

Shaper

Model 4705

Owner's Manual

For Models Manufactured Since 08/2010



Oliver Machinery
1-800-559-5065
921 Thomas Ave SW
Renton, WA 98057

info@olivermachinery.net
WWW.OLIVERMACHINERY.NET

Stock Number: 4705.001, 4705.002
Manual Version: 2.0.3



READ AND UNDERSTAND ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO ASSEMBLE OR OPERATE THE MACHINE.

FOLLOW THE INSTRUCTIONS AND THINK SAFETY!

THE OWNER OF THIS MACHINE IS SOLELY RESPONSIBLE FOR THE SAFETY OF ANYONE USING THIS MACHINE. SUCH RESPONSIBILITY INCLUDES BUT NOT LIMITED TO:

- **PROPER ASSEMBLY, OPERATION, INSPECTION, MAINTENANCE, AND RELOCATION OF THE MACHINE.**
- **PROPER TRAINING FOR THE OPERATORS AND ENSURES THIS MANUAL IS AVAILABLE AT ALL TIMES.**
- **USAGE AUTHORIZATION.**
- **USAGE OF SAFETY AND PROTECTION DEVICE.**

OLIVER MACHINERY DISCLAIMS ANY LIABILITY FOR MACHINES THAT HAVE BEEN ALTERED OR ABUSED. OLIVER MACHINERY RESERVES THE RIGHT TO EFFECT AT ANY TIME, WITHOUT PRIOR NOTICE, THOSE ALTERATIONS TO PARTS, FITTINGS, AND ACCESSORY EQUIPMENT WHICH THEY MAY DEEM NECESSARY FOR ANY REASON WHATSOEVER.

**** SAVE THIS MANUAL FOR FUTURE REFERENCES. ****

PROP 65 NOTICE

WARNING: Drilling, sawing, sanding, or machining wood products can expose you to wood dust, and/or other chemicals that are 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.

Avoid inhaling wood dust and other harmful chemicals. Use a dust mask and/or other safety devices for personal protection.

For more information go to <http://www.P65Warnings.ca.gov/wood>

Table of Contents

Introduction	6	Unboxing	20
Features	7	Inventory	21
Specifications	9	Cleaning	22
Quick View	9	Assembly	22
Product Dimensions	9	Dust Collection	22
Shipment Info	9	Wiring and Grounding	23
Electricals	9	Wiring Instructions for Stock Number 4705.001 (220V, 1 Phase)	23
Motor	10	Wiring Instructions for Stock Number 4705.002 (220/440V, 3 Phase).....	23
Spindle and Cutter	10	Leveling Machine	24
Table	10	Operation and Controls	25
Fence	11	Control Panel	25
Miter Gauge	11	Rotation Direction Switch	25
Safety	11	ON / OFF Switches.....	25
Others	11	Digital Readout.....	26
Identification	12	Spindle Height Adjustment	26
Safety	14	Spindle Assembly	30
General Safety Guidelines	14	Locking / Unlocking Spindle Arbor	30
Safety Guidelines Specific to Shaper	15	Installing / Removing Spindles	31
Electricals	17	Installing/Removing Cutters.....	33
Minimum Circuit Size Required for Model 4705 Shaper	17	Installing/Removing Router Collets (Sold Separately)	35
Grounding	17	Adjusting Spindle Speed and Belt Tension	36
Electrical Wiring	17	Shaping Wood	38
440V Conversion for Three-Phase Model (Stock# 4705.002)	18	Shaping Long and Straight Pieces.....	38
Setup	19	Cross Grain Shaping	38
Shop Preparation	19	Shaping Tall Workpieces	39
Space Requirement	19	Shaping with Collars	39
Load Limits	19	Accessories	40
Electricals	19	Collets	40
Lighting.....	19	Spindle Assemblies	40
Safety Labels	19	440V Conversion Kit	40
Dust Collection	19	Touchup Paint	40
Receiving	20	Power Feeders	41
Moving Machine into the Shop	20	Maintenance	42
		Replace Drive Belt	42
		Align Fences	43
		Spindle Elevator Adjustment	44

Troubleshooting45

Wiring Diagram47

 For Stock Number 4705.001 (220V, 1Ph)47

 For Stock Number 4705.002 (220/440V, 3Ph)
 48

Parts List49

 Complete Exploded View49

 Cabinet and Base50

 Fence Assembly51

 Table Assembly52

 Elevator Assembly53

 Motor Assembly54

 Spindles55

 Miter Gauge56

Maintenance Record 66

Notes 67

Warranty and Service 68

Introduction

Thank you for choosing Oliver! This manual contains important information on how to safely set up, operate, and maintain this machine. Please take the time to read through this manual, and make sure you understand all instructions.

While this manual may provide tips on optimizing the result of your workpiece, the manual is not intended as a substitute for formal woodworking training. If you need to know how to safely complete a woodworking task, please consult knowledgeable and qualified sources before proceeding further.

We made every effort to keep this manual up-to-date. Instructions, specifications, drawings, and photographs in this manual should match the machine delivered. If you find any differences or anything that seems confusing in this manual, please check our website for an updated version:

WWW.OLIVERMACHINERY.NET/MANUALS

Alternatively, you can contact our technical support for help:

1-800-559-5065

Before calling, please note down the manufacture date and the serial number of the machine. You can find the information on a label located on the back of the machine cabinet. This information is needed to provide proper technical support, and to determine if an updated manual is available for your machine.

Please let us know how well this manual serves you. If you have any suggestions, please call the number above or email us at:

info@olivermachinery.net

We love to hear from our customers and make improvements.



Features



Top mounted control panel includes a digital readout for spindle height adjustments.

Massive cast iron precision ground table, with two locations pre-drilled for power feeder installation.

Lockable handwheel with foldable handle for quick spindle height adjustments.

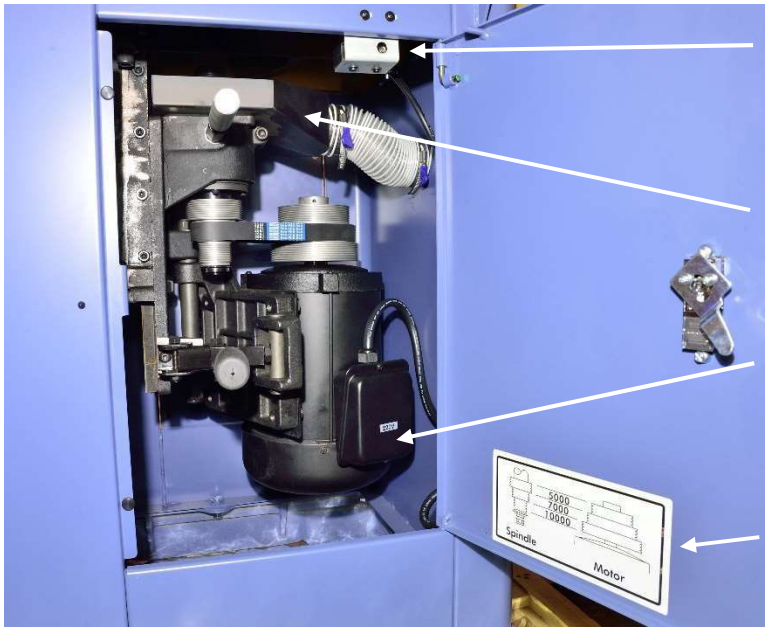
Heavy cast iron base provides a steady platform.

Reversible spindle gives more options for each set-up.



Magnetic switch with emergency shutoff and overloading protection for safer operation.

Digital readout for accurate, repeatable spindle height adjustments.



Cabinet door limit switch prevents accidental startups when the cabinet door is open.

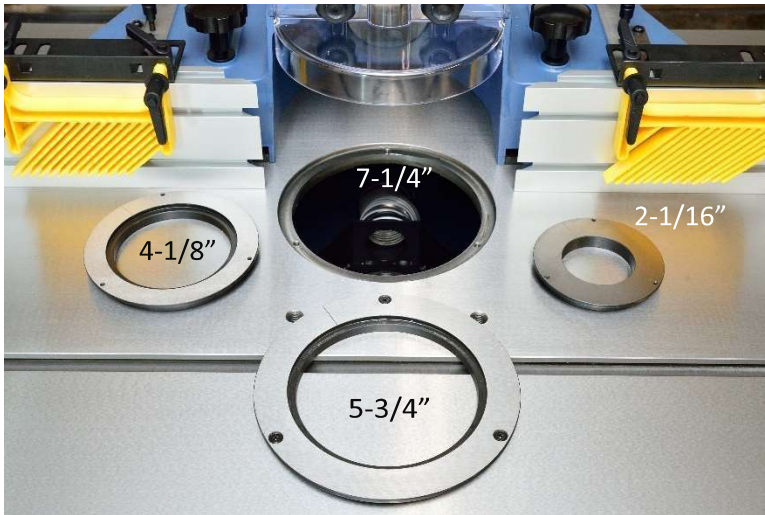
Internal dust chute to reduce dust accumulation inside the cabinet.

Powerful TEFC motor is available in 220V single phase (5HP) or 220/440V three-phase (7.5HP).

Three spindle speeds allow more choices to produce a better finish.



Infeed and outfeed fences are individually equipped with a micro-adjustment mechanism with 1/128" accuracy.



Three table insert rings with alignment indicator, providing safety clearance for various cutter diameters.



The table is factory pre-drilled and threaded for Oliver power feeder installation. (Power feeder sold separately)

Specifications

Quick View

<i>Model</i>	4705 Shaper	
<i>Stock Number</i>	4705.001	4705.002
<i>Motor</i>	TEFC 5HP, 220V,1Ph	TEFC 7.5HP, 220/440V, 3Ph
<i>Max Spindle Under Nut Capacity</i>	5-1/4"	
<i>Max Cutter Diameter Allowed</i>	7" Below Table 8" Above Table	
<i>Spindle Speed</i>	5,000, 7,000, 10,000 RPM, Reversible	
<i>Dimensions</i>	39-1/2"(L) x 36"(W) x 53-1/2"(H)	
<i>Footprint</i>	28-1/2"(L) x 24-3/4"(W)	
<i>Fully Assembled Weight</i>	660 lbs.	
<i>Warranty</i>	1 Year (Motor and electronics) 2 Years (All other parts)	

Product Dimensions

<i>Width x Depth x Height (Fully Assembled)</i>	39-1/2"(L) x 36"(W) x 53-1/2"(H)
<i>Footprint</i>	28-1/2" (L) x 24-3/4"(W)
<i>Fully Assembled Weight</i>	660 lbs.

Shipment Info

<i>Type</i>	Wood Crate with Pallet Base
<i>Content</i>	Shaper with Included Accessories
<i>Dimensions</i>	43"(L) x 39"(W) x 59-1/2"(H)
<i>Weight</i>	880 lbs.
<i>Approx. Assembly Time</i>	30-60 Minutes
<i>Must Ship Upright</i>	YES
<i>Stackable</i>	NO

Electricals

<i>Stock Number</i>	4705.001	4705.002
<i>Power Requirement</i>	220V, 1Ph, 60Hz	220/440V, 3Ph, 60Hz *Part# 937600-002 required for 440V
<i>Full Load Current Rating</i>	23A	19.5A(220V) / 10A(440V)
<i>Recommended circuit size</i>	30A	30A(220V) / 20A(440V)
<i>Power Switch Type</i>	Magnetic switch with overload protection.	
<i>Connection Type</i>	Cord and plug not included. Electrical hookups required.	
<i>Overload Protection</i>	Equipped	

Motor

<i>Stock Number</i>	4705.001	4705.002
<i>Motor Type</i>	TEFC	TEFC
<i>Horsepower</i>	5HP	7.5HP
<i>Speed</i>	3450 RPM	3450 RPM
<i>Efficiency / Power Factor</i>	75% / 98%	75% / 90%
<i>Alternative voltage/amperage (Conversion Kit & Rewiring Required)</i>	N/A	440V
<i>Power Transfer Mechanism</i>	Poly V-belt and pulleys	
<i>Bearing type</i>	Permanently sealed ball bearing	

Spindle and Cutter

<i>Spindle Sizes</i>	3/4", 1-1/4" (Included) 1/2", 1" (Optional)	
<i>Spindle Speed</i>	5,000, 7,000, 10,000 RPM	
<i>Vertical Spindle Travel</i>	4"	
<i>Max Cutter (Under Nut) Capacity:</i>		
1/2" Spindle	2-3/4"	
3/4" Spindle	3-1/2"	
1" Spindle	3-1/2"	
1-1/4" Spindle	5-1/4"	
<i>Max Cutter Diameter</i>	7" Below Table 8" Above Table	

Table

<i>Material</i>	Precision Ground Cast Iron
<i>Table Dimensions (L/W/H)</i>	39-3/8" x 31-1/2" x 3-1/2"
<i>Table Height</i>	35-1/2"
<i>Table Opening Diameter</i>	7-1/4"
<i>Number of Table Inserts</i>	3
<i>Table Insert Opening Diameter:</i>	
Large	5-3/4"
Medium	4-1/8"
Small	2-9/16"
<i>Miter Slot Type</i>	T-Slot (Standard Size)
<i>Miter Slot Width</i>	3/4"
<i>Miter Slot Height</i>	3/8"
<i>Power feeder mounting locations</i>	On both rear corners of the table.

Fence

<i>Material</i>	Extruded Aluminum
<i>Fence Length</i>	18-3/4", for each infeed and outfeed fence
<i>Fence Height</i>	4-3/4"
<i>Fence Maximum Travel Distance (Front to Back)</i>	4-1/4"
<i>Maximum Infeed/Outfeed Fence Offset</i>	1-7/16"
<i>Fence Slot Type</i>	T-Slot
<i>Cutter Guard</i>	Included
<i>Feather board</i>	Included

Miter Gauge

<i>Angle Range</i>	-60° to 60°, with positive stops at -45°, 0°, 45°
<i>Miter bar Length</i>	18"

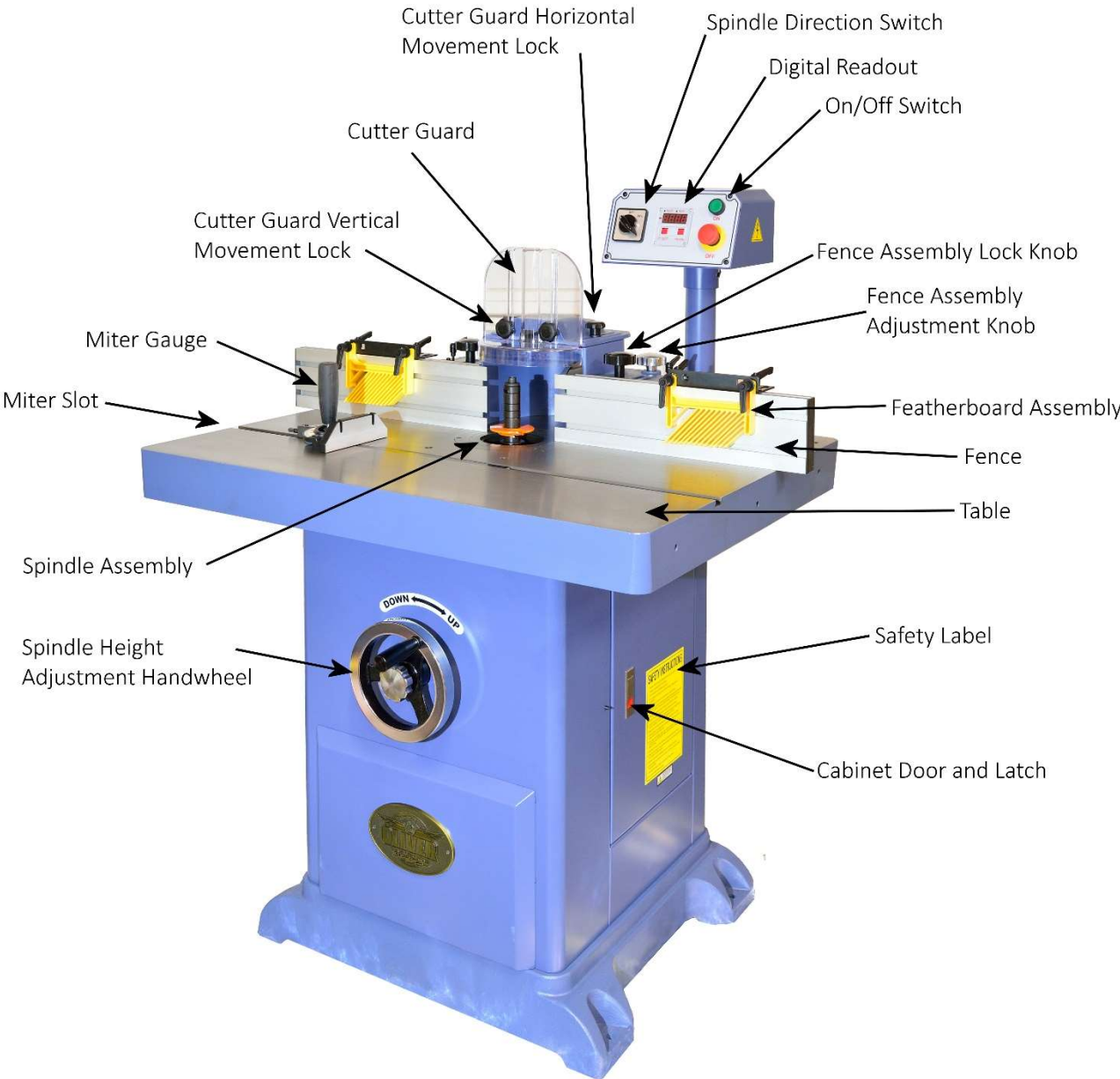
Safety

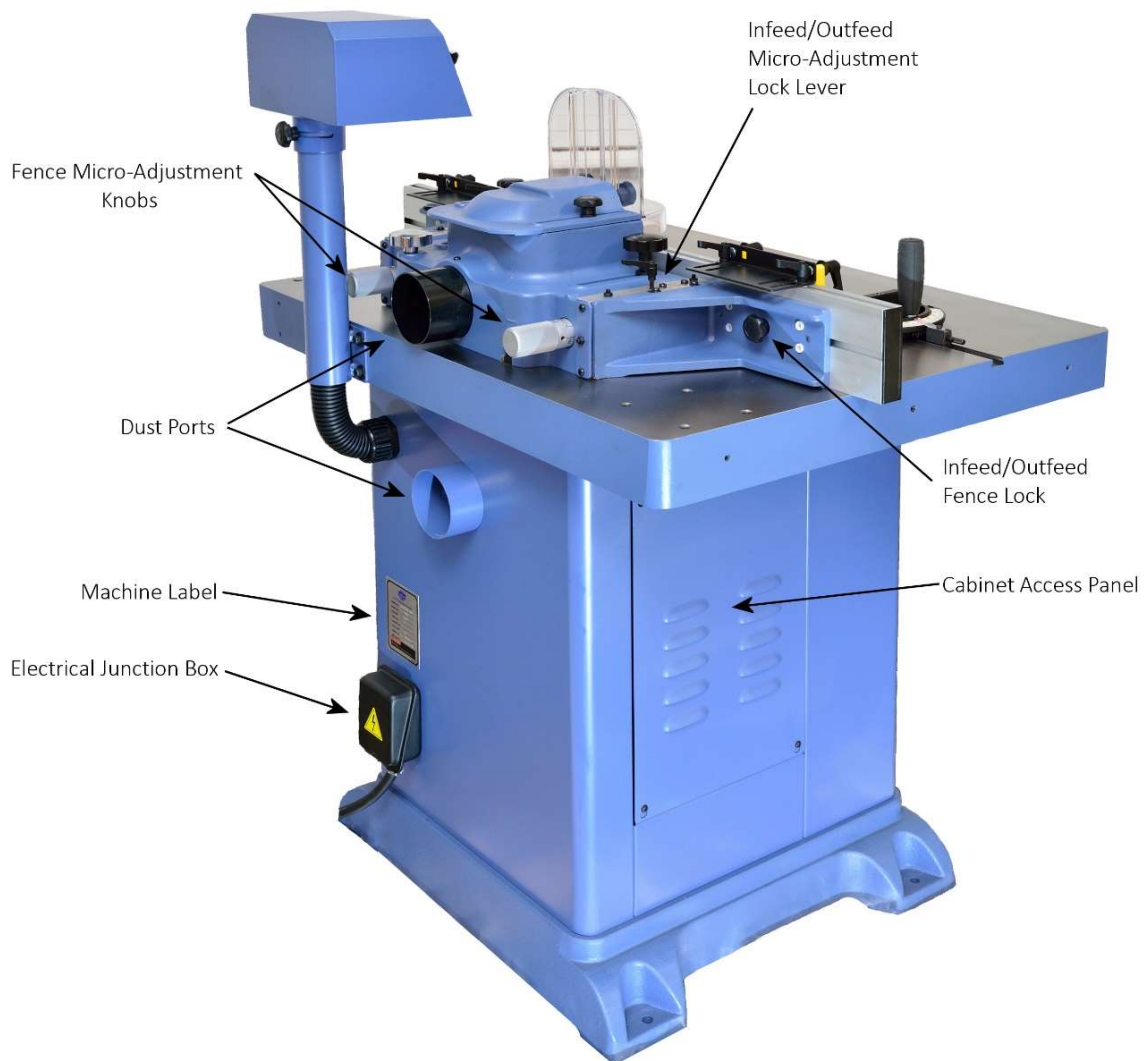
<i>Guard material</i>	Clear Polycarbonate
<i>Maximum Guard Clearance</i>	5-1/16"
<i>Number of Feather Boards Included</i>	2
<i>Feather board hold down capacity</i>	0" to 4-1/4"
<i>Number of Dust Ports</i>	2
<i>Dust Port Size</i>	4"
<i>Minimum CFM Required</i>	800 CFM
<i>Sound Rating @ 2' distance</i>	85 dB

