
SEARS

OWNERS
MANUAL

Model No.
171.25467

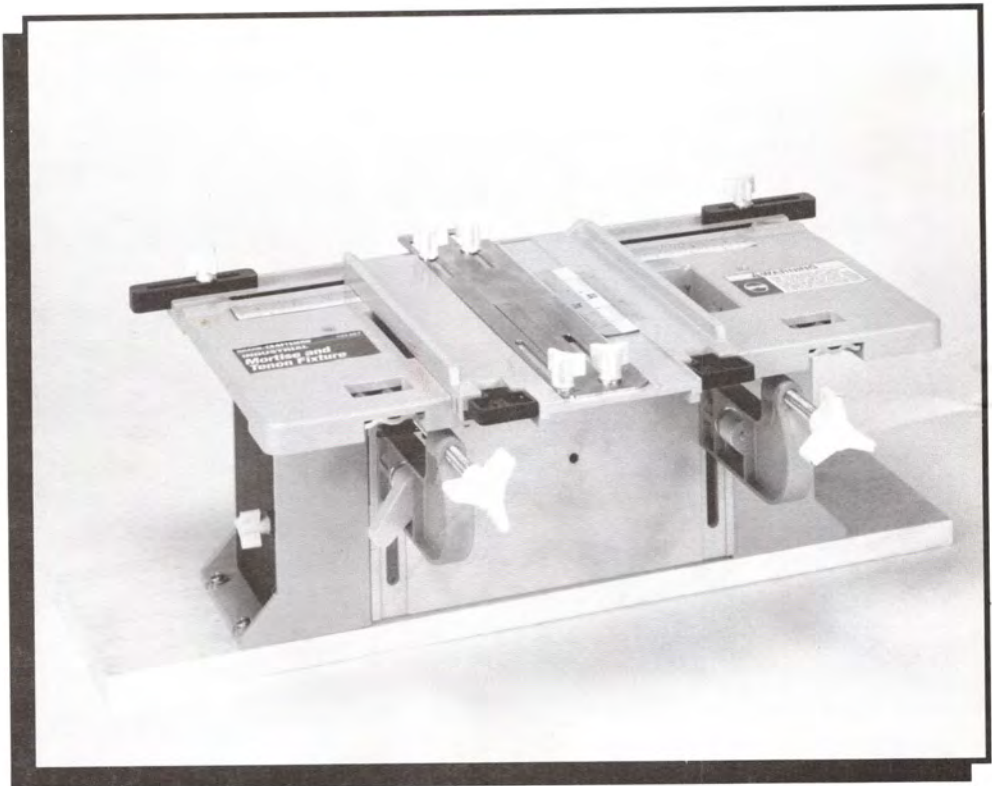
CRAFTSMAN®

Mortise and Tenon Fixture

1/4-in. Industrial Straight Bit (925415)
is needed to use this fixture

! WARNING

You must read
and understand
all instructions.
**KEEP THIS
MANUAL FOR
FUTURE
REFERENCE.**



Sold by Sears, Roebuck and Co., Hoffman Estates, IL. 60179

NOTES

Warnings



WARNING

FAILURE TO HEED ALL SAFETY AND OPERATING INSTRUCTIONS AND WARNINGS REGARDING USE OF THIS PRODUCT CAN RESULT IN SERIOUS BODILY INJURY.

1) KNOW YOUR POWER TOOL

Read the owner's manual carefully. Learn its applications and limitations as well as the specific potential hazards particular to this tool.

2) GROUND ALL TOOLS (UNLESS DOUBLE INSULATED)

If tool is equipped with an approved 3-conductor cord and a 3-prong grounding type plug, it should be plugged into a three hole electrical receptacle. If adapter is used to accommodate a two-prong receptacle, the adapter wire must be attached to known ground, (usually the screw securing receptacle cover plate). Never remove third prong. Never connect ground wire to a terminal.

3) KEEP GUARDS IN PLACE

—in working order, and in proper adjustment and alignment.

4) REMOVE ADJUSTING KEYS AND WRENCHES

Form a habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.

5) KEEP WORK AREA CLEAN

Cluttered areas and benches invite accidents. Floor must not be slippery due to wax or sawdust.

6) AVOID DANGEROUS ENVIRONMENT

Do not use power tools in damp or wet locations or expose them to rain. Keep work area well lighted. Provide adequate surrounding work space.

7) KEEP CHILDREN AWAY

All visitors should be kept at a safe distance from work area.

8) MAKE WORKSHOP CHILD-PROOF

—with padlocks, master switches or by removing starter keys.

9) DO NOT FORCE TOOL

It will do the job better and safer at the rate for which it was designed.

10) USE APPROPRIATE TOOL

Do not force tool or attachment to do a job for which it was not designed.

11) WEAR APPROPRIATE APPAREL

Do not wear loose clothing, gloves, neckties or jewelry (rings, wristwatches) that could get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair. Roll sleeves above the elbow.

12) USE SAFETY GOGGLES (Head Protection)

Wear Safety Goggles (must comply with ANSI Z87.1) at all times. Also, use face or dust mask if cutting operation is dusty, and ear protection (plugs or muffs) during extended periods of operation.

13) SECURE WORK

Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.

14) DO NOT OVERREACH

Keep proper footing and balance at all times.

15) MAINTAIN TOOLS WITH CARE

Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

16) DISCONNECT TOOLS BEFORE SERVICING

—when changing accessories such as blades, bits, cutters, etc.

17) AVOID ACCIDENTAL STARTING

Make sure switch is in OFF position before plugged in.

18) USE RECOMMENDED ACCESSORIES

Consult the owner's manual for recommended accessories. Follow the instructions that accompany the accessories. The use of improper accessories may cause hazards.

19) NEVER STAND ON TOOL

Serious injury could occur if the tool is tipped or the cutting tool is accidentally contacted. Do not store materials above or near the tool that would make it necessary to stand on the tool to reach them.

20) CHECK DAMAGED PARTS

Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.

21) DIRECTION OF FEED

Feed work into a blade or cutter only against the direction of rotation of the blade or cutter.

22) NEVER LEAVE TOOL RUNNING UNATTENDED

Turn power off. Do not leave tool until it comes to a complete stop.

23) KEEP HANDS AWAY FROM CUTTING AREA

24) STORE IDLE TOOLS

When not in use, tools should be stored in dry, high or locked-up place—OUT OF REACH OF CHILDREN.

25) DO NOT ABUSE CORD

Keep cord away from heat, oil and sharp edges.

26) OUTDOOR EXTENSION CORDS

When tool is used outdoors, use only extension cords suitable for use outdoors, and so marked.

27) NEVER USE IN EXPLOSIVE ATMOSPHERE

Normal sparking of the motor could ignite fumes, flammable liquids or combustible items.

28) DRUGS, ALCOHOL, MEDICATION

Do not operate tool while under the influence of drugs, alcohol or any medication.

**READ AND UNDERSTAND THIS
COMPLETE INSTRUCTION BOOK
BEFORE USING THIS PRODUCT**



WARNING

ADDITIONAL SAFETY INSTRUCTIONS FOR YOU MORTISE AND TENON FIXTURE

- 1) Always wear eye protection that complies with current ANSI Standard Z78.1.
- 2) Noise levels vary widely. To avoid possible hearing damage, wear ear plugs or muffs when using the Mortise and Tenon Fixture for hours at a time.
- 3) Wear a dust mask along with the safety goggles.
- 4) Do not use this Mortise and Tenon Fixture with router bits other than specified in this manual. Also do not use guide bushings other than the one provided.
- 5) Follow the instructions in your Router Owners Manual.
- 6) Vibrations caused by the router during use can cause fasteners to become loose. Before use and periodically during use check all fasteners to make sure that they are all tight and secure.
- 7) Do not use this product until all assembly installation steps have been completed, and you have read and understand all safety and operational instructions in this manual and the Router Owners Manual.
- 8) Make sure the router bit is properly positioned in the router so that it does not contact any part of your Mortise and Tenon Fixture when cutting.
- 9) The Mortise and Tenon Fixture must be securely mounted to a workbench or other stable surface when in use. The front of the wedge and legs should be flush with the front of the workbench to provide clearance when clamping workpieces in the Fixture.
- 10) Do not use the Mortise and Tenon fixture as a work surface. Doing so may cause damage to the Fixture, which can cause it to be unsafe to use.
- 11) This product is designed to cut flat workpieces. Do not cut or attempt to cut workpieces that are not flat or that are irregularly shaped.
- 12) This product is to be used for cutting wood workpieces only. Do not use this product to cut metal or any other non-wood material.
- 13) This product has been designed to cut tenons in work pieces 7 1/2" wide by 3" thick. It will also cut mortises in workpieces up to 3" thick.
- 14) Do not clamp any workpieces to the Mortise and Tenon Fixture or make any adjustments unless the router has been turned off, the router bit is not turning, and the router has been disconnected from the electrical outlet.
- 15) When setting the depth of cut, make sure the router bit does not extend so far that it can cut into the table top, wedge or clamping bar. This can damage your Fixture and possibly cause serious injury to you.
- 16) **WARNING!** Always unplug the router from the electrical outlet before installing or removing router bits, adjusting depth of cut, or installing the guide bushing.
- 17) Do not climb cut with the router bit. When cutting a tenon, move the router around the tenon in a counter-clockwise direction. When cutting a mortise, move the router around the mortise in a clockwise direction.
- 18) Hold the router firmly with both hands.
- 19) Never remove the router from the sliding router base while the router is on or while the bit is still spinning.
- 20) The sliding magnetic scales are the nucleus of this product. If they are lost or damaged, it will be difficult if not impossible to use this product. Take additional care to protect the sliding magnetic scales when not in use. Do not use soap or chemicals to clean these scales. Use a dry cloth to wipe off the sawdust.

Introduction

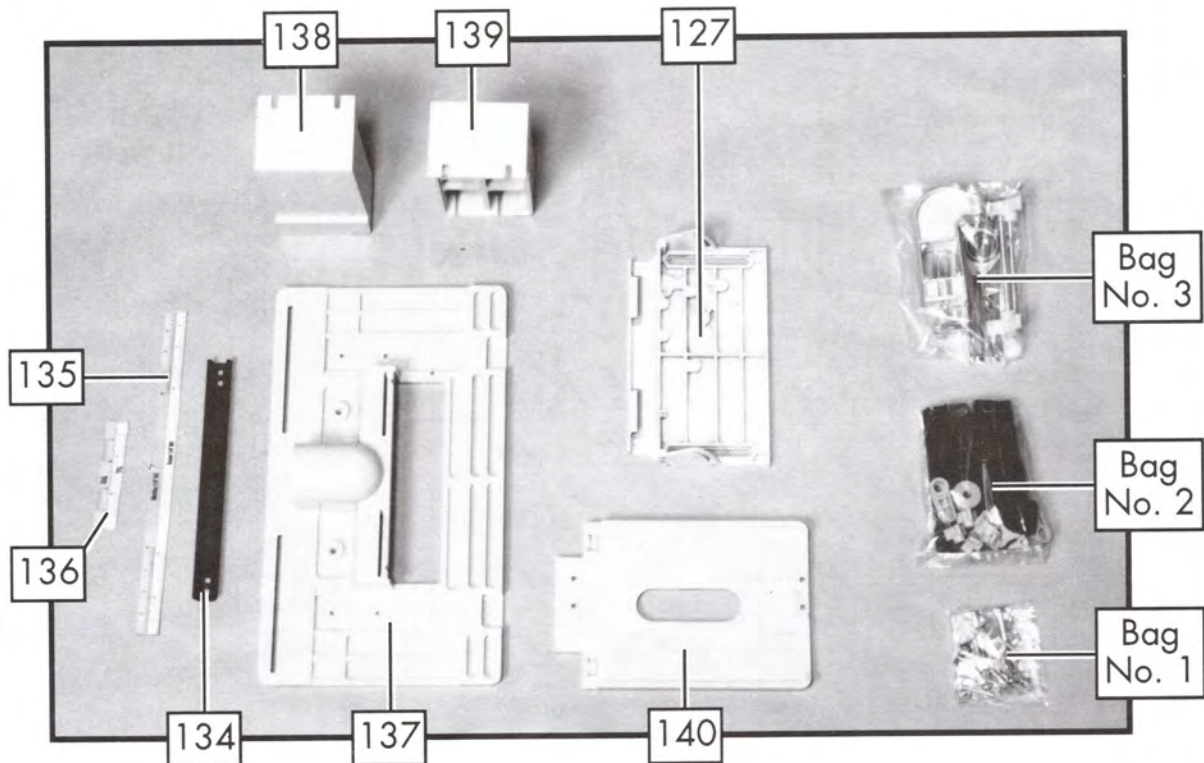
- Your Sears Craftsman Mortise and Tenon Fixture is an accessory to be used with your router to make tables, chairs, etc. where the strength of a mortise and tenon joint is needed.
- This fixture will allow you to make mortise and tenon joints from 1/4" to 1" wide, up to 7 1/2" long and 1/2" deep.
- It is recommended to use Sears Craftsman router bit #25415, 1/4" dia. straight carbide extra long bit.
- The Mortise and Tenon Fixture can be used with all Sears Craftsman 1/4" routers.
- With a separately purchased Sears Craftsman #25326, Universal Router Adapter, the Mortise and Tenon Fixture can be used with many non-Craftsman routers.

Parts Listings

Please remove all parts from the carton and check them against these four photographs and lists before beginning any assembly.

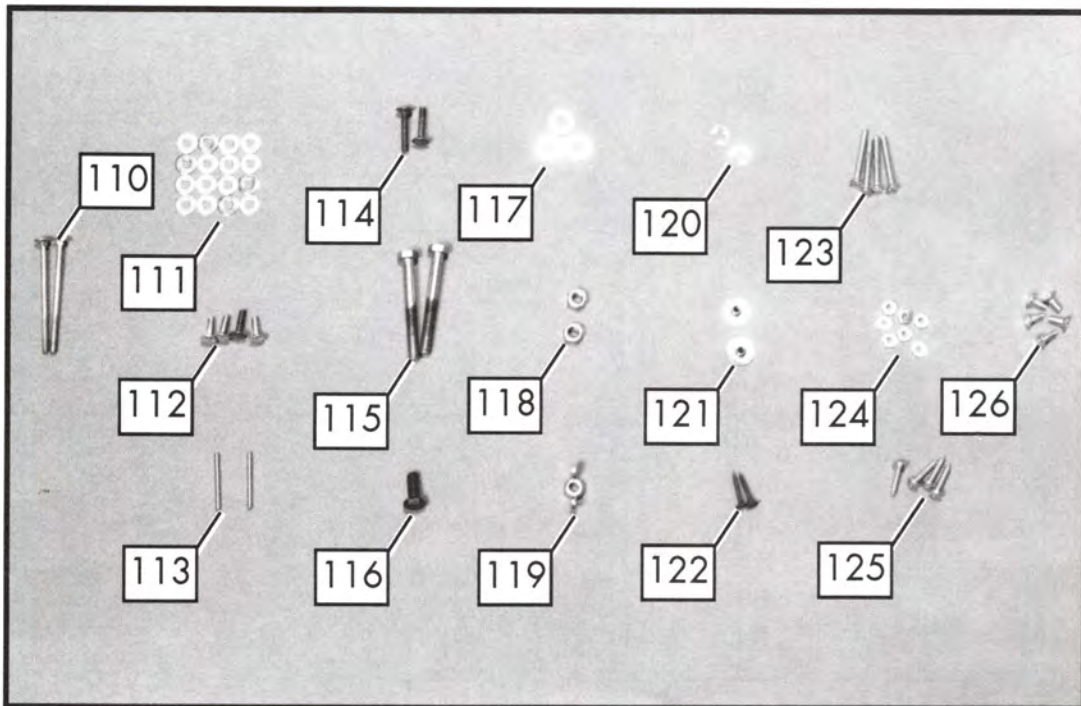
Loose Parts in Carton

Item Number	Quantity	Part Number	Part Name
127	1	29LD-912	Adjustable Wedge
134	1	31L-354	Clamp Bar
135	1	29LD-927	Sliding Magnetic X Scale
136	1	29LD-928	Sliding Magnetic Y Scale
137	1	29LD-907	Table Top
138	1	29LD-908	Left Table Leg
139	1	29LD-909	Right Table Leg
140	1	29LD-910	Sliding Router Base



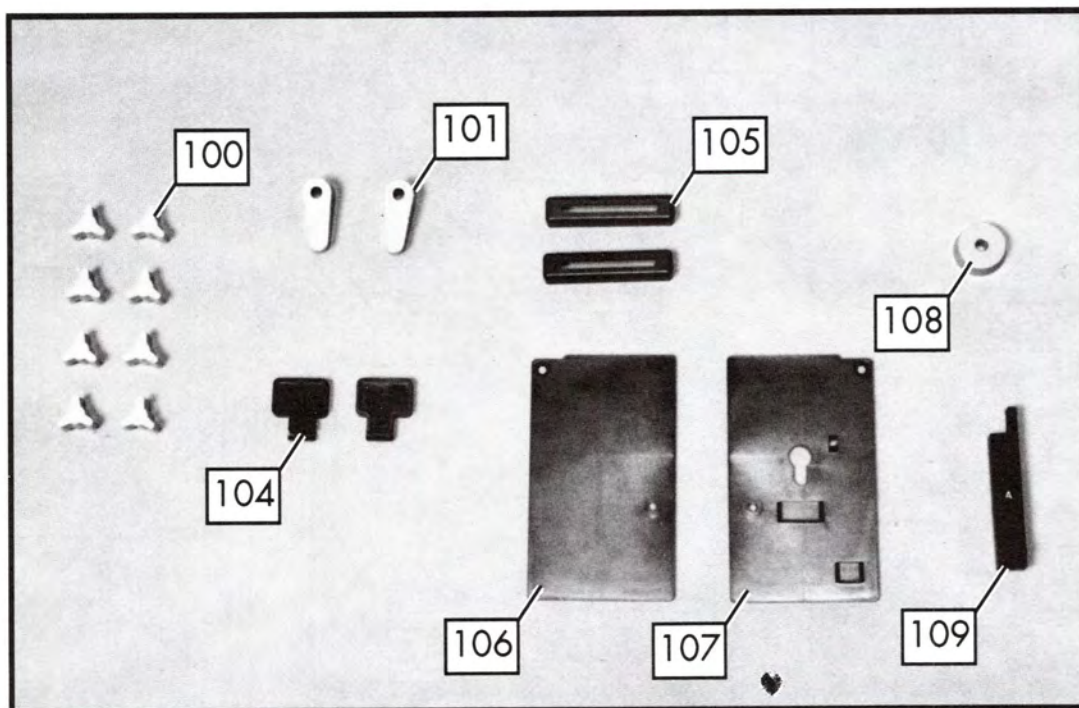
Contents of Bag No.1

Item Number	Quantity	Part Number	Part Name
110	2	F29A-310-18	Carriage Bolt #10-24 x 3"
111	16	F29A-306-25	#10 Washer
112	4	F29A-310-13	Carriage Bolt #10-24 x 5/8"
113	2	F29LD-929	Dowel Pin 1/8" x 1-1/2"
114	2	F29A-310-21	Carriage Bolt #10-24 x 1-1/8"
115	2	F29A-489-9	Hex Head Bolt 5/16" - 18 x 2-3/4"
116	1	F29A-489-8	Hex Head Bolt 5/16" - 1"
117	3	F29A-306-30	Washer 5/16"
118	2	F29A-242-17	Hex Nut 5/16" - 18
119	1	F29A-252-4	Wing Nut 5/16" - 18
120	2	F29A-250-4	E-Ring
121	2	29LD-978	Weld Nut
122	2	29LD-931	Self-Tapping Screw #10 x 3/4"
123	4	29LD-841-5	Flat Head Screw #10-24 x 1-1/2"
124	7	F29A-242-5	Nut #10-24
125	4	F29A-684-3	Pan Head Screw #10-16 x 1-1/8"
126	5	F29A-841-6	Flat Head Screw #10-24 x 1/2"



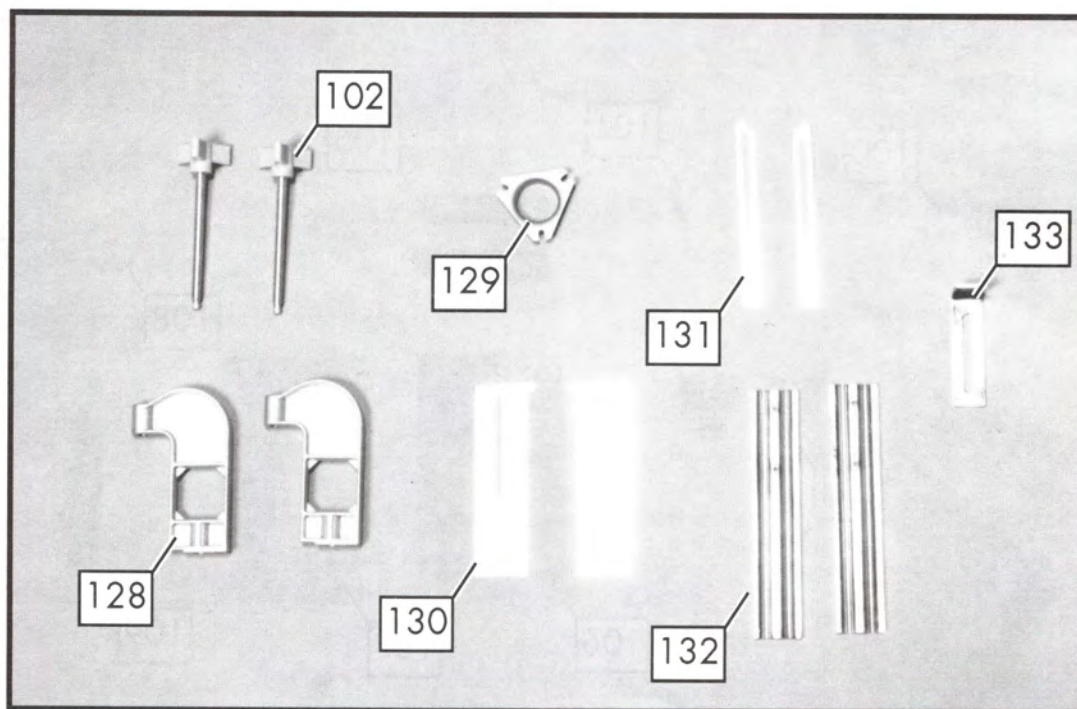
Contents of Bag No.2

Item Number	Quantity	Part Number	Part Name
100	8	31L-560-1	Knob #10-24
101	2	29LD-919	Clamp Lever
104	2	29LD-914	Flip X Stop
105	2	29LD-915	Sliding X Stop
106	1	29LD-916	Left End Cover
107	1	29LD-917	Right End Cover
108	1	29LD-918	Alignment Bushing
109	1	29LD-911	Tenon Alignment Block



Contents of Bag No.3

Item Number	Quantity	Part Number	Part Name
102	2	29LD-977	Clamp Knob with Stud
128	2	29LD-913	Clamp
129	1	29LD-922	Guide Bushing
130	2	29LD-923	Y Bushing Stop
131	2	29LD-924	Y Bushing Repeat Stop
132	2	29LD-925	Table Brace
133	1	29LD-926	Mortise Support



Assembly Instructions

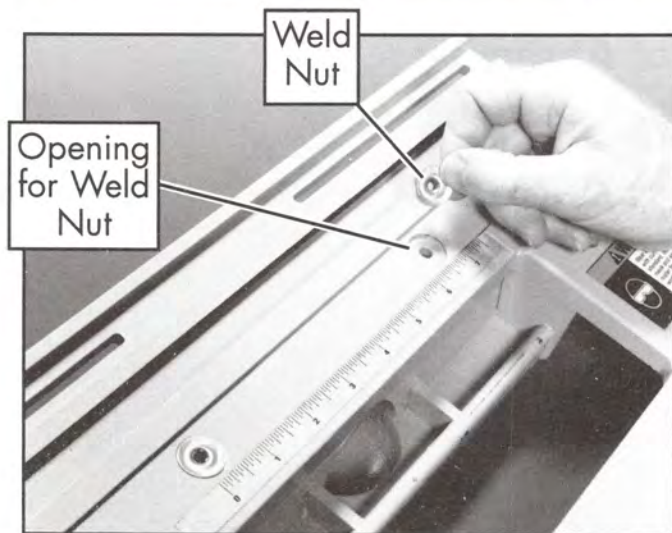
Tools Needed for Assembly

- 3/8" open end or box end wrench
- Phillips screwdriver
- Needle nosed pliers
- Combination square

Outline of Assembly Instructions

- Step 1:** Installing Weld Nuts to the Table Top
 - Step 2:** Inserting Table Braces into the Table Top
 - Step 3:** Attaching Legs to the Table Top
 - Step 4:** Attaching End Covers to Table Legs
 - Step 5:** Installing the Wedge
 - Step 6:** Installing Carriage Bolts to the Wedge
 - Step 7:** Checking the Square of the Wedge
 - Step 8:** Installing the Sliding X Stops
 - Step 9:** Assembling the Clamps Assembly
 - Step 10:** Installing the Clamp Assembly to the Wedge
 - Step 11:** Attaching the Flip X Stops to the Sliding Router Base
 - Step 12:** Attaching the Y Bushing Stops to the Sliding Router Base
 - Step 13:** Mounting the Mortise and Tenon Fixture to a Board
 - Step 14:** Final Assembling of the Fixture
 - Step 15:** Preparing the Router
-

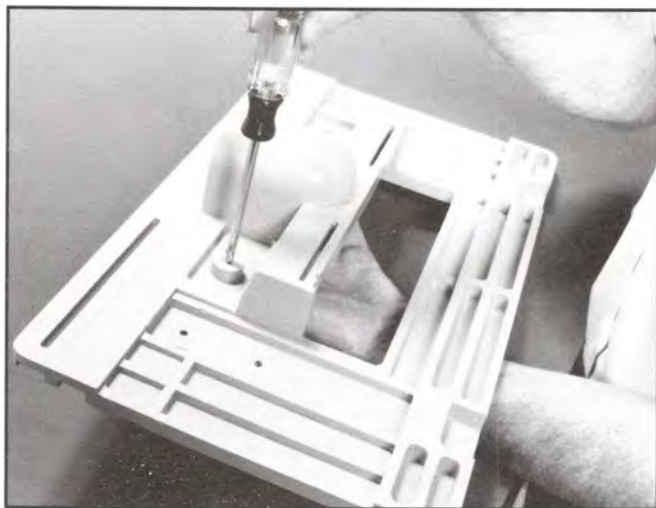
Step 1: Installing Weld Nuts to the Table Top



You will need: Table Top (Item #137)
Two Weld Nuts (Item #121)
Two Flat Head Screws - #10-24 x 1/2" (Item #126)
Phillips screwdriver

■ Step 1.1

Place a Weld Nut in each of the two Weld Nut openings in a groove on the Table Top. (Later in these instructions, you will see that the metal surface of the Weld Nut provides a surface to hold the Sliding Magnetic X Scale.)



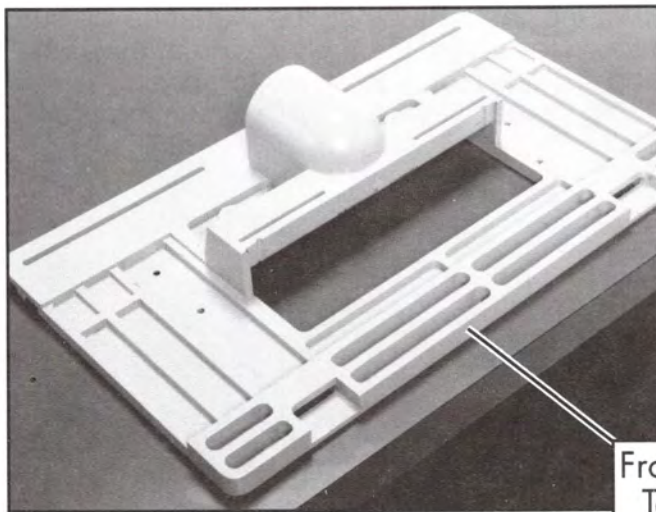
■ Step 1.2

With your thumb and forefinger hold in the two Weld Nuts, turn the Table Top upside-down. Place a Flat Head Screw into the threads of one Weld Nut. Then tighten the screw with a Phillips screwdriver.

■ Step 1.3

Tighten a screw in the second Weld Nut using the same process as listed above.

Step 2: Inserting Table Braces into the Table Top

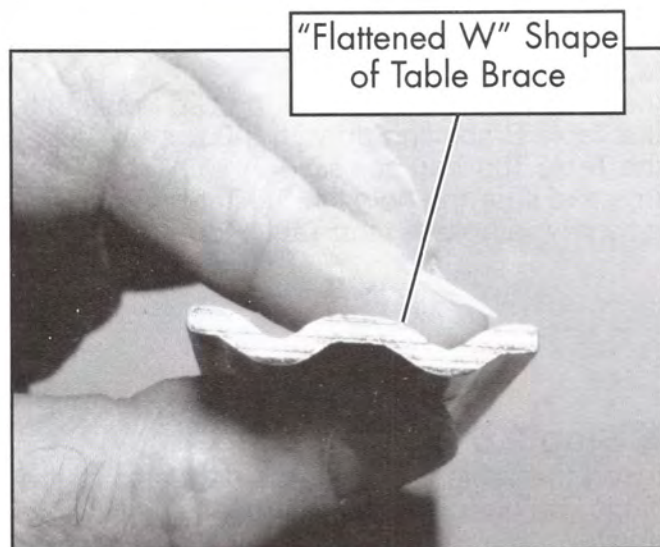


Front side of
Table Top

You will need: Table Top (Item #137)
Two Table Braces (Item #132)

■ Step 2.1

Turn the Table Top upside-down. Position the front side of the Table Top to face the front side of the workbench.

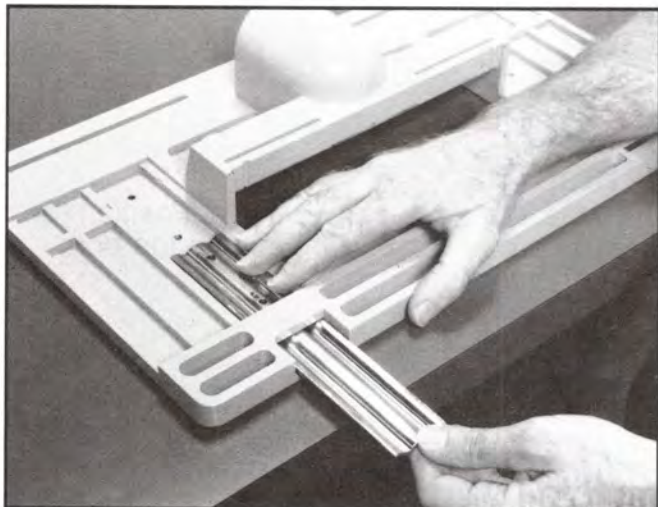


"Flattened W" Shape
of Table Brace

■ Step 2.2

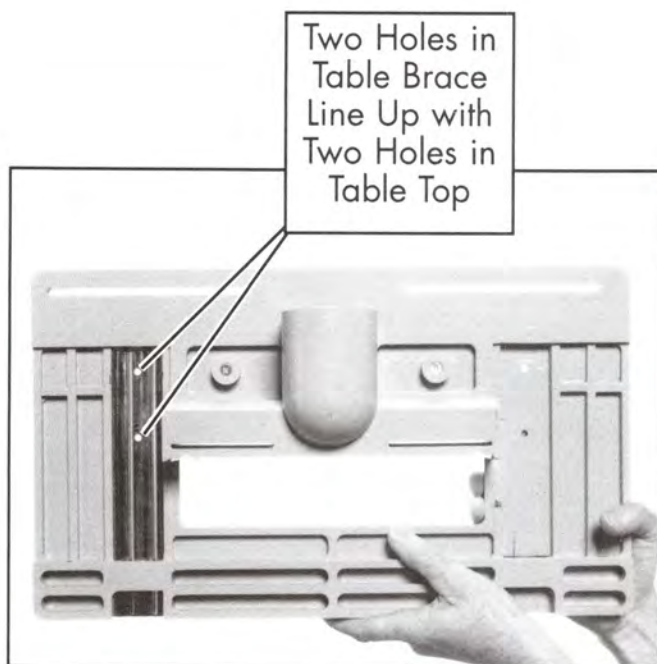
Locate a Table Brace. Look at the end of the Table Brace. Notice that its shape appears as a "flattened W."

End View of the Table Brace



■ Step 2.3

Turn the Table Brace so the “flattened W” surface faces down. On the left side of the Table Top there is a slot designed to accept the Table Brace. Insert the Table Brace into that slot.



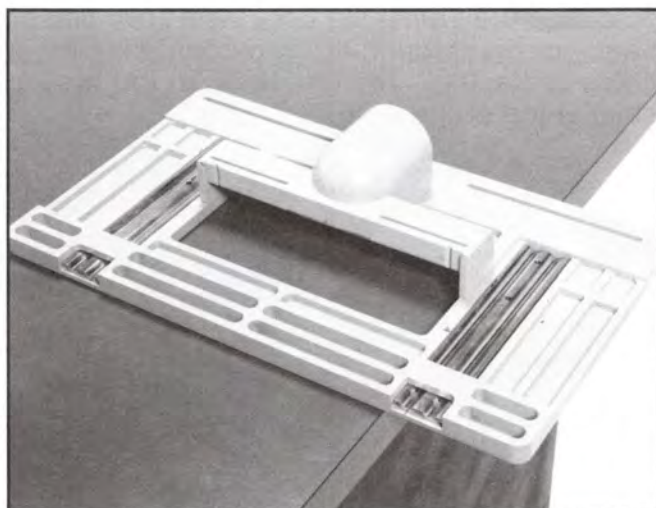
■ Step 2.4

Insert the Table Brace until the two holes in the Table Brace line up with the two holes in the Table Top. You can hold up the Table Top to make sure the holes in the Table Brace line up with the holes in the Table Top.

■ Step 2.5

Insert the Table Brace for the right side of the Table Top using the same process as listed above.

Step 3: Attaching Legs to the Table Top



You will need: Table Top (Item #137)
 Left Table Leg (Item #138)
 Right Table Leg (Item #139)
 Four Flat Head Screws — #10-24 x 1-1/2" (Item #123)
 Four Washers — #10 (Item #111)
 Four Nuts — #10-24 (Item #124)
 3/8" Wrench

■ Step 3.1

Turn the Table Top upside-down. Position the left edge of the Table Top to face the front edge of the workbench. The front 1/3 of the Table Top extends over the front edge of the workbench.

