

Shop Safety Procedure

	Equipment/Task Name:	WOOD JOINTER
	Equipment/Task Hazard Class:	4 & 5 http://ehs.yale.edu/forms-tools/tool-classification-matrix
	Shop Name:	
	Shop Hazard Class:	

Purpose

Wood jointers are an open, hand-fed version of a powered wood planer. Jointers are designed to take rough-cut clean new lumber and true (straighten/ flatten) one edge at a time. The name of this tool derives from its primary function to machine a uniform side or edge for mating with another workpiece to create glued (jointed) wider boards/planks. Machining is performed with a high-speed rotating assembly with multiple cutters. The workpiece is aligned with the jointer's guide fence with the side that is being machined face down and slid along the fence and on the feed table into the cutter head. The cutter head is rotating toward the incoming workpiece and removes a set amount of material on each pass. Generally speaking, to reduce the chance for kickback and produce a high quality surface the feed table is set to expose less than 1/16" on each pass thru the knives.

Hazards

As with all shop tools, there are many potential hazards associated with the use of a jointers. Full sized jointers are Class 5 tools while small versions (less than ½ HP) are Class 4 tools (<http://ehs.yale.edu/forms-tools/tool-classification-matrix>). Particular hazards associated with jointers are listed below. Note that the list is not exhaustive as unusual or specialized uses may generate additional unique hazards.

Flying Objects

- Cutters rotate against the feed direction and can kick back workpieces and create projectiles (See Diagrams/Illustrations). Always stand off to the side of the jointer when feeding wood. Never stand in-line with the cutting path.

In-Running Nip/Pinch-Points

- The rotating cutter assembly is very dangerous and great care must be used that there is no loose clothing or hair that can get caught in the cutter assembly.

Sharp Tooling

- The knives are very sharp and will amputate anything that come in contact with them – never put body parts directly over the cutting head. Use push sticks and push blocks to maintain separation from the cutting head.
- Never remove the blade guard during jointer operation.

Limitations
<ul style="list-style-type: none"> • Wood jointers are limited to planing new, clean wood planks that are free from nails, staples, rocks and debris and loose knots. Remove any knots that are questionable as they can become projectiles. • Each machine has minimum thicknesses and board (workpiece) lengths that can be safely worked on that machine. A good rule of thumb would be about ¾" minimum thickness and the minimum length of 12". The maximum width that can be worked is limited to what will pass between the swing away blade guard and the fence. This is generally slightly less than the length of the blades on the cutting head. • Jointing/working of wood on the jointer can only be made in the same direction as the wood grain. Do not perform cross-grain or end-grain planing as dangerous splitting, chipping and kickback will occur.
Required Personal Protective Equipment
<ul style="list-style-type: none"> • Refer to the Shop Safety Postings and instructions provided by the Shop Supervisor. <p><u>Shop specific required PPE:</u></p>
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 and Practical Exercises listed below as applicable. <p><u>Training Competencies:</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> Understand the uses, limitation, and hazards of the machine. <input type="checkbox"/> Be able to dress appropriately and don correct personal protective equipment. <input type="checkbox"/> Know how to inspect the jointer and adjust cutting depth for selected operation. <input type="checkbox"/> Show good judgment in equipment start-up process. <input type="checkbox"/> Be able to inspect workpiece for imbedded objects and loose knots and appropriate size prior to operation. <input type="checkbox"/> Know how to properly clean the tool after use. <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 and guides are in place and adjusted properly. • Do not bypass any safety devices. • 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". • Do not make measurements of the stock while the machine is powered.

Tool Safety Rules (cont'd)

- Never joint workpieces less than 12" long.
- Do not over reach. Keep proper footing and balance at all times.
- Do not force workpiece into cutter. Allow the tool to dictate speed of operation.
- Always use fence to guide workpiece. Never perform an operation free-hand.
- Always hold the workpiece firmly against the tables and the fence.
- Always feed the workpiece against the rotation of the cutter head. Do not back the workpiece toward the infeed table.
- Use both hands to support and control the work piece at all times.

Shop specific rules:

Proper Setup and Use

Prior to Use

- Determine appropriateness of the tool and workpiece. Evaluate for the following:
 - Workpiece wood type and grain direction
 - Maximum/minimum wood thickness and width
 - Will the desired jointed surface fit on the machine?
 - Is the workpiece wide enough for adequate support (Generally $\frac{3}{4}$ " minimum width)?
 - Desired final wood/workpiece thickness
 - Will the reduction in material affect the stability of the workpiece?
 - Workpiece length – generally workpieces should be greater than 12" long.
- Carefully inspect all surfaces of the workpiece for imbedded debris and loose knots.
- Bring any concerns or questions to the attention of the Shop Supervisor for review and proper disposition prior to starting the jointer.
- Don all personal protective equipment.

