

LMCS – Safe Work Procedure



ROUTER TABLES

DO NOT use this equipment unless you have been instructed in its safe use and operation and have passed the safety accreditation

PERSONAL PROTECTIVE EQUIPMENT

- Safety glasses must be worn at all times in work areas.
- Long and loose hair must be contained.
- Hearing protection must be worn.
- Sturdy footwear must be worn at all times in work areas.
- Close fitting/protective clothing must be worn.
- Rings and jewellery must not be worn.

PRE-OPERATIONAL SAFETY CHECKS

- ✓ Locate and ensure you are familiar with all machine operations and controls and emergency stops.
- ✓ Ensure the machine, power cords etc. are in safe working condition.
- ✓ Check workspaces and walkways to ensure no slip/trip hazards are present and that no one will be harmed by you operating the machine.
- ✓ Ensure all guards are fitted, secure and functional. Do not operate if guards are missing or faulty.
- ✓ Ensure table and work area is clear of all tools, off-cut timber and sawdust.
- ✓ Check with a piece of wood that the cutter can rotate.
- ✓ Start the dust extraction unit before using the machine (if not operating automatically).
- ✓ Check that you are feeding in from the correct side.
- ✓ Do not place your hands in the "Red Zones".
- ✓ Timber is straight, square and thicknessed.
- ✓ Unplug the machine and install the router bit.
- ✓ Ensure the fence is set up correctly including the guiding wheels.

OPERATIONAL SAFETY CHECKS

- ✓ Plug in the machine.
- ✓ Allow the cutter to obtain maximum speed before making a cut.
- ✓ Router with the grain if possible. Hold the workpiece firmly and apply even feed rate.
- ✓ Keep your fingers a minimum of 150 mm away from the guard and use a push stick or pad.
- ✓ Make sure someone "tails out" when routing long material but that person MUST not assist in feeding through the material.

ENDING OPERATIONS AND CLEANING UP

- ✓ Switch off the machine when work completed.
- ✓ Unplug and remove the router bit and return to storage area.

- ✓ Reset all guards to a fully closed position after use.
- ✓ Leave the machine in a safe, clean and tidy state.

POTENTIAL HAZARDS AND INJURIES

- ⚠ Kickback: wood may catch or jam and be flung back violently.
- ⚠ Airborne dust.
- ⚠ Eye and hearing injuries.
- ⚠ Contact with blade at point of operation, potentially severe injuries.

DON'Ts

- ✗ Do not use operate equipment without wearing appropriate PPE.
- ✗ Do not use faulty equipment. Immediately report suspect equipment.
- ✗ Do not surface irregular stock, branches or wood with embedded nails or screws.
- ✗ Do not put your hands any closer than 150 mm from the cutter head when it is rotating.
- ✗ Do not router small stock unless it is either attached to a jig or holding block.
- ✗ Do not router stock with structural defects.
- ✗ Never leave the machine running unattended.
- ✗ Never clear the table surface with your hands.
- ✗ Do not use heavy pressure to a point the machine slows down audibly at a starkly reduced pitch.

This SWP does not necessarily cover all possible hazards associated with this equipment and should be used in conjunction with other references. It is designed as a guide to be used to compliment training and as a reminder to users prior to equipment use.

This information is modified from Frontline Safety www.frontline.edu.au

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Safe Operating Procedures – ROUTER TABLES

BACKGROUND INFORMATION & READING

This video will assist you in following safe work practices:

[JessEm Clear Cut Stock Guides Review - Bing video](#)

[Cool Tool Monday // JessEm Ultimate Excell II Router Table Review - Bing video](#)

In "Cool Tool Monday (second from top)" shows a technique not permitted at LMCS where fingers are too close. You must use a push stick in the right hand when the end of the timber is fed through.

Videos need to be viewed prior to arranging an assessment. A video for advanced operations is also provided: <https://youtu.be/lFwokpRYGN4>

Other references for reading:

<https://www.highlandwoodworking.com/routersgoleft.aspx>

<https://www.trend-usa.com/router-basics-feeding-the-material>

FITNESS TO OPERATE ROUTER TABLES

Members are expected to refrain from working on these power tools and machines if they acknowledge their own level of physical ability inhibits them from doing so safely.

However, if assessors determine that a member has some level of physical impairment that makes it unsafe to use machines, they will have no option other than to assess the member as not having the capacity to do so safely.

You can still do your projects, just mark the timber and ask another shed member to cut/machine the timber for you. You are not compelled to cut the timber yourself and in this environment, you will easily find others that are more than able and willing to do the cutting for you.

GENERAL RULES & TIPS

- If recycled material is used, all timber MUST be visually checked for nails and screws. After that the timber MUST also be checked with the metal detector. Processing CCA treated timber is not permitted.
- All pieces of timber of a run must be identical in sectional area and all sides must be dressed.
- When commencing operation ensure dust extraction system is switched on either manually or automatically.
- Always feed the stock from right to left (against the rotation of the bit)
- NEVER have feed the stock between the fence and bit.
- Jointing is not to be performed on the router tables.

