

# 2-Speed Heavy-Duty Wood Shaper

(Models 43-460 & 43-459)

INSTRUCTION MANUAL



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visit our website at: [www.deltamachinery.com](http://www.deltamachinery.com).

For Parts, Service, Warranty or other Assistance,

please call **1-800-223-7278** (In Canada call **1-800-463-3582**).

## SAFETY GUIDELINES - DEFINITIONS

This manual contains information that is important for you to know and understand. This information relates to protecting YOUR SAFETY and PREVENTING EQUIPMENT PROBLEMS. To help you recognize this information, we use the symbols to the right. Please read the manual and pay attention to these sections.

**▲ DANGER** Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

**▲ WARNING** Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

**▲ CAUTION** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

**CAUTION** Used without the safety alert symbol indicates potentially hazardous situation which, if not avoided, may result in property damage.

**▲ WARNING** **SOME DUST CREATED BY POWER SANDING, SAWING, GRINDING, DRILLING, AND OTHER CONSTRUCTION ACTIVITIES** contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
- crystalline silica from bricks and cement and other masonry products, and
- 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, always wear **MSHA/NIOSH** approved, properly fitting face mask or respirator when using such tools.

## GENERAL SAFETY RULES



**▲ WARNING** **READ AND UNDERSTAND ALL WARNINGS AND OPERATING INSTRUCTIONS BEFORE USING THIS EQUIPMENT.** Failure to follow all instructions listed below, may result in electric shock, fire, and/or serious personal injury or property damage.

### IMPORTANT SAFETY INSTRUCTIONS

Woodworking can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. Safety equipment such as guards, push sticks, hold-downs, featherboards, goggles, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. Always use common sense and exercise caution in the workshop. If a procedure feels dangerous, don't try it. Figure out an alternative procedure that feels safer. **REMEMBER:** Your personal safety is your responsibility. For additional information please visit our website [www.deltamachinery.com](http://www.deltamachinery.com).

**▲ WARNING** This machine was designed for certain applications only. Delta Machinery strongly recommends that this machine not be modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, **DO NOT** use the machine until you have first contacted Delta to determine if it can or should be performed on the product.

**Technical Service Manager  
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# GENERAL SAFETY RULES

**⚠ WARNING** FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS INJURY.

- 1. FOR YOUR OWN SAFETY, READ THE INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.** Learning the machine's application, limitations, and specific hazards will greatly minimize the possibility of accidents and injury.
- 2. WEAR EYE PROTECTION. ALWAYS USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses are NOT safety glasses. **USE CERTIFIED SAFETY EQUIPMENT.** Eye protection equipment should comply with ANSI Z87.1 standards, hearing equipment should comply with ANSI S3.19 standards, and dust mask protection should comply with MSHA/NIOSH certified respirator standards. Splinters, air-borne debris, and dust can cause irritation, injury, and/or illness.
- 3. WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
- 4. DO NOT USE THE MACHINE IN A DANGEROUS ENVIRONMENT.** The use of power tools in damp or wet locations or in rain can cause shock or electrocution. Keep your work area well-lit to prevent tripping or placing arms, hands, and fingers in danger.
- 5. MAINTAIN ALL TOOLS AND MACHINES IN PEAK CONDITION.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories. Poorly maintained tools and machines can further damage the tool or machine and/or cause injury.
- 6. CHECK FOR DAMAGED PARTS.** Before using the machine, check for any damaged parts. Check for alignment of moving parts, binding of moving parts, breakage of parts, and any other conditions that may affect its operation. A guard or any other part that is damaged **should be properly repaired or replaced.** Damaged parts can cause further damage to the machine and/or injury.
- 7. KEEP THE WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
- 8. KEEP CHILDREN AND VISITORS AWAY.** Your shop is a potentially dangerous environment. Children and visitors can be injured.
- 9. REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure that the switch is in the "OFF" position before plugging in the power cord. In the event of a power failure, move the switch to the "OFF" position. An accidental start-up can cause injury.
- 10. USE THE GUARDS.** Check to see that all guards are in place, secured, and working correctly to prevent injury.
- 11. REMOVE ADJUSTING KEYS AND WRENCHES BEFORE STARTING THE MACHINE.** Tools, scrap pieces, and other debris can be thrown at high speed, causing injury.
- 12. USE THE RIGHT MACHINE.** Don't force a machine or an attachment to do a job for which it was not designed. Damage to the machine and/or injury may result.
- 13. USE RECOMMENDED ACCESSORIES.** The use of accessories and attachments not recommended by Delta may cause damage to the machine or injury to the user.
- 14. USE THE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage, resulting in loss of power and overheating. See the Extension Cord Chart for the correct size depending on the cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.
- 15. SECURE THE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. Loss of control of a workpiece can cause injury.
- 16. FEED THE WORKPIECE AGAINST THE DIRECTION OF THE ROTATION OF THE BLADE, CUTTER, OR ABRASIVE SURFACE.** Feeding it from the other direction will cause the workpiece to be thrown out at high speed.
- 17. DON'T FORCE THE WORKPIECE ON THE MACHINE.** Damage to the machine and/or injury may result.
- 18. DON'T OVERREACH.** Loss of balance can make you fall into a working machine, causing injury.
- 19. NEVER STAND ON THE MACHINE.** Injury could occur if the tool tips, or if you accidentally contact the cutting tool.
- 20. NEVER LEAVE THE MACHINE RUNNING UNATTENDED. TURN THE POWER OFF.** Don't leave the machine until it comes to a complete stop. A child or visitor could be injured.
- 21. TURN THE MACHINE "OFF", AND DISCONNECT THE MACHINE FROM THE POWER SOURCE** before installing or removing accessories, before adjusting or changing set-ups, or when making repairs. An accidental start-up can cause injury.
- 22. MAKE YOUR WORKSHOP CHILDPROOF WITH PADLOCKS, MASTER SWITCHES, OR BY REMOVING STARTER KEYS.** The accidental start-up of a machine by a child or visitor could cause injury.
- 23. STAY ALERT, WATCH WHAT YOU ARE DOING, AND USE COMMON SENSE. DO NOT USE THE MACHINE WHEN YOU ARE TIRED OR UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.** A moment of inattention while operating power tools may result in injury.
- 24. TAKE PRECAUTIONS AGAINST DUST INHALATION.** The dust generated by certain woods and wood products can be injurious to your health. Always operate machinery in well-ventilated areas, and provide for proper dust removal. Use wood dust collection systems whenever possible.