Others

<i>Measurement Scale</i>	Inch
<i>Serial Number Location</i>	on the back of the machine cabinet.
<i>Certification</i>	CSA 175370
<i>Country of Origin</i>	Taiwan




Identification





Safety

Oliver Machinery has made every attempt to provide a safe, reliable, easy-to-use piece of machinery. Safety, however, is ultimately depending on the individual machine operator. **Before operating this machine, please become familiar with the following safety labels and guidelines.**

 DANGER	This indicates an imminently hazardous situation which, if not avoided, WILL cause death or serious injury.
 WARNING	This means if the warning is not taken seriously, it CAN cause death or serious injury.
 CAUTION	This means if the precaution is not taken, it MAY cause minor or moderate injury.
IMPORTANT	This is a tip for properly operating the machine to avoid machine damage.

General Safety Guidelines

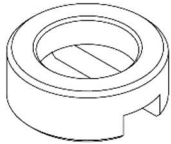
1. **FAMILIARIZE** yourself with all safety instructions found in this manual. Know the limitations and hazards associated with this machine. Do not operate or service this machine until you are properly trained.
2. **ELECTRICAL GROUNDING**, when done properly, reduce the risk of electrocution, shocks, and fire. Make certain that the machine frame is electrically grounded and that a ground lead is included in the incoming electrical service. In cases where a cord and a plug are used, make certain that the grounding plug connects to a suitable ground. Follow the grounding procedure indicated in the electrical code of your area.
3. **DISCONNECT** the machine from power before performing any service, maintenance, adjustments, or when changing cutters. A machine under repair should be RED TAGGED to show it should not be used until the maintenance is complete.
4. **EYE PROTECTION**: Always wear an approved safety face shield, goggles, or glasses that complies with ANSI Z87.1 and CSA Z94.3 standards. Common eyeglasses are not safety glasses, and may not provide adequate protection.
5. **EAR PROTECTION**: Use hearing protective devices where the noise exceeds the level of exposure allowed in Section 1910.95 of the OSHA Regulations. When in doubt, use it.
6. **OTHER PERSONAL PROTECTION**: Before starting the machine, remove tie, rings, watch, and other jewelry. Roll up sleeves above elbows. Remove all loose outer clothing and confine long hair. Protective footwear should be used. Do not wear gloves unless it is instructed to perform a particular step(s) in the manual.
7. **GUARDS**: Keep machine guards in place for all applicable operations. If any guards are removed for maintenance, DO NOT OPERATE the machine until all guards are reinstalled. Check clearance between the guards and the cutter before starting the machine.
8. **WORKPLACE SAFETY**: Keep the floor around the machine clean. Scrap material, sawdust, oil, and other liquids increase the risk of tripping or slipping. Be sure to clean up the table before starting the

machine. Make certain the work area is well lighted and that a proper exhaust system is used to minimize dust. Use anti-skid floor strips on the floor area where the operator normally stands and mark off the machine work area. Provide adequate workspace around the machine.

9. **ACCESS CONTROL** should be enforced so only trained personnel can access the work area and operate the machine. Use childproof power switch when applicable.
10. **STAY ALERT** at all times. Do not operate this machine while under the influence of drugs/alcohol, or when not feeling well.
11. **NEVER STAND ON MACHINE.** This prevents injuries from tipping related accidents and accidental contacts with the cutter.
12. **REPLACEMENT PARTS:** Use only genuine Oliver Machinery replacement parts and accessories recommended for this machine. Generic parts made by other manufacturers may create a safety hazard and WILL void the factory warranty and other guarantees.
13. **PROPER USE:** Do not use this machine for anything other than its intended use. If used for other purposes, Oliver Machinery disclaims any real or implied warranty and holds itself harmless for any injury or damage which may result from that use.

Safety Guidelines Specific to Shaper

Before Work Begins:

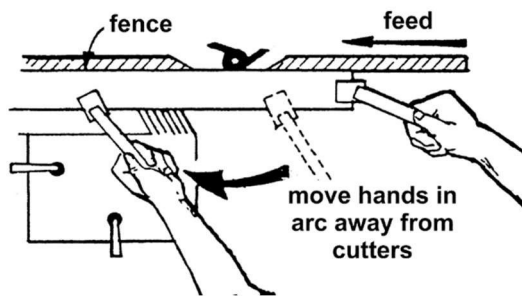
1. **INSPECT CUTTER:** Make sure cutters are sharp, clean, balanced, and free from damages. Forcing dull cutters to work invites accidents and impacts finish quality.
2. **CUTTER POSITIONING:** Whenever possible, position the cutter below the workpiece and make blind cuts with hold-downs. Doing so reduces the operator's exposure to the cutter.
3. **SECURE SPINDLE AND CUTTER:** Make sure the spindle and the draw bar are tightened on the arbor.
4. **KEYED COLLAR:** Never operate the shaper without the keyed collar located immediately under the spindle washer. The key collar prevents the cutter from coming loose when the spindle is running in a counterclockwise direction. Do not substitute any other type of washer/spacer in place of the keyed collar. 
5. **CHECK CUTTER CLEARANCE:** Fence plates and table insert should only have enough space to clear the cutter. Adjust fence plates and use correctly sized insert when applicable. Never start the shaper with the workpiece touching the cutter.
6. **CHECK SPINDLE SPEED AND DIRECTION** before starting the machine. Never set spindle speed above the rated RPM of the cutter. Whenever possible, use "Push-Cutting" - Set cutter rotation direction against feed direction to avoid accidental kickback.
7. **CHECK STOCK LENGTH:** Never shape stock less than 12 inches in length without special fixtures. When practical, shape longer stock and cut to size.
8. **SHAPE ONLY QUALITY WOOD:** This machine is designed for wood products only. Do not shape any material other than wood. Do not attempt to shape the workpiece with loose knots or with any other

foreign material. Do not attempt to shape twisted, warped, bowed stock. Use a jointer to flatten the surface(s) for pressing against the fence/table before shaping.

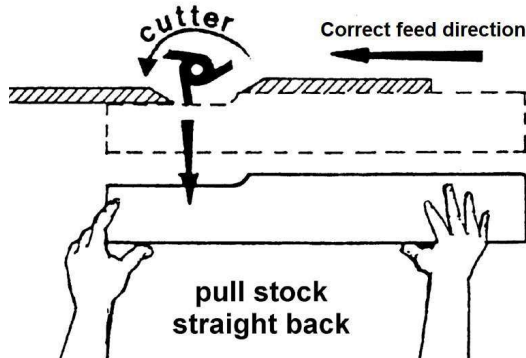
9. **COLLARS:** When shaping with collars, the collar must have a sufficient bearing surface. The work must also be fairly heavy in proportion to the cut being made. Do not use short, lightweight stock when shaping against collars.

When Shaping:

1. **12-INCH RULE:** When shaping, never allow your hands to come closer than 12 inches to the cutters. Use push block, jigs, and hold-downs to safely feed the workpiece while cutting.



2. **NO CLIMB CUT:** Feed stock opposite to the direction of the cutter rotation. Never back stock out of the cutter once the cut has been started. Instead, pull the stock straight back away from the cutter and begin the cut again.



3. **EDGE SHAPING:** Always use the miter gauge and clamping mechanism when edge shaping stock less than 6" wide.
4. **FREEHAND SHAPING** is for advanced users only. Always use a starting pin or pivot board when starting a cut. Never start shaping at a corner.
5. **MAKE LIGHT PASSES:** Never force the cutter to remove too much material in one pass. Doing so increase the risk of kickback and impact finish quality. Make several light passes when applicable.
6. **KEEP HANDS SAFE:** Do not clear chips and sawdust with hands; use a brush or compressed air instead.

After Operation

1. **STOP THE MACHINE** if the operator leaves the machine for any reason.
2. **WAIT** until the cutter comes to a complete stop.
3. **CLEAN UP** before departure.

Electricals



WARNING All electrical work must be done by a qualified electrician and must meet the electrical code in your area.

Minimum Circuit Size Required for Model 4705 Shaper

<i>Stock Number</i>	Minimum Circuit Size Required
4705.001	30A
4705.002	30A(220V) / 20A(440V)

Please ensure the electrical circuit for this machine meets the minimum circuit size requirement. The minimum circuit size requirement applies to a dedicated circuit that provides power to one 4705 Shaper. If more machines are sharing the same circuit, consult a qualified electrician to ensure the designated circuit is properly sized for safe operation.

If a circuit is available, but not meeting the minimum circuit size requirement listed above, a new circuit must be installed for this machine.

Grounding



WARNING Improper grounding can cause electric shock, fire, and equipment damage.

Proper grounding reduces the risk to the operator in the event of electrical malfunction or breakdown. This machine must be connected to the grounding conductor when available, and all grounding connections must meet or exceed the electrical code requirements in your area. Furthermore, all grounds must be verified and must meet or exceed the electrical requirement of the machine. If grounding is not available, consider the use of a GFCI protection device as an alternative, if this complies with the electric code in your area.

Electrical Wiring


This machine is not pre-wired with a cord and a plug. The preferred way of connection is to connect the machine directly to the electrical panel (“Hardwiring”). Please ensure there is a readily accessible electrical disconnect near the machine. Refer to the section “Wiring Diagram” for wiring your machine to a power source.

If you choose to connect this machine with a plug and a cord, please use a UL/CSA listed plug. For the power cord, select a durable cord type with a high-temperature rating (90C° or above). Both plug and power cord must be sized to meet the amperage requirement of your machine.


Minimum cord size (AWG) required based on amperage draw and length of the cord:

Amps	Power Cord Length				
	25 feet	50 feet	75 feet	100 feet	> 100 feet
< 5	16	14	14	14	NR
5 to 8	14	14	14	12	
8 to 12	14	14	12	10	
12 to 15	12	12	10	10	
15 to 20	10	10	10	NR	
21 to 30	10	NR	NR	NR	

*NR: Not Recommended




WARNING Use properly sized wires that meet or exceed the power requirement of your machine. Using undersized wires may cause overheating and increase the risk of fire and machine damage.



WARNING Improper copper-aluminum wire connection is a fire hazard. If the power circuit available uses aluminum wires, use certified CU/AL wire connectors.

[440V Conversion for Three-Phase Model \(Stock# 4705.002\)](#)

The three-phase version of this machine is prewired to **220V**220V. To convert the machine for 440V operation, you will need the optional part **937600-002**, which can be purchased by calling us at **1-800-559-5065**.



WARNING All electrical work must be done by a qualified electrician and must meet the electrical code in your area.

In summary, it takes three steps to convert the shaper for 440V operation:

1. Replacing the original switch with the 440V compatible switch (Part #937600-002).
2. Follow the wiring diagram in section “Wiring Diagram - For Stock Number 4705.002 (220/440V, 3Ph)” and rewire the motor for 440v operation.
3. Verify electrical connection, and check the direction of rotation of the arbor.

Please contact our sales department at **1-800-559-5065** if you prefer to have the 440V conversion kit pre-installed at the time of purchase.

Setup

Shop Preparation

Space Requirement

The dimensions of this machine are 39-1/2"(L) x 36"(W). You will need additional spaces for manipulating your workpiece, electrical connection, and dust collection.

Load Limits

This machine has a shipping weight of 880 lbs., and a net weight of 660 lbs. Please ensure all lifting tools and building structures have adequate load capacity, for transporting and supporting the total weight of this machine, the operator, and related items.

Electricals

Ensure a properly sized circuit and an electrical terminal are available nearby the machine. If the machine is to be hardwired, there must be a readily accessible power disconnect nearby, so that the machine can be disconnected from the power source for servicing and adjustments. If the machine is to be connected with a cord and a plug, please ensure a matching outlet is installed nearby the machine.

Please refer to section "Electricals" in this manual for details regarding electrical requirements.

Lighting

Adequate lighting is needed for operating this machine. Overhead, non-glare lighting should be installed.

Safety Labels

If this machine introduces a new safety hazard to your workplace. Please display proper warning signs in a highly visible location(s).

Dust Collection

Wood dust created by this shaper is a health hazard. If a dust collection system is available in the work area, connect the dust collection ducts to BOTH dust ports of this machine. Check the air suction regularly to ensure the pipes are not jammed.

Dust masks should be available for using the shaper.



Use a dust collection system that is rated above 800 CFM. Doing so improves air quality in the workplace, and prevents the machine from jamming.

Piping of dust collection system introduces additional air resistance and decreases the effective CFM measured at the dust ports. Ensure both dust ports receive significant suction from the dust collection system for removing dust and debris created by this machine.

Receiving

Your shipment should come with one wood crate with a pallet base. Upon receiving your shipment, check for any significant damages before signing the delivery confirmation.

IMPORTANT

If items are damaged, please call us immediately at **1-800-559-5065**



You may need to remove the strapping that is used for securing your package. Strapping may spring back violently when released and cause injury. Always wear safety goggles and gloves for this task.

Moving Machine into the Shop

Your machine will be delivered by freight service, and it will be left outside of your workshop by default. On the day of delivery, please be sure help is available to move the machine to its final location.



4705 Shaper has a gross weight of 880 lbs. and a net weight of 660 lbs.

Safe moving techniques and proper lifting equipment are required, or serious personal injury may occur.



Your machine may be secured by the straps. Do not lift your shipment by the strap. They are not designed to hold the total weight of your shipment. They may snap without warning and cause serious injury and machine damage.

Unboxing

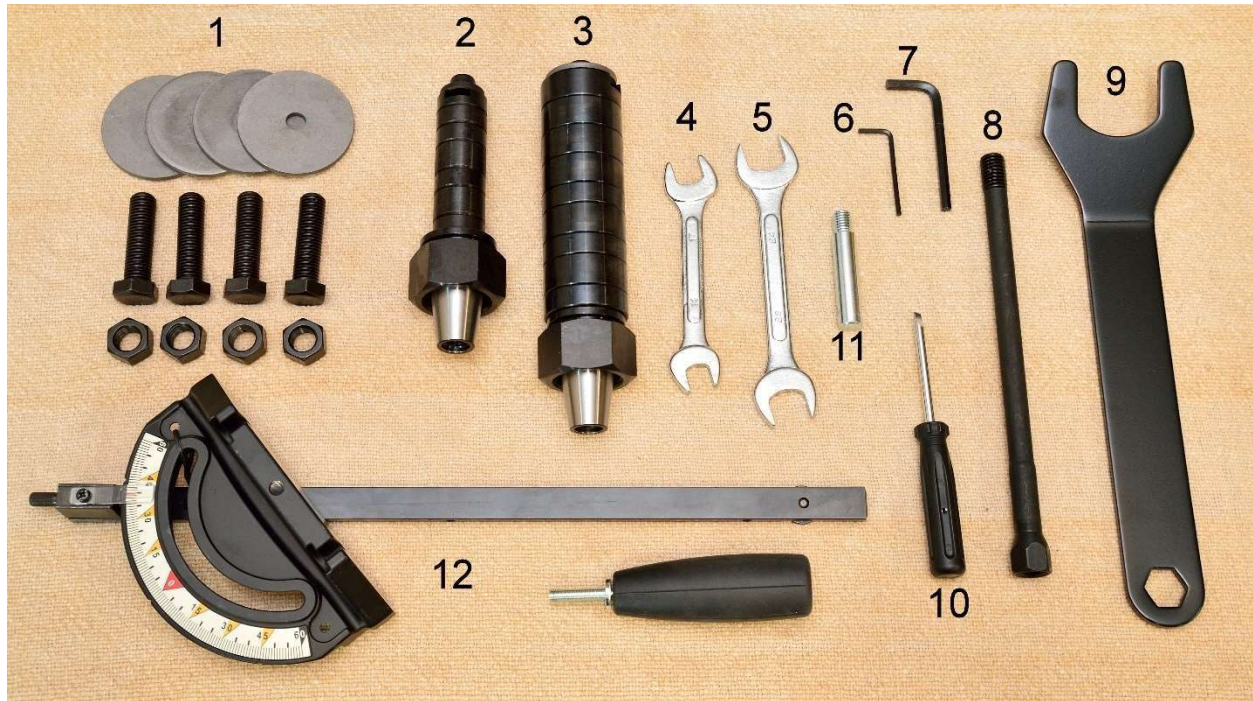
Upon removing the crate cover, you should find a shaper that is mostly assembled, and a paper box that contains all loose parts and accessories.

Everything is covered by a plastic bag.



Inventory

Carefully unwrap the packaging and make sure all components are included in the shipment. Lay out all items received and inventory them.



