

OPERATING PROCEDURE FOR:

POWERMATIC® 18” VARIABLE SPEED DRILL PRESS

SAFETY RULES:

Warning: Willful violations of these safety rules, disruptive actions or horseplay may result in loss of the privilege to use the tools and machinery in the workshop.

As with all machines, there is a certain amount of hazard involved with the use of this drill press. Use the machine with the respect and caution demanded where safety precautions are concerned. **You are responsible for you own safety.**

Read and understand the operating procedures for this machine before attempting operation.

Personal Protective Equipment. At a minimum eye protection and hearing protection must be worn when operating this machine. Eye protection must be safety glasses with side shields, goggles, or face shield, which meet ANSI Z87.1. Remove tie and loose jewelry. Button sleeves or roll up sleeves above the elbow. Remove loose outer clothing and confine long hair. **Do not wear loose fitting gloves.** If gloves are worn, they must fit tightly to the hand.

Use the appropriate NIOSH approved respirator in dusty work conditions (N95, N100, P95 or P100). Wood dust has been listed as a known carcinogen by the U.S. government.

Make all machine adjustments or maintenance with the machine disconnected from the power source and locked out following the Club Lockout Procedure.

Remove all materials from table surface before turning the drill press on, except for the stock to be machined. Remove scraps, chips and debris using a brush.

Guards. Keep the belt guards in place.

Work Area. Keep the floor around the machine clean to minimize the danger of tripping or slipping. Be sure the worktable is free of scrap or foreign material. Make sure the dust collector is hooked up and operating (if used).

Operator Position. Maintain a balanced stance and keep your body under control at all times, so that you do not fall or lean against the moving parts. Do not overreach or use excessive force to perform any machine operation.

Careless Acts. Give the work you are doing your undivided attention. Looking around, carrying on a conversation and “horseplay” are careless acts that can result in serious injury.

Disconnect machine before performing any service or maintenance. A machine under repair must be locked out following the Club Lockout Procedure.

Maintain Tools In Top Condition. Keep drill bits sharp and clean for safe and best performance. If a drill bit breaks, or is believed to be dull, notify the Shop Leader.

Use the right tool at the correct speed and feed rate. Do not force a tool or attachment to do a job for which it is not designed.

Do not use bits with screw tips. These bits will pull the work piece up from the table and start to spin, causing a serious risk of injury.

Whenever possible use the fence. It will help secure the work. Also use jigs, fixtures or clamps where needed to secure the work piece.

Turn off machine before cleaning the table. Use a brush to remove chips or debris --- do not use your hands.

Stopping the machine. Never try to stop the machine by taking hold of the chuck after pushing the Stop button.

Material Condition. Reclaimed or pressure treated wood is not to be used on this machine.

Job Completion. If the operator leaves the machine area for any reason, the drill press should be turned “off” and the drill bit should come to a complete stop before his departure. In addition, if the operation is complete, the operator should clean the drill press and the work area.

If you are not thoroughly familiar with the operation of drill press, obtain advice from a Shop Leader

Drugs, Alcohol, Medication. Do not operate this machine while under the influence of drugs, alcohol, or any medication. Do not operate this machine if you are tired, sick, or distracted.

Familiarize yourself with all caution and warning decals used on this machine.

Specifications:

| | |
|---|-----------------|
| Swing | 18” |
| Maximum Drilling Capacity (in metal)..... | 5/8” |
| Chuck Size..... | 5/8” |
| Spindle Travel..... | 4 3/8” |
| Chuck Distance to Table..... | 30” |
| Chuck Distance to Base | 46” |
| Table Size | 16” x 14” |
| Table Size Fully Extended..... | 16” x 26” |
| Range of Speed..... | 400 to 3000 RPM |

OPERATION:

Install a bit into the chuck jaws with about 1” insertion. When using a small bit do not insert it so far that the jaws touch the top flutes of the bit. Make sure the bit is centered in the chuck before tightening the chuck. **The chuck is a keyless model; simply rotate it by hand to tighten the bit.**

It is not necessary to lockout or unplug the drill press when installing or removing bits.

Whenever possible use clamps or hold-downs to secure the work piece to the table.

Always position the table so that the hole in the table is directly below the chuck. For large drill bits or hole saws, it may be necessary to place a board under the work piece to prevent drilling a hole into the table.

A scrap of wood under the workpiece will also minimize the potential for blowing out the back-side of the hole. For clean, splinter-free holes, place a piece of scrap wood on the table below the work piece.

Perform operations with a minimum extension of the quill. Adjust table position rather than using excessive quill travel.

Turn on the machine and listen for odd noises and check for excessive vibrations. Locate and correct these before proceeding.

