



Screw Pocket Machine Owner's Manual

SPM101EZ



SPM101EZ Screw Pocket Machine
Proudly made in the USA

www.safetyspeed.com



Read and understand this manual before operating this tool. Failure to follow the safety precautions and instructions can result in serious injury or death. Keep this manual in an accessible and safe location for future reference.

A message from all of us at SAFETY SPEED MANUFACTURING:

Thank you for purchasing a Safety Speed Manufacturing (SSM) Screw Pocket Machine. We take pride in building these fine products in the U.S.A.

Each SSM product is designed to give years of dependable service. Your new screw pocket machine was built from the finest components available, and every machine is individually assembled by craftsmen – some of whom have been building our products for more than 25 years. We appreciate you choosing SSM products for your facility.

Team Safety Speed,
Ham Lake, Minnesota

Limited Warranty

Safety Speed Manufacturing (SSM) warrants the parts and workmanship of this tool, except for the electric motor(s), for one year from the date of purchase. SSM will repair or replace, at our discretion, any component that is determined to be defective. Repair or replacement is limited to providing replacement parts from the factory. SSM assumes no responsibility for making repairs on site. Parts returned to the factory must be returned freight prepaid and include a Return Authorization (R.A.) number. Please call SSM 763-755-1600 for a R.A. number.

All motors are warranted directly by the motor manufacturer. See local repair and maintenance centers for warranty claims for motors.

Safety Speed Manufacturing assumes no responsibility for any damage or accidents resulting from the misuse of this tool, its misapplication, or failure to follow precautionary safety measures. SSM assumes no responsibility for any consequential damage or loss of production. SSM will not be responsible for claims made for machines that are not used or maintained in the normal course of business, used for applications not intended, or modified in any way. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. SSM # 763-755-1600.

This manual applies to the following SSM Screw Pocket Machines:

SPM101EZ

Enter your model number and serial number for quick and easy reference when ordering accessories, supplies or parts.

Note: The Model and Serial Number label of the SPM101EZ variations can be found inside on the back, upper-left side of the cabinet, above the outlet box. Note: The cover must be open to view serial label. (Figure 1).

Model No: _____

Serial No: _____

Safety Speed Mfg.
13943 LINCOLN ST. NE
HAM LAKE, MN 55304
1 763-755-1600



Figure 1: Serial & Model Label

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Safety

Read and understand this manual before operating this tool. Failure to follow the safety precautions and instructions can result in serious injury or death. Keep this manual in an accessible and safe location for future reference. Electronic copies of this manual are available at www.safetyspeed.com. Printed copies are available by calling SSM 763-755-1600.



Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a potentially hazardous situation, which if not avoided, could result in minor or moderate injury.

Safety & Warning Label Placement



Figure 2: Safety & Warning Label Locations

Safety Warning Labels Identified



Do Not Place Hands Under Guard



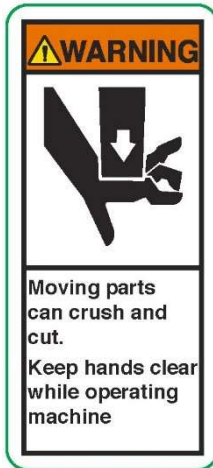
Do Not Place Hands Under Guard



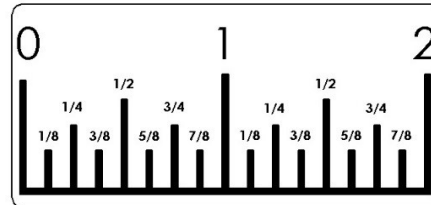
Read Manual Before Operating



Do Not Operate in Wet Conditions



Clamp Pinch Point



Ruler



Model

Safety Procedures

When using electric tools, always follow basic precautions to reduce the risk of fire, electric shock, and personal injury.

READ AND SAVE ALL INSTRUCTIONS FOR FUTURE USE. Before use, be sure everyone using this tool reads and understands this manual as well as any labels packaged with or attached to the machine.

1. **KNOW YOUR POWER TOOL.** Read this manual carefully to learn your power tool's applications and limitations as well as potential hazards associated with this type of machine.
2. **DO NOT ALLOW UNQUALIFIED PEOPLE TO OPERATE** the machine.
3. **AVOID DANGEROUS ENVIRONMENTS.** Do not use your power tool in rain, damp or wet locations, or in the presence of explosive atmospheres (gaseous fumes, dust, or flammable materials). Remove materials or debris that may be ignited by sparks.



4. **KEEP WORK AREA CLEAN AND WELL LIT.** Cluttered, dark work areas invite accidents. Provide at least 200 watts of lighting at the front work area of the tool. Eliminate all shadows that could interfere with clear viewing of the work area.
5. **DRESS PROPERLY.** Do not wear loose-fitting clothing or jewelry. Wear a protective hair covering to contain long hair, as it may be caught in moving parts. When working outdoors, wear rubber gloves and insulated, nonskid footwear. Keep hands and gloves away from moving parts.
6. **USE SAFETY EQUIPMENT.** Everyone in the work area should **wear safety goggles or glasses with side shields** that comply with current safety standards. Wear hearing protection during extended use and a dust mask for dusty operations. Hard hats, face shields, safety shoes, etc. should be used when specified or necessary. Keep a fire extinguisher nearby.
7. **KEEP BYSTANDERS AWAY.** Keep children and bystanders at a safe distance from the work area to avoid distracting the operator and contacting the machine or extension cord.
8. **MAKE THE WORKSHOP CHILD PROOF** with padlocks, master switches, etc.
9. **NEVER LEAVE THE MACHINE RUNNING UNATTENDED.** Turn the power OFF. Do not leave the tool until it comes to a complete stop.
10. **PROTECT OTHERS IN THE WORK AREA** from debris such as chips and sparks. Provide barriers or shields as needed.
11. **SECURE THE WORK.** Use a clamp, vise, or other practical means to hold your work securely, freeing both hands to control the tool.
12. **USE THE RIGHT TOOL.** Do not use a machine or attachment to do a job for which it is not recommended. For example, do not use a circular saw to cut tree limbs or logs. Do not alter the tool, remove guards, or operate the pocket screw machine, router or drill when removed from the carriage and frame.
13. **USE PROPER ACCESSORIES.** Using non-recommended accessories may be hazardous. Be sure accessories are properly installed and maintained. Do not defeat a guard or other safety device when installing an accessory or attachment.
14. **CHECK FOR DAMAGED PARTS.** Inspect guards and other parts before use. Check for misalignment, binding of moving parts, improper mounting, broken parts, and any other conditions that may affect operation. If abnormal noise or vibration occurs, turn the machine off immediately and have the problem corrected before further use. Do not use a damaged tool. Tag damaged tools "DO NOT USE" until repaired. Repair or replace a damaged guard or other part. For all repairs, insist on identical replacement parts or factory certified conversions.
15. **REMOVE ALL ADJUSTING WRENCHES, TOOLS and GUIDES** from the machine before turning it on. Make this a habit.
16. **GROUND YOUR MACHINE.** See "Electrical Safety," page 8.
17. **AVOID ACCIDENTAL STARTING.** Be sure your tool is turned OFF before plugging it in. Do not use the machine if the power switch does not turn it on and off. Observe correct Lockout/Tagout procedures when performing maintenance on the machine.

18. **DO NOT FORCE THE MACHINE.** Your tool will perform best at the rate for which it was designed. Excessive force only causes operator fatigue, increased wear, increased risk of binding or sudden breakage, and reduced control.
19. **KEEP HANDS AWAY FROM ALL CUTTING EDGES, MOVING PARTS AND PINCH POINTS.**



20. **DO NOT ABUSE THE CORD.** Never unplug the cord by yanking it from the outlet. Pull the plug rather than the cord to reduce the risk of damage. Keep the cord away from heat, oil, sharp objects, cutting edges, and moving parts.
21. **DO NOT OVERREACH. MAINTAIN CONTROL.** Keep proper footing and balance at all times. Maintain a firm grip.
22. **STAY ALERT.** Watch what you are doing, and use common sense. Do not use a tool when you are tired, distracted, or under the influence of drugs, alcohol, or any medication causing decreased control.
23. **UNPLUG THE MACHINE/DISCONNECT POWER** when it is not in use, before changing items such as bits and before performing recommended maintenance. Observe appropriate Lockout/Tagout procedures.
24. **MAINTAIN TOOLS CAREFULLY.** Keep handles dry, clean, and free from oil and grease. Keep cutting edges sharp and clean. Periodically inspect machine cords and extension cords for damage. Have damaged parts repaired or replaced.
25. **MAINTAIN LABELS AND NAMEPLATES.** These carry important information. If unreadable or missing, contact Safety Speed for a free replacement.
26. **DO NOT USE PUSH STICKS.**
27. **ALWAYS WAIT FOR THE BITS TO STOP COMPLETELY BEFORE CHANGING POSITIONS.** Unplug the machine and disconnect the air supply before transporting or moving it.
28. **DO NOT PLACE YOUR HANDS ON OR UNDER THE GUARDS, CLAMPS OR IN THE PATH OF THE BITS.** Do not try to retrieve a piece of material while the bits are rotating. This symbol is to remind you:



29. **DO NOT DEFEAT THE GUARDS OR OPERATE THE MACHINE WITHOUT THE GUARDS IN PLACE.** Do not remove the router motor, drill motor or cycle motor from the mounting plate or carriage.
30. **NEVER STAND ON THE MACHINE.** Serious injury could occur if the machine is tipped or if you unintentionally contact the cutting bits.
31. **HOME CENTERS AND COMMERCIAL LOCATIONS** should check as part of the installation with their local electrical contractor to be sure the proper amount of electrical power (volts/amps) and/or air supply will be available for this machine during all operating hours and conditions. Be aware of any special electrical safety requirements for this machine (examples: key lock offs, timers, coded security, touch pads, disconnects, or time lockouts) required by local codes.
32. **DISCONNECT AND LOCK THE POWER OFF** before changing bits or making any adjustments.
33. **BEFORE CONNECTING THE MOTOR(S) TO THE POWER SUPPLY BE SURE THE MOTOR SWITCH IS IN THE OFF POSITION.**
34. **KEEP THE TOP COVER TIGHTENED** and in place when the machine is not in use.
35. **DO NOT PLACE HANDS UNDER GUARDS OR IN LINE WITH BIT TRAVEL.** Be aware of potential pinch points. Only hold or operate machine with designated handles.
36. **REFER TO PAGE 5 FOR WARNING LABEL IDENTIFICATION.**

Proposition 65 Warning

Please Read Before Operating the Screw Pocket Machine



Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paint
- Crystalline silica from bricks and cement and other masonry products, and
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specifically designed to filter out microscopic particles. **For more information go to www.P65Warnings.ca.gov/wood.**

Electrical Safety



Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are not sure that the outlet is properly grounded. Do not modify the plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the cord or plug is damaged. If damaged, have it repaired by a qualified electrician before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

Some machines are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way. Double insulation eliminates the need for the three wire grounded power supply system mentioned above.

