

***owners
manual***



MODEL 2, CAT. NO. 730

For the Shopsmith® Mark V.

CAUTION — Read important safety instructions AND operating instructions, BEFORE operating your RING MASTER MODEL 2.

MODEL 2 is a quality-built machine, capable of dependable performance throughout its lifetime. In order to take full advantage of these capabilities you should thoroughly understand the construction, assembly, and proper technique for its operation. Therefore, we suggest you read this manual before operating and that you save it for future reference.

- ***assembly***
- ***operation***

**This Instruction manual has
been provided by:**

**The Wooden Post, Inc.
(888) 595-7126 - toll free
www.woodenpost.com**



PORTA-NAILS, INC. • PO BOX 1257 • WILMINGTON, NC 28402

YOUR RING MASTER ONE YEAR WARRANTY

PNI is proud of Ring Master and its quality. The component parts of this machine are inspected at various stages of production, and each finished machine is inspected before packing. Because of our confidence in the BUILT-IN quality, PNI agrees to repair or replace any part or parts of Ring Master which upon our examination prove to be defective in workmanship or material. In order for the user to take advantage of this guarantee, the complete machine or component part must be returned prepaid to PNI for examination and prompt action. This guarantee, of course, does not include repair or replacement due to misuse, abuse, or normal wear and tear. Repairs made by other than factory authorized personnel, relieves PNI of further liability under the guarantee. **THIS GUARANTEE IS MADE EXPRESSLY IN PLACE OF ALL OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO QUALITY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.** This guarantee ends one year after date of purchase.

PNI reserves the right to change or modify the design and/or specifications of Ring Master at any time without prior notice to any user.

General Safety Instructions for Power Tools

1. KNOW YOUR POWER TOOL

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

2. GROUND ALL TOOLS

This tool is equipped with an approved 3-conductor cord and a 3-prong grounding type plug to fit the proper grounding type receptacle. The green conductor in the cord is the grounding wire. Never connect the green wire to a live terminal.

3. KEEP GUARDS IN PLACE

in working order, and in proper adjustment and alignment.

4. REMOVE ADJUSTING KEYS AND WRENCHES

Form 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 sawdust.

6. AVOID DANGEROUS ENVIRONMENT

Don't 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 a safe distance from work area.

8. DON'T FORCE TOOL

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

9. USE RIGHT TOOLS

Don't force tool or attachment to do a job it was not designed for.

10. WEAR PROPER APPAREL

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

11. USE SAFETY GOGGLES (Head Protection)

Wear safety goggles (must comply with ANSI Z87.1) at all times. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses. Also, use face or dust mask if cutting operation is dusty, and ear protectors (plugs or muffs) during extended periods of operation.

12. SECURE WORK

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

13. DON'T OVERREACH

Keep proper footing and balance at all times.

14. MAINTAIN TOOLS WITH CARE

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

15. DISCONNECT TOOLS

before servicing; when changing accessories such as blades, bits, cutters, etc.

16. AVOID ACCIDENTAL STARTING

Make sure switch is in "OFF" position before plugging in.

17. NEVER LEAVE TOOL RUNNING UNATTENDED

Turn power off. Don't leave tool until it comes to a complete stop.

Additional Safety Instructions for Ring Master

WARNING: FOR YOUR OWN SAFETY, DO NOT ATTEMPT TO OPERATE YOUR RING MASTER UNTIL IT IS COMPLETELY ASSEMBLED AND INSTALLED ACCORDING TO THE INSTRUCTIONS...AND UNTIL YOU HAVE READ AND UNDERSTAND THE OWNERS MANUAL.

1. If any part of your Ring Master is malfunctioning, has been damaged or broken...cease operating immediately until the particular part is properly repaired or replaced.

2. Never place your fingers in a position where they could contact the cutting tool.

3. **INSPECT YOUR POWER TOOL THOROUGHLY** – Set up your RING MASTER according to instructions. Make sure all parts are included.

4. **KEEP CUTTING TOOLS SHARP** – Be sure to keep cutting tools sharp. Dull tools can cause rough cuts, tool overheating, excessive chipping and ACCIDENTS.