Top of Leg is
 Flush Against
 This Edge of
 Table Top

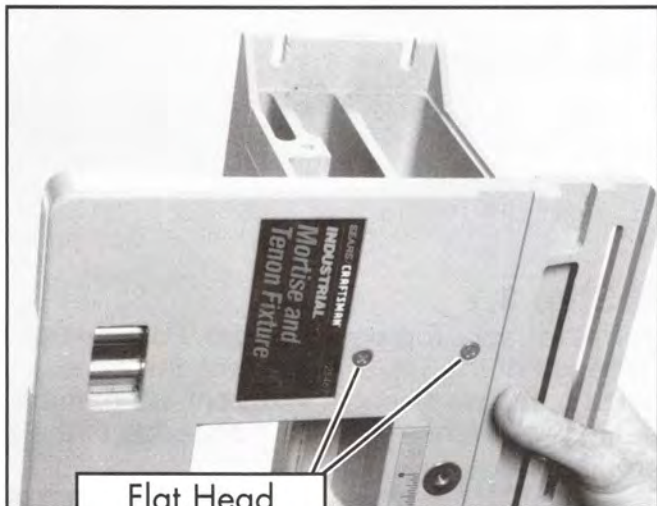
No Gap
 Here

No Gap
 Here

Top of
 Leg

■ Step 3.2

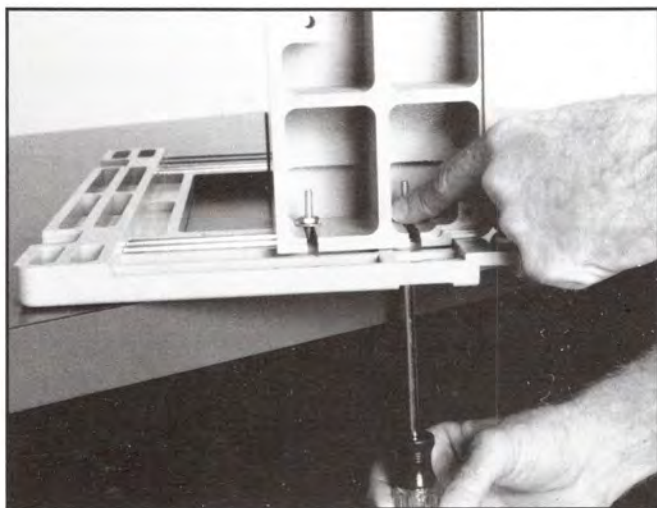
Place the Left Table Leg against the edge of the Table Top as shown in the photo.



Flat Head
Screws Attach
Leg to Table

■ Step 3.3

To attach the Left Table Leg, insert two flat-head screws through the two countersunk holes in the Table Top and through the two slots at top of the Left Table Leg.



■ Step 3.4

Place a washer onto both screws. Place a nut onto both screws and lightly tighten the nut.

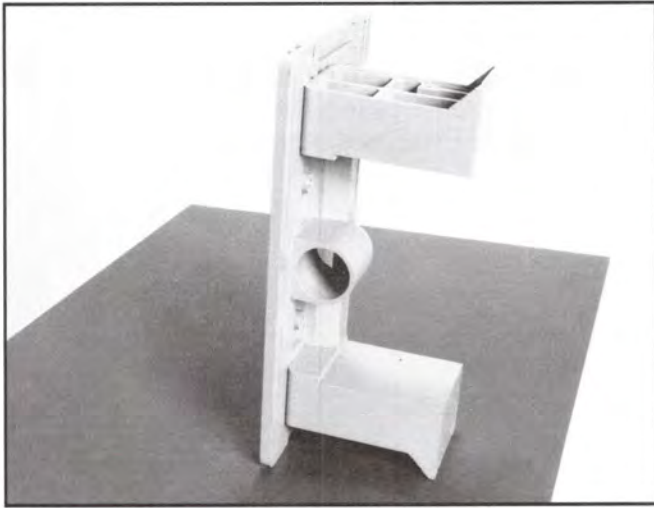
■ Step 3.5

Before tightening the nut with a wrench, re-check the position of the leg by referring to photo in **Step 3.2**, to make sure the leg is properly positioned. Tighten both nuts with a wrench.

■ Step 3.6

Attach the Right Table Leg using the same process as listed above.

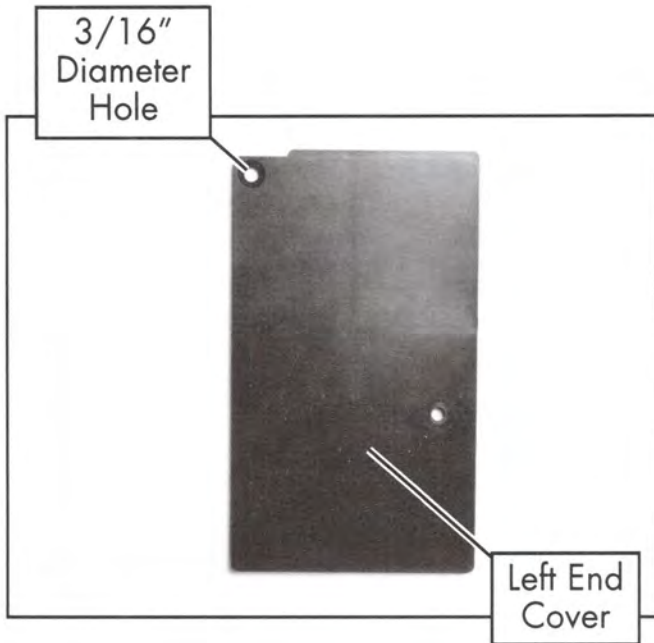
Step 4: Attaching End Covers to Table Legs



You will need: Fixture completed so far
Left End Cover (Item #106)
Right End Cover (Item #107)
Two Self-Tapping Screws — #10 x 3/4" (Item #122)
Phillips screwdriver

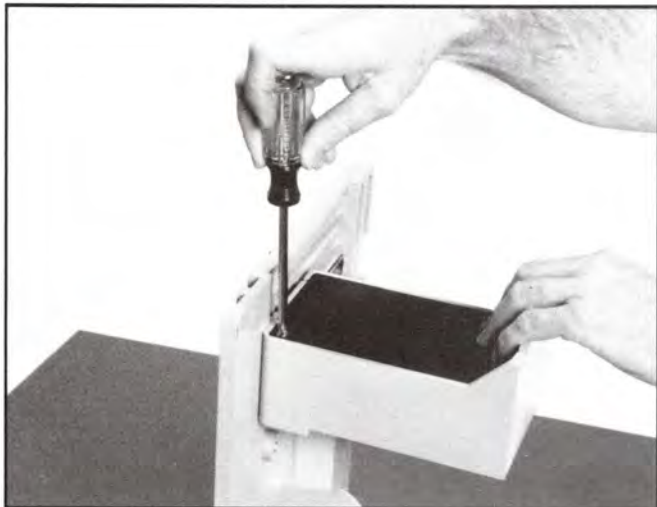
■ Step 4.1

Stand the fixture on its side, with the Right Table Leg on the workbench and the Left Table Leg facing the ceiling.



■ Step 4.2

Locate the Left End Cover. Note the 3/16" diameter hole molded through the upper right hand corner of the Left End Cover.



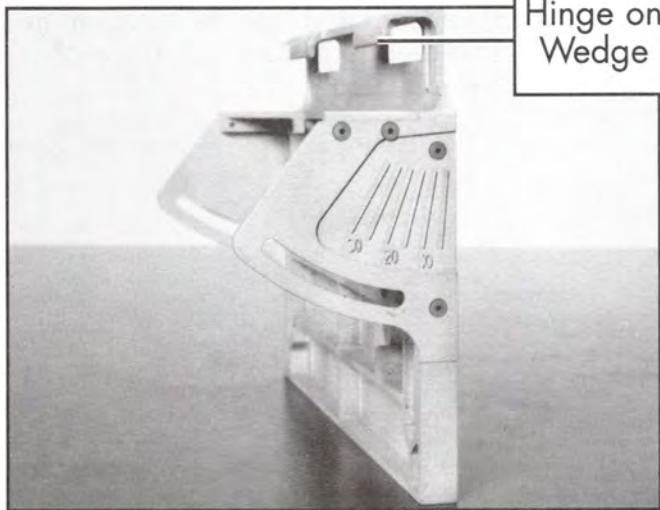
■ **Step 4.3**

Place the Left End Cover on the open cavity of the Left Table Leg. Place the Self-Tapping Screw through the 3/16" diameter hole in the Left End Cover. Tighten the Self-Tapping Screw with a Phillips screwdriver.

■ **Step 4.4**

Attach the Right End Cover to the Right Table Leg using the same process as listed above.

Step 5: Installing the Wedge

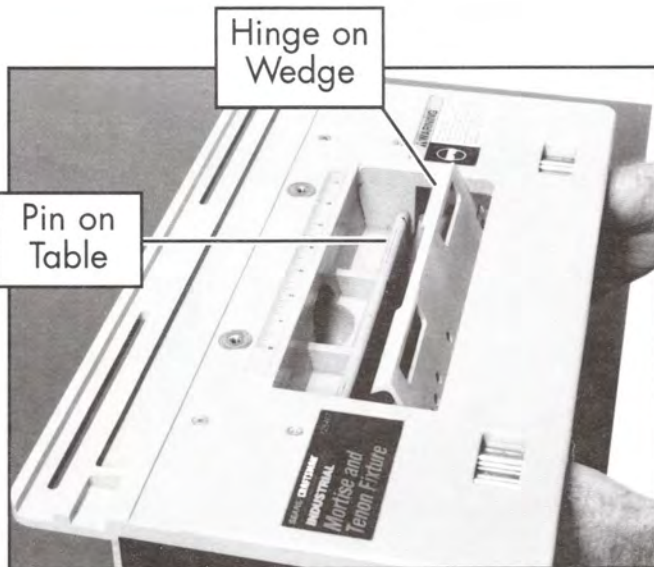


Hinge on
Wedge

You will need: Fixture completed so far
Wedge (Item #127)

■ Step 5.1

Locate the Wedge. Note the hinge at the top of the Wedge. This hinge allows the Wedge to pivot on the fixture from 0° to 30° for angled tenons.

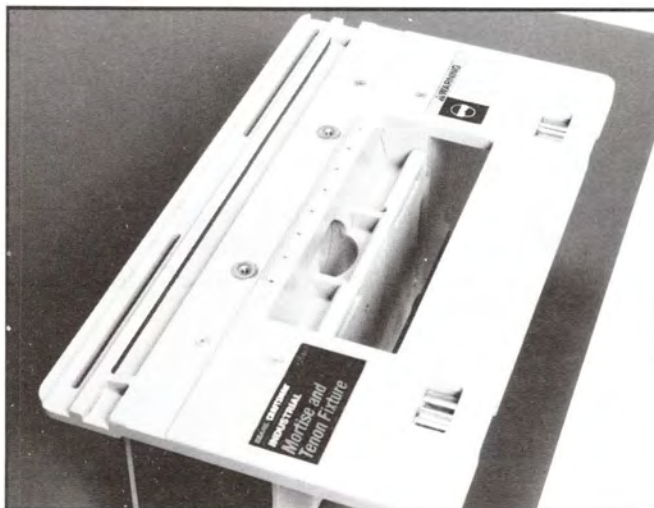


Hinge on
Wedge

Pin on
Table

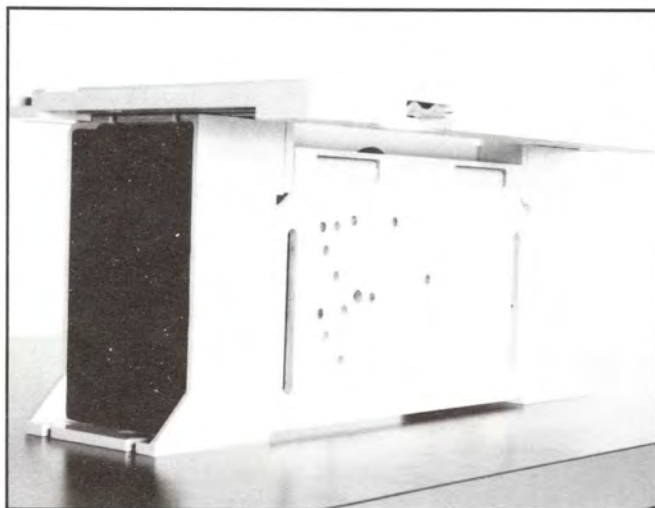
■ Step 5.2

The Wedge is placed under the Table Top, to reach the pin on the fixture. Tilt the Wedge at approximately 45°, then insert into the table opening. The hinge should mount over the pin. Then rotate the Wedge back down to 0°.

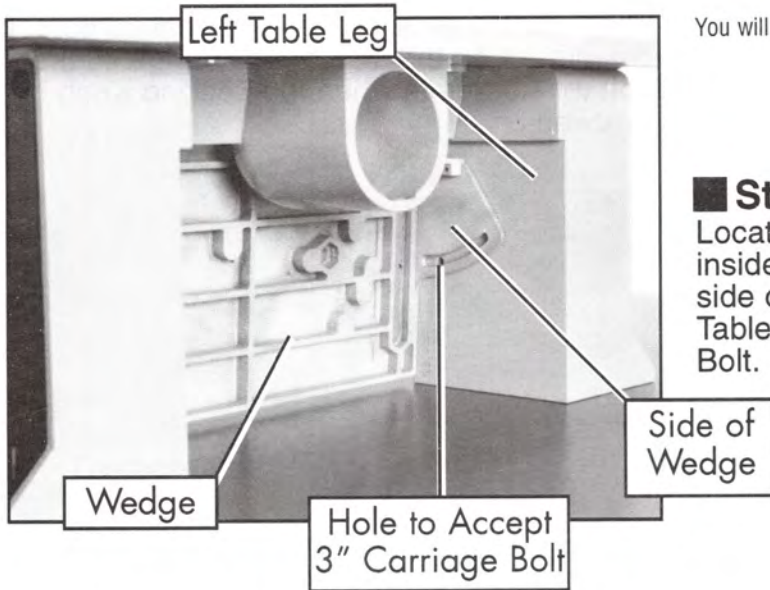


■ Step 5.3

The correctly assembled Wedge is shown in the photo. The Wedge rests at an angle of approximately 0° .



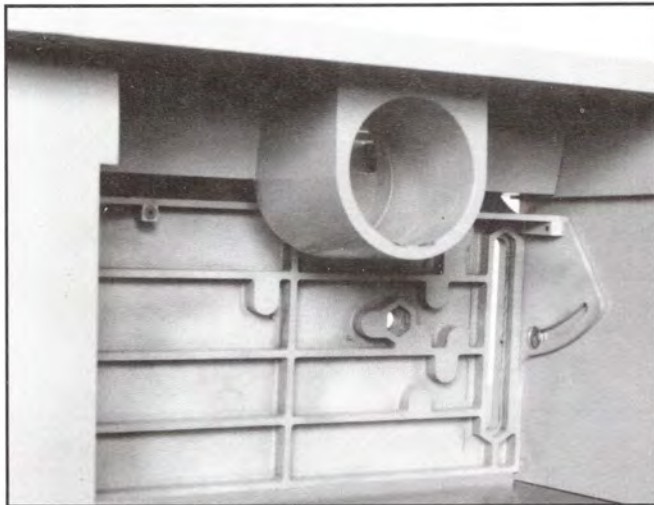
Step 6: Installing Carriage Bolts to the Wedge



You will need: Fixture completed so far
Two Carriage Bolts — #10-24x3" (Item #110)
Two Washers — #10 (Item #111)
Two Locking Knobs (Item #100)

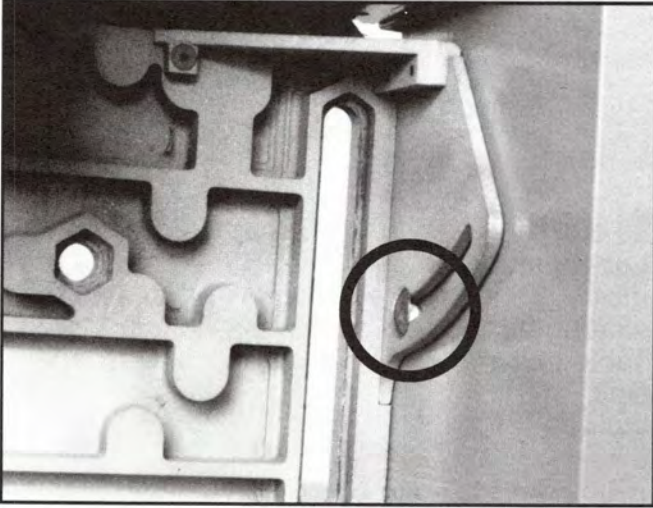
■ Step 6.1

Locate the Left Leg of the fixture. Locate the inside of the Left Leg which is parallel to the side of the Wedge. Locate the hole in the Left Table Leg which will accept the 3" Carriage Bolt.



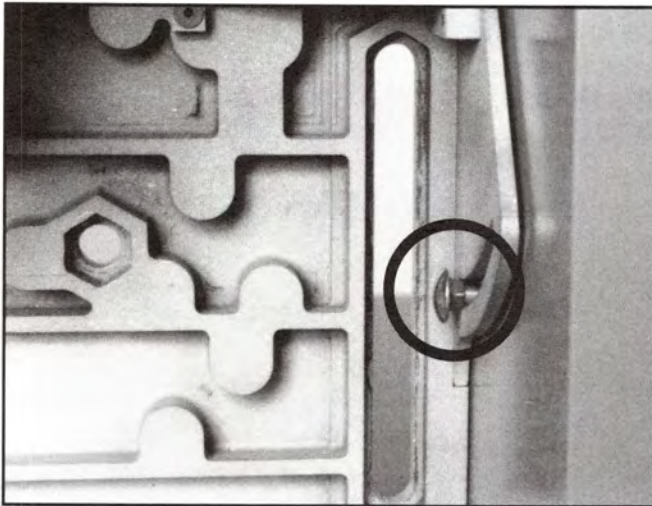
■ Step 6.2

Place the 3" Carriage Bolt through the side of the Wedge, the hole in the Left Table Leg and through the Left End Cover.

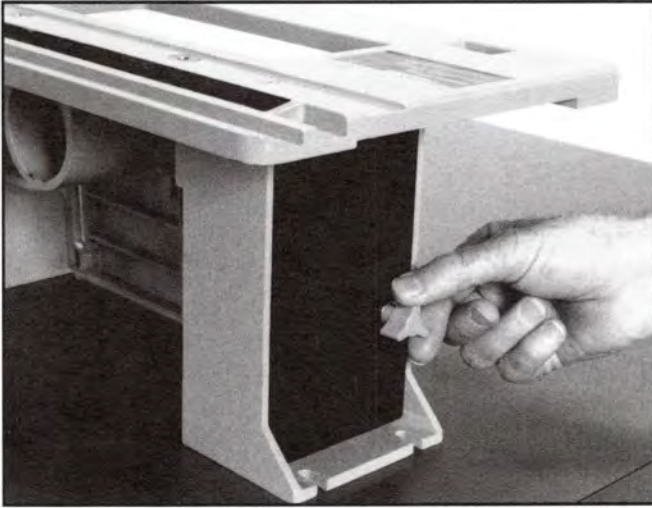


NOTE: Two of the four flat sides of the head of the Carriage Bolt must rest in the curved slot on the side of the Wedge so the bolt will not rotate when the Locking Knob is screwed on.

Correct Placement of the Carriage Bolt



Incorrect Placement of the Carriage Bolt



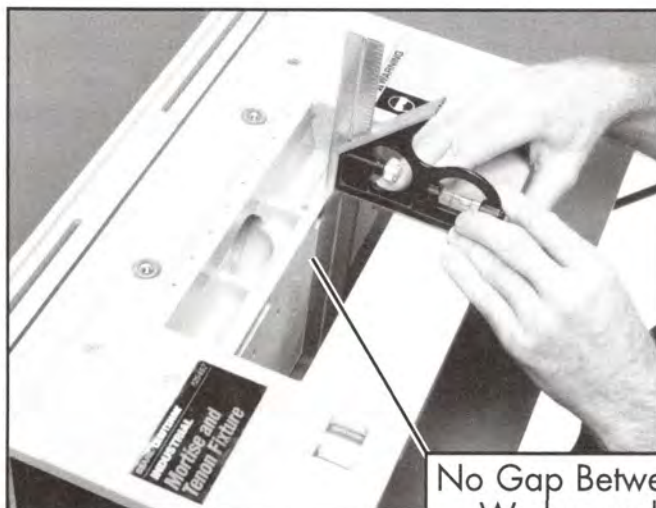
■ Step 6.3

Place a Washer and Locking Knob on the end of the Carriage Bolt. Loosely tighten the Locking Knob. (The Locking Knob will be tightened more firmly later, after checking the square of the Wedge.)

■ Step 6.4

Install a Carriage Bolt, Washer and Locking Knob on the Right Table Leg using the same process as listed above.

Step 7: Checking the Square of the Wedge

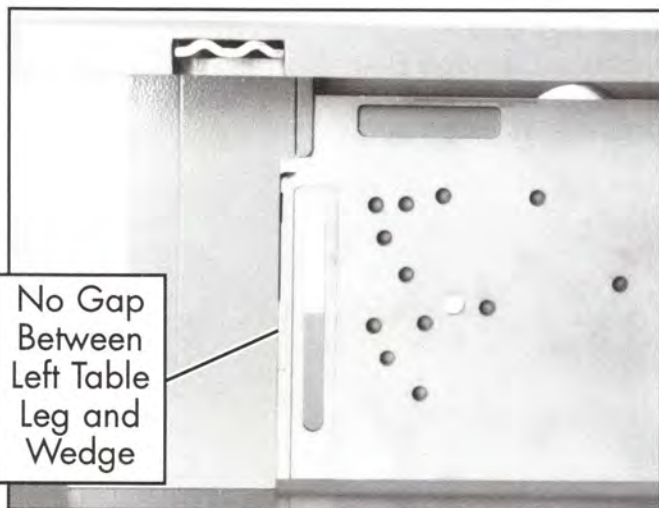


No Gap Between
Wedge and
Combination
Square

You will need: Fixture completed so far
Combination square

Step 7.1

Check the square of the Wedge with a combination square. There should be no gap between the surface of the Wedge and the combination square. (If there is a gap between the Wedge and the combination square, check to see that the Wedge is hinged at a 90° angle to the Table Top and that the legs are assembled correctly.)



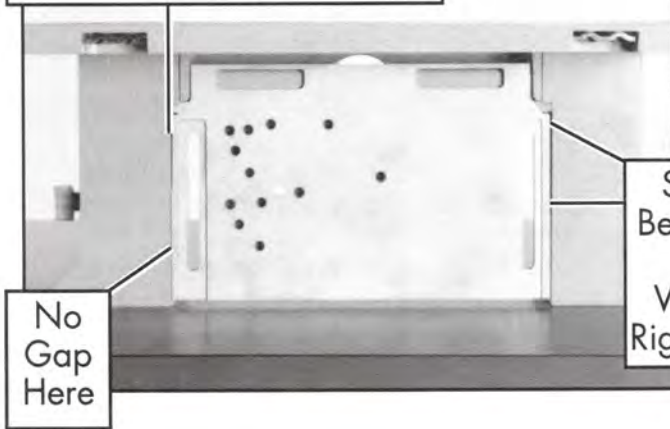
No Gap
Between
Left Table
Leg and
Wedge

Step 7.2

With the Wedge being square, tighten the Locking Knob on the Left Table Leg. The result is that there is no gap between the Left Table Leg and the left side of the Wedge.

NOTE: It is **VERY** important that the left side of the Wedge be flush against the Left Table Leg. This is critical to help assure accurate tenon cuts.

This is not a Gap. Markings on Side of Wedge Accounts for the Space



No Gap Here

Slight Gap Between Right Side of Wedge and Right Table Leg

■ Step 7.3

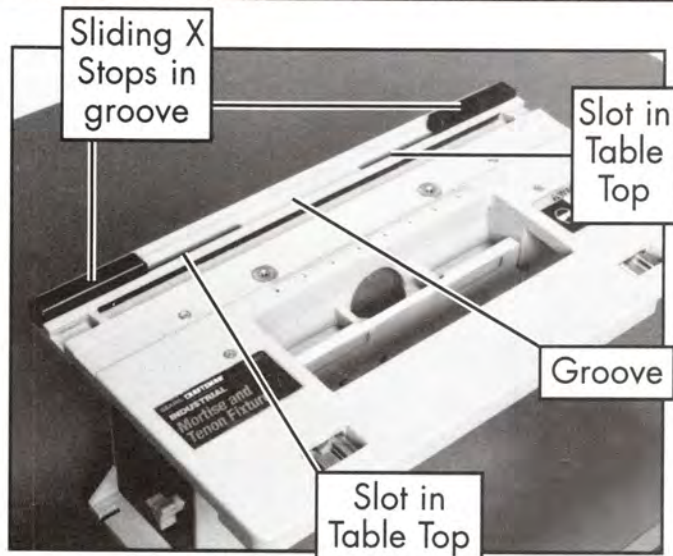
Tighten the Locking Knob on the Right Table Leg. It is acceptable to have a slight ($1/16$ " or less) gap on the right side of the face of the Wedge, as long as there is no gap on the left side of the face of the Wedge.

■ Step 7.4

Check the square of the Wedge again.

NOTE: Later you will see how the Wedge can be set at different angles — from 0° to 30° — to create angled tenons. After finishing an angled tenon, the Wedge is reset to 0° . When re-setting the Wedge at 0° , re-check the square of the Wedge with a combination square.

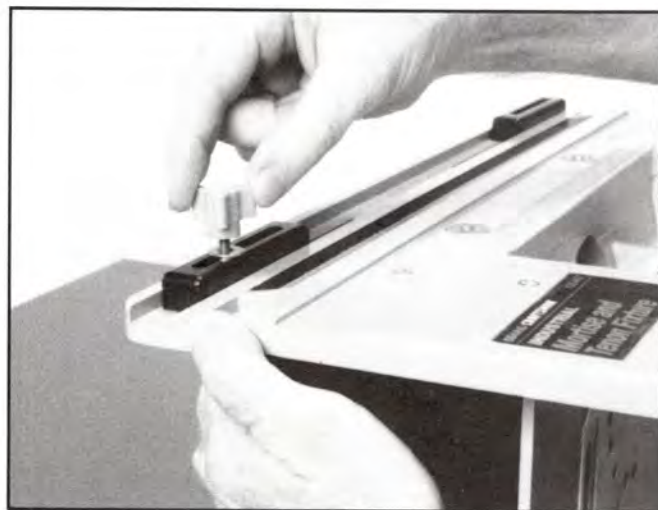
Step 8: Installing the Sliding X Stops



You will need: Fixture completed so far
 Two Sliding X Stops (Item #105)
 Two Carriage Bolts — #10-24 x 1-1/8" (Item #114)
 Two Washers — #10 (Item #111)
 Two Locking Knobs (Item #100)

Step 8.1

Locate the groove at the back of the Table Top. Place one Sliding X Stop in the groove at the far left side of the groove. Place the other Sliding X Stop in the groove at the far right side of the groove.



Step 8.2

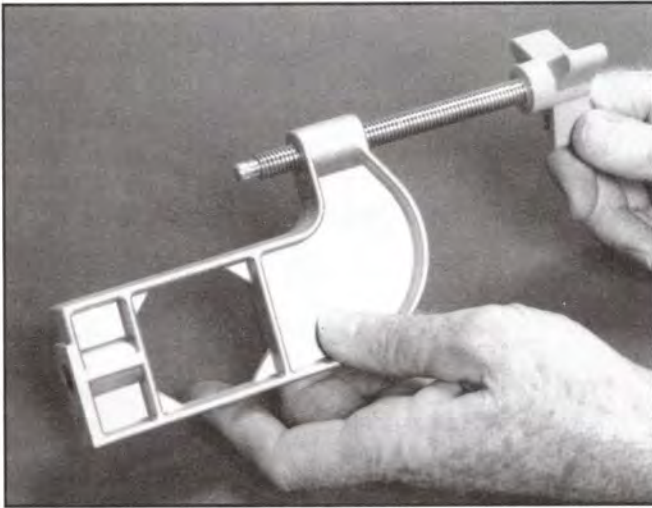
Position the Carriage Bolt through both the slot in the groove of the Table Top and the Sliding X Stop at the left side of the Table Top. Then place a washer on the Carriage Bolt. Screw a Locking Knob onto the Carriage Bolt which will secure the Left Sliding X Stop. The Sliding X Stop should slide freely in the groove.

NOTE: Two of the four flat sides of the Carriage Bolt should lock into the slot of the Table Top, so the Carriage Bolt does not rotate when the Locking Knob is screwed on.

Step 8.3

Affix the Right Sliding X Stop using the same process as listed above.

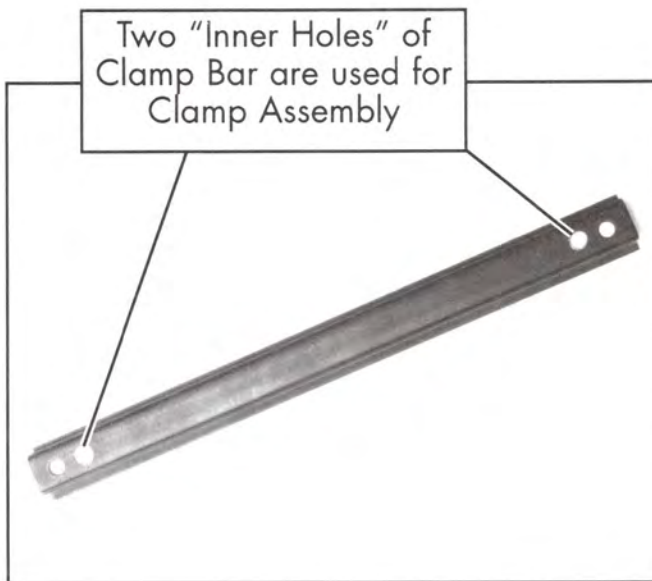
Step 9: Assembling the Clamp Assembly



You will need: Two Clamp-Knob-with-Stud(s) (Item #102)
 Two Clamps (Item #128)
 One Clamp Bar (Item #134)
 Two E-Rings (Item #120)
 Needle nose pliers

■ Step 9.1

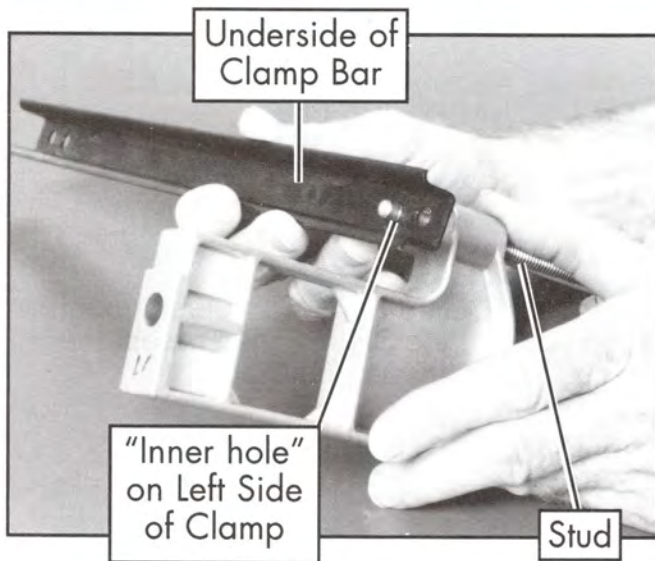
Thread the Clamp-Knob-with-Stud through the threads of the Clamp. Then repeat the procedure for the second Clamp.



Clamp Bar

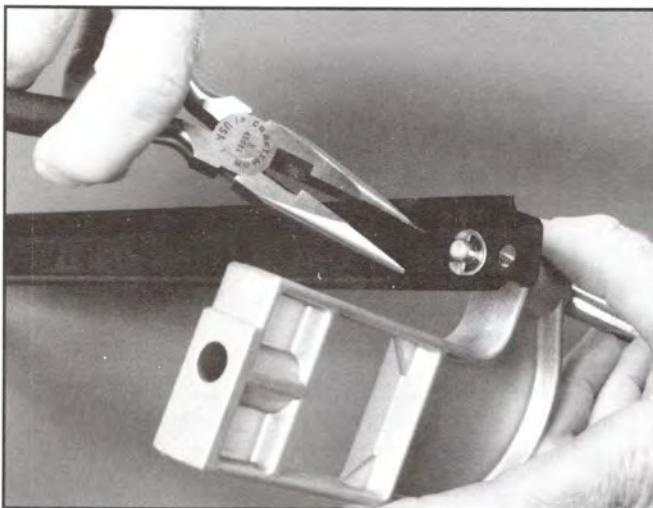
■ Step 9.2

Locate the Clamp Bar. Note that there are four holes stamped into the Clamp Bar. Use the two "inner holes" of the Clamp Bar for the Clamp Assembly.



■ Step 9.3

Pick up one Clamp-Knob-with-Stud that has been threaded into a Clamp. Position the stud (of the Clamp-Knob-with-Stud) to face the underside of the Clamp Bar. Locate the "inner hole" on the left side of the Clamp Bar. Place the stud through the inner hole on the underside of the Clamp Bar.

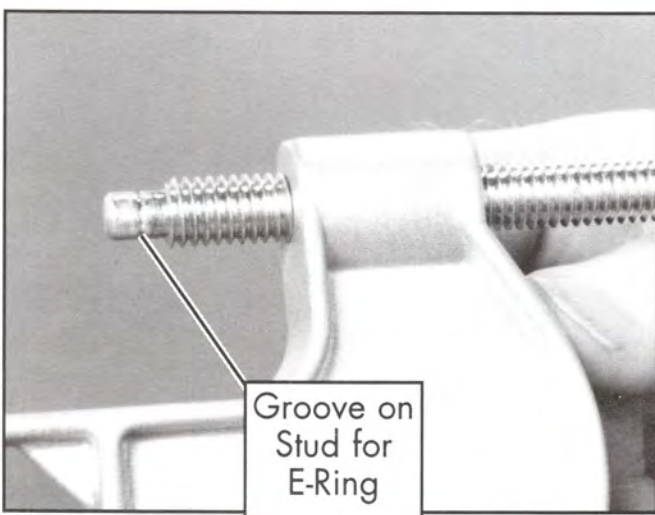


■ Step 9.4

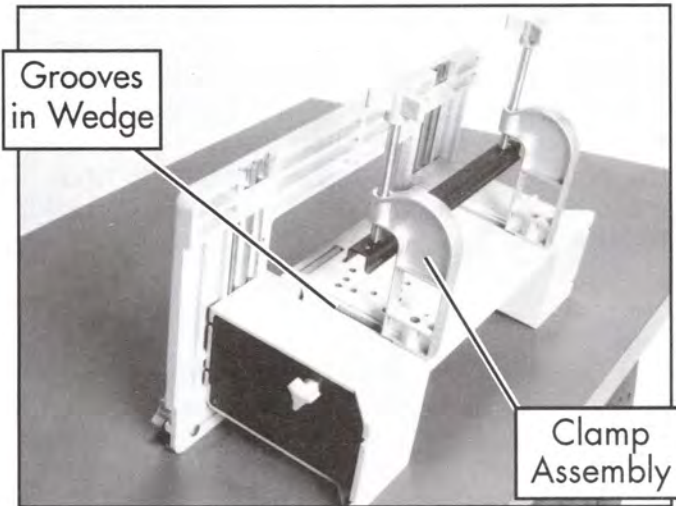
Place an E-Ring on the stud, which projects through the underside of the Clamp Bar. There is a groove in the stud for the E-Ring. Snap the E-Ring on the stud with the needle nose pliers.

