

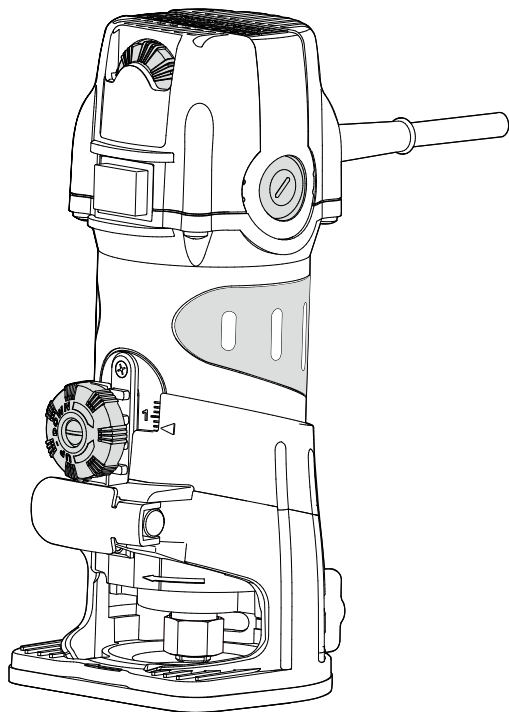
Operator's Manual

**CRAFTSMAN®**

**PROFESSIONAL**

# Craftsman Professional 6.5 Amp Palm Router

Model No. 320. 28212



**▲ CAUTION!** Read, understand and follow all Safety Rules and Operating Instructions in this Manual before using this product.

- **Warranty**
- **Safety**
- **Unpacking**
- **Description**
- **Operation**
- **Maintenance**

**Sears, Roebuck and Co., Hoffman Estates, IL 60179**

[www.craftsman.com](http://www.craftsman.com)

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### **ONE YEAR FULL WARRANTY ON CRAFTSMAN PROFESSIONAL TOOL**

If this Craftsman Professional tool fails to give complete satisfaction within one year from the date of purchase, return it to any Sears store or parts & repair center or other craftsman outlet in the United States for free repair (or replacement, if repair proves impossible).

This warranty does not include expendable parts such as lamps, batteries, bits, or blades.

This warranty applies for only 90 days from the date of purchase if this product is ever used for commercial or rental purposes

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Sears, Roebuck and Co., Hoffman Estates IL 60179

**▲ WARNING:** Some dust created by using power tools contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.

**SAVE THESE INSTRUCTIONS!**

**READ ALL INSTRUCTIONS!**

## SAFETY SYMBOLS

The purpose of safety symbols is to attract your attention to possible dangers. The safety symbols and the explanations with them deserve your careful attention and understanding. The symbol warnings **do not**, by themselves, eliminate any danger. The instructions and warnings they give are no substitutes for proper accident prevention measures.

**⚠ WARNING:** Be sure to read and understand all safety instructions in this manual, including all safety alert symbols such as “DANGER,” “WARNING,” and “CAUTION” before using this router. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious personal injury.

### SYMBOL MEANINGS

**⚠ SAFETY ALERT SYMBOL:** Indicates DANGER, WARNING, or CAUTION. May be used in conjunction with other symbols or pictographs.

**⚠ DANGER:** Failure to obey this safety warning **WILL** result in death or serious injury to you or to others. Always follow the safety precautions to reduce the risk of fire, electric shock, and personal injury.

**⚠ WARNING:** Failure to obey this safety warning **CAN** result in death or serious injury to you or to others. Always follow the safety precautions to reduce the risk of fire, electric shock, and personal injury.

**⚠ CAUTION:** Failure to obey this safety warning **MAY** result in personal injury to you or others or property damage. Always follow the safety precautions to reduce the risk of fire, electric shock, and personal injury.

### DAMAGE PREVENTION AND INFORMATION MESSAGES

These inform the user of important information and/or instructions that could lead to equipment or other property damage if not followed. Each message is preceded by the word “NOTE:” as in the example below:

**NOTE:** Equipment and/or property damage may result if these instructions are not followed.



**⚠ WARNING:** The operation of any router can result in foreign objects being thrown into your eyes, which can result in severe eye damage. Before beginning power tool operation, **ALWAYS** wear safety goggles or safety glasses with side shield and a full-face shield when needed. We recommend a Wide Vision Safety Mask for use over eyeglasses or standard safety glasses with side shield, available at Sears Stores or other Craftsman Outlets.

## SAFETY INSTRUCTIONS

**⚠ WARNING:** Be sure to read and understand all instructions in this manual before using this router. Failure to follow all instructions may result electric shock, fire, and/or serious personal injury.

### WORK AREA SAFETY


- **Keep your work area clean and well lit.** Cluttered workbenches and dark areas invite accidents.
- **Do not operate power tools in explosive environments,** such as in the presence of flammable liquids, gases, or dust. Power tools create sparks which may ignite the dust or fumes.
- **Keep bystanders, children, and visitors away** while operating a power tool. Distractions can cause you to lose control.
- **Make your workshop childproof** with padlocks and master switches. Lock tools away when they are not in use.
- **Make sure that the work area has ample lighting** so you can see the work and that there are no obstructions that will interfere with safe operation before using your router.

### PERSONAL SAFETY

- **Know your power tool.** Read this operator's manual carefully. Learn the router's applications and limitations, as well as the specific, potential hazards related to this tool.
- **Stay alert,** watch what you are doing, and use common sense when operating a power tool.
- **Do not** use the tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.
- **Dress properly.** Do not wear loose clothing or jewelry. Pull back long hair. Keep your hair, clothing, and gloves away from moving parts. Loose clothing or long hair can be caught in moving parts. Air vents often cover moving parts and should also be avoided.
- **Avoid accidental starting.** Be sure switch is in the "OFF" position before plugging the tool into an electric socket. Do not carry tools with your finger on the switch. Carrying tools with your finger on the switch or plugging in tools that have the switch in the "ON" position invites accidents.
- **Remove adjusting keys** or blade wrenches before turning the tool "ON." A wrench that is left attached to a rotating part of the tool may result in personal injury.

- **Do not overreach.** Keep proper footing and balance at all times. Proper footing and balance enable better control of the tool in unexpected situations.
- **Always secure your work.** Use clamps or a vise to hold the workpiece securely. It is safer than using your hand, and it frees both hands to operate the tool.
- **Use safety equipment.** Always wear eye protection. A dust mask, non-skid safety shoes, hardhat, and hearing protection must be used for appropriate conditions.
- **Do not use on a ladder** or unstable support. Stable footing on a solid surface enables better control of the tool in unexpected situations.

## POWER TOOL USE AND CARE

 **WARNING:** Be sure to read and understand all instructions before operating this router. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious personal injury.

- **Always use clamps** or other practical ways to support and secure the workpiece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.
- **Do not force the tool.** Use the correct tool and bit for your application. The correct tool and bit will do the job better and safer at the rate for which it is designed.
- **Do not use the tool if switch does not turn it “ON” or “Off.”** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the plug from the power** source before making any adjustments, changing accessories, or storing the tool. Such preventive safety measures reduce the risk of starting the tool accidentally.
- **Never leave the tool running.** Always turn it off. Do not leave the tool until it comes to a complete stop.
- **Store idle tools out of the reach of children** and other untrained persons. Tools are dangerous in the hands of untrained users.
- **Maintain tools with care.** Keep cutting tools sharp and clean. Properly maintained tools with sharp cutting edges are less likely to bind and are easier to control.
- **Check** for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool’s operation. If damaged, have the tool serviced before using it. Many accidents are caused by poorly maintained tools.
- **Use only recommended accessories** for this tool. Accessories that may be suitable for one tool may become hazardous when used with another tool.

## ELECTRICAL SAFETY

**⚠ WARNING:** Do not permit fingers to touch the terminals of the plug when installing or removing the plug from the outlet.

- **Double insulated tools** are equipped with a polarized plug (one blade is wider than the other). This plug will fit in 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 a polarized outlet. Do not change the plug in any way.
- Double insulation  eliminates the need for a three-wire grounded power cord and grounded power-supply system. Applicable only to Class II (double-insulated) tools.
- **This router motor is double insulated.**

**⚠ WARNING:** Double insulation does not take the place of normal safety precautions when operating this tool.

- **Before** plugging in the tool, be sure that the outlet voltage supplied is within the voltage marked on the tool's data plate. Do not use "AC only" rated tools with a DC power supply.
- **Avoid body contact with grounded surfaces**, such as pipes, radiators, ranges, and refrigerators. There is an increased risk of electric shock if your body is grounded.
- **Do not expose power tools to rain or wet conditions** or use power tools in wet or damp locations. Water entering a power tool will increase the risk of electric shock.
- **Inspect tool cords for damage.** Have damaged tool cords repaired at a Craftsman Service Center. Be sure to remain aware of the cord's location and keep it well away from the moving router.
- **Do not abuse the cord.** Never use the cord to carry the tool or to pull the plug from an outlet. Keep the cord away from heat, oil, sharp edges, or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.
- **When operating a power tool outside**, use an outdoor extension cord marked "W-A" or "W." These cords are rated for outdoor use and reduce the risk of electric shock.

