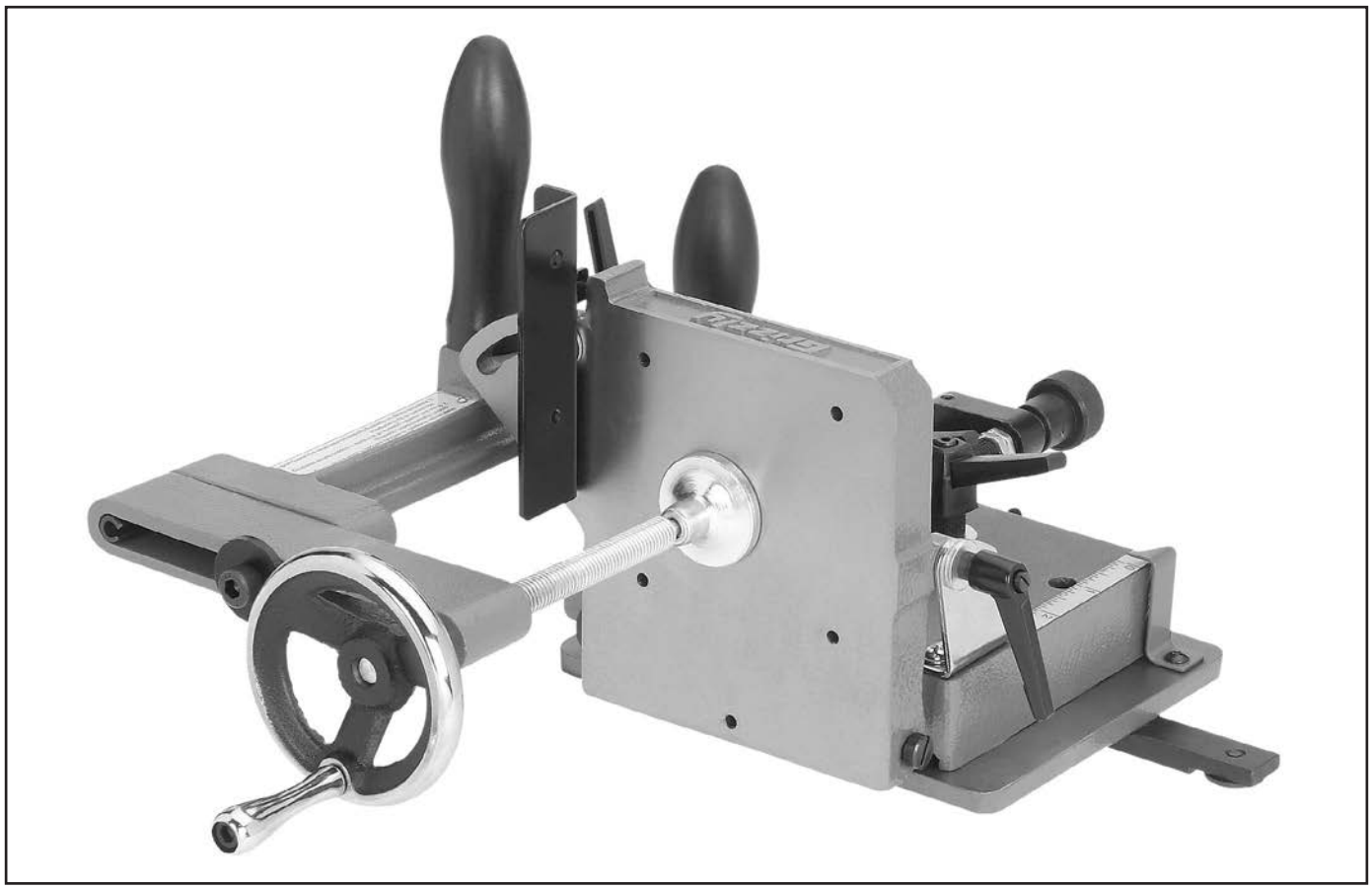
Grizzly Industrial, Inc.®

MODEL T30491
TENONING JIG
OWNER'S MANUAL
(For models manufactured since 11/18)



#WK20037 PRINTED IN TAIWAN V1.12.18

⚠ WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.

The owner of this machine/tool is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

⚠ WARNING!

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

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **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 specially designed to filter out microscopic particles.

Table of Contents

INTRODUCTION

Manual Accuracy

We are proud to offer this document with your new machine! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the machine we used when writing this manual. However, sometimes we still make an occasional mistake.

Also, owing to our policy of continuous improvement, **your machine may not exactly match the manual**. If you find this to be the case, and the difference between the manual and machine leaves you in doubt, immediately call our technical support for updates or clarification.

For your convenience, we post all available documentation on our website at **www.grizzly.com**. Any updates to this document will be reflected on our website as soon as complete.

Contact Info

We stand behind our machines! If you have questions or need help, contact us with the information below. Before contacting, make sure you get the **serial number** and **manufacture date** from the machine ID label. This will help us help you faster.

Grizzly Technical Support
1815 W. Battlefield
Springfield, MO 65807
Phone: (570) 546-9663
Email: techsupport@grizzly.com

We want your feedback on this manual. What did you like about it? Where could it be improved? Please take a few minutes to give us feedback.

Grizzly Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

Functional Overview

The tenoning jig is designed to work with your table saw to make a tenon, such as shown in **Figure 1**, which will be part of a mortise and tenon joint.

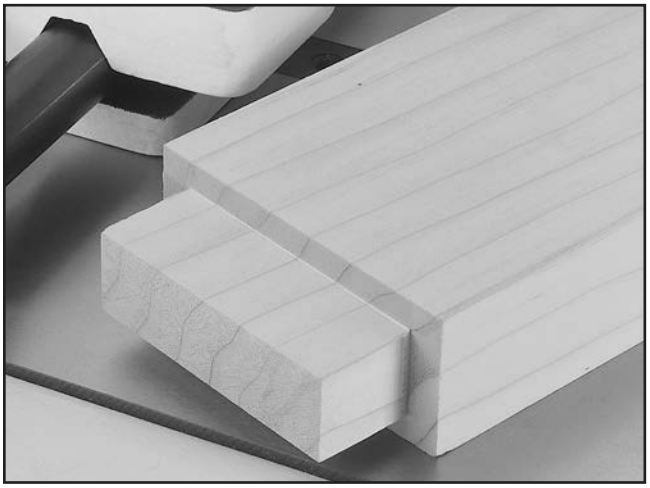


Figure 1. Example of a completed basic tenon.

With the tenoning jig mounted in the miter slot of the table saw, the workpiece is clamped upright to the jig in various configurations so that the tenon cheek cuts can be made. Then the jig is removed and the workpiece is laid flat on the table saw to make the shoulder cuts.

Table Saw Requirements

The T30491 Tenoning Jig is designed to work with most table saws. Use the table saw requirements listed below to verify that your table saw will work with the tenoning jig.

Table Saw Miter Slot ..... Standard ¾" w/T-Slot
Distance from Miter Slot Center to Blade:
Minimum ..... 3¾"
Maximum ..... 6¾"

Identification

Become familiar with the names and locations of the controls and features shown below to better understand the instructions in this manual.

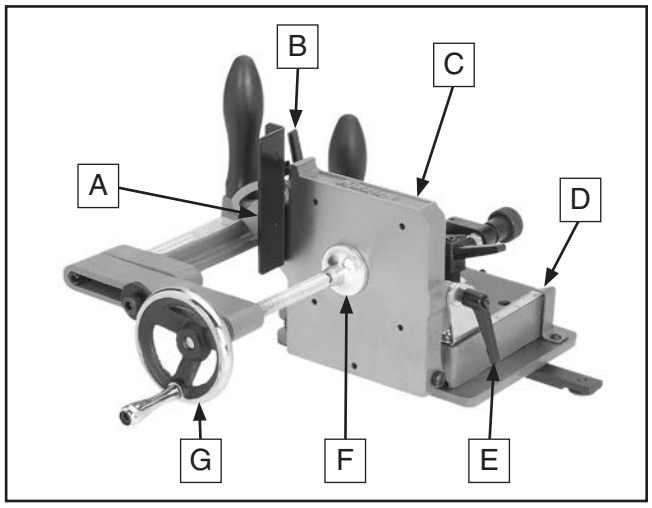


Figure 2. T30491 identification, right side.

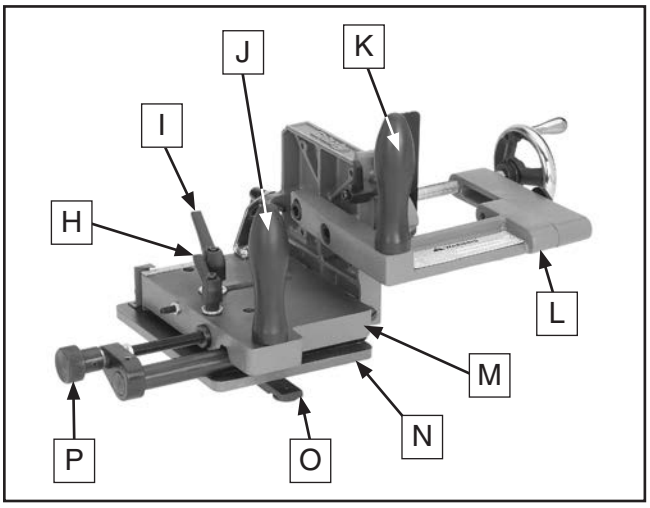
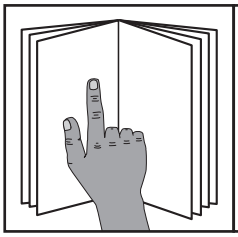


Figure 3. T30491 identification, left side.

A. Back Support
B. Back Support Lock Lever
C. Side Support
D. Depth of Cut Scale & Pointer
E. Side Support Tilt Lock Lever
F. Clamp Shoe
G. Clamp Handwheel
H. Micro-Adjust Lock Lever
I. Slide Plate Lock Lever
J. Slide Plate Handle
K. Clamp Handle
L. Clamp Brace
M. Slide Plate
N. Base Plate
O. Guide Bar
P. Micro-Adjust Knob



⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

SECTION 1: SAFETY

For Your Own Safety, Read Instruction Manual Before Operating This Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures. Always use common sense and good judgment.

⚠DANGER **Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.**

⚠WARNING **Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.**

⚠CAUTION **Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.**

NOTICE **Alerts the user to useful information about proper operation of the machine to avoid machine damage.**

Safety Instructions for Machinery

⚠WARNING

OWNER'S MANUAL. Read and understand this owner's manual BEFORE using machine.

TRAINED OPERATORS ONLY. Untrained operators have a higher risk of being hurt or killed. Only allow trained/supervised people to use this machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make your workshop kid proof!

DANGEROUS ENVIRONMENTS. Do not use machinery in areas that are wet, cluttered, or have poor lighting. Operating machinery in these areas greatly increases the risk of accidents and injury.

MENTAL ALERTNESS REQUIRED. Full mental alertness is required for safe operation of machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

ELECTRICAL EQUIPMENT INJURY RISKS. You can be shocked, burned, or killed by touching live electrical components or improperly grounded machinery. To reduce this risk, only allow qualified service personnel to do electrical installation or repair work, and always disconnect power before accessing or exposing electrical equipment.