■ Step 9.5

Affix the other Clamp-Knob-with-Stud to the right "inner hole" on the Clamp Bar using the same process as listed in steps 9.3 and 9.4.



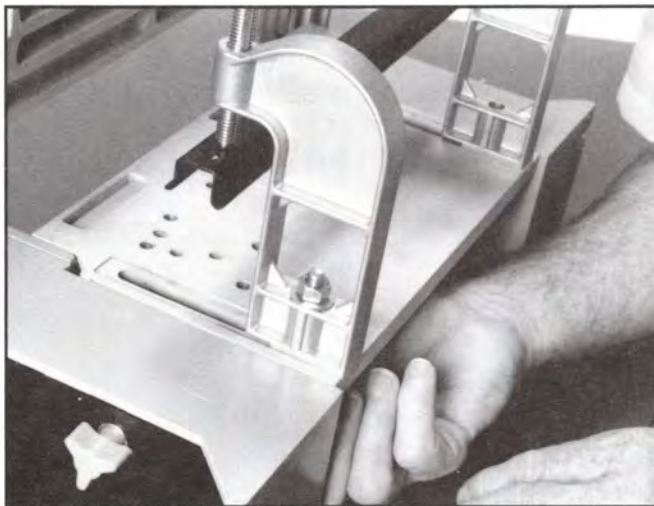
Step 10: Installing the Clamp Assembly to the Wedge



You will need: Fixture completed so far
 Clamp Assembly completed in Step 9
 Two Hex Head Bolts — 5/16" - 18 x 2-3/4" (Item #115)
 Two Hex Nuts — 5/16" - 18 (Item #118)
 Two Washers — 5/16" (Item #117)
 Two Clamp Levers (Item #101)

■ Step 10.1

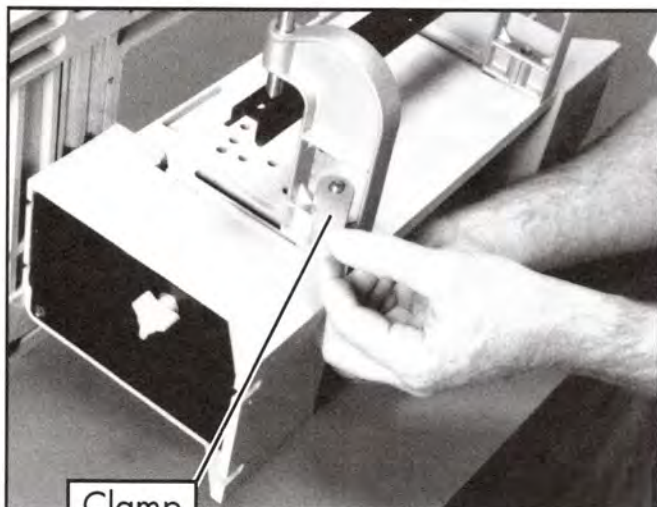
Tilt the fixture backwards to rest on the workbench. The Wedge is facing forward, toward the front of the workbench. Mount the Clamp Assembly into the grooves at either side of the Wedge.



■ Step 10.2

Mount a hex bolt through the slot on the left side of the Wedge and through the Clamp. Place the washer and nut on the hex head bolt. Tighten the nut about 1/2" down the shaft of the hex head bolt.

NOTE: Two sides of the head of the hex head bolt should lock into the Wedge slot so the hex bolt will not rotate while a nut is screwed on.



Clamp
Lever

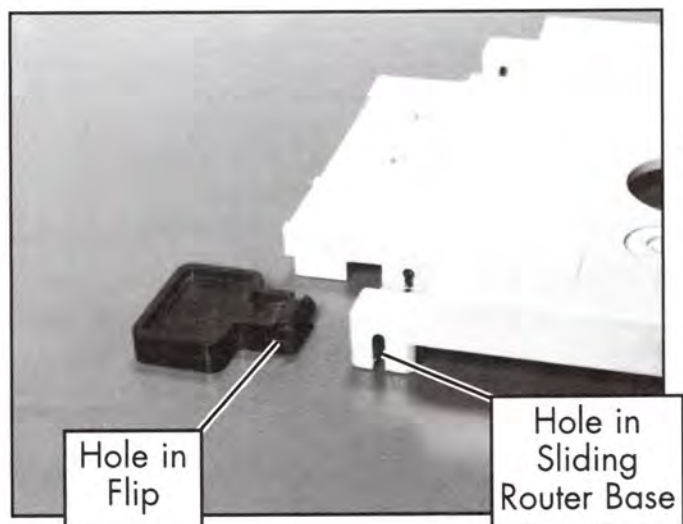
■ Step 10.3

Place the Clamp Lever on top of the hex nut. The Clamp Lever faces out, toward the Left Table Leg. Finish tightening the hex nut by using the Clamp Lever as a small wrench. As the hex nut is tightened on the hex head bolt, the bolt is closer to edge of the Clamp and there is not enough room for the Clamp Lever to fall off.

■ Step 10.4

Install the right side of the Clamp Assembly to the Wedge using the same process as listed above, except the right Clamp Lever faces out, toward the Right Table Leg.

Step 11: Attaching the Flip X Stops to the Sliding Router Base



You will need: Sliding Router Base (Item #140)
Two Flip X Stops (Item #104)
Two Dowel Pins — 1/8" x 1-1/2" (Item #113)

■ Step 11.1

On both Flip X Stops, the capital letter "L" is molded on one side, and the capital letter "R" is molded on the other side. Place a Flip X Stop with the "L" facing up, at the upper left corner of the Sliding Router Base as shown in the photo.



■ Step 11.2

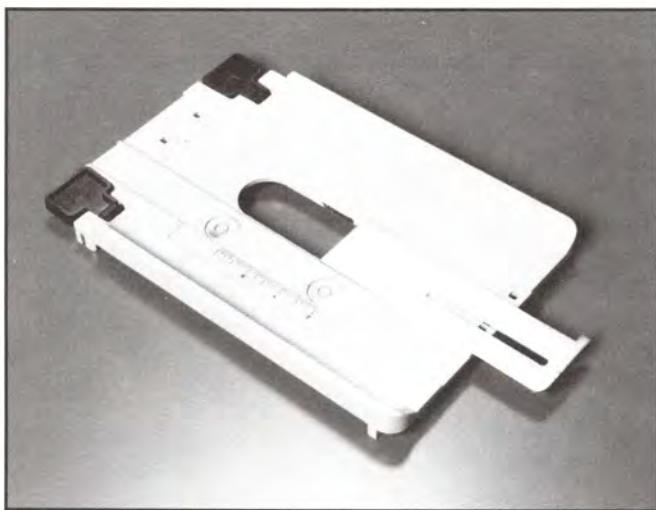
Hinge the Flip X Stop by inserting the Dowel Pin through a narrow hole (approximately 1/8" in diameter) at the side of the Sliding Router Base. As you continue to insert the Dowel Pin, it goes through a narrow hole (slightly smaller than 1/8" in diameter) in the Flip X Stop. To complete inserting the Dowel Pin into the Sliding Router Base, hold the Sliding Router Base on its side and apply pressure downward, inserting the Dowel Pin as shown in the photo.

NOTE: Once the Dowel Pin is inserted, the Flip X Stop is hinged and can flip up and down.

■ Step 11.3

Attach the Right Flip X Stop on the right side of the Sliding Router Base using the same process as listed above, except that the "R" faces up.

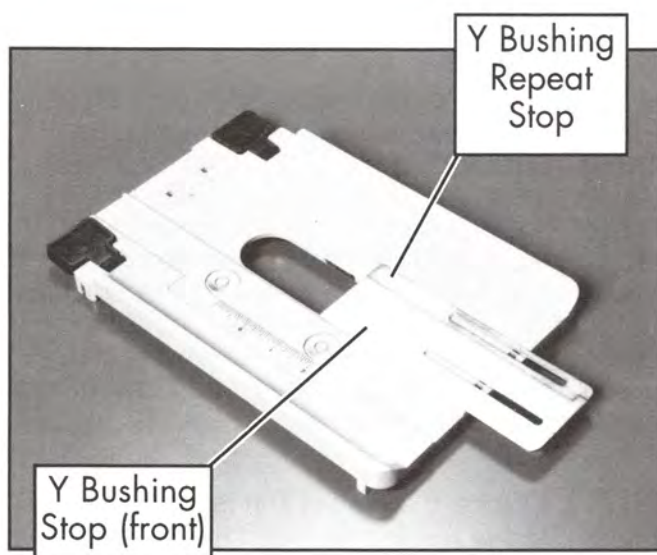
Step 12: Attaching the Y Bushing Stops to the Sliding Router Base



You will need: Sliding Router Base (Item #140)
Y Bushing Stop (front) (Item #130)
Y Bushing Repeat Stop (front) (Item #131)
Y Bushing Stop (back) (Item #130)
Y Bushing Repeat Stop (back) (Item #131)
Four Carriage Bolts — #10-24 x 5/8" (Item #112)
Four Washers — #10 (Item #111)
Four Locking Knobs (Item #100)

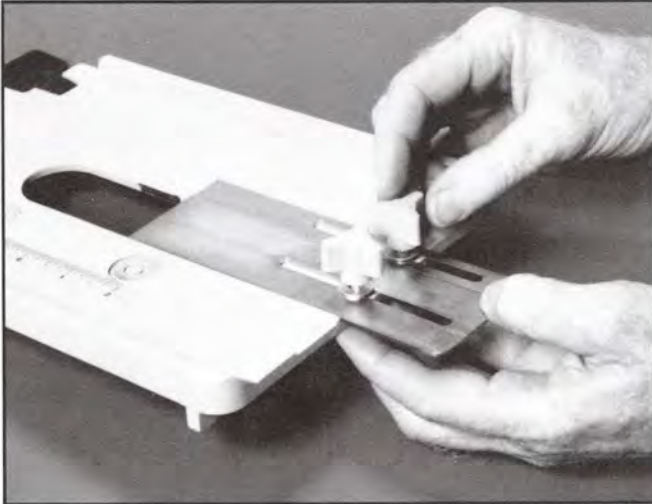
■ Step 12.1

Place the Y Bushing Stop (front) into the center groove on top of the Sliding Router Base as shown in the photo.



■ Step 12.2

The Y Bushing Repeat stop is more narrow than the Y Bushing Stop. Place the Y Bushing Repeat Stop (front) next to the Y Bushing Stop (front) into the center groove on top of the Sliding Router Base as shown in the photo. The two parts mate.



■ Step 12.3

Place two Carriage Bolts through the square holes in the Sliding Router Base and through the slot in the Y Bushing Stop (front) and in the Y Bushing Repeat Stop (front). Place a washer on both Carriage Bolts, then screw on a Locking Knob on each Carriage Bolt.

NOTE: The four “flat sides” of the Carriage Bolt should lock into the square hole in the Sliding Router Base. This way, the Carriage Bolt will not rotate when the Locking Knob is screwed on.

■ Step 12.4

Affix the Y Bushing Stop (back) and the Y Bushing Repeat Stop (back) to the Sliding Router Base using the same process as listed above.

Step 13: Mounting the Mortise and Tenon Fixture to a Board



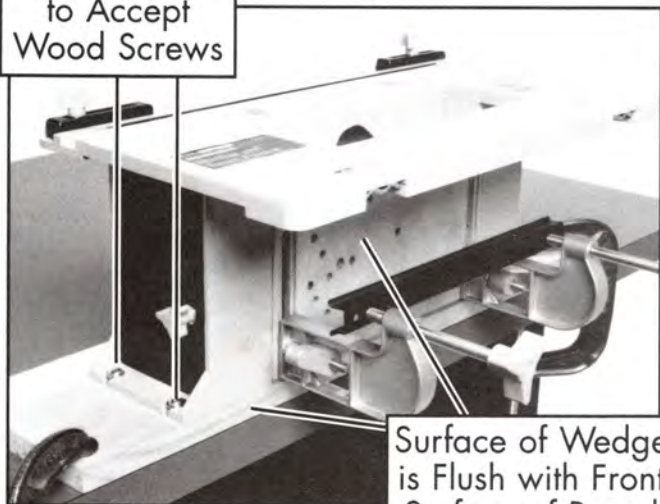
You will need: Fixture completed so far
 Wooden board, approximately 6"W x 24"L x 3/4"THK
 (Wooden board is not supplied.)
 Four Pan Head Wood Screws — #10-16 x 1-1/8"
 (Item #125)
 Four Washers — #10 (Item #111)
 Phillips screwdriver

NOTE: If you prefer to store your fixture away from the surface of the workbench when not using it, screw the fixture to a board. When using the fixture, clamp both sides of the board to the workbench.

■ Step 13.1

The front surface of the board should be flush with the front surface of the workbench. Affix a clamp on both sides of the fixture to hold the board to the workbench.

Slots on Legs
to Accept
Wood Screws

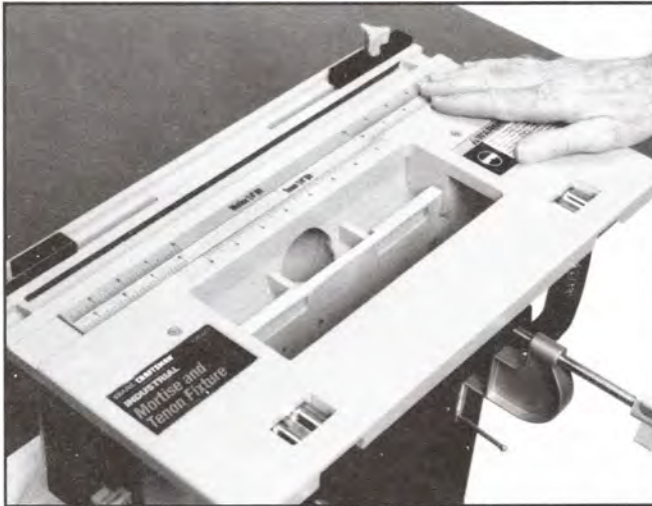


Surface of Wedge
is Flush with Front
Surface of Board

■ Step 13.2

The surface of the Wedge should be flush with the front surface of the board and both Table Legs. There are two slots at the bottom of the Left Table Leg and two slots at the bottom of the Right Table Leg. Each slot accepts a wood screw to mount the legs to a surface. Affix a washer and screw through each of the four leg slots. The wood screw is screwed into the board.

Step 14: Final Assembling of the Fixture

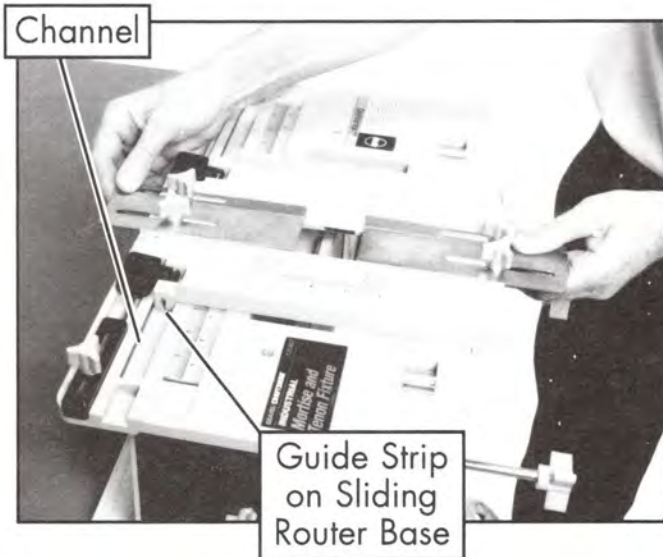


- Affixing the Sliding Magnetic X Scale
- Affixing the Sliding Router Base
- Affixing the Sliding Magnetic Y Scale
- Storing the Tenon Alignment Block
- Storing the Mortise Support
- Storing the Alignment Bushing
- Attaching Vacuum Hose to Dust Port

You will need: Fixture completed so far
 Sliding Router Base (Item #140)
 Sliding Magnetic X Scale (Item #135)
 Sliding Magnetic Y Scale (Item #136)
 Mortise Support (Item #133)
 Tenon Alignment Block (Item #109)
 Alignment Bushing (Item #108)
 One Hex Head Bolt — 5/16" - 1 (Item #116)
 One Wing Nut — 5/16" - 18 (Item #119)
 One Washer — 5/16" (Item #117)
 Vacuum Hose from Shop Vacuum
 Phillips Screwdriver

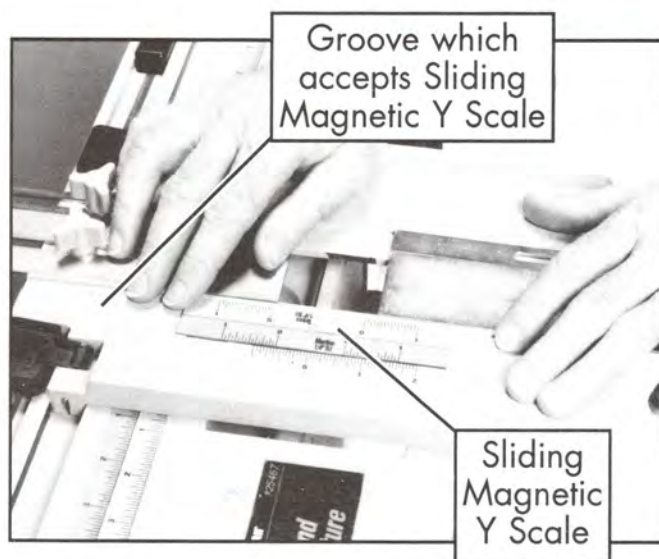
■ Step 14.1

Place the Sliding Magnetic X Scale in the groove on the Table Top where the Weld Nuts are located. The Scale should be right reading.



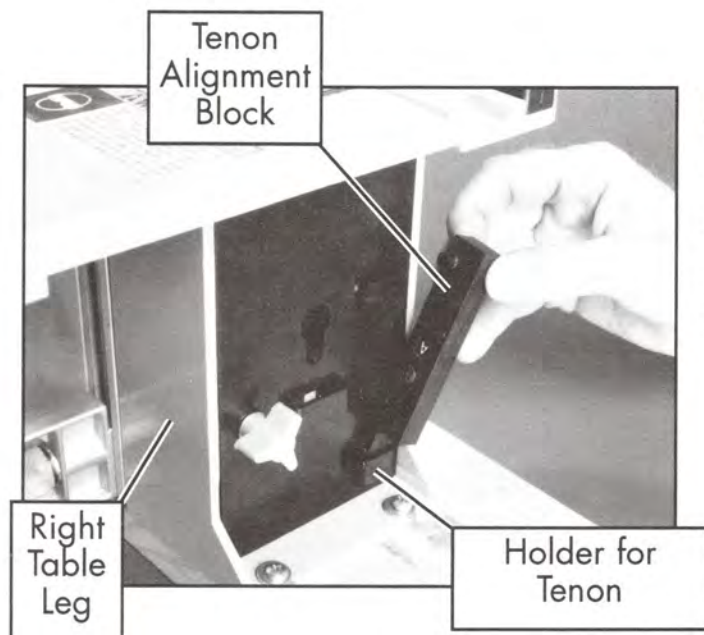
■ Step 14.2

Place the Guide Strip of the Sliding Router Base into the channel which runs along the back of the Table Top. The Sliding Router Base should slide freely across the Table Top, when you push the Sliding Router Base.



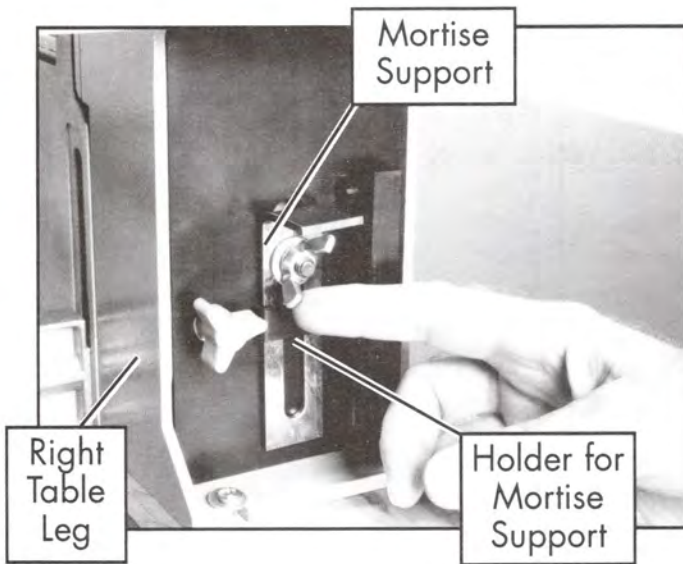
■ Step 14.3

Place the Sliding Magnetic Y Scale in the groove on the Sliding Router Base. The groove runs parallel to the Y Bushing Stops.

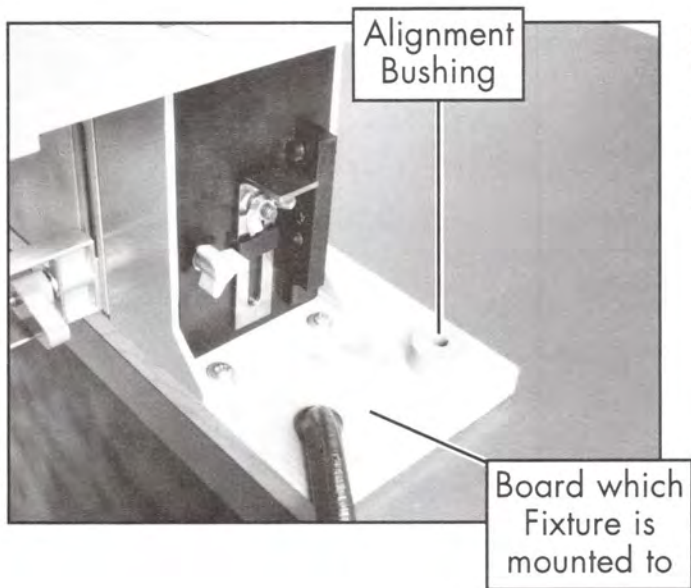


■ Step 14.4

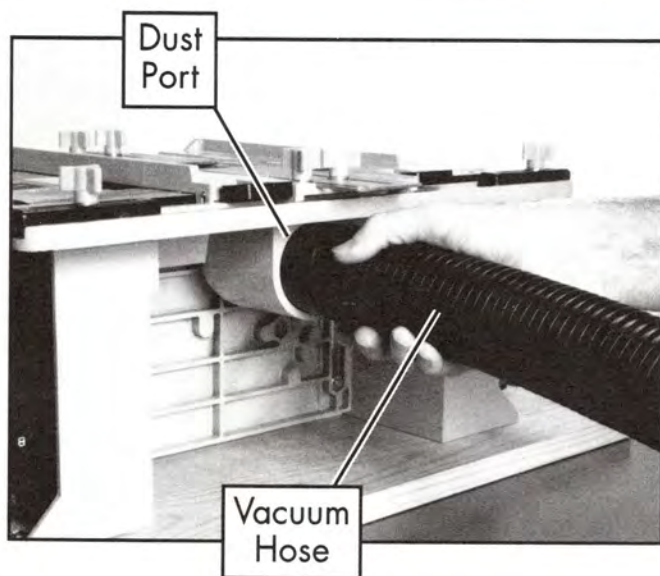
Locate the Tenon Alignment Block. The storage area for the Tenon Alignment Block is on the Right Table Leg. The narrow end of the Tenon Alignment Block slides into the holder as shown in the photo. The small locating pins on the side of the Tenon Alignment Block snap into place.

**Step 14.5**

Locate the Mortise Support. Place the Hex Bolt through the slot in the Mortise Support. Place the Washer on the Hex Bolt. Loosely tighten the Wing Nut. The Mortise Support slides into the holder as shown in the photo. Tighten the Wing Nut if necessary, once the Mortise Support is in the holder.

**Step 14.6**

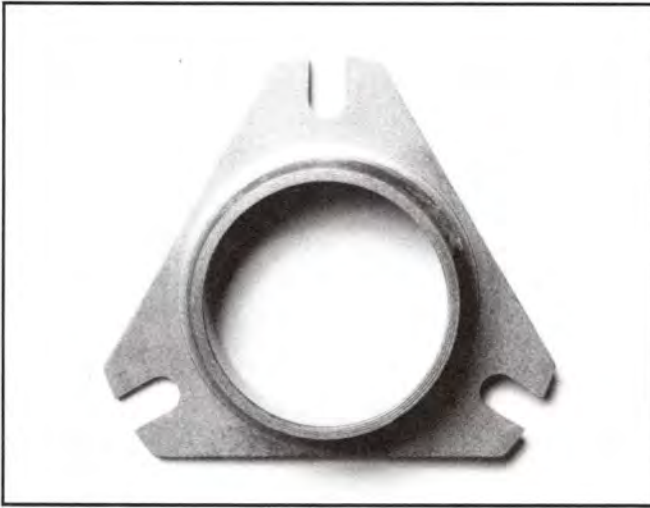
Locate the Alignment Bushing. To store the Alignment Bushing, tighten a screw (not provided) through the center shaft of the Alignment Bushing and into the board which the fixture is mounted to.



■ **Step 14.7**

Attach the Vacuum Hose to the Dust Port, located at the back of the Table Top. Accepts 2 1/2" Wet/Dry Vac Hose.

Step 15: Preparing the Router



Guide Bushing

If you have a Sears Craftsman Router...

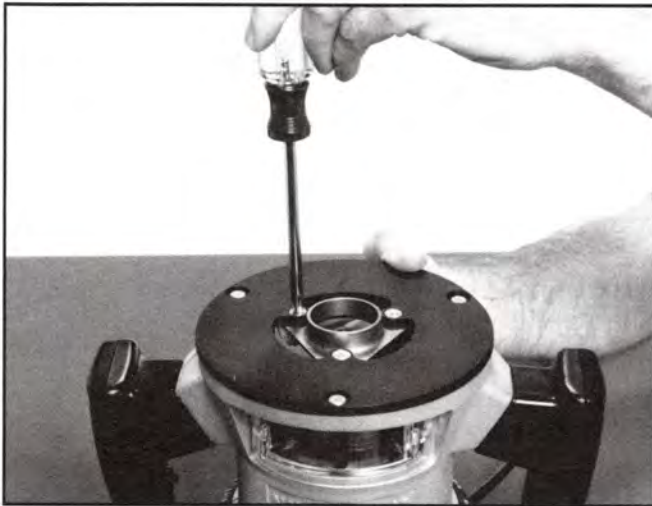
You will need: Guide Bushing (Item #129)
Three Flat Head Screws — #10-24 x 1/2" (Item #126)
Three Nuts — #10 -24 (Item #124)

If you have a router other than Sears Craftsman...

You will need: Universal Adapter Plate (Not included with Mortise and Tenon fixture. Sears Part No. 925326)
Guide Bushing (Item #129)
Three Flat Head Screws — #10-24 x 1/2" (Item #126)
Three Nuts — #10 - 24 (Item #124)

■ **Step 15.1**

Locate the Guide Bushing.



■ **Step 15.2**

Make sure the router is unplugged.

Loosely tighten the Guide Bushing onto the Router Base using the three Flat Head Screws and three Nuts. The Flat Head Screws are flush with the surface of the Router Base. If necessary, adjust the height of the router in order to tighten the Nuts of the Flat Head Screws.

Router
Bit



■ Step 15.3

Insert the router bit (not supplied) into the router. The router bit is a 1/4" straight, 2-flute carbide tipped router bit. Sears Craftsman Model No. 25415.

■ Step 15.4

Locate the Alignment Bushing.



Alignment Bushing

■ Step 15.5

Press the smaller end of the alignment bushing into the guide bushing. Keep the alignment bushing parallel with the router base. Then position the guide bushing so that there is an even gap around the diameter of the router bit and the hole in the alignment bushing. Spin the bit by hand while checking the gap. Be careful when handling the sharp bits. It is best to hold the collet instead of the bit when rotating the bit.



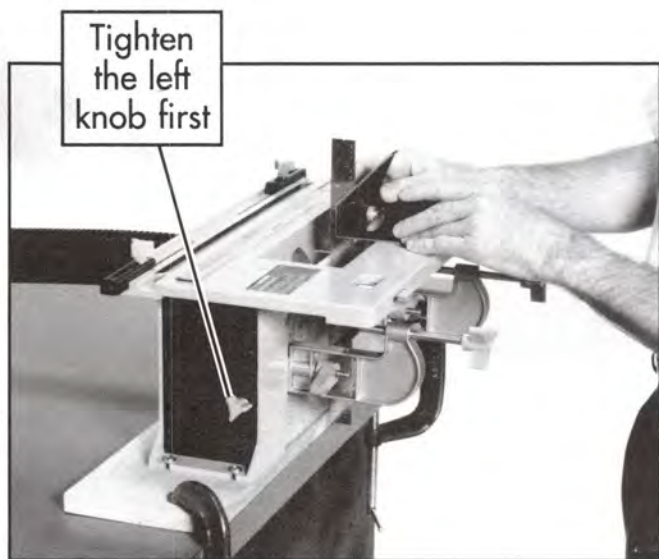
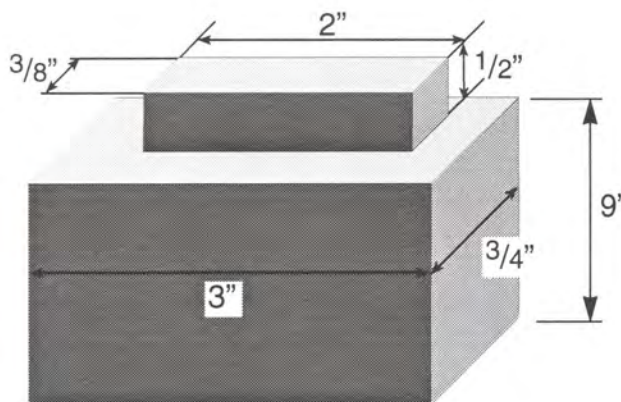
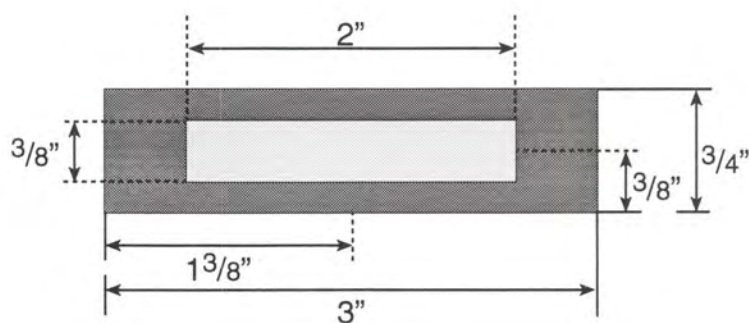
NOTE: The router bit should be perfectly centered within the Guide Bushing in order to create accurate mortise and tenon cuts.

PART ONE: Tenon Cuts

Cut No. 1: Straight-Centered, Four-Sided Tenon

NOTE: Use test workpieces until test cuts are accurate.

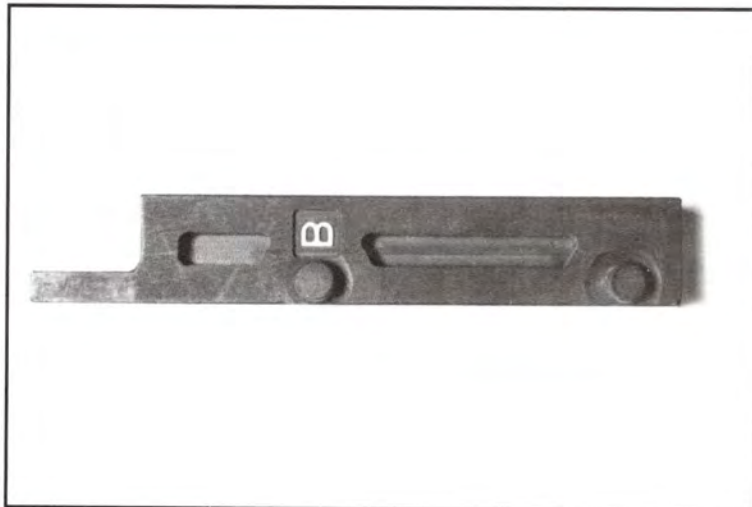
Sample project: Straight-Centered, Four-Sided Tenon
Size of workpiece: 3/4"THK x 3"W x 9"L
Size of tenon: 3/8"W x 2"L x 1/2"D
Size of router bit: 1/4" router bit (Movable scales on mortise and tenon fixture are set for 1/4" router bit.)



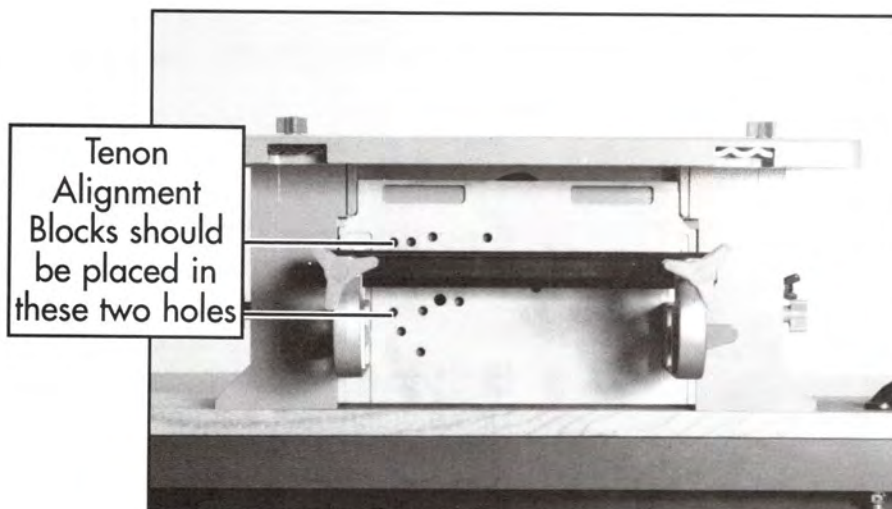
Positioning the workpiece in the fixture

■ Step 1.1

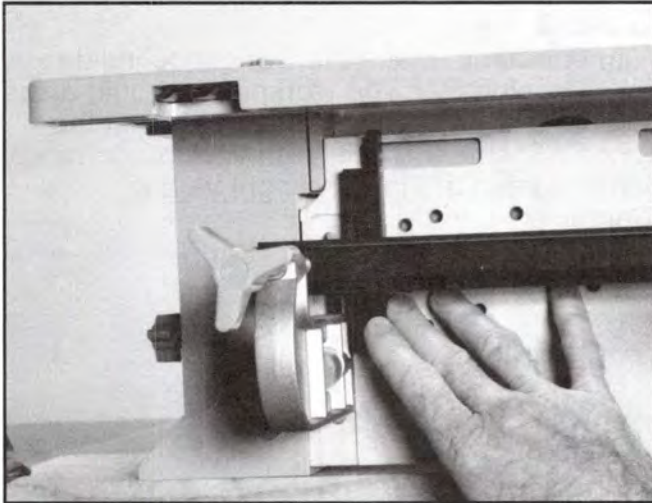
Use a combination square to make sure the Wedge is at a 90° angle to the Table Top. (Later in this manual, you will see how to tilt the Wedge from 0° to 30° to create angled tenons.) Once the Wedge is in the correct perpendicular position, tighten the left knob first to pull the Wedge to the left. (This aligns the Tenon Alignment Block with "0" on the Fixed X Scale.)



