	CONNECTOR 50091	3
36	NOISE SUPPRESSOR	1
37	SUPPORT (B)	1
38	HITACHI LABEL	1





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