

Technical Specifications

Task 1: Change Circular Saw Blades and Cut Timber and Manufactured Boards



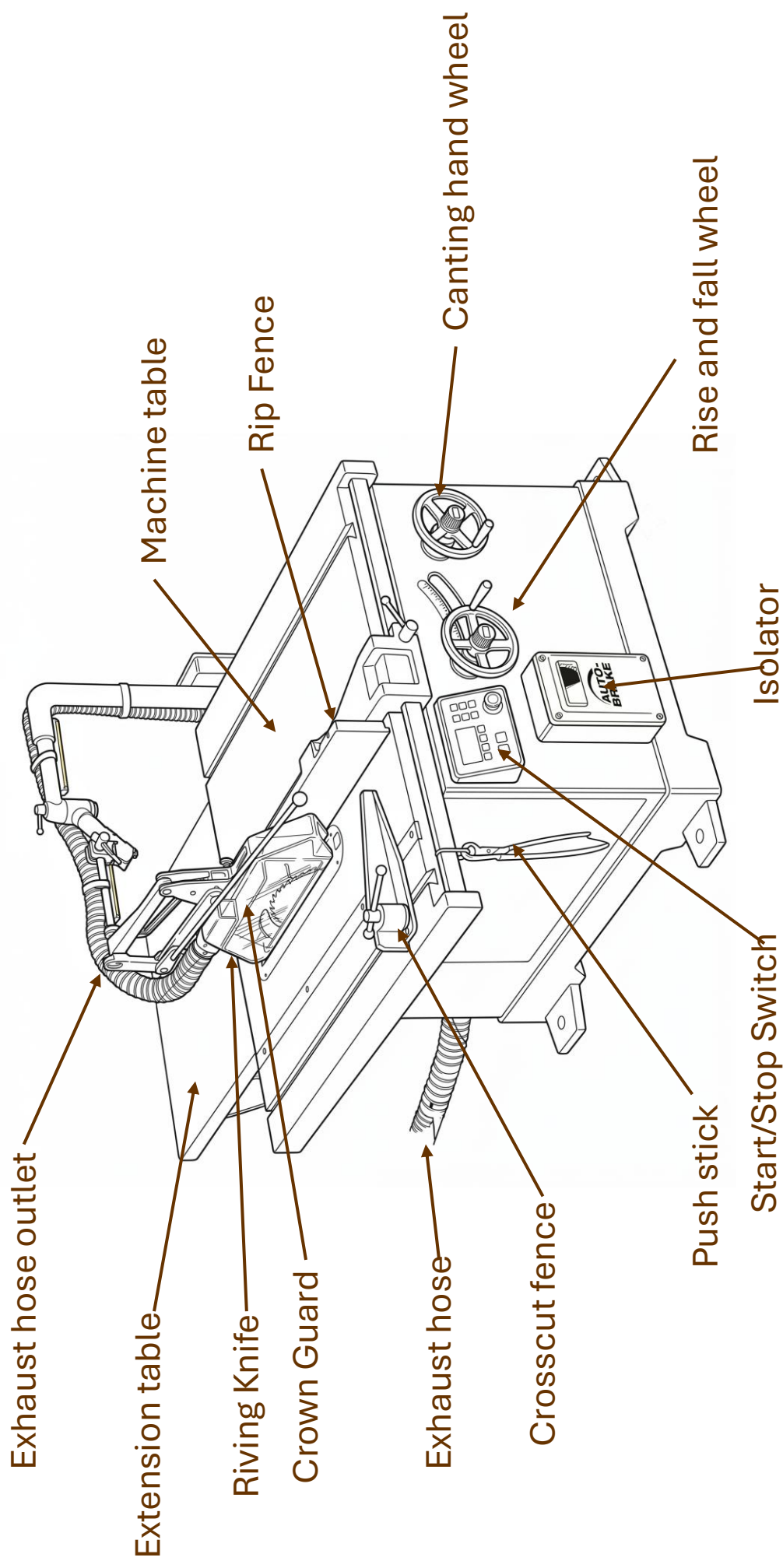
211. Set Up and Operate a Circular Saw

Task 1: Change Circular Saw Blades and Cut Timber and Manufactured Boards



A table saw is a powerful woodworking machine designed for making straight, accurate cuts in timber, sheet materials, and manufactured boards. Its circular blade protrudes through the surface of a flat table, allowing users to guide material past the blade with precision for ripping, cross-cutting, and creating joinery. Because it's one of the most versatile—and potentially hazardous—tools in the workshop, modern table saws include several key safety features: a **riding knife** to prevent kickback by keeping the cut kerf open, **blade guards** that shield hands from the spinning blade, **anti-kickback pawls** that grip the wood if it begins to move backward, and **emergency stop switches** positioned for quick access. Many models also incorporate **flesh-sensing technology** or **soft-start motors** to reduce sudden movement. Used correctly, the table saw is an essential tool for clean, repeatable, and professional-quality cuts.

Parts of a Table Saw.



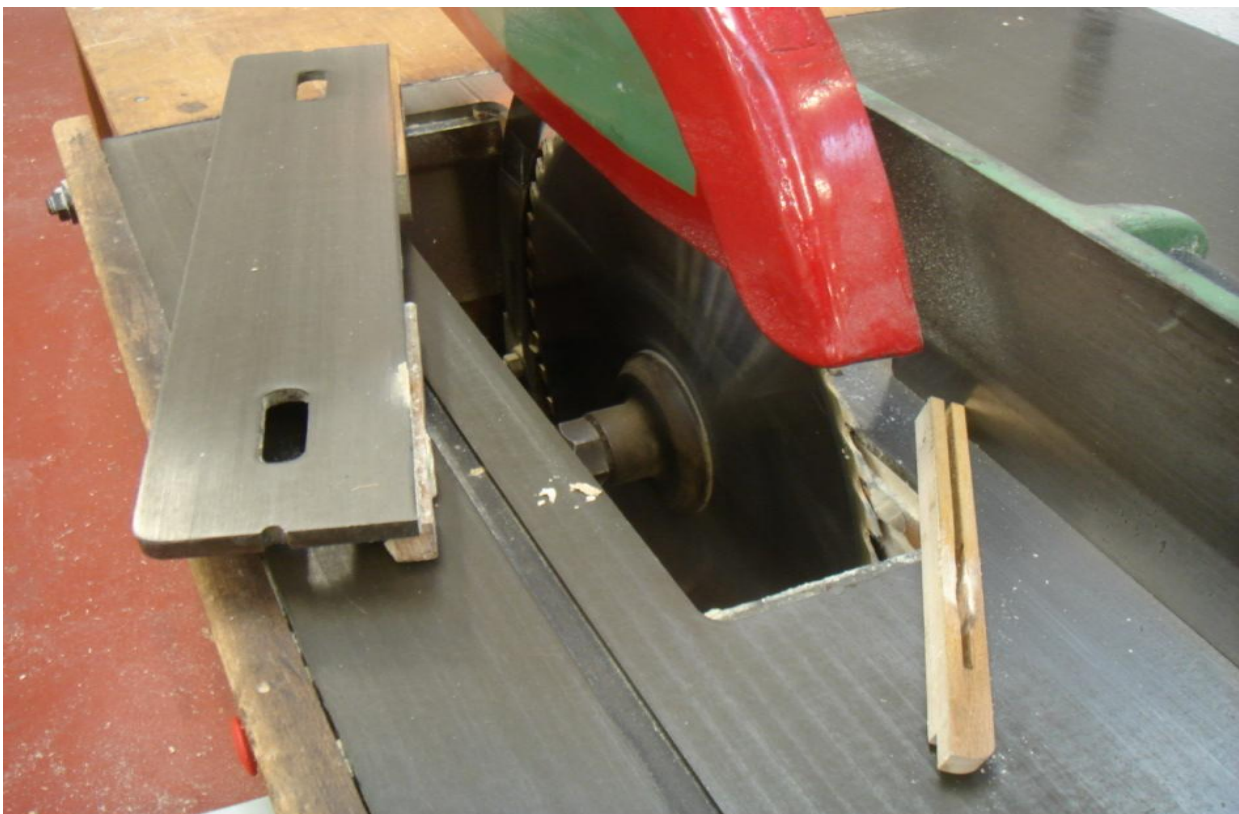
Changing the blade on a circular saw.

V1.