'B' side of Tenon Alignment Block



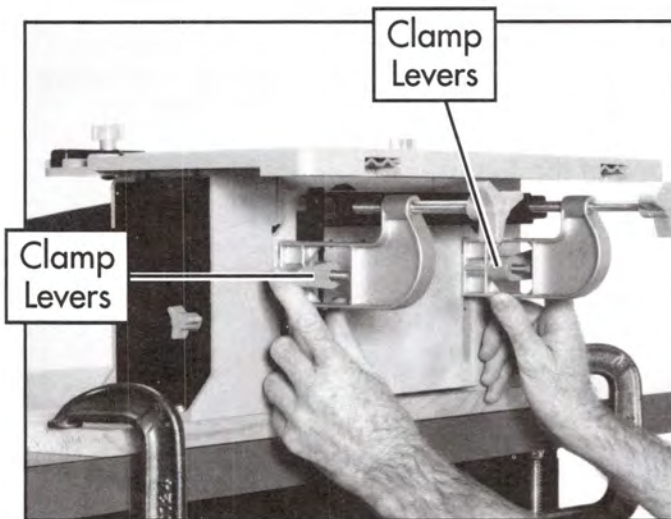
**Positioning of Tenon Alignment Block
in Wedge for 0° Mitered Tenon**



Proper placement of
Tenon Alignment Block in Wedge

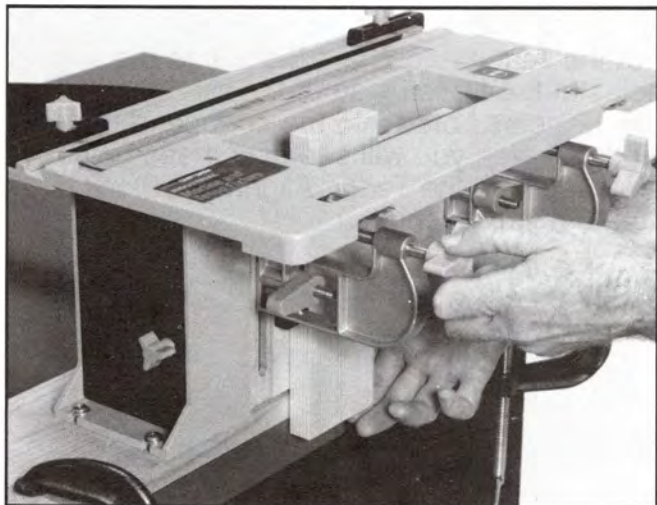
■ Step 1.2

Put the Tenon Alignment Block into the two holes at the far left side of the Wedge. (There are 12 holes bored into the surface of the wedge. Later, you will see how these holes are used with the Tenon Alignment Block to create mitered tenons.)



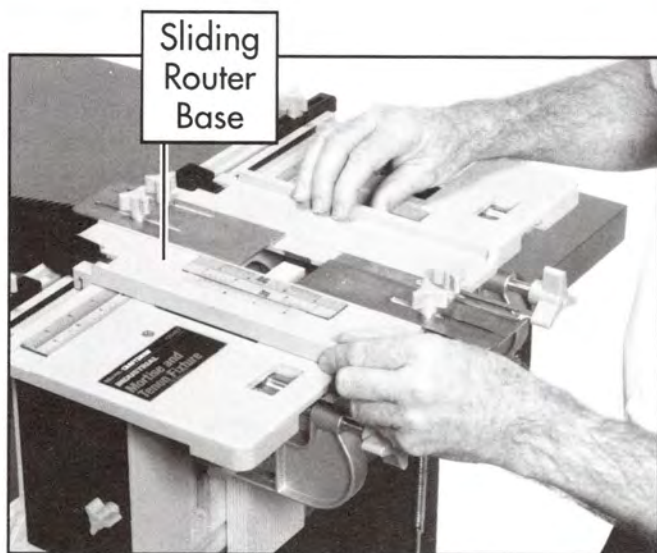
■ Step 1.3

Raise up the Clamping Bar. By raising the Clamping Bar, the workpiece is braced and supported closer to where the workpiece will be cut. Then tighten the Clamp Levers.



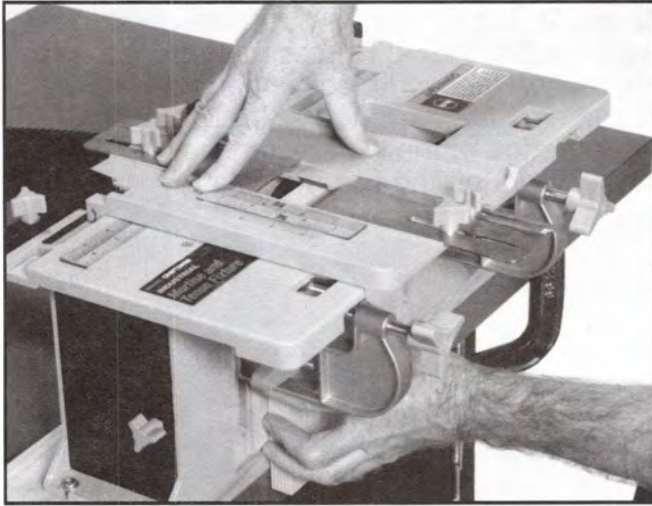
■ Step 1.4

With one hand, place the workpiece inside the Clamping Bar. The workpiece should also be next to the Wedge and flush against the Tenon Alignment Block. With your other hand, gently tighten the left and right yellow Clamping Knobs.



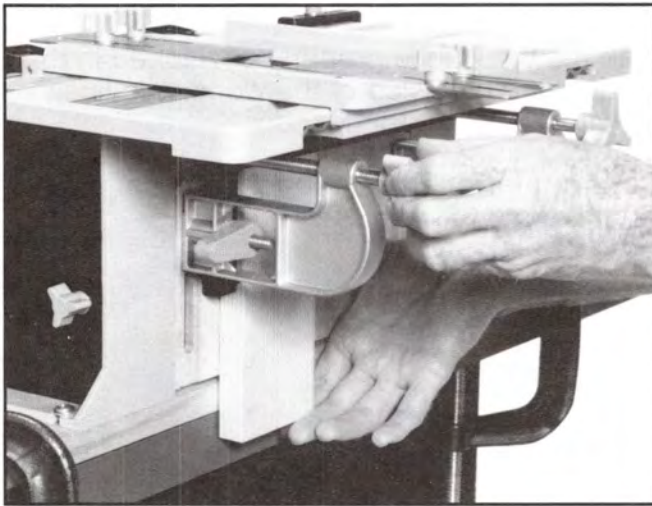
■ Step 1.5

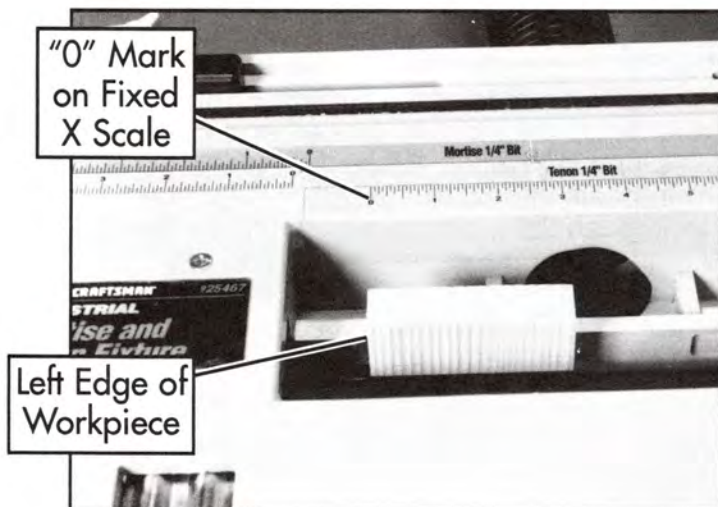
Mount the Sliding Router Base onto the Table Top. When correctly mounted, the Sliding Router Base slides along the channel at the back of the fixture.



■ Step 1.6

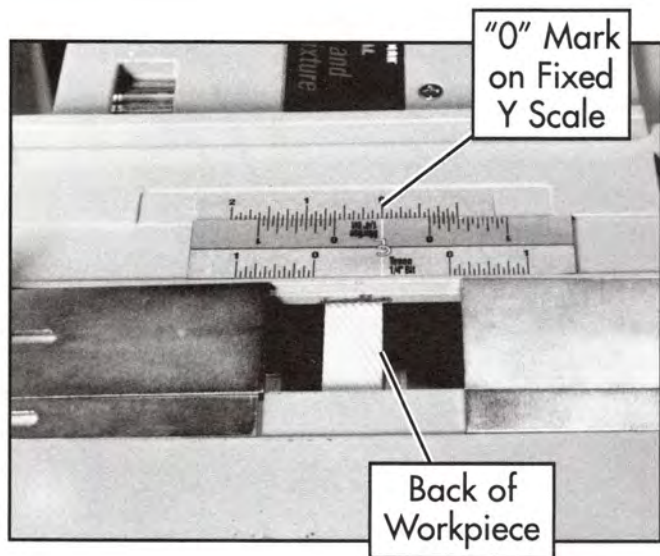
Make the top edge of the workpiece flush with the underside of the Sliding Router Base. To do this, loosen the left and right yellow Clamping Knobs. While the workpiece is still in position next to the Tenon Alignment Block, push the workpiece up with one hand. With the other hand, press down on the Sliding Router Base. Re-tighten the left and right yellow Clamping Knobs.





■ Step 1.7

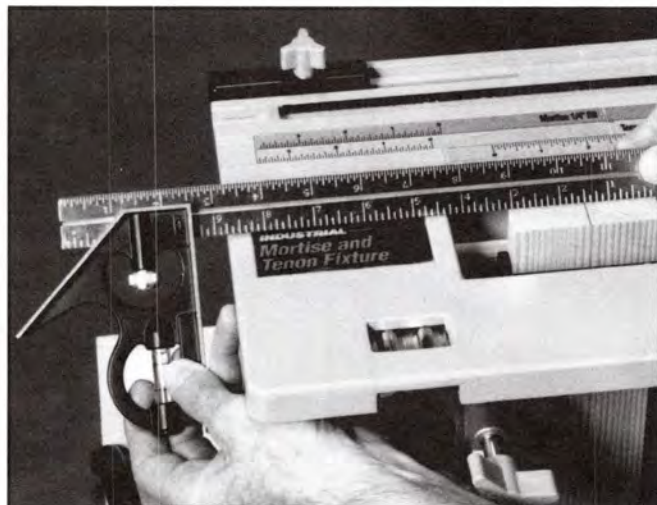
Remove the Sliding Router Base from the fixture. When the workpiece is correctly positioned against the Tenon Alignment Block, the left edge of the workpiece lines up with the "0" mark on the Fixed X Scale.



■ Step 1.8

With the workpiece properly positioned in the Wedge, the backside of the workpiece lines up with the "0" on the Fixed Y Scale.

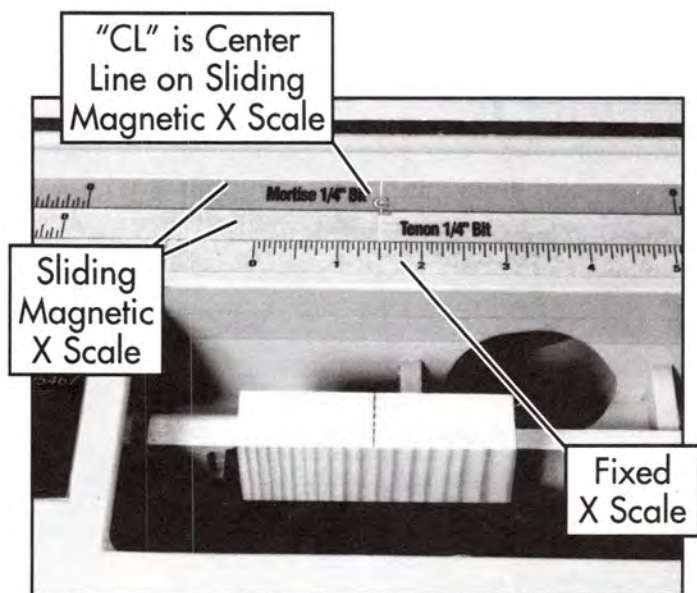
Congratulations! You are ready to set the length of the tenon cut.



Setting the Center Line (CL) on the Setting Magnetic X Scale for Cut No. 1

■ Step 1.9

Mark the center point length of the workpiece. Since this workpiece is 3" long, the center point is at 1-1/2".



■ Step 1.10

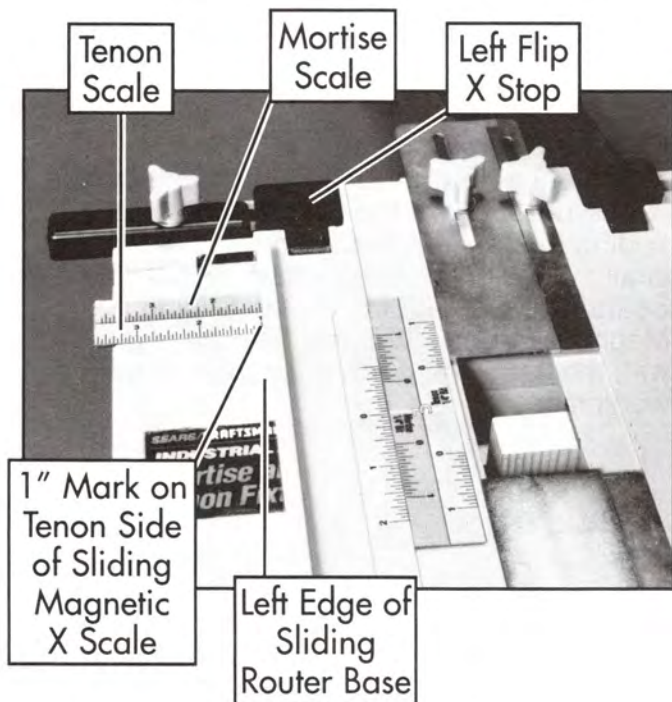
Find the Center Line on the Sliding Magnetic X Scale. The Center Line is marked with the "CL" symbol. Move the Center Line on the Sliding Magnetic X Scale so the Center Line is aligned with the 1-1/2" mark on the Fixed X Scale. The Center Line on the Sliding Magnetic X Scale will now also be aligned with the 1-1/2" mark on the center of the workpiece.



Setting the 2" Length of the Tenon Cut

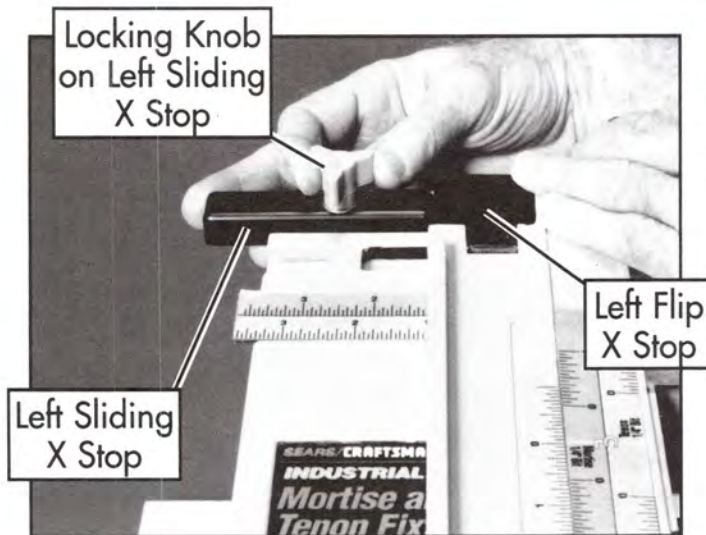
■ Step 1.11

Set the Sliding Router Base back on the fixture.



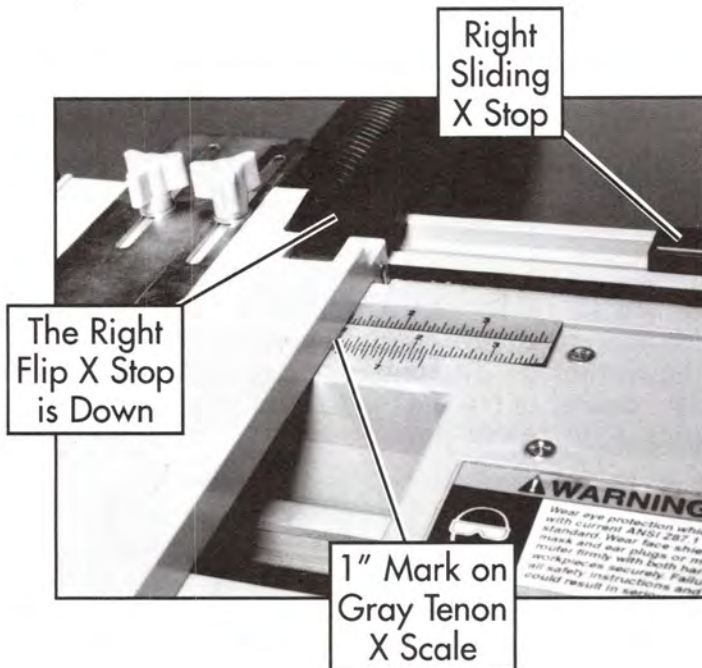
■ Step 1.12

Move the left edge of the Sliding Router Base to the 1" mark on the gray tenon strip on the Sliding Magnetic X Scale. Make sure the Left Flip X Stop is down.



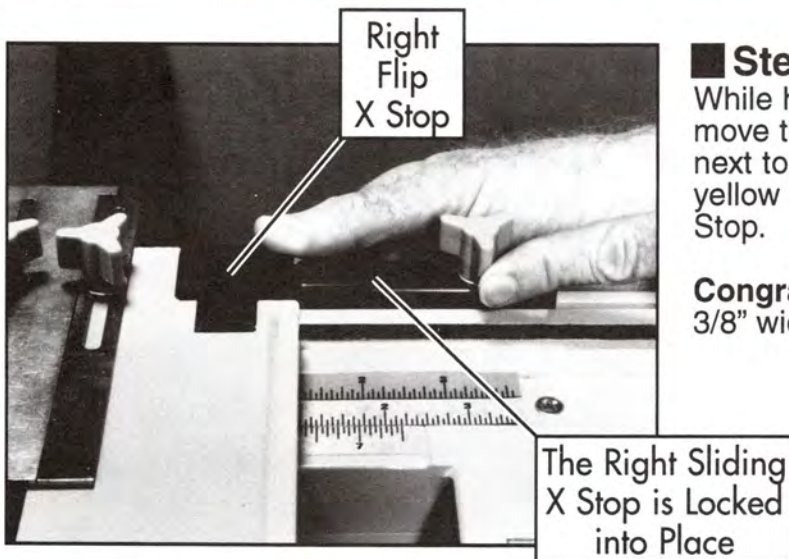
Step 1.13

While holding down the Left Flip X Stop, move the Left Sliding X Stop into place, next to the Left Flip X Stop. Then tighten the yellow Locking Knob on the Left Sliding X Stop.



Step 1.14

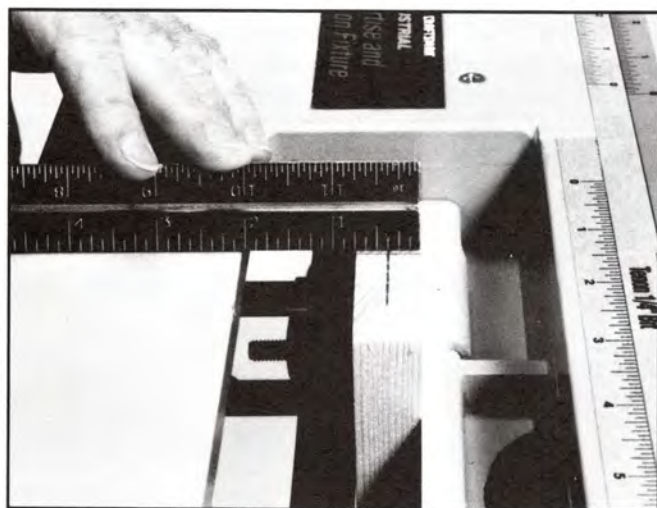
Repeat the procedure to set the right side of the 2" tenon cut. Move the right edge of the Sliding Router Base to the 1" mark on the gray tenon X scale. Make sure the Right Flip X Stop is down.



■ Step 1.15

While holding down the Right Flip X Stop, move the Right Sliding X Stop into place, next to the Right Flip X Stop. Then tighten the yellow Locking Knob on the Right Sliding X Stop.

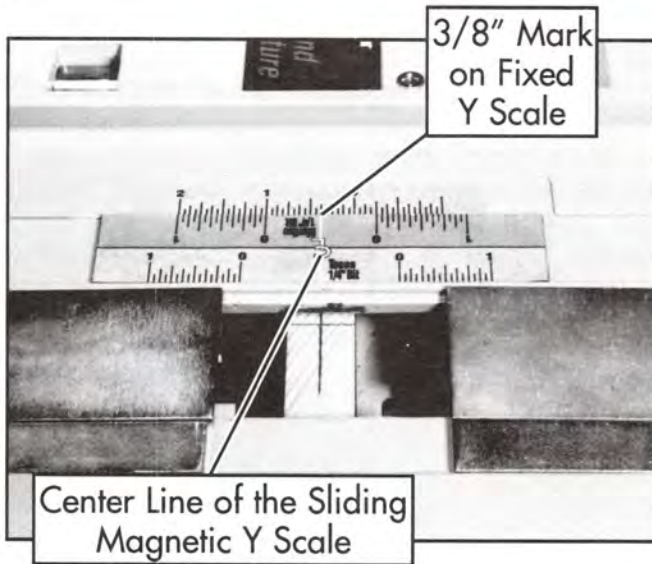
Congratulations! You are ready to set the 3/8" width of the tenon cut.



Setting the Center Line (CL) on the Setting Magnetic Y Scale for Cut No. 1

■ Step 1.16

Mark a line at 3/8", the the center width of the workpiece. The workpiece is 3/4" wide. The center of the 3/4" wide workpiece is 3/8". ($3/8" + 3/8" = 3/4"$.)

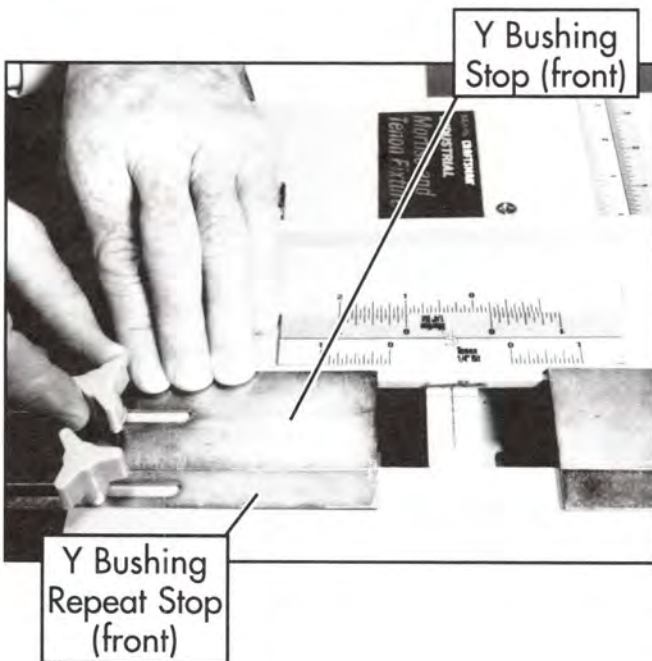


Center Line of the Sliding Magnetic Y Scale is moved to the 3/8" mark on the Fixed Y Scale

Step 1.17

Locate the Sliding Magnetic Y Scale on the Sliding Router Base. The gray half of the Sliding Magnetic Y Scale is for the tenon cut and should face the workpiece. (The yellow side of the Sliding Magnetic Y Scale is for measuring the mortise cut and will be used later.)

Move the center line of the Sliding Magnetic Y Scale to the 3/8" mark on the Fixed Y Scale.

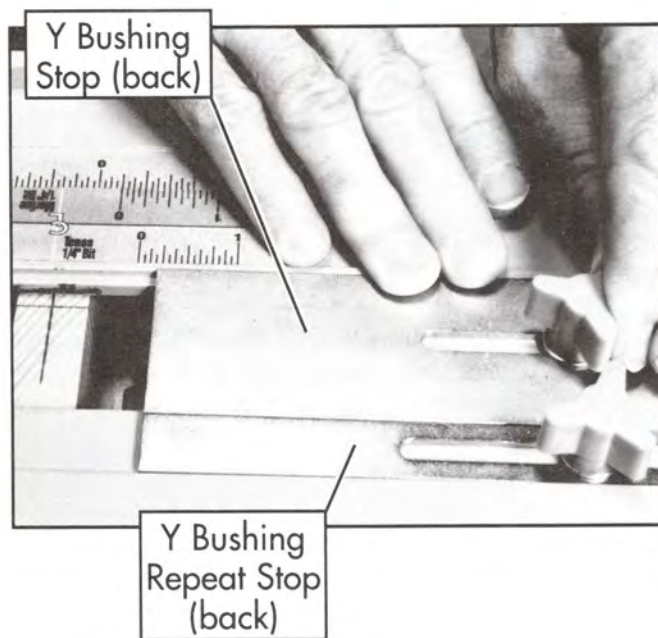


Setting the 3/8" Width of the Tenon Cut

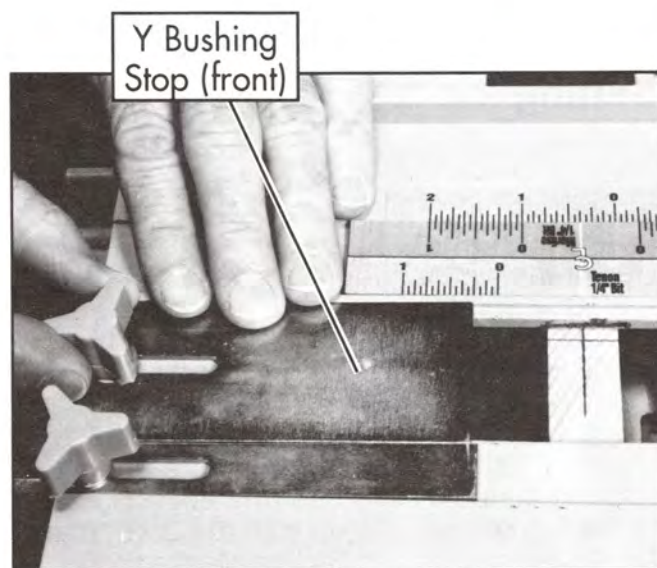
Step 1.18

Half of the width of the tenon is $3/16"$. ($3/16" + 3/16" = 3/8"$ tenon width) Loosen the yellow Locking Knob on the Y Bushing Stop (front) and Y Bushing Repeat Stop (front).

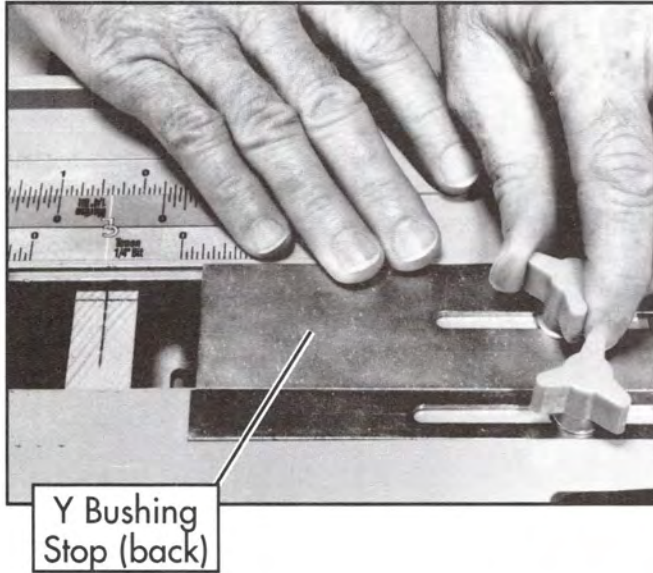
Move the Y Bushing Stop (front) and the Y Bushing Repeat Stop (front) so the front edge of the bushing stops (the edge closest to the workpiece) line up with the $3/16"$ mark on the left side of the Sliding Magnetic Y Scale. Tighten the yellow Locking Knobs on the Y Bushing Stops (front).

**Step 1.19**

Move the Y Bushing Stop (back) and the Y Bushing Repeat Stop (back) so the front edge of the bushing stops (the edge closest to the workpiece) line up with the $\frac{3}{16}$ " mark on the right side of the Sliding Magnetic Y Scale. Tighten the yellow Locking Knobs on the Y Bushing Stops (back).

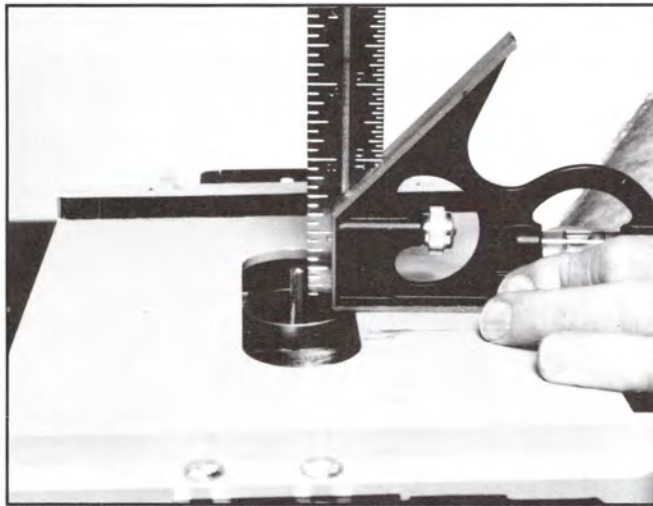
**Step 1.20**

To make a "rough cut" of the tenon width, move the Y Bushing Stop (front) back $\frac{1}{16}$ ". Then tighten the yellow Locking Knob.



■ Step 1.21

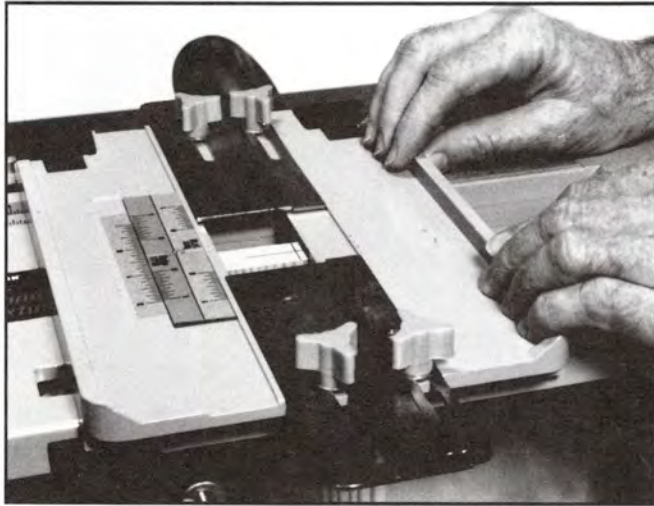
To complete the set up for a “rough cut” of the tenon width, move the Y Bushing Stop (back) back 1/16”. Then tighten the yellow Locking Knob.



Preparing the Router for the Cut

■ Step 1.22

Set the router bit height to 1/2”. Measure from the edge of the Sliding Router Base as shown in photo.

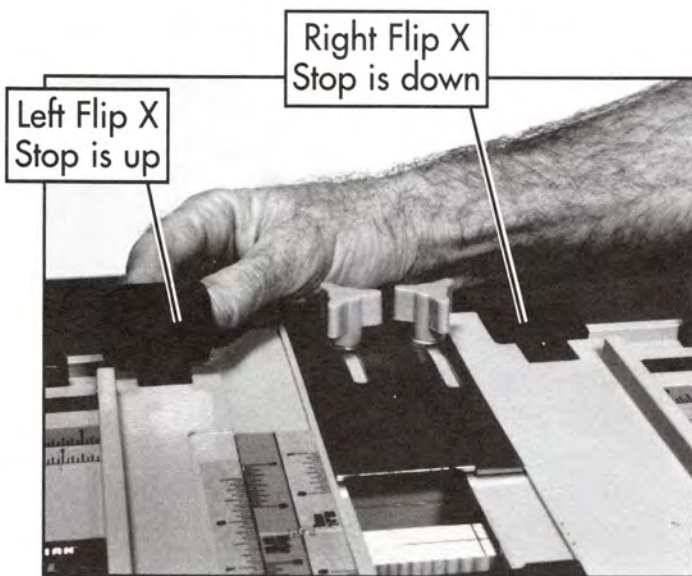


Rough Cutting the Tenon

■ Step 1.23

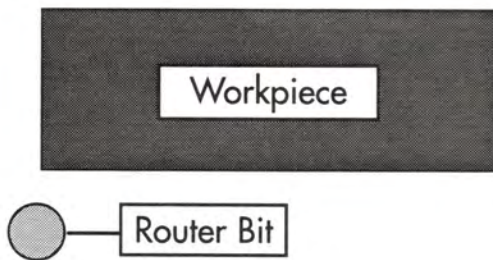
Move the Sliding Router Base back and forth to make sure the Sliding Router Base is not hitting the workpiece.

HINT: If the Sliding Router Base still hits the workpiece while cutting, you may be pushing down too hard with the router.



■ Step 1.24

In preparation for the rough cut of the tenon, the Left Flip X Stop is up. The Right Flip X Stop is down.

