

Cluster #5 – Disk and Stationary Belt Sander

Primary Use of the Disk Sander

The Disk Sander can be used for sanding outside curves and for sanding end grain on narrow wood. Its use should be limited because of the circular direction of the disk. It can also be used to sand outside circles up to 24" in diameter.

Primary Use of the Stationary Belt Sander

The Belt Sander can be used for end grain and edge grain sanding, and with the proper holding device surface sanding can be performed on small pieces of wood.

Important Parts of the Disk Sander & Stationary Belt Sander

- The table should never be more than 1/16" away from the sanding disk.
- Table Tilting Lever- This will allow the table of either sander to tilt from a 90 degree position to as much as a 45 degree position. The angle of the belt can similarly be adjusted using the lever on the right side, opposite the lower belt guide wheel/pulley.

Adjustments of the tool

- There are no major adjustments for the operator of this tool. All adjustments, when needed, should be made by the Foreman, except for the table tilt.
- Be sure that the belt tension is sufficient to prevent the belt from slipping. The belt should be flat on the platen.
- Be sure the belt is tracking correctly so that it runs in the middle of the pulleys. • If you see the belt is slipping, is not tracking in the middle of the machine, or needs to be replaced, notify the Foreman.

Demonstrate the basic operation [12" & 20" Disk Sander]

- * Outside curves and ends could be sanded on the sanding disk. When sanding the ends of narrow workpieces {no wider than 3 or 4 inches} use only the left side of the sanding disk. Move the work from the center to the left side of the disk.
- * Always allow the disc to come up to full speed before sanding. After shutting off the 20" sander, ensure the disc is fully stopped before leaving the machine. Use the disc brake as required.

Demonstrate the basic operation [6" belt sander]

- When surfacing, edge sanding, or end sanding the sanding arm is in a vertical position.
- Always hold the workpiece firmly, keeping your fingers away from the sanding belt. • Always keep the end, edge, or surface of the workpiece against the table and move the workpiece evenly across the sanding belt.
- Apply only enough pressure to allow the sanding belt to remove material.
- Using excess pressure will damage the belt or disk.
- Use extra caution when sanding very thin pieces.
- Move your work evenly over the entire surfaces of the belt to give the belt even wear.
- Be very cautious when sanding surfaces. Your fingers should not be close to the belt. Consider not using the belt sander and sanding small pieces of wood by moving the work over a stationary piece of sandpaper for a safer operation.

Give Hands on Experience Disk and Belt Sander Member Demonstration Put your safety glasses on

On the disk sander-

Using a 2" x 3" x 12" piece of Pine. Sand off exactly 1/2" from one end.

On the belt sander-

Using a 2" X 3" X 12" piece of pine, sand exactly 1/2" off the end. Then round two corners to a radius. Then using a 2" x 6" X 6" piece of pine, sand one edge round.

Safety

- **Always wear eye protection.**
- Never turn the machine on with the work piece contacting the abrasive surface. Kickback can occur.
- Do not use this sander for processing metal products. This can create a fire hazard. • Avoid awkward operations and hand positions. A sudden slip could cause a hand to move into the abrasive disk or belt.
- Maintain a maximum clearance of 1/16" between the table and the abrasive disk or belt.
- Support the work piece firmly with a miter gauge, backstop, or worktable when sanding with a belt or disk.
- Feed the work piece against the downward rotation side of the disk or the forward rotation of the belt.

All sanding should be done with the materials secured firmly on the work table.

- Do not sand very small or very thin work pieces that cannot be safely controlled.
- After turning the machine "off" ensure the disc is fully stopped before departing the machine. Use the disc brake as required on the 20" sander.

- Roll sleeves above the elbow.
- Don't wear loose clothing, loose jewelry.

Cluster #5 — Portable Belt Sander

Primary Use

Portable belt sanders are excellent for sanding assembled work pieces to remove surface irregularities, imperfections, damages, excess glue and with special precautions it can also remove dried paint. Lead-based paint should only be removed by a professional.

Important Parts

Belt Tension Lever

This lever relieves tension on the belt by retracting the idler pulley.

Belt Aligning Screw

Is used to align the belt. By resting the tool on the front handle, and grasping the rear handle with your hand, you can align the belt so the edge of the belt is even with the outer edge of the rear rubber-covered pulley. The belt should be installed so that the splice joint should be turning in the direction as indicated by the arrow. After the new belt is installed, it can be centered on the pulley. **The belt should never rub against the side of the machine.**

Variable speed control

The operating speed is adjustable between 1000 SFM (surface feet per minute) and 1500 SFM.

Dust Bag

Depress the dust bag spring clips and place the dust bag spring between the ridges on the spout. Empty at half full.

Demonstrate the basic operation

The portable belt sander should be used as follows:

- *Secure the workpiece* and maintain a *firm grip* on the sander. Verify the switch is "OFF" before connecting the sander to the power circuit.
- Place the cord over your shoulder or out of the way, and hold the machine firmly with both hands.