Do not expose your tool to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.



For best performance and to prevent damage use a dedicated electrical circuit for all SSM tools.

The plug must be connected to a properly grounded outlet (Figure 3). If the tool should electrically malfunction or break down, grounding provides a low-resistance path to carry electricity away from you, reducing the risk of electric shock.

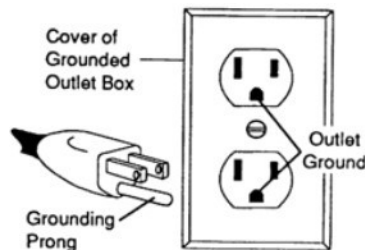


Figure 3: Grounded Plug and Outlet (120 Volt Plug Shown)

The grounding prong on the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal.

The machine must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in Figure 3 for the SPM101EZ.

Figure 4 illustrates a temporary adapter available for connecting grounded plugs. The green rigid ear or lug extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box or receptacle. Simply remove the center screw from the outlet, insert the adapter and reattach the screw through the green grounding ear to the outlet. If in doubt of proper grounding, call a qualified electrician. A temporary adapter should only be used until a qualified electrician can install a properly grounded outlet. The Canadian Electrical Code prohibits the use of temporary adapters.

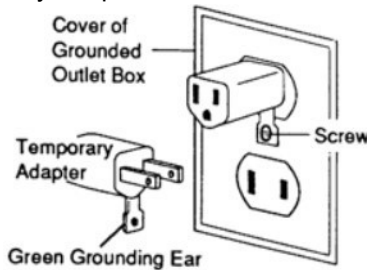


Figure 4: Temporary Grounding Adapter

Extension Cords

Extension cords are NOT recommended. If an extension cord is used, please adhere to the following suggestions. Grounded tools require a three-wire extension cord. As the distance from the supply outlet increases a heavier-gauge extension cord must be used. Extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible motor damage. Refer to Table 1 below to determine the required minimum wire size.

Table 1: Recommended Minimum Wire Gauge for Extension Cords

Nameplate Amps	Extension Cord Length*					
	25'(7.6m)	50'(15m)	75'(23m)	100'(31m)	150'(46m)	200'(61m)
<5	16	16	16	14	12	12
5 – 8	16	16	14	12	10	-
8 – 12	14	14	12	10	-	-
12 – 15	12	12	10	10	-	-
15 – 20	10	10	10	-	-	-

* Based on limiting the line voltage drop to 5V at 150% of rated amperes.

- Not recommended

The smaller the gauge number of the wire, the greater the ampacity (capacity) of the cord. For example, a 14-gauge cord can carry a higher current than a 16-gauge cord.

Guidelines for Using Extension Cords

For longest motor life and optimum performance extensions cords are NOT recommended.

If you are using an extension cord outdoors, be sure it is marked with the suffix "W-A" ("W" in Canada) to indicate that it is acceptable for outdoor use.

Be sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified technician before using it.

Protect extension cords from sharp objects, excessive heat, and damp or wet areas.

Short-Circuit Protection



Only qualified technicians should make electrical connections. Confirm power is OFF/Disconnected before making connections.

This tool must only be wired into a dedicated circuit that has a short-circuit protection device which is located ahead of the equipment in the circuit, in accordance with local codes.

General guidelines are as follows:

SPM101EZ; 110 Volt, Single Phase: min. 20 Amp circuit protection.

Reference your Model/Serial Label (Page 2, Figure 1) and your local codes before installation.

Electrical Connections

The SPM101EZ screw pocket machine requires a dedicated circuit that meets the requirements of the motors and local electrical codes. Connect the power cord from the dust collector to a circuit that meets the requirement of the dust collector and all local codes.

Electrical connections should only be completed by a qualified electrician in accordance with all local codes.

The SPM101EZ requires a dedicated 110 Volt, 20 Amp circuit and includes a cord and plug.

READ AND SAVE ALL INSTRUCTIONS FOR FUTURE REFERENCE



Screw Pocket Machine (SPM) Components



Figure 5: SPM Components

Inventory

Each SPM101EZ model includes all the necessary components to fully and safely operate the machine. A secondary tool kit is supplied for tooling of the machine for operation. Items included in the tool kit are as follows:

Tool Kit:

- Owner's Manual
- 2X 22mm wrenches (boring router collet wrenches)
- 17mm wrench (drill router collet wrench)
- 10mm wrench (drill router arbor wrench)
- 3/8" collet (boring router collet)
- 5/32" Allen wrench
- 1/2" shank router bit (boring router bit)
- 9/64" drill bit (drill router bit)
- Bit Gauge Setter
- 2X Clamp Plunger (short)
- Operator's Handle Grip



Figure 6: Tool Kit Inventory

The **SPM101EZ router** includes a 1/2" collet installed and an optional 3/8" router collet with the tool kit.

The **SPM101EZ drill** includes a 1/4" collet.

Accessories may be packaged and shipped with the machine or separately. Carefully remove and inspect all items before assembly and operation.

Unpacking

Remove protective cardboard from the machine.



Have a helper(s) assist in removing packaging and machine from box.



Figure 7: Unpacking

1. Cut and remove the tape holding the two flanges on the top of the box (Figure 7).
2. Open the four flanges to expose the interior of the box.
3. Remove the cardboard insert located along the back of the machine. Remove the tool kit located on top of the tabletop in the front of the machine.
4. With the help of an assistant, lift the machine from the four corners of the tabletop, be careful not to damage machine or loose parts.

INSTALLATION/SET-UP

Your SSM Screw Pocket Machine comes from the factory assembled and aligned. You will only need to place and secure the machine on a level surface, supply power, and install both the router bit and drill bit.

Operating Environment

For safe operation, install the machine in an area that is well lit. Eliminate all shadows that could interfere with clear viewing of the work area.

Do not locate the machine in a damp or wet location, or a location where it may be exposed to rain.

SSM strongly recommends our dust chute accessory (SP40), along with a dust collector with a minimum of 600 CFM to extend motor, bit life, and creating a cleaner work environment.

Avoid explosive atmospheres (gaseous fumes, dust, or flammable materials).

Secure the area so that children and bystanders are kept a safe distance from the work area. Provide barriers and shields as needed.

NOTE: The average noise level for all the SPM101EZ models is less than 80 dB.

Placing Machine

1. Place the machine in the desired workbench area.
NOTE: Be sure that the machine is not resting on the electrical wires located on the inside of the cabinet.
2. Remove the tabletop and access panels as stated in "Removing Tabletop & Access Panels" page 15, and remove any packaging materials used to secure components while shipping.
3. Pull the front of the machine so that the front face of the frame is hanging ~4" over the edge of the workbench.
NOTE: If the dust tube accessory is installed, allow enough space to connect a 3" dust tube through the bottom of the machine. If the dust tube accessory is not installed, place a dust bin below the machine to catch the dust produced during operation.
4. Secure the machine with either screws or bolts (not included) through the bottom 4X holes of the frame. See Figure 8: Mounting Holes.
5. Extend the three electrical wire plugs through the back electrical hole opening.
6. Plug in the two electrical wires from each router motor into the receptacle outlet, located on the back of the machine.
7. Plug in the long main power electrical cord into the wall outlet when ready for operation.

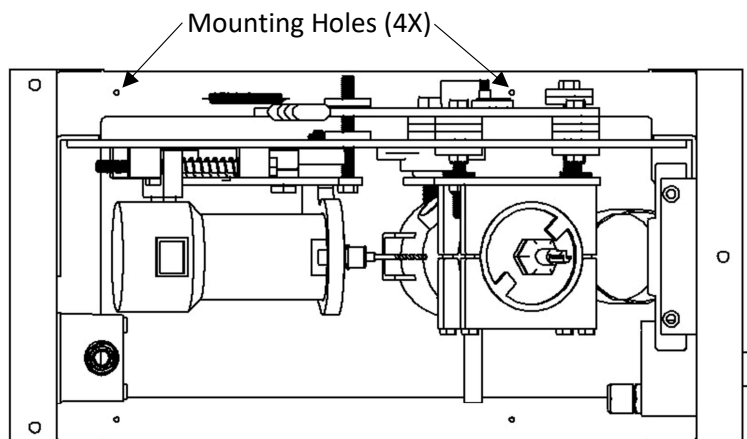


Figure 8: Mounting Holes

Initial Set-Up & Test

1. Confirm that the machine is placed and secured correctly as stated in “Placing Machine”, page 13.
2. Remove the tabletop and access panels as stated in “Removing Tabletop & Access Panels”, page 15.
3. Install the router bit and drill bit as stated in “Installing a Router Bit”, page 16, & “Installing a Drill Bit”, page 17.
4. Make sure both Router and Drill switches are turned ON.
5. Connect electrical cord into the wall outlet, see “Electrical Connections” page 10.
6. Reinstall the tabletop and access panels onto the machine.