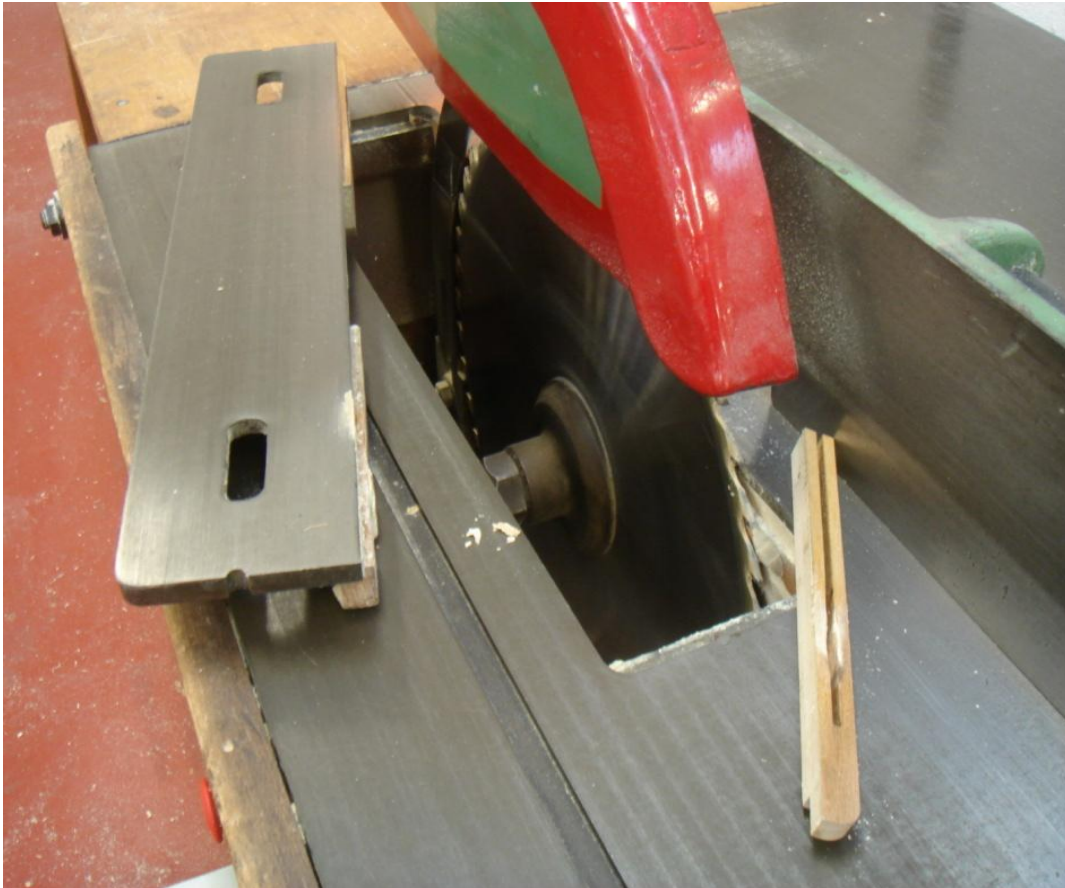
It is important to consult the machine manufacturers manual as to how to change the blade correctly as each machine is different, but here is a guide as to how to change the blade on a table saw.

1. Isolate
2. Lock spindle if possible (machines may differ).
3. Remove finger plate , side cover plate and crown guard for access
4. Remove nut and any locating washers using correct tools (often supplied with machine). Remember the nut or holding device will slacken in the direction of the saws rotation.



Changing the blade on a circular saw.

V1.



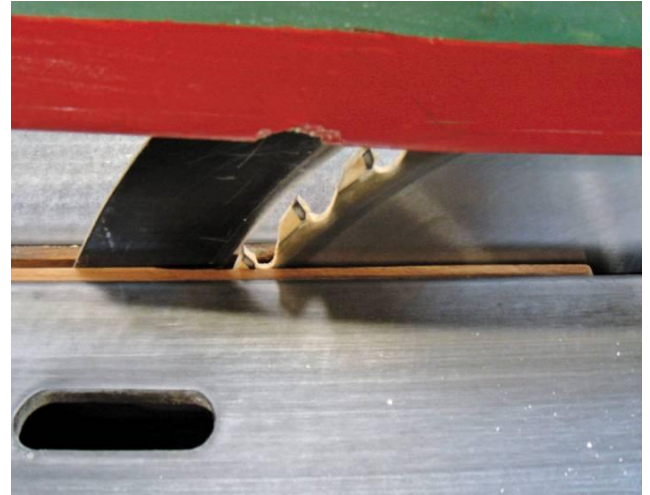
5. Select new blade and check its safe (see information plate for minimum size remember no less than 60% of max blade size) and the spindle size is correct.
6. Line up blade with spindle and any locating pins. Push back and replace and tighten nut.
7. Re-set riving knife to correct height and distance from blade.
8. Replace all side plates , removable sections of table (Finger plate) and safety devices.

Changing the blade on a circular saw.

V1.



Finger plate and packing



- When access to the saw blade is needed a cast iron section of the saw bed called the finger plate can be removed.
- The packing is made from hardwood or ply and is designed to assist the blade in running true and protect it should it wobble during running.

Changing the blade on a circular saw.

V2.



1. Remove or raise the crown guard
2. Remove finger plate or draw back sliding table
3. Undo the nut noting that it will have a left sided thread

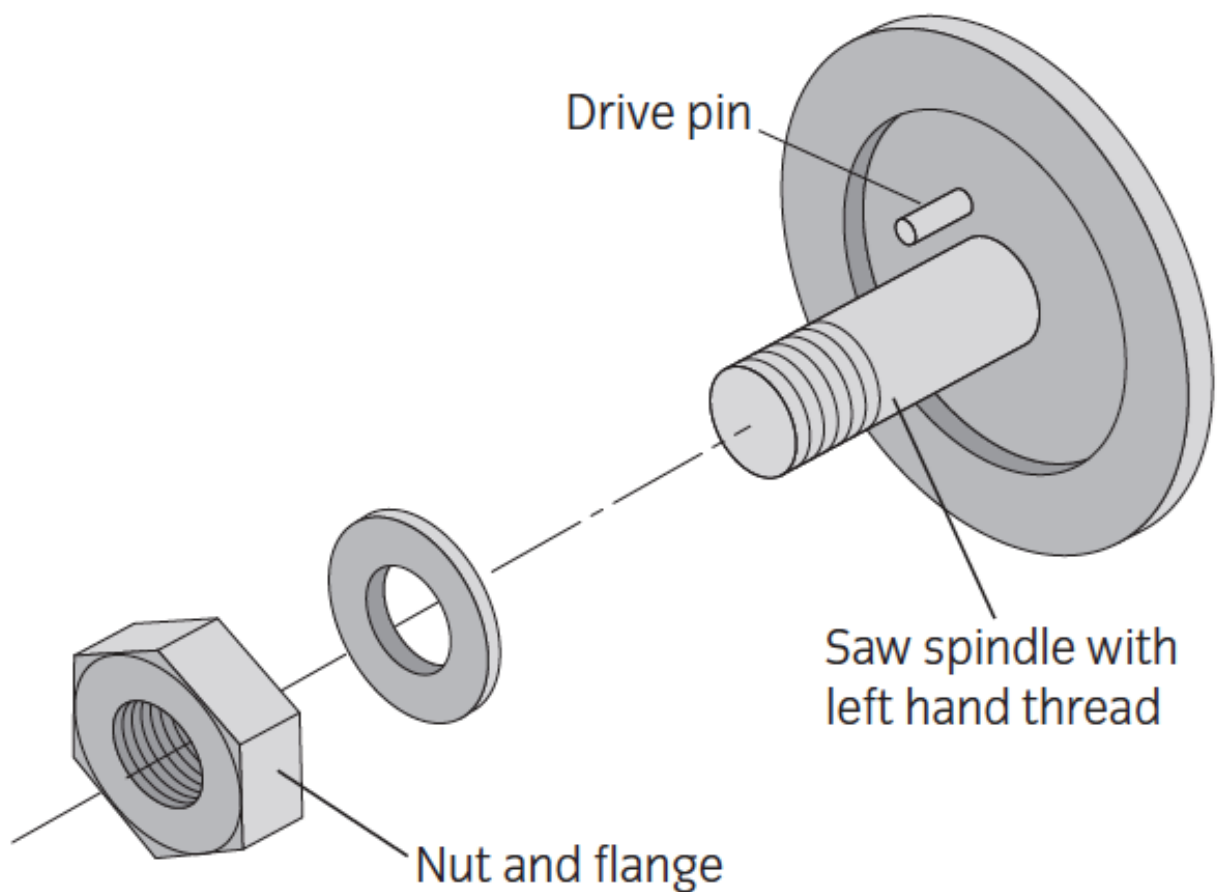


Changing the blade on a circular saw.

V2.