- Hold the sander off the work before starting the motor.
- Turn the machine on.
- Lower the sander to the work, touching the rear part of the belt first. Level the machine when moving it forward.
- Guide the machine over the work in overlapping strokes. Allow the sander to do the work.
- Avoid applying excessive pressure. The weight of the machine is usually sufficient for a fast smooth finish. A slight increase in pressure may speed removal of material, but too much pressure will slow the motor and decrease removal.
- Work back and forth over a fairly wide area to obtain an even surface.
- Do not let the tool tilt. The edge of the belt can make a deep cut into the surface.
 - Do not pause in any one spot during the sanding operation. The belt will eat into the work and make the surface uneven.
- Lift the tool from the work before turning the motor off.
- Always be sure that the motor has completely stopped before putting the tool down.
- BE CAREFUL when sanding the end of a board. Keep the tool level & flat on the work surface. Don't let the front of the tool drop.

Diagonal cross sanding is sometime done first to obtain a more level surface.

When sanding the total surface of a board, allow the belt to extend beyond all four of the edges.

Safety

- **Always Wear Eye Protection**
- Always disconnect the sander cord plug from the power circuit before changing abrasive belts.
- Sanding of lead-based paint is not recommended.
- Always maintain a firm grip on the belt sander handles with both hands.
- Do not operate belt sander without the guards and covers.
- Do not overreach. Keep proper footing and balance at all times.
- Roll sleeves above the elbows.
- Don't wear loose clothing, loose jewelry.

Give Hands on Experience

Portable Belt Sander, MEMBER DEMONSTRATION

Wood for Demo. 2" X 8" X 16" Pine. Put your safety glasses on.

Have each member operate the belt sander as described in the basic operation section.

Cluster #5 – Oscillating Spindle Sander

Primary Use

This sander is designed primarily for use on irregular curves. It is best used on interior curves (concave). It has a revolving, oscillating spindle on which the abrasive paper is fastened. The spindle comes in various diameters.

Guidelines For Use

- When selecting a sanding arbor, it should depend on the size of the rounded curve on the work piece.
- It is recommended to mark on the work piece before sanding to ensure the process follows your marks to achieve precise and correct results.

NOTE: Never attempt to grind or cut the work piece with the power sander arbor to achieve correctness and preciseness.

- Clean the sanding arbor and the main shaft hole before inserting the sanding arbor into the main shaft.

NOTE: Never screw the sanding arbor tightly; as it may not be able to be removed.

Selection Guide For Table Drums

This machine is furnished with 10 drums, and three table inserts. The diameter of the drums range from 1/4" to 4". When the drum diameter is changed, the table insert will need to be changed to the appropriate size.

The following chart provides various inserts for different diameters.

DRUM DIAMETER	TABLE INSERT
1/4" diameter x 5" long	----- #1
3/8" diameter x 6" long	----- #1
1/2" diameter x 6" long	----- #1
5/8" diameter x 6" long	----- #1
3/4" diameter x 9" long	----- #1
1" diameter x 9" long	----- #2
1 1/2" diameter x 9" long	----- #2
2" diameter x 9" long	----- #3
3" diameter x 9" long	----- None
4" diameter x 9" long	----- None

Instructions For Operations

1. Select a spindle that is smaller than the curve to be sanded.

2. Use an insert plate that comes closest to the spindle without touching it.
3. Make sure that spindle is properly positioned in taper sleeve socket. With the wrench provided, tighten the nut. Note: Never over tighten; it may be difficult to remove the spindle later.
4. When table is set at a 90 degree angle, sanding may be done from any corner, or location on table around spindle.
5. When the table is positioned at any angle other than 90 degree, it is necessary to position the work piece over the center line, as shown on table surface.
6. Always lock the table with the hand nut when setting at any angle, also to prevent movement lock the tilting gear shaft.
7. Always loosen both table lock and tilting gear lock before changing the angle position of the table. Never force the table if it does not tilt easily because the locks may still be engaged. Never attempt to override the stop locks as this will cause damage to the tilting performance.
8. A backing board is recommended when sanding thin pieces of material. A backing board can be easily constructed by using a piece of wood the length of the table, pushing it into the spindle until a half circle is formed. Clamp each end of the board to the table and proceed to sand the thin material.
9. Before leaving the machine remove any particles or pieces left over, and return the table to a 90 degree angle.

Safety

- Hold the workpiece firmly on the table throughout the sanding process.
- When sanding the inside of a hole, the spindle size should be at least 1/2" less than the diameter of the hole. If the hole is too small to accommodate our smallest spindle, the operation should be done by hand.
- If sanding the inside of a hole, do not lift the workpiece from the work table until the spindle has stopped rotating.

Cluster #5 — Finishing Sanders

The instructor should accomplish a review of the hand-held finishing sanders as necessary, based on the experience level of the trainee group.