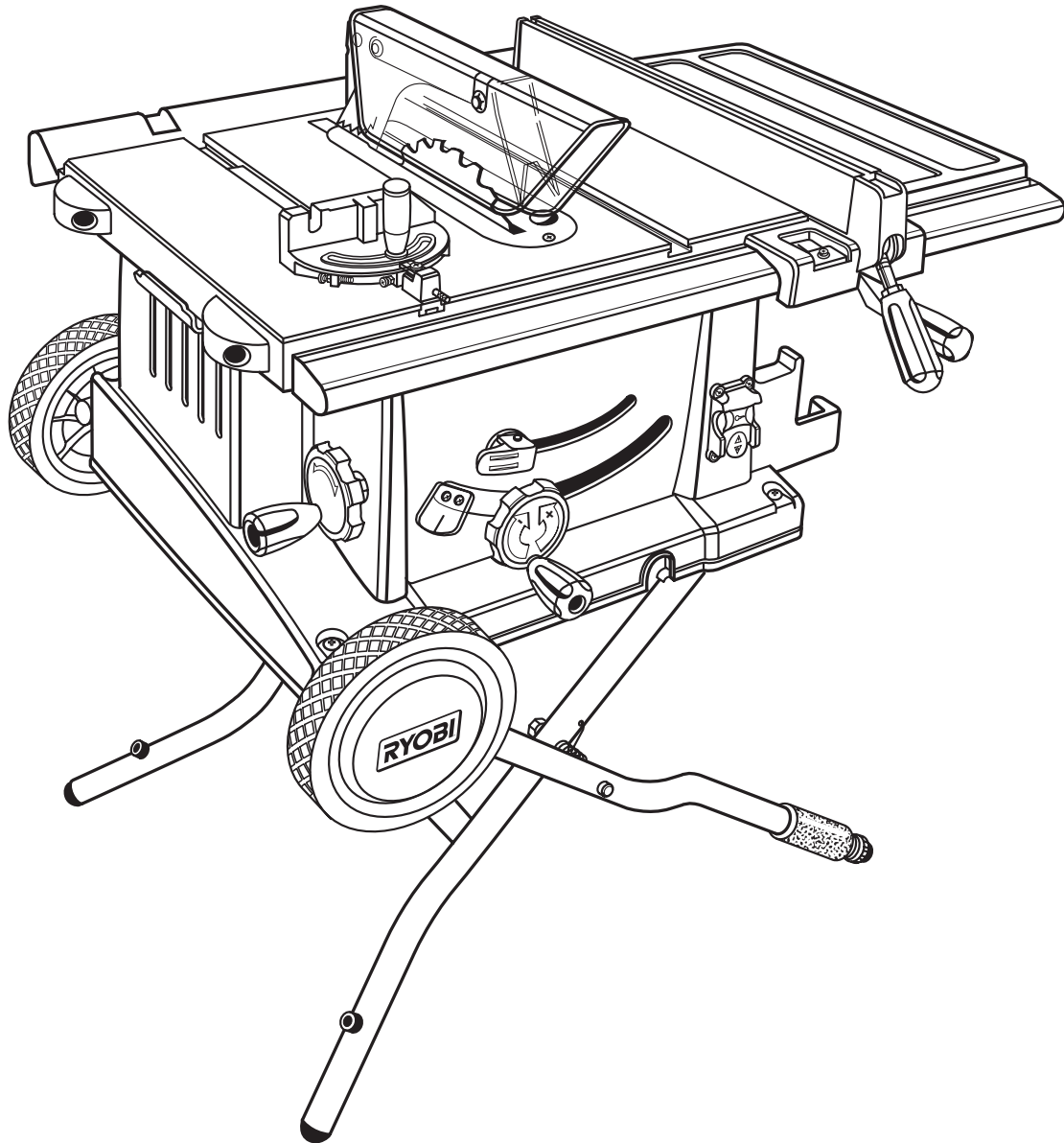




# OPERATOR'S MANUAL

## 10 in. (254 mm) TABLE SAW

### BTS20



Your new Table Saw has been engineered and manufactured to Ryobi's high standards for dependability, ease of operation, and operator safety. Properly cared for, it will give you years of rugged, trouble-free performance.

**WARNING:** To reduce the risk of injury, the user must read and understand the operator's manual.

Thank you for buying a Ryobi Table Saw.

**SAVE THIS MANUAL FOR FUTURE REFERENCE**

# TABLE OF CONTENTS

■ <b>Product Specifications</b> .....	2	Types of Cuts .....	21
■ <b>Rules for Safe Operation</b> .....	3-6	Settings And Adjustments .....	22-25
■ <b>Electrical</b> .....	7	To Remove The Blade .....	22
■ <b>Glossary of Terms</b> .....	8	To Check, Replace or Adjust The Riving Knife and Blade Guard Assembly .....	23
■ <b>Unpacking and Tools Needed</b> .....	9	To Adjust the Blade Depth .....	24
■ <b>Loose Parts List</b> .....	10	To Adjust the Blade Angle .....	24
■ <b>Features</b> .....	11-13	To Set the Scale to the Blade .....	24
Operating Components .....	12	Heeling (Paralleling) the Blade to the Miter Gage Groove .....	25
On/Off Switch .....	12	To Use the Outfeed Support .....	26
To Turn Your Saw On .....	12	To Use the Sliding Table Extension .....	26
To Turn Your Saw Off .....	12	Making Cuts .....	26-30
To Lock Your Saw Switch .....	12	To Make a Cross Cut .....	26
Blades .....	13	To Make a Miter Cut .....	27
■ <b>Assembly</b> .....	14-19	To Make a Straight Rip Cut .....	27
Assembling Wheels and Hub Caps .....	14	To Make a Bevel Cross Cut .....	28
Assembling Bumpers .....	14	To Make a Bevel Rip Cut .....	28
Opening the Leg Stand .....	15	To Make a Compound Miter Cut .....	29
Closing the Leg Stand .....	16	To Make Non-Through Cuts .....	29
To Install Rip Fence .....	17	To Make Dado Cuts .....	30
Removing/Replacing the Throat Plate .....	17	■ <b>Maintenance</b> .....	30-31
Blade and Guard Assembly .....	18	General Maintenance .....	30
To Check Saw Blade Installation .....	18	Lubrication .....	30
To Install Blade Guard Assembly .....	18	To Set Blade to 0 or 45 Degrees .....	31
■ <b>Operation</b> .....	20-30	To Check the Alignment of the Rip Fence to the Blade .....	31
Basic Operation .....	20	■ <b>Troubleshooting</b> .....	32
Causes of Kickback and Avoiding Kickback .....	20	■ <b>Parts Ordering / Service</b> .....	34
Cutting Aids .....	20		

## PRODUCT SPECIFICATIONS

Blade Diameter	10 in. (254 mm)
Blade Arbor	5/8 in. (16 mm)
Cutting Depth at 0°	3-5/8 in. (92 mm)
Cutting Depth at 45°	2-1/2 in. (63.5 mm)
Rating	120 Volts, 60 Hz-AC Only, 15 Amperes
Output Speed	4,800 RPM
Net Weight	91.7 lbs. (41.6 kg.)

# RULES FOR SAFE OPERATION

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 safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.

Symbol	Meaning
	<b>DANGER:</b> Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
	<b>WARNING:</b> Indicates a potentially hazardous situation which, if not avoided, could result in serious injury.
	<b>CAUTION:</b> Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices that may cause property damage.
<b>NOTE:</b>	Advises you of information or instructions vital to the operation or maintenance of the equipment.



## IMPORTANT

Servicing requires extreme care and knowledge and should be performed only by a qualified service technician. For service we suggest you return the tool to your nearest Ryobi **AUTHORIZED SERVICE CENTER** for repair. When servicing, use only identical Ryobi replacement parts.



### WARNING:

Observe all normal safety precautions related to avoiding electrical shock.



### WARNING:

Do not attempt to use the tool until you have read thoroughly and understand completely the operator's manual. Pay close attention to the safety rules, including Dangers, Warnings, and Cautions. If you use this tool properly and only for what it is intended, you will enjoy years of safe, reliable service.



### WARNING:



The operation of any power tool can result in foreign objects being thrown into your eyes, which can result in severe eye damage. Before beginning tool operation, always wear safety goggles or safety glasses with side shields and a full face shield when needed. We recommend Wide Vision Safety Mask for use over eyeglasses or standard safety glasses with side shields. Always wear eye protection which is marked to comply with ANSI Z87.1.



**Look for this symbol to point out important safety precautions. It means attention!!! Your safety is involved.**

# RULES FOR SAFE OPERATION

Safe operation of this power tool requires that you read and understand this operator's manual and all labels affixed to the tool. Safety is a combination of common sense, staying alert, and knowing how your table saw works.

## READ ALL INSTRUCTIONS

- **KNOW YOUR POWER TOOL.** Read the operator's manual carefully. Learn the saw's applications and limitations as well as the specific potential hazards related to this tool.
- **GUARD AGAINST ELECTRICAL SHOCK BY PREVENTING BODY CONTACT WITH GROUNDED SURFACES.** For example; pipes, radiators, ranges, refrigerator enclosures.
- **KEEP GUARDS IN PLACE** and in working order. Never operate the tool with any guard or cover removed. Make sure all guards are operating properly before each use.
- **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
- **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents. **DO NOT** leave tools or pieces of wood on the saw while it is in operation.
- **AVOID DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations or expose to rain. Keep work area well lit.
- **KEEP CHILDREN AND VISITORS AWAY.** All visitors should wear safety glasses and be kept a safe distance from work area. Do not let visitors contact tool or extension cord while operating.
- **MAKE WORKSHOP CHILDPROOF** with padlocks or master switches, or by removing starter keys.
- **DON'T FORCE TOOL.** It will do the job better and safer at the feed rate for which it was designed.
- **USE RIGHT TOOL.** Don't force tool or attachment to do a job it was not designed for. Don't use it for a purpose not intended.
- **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. A wire gage size (A.W.G.) of at least 14 is recommended for an extension cord 25 feet or less in length. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.
- **DRESS PROPERLY.** Do not wear loose clothing, gloves, neckties, or jewelry. They can get caught and draw you into moving parts. Rubber gloves and nonskid footwear are recommended when working outdoors. Also wear protective hair covering to contain long hair.
- **ALWAYS WEAR SAFETY GLASSES WITH SIDE SHIELDS.** Everyday eyeglasses have only impact-resistant lenses; they are **NOT** safety glasses.
- **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.
- **DON'T OVERREACH.** Keep proper footing and balance at all times.
- **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories.
- **DISCONNECT TOOLS.** When not in use, before servicing, or when changing attachments, blades, bits, cutters, etc., all tools should be disconnected.
- **AVOID ACCIDENTAL STARTING.** Be sure switch is off when plugging in.
- **USE RECOMMENDED ACCESSORIES.** The use of improper accessories may cause risk of injury.
- **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 must be properly repaired or replaced by an authorized service center to avoid risk of personal injury.
- **USE THE RIGHT DIRECTION OF FEED.** Feed work into a blade or cutter against the direction of rotation of blade or cutter only.
- **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.
- **PROTECT YOUR LUNGS.** Wear a face or dust mask if the cutting operation is dusty.
- **PROTECT YOUR HEARING.** Wear hearing protection during extended periods of operation.
- **DON'T ABUSE CORD.** Never yank cord to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
- **USE OUTDOOR EXTENSION CORDS.** When tool is used outdoors, use only extension cords with approved ground connection that are intended for use outdoors and so marked.
- **ALWAYS KEEP THE BLADE GUARD AND RIVING KNIFE (SPLITTER) IN PLACE** and in working order.
- **KEEP BLADES CLEAN AND SHARP.** Sharp blades minimize stalling and kickback.
- **KEEP HANDS AWAY FROM CUTTING AREA.** Keep hands away from blades. Do not reach underneath work or around or over the blade while blade is rotating. Do not attempt to remove cut material when blade is moving.