BASIC OPERATION OF THE ROUTER TABLE

A router table can be used to perform many tasks that a handheld router can undertake. As a router table has a larger reference surface, it is generally more stable and accurate than a handheld router. When machining pieces smaller than 400 mm long or using router bits with bearings for free-hand or template routing techniques see the section "ADVANCED OPERATION OF THE ROUTER TABLE"

- Fitting the router bit
 - Make sure the router is unplugged
 - Remove the insert and fully wind up the router assembly.
 - Using the correct spanners install the collet suitable for the bit you have selected.
 - Check the is clean - remove dust if necessary.
 - Insert the bit at least 25mm, if it 'bottoms-out' pull it back by ~3mm
 - Tighten the collet using the correct size spanners, it should be firm (monkey tight, not gorilla tight!)
 - Using the depth gauge, wind up the router assembly to the desired height. Lock the spindle (See picture 2).
 - If out of range, see supervisor but do not adjust motor clamp (picture 6) by yourself.

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- **Preparing the router table**
 - Adjust the fence as needed.
 - Set up the guard and ensure dust collection is working.
 - Set the anti-kickback wheels (refer videos above).
 - Set the router speed (See picture 5).
 - Ensure you have a push-stick handy.
- **Making the cut**
 - Feed the timber in a steady pace do not try to remove too much wood with one pass.
 - If you can hear the motor distinctly slowing down you may be feeding in too fast.
 - If you can see smoke the bit may be blunt, or your feed rate is too slow.
 - If you need to router end-grain or a short edge, use the right-angled mitre fence to support the stock. Make sure the mitre fence is well clear of the fence and the will not foul the router bit. It is a good idea to protect the stock with a sacrificial wood fence attached to the mitre fence.

Router bit speed guideline		
Speed setting	Max speed	Outer diameter of cutter bit
Fast	22,000	Up to 25 mm
Fast	20,000	25-30 mm
Medium	16,000	32-50 mm
Medium	14,000	50-63 mm
Slow	12,000	63-75 mm
Slow	10,000	75-90 mm

Routing A Profile

- The timber should be positioned with the face and edge in contact with the bed and the fence.
- The anti-kick-back wheels need to be adjusted so they are in firm contact with the top of the timber to keep the timber on the bed. The anti-kickback wheels and use in place of vertical and lateral feather boards. (See picture 3). However if rebates are cut and/or the bottom corner (at the fence side) is removed then in such cases the anti-kickback wheels on the feed-out would have a tendency to tilt the timber, thus increasing the opportunity to get kickback conditions and at the same time reducing the opportunity to arrest it. In such scenarios the feedout needs to be equipped with horizontal and vertical feather boards. The vertical feather board needs to hold down the timber beyond the point of stock removal. The vertical feather-board may also be replaced with a jig that will hold down the timber on the feedout side so prevent twisting/tilting.
- You must feed from the right to left and preferably feed the timber to the router cuts in the direction of the grain. You MUST not feed the timber from left to right sometimes referred to as climbing feed.
- You must keep your hands outside the "Red Zones" - For the router table the red-zone is effectively the mounting bolts of the router motor bracket. The allowable cut is determined by the router bit and the power of the spindle motor. Please note you may only engage your left hand with the timber up to 100 mm before the cutter and then beyond the feedout feather board or anti-kickback rollers.
- You must NEVER run the timber between the fence and the router bit. The timber will be grabbed potentially pull your hand onto the cutter.
- If you have fitted bearing bit, but using the fence to guide the timber, the bearing does not need to be removed, simply line up the bearing with the fence.

NEVER use your hands for clearing the dust for the fence. In the future compressed air would be available, for now there are brushes attached to one to each of the tables, See picture 4.

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ADVANCED OPERATION OF THE ROUTER TABLE

As a router table has a larger reference surface, it is generally more stable and accurate than a handheld router. Within reason, it can be used on smaller workpieces than a handheld router.

Free-hand or template routing and routing any pieces shorter than 400 mm long, or less than 200 mm long when supported by the cross fence requires careful planning.

- Free-hand or template routing is possible provided bearing supported router bits are used. However push-blocks or a purpose-built jig/template MUST be used and the stop pin MUST be fitted and used to control the workpiece.

Before proceeding with advanced techniques liaison with the Shed Supervisor is required and during which the safety controls you propose to use need to be demonstrated. A video that may help in preparing is attached: <https://youtu.be/tPwokoRYBN4>

However this kind of work methodology is not permissible in the LMCS:



Fingers less than 50 mm away from an exposed bit!!
Operator has stop pin fitted but is not using it!

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Picture 1 Direction of feed
Note red zone boundaries.



Picture 2 locking lever



Picture 3, anti-kickback wheels



Picture 4, brush for cleaning table

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Picture 5, speed adjustment control knob



Picture 6 Motor assembly held in by a clamp