

Фрезерные станки WARRIOR W0403F. Руководство по эксплуатации.

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 **WARNING!**

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

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

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

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

 **WARNING!**

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

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

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

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SECTION 1: SAFETY

WARNING

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

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



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



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



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

NOTICE

This symbol is used to alert the user to useful information about proper operation of the machine.

WARNING

Safety Instructions for Machinery

- 1. READ THE ENTIRE MANUAL BEFORE STARTING MACHINERY.** Machinery presents serious injury hazards to untrained users.
- 2. ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses—they are NOT safety glasses.
- 3. ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Wood dust can cause severe respiratory illnesses.
- 4. ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing loss.
- 5. WEAR PROPER APPAREL. DO NOT** wear loose clothing, gloves, neckties, rings, or jewelry that can catch in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
- 6. NEVER OPERATE MACHINERY WHEN TIRED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.

WARNING

Safety Instructions for Machinery

7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
8. **KEEP CHILDREN AND VISITORS AWAY.** Keep all children and visitors a safe distance from the work area.
9. **MAKE WORKSHOP CHILDPROOF.** Use padlocks, master switches, and remove start switch keys.
10. **NEVER LEAVE WHEN MACHINE IS RUNNING.** Turn power **OFF** and allow all moving parts to come to a complete stop before leaving machine unattended.
11. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
12. **KEEP WORK AREA CLEAN AND WELL LIGHTED.** Clutter and dark shadows may cause accidents.
13. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Undersized cords create excessive heat. Always replace damaged extension cords.
14. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in OFF position before reconnecting.
15. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**
17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking for keys and adjusting wrenches before turning machinery **ON**.
18. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, and any other conditions that may impair machine operation. Repair or replace damaged parts before operation.
19. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. Improper accessories increase risk of injury.
20. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
21. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.
22. **DO NOT OVERREACH.** Maintain stability and balance at all times.
23. **MANY MACHINES CAN EJECT WORKPIECES TOWARD OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."
24. **ALWAYS LOCK MOBILE BASES (IF USED) BEFORE OPERATING MACHINERY.**
25. **CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Be aware of the type of dust you are exposed to and always wear a respirator designed to filter that type of dust.

WARNING

Additional Safety Instructions for Shapers

- 1. HAND POSITIONING.** Never place hands directly over or in front of the cutter. As one hand approaches the cutter, move it in an arc motion away from the cutter to the out-feed side. Always keep hand at least 6" away from the cutter while operating.
- 2. SAFETY DEVICES.** Use a fixture, jig, or hold-down device to decrease the chances of injury.
- 3. SAFETY GUARDS.** DO NOT remove the retractable guard on the fence. Use a guard or other type of protective device at all times. Use overhead guard when the fence is removed.
- 4. CUTTER HEIGHT.** Keep any unused portion of the cutter below the table surface.
- 5. STOCK LENGTH.** Do not use stock shorter than 6 inches without special fixtures or jigs. Where practical, shape longer stock and cut to size.
- 6. STOCK CONDITION.** The danger of kick-back is increased when the stock has knots, holes, or foreign objects in it. Warped stock should be run through a jointer before you run it through a shaper.
- 7. BLIND CUT WHEN POSSIBLE.** Blind cuts keep the cutters on the underside of the workpiece and provide a distance guard for the operator.
- 8. TEST ROTATION.** With the machine unplugged, rotate the spindle to test any new setup to ensure proper cutter clearance before starting the machine.
- 9. DEPTH OF CUT.** Never remove too much material in one pass. Several light passes are safer and produce a cleaner finish.
- 10. SHAPING CONTOURED WORK.** Always use a rub collar and a template. DO NOT start out at a corner. See the rub collar section further on in the manual.
- 11. FEEDING THE WORKPIECE.** Always feed the workpiece against the rotation of the cutter. Never force materials through the shaper. Let the cutters do the work. Excessive force is likely to result in poor cutting results and will cause dangerous kickback conditions.
- 12. SECURING NUTS AND KNOBS.** Never operate the shaper without the second locking nut in place over the spindle nut. Always ensure that the cutters, fence, and spindle elevator knob have been tightened properly before beginning any operation.

WARNING

Like all machines there is danger associated with this Spindle Moulder. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to lessen the possibility of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

SECTION 2: IDENTIFICATION

Controls & Features

To help you understand the setup and operation instructions, we recommend that you become familiar with the basic features of your new shaper.

Please match up the list below with the letters in **Figure 1** to identify the shaper controls and features.

- A. Guide
- B. Vertical Bar
- C. Adjustment Level
- D. Fence
- E. Table
- F. Handwheel
- G. Scale
- H. Reverse Switch
- I. On/Off Switch
- J. Motor Cover
- K. Stand