# RULES FOR SAFE OPERATION

- **BLADES COAST AFTER TURN OFF.**
- **NEVER USE IN AN EXPLOSIVE ATMOSPHERE.** Normal sparking of the motor could ignite fumes.
- **INSPECT TOOL CORDS PERIODICALLY.** If damaged, have repaired by a qualified service technician at an authorized service facility. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal. Repair or replace a damaged or worn cord immediately. Stay constantly aware of cord location and keep it well away from the rotating blade.
- **INSPECT EXTENSION CORDS PERIODICALLY** and replace if damaged.
- **KEEP TOOL DRY, CLEAN, AND FREE FROM OIL AND GREASE.** Always use a clean cloth when cleaning. Never use brake fluids, gasoline, petroleum-based products, or any solvents to clean tool.
- **STAY ALERT AND EXERCISE CONTROL.** Watch what you are doing and use common sense. Do not operate tool when you are tired. Do not rush.
- **DO NOT USE TOOL IF SWITCH DOES NOT TURN IT ON AND OFF.** Have defective switches replaced by an authorized service center.
- **GUARD AGAINST KICKBACK.** Kickback occurs when the blade stalls rapidly and workpiece is driven back towards the operator. It can pull your hand into the blade resulting in serious personal injury. Stay out of blade path and turn switch off immediately if blade binds or stalls.
- **USE RIP FENCE.** Always use a fence or straight edge guide when ripping.
- **SUPPORT LARGE PANELS.** To minimize risk of blade pinching and kickback, always support large panels.
- **BEFORE MAKING A CUT, BE SURE ALL ADJUSTMENTS ARE SECURE.**
- **USE ONLY CORRECT BLADES.** Do not use blades with incorrect size holes. Never use blade washers or bolts that are defective or incorrect. The maximum blade capacity of your saw is 10 in. (254 mm).
- **AVOID CUTTING NAILS.** Inspect for and remove all nails from lumber before cutting.
- **NEVER TOUCH BLADE** or other moving parts during use.
- **NEVER START A TOOL WHEN ANY ROTATING COMPONENT IS IN CONTACT WITH THE WORKPIECE.**
- **DO NOT OPERATE THIS TOOL WHILE UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR ANY MEDICATION.**
- **GROUND ALL TOOLS.** If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle.
- **WHEN SERVICING** use only identical Ryobi replacement parts. Use of any other parts may create a hazard or cause product damage.
- **REMOVE ALL FENCES AND AUXILIARY TABLES** before transporting saw. Failure to do so can result in an accident causing possible serious personal injury.
- **ALWAYS USE BLADE GUARD, RIVING KNIFE, AND ANTI-KICKBACK PAWLS** on all "through-sawing" operations. Through-sawing operations are those in which the blade cuts completely through the workpiece as in ripping or crosscutting. Keep the blade guard down, the anti-kickback pawls down, and the riving knife in place over the blade.
- **ALWAYS SECURE WORK** firmly against rip fence or miter fence.
- **ALWAYS USE A PUSH STICK FOR RIPPING NARROW STOCK.** A push stick is a device used to push a workpiece through the blade instead of using your hands. Size and shape can vary but the push stick must always be narrower than the workpiece to prevent the push stick from contacting the saw blade. When ripping narrow stock, always use a push stick, so your hand does not come close to the saw blade. Use a featherboard and push blocks for non-through cuts.
- **NEVER** perform any operation "freehand" which means using only your hands to support or guide the workpiece. Always use either the rip fence or miter fence to position and guide the work.
- **NEVER** stand or have any part of your body in line with the path of the saw blade.
- **NEVER** reach behind, over, or within three inches of the blade or cutter with either hand for any reason.
- **MOVE THE RIP FENCE** out of the way when crosscutting.
- **NEVER** use rip fence as cutoff gage when crosscutting.
- **NEVER** attempt to free a stalled saw blade without first turning the saw **OFF** and disconnecting the saw from the power source.
- **PROVIDE ADEQUATE SUPPORT** to the rear and sides of the saw table for wide or long work pieces. Use a sturdy "outrigger" support if a table extension more than 24 inches long is attached to the saw.
- **AVOID KICKBACKS** (work thrown back toward you) by:
  - A. Keeping blade sharp.
  - B. Keeping rip fence parallel to the saw blade.
  - C. Keeping riving knife, anti-kickback pawls, and blade guard in place and operating.
  - D. Not releasing the work before it is pushed all the way past the saw blade using a push stick.
  - E. Not ripping work that is twisted or warped or does not have a straight edge to guide along the fence.
- **AVOID AWKWARD OPERATIONS AND HAND POSITIONS** where a sudden slip could cause your hand to move into the cutting tool.



# RULES FOR SAFE OPERATION

- **CHECK WITH A QUALIFIED ELECTRICIAN** or service personnel if the grounding instructions are not completely understood or if in doubt as to whether the tool is properly grounded.
- **USE ONLY CORRECT ELECTRICAL DEVICES:** 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.
- **DO NOT MODIFY** the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.
- **USE ONLY RECOMMENDED ACCESSORIES** listed in this manual or addendums. Blades must be rated for at least 5,500 rpm. Use of accessories that are not listed may cause the risk of personal injury. Instructions for safe use of accessories are included with the accessory.
- **DOUBLE CHECK ALL SETUPS.** Make sure blade is tight and not making contact with saw or workpiece before connecting to power supply.
- **MAKE SURE THE WORK AREA HAS AMPLE LIGHTING** to see the work and that no obstructions will interfere with safe operation **BEFORE** performing any work using the table saw.
- **ALWAYS TURN OFF SAW** before disconnecting it, to avoid accidental starting when reconnecting to power supply.

- **SAVE THESE INSTRUCTIONS.** Refer to them frequently and use to instruct other users. If you loan someone this tool, loan them these instructions also.

## **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, such as those dust masks that are specially designed to filter out microscopic particles.

## SAFETY AND INTERNATIONAL SYMBOLS

This operator's manual describes safety and international symbols and pictographs that may appear on this product. Read the operator's manual for complete safety, assembly, operating and maintenance, and repair information.

### SYMBOL



### MEANING

- Do not expose to rain or use in damp locations.



### NO HANDS SYMBOL

- Failure to keep your hands away from the blade will result in serious personal injury.

## SAVE THESE INSTRUCTIONS

# ELECTRICAL

## EXTENSION CORDS

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug. When using a power tool at a considerable distance from the power source, use an extension cord heavy enough to carry the current that the tool will draw. An undersized extension cord will cause a drop in line voltage, resulting in a loss of power and causing the motor to overheat. Use the chart provided below to determine the minimum wire size required in an extension cord. Only round jacketed cords listed by Underwriter's Laboratories (UL) should be used.

Length of Extension Cord	Wire Size (A.W.G.)
Up to 25 feet	14
26-50 feet	12

When working with the tool outdoors, use an extension cord that is designed for outside use. This is indicated by the letters **WA** on the cord's jacket.

Before using an extension cord, inspect it for loose or exposed wires and cut or worn insulation. Repair or replace a damaged or worn cord immediately.

### CAUTION:

Keep the cord away from the cutting area and position the cord so that it will not be caught on lumber, tools, or other objects during cutting.

## ELECTRICAL CONNECTION

Your Ryobi Table Saw is powered by a precision built electric motor. It should be connected to a **power supply that is 120 volts, 60Hz, AC only (normal household current)**. Do not operate this tool on direct current (DC). A substantial voltage drop will cause a loss of power and the motor will overheat. If the saw does not operate when plugged into an outlet, double check the power supply.

## GROUNDING INSTRUCTIONS

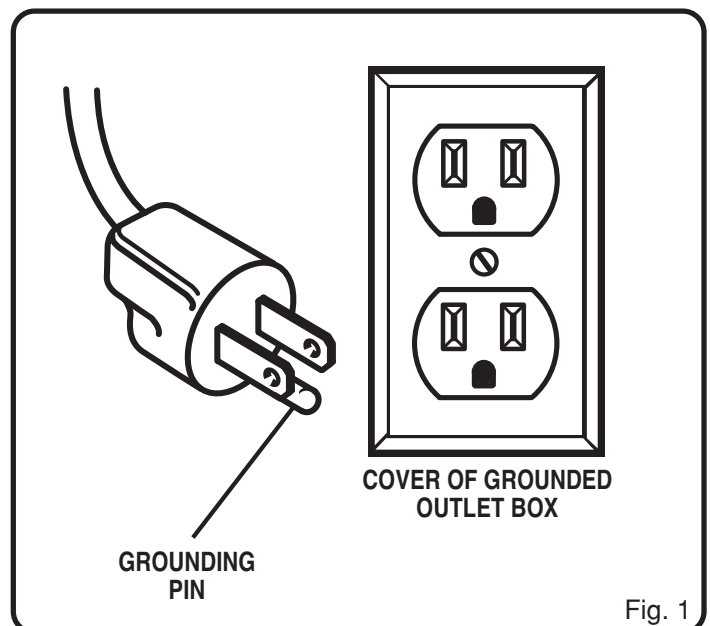
In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician. Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Repair or replace a damaged or worn cord immediately.

This tool is intended for use on a circuit that has an outlet like the one shown in *Figure 1*. It also has a grounding pin like the one shown.



# GLOSSARY OF TERMS

## **Anti-Kickback Pawls (Fingers)**

Device which, when properly installed and maintained, is designed to stop the workpiece from being kicked back toward the front of the saw during a ripping operation.

## **Arbor**

The shaft on which a blade or cutting tool is mounted.

## **Bevel Cut**

A cutting operation made with an angled blade.

## **Compound Cut**

A cut with both a miter angle and a bevel angle.

## **Crosscut**

A cutting or shaping operation made across the grain of the workpiece.

## **Dado**

A non-through cut which produces a square sided notch or trough in the workpiece.