At Jointer

- Become familiar with all tool controls, guards, and emergency stops.
- With the tool turned off, adjust the cutter depth. It is recommended for safety and finish that the maximum cutter depth be set at less than 1/16".
- Ensure the cutter head guard is in place and operating properly. The guard must swing back to cover cutter the head completely.
- Inspect the tool and the surroundings. Verify the fence and table are stable. Ensure that there is a clear zone around the machine to allow for proper clearance of the workpiece to be fed and removed.

Jointing Operation

- Conduct a final safety check of the tool and the surroundings. Notify others in the immediate area that the tool will be turned on.
- Turn on the dust collection system if available.
- Turn on the jointer and listen for a smooth startup and as the cutter reaches full operating speed.
- While standing out of the cutting path line, carefully align the workpiece with the jointer fence and table and slide the workpiece toward the cutter.
- Firmly guide the workpiece completely across cutting head. Use push sticks and blocks to increase the distance between you and the knives and mitigate the risk of slippage.
- Away from machine inspect for final thickness/width and shut down machine if any adjustments need to be made to the cutting depth.

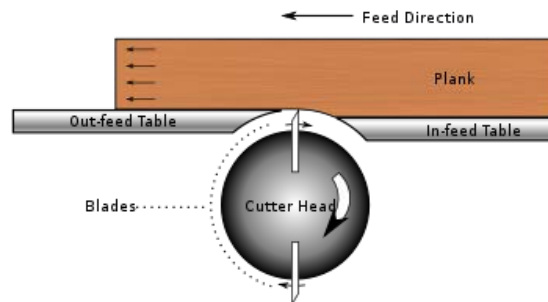
Proper Setup and Use (cont'd)

Completion

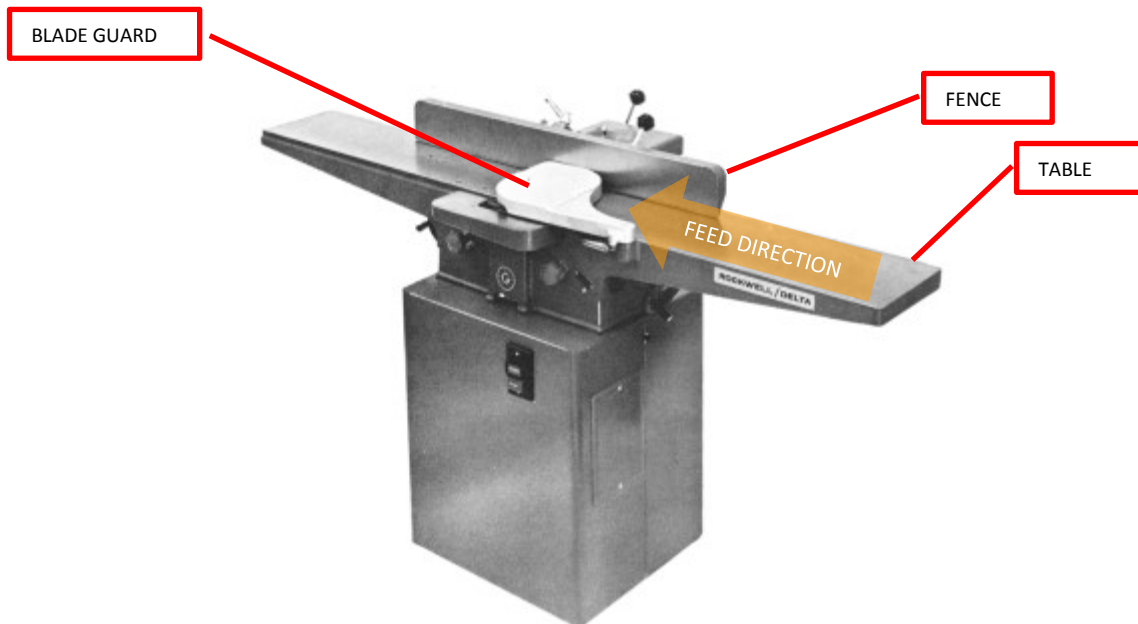
- When the desired workpiece condition is obtained shut down jointer and allow the machine to come to a complete stop.
- Disengage the dust collection system (if available and as directed by the shop supervisor).
- Clean up the jointer and the work area for the next user. Reset the cutter depth to less than 1/16" for the next user.
- Report any issues to the shop supervisor.

Diagrams/Illustrations

Jointer Cutter Versus Feed Direction



Typical Jointer Components



Diagrams/Illustrations (cont'd)

Correct Body Position When Using a Jointer



Creation/Revision Dates:

April 22, 2014

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