DISCONNECT POWER FIRST. Always disconnect machine from power supply BEFORE making adjustments, changing tooling, or servicing machine. This prevents an injury risk from unintended startup or contact with live electrical components.

EYE PROTECTION. Always wear ANSI-approved safety glasses or a face shield when operating or observing machinery to reduce the risk of eye injury or blindness from flying particles. Everyday eyeglasses are NOT approved safety glasses.

⚠WARNING

WEARING PROPER APPAREL. Do not wear clothing, apparel or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to reduce risk of slipping and losing control or accidentally contacting cutting tool or moving parts.

HAZARDOUS DUST. Dust created by machinery operations may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material. Always wear a NIOSH-approved respirator to reduce your risk.

HEARING PROTECTION. Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

REMOVE ADJUSTING TOOLS. Tools left on machinery can become dangerous projectiles upon startup. Never leave chuck keys, wrenches, or any other tools on machine. Always verify removal before starting!

USE CORRECT TOOL FOR THE JOB. Only use this tool for its intended purpose—do not force it or an attachment to do a job for which it was not designed. Never make unapproved modifications—modifying tool or using it differently than intended may result in malfunction or mechanical failure that can lead to personal injury or death!

AWKWARD POSITIONS. Keep proper footing and balance at all times when operating machine. Do not overreach! Avoid awkward hand positions that make workpiece control difficult or increase the risk of accidental injury.

CHILDREN & BYSTANDERS. Keep children and bystanders at a safe distance from the work area. Stop using machine if they become a distraction.

GUARDS & COVERS. Guards and covers reduce accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly BEFORE operating machine.

FORCING MACHINERY. Do not force machine. It will do the job safer and better at the rate for which it was designed.

NEVER STAND ON MACHINE. Serious injury may occur if machine is tipped or if the cutting tool is unintentionally contacted.

STABLE MACHINE. Unexpected movement during operation greatly increases risk of injury or loss of control. Before starting, verify machine is stable and mobile base (if used) is locked.

USE RECOMMENDED ACCESSORIES. Consult this owner's manual or the manufacturer for recommended accessories. Using improper accessories will increase the risk of serious injury.

UNATTENDED OPERATION. To reduce the risk of accidental injury, turn machine ***OFF*** and ensure all moving parts completely stop before walking away. Never leave machine running while unattended.

MAINTAIN WITH CARE. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. A machine that is improperly maintained could malfunction, leading to serious personal injury or death.

DAMAGED PARTS. Regularly inspect machine for damaged, loose, or mis-adjusted parts—or any condition that could affect safe operation. Immediately repair/replace BEFORE operating machine. For your own safety, DO NOT operate machine with damaged parts!

MAINTAIN POWER CORDS. When disconnecting cord-connected machines from power, grab and pull the plug—NOT the cord. Pulling the cord may damage the wires inside. Do not handle cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, and wet/damp locations.

EXPERIENCING DIFFICULTIES. If at any time you experience difficulties performing the intended operation, stop using the machine! Contact our Technical Support at (570) 546-9663.

Additional Safety for Tenoning Jigs

⚠WARNING

Serious cuts, amputation, or death can occur from contact with rotating saw blade during operation. Workpieces, broken blades, or flying particles thrown by blade can blind or strike operators or bystanders with deadly force. To reduce the risk of these hazards, operator and bystanders MUST completely heed the hazards and warnings below.

OWNER'S MANUALS. Read and understand this manual *and* the manual for your table saw before using tenoning jig.

HAND & BODY POSITIONING. Keep hands away from saw blade and out of blade path during operation, so they cannot accidentally slip into blade. Only operate at front of machine and always stand to side of blade path. Never reach behind or over blade. *If kickback occurs while reaching over blade, hands, fingers, or arms could be pulled into spinning blade.*

KICKBACK. Kickback occurs when saw blade ejects workpiece back toward operator. Know how to reduce risk of kickback, and learn how to protect yourself if it does occur.

SECURING WORKPIECE. ALWAYS securely clamp workpiece in tenoning jig, and make sure all fasteners and lock levers are tight before you start saw. ALWAYS make sure jig will not make contact with saw blade during operation.

REMOVING TOOLS. Remove tools and other items from jig and table saw before turning saw ***ON*** to avoid risk of these items being thrown toward operator or bystander at high speed.

JIG CONTROL. ALWAYS use two hands to firmly hold both tenoning jig handles when cutting. NEVER hold jig with just one hand.

ADJUSTING JIG. DISCONNECT SAW FROM POWER *before* installing or adjusting jig, saw, or workpiece.

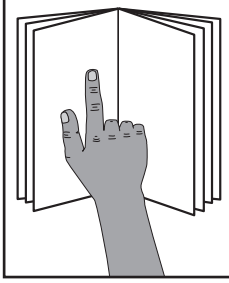
CUTTING CORRECT MATERIAL. Cutting metal, glass, stone, tile, etc., increases risk of operator injury due to kickback or flying particles. Only cut natural and man-made wood products, laminate-covered wood products, and some plastics. Never cut materials not intended for your saw.

SELECTING TENON LOCATION. Select clean tenon locations that are low in moisture content, and are free of knots, staples, nails, and embedded debris.

CHECKING TABLE SAW ACCESSORIES. Make sure other accessories used on table saw do not interfere with operation of tenoning jig.

RE-INSTALLING BLADE GUARD. Always immediately re-install and correctly adjust blade guard and any other safety features of table saw after removing tenoning jig.

SECTION 2: SETUP



⚠WARNING

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the machine!

⚠WARNING

Wear safety glasses during the entire setup process!

Needed for Setup

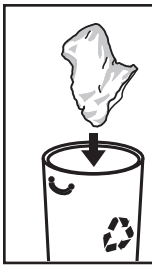
The following items are needed, but not included, for the setup/assembly of this machine.

Description	Qty
• Square 90°	1
• Shop Rags & Solvent	As Needed
• Phillips Screwdriver #2	1
• Hex Wrench 3⁄16"	1
• Open-End Wrench 8mm	1
• Open-End Wrench 10mm	1
• Machinist's Square	1

Unpacking

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. ***If items are damaged, please call us immediately at (570) 546-9663.***

IMPORTANT: Save all packaging materials until you are completely satisfied with the machine and have resolved any issues between Grizzly or the shipping agent. *You MUST have the original packaging to file a freight claim. It is also extremely helpful if you need to return your machine later.*



⚠WARNING

SUFFOCATION HAZARD!

Keep children and pets away from plastic bags or packing materials shipped with this machine.

Inventory

The following is a list of items shipped with your machine. Before beginning setup, lay these items out and inventory them.

If any non-proprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

NOTICE

If you cannot find an item on this list, carefully check around/inside the machine and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.

Inventory (Figure 4)	Qty
A. Tenoning Jig Assembly	1
B. Clamp Handwheel	1
C. Clamp Shoe & Bracket	1
D. Clamp Brace	1
E. Handles	2

Hardware & Tools (not shown)	Qty
• Lock Washers 10mm	2
• Fender Washer 5/16"	1
• Cap Screw M8-1.25 x 50	1
• Cap Screw M10-1.5 x 25	1
• Cap Screw M10-1.5 x 20	1
• Hex Wrenches 2.5, 3, 4, 6, 8mm	1 Each

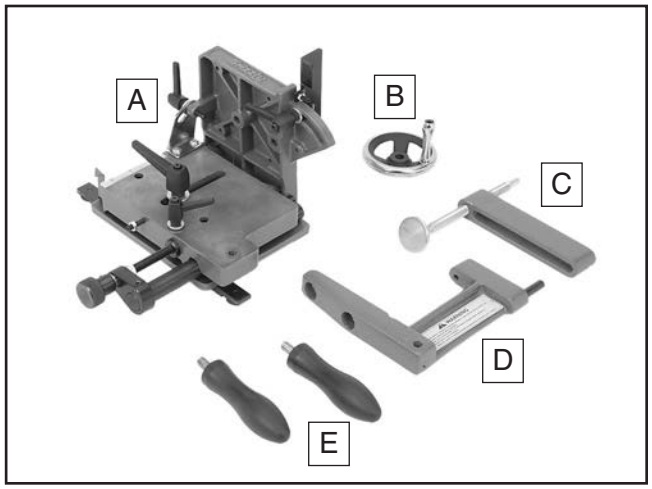


Figure 4. Model T30491 inventory.

Cleanup

The unpainted surfaces of your machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage. This rust preventative works extremely well, but it will take a little time to clean.

Be patient and do a thorough job cleaning your machine. The time you spend doing this now will give you a better appreciation for the proper care of your machine's unpainted surfaces.

There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

Before cleaning, gather the following:

- Disposable rags
- Cleaner/degreaser (WD•40 works well)
- Safety glasses & disposable gloves
- Plastic paint scraper (optional)

Basic steps for removing rust preventative:

1. Put on safety glasses.

2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.

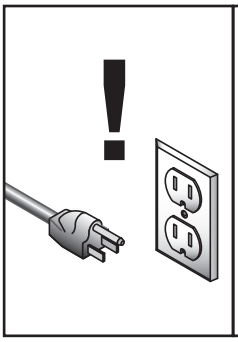
3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic paint scraper, scrape off as much as you can first, then wipe off the rest with the rag.

4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.

NOTICE

Avoid harsh solvents like acetone or brake parts cleaner that may damage painted surfaces. Always test on a small, inconspicuous location first.

Preparing Table Saw



⚠WARNING

Always disconnect power to the table saw before performing adjustments, maintenance, or service to the saw or tenoning jig. Failure to do this may result in serious personal injury.

The Model T30491 Tenoning Jig is designed to work with a table saw that has a ⅜" x ¾" miter T-slot on the left side of the blade. To help ensure safe and accurate tenons, follow these rules to properly prepare your table saw before using it with the jig.

- **Table Saw Operation:** Make sure that you read and understand your table saw owner's manual, and take all instructed safety precautions.
- **Riving Knife:** You must use a riving knife that is properly installed behind the blade to ensure the kerf does not close on the blade and cause kickback.
- **Saw Blades:** Make sure that your saw blades are not damaged and that the teeth are sharp.
- **Saw Adjustments:** When using the tenoning jig, the accuracy of the cuts depend upon the accuracy of the saw blade. Make sure that your saw blade is perpendicular to the table and parallel with the miter slots.
- **Miter Slot and Table:** Make sure the miter slots and table are free from burrs or debris that may interfere with the smooth operation of the jig.
- **Lighting:** Make sure the top of your table has adequate lighting so that the tenoning jig and workpiece are properly illuminated without shadows.

Preparing Tenoning Jig

To properly assemble and adjust your tenoning jig, you must perform the following procedures before using it to make tenons:

- Assembly.
- Re-Mounting Guide Bar (**Page 10**).
- Adjusting Guide Bar (**Page 12**).
- Adjusting Side Support (**Page 13**).
- Adjusting Back Support (**Page 14**).
- Adjusting Blade Clearance (**Page 14**).

