Cluster #9 — Pneumatic Brad/Finish Nailer

Primary Use

A brad or finish nailer is a handheld power tool that shoots brad nails in place. These brad nails are small, thin nails with narrow small heads that range in size. Some use a 16 gauge nail with lengths from ?" to 2-1/2" long. Other nailers use an 18 gauge nail with lengths from 5/8" to 1-1/4" long. Pneumatic nailer's use compressed air to create enough force to shoot the nail.

Important parts

The most important parts of the nailer are:

Trigger - The trigger can only fire a nail when the nose of the tool is firmly depressed against the wood. Exhaust Deflector - The exhaust deflector can be adjusted so that the exhaust air blast will be directed away from the operator.

Quick Release Latch Lever - Quick release lever releases the fastener guide plate that will clear a jammed nail. After the jam is cleared, close the fastener guide plate and secure with the quick release latch.

Magazine Latch - The magazine latch is released to allow nails to be installed. Be sure the nails are pointed down. This latch must be released to hold the nails securely.

Adjustment of the tool

Depth Adjustment Knob
The depth adjustment knob is usually found under the trigger and can control the depth to which a nail is driven. Rotate the knob clockwise to increase the depth of the drive, rotate counterclockwise to decrease the depth of the drive. Test fire before and after each adjustment to achieve desired results. The pressure requirements will vary depending on the size of the nail and the material to be fastened.

Demonstrate the basic operations

Demonstrate adding or replacing nails onto the magazine. During installation of nails the airline should be attached to the "quick connect" adapter at the back of the tool. The operating pressure should be between 70 to 120 PSI (Pounds per Square Inch). This pressure is preset at the compressor. To fire, grip tool firmly, position the nose of the tool onto the work surface, push down on the tool to depress the safety, and squeeze the trigger to fire the nail. Allow the tool to recoil away from the work surface as the nail is driven. Caution, if the safety tip is allowed to re-contact the work surface before the trigger is released an unwanted nail may be fired.

Safety

- **Always wear eye protection.**
- Keep fingers away from trigger when not driving fasteners to avoid accidental firing.
- Never point tool at yourself or others in work area.
- Disconnect tool from air supply when clearing a jammed fastener.
- Tool should be connected when adding or removing nails.
- Fire fasteners into wood work surfaces only.
- Do not drive fasteners on top of other fasteners or with the tool at to steep an angle.
- Do not drive fasteners close to the edge of the workpiece.
- Always assume the tool contains fasteners.
- Brads are made of wire, and they can veer off course, following the grain of the wood out the side of the workpiece. Ensure fingers are not in the way of an "errant wire."
- Make sure the work area is clean of scrap.
- Do not wear loose clothing, loose jewelry or gloves.

Give hands on experience Put your safety glasses on

Have each member perform the following.

- How to add and remove a strip of nails from the nail gun.
- Drive two or three nails into the surface of a piece of wood that will secure it to the wood below.

Cluster #9 — Biscuit Joiner

Primary Use

The biscuit joiner is a tool that is used to join two pieces of material. The machine cuts a slot on the inside of the material. You then make a corresponding cut in the second piece that you want to join, then insert an oval shaped thin piece of compressed wood, more commonly known as a biscuit, into the slot after first coating it with glue. Both pieces of wood are then glued and clamped together. Biscuit joining can be used on small craft projects, picture frames, cabinets and even wall units. There are various sizes of biscuits, and slots can be cut in angled wood pieces.

Important Parts

The most important parts of the Biscuit Jointer are:

Depth of Cut Adjustment Knob - Set the cutting depth according to the selected biscuit to be used. For example: for biscuit #20 set the depth screw to 20, for a 12mm cut. Use the largest possible biscuits for a strong joint.

Thickness Plate - The thickness plate is slipped on to the swiveling stop so as to reposition the blade to be closer to the center of a ?" thick piece of wood. When this plate is not used, the blade is positioned to cut into the center of 3/4" thick piece of wood.

Baseplate Centerline Mark - This is a reference point to indicate the center of the cut made by the blade.

Adjustment of the Tool
Once the depth and thickness settings of the tool have been confirmed, no further settings are required.

Demonstrate the Basic Operations [edge to edge jointing]

1. Position the two pieces of wood together and draw a center line mark at 90° to the center point of each proposed biscuit location. Space the biscuits at least 4" apart.
2. Clamp or secure each board before making cuts.
3. Line up the baseplate centerline mark located at the front of the fence with the cutting line on the workpiece, and place the biscuit jointer against the workpiece.
4. Turn the jointer on and push the spring loaded base in (towards the board). This will expose the blade which will then cut the slot for the biscuit.
5. Allow the return spring to retract the blade from the slot and then switch the machine off.

NOTE: Always use the same surface as a reference when laying out your marks.