# ADDITIONAL SAFETY RULES FOR WOOD SHAPERS

**⚠ WARNING** FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS INJURY.

1. **DO NOT OPERATE THIS MACHINE UNTIL** it is assembled and installed according to the instructions.
2. **OBTAIN ADVICE** from your supervisor, instructor, or another qualified person if you are not familiar with the operation of this machine.
3. **FOLLOW ALL WIRING CODES** and recommended electrical connections.
4. **USE THE GUARDS WHENEVER POSSIBLE.** Check to see that they are in place, secured, and working correctly.
5. **NEVER TURN THE MACHINE "ON"** before clearing the table of all objects (tools, scraps of wood, etc.).
6. **AVOID AWKWARD OPERATIONS AND HAND POSITIONS** where a sudden slip could cause a hand to move into the cutter.
7. **KEEP ARMS, HANDS AND FINGERS** away from the cutter.
8. **NEVER START THE MACHINE** with the workpiece contacting the cutter.
9. **NEVER REACH UNDER THE TABLE** while the machine is running.
10. **KEEP CUTTERS SHARP** and free from rust and pitch.
11. **NEVER ADJUST THE FENCE** while the machine is running.
12. **ADJUST THE FENCE HALVES** so that the cutter opening is never more than is required to clear the cutter.
13. **LOCK THE FENCE** hardware after making fence adjustments.
14. **PROPERLY SECURE THE CUTTERS** before starting the machine.
15. **DO NOT PERFORM ANY OPERATION FREE-HAND.** Use the fence for straight-shaping, a miter gauge for end-shaping, and the starting pin and rub collars for curve-shaping.
16. **KEEP THE FRONT MOTOR ACCESS PANEL CLOSED** while the machine is running.
17. **DO NOT FEED A WORKPIECE** that is warped, contains knots, or is embedded with foreign objects (nails, staples, etc.).
18. **NEVER RUN A WORKPIECE** between the fence and the cutter.
19. **USE A MITER GAUGE** and a clamp attachment for end shaping a workpiece whenever possible. Remove the fence during this operation.
20. **PROVIDE SUFFICIENT BEARING SURFACE** when shaping with a starting pin and collar(s) Figs. B and C.

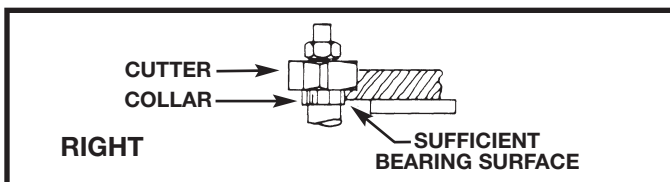


Fig. B

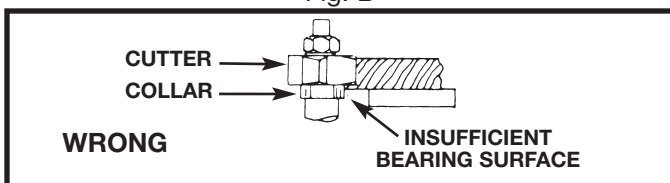


Fig. C

21. **ONLY SHAPE LARGE WORKPIECES** when using starting pin and collar(s). **DO NOT SHAPE** short or light workpieces when using starting pin and collar(s). (Figs. D and E).

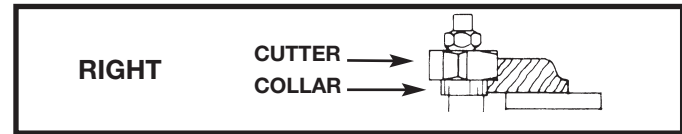


Fig. D

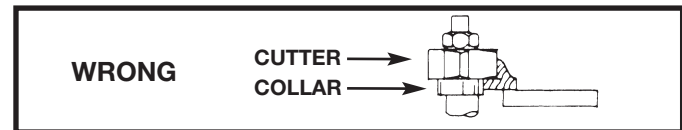


Fig. E

22. **POSITION THE CUTTER** below the collar(s) when shaping with starting pin and collar(s) (Fig. F).

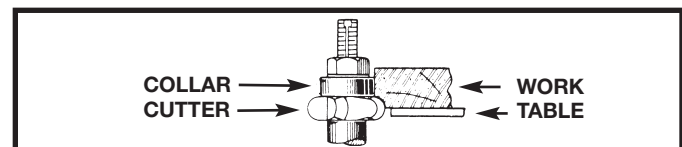


Fig. F

23. **FEED WORKPIECE** against cutter rotation (Fig. G).

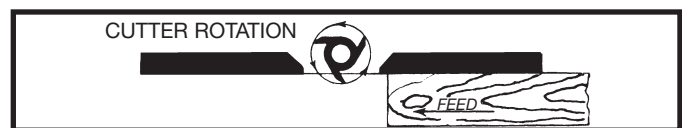


Fig. G

24. **NEVER PERFORM LAYOUT**, assembly or set-up work on the table/work area when the machine is running.
25. **TURN THE MACHINE "OFF" AND DISCONNECT THE MACHINE** from the power source before installing or removing accessories, before adjusting or changing set-ups, or when making repairs.
26. **TURN THE MACHINE "OFF"**, disconnect the machine from the power source, and clean the table/work area before leaving the machine. **LOCK THE SWITCH IN THE "OFF" POSITION** to prevent unauthorized use.
27. **ADDITIONAL INFORMATION** regarding the safe and proper operation of power tools (i.e. a safety video) is available from the Power Tool Institute, 1300 Sumner Avenue, Cleveland, OH 44115-2851 ([www.powertoolinstitute.com](http://www.powertoolinstitute.com)). Information is also available from the National Safety Council, 1121 Spring Lake Drive, Itasca, IL 60143-3201. Please refer to the American National Standards Institute ANSI 01.1 Safety Requirements for Woodworking Machines and the U.S. Department of Labor OSHA 1910.213 Regulations.