Assembly

To assemble tenoning jig:

1. Attach clamp brace to back of side support using (1) M10-1.5 x 20 cap screw with 10mm lock washer, and (1) M10-1.5 x 25 cap screw with 10mm lock washer, as shown in **Figure 5**.

   Note: *These cap screws are different lengths and must go into the correct holes, as shown in **Figure 5**.*

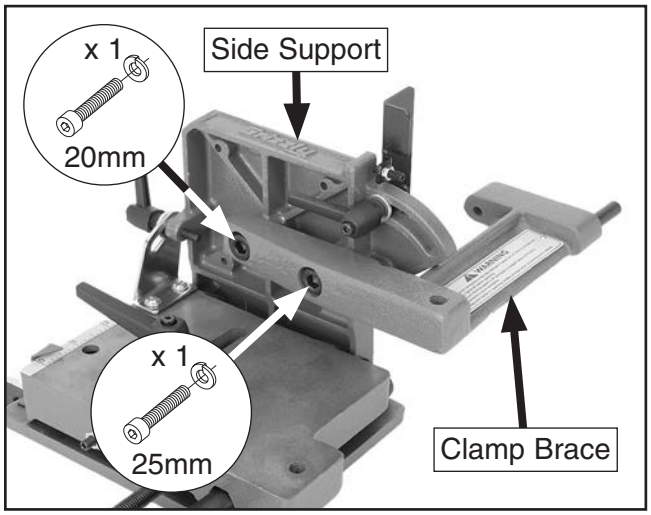


Figure 5. Clamp brace installed.

2. Install handles into threaded holes on clamp brace and slide plate, as shown in **Figure 6**.

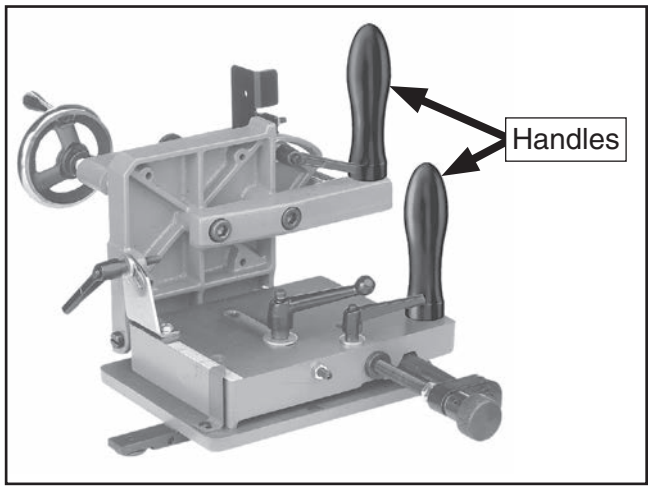


Figure 6. Handles installed.

3. Slide clamp bracket over clamp brace rod, as shown in **Figure 7**, then secure it with (1) M8-1.25 x 50 cap screw and (1) 5/16" fender washer.

4. Align set screw in hub of handwheel (see **Figure 7**) with flat of clamp shaft, then slide handwheel onto shaft and tighten set screw.

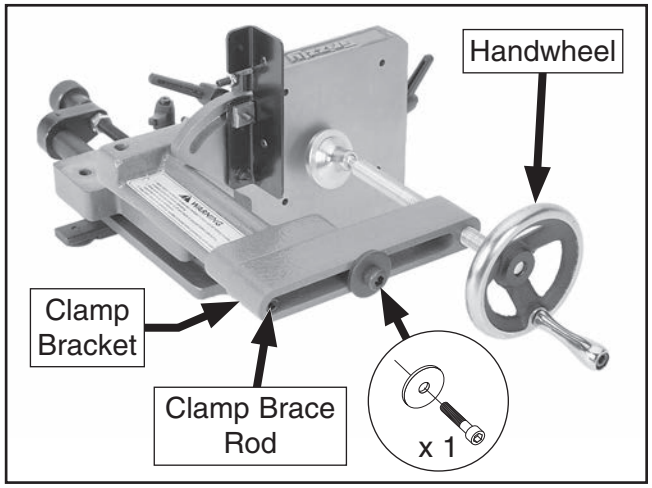


Figure 7. Clamp bracket and handwheel installed.

Re-Mounting Guide Bar

The guide bar can be mounted to the slide plate in two positions (see **Figures 8**–**9**), depending on the distance between the left-hand miter slot of the table and the blade. The jig ships with the guide bar mounted in the outward position. If the jig needs to be farther from the blade, you will need to mount the guide bar in the inward position.

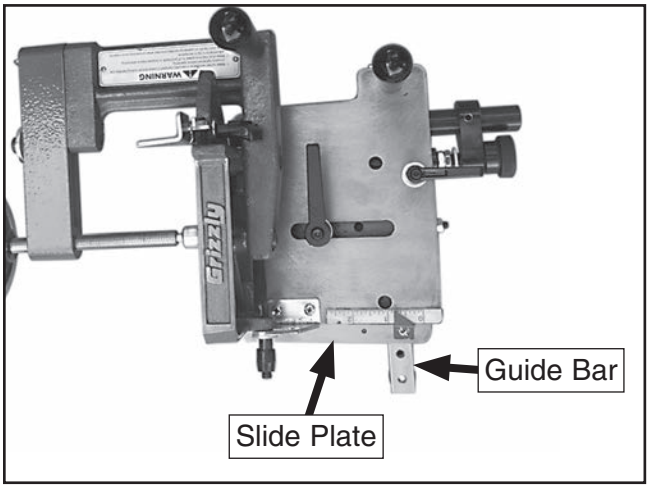


Figure 8. Location of guide bar and slide plate.

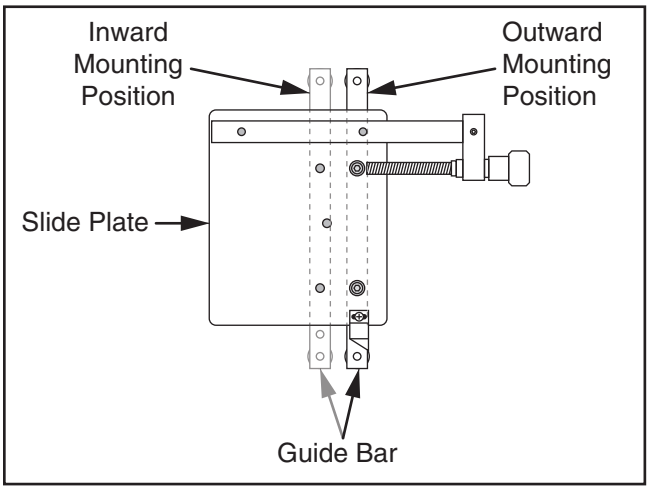


Figure 9. Guide bar mounting positions (slide plate shown removed for clarity).

To re-mount guide bar in inward position:

1. Remove slide plate lock lever and flat washer, then un-thread the M8-1.25 x 55 set screw the lock lever was attached to (see **Figure 10**).

   Note: *The set screw will fall between the slide and base plates and will be accessible in the following steps.*

2. Loosen micro-adjust lock lever, then rotate micro-adjust knob counterclockwise to force slide plate to move and separate from micro-adjust leadscrew, as shown in **Figure 10**.

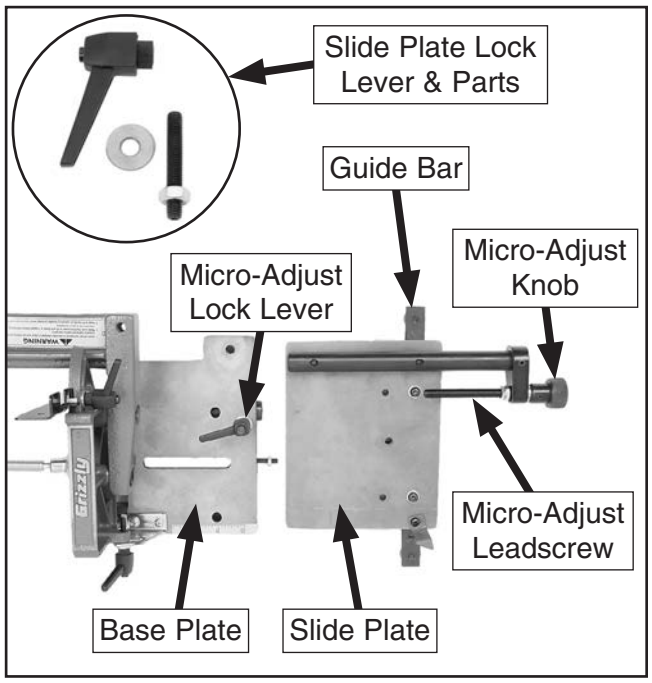


Figure 10. Slide and base plates separated.

3. Loosen set screw on micro-adjust assembly, then remove micro-adjust assembly from rod (see **Figure 11**).

4. Remove (2) pre-installed M6-1 x 20 button head cap screws that secure guide bar to base plate, then re-install bar in inward mounting position, as shown in **Figure 11**.

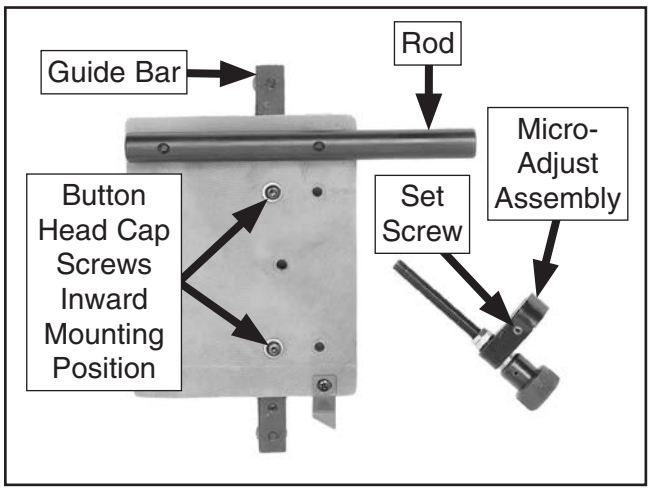


Figure 11. Guide bar mounted in inward position.

5. Thread M8-1.25 x 55 set screw removed in **Step 1** back into middle, inward hole on base plate, then tighten jam nut to secure it (see **Figure 12**).

6. Loosen Phillips head screw that secures pointer (see **Figure 12**), and swing pointer out of the way.

7. Place slide plate onto base plate over M8-1.25 x 55 set screw, as shown in **Figure 12**.

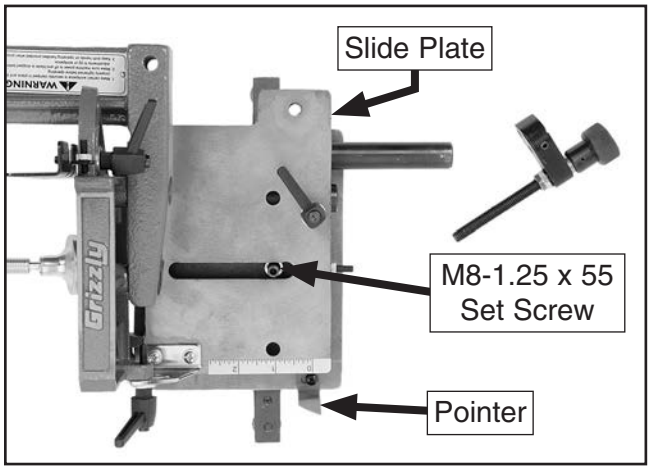


Figure 12. Slide plate positioned over base plate.