5. **SAFETY SHIELD** – Though you plan to use safety glasses, do not remove the safety shield. TWO SHIELDS ARE BETTER THAN ONE, or none.

6. **FOLLOWING OPERATING INSTRUCTIONS** – All procedures should be followed, they have been developed to insure safe operation AND complete satisfaction with your RING MASTER.

7. **THINK SAFETY** – Carefully plan each operation before turning on tool. Plan each step through to the point when you turn motor OFF.

SAFETY INSTRUCTIONS

BE SURE TO FOLLOW ALL SAFETY INSTRUCTIONS BEFORE, DURING AND AFTER THE OPERATION OF YOUR RING MASTER!

Assembly

1. Locate index plate (Item A), 1-#10/32 screw 5/8" long, with washer (Items B) and attach index plate to right end of "rod base". PLACE SCREW THROUGH SLOT in index plate.

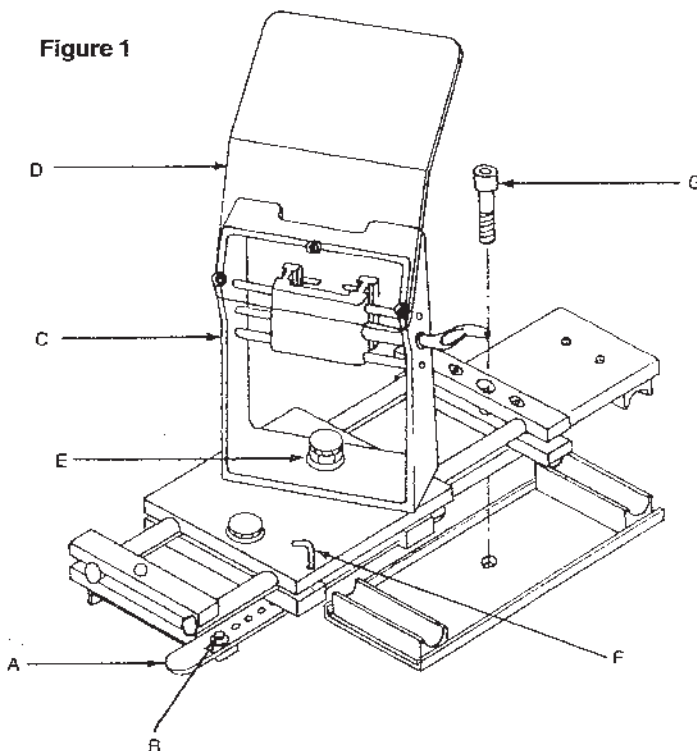
2. Remove complete "swing plate" assembly (Item C) from slide plate.

3. Find polycarbonate face shield (Item D) and attach to swing plate using 3 #8x32 screws and trim washers.

4. Replace swing plate on slide plate with crank handle on the RIGHT SIDE using the swing lock screw and 3/8" washer. (Items E)

5. Find 3/16" index pin (Item F), move slide plate away from rear of machine, loosen index plate lock screw, and insert index pin through hole in right rear of slide plate into any hole in index plate. Note, there is a small slot into which the index plate lock screw fits, slide the index plate fully to the rear and tighten the lock screw. The above procedure merely aligns the index plate hole pattern with the index pin. You will repeat this procedure each time you loosen or move the index plate.

Figure 1



Getting To Know Your Ring Master

1. Your Ring Master is a quality built machine designed to cut concentric rings of wood with either an angle edge or a straight edge.

2. Ring Master is also capable of finishing your projects, after they have been glued together, and is designed to **DUPLICATE** the process so you can make **exact** copies of your work.

3. Once you have mastered the operation of your Ring Master you will find that only YOUR imagination can limit what you can do with the machine.

4. The cutting blades used on **RING MASTER** are made from premium quality 3/16" square high-speed steel tool blanks. They have been specially ground to "relieve" portions of the blade to permit proper cutting without "burning" the blade. Each blade is actually a right and a left hand blade. After much use (with no abuse) a false edge will build up on the blade. This can be removed simply by honing the cutting edge with a sharpening stone. Extra blades can be purchased directly from PNI, see options for ordering instructions.