## **Featherboard**

A device used to help control the workpiece by guiding it securely against the table or fence during any rip cut operation.

## **Freehand**

Performing a cut without using a fence, miter gauge, fixture, hold down clamp, or other proper device to keep the workpiece from twisting during the cut.

## **Gum**

A sticky, sap based residue from wood products.

## **Heel**

Misalignment of the blade.

## **Kerf**

The amount of material removed by the blade in a through cut or the slot produced by the blade in a non-through or partial cut.

## **Kickback**

An uncontrolled grabbing and throwing of the workpiece back toward the front of the saw. Associated with the workpiece closing the kerf and pinching the blade or otherwise placing tension on the blade.

## **Leading End**

The end of the workpiece which, during a rip type operation, is pushed into the cutting tool first.

## **Miter Cut**

A cutting operation made with the wood at any angle other than 90 degrees.

## **Molding**

A cut which produces a special shape in the workpiece, used for joining or decoration.

## **Non-Through Cuts**

Any cutting operation where the blade does not extend completely through the thickness of the workpiece.

## **Push Block**

A device used to feed the workpiece through the saw, except during narrow ripping type operations where a push stick should be used. It also helps keep the operator's hands well away from the blade.

## **Push Stick**

A device used to feed the workpiece through the saw to help keep the operator's hands well away from the blade.

## **Rabbet**

A notch in the edge of a workpiece.

## **Resin**

A sticky, sap base substance that has hardened.

## **Ripping Or Rip Cut**

A cutting or shaping operation made along the length or with the grain of the workpiece.

## **Riving Knife**

Also known as a spreader or splitter. A metal piece, slightly thinner than the saw blade which helps keep the kerf open and prevent kickback.

## **Revolutions Per Minute (RPM)**

The number of turns completed by a spinning object in one minute.

## **Saw Blade Path**

The area over, under, behind, or in front of the blade. As it applies to the workpiece, that area which will be, or has been, cut by the blade.

## **Set**

The distance that the tip of the saw blade tooth is bent (or set) outward from the face of the blade.

## **Throw-Back**

Throwing of a workpiece in a manner similar to a kickback. Usually associated with a cause other than the kerf closing, such as a workpiece being dropped onto the blade or being placed inadvertently in contact with the blade.

## **Through Sawing**

Any cutting operation where the blade extends completely through the thickness of the workpiece.

## **Trailing End**

The workpiece end last cut by the blade in a ripping operation.

## **Workpiece**

The item on which the cutting operation is being done. The surfaces of a workpiece are commonly referred to as faces, ends, and edges.



# UNPACKING

Your Model BTS20 Table Saw is shipped complete in one carton and includes a rip fence, a miter gauge, a blade guard, wheels, and hub caps.

Separate all parts from packing materials and check each one with the illustration and the list of Loose Parts to make sure all items are accounted for before discarding any packing material.

**Important:** Remove the foam block from between the saw's housing and the motor.

If any parts are missing, do not attempt to assemble the table saw, plug in the power cord, or turn the switch on until the missing parts are obtained and are installed correctly. Call 1-800-525-2579 for assistance if any parts are missing or damaged.

**The saw is factory set for accurate cutting.** After assembling it, check for accuracy. If shipping has influenced the settings, refer to specific procedures explained in the operation and maintenance sections of this manual.

## **WARNING:**

If any parts are missing, do not operate this tool until the missing parts are replaced. Failure to do so could result in possible serious personal injury.

# TOOLS NEEDED

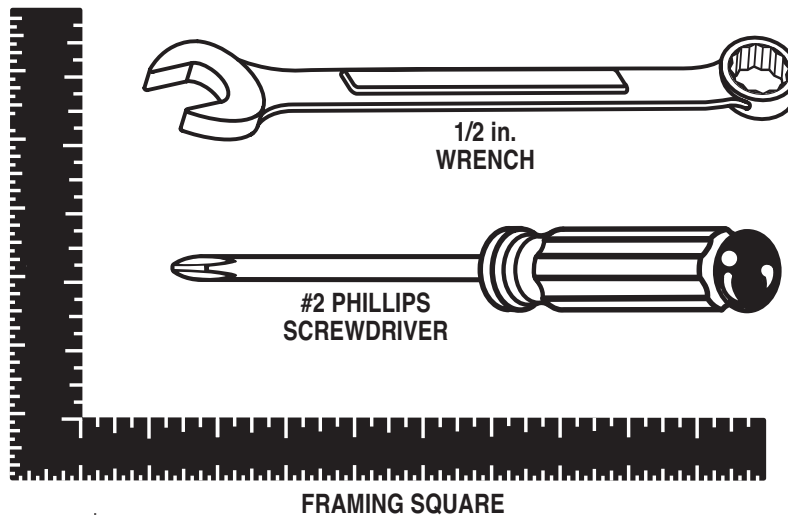


Fig. 2

# LOOSE PARTS LIST

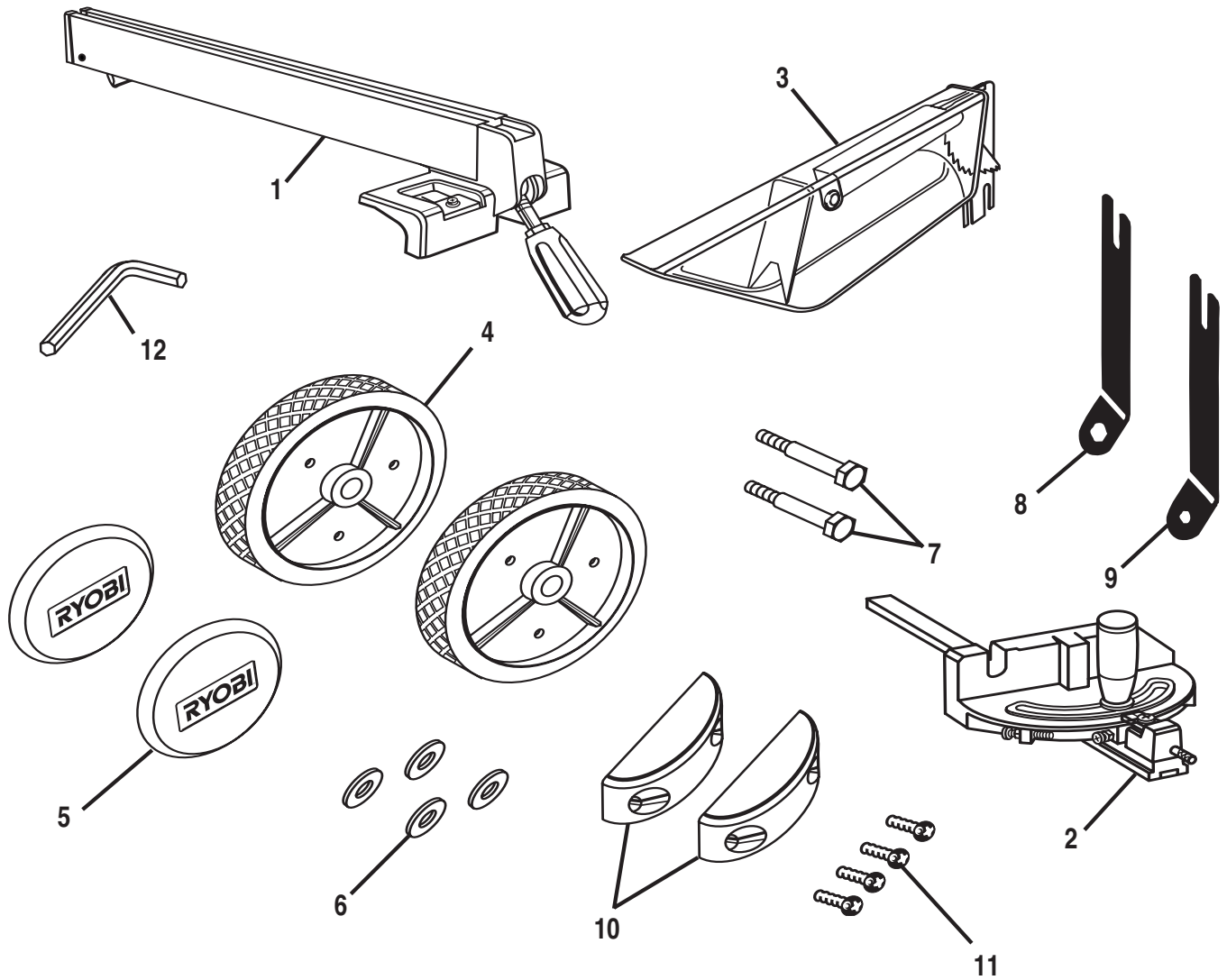


Fig. 3

Key No.	Description	Qty.
1	Rip Fence .....	1
2	Miter Gauge .....	1
3	Blade Guard Assembly .....	1
4	Wheels .....	2
5	Hub Caps .....	2
6	Washers .....	4
7	Shoulder Bolts .....	2
8	Large Wrench .....	1
9	Small Wrench .....	1
10	Bumper .....	2
11	Screws .....	4
12	Hex Key, 1/4 in. ....	1
13	Operator's Manual (Not Shown)	
14	Warranty Registration Card (Not Shown)	

# FEATURES

Your saw is designed to perform as a versatile, accurate, precision cutting tool that is easy to operate.

It is equipped with the following features for convenience, ease of use, and high-quality performance:

- a combination saw blade
- a bevel indicator to set the exact angle of the blade, with locking lever
- an adjustable sliding table extension
- an adjustable miter gauge
- an adjustable rip fence with scale indicator
- an adjustable riving knife (splitter) and blade guard with anti-kickback pawls
- front and rear guide rails with an easy-to-read scale on front rail
- a dust exhaust that can be adapted to a standard shop vacuum
- blade adjusting handle to set depth of cut
- a sliding outfeed support
- switch with removable switch key to help prevent unauthorized use
- folding leg stand with wheels for ease of transportation

These features provide ease of cutting with all types of wood.

## **⚠ WARNING:**

Before attempting to use your table saw, familiarize yourself with all operating features and safety requirements.