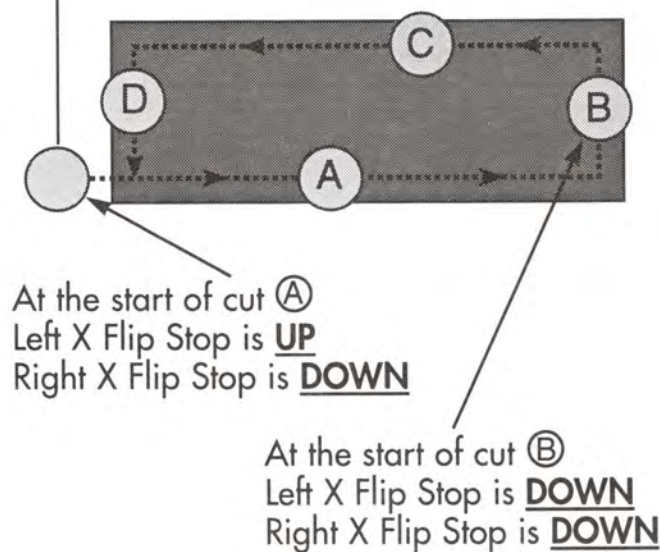
**Step 1.25**

With the router unplugged, place the router securely on the sliding router base. Position the router so the router bit is at the lower left hand corner of the workpiece, as shown in the diagram. At this point, the router bit should not touch the workpiece.

**Step 1.26**

Stand in front of the Mortise and Tenon fixture to cut the tenon.

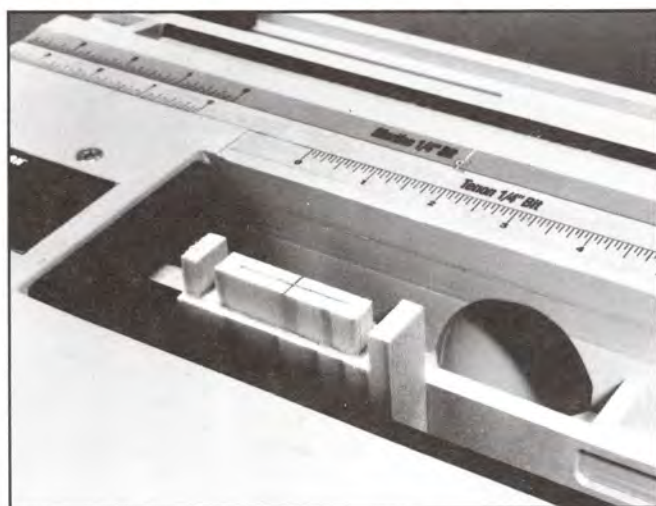
Router
Bit



Step 1.27

Plug in the router. Rough cut the width of the tenon and the finished length of the tenon following this diagram.

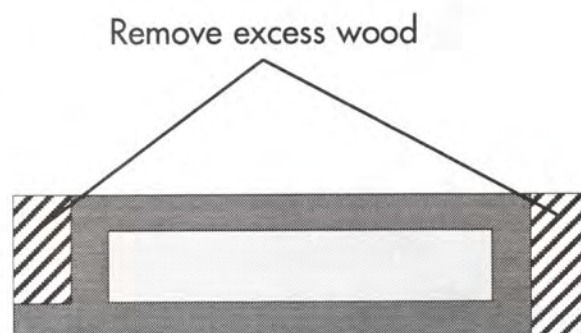
WARNING: Let router stop completely before removing router from Sliding Router Base.

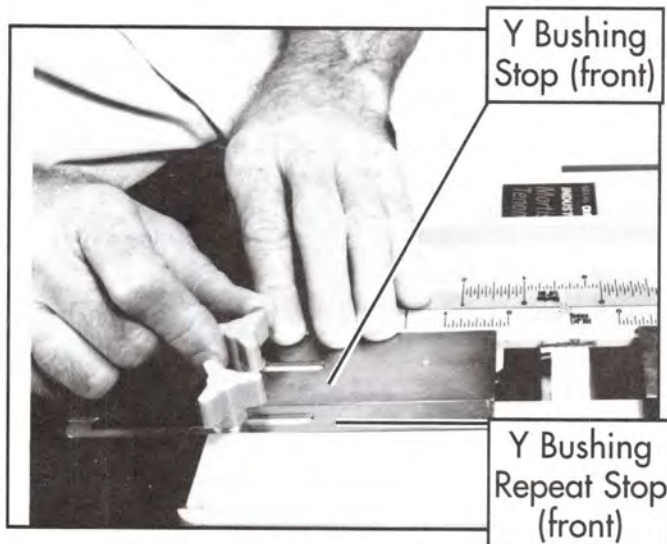


View of Rough Cut Tenon

Step 1.28

The sliding router base has been removed to show the rough cut tenon.



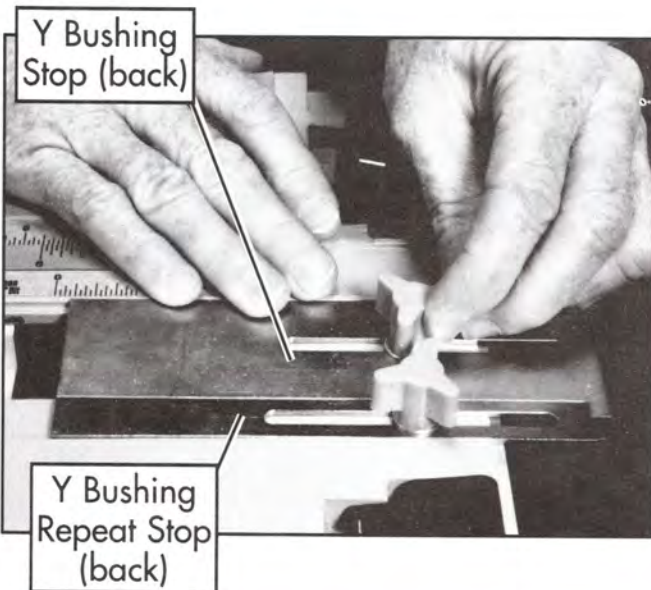
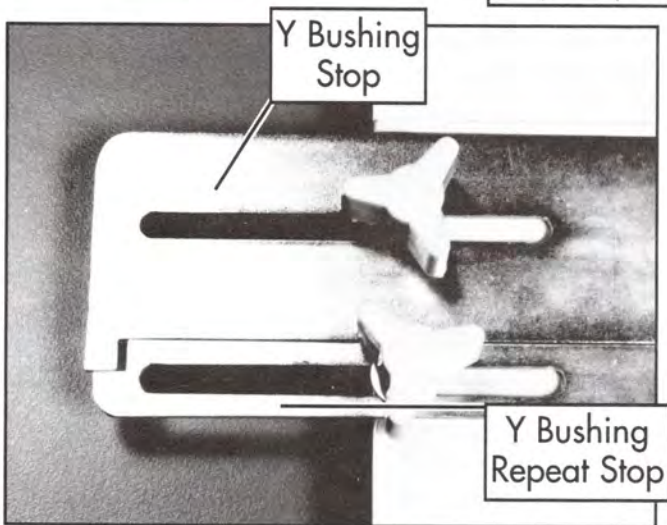


Final Cutting to Create Tenon

■ Step 1.29

Move the Y Bushing Stop (front) forward by $1/16"$. The Y Bushing Stop (front) rests against the Y Bushing Repeat Stop (front). The front edge of the Y Bushing Stop (front) should now line up with the $3/16"$ mark on the left side of the Sliding Magnetic Y Scale.

The Y Bushing Repeat Stop (front), should already be at the $3/16"$ mark on the left side of the Sliding Magnetic Y Scale. The Y Bushing Repeat Stop (front) does not need to move and was set in this location in Step 1.18.

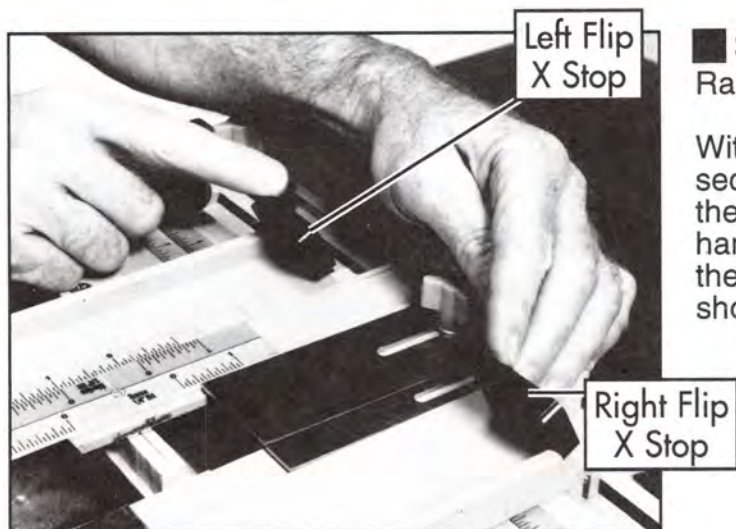


■ Step 1.30

Move the Y Bushing Stop (back) forward by $1/16"$. The front edge of the Y Bushing Stop (back) should now line up with the $3/16"$ mark on the left side of the Sliding Magnetic Y Scale.

The Y Bushing Repeat Stop (back) should already be at the $3/16"$ mark on the left side of the Sliding Magnetic Y Scale. The Y Bushing Repeat Stop (back) was set in its current position in Step 1.19.

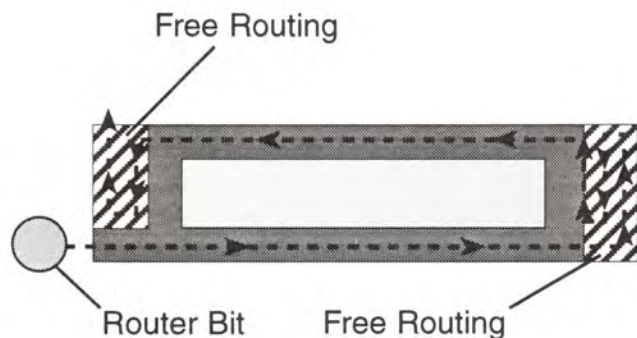
By moving both Y Bushing Repeat Stops forward by $1/16"$, the tenon can be cut to its finished width.



■ Step 1.31

Raise both the Left and Right Flip X Stops.

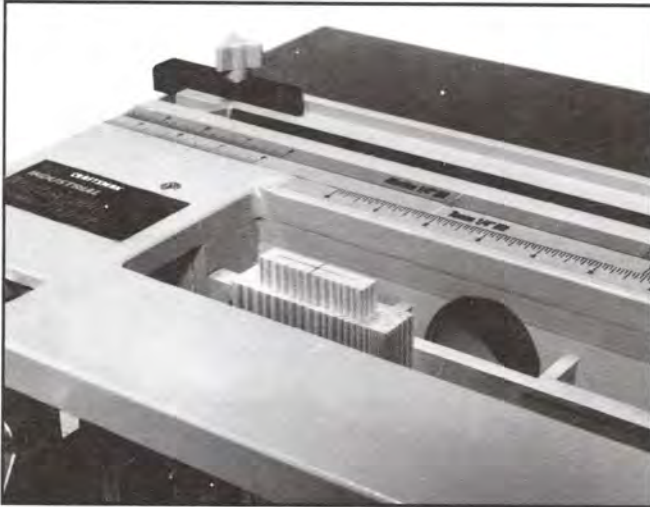
With the router unplugged, place the router securely on the sliding router base. Position the router so the router bit is at the lower left hand corner of the workpiece, as shown in the diagram. At this point, the router bit should not touch the workpiece.



■ Step 1.32

Plug in the router. The final width of the tenon is cut using the following diagram. Only the excess wood to the left and right of the length of the tenon cut is free routed. Both Flip X Stops are up during the cutting.

WARNING: Let router stop completely before removing router from sliding router base.



Finished Tenon

Step 1.33

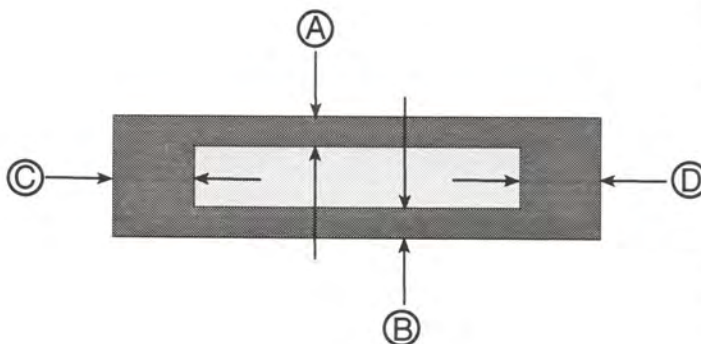
Let the router stop completely. Remove the router from the sliding router base. Then, remove the sliding router base.

Congratulations! You have a finished tenon.

Step 1.34

Check the measurements of this test cut tenon.

The measurement noted between the "A" arrows should equal the measurement between the "B" arrows. The measurement between the "C" arrows should equal the measurement between the "D" arrows. See the diagram at left.



More important than the finished size of the tenon is that measurements "A" equals "B" and that measurements "C" equal "D". This is because, in most cases, the mortise will be cut to fit the tenon.

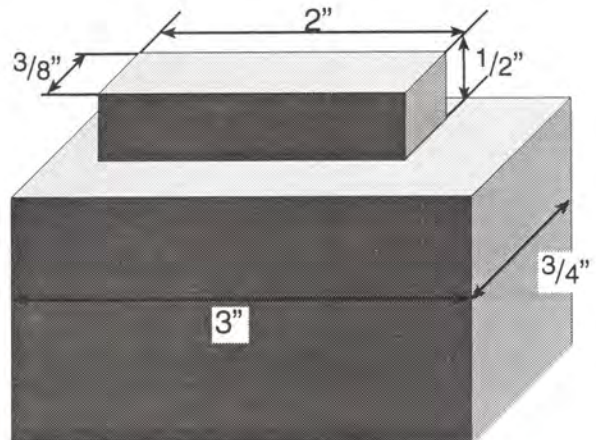
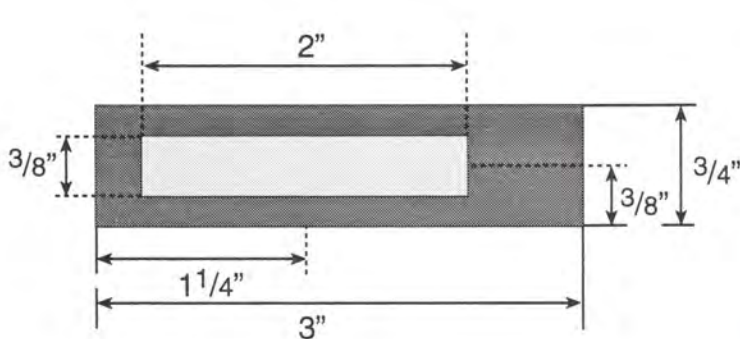
The corners of the tenon will be rounded off before testing the fit in the mortise. Instructions for filing the tenon are contained in the mortise instructions regarding fitting the mortise and tenon together.

If the size of your tenon is not accurate, adjust the settings and make another test cut.

If you have the correct size tenon, proceed with the rest of the tenon cuts in your project.

PART ONE: Tenon Cuts**Cut No. 2: Straight, Off-Centered Tenon**

NOTE: Use test workpieces until test cuts are accurate.

**Outline for Cut No. 2: Straight, Off-Centered Tenon****Line illustrations of cut, with dimensions****Positioning the workpiece in the fixture**

See Steps 1.1 through 1.8
(Pages 37 to 42)

Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 2

- 2.1 Mark the center point of the length of the tenon, 1-1/4" from the left edge of the workpiece.
- 2.2 Move the Center Line (CL) on the Sliding Magnetic X Scale to the 1-1/4" mark on the Fixed X Scale.

Setting the 2" length of the tenon cut

See Steps 1.11 through 1.15
(Pages 44 to 46)

Setting the Center Line (CL) on the Sliding Magnetic Y Scale for Cut No. 2

See Steps 1.16 and 1.17
(Page 46 to 47)

Setting the 3/8" width of the tenon cut

See Steps 1.18 through 1.21
(Pages 47 to 49)

Preparing the router for the cut

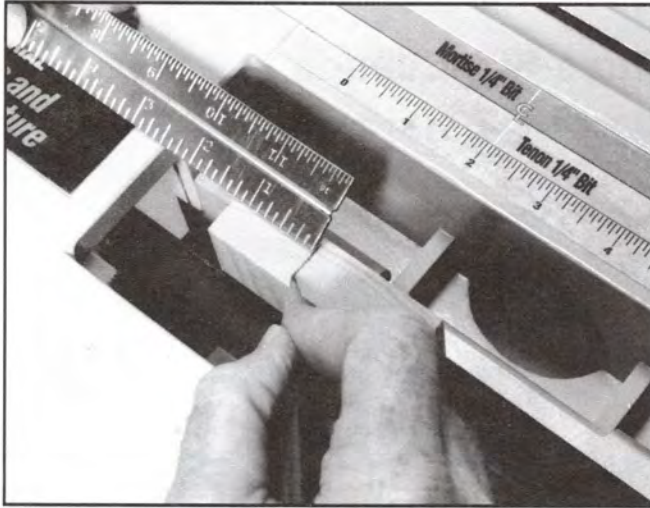
See Step 1.22
(Page 49)

Rough cutting the tenon

See steps 1.23 through 1.28
(Pages 50 to 52)

Final cutting to create the tenon

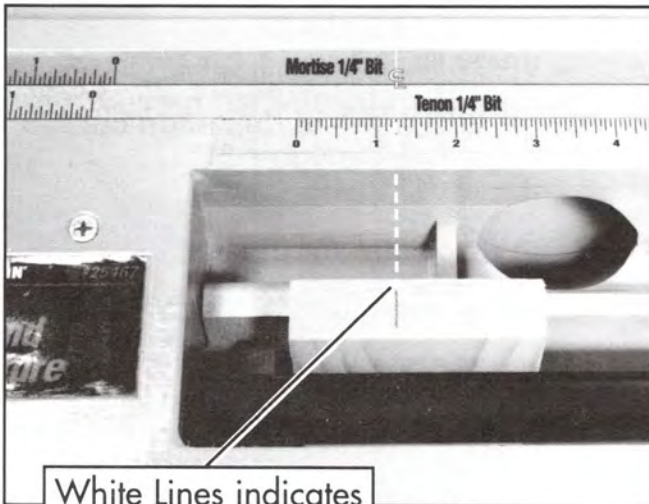
See steps 1.29 through 1.33
(Pages 53 to 55)



Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 2

■ Step 2.1

Mark the center point length of the tenon, 1-1/4" from the left edge of the workpiece.



White Lines indicates CL and 1-1/4" Mark on the Fixed X Scale should line up

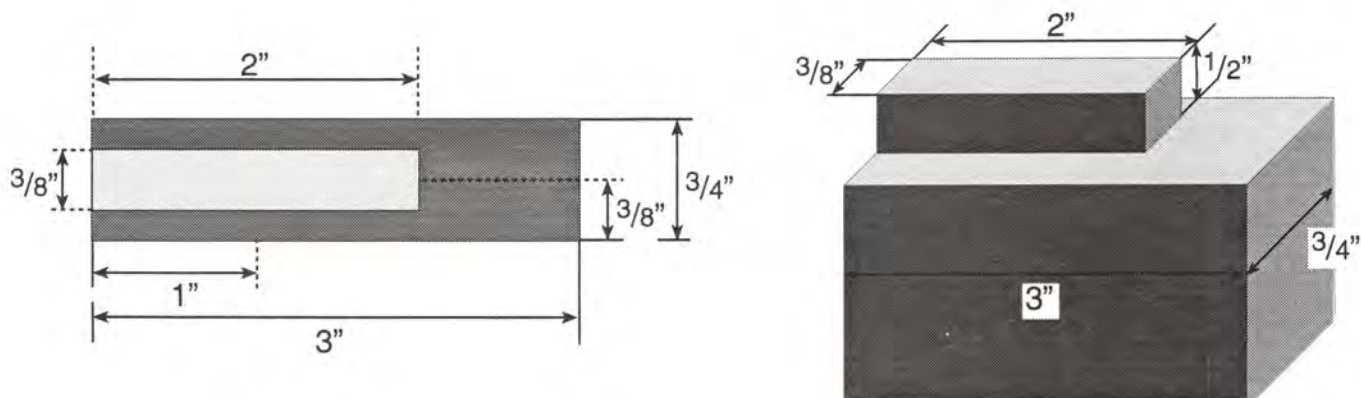
■ Step 2.2

Move the Center Line (CL) on the Sliding Magnetic X Scale to the 1-1/4" mark on the Fixed X Scale.

PART ONE: Tenon Cuts

Cut No. 3: Straight, Three-Sided Tenon

NOTE: Use test workpieces until test cuts are accurate.



Outline for Cut No. 3: Straight, Three-Sided Tenon

Line illustrations of cut, with dimensions

NOTE: This is the same cut as Cut No. 1, but the tenon moves to the left edge of the workpiece.

Positioning the workpiece in the fixture

See Steps 1.1 through 1.8
(Pages 37 to 42)

Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 3

- 3.1 Mark the center point of the length of the tenon, 1" from the left edge of the workpiece.
- 3.2 Move the Center Line (CL) on the Sliding Magnetic X Scale to the 1" mark on the Fixed X Scale.

Setting the 2" length of the tenon cut

- 3.3 Set the Sliding Router Base back on the Table Top.
- 3.4 Move the Left Sliding X Stop to the far left side of the table and lock into place.
- 3.5 Move the right edge of the Sliding Router Base to the 1" mark on the tenon side of the Sliding Magnetic X Scale.

- 3.6 Lock the Right Sliding X Stop into place.

Setting the Center Line (CL) on the Sliding Magnetic Y Scale for Cut No. 3

See Steps 1.16 and 1.17
(Page 46 to 47)

Setting the 3/8" width of the tenon cut

See Steps 1.18 through 1.21
(Pages 47 to 49)

Preparing the router for the cut

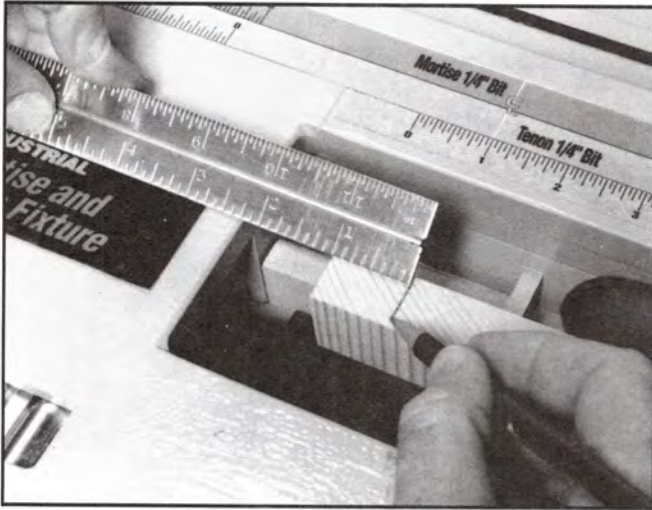
See Step 1.22
(Page 49)

Rough cutting of the tenon

See Steps 1.23 through 1.28
(Pages 50 to 52)

Final cutting to create the tenon

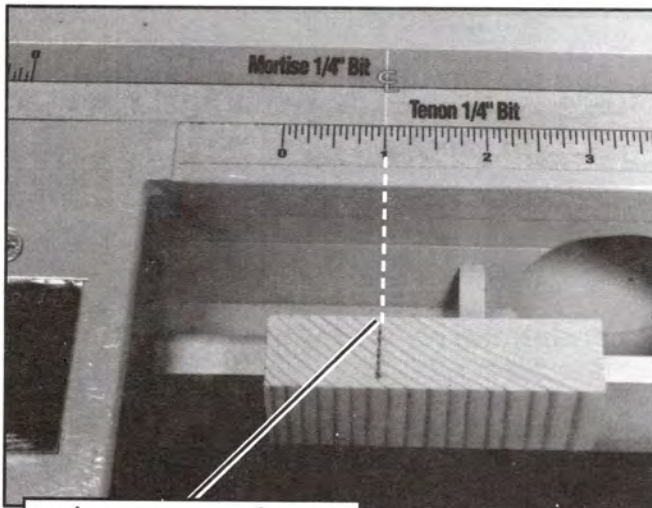
See Steps 1.29 through 1.33
(Pages 53 to 55)



Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 3

■ Step 3.1

Mark the center point length of the tenon, 1" from the left edge of the workpiece.



White Lines indicates CL and 1" Mark on the Fixed X Scale should line up

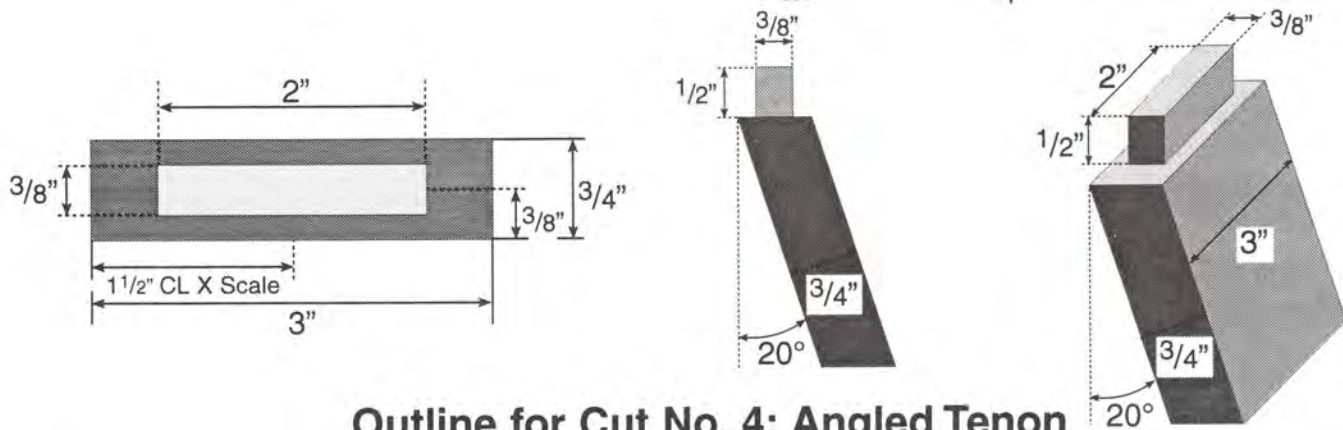
■ Step 3.2

Move the Center Line (CL) on the Sliding Magnetic X Scale to the 1" mark on the Fixed X Scale.

PART ONE: Tenon Cuts

Cut No. 4: Angled Tenon

NOTE: Use test workpieces until test cuts are accurate.



Outline for Cut No. 4: Angled Tenon

Line illustrations of cut, with dimensions

Setting clamps and wedge for an angled tenon

- 4.1 Lower Clamps on the Wedge (so the Clamps will not hit the Table Top, once the Wedge is angled).
- 4.2 Set the Wedge at a 20° angle.
- 4.3 Raise Clamps on the Wedge (as far up as the Clamps will go without hitting the Table Top).

Cutting a 20° angle at the top of the workpiece

- 4.4 Cut a 20° angle at the top of the workpiece.

Positioning the angled workpiece in the fixture

- 4.5 Slide the workpiece up until the workpiece touches underside of the Sliding Router Base. Then tighten the Clamping Knobs.

Marking the surface of the 20° angled workpiece for the 3/8" width of the tenon cut

- 4.6 Remove the Sliding Router Base. On the 3/4" width of the workpiece, use a combination square and a pencil to mark a line 1/2" below the top surface of the workpiece.

- 4.7 Using a combination square and pencil, mark the center point of the line drawn for Step 4.6.

- 4.8 Continue marking the center point line across the top surface of the workpiece.

- 4.9 Move the Center Line (CL) on the Sliding Magnetic Y Scale to line up with the line drawn on top of the workpiece in step 4.8.

Setting the 3/8" width of the tenon cut

See Steps 1.18 to 1.21
(Pages 47 to 49)

Setting the 2" length of the tenon cut

See Steps 1.11 through 1.15
(Pages 44 to 46)

Preparing the router for the cut

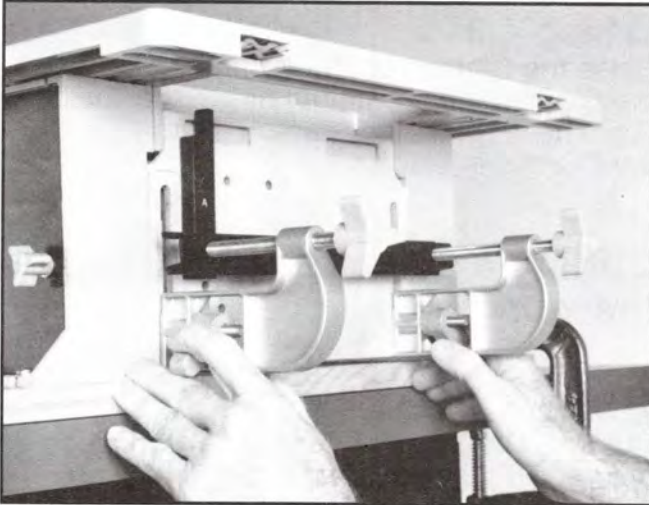
See Step 1.22
(Page 49)

Rough cutting of the tenon

See Steps 1.23 through 1.28
(Pages 50 to 52)

Final cutting to create the tenon

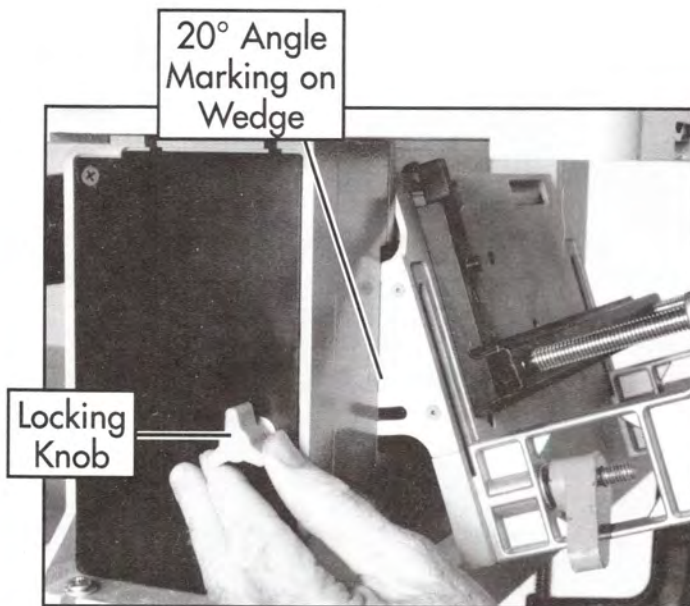
See Steps 1.29 through 1.34
(Pages 53 to 55)



Setting Clamps and Wedge for an Angled Tenon

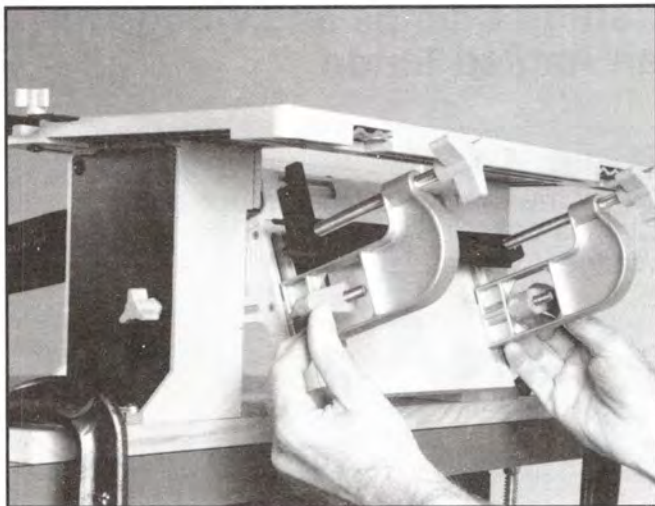
■ Step 4.1

Lower the Clamps on the Wedge so the Clamps will not hit the Table Top, once the Wedge is angled.



■ Step 4.2

Set the Wedge at a 20° angle. The Wedge can be angled from 0° to 30°. A scale is visible at the left side of the Wedge, as shown in the photo. Once the Wedge is angled at 20°, lock the Wedge into place by tightening the left Locking Knob first, to pull the Wedge to the left.



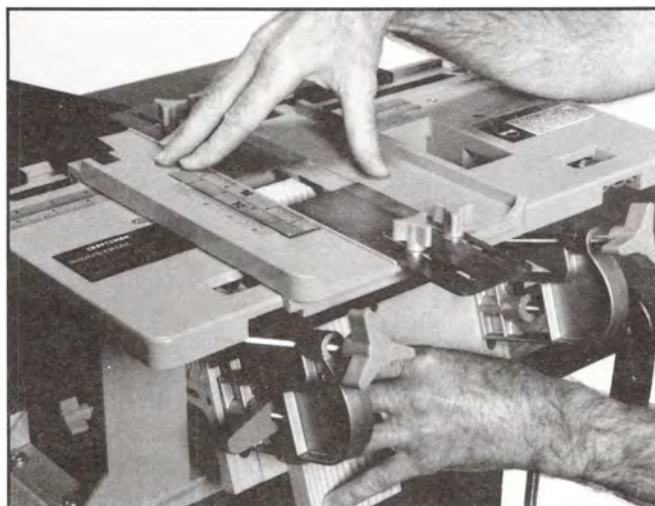
■ Step 4.3

Raise the Clamps on the Wedge as far up as the Clamps will go without hitting the Table Top. Then tighten the Clamp Levers to lock the Clamps in place.

Cutting a 20° angle at the top of the workpiece

■ Step 4.4

Cut a 20° angle at the top of the workpiece before you put the workpiece in the fixture.



Positioning the angled workpiece in the fixture

■ Step 4.5

Insert the workpiece under the Clamping Bar. Slide the workpiece up until the workpiece touches the underside of the Sliding Router Base and the Tenon Alignment Block. Then tighten the yellow Clamping Knobs.

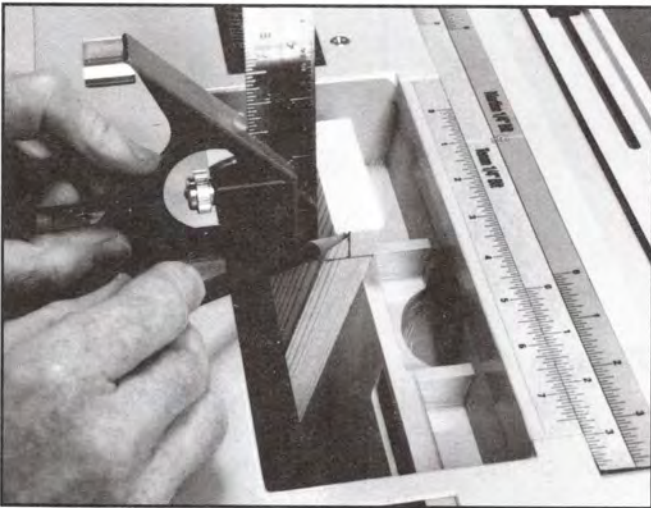




Marking the surface of the 20° angled workpiece for the 3/8" width of the tenon cut

■ Step 4.6

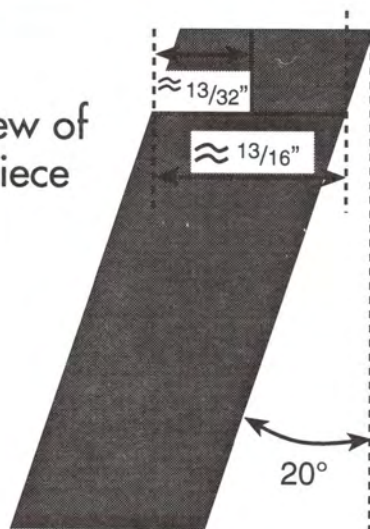
Remove the Sliding Router Base. On the 3/4" thickness of the workpiece, use a combination square and a pencil to mark a line 1/2" below the top surface of the workpiece.

