

The following must be read in conjunction with SP01 General Workshop Safety Rules.

Note: In the following the terms "drill bit" or "bit" includes twist drill bits, wheel cutters, hole cutters and all other tools that can be used on a drill press.

The main safety hazards when using a drill press are: entanglement with the rotating chuck or drilling tool, eye injuries due to flying swarf or wood chips, accidental hand or finger contact with the rotating bit and cuts from sharp edges and burrs particularly when drilling metal.

Safety Rules (Also refer to photographs on Page 2)

The following general safety rules apply when using a drill press:

1. Wear eye protection.
2. Keep hands at least 75mm from rotating drill bit. If hands will be closer than 75mm clamp the work-piece to the table or hold in a machine vice or jig.
3. Always clamp work-pieces to the drill press table or hold in a machine vice when using large diameter drill bits. Make sure the table height and table rotation adjusting points are locked with their respective hand levers.
4. Always use a V-block or machine vice to hold cylindrical work-pieces when the cylinder axis is horizontal.
5. Do not leave a chuck key in the chuck. *The key can be thrown at high velocity if the drill press is switched on.*
6. Long stock should be drilled with the excess to the left of the operator. If the stock rotates it will hit the drill post not the operator.
7. Never reach around or under a rotating bit. This can result in serious injury.
8. Do not touch the drill bit immediately after drilling since it may be very hot.
9. Always switch off the drill press if you walk away from it even if this is only for a few seconds.
10. Always remove the drill bit and return it to its storage location when you are finished.

Operational Rules

1. Always drill with a sacrificial backing board under the work-piece. *This helps to prevent tear out on the underside and provides protection for the drill table.*
2. Secure the drill bit firmly in the chuck by tightening the chuck key in all three holes on the chuck. *This is especially important with large diameter bits and prevents damage to the bit caused by slippage in the chuck.*
3. Always run large diameter drill bits at a slow speed. Refer to the speed charts on the wall behind the three drill presses. This is particularly important for forstner bits and wheel cutters since they can easily overheat and be damaged beyond repair.
4. When drilling deep holes, frequently raise the bit from the hole to remove cuttings and cool the bit.
5. If smoke appears when drilling wood immediately withdraw the drill bit, stop the machine and investigate if you are running the bit at too high a speed or if the cause is a blunt bit.
6. When you begin to break through the underside of wood stock, ease up on the feed rate so as to not tear the wood from the underside.
7. If a drill bit binds, turn off the drill press and carefully turn the drill chuck backwards by hand to free the drill bit.
8. To improve drilling accuracy, centre punch the required hole position to help centre the bit at the start of drilling. On wood consider using a brad point bit since the point on the end of the bit assists with centering.

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Hornsby Woodworking Men's Shed

Safe Method of Drilling a Hole in a Small Work-piece.

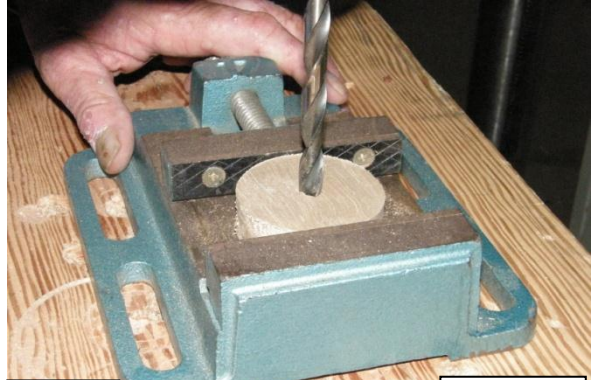
A very common job in the shed is drilling axle holes in toy wheels. Photo A shows a dangerous method and Photo B shows the safe method of drilling axle holes. The same principle applies to drilling any small work-piece that would bring fingers close to the bit if held by hand.

Photo A is dangerous because the rotational force of the rotating drill bit requires you to hold the wheel very tightly. If the drill bit grabs the wheel and pulls it up the bit, which it is likely to do as it exits the underside; your fingers will instantaneously snap shut onto the bit with the possibility of serious injury.



DANGEROUS

Photo A



SAFE

Photo B

Hole Cutters - Potentially Dangerous Drilling Tool

The hole cutter shown in Photo C and other similar tools are very useful for cutting large diameter holes in thin material but must be used with great care to avoid serious injury.

Photo D illustrates how, at the low speed of 150rpm, the cutters and horizontal bar are essentially invisible. Members must be aware that a loss of concentration when using this tool can lead to fingers or hands straying into the path of the rotating cutters with the consequence of serious injury.

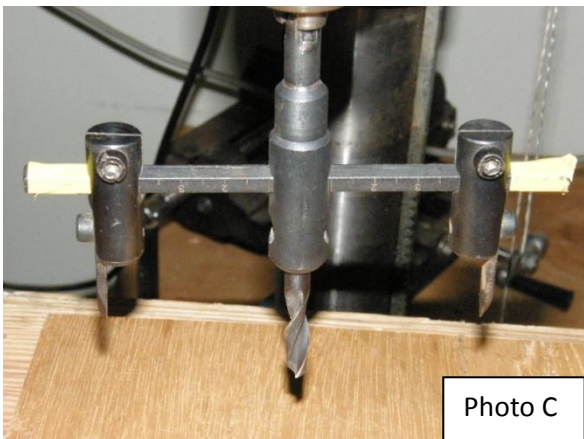


Photo C

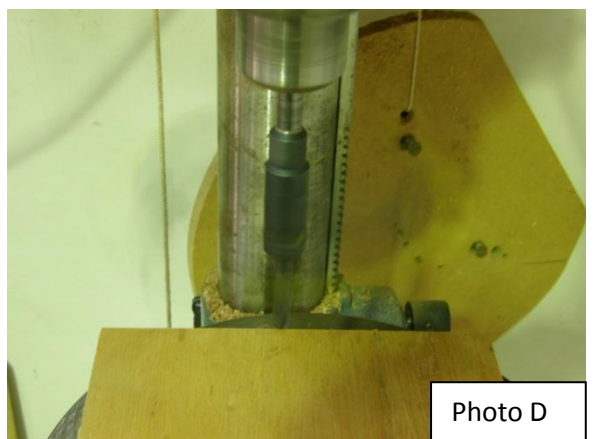


Photo D