## EXTENSION CORDS

- **Use a proper extension cord.** Only use cords listed by Underwriters Laboratories (UL). Other extension cords can cause a drop in line voltage, resulting in a loss of power and overheating of the tool. For this tool, an AWG (American Wire Gauge) size of at least 14-gauge is recommended for an extension cord of 25-ft. or less in length. Use 12-gauge for a 50-ft.-long cord.

- **Extension cords 100-ft. or longer are not recommended.**
- **A smaller wire gauge size has greater capacity** than a larger number (14-gauge wire has more capacity than 16-gauge wire; 12-gauge wire has more capacity than 14-gauge). When in doubt use the smaller number. When operating a power tool outdoors, use an outdoor extension cord marked “W-A” or “W”. These cords are rated for outdoor use and reduce the risk of electric shock.

**⚠ CAUTION:** Keep the extension cord clear of the working area. Position the cord so that it will not get caught on lumber, tools, or other obstructions while you are working with a power tool.

**⚠ WARNING:** Check extension cords before each use. If damaged, replace them immediately. Never use a tool with a damaged cord, since touching the damaged area could cause electrical shock, resulting in serious injury.

**SAFETY SYMBOLS FOR YOUR TOOL**

The label on your tool may include the following symbols.


- V .....Volts
- A.....Amps
- Hz.....Hertz
- W.....Watts
- min.....Minutes
- ~ .....Alternating current
- == .....Direct current
- n<sub>o</sub> .....No-load speed
- ⊞ .....Class II construction, Double Insulated
- .../min.....Revolutions or Strokes per minute
- ⚠ ..... Indicates danger, warning or caution. It means attention! Your safety is involved.

**SERVICE SAFETY**

- **If any part of this router is missing or should break**, bend, or fail in any way; or should any electrical component fail to perform properly: shut off the power switch and remove the router plug from the power source and have the missing, damaged, or failed parts replaced before resuming operation.
- **Tool service** must be performed only at a Craftsman Parts and Repair Center. Service or maintenance performed by unqualified personnel could result in a risk of injury.

- **Use only identical replacement parts** when servicing a tool. Follow the instructions in the maintenance section of this manual. Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.


## SAFETY RULES FOR ROUTER

 **CAUTION:** Cutting bits coast after the router is switched off.

- **Hold the tool by the insulated gripping surfaces** (handles) when performing an operation where the cutting tool may contact hidden wiring or its own cord. Contact with a “live” wire will make the exposed metal parts of the tool “live” and shock the operator.
- **Maintain a firm grip** on the router with both hands to resist starting torque.
- **Never** attempt to use the router motor without first installing it in an approved base. Failure to heed this warning could result in personal injury and damage to the motor.
- **Make sure** that the motor housing does not move up or down when clamped in the base. If the motor is not securely clamped in a base, adjustments will not be accurate.
- **Tighten the collet/nut securely** to prevent the cutting bit from slipping. If the collet/nut is not securely tightened, the cutting bit may detach during use, causing serious personal injury.
- **Never** tighten the collet/nut without a cutting bit installed in the collet/nut.
- **Use clamps** or other practical ways to support the workpiece and secure it to a stable platform, and to hold the workpiece rigidly in position. Holding the workpiece by hand or against your body is unstable and may lead to loss of control.
- **Never** hold the piece being cut in your hands or across your legs. It is important to support and clamp the workpiece properly in order to minimize body exposure, bit binding, and loss of control.
- **Clear** the router-cutting-bit path of any obstructions before starting the motor. Keep the cutting area clear of all foreign objects while motor is running.
- **Make sure** that the cord will not “hang up” on the work piece or any other object during routing operations.
- **Make sure** that the cutting bit is not in contact with the workpiece before the switch is turned on. The bit must always be running at the full selected speed before coming into contact with the workpiece.
- **Keep hands clear** of the cutting bit when the motor is running to prevent personal injury.
- **Provide clearance** under the workpiece for the router cutting bit when through-cutting.



- **Keep cutting pressure constant.** Do not overload the motor.
- **Use only sharp cutting bits** that are not chipped or cracked. Blunt cutting bits will cause stalling and burn the workpiece.
- **Never** use this router motor with a cutting bit larger than 1-1/2 inch in diameter.
- **Always** use cutting bits that are designed for this router. Never use cutting bits that are larger in diameter than the opening in the router sub-base. Cutting bits that have cutting diameters larger than the opening could cause possible loss of control or create other hazardous conditions that could cause serious personal injury.
- **Do not** use large router cutting bits for freehand routing. Using large cutting bits for freehand routing could cause loss of control or create hazardous conditions that could result in serious personal injury. If using a router table, large bits should be used for edging only.
- **Do not** remove more than 1/8-inch of material in a single pass. Excessive depth of cut can result in loss of control that could result in personal injury.
- **Turn the motor OFF** after completing a cut, and let the motor come to a complete stop before removing the router from the workpiece.
- **Allow the motor come to a complete stop** before putting the router down. Cutting bits coast after the power is turned off.
- **Disconnect the tool** from the power source before making any adjustments or changing cutting bits.
- **Do not touch** the collet/nut or cutting bit with your hands or fingers if you are changing a bit immediately after use. The heat buildup from cutting could cause severe burns. Always use the wrench provided.
- **Avoid “climb cutting”.** See “OPERATION” (pages 16-29) section in this manual. “Climb-cutting” increases the chance for loss of control resulting in possible serious injury.

 **WARNING:** Use of this product can generate dust containing chemicals known to the state of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

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

Your risk from these exposures varies, depending upon how often you do this type of work. To reduce your exposure to these chemicals:

- Work in a well-ventilated area.
- Work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

Avoid prolonged contact with dust from power sanding, sawing, grinding, drilling and other construction activities. Wear protective clothing and wash exposed areas with soap and water. Allowing dust to get into your mouth or eyes or lie on the skin may promote absorption of harmful chemicals.

**⚠ WARNING:** Use of this tool can generate and/or disburse dust, which may cause serious and permanent respiratory or other injury. Always use NIOSH/ OSHA approved respiratory protection appropriate for the dust exposure. Direct dust particles away from the face and body.

## **ADDITIONAL RULES FOR SAFE OPERATION**

**⚠ WARNING:** Be sure to read and understand all instructions. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious personal injury.

- **Know your power tool.** Read this operator's manual carefully. Learn the applications and limitations, as well as the specific, potential hazards related to this tool. Following this rule will reduce the risk of electric shock, fire, and serious injury.
- **Always wear safety glasses or eye shields** when using this router. Everyday eyeglasses may have impact-resistant lenses, but they are NOT safety glasses.
- **Protect your lungs.** Wear a facemask or dust mask if the operation is dusty.
- **Protect your hearing.** Wear appropriate personal hearing protection during use. Under some conditions, noise from this product may contribute to hearing loss.
- **All visitors** and bystanders must wear the same safety equipment that the operator of the router should wear.
- **Inspect the tool cord** periodically and, if it is damaged, have it repaired at your nearest Craftsman Service Center. Be aware of the cord location.
- **Always check the tool** for damaged parts. Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine whether it will operate properly and perform its intended function. Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool's operation. A guard or other part that is damaged should be properly repaired or replaced at a Craftsman Service Center.
- **Inspect lumber** and remove all nails before routing.
- **Save these instructions.** Refer to them frequently, and use them to instruct others who may use this tool. If someone borrows this tool, make sure they have these instructions also.

## UNPACKING

**⚠ WARNING:** Your router should never be connected to a power source when you are assembling parts, making adjustments, installing or removing collets/nuts or cutting bits, cleaning, or when it is not in use. Disconnecting the router will prevent accidental starting, which could cause serious personal injury.