5. The **FIRST** ring cut on a workpiece will yield a ring with an octagonal outer shape and will not mate with other rings. However, an inventive craftsman can find a way to use this piece.

RING MASTER SET UP INSTRUCTIONS

CAUTION: Use only knot and crack free "tight grain" wood. **DO NOT** cut any other material.

PREPARE THE WOOD FOR MOUNTING ON THE RING MASTER

1. Cut wood in squares not over 11 1/2".
2. Find the center of each square and mark with a punch.
3. Using a compass draw the largest circle possible inside the wood square.
4. Drill a 1/2" hole in the center. A 1/2" hole will permit mounting on **RING MASTER**.
5. After drilling, saw corners off being careful not to saw inside of the circle. See **figure 2**.

ATTACHING RING MASTER MODEL 2 TO SHOPSMITH® MARK V

See Figure 1

Insert the 4" long 3/8" cap screw (Item G, Figure 1) down thru the base and into threaded insert of bottom clamp. Be sure clamp pads face each other. **THEN** turn the bottom clamp so it is **PARALLEL** with the way tubes, and insert clamp down thru the two way tubes. **THEN** rest the base on the way tubes, swing the bottom clamp 90 degrees so the clamp pads align with the way tubes. tighten the 3/8" cap screw with the 5/16 hex wrench. **DO NOT OVER TIGHTEN THIS SCREW.** If in later use the base seems loose, slightly tighten the 3/8" screw.

MOUNTING THE WOOD ON THE MARK V

Attach the arbor, provided, to the Mark V, and the wood to the arbor using the 2" washer and 1/2" nut and 3/4" wrench provided. Place the thick metal washer on the arbor first, then the wood, thin washer, and then the 1/2" nut. Slide the head stock of the Mark V toward the Ring Master until the wood is directly over the center of the Ring Master or until the head stock is as close as it will possibly go. Lock the head stock in place. If necessary, extend the Quill the minimum amount to center the wood over the Ring Master and lock the Quill in place.

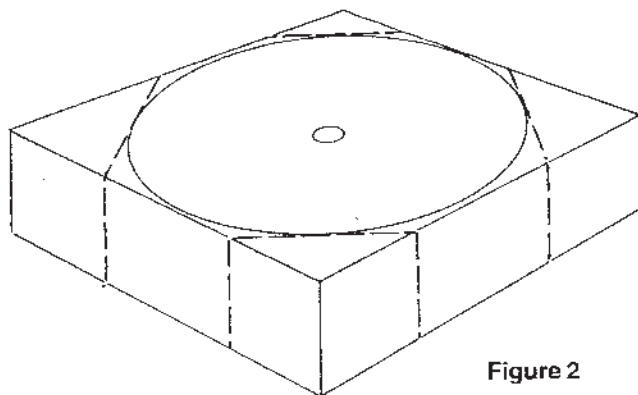


Figure 2

INSTALL AND ALIGN THE CUTTING TOOL

The cutting tool consists of two blades, a left and a right hand blade. Install blades in proper left and right hand positions and clamp in place using locking screws and small hex wrench.

Hold a steel straight edge against the blades and view from above. If the blades are not properly aligned, loosen locking screws and retighten as required to insure alignment.

Check alignment periodically during operation. **BE SURE** no sawdust gets into the blade slot as proper alignment will not be possible. SEE **figure 4** for proper blade alignment.

HOW TO DETERMINE THE CUTTING ANGLE

There are two variables involved in the proper cutting angle: thickness of the wood and thickness of the cut. The index plate controls the thickness of the cut to a $5/16"$ increment.

To calculate the cutting angle, draw a straight line vertically on a sheet of paper, place your wood on edge perpendicular to the line and draw a line on each side of the wood. SEE **figure 3**. Measure $5/16"$ along the top line and mark point B. Draw a line between points A and B and measure angle X with a protractor. This is your cutting angle for that thickness of wood.

