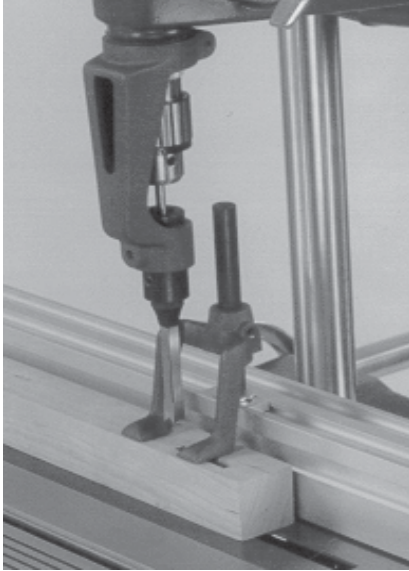




MORTISING SYSTEM

555810



INTRODUCTION

The Shopsmith Mortising System includes the Mortising attachment, Mortising hold-down, 3 Mortising Chisel Bits, and a Honing stone. It enables the user to machine mortises 1/4", 3/8" and 1/2" wide with flat bottoms and square ends. If wider mortises are required two rows of overlapping mortises can be cut.

SAFETY

WARNING

To protect yourself from injury:

- **READ, UNDERSTAND and FOLLOW ALL the information in these instructions.**

- **ALSO READ, UNDERSTAND and FOLLOW ALL the information in the instruction manual, which came with your MARK V.**
- **Read the Safety section and complete the Assembly procedures before operating your Shopsmith Mortising System.**

General Safety

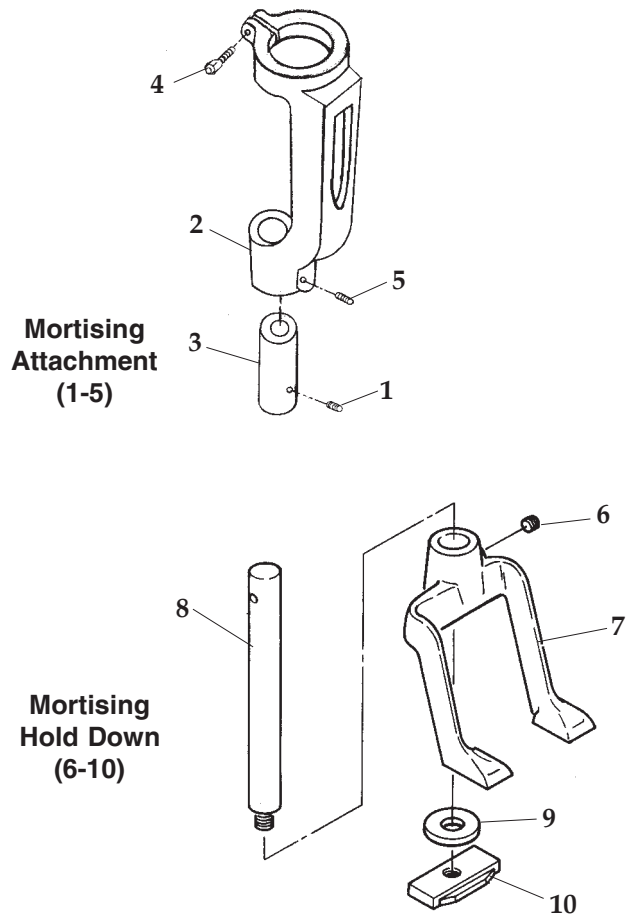
- **Wear proper eye and ear protection. Also, wear a dust mask.**
 - **Wear proper apparel. Do not wear loose clothing, ties, gloves, rings or other jewelry. Roll sleeves up above your elbows, wear non-slip footwear, and tuck long hair under a hat.**
 - **Do not operate power tools if you are tired, taking medication, or under the influence of alcohol or drugs.**
 - **Avoid dangerous environments. Don't use power tools in damp, wet or explosive atmospheres.**
 - **Keep work areas well-lit, clean, and free from clutter.**
 - **Avoid unintentional starting. Make sure the switch is in the "off" position before plugging in or unplugging the tool.**
-