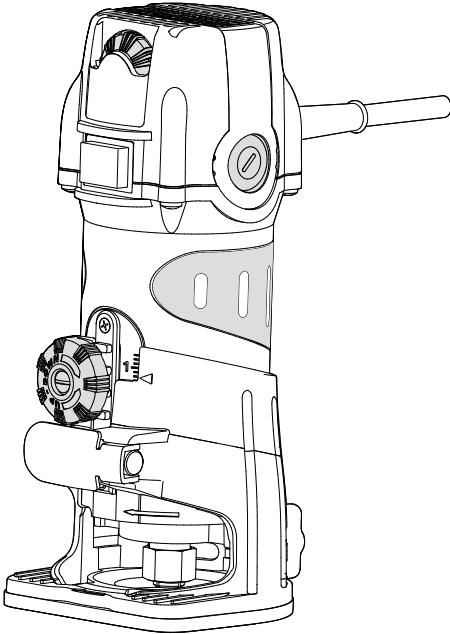
1. Carefully lift the router, with the 1/4-in. collet/ nut already installed, out of the storage/carrying case and place it on a stable flat surface.
2. Locate the following:
  - Edge Guide
  - Collet/nut wrench
  - Detachable two-handle base
3. Inspect the items carefully to make sure that no breakage or damage has occurred during shipping. If any of the items mentioned is missing, (refer to “PARTS LIST” illustration on page 10), return the router to your nearest Sears store or Craftsman outlet to have the router replaced.

**⚠ WARNING:** If any parts are broken or missing, do not attempt to plug in the power cord or operate the router until the broken or missing parts are replaced. Failure to do so could result in possibly serious injury.

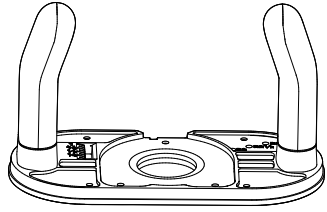
PARTS LIST (Fig. 1)

Fig. 1

1. Palm Router with 1/4-in. Collet/nut



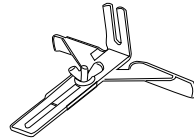
2. Detachable two-handle base



3. Collet/nut wrench



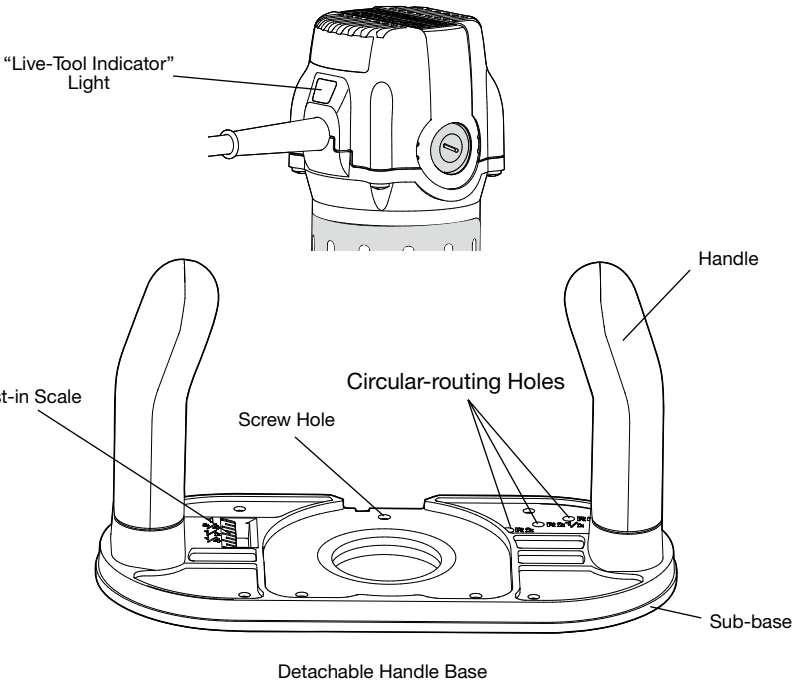
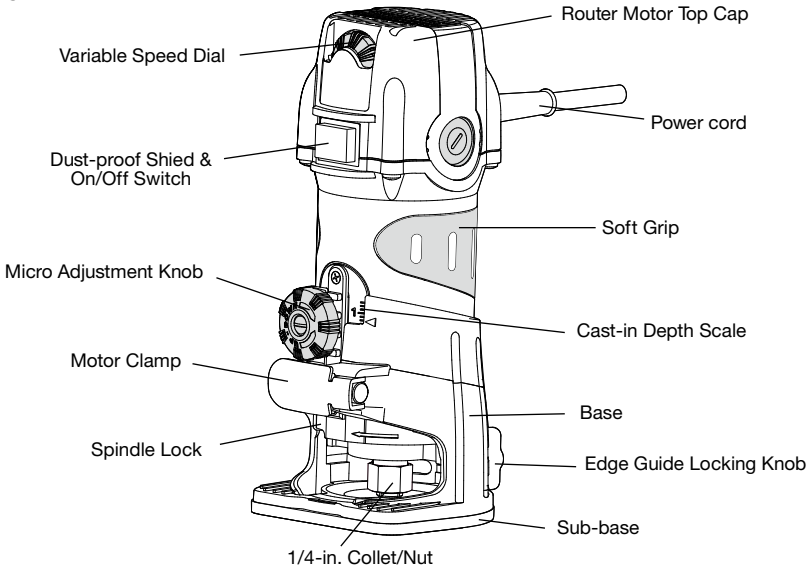
4. Edge Guide



# DESCRIPTION

## KNOW YOUR ROUTER COMBO (Fig. 2)

Fig. 2



PRODUCT SPECIFICATIONS	
Rating	6.5 Amps
No load Speed	15000-28000RPM
Peak HP	1.25
Input	120-volts, 60Hz AC
Collets/Nuts and Cutting Bit Shank Diameters	1/4 in.
Base Diameter	3-5/8 in.
Sub Base Opening (Diameter for cutting bit use)	1-1/2 inches
Depth of Cut	1 inch (25.4mm)

**NOTE:** Before attempting to use your router, familiarize yourself with all of the operating features and safety requirements.

Your palm router has a precision-built electric motor, which should only be connected to a 120-volt, 60-Hz AC ONLY power supply (normal household current). Do not operate on direct current (DC). This large voltage drop will cause a loss of power and the motor will overheat. If the router does not operate when plugged into a correct 120-volt, 60-Hz AC ONLY outlet, check the power supply. This router has a 10-ft., 2-wire power cord (no adapter needed).

**This Palm Router has the following features:**

1. **6.5 Amp, 1-1/4 peak HP, variable-speed motor** runs at 15,000 to 28,000 RPM (no-load speed).
2. **Variable Speed Dial** for matching the motor speed to the workpiece material and bit size.
3. **Micro-adjust knob** with scale cast in the motor housing for easily adjusting the cutting height.
4. **Compact motor housing** constructed of Cast Aluminum / High Density Nylon /Overmold for strength and user comfort.
5. **2 LED worklights** provide high visibility of the bit and workpiece.
6. **Depth scale** for accurate set-up
7. **Spindle lock** for easy, one-wrench bit changes.
8. **1/4-in. self-releasing collet/nut.**
9. **Detachable, two-handle base** features ergonomically designed handles with overmold for comfort and maximum control with reduced vibration.
10. **3 integrated circular routing holes** in the detachable base for conveniently routing circles and arcs (radii: 2-inch, 2-1/2-inch, 3-inch).
11. **Ball bearings throughout** the motor for smooth, efficient operation and long life.

12. **Large base opening and large chip shield** constructed of cast aluminum for lightweight durability and stability,
13. **Durable, non-marring sub-base** glides smoothly over the workpiece.
14. **Impact-resistant** motor-housing top cap helps protect the tool from damage.
15. **Heavy-duty edge guide** for accurate, parallel routs.
16. **On/Off Rocker Switch** with dust-proof cover is side mounted for added visibility, easy access.
17. **“Live-Tool Indicator” light** shines green when the palm router is plugged into a power source. The light is located on motor housing top cap next to power cord inlet.
18. **Replaceable brushes** (replacements sold separately) for dependable service.
19. **Impact-resistant case** for easy carrying and storage.

## ASSEMBLY

**NOTE:** This tool is shipped completely assembled. To install or remove bits or add accessories, see the following instructions.

## ROCKER “ON/OFF” SWITCH (Fig. 3)

Your palm router motor is turned “ON” and “OFF” with the rocker switch located on the top cap of the motor housing.

The left side of the rocker switch (as you face it) is marked “I” for “ON” and the right side (as you face it) is marked “O” for “Off.”