**SAVE THESE INSTRUCTIONS.**

**Refer to them often  
and use them to instruct others.**

## POWER CONNECTIONS

This machine is not supplied with a power cord, and must be permanently connected to the building electrical system and grounded according to the National Electrical Code and/or local codes and ordinances. Since this machine is permanently connected to the building electrical system, extension cords cannot be used with this shaper.

**▲ DANGER** Do not expose this machine to rain or operate the machine in damp locations.

## MOTOR SPECIFICATIONS

This machine is wired for 230 volt, 60 HZ alternating current. Before connecting the machine to the power source, make sure that the switch is in the "OFF" position.

## GROUNDING INSTRUCTIONS

**▲ DANGER** This machine must be grounded while in use to protect the operator from electric shock.

### Permanently connected tools:

If the tool is intended to be permanently connected the tool should be connected to a grounded metal permanent wiring system, or to a system having an equipment-grounding conductor.

## FUNCTIONAL DESCRIPTION

### FOREWORD

Delta Model 43-460 is a 5 HP, single phase, 230V wood shaping machine. It utilizes a Poly V-belt drive system that transmits more efficient torque to the spindle and has a capacity (under nut) of 5".

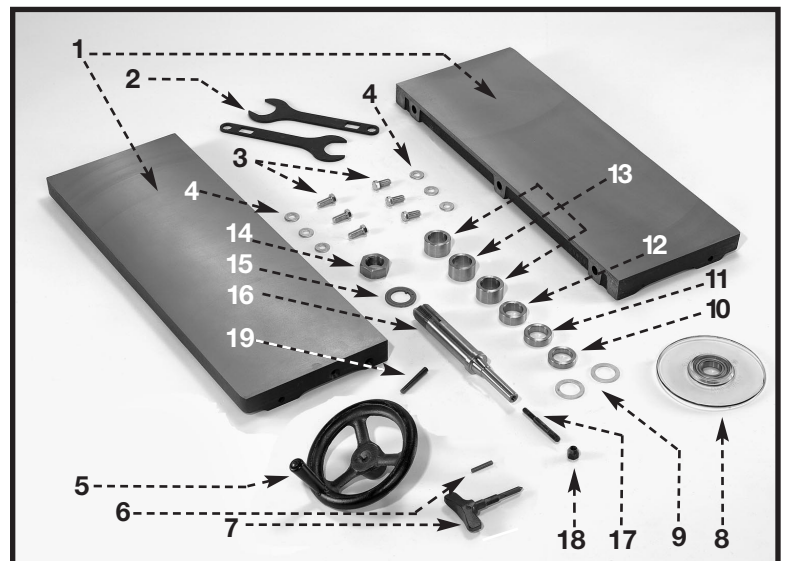
## UNPACKING AND CLEANING

Carefully unpack the machine and all loose items from the shipping container(s). Remove the protective coating from all unpainted surfaces. This coating may be removed with a soft cloth moistened with kerosene (do not use acetone, gasoline or lacquer thinner for this purpose). After cleaning, cover the unpainted surfaces with a good quality household floor paste wax.

**NOTICE:** The manual cover photo illustrates the current production model. All other illustrations are representative only and may not depict the actual color, labeling, or accessories.

## CARTON CONTENTS

1. 10" Wide Cast Iron Extension Wings (2)
2. Wrenches (2)
3. 7/16-20 x 1" Hex Head Screws (6) for mounting extension wing
4. Flat Washers (6) for mounting extension wing
5. Handwheel
6. Key for Handwheel
7. Lock Knob
8. Spindle Guard
9. 1-1/4" I.D. Washer (2)
10. 1-1/4" I.D. x 3/8" Thick Collar
11. 1-1/4" I.D. x 1/2" Thick Collar
12. 1-1/4" I.D. x 5/8" Thick Collar
13. 1-1/4" I.D. x 1" Thick Collars (3)
14. Spindle Nut
15. Keyed Washer
16. Spindle
17. Tie Rod
18. Tie Rod Nut
19. Starting Pin



# ASSEMBLY

**⚠ WARNING** For your own safety, do not connect the machine to the power source until the machine is completely assembled, and you read and understand the entire instruction manual.

## ATTACHING SPINDLE RAISING AND LOWERING HANDWHEEL

1. Insert the key (A) Fig. 1 into the slot in the spindle raising and lowering shaft (B).
2. Place the handwheel (C) Fig. 1 on the spindle shaft (B). Fit the key (A) into the slot (D) in the handwheel. Firmly tighten the set screw in the handwheel against the key to secure the handwheel to the shaft.
3. Thread the lock knob (E) Fig. 2 into the spindle shaft (B).

## ATTACHING EXTENSION WING TO SHAPER TABLE

Attach the extension wing (A) Fig. 3 to shaper table (B) using three 7/16-20 x 1" hex head screws (C) and flat washers (D). Use a straight edge (E) Fig. 3 to level the extension wing with the shaper table before tightening the three screws (C).