If you're cutting $3/4"$ wood the angle is about $22\frac{1}{2}^\circ$, and **EVERY TIME YOU CUT $3/4"$ wood the angle will be the same.** The cutting angle for $1/2"$ wood is about 32° and $3/8"$ about $39\frac{1}{2}^\circ$.

Once the cutting angle has been calculated, align the degree setting on the swing plate with the scribe line on the slide plate. Lock the swing lock.

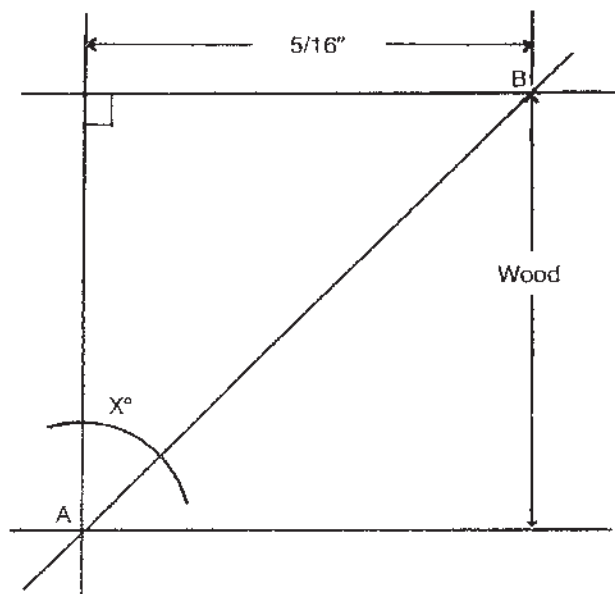


Figure 3

PRIOR TO ANY POWER ON, OF YOUR MARK V, be sure to refer to your Shopsmith® Mark V owners manual lathe turning chapter for complete information on the correct operation of the Mark V.

POSITIONING THE CUTTING BLADES

(See Parts List, Page 8)

Unlock slide lock, slide assembly forward and position cutting blades until both left and right blades will engage the wood. Locate the nearest index stop with the index pin. Unlock index plate lock screw and move index plate to the rear, and tighten the lock screw. Lock slide lock. To adjust swing plate reference #2, loosen front slide plate lock bolt, reference #54, loosen swing plate lock bolt, reference #55. Adjust swing plate to desired angle and retighten.

BY HAND, rotate wood one full revolution to insure that both left and right blades will engage wood. See **figure 4**. If you find that the left blade will not engage the wood, unlock slide lock, remove index pin and slide forward to engage the **NEXT** index hole. Replace index pin and lock slide lock.

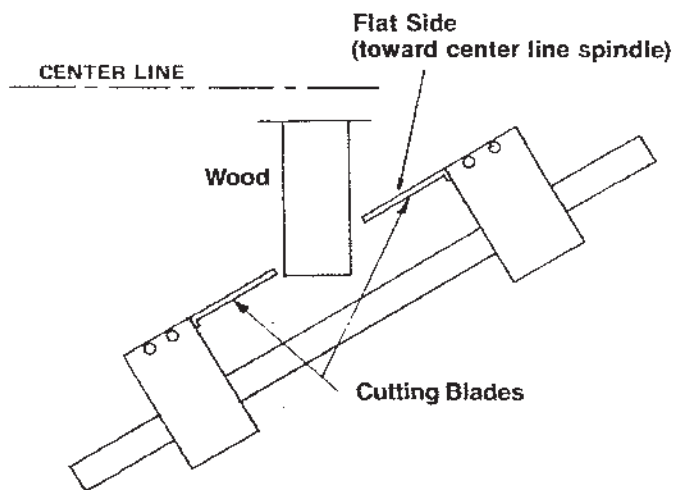


Figure 4

CUTTING SPEED

You may vary the R.P.M. depending on the diameter of the ring. Cut the largest 10-11" dia. rings at slow (700 R.P.M.) and raise the speed **NOT TO EXCEED "C" 950 R.P.M.** for the smallest rings.