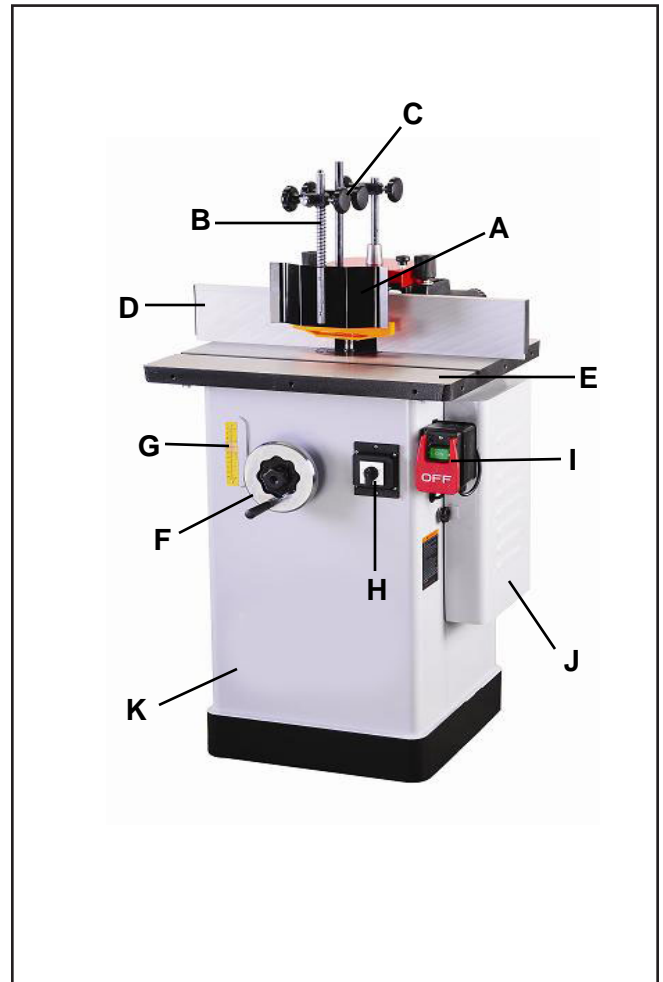
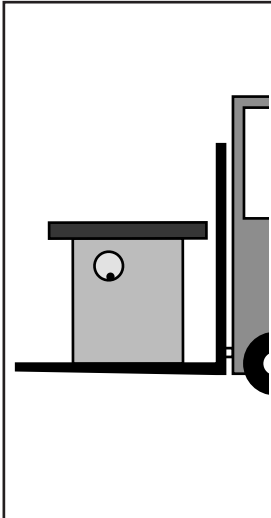


Figure 1. Controls and features.

SECTION 3: SET UP

Unpacking



⚠ WARNING

The spindle moulder is a heavy machine. DO NOT over-exert yourself while unpacking or moving your machine – consider using power equipment to move the machine. Serious personal injury may occur if safe moving methods are not followed.

Piece Inventory

NOTICE

A full parts list and breakdown can be found toward the end of this manual. For easier assembly, or to identify missing parts, please refer to the detailed illustrations at the end of the manual.

After all the parts have been removed from the carton, you should have:

	Qty
Plywood 1:	
• Body.....	1
Bag 1:	
• Instruction Manual.....	1
Cardboard 1:	
• Miter Gauge Assembly.....	1
• Handle.....	1
• Vertical Bar IV	1
• Vertical Bar I.....	1
• Hold Down	1
• Guide	1
• 3mm Hex Wrench	1
• 4mm Hex Wrench	1
• 5mm Hex Wrench	1
• 8mm Hex Wrench.....	1
• Collet Nut.....	1
• Special Wrench.....	1
• Ruber Feet.....	4

Hardware Recognition Chart

USE THIS CHART TO MATCH UP HARDWARE DURING THE ASSEMBLY PROCESS!

MEASURE BOLT DIAMETER BY PLACING INSIDE CIRCLE

Hex Wrench

Phillips Head Screw

Flat Head Screw

Tap Screw

Cap Screw

Carriage Bolt

Flange Bolt

Button Head Screw

External Retaining Ring

Internal Retaining Ring

E-Clip

Setscrew

Hex Bolt

Key

Flat Washer

Lock Washer

Hex Nut

Lock Nut

Wing Nut

WASHER DIAMETER
5/8"

WASHER DIAMETER
9/16"

WASHER DIAMETER
1/2"

WASHER DIAMETER
7/16"

WASHER DIAMETER
12mm

WASHER DIAMETER
7/16"

WASHER DIAMETER
3/8"

WASHER DIAMETER
10mm

WASHER DIAMETER
4mm

WASHER DIAMETER
5/16"

WASHER DIAMETER
8mm

WASHER DIAMETER
6mm

WASHER DIAMETER
1/4"

WASHER DIAMETER
#10

MEASURE BOLT DIAMETER BY PLACING INSIDE CIRCLE

#10

1/4"

5/16"

3/8"

7/16"

1/2"

4mm

6mm

8mm

10mm

12mm

16mm

MEASURE BOLT LENGTH BY THE INSIDE DIAMETER

LINES ARE 1MM APART

- 5mm
- 10mm
- 15mm
- 20mm
- 25mm
- 30mm
- 35mm
- 40mm
- 45mm
- 50mm
- 55mm
- 60mm
- 65mm
- 70mm
- 75mm

LINES ARE 1/16" APART

- 1/4"
- 3/8"
- 1/2"
- 5/8"
- 5/16"
- 7/16"
- 9/16"
- 3/4"
- 7/8"
- 1"
- 1 1/4"
- 1 1/2"
- 1 3/4"
- 2
- 2 1/4"
- 2 1/2"
- 2 3/4"
- 3

WASHERS ARE MEASURED BY THE INSIDE DIAMETER

WASHER DIAMETER
8mm


WASHER DIAMETER
6mm

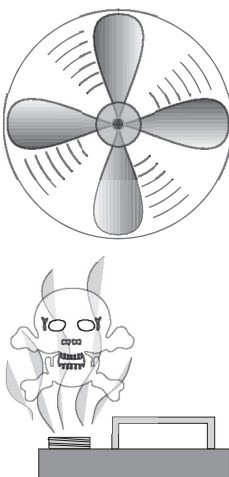
WASHER DIAMETER
1/4"

WASHER DIAMETER
#10

Clean Up

The unpainted surfaces are coated with a waxy oil to protect them from corrosion during shipment. Remove this protective coating with a solvent cleaner or citrus-based degreaser. To clean thoroughly, some parts may need to be removed. **For optimum performance from your machine, make sure you clean all moving parts or sliding contact surfaces that are coated.** Avoid chlorine-based solvents, such as acetone or brake parts cleaner, as they may damage painted surfaces should they come in contact. Always follow the manufacturer's instructions when using any type of cleaning product.