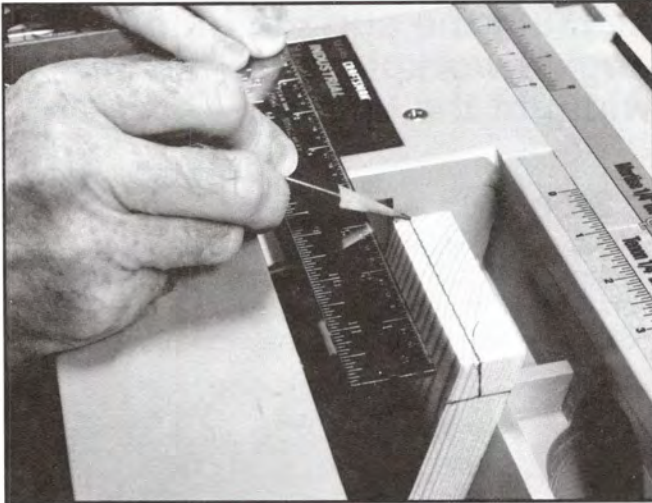


■ Step 4.7

Using a combination square, mark the vertical center point of the line drawn for Step 4.6.

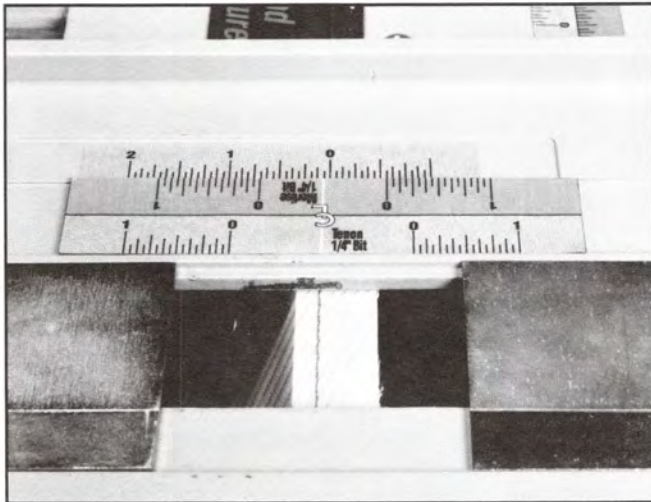
Side View of Workpiece





■ Step 4.8

With a combination square or straight edge, continue marking the center point line across the top surface of the workpiece.



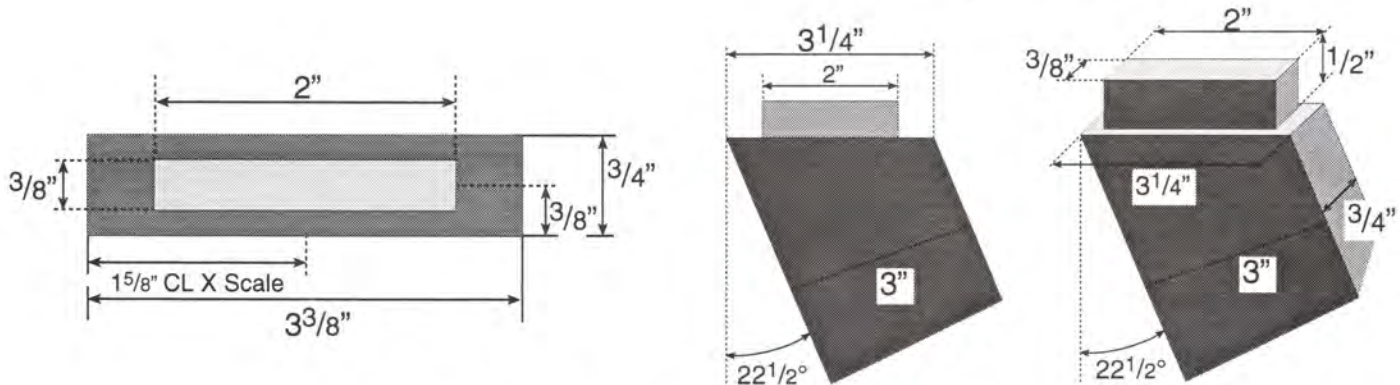
■ Step 4.9

Move the Center Line (CL) on the Sliding Magnetic Y Scale to line up with the line drawn on top of the workpiece in Step 4.8.

PART ONE: Tenon Cuts

Cut No. 5: Mitered Tenon

NOTE: Use test workpieces until test cuts are accurate.



Outline for Cut No. 5: Mitered Tenon

Line illustrations of cut, with dimensions

Cutting a 22-1/2° angle at the top of the workpiece

- 5.1 Cut a 22-1/2° angle at the top of the workpiece.

Positioning the workpiece in the fixture

- 5.2 The Tenon Alignment Block can be placed in the Wedge for making mitered tenons at the following sizes: 2-1/2°, 5°, 7-1/2°, 10°, 15°, 22-1/2°, 27-1/2° and 45°.
- 5.3 Place the Tenon Alignment Block in holes bored into the Wedge for a 22-1/2° angle workpiece.
- 5.4 Raise up the Clamping Bar. Place the workpiece inside the Clamping Bar. Tighten the Clamping Knobs.
- 5.5 Mount the Sliding Router Base onto the Table Top. The top edge of the workpiece should be flush with the underside of the Sliding Router Base.

Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 5

- 5.6 Using a combination square and pencil, mark a line that is 1/2" from the top of the workpiece, running parallel with the top of the workpiece.
- 5.7 Measure the line drawn in **Step 5.6**. (The line should be 3-1/4" long.) Mark the center point of the line that is 3-1/4"

long. (The center point will be 1-5/8".) At the 1-5/8" center point, extend a vertical line to the top of the workpiece.

- 5.8 Extend the line drawn in **Step 5.8** across the top of the workpiece.
- 5.9 Place the left edge of the Sliding Router Base on the center line, marked on the top of the workpiece. Move the Center Line (CL) on the Sliding Magnetic X Scale, so it lines up with the center line on the workpiece.

Setting the 2" length of the tenon cut

See Steps 1.11 through 1.15
(Pages 44 to 46)

Setting the 3/8" width of the tenon cut

See Steps 1.18 through 1.21
(Pages 47 to 49)

Preparing the router for the cut

See Step 1.22
(Page 49)

Rough cutting of the tenon

See Steps 1.23 through 1.28
(Pages 50 to 52)

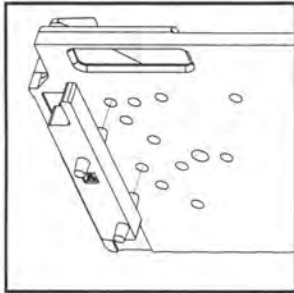
Final cutting to create the tenon

See steps 1.29 through 1.34
(Pages 53 to 55)

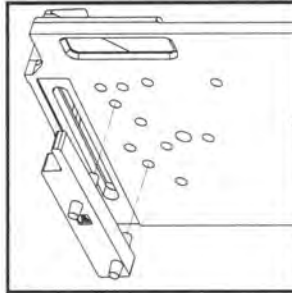
Positioning the Workpiece in the Fixture

■ Step 5.2

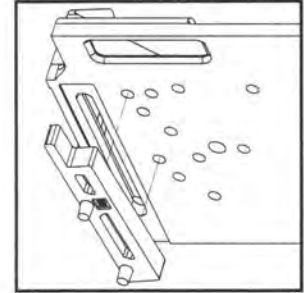
The Tenon Alignment Block can be placed in the Wedge for making mitered tenons at the following sizes: 0° , $2\text{-}1/2^\circ$, 5° , $7\text{-}1/2^\circ$, 10° , 15° , $22\text{-}1/2^\circ$, $27\text{-}1/2^\circ$ and 45° .



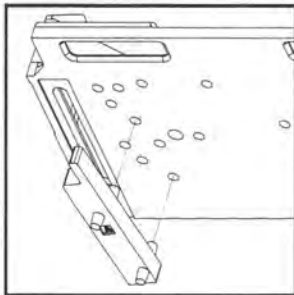
0°



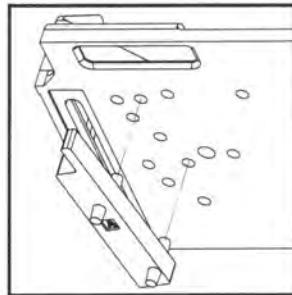
$2\text{-}1/2^\circ$



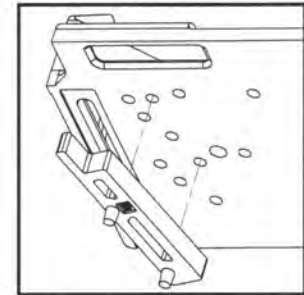
5°



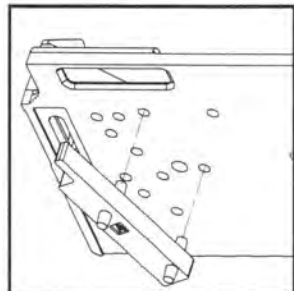
$7\text{-}1/2^\circ$



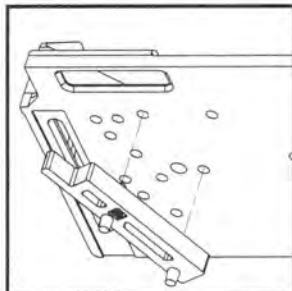
10°



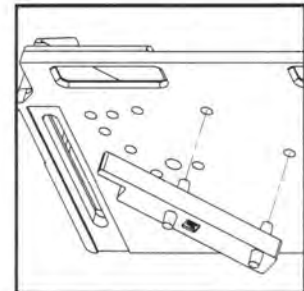
15°



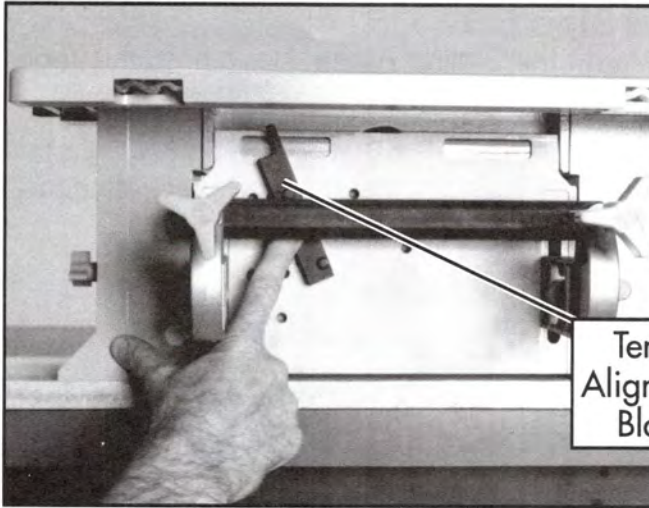
$22\text{-}1/2^\circ$



$27\text{-}1/2^\circ$



45°



Tenon
Alignment
Block

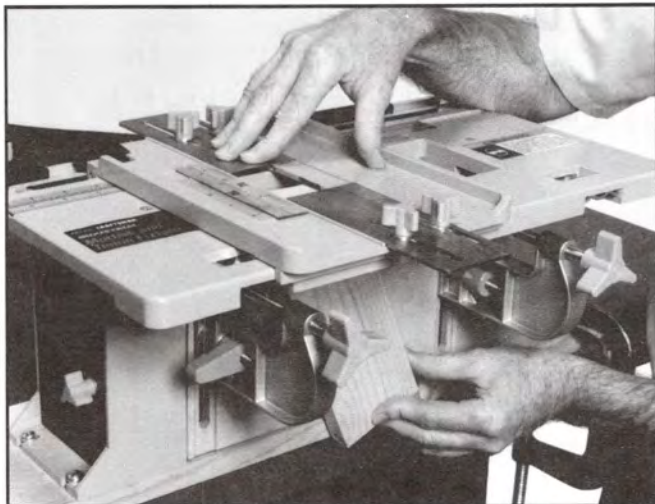
■ Step 5.3

Place the Tenon Alignment Block in holes bored into the Wedge for a $22\frac{1}{2}^{\circ}$ angle workpiece.



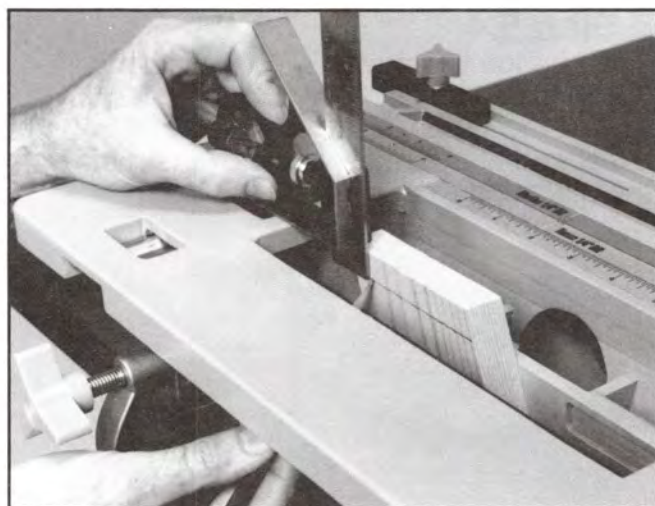
■ Step 5.4

Raise up the Clamping Bar. Place the workpiece inside the Clamping Bar and flush against the Tenon Alignment Block which is positioned at a $22\frac{1}{2}^{\circ}$ angle. Tighten the yellow Clamping Knobs.



■ Step 5.5

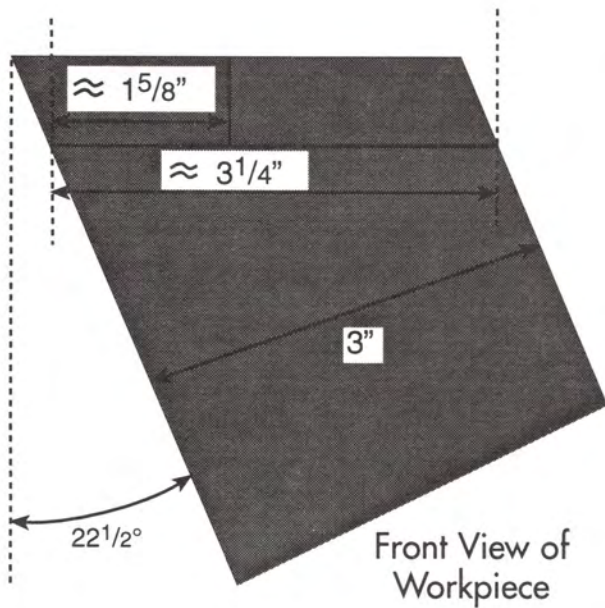
Mount the Sliding Router Base onto the Table Top. The top edge of the workpiece should be flush with the underside of the Sliding Router Base. Loosen the yellow Locking Clamps and re-adjust the workpiece if necessary.



Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 5

■ Step 5.6

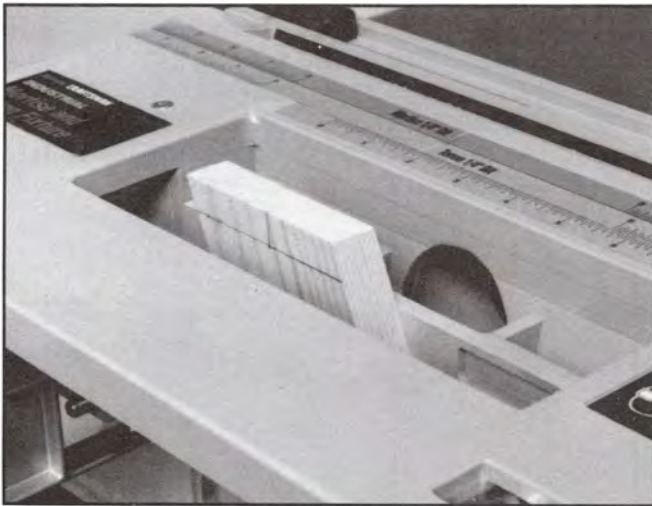
Using a combination square and a pencil, mark a line that is 1/2" from the top of the workpiece, running parallel with the top of the workpiece.

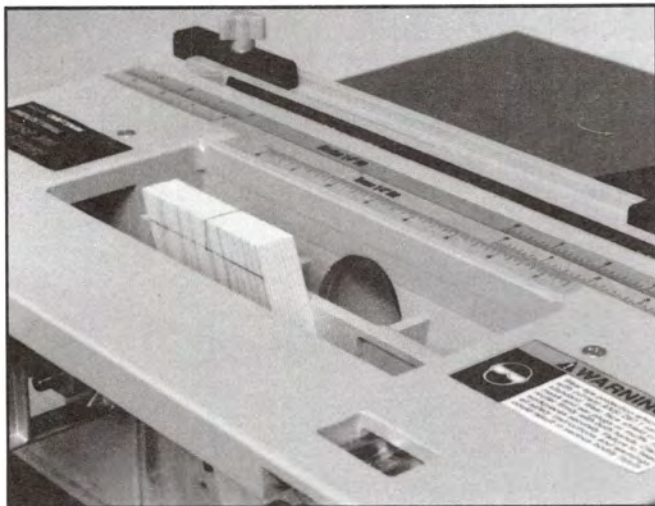


These dimensions will vary depending on the angle and width of the workpiece.

Step 5.7

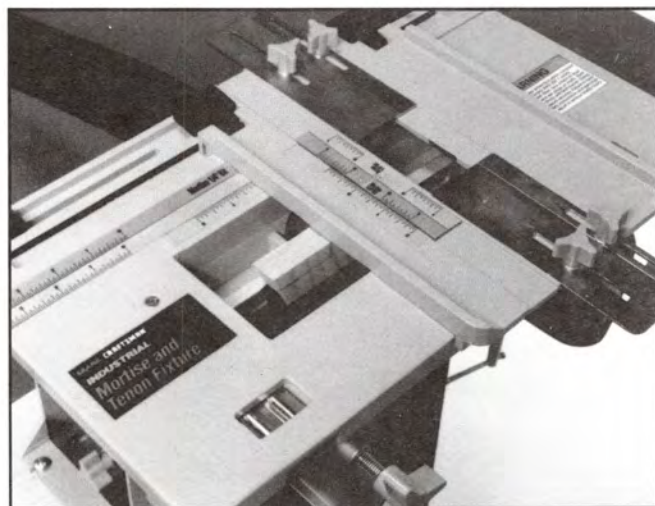
Measure the line drawn in Step 5.7. (The line should be approximately $3\frac{1}{4}"$ long.) Mark the center point of the line that is $3\frac{1}{4}"$ long. (The center point will be $1\frac{5}{8}"$.) At the $1\frac{5}{8}"$ center point, extend a vertical line to the top of the workpiece.





■ Step 5.8

Extend the line drawn in Step 5.8 across the top of the workpiece.



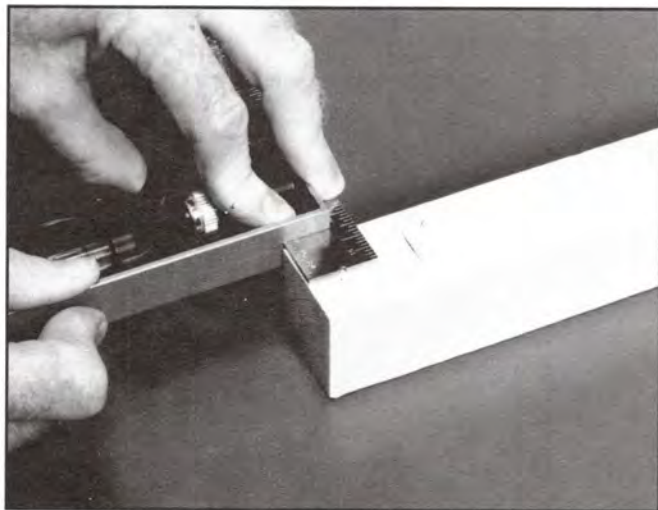
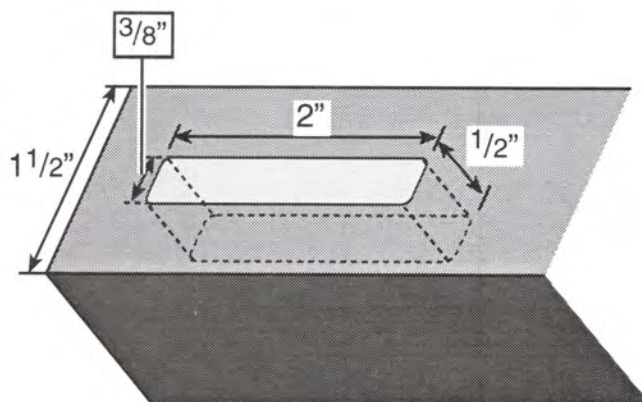
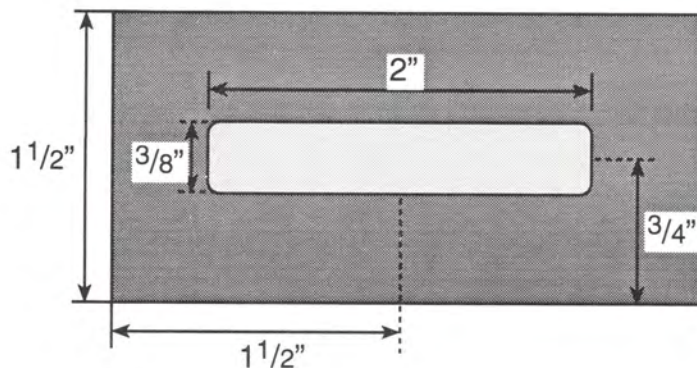
■ Step 5.9

Place the left edge of the Sliding Router Base on the center line, marked on top of the workpiece. Move the Center Line (CL) on the Sliding Magnetic X Scale, so it lines up with the center line on the workpiece.

PART TWO: Mortise Cuts

Cut No. 6: Straight-Centered, Four-Sided Mortise

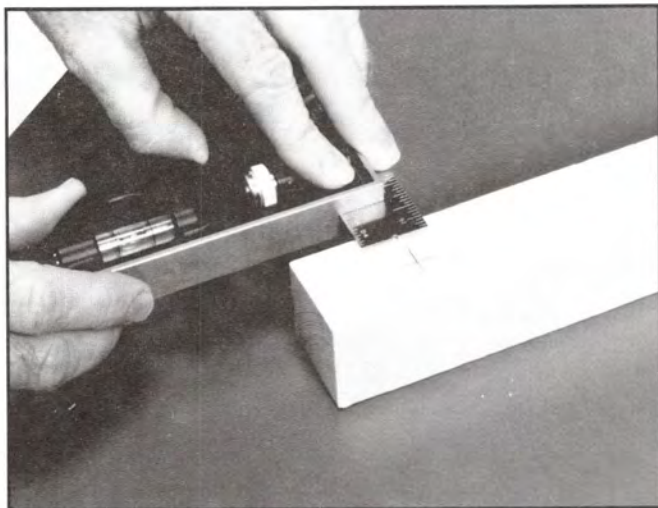
NOTE: Use test workpieces until test cuts are accurate.



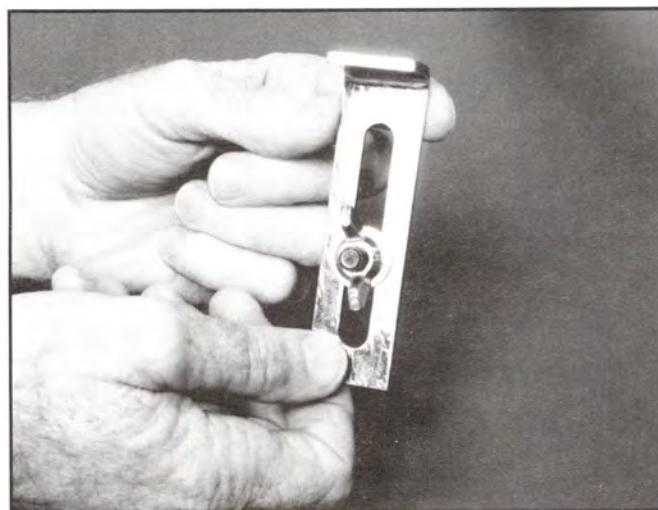
Marking Center Lines of the Mortise on the Workpiece

■ Step 6.1

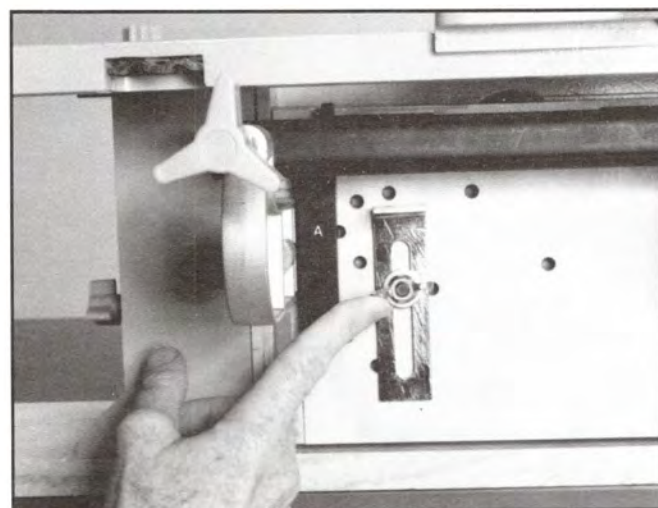
With a combination square, mark a line 1-1/2" from the left edge of the workpiece for the X center line.

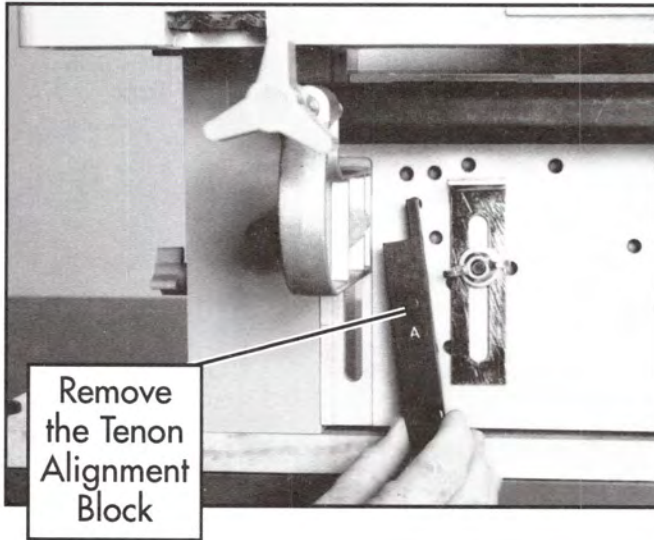
**Step 6.2**

With a combination square, mark a line $\frac{3}{4}$ " from the front edge of the workpiece for the Y center line.

**Positioning the Workpiece in the Fixture****Step 6.3**

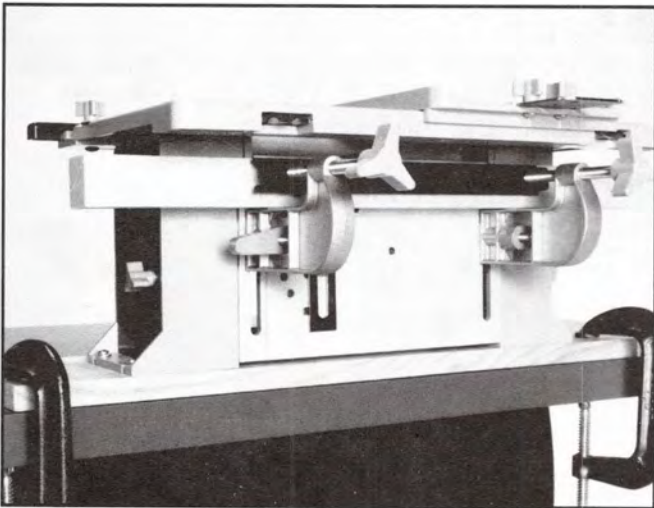
Locate the Mortise Support with its bolt, washer and wing nut. The Mortise Support is mounted to the face of the Wedge to support the mortise. Looking at the back side of the Wedge, you will see one of the holes bored into the Wedge is supported with a hex pocket to capture the bolt head. Put the bolt for the Mortise Support through this opening. The Mortise Support can be adjusted up or down before tightening the wing nut.





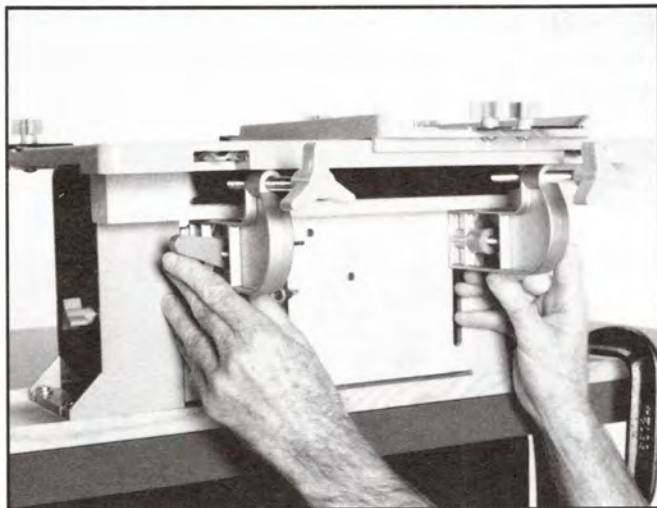
■ Step 6.4

Remove the Tenon Alignment Block from the Wedge.



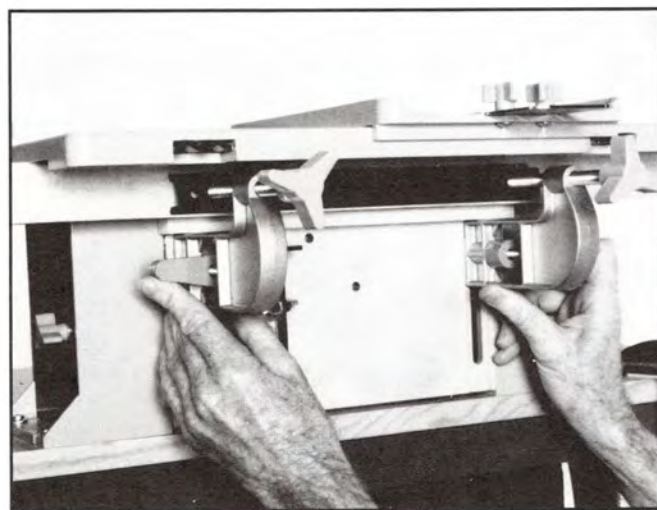
■ Step 6.5

Position the workpiece in the fixture, so the workpiece rests on both Clamps.



■ Step 6.6

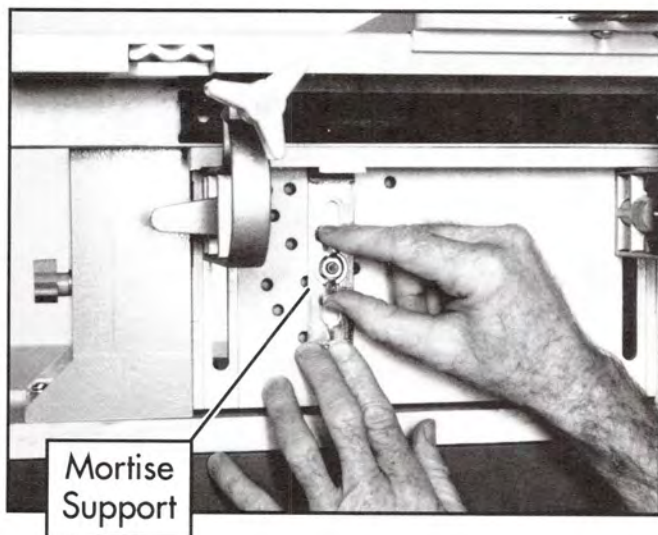
Slide the Clamps up until the workpiece is contacting the bottom of the Table Top.



■ Step 6.7

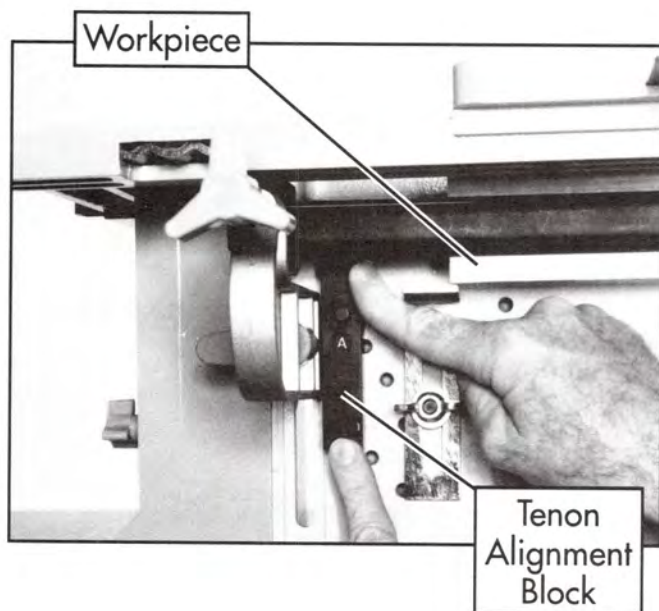
If the workpiece is less than 1-5/8" thick, use a piece of wood 1/8" to 1/4" thick, between the Clamp and the workpiece.

HINT: It is not recommended to cut a mortise in a workpiece, if the workpiece is less than 1-1/2" thick.



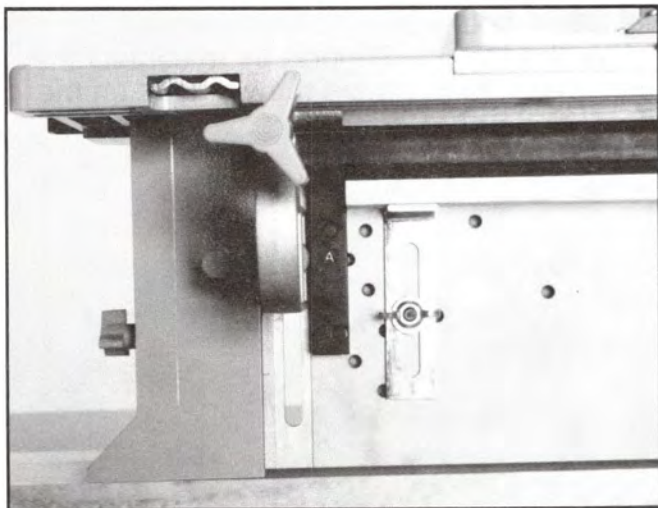
■ Step 6.8

Move the Mortise Support up to contact the workpiece, then tighten the wing nut on the Mortise Support.