Item	Description	Quantity
1	Hardware set for leveling this machine <ul style="list-style-type: none"> - M16 Hex Screws - M16 Hex Nuts - Washers 	4
2	3/4" Spindle Assembly	1
3	1-1/4" Spindle Assembly	1
4	14/17mm double ended wrench	1
5	22/24mm double ended wrench	1
6	3mm Hex Key	1
7	6mm Hex Key	1
8	Spindle draw bar	1
9	Wrench for spindle nut and spindle draw bar.	1
10	Screwdriver	1
11	Starting Pin	1
12	Miter gauge assembly	1

NOTICE: If you cannot find an item in the list above, please check if it is still attached to the packaging or inside the cabinet. Occasionally the item may have been pre-installed in the factory. See section “**Parts List**” to check if a component is included or installed.

NOTICE: This machine comes with various standard sized, non-proprietary parts. If any of these parts are missing, we are happy to deliver them to you. To have the machine up and running as soon as possible, you can also find these parts at your local hardware store.

Additional Items Needed for Machine Assembly

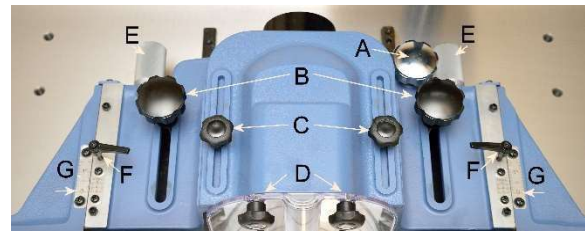
Item	Purpose
<i>Safety glasses</i>	Protection
<i>Disposable gloves</i>	Protection
<i>Paper Towel</i>	Cleaning
<i>Rust Inhibitor</i>	Cast iron table top rust protection.
<i>Straight edge</i>	Verify alignments
<i>Carpenter Squares</i>	Verify alignments
<i>8MM Hex Key</i>	Cutter installation
<i>17MM Wrench</i>	Extra 17mm wrench, for belt tension adjustment.

When all items are ready for setting up the machine, gently remove the machine from the pallet. Lift the shaper with its table. If using a forklift or any metal lifting devices, ensure the table is protected by paddings.

NOTICE: The base of the shaper may be bolted to the shipping pallet to prevent shifting during transport. Remove these bolts if you see them.

Cleaning

To prevent rusting, the cast iron tabletop of this shaper is covered with thin machine oil and plastic film. Simply loosen both fence assembly lock knob (B) to pull out the plastic film, then wipe off the machine oil with paper towels. Do not use rust preventives that contain silicone, which is known to interfere with certain finishes and glues.



Once all the machine oil is removed, routinely coat the tabletop with rust preventive such as Boeshield® T-9 or paste wax.

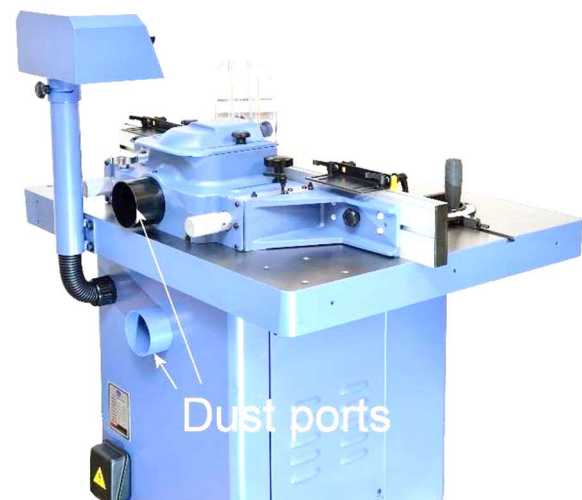
Assembly

This shaper is mostly assembled in the factory. You will need to connect the machine to power, and connect to a dust collection system if available. Please refer to the later sections to prepare for a test run.

Dust Collection

This shaper can generate a lot of wood shavings and dust. Connect this machine to a dust collection system.

The minimum CFM requirement for this shaper is 800 CFM. Your dust collection system should have a rating higher than 800 CFM, as air friction and leakage reduce effective CFM at the dust ports.



Wiring and Grounding



Deenergize the electrical circuit before touching any enclosed, electrified parts. Touching an electrified part WILL result in serious personal injury or death.



WARNING

All electrical work must be done by a qualified electrician and must meet the electrical code in your area.

Make sure the voltage of your power circuit matches the power requirement of this machine, and the circuit is sized to supply power to the jointer.

Wiring Instructions for Stock Number 4705.001 (220V, 1 Phase)

1. **Power off before connecting any wires!!**
2. Remove the screw that secures the junction box cover.
3. Insert the power cable through the strain relief.
4. Use the wiring diagram in section “Wiring Diagram” to attach the wires to the terminal.
5. Hand tighten the sealing nut of the strain relief to keep the cord in place.
6. Re-install the connection box cover.

Wiring Instructions for Stock Number 4705.002 (220/440V, 3 Phase)



WARNING

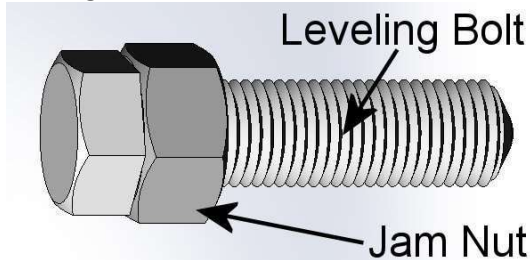
This shaper is pre-wired 220V. Operating this shaper with incorrect voltage, or misconfiguring the machine to operate in a different voltage, may cause serious injury, death, and/or serious machine damage. Have a qualified electrician to convert the shaper for 440V operation.

1. **Power off before connecting any wires!!**
2. Remove the screw that secures the junction box cover.
3. Insert the power cable through the strain relief.
4. Use the wiring diagram in section “Wiring Diagram” to attach the wires to the terminal.
5. Hand tighten the sealing nut of the strain relief to keep the cord in place.
6. Re-install the connection box cover.
7. With three phase power, extra steps are needed to verify the motor is turning in the proper direction.
 - 7.1. Set rotation direction switch set to “Forward”.
 - 7.2. Temporary turn on the machine and check the rotation direction of the arbor. Looking through the table opening from the top, the arbor should be turning counter-clockwise.
 - 7.3. If the rotation is reversed, disconnect the machine from the power source and reverse any two incoming power leads.
 - 7.4. When testing completes, cut off the power by using the electrical disconnect switch, or unplug the machine. Now the machine is ready for other setup steps.

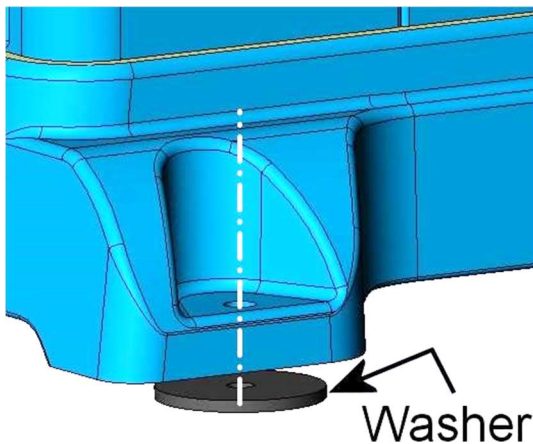
Leveling Machine

It is recommended to locate the shaper on flat, stable ground. If the machine is rocking, or if it vibrates excessively during operation, the machine may need to be leveled. Use the provided leveling hardware to give the shaper even support on all 4 corners of the base:

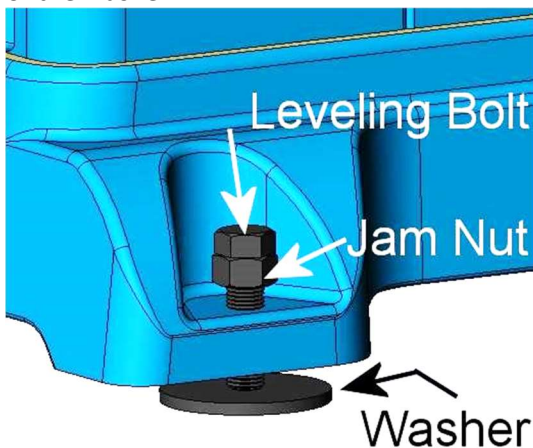
1. Thread the jam nut all the way into the leveling bolt.



2. Slightly lift the machine, then center the washer right under the screw holes found on the base.

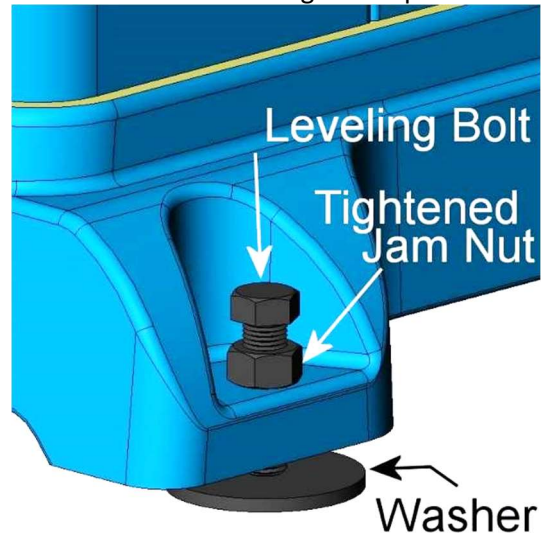


3. Thread the leveling bolt into the base of the machine. The leveling bolt has a rounded end and will sink into the center of the washer.



4. Adjust the depth of the bolt until the machine is completely leveled.

5. Finally, use a wrench to hold the position of the leveling bolt, and then tighten the jam nut to secure the leveling bolt in place.



WARNING

This machine has a net weight of 660 lbs. Leveling this machine requires protective gear, safe moving techniques, and/or proper equipment. Otherwise serious personal injury may occur.

Operation and Controls

Control Panel

This top-mounted control panel is equipped with a spindle rotation direction switch, a magnetic on/off switch with overload protection, and a digital readout.

Rotation Direction Switch

Position	Function
"FOR"	Set spindle to rotate counter-clockwise.
"REV"	Set spindle to rotate spindle clockwise.
"OFF"	<p>The motor will stop rotating.</p> <p>CAUTION: Setting this switch to "OFF" will NOT trigger the emergency shutoff switch. The motor will rotate once you toggle away from the "OFF" position.</p> <p>The best way to shut down the machine is to press the red "OFF" emergency shutoff button located on the right side of the control panel (see below).</p>



IMPORTANT Only change the spindle rotation after the spindle has come to a complete stop, or damage to the machine may occur.


ON / OFF Switches

<p><i>To Turn Off Machine</i></p>	<p>Press the "Off" button.</p> <p>NOTICE: When this button is pressed, the emergency shutoff mechanism will be triggered. It needs to be reset by turning the button clockwise before the machine can be turned on again.</p>	
<p><i>To Turn On Machine</i></p>	<p>Press the "On" button.</p> <p>NOTICE: The machine will only turn on when:</p> <ol style="list-style-type: none"> 1. The rotation direction switch is NOT set to "OFF". 2. The emergency shutoff mechanism is disengaged. 3. The cabinet door is closed. 	

Digital Readout

The digital readout shows the current position of the spindle relative to a reference point set by the user. When the spindle moves above the reference point, the digital readout will show a positive value. A negative value will show when the spindle is below the reference point.

To Set a Reference Point	Press [0" SET]
To Change Measurement Unit	Press [mm/in.]

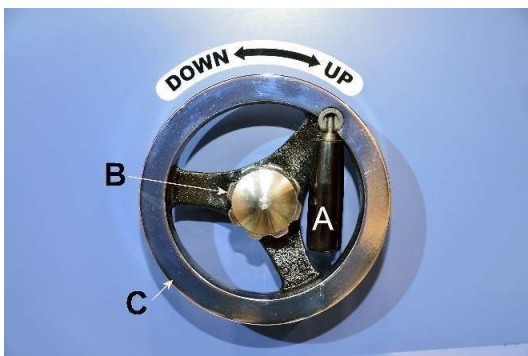
The image shows a digital readout (DRO) control panel. It features a red LED display showing "0.000". Above the display are two indicator lights labeled "inch" and "mm". Below the display are two red buttons labeled "0" SET" and "mm/in.". The panel is light blue with four screws at the corners.

Spindle Height Adjustment

The spindle height adjustment handwheel is located in front of the shaper cabinet.

To adjust spindle height:

1. Flip the wheel handle (A) up.



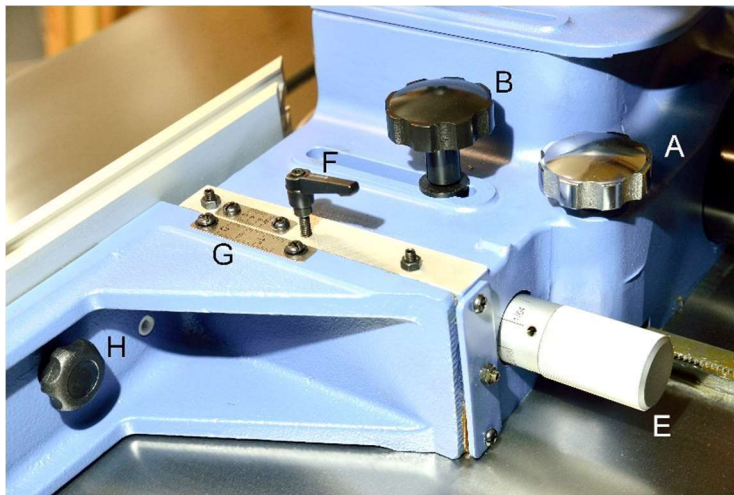
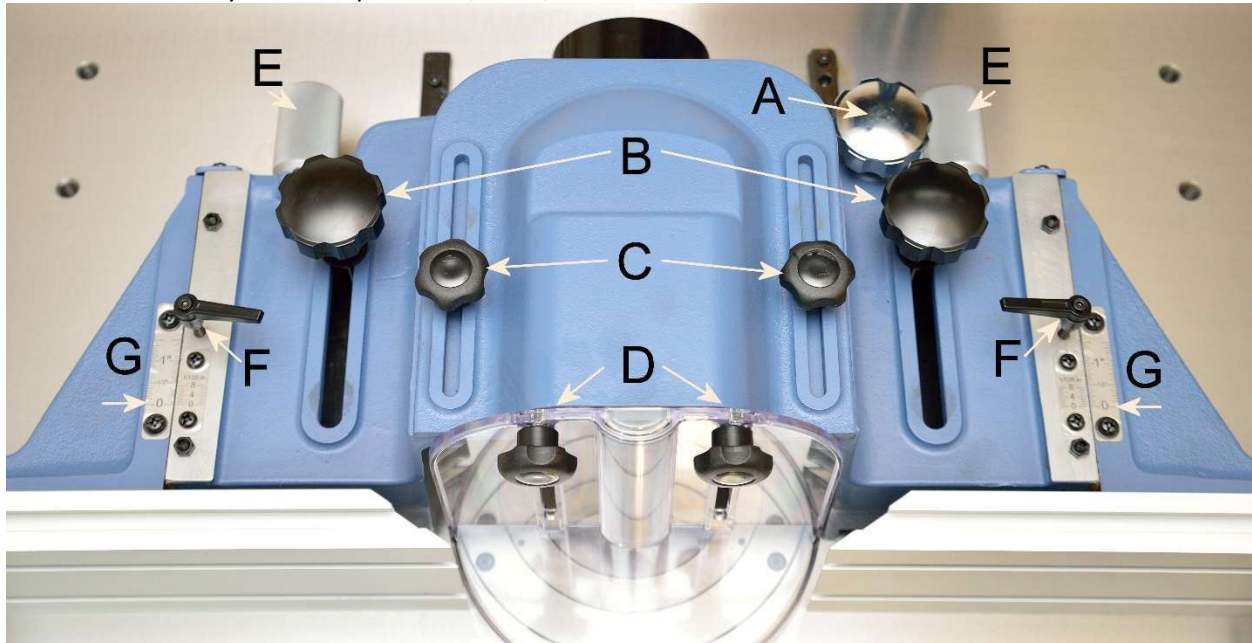
2. Turn the locking knob (B) counter-clockwise to unlock the height adjustment handwheel.
3. Turn the handwheel (C) clockwise to move the spindle up, or counter-clockwise to move

the spindle down. You will see the value of the digital readout changes as the spindle travels up/down.

4. Once the spindle height is set, you may also want to set the reference point of the digital readout. Simply hit the [0" Set] button in the control panel reset the reference point to zero.
5. To lock the spindle height, turn the locking knob clockwise.
6. If moving the spindle with the cutter, check cutter clearance before starting the machine.
7. You may flip the wheel handle down when all adjustments are done.

Fence Assembly

The fence assembly has multiple knobs, locks, and scales:



Label

A	Fence Adjustment Knob
B	Fence Assembly Lock Knob
C	Cutter Guard Lock Knob
D	Cutter Guard Lock Knob
E	Micro Adjustment Knob
F	Infeed/Outfeed Fence Lock Handle
G	Vernier Scale
H	Infeed/Outfeed Fence Lock Knob



WARNING

Always turn off the machine and wait for the spindle to come to a complete stop before adjusting the fence.

Always re-lock all adjustable components of fence assembly and verify cutter clearance after adjusting the fence. Without enough clearance, the cutter will strike the fence which may result in serious injuries and machine damage.

To move the entire fence assembly:

1. Loosen assembly lock knobs (B).
2. Rotate the fence adjustment knob (A) to move the entire fence assembly forward/backward.
3. Re-tighten assembly lock knobs (B) when adjustment is done.

To adjust cutter guard horizontal clearance:

1. Loosen cutter guard lock knobs (C). Now cutter guard can slide FORWARD and BACKWARD.
2. After setting the position of the guard and verified safe clearance, re-tighten the lock knobs.

To adjust cutter guard vertical clearance:

1. Loosen cutter guard lock knobs (D), and the cutter guard can slide UP and DOWN.
2. After setting the position of the guard and verified safe clearance, re-tighten the lock knobs.

To adjust infeed/outfeed fence positions:

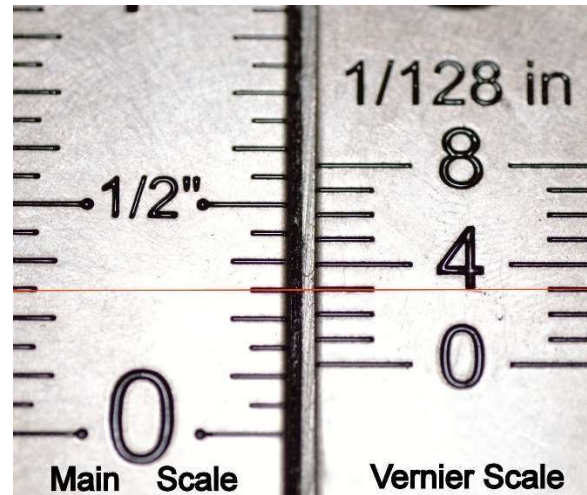
1. Loosen the infeed/outfeed fence lock handle (F).
2. Rotate the micro-adjustment knob (E) to move the fence forward or backward. One revolution of the knob moves the fence by $1/16''$. Each fence can move forward by at most $1-7/16''$.
3. The Vernier scale (G) indicates the position of the fence relative to the fence housing, with precision of $1/128''$.