	<p>⚠ WARNING Gasoline and petroleum products have low flash points and could cause an explosion or fire if used to clean machinery. DO NOT use gasoline or petroleum products to clean the machinery.</p>
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	<p>⚠ CAUTION Many of the solvents commonly used to clean machinery can be toxic when inhaled or ingested. Lack of ventilation while using these solvents could cause serious personal health risks or fire. Take precautions from this hazard by only using cleaning solvents in a well ventilated area.</p>
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Site Considerations

FLOOR LOAD

This spindle moulder represents a moderately large weight load in a small footprint. Most commercial or home shop floors will be adequate for the 345 lb. weight of the Model G1026. Some floors may require additional support. Contact an architect or structural engineer if you have any question about the ability of your floor to handle the weight.

WORKING CLEARANCES

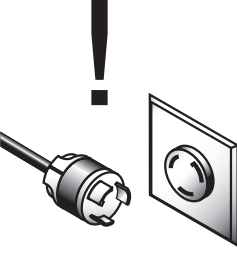
Working clearances can be thought of as the distances between machines and obstacles that allow safe operation of every machine without limitation. Consider existing and anticipated machine needs, size of material to be processed through each machine, and space for auxiliary stands or work tables. Also consider the relative position of each machine for efficient material handling. Be sure to allow yourself sufficient room to safely run your machines in any foreseeable operation.


LIGHTING AND OUTLETS

Lighting should be bright enough to eliminate shadow and prevent eye strain. Electrical circuits should be dedicated or large enough to handle combined motor amp loads. Outlets should be located near each machine so power or extension cords are not obstructing high-traffic areas. Be sure to observe local electrical codes for proper installation of new lighting, outlets or circuits.

	<p>⚠ CAUTION Make your shop "child safe." Ensure that your workplace is inaccessible to children by closing and locking all entrances when you are away. Never allow visitors in your shop when assembling, adjusting or operating equipment.</p>
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Beginning Assembly

	<p>⚠ WARNING Disconnect power from the machine when performing any maintenance, assembly or adjustments. Failure to do this may result in serious personal injury.</p>
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	<p>⚠ CAUTION Some metal parts may have sharp edges on them after they are formed. Please examine the edges of all metal parts before handling them. Failure to do so could result in injury.</p>
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	<p>⚠ WARNING Wear safety glasses during the entire assembly process. Failure to comply may result in serious personal injury.</p>
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Most of your spindle moulder has been assembled at the factory, but some parts must be assembled or installed after delivery. We have organized the assembly process into steps. Please follow along in the order presented here.

Handwheel

To install the handwheel:

1. Insert the handwheel on the handwheel shaft shown in **Figure 2**, notes the key on shaft matching to handwheel concave.

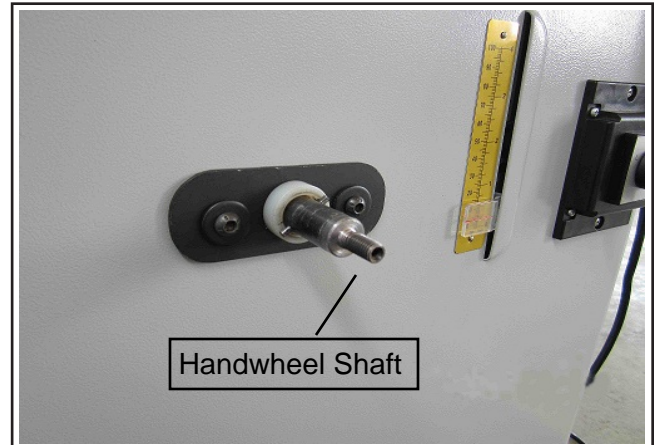


Figure 2. Location of handwheel shaft.

2. Tighten the handwheel knob against the screw part of the handwheel shaft.
3. To turn the handwheel loose the handwheel knob, turn the handwheel to adjust spindle height to desired position. Then, tighten the handwheel knob, to keep the exact spindle height as set, always tighten the handwheel knob.

Spindle

The Spindle Moulder comes with interchangeable spindles. The spindles must be inserted correctly and remain securely locked in the machine in order to produce quality work. When installing and changing spindles, make sure the spindle seats snugly and that there is enough drawbar threaded into the bottom of the spindle to safely secure it in place.

⚠️ WARNING

Incorrect assembly can allow the spindle and cutter to fly off the machine, which could cause injury or death. Make certain the spindle is properly assembled before operating the Shaper. If you are uncertain of any aspect of this assembly, please review these instructions again or contact our Customer Service.

To install a spindle:

1. KEEP SHAPER DISCONNECTED FROM POWER!
2. Remove the hex nuts from the spindle and the drawbar nut from the drawbar.
3. Thread the drawbar approximately 10-15 turns into the bottom of the spindle. The drawbar has two threaded ends. One of them remains exposed. **See Figure 3.**

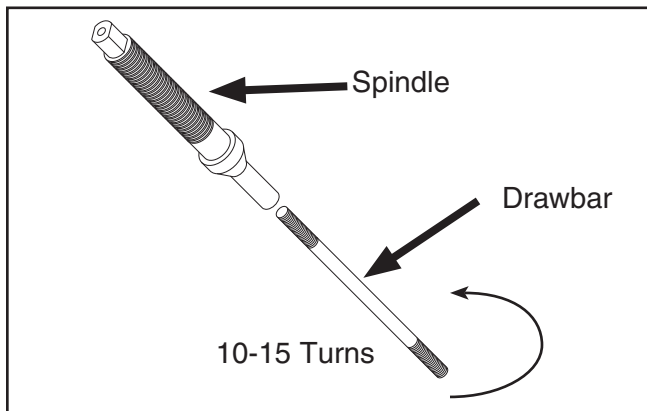


Figure 3. Spindle and drawbar.