PARTS EXPLOSION

Parts Explosion

Parts List

Ref. No.	Part No.	Item Description	Qty
—	555810	Mortising System	
—	521901	.Mortising Attachment Asm. ... 1 (Incl. 1-5)	
1	222458	.. Setscrew 5/16 - 18 x 1/4"	1
2	503776	.. Quill Attachment	1
3	503777	.. Adjustable Sleeve	1
4	503778	.. Socket Head Cap Screw	1
		1/4 - 20 x 1-1/4"	
5	222460	.. Setscrew 5/16 - 18 x 3/8"	1
—	521900	.Mortising Hold Down Asm. ... 1 (Incl. 6-10)	
6	222460	.. Setscrew, 5/16 - 18 x 3/8"	1
7	50377201	.. Foot	1
8	514487	.. Rod	1
9	514490	.. Flat Washer	1
10	514491	.. T-Nut	1
11	521882	.1/4" Mortising Bit (not shown)	1
12	521883	.3/8" Mortising Bit (not shown)	1
13	521884	.1/2" Mortising Bit (not shown)	1
14	521902	.Honing Stone (not shown)	1
15	51368603	.3/16" Allen Wrench (not shown) .	1



TOOLS REQUIRED

- 5/32" Allen Wrench (supplied w/Mark V)
- 3/16" Allen Wrench (supplied)

ASSEMBLY

Assemble the Mortising Hold-Down

Model 510, 520, and 500 with T-slotted fence.

1. With shoulders of T-nut (10) down, place washer (9) on T-nut and thread rod (8) approximately two turns into the t-nut.

2. Insert Rod (8) in foot (7) with threaded end down, as shown in Figure 1.

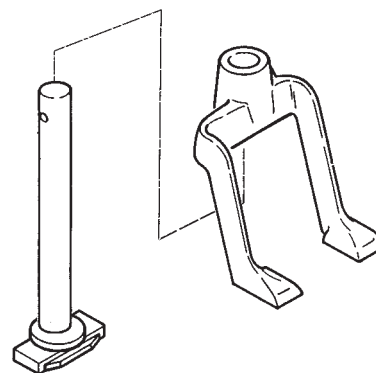


Figure 1

3. Use a 5/32" Allen wrench to turn in set-screw (6) until contact is made with the rod (8), then back off setscrew to allow foot (7) movement on the rod.

Model 500 with old fence

1. Insert Rod (8) in foot (7) with threaded end up, as shown in Figure 2.

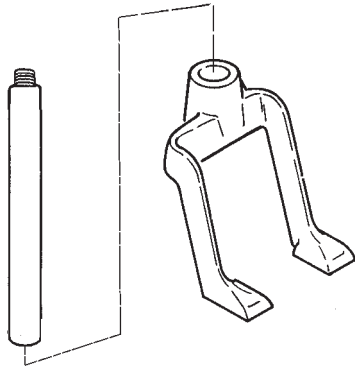


Figure 2

2. Use a 5/32" Allen wrench to turn in set-screw (6) until contact is made with the rod (8), then back off setscrew to allow foot (7) movement on the rod.

Assemble the Mortising Attachment

1. Slide Adjustable sleeve (3) in Quill Attachment (2) with setscrew (1) in Adjustable sleeve (3) aligned with setscrew (4) in bottom of quill attachment, as shown in Figure 3.



Figure 3

NOTE

Adjustable sleeve (3) must protrude from bottom of attachment casting approximately 1" - 1-1/4".

2. Tighten setscrew (5) in Quill Attachment against Adjustable sleeve (3).

SETUP

WARNING

Make sure the Mark V is turned off and unplugged, before beginning setup.

Set the Carriage 7" from the Pivot Arm and set the Headstock 14" from the Carriage. Lock the Headstock and Carriage in position and raise the machine to the vertical position. Lock the base lock.

Mounting the Attachment

1. Remove table insert from the worktable.
2. Slip the mortising attachment over the quill so the arm of the casting faces away from the way tubes.
3. Using the 3/16" Allen wrench, secure the Mortising attachment on the quill by tightening the Socket Head Cap screw (4), as shown in Figure 4.
4. Turn the spindle by hand so the tapered flat can be seen through the slot in the Attachment casting.



Figure 4

5. Mount the chuck fully on the spindle. Make sure the chuck's setscrew seats firmly on tapered flat and tighten with a 5/32" Allen wrench.
6. Insert the Mortising chisel shank fully into Adjustable sleeve of the Mortising attachment. Secure with Adapter set-screw. The slot in Mortising Chisel should face forward.
7. Insert the bit up through the chisel from the bottom and completely into the chuck, secure with chuck key.
8. Loosen the setscrew in the attachment that holds adjustable sleeve in the attachment. Raise the adjustable sleeve 1/32" to provide clearance between the bit and chisel, as shown in Figure 5. Lock adjustable sleeve in casting by tightening the setscrew.

