



Shaper/Router

POUR LE FRANÇAIS, VOIR LA COUVERTURE ÅRRIÈRE. VEA EL ESPAÑOL EN LA CONTRAPORTADA.





- Always make certain that material is fed into the cutter rotation whether unit is operating in forward or reverse.
- Remove material from cuts in small amounts and in multiple passes. This will preserve both motor and cutter life and provide the highest quality of cut. Always use sharp cutters and bits.
- Make certain that spindle and router bit lock nuts are tightened snugly before each use.

WARNING: FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING SHAPER. ALWAYS WEAR EYE PROTECTION. DO NOT WEAR GLOVES, WECKTIES, JEWELRY OR LOOSE CLOTHING. CONTAIN LONG HAIR. DO NOT OPERATE WITHOUT GUARDS IN PLACE. MAKE SURE CUTTER MEETS OR EXCEEDS SPEED NECKTIES, JEWELRY OR LOOSE CLOTHING. CONTAIN LONG HAIR. DO NOT OPERATE WITHOUT GUARDS IN PLACE. MAKE SURE CUTTER MEETS OR EXCEEDS SPEED RATING OF TOOL. BE SURE SHAPER CUTTER IS PROPERLY SECURED, WITH KEYED WASHER DIRECTLY UNDER SPINDLE NUT, AND SPINDLE NUT TIGHT. DO NOT USE RATING OF TOOL. BE SURE SHAPER CUTTER IS PROPERLY SECURED, WITH KEYED WASHER DIRECTLY UNDER SPINDLE NUT, AND SPINDLE NUT TIGHT. DO NOT USE AWKWARD HAND POSITIONS. KEEP FINGERS AWAY FROM REVOLVING CUTTER - USE FIXTURES WHEN NECESSARY. FEED WORKPIECE AGAINST ROTATION OF CUTTER. DO NOT EXPOSE TO RAIN OR USE IN DAMP LOCATIONS. SECURE TOOL PROPERLY TO PREVENT UNEXPECTED MOVEMENT. DO NOT OPERATE THIS MACHINE WHILE UNDER THE INFLÜENCE OF ALCOHOL OR DRUGS. FAILURE TO COMPLY WITH THESE WARNINGS MAY RESULT IN SERIOUS PERSONAL INJURY.



IMPORTANT SAFETY INSTRUCTIONS

WARNING: When using electric tools, basic safety precautions should always be followed to reduce risk of fire, electric shock, and personal injury, including the following:

READ ALL INSTRUCTIONS

Double Insulation

Double insulated tools are constructed throughout with two separate layers of electrical insulation or one double thickness of insulation between you and the tool's electrical system. Tools built with this insulation system are not intended to be grounded. As a result, your tool is equipped with a two prong plug which permits you to use extension cords without concern for maintaining a ground connection.

NOTE: Double insulation does not take the place of normal safety precautions when operating this tool. The insulation system is for added protection against injury resulting from a possible electrical insulation failure within the tool.

CAUTION: When servicing use only identical replacement parts. Repair or replace damaged cords.

Polarized Plugs

Polarized plugs (one blade is wider than the other) are used on equipment to reduce the risk of electric shock. When provided, this plug will fit into a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.

Safety Instructions For All Tools

- KEEP GUARD IN PLACE and in working order.
- REMOVE ADJUSTING KEYS AND WRENCHES. Form habit of checking to see that keys and adjusting wrenches are removed from spindle before turning tool on.
- KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.

- DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
- KEEP CHILDREN AWAY. All visitors should be kept at a safe distance from work area.
- MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys.
- DON'T FORCE TOOL. It will do the job better and be safer at the rate for which it was designed.
- USE RIGHT TOOL. Don't force tool or attachment to do a job for which it was not designed.
- WEAR PROPER APPAREL. No loose clothing, gloves, neckties, rings, bracelets, or other jewelry to get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
- ALWAYS WEAR SAFETY GLASSES. Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses have only impact resistant lenses, they are NOT safety glasses.
- DON'T OVERREACH. Keep proper footing and balance at all times.
- MAINTAIN TOOLS WITH CARE. Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- DISCONNECT TOOLS before servicing; when changing accessories such as blades, bits, cutters, etc.
- REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure switch is in OFF position before plugging in. If a power failure occurs and switch is left on, tool will start immediately when power is restored.
- USE RECOMMENDED ACCESSORIES. The use of improper accessories may cause risk of injury to persons.

- NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
- CHECK DAMAGED PARTS. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function----check for alignment of moving parts, binding of moving parts,

breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced. Do not use tool if switch does not turn it on and off.

- NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.
 Don't leave tool until it comes to a complete stop.
- DO NOT OPERATE ELECTRIC TOOLS NEAR FLAMMABLE LIQUIDS OR IN GASEOUS OR EXPLOSIVE ATMOSPHERES. Motors in these tools may spark and ignite fumes.
- EXTENSION CORDS. 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. The table on page 2 shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

Volts		Minimum Gage for Cord Sets Total Length of Cord in Feet				
1207			0-25	26-50	51-100	101-150
240V			0-50	51-100	101-200	201-300
Am	pere	Rating				
More		Not more		American Wire Gage		
Than		Than			U	
0	٠	6	18	16	16	14
6	٠	10	18	16	14	12
10		12	16	16	14	12
12		16	14	12	Not Recommended	

- OUTDOOR USE EXTENSION CORDS. When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
- STAY ALERT. Watch what you are doing. Use common sense. Do not operate tool when you are tired.

Additional Safety Rules for the Shaper/Router

- KEEP GUARDS in place and in working order.
- WARNING: Do not operate your shaper/router until it is completely assembled and installed according to the instructions.
- MAKE SURE wiring codes and recommended electrical connections are followed.

- NEVER turn the Shaper/Router ON before clearing the table of all objects (tools, scraps of wood, etc.).
- DO NOT process materials less than 12" (30 cm) in length or 4" (10 cm) in width without special supporting fixtures.
- ALWAYS use a miter gage when edge shaping work less than 6" (15 cm) wide.
- AVOID awkward hand positions where a sudden slip could allow your hand to contact the cutter.
- KEEP hands away from cutting tool.
- NEVER run the stock between the fence and the cutter.
- DO NOT feed material that is warped, contains knots or is embedded with foreign objects, such as nails or staples.
- NEVER start the Shaper/Router with the stock in contact with the cutter.
- ALWAYS use auxiliary guard for any operation when the fence has been removed.
- NEVER perform layout, assembly or set-up work on the table while the shaper is operating.
- KEEP cutting tools sharp and free from rust and pitch.
- THE WOODEN FENCE BOARDS should be adjusted as close to the clear plastic guard as possible.
- ALWAYS lock fence hardware securely after making fence adjustments.
- MAKE CERTAIN cutting tools are properly secured before starting machine.
- WARNING: For your own safety, read instruction manual before operating shaper.
- a) Be sure keyed washer is directly under spindle nut and spindle nut is tight.
- b) Feed workpiece against rotation of cutter.
- c) Use auxiliary guard when adjustable fence is not in place.
- DO NOT perform any operation freehand. ALWAYS use fence for straight shaping; miter gage for end shaping; and starting pin and cutters with rub collars for curve shaping.

- CAUTION: If a power failure occurs and the switch is left ON, the tool will start immediately when power is restored.
- ALWAYS a collar or bearing guide must be used when cutting if the fence assembly is removed.
- ALWAYS use guards provided with the machine.
- ALWAYS feed against the cutter rotation, as shown in Figure A.
- WHEN SHAPING with collars and starting pin, the collar MUST have sufficient bearing surface against the workpiece to prevent erosion, as shown in Figure B. Figure C, illustrates the wrong way for this operation as the collar DOES NOT have sufficient bearing surface.
- WHEN SHAPING OR ROUTING with collars and starting pin, the workpiece must be fairly wide in proportion to the cut being made as shown in Figure D. UNDER NO CIRCUMSTANCES should short workpieces of narrow material be shaped against the collars as shown in Figure E.
- WHEN SHAPING with collars and starting pin, the cutter should be positioned below the collar whenever possible, as shown in Figure F.
- MAKE all adjustments with the power OFF.
- KEEP cutter guards in place and in working order.
- WEAR EAR PROTECTION when operating this tool.
- YOUR HANDS MUST. ALWAYS remain at a safe distance at least 6" (15 cm) — away from the cutter to avoid making contact with the cutter should loss of control occur.
- USE an auxiliary or scrap piece to push the workpiece and use auxiliary guides made from other scrap pieces clamped to the table and/or fence, if necessary, to keep your hands safely away from the cutter.
- USE RECOMMENDED ACCESSORIES. The use of improper accessories may cause risk of personal injury.