## GETTING TO KNOW YOUR SAW

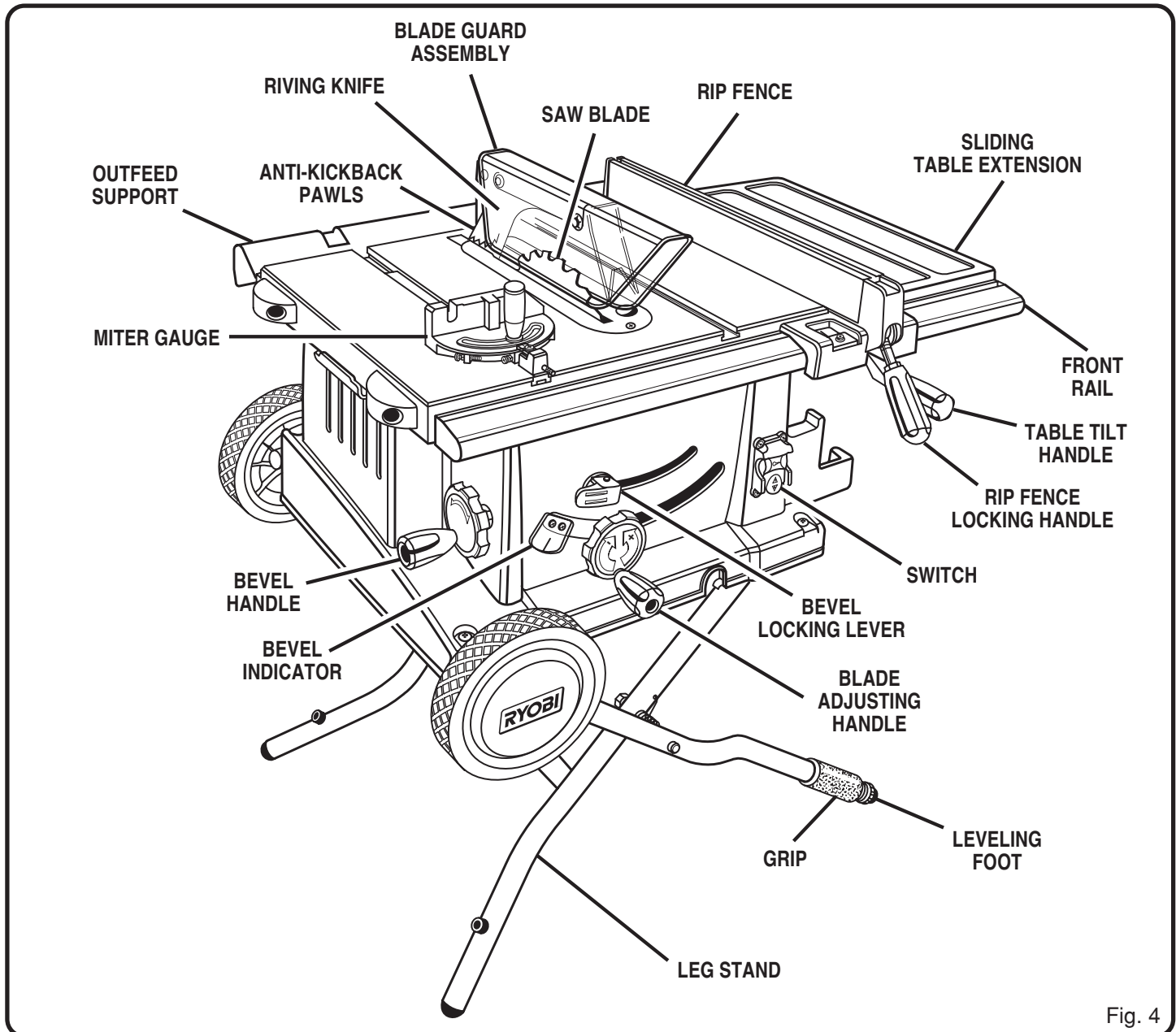


Fig. 4

# FEATURES

## **⚠ WARNING:**

Although some of the illustrations in this manual are shown with the blade guard removed for clarity, do not operate the saw without the blade guard unless specifically instructed to do so.

## OPERATING COMPONENTS

The upper portion of the blade projects up through the table, surrounded by an insert called the throat plate. To cut wood at a bevel, the blade must be tilted, using the bevel handle, scale, and bevel indicator found on the front of the cabinet. Inside the cabinet, adjustable positive stops are provided for 0° and 45°.

Your saw includes a rip fence and miter gauge with undertable storage for easy accessibility. The sliding table extension can be moved to provide 27 inches of rip capacity. The rip fence is used to position work that will be cut lengthwise. A scale on the front rail shows the distance between the rip fence and the blade.

The leg stand places the table saw at convenient working level. Once folded, the leg stand wheels make moving and storage easy.

The blade guard assembly includes a riving knife which is a metal device directly behind and above the blade. It is used to help keep the cut wood from binding together and causing possible kickback. It is very important to use the riving knife for all through-sawing operations. The anti-kickback pawls (also a part of the blade guard assembly) are toothed plates mounted on the riving knife. Their teeth point away from the work in case the work should be pulled back, toward the operator. Then the teeth dig into the wood to help prevent or reduce the possibility of kickback.

## POWER SWITCH

Your table saw is equipped with a power switch that has a built-in locking feature. This feature is intended to prevent unauthorized and possible hazardous use by children and others.

### TO TURN YOUR SAW ON:

1. With the switch key inserted into the switch, lift the switch button to turn on (▲).

### TO TURN YOUR SAW OFF:

1. Press the switch button down to turn off (▼).

### TO LOCK YOUR SAW :

1. Press the switch button down.
2. Remove the switch key from the switch and store in a safe, secure location.

## **⚠ WARNING:**

Always remove the switch key when the tool is not in use and keep it in a safe place. In the event of a power failure, turn the switch off (▼) and remove the key. This action will prevent the tool from accidentally starting when power returns.

## **⚠ WARNING:**

ALWAYS make sure your workpiece is not in contact with the blade before operating the switch to start the tool. Failure to heed this warning may cause the workpiece to be kicked back toward the operator and result in serious personal injury.

## **⚠ WARNING:**

To reduce the risk of accidental starting, ALWAYS make sure the switch is in the off (▼) position before plugging tool into the power source .

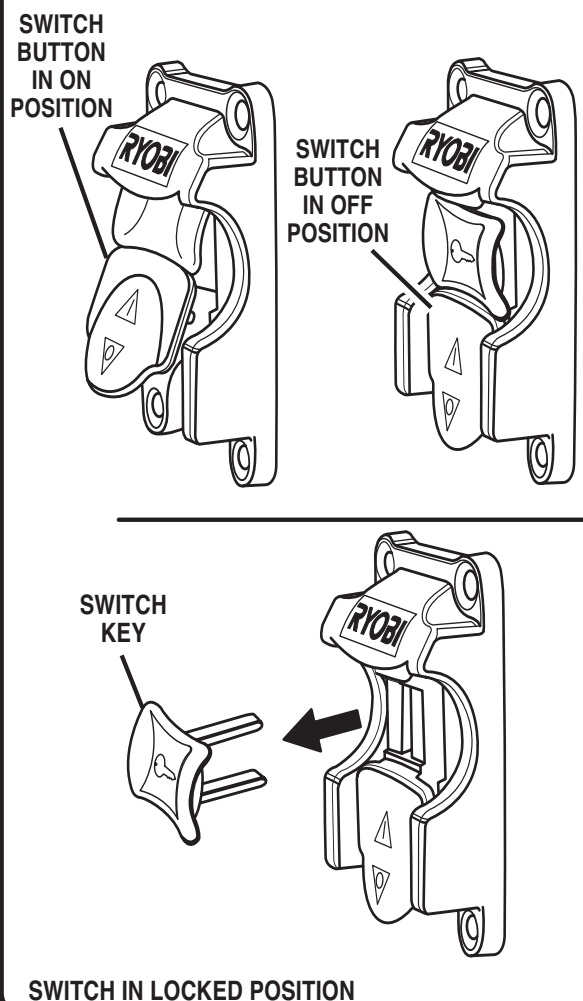


Fig. 5

# FEATURES

## BLADES

It is recommended that you use a RYOBI 10 in. (254 mm) Combination Blade, which is provided with the BTS20 Table Saw. You will get maximum performance with the following features:

- 36 precision ground, micro-grain carbide teeth
- kerf width of 2.5 mm  $\pm$  .02
- tensioning for 4,800 rpm

This blade is provided with the saw. Additional blade styles of the same high quality are available for specific operations such as ripping. Your local RYOBI dealer can provide you with complete information.

### **⚠ CAUTION:**

Be sure to use only blades that are rated for at least 5,500 RPM and recommended for use on this saw.

PRECISION GROUND  
MICRO-GRAIN  
CARBIDE TEETH

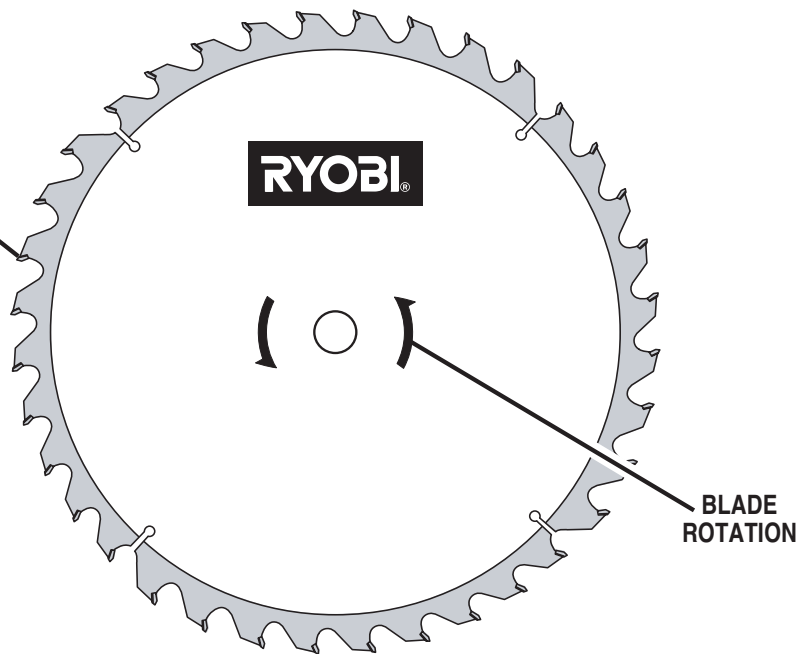


Fig. 6

## SPEED AND WIRING

The no-load speed of your table saw is approximately 4,800 rpm. The speed will not remain constant but will be less under a load. The wiring in a shop is as important as the motor's horsepower rating. A line intended for lights only **WILL NOT PROPERLY CARRY A POWER TOOL MOTOR.** Wire that is heavy enough for a short distance will be too light for a greater distance. A line that can support one power tool may not be able to support two or three tools.

### **⚠ WARNING:**

To prevent possible electrical hazards, have a qualified electrician check the line if you are not certain that it is properly wired.



# ASSEMBLY

Remove the table saw base, loose parts, and hardware from the packing materials. Check all items with the loose parts list and drawing. If you are unsure about the description of any part, refer to the drawing. If any parts are missing, delay assembling until you have obtained the missing part(s).

## ASSEMBLING WHEELS AND HUB CAPS

See Figures 7 and 8.

- Remove the following hardware from the bag:
  - 2 wheels
  - 2 hub caps
  - 4 flat washers
  - 2 shoulder bolts
- Place the table saw on end. Secure the axle in place by inserting a screwdriver or large nail in the hole in the center of the axle. See Figure 7.
- Loosen bolts on each side of the axle by turning counter-clockwise.