### To turn the motor “ON”

Push the rocker switch to the left side marked “I”

### To turn the motor “OFF”

Push the rocker switch to the right side marked “O”

1. Always hold the router and cutting bit away from the workpiece when turning the toggle switch “ON.”
2. Contact the workpiece with the router and cutting bit only after the router has fully reached the selected speed.
3. Remove the router and cutting bit from the workpiece only after turning the router motor “OFF” and after the cutting bit has come to a complete stop.

## SOFT START FEATURE

The soft-start feature minimizes torque twist by limiting the speed at which the motor starts. This increases the motor’s life.

## LED WORKLIGHTS (Fig. 4)

Your palm router motor has 2 built-in worklights located around the collet/nut to provide high visibility of the workpiece when cutting. These lights are always “ON” when the rocker switch is in the “ON” position.

Fig. 3

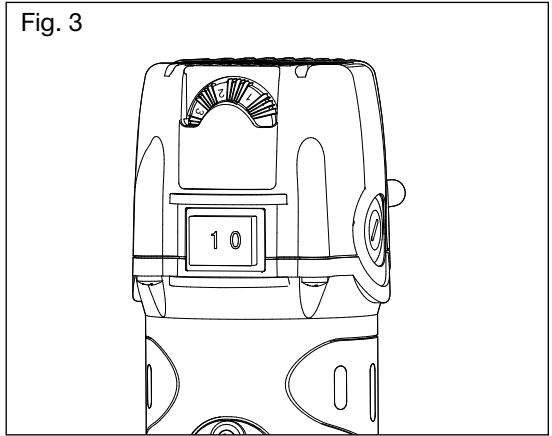
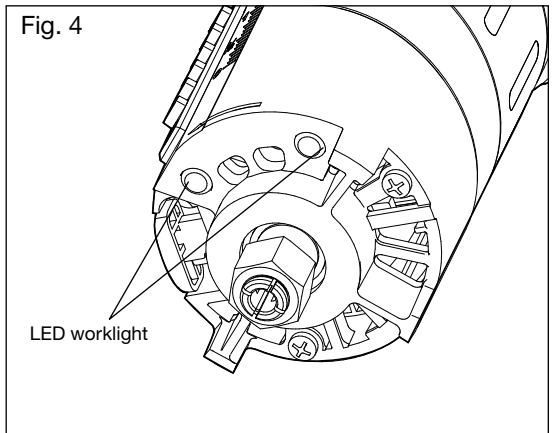


Fig. 4





## Electronic Variable Speed Control

The electronic variable speed control feature allows the user to match the motor speed to the cutting bit size and workpiece-material hardness for an improved finish and extended bit life.

Reduce the speed when using extra large (1-in. or greater) or heavy cutting bits. Changing the router's rate of feed can also improve the quality of the cut.

## SELECTING THE CUTTING BIT

This router comes with 1/4-in. collet/nut that accepts 1/4-inch-shank cutting bits.

**⚠ WARNING:** Do not use router cutting bits that have a cutting bit diameter larger than 1-1/2 inches, as they will not fit through the sub-base opening and will cause damage to the sub-base and the motor and could cause serious personal injury to the operator.

**⚠ WARNING:** Always turn the motor off and unplug the router before making any adjustments or installing accessories. Failure to unplug the router could result in accidental starting, which can cause serious personal injury.

## CUTTING BITS

Get faster, more accurate cutting results by keeping cutting bits clean and sharp.

1. Remove all accumulated pitch and gum from cutting bits after each use.
2. When sharpening cutting bits, sharpen only the inside of the cutting edge. Never grind the outside diameter.
3. Be sure, when sharpening the end of a cutting bit, to grind so that the clearance angle remains the same as it was originally.

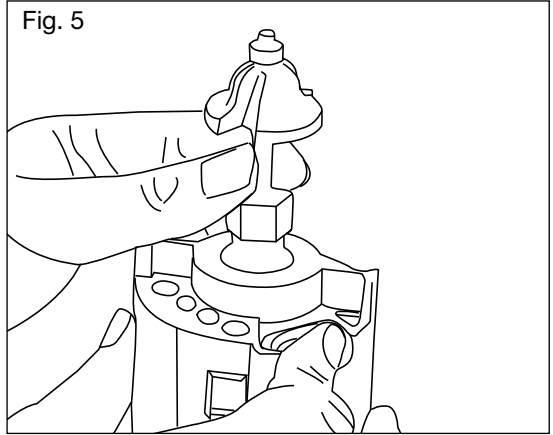
## INSTALLING AND REMOVING THE CUTTING BIT (Fig. 5)

### INSTALLING THE CUTTING BIT

1. Turn the motor off and unplug the router from the power source.
2. Remove the motor housing from the base.

**NOTE:** See instructions for removing and installing the motor housing from the fixed base on page 20.

3. Place the motor, upside down, on its top cap with the collet/nut pointing up.
4. Press the spindle-lock button to engage and lock the spindle shaft and the collet/nut (Fig. 5).
5. Place the wrench on the collet/nut and turn it counter-clockwise to slightly loosen the collet/nut.
6. Insert the cutting-bit shank into the collet/nut assembly as far as it will go, then back the shank out until the cutting edges are approximately 1/8 to 1/4-inch away from the face of the collet/nut.
7. With the cutting bit inserted and the spindle-lock button pressed in to engage the shaft, place the wrench on the collet/nut and turn it clockwise until the router cutting bit and the collet/nut are firmly tightened.



**⚠ WARNING:** Tighten the collet/nut securely to prevent the cutting bit from slipping. If the collet/nut is not securely tightened, the cutting bit may detach during use, causing serious personal injury.

**NOTE:** To ensure proper gripping of the cutting-bit shank and to minimize run-out, the shank of the cutting bit must be inserted into the collet/nut at least 5/8-inch.

**⚠ CAUTION:** To prevent damage to tool, do not tighten collet/nut without a cutting bit installed.

### REMOVING THE CUTTING BIT (Fig. 5)

1. Turn the motor off and unplug the tool from the power source.
2. Remove the motor from the fixed base.
3. Place the motor, upside down, on its top cap with the collet/nut pointing up.
4. Press the spindle-lock button to engage and lock the spindle shaft and the collet/nut (Fig. 5).


5. Place the wrench on the collet/nut and turn it counterclockwise to slightly loosen the collet/nut, and then remove the cutting-bit shank from the collet/nut.

**NOTE:** The collet/nut is self-releasing; it is not necessary to strike the collet/nut to free the cutting bit. If the cutting bit seems to be stuck, loosen the collet/nut a little more until it releases the cutting bit.

## **COLLET/NUT CARE**

1. From time to time, inspect the collet/nut to make sure that it is clean and that it is gripping the cutting bit properly.
2. With the cutting bit removed and with the spindle lock engaged, turn the collet/nut counterclockwise until it is free from the motor's spindle shaft.
3. Blow the collet/nut out with compressed air, and clean the tapered inside of the collet/nut with a tissue or a fine brush.
4. Always make sure that the cutting bit shank, collet/nut, and motor spindle are clean and free of woodchips, dust, residue, grease, and rust before re-installing.
5. Apply a small amount of machine oil to the spindle shaft if it looks dry. Always replace a worn or damaged collet/nut before further use.

## **ADJUSTING DEPTH OF CUT**

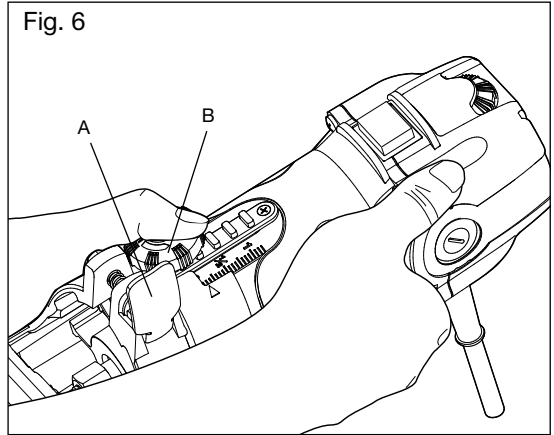
 **WARNING:** Your palm router should never be turned on or be connected to the power source when you are assembling parts, making adjustments, installing or removing the collet/nut or cutting bits, cleaning, or when it is not in use. Disconnecting the router will prevent accidental starting, which could cause serious personal injury.

**NOTE:** All depth adjustments must be made with the motor clamp open.

**NOTE:** For this palm router, the cutting-bit depth equals the amount of the cutting bit that is exposed below the surface of the sub-base.