8. Slide micro-adjust collar onto rod, align micro-adjust leadscrew with threaded guide bushing of slide plate, then rotate knob clockwise until collar is even with rod, as shown in **Figure 13**.

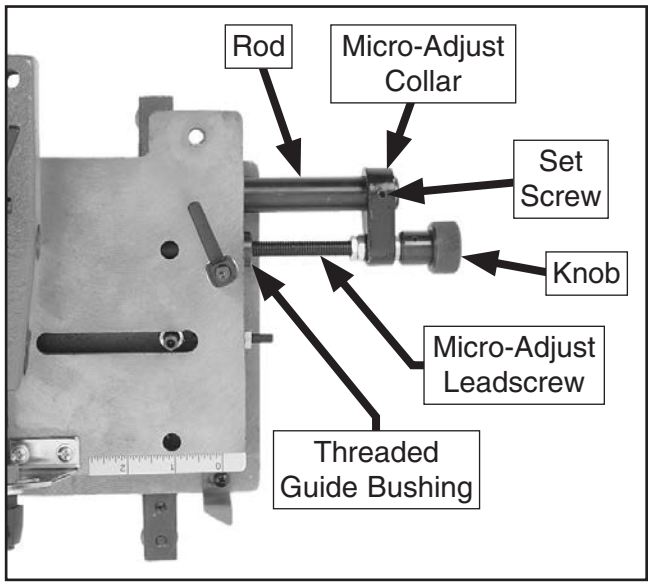


Figure 13. Micro-adjust assembly properly positioned.

9. With one hand pressing slide plate flat against base plate to properly align micro-adjust assembly, fully tighten set screw on micro-adjust collar to secure it to rod.

10. Re-position and secure pointer, then re-install slide plate lock lever and flat washer.

To mount guide bar in outward position:

1. Perform inward mounting procedure but install guide bar using right row of mounting holes on base plate (see **Figure 14**).

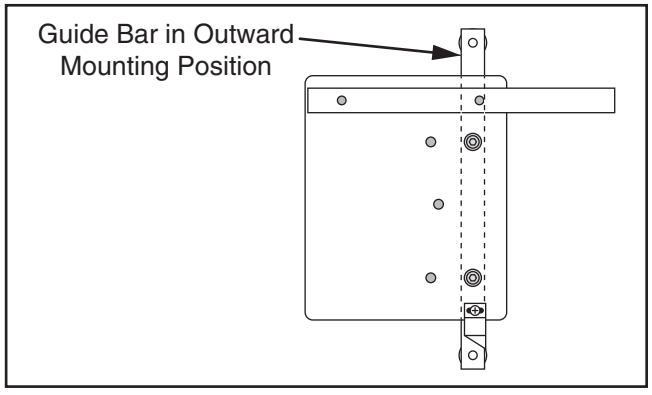


Figure 14. Guide bar in outward mounting position (slide plate shown removed for clarity).

Adjusting Guide Bar

In this procedure you will adjust the guide bar so that it slides back and forth in the table saw miter slot without side-to-side play or tilt that would make the operation unsafe or produce poor cutting results.

To adjust guide bar:

1. DISCONNECT TABLE SAW FROM POWER!

2. Insert tenoning jig guide bar into table saw miter slot, then slide it back and forth.

   — If guide bar slides freely in miter slot with no side-to-side play or tilt, then no adjustment is necessary. Continue with **Adjusting Side Support** procedure on **Page 13**.

   — If side-to-side play or tilt exists, continue with **Step 3**.

3. Remove tenoning jig from table saw and turn it upside down, as shown in **Figure 15**.

4. Evenly adjust set screws shown in **Figure 15** the same amount so that they protrude from guide bar enough to take up side-to-side play described in **Step 2**.

5. Make sure (2) pre-installed ¼-20 x ⅜" flat head cap screws that secure T-slot washers (see **Figure 15**) are tight.

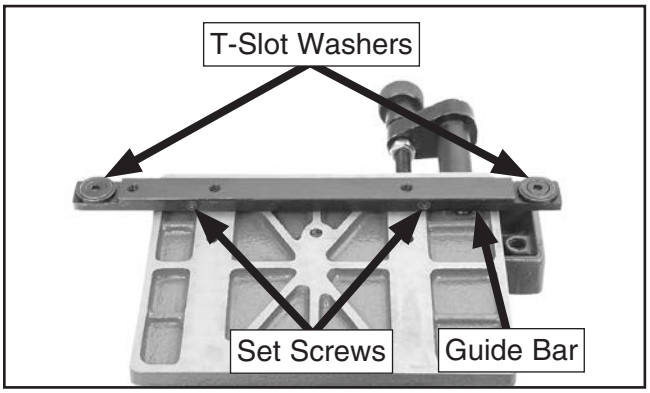


Figure 15. Guide bar adjustment components.

6. Repeat **Steps 2–5** until you are satisfied with movement of guide bar in saw miter slot.

Adjusting Side Support

In this procedure you will adjust the side support so it is perpendicular to the table of the saw. Then you will set the 90° positive stop so the support can be quickly returned to the perpendicular position after an angle cut.

To adjust side support:

1. DISCONNECT TABLE SAW FROM POWER!

2. Make sure saw blade is perpendicular to table miter slot (refer to your table saw owner's manual for instructions).

3. Completely lower saw blade so it will not interfere with measurements.

4. Clean away any debris from table or tenoning jig that could affect measurements, then insert jig all the way into miter slot.

⚠WARNING

DO NOT remove T-slot washers from ends of tenoning jig guide bar. Removal of washers will allow tenoning jig to come loose from table during a kickback situation, possibly causing serious personal injury or property damage.

5. Thread positive stop set screw far enough into side support (see **Figure 16**) so that it will not interfere with the next step.

6. Position machinist's square flat on table and up against tenoning jig side support, as shown in **Figure 16**.

7. Loosen support lock lever, position side support flat against machinist's square, then, without moving support, re-tighten lock lever (see **Figure 16**).

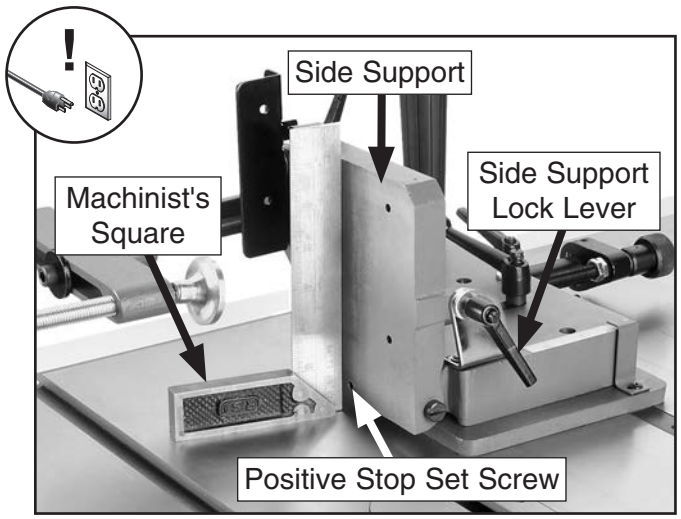


Figure 16. Adjusting the side support perpendicular to the saw table.

8. Remove square and re-tighten positive stop set screw until it just meets resistance. The 90° positive stop is now set for quick perpendicular positioning of side support.

Adjusting Back Support

In this procedure you will adjust the back support perpendicular to the saw table, then set the 90° positive stop so the back support can be returned to the perpendicular position after an angle cut.

To adjust back support:

1. DISCONNECT TABLE SAW FROM POWER!

2. Completely lower saw blade so that it will not interfere with measurements.

3. Clean away any debris from table or tenoning jig that could affect measurements, then insert jig all the way into miter slot.

4. Loosen jam nut on positive stop set screw, then back off set screw to allow adjustment of back support (see **Figure 17**).

5. Position machinist's square flat on table and up against back support, as shown in **Figure 17**.

6. Loosen back support lock lever (see **Figure 17**), position back support flat against machinist's square, then, without moving back support, re-tighten lock lever.

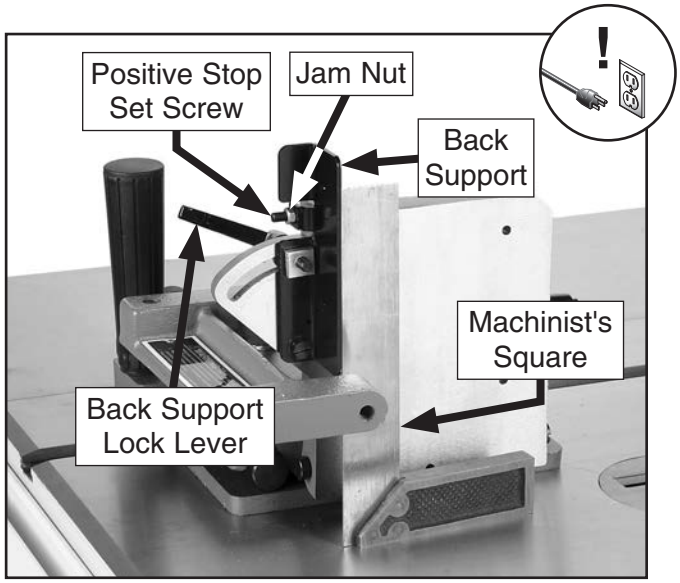


Figure 17. Adjusting back support perpendicular to saw table.

7. Remove square and re-tighten positive stop set screw until it just meets resistance, then re-tighten jam nut to secure setting. The 90° positive stop is now set for quick perpendicular positioning of back support.

Adjusting Blade Clearance

In this procedure you will adjust the side support to be parallel with the saw blade and ½" away from it. Then you will set the safety stop set screw (see **Figure 18**) so that the side support cannot come into contact with the blade when adjusting for different cuts.

WARNING

You must ensure side support safety stop is adjusted so that support cannot contact blade when jig is mounted in left-hand table miter slot. Jig side support must stay at least ½" away from blade at all times during operation. If side support and blade make contact during operation, serious personal injury and damage to machine could result.

To adjust blade clearance:

1. DISCONNECT TABLE SAW FROM POWER!

2. Make sure saw blade is perpendicular to table and parallel with miter slot.

3. Make sure tenoning jig side support is perpendicular to table (refer to **Adjusting Side Support** on **Page 13** for instructions).

4. Loosen jam nut on safety stop set screw, then back the set screw out so that it will not interfere with adjustments (see **Figure 18**).