4. Place the spindle/drawbar into the spindle cartridge at the top of the table. Line up the keyway on the spindle with the locating pin at the top of the spindle cartridge. You will feel the spindle seat itself. **See Figure 4.**

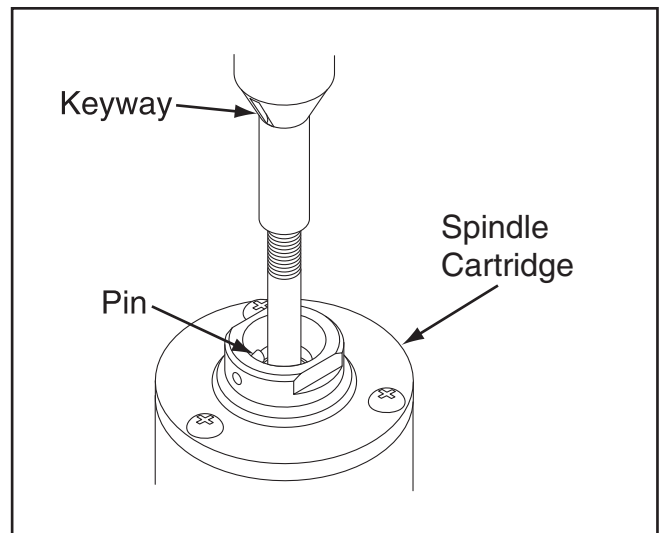


Figure 4. Inserting the spindle into place.

⚠️ CAUTION

Make sure the spindle keyway and pin are aligned and properly seated before tightening the drawbar nut. Improper assembly can create an unsafe condition and possible injury to the operator.

5. Thread the drawbar nut, tapered side up, onto the bottom of the drawbar until it stops below the spindle housing cartridge. **See Figure 5.**

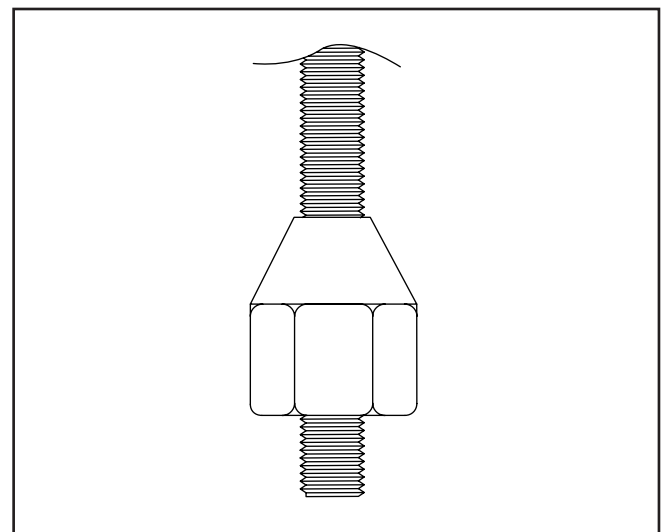


Figure 5. Nut threaded onto drawbar.

- Place the spindle wrench on top of the spindle, so it fits over the head of the spindle. Push the spindle lock pin to hold spindle in place. **See Figure 6.**

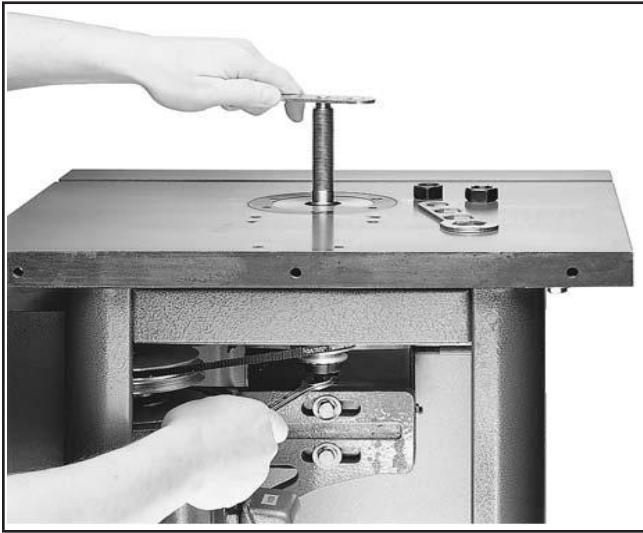


Figure 6. Tighten/Loose spindle

- Turn the spindle.
DO NOT use excessive force.

Table Inserts

The Spindle Moulder is supplied with three table inserts which give you four possible opening diameters in the shaper table surface. Use the smallest opening that a particular cutter will allow. This offers more support for the workpiece and reduces the amount of chips that can fall into the machine.

The correct spindle opening will also allow any unused portion of the cutter to remain below the table surface—increasing operator protection. There are two aluminum table inserts and one cast iron table insert. The cast iron table insert must be flush with the top of the table.

To adjust the insert:

- KEEP SHAPER DISCONNECTED FROM POWER!**
- Remove the three Phillips head screws that hold the cast iron insert in place.