4. Remove the nut and flange
5. Remove the blade and place on timber to protect the blade.
6. Clean flanges, spindle and nut

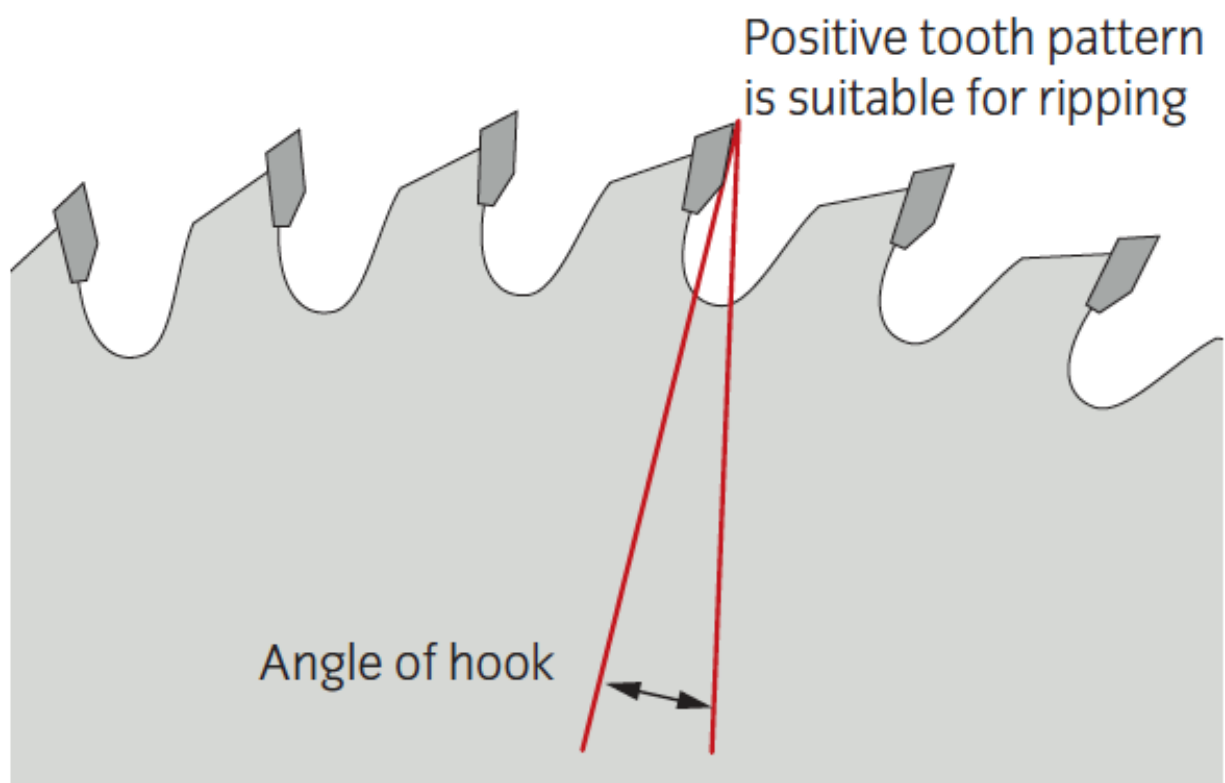


Changing the blade on a circular saw.

V2.



7. Select the required tooth material for the intended material to be cut.
8. Select the replacement blade. Ensure the correct angle of the hook for the intended working activity.
9. Ensure the blade is within the size limits.



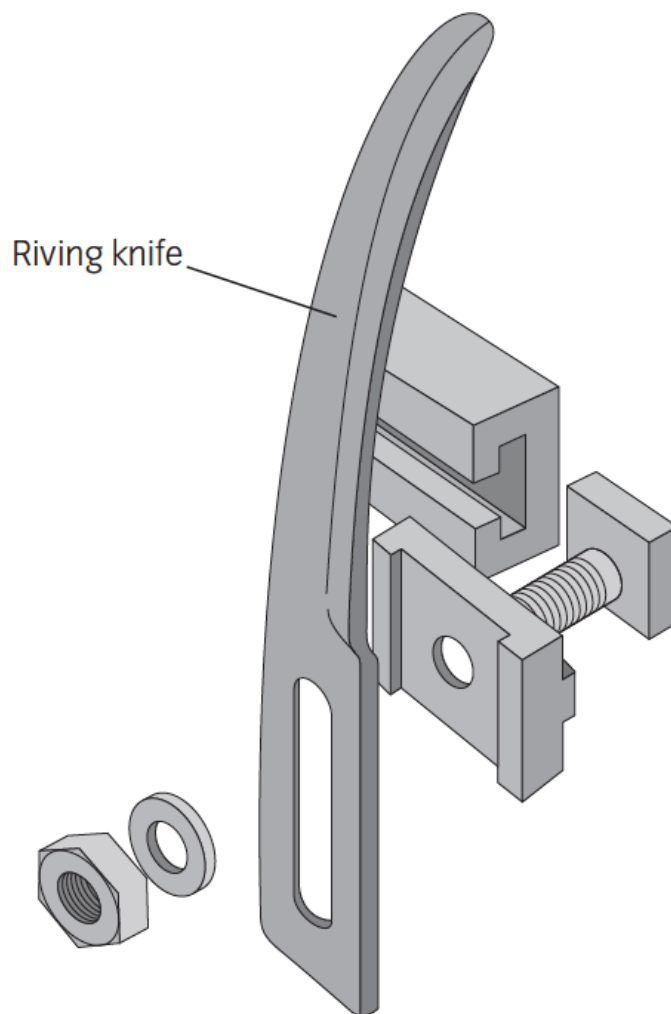
Changing the blade on a circular saw.

V2.



10. Remove the riving knife and clean.
 11. Select a riving knife suitable for the replacement blade.
- Think about:

length
thickness
radius to follow blade.

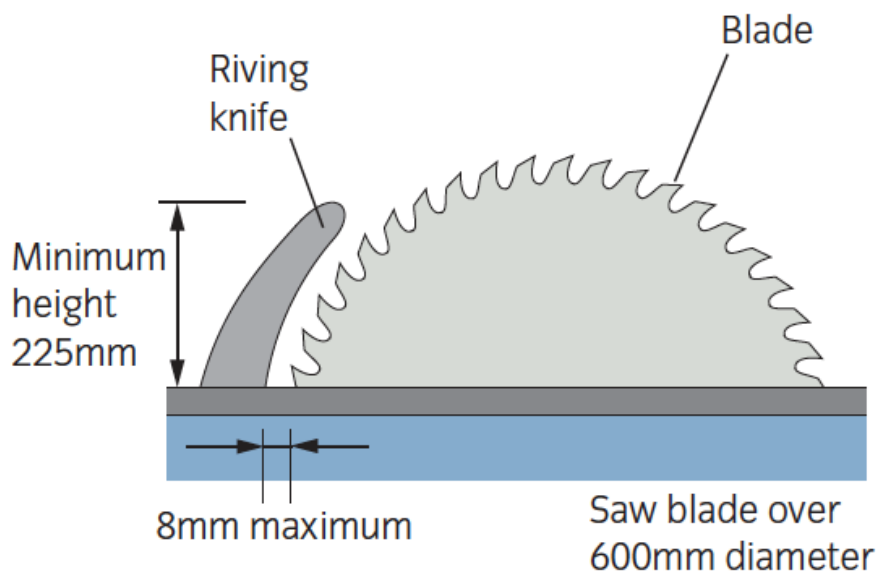
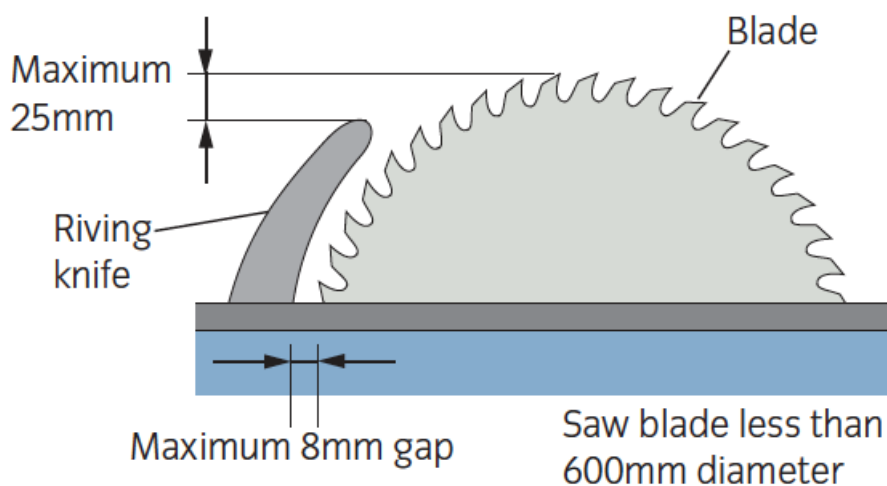


Changing the blade on a circular saw.

V2.



12. Locate the blade on the spindle, ensuring it is facing in the correct direction.
13. Engage the driving pin, which should be at the top of the blade.
14. Replace the outer flange and nut.
15. Fully tighten with the correct length spanner.
16. Position the riving knife as close as practicable to the blade and tighten.
17. Ensure the riving knife follows the curve of the blade and is no more than 8mm away from the blade.





Pre-start checks

18. Fit all the guards and refit the finger plate.
19. Remove all tools, etc.
20. Set the guard as low as possible.
21. Start then stop the machine, listening carefully for any unusual noise.
22. Ensure the blade comes to a standstill within 10 seconds.
23. Set the guards in the correct position and carry out a trial cut.

Fence Position and Height.