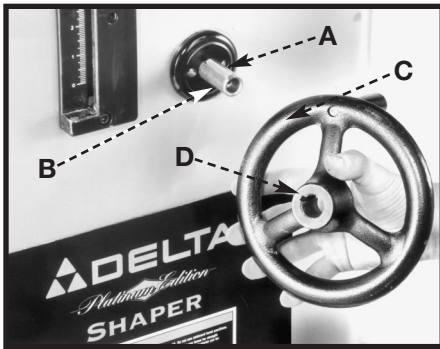


Fig. 1



Fig. 2

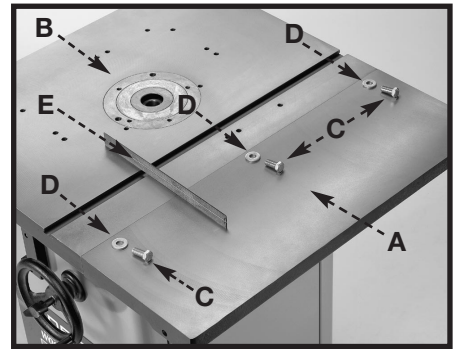


Fig. 3

## ATTACHING AND CHANGING SPINDLES

**⚠ WARNING** DISCONNECT MACHINE FROM POWER SOURCE.

1. Thread one end of the tie rod (A) Fig. 4 into the threaded hole in the bottom of the spindle (B).
2. Insert the tie rod and spindle into the spindle cartridge. Line up the pin (C) Fig. 5 with the notch (D) in the spindle.
3. Thread the nut (E) Figs. 4 and 7 on the bottom end of the tie rod (A).
4. Use a wrench on the flats (F) Fig. 6 to hold the spindle while tightening the nut (E) Fig. 7 on the bottom of the tie rod.

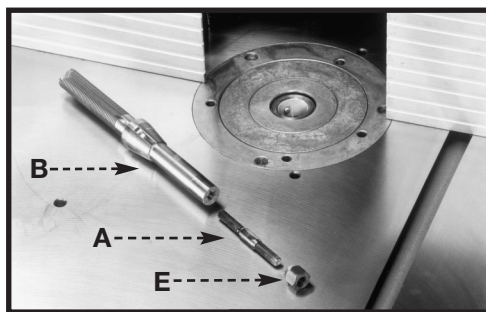


Fig. 4

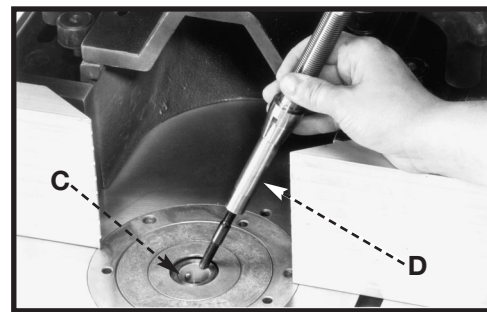


Fig. 5

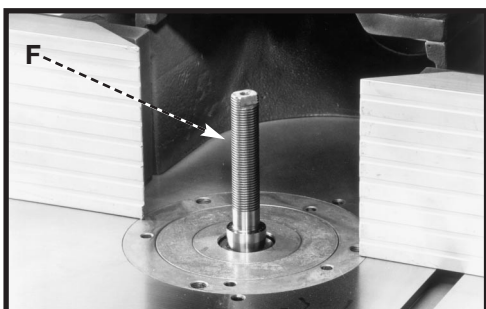


Fig. 6

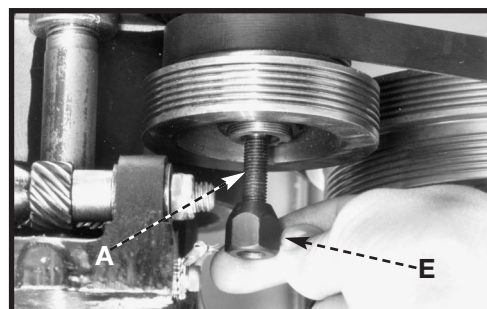


Fig. 7

## ATTACHING TABLE INSERTS

Three table inserts are provided for various size cutters (Fig. 8). The large insert is adjustable. To set it flush with the table:

1. Remove the three slotted head screws (A) Fig. 8.
2. Use a screwdriver to turn the three adjusting screws (B) Fig.8 until the insert is flush with the table.
3. Replace the slotted head screws (A).

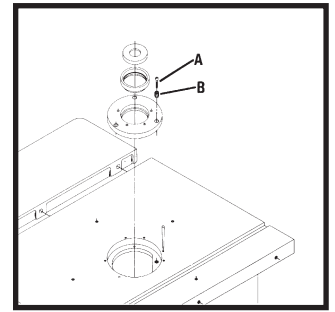


Fig. 8

## ATTACHING CUTTERS AND COLLARS TO SPINDLE

**⚠ WARNING** DISCONNECT MACHINE FROM POWER SOURCE.

1. Six collars (A) Fig. 9 are supplied with the machine. These collars allow the cutter and/or the 6-1/2" diameter spindle guard to be positioned at various locations on the spindle.
2. When attaching cutters to the spindle, position the cutter as close to the bottom of the spindle as possible to reduce the possibility of spindle run-out, which can affect the appearance of the cut.
3. Determine which, if any, collars are needed. Then attach the cutter (B) Fig. 9, keyed washer (C), and spindle nut (D) Fig. 9). Place one wrench on the flats (A) Fig. 10 on top of the spindle and one wrench on the spindle nut (D). Tighten as shown in Fig. 11.
4. **IMPORTANT:** Always place "keyed" washer (C) Fig. 10, on spindle before screwing on nut (D). The "keyed" washer (C) prevents the nut (D), from loosening when spindle turns counterclockwise.