- Using a straightedge and a flathead screwdriver, turn the barrel screws clockwise or counterclockwise to level the cast iron insert with the table as shown in **Figure 7.**

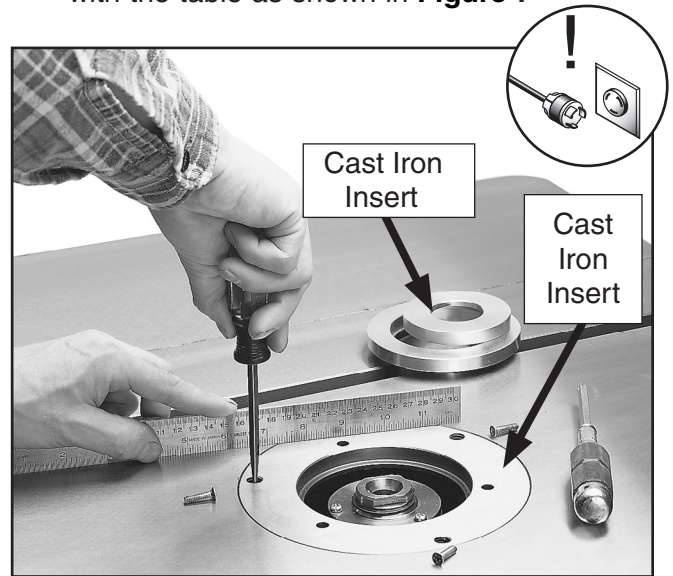


Figure 7. Leveling table insert.

- Replace and tighten the Phillips head screws and inspect with a straightedge.

Extension Wing

The cast iron wing extends your work surface area to provide support for larger workpieces.

To install the extension wing:

- Make sure the contact surfaces are free of dirt or grit.
- Insert the hex bolts with lock washers through the wing and thread them into the holes at the front of the shaper. Leave the bolts loose, for now.
- Raise the wing on one side and make sure it is flush with the table edge, then tighten the first bolt. **See Figure 8.**

Note: *By raising or lowering the far end of the wing, you can locate the center of the wing flush with the shaper table.*

- Secure the center bolt.



Figure 8. Installing extension wing.

- Make sure the wing edge is flush at the first two bolts and that the bolts are tight.

Note: *The end of the wing at the last bolt may not be flush with the surface of the table. Don't be alarmed.*

- Adjust the wing up or down at the last bolt (**Figure 9**). If necessary, use a clamp and some wood blocks to make the two surfaces flush. Tighten the final bolt when the two surfaces are flush.



Figure 9. Adjusting to ensure flatness.

- Inspect your results with a good-quality straightedge.

Fence Assembly

To install the fence assembly:

- KEEP SHAPER DISCONNECTED FROM POWER!**
- Secure the fence pieces with lock knob.
- Insert the hexason bar to socket, tighten two set screws on socket to secure the hexagon bar. As shown in **Figure 10**



Figure 10. Assembly Vertical Bar IV

- Insert the Hold Down and Guide. As shown in **Figure 11**.

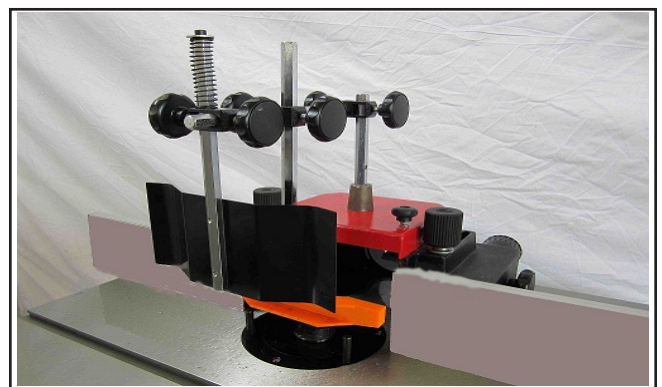
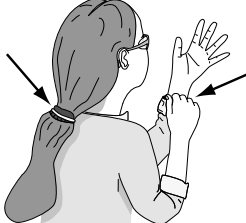
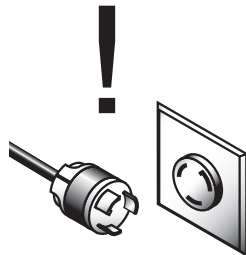


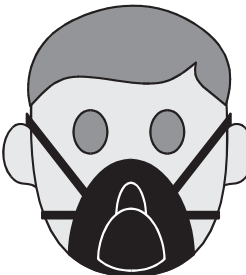
Figure 11. Fence assembly

SECTION 4: OPERATIONS

	<p>! WARNING Wear safety glasses during the entire operation process. Failure to comply may result in serious personal injury.</p>
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	<p>! WARNING Keep loose clothing out of the way of machinery and keep hair pulled back during operations.</p>
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	<p>! WARNING Disconnect power to the machine when performing any maintenance or assembly. Failure to do this may result in serious personal injury.</p>
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	<p>! CAUTION Always wear a dust mask when operating this shaper. Using this machine produces sawdust that may cause short and long-term respiratory illness.</p>
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<p style="text-align: center;">NOTICE</p> <p>The following section was designed to give instructions on the basic operations of this shaper. However, it is in no way comprehensive of every spindle moulder application. WE STRONGLY RECOMMEND that you read books, trade magazines, or get formal training to maximize the potential of your spindle moulder. There are many different jigs not mentioned in this manual that can be built to increase safety and accuracy for specialized cuts.</p>
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Test Run

To test run the machine:

1. Connect the machine to the power source.
 2. Make sure you have read the safety instructions at the beginning of the manual and that the machine is setup properly.
 3. Make sure all tools and objects used during set up are cleared away from the machine.
 4. Press the START button to turn the machine **ON**.
 5. Check to make sure the spindle is rotating in a counterclockwise direction when the switch is in the FORWARD position.
 6. Listen to and watch for abnormal noises or actions. The machine should run smoothly with little or no vibration or rubbing noises.
- Immediately turn the shaper **OFF** if you suspect any problems and fix any problems before starting the shaper again.