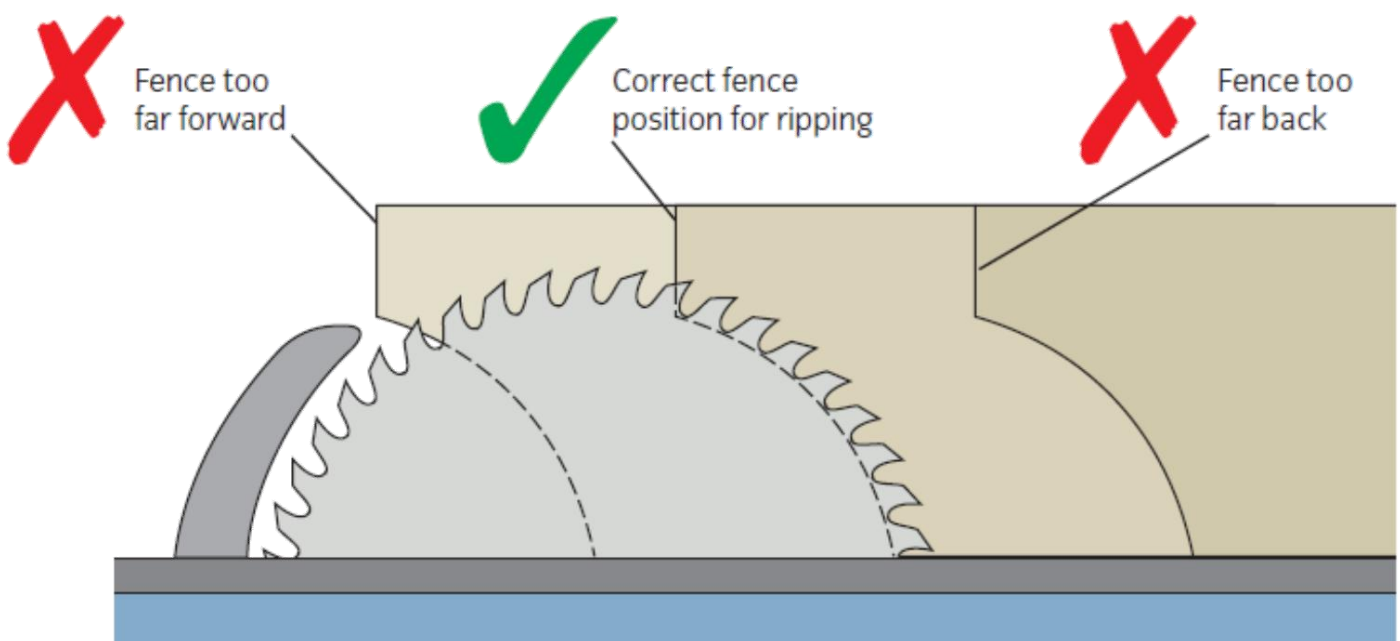
- The fence position for ripping timber and cutting man-made sheet materials are different, as are the required saw heights.
- The normal correct position for the rip saw fence is to have the curved front section of the fence in line with the radius of the saw blade at the gullet position.
- If the fence stops too much in front of the saw blade then the material will not be supported at the end of the cut and could jump about, giving a poor finish as well as causing the push stick to slip.
- If the fence was pushed too far forward, the timber could become trapped and start rubbing on the saw blade, risking damage and kickbacks.

Fence Position and Height.



When cutting timber the fence should line through with the gullets at table height. When cutting man-made sheet materials, the fence can be pushed further forward, towards the centre of the blade. This will give extra guidance for the material during and after cutting.

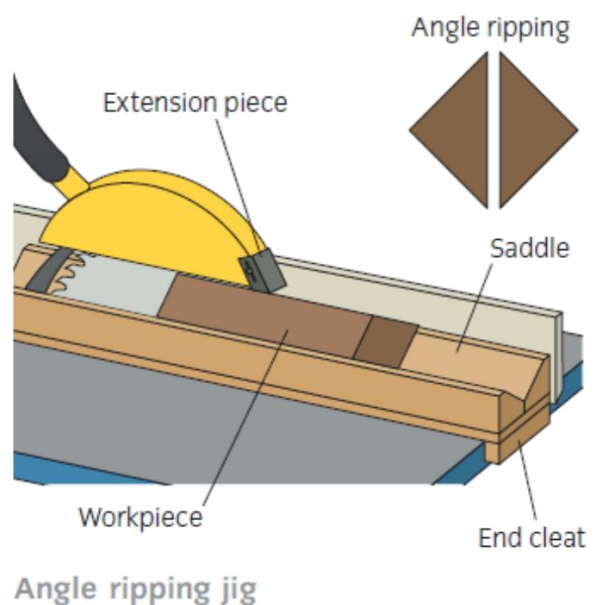
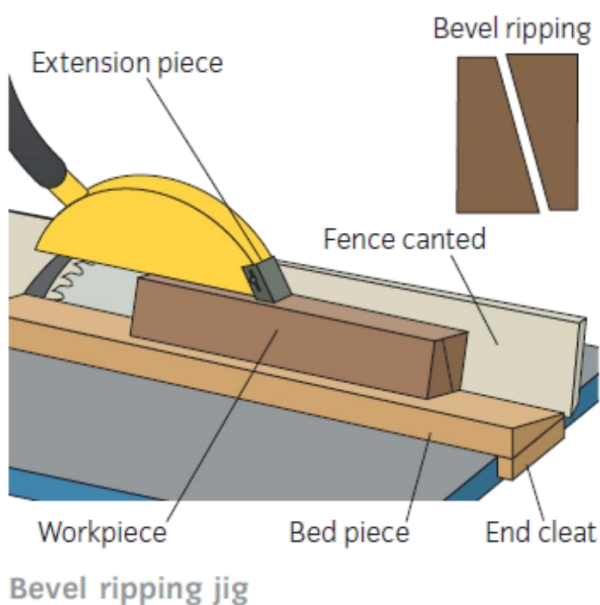
Because man-made materials are much more stable than timber, there is very little chance of it bending and twisting in the cut, unlike with timber.



Angled or Bevel Cutting.



Angled cutting: the material is placed on a jig or saddle that holds the material stable at the required angle during the cutting operation. This ensures an accurate angle is produced on the material but more importantly aids the safe delivery of the material and safe control of the 'offcut'.



Cutting Material.