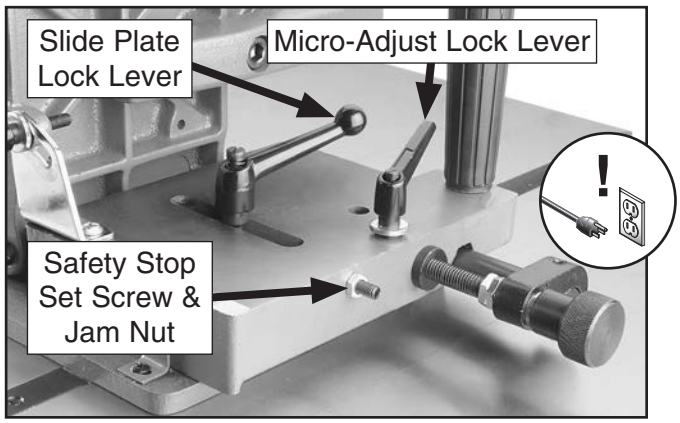


Figure 18. Side support safety stop.

5. Fully raise saw blade.

6. Loosen slide plate and micro-adjust lock levers, shown in **Figure 18**, then use clamp handwheel to move clamp leadscrew and shoe out of the way for the next step (see **Figure 19**).

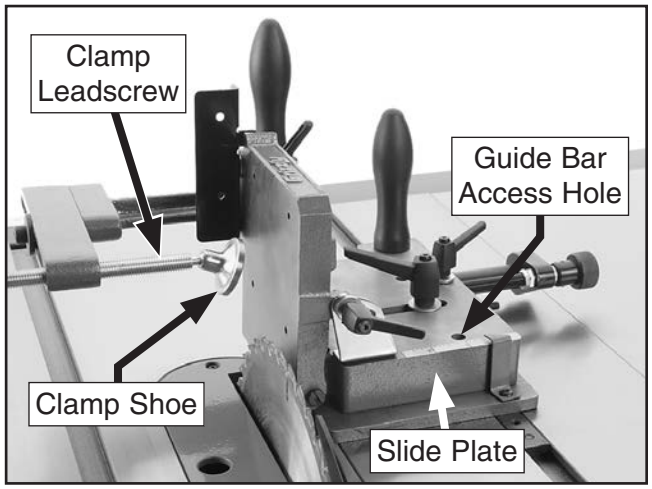


Figure 19. Checking for side support parallelism with the saw blade.

7. Use micro-adjust knob to move side support against saw blade.

   Note: *If tenoning jig side support will not reach the blade, you may need to re-mount guide bar in the inward or left mounting position (refer to* ***Re-Mounting Guide Bar*** *on* ***Page 10*** *for detailed instructions). If tenoning jig still does not reach the blade after changing guide bar mounting position, the difference can be made up when attaching side support backing board (refer to* ***Step 5*** *of* ***Basic Tenon Cutting*** *beginning on* ***Page 16*** *for instructions).*

   — If jig side support is parallel with saw blade, no adjustments are necessary.

   — If side support and blade are not parallel, note the difference and continue with **Step 8**.

   Note: *If side support does not quite reach the blade, use a precise ruler to compare the distance between the side support and the front and back of the blade.*

8. Use micro-adjust knob to align slide plate guide bar access hole (see **Figure 19**) over guide bar cap screw, then loosen cap screw.

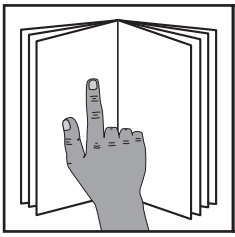
9. Shift end of tenoning jig assembly with access hole left or right until side support is parallel with blade, then tighten guide bar cap screw.

10. Repeat **Steps 7–9** until tenoning jig side support is parallel with saw blade.

11. When side support is parallel with blade, use micro-adjust knob to move side support at least ½" away from saw blade.

12. Tighten safety stop set screw toward slide plate lock set screw until it just meets resistance, then tighten jam nut to secure setting. The safety stop set screw is now correctly set to prevent side support from contacting saw blade.

SECTION 3: OPERATIONS

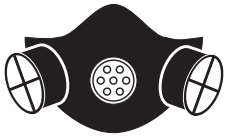


⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

⚠WARNING

To reduce risk of eye injury from flying chips or lung damage from breathing dust, always wear safety glasses and a respirator when operating this machine.



NOTICE

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND that you seek additional training outside of this manual. Read books/magazines or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

Cutting Basic Tenons

Your tenoning jig is designed to make tenon cheek cuts only. Generally, cheek cuts are made before the structural and cosmetic shoulder cuts, which are then made without using the jig (see **Figure 20**).

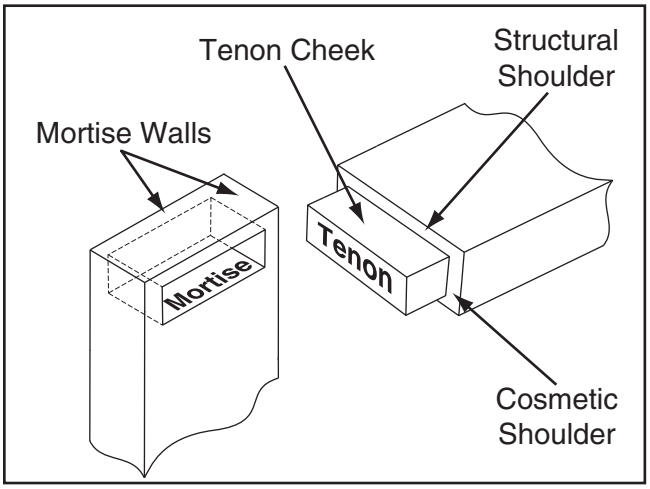


Figure 20. Illustration of typical basic mortise and tenon.

The following three procedures will guide you through the process of cutting a basic tenon.

Preparing Jig & Workpiece

1. DISCONNECT TABLE SAW FROM POWER!

2. Select stock for your mortise and tenon joint, then draw cutting lines, as shown in **Figures 20**–**21**.

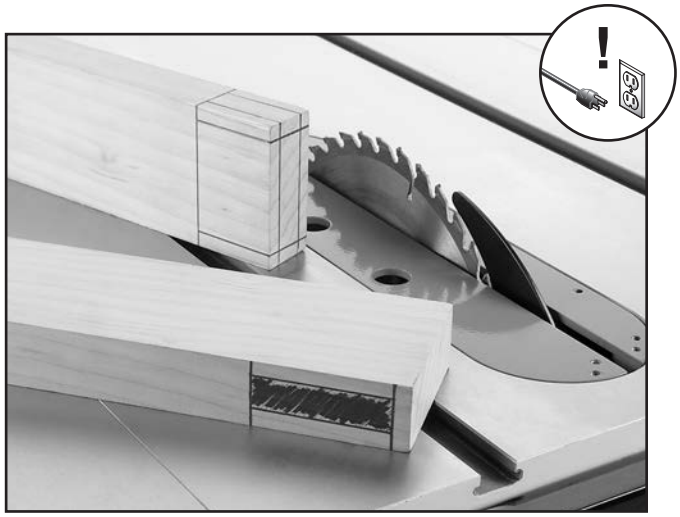


Figure 21. Mortise and tenon cutting lines.

— Select joint locations that are free of knots and grain twists that could break when stressed.

— Tenons need structural and cosmetic shoulders (see **Figure 20** on **Page 16**) to strengthen the joint and hide gaps that may occur as the wood shrinks with age.

— When the thickness of the mortise and tenon stock are the same, make the tenon the same thickness as the mortise walls.

— When jointing stock where the mortise piece is thicker than the tenon piece, make the tenon as thick as possible without making the mortise walls too thin.

— Make sure there is a slight space between the bottom of the tenon and the bottom of the mortise for glue squeeze-out. If you use a mortise chisel and bit to make the mortise, generally the indents from the bit tip at the bottom of the mortise are sufficient.

3. Plane a piece of wood approximately ⅜" thick to match base plate of tenoning jig, then clamp it to front of table and even with right side of base plate, as shown in **Figure 22**.

Note: *This additional wood base piece provides a level surface with the tenoning jig base plate to set the workpiece on when clamping it to the jig in later steps. This configuration also reduces the risk of the workpiece bottom binding with the table as it slides through the saw blade during a cut.*

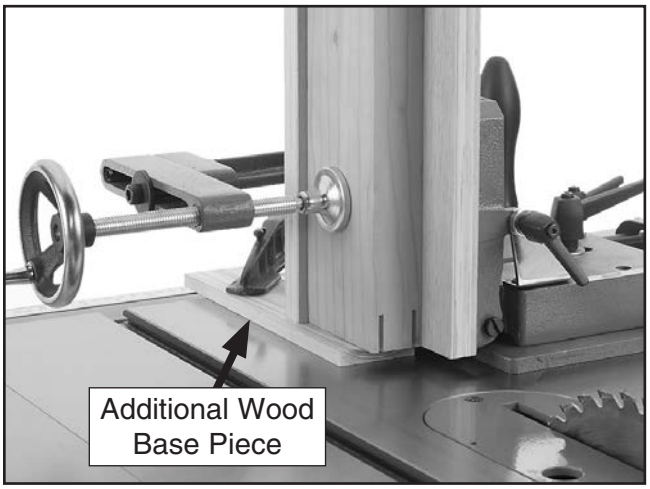


Figure 22. Example of additional wood base piece clamped to saw table.

⚠WARNING

ALWAYS make sure table saw is turned *OFF*, disconnected from power, and all moving parts have come to a complete stop before making adjustments to tenoning jig, workpiece, or table saw to avoid serious personal injury from making contact with spinning blade.

4. Cut a backing board approximately 2" wide by 9" tall out of a piece of ¾" plywood, then mount it to back support using either wood screws through back of support or recessed cap screws and hex nuts through front of backing board (see **Figures 23–24**).

   Note: *Back support backing board will prevent tear out when making tenon cuts.*

   — If your operation requires the back support to be at an angle, make sure the bottom of this backing board is cut at an angle so that it is parallel with the saw table. You will also need to make accommodations when making the side support backing board in the next step.

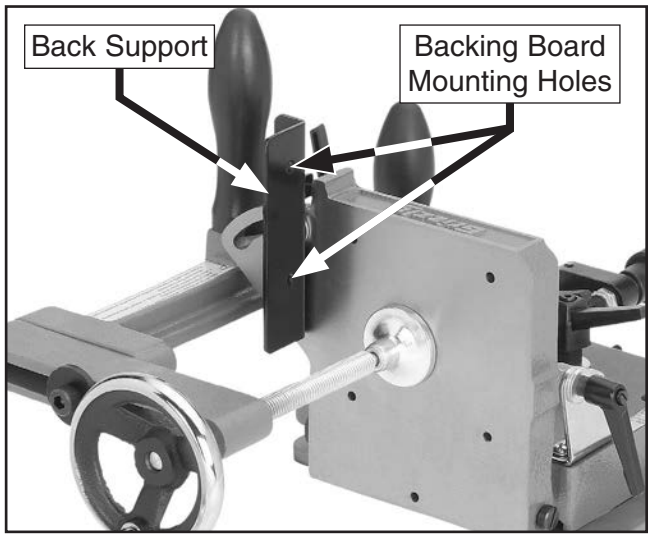


Figure 23. Mounting holes for back support backing board.