Rotation

Your shaper is equipped with a FORWARD/REVERSE switch. **See Figure 12.** In many instances, it will be necessary to flip the cutter over and reverse cutter rotation. Whenever possible, mount the cutter so the board is milled on the bottom side (the side away from the operator). This does a better job and it is safer for the operator.

⚠ CAUTION

Always check the direction of cutter rotation before any shaping operation. Cutters rotating backwards will cause unsafe conditions.

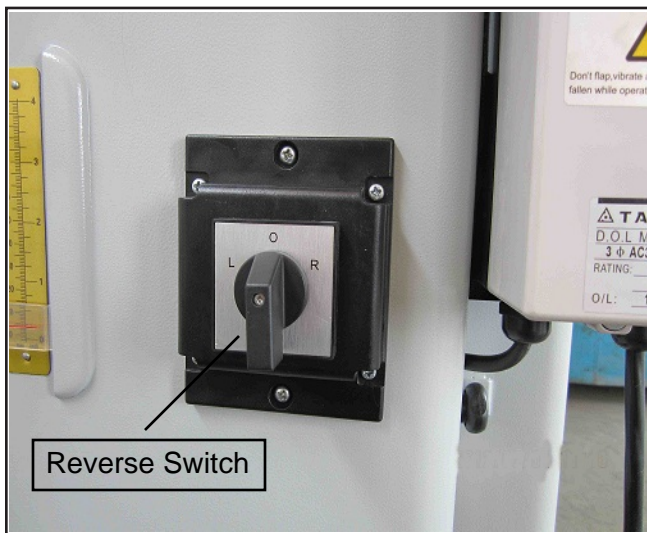


Figure 12. Forward/reverse switch.

Speed Changes

This spindle moulder is equipped with a special high speed V-belt. It is designed to withstand the vibration and sudden shock loads associated with the operation of a shaper.

To change spindle speeds:

1. DISCONNECT SHAPER FROM POWER SOURCE!

2. Loosen the two motor mount bolts and slide the motor toward the spindle assembly by turning the knob. **DO NOT** take the bolts out. **See Figure 13.**

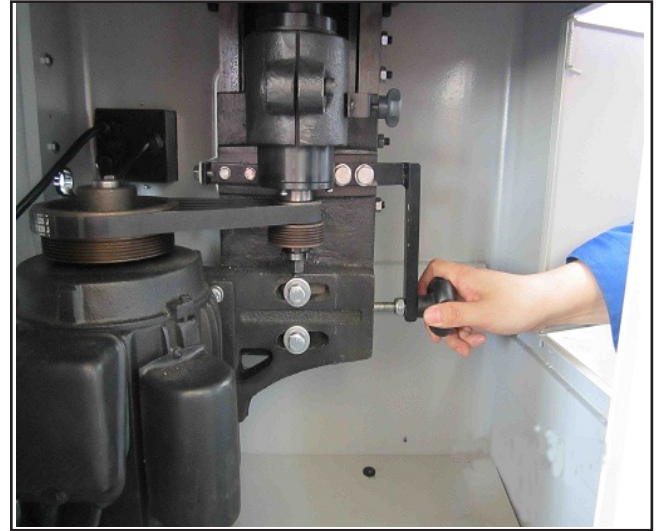


Figure 13. Adjusting the V-belt tension

3. Move the V-belt to a sheave on the motor and spindle pulleys to select the desired speed (**See Figure 14.**)

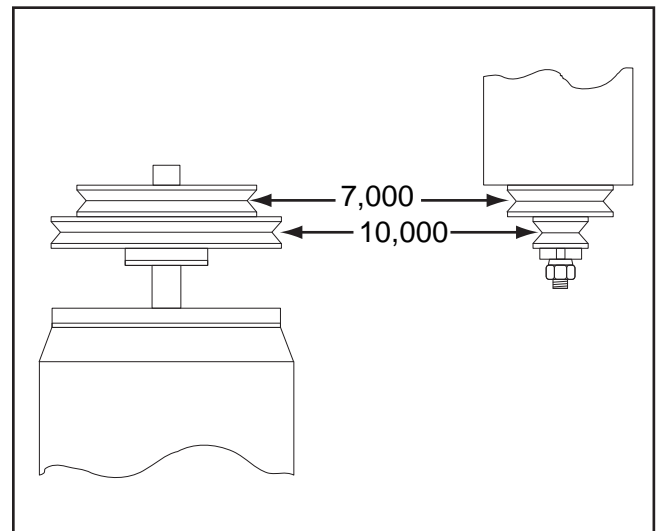


Figure 14. Speed change belt positions.

4. Slide the motor back into position and tighten the belt. When the belt is properly tensioned, there should be approximately 6mm of deflection in the center of the belt when you press it with your thumb.
5. Tighten the motor mount bolts.
6. Spin the pulley to ensure proper tracking.

SECTION 5: MAINTENANCE



!WARNING

Wear safety glasses during the entire maintenance process. Failure to comply may result in serious personal injury.

General

Regular periodic maintenance on your Spindle Moulder will ensure its optimum performance. Make a habit of inspecting your shaper each time you use it. Check for the following conditions and repair or replace when necessary.

1. Loose mounting bolts.
2. Worn switch.
3. Worn or damaged cords and plugs.
4. Damaged V-belt.
5. Any other condition that could hamper the safe operation of this machine.

Lubrication

The only parts on this machine that require periodic lubrication are the ways where the cartridge slide rides on the elevation housing and where the worm gear and bushing are located. Use a light grease or anti-seizing compound on the ways and worm gear and give the shaft mount a shot of light oil. The frequency of lubrication depends on the amount you use the shaper. As a habit, inspect the machine at least once a month.