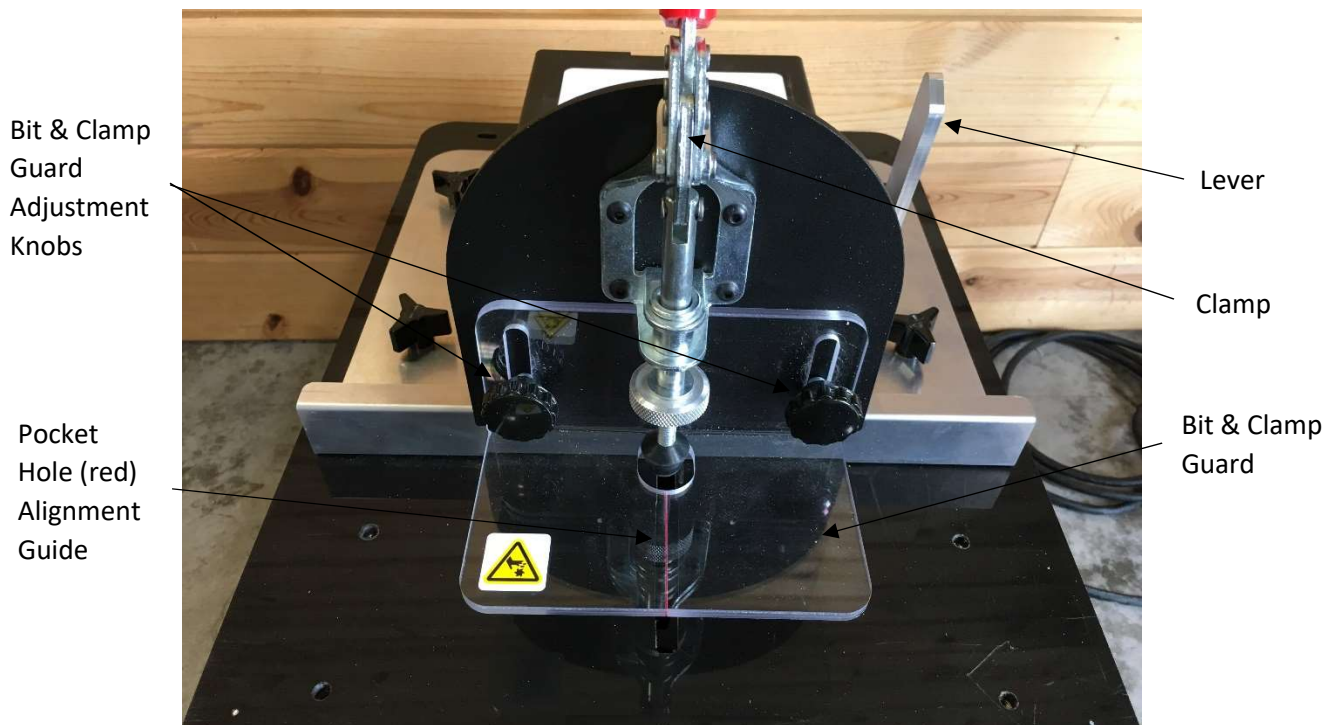


Figure 9: Tabletop Components

7. Adjust Bit & Clamp Guard (Figure 9) over test piece, approximately $\frac{1}{4}$ ". Loosen the Bit & Clamp Guard Adjustment Knobs (Figure 9) and adjust Bit & Clamp Guard to allow insertion and removal of material, but so as to NOT allow fingers or hands under or behind the Bit & Clamp Guard during operation.
NOTE: The “Pocket Hole (red) Alignment Guide” (Figure 9) indicates location of pocket to be cut.
8. Make a test cut in scrap which is the same thickness as material to be used. Place sample stock against fence and tabletop. Engage the clamp by pushing down on the red handle. See details in “Adjusting the Clamp Plunger”, page 18.
NOTE: The clamp is shipped with the clamp adjusted for $\frac{3}{4}$ " material.
9. Turn on the machine by pressing the green “ON” button.
NOTE: Be sure the operator lever is in the front of the slot (toward the front of the machine).
10. Push the lever handle forward (towards the back of the machine) until it bottoms out in the slot, then pull the lever towards operator until the lever stops. If the bits are hidden beneath the tabletop and behind the fence, a complete cycle has been completed successfully. See Operation Mechanics, page 20, for clarification of how to operate the machine. **If the machine did not cycle properly, contact SSM Tech Services @ 763-755-1600.**
NOTE: Adjust the speed of creating a pocket as stated in “Variable Cycle Speed”, page 21.
11. Turn off the machine by pressing the red “OFF” button.
12. Disengage and the clamp and inspect the screw pocket.
13. See “OPERATION” section for making machine adjustments, (e.g. depth of pocket or length of web), if necessary.

Removing Tabletop & Access Panels

With the machine resting in a secured location and the power cord unplugged, follow the steps to safely remove the tabletop and access panels.

1. Remove operator handle grip (Figure 10).
2. With the supplied 5/32" Allen wrench (Figure 10), remove the 3X screws holding the tabletop to the frame (Figure 10).
3. Lift the tabletop assembly vertically off of the frame. Place on the ground or workbench in a safe location.
NOTE: Be sure to not hit the motors and/or bits when removing the tabletop.
4. With the supplied 5/32" Allen wrench, remove the 4X screws from each access panel (Figure 11).
5. Remove the access panels and place on the ground or workbench in a safe location.

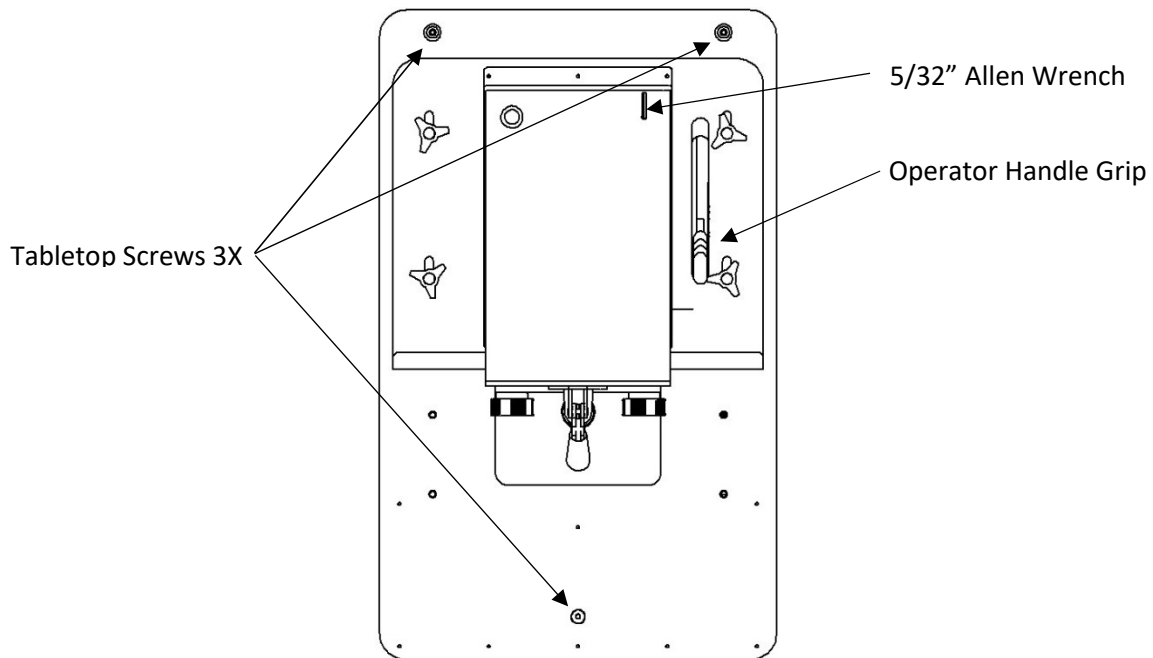


Figure 10: Tabletop Screws

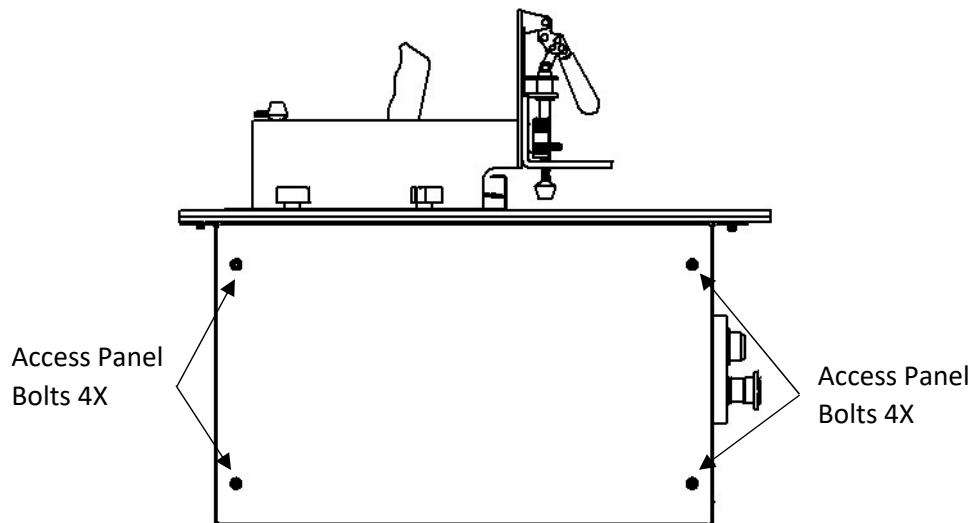


Figure 11: Access Panel Bolts

Installing a Router Bit



WARNING

Unplug tool before making adjustments, installing bits or accessories. Observe appropriate Lockout/Tagout procedures to insure the tool cannot accidentally be powered.