SAVE THESE INSTRUCTIONS FOR FUTURE USE







Shaper

ASSEMBLING AND INSTALLING THE FENCE

A cardboard box inside the tool carton contains the larger fence parts. The hardware required for assembly is in two (2) plastic bags in the cardboard box.

Select, from the cardboard box, the center yoke, the two wooden fence boards and the fence bracket shown in Figure 1. Loosely install the fence bracket, as shown in Figure 2, using one of the 23mm (0.9") knobs and 6mm flat washers from the plastic bag. Use the four flathead screws, 6mm washers and hex nuts from the plastic bag to loosely install the wooden fence boards to the center yoke and the fence bracket, as shown in Figure 3.

Using two 30mm (1.2") plastic knobs and (2) 8mm (0.32") flat washers from the plastic bag, install the fence to the table top, as shown in Figure 4. Thread these knobs into the two threaded holes closest to the rear of the table. (The third threaded hole closer to the front of the table is for the starting pin which will be discussed later. Do not install it at this time.)

Use a straightedge to make the two wooden boards even with each other and hold that position while you firmly tighten the four screws and the plastic fence bracket knob, as shown in Figure 5. Move the completed fence as necessary to make it roughly parallel to the rear edge of the table top. Securely tighten the two knobs to hold the fence stationary.

Figure 6 illustrates clear plastic guard assembly. Insert the guard bar into the guard holder on the rear position of the fence center yoke, and install a 23mm (0.9") plastic knob into the side of the guard holder to securely hold the guard in place, as shown in Figure 7.

Assembling Table Insert

The table insert is placed in the table, as shown in Figure 8.

Bench Mounting (See Figure on Following Page)

TURN OFF AND UNPLUG SHAPER/ROUTER.

The shaper/router must be mounted firmly to your workbench or other anchored frame. Four holes are provided in the tool's feet for this





purpose. These holes should be used to anchor the shaper/router to your workbench or other stationary rigid frame. Alternately, to enhance portability, it can be mounted to a piece of wood that can be "C" clamped to your work surface or Workmate® Workcenter.

CAUTION: Failure to permanently mount or "C" clamp the shaper/router to the work surface can be hazardous.

Operating Controls and Adjustments

SWITCHES (FIGURES 9 AND 10)

We suggest that when the tool is not in use, the switch be locked in the OFF position.

The switch is located on the Shaper/Router as shown in Figures 9 and 10. To turn the tool ON, flip the toggle upward. To turn the tool OFF, flip the toggle down. The switch will stay in either position without being held. For safety, the red switch toggle may be removed when the switch is in the locked OFF position. This will prevent unintentional starting by others.

FORWARD/REVERSE SWITCH

The forward/reverse switch is provided for reversing the direction of the cutter when it is desirable to work from left to right rather than right to left. To reverse the cutter direction from counterclockwise (working from right to left) to clockwise (working from left to right) or vice-verse, turn the tool off and raise the plastic door over the forward/reverse switch. Depress the left side of the switch for counterclockwise rotation and the right side for clockwise rotation. When changing the direction of rotation, be sure to turn the cutter over as necessary to assure that all cutting is done by feeding the work against the rotation of the cutter. Be sure to close the plastic cover before turning the tool on.

Only shaper bits which can be inverted can be used for left to right cutting. Router bits can only cut from right to left.

Raising and Lowering the Spindle

The spindle can be raised or lowered on your machine for the purposes of mounting and removing bits and cutters and for cutting at various heights. To raise or lower the spindle, turn the handle end counterclockwise to loosen it and then swing it to the right to raise the spindle and left to lower it, as shown in Figure 11. When it has been adjusted to the desired height, turn the handle end clockwise to lock it into position.

Adjusting the Fence

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Begin by positioning the fence so that the bit or cutter is located directly between the wooden fence boards and that the boards are as close to the guard as possible without touching it.