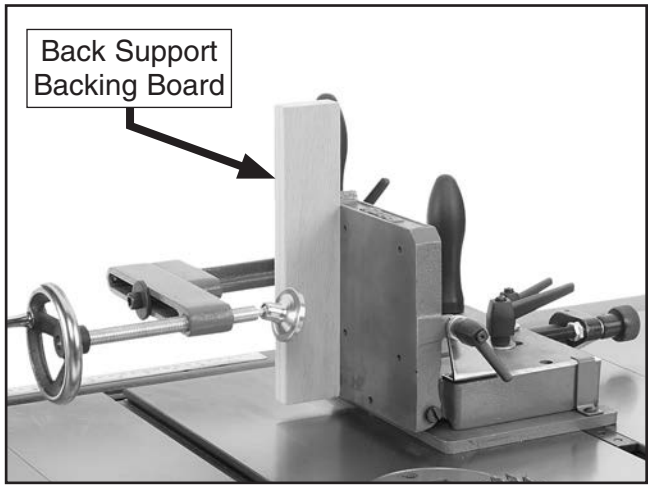


Figure 24. Backing board mounted to back support.

5. Cut a backing board approximately 5" wide by 9" tall out of a piece of ¾" plywood, then mount it to jig side support using either wood screws through back of support or recessed cap screws and hex nuts through front of backing board (see **Figures 25–26**).

   Note: *The thickness of this backing board can vary, depending upon the needs of your operation. However, this backing board provides a safety barrier between the jig and the saw blade.* ***Make sure you use it!***

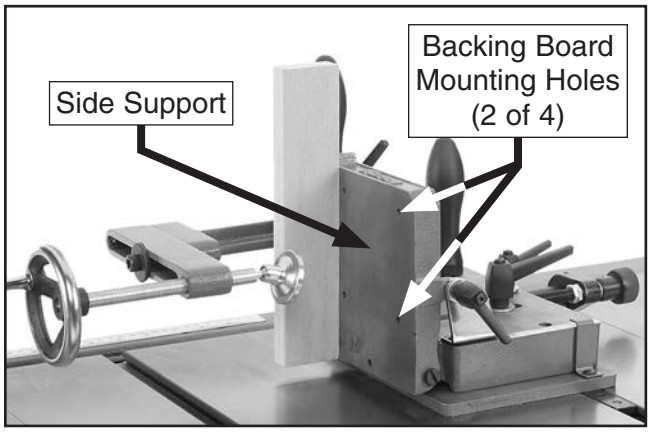


Figure 25. Mounting holes for side support backing board.

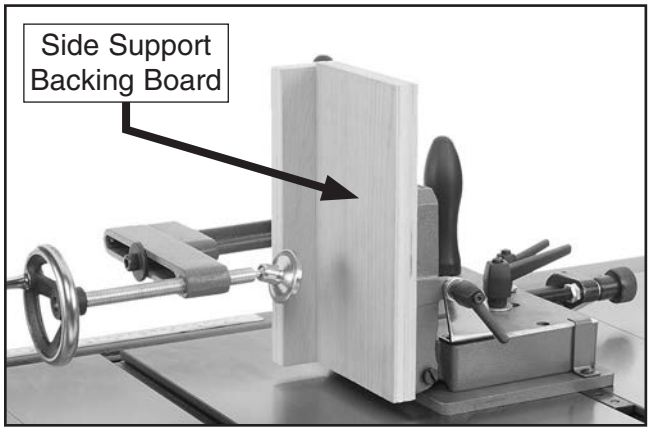


Figure 26. Backing board mounted to side support.

⚠WARNING

ALWAYS move workpiece completely through blade to reduce risk of kickback. ALWAYS turn saw *OFF*, disconnect it from power, and wait for blade to come to a complete stop before removing workpiece or moving tenoning jig to avoid making contact with spinning blade.

6. Place workpiece firmly against back and side support backing boards, then clamp it in place, as shown in **Figure 27**.

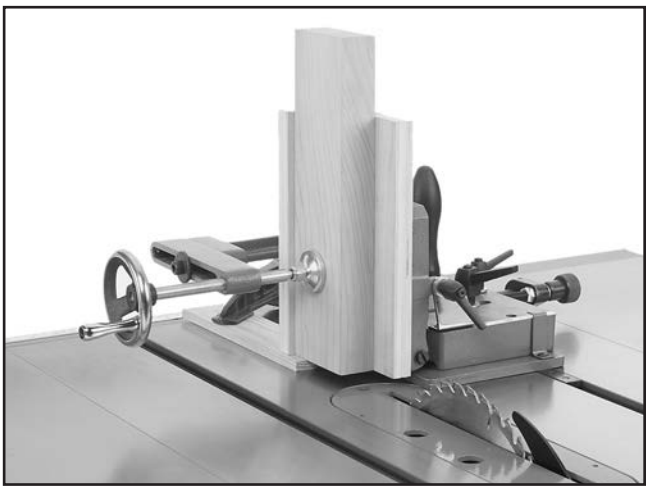
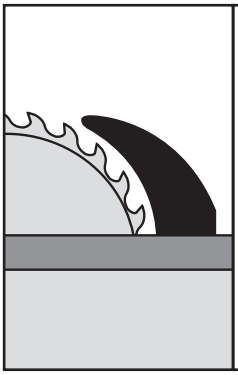


Figure 27. Workpiece correctly mounted to jig.



⚠WARNING

ALWAYS use a riving knife that is correctly installed on table saw when making tenon cuts to avoid kerf binding behind blade, resulting in kickback, which can cause serious personal injury.

Cutting Tenon Cheeks

1. DISCONNECT TABLE SAW FROM POWER!

2. Make sure all tenoning jig lock levers are tightened, and workpiece is properly mounted and securely clamped to jig.

3. Clear away all setup tools.

4. Ensure no part of tenoning jig will contact saw blade during cutting operation.

5. Slide jig and workpiece up to saw blade, then use micro-adjust knob to correctly align first structural cheek cut mark with saw blade (see **Figure 28**).

   Note: *Remember to allow for width of kerf when aligning workpiece. Also, keep cuts close to side support backing board, as shown in **Figure 28**, to support waste piece and reduce risk of it breaking off during cut.*

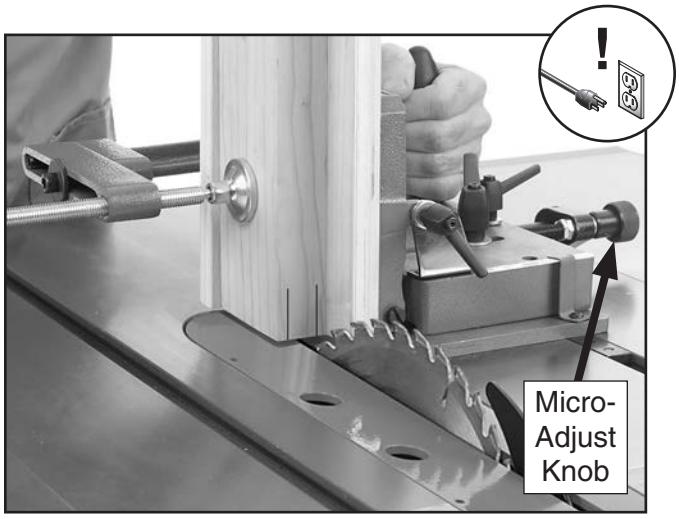


Figure 28. Aligning workpiece for first structural cheek cut.

6. Raise saw blade to required depth of cut for tenon cheek.

7. Move jig and workpiece back and away from blade, then connect table saw to power and turn it ***ON***.

8. Firmly grasp both handles of jig, then slowly slide jig and workpiece through blade to make first structural cheek cut (see **Figure 28**).

   Note: *Do not move jig and workpiece into blade quickly or force of blade will attempt to lift jig up and away from table.*

9. Turn saw ***OFF***, disconnect it from power, then wait for blade to come to a complete stop.

10. Loosen clamp shoe, remove workpiece, then move tenoning jig back to front of table.

11. Rotate workpiece 180°, correctly clamp it against jig, verify blade alignment for second structural cheek cut, then repeat **Steps 5–8** to complete cut (see **Figure 29**).

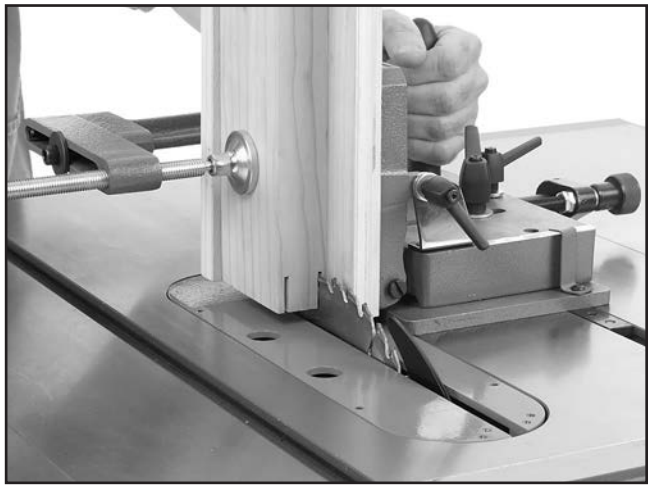


Figure 29. Making second structural cheek cut.

⚠WARNING

If it is necessary to remove side support plywood to perform a cut, make sure metal side support of tenoning jig stays at least ½" away from saw blade at all times. If tenoning jig makes contact with saw blade, serious personal injury could result and damage will occur to saw and tenoning jig.

12. Position workpiece for third and fourth cosmetic cheek cuts, as shown in **Figure 30**, and repeat **Steps 5–8** for each cut.

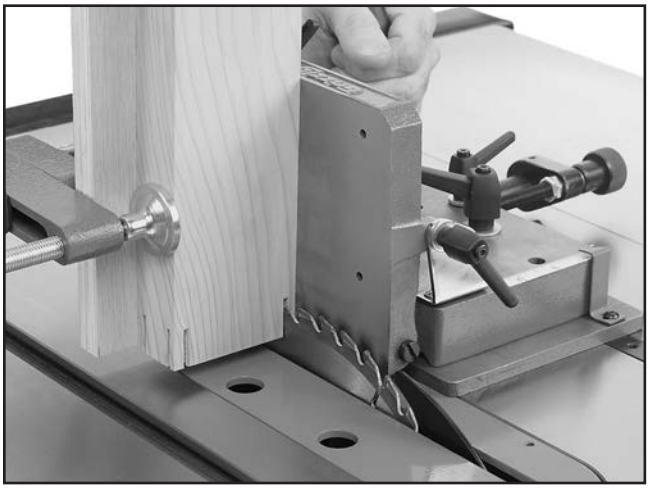


Figure 30. Making third and fourth cosmetic cheek cuts.

13. Turn saw ***OFF***, disconnect it from power, wait for blade to come to a complete stop, then remove tenoning jig and additional wood base piece clamped to saw table during **Step 3**.

⚠WARNING

ALWAYS use a cross-cut saw blade when making the tenon shoulder cuts. Otherwise, the blade can aggressively grab the workpiece causing kickback and possible serious personal injury.