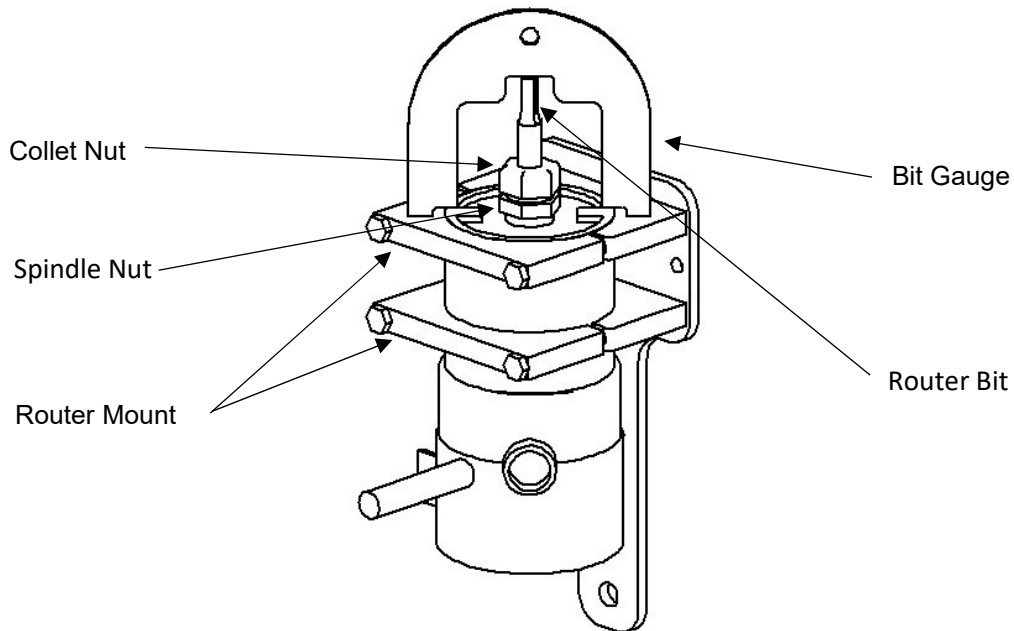


Figure 12: Installing a Router Bit

1. Unplug tool.
2. Select correct router bit for your application.
NOTE: (Contact your machine dealer or SSM (763-755-1600) for help in selecting the appropriate router bit for your materials and applications).
3. Using the wrenches provided, loosen the collet nut (by turning counter clockwise when looking “down”) (Figure 12), while holding spindle nut. Remove the router bit.
4. Insert new bit into collet. Finger tighten collet nut.
5. Position the Bit Gauge (Figure 12) against the router mount (Figure 12) and pull the router bit up against the bottom of the Bit Gauge.
6. Tighten the collect nut securely, while holding the spindle nut.

IMPORTANT: Select the correct bits for your needs. Consult with your machinery dealer, or with the SSM customer service department (763-755-1600) to determine the best bits for your application(s).



DANGER

Always use the supplied Bit Gauge (Figure 12 & Figure 13) when installing bits.

Always use supplied Bit Gauge (Figure 12 & Figure 13) when installing bits. Failure to do so could result in the bits colliding with the machine table or the drill when the machine is cycled. If your Bit Gauge is missing or damaged contact Safety Speed for a replacement (763-755-1600).

NOTE: If the Bit Gauge is not available, the router bit should extend 3-1/16” from the top of the “Router Mount”. Measure from the top of the router mount to the top of the bit with an accurate and square measuring device. Or call SSM for a temporary solution (763)-755-1600.

Installing a Drill Bit



Unplug tool making adjustments, installing bits or accessories. Observe appropriate Lockout/Tagout procedures to insure the tool cannot accidentally be powered.

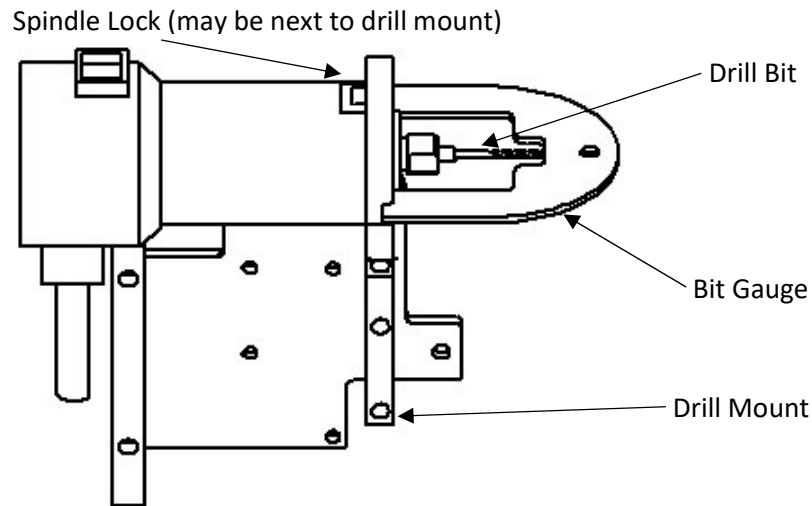


Figure 13: Installing a Drill Bit

1. Unplug tool.
2. Using the wrench provided, loosen the collet (by turning nut counterclockwise) (Figure 13) while holding the (red) spindle lock and remove drill bit.
NOTE: It may be easier to hold the spindle lock with a small stick or other non-sharp object.
3. Select new/sharp drill bit.
NOTE: (Contact your machine dealer or SSM (763-755-1600) for help in selecting the appropriate drill bit for your materials and applications).
4. Insert new drill bit into collet. Finger tighten collet.
5. Position the Bit Gauge (Figure 13) against the Drill Mount (Figure 13) and pull the drill bit up against the bottom of the Bit Gauge.
NOTE: If the Bit Gauge is not available, the drill bit should extend 2-7/8" from the top of the "Drill Mount". Measure from the top of the router mount to the top of the bit with an accurate and square measuring device. Or call SSM for a temporary solution (763)-755-1600.
6. Tighten the collect nut securely while holding the (red) spindle lock.



Always use the supplied Bit Gauge (Figure 12 & Figure 13) when installing bits.

Always use supplied Bit Gauge (Figure 12 & Figure 13) when installing bits. Failure to do so could result in the bit colliding with the machine table or the router when the machine is cycled. If your Bit Gauge is missing or damaged contact Safety Speed for a replacement (763-755-1600).



Always wear proper eye protection when operating machinery. If your Bit Gauge is missing or damaged contact Safety Speed for a replacement.

Always keep bits clean and sharp for the best performance. A dull or dirty bit can bind and pinch, resulting in poor quality cuts. **If in doubt, replace the bit with a new one.**

Adjusting the Clamp Plunger

1. Determine the thickness of the workpiece. Allowable thickness is $\frac{1}{2}$ " – $1\frac{1}{2}$ ".
 2. If the thickness of the workpiece is $\frac{1}{2}$ " – $7/8$ ", use the longer clamp plunger (3" in length).
If the thickness of the workpiece is $7/8$ " – $1\frac{1}{2}$ ", use the shorter clamp plunger (2 $\frac{1}{4}$ " in length).
- NOTE: Place the unused clamp plunger into the threaded hole on the back left side of the shroud (near drill motor). This is a designated quick access hole for the plunger. See Figure 14.**

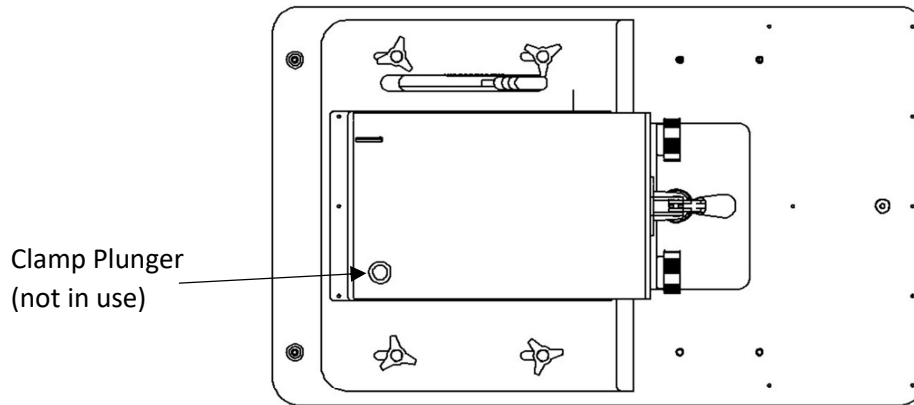


Figure 14: Quick Access Tools

3. Thread on the threaded stop knob onto the correct plunger until it bottoms out onto the black rubber.
4. Place the supplied washer on top of the threaded stop knob.
5. With the clamp in its "unclamped" position, thread the clamp plunger and knob assembly into the bottom of the clamp, until the clamp plunger is bottomed out (approximately 1" of threads).
6. Place the workpiece on top of the tabletop, next to the clamp.
7. Pull down on the clamp to place it into its "clamped" position.
8. Begin to unthread the plunger until the bottom black rubber of the plunger is recessed below the top of the workpiece.
9. Hold the plunger in place while threading up the threaded stop knob until it bottoms out on the end of the clamp. See Figure 15.
10. Release clamp, place material under clamp, and clamp the workpiece in place.
11. Fine tune the depth of the plunger (steps 7-10) until the desired clamp force has been achieved.



Figure 15: Adjusting the Clamp Plunger

OPERATION



The following are suggestions that give a general idea of how a Screw Pocket is intended to be operated. No instructions can replace common sense and experience. Be sure all operators have enough time and material to become familiar with the operating characteristics of this machine, and have **FULLY READ AND UNDERSTOOD** all operating and safety instructions.

Capacities of the Machine

Small Work Pieces:



Do not process pieces that are so small that your hand must be behind or under the Bit & Clamp Guard (Pg. 14, Figure 9). Safety Speed Screw Pocket Machines are not recommended for work pieces that are shorter than the clamp guard. Rails and similarly narrow stock can be positioned using the Perpendicular Guide Accessory (Part# SP45) as long as they extend beyond the clamp guard and have a minimum of 3/8" on each side (offset) of the pocket.

Large Panels:

There is no limit to the size of large panels, as long as they are supported properly. For example, the use of support tables or roller stands can help stabilize long or large panels. When processing large panels, the Perpendicular Guides (Part# SP45) (Pg. 35, Figure 30) can be removed. This allows large panels to lay flat on the table. Remove the four Perpendicular Guide Knobs (Part# SP45) (Pg. 35, Figure 30), then remove the two Perpendicular Guides. The Perpendicular Guides and Knobs should be reinstalled for efficiently and quickly processing rails or similar stock.

Work Piece Thickness:

The Screw Pocket Machines can process material with a thickness range of 1/2" (minimum), through 1-1/2" (maximum).