## To Adjust Depth (Fig. 6)

1. Turn the motor off and unplug the tool from the power source.
2. Install the router bit. The collet/nut can accept only bits with 1/4-inch shanks.
3. With one hand holding the motor housing, open Motor Clamp (A).
4. Rotate the Micro Adjust Knob (B) to raise or lower the motor to achieve the desired cutting depth. The direction of the rotation is marked on the Micro Adjust Knob (B).



5. Always use a ruler to confirm the cutting depth.
6. Once the depth of cut is set, close the motor clamp (A) securely.

**NOTE:** Making a single deep cut is never advisable. Too much side thrust and torque can easily break small-diameter cutting bits. Larger cutting bits can result in a rough cut and be difficult to guide and control. For these reasons, do not exceed 1/8-in. depth of cut in a single pass.

The proper cutting depth for each pass is determined based on the workpiece material, the cutting bit size and type, and the speed of the motor.

**NOTE:** Making test cuts is essential with most routing applications.

Always make several, progressively deeper cuts by starting at one depth and then making several passes, each time increasing the cutting depth, until the desired depth is reached.

Making a cut that is too deep will stress the motor and the cutting bit, and it may burn the workpiece and dull the cutting bit. It could also “grab” too much of the workpiece and cause you to lose control of the router, causing a serious accident.

To be certain that your depth settings are appropriate, always make test cuts in scrap material similar to your workpiece before beginning your final cutting.

Remember, knowing the right depth for each cut comes with routing experience.

## PLACING THE PALM ROUTER ONTO THE WORKPIECE AND STARTING THE CUT

**▲ WARNING:** Before operating your router, follow all safety instructions in this manual. Failure to do so could result in serious personal injury.

**NOTE:** Making test cuts is essential with most routing applications.

A test cut gives information about the set-up, the router's speed, the depth of cut, and how the cutting bit reacts to the workpiece. Much of routing is a trial-and-error process of making various adjustments, followed by test cuts, as the user becomes familiar with all of the router's operational abilities. To avoid ruining good material, make test cuts on scrap materials.

### DETACHABLE TWO-HANDLE BASE (Figs. 7, 7a)

Your palm router comes with a newly designed, detachable, two-handle base with overmold for comfort.

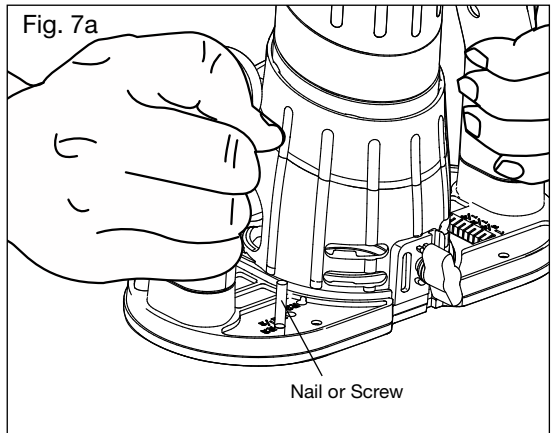
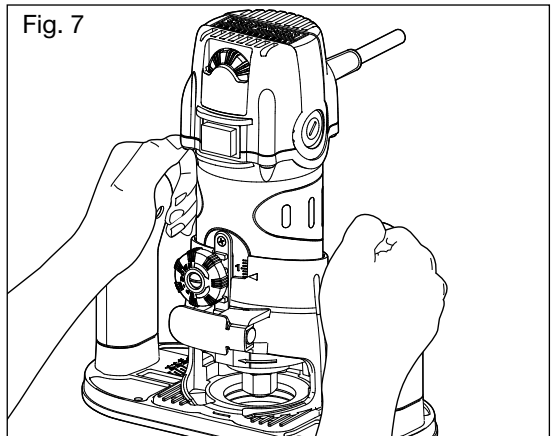
#### Installing the palm router in the detachable two-handle base

1. Use a Phillips screwdriver to remove the 3 screws in the cast aluminium base and sub-base.
2. Remove the sub-base.
3. Place the cast aluminium base onto the detachable two-handle base by aligning the 3 screw holes.
4. Replace and fasten the screws.

#### Routing circles and arcs (Figs. 7, 7a)

The detachable two-handle base has 3 integrated circular-routing holes for conveniently routing circles and arcs (radii: 2 inch, 2-1/2 inch, 3 inch).

1. With the palm router installed in the detachable two-handle base, insert a nail or screw into the circular-routing hole that corresponds with the correct radius. Refer to the cast markings: R 2, R 2-1/2, and R 3.



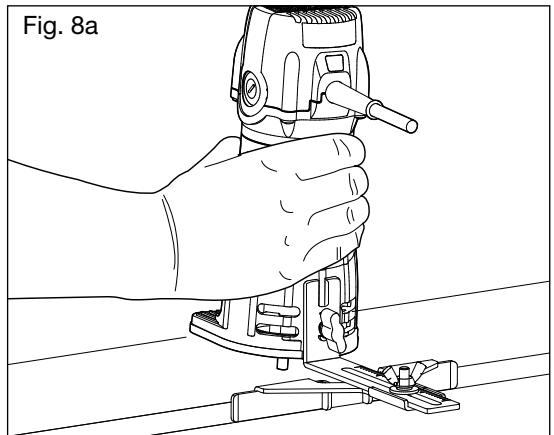
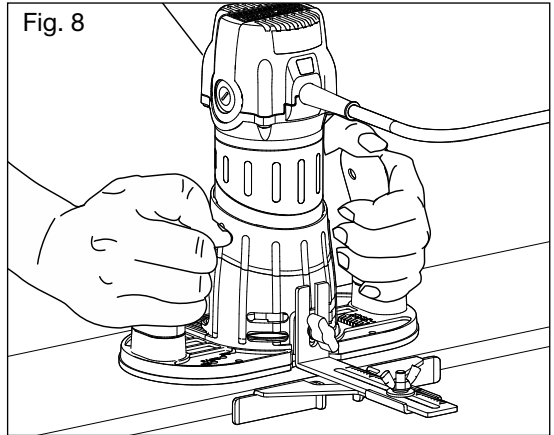
2. Tap the nail or drive the screw into the workpiece at the center point of the planned arc or circle.
3. Proceed to rout according to the Operations instructions.

### HEAVY-DUTY EDGE GUIDE (Figs. 8, 8a)

Your palm router comes with a Heavy-Duty Edge Guide. This edge guide can be used as an aid in routing applications, such as decorative edging, straight-edge planing, trimming, grooving, dadoing, and slotting.

To assemble:

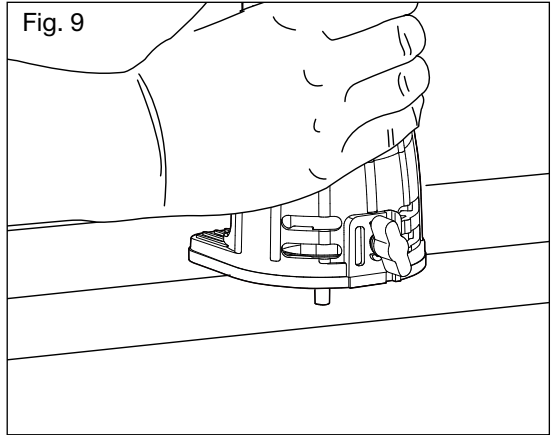
1. Loosen the knob on the cast aluminum base to accommodate the slotted attachment arm on the edge guide.
2. Align the slot in the edge-guide attachment arm with the shaft of the knob, so that the edge-guide attachment arm is between the flat washer and the cast-aluminum router base.
3. Slide the edge-guide attachment arm up until it stops.
4. Tighten the knob on the cast-aluminum base to secure the edge guide.



## EDGE ROUTING OR INTERNAL ROUTING

### Edge routing (Fig. 9)

1. With the depth-of-cut set, place the router base plate on the edge of the workpiece, making sure that the cutting bit does not contact the workpiece.
2. Clamp an edge guide (or board or metal straightedge) in place, to help guide the router's base when making an edge cut.
3. Turn the router "ON," and let the motor reach the selected speed.
4. To begin the cut, gradually feed the cutting bit into the edge of the workpiece.
5. Guide the router along the workpiece edge.
6. When cut is completed, turn the motor "OFF," and let cutting bit come to a complete stop before removing it from the workpiece.
7. Unplug the router from the power source, place the router upside down on worktable, and inspect the finished cut.



**⚠ WARNING:** Always securely clamp the workpiece in place, and keep a firm grip on the router base with both hands at all times. Failure to do so could result in loss of control, causing possibly serious personal injury.

