

Shop Safety Procedure



Equipment/Task Name:	RADIAL ARM SAW
Equipment/Task Hazard Class:	5 http://ehs.yale.edu/forms-tools/tool-classification-matrix
Shop Name:	
Shop Hazard Class:	

Purpose

Radial arm saws are typically used to crosscut wood and wood composite materials. They can also be configured with a “dado” blade for making wide crosscut grooves in wood based materials. While technically most radial arm saws can be used for ripping, table saws provide a safer rip cut method and miter saws can provide a much more accurate angled cut and are a safer alternative. Consequently, rip cuts are prohibited from being made on a radial arm saw.

Hazards

As with all shop tools there are many potential hazards associated with their use and exposure. Radial arm saws are Class 5 tools (<http://ehs.yale.edu/forms-tools/tool-classification-matrix>). There are a number of particular hazards associated with the operation and use of radial arm saws.

Amputation/laceration:

- Due to the nature of the high speed rotating cutting blade any contact with the blade will result in serious injury.
- All body parts should be kept outside of the guarded area.

In-running nip points:

- The saw is designed for climb cutting and will pull anything in its path into and thru the blade.
- The blade and motor shaft can become entangled in loose clothing hair or objects.
- Always allow the blade to come to a complete stop and disconnect power before making adjustments or approaching the work zone.
- Never put anything into a spinning blade to stop it-serious injury will result.

Flying objects:

- Work pieces, cutoffs, dust and chips can become projectiles.
- Proper PPE is critical and must be worn at all times.
- Do not make adjustments unless the tool is off and the blade is at a complete stop.
- Always maintain firm control of work piece against the rear fence.

Limitations
<ul style="list-style-type: none"> • Radial arm saws are best used for making 90 degree cross cuts in wood and wood composite materials. • While technically most radial arm saws can be used for ripping, table saws provide a safer rip cut method and miter saws can provide a much more accurate angled cut and are a safer alternative. Consequently, rip cuts are prohibited from being made on a radial arm saw.
Required Personal Protective Equipment
<ul style="list-style-type: none"> • Refer to the Shop Safety Postings and instructions provided by the Shop Supervisor. • Shop specific required PPE:
Required Training
<ul style="list-style-type: none"> • Applicable Shop Rules <ul style="list-style-type: none"> ○ Student Shop Rules (http://ehs.yale.edu/forms-tools/shop-rules-student-accessible-shops) ○ Professional Shop Rules (http://ehs.yale.edu/forms-tools/guidelines-professional-shops) • For Class 2 through 5 <u>Student Shops</u>, review and signing of the Yale University Shop/Tool Use Safety Agreement (http://ehs.yale.edu/forms-tools/shoptool-use-safety-agreement). • Shop Supervisors or Instructors must evaluate the tool user based on successful demonstration of the Training Competencies listed below as applicable. <p><u>Training Competencies:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify and describe all controls, adjustments, and functions of the radial arm saw. <input type="checkbox"/> Dress appropriately and wear appropriate personal protective equipment for the cutting operation. <input type="checkbox"/> Correctly setup and adjust the saw for all types of required cuts. <input type="checkbox"/> Apply good judgment in selecting clamping/securing method for work piece and accurately position work piece for cutting operation. <input type="checkbox"/> Students must be able to reset all saw functions to square, perpendicular cuts and clean up saw in preparation for next user. <p><u>Shop specific training requirements:</u></p>
Authorized Tool Users
Shop Supervisor, Shop Monitors and those authorized by shop supervision to operate the tool.
Tool Safety Rules
<ul style="list-style-type: none"> • Observe and follow all Yale Professional or Student Shop Rules as posted. • Understand and follow manufacturer operating procedures. • Inspect the tool for damage prior to use. • Verify all guards are in place and adjusted properly. • Do not bypass any safety devices. • Only use the tool when it is secured to the floor via a pedestal or work bench. • Always stay at the machine while it is running. • Clean the tool after use. • Report any malfunction or damage to the Shop Supervisor after tagging the tool “Out of Service, do not use”. • Always disconnect the plug from the power source before making any adjustments, changing, or physically inspecting the blade.

Tool Safety Rules (cont'd)

- Never use another person as a substitute for a table extension or as additional support.
- Do not attempt to cut pieces of stock that are too small to easily hold with your hands. Use clamping devices and/or jig fixtures instead.
- Always stand with your face and body to one side of the saw blade when making cuts.
- Never make free-hand cuts by raising the work piece into the blade.
- Never feed the saw into the work piece at a rate faster than it can accept.
- Never pull the blade beyond the point necessary to make the cut as the back of the blade could lift the work piece and throw it over the fence.
- The saw must have a device installed which will automatically return the cutting head to the back of the track when released from any point of its travel.
- The saw must have a mechanical limit to prevent the cutting head from traveling beyond the front edge of the table.

Shop specific rules:

Proper Setup and Use

Prior to use:

- Evaluate the work piece material type and appropriateness of the saw and saw blade. Inspect the material for nails, screws, or other foreign objects. Ensure the material is flat and straight so that it will lay flat on the table.
- Determine the location and angle(s) of cuts required.
- Determine the required fixturing/tooling/clamping/supports needed.
- Obtain personal protective equipment (safety glasses /shields) hearing protection and remove all loose clothing, jewelry and securely tie back all long hair/beards.