**Note:** To prevent the axle from slipping through the slots on the table saw, do not remove both bolts at the same time.

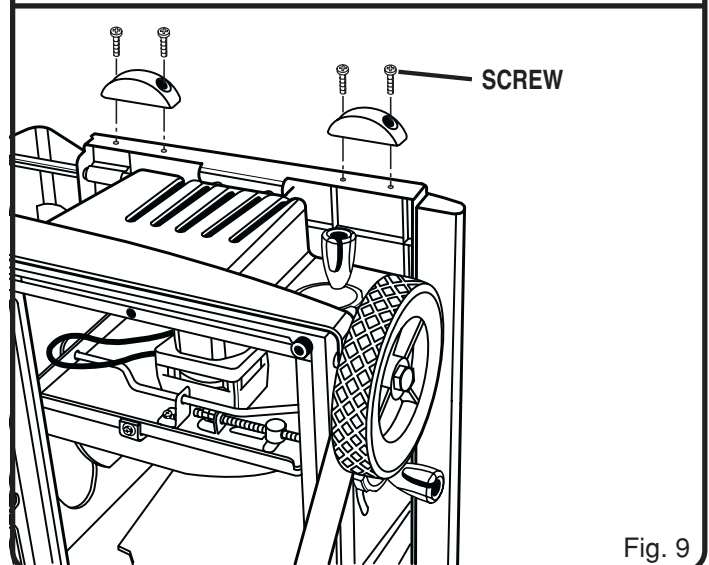
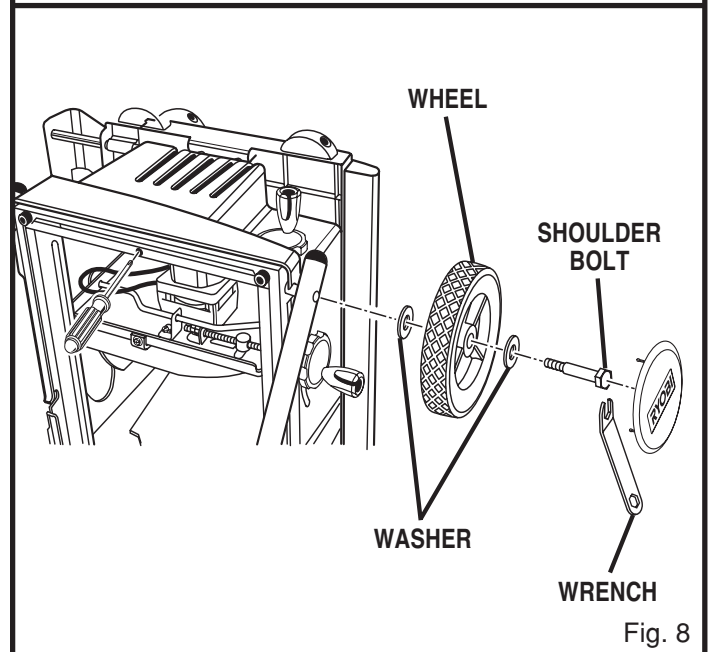
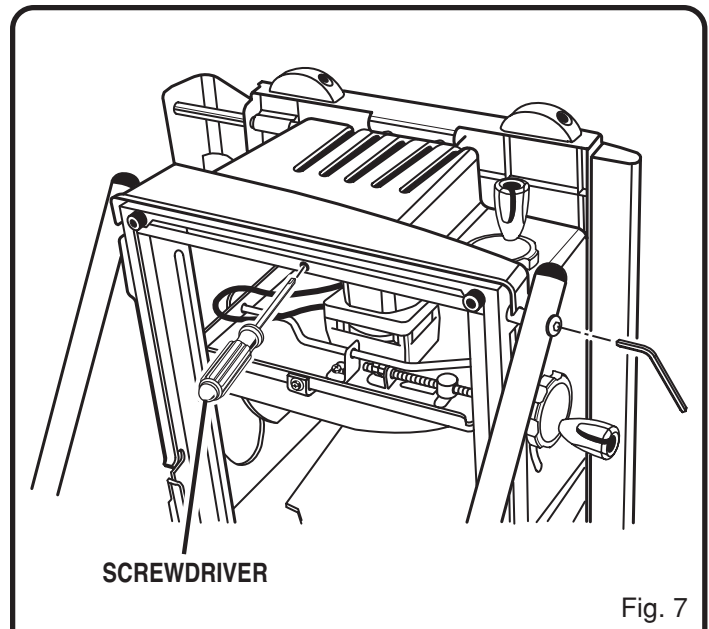
- Place a wheel and two washers on the shoulder bolt in the following order: washer, wheel, washer
- Insert the shoulder bolt, wheel, and washers combination into the axle. Securely tighten.
- Place the hub cap in the holes in the wheel and tap the hub cap into place.

**Note:** The short bolts removed from the axle should be kept for future use if wheels are removed. There must always be bolts in both sides of the axle for safe operation.

## ASSEMBLING BUMPERS

See figure 9.

- Place saw table on end as shown in figure 9.
- Align the holes in the bumper with the holes in the side of the saw.
- Securely tighten bumpers in place using the screws.



# ASSEMBLY

## OPENING THE LEG STAND

See Figure 10.

**Note:** You can also refer to the blue label on the right-hand side of the table saw for setup procedures.

- Standing to the side of the table saw, use your left hand to pull the leg stand latch towards you. See 1.
- Once the leg stand is released from the table saw base, ease the legs of the leg stand toward the floor. See 2.
- Grasp the grip firmly with your right hand. Keeping your left hand clear of the leg stand, pull the leg stand up until it locks into place. See 3 and 4.
- With your left hand firmly on the table tilt handle, grasp the grip with your right hand. See 5.
- Push the leg stand towards the ground with your right hand and pull in the same direction with your left hand until the table saw is in an upright position. See 6 and 7.

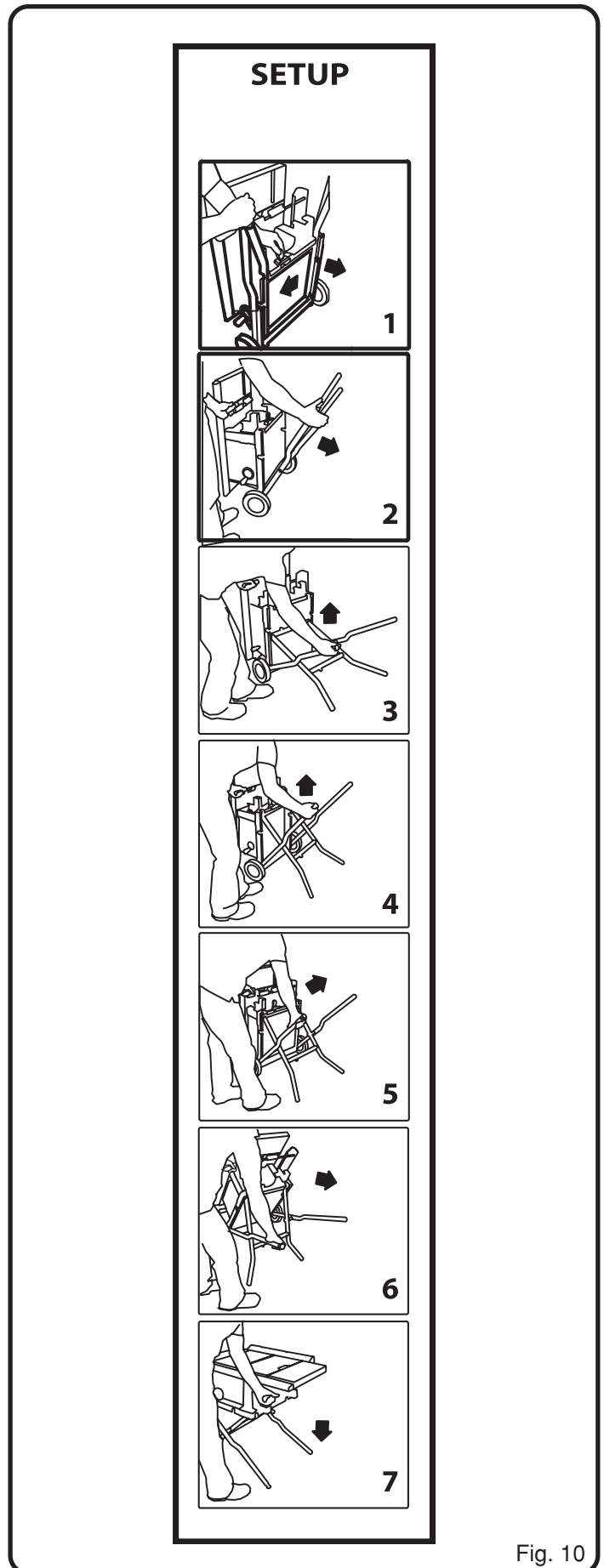


Fig. 10

# ASSEMBLY

## CLOSING THE LEG STAND

See Figure 11.

**Note:** You can also refer to the blue label on the top of the table saw for tear-down procedures.

- Standing to the side of the table saw, grasp the table tilt handle with your left hand. Tilt the table saw to the your left and grab the grip with your right hand. Gently lower the table saw on its side. See 1 and 2.
- With your right hand on the grip, use your left hand to release the leg stand latch. See 3 and 4.
- Once the leg stand is released from the table saw base, ease the legs of the leg stand toward the floor. See 5.
- Place your right hand palm up near the bumper and lift the lower leg of the leg stand up until it locks into place. See 6 and 7.