■ Step 6.9

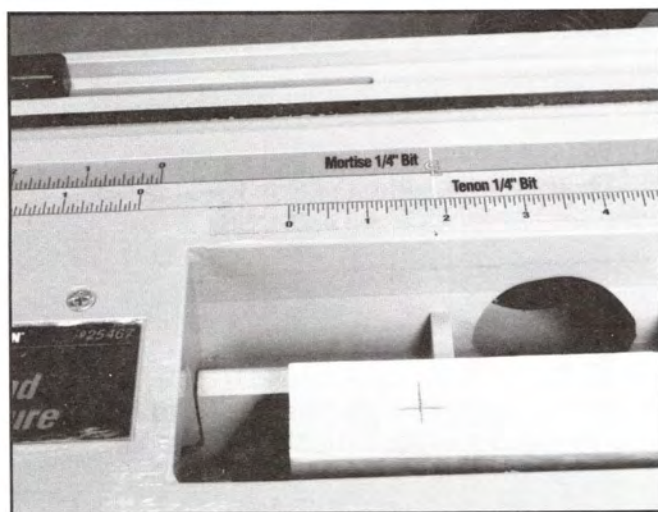
Slide the workpiece to the right and install the Tenon Alignment Block at 0° angle.



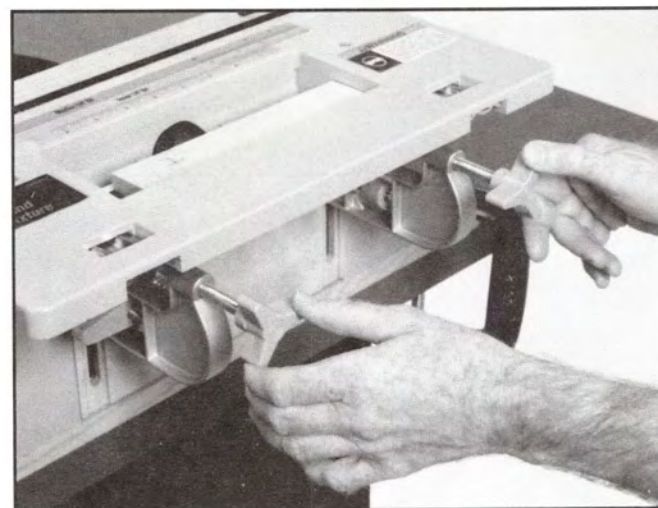
■ Step 6.10

Slide the workpiece to the left, until the workpiece is flush against the Tenon Alignment Block. This will assure that the left edge of the workpiece lines up with "0" on the Fixed X Scale.

Front View

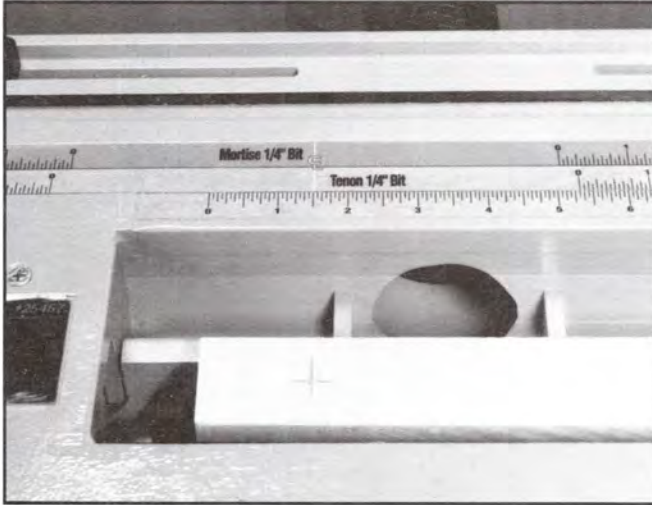


Top View



■ Step 6.11

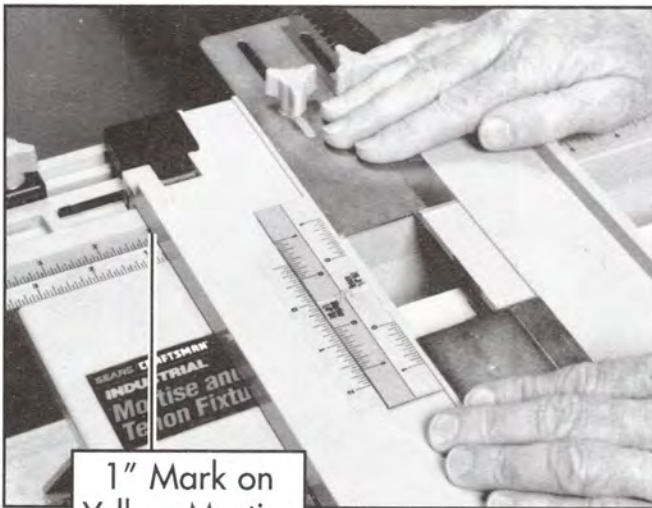
Tighten the Clamping Knobs on the workpiece.



Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 6

■ Step 6.12

Move the Center Line (CL) on the Sliding Magnetic X Scale to the 1-1/2" mark on the Fixed X Scale.



1" Mark on
Yellow Mortise
X Scale

Setting the 2" length of the mortise cut

HINT: Cut the first mortise slightly smaller than the finished size you need. This allows you to test the fit of the mortise and tenon. If the fit is too tight the first time, you can re-cut the mortise in the same workpiece. If the fit is too loose, you need to cut a new test workpiece.

■ Step 6.13

Install the Sliding Router Base. Move the left edge of the Sliding Router Base to the 1" mark on the yellow mortise side of the Sliding Magnetic X Scale.



■ **Step 6.14**

Lock the Left Sliding X Stop into place.



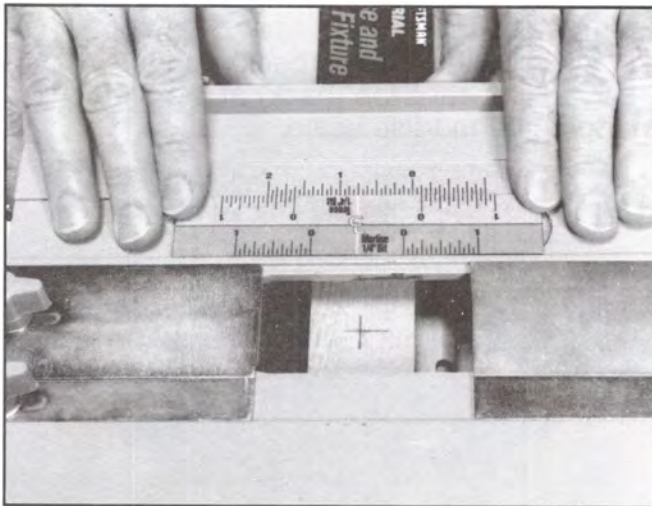
■ **Step 6.15**

Move the right edge of the Sliding Router Base to the 1" mark on the yellow mortise side of the Sliding Magnetic X Scale.



■ Step 6.16

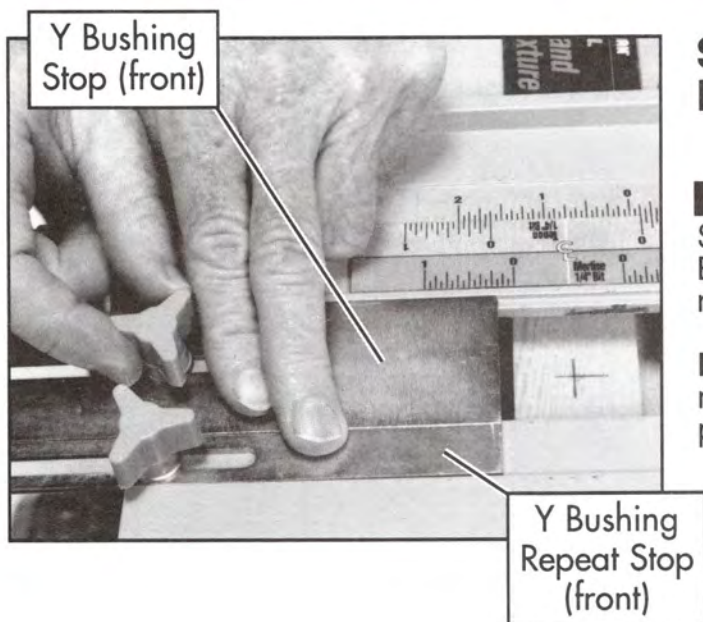
Lock the Right Sliding X Stop into place.



Setting the Center Line (CL) on the Sliding Magnetic Y Scale for Cut No. 6

■ Step 6.17

The Sliding Magnetic Y Scale is positioned so the yellow side marked "Mortise 1/4" Bit" faces the Y Stops. Move the Center Line (CL) on the Sliding Magnetic Y Scale to the 3/4" mark on the Fixed Y Scale.

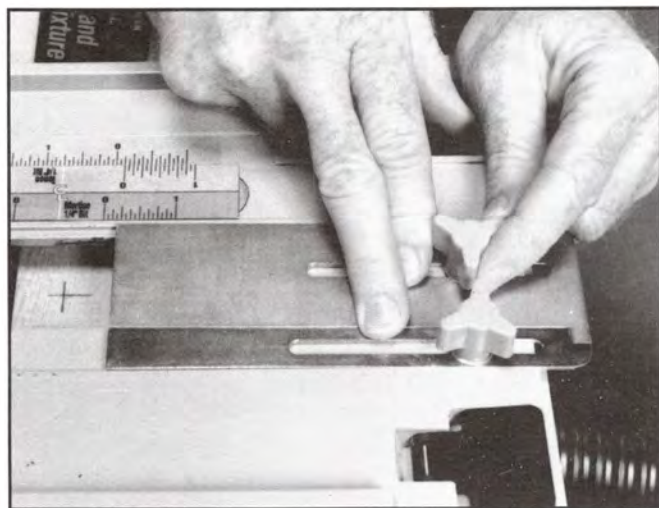


Setting the 3/8" Width of the Mortise Cut

■ Step 6.18

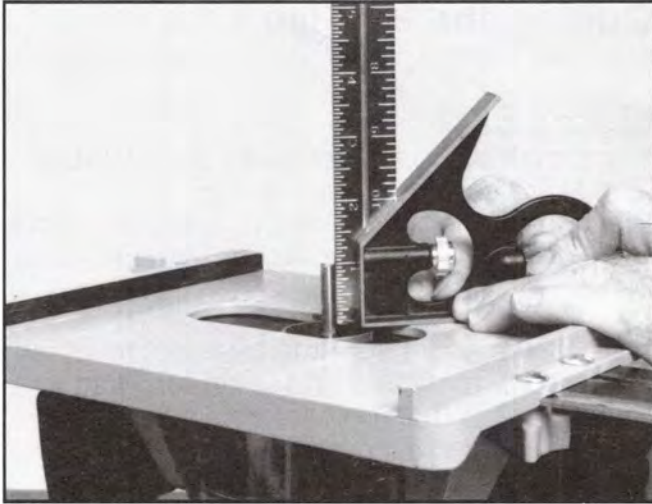
Set the Y Bushing Stop (front) and the Y Bushing Repeat Stop (front) at the 3/16" mark on the mortise scale.

NOTE: A mortise is not "rough cut" since the mortise cut is an internal cut on the work-piece.



■ Step 6.19

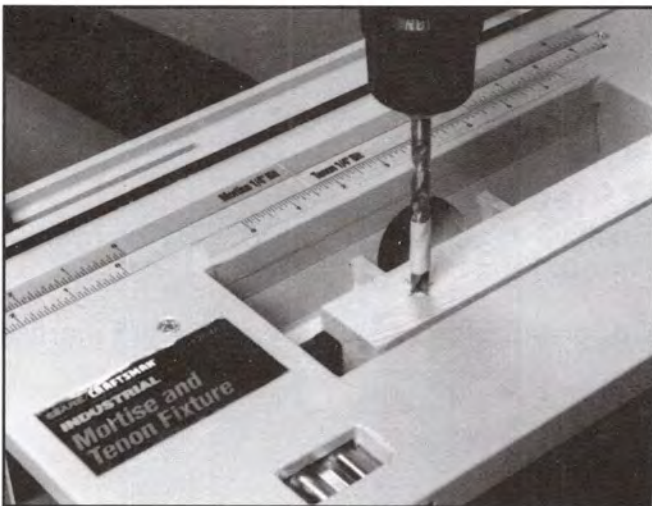
Set the Y Bushing Stop (back) and the Y Bushing Repeat Stop (back) at the 3/16" mark on the mortise scale.



Preparing the Router for the Cut

■ Step 6.20

Determine the depth of the router cut. Set the router bit height. Set bit for additional 1/2" length. Be sure to measure from the bottom of the sliding router base. (1/2" mortise + 1/2" additional = 1")



Pre-Drilling a Hole in the Mortise Workpiece for a Non-Plunge Router

■ Step 6.21

Remove the Sliding Router Base from the Table Top. A hole will be drilled at the intersection of the centerlines of the mortise length and width. Drill a hole slightly deeper than the 1/2" mortise cut will be.

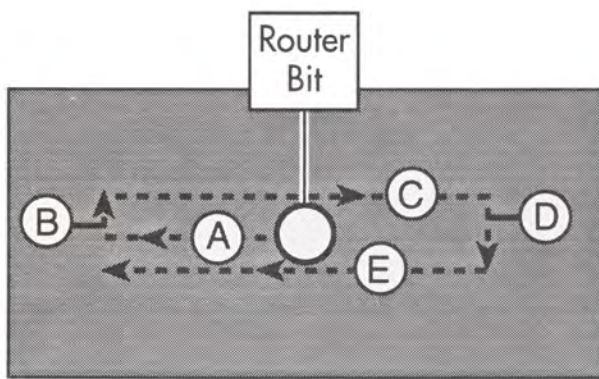
NOTE: If you have a plunge router, it is not necessary to pre-drill the hole. A 5/16" diameter drill bit is recommended.

Cutting the Mortise

■ Step 6.22

Place the Sliding Router Base on the Table Top. Make sure the router is unplugged. Place the router bit inside the pre-drilled hole, while placing the router on the Sliding Router Base.

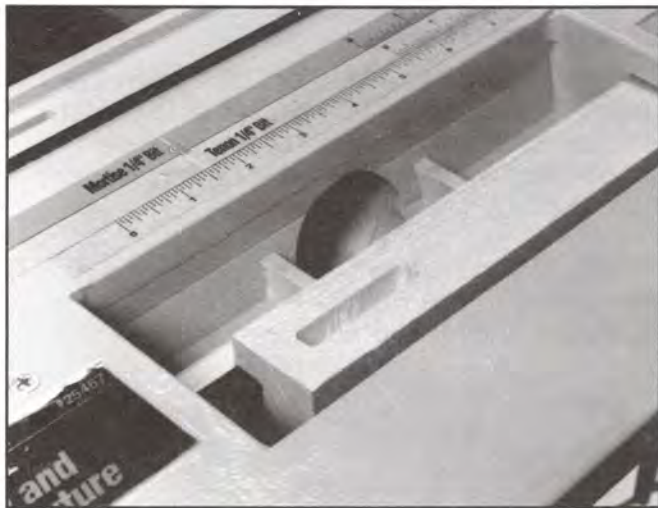
WARNING: Make sure the bit is not touching the wood when you start the router. Hold the router firmly. When cut is completed, allow router to come to a complete stop before removing router from mortise cut.



■ Step 6.23

Cut the mortise, moving the router as shown in this diagram. (Do not raise the Flip X Stops because the mortise cut is cut entirely within the mortise itself.) If you have a shop vacuum, the vacuum hose should be attached to the dust port at the back of the table of the Mortise and Tenon fixture.

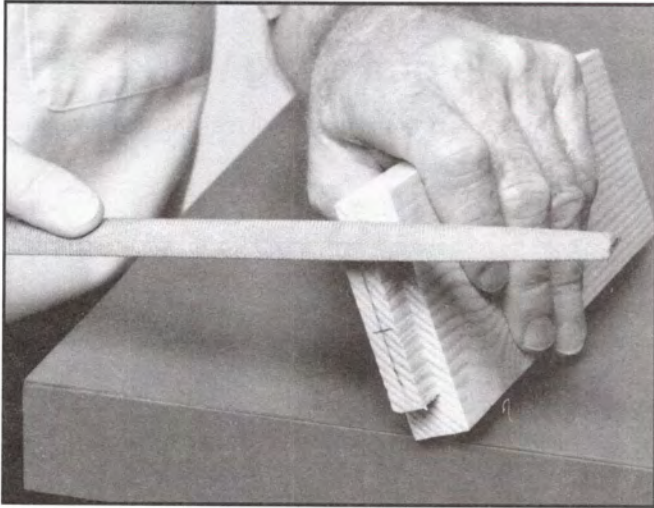
HINT: To make sure the mortise is completely finished, move the router again, around the outer edge of the mortise cut. (Sides B, C, D and E)



■ Step 6.24

Remove the Sliding Router Base. Remove the sawdust and chips.

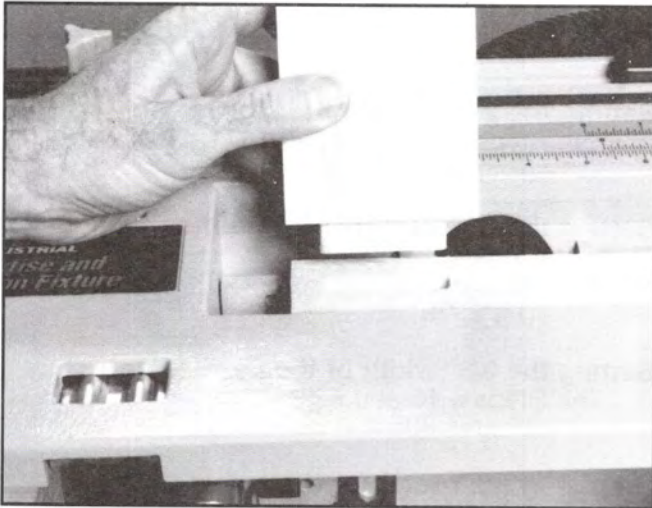
Congratulations, you have a finished mortise!



Preparing the Router for the Cut

■ Step 6.25

Use a file to round the four corners of the tenon which was created in earlier steps.



■ Step 6.26

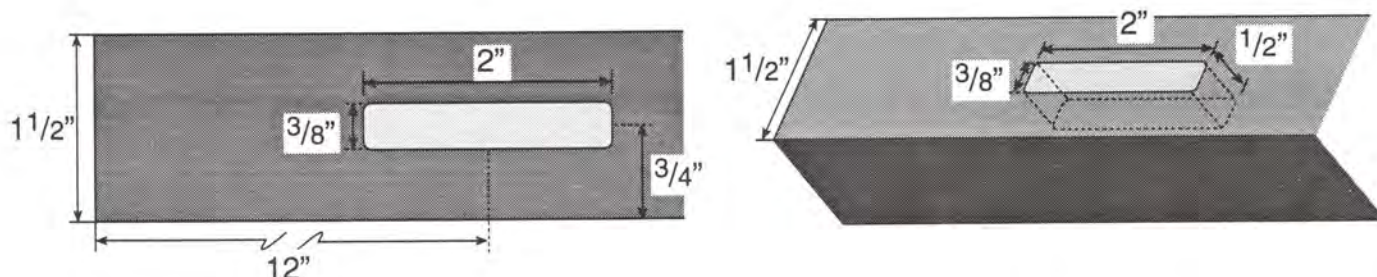
Test the fit of the mortise and tenon joint, while the mortise is still in the fixture. Continue test cuts until the mortise and tenon fit together snugly.



PART TWO: Mortise Cuts

Cut No. 7: Four-Sided Mortise in the Middle of a Long Workpiece

NOTE: Use test workpieces until test cuts are accurate.



Outline for Cut No. 7: Four-Sided Mortise in the Middle of a Long Workpiece

Marking center lines of the mortise on the workpiece

- 7.1 The workpiece is 24" long. Mark a line 12" from the left edge of the workpiece for the X center line.
- 7.2 The workpiece is 1-1/2" wide. At the location of the mark for the X center line, mark another line 3/4" from the front edge of the workpiece for Y center line.

Positioning the workpiece in the fixture

- 7.3 Open the Clamps wide enough to accept an 1-1/2" thick mortise workpiece.
- 7.4 Remove the Tenon Alignment Block.
- 7.5 Slide the workpiece into place, resting the workpiece on the Clamps.
- 7.6 Loosen the Clamps, then raise Clamps so the workpiece rests directly against the bottom of the Table Top. Lock Clamps back into place.

Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 7

- 7.7 The center of the workpiece is in the fixture at the 1-1/2" mark on the Fixed X Scale. Placing the workpiece at the 1-1/2" mark is a random choice.

Move the Center Line (CL) on the Sliding Magnetic X Scale to line up with the pencil center line which marks the midpoint of the length of the workpiece, 12" from the left edge of the workpiece.

Setting the 2" length of the mortise cut

See Steps 6.13 through 6.16
(Pages 77 to 79)

Setting the Center Line (CL) on the Sliding Magnetic Y Scale for Cut No. 7

See Step 6.17
(Page 79)

Setting the 3/8" width of the mortise cut

See Steps 6.18 and 6.19
(Pages 80)

Preparing the router for the cut

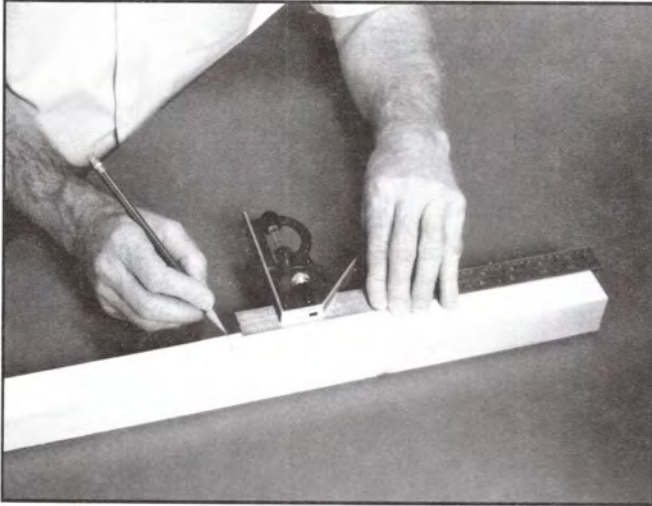
See Step 6.20
(Page 81)

Pre-drilling a hole in the mortise workpiece for a non-plunge router

See Step 6.21
(Page 81)

Cutting the mortise

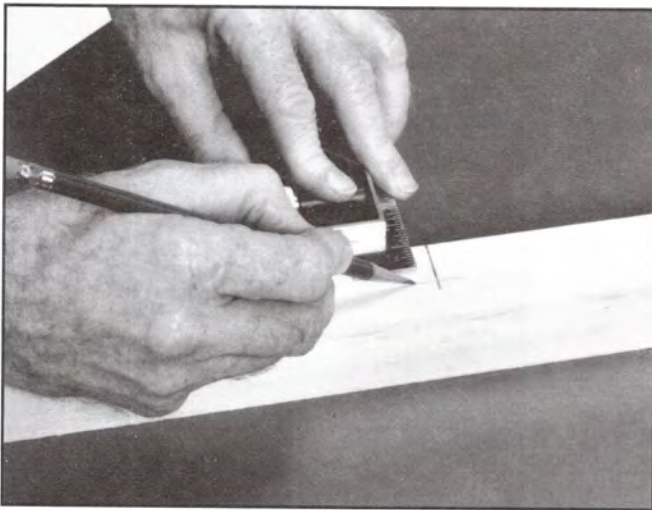
See Steps 6.22 through 6.26
(Pages 82 to 83)



Marking Center Lines of the Mortise on the Workpiece

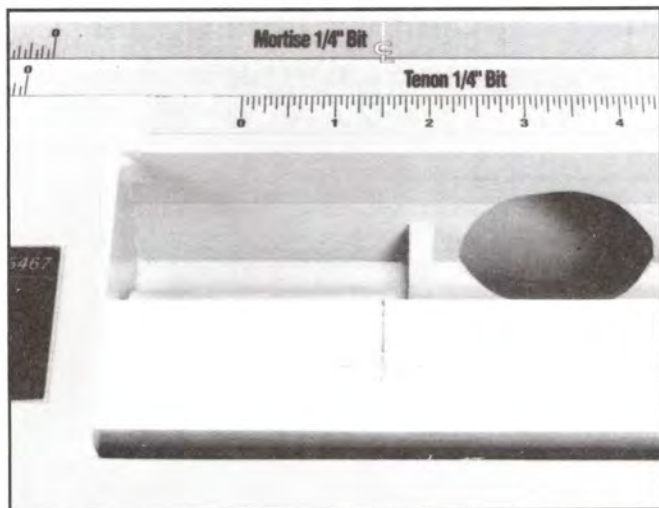
■ Step 7.1

The workpiece is 24" long. Mark a line 12" from the left edge of the workpiece for the X center line.



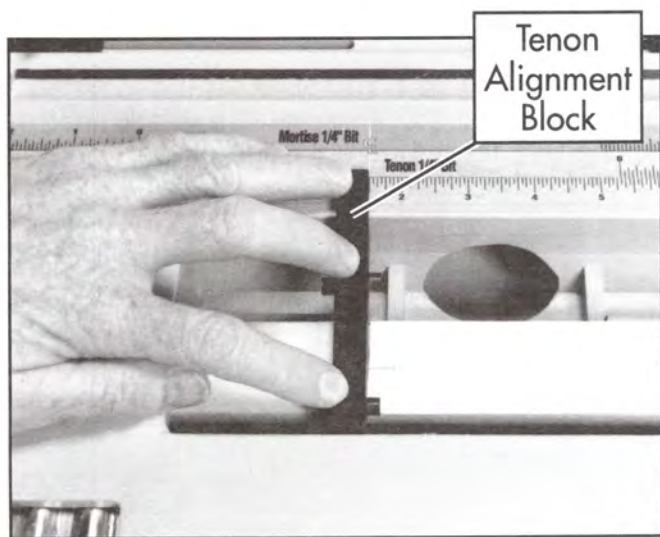
■ Step 7.2

The workpiece is 1-1/2" wide. At the location of the mark for the X center line, mark another line 3/4" from the front edge of the workpiece for the Y center line.



Step 7.7

Use the Tenon Alignment Block as shown in photo 7.7.b. Position the workpiece so that it aligns with 1-1/2" on the Fixed X Scale. Tighten the Clamping Knobs on the workpiece. Store the Tenon Alignment Block on the Right End Cover (on the Right Table Leg) when not in use. Placing the workpiece at the 1-1/2" mark is a random choice. Move the Center Line (CL) on the Sliding Magnetic X Scale to the 1-1/2" mark on the Fixed X Scale.

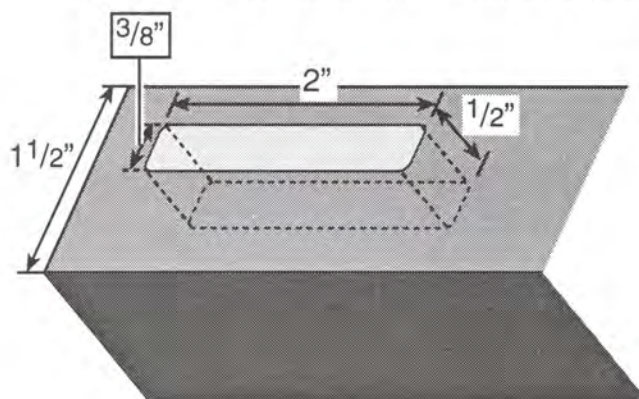
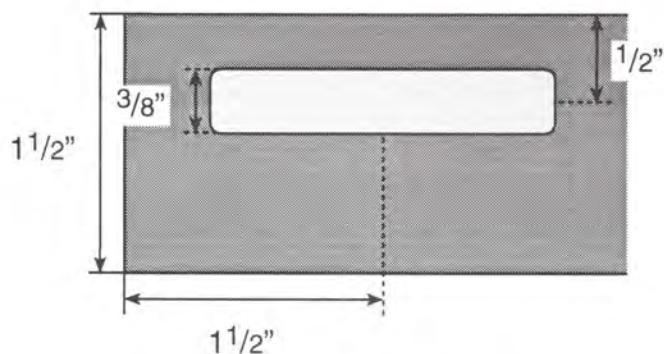


The Tenon Alignment Block is also designed to be used to assure that the Center Line (CL) lines up with the center line marked on the workpiece

PART TWO: Mortise Cuts

Cut No. 8: Off-Centered, Four-Sided Mortise

NOTE: Use test workpieces until test cuts are accurate.



Outline for Cut No. 8: Off-Centered, Four-Sided Mortise

Marking center lines of the mortise on the workpiece

- 8.1 Mark a line 1-1/2" from the left edge of the workpiece for the X center line.
- 8.2 Mark a line 1/2" from the back edge of the workpiece for the Y center line.

Positioning the workpiece in the fixture

See Steps 6.3 through 6.11
(Pages 72 to 76)

Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 8

See Step 6.12
(Page 77)

Setting the 2" length of the mortise cut

See Steps 6.13 through 6.16
(Pages 77 to 79)

Setting the Center Line (CL) on the Sliding Magnetic Y Scale for Cut No. 8

- 8.3 The Sliding Magnetic Y Scale is positioned so the side marked "Mortise 1/4" Bit" faces the Y Stops. Move the Center Line (CL) on the Sliding Magnetic Y Scale to the 1/2" mark on the Fixed Y Scale.

Setting the 3/8" width of the mortise cut

See Steps 6.18 and 6.19
(Page 80)

Setting the router for the cut

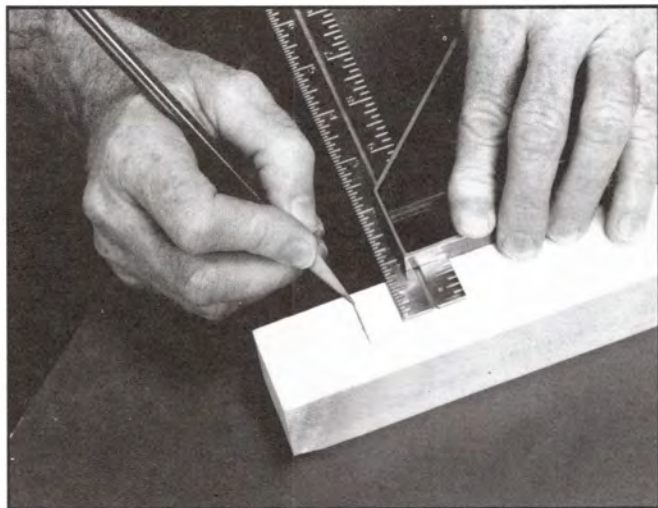
See Step 6.20
(Page 81)

Pre-drilling a hole in the mortise workpiece for a non-plunge router

See Step 6.21
(Page 81)

Cutting the mortise

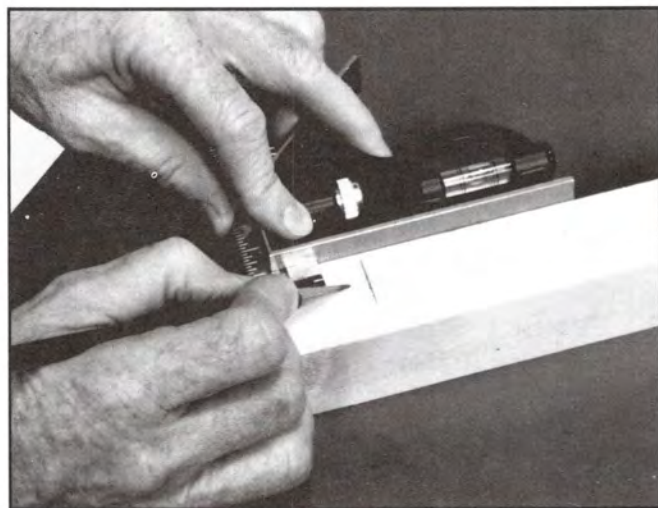
See Steps 6.22 through 6.26
(Pages 82 to 83)



Marking Center Lines of the Mortise on the Workpiece

■ Step 8.1

Mark a line 1-1/2" from the left edge of the workpiece for the X center line.



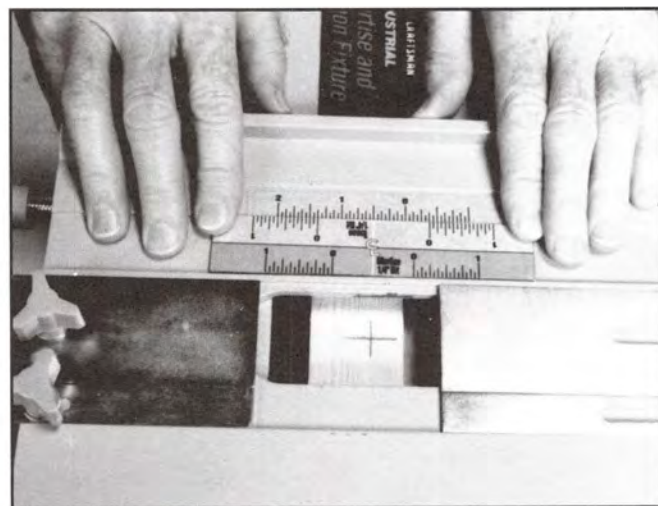
■ Step 8.2

Mark a line 1/2" from the back edge of the workpiece for the Y center line.

Setting the Center Line (CL) on the Sliding Magnetic Y Scale for Cut No. 8

■ Step 8.3

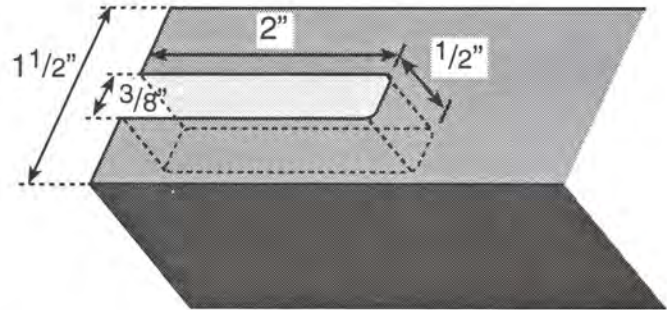
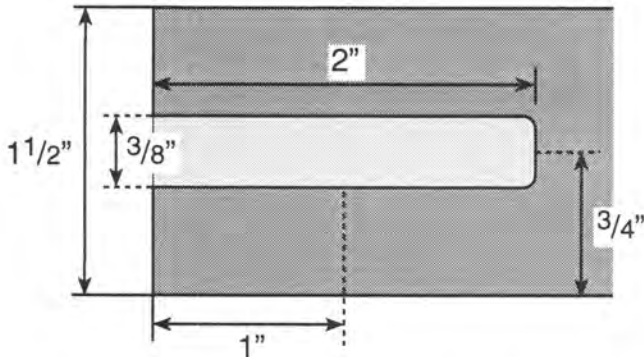
The Sliding Magnetic Y Scale is positioned so the side marked "Mortise 1/4" Bit" faces the Y Stops. Move the Center Line (CL) on the Sliding Magnetic Y Scale to the 1/2" mark on the Fixed Y Scale.