**⚠ WARNING:** Removing the cutting bit from the workpiece while it is still rotating could damage the workpiece and result in loss of control, causing serious personal injury.

**NOTE:** Making test cuts in scrap material that is similar to the workpiece is essential. Learning how the router's speed, depth-of-cut and cutting bit will react in the workpiece will help produce quality cuts.

## Internal routing (Figs. 10, 10a, 10b, 11)

1. With the depth-of-cut set, tilt the router and place it on the workpiece with only the leading edge of the sub-base contacting the workpiece (Fig.10).
2. Turn the motor "ON" and allow the motor to reach the selected speed, being careful not to allow the cutting bit to contact the workpiece.
3. To begin your cut, gradually feed the cutting bit into the workpiece until the sub-base is level with the workpiece (see Fig. 10a, 10b).
4. When the cut is completed, turn the motor "OFF" and allow the cutting bit come to a complete stop before removing it from the workpiece.
5. Unplug the router from the power source, place the router upside down on the worktable, and inspect the finished cut.

Fig. 10

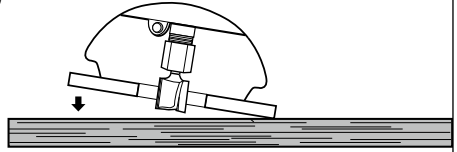


Fig. 10a

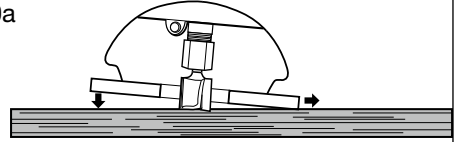


Fig. 10b

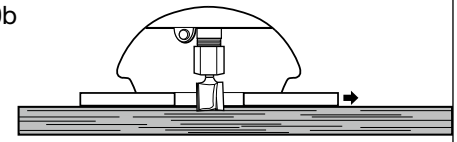
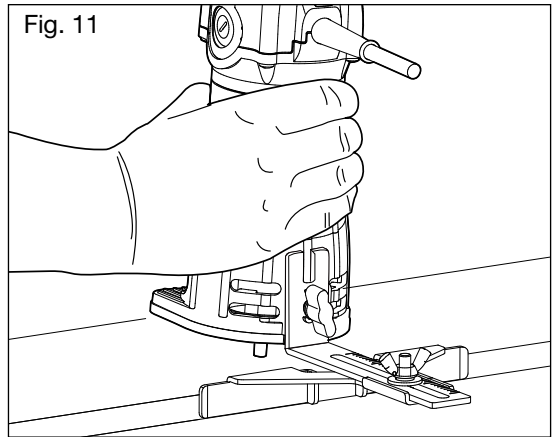


Fig. 11



**⚠ WARNING:** Always securely clamp the workpiece in place, and keep a firm grip on the router base at all times. Failure to do so could result in loss of control, causing possibly serious personal injury.

**⚠ WARNING:** Removing the cutting bit from workpiece while it is still rotating could damage the workpiece and result in loss of control, causing serious personal injury.

**NOTE:** Making a single, deep cut is never advisable. Smaller diameter bits are easily broken by too much side thrust and torque. Larger bits will cause a rough cut and will be difficult to guide and control. For these reasons, do not exceed 1/8-in. depth of cut in a single pass.



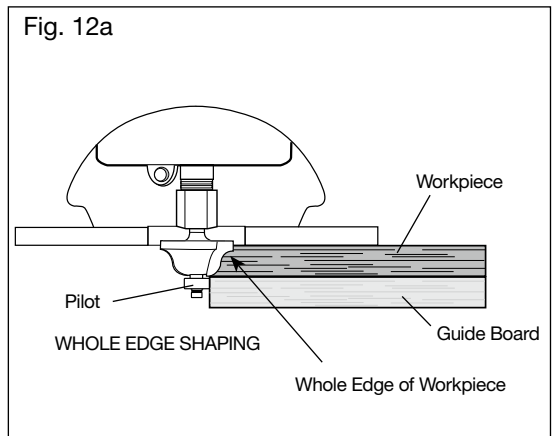
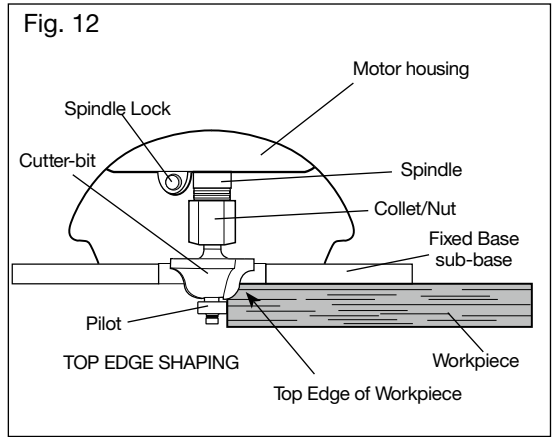
## EDGING WITH A PILOT BIT (Figs. 12 and 12a)

Arbor-type bits with pilots are excellent for edge shaping any workpiece edge that is straight or is curved with a curvature that is equal to or greater than the radius of the bit that is used. The pilot prevents the bit from making a cut that is too deep; holding the pilot firmly in contact with the workpiece edge throughout the cutting process prevents the cut from becoming too shallow.

When the workpiece thickness and the desired depth of cut are such that only the top part of the edge is to be shaped, leaving at least a 1/16-in. thick uncut portion below, the pilot can ride against the uncut portion of the workpiece. (See Fig. 12.)

If the workpiece is too thin or the bit is set so low so that there will be no uncut edge against which to ride the pilot, an extra board must be placed under the workpiece to act as a guide (see Fig. 12a). This “guide” board must have exactly the same contour as the workpiece edge. If it is positioned so that its edge is flush with the workpiece edge, the bit will make a full cut. If the guide board is positioned as shown in Fig. 16a (extending beyond the workpiece edge), the bit will make less than a full cut, altering the shape of the finished edge.

**⚠ WARNING:** Always securely clamp the workpiece in place, and keep a firm grip on the router base with both hands at all times. Failure to do so could result in loss of control causing possibly serious personal injury.



## FEEDING THE ROUTER (Fig. 13)

The secrets to professional-looking routing are careful set-up for the cut, proper depth-of cut-selection, knowing how the cutting bit reacts in the workpiece, and the rate and direction of feed of the router.

### DIRECTION OF FEED: EXTERNAL CUTS (Fig. 13)

The router motor and cutting bit rotate clockwise. This requires the feed of the cutting bit to be from left to right (see Fig. 13). Feeding the bit from left to right will cause the bit to pull the router towards (up against) the workpiece.

If the router is fed in the opposite direction (right to left), the rotating force of the cutting bit will tend to throw the bit away from the workpiece, making it hard to control. This is called “Climb-Cutting:” cutting in the opposite direction of the proper feed direction. “Climb Cutting” increases the chance of losing control, resulting in possible personal injury. When “Climb Cutting” is required (backing around a corner, for example), exercise extreme caution to maintain control of the router.

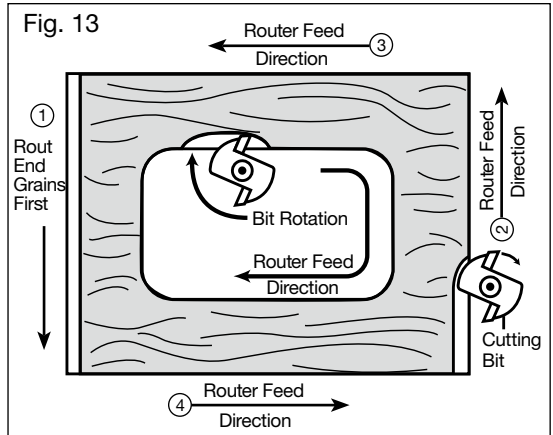
This is called “Climb-Cutting:” cutting in the opposite direction of the proper feed direction. “Climb Cutting” increases the chance of losing control, resulting in possible personal injury. When “Climb Cutting” is required (backing around a corner, for example), exercise extreme caution to maintain control of the router.

### KICKBACK

Because of the high speed of the cutting bit during a proper feeding operation (left to right), there is very little kickback under normal conditions. However, if the cutting bit strikes a knot, an area of hard grain in the workpiece, or a foreign object, the normal cutting action could be affected and cause “Kickback.”

This Kickback may cause damage to your workpiece, and could cause you to lose control of the router, causing possible personal injury. Kickback is always counterclockwise: the opposite direction of the clockwise cutting bit rotation.