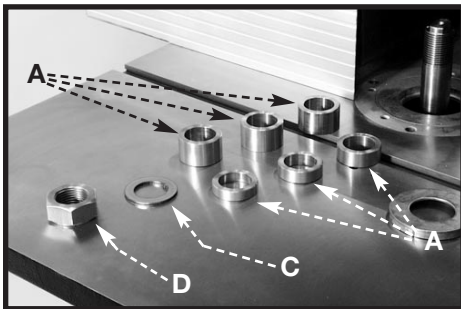


Fig. 9

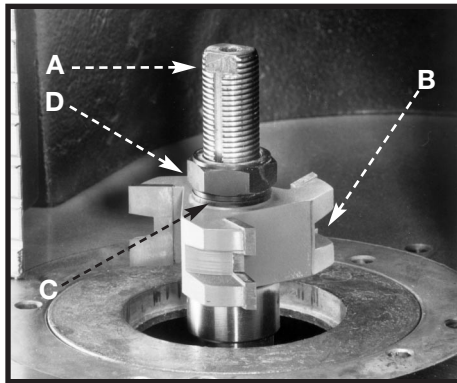


Fig. 10



Fig. 11

## ATTACHING SPINDLE GUARD

A 6-1/2" spindle guard is supplied with this machine.

**⚠ CAUTION** The diameter of the spindle guard should be at least 1" more than the maximum cutting circle of the shaper cutter and the height of the guard should not exceed 1/4" above the material.

**⚠ WARNING** DISCONNECT MACHINE FROM POWER SOURCE.

1. Two 1-1/4" I.D. washers are supplied with the 6-1/2" spindle guard. Place one of the washers (A) on the spindle (Fig.12).
2. Place the spindle guard (B) Fig. 13 on the spindle. Install the other washer (C) and the "keyed" washer (D) on the spindle.
3. Thread the spindle nut (E) Fig. 14 on the spindle. Place one wrench on the flats at the top of the spindle and one wrench on spindle nut (E) and tighten.
4. **IMPORTANT:** Always place the "keyed" washer (D) Fig. 13, on the spindle before screwing on the spindle nut (E) Fig. 14. The "keyed" washer (D) Fig.19 prevents the spindle nut (E) Fig. 14 from loosening when the spindle turns counterclockwise.

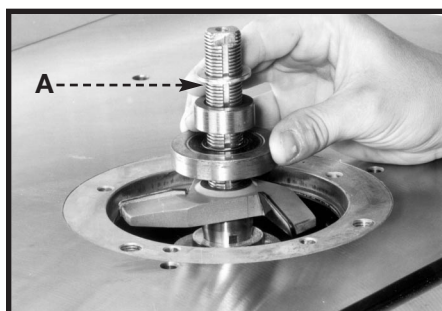


Fig. 12

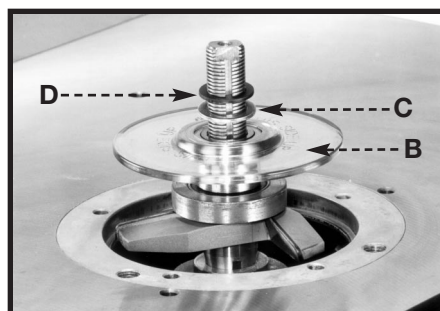


Fig. 13



Fig. 14

## ATTACHING ELECTRICAL BOX TO CABINET

The tool is shipped with the starter box wired to the switch and motor and must be mounted to the shaper cabinet.

Install three 1/4-20 x 1/2" hex head screws with lockwashers through the rear of the tool (A) Fig. 15, and into the tapped holes (B) on the back of the electrical box.

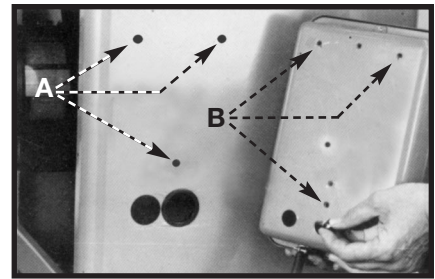


Fig. 15

## OPERATING CONTROLS AND ADJUSTMENTS

### STARTING AND STOPPING THE SHAPER

To apply power to the machine, push "ON" button (A) Fig.16. To stop the machine, push "OFF" button (B).

### LOCKING SWITCH IN THE "OFF" POSITION

**IMPORTANT:** When the machine is not in use, the switch should be locked in the "OFF" position using a padlock (A) Fig. 17, (Delta Cat. No. 50-325), with a 3/16" diameter shackle to prevent unauthorized use.

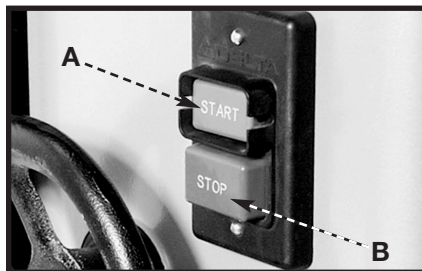


Fig. 16

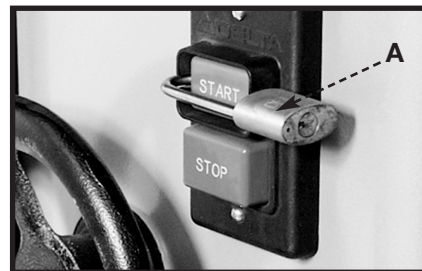


Fig. 17

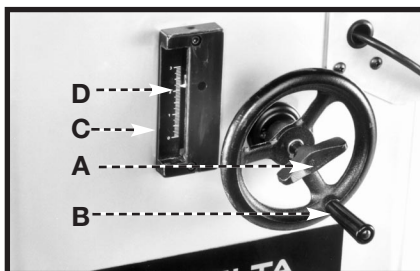


Fig. 18

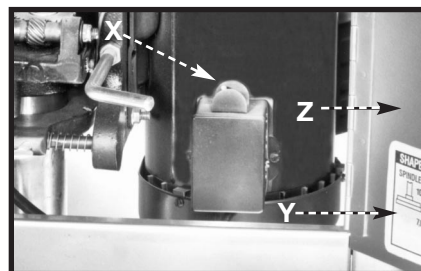


Fig. 19

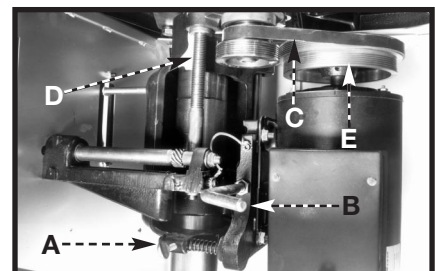


Fig. 20

### RAISING AND LOWERING SPINDLE

The spindle can be raised or lowered by loosening the lock knob (A) Fig. 18 and turning the handwheel (B). To raise the spindle height, turn the handwheel (B) clockwise. To lower the spindle height, turn the handle (B) counterclockwise.