Do not cut pockets in material less than 1/2" thick. Doing so could result in the workpiece being insufficiently clamped, and could cause bit breakage or operator injury.

Operation Mechanics

The following steps are to give an explanation to the action that is happening during the cycle of the machine.

Cycle Step 1:

- The cycle begins with the lever in its closest position to the front of the machine This is the home position.
- Both the router and drill bits are under the table or behind the fence in this position.

Cycle Step 2: AFTER CLAMPING MATERIAL (Pg.18, Figure 15),

- The operator begins to push the lever slowly and steadily toward the back of the machine. At this time, the pocket is being created by the router bit.
- The pocket has been created when the lever reaches the back of the slot.

Cycle Step 3:

- The operator then begins to pull the lever slowly toward the front of the machine, or the home position. Once this action is taken the router bit begins to return to its home position, underneath the tabletop. The drill bit is being pulled into the material, creating the pilot hole for the fastener.

Cycle Step 4:

- The operator continues to pull the lever towards the front of the machine and the router bit becomes hidden beneath the tabletop. The drill bit continues to move forward until the lever bottoms out in the front of the machine, at this time the drill bit returns automatically springs back behind the fence.
- Upon the lever being returned to the home position, the machining is complete. Repeat step 1-4.

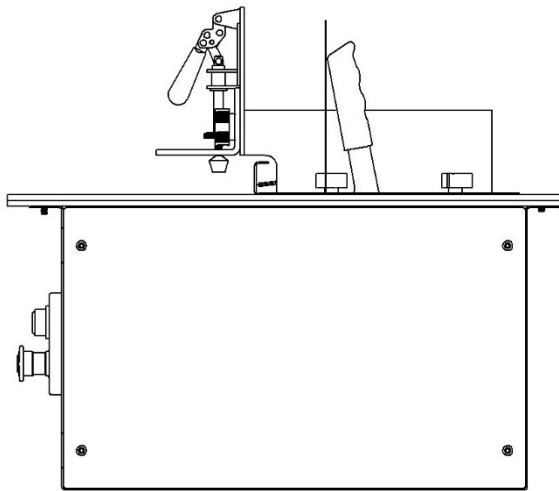


Figure 16: Cycle Step 1

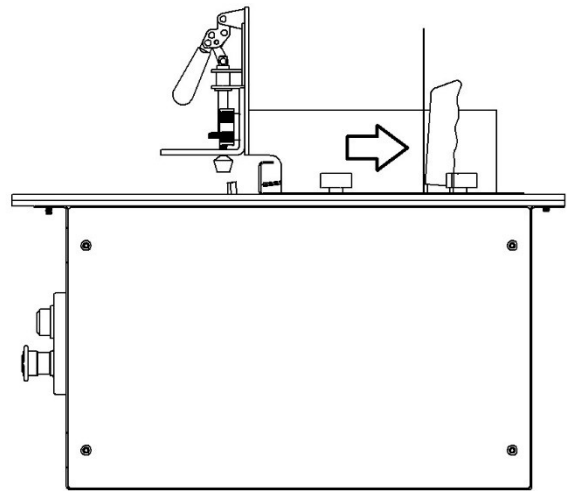


Figure 17: Cycle Step 2

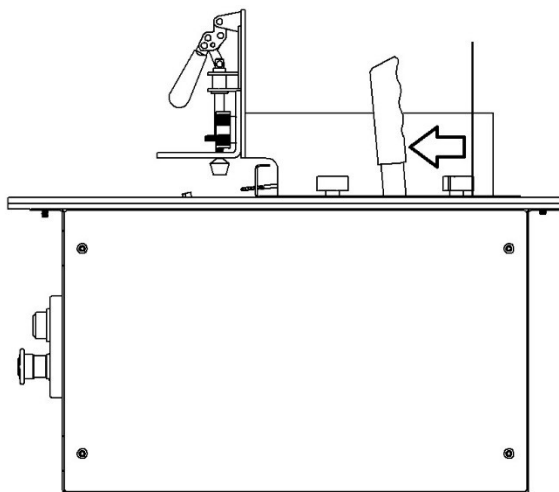


Figure 18: Cycle Step 3

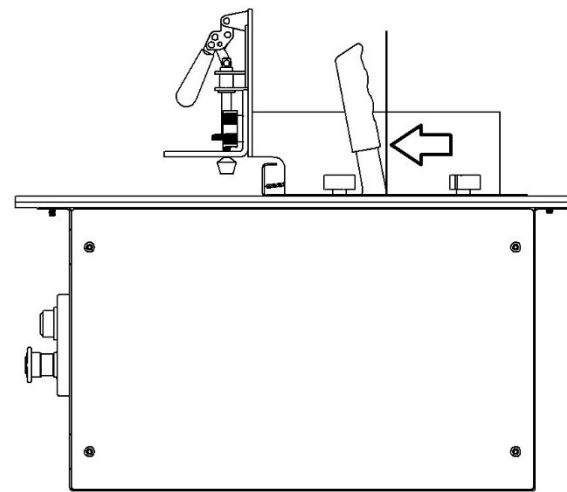


Figure 19: Cycle Step 4/1

Variable Cycle Speed

The variable cycle speed control for the machine is determined by the operator. The speed control adjustment is determined by the rate the operator pushes and pulls on the lever to complete a cycle. Push the lever harder for a faster cycle speed. Push the lever with less force to operate at a slower cycle speed. Use slower speeds when cutting deep pockets and/or harder materials. Faster speeds can be used for cutting shallow pockets or softer materials. The correct cycle speeds typically produces more accurate pockets and a better finish.

NOTE: See Janka Hardness Chart on Pg. 22 for a wood species hardness reference.

NOTE: If the cycle speed is set too slow, excessive heating of the bits and burning of the stock is possible. Burning can also be an indication of dull bits.

Cycle Speed must be matched to the materials being machined. Improper speed selection can result in reduced tool life, inaccurate, poor quality cuts, and safety risks. After installing new bits, or when cutting a new material, use a slow cycle speed for the first cut. Gradually increase cycle speed for subsequent cuts until the desired performance is achieved.

NOTE: If in doubt regarding the correct cycle speed, consult with your machinery dealer or call Safety Speed (763-755-1600) to determine the correct settings for your application(s).



When cutting deep pockets, it may be necessary to reduce cycle speed. Using a fast cycle along with deep pockets in hard materials can stall the machine or break the bits.



If the router or drill stalls, TURN THE SWITCH OFF and remove the workpiece. Do not turn the switch on and off. A dull bit(s) and/or excess cycle speed may cause stalling.

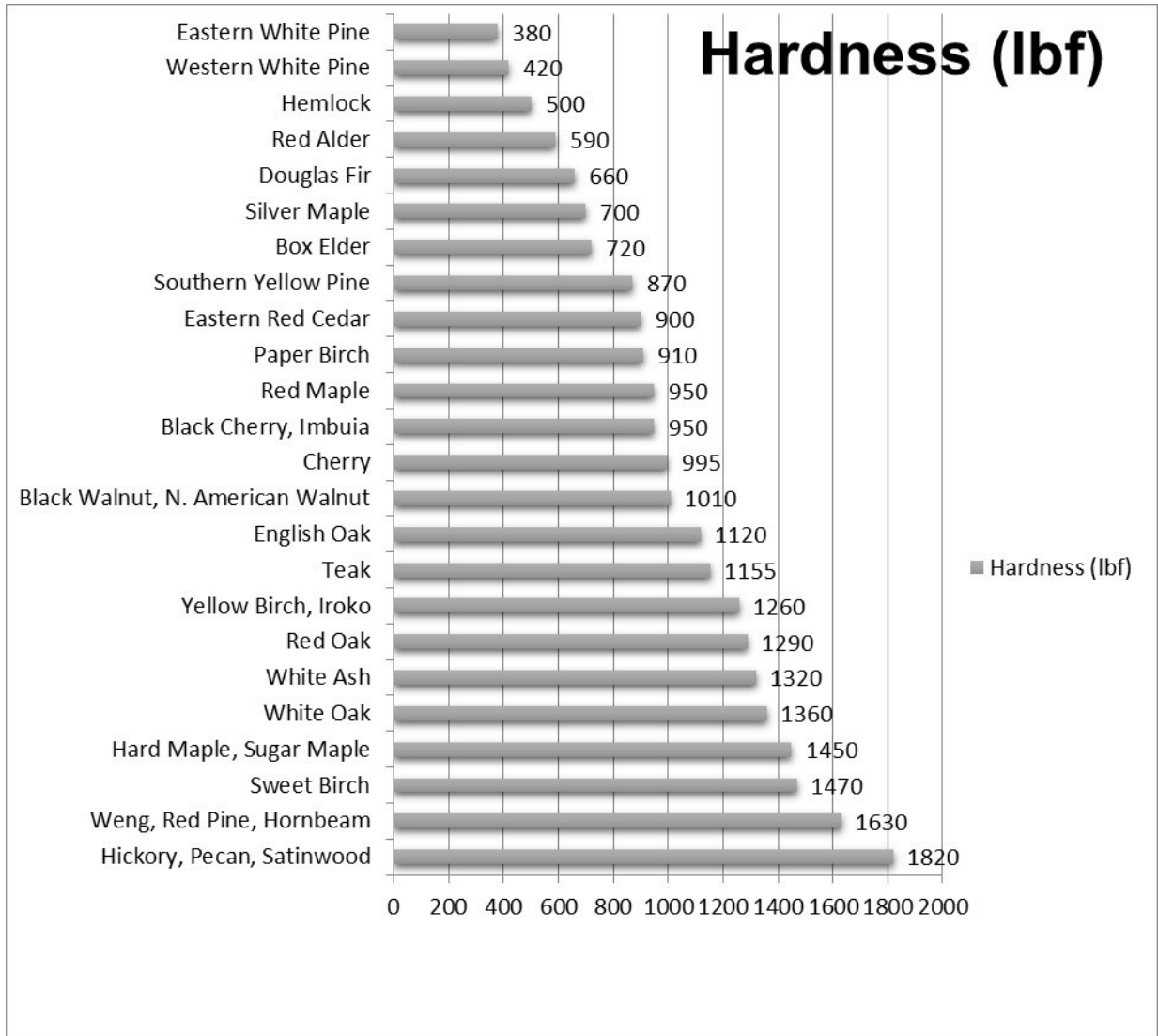
Janka Hardness Chart

The chart below shows the test results of some of the most common woods species. The *Janka* hardness test measures the resistance of the wood species to denting and wear. The test results shown below were done in accordance with “ASTM D 1037-12” testing methods.