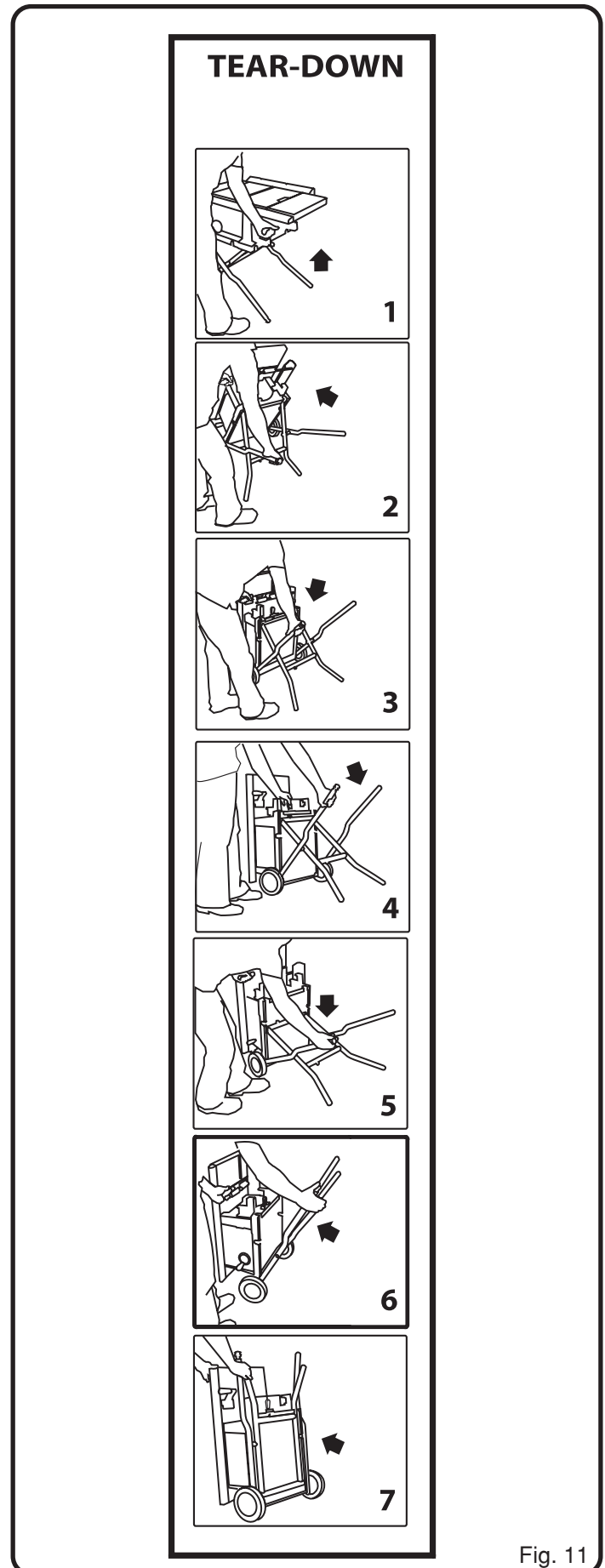


Fig. 11

# ASSEMBLY

## TO INSTALL RIP FENCE

See Figure 12.

To install the rip fence, place the rear lip on the rear rail and pull slightly toward the front of the unit. Lower front end onto the guide surfaces on top of the front rail. Check for a smooth gliding action. Swing the locking handle down to automatically align and secure the fence.

## REMOVING/REPLACING THE THROAT PLATE

See Figure 13.

### **⚠ WARNING:**

Make sure the switch is off and the plug is out of the outlet. Failure to do so could result in accidental starting, resulting in serious personal injury.

### **⚠ WARNING:**

Drop blade below saw table when reinstalling the throat plate. Failure to heed this warning could result in serious personal injury.

- To remove the throat plate, first remove the screw holding the throat plate with a phillips screwdriver.
- With a finger in the finger hole, lift the front end of the throat plate. Firmly pull the throat plate out toward the front of the saw.
- To reinstall the throat plate, drop blade below saw table and place throat plate in the opening. Push throat plate toward the rear of saw base to engage the spring clip.
- Snap the throat plate in place.
- Insert the throat plate screw and securely tighten.

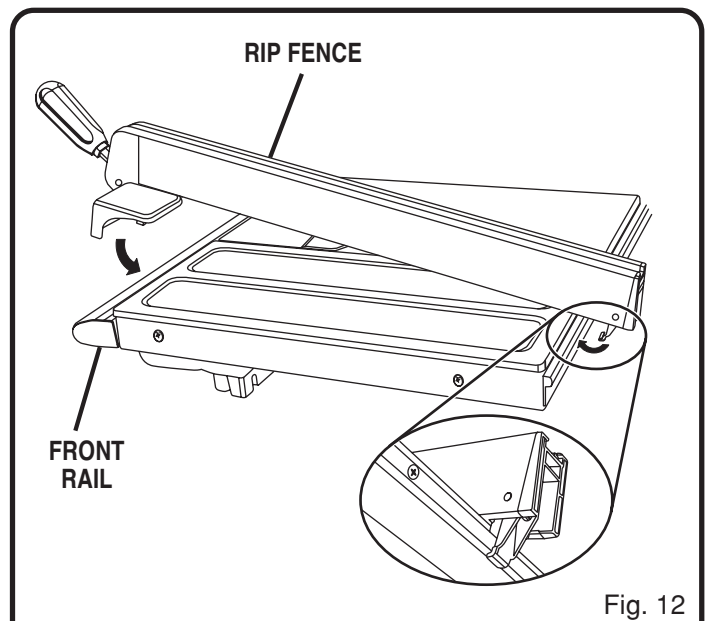


Fig. 12

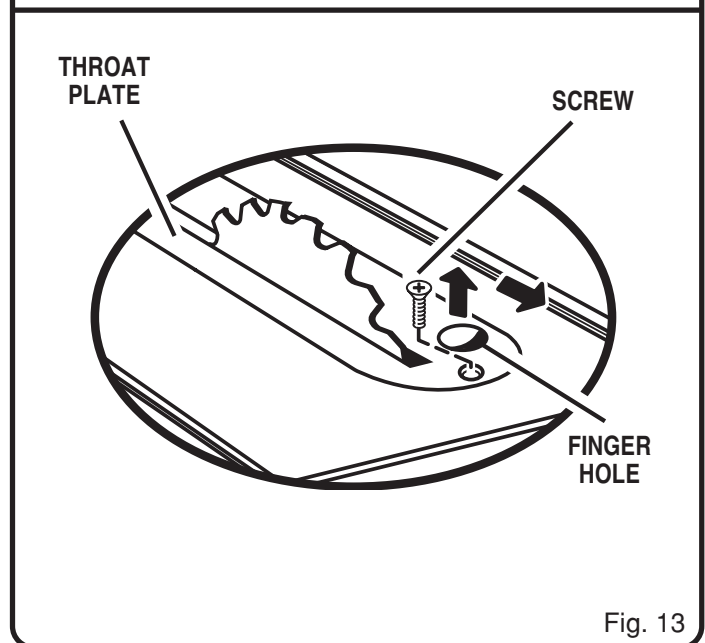


Fig. 13

# ASSEMBLY

## BLADE AND GUARD ASSEMBLY

### WARNING:

Do not connect to power supply until assembly is complete. Failure to comply could result in accidental starting and possible serious injury.

### TO CHECK SAW BLADE INSTALLATION

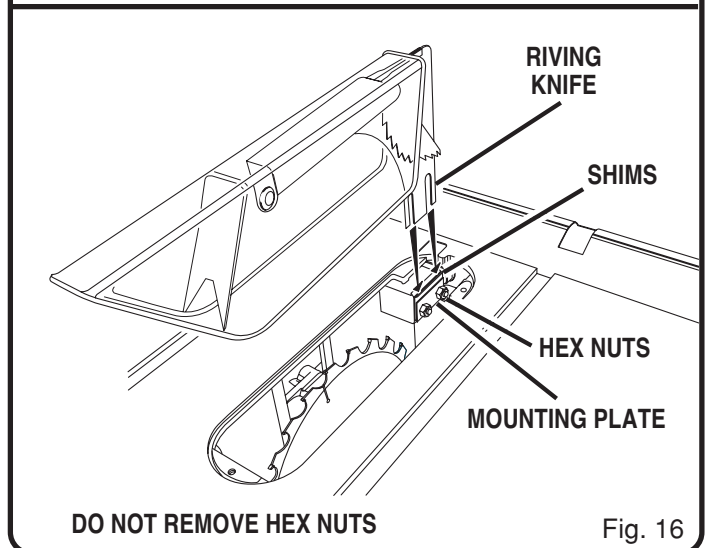
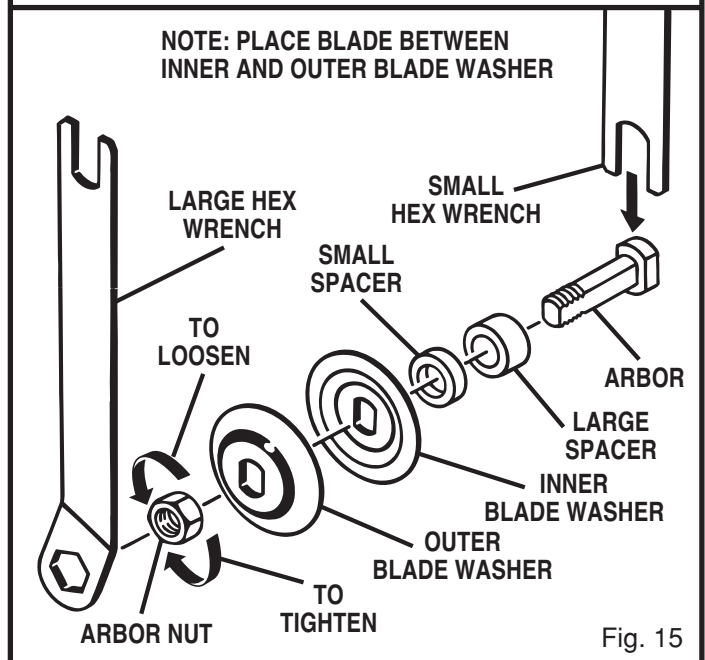
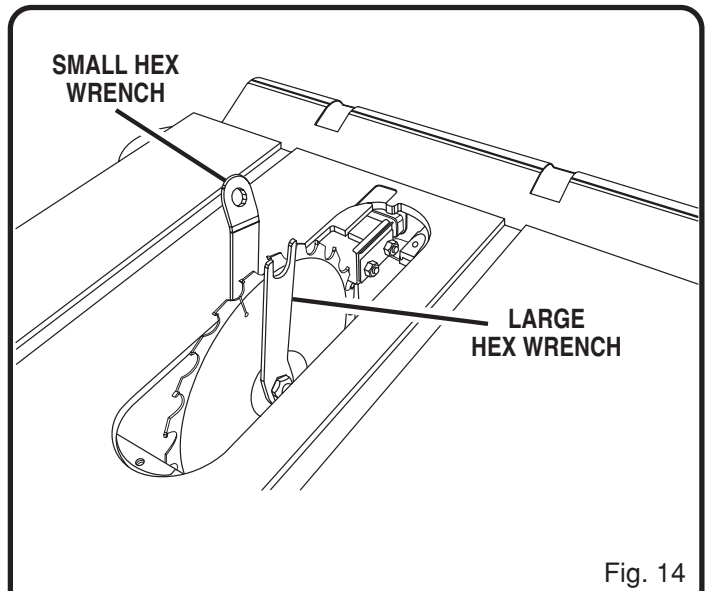
- To check the saw blade, first remove the screw holding the throat plate in place. Remove the throat plate. See *Figure 14*.
- Make sure the bevel locking lever is locked. Raise the blade arbor to its full height by turning the blade adjusting handle counterclockwise.
- Using the smaller hex wrench, insert the flat open end into the flats on the arbor shaft as shown. Insert the larger hex wrench over the hex nut, and, holding both wrenches firmly, pull the larger wrench forward to the front of the machine to loosen and push to tighten. Make sure the blade nut is securely tightened. Do not overtighten.