The scale (C) Fig. 18 indicates the spindle travel range from 0" to 3" and is marked in 1/16" increments. Minor cutter height adjustments can be measured using the pointer (D) along the scale (C).

**⚠ CAUTION** Tighten the lock knob (A) after adjusting the spindle height.

### CHANGING SPEEDS AND ADJUSTING BELT TENSION

The machine is supplied with a 2-step motor pulley and a 2-step spindle pulley that provide spindle speeds of 7,000 and 10,000 RPM. With the belt on the largest step of the motor pulley and the smallest step of the spindle pulley, the spindle speed will be 10,000 RPM. With the belt on the smallest step of the motor pulley and the largest step of the spindle pulley, the spindle speed will be 7,000 RPM. A chart (Y) Fig. 19 that illustrates the correct belt placement for 7,000 or 10,000 RPM is located on the inside panel of the motor access door.

To change speeds and adjust belt tension:

**⚠ WARNING** DISCONNECT MACHINE FROM POWER SOURCE.

1. Open motor access door (Z) Fig. 19.
2. Loosen the thumb screw (A) Fig. 20. Release tension on the belt by moving the lever (B) to the left. Position the belt (C) on the desired steps of the spindle pulley (D) and the motor pulley (E), and apply belt tension by moving the lever (B) to the right. When the desired belt tension is attained, tighten the thumb screw (A).
3. Proper belt tension is approximately a 3/32" deflection when using light finger pressure on the belt between pulleys. **IMPORTANT:** Pulleys (D) and (E) Fig. 20 should always be aligned with each other to provide maximum belt performance and reduce belt wear. To check pulley alignment, refer to section "REPLACING SPINDLE CARTRIDGE".



# REVERSING SPINDLE ROTATION

**⚠ WARNING** DISCONNECT MACHINE FROM POWER SOURCE.

The motor is equipped with a reversing switch (X) Fig. 19, located on the motor junction box.

**⚠ CAUTION** Never attempt to reverse the rotation of the spindle with the motor running.

## OPERATIONS

The following examples show set-up and operational procedures when using the fence, collars, and starting pin. Please review this information carefully before turning on the power to avoid personal injury and/or damage to the machine.

### SHAPING WHEN USING THE FENCE AS A GUIDE

Using the fence is the safest and most satisfactory method of shaping. Most straight work can be shaped using the fence described below.

1. For average work, where a portion of the original edge of the work is not touched by the cutter, both the front and rear fences are in a straight line (Fig. 21).
2. When the shaping operation removes the entire edge of the work (jointing or making a full bead), the shaped edge will not be supported by the rear fence when both fences are in line (Fig. 22). In this case, advance the work to the position shown in Fig. 22 and stop.
3. Advance the rear fence to contact the work (Fig. 23), putting it in line with the cutting circle.

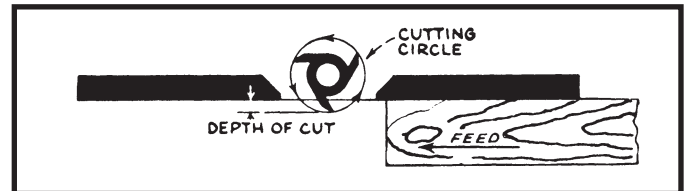


Fig. 21



Fig. 22



Fig. 23

### SHAPING WITH COLLARS AND STARTING PIN

When shaping with collars and starting pin, follow the rules below for superior finishing and safety in operation.

1. Free the collars of **ALL** gum or other substances, and confirm that they are smooth.
2. Confirm that the edge of the work is smooth. **ANY** irregularity in the surface that rides against the collar will be duplicated on the molded surface.
3. A portion of the edge of the work **MUST** remain untouched by the cutters in order for the collar to have sufficient bearing surface. The right method is shown in Fig. 24, while Fig. 25 illustrates the wrong method.
4. The work **MUST** be fairly heavy in proportion to the cut being made (Fig. 25). Under **NO** circumstances should short work of light body be shaped against the collars (Fig. 27).
5. When shaping with collars and starting pin, use the spindle guard supplied with the machine.