Cutting Tenon Shoulders

The final set of cuts will remove the waste pieces from the previous cuts to produce the shoulders and complete the tenon.

1. DISCONNECT TABLE SAW FROM POWER!

2. Install a cross-cut saw blade.

3. Adjust blade height to remove waste pieces of shoulders, as shown in **Figure 31**.

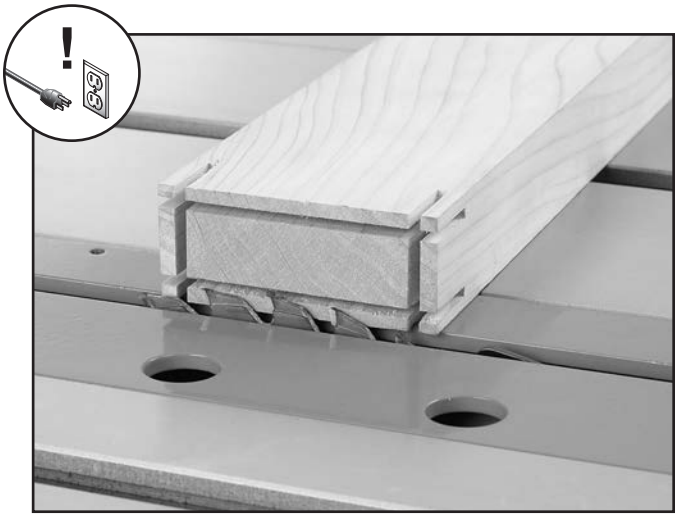


Figure 31. Blade height adjusted for shoulder cut.

4. Install table saw fence and clamp a stop block to it *behind blade* so that workpiece can be placed against stop block to properly align cut (see **Figure 32**).

⚠WARNING

Workpiece must not contact stop block during cut. Clamp stop block far enough behind blade so that workpiece will not contact stop block during cut. Failure to do so may result in kickback, which can cause severe personal injury.

5. Attach a backing board to miter gauge, aligned even with the end of the workpiece, as shown in **Figure 32**.

   Note: *This backing board will prevent blade tear out on workpiece when making cut.*

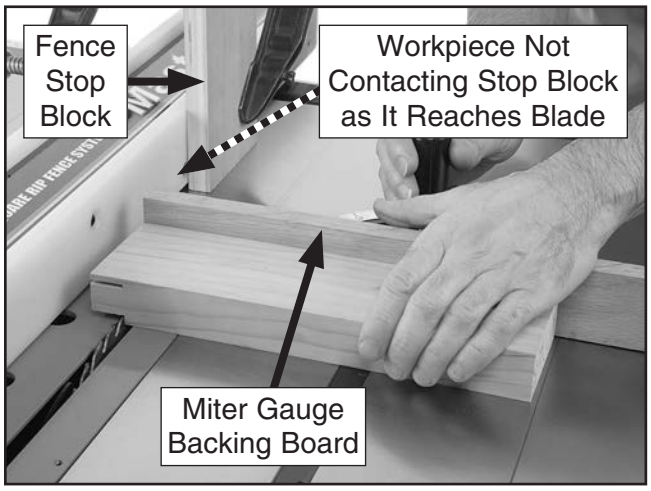


Figure 32. Making a tenon shoulder cut.

6. Turn saw ***ON***, then carefully and slowly push miter gauge forward to make shoulder cut.

7. Turn saw ***OFF***, wait for blade to come to a complete stop, then remove workpiece.

8. Repeat **Steps 3–7** for remaining three shoulder cuts.

When all of the steps of these procedures are successfully performed, your basic tenon is complete.

SECTION 4: ACCESSORIES

⚠WARNING

Installing unapproved accessories may cause machine to malfunction, resulting in serious personal injury or machine damage. To reduce this risk, only install accessories recommended for this machine by Grizzly.

NOTICE

Refer to our website or latest catalog for additional recommended accessories.

G5562—SLIPIT® 1 Qt. Gel
G5563—SLIPIT® 12 Oz. Spray
G2871—Boeshield® T-9 12 Oz. Spray
G2870—Boeshield® T-9 4 Oz. Spray
H3788—G96® Gun Treatment 12 Oz. Spray
H3789—G96® Gun Treatment 4.5 Oz. Spray

Figure 33. Recommended products for protecting unpainted cast-iron/steel parts on machinery.

T23692—Orange Power Degreaser
A great product for removing the waxy shipping grease from your machine during clean up.

Figure 34. T23692 Orange Power Degreaser.

Basic Eye Protection

T20501—Face Shield Crown Protector 4"
T20502—Face Shield Crown Protector 7"
T20503—Face Shield Window
T20451—"Kirova" Clear Safety Glasses
T20452—"Kirova" Anti-Reflective S. Glasses
T20456—DAKURA Safety Glasses, Black/Clear

Figure 35. Assortment of basic eye protection.

T10272—Deluxe, Ebony Marking Gauge
This Deluxe Ebony Marking Gauge features beautiful ebony and brass knobs and inlaid wear strips. Scribes a single line and a double line for mortises and tenons. Micro-adjustable brass thumb screw for mortise and tenon scribe. A single knurled brass knob locks the beam and mortise and tenon scribe. Beam measures 6⅜" long.

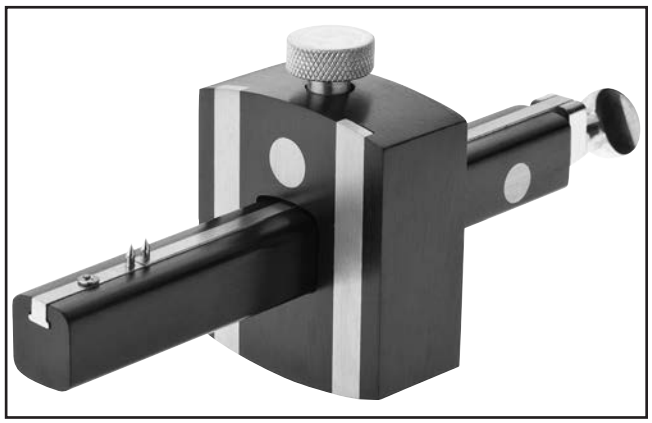


Figure 36. T10272 Deluxe, Ebony Marking Gauge.

T20888—D.I.Y. Jig
Includes everything you need to get started with Pocket-Screw Joinery, including Kreg Jig®, Stepped Drill Bit, 6" Square Driver, Starter Screw Set, Starter Plug Set, and Quick-Start Guide.

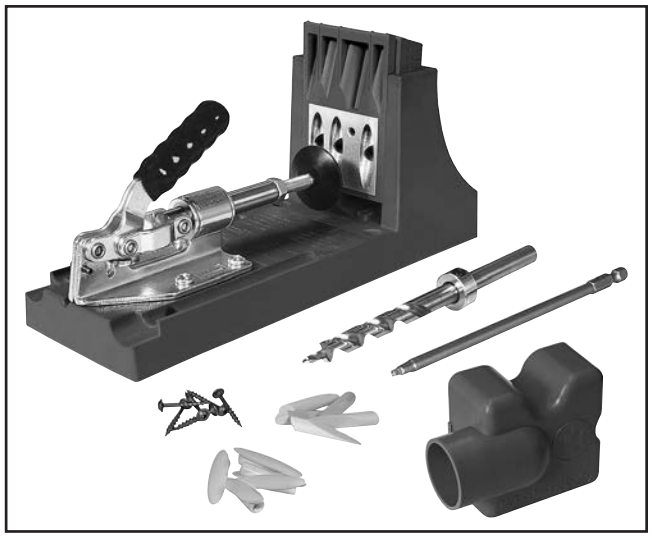


Figure 37. T20888 D.I.Y. Jig.

D3122—Push Stick
This essential safety item keeps hands a safe distance from blades and cutters while still maintaining control of the workpiece against machine fences. A true necessity when running narrow stock. Durable handle is designed for maximum control. Measures 13½" overall.

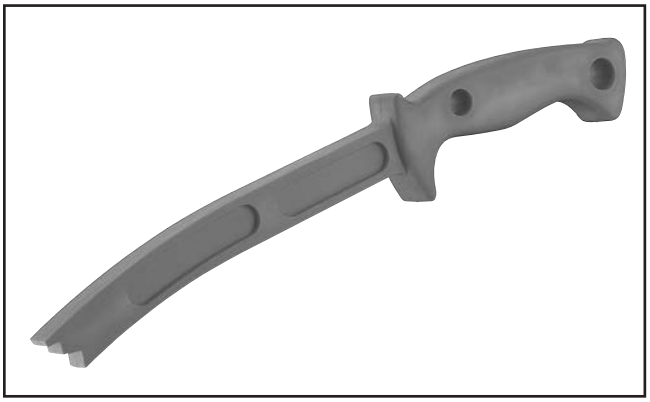


Figure 38. D3122 Push Stick.

H8029—5-Pc. Safety Kit
This kit has four essential jigs. Includes two push blocks, push stick, featherboard and combination saw and router gauge. Featherboard fits ⅜" x ¾" miter slots. Made of high-visibility yellow plastic.

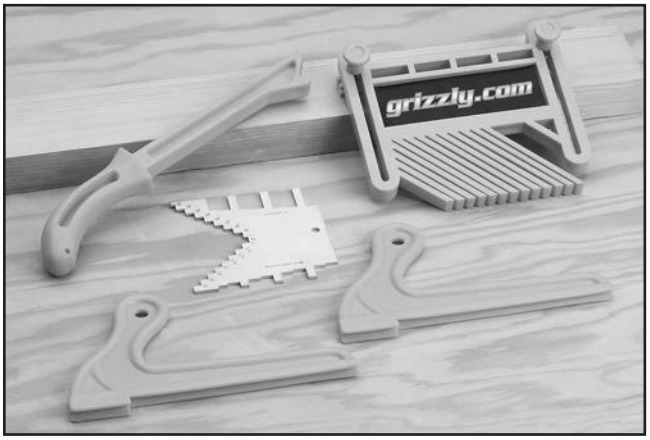
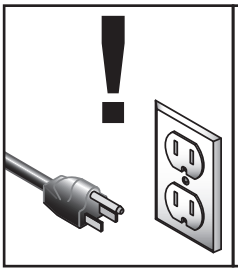


Figure 39. H8029 5-Pc. Safety Kit.

SECTION 5: MAINTENANCE



⚠WARNING

To reduce risk of shock or accidental startup, always disconnect machine from power before adjustments, maintenance, or service.

Schedule

For optimum performance from the tenoning jig, this maintenance schedule must be strictly followed. In addition, consult your table saw owner's manual for further required maintenance specific to your machine.

Ongoing

To maintain a low risk of injury and proper machine operation, if you ever observe any of the items below, shut down the machine immediately and fix the problem before continuing operations:

- Loose mounting bolts.
- Damaged or worn saw blade.
- Worn or damaged table saw wires.
- Any other unsafe condition.

After Operation Maintenance

- Clean the tenoning jig.
- Lubricate the tenoning jig pivot points.