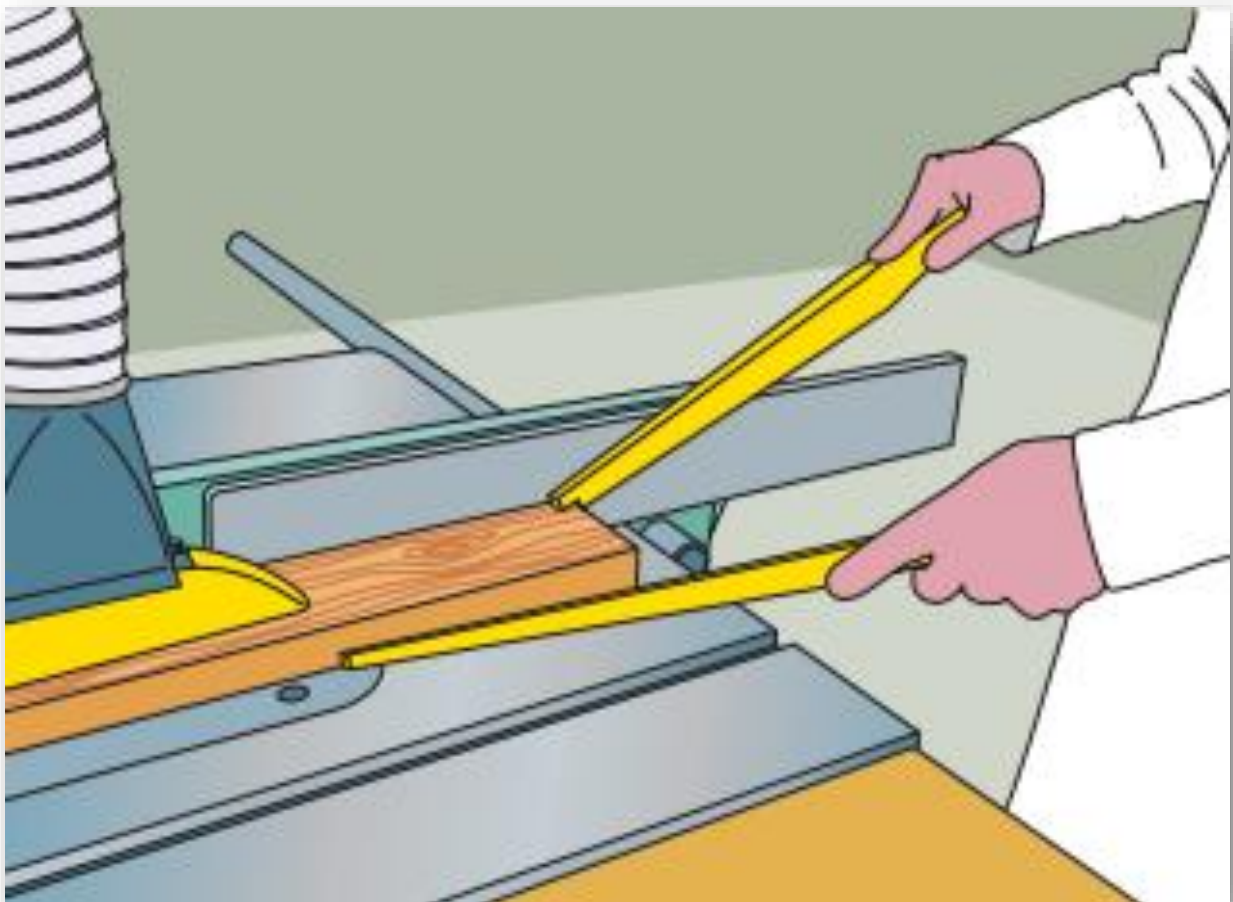


- While cutting material, the operator should not stand directly in line with the saw cut but slightly off to the side.
- This is to prevent any timber that may be kicked back from being forcefully propelled at the operative and coming into contact with them.
- The way timber is presented and fed through the saw bench is vital to its safe operation.
- Timber is subject to movement as a result of seasoning or atmospheric changes resulting from storage conditions.

Flatting.



Flatting is the term used to describe the cutting of timber to the required width on a hand fed circular saw.



Deeping.



Deeping is the term used to describe the cutting of timber to the required thickness on a hand fed circular saw.



Bevel.



If a bevel is required to be cut on to a section of timber using a hand fed table saw, then the saw operator will make a jig that will safely carry out the operation. These jigs are known as 'bed pieces' and 'saddles'.



Angle.



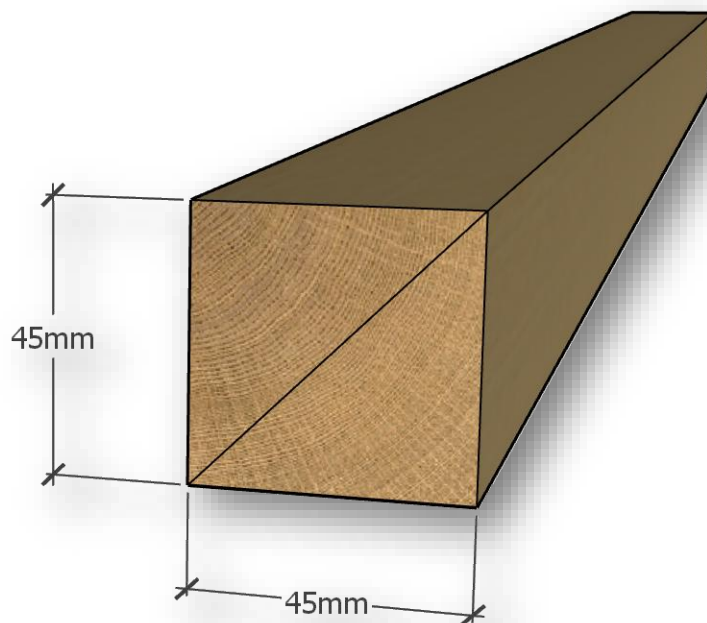
Angled cutting refers to cutting a piece of timber at an angle. The method is the same as cutting a bevel and, once again, the operator would make the appropriate jig for the task.



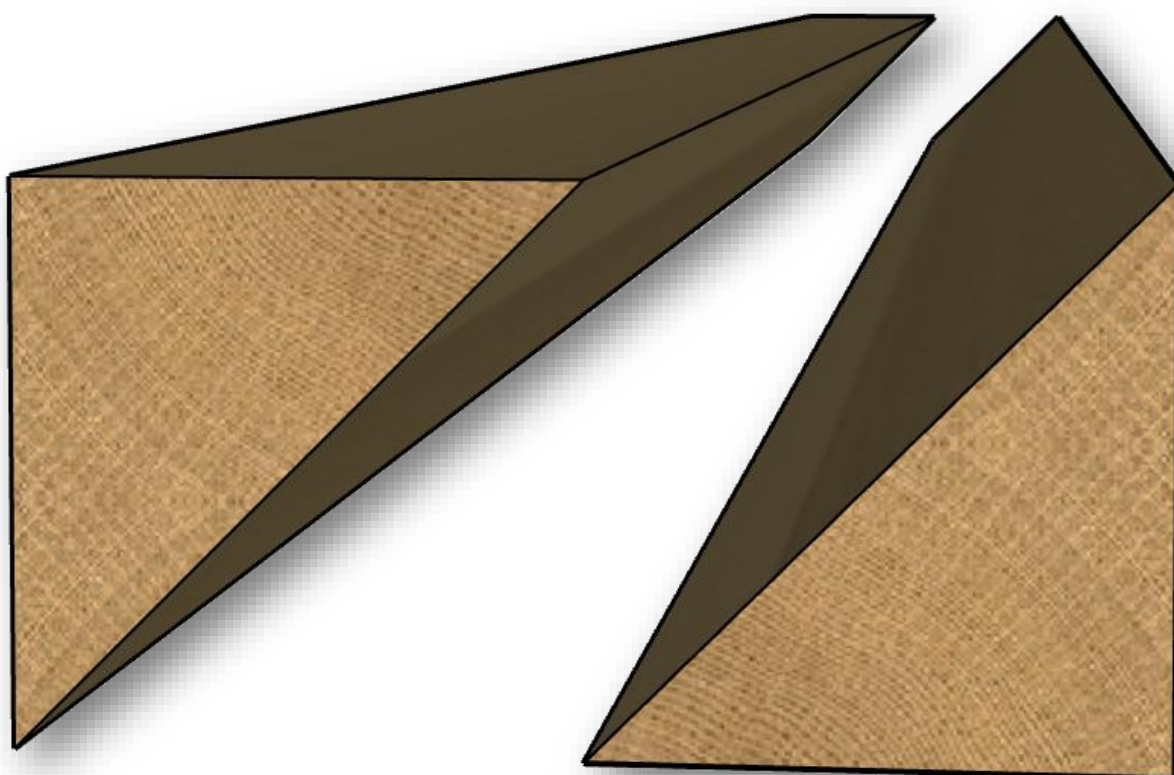
Rip Timber Section



Ripping 45°.



Rip this section at 45°. Use a saddle for safety and stability when cutting.

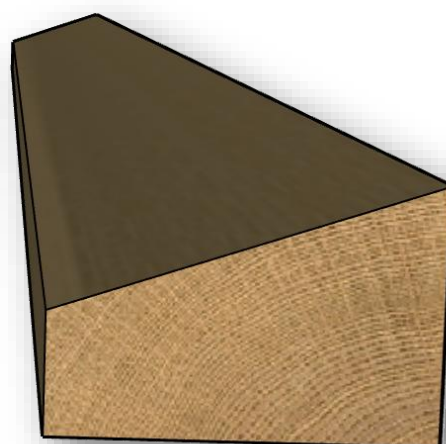
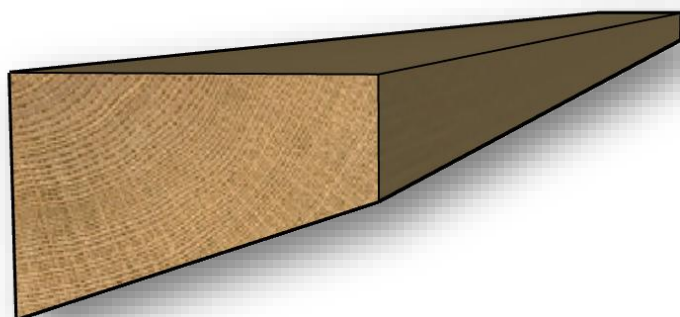
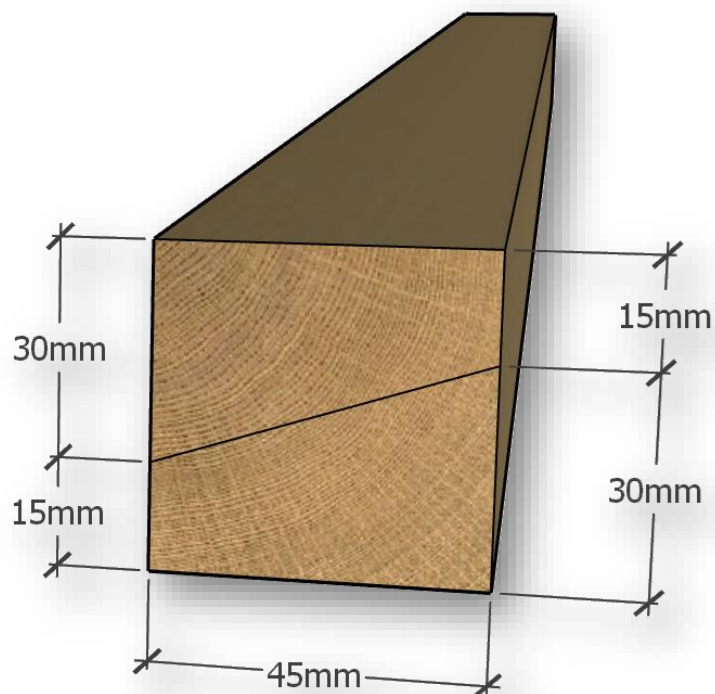


Ripping Timber Section.