To read the fence position using a Vernier scale:

1. Read the main scale where it is passed by the Vernier scale's zero. That is the coarse value.
2. Find the first mark on the Vernier scale that lines up perfectly with any line on the main scale. Multiply the number of that mark by $1/128''$. That is the adjusted value.
3. The exact position is the sum of the coarse value and adjusted value.

Example:

This picture shows the 3rd mark on the Vernier scale lines up with a line on the main scale, while the zeroth mark passed the $1/8''$ mark on the main scale:



Coarse Value: $1/8''$

*Adjusted Value: $3 * 1/128 = 3/128''$*

Exact position:

$1/8'' + 3/128'' = 19/128''$

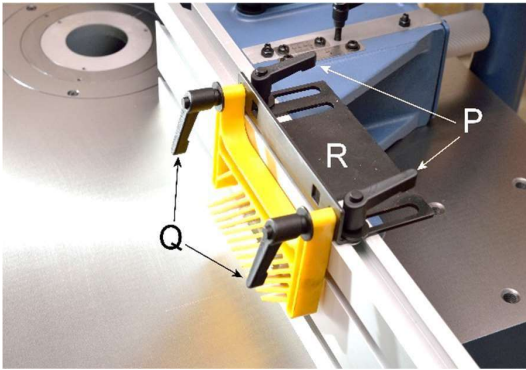
4. After setting the position of the fence and verified safe clearance. Re-tighten the lock handle (F).

To slide the aluminum fence sideways:

1. Loosen the infeed/outfeed fence lock knob (H).
2. After setting the position of the fence and verified safe clearance. Re-tighten the fence lock knob.

To adjust the position of the featherboard:

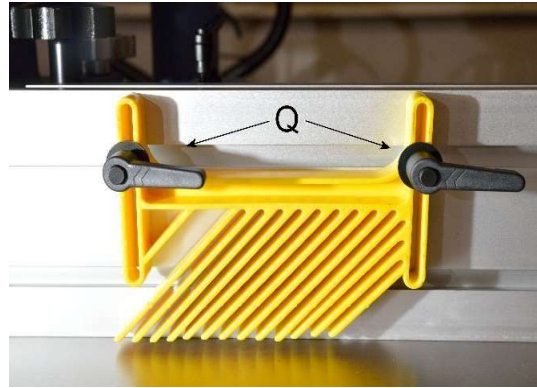
1. It is recommended to use the provided featherboards for all works applicable.
2. The featherboard (with mounting bracket, R) is adjustable along the fence by loosening the two levers (P) and sliding the assembly to the desired location.



3. The height of the featherboard can be adjusted by loosening the two levers (Q).
4. If the featherboard needs to be lowered even further, the mounting bracket (R) can be flipped over so that the vertical face is pointing downward. The levers (P) will have to be removed and reinstalled to flip the bracket and the feather board.



5. The featherboard can also be directly mounted on the aluminum fence if desired.



Spindle Assembly

Locking / Unlocking Spindle Arbor

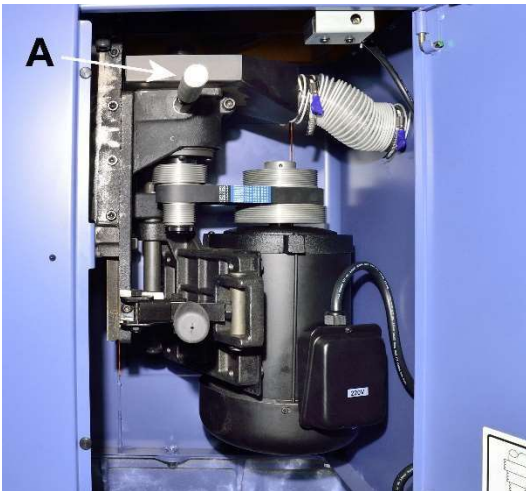


Disconnect the machine from the power source before any maintenance, service, or assembly is performed. Failure to comply can cause serious injury!

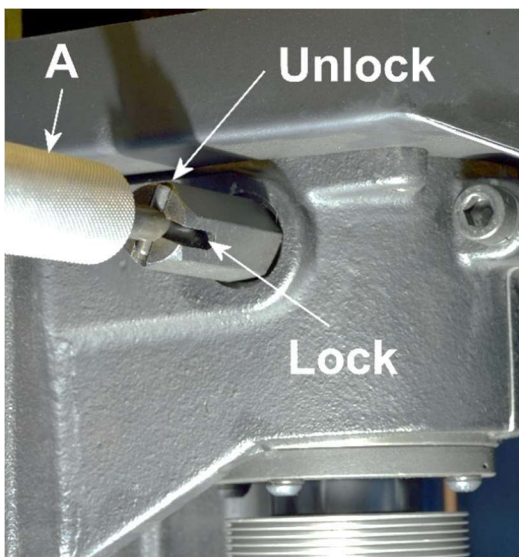
Before adjusting spindle speed, or changing spindle/cutters/collets, the spindle arbor **MUST** be locked. Revisit this section before performing these tasks.

To Lock Spindle Arbor

1. **Disconnect machine from power source!!**
2. Open the cabinet door and locate the spindle lock handle (A), which is right below the table.



3. Pull and rotate the handle (A) until the pins engage into the “Lock” notch.



4. Rotate the spindle by hand until the spindle lock engages.

To Unlock Spindle Arbor

1. **Disconnect machine from power source!!**
2. Pull and rotate the handle (A) until the pins engage into the “Unlock” notch.
3. Rotate the spindle by hand to ensure the lock is disengaged.

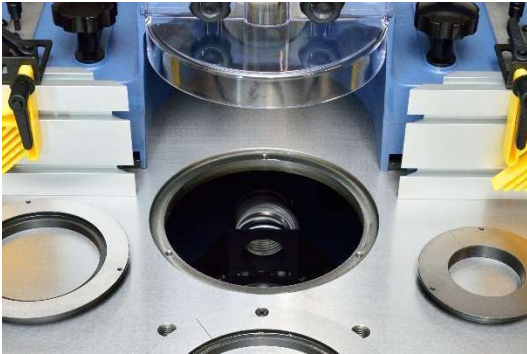
Installing / Removing Spindles



Disconnect the machine from the power source before installing/removing spindles. Failure to comply can cause serious injury!

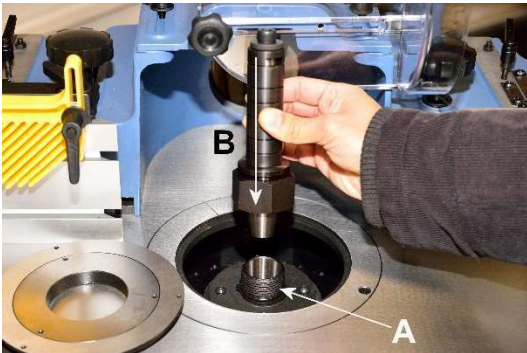
To Install Spindle:

1. **Disconnect machine from power source!!**
2. Lock the spindle arbor.
3. Move cutter guard and fence away from the table opening. Remove table inserts to gain access to the quill.

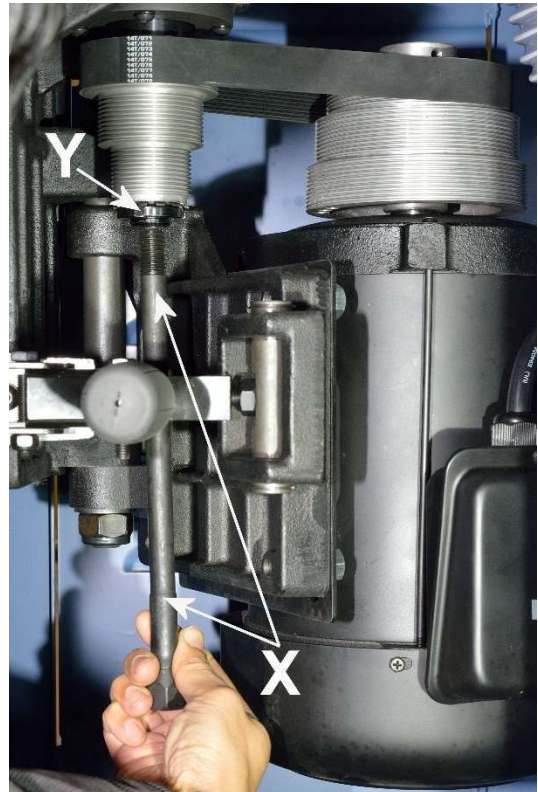


4. Raise the arbor all the way up, then lower the spindle (B) straight into the quill (A). Hand thread the spindle assembly into the quill.

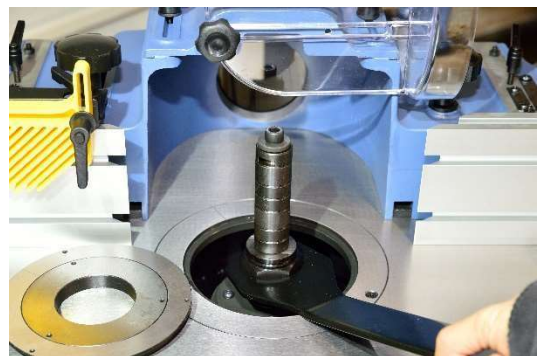
IMPORTANT: Take extra care not to cross thread, or the spindle/quill connection will be damaged.



5. Insert spindle draw bar (X) up into the hole (Y) at the bottom of the spindle. Thread and tighten the draw bar with the spindle wrench. You may also find a ratcheting wrench useful in tight space.



6. Use the supplied spindle wrench to tighten the spindle nut.



7. If you need to install cutters, continue with the section “Installing/Removing Cutters” for details.
8. Otherwise, unlock the spindle arbor.
9. Close the cabinet door.
10. Reconnect the machine to a power source when all adjustments complete.

To Remove Spindle

- **Disconnect machine from power source!!**
- Lock the spindle arbor.
- Loosen and remove the draw bar.
- Use the spindle wrench to loosen the spindle nut, then continue to turn until the spindle assembly breaks free of the quill.

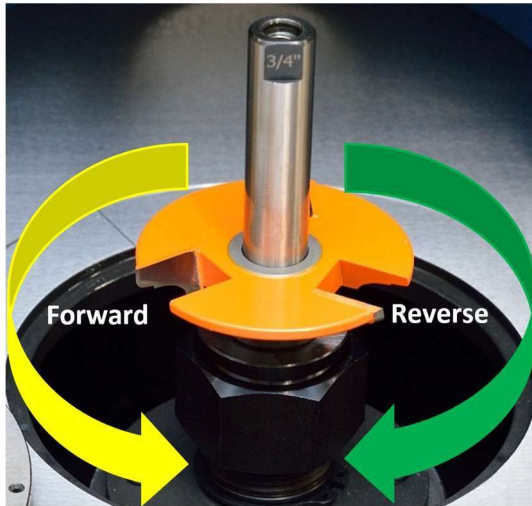
Installing/Removing Cutters



WARNING When changing cutters, always turn the machine off and disconnect the machine from its power source. Do not use damaged cutters.

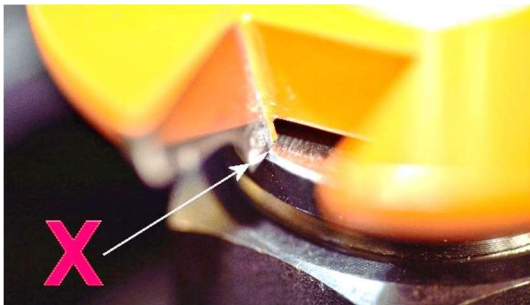
To Install Cutter

1. **Disconnect machine from power source!!**
2. Lock spindle arbor.
3. Place your shaper cutter onto the spindle.



IMPORTANT: Pay attention to the orientation of the cutter blade. When the rotation switch is set to "FOR" (Forward), the spindle will rotate counter-clockwise.

4. **IMPORTANT:** It is generally advisable to place the cutter as low as possible on the spindle to reduce spindle deflection and ensure the best possible finish. However, if the teeth of the cutter contact the base of the spindle, the spindle will be damaged.



5. In this case, rise the cutter up with spacers to keep the cutter's teeth away from the spindle.
6. After the cutter is properly inserted, Add more spacers on top of the cutter.



7. Then insert the keyed collar.



IMPORTANT: The keyed collar **MUST** sit slightly **ABOVE** the top of the spindle. This ensures significant pressure is applied to the cutter during operation.

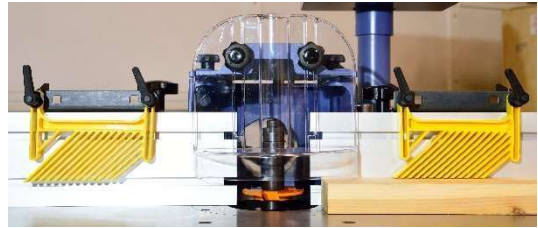
8. Install the spindle washer and the cap screw.
NOTICE: The spindle washer may or may not be pronged. If the spindle is equipped with a pronged washer, make sure the prongs are inserted into the holes of the spindle.



9. Thread and tighten the head cap screw with an 8mm hex wrench.



10. After the cutter is securely installed, unlock the spindle arbor.
11. Turn the spindle by hand to ensure it rotates freely. Be careful with the sharp edges of the cutter.
12. Check cutter clearance, when applicable, add/remove table inserts, and adjust the fence/guard to provide safety clearance between the cutter and the objects nearby.



To Remove Cutter

- **Disconnect machine from power source!!**
- Lock the spindle arbor.
- Loosen the head cap screw (F) with an 8mm hex wrench.
- Remove the washer, cutter, and spacers as needed.

Installing/Removing Router Collets (Sold Separately)

Two optional router collets (1/4" & 1/2") are available for this shaper. To purchase these collets, please call our parts department at **1-800-559-5065**.



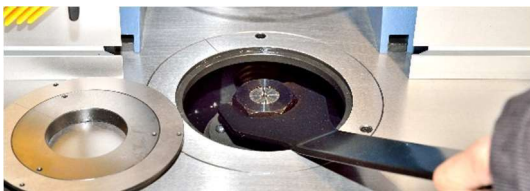
Disconnect the machine from the power source before installing/removing collets. Failure to comply can cause serious injury!

To Install Router Collet

1. **Disconnect machine from power source!!**
2. Lock the spindle arbor.
3. Raise the arbor all the way up.
4. Insert the router bit into the collet.
5. Hand thread the router collet (router bit not shown in the picture) onto the arbor.



6. Then tighten with the spindle wrench.



7. When the collet is secured, unlock the spindle arbor.
8. Turn the router collet by hand to ensure it rotates freely. Be careful not to touch the sharp edges of the router bit.
9. Verify safety clearance before starting the shaper. Adjust the fence, the cutter guard, and the table insert as needed.

To Remove Router Collet

1. **Disconnect machine from power source!!**
2. Lock the spindle arbor.
3. Raise the arbor all the way up.
4. Loosen the collet with the spindle wrench provided.

Adjusting Spindle Speed and Belt Tension



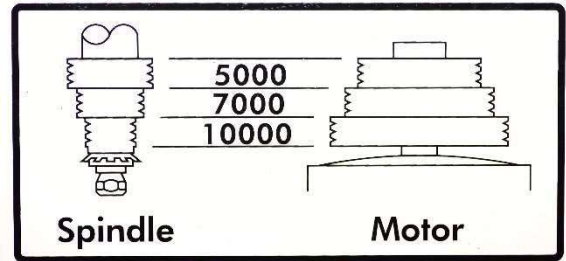
WARNING Disconnect the machine from the power source before any maintenance, service, or assembly is performed. Failure to comply can cause serious injury!



WARNING Always check spindle speed is set below the cutter's rated speed before starting the machine.

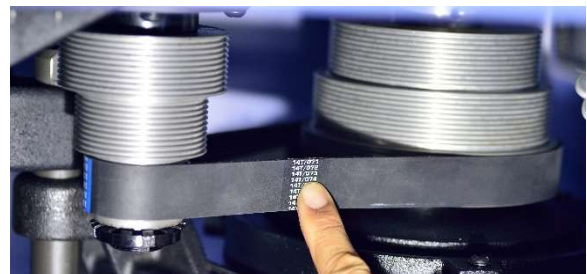
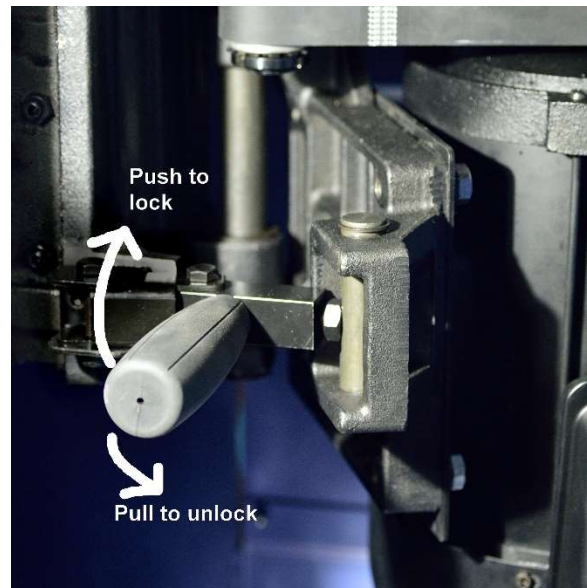
Your machine is supplied with a 3-step pulley system that provides spindle speeds of 5000, 7000, and 10000 RPM. A speed chart is located on the inside of the cabinet door. Use the chart to set the belt position and adjust machine speed.

Before starting the machine, ensure the speed of the shaper does not exceed the cutter's rated speed.



To Adjust Spindle Speed

1. **Disconnect machine from power source!!**
2. Open the cabinet door to gain access to the belt tension lever.
3. Pull belt tension lever towards you to relieve belt tension.
4. Move the belt to the desired position on the pulleys.
5. The poly-v belt and pulleys have many grooves. Ensure the belt sits properly on the pulleys.
6. Push the tension lever back to the "Lock" position.
7. Check belt tension. When pushing down into the belt midway between the pulleys, the belt should flex by 1/8" using moderate finger pressure.
8. Continue with the next section to adjust belt tension as needed.



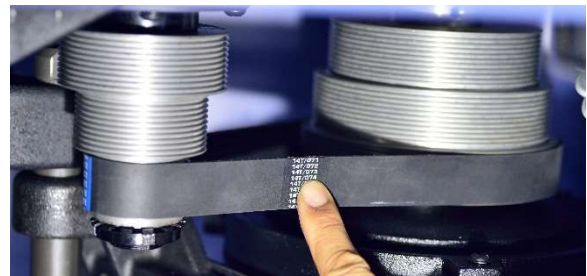
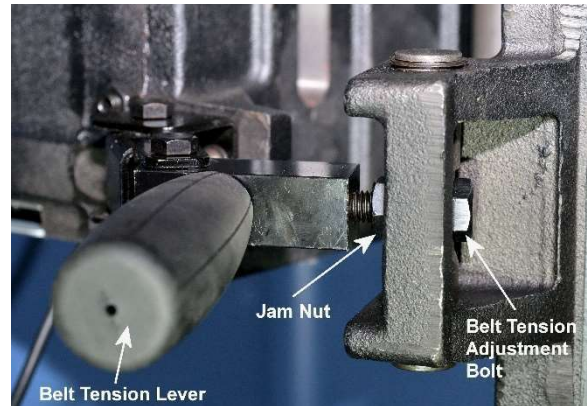
If Belt Tension Needs Adjustment

1. **Disconnect machine from power source!!**
2. Pull the belt tension lever to the “Unlock” position.
3. Loosen the jam nut.
4. Adjust the belt tension by rotating the belt tension adjustment bolt:


Clockwise: Reduces belt tension.