**Note:** Arbor shaft has right-hand threads.

- Check all clearances for free blade rotation.

### TO INSTALL BLADE GUARD ASSEMBLY

- Lower the blade by turning the blade adjustment handle clockwise.
- Using the small hex wrench, install the blade guard assembly by loosening the two attachment hex nuts enough to slide the riving knife down between the shims. See *Figure 16*. Partially retighten the two attachment nuts. Check the blade and riving knife alignment. Make sure riving knife clears blade by 1/8 in. See *Figure 24*.
- Correctly align the blade and riving knife as shown, repeating above step as needed. Tighten attachment nuts securely. If riving knife is not positioned correctly with blade up, it could contact saw table when blade is lowered and restrict blade elevation.





# ASSEMBLY

- Blade alignment with the riving knife can be adjusted for different blade thickness. Refer to **Settings and Adjustments** in the *Operations* Section. Before continuing, read **To Check, Replace or Adjust the Blade Guard Assembly** on page 23 to make sure of proper riving knife alignment.
- Check the blade guard assembly for clearances and free movement. Lower the blade, reinstall the throat plate into the opening, and secure the attachment screw. Tighten the screw securely.

## REPLACING THE THROAT PLATE

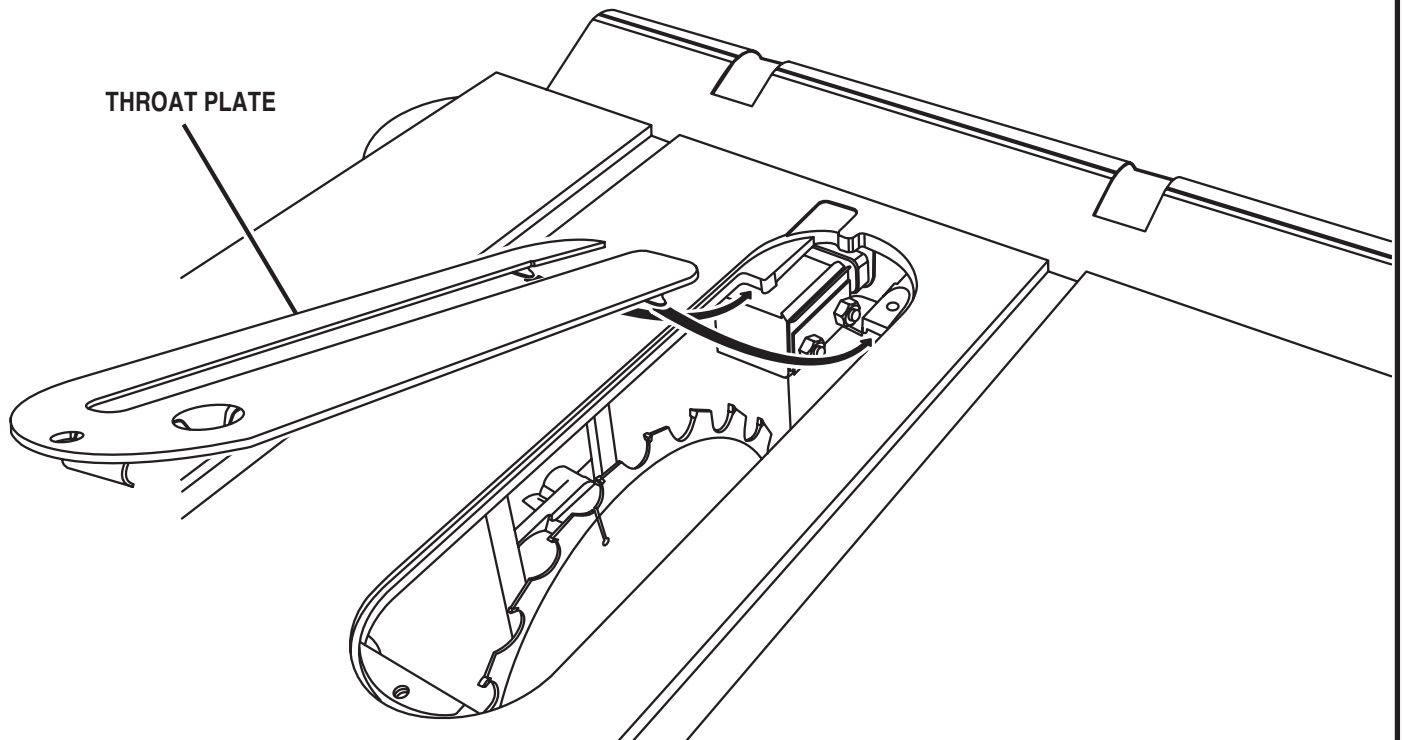


Fig. 17

# OPERATION

## BASIC OPERATION OF THE TABLE SAW

A table saw can be used for straight-line cutting operations such as cross cutting, ripping, mitering, beveling, and compound cutting. It can dado with optional accessories.

The 3-prong plug must be plugged into a matching outlet that is properly installed and grounded according to all local codes and ordinances. Improper connection of the equipment can result in electric shock. Check with an electrician or service personnel if you are unsure about proper grounding. Do not modify the plug; if it will not fit the outlet, have the correct outlet installed by a qualified electrician. Refer to the *Electrical* page of this manual.

**Note:** This table saw is designed to cut wood and wood composition products only.

## CAUSES OF KICKBACK

Kickback can occur when the blade stalls or binds, kicking the workpiece back toward you with great force and speed. If your hands are near the saw blade, they may be jerked loose from the workpiece and may contact the blade. Obviously, kickback can cause serious injury, and it is well worth using precautions to avoid the risks.

Kickback can be caused by any action that pinches the blade in the wood, such as the following:

- Making a cut with incorrect blade depth
- Sawing into knots or nails in the workpiece
- Twisting the wood while making a cut
- Failing to support work
- Forcing a cut
- Cutting warped or wet lumber
- Using the wrong blade for the type of cut
- Not following correct operating procedures
- Misusing the saw
- Failing to use the anti-kickback pawls
- Cutting with a dull, gummed-up, or improperly set blade

## AVOIDING KICKBACK

- Always use the correct blade depth setting. The top of the blade teeth should clear the workpiece by 1/8 in. to 1/4 in.
- Inspect the work for knots or nails before beginning a cut. Knock out any loose knots with a hammer. Never saw into a loose knot or nail.
- Always use the rip fence when rip cutting and the miter gauge when cross cutting. This helps prevent twisting the wood in the cut.
- Always use clean, sharp, and properly-set blades. Never make cuts with dull blades.
- To avoid pinching the blade, support the work properly before beginning a cut.
- When making a cut, use steady, even pressure. Never force cuts.
- Do not cut wet or warped lumber.
- Always hold your workpiece firmly with both hands or with pushsticks. Keep your body in a balanced position to be ready to resist kickback should it occur. Never stand directly in line with the blade.

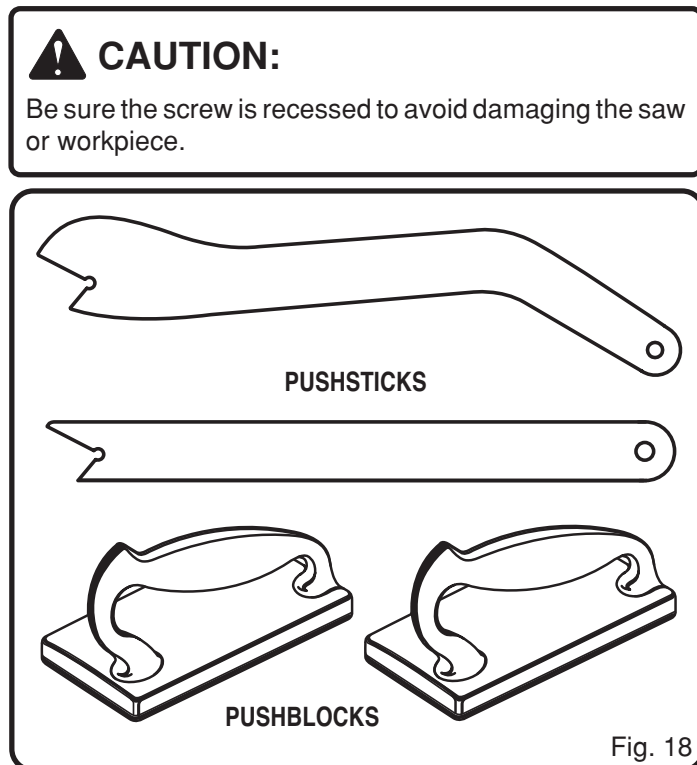
- Use the right type of blade for the cut being made.
- Use the blade guard assembly for all through cuts.

## CUTTING AIDS

See Figure 18.

Pushsticks are devices used for safely pushing a workpiece through the blade instead of using your hands. They can be made in various sizes and shapes from scrap wood to use in a specific project. The stick must be narrower than the workpiece, with a 90° notch in one end and shaping for a grip on the other end.

A pushblock has a handle fastened by recessed screws from the underside. Use it on non-through cuts.



### CAUTION:

Be sure the screw is recessed to avoid damaging the saw or workpiece.

### WARNING:

Never stand directly in line with the blade or allow hands to come closer than 3 in. to the blade. Do not reach over or across the blade. Failure to heed this warning can result in serious personal injury.

## CUTTING TIPS

Dado and rabbet cuts are non-through cuts which can be either rip cuts or cross cuts. Carefully read and understand all sections of this operator's manual before attempting any operation.

### WARNING:

All blades and dado sets must be rated for at least 5,500 RPM to prevent possible injury.

# OPERATION

- The kerf (the cut made by the blade in the wood) will be wider than the blade to avoid overheating or binding. Make allowance for the kerf when measuring wood.
- Make sure the kerf is made on the waste side of the measuring line.
- Cut the wood with the finish side up.
- Knock out any loose knots with a hammer before making the cut.
- Always provide proper support for the wood as it comes out of the saw.

## TYPES OF CUTS

See Figure 1/.

There are six basic cuts: 1) the cross cut, 2) the rip cut, 3) the miter cut, 4) the bevel cross cut, 5) the bevel rip cut, and 6) the compound (bevel) miter cut. All other cuts are combinations of these basic six. Operating procedures for making each kind of cut are given later in this section.

### **WARNING:**

Always make sure the blade guard and anti-kickback pawls are in place and working properly when making these cuts to avoid possible injury.

Cross cuts are straight 90° cuts made across the grain of the workpiece. The wood is fed into the cut at a 90° angle to the blade, and the blade is vertical.

Rip cuts are made with the grain of the wood. To avoid kickback while making a rip cut, make sure one side of the wood rides firmly against the rip fence.