Set rotation speed. Refer to chart below:

| | Softwood | Hardwood | Acrylic | Brass | Aluminum | Steel | Notes |
|--|----------|----------|---------|-------|----------|-------|---|
| Twist drill bits* | | | | | | | |
| 1/16" - 3/16" | 3000 | 3000 | 2500 | 3000 | 3000 | 3000 | Lubricate drill with cutting oil when cutting steel 1/8" or thicker. Use center punch on all holes in metal to prevent the drill from wandering. |
| 1/4" - 3/8" | 3000 | 1500 | 2000 | 1200 | 2500 | 1000 | |
| 7/16" - 5/8" | 1500 | 750 | 1500 | 750 | 1500 | 600 | |
| 11/16" - 1" | 750 | 500 | NR | 400 | 1000 | 350 | |
| Brad-point bits* | | | | | | | |
| 1/8" | 1800 | 1200 | 1500 | NR | NR | NR | Raise 1/4" and smaller bits often to clear shavings and prevent heat build-up. |
| 1/4" | 1800 | 1000 | 1500 | NR | NR | NR | |
| 3/8" | 1800 | 750 | 1500 | NR | NR | NR | |
| 1/2" | 1800 | 750 | 1000 | NR | NR | NR | |
| 5/8" | 1800 | 500 | 750 | NR | NR | NR | |
| 3/4" | 1400 | 250 | 750 | NR | NR | NR | |
| 3/8" | 1200 | 250 | 500 | NR | NR | NR | |
| 1" | 1000 | 250 | 250 | NR | NR | NR | |
| Forstner bits | | | | | | | |
| 1/4" - 3/8" | 2400 | 700 | NR | NR | NR | NR | Raise 1/4-3/8" bits often to clear shavings and prevent heat build-up. Make several shallow passes with larger bits; allow bit to cool between passes. |
| 1/2" - 5/8" | 2400 | 500 | 250 | NR | NR | NR | |
| 3/4" - 1" | 1500 | 500 | 250 | NR | NR | NR | |
| 1-1/8" - 1-1/4" | 1000 | 250 | 250 | NR | NR | NR | |
| 1-3/8" - 2" | 500 | 250 | NR | NR | NR | NR | |
| NR – Not Recommended | | | | | | | |
| From Wood Magazine's Drill Press Speed Chart | | | | | | | |

Change speeds only while the drill press is running.

With the drill press running, rotate the shift knob slightly counterclockwise to loosen it, then move the handle toward or away from you until the desired speed is displayed on the LED readout at the front of the head. Tighten the shift knob clockwise to secure the setting.

Spur bits are recommended for most wood boring operations or Forstner bits for large diameter holes. **Never use a spur or Forstner bit when drilling metal. Use only twist drills for drilling metal.**

When using Forstner bits 1" or larger, a hole saw or a circle cutter, the stock must be clamped to the table and preferably against the fence. These larger bits have a tendency to rotate the work.

For holes of a specific depth, use the depth stop.

To drill holes in a specific location on multiple parts, use the fence and fence stops to position the first piece so that the hole will be drilled in the desired location. Multiple pieces can then be placed against the fence and stop(s) to drill holes in the same position.

When drilling round stock, use "V" blocks to hold the work. Consider clamping the stock or "V" block to the table when handling larger pieces.

When holes are to be drilled at an angle, the table can either be tilted or an adjustable angle auxiliary table can be clamped to the drill press table. In either case, the workpiece must be clamped securely. Only use Forstner bits if the drill is to approach the work at an angle. This type of bit is guided by its rim and works well for this application. A brad point or twist drill will wander and may break if it approaches the workpiece at an angle. For smaller holes, or when a brad point drill bit is used, a tapered block must be clamped to the top of the workpiece so that the drill enters the tapered block perpendicular to its surface.

Counter boring is used when the hole to be drilled is a larger diameter at the surface than the remainder of the hole. This is commonly done for sinking bolt or screw heads below the surface. Counter bore bits are available for small diameter bits and should be used if available. For larger holes, the hole will need to be drilled with two different size bits. When it is necessary to counterbore a hole, clamp the workpiece to the table and drill the larger hole first to the desired depth. Without moving the stock or drill press table, install the smaller bit and drill the smaller hole.

Feed the bit into the material with only enough force to allow the bit to work. Excessive pressure will cause burning and may cause the bit to grab the work. The hole surface will also be rough.

On deep cuts, or when there are signs of smoke or burning, back out often to clear chips from the hole.

If the bit binds in the work piece, turn off the machine immediately. Unplug the machine, and then free the bit from the work piece. Do not try to free a jammed bit by starting and stopping the tool.

If the bit grabs the work piece and causes it to rotate, do not raise the bit. Continue to apply downward pressure and turn off the machine immediately. Unplug the machine, and then free the bit from the work piece. Do not try to free a jammed bit by starting and stopping the tool.

When job is complete, shut off machine and clean the area.