Counter-clockwise: Increases belt tension.

5. Make small, incremental adjustments. Check tension with every $1/6$ turn of the adjustment bolt. You will need to hand tighten the jam nut and push the tension lever back to the “Lock” position for testing belt tension.
6. When pushing down into the belt midway between the pulleys, the belt should flex by $1/8$ ” using moderate finger pressure.
7. Once proper belt tension is set, re-tighten the jam nut. Use one wrench to hold the position of the tension adjustment bolt while tightening the jam nut.
8. Check the movement of the belt tension lever. If it is too difficult to move, slack off on the belt tension by a bit.



Do not shape any workpiece with loose knots or with nails or any other detachable foreign objects. Use a jointer to flatten the workpiece before shaping.

WARNING  **Support long/wide boards with rollers or other devices to avoid injuries, and to ensure a smooth, consistent finish.**

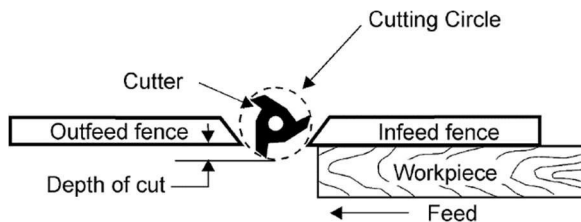
Follow the “12-Inch Rule”. Keep your hands at least 12 inches away from the cutter by using hold downs and push sticks. Use jigs when a workpiece is less than 12 inches long.

Shaping Long and Straight Pieces

Using the fence is the safest and the best way of shaping straight pieces. Always use the fence whenever the work permits. Depends on the situation, the infeed and outfeed fences will need to be adjusted to properly support a workpiece.

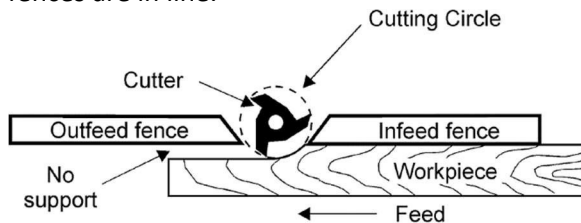
Case 1: Edge is partially shaped

When shaping a piece where a portion of the original edge remains intact, both the infeed and outfeed fences should be in line.



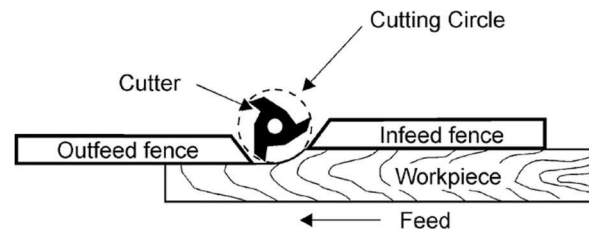
Case 2: Entire edge is shaped

When using the shaper for jointing work or making a full bead, the shaped edge will not be supported by the outfeed fence when both fences are in line:



In this case, the outfeed fence should be adjusted to support the workpiece. With the shaper running, move a small section of the workpiece through the cutter.

When the workpiece entered approximately 1/3 of the outfeed fence, stop the machine. Hold the workpiece in place, and use the micro-adjustment dial to move the outfeed fence forward, until it makes contact with the workpiece. The outfeed fence will then be in line with the cutting circle and supporting the workpiece. Disengage the workpiece from the cutter, and the operation can continue.



Cross Grain Shaping

The workpiece is more likely to chip out when shaping across the grain. Using a scrap piece to support the workpiece at the end of the cut can mitigate this problem.

When shaping a short cross-grain edge, use a miter gauge or crosscut jigs to support the workpiece.

If all four sides of the workpiece need to be shaped, shape the cross-grain sides first.

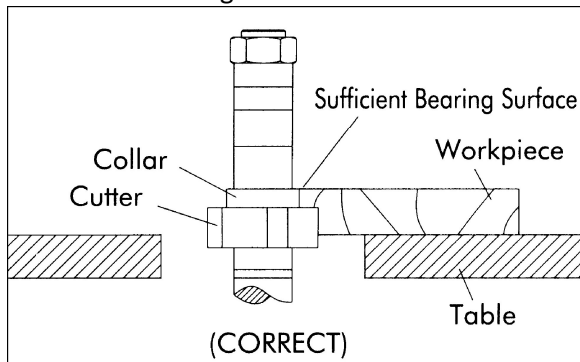
Shaping Tall Workpieces

The height of the fence is 4-3/4" tall. For shaping tall workpieces, mounting an auxiliary fence, or using a tenon jig, will provide additional support and avoid accidents.

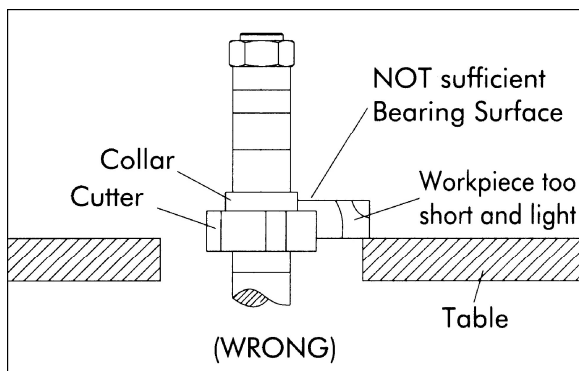
Shaping with Collars

Ensure the edge of the workpiece that rides against the collar is smooth. Otherwise, any irregularity on that edge will be duplicated on the shaped surface.

When shaping with collars, the collar must have a sufficient bearing surface.

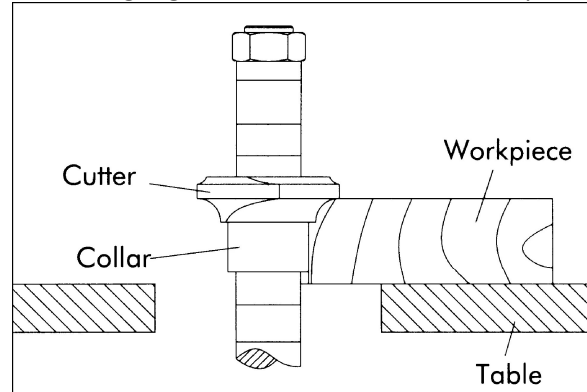


The work must also be fairly heavy relative to the cut being made. Never shape a short, light workpiece against the collars.

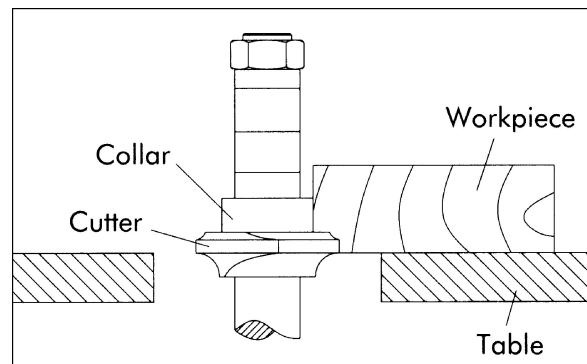


The collars may be used in any of the following positions: above, below, or between the cutters.

When the collar is used below the cutter, the progress of the cut can be seen throughout the operation. However, any accidental lifting of the work will gouge the wood and ruin the workpiece.



When the collar is used above the cutter, the cut cannot be seen, but this method offers an advantage in that the cut is not affected by slight variations in the thickness of the stock. Also, accidental lifting of the workpiece will not gouge the workpiece; simply repeat the operation to correct the mistake.



Using the collar between two cutters has the advantages and disadvantages of the first two procedures, and is frequently used where both edges of the work are to be molded.



WARNING

Freehand shaping requires precise control of the workpiece and should only be performed by advanced users. Use the provided starting pin or a custom-made pivot board to initiate a cut. Never start freehand shaping at a corner.

Accessories

Oliver Machinery has a collection of accessories and add-ons to enhance the productivity of your shaper. Please visit our website OLIVERMACHINERY.NET to purchase these items.

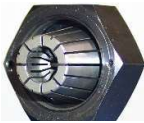
You may also call **1-800-559-5065** or email PARTS@OLIVERMACHINERY.NET to purchase these items. We are available Monday through Friday, 9 AM - 5 PM Pacific Time.



WARNING

Using unapproved accessories may cause the machine to malfunction, resulting in serious injury and/or machine damage. Only use accessories recommended for this machine.

Collets



Item	Stock Number
1/4" Collet	4705.A002
1/2" Collet	4705.A003

Spindle Assemblies



Item	Stock Number
1/2" Spindle	10047.A001
3/4" Spindle	10047.A002
1" Spindle	4705.A001
1-1/4 Spindle	4705.A004

440V Conversion Kit



This is a 440V compatible switch box assembly, which requires installation by a qualified electrician. If you need to purchase a 440V version of this shaper. Please contact our customer service. We can pre-install this kit for you.

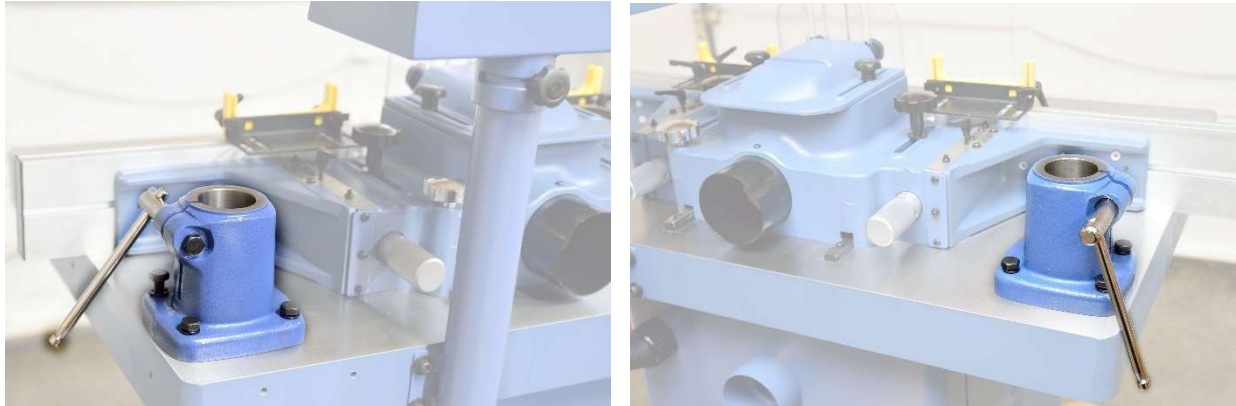
Touchup Paint



Keeping all painted surfaces in good condition keeps your machine looks great and keeps rusts away. We have pre-mixed spray paint available in Oliver-Blue for purchase.

Power Feeders

Two power feeders are available for 4705 Shaper. They can be installed on either side of the shaper table in the back.



Features

- Polyurethane covered rollers provide excellent grip while protecting the work surface.
- Eight feed speeds and choice of three or four rollers to fit any application.
- Versatile stand allows adjustment of 10" in height and 18" in reach.
- Powerful TEFC motors are available in single or three-phase.
- CSA Listed



Model	APF0038
Stock Number	APF0038.001 1HP, 1Ph, 220V (4.2A)
Stock Number	APF0038.002 1HP, 3Ph, 220V (3.4A)
Number of Rollers	3
Roller Size	4-3/4"(D) x 2-3/8"(W)
Feed Speed	8 Speeds: 6.5 / 13 / 18 / 22 / 36 / 43 / 55 / 108 FPM
Net Weight	137 lbs.



Model	APF0048
Stock Number	APF0048.001 1HP, 1Ph, 220V (4.2A)
Stock Number	APF0048.002 1HP, 3Ph, 220V (3.4A)
Number of Rollers	4
Roller Size	4-3/4"(D) x 2-3/8"(W)
Feed Speed	8 Speeds: 6.6 / 13 / 18 / 22 / 36 / 43 / 55 / 108 FPM
Net Weight	146 lbs.

Please visit our website at WWW.OLIVERMACHINERY.NET for additional recommended accessories.

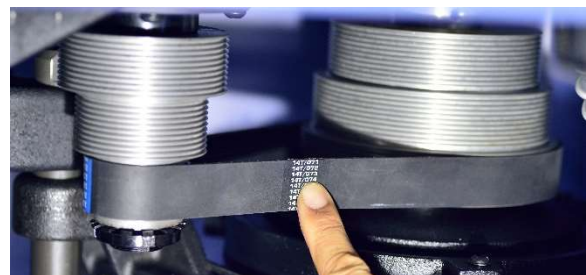
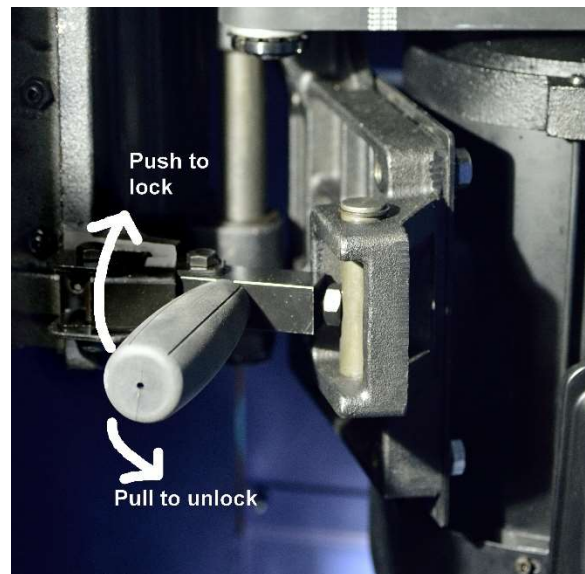
Maintenance

Routine maintenance keeps your shaper in top shape. Please follow the maintenance schedule below, and use the maintenance record worksheet attached in the back of the manual to document all tasks completed. **NOTICE:** Maintenance schedule may vary for individual users due to different situations and safety requirements.

Task	Frequency
Check spindle and quill for damages	Whenever changing spindle.
Check electrical cord(s) for signs of failure	Every day.
Check belt tension	Every week, or after changing spindle speed.
Remove dust from the cabinet	Every week, or whenever there is heavy dust buildup.
Re-coat tabletop with rust protectant	Every week.
Check fences are coplanar	Every week.
Check V-belt for signs of aging	Every month. Replace V-belt when it shows signs of cracking or glazing.
Lubricate motor bearings	**Not needed** Motor bearings are permanently sealed and lubricated.

Replace Drive Belt

1. **Disconnect machine from power source!!**
2. Open the cabinet door to gain access to the belt tension lever.
3. Pull belt tension lever towards you to relieve belt tension.
4. Move the belt to the lowest set of pulleys.
5. Continue sliding the belt down from the left pulley until the belt is free, then remove the belt over the top of the right pulley.
6. Install a new belt by following step 5 in reverse.
7. Move the belt to the desired position to set the spindle speed, then check belt tension. See section “Adjusting Spindle Speed and Belt Tension” for details.

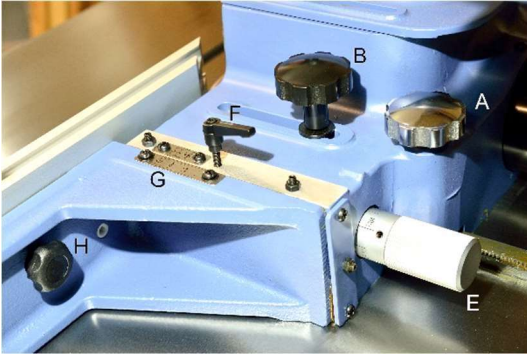


Align Fences

The fences are pre-adjusted in the factory. The coplanar of the fence should be checked regularly and adjusted as needed.

To Verify Fences are Coplanar

1. Reset the position of both fences. Release the fence lock lever (F), then turn the micro-adjustment knob (E) to move the fences back to their initial (0") position.



2. Place a straightedge on the table, and press against the infeed and the outfeed fences to ensure both fences are flushed with the straight edge.
3. Place a woodworking square on the table and make sure the fence is perpendicular to the table.
4. Adjustment is needed if the fences are skewed.

Coplanar Adjustment

1. There are 4 nylon set screws supporting each infeed/outfeed fence.



2. Loosen the fence locking knob (H) as shown in the diagram. Then make small, incremental adjustment on the set screws to align the fences. Check your adjustment frequently. You may want to mark the initial position of the set screws just in case.
3. To check alignment of the fence, re-lock the fence with the fence locking knob (H). Check fences are coplanar, and it is perpendicular to the table.

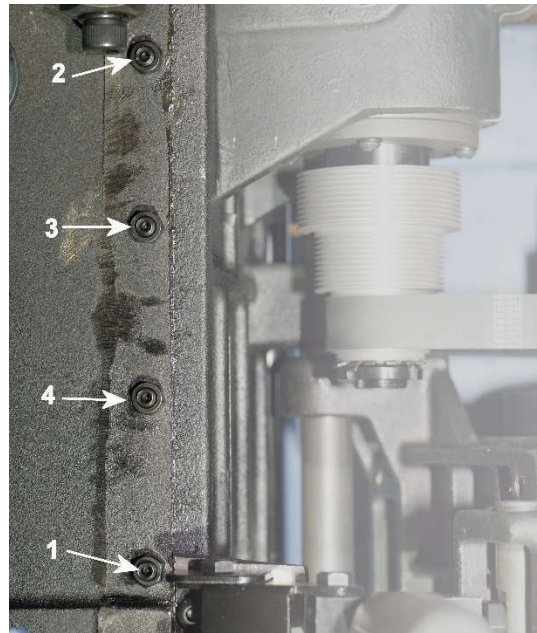
Spindle Elevator Adjustment

The gib of the spindle elevator was factory adjusted and initially should not require readjustment. Depending on the amount of use, the spindle elevator may become loose and the spindle may vibrate. In this case, it will need to be adjusted:

1. Mark the origin position of the set screws.
2. With a 12mm wrench, loosen four jam nuts that secure the gib set screws.
3. Use a 4mm hex wrench to tighten the set screws, 1/8 or less turn at a time. Begin with the lowest one, followed by the uppermost one, then the two middle set screws.

NOTICE: If the gibs are too tight, the spindle height adjustment handwheel will be difficult to turn.

4. When the right amount of tightness is achieved, hold the set screw in position with a 4mm hex wrench to maintain the setting, and tighten the jam nut with a 12mm wrench.