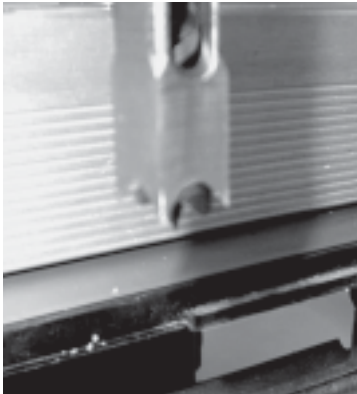


Figure 5

9. Install table insert, mount the fence on the worktable between mortising chisel and way tubes, and loosen the setscrew in the adjustable sleeve. Extend the quill to lower the mortising bit nearly to the table.
10. Square the chisel face with the fence, see Figure 6. Tighten setscrew in the adjustable sleeve.

NOTE

The side of the hollow chisel should be

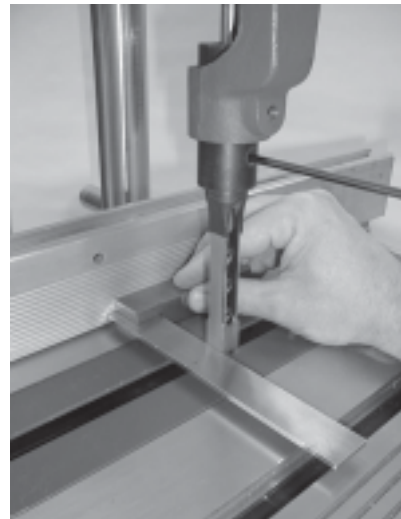


Figure 6

located at right angles to the fence, check it with a square. See Figure 6.



Shopsmith mortising bits and chisels are specially designed for Shopsmith, Inc. DO NOT USE substitutes.

Mounting the Mortising Hold-down

Model 510/520 and 500 with T-slotted fence

1. Position fence 2-1/2" behind chisel, lifting up on washer (9), engage shoulders of the T-nut (10) in T-slot at outfeed end of the rip fence. See Figure 7. With foot (7) facing the mortising chisel, slide hold-down in the rip fence until the chisel is centered between the hold-down feet.

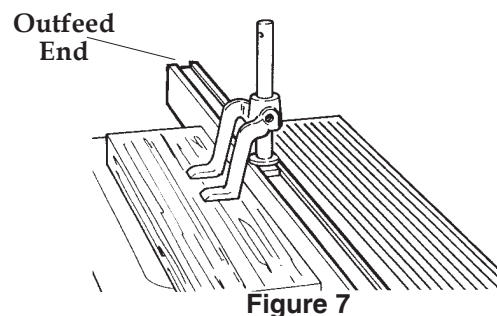


Figure 7

2. Thread rod (8) into T-nut (10), then use long end of 5/32" Allen wrench through hole in rod to tighten hold-down assembly securely in position.
3. Raise foot (7) and place stock in position on table, keeping foot parallel with rip fence. Set foot on stock. Adjust position of foot to allow stock to slide under foot but not raise off the table, tighten setscrew.

Model 500 with Old Style Fence

1. Loosen setscrew below the center hole in the top of the fence. Position the fence 2-1/2" behind the chisel. With the hold-down foot positioned toward the chisel, slip the rod (8) into the Rip Fence hole and secure by tightening the setscrew in the Rip Fence. See Figure 8.

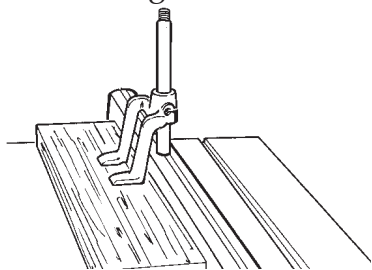


Figure 8

2. Raise foot (7) and place stock in position on table, keeping foot parallel with rip fence. Set foot on stock. Adjust position of foot to allow stock to slide under foot but not raise off the table, tighten setscrew.

OPERATIONS

Mortising Speeds



BEFORE you begin any mortising operation, set the Mark V to run at the correct speed. To do this: turn the machine on, turn the speed dial to the correct speed and let the machine come up to speed.

The operating speeds for mortising range from speed setting "G" (1450 RPM) to "H" (1600 RPM). For the most part, the correct speed is determined by the size of the mortise you want to make and the material you're using. Generally, you can use faster speeds with softer woods or smaller mortises. Use slower speeds as the materials get harder and the mortises get larger.