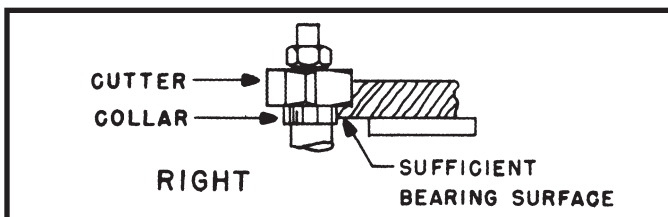


Fig. 24

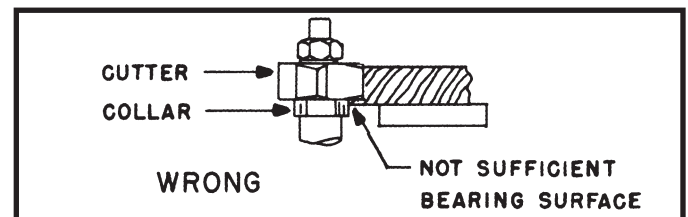


Fig. 25

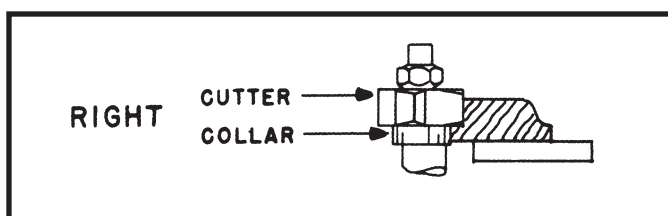


Fig. 26

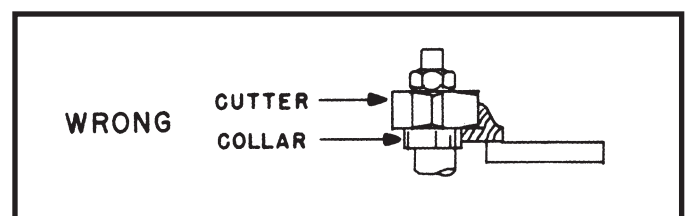


Fig. 27

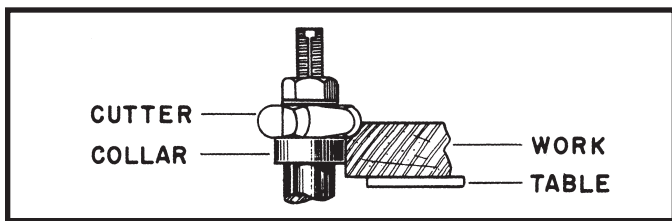


Fig. 28

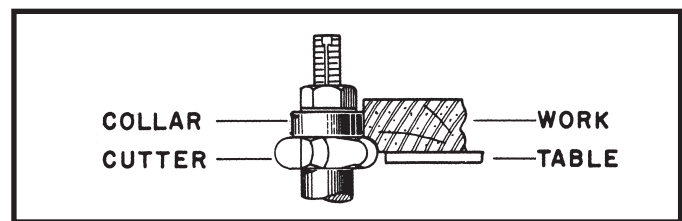


Fig. 29

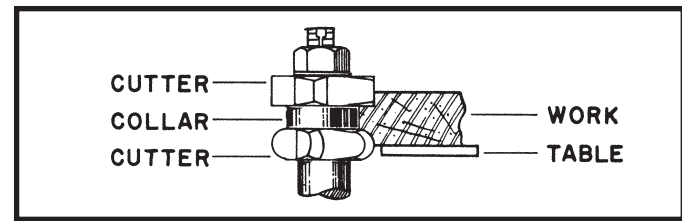


Fig. 30

## POSITION OF COLLARS

1. The collars may be used in any of three positions: above, below, or between two cutters.
2. When the collar is used below the cutter (Fig. 29), the operator can see the progress of the cut. **NOTE:** Any accidental lifting of the work will gouge the wood and ruin the workpiece.
3. When the collar is used above the cutter (Fig. 29), the operator will be unable to see the cut. However, the advantage in this method is that the cut is not affected by slight variations in the thickness of the stock. Also, accidental lifting of the work will not gouge the workpiece. Simple correction for the mistake is to repeat the operation.
4. The collar between cutters method (Fig. 30) utilizes the advantages of the first two methods and is frequently used when both edges of the workpiece are to be shaped.

## END SHAPING

Maintain sufficient support of the workpiece during all shaping operations. **USE A MITER GAUGE OR BACK-UP BLOCK** (Figs. 31 and 32) when end shaping a workpiece that is too short to be sufficiently supported halfway through the cut.

**⚠ WARNING** Shaping a narrow workpiece without sufficient support could result in serious injury.

The infeed fence assembly must be parallel to the miter slot when using the miter gauge. Adjust the outfeed fence so that it will not contact the workpiece after it has passed the cutter. Place the workpiece firmly against the miter gauge and the infeed fence, and feed the cutter by pushing the miter gauge.

**⚠ WARNING** Failure to hold the workpiece firmly against the miter gauge during the cut could result in slippage of the workpiece, causing serious personal injury and/or damage to the workpiece.

## CROSS GRAIN SHAPING

Shaping across the grain will usually cause some splitting at the end of the cut. Feeding the workpiece slowly across the cutter at the end of the cut can minimize the splitting. Shape the cross-grain cuts first. Shaping with the grain last will usually remove the splintered end.

## SHAPING NARROW MATERIAL

Clamp a support (Fig. 33) to the machine when shaping narrow material (less than 3" wide) Feed the workpiece under this support with a push stick. **NOTE:** The push stick should be slightly narrower and thinner than the workpiece.

**⚠ WARNING** Shaping narrow material without proper support and push stick could result in serious injury.

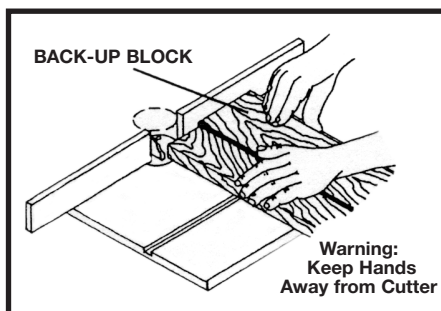


Fig. 31

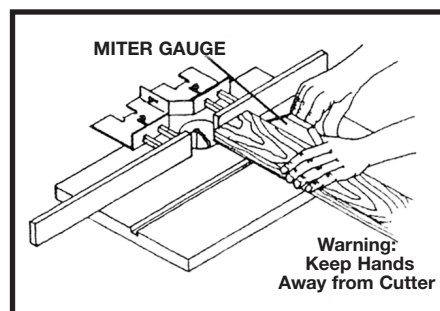


Fig. 32

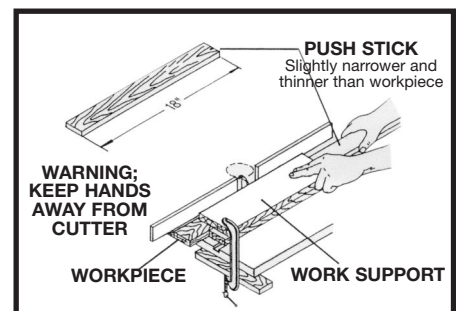


Fig. 33

## STARTING PIN

1. The machine is supplied with a tapered starting pin (A) Fig. 34, which is used as a support when starting the cut. The starting pin (A) is placed in one of the tapered holes (B) in the table.
2. Place the work in the first position using the guide pin as a support (Fig. 35). Swing the work into the cutter as shown in the second position (Fig. 36). The work will be supported by the collar and starting pin (Fig. 36).
3. After the cut has started, swing the work free of the starting pin and let it ride only against the collar (third position, Fig. 36). **ALWAYS FEED THE WORKPIECE AGAINST THE ROTATION OF THE CUTTER.**