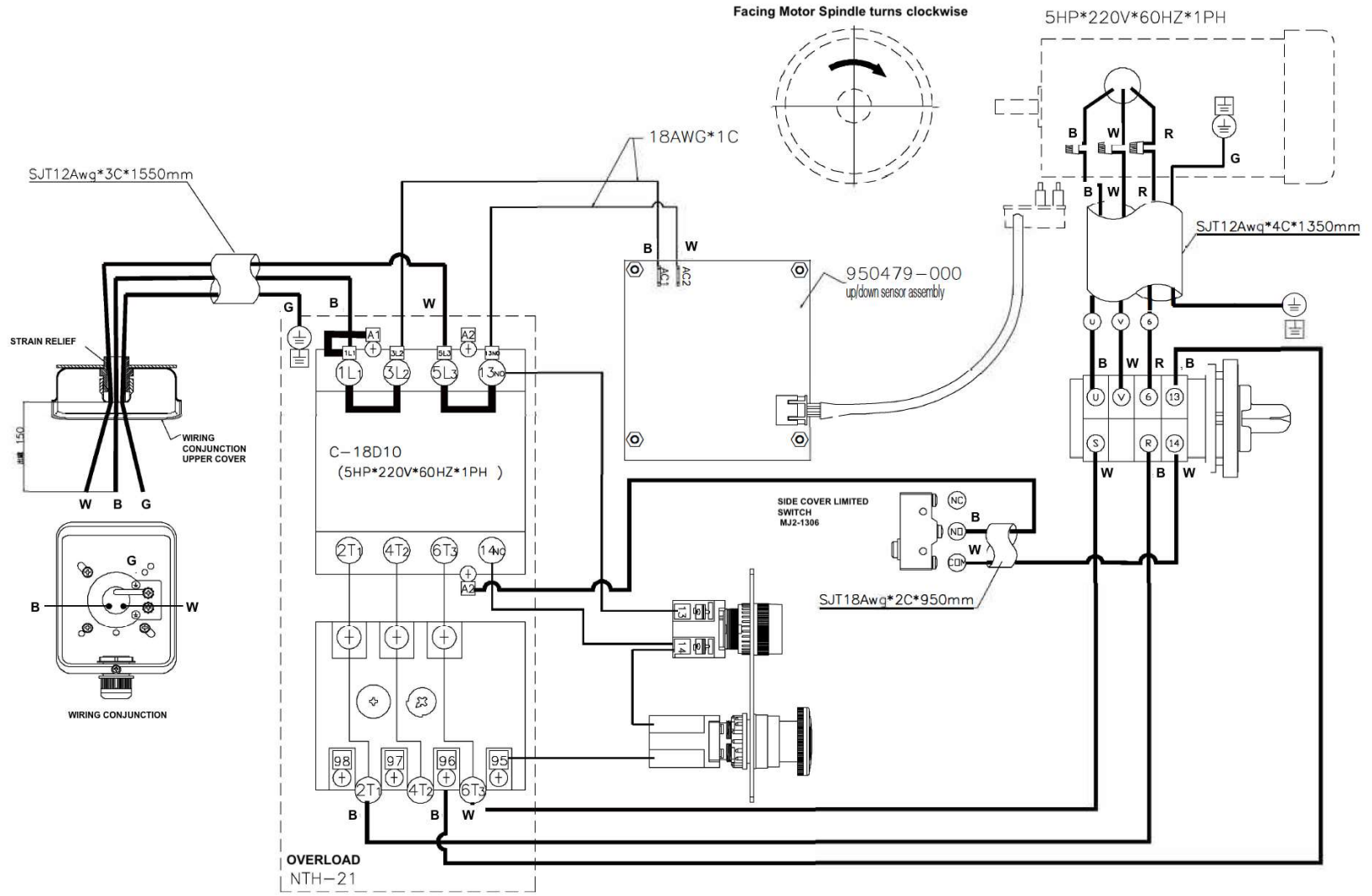
Troubleshooting

Problem	Possible Cause	Solution
Machine will not start	Emergency stop is engaged.	Rotate the “OFF” emergency shutoff button clockwise until it pops out.
	Spindle rotation switch is in the “Off” position.	Set direction to either “Forward” or “Reverse” for your operation.
	Cabinet door is open.	Close cabinet door.
	Not connected to a power source.	Check connection.
	Fuse has blown or circuit breaker tripped.	Replace the fuse or reset the circuit breaker.
	Cord/plug damaged.	Replace cord/plug.
	Faulty switch.	Replace switch.
	Connected to the wrong voltage.	Check power circuit voltage and ensure the wiring is done correctly.
	Spindle arbor is locked.	Release spindle lock.
Overload protection is triggered frequently	Feeding stock too fast.	Feed stock more slowly.
	Cutter is dull or dirty.	Clean or replace the cutter.
	Extension cord too light or too long.	Use cords that meet this machine’s electrical requirement.
	V-Belt slippage.	Increase belt tension.
Tool does not come up to speed	Extension cord too light or too long.	Use cords that meet this machine’s electrical requirement.
	V-Belt slippage.	Increase belt tension.
	Motor not wired for correct voltage.	Refer to motor nameplate for correct voltage.
Spindle does not raise freely	Sawdust and dirt in raising mechanisms.	Brush or blow out loose dust and dirt.
Machine vibrates excessively	Damaged cutter.	Replace cutter.
	Machine stands on an uneven floor.	Reposition on a flat, level surface.
		Use provided leveling hardware as support.
	V-belt not tensioned correctly.	Adjust belt tension.
	Bad v-belt.	Replace v-belt.
	Spindle gib wear.	Adjust spindle gib pressure.
	Bent pulley.	Replace pulley.
	Improper motor mounting.	Check and adjust motor mounting.

Problem	Possible Cause	Solution
Work pulled from the hand	Inadequate stock support.	Use miter gauge with a clamp or hold down. Hold work firmly against the fence. Adjust the hold down pressure.
	Feeding work in the wrong direction.	Feed work against cutter rotation.
Machine makes unsatisfactory cuts	Dull cutter.	Replace with a sharp cutter.
	Gum or pitch on the cutter/table.	Remove the cutter/table and clean with turpentine and #000 steel wool.
	Feeding work in the wrong direction.	Feed work against cutter rotation.
Edge splits off on cross grain cut	Some wood types tend to split with crosscuts.	Use sharp cutters.
		Make cross-grain cuts first then finish with grain.
		Use scrap block to support at the end of a cut.
Stock burns	Dull cutter.	Replace cutter.
	Cutter too deep.	On hardwoods take light cuts; attain the full depth of cut with several passes.
	Forcing work.	Feed slowly and steadily.
	Spindle speed too high.	Reduce spindle speed.
Raised areas on the shaped edge	Inconsistent feed pressure.	Feed work firmly against the table, the fence, or the collar.
		Use hold-downs.
Depth of cut not uniform	Fence is not aligned.	Adjust the outfeed fence. Check fence coplanarity.
	Inconsistent feed/hold down pressure.	Maintain feed/hold down pressure and feed rate. Use hold-downs.
Variation in height of cut	Inconsistent feed/hold down pressure.	Maintain feed/hold down pressure and feed rate. Use hold-downs.
Cuts not smooth	Dull cutter.	Replace cutter.
	Spindle speed too low.	Increase RPM.
	Feeding too fast.	Pass stock more slowly.
	Working against the grain.	Work with grain whenever possible.
	Cutting too deep.	On deep cuts make several passes.

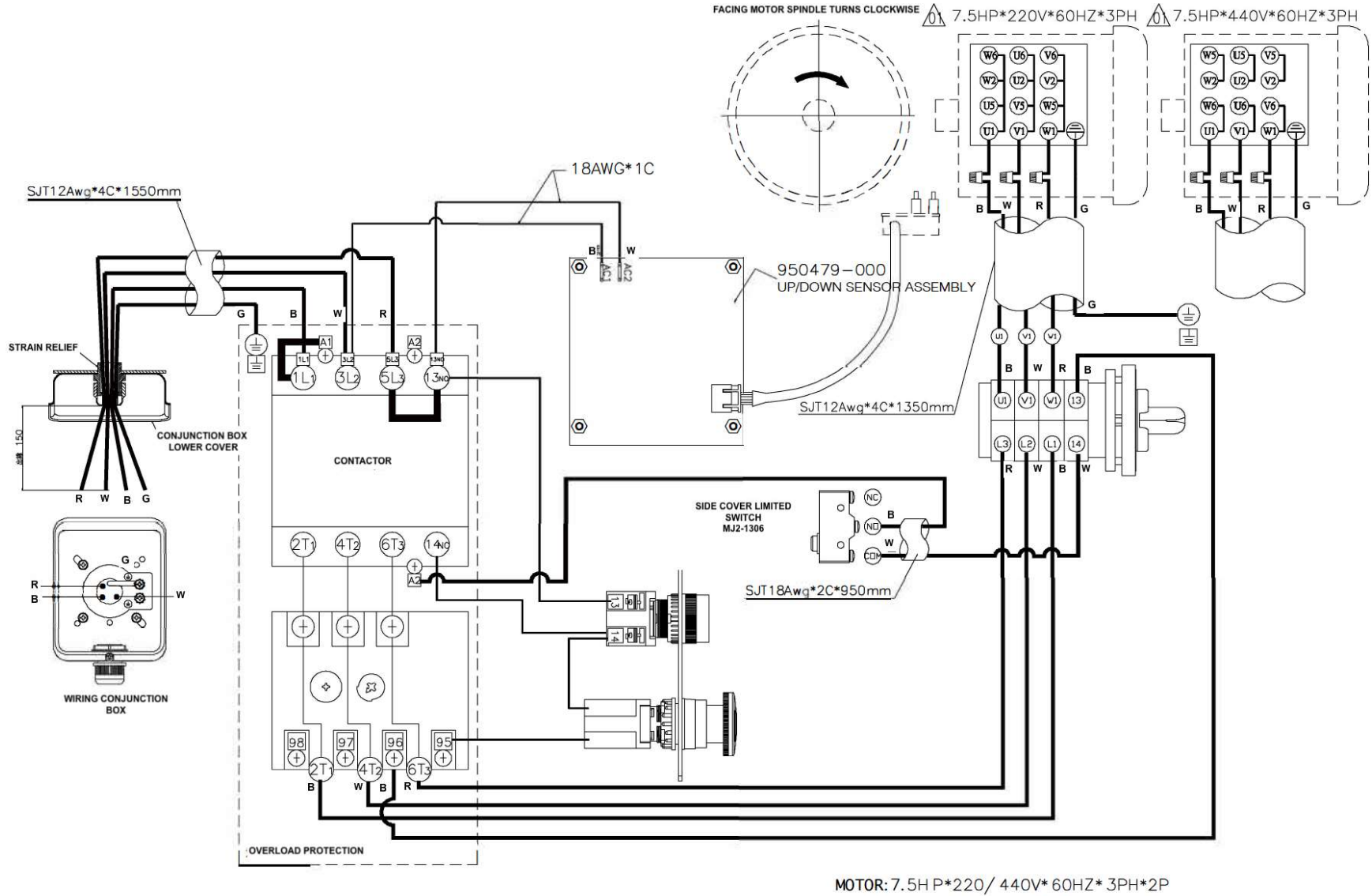
Wiring Diagram

For Stock Number 4705.001 (220V, 1Ph)



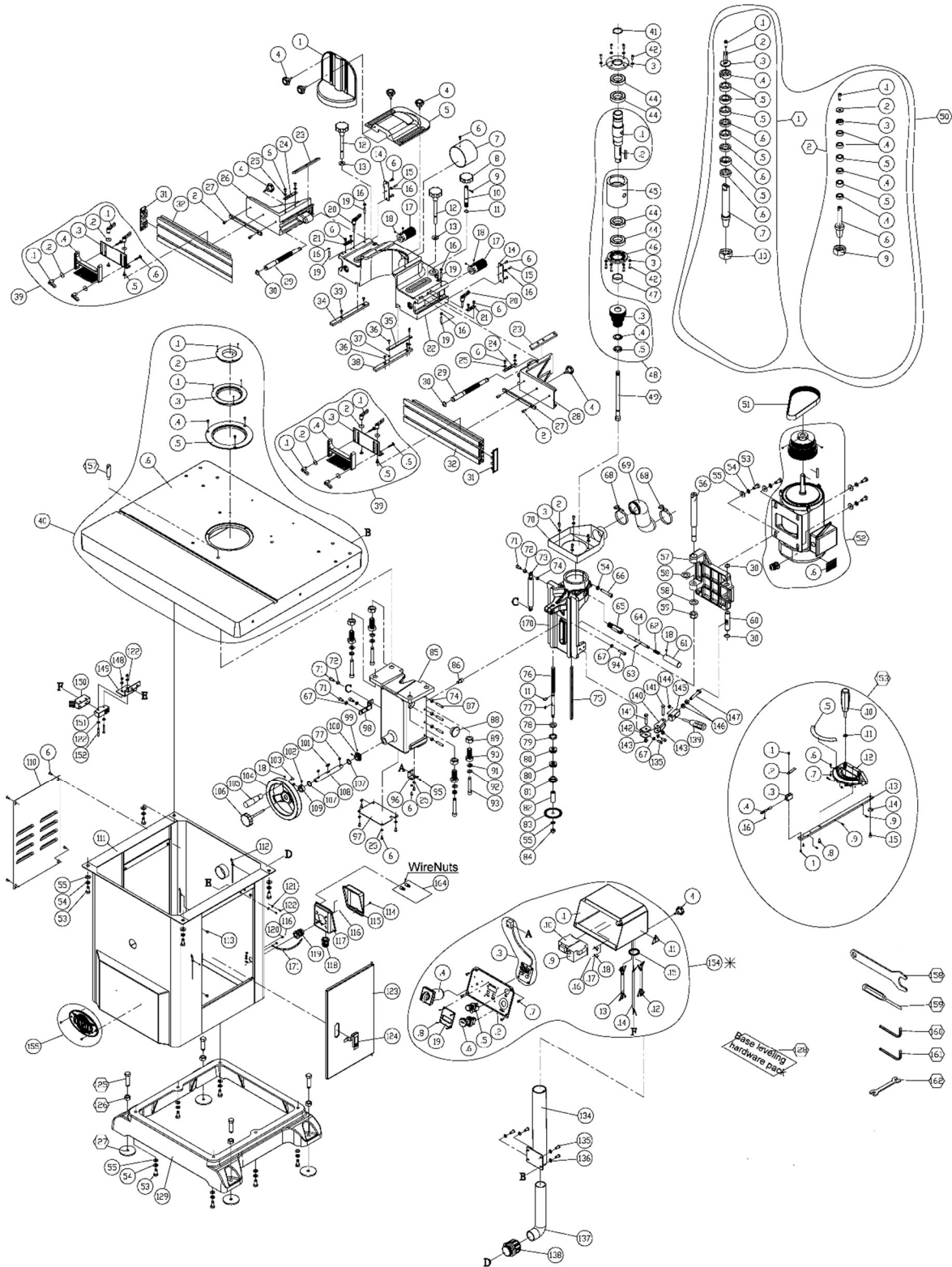
MOTOR: 5HP*220V*60HZ*1PH*2P
Magnetic switch: NTH-21(17-21A)/C-18010

For Stock Number 4705.002 (220/440V, 3Ph)



