

OPERATING PROCEDURE FOR:

Powermatic Model 31A Combination Belt-Disk Sander

INTRODUCTION:

The combination belt-disk sander is used to sand the edges of boards. It can be used to smooth the edge or to remove material to bring the edge of the workpiece to a reference line. An example would be to rough saw to just outside the desired profile cut with a band saw and to then use the combination belt-disk sander to remove the excess material outside of the reference line. The sander is equipped with both a 6" wide sanding belt and a 12" sanding disk. For each, there is a table mounted to the machine to support the workpiece. The support tables can be adjusted from 0 to 45 degrees and allow the sanded surface to be either beveled or square to the surface of the workpiece. The sanding belt can be rotated from vertical to horizontal if that provides a better operating position for the work to be done. The end of the sanding belt can also be used to sand concave surfaces, although, a spindle sander is better suited to this task.

SAFETY RULES:

WARNING: Willful violations of these safety rules, disruptive actions or horseplay may result in loss of the privilege to use the tools and machinery in the workshop.

WARNING: The abrasives used on this sander are capable of removing skin, flesh and bones from your hand very quickly. Always ensure that the workpiece is gripped securely and keep your hands away from the abrasive surfaces.

As with all machines, there is a certain amount of hazard involved with the use of this sander. Use the machine with the respect and caution demanded where safety precautions are concerned. **You are responsible for you own safety.**

Read and understand the operating procedures for this machine before attempting operation.

Personal Protective Equipment. At a minimum eye protection, hearing protection and a NIOSH approved dust mask must be worn when operating this machine. Eye protection must be safety glasses with side shields, goggles, or face shield, which meet ANSI Z87.1. Remove tie and loose jewelry. Button sleeves or roll up sleeves above the elbow. Remove loose outer clothing and confine long hair. **Do not wear loose fitting gloves.** If gloves are worn, they must fit tightly to the hand.

Use the appropriate NIOSH approved respirator in dusty work conditions (N95, N100, P95 or P100). Wood dust has been listed as a known carcinogen by the U.S. government.

Guards. Ensure that the guard on the side of the sanding belt is in place.

Work Area. Keep the floor around the machine clean to minimize the danger of tripping or slipping. Make sure the dust collector is hooked up and operating.

Operator Position. Maintain a balanced stance and keep your body under control at all times, so that you do not fall or lean against the cutter or moving parts. Do not overreach or use excessive force to perform any machine operation.

Careless Acts. Give the work you are doing your undivided attention. Looking around, carrying on a conversation and “horseplay” are careless acts that can result in serious injury and loss of work shop privileges.

Disconnect machine before performing any service or maintenance. A machine under repair or when changing sanding belts or disks must be Locked Out following the Club Lockout Procedure until the maintenance is complete.

Maintain Tools In Top Condition. Do not operate the sander with a worn-out sanding belt, or a belt that is torn. A worn-out belt generates excessive heat and can cause the belt to come apart. A torn belt is likely to break. In either case, the belt may get caught up in the sander and damage the drive roll or other machine components.

Hand Safety. Follow the 3” rule. Keep hands clear of the abrasive. Do not allow your hands to come within 3” of the abrasive belt or disk. Avoid awkward operations and hand positions where a sudden slip could cause your hand to contact the abrasive.

Material Condition. Reclaimed or pressure treated wood is not to be sanded on this machine. Sand only flat, straight stock. Do not attempt to sand twisted, warped, bowed or “in wind” stock. Do not attempt to sand long or wide boards unless adequate supports are used.

Stock Length. Small pieces should be held with a clamp or jig as necessary to keep your hands away from the abrasive belt or disk.

CAUTION: Support Tables: The support tables must be used to support the workpiece. Do not try to hold the workpiece solely by using your hands. The only exception is when sanding concave surfaces using the end of the sanding belt.

Machine Adjustments.

- Adjustments to the support tables must be done when the machine is not running.
- Adjust the support tables so that they are about 1/16” from the abrasive.
- Adjustments to the position of the sanding belt from vertical to horizontal must be made when the machine is not running.
- Belt tracking should be checked manually before starting the sander. Final adjustment may have to be made with the sander running.

Sanding Belts. Use only sanding belts and disks approved by the Shop Leader. Do not use sanding belts or disks that are worn-out or torn. Use a sanding belt or disk grit that is appropriate for the amount of material that needs to be removed.

Machine Capacity. Do not try to force the sander to remove material faster than the power available from the drive motor. The use of light pressure on either disc or belt sanding and moving the part back and forth will maximize belt or disc life, help to minimize the chances of an accident and keep the force within the capacity of the drive motor.

Job Completion. If the operator leaves the machine area for any reason, the sander should be turned “off” and the belt should come to a complete stop before his departure. In addition, if the operation is complete, the operator should clean the sander and the work area. Never clean the sander with the power “on” and never use the hands to clear sawdust and debris; use a brush.

If you are not thoroughly familiar with the operation of the sander, obtain advice from the Shop Leader.

Drugs, Alcohol, Medication. Do not operate this machine while under the influence of drugs, alcohol, or any medication. Do not operate this machine if you are tired, sick, or distracted.

Familiarize yourself with all caution and warning decals used on this machine.