Table

The table and other non-painted surfaces on the Spindle Moulder should be protected against rust and pitting. Wiping the table clean after every use ensures that wood dust isn't allowed to trap moisture against bare metal surfaces.

V-Belt

Avoid getting grease or oil on the V-belt or pulleys.

Check the V-belt, as part of your monthly inspection, for proper tension and belt condition. Cracking and glazing could result in belt failure. Replace the belt if such conditions appear.

Spindle Bearings

The spindle bearing housing equipped with the Spindle Moulder features factory-sealed bearings. A sealed bearing requires no lubrication during its lifetime.

Should a bearing fail, your shaper will probably develop a noticeable rumble that will increase when the machine is put under load. If allowed to get worse, overheating of the journal containing the bad bearing could occur. If the bad bearing is not replaced, it will eventually seize—doing damage to other parts of the machine.

You must remove the complete bearing housing assembly to replace the bearings.

To remove the bearing housing assembly:

1. DISCONNECT SHAPER FROM POWER SOURCE!

2. Remove the V-belt.
3. Loosen the locking bolt on the spindle slide shown in **Figure 15**.

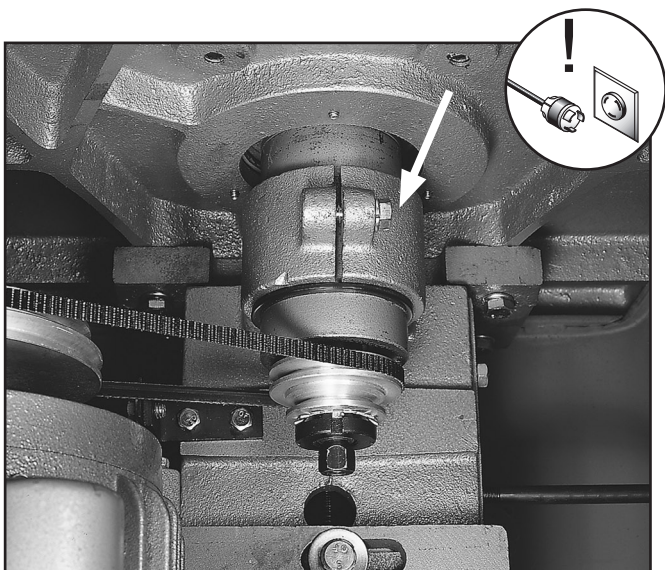


Figure 15. Locking bolt on spindle slide.

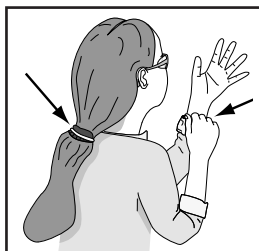
4. The bearing housing will drop down. If you need to spread the casting more, use a screwdriver.

! CAUTION

Use care when spreading the casting—it will break if too much pressure is applied. When the casting is spread, the housing can fall down. Watch your fingers to avoid being pinched. Place a pad underneath to protect the housing from being damaged if it falls.

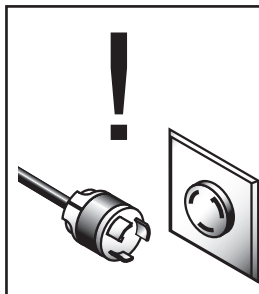
5. Remove the spindle and replace the bearings inside the bearing housing. If you need pointers regarding bearing replacement, call our service department.
6. To slide the housing back in, reverse the procedure. Make sure the locking bolt is tightened securely.

SECTION 6: SERVICE ADJUSTMENTS



! WARNING

Keep clothing rolled up and out of the way of machinery and keep hair pulled back.



! WARNING

Disconnect power to the machine when performing any maintenance or assembly. Failure to do this may result in serious personal injury.



! WARNING

Wear safety glasses during the entire adjustment process. Failure to comply may result in serious personal injury.

Pulley Alignment

Improper pulley alignment sharply reduces the effectiveness of power transmission and belt life expectancy.

To align the pulleys:

1. DISCONNECT SHAPER FROM POWER SOURCE!
2. Open the motor cover on the side of the shaper cabinet.
3. Check the alignment with a straightedge. If the pulleys are in alignment, the straightedge should touch two sides of each pulley evenly. See **Figure 16**.

- If pulleys are parallel with each other, but not in line, remove the belt from the spindle assembly and slide the spindle cartridge assembly either up or down.

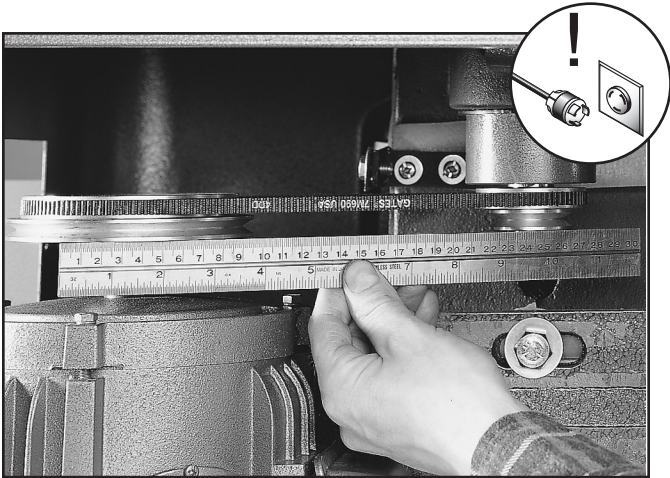


Figure 16. Inspecting pulley alignment.

Note: The side cover can be removed from the shaper to improve access to the motor.