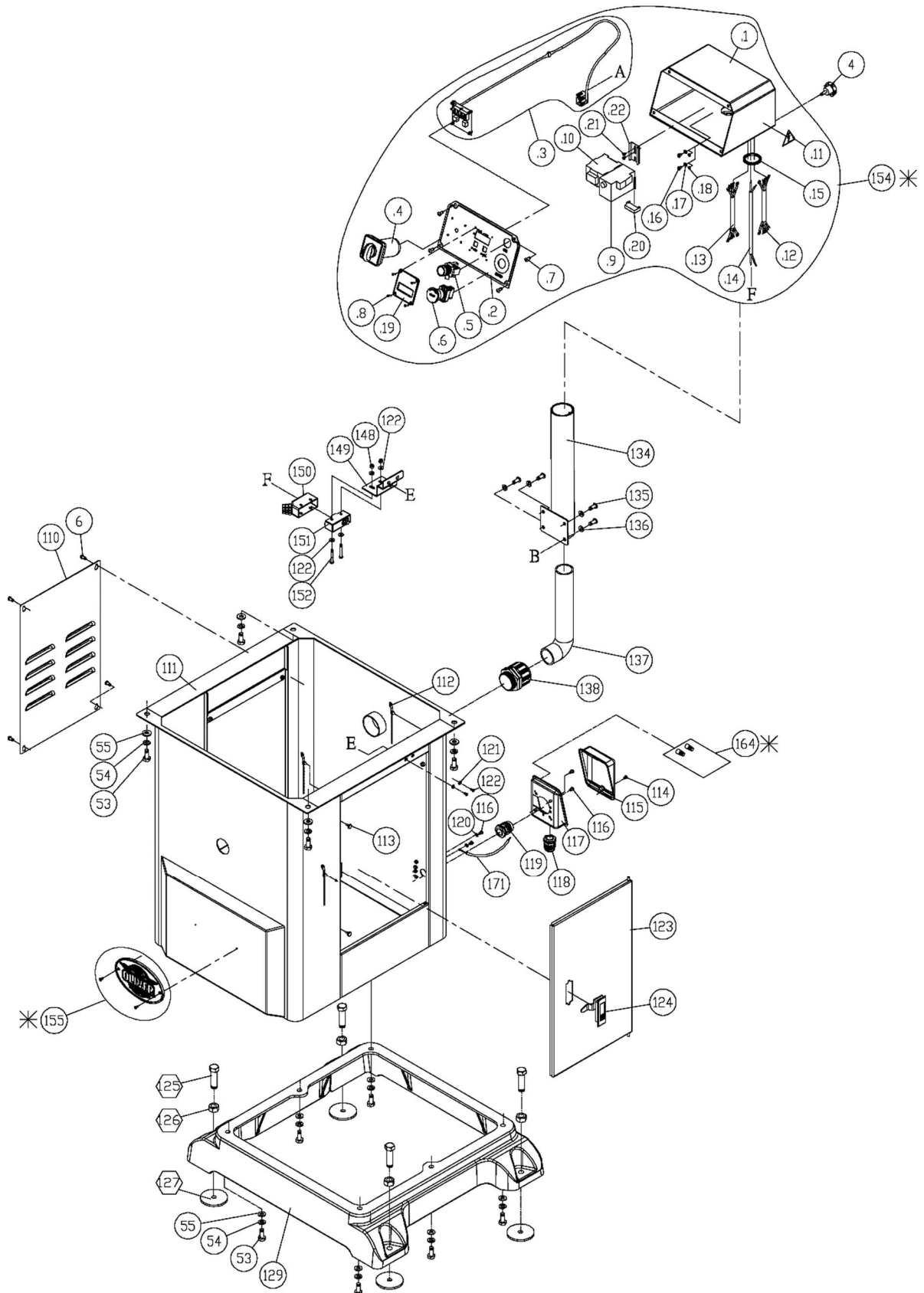
Parts List

Complete Exploded View



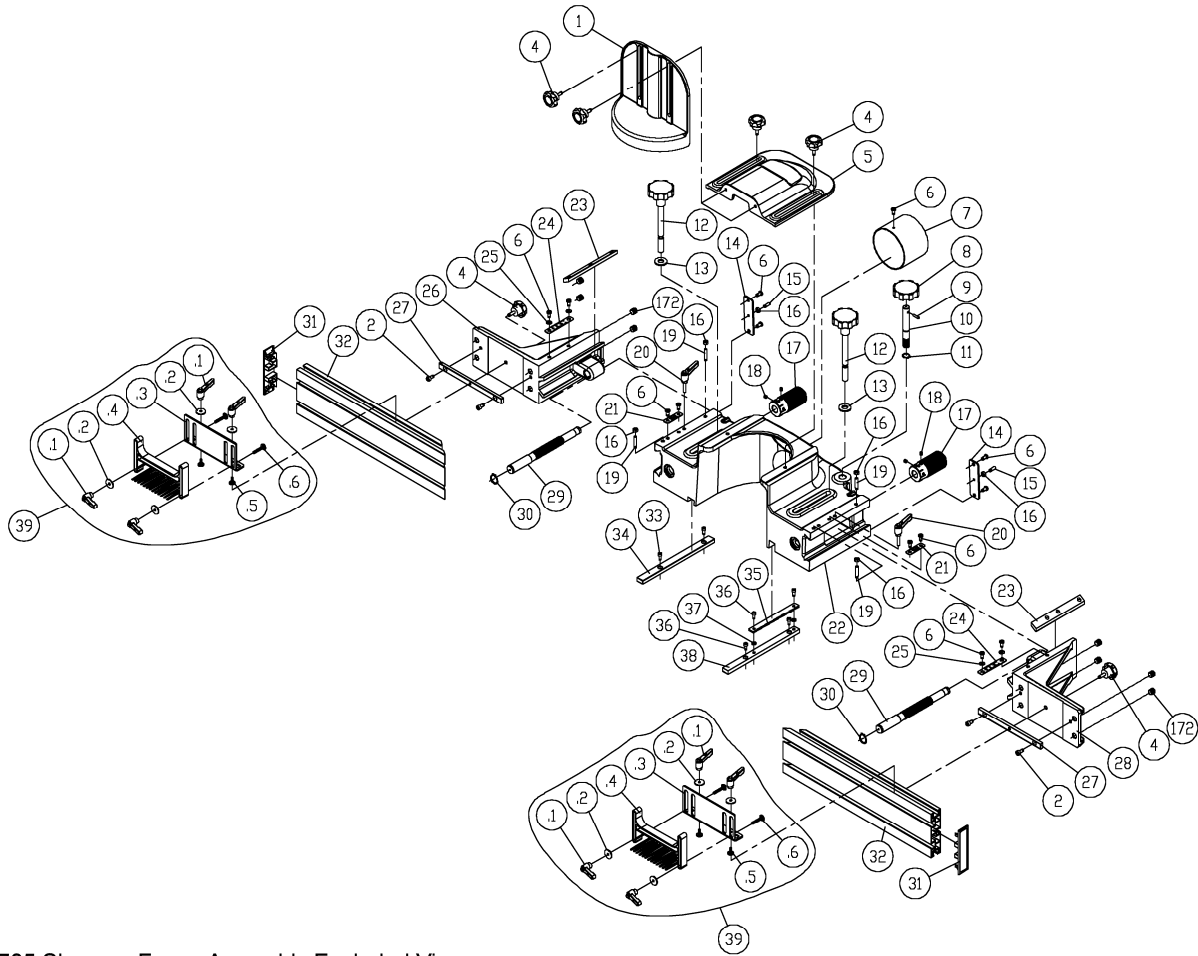
4705 Complete Exploded View

Cabinet and Base



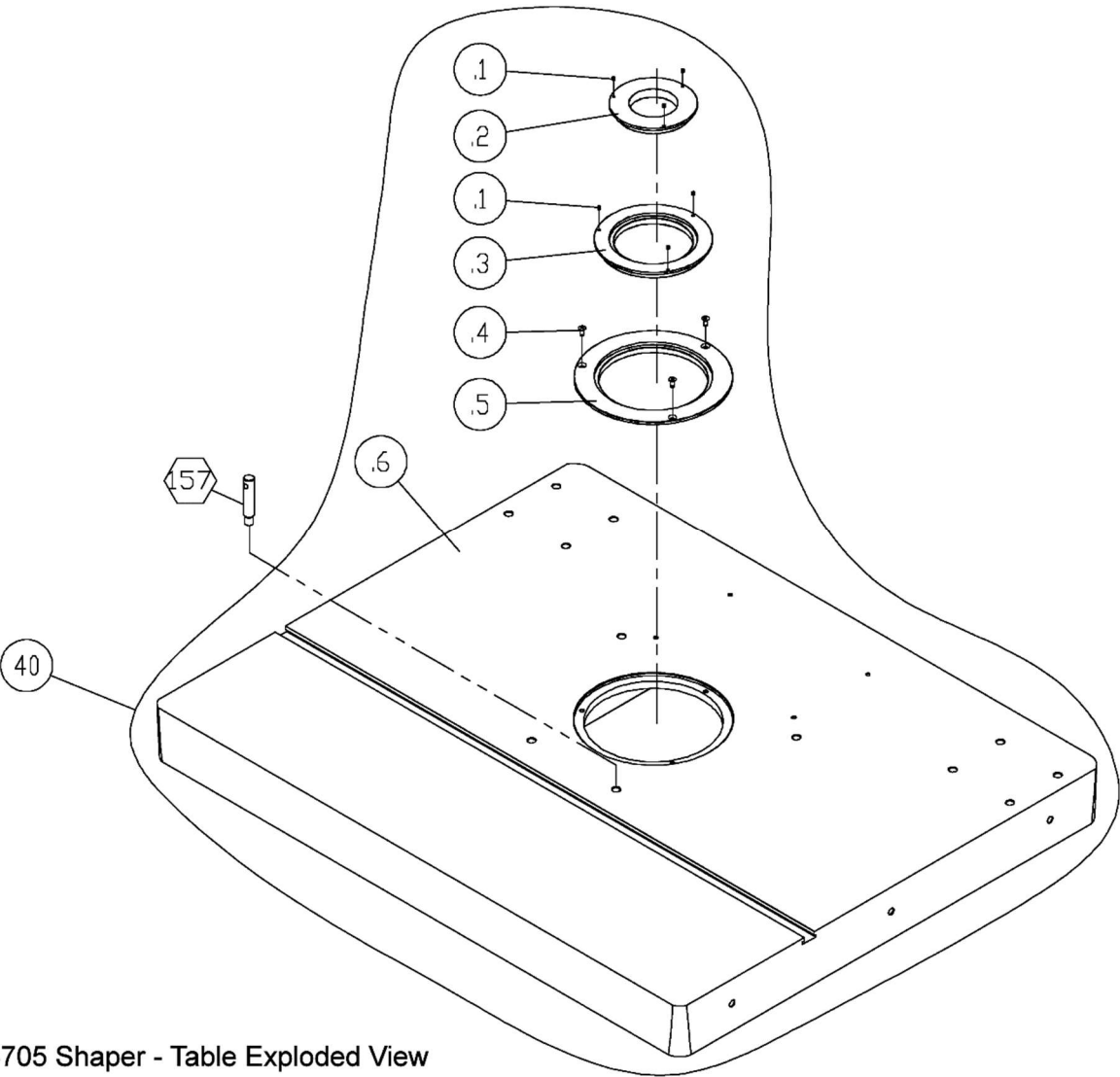
4705 Shaper - Cabinet and Base Exploded View

Fence Assembly



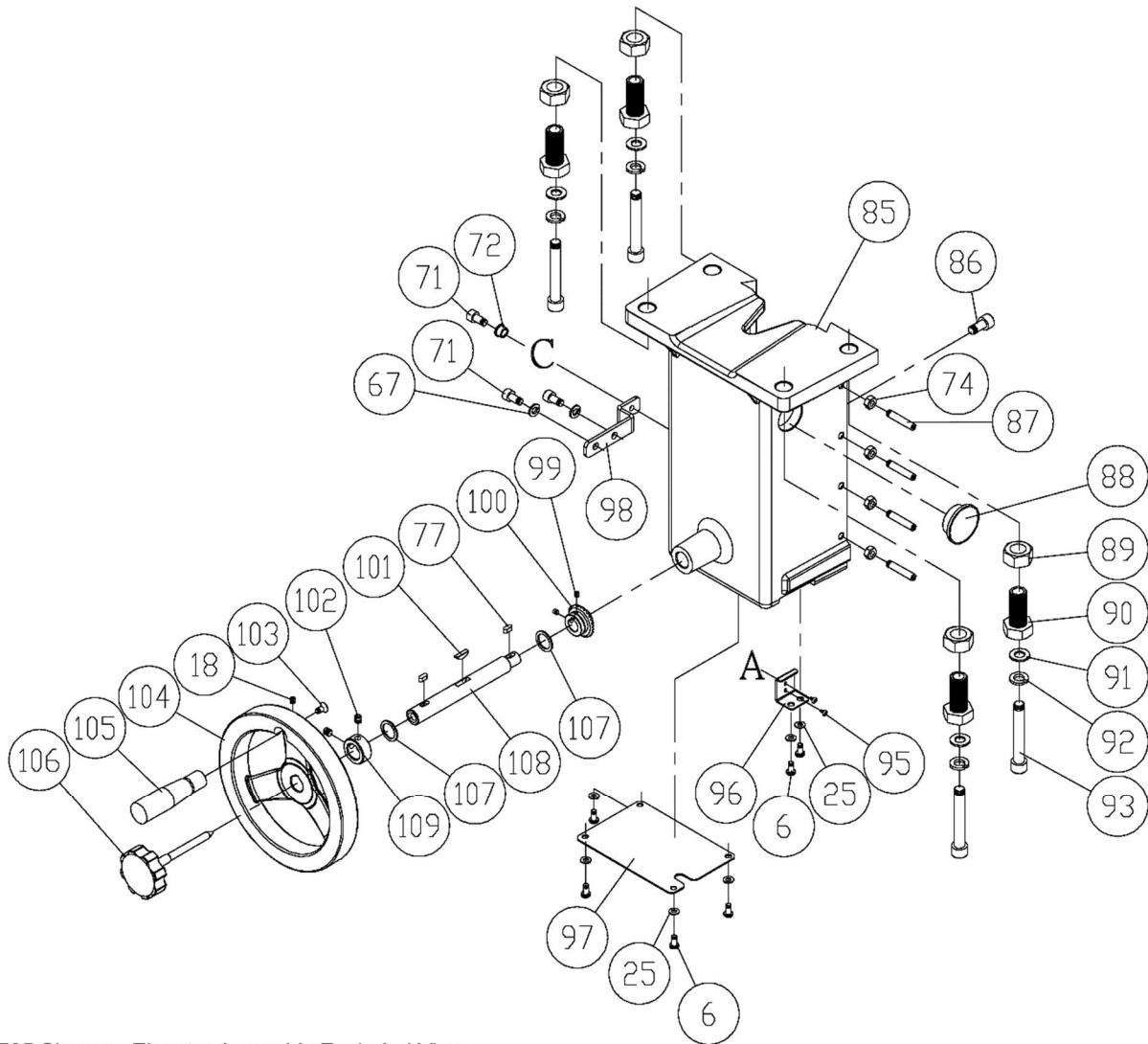
4705 Shaper - Fence Assembly Exploded View

Table Assembly



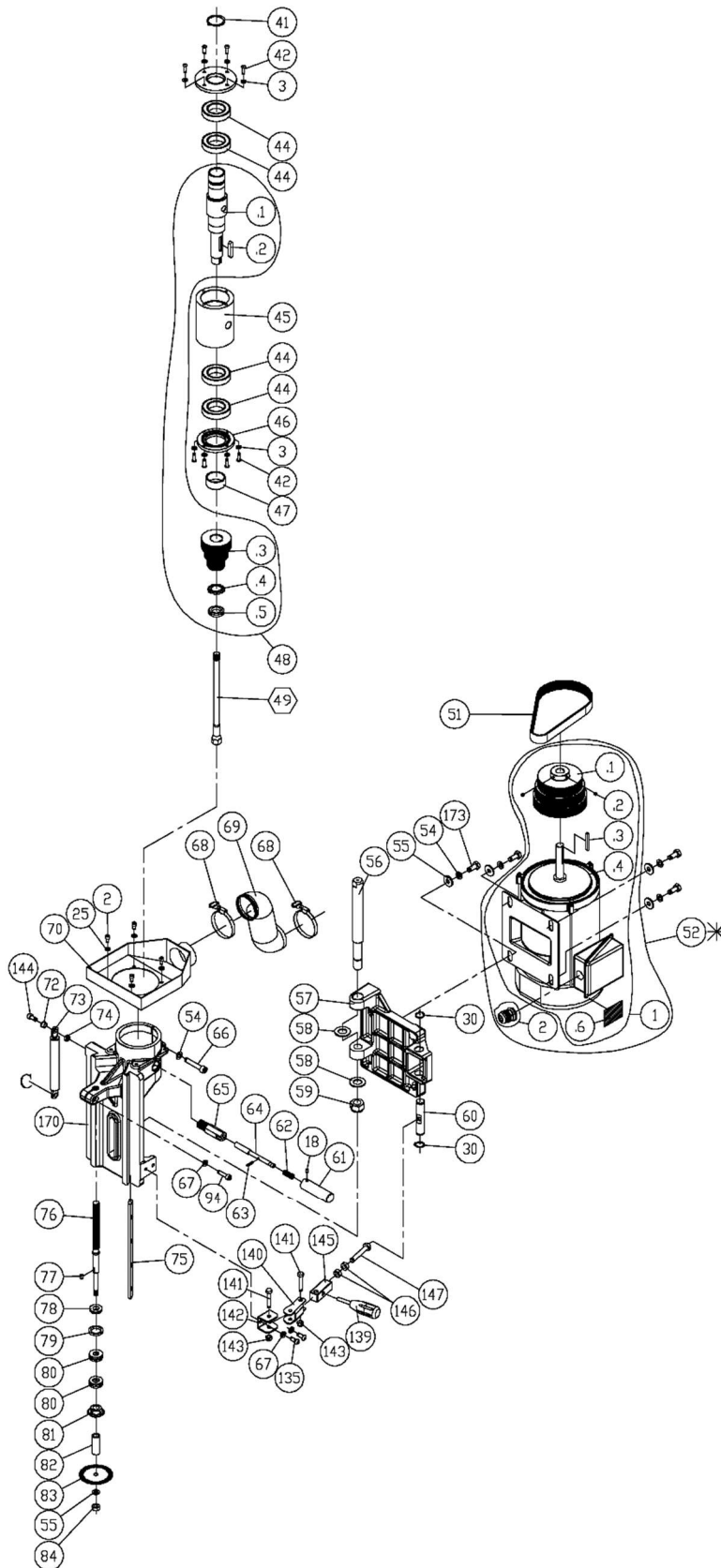
4705 Shaper - Table Exploded View

Elevator Assembly



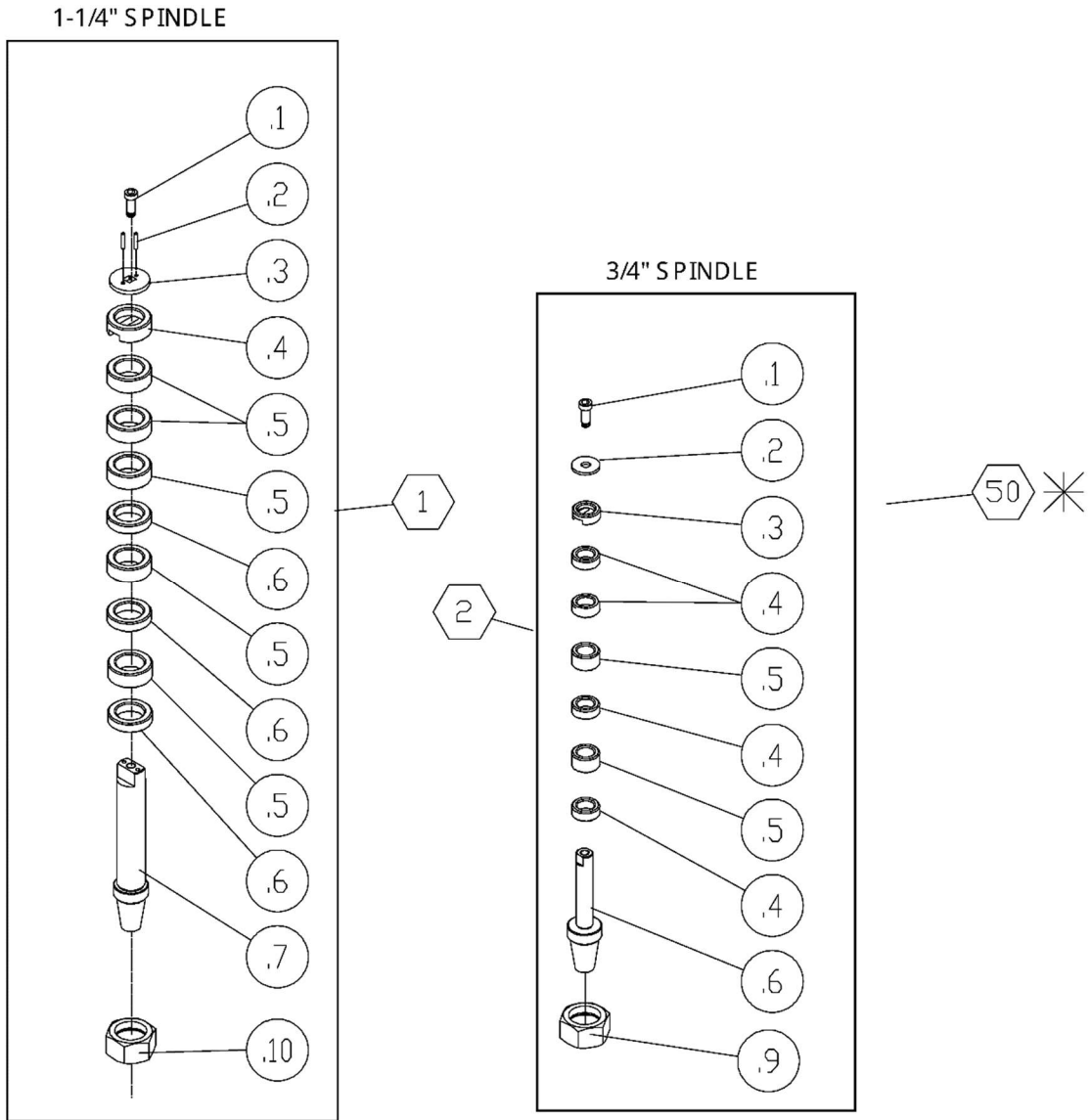
4705 Shaper - Elevator Assembly Exploded View