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The left board on the fence is the moveable one. By loosening the fence bracket knob on the fence bracket, the board can move forwards or backwards, thus adjusting the position of the fence (see Figure 12). Actual fence settings for various jobs are presented later in this manual.

Clear Plastic Guard

The clear plastic guard should always be used when cutting with the fence. To set the guard for maximum effect, loosen the guard clamping knob and slide the guard down between the wooden boards as far as it will go without touching the work, as shown in Figure 13. Tighten the knob securely.

When you are working without the fence an auxiliary guard is provided which attaches to the rear edge of the table using the (2) 16mm plastic knobs. It is adjusted and positioned just like the guard that's mounted on the fence, as shown in Figure 14.

Wrench Storage

The Shaper/Router is supplied with two wrenches. When not in use, the wrenches can be stored safely out of the way in the slot at the front of the base. Also, extra cutters can be stored in the drawer shown in Figure 15.

Installing Router Bits

- 1. Turn off machine and remove the switch toggle to lock switch off.
- Install desired collet and collet nut as shown in Figure 16. Screw collet nut (with collet inside it) down onto spindle. DO NOT TIGHTEN THIS OR ANY COLLET WITHOUT A BIT IN PLACE. YOU WILL CRACK THE COLLET.
- 3. Insert the desired router bit as far as it will go. Then pull it out about 1/16" (1.6mm) and tighten the collet nut firmly using the wrenches provided. In order to tighten the collet nut, two flats have been provided on the spindle. These flats are accessible only through the spindle height adjustment slot below the table. Adjust the spindle height to maximum by sliding the adjustment handle to the right as far as it will go. Put one wrench through the slot and onto the flats and the other on the collet nut, as shown in Figure 17.

HINT: To best see the flats and your wrench, remove the table insert and view through the top of the table. Reinstall table insert before use.

Starting Pin

A starting pin is supplied with your Shaper/Router and is used to support the workpiece at the start of the cut when using the Shaper/Router without the fence. Install the starting pin as shown in Figure 18. Make sure auxiliary guard is in place before use.

Installing the Shaper Spindle and Shaper Cutter (Figure 19)

An accessory 1/2" (12.7mm) shaper cutter spindle that accommodates 1/2" (12.7mm) bore shaper cutters is supplied for use with your Shaper/Router and can be installed as follows:

- 1. MAKE CERTAIN THE MACHINE IS DISCONNECTED FROM THE POWER SOURCE.
- 2. Raise tool spindle as far as it will go and lock the cutting depth handle.
- 3. Select shaper spindle and shaper spindle nut. Thread shaper spindle into small diameter threads in shaper spindle nut.
- 4. Screw shaper spindle into shaper spindle nut until the shaper spindle shoulder protrudes approximately 1/16" (1.6mm) above the face of the shaper spindle nut, as shown in Fig. 19B. Maintain this position as you install the shaper spindle to the tool spindle.
- 5. Insert tapered end of shaper spindle into tapered end of tool spindle.
- 6. Tighten the nut securely to tool spindle using the same means you used for tightening the collet nut.
- 7. Install the desired cutter. The cutter must have a 1/2" (12.7mm) hole or bushings (supplied by cutter manufacturer) to reduce the hole to 1/2" (12.7mm). When installing the shaper cutter use the appropriate combination of supplied spacers to raise or lower the shaper cutter. Use the appropriate collar for your cutter when shaping without the fence. The cutting depth handle can also be used to adjust the height.

For detailed instructions on cutter installation, refer to instructions provided by cutter manufacturer.



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Operation

The following is an example of the setup and operational procedures when using the fence, collars and starting pin. Please review this information carefully before turning on the power to avoid damage to the machine or personal injury.

Shaping or Routing When Using the Fence as a Guide

Using the fence is the safest and most satisfactory method of shaping and routing and this method should always be used when the work permits. Almost all straight work can be shaped using the fence as follows:

- 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, as shown in Figure 20.
- 2. When the operation removes the entire edge of the work, e.g., in jointing or making a full bead, the shaped edge will not be supported by the rear fence when both fences are in line, as shown in Figure 21. In this case, the work should be advanced to the position shown in Figure 21 and stopped. Then turn the machine off.
- 3. The outfeed fence and infeed fence should then be adjusted to contact the work, as shown in Figure 22. The outfeed fence will then be in line with the cutting circle. Refer to Figure 12 which illustrates "Adjusting the Fence."