RING MASTER OPERATING INSTRUCTIONS

Now that you have set up the RING MASTER to properly cut your rings, you are ready to begin. Remember to observe proper safety precautions when operating the RING MASTER.

Start motor, turn lead screw clockwise and advance left blade very slowly into the wood. (NOTE: When cutting, always advance blade slowly. Should you attempt to cut too rapidly, chattering, vibration, checking of your work piece, or misalignment of the cutting blade may result.) Since each revolution yields 1/13" of movement, advance slowly for about six turns in 3/4" wood or until halfway through wood. Then reverse the turn and start to cut from the right side. Move slowly until you notice a change in the sound of the cutting. As the ring starts to fall off to the right, STOP the motor and clear the ring from the machine. You will have to unlock the slide lock to remove the ring.

You'll note the outer shape of this first ring is octagonal and will not mate with any other ring, lay this ring aside for OTHER use.

To cut the next ring, adjust the blades to clear on both sides of the ring and slide forward for the next cut. Replace the index pin and lock the slide. NEVER ATTEMPT TO CUT A RING WITHOUT FIRST LOCKING THE SLIDE LOCK. Repeat the process explained above to cut your next ring.

After cutting two rings, stack the small ring on top of the larger as shown in figure 5, this will indicate if the cutting angle is correct. (NOTE: Having calculated and set the cutting angle on the degree scale is no guarantee that the rings

will be cut with a good alignment. A good match of the rings can now be accomplished with a minor adjustment of the cutting angle. If the top ring is larger at its base than the bottom ring, the angle must be decreased slightly. If the top ring is smaller at its base than the bottom ring, the angle must be increased slightly. If the rings do not match closely, adjust the angle and cut TWO more rings to check for acceptable alignment.

CHANGING THE CUTTING ANGLE TO 90 DEGREES

After you have cut a number of angle rings, you will want to cut some straight or 90 degree rings whose outside diameter will match the angle rings already cut. Leave the last of an angle cut piece on the spindle with the lock nut in place. Set the swing plate to 90 degrees and lock. Remove the index pin, slide the blade forward until the left blade **just touches** the left portion of the wood. See figure 6. when contact is made with the wood, lock the slide lock.

Unlock the index plate and slide forward until the index pin will engage the nearest hole. Lock the index plate screw.

Unlock slide lock and pull cutting assembly to the rear. Remove angle cut wood and replace with a new piece of wood. You are now ready to proceed with cutting straight rings.

Figure 5



Good Alignment

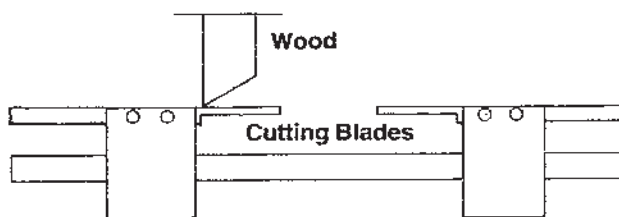


Increase Angle For Good Alignment



Decrease Angle For Good Alignment

Figure 6



CUTTING A STRAIGHT RING

The procedure to cut a straight ring is the same as cutting an angle ring.

Slide the cutting blades to the wood and insure that both blades will fully engage wood. Insert index pin in nearest hole and lock slide. **BY HAND**, rotate wood one full revolution to insure blades will engage wood on both sides for the full circle. Start motor. Cut first from the right and then the left. As the cutting sound changes and the ring starts to move, stop the motor and clear the ring from the machine. Cut a second ring in the same manner. (The first ring will have an octagonal outer shape and will be unusable for mating with an angle cut ring.)