- Inspect for tilt on the motor pulley. If the pulley is tilted, loosen the four bolts holding the motor onto the motor plate. Wiggle the motor into position. (Do not loosen the bolts that hold the motor onto the motor mount; this plate is preset with blocks that hold it in position and it cannot be adjusted.)
- Inspect your results. If they are satisfactory, tighten all fasteners. Remember to tighten the bolt in the split housing that holds the spindle cartridge in position.

NOTICE

DO NOT over-tighten. Cast iron threads are more easily stripped than steel.

- You can also align the motor pulley by raising or lowering it along the motor shaft. Loosen the two setscrews and tap into the desired position with a dead blow hammer.

V-Belt Tension

You should be able to deflect the belt $\frac{1}{4}$ " with

moderate finger pressure. This may seem tight compared to most other V-Belts, but since the belt is small and runs fast, this much tension is necessary. The V-Belt will slip if too loose and squeal or cause vibration if too tight. Adjust the tension if necessary.

To adjust V-Belt tension:

- DISCONNECT SHAPER FROM POWER SOURCE!**
- Make sure the pulleys are properly aligned.
- Loosen the two motor mount plate bolts and slide the motor left or right to modify the belt tension. Keep the pulleys aligned.
- Tighten the motor mount plate bolts, test the tension, and check pulleys.
- Repeat **Steps 3-4** until tension is correct, and pulleys are aligned.

Truing The Fence

To ensure that the fence is parallel with itself and square with the table:

- Ensure that the bolts through the wood facing on each side are tight and adequately countersunk.
- To align the wood facing, adjust one or both fence halves so they are in close alignment. Micro-adjust and check the alignment with a straightedge.
- If the wood fences are not coplanar with each other, resurface as one unit. You can perform this operation on a jointer.

Note: Make sure the screws are countersunk deep enough so the workpiece will not come in contact with the heads of the screws.

Or use electrical washers between the fence and the fence bracket to shim the fence into the correct position.

Gib Adjustments

The spindle gibs ensure there is no play in the spindle that could cause it to wobble.

To adjust the spindle gibs:

1. DISCONNECT SHAPER FROM POWER SOURCE!
2. Elevate the spindle to its maximum 3" height.
3. If there is movement, adjust the gib against the elevation housing, using the adjustment screws at the top and bottom of the elevation housing. **Figure 17** shows the two upper gib adjustment screws and locknuts. One of the two lower adjustment screws is also visible in the photo.

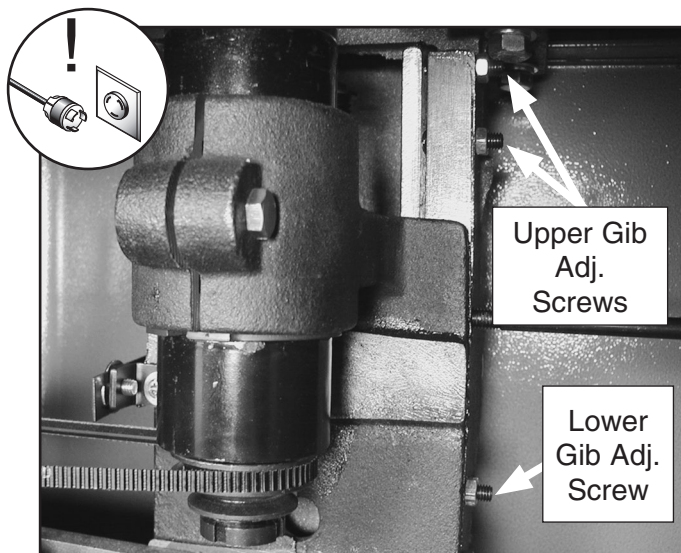


Figure 17. Gib adjustment screws.

4. Loosen the four 12mm locknuts and remove the slack between the elevation housing and spindle cartridge slide by tightening the four $\frac{5}{16}$ " setscrews with a 4mm hex wrench. Alternate between the upper and lower adjustments to ensure consistent tightness. Failure to do so may cause disappointing results. DO NOT over-tighten the gib. Over-tightening will restrict spindle movement.
5. Loosen the spindle assembly lock knob and raise or lower the spindle to check for free movement.

Since there is an unbalanced weight distribution on the cartridge slide, you may have to perform a number of adjustments before you find the ideal location. Don't get discouraged; it may take a few tries to get it right.

MACHINE DATA SHEET

2 HP Spindle Moulder

Design Type Floor Model

Overall Dimensions:

Table L610xW534mm
Fence Boards.....300mmx120mmx20mm
Weight (Shipping).....150Kgs
Weight (in place) 130Kgs
Box Size L670xW575xH1100mm

Capacities:

Spindle Travel 75mm
Max. Cutter Diameter.....30MM
Spindle Speeds..... 7,000 & 10,000 R.P.M.(60HZ)
5,800 & 8,300 R.P.M.(50HZ)

Construction:

Table Cast Iron
Fence Assembly..... Cast Iron
Body Assembly Cast Iron
Stand..... Sheet Metal

Motor:

Type TEFC Capactor-start Induction
Horsepower..... 2 HP
R.P.M. 2,850 R.P.M.(50 HZ)
3,450 R.P.M.(60 HZ)
Switch..... On/Off Switch & Reverse Switch

Features:

Powerful 2HP motors delivers smooth, consistent power on even heavy duty jobs.
Staring pin for irregular shaping.
Two-speed step pulley drive lets you select the best speed and toeque for different cutter diameters.
Independent left and right fence for easy and accurate fence adjustment.
Spindle lock allows quick, easy cutter set-up and removal.

Specifications, while deemed accurate, are not guaranteed.

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www.harvey.nt-rt.ru

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