Ripping 18.4°.

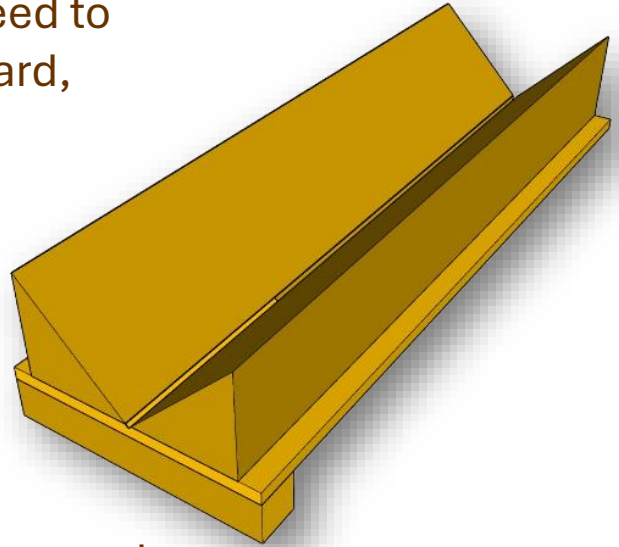
Rip this section at 18.4°. Use a saddle for safety and stability when cutting.



A Saddle.

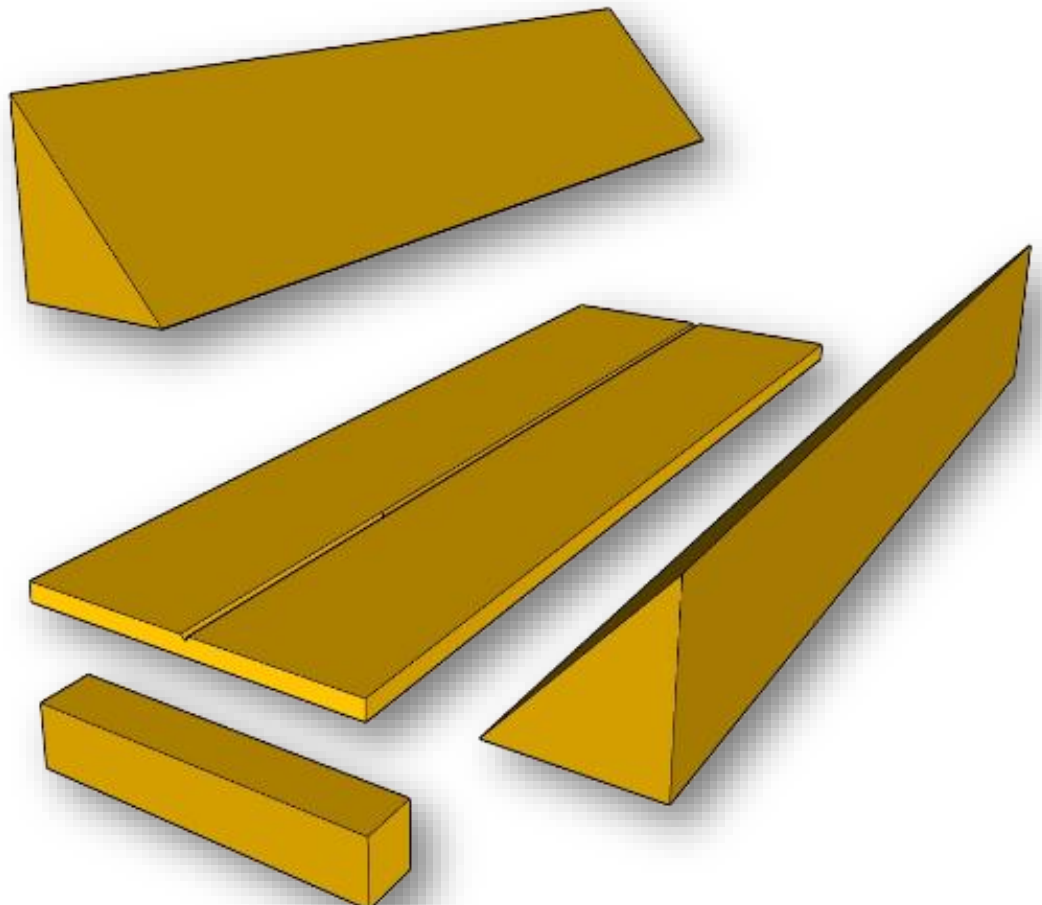


This saddle enables you to cut glue blocks efficiently and safely. There is no need to remove the riving knife or crown guard, and the angles are set for 45° cuts.



The bevel cutting saddle has 4 components.

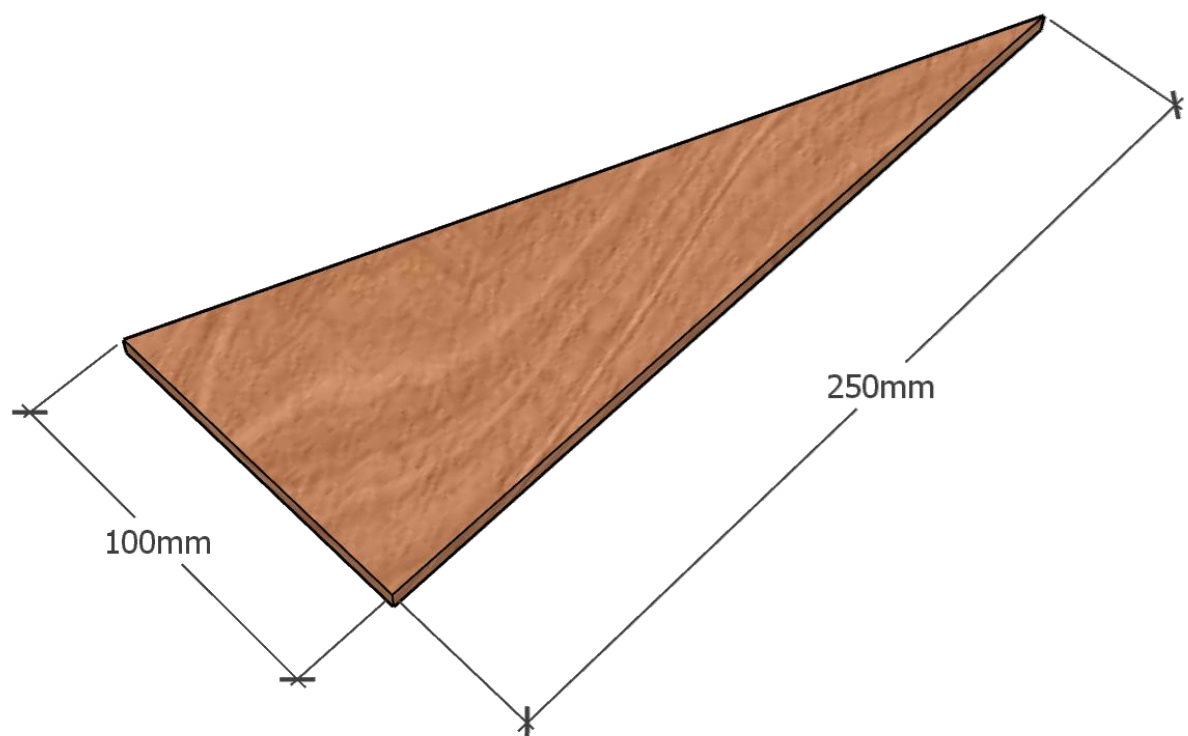
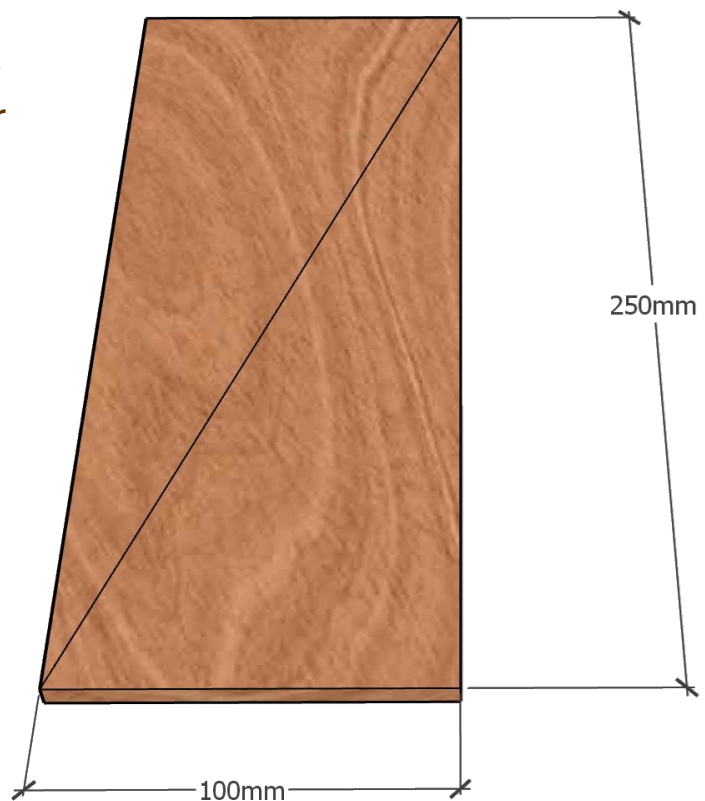
The base	x1
The end cleat	x1
The angled wedges	x2



A Saddle.