Mortising Operations

All the joints shown on pages 6 and 7 can be made using the Mortising System.



Always use support legs on tubes to support the worktable. On the Mark V Model 510/520 legs are standard with the unit. On the Mark V Model 500, you must use Support Leg Accessory (555627) to prevent table deflection.

NOTE

If you are cutting through stock, you must back up your stock with a piece of wood. This assures a clean cut and prevents table damage.

WARNING

DANGER ZONE - The danger zone during mortising operations extends 3" around the bit and chuck and 5" beneath the bit. When you perform mortising operations, make certain your hands and fingers aren't beneath the bit when you advance the quill. Never reach in toward the bit or beneath it to clear away scraps. Turn off the machine and let it come to a complete stop first.

To Cut a Mortise

1. Position the fence to guide stock being machined. Fence Stop Accessory (555807) can also be used on the fence to control the length of the cut. This is especially useful when multiple pieces are being cut with identical mortises.
2. Make your first cut at one end of the mortise. Set the depth stop to the desired mortise depth when bottom flutes of drill bit scrap the top surface of the stock. Then machine first cut to approximately 1/16" deep. Do not go all the way to final depth of cut.
3. Make second cut next to the first and go approximately 1/16" deeper than the first. Repeat for remaining cuts, working progressively deeper as you cut along the mortise in a stair step fashion. When you get to the end of the mortise work back over your previous cuts. This stair step procedure reduces table stress and heat buildup in the bit and cutter.
4. Proceed until you reach the final depth of cut. This may take several passes.



Watch as you machine the mortise for chips flying from the mortising cutter. If no chips come from the cutter slot than the bit is clogged and must be removed and cleaned. Failure to unclog the bit will result in the bit and chisel over heating and damaging the hardness of the tool steel.

Sharpening the bits and chisels

NOTE

Excessive downward force when Mortising will cause damage to the quill feed mecha-

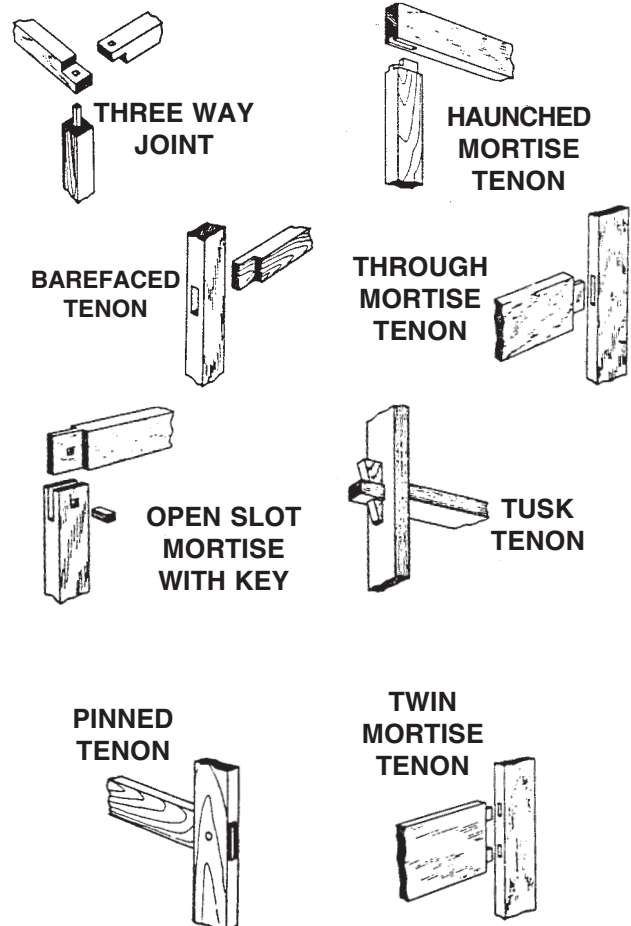
nism and/or the table and is a sure sign the bit and/or the chisel need sharpening.

See page 304-306 of the Power Tool Woodworking For Everyone, 4th Edition © 1989, for detailed sharpening information. These pages discuss using white and red conical stones. This information is for chisels purchased prior to 1985. If Sharpening Mortising chisels purchased after January 1, 2001 use the blue conical grinding stone (13) supplied with the Mortising package. Follow the procedures laid out in these pages, the procedures are identical.