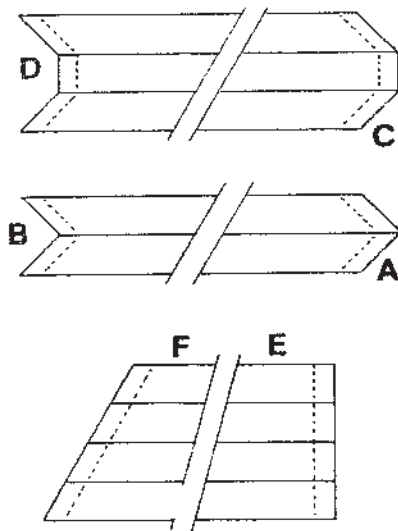
If the above instructions were followed correctly, the second straight ring will match the outside diameter of an angle ring cut earlier. If it does not match the outside diameter of an angle ring, repeat above instruction but be careful to **just touch** the blade to remnant of angle wood.

WORKING WITH THE RINGS

After you have cut a supply of angle and straight rings, the fun begins. **Figure 7** illustrates the basic ways in which you can put the rings together to form different shapes. What you make, how large you make it, what wood or combinations of wood you use, and the finish you apply is all up to you. Now that you have cut rings around wood, you can create any hollow cylindrical wooden project.

REMEMBER, RING MASTER can easily DUPLICATE any project you make.

Figure 7



RING SHAPES POSSIBLE

- A. Two identical rings for sharp outside curve or;
- B. Two identical rings for sharp inside curve.
- C. Two identical angle rings used with mating straight ring to yield a soft outside curve or;
- D. Two identical angle rings used with mating straight ring to yield a soft inside curve.
- E. A number of straight rings stacked.
- F. Mating angle rings, possibly all cut from the same piece of wood.

FINISHING YOUR PROJECT

Once your project has been glued, and dried overnight, you may return your project back to the MARK V for sanding, detailing, and finishing. Simply fit the 1/2" hole in the bottom of your project back on the arbor and tighten 1/2" nut.

Your STEADY REST and LATHE KNIVES can be used in the usual way for detailing. However, only sand paper will yield a nice finish.

Use your choice of finish, for a fine project.

Remember, using RING MASTER, you can easily duplicate any project.

GOOD LUCK.

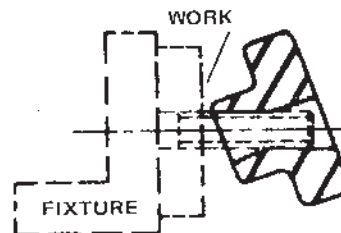
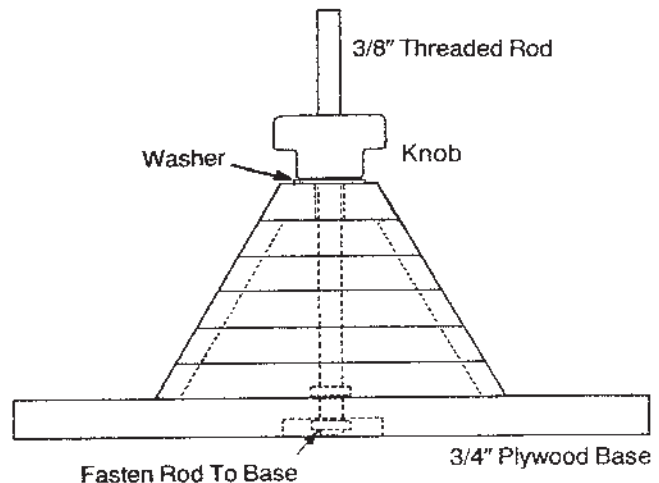
GLUING YOUR PROJECT

Once you have decided on the shape of your project it is time to glue it together. Use any furniture glue that is water soluble. Tight Bond Glue by Franklin is good. It is helpful to use a gluing jig like the one shown in **figure 8**. It is actually a 3/8" threaded rod and a wing nut. Most projects will be glued upside down to utilize the 1/2" spindle hole found in the center ring.

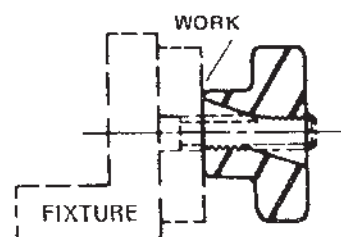
Start with the ring that is on the open end of the project, lay it on the gluing jig and apply glue to the top surface of the ring. Place the next ring on top and glue its top surface. Continue until the last piece with the 1/2" hole is in place. The last piece acts as part of the clamp; place a washer and the wing nut on the threaded rod and tighten until some glue is squeezed out from between the rings. Use a damp cloth to remove any excess glue. Then loosen the clamp, check to see that the rings are still aligned as you wish, and retighten the clamp firmly.