PART TWO: Mortise Cuts

Cut No. 9: Open End Mortise

NOTE: Use test workpieces until test cuts are accurate.



Outline for Cut No. 9: Open End Mortise

Marking center lines of the mortise on the workpiece

- 9.1 Mark a line 1" from the left edge of the workpiece for the X center line.
- 9.2 Mark a line 3/4" from the front edge of the workpiece for the Y center line.

Positioning the workpiece in the fixture

See Steps 6.3 through 6.11
(Pages 72 to 76)

- 9.3 Remove Tenon Alignment Block before cutting. Store the Tenon Alignment Block in the storage area on the Right Table Leg. The Tenon Alignment Block is removed before cutting because this is an Open End Mortise and the left edge of the workpiece must be free of obstructions for the router cut.

Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 9

- 9.4 Move the Center Line (CL) on the Sliding Magnetic X Scale to the 1" mark on the Fixed X Scale.

Setting the 2" length of the mortise cut for the Open End Mortise

- 9.5 Install the Sliding Router Base. Move the left edge of the Sliding Router Base to the far left side of the table.
- 9.6 Lock the Left Sliding X Stop into place.
- 9.10 Move the right edge of the Sliding Router Base to the 1" mark on the mortise side of the Sliding Magnetic X Scale.
- 9.11 Lock the Right Sliding X Stop into place.

Setting the Center Line (CL) on the Sliding Magnetic Y Scale for Cut No. 9

See Step 6.17
(Page 79)

Setting the 3/8" width of the mortise cut

See Step 6.18 and 6.19
(Page 80)

Preparing the router for the cut

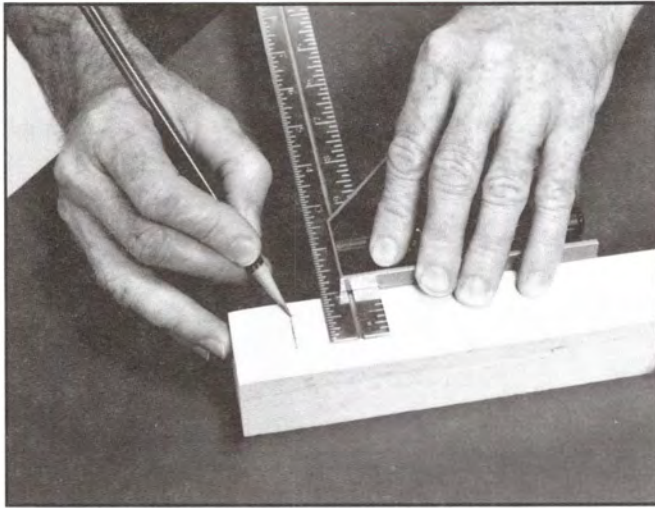
See Step 6.20
(Page 81)

Cutting the Open End Mortise

- 9.12 Place the Sliding Router Base on the Table Top. Make sure the router is unplugged. Place the router bit to the left of the workpiece, as shown in the diagram.
- 9.13 Cut the mortise, moving the router as shown in this diagram. (Do not raise the Flip X Stops.)
- 9.14 Remove the Sliding Router Base. Remove the sawdust and chips. View of the finished Open End Mortise.

Filing the edges of the tenon and Testing the fit of the mortise and tenon joint

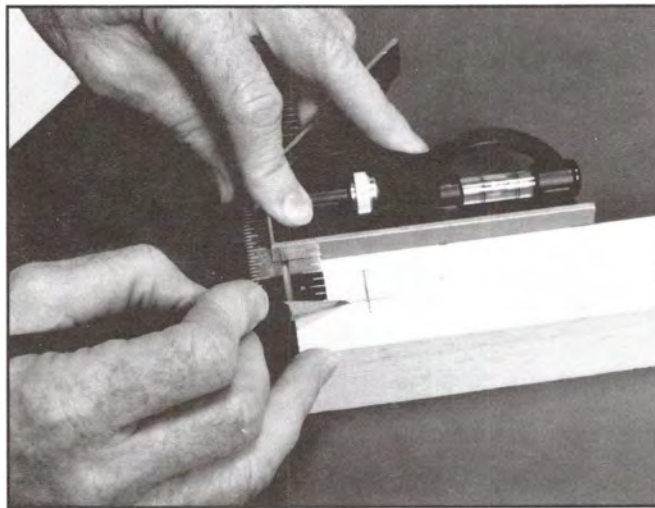
See Steps 6.25 and 6.26
(Page 83)



Marking Center Lines of the Mortise on the Workpiece

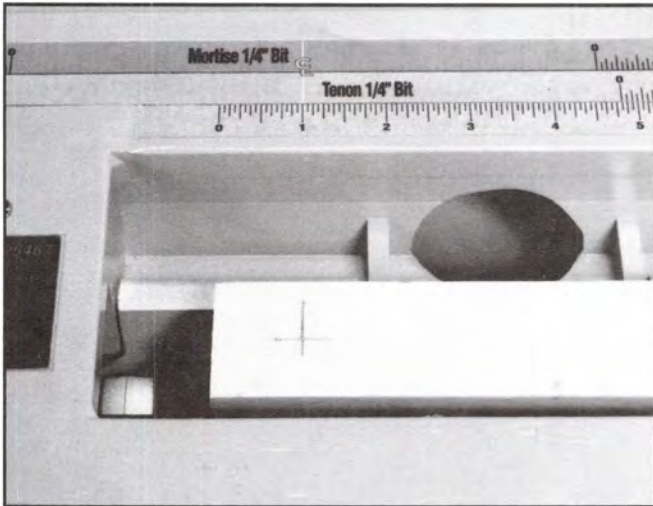
■ Step 9.1

Mark a line 1" from the left edge of the workpiece for the X center line.



■ Step 9.2

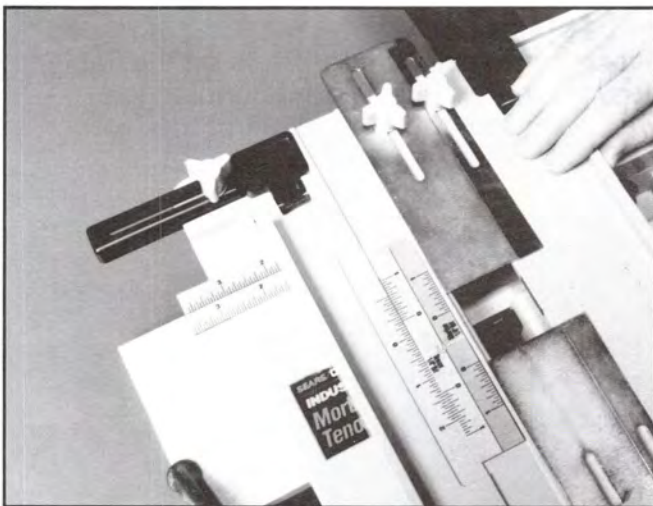
Mark a line $\frac{3}{4}$ " from the front edge of the workpiece for the Y center line.



Setting the Center Line (CL) on the Sliding Magnetic X Scale for Cut No. 9

■ Step 9.4

Move the Center Line (CL) on the Sliding Magnetic X Scale to the 1" mark on the Fixed X Scale.



Setting the 2" Length of the Mortise Cut for the Open End Mortise

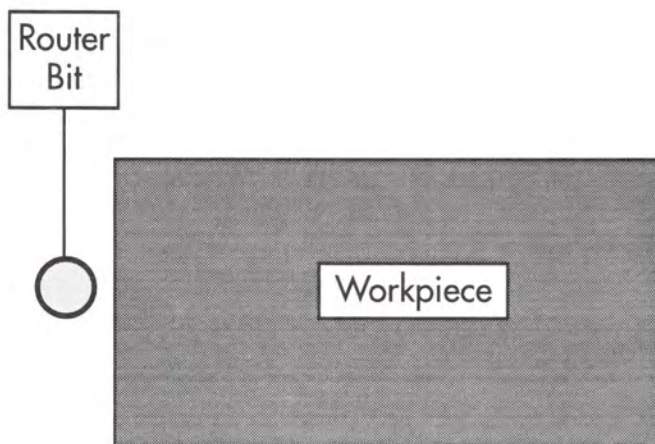
■ Step 9.5

Install the Sliding Router Base. Move the left edge of the Sliding Router Base to the far left side of the table.



■ **Step 9.6**

Lock the Left Sliding X Stop into place.

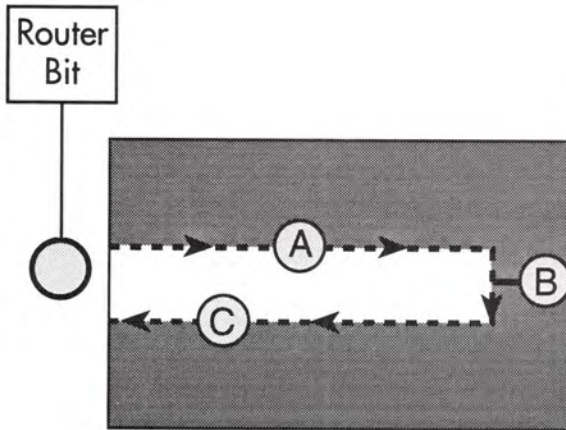


■ **Step 9.12**

Place the Sliding Router Base on the Table Top. Make sure the router is unplugged. Place the router bit to the left of the workpiece, as shown in the diagram.

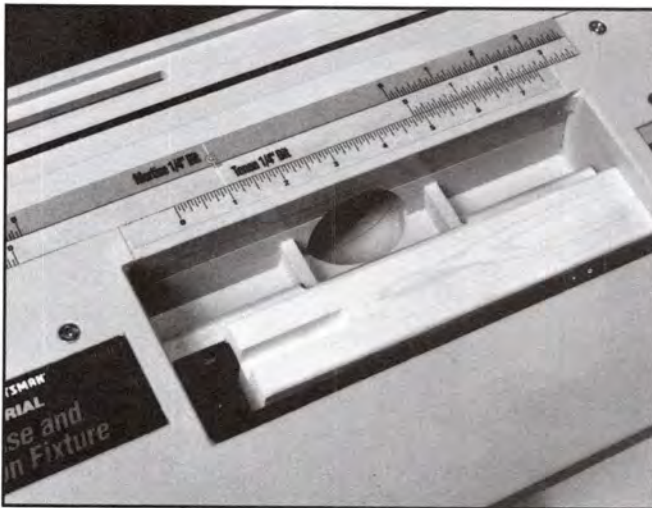
Step 9.13

Cut the mortise, moving the router as shown in this diagram. (Do not raise the Flip X Stops.)

**Step 9.14**

Remove the Sliding Router Base. Remove the sawdust and chips.

Congratulations! You have an Open End Mortise.

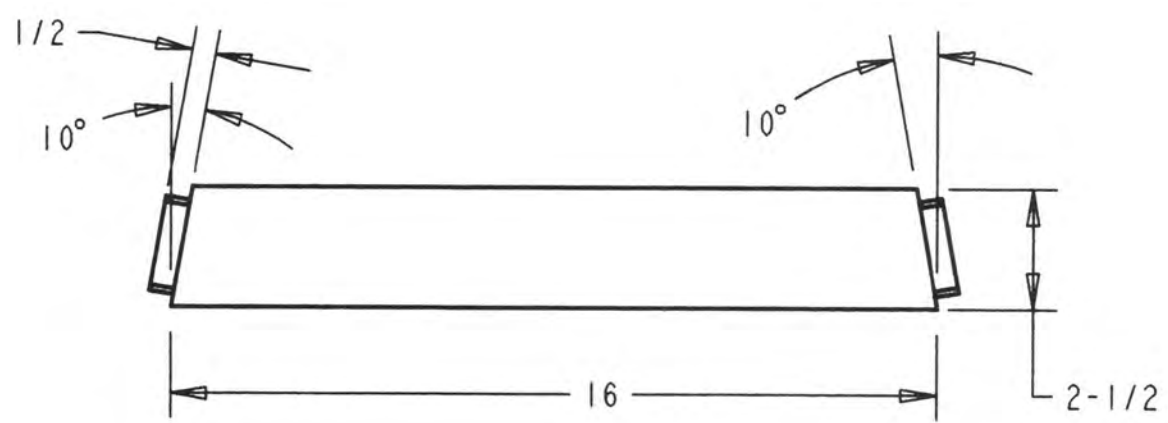
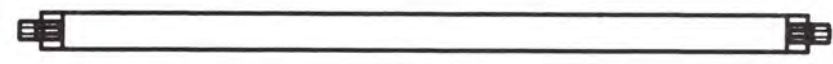
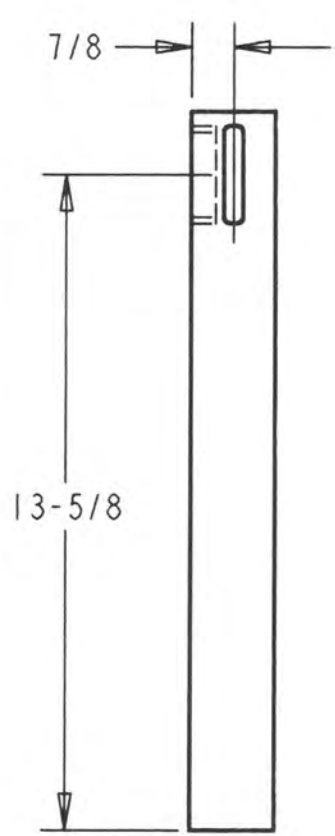
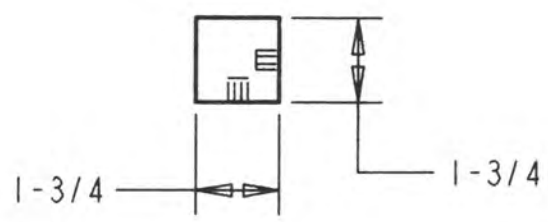


Printed in U.S.A.
7/96

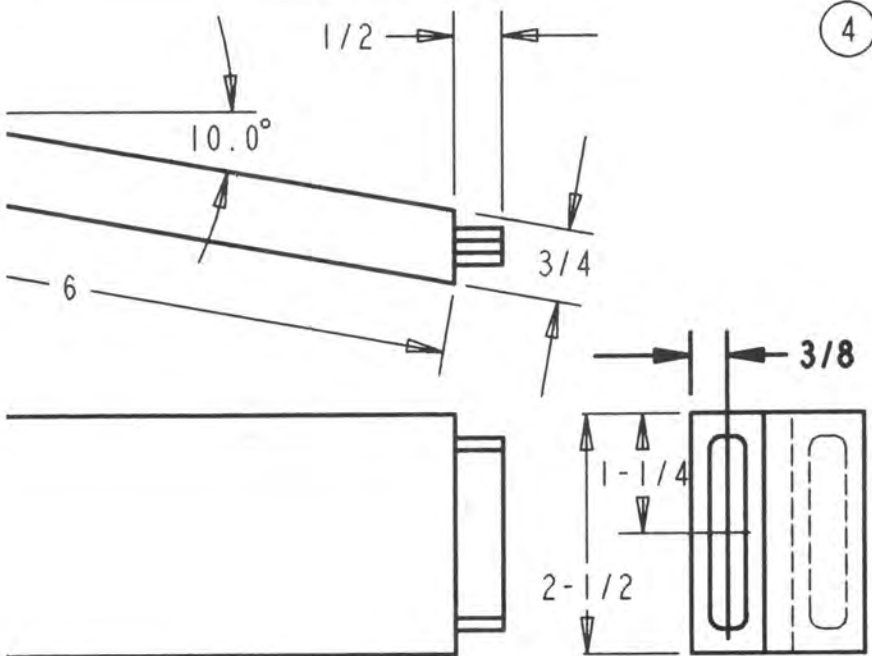
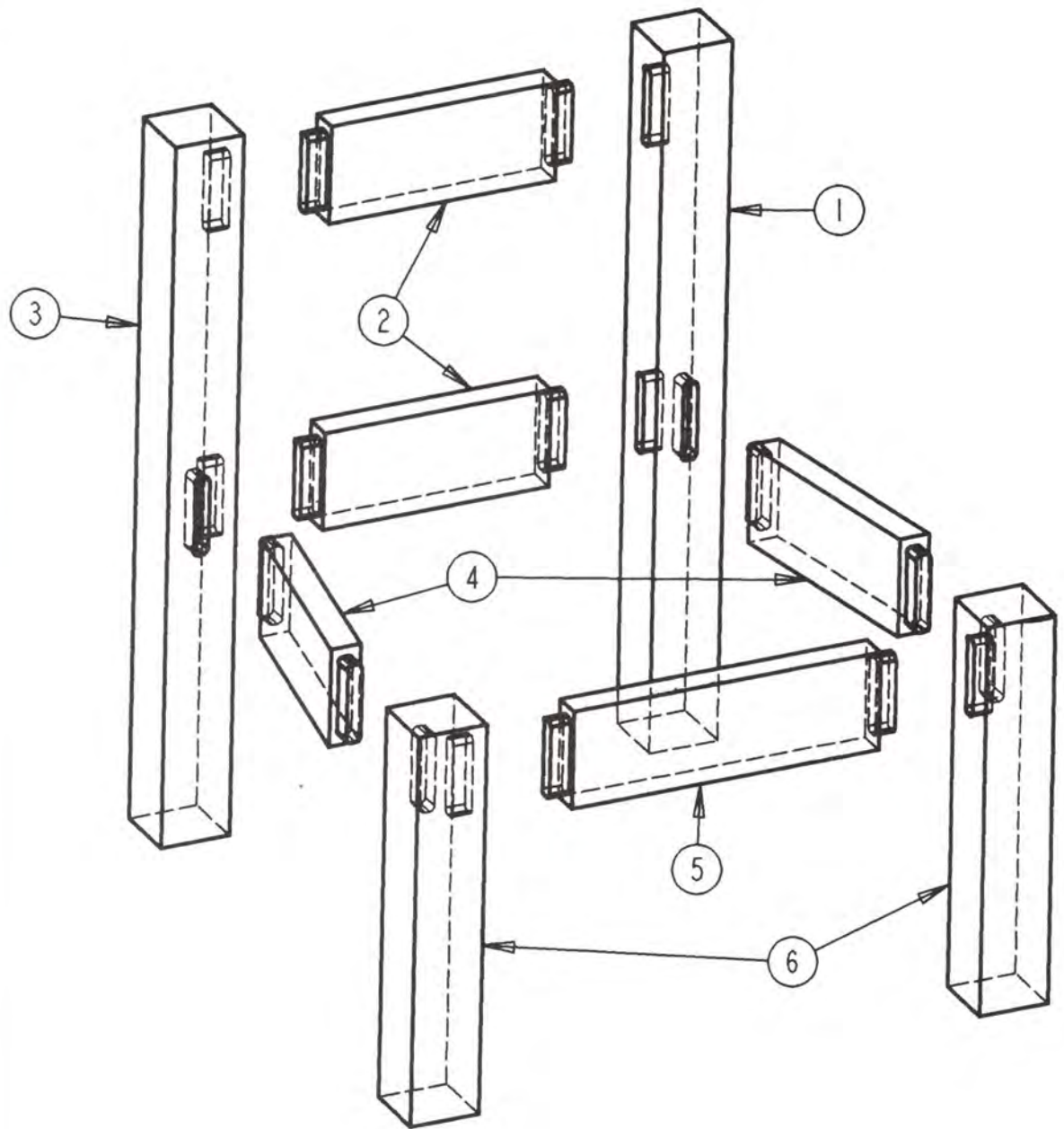
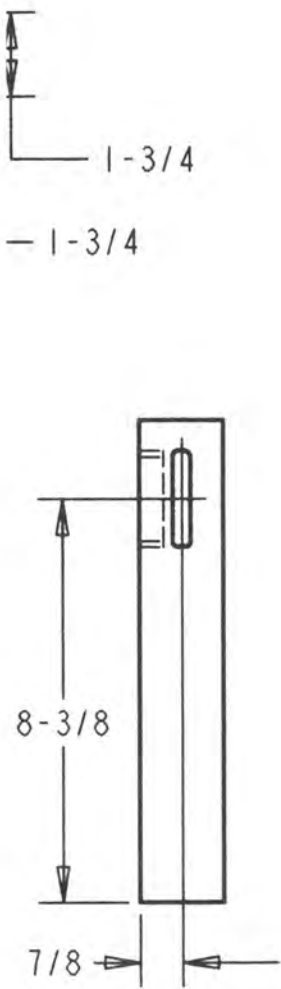
When corresponding, always give the following information as shown in the list:

1. The **PART NUMBER**
 2. The **PART DESCRIPTION**
 3. The **MODEL #171.25467**
 4. The **ITEM NAME-MORTISE AND
TENON FIXTURE**
-

1



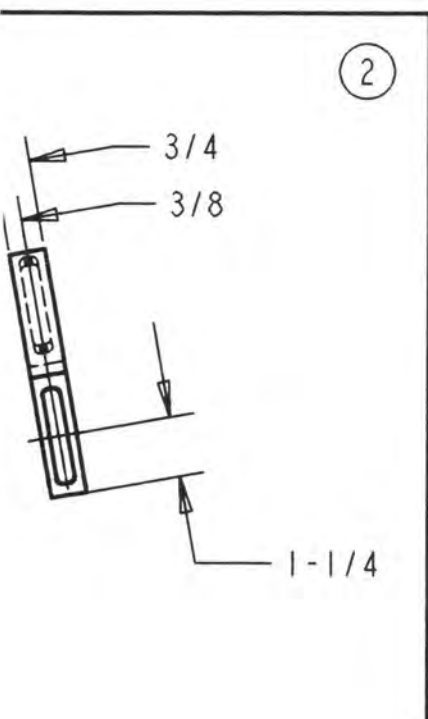
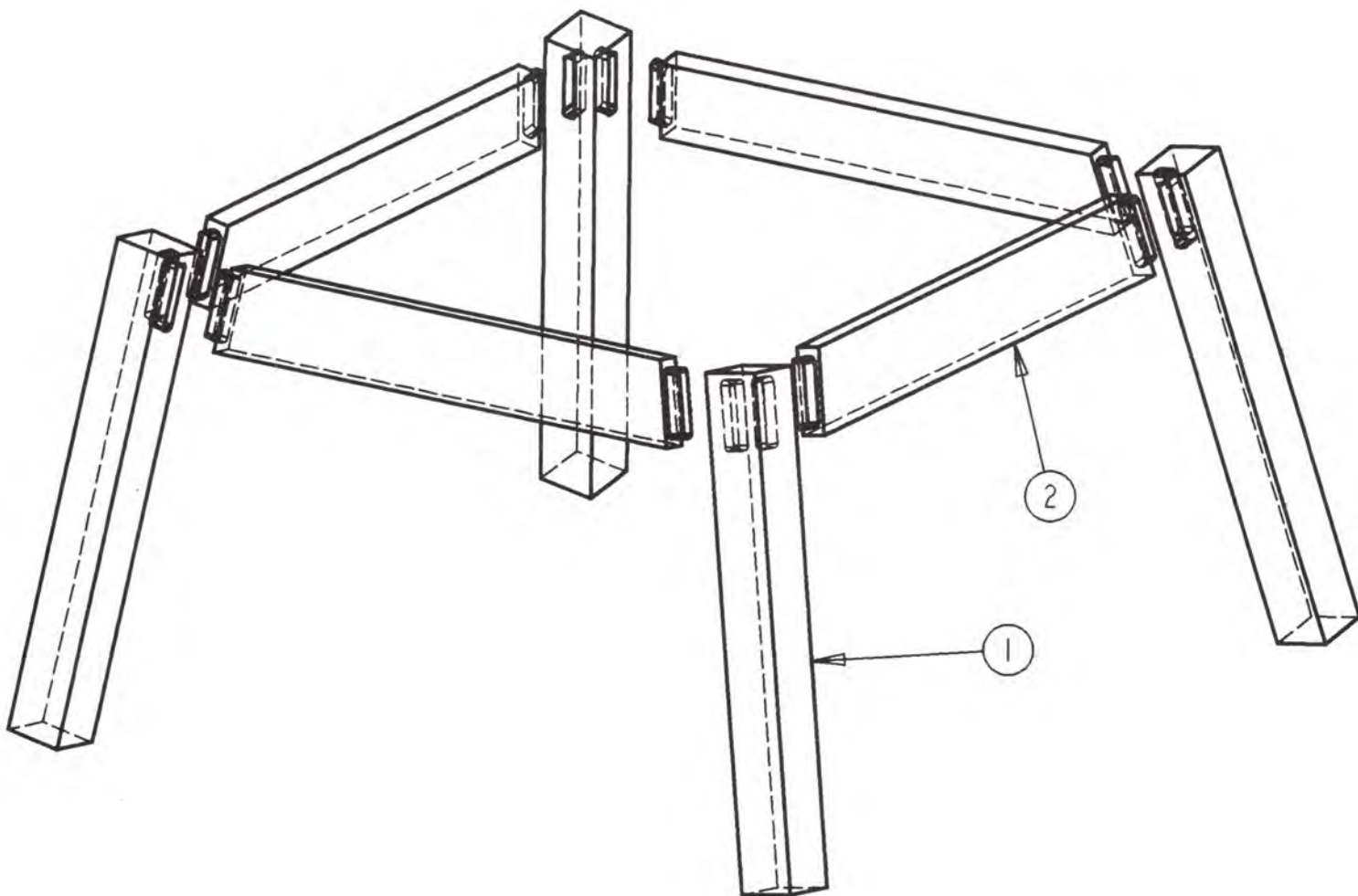
6



4

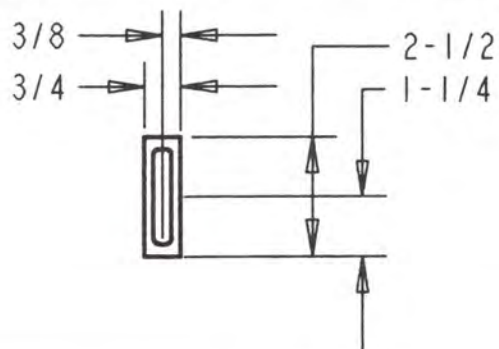
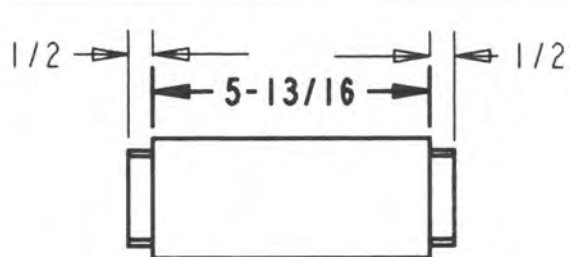
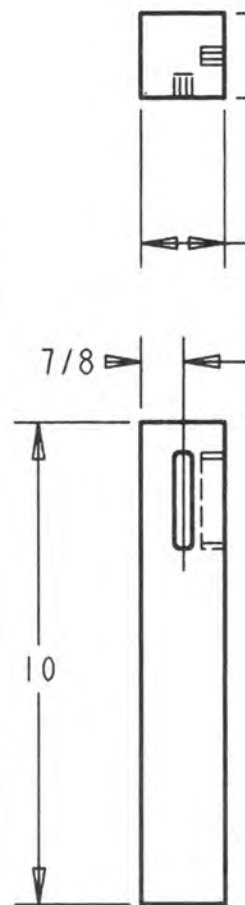
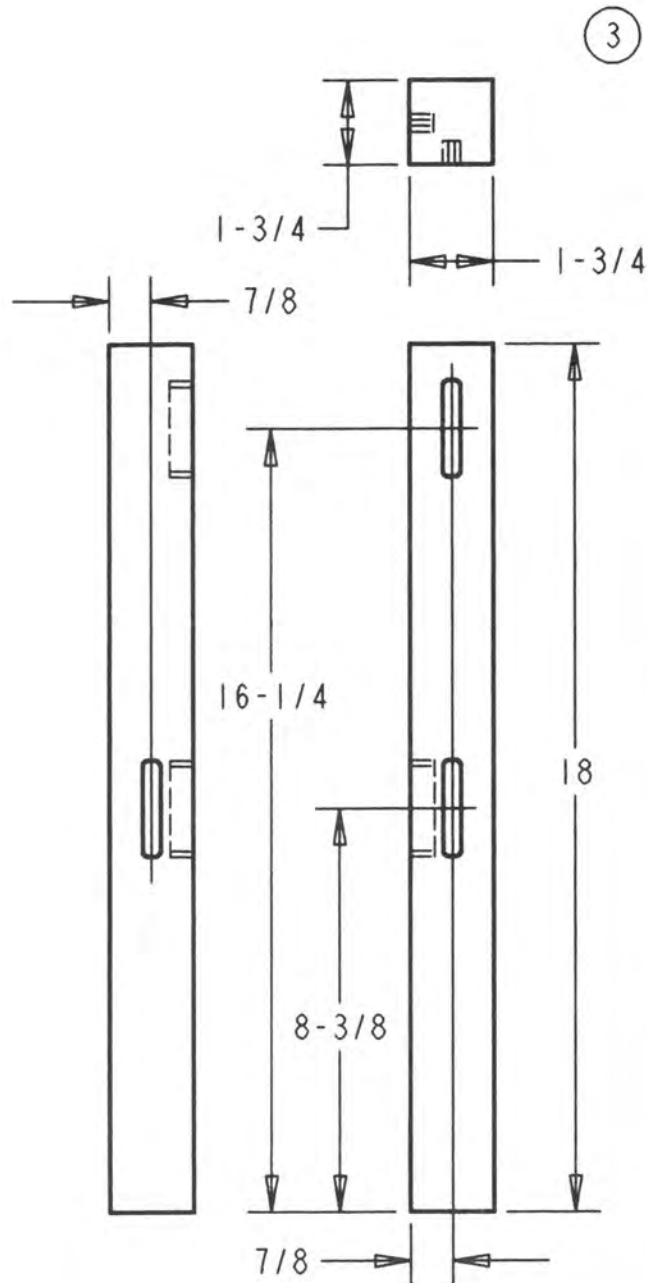
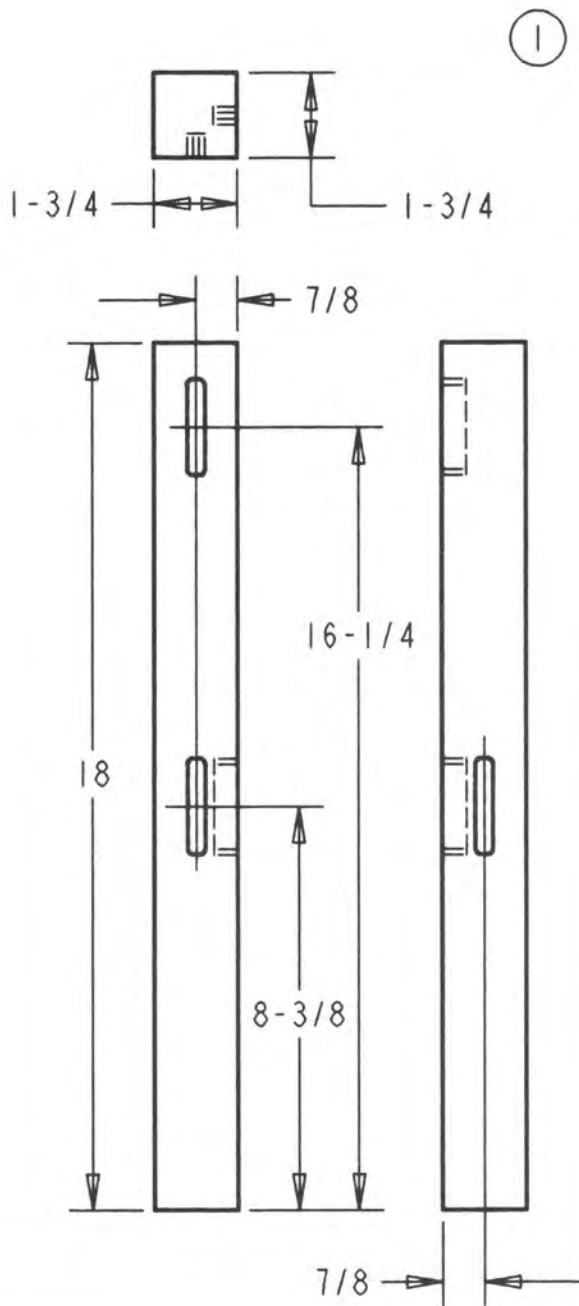
NO.	DESCRIPTION	QTY.
1	RIGHT BACK LEG	1
2	BACKS	2
3	LEFT BACK LEG	1
4	SIDES	2
5	FRONT	1
6	FRONT LEGS	2

MORTISE DIMENSIONS;
2" x 3/8" x 1/2" DEEP
TENON DIMENSIONS;
2" x 3/8" x 1/2" DEEP
SCALE 1/4" = 1"

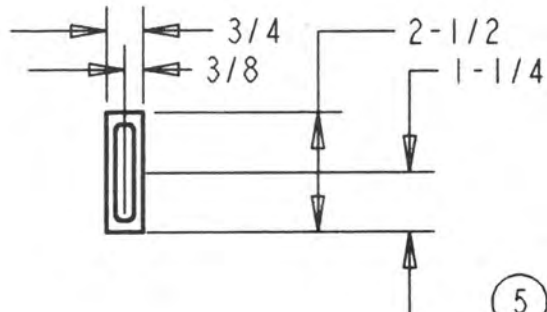
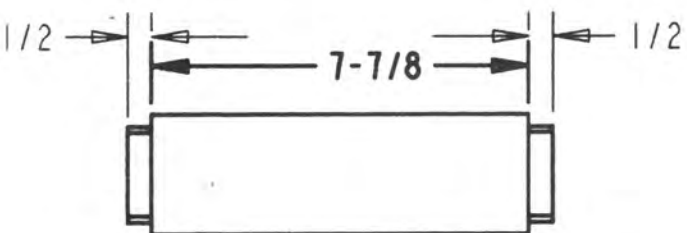
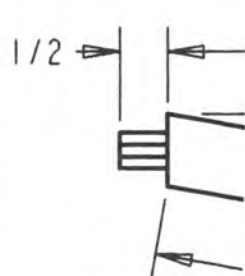


NO.	DESCRIPTION	QTY.
1	LEG	4
2	SIDE	4

MORTISE DIMENSIONS;
 2" x $13/32$ " x $1/2$ " DEEP
 TENON DIMENSIONS;
 2" x $3/8$ " x $1/2$ " DEEP
 SCALE $1/4$ " = 1"



②



⑤