Capacities:

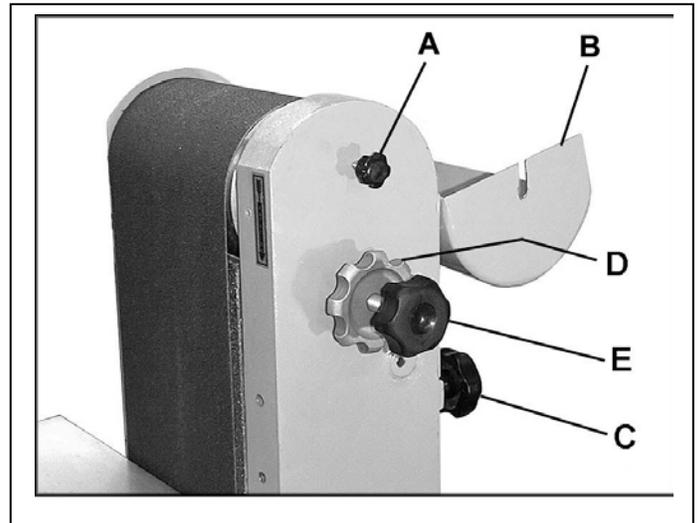
Abrasive belt size	6" x 48"
Abrasive disk size	12"
Belt support table tilt.....	0° to 45° down"
Disk support table tilt.....	15° up to 45° down
Belt sanding arm tilt	0° to 90° (vertical to horizontal)
Sanding belt size	17" wide x 54" long
Net weight.....	247 lbs
Horsepower.....	1.5 Hp, 1 phase, 230 volt

ADJUSTMENTS:

Abrasive choice: In general, the sanding disk sands more aggressively than the sanding belt. Common practice is to do roughing work using the sanding disk and finish sanding using the sanding belt.

Changing the Sanding Belt:

1. Lockout the sander using the Club Lockout Procedure. Unplug the sander and maintain control of the plug.
2. Loosen the knob (A) and swing the belt end guard (B) out of position.
3. Remove the *side cover* by unscrewing the two *knobs* holding it, and slide the tabs of the side cover out of the slots of the sander.
4. Loosen the tension knob (C). This will lower the top drum, providing slack for installing the abrasive belt.
5. Slide the abrasive belt onto the drums until it is centered on them. The belt is bi-directional and can be installed with the rotation in either direction.
6. Tighten the tension knob (C).



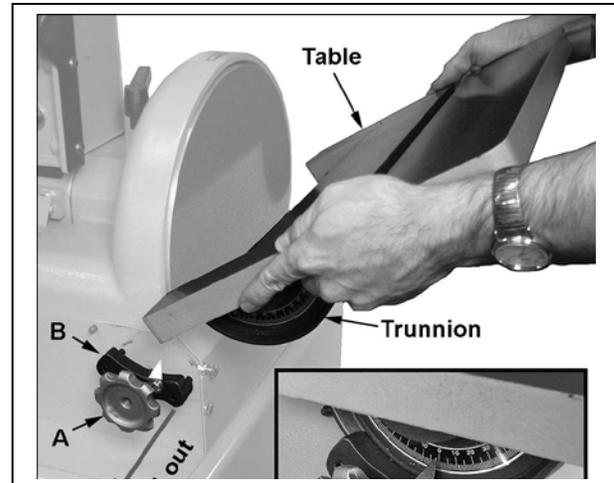
Caution: Do not *over* tension, as this can cause the abrasive belt to stretch and weaken. The abrasive belt must be properly tracked before operating. (Tracking refers to the position of the abrasive belt on the drums while they are in motion.) Proceed as follows:

7. Check tracking *manually* at first, by moving the belt downward with your hand while the machine is off. The abrasive belt should remain at the center of the drums.

8. If the belt veers to one side or the other, loosen the locking wheel (D) and rotate the tracking knob (E) either left or right until the belt centers itself. When manual tracking appears successful, turn the machine on for a moment and confirm that the abrasive belt will remain centered during operation. If needed, continue fine-tuning the adjustment with the tracking screw (E). It may require a combination of tension knob (C) and tracking knob (E) adjustment to achieve a proper setting.
9. When satisfied, tighten the locking wheel (D) against the belt arm to secure the setting.
10. Re-install the side cover and secure it with the knobs. Swing the end guard (B) back into position and re-tighten the knob (A).

Changing the Sanding Disk;

1. Lockout the sander using the Club Lockout Procedure
2. Remove the disk support table:
 - a. On both sides of the sander body, loosen the locking wheels (A), and pull the Trunnion holders (B) out far enough to allow the table to be slid out.
3. Loosen the two *screws* on the front panel with a 10mm wrench, and pull out on the front panel. The front panel will not remove from the sander, but this will allow more room for positioning the abrasive disc.



4. Grasp the worn sanding disk and peel it from the steel backing plate. Do not use any sharp object to accomplish this as it could scratch the steel back plate and cause sanding problems.
5. Clean the old adhesive from the steel backing plate with mineral spirits and wipe it dry with a clean rag.
6. Remove the backing from the abrasive disc to expose the adhesive, and carefully center it on the sander's metal disc. Press the abrasive disc firmly, working from the center out to prevent creases or air bubbles.

Sanding a board. Prior to sanding the board:

1. Make all adjustments described above.
2. Turn on the dust collector and open the blast gate at the sander.
3. Ensure that the dust collector is running

When using the disk, all of the sanding must be done using the left-hand side of the disk. This will help hold the workpiece tight against the support table and direct the sanding dust down into the dust collection port. Using the right-hand side of the disk is dangerous because it can grab the workpiece and project it upward.

When you have completed the above:

1. Start the sander.
2. Place the workpiece on the support table and gently bring the workpiece into the abrasive. Move the workpiece across the abrasive surface so that all of the sanding does not occur at one place on the abrasive. If only a small portion of the abrasive is used, that portion of the abrasive may overheat and become clogged with pitch. When this happens, the abrasive will generate even more heat and cause more clogging. This can result in a ruined abrasive and burn marks on the workpiece. Try to use the entire width of the abrasive while sanding.
3. Inspect the board to determine if additional sanding is needed. If so, continue to step 2.
4. When finished sanding, turn off the machine and close the blast gate. After the machine has stopped, clean up the support tables and the work area.