Motor Assembly



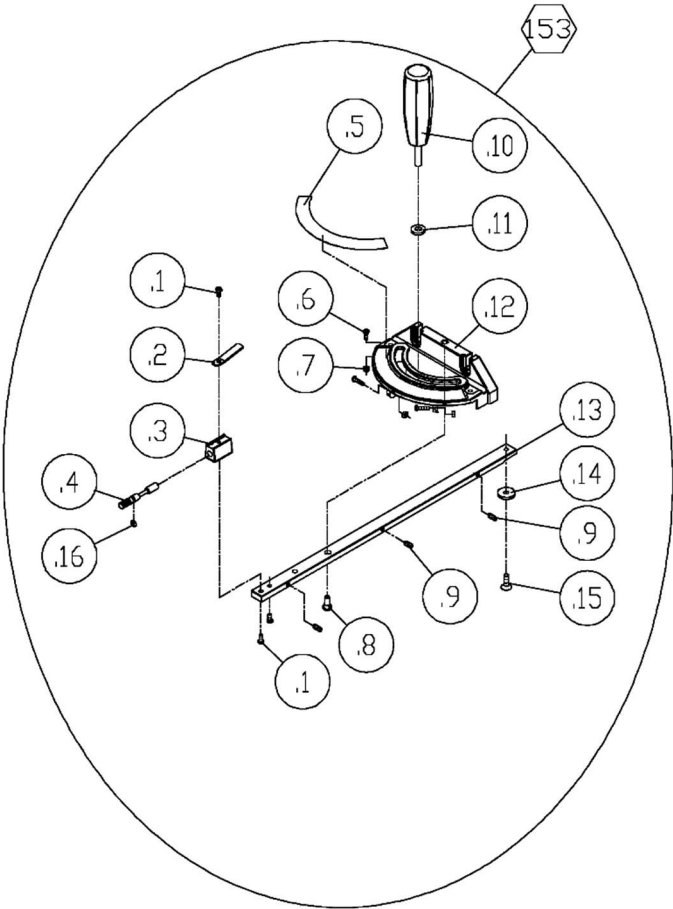
4705 Shaper - Motor Assembly Exploded View

Spindles



4705 Shaper - Spindle Assembly Exploded View

Miter Gauge



4705 Shaper - Miter Gauge Exploded View

Index	Part Number	Descriptions	Specifications	QTY
1	250838-620	Spindle Guard		1
2	000103-103	CAP Screw	M6*1.0P*12	8
3	006303-100	Spring Washer	6.1*12.3	12
4	230131-000	Lock Bolt		7
5	090240-000	Cover		1
6	000304-103	Round Head Screw	M6*1.0P*12	23
7	190175-904	Dust Port		1
8	230331-916	Lock Nut		1
9	011002-209	Spring Pin	4*18	1
10	320309-902	Gear		1
11	010006-000	S-Ring	STW-15	2
12	230329-901	Lock Bolt		2
13	006001-091	Flat Washer	13*28*3.0t	2
14	172839-000	Adjusting Plate		2
15	000203-106	SET Screw	M6*1.0P*16	2
16	008005-100	Hex. Nut	M6*1.0P(10B*5H)	6
17	360941-910	Handle		2
18	001902-102	SET Lock Screw	M6*1.0P*8	6
19	000203-109	SET Screw	M6*1.0P*30	4
20	230251-000	Universal Handle		2
21	172836-000	Scale		2
22	090239-000	Guard Seat		1
23	051064-000	Bar		2
24	172834-000	Scale Plate		2
25	006001-022	Flat Washer	6.3*13*1.0t	10
26	051059-000	Fence Bracket (Left)		1
27	380966-902	Fence Sliding Bar		2
28	051063-000	Fence Bracket (Right)		1
29	360942-902	Shaft		2
30	010010-000	S-Ring	STW-20	4
31	250593-615	Fence Cap		2
32	310109-909	Fence		2
33	000102-105	CAP Screw	M5*0.8P*16	2
34	380968-902	Sliding Positioning Bar		1
35	380967-902	Rack		1
36	000102-104	CAP Screw	M5*0.8P*12	4
37	006001-131	Flat Washer	5.3*10*2.0t	2

Index	Part Number	Descriptions	Specifications	QTY
38	380971-902	Rack Sliding Positioning Bar		1
39	922670-000	Clamp System Assembly		2
39.1	230178-000	Universal Handle		4
39.2	006001-127	Flat Washer	5.5*22*2.0t	4
39.3	172031-901	Fixing Plate		1
39.4	250608-000	Clamp	TS-35	1
39.5	001004-202	Screw	M5*0.8P*16L	2
39.6	001004-203	Screw	M5*0.8P*30L	2
40	922652-000	Table Assembly		1
40.1	001904-102	SET Lock Screw	M4*0.7P*4	6
40.2	050693-902	Small Guide Ring		1
40.3	050688-902	Medium Guide Ring		1
40.4	000402-104	Pan Head Screw	M5*0.8P*12	3
40.5	050832-902	Large Guide Ring		1
40.6	051057-000	Table		1
41	010025-000	S-Ring	STW-40	1
42	000801-104	Pan Head Hex. Screw	M6*1.0P*20	8
43	051062-902	Upper Bearing Cap		1
44	030410-000	Ball Bearing	6008-2NK	4
45	051065-000	Spindle Sleeve		1
46	050892-901	Lower Bearing Cap		1
47	190165-901	Lower Sleeve		1
48	922651-000	Spindle Assembly		1
48.1	360939-901	Spindle		1
48.2	012005-011	Key	8*7*43	1
48.3	090242-000	Pulley		1
48.4	006802-100	Washer	25	1
48.5	008201-100	Nut	M25*1.5P	1
49	380969-905	Link Shaft		1

Index	Part Number	Descriptions	Specifications	QTY
50.1	922193-001	1-1/4" Spindle Assembly		1
50.1.1	000105-103	Cap Screw	M10*1.5P*30	1
50.1.2	011102-103	Pin	4.0*20	2
50.1.3	171848-902	Arbor Washer	10.5*45*5t	1
50.1.4	380531-901	Arbor Bushing		1
50.1.5	380039-901	Spacer		5
50.1.6	380038-901	Spacer		3
50.1.7	220105-000	1-1/4" Arbor		1
50.1.10	380818-901	Arbor Nut		1
50.2	970311-001	3/4" Spindle Assembly		1
50.2.1	000105-103	Cap Screw	M10*1.5P*30	1
50.2.2	380691-902	Arbor Washer		1
50.2.3	380530-901	Arbor Bushing		1
50.2.4	380042-901	Spacer		4
50.2.5	380043-901	Spacer		2
50.2.6	220107-000	3/4" Arbor		1
50.2.9	380818-901	Arbor Nut		1
51	014341-000	Belt	250 J10(635mm)	1
52	SS04-01			
52.1	900754-000	Motor Assembly 5HP*220V*60HZ*1PH		1
52.1.1	090241-000	Motor Pulley		1
52.1.2	001902-102	SET Lock Screw		2
52.1.3	012202-006	Key		1
52.1.4	603066-008	Motor		1
52.1.5	021306-000	Strain Relief PGA16-14B		1
52.1.6	572554-000	Motor Tag		1
52.1	900735-000	Motor Assembly 7.5HP*220V/440V*60HZ*3PH		1
52.1.1	090241-000	Motor Pulley		1
52.1.2	001902-102	SET Lock Screw		2
52.1.3	012202-006	Key		1
52.1.4	606106-008	Motor		1
52.1.5	021306-000	Strain Relief PGA16-14B		1
52.1.6	572553-000	Motor Tag		1
53	000004-102	Hex. Screw	M10*1.5P*25	14
54	006307-100	Spring Washer	10.2*18.5	15

Index	Part Number	Descriptions	Specifications	QTY
55	006003-080	Flat Washer	10*25*3.0t	15
56	360946-902	Motor Bracket Shaft		1
57	051060-008	Motor Bracket		1
58	006001-142	Flat Washer	21*38*3t	2
59	008314-100	Lock Nut	M20*1.5P(30B*20H)	1
60	360943-902	Motor Fixing Shaft		1
61	300013-000	Handle		1
62	280151-905	Spring		1
63	011002-105	Spring Pin	4*20	1
64	360724-901	Fixing Pin		1
65	380511-901	Fixing Shaft		1
66	000105-106	CAP Screw	M10*1.5P*55	1
67	006305-100	Spring Washer	8.2*15.4	4
68	042608-000	Clamp	dia. 60-80mm(inner)	2
69	042611-000	Dust Duct	300mm	1
70	172835-008	Dust Chute		1
71	000104-104	CAP Screw	M8*1.25P*16 (Black)	4
72	160076-000	Sleeve		2
73	660147-000	Air Pressure Shaft		1
74	008006-100	Hex. Nut	M8*1.25P(13B*6.5H)	5
75	050696-000	Bar		1
76	360945-902	Spindle Up/Down Worm Shaft		1
77	012003-003	Key	5*5*12	3
78	160073-000	Up/Down Worm Shaft Sleeve		1
79	660144-000	Anti-Dirt Ring		1
80	031006-000	Thrust Bearing	51202	2
81	380767-000	Gear	Left Thread	1
82	360944-902	Sleeve		1
83	171985-000	Sensor		1
84	008307-100	Lock Nut	M10*1.25P(17B*12H)	1
85	051061-008	Sliding Seat Body		1
86	002604-101	CAP Lock Screw	M10*1.5P*20	1
87	000204-108	SET Screw	M8*1.25P*35	4
88	250159-615	Plug		1

Index	Part Number	Descriptions	Specifications	QTY
89	008017-100	Hex. Nut	M20*1.5P(30B*16H)	4
90	380647-902	Screw	M20*1.5P	4
91	006001-136	Flat Washer	12.2*23*2.0t	4
92	006308-100	Spring Washer	12.2*21.6	4
93	000106-112	CAP Screw	M12*1.75P*80	4
94	002604-103	CAP Lock Screw	M10*1.5P*40	1
95	001101-203	Round Head Self-Tapping Screw	M3*1.06P*08L	2
96	172992-000	Bracket		1
97	172838-000	Anti-Dust Plate		1
98	172982-901	Supporting Bracket		1
99	001901-101	SET Lock Screw	M5*0.8P*5	2
100	380768-000	Gear	Right Thread	1
101	130061-000	Woodruff Key		1
102	004403-103	SET Lock Screw	5/16"-18NC*5/16"	2
103	000702-102	Pan Head Hex. Screw	M6*1.0P*12	1
104	240077-000	Handwheel		1
105	230046-000	Foldable Handle		1
106	230171-916	Lock Knob		1
107	006006-106	Flat Washer	19.1*25.4*1.6	2
108	360940-902	Handwheel Shaft		1
109	360376-901	Fixing Ring		1
110	172837-000	Left Side Cover		1
111	172987-000	Body		1
112	230297-615	Wire Fixing Chain		3
113	340007-615	Packing		2
114	003303-102	Round Head Screw	3/16"-24NC*1/4"	1
115	490124-008	Wiring Cover		1
116	000303-103	Round Head Screw	M5*0.8P*10	4
117	490609-008	Wiring Cover (Bottom)		1
118	021306-000	Strain Relief	PGA16-14B	1
119	021315-000	Strain Relief	MG25A-16B	1
120	006502-100	Washer	5.3*10(BW-5)	2
121	000302-102	Round Head Screw	M4*0.7P*8	2
122	006001-001	Flat Washer	4.3*10*1.0t	6
123	172841-000	Right Side Cover		1
124	230134-000	Door Bar		1
129	050822-000	Base		1

Index	Part Number	Descriptions	Specifications	QTY
134	172983-000	Switch Support		1
135	000802-102	Pan Head Hex. Screw	M8*1.25P*20	6
136	006001-049	Flat Washer	8.5*16*2.0t	4
137	022231-000	Plastic Tube	NFE-16B*300mm	1
138	023207-000	Connector	N-MGQ50-48B*	1
139	250146-000	Handle		1
140	172991-904	Bracket		1
141	000003-109	Hex. Screw	M8*1.25P*45	2
142	172990-904	Supporting Bracket		1
143	008306-100	Lock Nut	M8*1.25P(13B*9H)	2
144	009105-300	Lock Nut	5/16"-18NC(12.7B*9H)	1
145	381002-904	Turning Block		1
146	008007-100	Hex. Nut	M10*1.5P(17B*8H)	2
147	000004-113	Hex. Screw	M10*1.5P*65	1
148	008301-100	Lock Nut	M4*0.7P(7B*5H)	2
149	171901-901	Bracket		1
150	490229-000	Limit Switch Anti-Dust Cover	KSSCB-2	1
151	490227-000	Limit Switch	MJ2-1306	1
152	000302-107	Round Head Screw	M4*0.7P*35	2
153	921574-000	Miter Gauge Assembly		1
153.1	003303-105	Round Head Screw	3/16"-24NC*3/8"	3
153.2	250193-620	Pointer		1
153.3	130053-901	Block		1
153.4	360381-901	Shaft		1
153.5	571151-000	Scale Tape		1
153.6	003305-106	Round Head Screw	5/32"-32NC*5/8"	3
153.7	009001-100	Hex. Nut	5/32"-32NC(8B*3.8H)	3
153.8	290017-901	Shoulder Screw		1
153.9	230222-901	Positioning Point		3
153.10	230300-615	Handle		1
153.11	006002-051	Flat Washer	8.5*18*3t	1
153.12	090067-008	Miter Gauge		1
153.13	380614-904	Positioning Bar		1
153.14	380069-901	Packing		1
153.15	000403-105	Pan Head Screw	M6*1.0P*6 (Black)	1
153.16	043311-000	P Type O-Ring	P5	1

Index	Part Number	Descriptions	Specifications	QTY
154	937573-000	Switch Box Assembly 5HP 220V 60HZ 1PH		1
154.1	172833-000	Switch Controller Box		1
154.2	300036-000	Controller Panel		1
154.3	950479-000	Up/Down Sensor		1
154.4	490342-000	Forward/Reverse Switch		1
154.5	490040-000	On Switch		1
154.6	490591-000	Emergency Stop Switch		1
154.7	000304-203	Phil Head Screw		4
154.8	000301-202	Phil Head Screw		4
154.9	490640-000	Overload Protector		1
154.10	490692-000	Magnetic Contactor		1
154.11	571227-000	Electrical Hazards Warning Label		1
154.12	473004-035	Cable SJT12AWG*4C*1550mm		1
154.13	474004-022	Cable SJT12AWG*4C*1350mm		1
154.14	472001-027	Cable ST18AWG*2C*950mm		1
154.15	021702-000	Rubber Tie		1
154.16	000303-102	Phil Head Screw		2
154.17	006502-100	Toothed Washer		2
154.18	570695-000	Ground Label/Sticker		2
154.19	250839-620	Display Protector		1
154.20	730078-001	Terminal Block Plate		1
154.21	000302-201	Phil Head Screw		2
154.22	730083-012	Bracket		1
154	937524-000	Switch Box Assembly 7.5HP 220V 60HZ 3PH		1
154.1	172833-000	Switch Controller Box		1
154.2	300036-000	Controller Panel		1
154.3	950479-000	Up/Down Sensor		1
154.4	490341-000	Forward/Reverse Switch		1
154.5	490040-000	On Switch		1
154.6	490591-000	Emergency Stop Switch		1
154.7	000304-203	Phil Head Screw		4
154.8	000301-202	Phil Head Screw		4
154.9	490640-000	Overload Protector		1
154.10	490692-000	Magnetic Contactor		1
154.11	571227-000	Electrical Hazards Warning Label		1
154.12	474004-021	Cable SJT12AWG*4C*1550mm		1

154.13	474004-022	Cable SJT12AWG*4C*1350mm	1
154.14	472001-027	Cable ST18AWG*2C*950mm	1
154.15	021702-000	Rubber Tie	1
154.16	000303-102	Phil Head Screw	2
154.17	006502-100	Toothed Washer	2
154.18	570695-000	Ground Label/Sticker	2
154.19	250839-620	Display Protector	1
154.20	730078-001	Terminal Block Plate	1
154.21	000302-201	Phil Head Screw	2
154.22	730083-012	Bracket	1
154	937600-002	Switch Box Assembly 7.5HP 440V 3PH	1
154.1	172833-000	Switch Controller Box	1
154.2	300036-000	Controller Panel	1
154.3	950733-000	Up/Down Sensor	1
154.4	490341-000	Forward/Reverse Switch	1
154.5	490040-000	On Switch	1
154.6	490591-000	Emergency Stop Switch	1
154.7	000304-203	Phil Head Screw	4
154.8	000301-202	Phil Head Screw	4
154.9	490736-000	Overload Protector	1
154.10	490737-000	Magnetic Contactor	1
154.11	571227-000	Electrical Hazards Warning Label	1
154.12	474004-021	Cable SJT12AWG*4C*1550mm	1
154.13	474004-022	Cable SJT12AWG*4C*1350mm	1
154.14	472033-007	Cable ST18AWG*2C*950mm	1
154.15	021702-000	Rubber Tie	1
154.16	000303-102	Phil Head Screw	2
154.17	006502-100	Toothed Washer	2
154.18	570695-000	Ground Label/Sticker	2
154.19	250839-620	Display Protector	1
154.20	730078-001	Terminal Block Plate	1
154.21	000302-201	Phil Head Screw	2
154.22	730083-012	Bracket	1
155	SS04-10	Oliver Brand Plaque	1
157	360735-905	Pin	1
164	SS04-85	Wire Nuts Package (x3 nuts)	1
171	471004-012		SJT12AWG*1C*150mm 1

Index	Part Number	Descriptions	Specifications	QTY
		** Hardware for leveling shaper **		
125	000006-105	Screw	M16*2.0P*60	4
126	008011-100	Hex. Nut	M16*2.0P(24B*13H)	4
127	172277-902	Packing		4
		** Tools for assembly **		
158	171895-904	Wrench	50mm	1
159	040401-000	Screwdriver	No.1*75	1
160	040003-000	Hex. Wrench	3mm	1
161	040006-000	Hex. Wrench	6mm	1
162	040205-000	Open Wrench (Double Ended)	14*17	1

Maintenance Record

Date	Task	Operator

Notes

Warranty and Service

Oliver Machinery makes every effort to assure that its equipment meets the highest possible standards of quality and durability. All products sold by Oliver Machinery are warranted to the original customer to be free from defects for a period of two (2) years on all parts excluding electronics and motors which are warranted for one (1) year from the date of shipment. Oliver Machinery's obligation under this warranty shall be exclusively limited to repairing or replacing products or parts or components, at its sole option, determined by Oliver Machinery to be defective. Oliver Machinery shall not be required to provide other form of indemnity or compensation including but not limited to compensatory damages.

This warranty does not apply to defects due to direct or indirect misuse, abuse, negligence, accidents, unauthorized repairs, alternation outside our facilities, lack of maintenance, acts of nature, or items that would normally be consumed or require replacement due to normal wear and tear.

OTHER TERMS

To obtain and exercise the warranty right, please call 800-559-5065 or fill out warranty request form online at www.olivermachinery.net.

Warranty parts are shipped via Parcel or Ground. Additional charges will occur and charge to customers if express shipping is required.

DISCLAIMER

Under no circumstances shall Oliver Machinery be liable for death, personal or property injury, or damages arising from the use of its products.

Oliver Machinery reserves the right to make changes without prior notice to its products to improve function or performance or design.

FOR MORE INFORMATION

If you need assistance or have questions beyond what is covered in the scope of this warranty information, please call 800-559-5065 or email us at info@olivermachinery.net.



Oliver Machinery is always adding new Industrial Woodworking products to the line.

For complete, up-to-date product information, visit us online at:

WWW.OLIVERMACHINERY.NET

or call toll free 1-800-559-5065

**** SAVE THIS MANUAL FOR FUTURE REFERENCES. ****