See options for information on ordering a gluing clamp.

Figure 8



Tilt Knob and it Will Slide In and Out



Straighten Knob and Threads Will Engage for Clamping

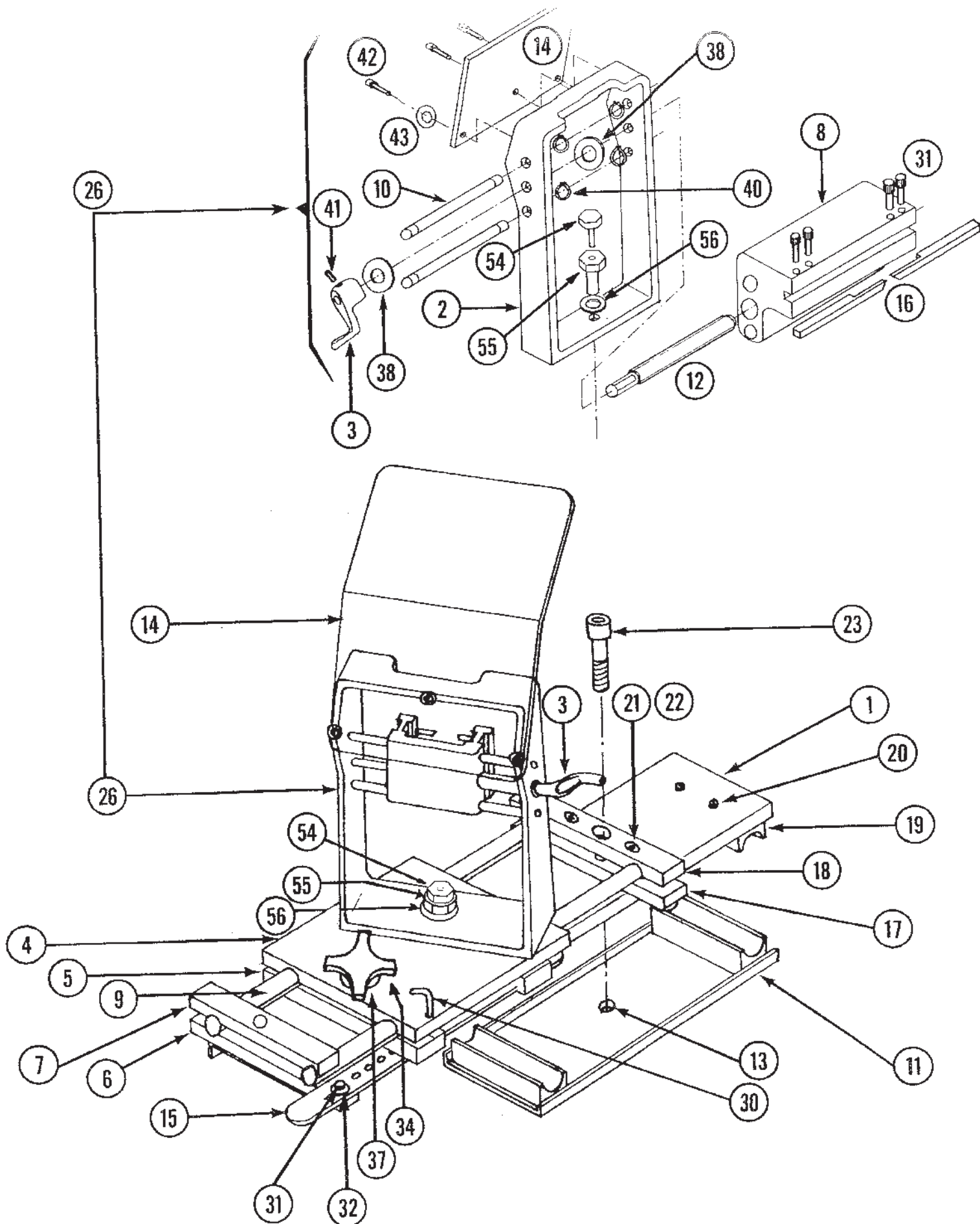


FIGURE 1

Key Number	Part Name	Part Number
1	Slide Rod Base	301-047
2	Swing Plate	301-307
3	Handle	301-103
4	Slide Plate	301-440
5	Slide Lock	301-202
6	Rod Base	301-203
7	Rod Clamp	301-204
8	Tool Holder	301-205
9	Guide Rod	301-069
10	Slide Rod	301-302
11	Bottom Clamp Base	301-072
12	Lead Screw	301-305
13	Perm Bushing	301-073
14	Safety Shield	301-403
15	Index Plate	301-404
16	Cutting Tool (replacement) Double End, Pair	70140
	Original Equipment, Single End, Pair	70139
17	Front Rod Base	301-206
18	Front Rod Clamp	301-207
19	Pad, Drilled only	301-068
19A	Pad, Tapped	301-092
20	Screw	301-438
20A	Screw, For tapped pad	301-482
21	Screw	301-784
22	Hex Nut	301-070
23	Screw	301-079
24	3/4 x 9/16 Wrench (not shown)	301-415
25	Degree Scale (not shown)	301-416
*26	Cutter Frame Assembly	301-046
27	5/16" Hex Wrench (not shown)	301-437
28	3/32" Hex Wrench (not shown)	802-876
29	Arbor Assembly (not shown)	301-050
30	Index Pin	301-421
31	Screw (#1032)	301-422
32	Index Plate Washer	301-423
33	5/32" Hex Wrench (not shown)	301-424
34	Knob, 4 Prong	301-442
37	Washer	301-427
38	Washer	301-430
40	Slide Rod Lock Ring	301-432
41	Handle Set Screw	301-434
42	Shield Mount Screw	**
43	Shield Mount Washer	**
44	1/8" Hex Wrench (not shown)	699-509
54	Front Slide Lock Screw	301-441
55	Swing Plate Lock	301-443
56	Washer	301-444