NOTE: When cutter rotation is reversed from that shown in Figures 20, 21 and 22, feed direction will also be reversed and infeed and outfeed fence identification will reverse.

- 4. Avoid heavy cuts. Begin by positioning cutter and fence to remove only a small portion of the final cutter form. Increase cutter exposure with each successive pass by moving fence and/or cutter height until desired form is cut on workpiece. After gaining experience with a particular cutter, you will learn how many passes with accompanying fence and cutter adjustments are necessary to produce a safe and satisfactory result. Remember, taking too great a cut or feeding the workpiece too fast can cause damage to the piece and loss of control with possible injury.
- 5. When beginning the shaping operation, apply most pressure to that portion of the workpiece supported by the infeed fence taking care to keep your hands safely away from the cutter. When more than

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- A portion of the edge of the work MUST remain untouched by the cutters in order that the collar will have sufficient bearing surface. Figure 23 illustrates the right way for the operation while Figure 24 illustrates the wrong way.
- 4. The workpiece MUST be fairly wide in proportion to the cut being made as shown in Figure 25. Under NO circumstances should short workpieces of narrow material be shaped against the collars as shown in Figure 26.
- When routing with collars and starting pin, the overhead cutter guard, supplied with your machine, should always be used.

POSITION OF COLLARS

- 1. The collars may be used in any of the following positions: above, below or between two cutters.
- 2. When the collar is used below the cutter, as shown in Figure 27, the progress of the cut can be observed at all times. However, any accidental lifting of the work will gouge the wood and ruin the workpiece.
- 3. When the collar is used above the cutter as shown in Figure 28, the cut cannot be seen, yet this method offers some advantage in that the cut is not affected by slight variations in the thickness of the stock.





4. The collar between cutters method, as shown in Figure 29, has both the advantages of the first two methods and is frequently used where both edges of the work are to be shaped.

Starting Pin

- Your machine is supplied with a starting pin which is used as a support when starting the cut. The starting pin is placed into the threaded hole in the table.
- 2. The work should be placed in the first position using the starting pin as a support, as shown in Figure 30. Then swing the work into the cutter as shown in the second position. The work will now be supported by the collar and starting pin as shown in Figure 30.
- 3. After the cut has been started, the work is swung free of the starting pin and rides only against the collar as shown in the third position Figure 31.

ALWAYS FEED AGAINST THE ROTATION OF THE CUTTER.

IMPORTANT: If the work would be advanced to the cutter without the side support of the starting pin, it would invariably be kicked back.

Accessories

Recommended accessories for use with your tool are available at extra cost from your local dealer or authorized service center.

CAUTION: The use of any accessory not recommended for use with this tool could be hazardous. Use only cutters that are rated above 10,000 RPM and equal to or less than 2-1/2" (63.5mm) diameter.

If you need assistance in locating any accessory, please contact: Black & Decker (U.S.) Inc. Consumer Service Dept. 626 Hanover Pike, P.O. Box 618 Hampstead, MD 21074-0618 Phone: 1-800-762-6672

To purchase Black & Decker bench tool accessories, which are not available at your local retailer, please call Black & Decker Teleservice at 1-800-258-6003.

Important

To assure product SAFETY and REUABILITY, repairs, maintenance and adjustment (including brush inspection and replacement) should be performed by authorized service centers or other qualified service organizations, always using identical replacement parts.

Full Two-Year Home Use Warranty

Black & Decker (U.S.) Inc. warrants this product for two years against any defects that are due to faulty material or workmanship. Please return the complete unit, transportation prepaid, to the seller (if a participating retailer) for free replacement (proof of purchase may be required). This unit may also be returned to a Black & Decker service center or authorized service station, listed under "Tools-Electric" in the yellow pages for free replacement or repair at our option. This warranty does not apply to accessories. This warranty gives you specific legal rights and you may have other rights which vary from state to state. Should you have any questions, contact your nearest Black & Decker service center manager.

This product is not intended for commercial use.

Every Black & Decker tool is of the highest quality. If you wish to contact us regarding this product, please call toll free between 8:00 a.m. and 8:00 p.m. ET, seven days a week.



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