At the radial saw:

- Turn on the dust collection system if available.
- With the tool off inspect the tool. Look for damage, missing guards, and blade condition.
- Inspect the work area and remove any obstructions and trip hazards.
- Set the blade height and angle.
- Set up fixturing/supports and stops to make required cuts. Ensure the work piece will have adequate support.
- With saw blade stationary move saw through entire range of motion to ensure that there is no interference with blade, machine parts, table or guards/fences.
- Ensure that if stops and clamps are used together that they are both on the same side of the blade cut so that the potential for jamming and kickback are minimized.

Cutting process:

- Locate work piece on saw. Ensure that it is placed firmly against the back fence of the saw.
- Ensure that work piece is either clamped in place or hand held without crossing hands. Keep holding hand at least 6" away from the line of the blade cut.
- Be sure that any clamping of the work piece is on the same side of the cut as the stop so that potential for jamming /kickback against stop is minimized.
- With the cutting head at the rear of the track, tighten the lock to keep the saw from running forward when it is turned on.
- Turn on the saw and let the blade reach full speed before attempting the cut. Proceed with firm hand on saw- controlling rate of cut by sound of motor speed.
- It is usually good practice on the first setup to make a sacrificial cut in the work piece material to ensure that fixturing and angle setup is performing as expected and that the saw is capable of cutting thru the entire work piece.

Proper Setup and Use (cont'd)

- If trial cut is satisfactory – setup and make required cuts to work piece(s).
- Allow blade to come to a complete stop and is returned the back of the track before releasing the handle and prior to adjusting/advancing work piece.

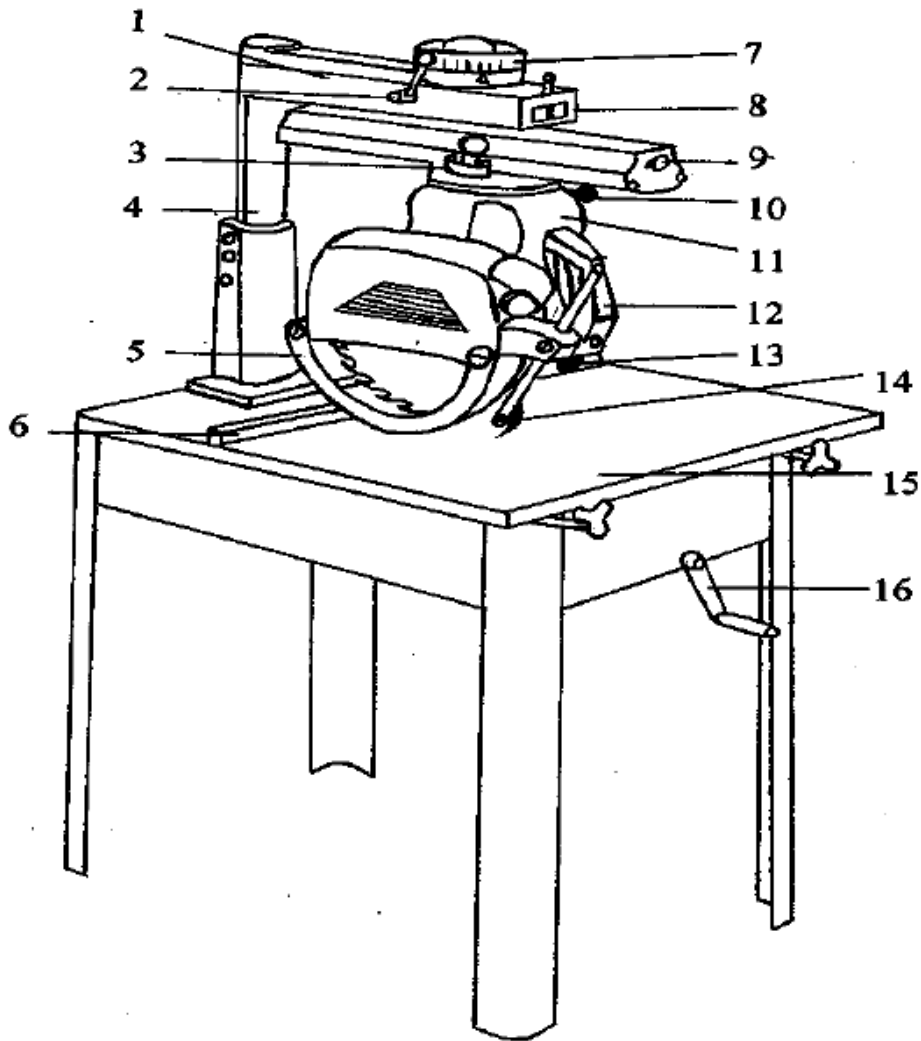
Completion:

- Allow blade to come to a complete stop before releasing the handle and carrying out completion tasks.
- With saw power disconnected, clean up saw, table and surrounding area and park saw head in back of track with blade angle and cutting angle set to 90 Degrees.
- Disengage dust collection system (if available and as directed by the shop supervisor).
- Report any issues to the shop supervisor.

Shop specific procedures:

Diagrams/Illustrations

Typical Radial Arm Saw Components



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|-------------------|----------------|----------------------|--------------------------|
| 1. Double Overarm | 6. Fence | 10. Miter Latch | 14. Anti-Kickback Device |
| 2. Overarm Lock | 7. Miter Scale | 11. Yoke | 15. Table |
| 3. Swivel Latch | 8. Switch | 12. Handle | 16. Elevating Handwheel |
| 4. Column | 9. Track Arm | 13. Bevel Index Knob | |
| 5. Blade Guard | Index Knob | | |

Creation/Revision Dates:

July 2, 2014

Suggestions, questions, or comments? Please contact your shop supervisor or EHS.