Safety

- **Always wear eye protection.**
- Be sure the switch is off before the biscuit jointer is plugged in.
- Be sure the wood is securely fastened to the workbench.
- Disconnect the plug before making any adjustments.
- Do not wear loose clothing, loose jewelry or gloves. Roll sleeves above the elbow.

Give hands on experience

Have each member perform the following.

- Make one or two cuts on a piece of wood that will be glued together later.

- Have the class insert the biscuits, then glue and clamp the sample pieces of wood.

Cluster #9 - Domino Joiner

Primary Use

The Domino Joiner is designed to produce strong joints by using custom dominos. These dominos can be used in hard woods, chipboard, plywood, and fiberboard. In addition, the Domino Joiner may be used as a substitute for cutting double mortise and tenon joints. A Foreman must change the cutting bits when necessary.

Important Parts

The parts you should be most familiar with to operate the tool are the:
- *On/Off switch* and *power supply cable*.
- *Unlocking device* for the motor unit, Spindle lock and cutter changes.

NOTE: only a Foreman may change the cutter bits.

- *Selection slide/lock* for material thickness.
- *Notch lever/lock* for Domino hole depth.
- End Joining Jig. A device used to provide better stability when drilling into the end grain of the wood.
- *Clamp lever* for hole angle guide. Example: Miter cuts.
- Rotary switch for hole width. This allows for the cut hole to have some or no play. Should be changed only when machine is running.
- *Stop pins.* Used to set the position of the first hole at the end of an edge joint.
- *Vacuum hose connection.* The vacuum can be connected when operating the joiner.

Adjustments of the tool

All adjustments on the tool are in millimeters. The following are acceptable conversions:

12mm = 1/2”
16mm = 5/8”
20mm = 3/4”
25mm = 1”
[every 3.1mm = about 1/8”]

NOTE: Always use the same surface as a reference when laying out your marks.

Safety

- **Always wear eye protection.**

- Ensure the wood being dominoed is fastened to the workbench, or held firmly against the bench dog stops.
- Always hold the Domino Joiner with both hands, at the motor housing and at the auxiliary handle or surface hold-down on the wood.
- Be sure all clamping levers are tight; for thickness, depth and angle of hole.
- Ensure the switch is off before the Domino Joiner is plugged in.
- Feed the tool into the work at a consistent speed.
- Do not wear loose clothing. Roll sleeves above the elbow.

Demonstrate the Basic Operation (Edge to edge and *edge to end* joining)

Proceed as follows to create a joint: [Edge to Edge]

1. Select a Domino and insert a matching drill bit in the Domino Joiner. **Changing a bit in this tool is to be performed by a qualified Foreman only.**
2. Set the jointing depth. The joining depth must be at least 3mm smaller than the workpiece thickness so the domino joint is supportable.
3. Set the joining height to correspond to the workpiece thickness.
4. Mark the areas on the workpiece that will be mated so you will be able to join them correctly again once you have cut the domino holes.
5. Position the two workpieces to be joined against one another and mark the desired positions of the dominos with a pencil.
6. Set the desired domino-hole width. It is recommended to cut the first hole without play (domino-hole width = Domino width), and the remaining domino holes to the next largest hole size. The first domino hole therefore serves as a reference dimension, whereas the remaining domino holes have tolerance for manufacturing inaccuracies.
7. Cut the domino holes:
    a) The first domino hole should be cut by placing the stop pin at the side edge of the workpiece.
    b) The following holes are cut according to the pencil markings made beforehand and according to the scale of the viewing window.
8. When making an edge to end joint, place an end-joining jig on the fence of the tool to provide better stability when drilling into the end grain of the wood.

Give hands on experience

Ensure each member is familiar with the adjustments for: (Be sure the tool is unplugged)

- Wood thickness
- Depth of the cut
- Angle of the cut
- Width of the cut

Have each member cut two holes at a pre-marked pencil position, one on each piece of wood; and then see how accurate their domino joint is.

Cluster #9 - Kreg Pocket Screw Jig

Primary Use

Pocket hole joinery that allows a variety of wood joints using pocket hole screws.

Important Parts

Vertical upright; riser block; step block; and two support wings. In addition, there is a special pocket hole drill bit with adjustable depth collar and square driver bits.

Demonstrate the Basic Operations/Give Hands on Experience

- Select two pieces of wood to be joined.
- Insert the end of one piece of wood onto the jig upright and secure using the clamp on the riser block.
- Drill pocket hole using the Kreg drill bit set to 3 1/2" on the depth collar (3/4" stock). Demonstrate the use of the fixed spacing guide on top of the upright.
- Use the face clamp to hold the two pieces of wood in place on a flat surface, then, using the self-tapping screws and a square driver, join the two pieces. Glue can be used if desired.

Safety

- **Always wear eye protection.**
- Handle drill bits carefully as they are sharp.
- Always secure the jig to a stable surface before drilling.
- Always check drilling depth before final drilling.
- Make sure material is securely clamped into jig before drilling.
- Always allow drill bit to reach full speed before beginning to drill into workpiece.