**To guard against and help prevent Kickback,** plan the set-up and direction of feed so that the router is always moving, and keep the sharp edges of the cutting bit continuously biting straight into new (uncut) wood (workpiece). Also, always inspect the workpiece for knots, hard grain, and foreign objects that could cause a kickback problem.



## DIRECTION OF FEED - INTERNAL CUTS (Figs. 14 and 14a)

When making an internal cut, such as a groove, dado, or slot, the edge guide, straight edge, or board guide must always be positioned on the right-hand side of the router as you make the cut (Fig. 14).

When the guide is positioned on the right hand side of the router, the router travel should be from left to right and “counterclockwise” around curves (see Fig. 14). This counterclockwise action around the curve could cause “Climb cutting”. Always be alert and exercise extreme caution to maintain control of the router when making this type of cut around curves.

When the guide is positioned as shown in Fig. 18a, the router travel should be from left to right and clockwise around curves.

If there is a choice, the set-up in Fig. 14 is easier to use, but there is the possibility of “Climb Cutting” around curves. In either case, Fig. 14 or Fig. 16a, the sideways thrust of the router cutting is always against the guide, as is proper.

**⚠ WARNING:** Always securely clamp the workpiece in place, and keep a firm grip on the router base with both hands at all times. Failure to do so could result in loss of control causing possible serious personal injury.

Fig. 14

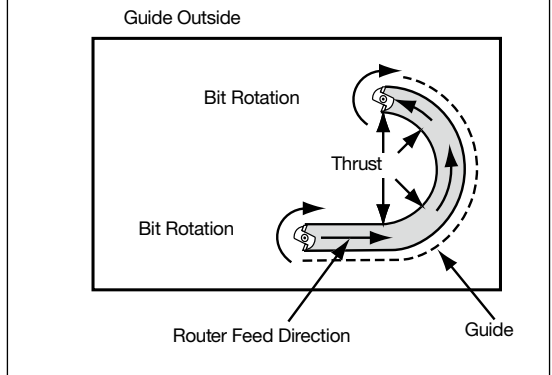
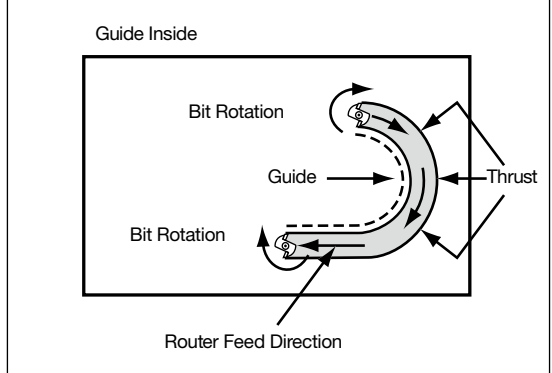


Fig. 14a



## RATE OF FEED (Figs. 15 and 15a)

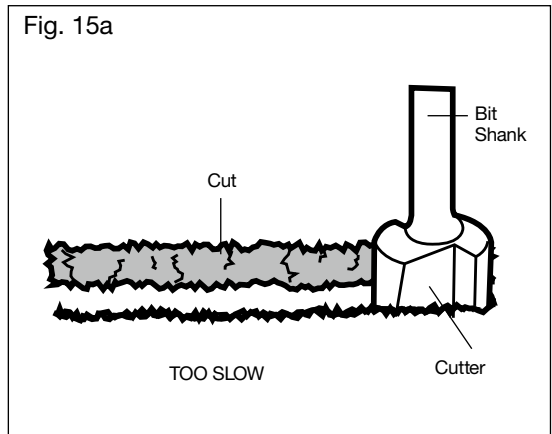
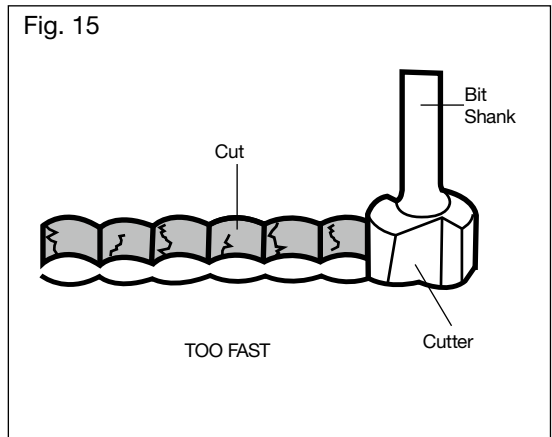
The proper rate of feed depends on several factors: the hardness and moisture content of the workpiece, the depth of cut, and the cutting diameter of the bit. When cutting shallow grooves in soft woods, such as pine, you may use a faster rate of feed. When making deep cuts in hardwoods, such as oak, you should use a slower rate of feed.

### FEEDING TOO RAPIDLY

(Fig. 15)

Clean and smooth finished cuts can only be achieved when the cutting bit is rotating at a relatively high speed, taking very small bites, and producing tiny, clean-cut chips.

Forcing the feed of the cutting bit forward too rapidly slows the RPM of the cutting bit, and the bit takes larger bites as it rotates. Larger bites mean larger chips and a rough finish. This forcing action can also cause the router motor to overheat.



Under extreme force-feeding conditions, the RPMs can become so slow and the bites become so large that chips become partially cut off, causing splintering and gouging of the workpiece.

The router will make clean, smooth cuts if it is allowed to run freely without the overload of forced feeding. You can detect forced feeding by the sound of the motor. Its usual high-pitched whine will sound lower and stronger as it loses speed. Holding the router against the workpiece will also be more difficult to do.

### FEEDING TOO SLOWLY (Fig. 15a)

When you feed the cutting bit too slowly, the rotating cutting bit does not cut into new wood rapidly enough to take a bite. Instead, it scrapes away sawdust-like particles. This scraping produces heat, which can glaze, burn, and mar the cut in the workpiece and, in extreme cases, overheat the cutting bit.

When the cutting bit is scraping instead of cutting, the router is more difficult to control as you feed it.

With almost no load on the motor, the cutting bit has a tendency to bounce off the sides of the cut in the workpiece, producing a cut with a rippled finish instead of clean, straight sides.

## MAINTENANCE

**⚠ WARNING:** To ensure safety and reliability, all repairs should be performed by a qualified service technician at a Craftsman Service Center.

### GENERAL

Only the parts shown on the parts list are intended for repair or replacement by the customer. All other parts represent an important part of the double insulation system and should be serviced only by a qualified Craftsman service technician.

**⚠ WARNING:** For your safety, always turn off the switch and unplug the router motor from the power source before performing any maintenance or cleaning.

It has been found that electric tools are subject to accelerated wear and possible premature failure when they are used to work on fiber glass boats and sports cars, wallboard, spackling compounds, or plaster. The chips and grindings from these materials are highly abrasive to electrical tool parts, such as bearings, brushes, commutators, etc. Consequently, it is not recommended that this tool be used for extended work on any fiberglass material, wallboard, spackling compound, or plaster. During any use on these materials, it is extremely important that the tool is cleaned frequently by blowing with an air jet.

**⚠ WARNING:** Always wear safety goggles or safety glasses with side shields during power tool operations, or when blowing dust. If operation is dusty, also wear a dust mask.

### ROUTINE MAINTENANCE

**⚠ WARNING:** Do not at any time allow brake fluids, gasoline, petroleum-based products, penetrating oils, etc. come in contact with plastic parts. Chemicals can damage, weaken, or destroy plastic, which may result in serious personal injury.

1. When work has been completed, clean the tool to allow smooth functioning of the tool over time.
2. Use clean damp cloths to wipe the tool.
3. Check the state of all electrical cables.
4. Keep the motor air openings free from oil, grease, and sawdust or woodchips, and store tool in a dry place.

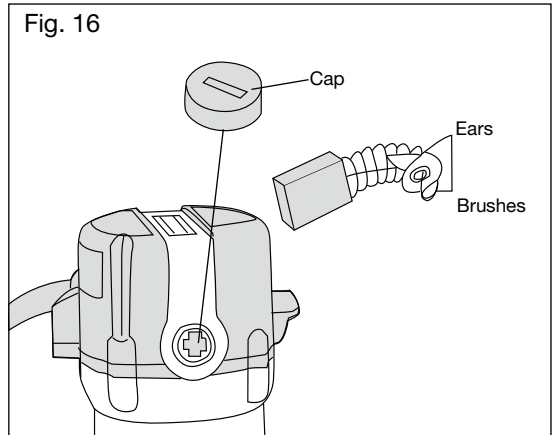
5. Be certain that all moving parts are well lubricated, particularly after lengthy exposure to damp and/or dirty conditions.