Measure out the dimensions and mark the hypotenuse for your cutting line.



Unit 211 Set up and operate a circular saw

Task 1 Change circular saw blades and cut timber and manufactured boards

Expected time	3 hours
Task instructions	• Complete a risk assessment • Change the blade on a circular saw. • Set up a circular saw ready for use. • Rip a section of timber with a circular saw as shown in Figures 1 and 2. • Cut board material as shown in Figure 4
Diagrams	Figure 1 Rip cuts page 17 Figure 2 Rip cuts measurement detail page 18 Figure 3 45° rip cut saddle 19 Figure 4 Tapered cut page 20

Observation checklist

AC	The candidate has	Pass	Merit	Distinction
3.1 6.1	completed the risk assessment form accurately, to meet current health and safety legislation	☐		
3.2 3.3 3.4 6.2	followed the sequence for changing circular saw blades using manufacturers' tools in accordance with their instructions and current legislation • isolated machine before proceeding	☐		
	• removed guarding, riving knife and saw blade safely and without damage	☐		
	• cleaned machine down	☐		
	• checked replacement blade prior to fitting for correct type and sharpness	☐		
	• saw blade seating and cutting direction correct	☐		
	• tightened blade in accordance with manufacturer's instructions	☐		
	• set riving knife as per current legislation (ACoP)	☐		
	• replaced guarding/ancillary components	☐		
	• checked blade for free rotation	☐		
	• checked machine for faults before reconnecting machine	☐		
6.4	set guards according to current legislation (ACoP)	☐		

AC	The candidate has	Pass	Merit	Distinction
6.3 6.5 6.6 6.7	identified timber defects timber appropriately fed in relation to any cupping, bowing or dead knots	☐		
	set fences, adjust saw blades and cut material in accordance with Figures 1-4 timber cut as in Figures 1 and 2 sections A and B dimensioned within 1 mm in accordance with Figure 2	☐		
	square timber for sections C and D brought to 45 mm wide within 1 mm	☐		
	sections C and D dimensioned in within 1 mm using saddle, in accordance with Figure 2	☐		
	ensured wedge jig handle is sufficiently long to keep hands at least 300 mm away from blade	☐		
	tapered cut to dimensions within 1 mm in accordance with Figure 4	☐		
6.8 6.9	followed current environmental and relevant health and safety legislation relating to changing circular saw blades and cutting of timber and manufactured boards. This includes: - push stick used where required - the use of appropriate PPE at all times - appropriate extraction used at all times - cleaning down of all machines after use	☐		

Task grading rules		Task grade:
To award a pass : every activity in the checklist must be successfully achieved.		
Assessor	Signature & Date	