Cleaning & Protecting

Cleaning the Model T30491 is relatively easy. Vacuum excess wood chips and sawdust, and wipe off the remaining dust with a dry cloth. If any resin has built up, use a resin dissolving cleaner to remove it.

Protect unpainted cast-iron surfaces by wiping them clean after every use—this ensures moisture from wood dust does not remain on bare metal surfaces. Keep unpainted cast-iron surfaces rust-free with regular applications of products like G96® Gun Treatment, SLIPIT®, or Boeshield® T-9 (see **Page 22** for more details).

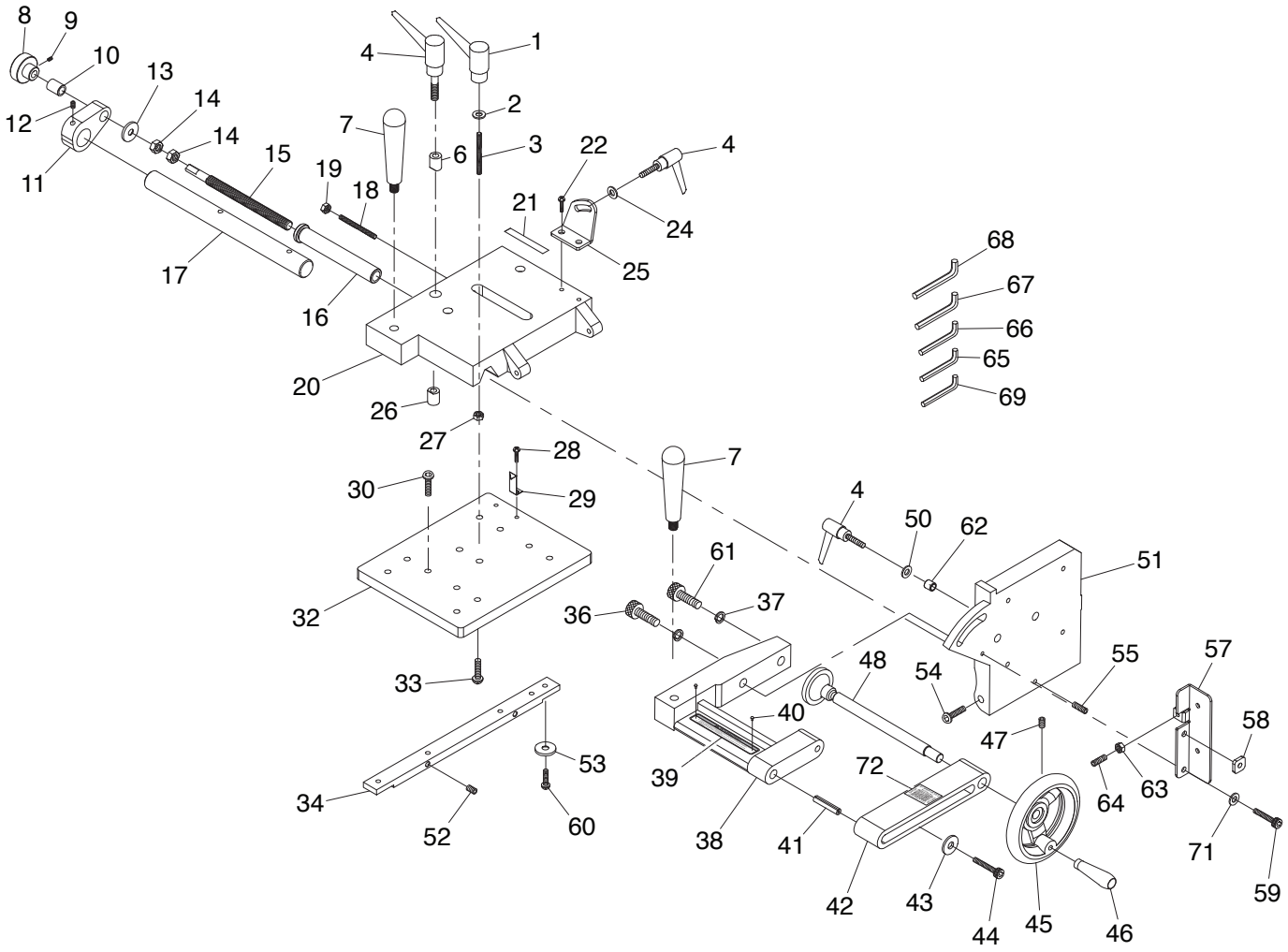
Lubrication & Storage

After thoroughly cleaning the tenoning jig, use a light machine oil to lubricate all of the pivot points on the jig, then wipe away the excess oil to avoid sawdust build-up at these locations.

When not in use, store the tenoning jig on a flat, dry surface that is protected from adverse elements. Cover the jig to prevent dust build-up between uses.

SECTION 6: PARTS

We do our best to stock replacement parts when possible, but we cannot guarantee that all parts shown are available for purchase. Call **(800) 523-4777** or visit **www.grizzly.com/parts** to check for availability.



Parts List

REF	PART #	DESCRIPTION
1	PT30491001	ADJUSTABLE HANDLE M8-1.25, 68L
2	PT30491002	FLAT WASHER 5/16
3	PT30491003	SET SCREW M8-1.25 X 55
4	PT30491004	ADJUSTABLE HANDLE M6-1 X 25, 45L
6	PT30491006	LOCK BUSHING
7	PT30491007	FIXED HANDLE 26 X 100, M10-1.5 X 15
8	PT30491008	KNOB D1-1/4, RND KN (SS THREADS 5/16-18)
9	PT30491009	SET SCREW 5/16-18 X 1/4
10	PT30491010	BUSHING
11	PT30491011	MICRO-ADJUST COLLAR
12	PT30491012	SET SCREW M6-1 X 8
13	PT30491013	FLAT WASHER 10MM NYLON
14	PT30491014	HEX NUT M10-1.5
15	PT30491015	LEADSCREW M10-1.5 X 81
16	PT30491016	GUIDE BUSHING
17	PT30491017	GUIDE ROD
18	PT30491018	SET SCREW M6-1 X 45
19	PT30491019	HEX NUT M6-1
20	PT30491020	SLIDE PLATE
21	PT30491021	SCALE
22	PT30491022	PHLP HD SCR M5-.8 X 10
24	PT30491024	FLAT WASHER 1/4
25	PT30491025	SIDE SUPPORT BRACKET
26	PT30491026	LOCK BUSHING M6-1
27	PT30491027	HEX NUT M8-1.25
28	PT30491028	PHLP HD SCR M4-.7 X 6
29	PT30491029	POINTER
30	PT30491030	BUTTON HD CAP SCR M6-1 X 20
32	PT30491032	BASE PLATE
33	PT30491033	BUTTON HD CAP SCR M6-1 X 20
34	PT30491034	GUIDE BAR
36	PT30491036	CAP SCREW M10-1.5 X 25
37	PT30491037	LOCK WASHER 10MM

REF	PART #	DESCRIPTION
38	PT30491038	CLAMP BRACE
39	PT30491039	WARNING LABEL
40	PT30491040	RIVET 2 X 5MM NAMEPLATE, STEEL
41	PT30491041	ROLL PIN 10 X 45
42	PT30491042	CLAMP BRACKET
43	PT30491043	FLAT WASHER 5/16
44	PT30491044	CAP SCREW M8-1.25 X 50
45	PT30491045	HANDWHEEL TYPE-3 100D X 10B-S X 1/4-20
46	PT30491046	REV. HANDLE 5/8 X 2-1/8, 1/4-20 X 3/8
47	PT30491047	SET SCREW 1/4-20 X 1/4
48	PT30491048	CLAMP SHOE W/LEADSCREW
50	PT30491050	FLAT WASHER 1/4
51	PT30491051	SIDE SUPPORT
52	PT30491052	SET SCREW M6-1 X 16
53	PT30491053	T-SLOT GUIDE WASHER
54	PT30491054	FLAT HD CAP SCR M6-1 X 20
55	PT30491055	SET SCREW M6-1 X 25
57	PT30491057	BACK SUPPORT
58	PT30491058	SQUARE NUT M6-1
59	PT30491059	SHOULDER SCREW M5-.8 X 10, 6 X 3
60	PT30491060	FLAT HD SCR 1/4-20 X 3/8
61	PT30491061	CAP SCREW M10-1.5 X 20
62	PT30491062	LOCK BUSHING
63	PT30491063	HEX NUT M5-.8
64	PT30491064	SET SCREW M5-.8 X 20
65	PT30491065	HEX WRENCH 3MM
66	PT30491066	HEX WRENCH 4MM
67	PT30491067	HEX WRENCH 6MM
68	PT30491068	HEX WRENCH 8MM
69	PT30491069	HEX WRENCH 2.5MM
71	PT30491071	WAVY WASHER 6MM
72	PT30491072	QR CODE LABEL

⚠WARNING

Safety labels help reduce the risk of serious injury caused by machine hazards. If any label comes off or becomes unreadable, the owner of this machine MUST replace it in the original location before resuming operations. For replacements, contact (800) 523-4777 or www.grizzly.com.

Grizzly Industrial, Inc. WARRANTY CARD

Name _____

Street _____

City _____ State _____ Zip _____

Phone # _____ Email _____

Model # _____ Order # _____ Serial # _____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. ***Of course, all information is strictly confidential.***

1. How did you learn about us?

____ Advertisement ____ Friend ____ Catalog
____ Card Deck ____ Website ____ Other:

2. Which of the following magazines do you subscribe to?

____ Cabinetmaker & FDM
____ Family Handyman
____ Hand Loader
____ Handy
____ Home Shop Machinist
____ Journal of Light Cont.
____ Live Steam
____ Model Airplane News
____ Old House Journal
____ Popular Mechanics
____ Popular Science
____ Popular Woodworking
____ Precision Shooter
____ Projects in Metal
____ RC Modeler
____ Rifle
____ Shop Notes
____ Shotgun News
____ Today's Homeowner
____ Wood
____ Wooden Boat
____ Woodshop News
____ Woodsmith
____ Woodwork
____ Woodworker West
____ Woodworker's Journal
____ Other:

3. What is your annual household income?

____ $20,000-$29,000 ____ $30,000-$39,000 ____ $40,000-$49,000
____ $50,000-$59,000 ____ $60,000-$69,000 ____ $70,000+

4. What is your age group?

____ 20-29 ____ 30-39 ____ 40-49
____ 50-59 ____ 60-69 ____ 70+

5. How long have you been a woodworker/metalworker?

____ 0-2 Years ____ 2-8 Years ____ 8-20 Years ____ 20+ Years

6. How many of your machines or tools are Grizzly?

____ 0-2 ____ 3-5 ____ 6-9 ____ 10+

7. Do you think your machine represents a good value? _____Yes _____No

8. Would you recommend Grizzly Industrial to a friend? _____Yes _____No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?
Note: *We never use names more than 3 times.* _____Yes _____No

10. Comments: _____

_____

_____

_____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE

Place
Stamp
Here

GRIZZLY INDUSTRIAL, INC.
P.O. BOX 2069
BELLINGHAM, WA 98227-2069

FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name_____

Street_____

City_____State_____Zip_____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY & RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number,'' which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.