Use slower speeds when cutting deep pockets in thick material or harder materials. Faster speeds can be used for cutting shallow pockets or soft materials. Slower cycle speeds will generally produce more accurate pockets and a better finish result.

NOTE: Fine tuning the cycle speed may be required for your specific conditions.

Table 2: Janka Hardness Chart



Pocket Depth Adjustment

The Screw Pocket Machine can be adjusted for varying pocket depths. There are pocket depth index holes located on the front and back sides of the main plate. Each index hole will adjust the pocket depth approximately 1/16". Use the upper index holes to cut deeper pockets, likewise use the lower holes to cut shallower pockets.

Pocket Depth Adjustment:

1. Unplug the main power electrical cord from the wall outlet.
2. Remove the 3X screws holding tabletop to the cabinet. Remove tabletop assembly. Remove the 4X screws holding each access side panel to the cabinet. Remove both side access panels. Use the supplied 5/32" hex Allen wrench.
3. Loosen the 4X main plate bolts (Figure 20) with 2X 9/16" wrenches. NOTE: Do not remove the nut from the bolt. Only loosen the nut until the main plate is able to slide up and down.
4. Remove the nuts from the index bolts using 2X 7/16" wrenches.
5. Remove bolt bolts (Figure 20) from the index holes.
6. Adjust the main plate to the next desired setting. Move the main plate up for a deeper pocket, or down for a shallower pocket.
7. Insert the index bolts into the new index location and adjust the main plate until the bolt pokes through. Thread and secure the nuts onto each index bolt. NOTE: Be sure to have both bolts inserted into the same horizontal index holes.
8. Tighten the 4X main plate bolts.
9. Place the 2X access panels on each side and tighten with the bolts. Place the tabletop assembly on top of the cabinet and tighten with the bolts.
10. Plug in the main power electrical cord into the wall outlet and create a pocket. Make subsequent pocket depth adjustments (steps 1-9) as needed until desired pocket is achieved.

NOTE: For the strongest joint and to reduce the possibility of the screw over penetrating, the screw hole should be centered in the thickness of the material for most applications.

NOTE: There are two factors and three variables to consider when setting up and calibrating the Screw Pocket Machine.

Two Factors

1. **Material Thickness (both parts, equal or dissimilar?).**
2. **Screw Length (desired).**

Three Variables

1. **Depth setting of Pocket (determines screw location, up/down)**
2. **Fence Location (position) (determines screw penetration)**
3. **Screw Length (practical) (determines holding force and screw penetration)**

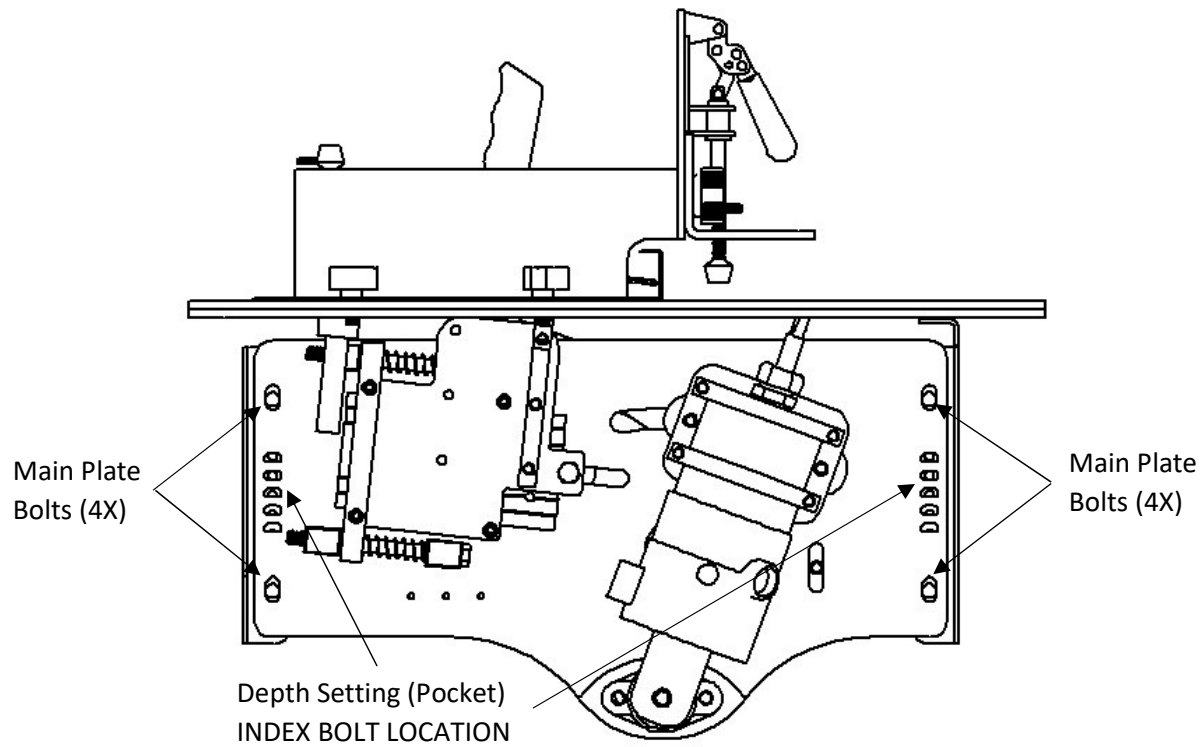


Figure 20: Pocket Depth Adjustment

⚠ CAUTION

When cutting deep pockets, it may be necessary to reduce cycle speed. Using fast cycles along with deep pockets in hard materials can stall the machine or break the router bit and/or drill bit.

Selecting Screws

There are many types and sizes of pocket hole screws available. When choosing the appropriate screw for your applications always choose **high quality, self-tapping** screws designed for pocket holes. Low quality screws can split material and the heads of the screws can easily break off.

Common “types” of pocket hole screws include:

- **Fine Thread** – good choice for hard/dense woods.
- **Coarse Thread** – good choice for soft woods and panel products, E.g. MDF, Plywood, Melamine, etc.
- **Washer Head** – good choice for softwoods and panel products (good surface with head and less chance of pulling through web).
- **Pan Head** – good choice for hardwoods and thin materials (less chance of head protruding from a shallow pocket).

Typical materials and coatings for screws:

- **Zinc plated steel** – good choice for interior work, not exposed to moisture.
- **Black phosphate coated steel** – good choice for interior work, not exposed to moisture.
- **Exterior coated steel** – good choice for exterior work or interior work exposed to light to moderate moisture.
- **Stainless Steel** – best choice for exterior work or any work exposed to moisture or when joining treated lumber.

Common screw length and material thickness guide (typical applications):

- **1” screw; 1/2” – 5/8”** thick material.
- **1-1/4” screw; 3/4” – 7/8”** thick material.
- **1-1/2” screw; 1” – 1-1/8”** thick material.
- **2” screw; 1-1/4” – 1-3/8”** thick material
- **2-1/2” screw; 1-1/2”** thick material

NOTE: The above information is only a guide, your specific materials and conditions may require alterations to screw size, types, materials or machine settings. Always test, in scrap material, the pocket location and screw size before joining good material. This is especially true when joining dissimilar thicknesses or, for example, when joining a side panel to a face frame.

Pocket Hole Positioning

Pocket Hole Location:

Pocket Holes should be positioned at least 5/8" in from end of stock (Web, Figure 21) and a minimum of 3/8" (Offset, Figure 22) from edge. This provides for a strong joint. Stock wider than 1-1/4" should have a minimum of two pocket holes and more pocket holes if over 3" wide. When joining cabinet sides to a face frame, or other large panel processing, pocket holes should be spaced every 6-8" and 2" in from the end (offset).



Figure 21: Web Dimension, 5/8" Minimum

Web, 5/8" min.

Offset,
3/8" min.



Figure 22: Offset Dimension, 3/8" Minimum

Fence Adjustment



Figure 23: Fence (Web) Adjustment

The Fence (Figure 23) aligns the edge of stock in the proper location for the pocket hole and length of the “Web” (Figure 21), (distance from end of stock to end of pocket hole). The Fence is adjustable and can be positioned for various screw lengths and material thicknesses. It is important to have the fence adjusted properly, if the Web is too short or too long it can create a weak joint. If too short the Web will not have enough strength and the screw could over penetrate. If the web is too long, the screw will not penetrate enough into the mating material.

NOTE: The typical Fence setting for joining two 3/4” thick pieces of material using 1-1/4” screws is approximately 5/8”. The web length is approximately 5/8”. Fine tuning the Fence for specific applications, materials and hardware may be required. Always process a test piece after making adjustments.

The Fence is secured to the table with four knobs. To adjust the Fence, loosen the four knobs and slide the Fence forward or back. A scale (Fence (Web) Adjustment Scale, Figure 23) is attached to the right side of the table (as you face the machine) with reference line built into the Fence. When the Fence is positioned properly tighten the four knobs to secure the Fence.

To Calibrate the Fence:

1. Make a test cut in scrap material (of equal thickness to stock material).
2. Install a screw into test pocket hole and seat firmly.
3. Confirm screw will not penetrate through face of mating material, or penetrate past the end of mating material.
4. Confirm screw has sufficient length through pocket to secure mating material.
5. Confirm pocket is “Offset” (Figure 22) a minimum of 3/8” from side of material.
6. Confirm pocket “Web” (Figure 21) is a minimum of 5/8” from end of material to end of pocket.
7. Screw check is as follows:
 - a. If screw does not properly extend through pocket hole, move Fence back.
 - b. If screw over extends through pocket hole, move Fence forward.
 - c. If screw penetrates through face of mating material, move Fence back and/or use a shorter screw.