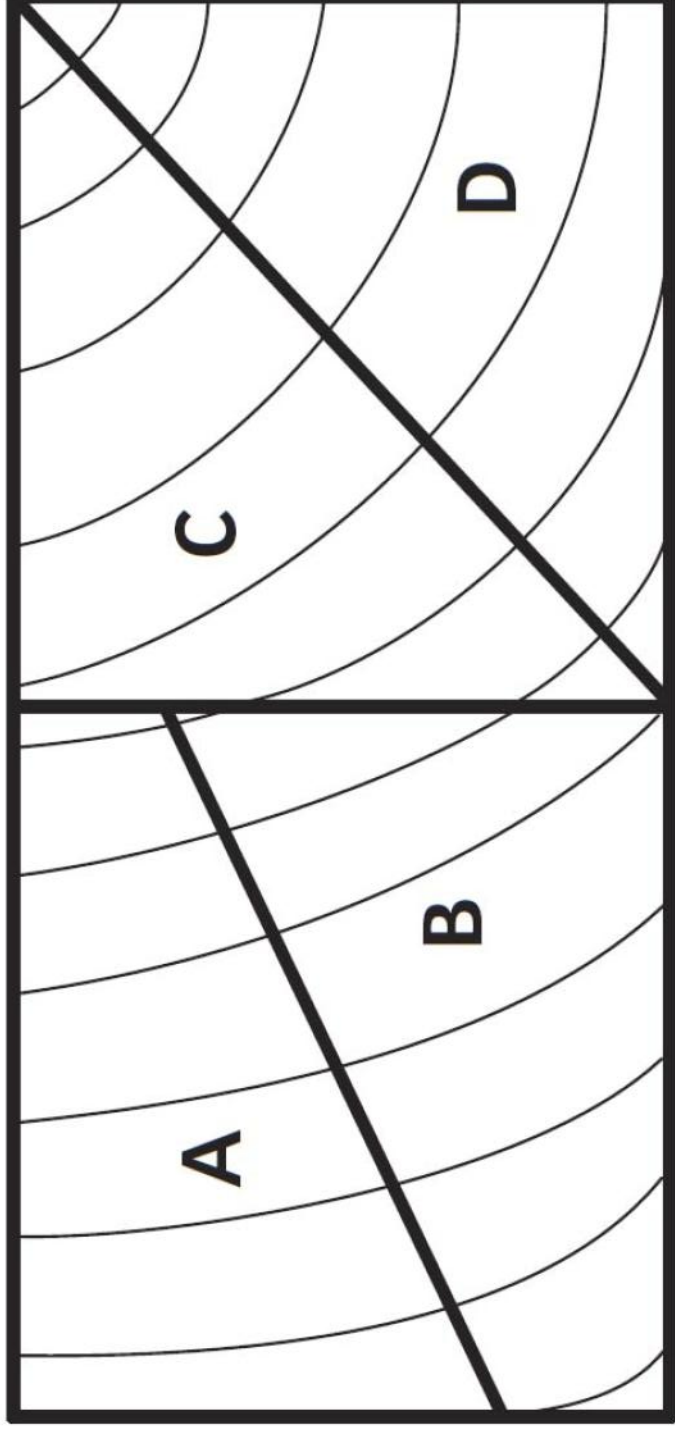
Drawings and diagrams

Unit 211 Set up and operate a circular saw

Task 1 Change circular saw blades and cut timber and manufactured boards

Figure 1 Rip cuts

Diagram not to scale



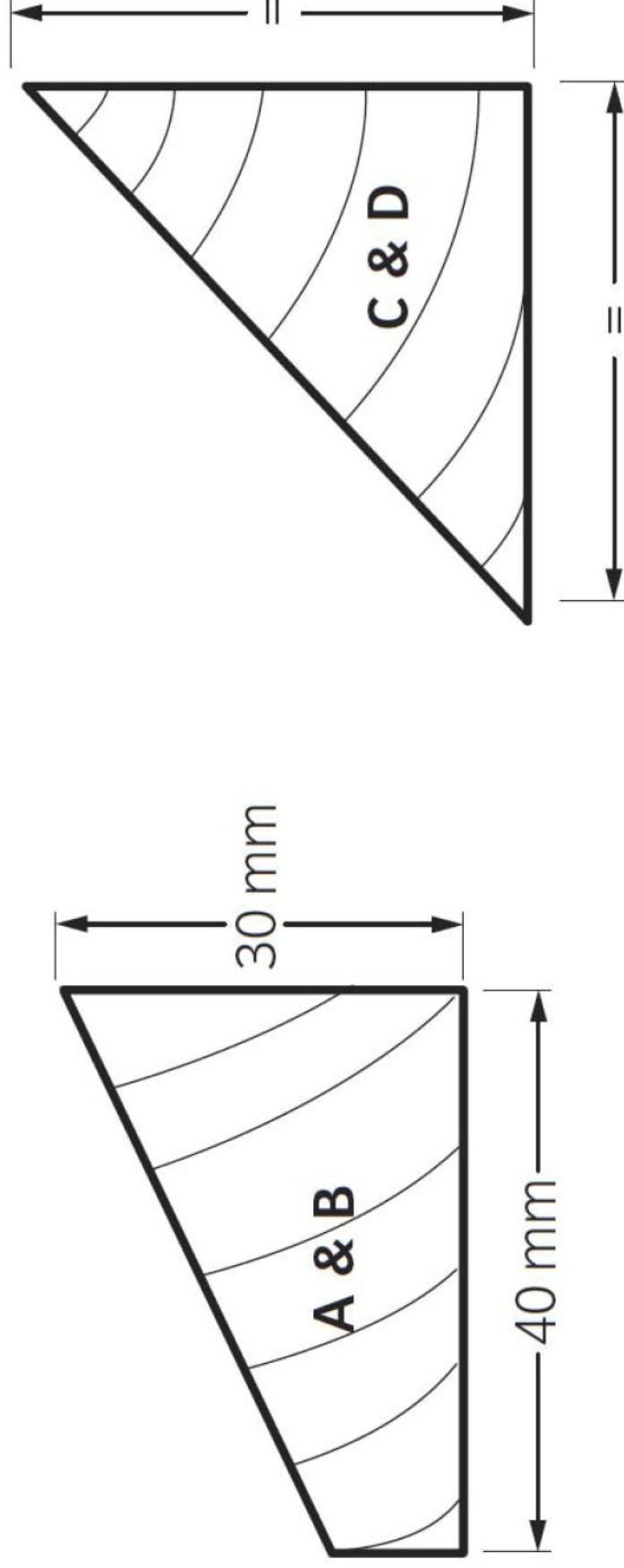
Drawings and diagrams

Unit 211 Set up and operate a circular saw

Task 1 Change circular saw blades and cut timber and manufactured boards

Figure 2 Rip cuts measurement detail

Diagram not to scale



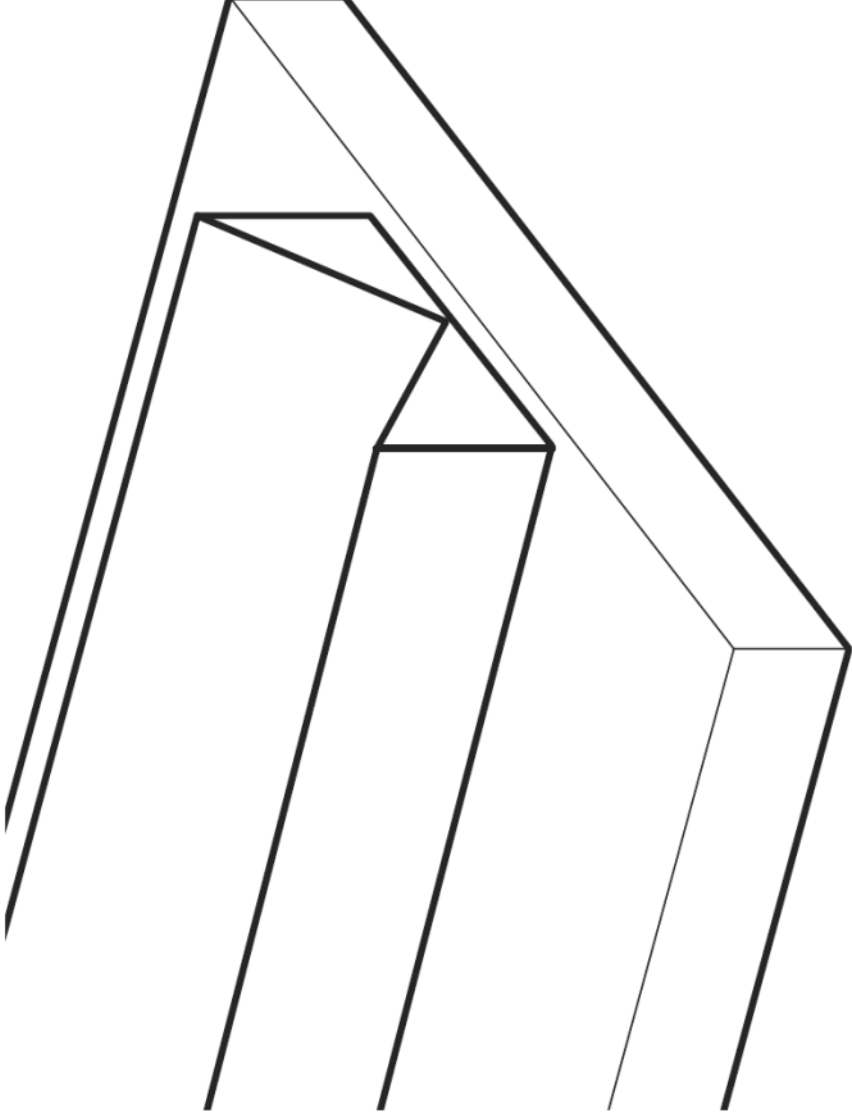
Drawings and diagrams

Unit 211 Set up and operate a circular saw

Task 1 Change circular saw blades and cut timber and manufactured boards

Figure 3 45° rip cut saddle

Diagram not to scale



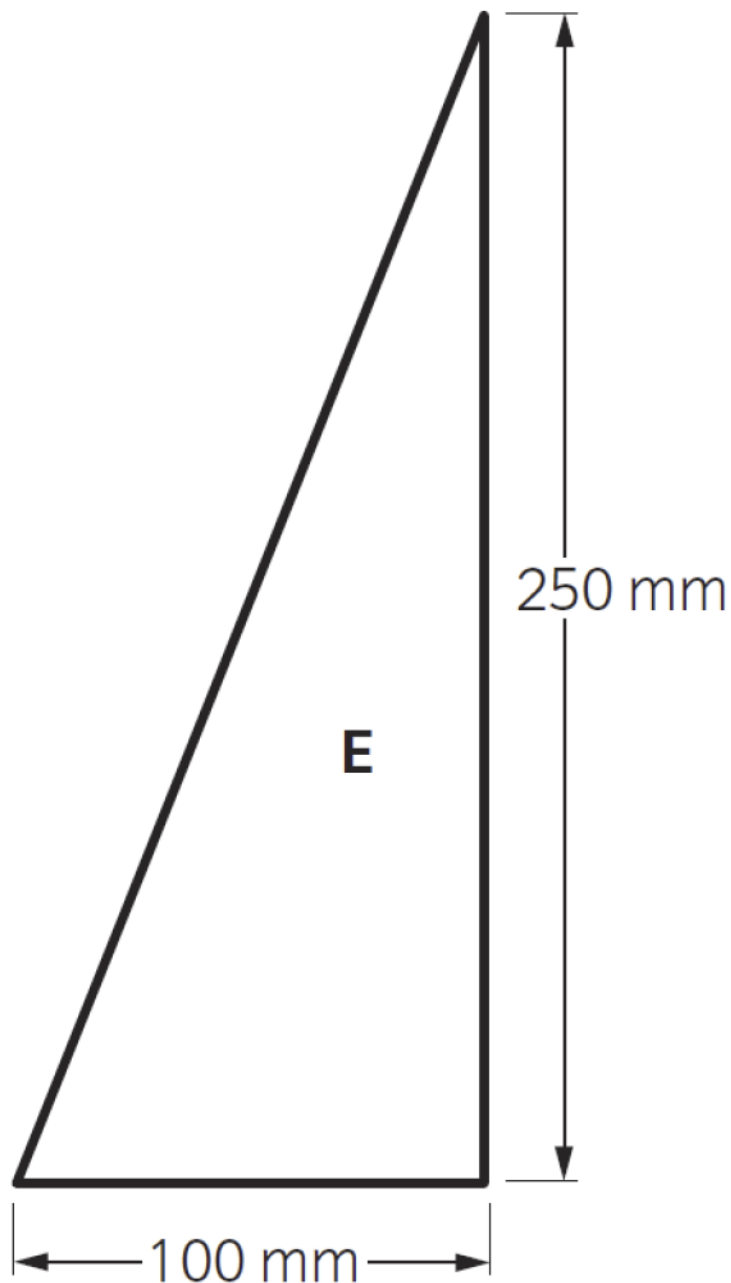
Drawings and diagrams

Unit 211 Set up and operate a circular saw

Task 1 Change circular saw blades and cut timber and manufactured boards

Figure 4 Tapered cut

Diagram not to scale



Unit and task reference	Date	Activity	Hazard	Existing Controls	S (1-3)	L (1-3)	RR (S x L)	Actions needed

		Likelihood		
		Unlikely	Possible	Very likely
Severity	1 Slight / minor injuries / minor damage	1	2	3
	2 Medium injuries / significant damage	2	4	6
	3 Major injury / extensive damage	3	6	9

Likelihood

3 = Very likely

2 = Possible

1 = Unlikely

Severity

3 = Major injury / extensive damage

2 = Medium injury / significant damage

1 = Slight / minor damage

Key:

1 = Low risk, action should be taken to reduce the risk if reasonably practicable

2, 3, 4 = Medium risk, is a significant risk and would require an appropriate level of control measures.

6 & 9 = High risk, should not be undertaken without prior agreement.

Task	Date
------	------

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Personal Protective Equipment (PPE)	Quantity	Condition
<i>eg safety harness</i>	<i>1</i>	<i>Free from defects, correct size</i>