**⚠WARNING** Advancing the work to the cutter without the side support of the starting pin will provide serious kickback. **ALWAYS USE THE STARTING PIN.**

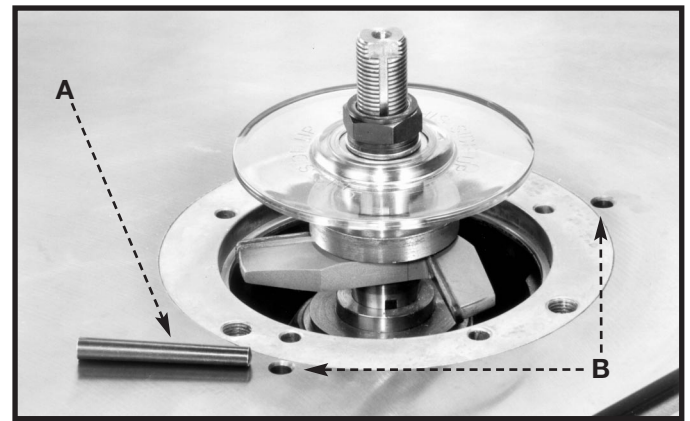


Fig. 34

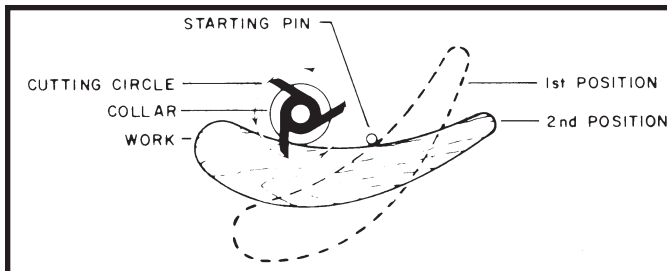


Fig. 35

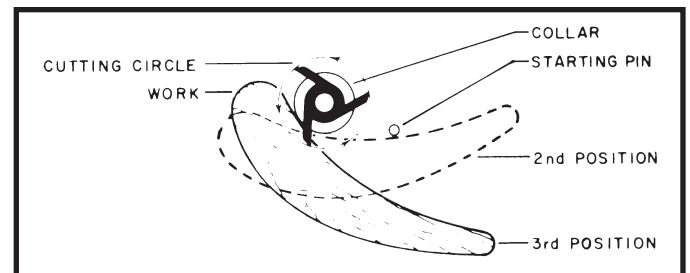


Fig. 36

## REPLACING SPINDLE CARTRIDGE

**⚠WARNING** DISCONNECT MACHINE FROM POWER SOURCE.

1. **IMPORTANT:** When replacing the spindle cartridge (B) Fig. 37, loosen the bolt (A). Remove the spindle cartridge. Replace with a new spindle cartridge. Tighten the bolt (A) **ONLY** 7 to 10 foot pounds.
2. Always align the spindle pulley (D) Fig. 38, and motor pulley (E) to provide maximum belt performance and to reduce belt wear. To check the pulley alignment, place a straight edge against the underside of both pulleys (Fig. 38). If an adjustment is necessary, loosen the set screw (F) and move the motor pulley up or down until the two pulleys (D) and (E) are aligned. Tighten the set screw.
3. Using light finger pressure on the belt between pulleys (D) and (E) Fig. 38, a deflection of approximately 3/32" will constitute proper belt tension.

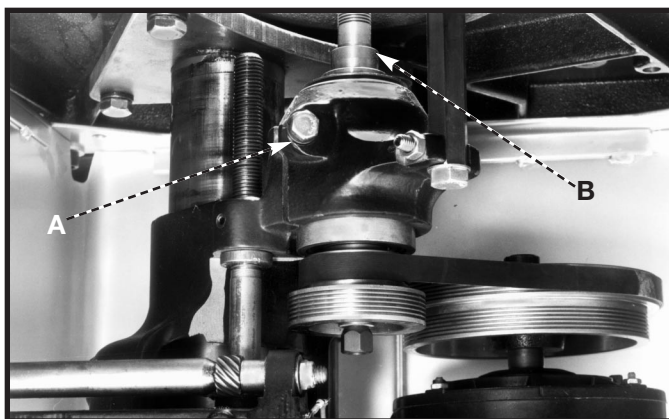


Fig. 37

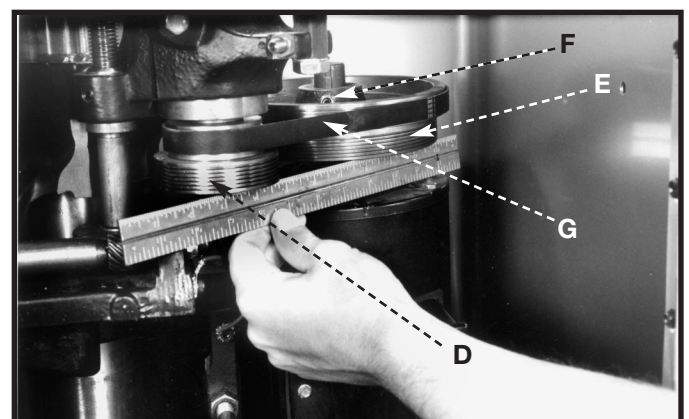


Fig. 38

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# NOTES

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