Refer to Collet/nut Care and Cutting Bits on page 19 for Collet/Nut care.

## REPLACEMENT OF CARBON BRUSHES (Fig. 16)

Replacement brush sets are available through Craftsman Parts and Repair Centers.

1. Unplug the router motor before inspecting or replacing brushes.
2. Replace both carbon brushes when either has less than 1/4-in. length of carbon remaining, or if the spring or wire is damaged or burned.



3. Using a slotted screwdriver, remove the black plastic cap on each side of the router motor (Fig. 20) and carefully withdraw the spring-loaded brush assemblies. Keep brushes clean and sliding freely in their guide channels.

**NOTE:** To reinstall the same brushes, make sure the brushes go back in the same way they came out. This will avoid a break-in period.

4. Insert new brush assemblies into the guide channels with the carbon part going in first, being certain to fit the two metal “ears” into their slots in the channel (Fig. 16).
5. Remember to replace both end caps after inspecting or servicing the brushes. Tighten the caps snugly, but do not over-tighten. The router should be allowed to “run in” (run at no load without a cutting bit) for 5 minutes before use, to seat the new brushes properly.

**⚠ WARNING:** For your safety, always turn off the switch and unplug the router motor from the power source before performing any maintenance or cleaning.

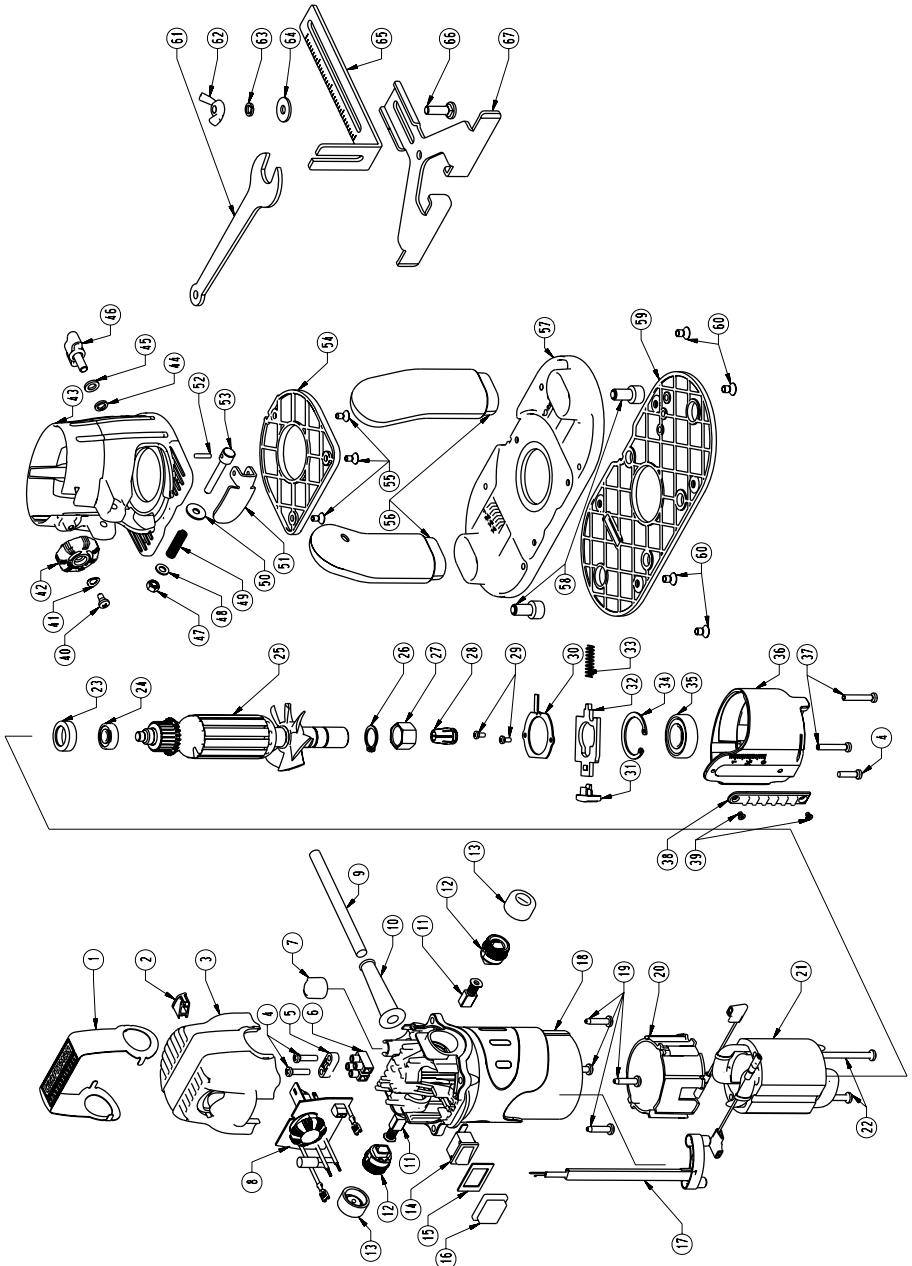
## LUBRICATION

All of the bearings in this tool are lubricated with a sufficient amount of high-grade lubricant for the life of the tool under normal operating conditions. Therefore, no further lubrication is required.

# PARTS LIST

## 6.5 Amp Palm Router MODEL NUMBER 320.28212

The Model Number will be found on the Nameplate.



## PARTS LIST

### 6.5 Amp Palm Router MODEL NUMBER 320.28212

The Model Number will be found on the Nameplate.

No.	Part No.	Part Name	Quantity
1	3703873000	Decorate Cover	1
2	3123373000	Transparent Cap	1
3	3123331000	Rear Cover	1
4	5610103000	Tapping Screw	3
5	3120234000	Cord Anchorage	1
6	4930004000	Connecter	1
7	3123374000	Power Indicator Cover	1
8	2822416000	Speed Adjustor ASSY	1
9	4810002000	Power Cord & Plug	1
10	3121011000	Cord Guard	1
11	4960249000	Carbon Brush	2
12	2800149000	Brush box	2
13	3123456000	Brush holder cover	2
14	4870051000	Switch	1
15	3704018000	Fixing Board	1
16	3123386000	Switch Cover	1
17	2822258000	LED Holder ASSY	1
18	3320480000	Motor Housing	1
19	5610042000	Tapping Screw	4
20	3123609000	Fan Baffle	1
21	2740249000	Stator	1
22	5610050000	Tapping Screw	2
23	3120997000	Bearing holder	1
24	5700006000	Ball Bearing	1
25	2750846000	Rotor	1
26	5660018000	Circlips For Shaft	1
27	5630216000	Collet Nut	1
28	3550760000	Collet	1
29	5620031000	Screw	2
30	3703875000	Lock Cover	1



No.	Part No.	Part Name	Quantity
31	3123334000	Spindle Lock Button	1
32	3703876000	Spindle Lock	1
33	3660028000	Stop Spring	1
34	5660022000	Circlips For Hole	1
35	5700018000	Ball Bearing	1
36	3420568000	Bearing Support	1
37	5610034000	Tapping Screw	2
38	3420586000	Gear Rack	1
39	5620062000	Screw	2
40	5620103000	Slotted Shoulder Screw	1
41	5650206000	Spring Washer	1
42	3402197000	Knob	1
43	3420569000	Mounting	1
44	5650020000	Spring Washer	1
45	5650019000	Plain Washer	1
46	3402200000	Lock Bolt	1
47	5630006000	Prevailing Torque Haxagon Nut	1
48	5650013000	Plain Washer	1
49	3660094000	Spring	1
50	5650012000	Plain Washer	1
51	3703874000	Clamping Lever	1
52	3550209000	Spring Pin	1
53	3550880000	Mitre Lock Bolt	1
54	3123332000	Base Plate	1
55	5620067000	Screw	3
56	3402196000	Handle	2
57	3420579000	Bottom Support	1
58	5620021000	Hexagon Socket Screw	2
59	3123333000	Base Plate	1
60	5620071000	Screw	4
61	3700641000	Wrench	1
62	5630056000	Wing nut	1
63	5650020000	Spring Washer	1

No.	Part No.	Part Name	Quantity
64	5650017000	Plain Washer	1
65	3703973000	Guide	1
66	5620195000	Bolt	1
67	3703972000	Guide	1
64	5650017000	Plain Washer	1
65	3703973000	Guide	1
66	5620195000	Bolt	1
67	3703972000	Guide	1



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