NOTE: When adjusting the fence, the “Web” should be approximately 5/8”.

MAINTENANCE



To reduce the risk of injury, always unplug the tool before doing any maintenance. Never disassemble the tool or try to do any rewiring to its electrical system. Contact a qualified electrician for electrical repairs. Always follow lockout/tag out procedures when servicing electrical equipment.

General Maintenance

Keep the machine in good repair by adopting a regular maintenance program. Before each day's use, examine the general condition of the tool, and inspect the guards, switches and power cord for damage. Check for loose bolts, misalignment, binding of moving parts, improper mounting, broken parts, and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, turn the machine OFF immediately and have the problem corrected before further use. Do not use a damaged machine. Tag damaged machines "DO NOT USE" until repaired.

Cleaning

Daily:

- Clean all dust and debris from the vents in the motor housing.
- Keep the handles clean, dry and free from oil and grease.

Weekly:

- Clean all dust from the interior of the machine.

Use only mild soap and a damp cloth to clean the tool, because certain cleaning agents and solvents are harmful to plastics and other insulated parts. Some of these include: gasoline, turpentine, lacquer thinner, paint thinner, chlorinated cleaning solvents, ammonia, and household detergents containing ammonia. Never use flammable or combustible solvents around tools.



To reduce the risk of injury, electric shock, and damage to the tool, never immerse the router or drill in liquid or allow a liquid to flow inside it.

Maintaining Motors

For motor maintenance instructions see the included motor manuals. If your motor manuals are missing contact SSM for a replacement. Clean dust and debris from cooling fans (if so equipped).

Brushes (electric motors only):

Both brushes for an electric motor must be a minimum of 3/8" long and not cracked, chipped or dirty. Wipe with a clean cloth and reinstall if not requiring replacement. Contact Safety Speed Mfg. for replacement brushes **(763)-755-1600**.

SERVICE

Removing Motors



Unplug tool before making adjustments, changing motors or installing bits. Observe appropriate Lockout/Tagout procedures to insure the tool cannot accidentally be powered.

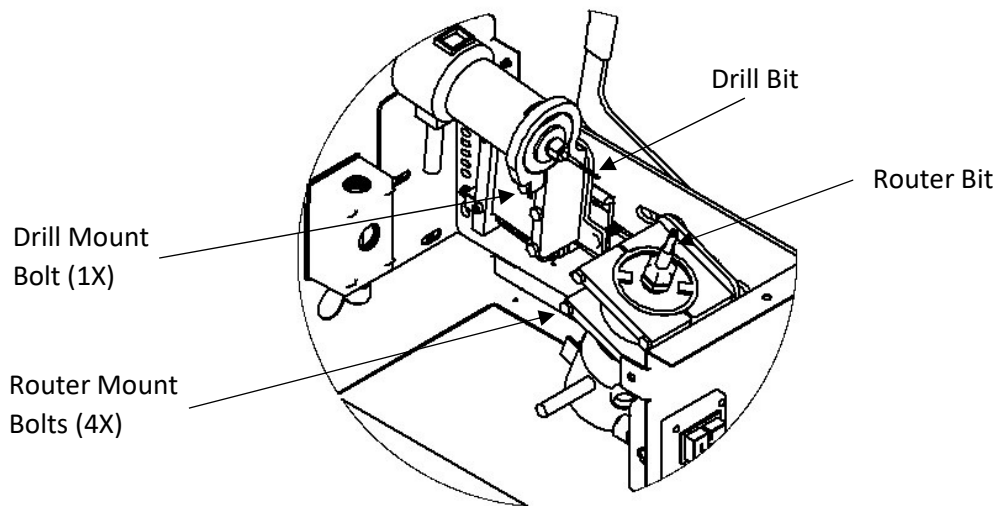


Figure 24: Motor Removal

Motor Removal Operation:

1. Disconnect and lock off the power supply.
2. Remove bit(s), see “Installing a Router Bit” or “Installing a Drill Bit”.
3. Loosen the bolts on the motor mount(s). Router, (Figure 24), or drill motor, (Figure 24).
4. Support the motor by hand and carefully pull it free of the motor mount(s)

Installing Motors



Unplug tool before making adjustments, changing motors or installing bits.
Observe appropriate Lockout/Tagout procedures to insure the tool cannot accidentally be powered.



Electric motors for the SPM101EZ are standard marketplace motors and can be repaired by an authorized repair shop or replaced by calling Safety Speed Manufacturing. Call SSM (763)-755-1600 Technical Service for details.

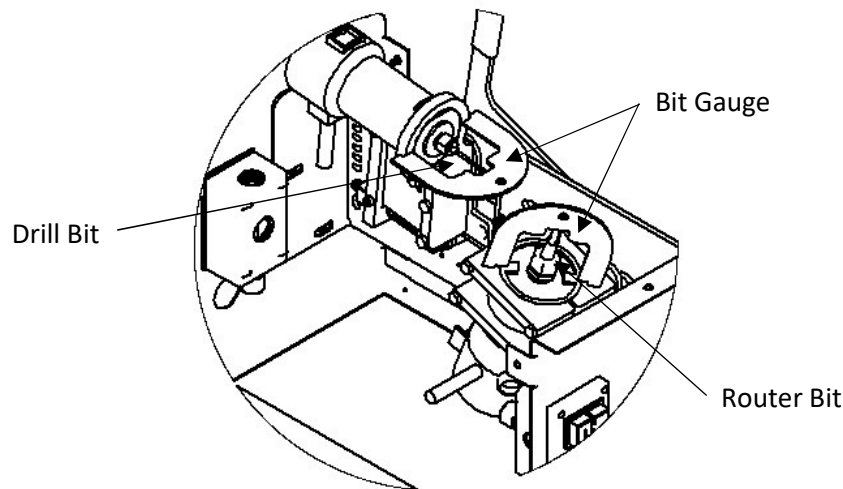


Figure 25: Installing Motors

1. Install the appropriate bit into the collet, finger tighten. A Drill Bit should extend approximately 1-1/4" from the end of the collet, (Figure 25). A Router Bit should extend approximately 1-5/8" from end of collet (Figure 25). Tighten Collet. This setting is for motor installation reference only, do not cycle the machine until step 4 is complete!



Do Not power up or cycle the Screw Pocket Machine until the last step is complete.

2. Mount the motor into its bracket(s), (Figure 25) using the appropriate Bit Gauge (Figure 25) to assist in aligning the motor in the correct position. Tighten the bolts securing the drill motor and/or router motor.
3. Position the Bit Gauge (Figure 25) against the drill mount (Figure 25) or router mount and confirm the bit is up against the bottom of the Bit Gauge.
4. If the bit(s) are not properly touching the Bit Gauge, loosen the collet nut, reposition bit and tighten the collect nut securely. See "Installing a Router Bit" and "Installing a Drill Bit" for detailed bit adjustment instructions.



Always use supplied Bit Gauge (Figure 25) when installing router or drill motors or bits. Failure to do so could result in the bits colliding with each other or the machine table when the machine is cycled. If your guide is missing or damaged contact SSM for a replacement.

Adjusting the Guide Arms

The Guide Arm Adjustment should be checked every 35-40 hours of operation. Bushing tension is correct when you can rotate the round black or gray nylon bushing by hand, but feel mild resistance.



Unplug tool before making adjustments or installing bits. Observe appropriate Lockout/Tagout procedures to insure the tool cannot accidentally be powered.

1. Loosen the lock nut (Figure 26).

NOTE: There are two Nuts, Bolts and Nylon Bushings to be checked.

2. Tighten bolt (Figure 26) until slight resistance can be felt when rotating the nylon bushing (Figure 26) by hand.
3. Tighten nut. When the bushings are properly adjusted you will be able to turn the bushing easily by hand, but will feel a slight drag. If this is too loose, the tool will chatter in the cut. If it is too tight, the machine will be difficult to cycle. Repeat the above procedure for the other bushings.

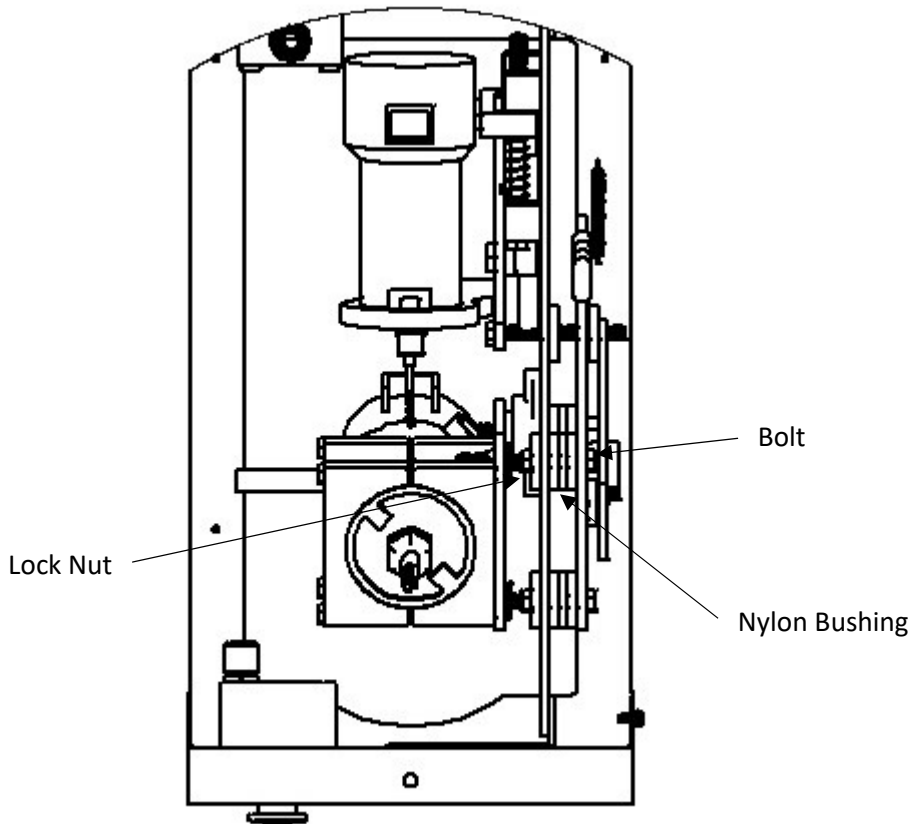


Figure 26: Guide Arm Adjustment (Top view with cover removed)

Lubricating the Guide Arms & Bushings

The guide arms and bushings should move smoothly over the frame plate. If the bushings become caked with dust or debris, the bushings may get stuck or may not slide smoothly. Periodically clean the bushings with a damp cloth, following the directions under “Cleaning”. Then use a dry lubricant such as a spray silicone. Other lubricants cause dust and debris to collect on the bushings and contaminate the bearings.