* Does not include 14, 42, 43, 54, 55 or 56.

** PN 301835 For 3 Each

OWNER'S MANUAL

RING MASTER

MODEL 2

ADJUSTMENTS

End play may occur in the lead screw. If it occurs correct the situation as follows:

LEAD SCREW: Loosen set screw on handle and press tool holder toward handle, as you press handle toward tool holder and tighten set screw.

MAINTENANCE

Keep your Ring Master clean, if compressed air is available blow each part **CLEAN** after use. Keeping the lead screw clean of saw dust is necessary.

TROUBLE SHOOTING

WARNING for your safety, turn switch "off" and always remove plug from power source before trouble shooting.

TROUBLE	PROBABLE CAUSE	REMEDY
Chattering	Cutting feed too fast Dull cutter Blade misalignment	Advance cutter slowly Sharpen or change cutter Realign cutters
Excessive chipping	Feed too fast	Slow down
Cutter darkens	Cutter dull	Sharpen or replace cutter
Excessive vibration	Base not clamped	Clamp or bolt base down
Feed Screw Binding	Dirt or dust build-up	Dis-assemble - clean - Use multipurpose grease

Recommended Accessories:

70140 - Tool Steel cutter blades - double ended
70141 - HSS cutter blades - double ended (recommended)
70100 - Glue/Clamping Fixture
70120 - Steady Rest
70138 - Magnetic Blade setting gauge

Also Recommended:

1/2" Tapered Plug Cutter
1/2" Precision Drill Bit
Precision Angle Guide
Sharpening kit
- Call for more details -

Toll Free
(888) 595-7126

The Wooden Post, Inc.
PO Box 99
Pittsburg, MO 65724-0099
Shipping address: Hc70 - #3369
Pittsburg, MO 65724

www.woodenpost.com