

Hollow Chisel Mortiser Safety and Operation

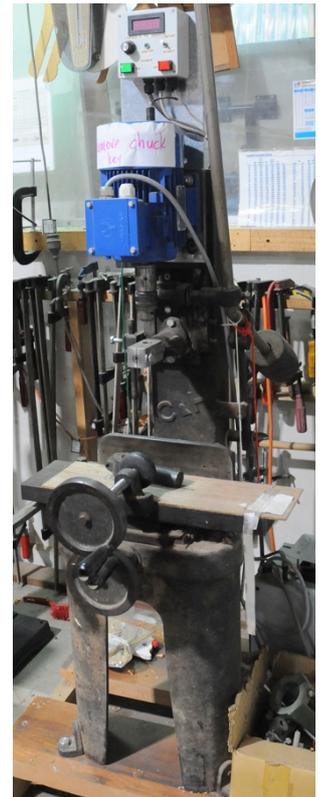
The following must be read in conjunction with SP01 General Workshop Safety Rules.

The main safety hazards when using a hollow chisel mortiser are: entanglement with the rotating chuck or auger bit, eye injuries due to flying wood chips and accidental hand or finger contact with the rotating auger bit.

Safety Rules

The following general safety rules apply when using this machine:

1. Wear eye protection.
2. Keep hands at least 75mm from rotating auger bit and the hollow chisel.
3. Before operating the machine ensure the set up and operating procedure given below has been followed.
4. Do not leave a chuck key in the auger bit chuck. *The key can be thrown at high velocity if the machine is switched on.*
5. Never reach around or under a rotating auger bit. This can result in serious injury.
6. The 4 tips of the hollow chisel are very sharp and can cause serious injury to the fingers.
7. Do not touch the auger drill bit or the hollow chisel immediately after drilling since they may be very hot.
8. Always switch off the machine if you walk away from it even if this is only for a few seconds.
9. Always remove the auger bit and hollow chisel assembly and return it to its storage location when you are finished.



Operational Rules

1. Always place a sacrificial backing board under the wood. *This helps to prevent tear-out on the underside of a through mortise and provides protection for the auger bit, the hollow chisel tips and the machine table.*
2. Mark out the outline of the mortise slot on the wood and the depth of the slot on the side. The outline and depth of cut will need to be set for the machine later.
3. Select a bit and chisel assembly that is appropriate for the mortise to be cut.
4. Do **not**, under any circumstances, drop the hollow chisel on the floor. The 4 tips are delicate and very sharp. Failure to comply with this requirement will ruin the hollow chisel and could injure your foot!
5. Open the jaws of the chuck with the key provided and loosen the clamp at the front of the tool holder with the spanner provided.
6. Note: Do NOT touch the clamp at the back of the tool holder. The back clamp has been set up already to ensure that the tool holder is vertical. If you have any doubts ask a Supervisor for assistance.
7. Insert the assembly into the tool holder and loosely tighten the clamp. Note: Do not clamp the auger bit in the chuck yet.
8. Position the hollow chisel so that the open slot in the chisel is facing forward. The slot is to allow the wood chips to be cleared from the tip of the rotating auger.
9. Alignment of the hollow chisel with the sideways movement of the machine table is important to ensure that the sides of the mortise are parallel and smooth. To achieve this proceed as follows:



Hornsby Woodworking Men's Shed

Position the table clamping jaws by rotating the handle so that the back of the hollow chisel is very close to the inside face of the jaws. The chisel and bit and chisel assembly will have to be lowered to a suitable position. Rotate the hollow chisel until it is approximately parallel with jaw face.

Adjust the machine table so that the chisel touches the face of the jaw and rotate the chisel until it fully touches the table with no gap. Now firmly tighten the front clamp on the tool holder with the spanner provided.

10. A small gap needs to be provided between the hollow chisel and the auger otherwise the metal to metal contact will overheat the metal and damage the assembly. To create the gap, place a finger on

the tip of the auger and push it upwards a few millimetres, hold this position and tighten the chuck with the key provided. Tighten the chuck at all of the key positions so that the bit is firmly locked in the chuck.

11. Setting the depth stop (the stop is located on the left side of the machine):

Clamp the work piece in the table jaws, move the table sideways until the bit is above the end face of the work piece. Lower the bit and chisel assembly to the depth marked on the work piece previously and set and lock the stop at this position.

12. Setting the chisel and bit to the required location:

Lower the chisel-bit assembly to the work piece, move the table sideways until over the left edge of the slot marks and wind the second handle until the chisel aligns with the slot marks. Lock the handle.

13. The HCM motor is driven from a variable speed controller. Ensure that the controller plug is connected to a power point and the power switched on. Check the stop-start switch is set to 'Stop'. Push the green button to power up the controller. The button should illuminate. Set the speed control knob to fully ACW. Check that the VSD OK light is on. The motor can be started and stopped using the start-stop switch provided. A speed indication display is provided. Start the motor and set the speed to a level appropriate to the size of the mortise and the hardness of the wood.



14. When cutting the mortise, raise the chisel frequently so that the chips can clear from the slot in the chisel and the bit-chisel tip can cool. **Do not force** the bit downwards otherwise it can be damaged by overheating.
15. If smoke appears when cutting, immediately withdraw the bit-chisel, stop the machine and investigate if the bit is running at too high a speed or if the cause is a blunt chisel or bit.
16. NOTE: Do not attempt to sharpen the auger bit or the chisel. This is a specialised task. See a Supervisor for advice as necessary.

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