Unplug tool before making adjustments or installing bits. Observe appropriate Lockout/Tagout procedures to insure the tool cannot accidentally be powered.

Replacement Parts & Repairs

Contact your Safety Speed Manufacturing dealer or SSM for technical advice and repair parts (763) 755-1600. Much information can be found at www.safetyspeed.com. Have your model number and serial number available when calling for parts or advice. See inside front cover, of this manual, for serial label location and information.

DUST COLLECTION

Connecting the machine to a dust collection system is recommended. 600 CFM is the minimum recommended air flow. Dust collection extends the life of bits by removing excess debris and it helps to cool bits and motors, extending the working life of both. Contact Safety Speed, (763) 755-1600 for the dust accessory (Part# SP40).

Installation

Connect a 3” hose to your dust collection system. A minimum of 600 CFM is recommended.

NOTE: Dust collection adapters can be used to adjust to larger sized hoses or fittings.

Operation

Always turn the vacuum source on first before starting the machine.

SPECIFICATIONS

Table 3: Screw Pocket Machine Specifications

Model	Dimensions				Min. Stock Thickness	Max. Stock Thickness	Volts AC 1~
	Length	Height	Depth	Weight			
SPM101EZ	15”/381mm	22”/559mm	25”/635mm	68 lbs./31kg	.5”/13mm	1.5”/38mm	110

ACCESSORIES AND TOOLS

Table 4: Accessories & Tools

Description	Part #	Standard or Accessory
9/64" Drill Bit	PH119	Standard
2 Flute, 3/8" Router Bit, 1/2" Shank.	PH118	Standard
3 Flute, 3/8" Rougher Router Bit, 3/8" Shank.	PH125	Accessory
Tool Setter	PH217	Standard
5/32" Allen Wrench	MP154	Standard
Dust Collection	SP40	Accessory
Table Stop	SP45	Accessory

NOTE: Bits (Router Bits & Drill Bits) available from your SSM dealer or from SSM, call for details (763)-755-1600.

Installing Dust Cylinder Accessory

1. Unplug main power cord.
2. Remove operator's handle grip.
3. Remove 3X screws holding tabletop on. Use supplied 5/32" Allen wrench.
4. Remove tabletop.

NOTE: Be sure to not hit the motors and/or bits when removing the tabletop.

5. Place the dust cylinder bracket on top of the dust tube. Align the countersunk holes of the bracket with the slots of the dust cylinder. Insert 2X flat head screws through the countersunk holes and through the slots. Tighten 2X locknuts with 5/32" Allen wrench (supplied) and 7/16" wrench (not supplied). See Figure 27.

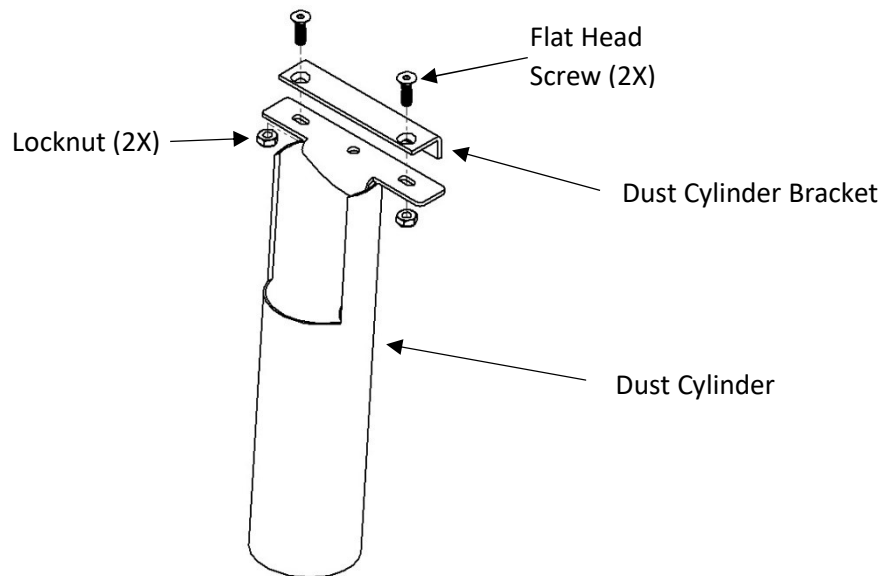


Figure 27: Dust Tube Bracket Mounted

6. Place the dust cylinder assembly on the front inside face of the machine. See Figure 28.
7. Insert 2X bolts the 2X holes of the bracket and front of machine.
8. Thread on 2X locknuts. Tighten with 2X 7/16" wrenches (not supplied).

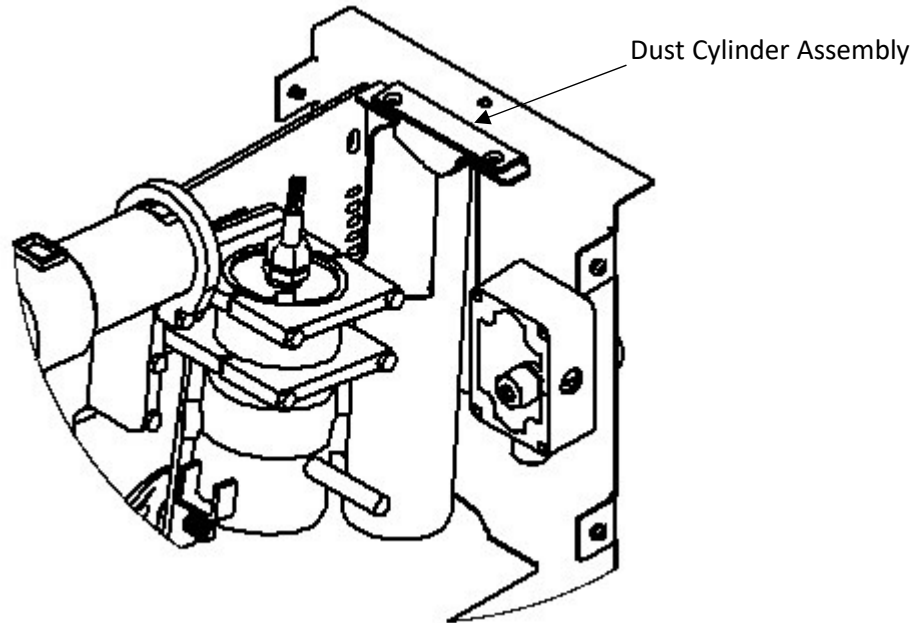


Figure 28: Dust Cylinder Accessory Installed

9. Install a 3" dust hose (not supplied) through the bottom of the frame. See Figure 29.
10. Place tabletop on top of frame.
11. Thread in and tighten 3X screws (use supplied 5/32" Allen wrench).
12. Install operator's handle grip.
13. Plug in main power cord in into wall.



Figure 29: Dust Hose Connected (Not Supplied)

Installing Material Stop Accessory

1. Place 2X Material Stop on the tabletop. Orientate the material stops so that the slots are parallel to the front edge of the machine.
2. Place the supplied washer (4X) onto the threaded stem of the adjustable handles (4X).
3. Thread in the adjustable handle through the slot of the material stop and into the threaded hole of the tabletop.
4. Repeat this for all 4X handles.
5. Adjust the material stops so that the middle opening between them is perpendicular to the fence.

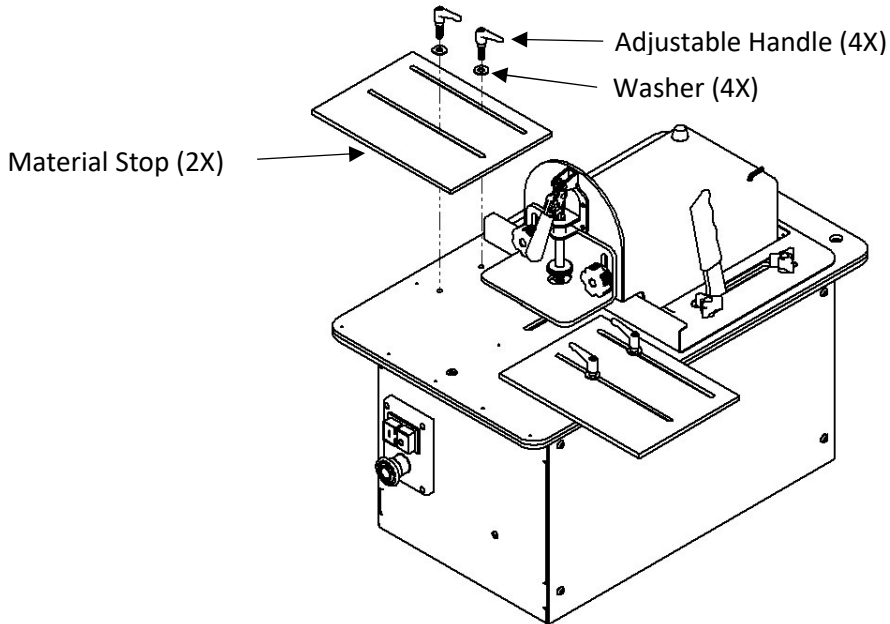


Figure 30: Material Stop Accessory Installed



13943 LINCOLN ST. NE
HAM LAKE, MN 55304
Phone: 763-755-1600 Fax: 763-755-6080
sales@safetyspeed.com

www.safetyspeed.com

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