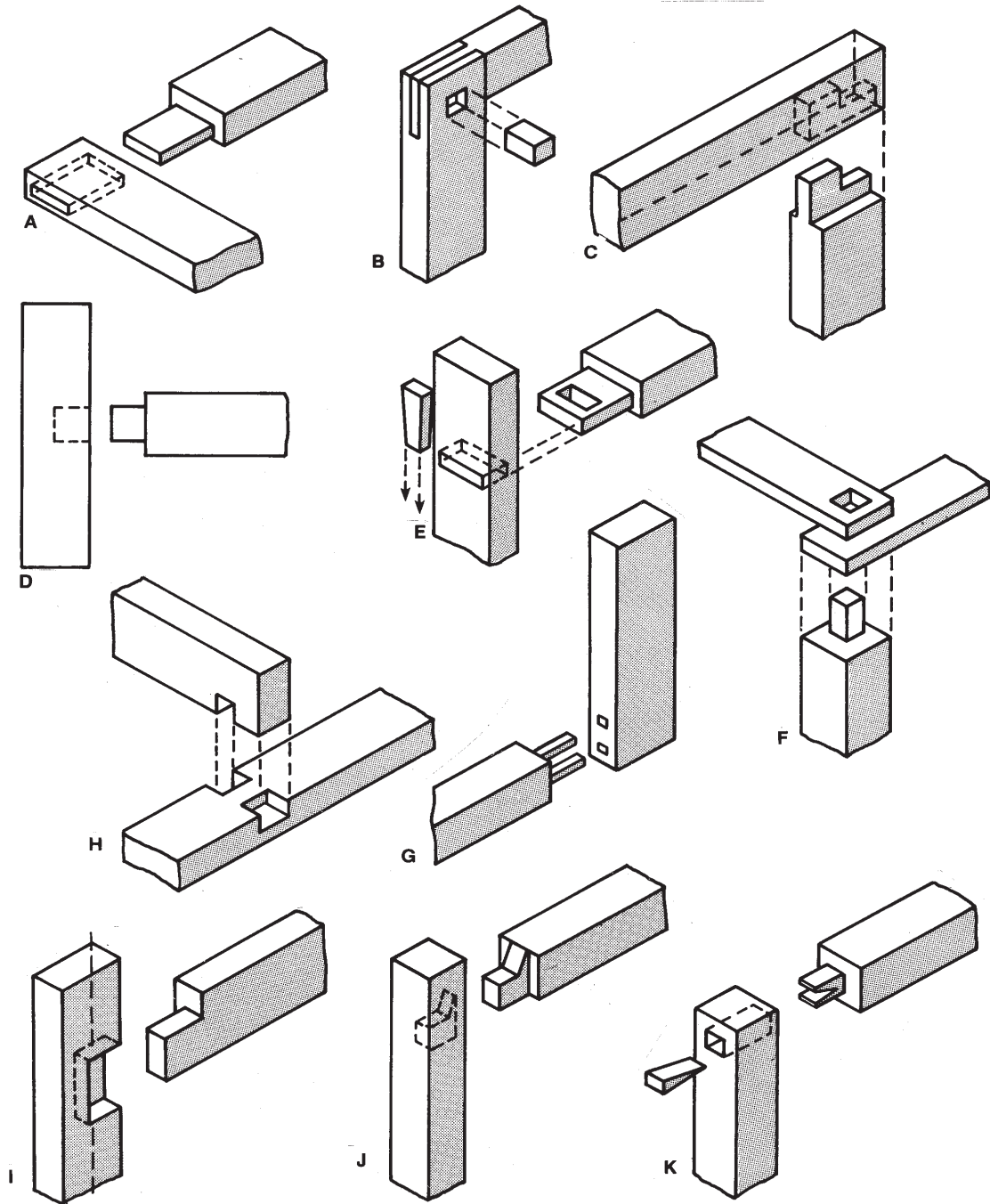
NOTE

The sharper the chisels are kept, the easier they will cut.

MORTISING CUTS



ADDITIONAL MORTISING CUTS



NOTES

NOTE

If you have any further questions or comments, please feel free to contact our Customer Service Department Toll-Free Number 800-762-7555. You can also visit our website www.shopsmith.com.



Shopsmith Inc.
6530 Poe Avenue
Dayton, Ohio 45414

www.shopsmith.com

845513

Rev. 1/01
Copyright 2001 Shopsmith, Inc.
All Rights Reserved
Printed in U.S.A.