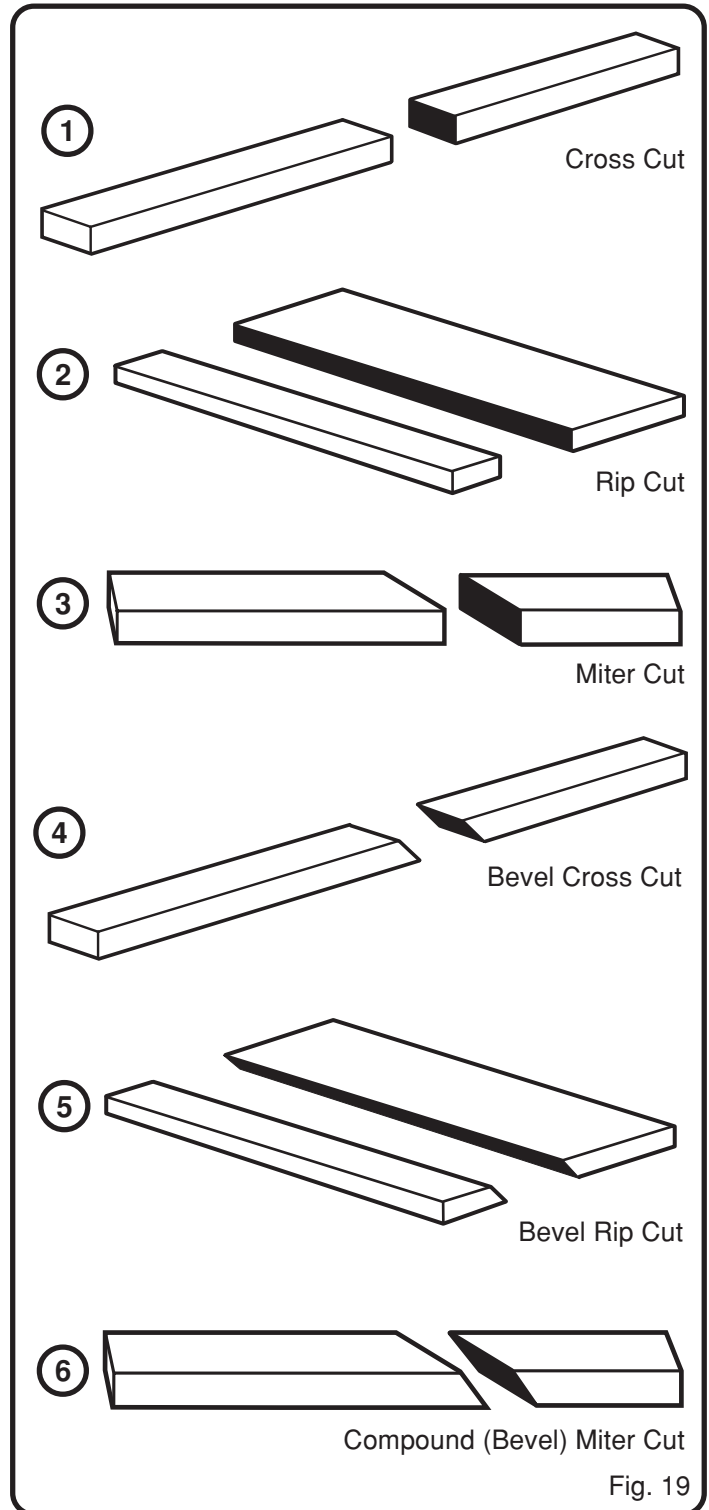
Miter cuts are made with the wood at any angle to the blade other than 90°. The blade is vertical.

### **WARNING:**

Always use a pushstick with small pieces of wood, and also to finish the cut when ripping a long narrow piece of wood, to prevent your hands from getting close to the blade.

Bevel cuts are made with an angled blade. Bevel cross cuts are across the wood grain, and bevel rip cuts are with the grain. The rip fence must always be on the right side of the blade for bevel rip cuts.

Compound (or bevel) miter cuts are made with an angled blade on wood that is angled to the blade. Be thoroughly familiar with making cross cuts, rip cuts, bevel cuts, and miter cuts before trying a compound miter cut.



### **WARNING:**

All blades must be rated for at least 5,500 rpm to prevent possible injury.

# OPERATION

## SETTINGS AND ADJUSTMENTS

### TO REMOVE THE BLADE

See Figures 20 - 22.

Use the two wrenches supplied with the saw in this procedure to replace the blade.

#### **WARNING:**

Unplug your saw and make sure the blade guard assembly is installed and working properly to avoid serious personal injury.

- Raise the blade guard.
- Remove the screw from the throat plate then remove the throat plate.
- Raise the blade to its full height by turning the blade adjusting handle clockwise.
- Place the open end of the small hex wrench into the slot beside the blade. The wrench will fit over two flats on the arbor (blade shaft). See Figure 21.
- Fit the large hex wrench onto the arbor nut. Turn clockwise and remove the nut, taking care not to drag your knuckles across the blade.

**Note:** The arbor nut has right-hand threads.

- Remove the outer blade washer from the arbor and then remove the blade. Make sure that inner blade washer and both spacers are tight against arbor shoulder.
- Replace with a new blade. Make sure the blade teeth are pointing forward, toward incoming work.
- Put the outer blade washer and arbor nut back on, aligning with the flats on the arbor. Tighten the nut with a clockwise turn.

**Note:** Use care not to cross thread arbor nut. Do not overtighten.

- Rotate the blade by hand to make sure it is turning freely.
- Check the riving knife and adjust if needed (see next procedure).
- Lower the blade, insert the throat plate, then securely tighten the throat plate screw.

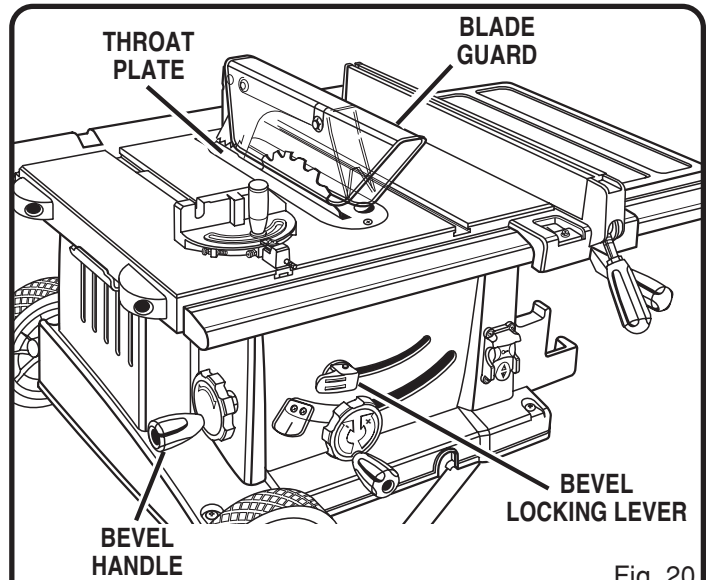


Fig. 20

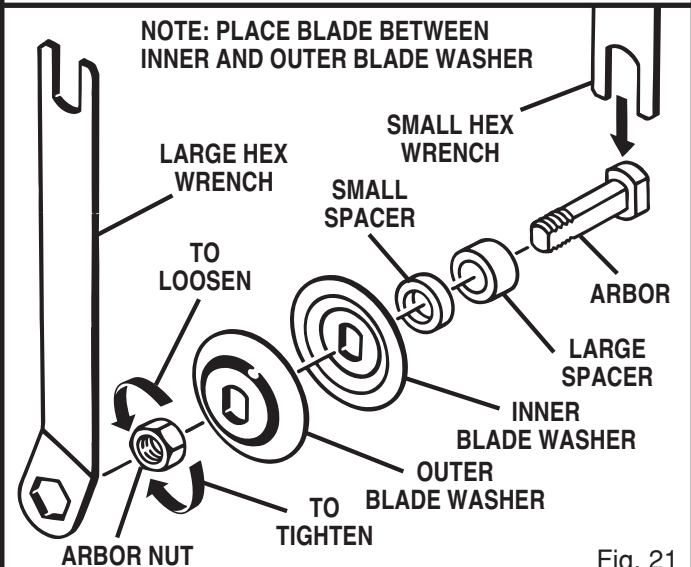


Fig. 21

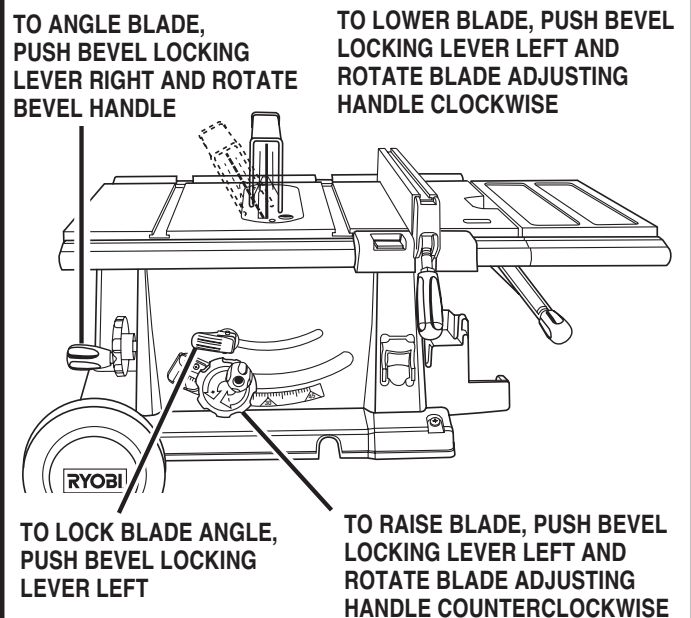


Fig. 22

# OPERATION

## TO CHECK, REPLACE OR ADJUST THE BLADE GUARD ASSEMBLY

See Figures 23 - 24.

The riving knife is mounted between several shims that can be relocated as needed to center the knife behind the blade. It is held in place by two bolts and hex nuts at its base. The bolts are set in slots that permit front-to-back adjustment.

### **WARNING:**

Failure to turn the table saw off, remove the switch key, and unplug the saw before servicing or working on it could result in accidental starting causing possible serious injury.

- Lower the blade.
- Remove the throat plate.
- Raise the blade by turning the blade adjusting handle counterclockwise or lower it by turning the handle clockwise.
- With blade guard up, make sure the riving knife is placed at least 1/8 in. from the outer points of the blade. Then make sure it is centered within the width of the blade. If either placement is wrong, adjust with the following steps.
- Put the saw in angle mode by moving the bevel locking lever to the right. Slowly turn the bevel handle until the bevel indicator is at a 30° angle. Lock the bevel locking lever securely while holding the bevel handle in place.
- With the box end of the small hex key, remove the two nuts at the base of the riving knife. Remove the riving knife/guard assembly.
- Rearrange the riving knife between the shims to achieve the correct centering.

### **WARNING:**

Properly align riving knife. Improperly aligned riving knife can cause blade to bind which will increase risk of kickback.

- Adjust the riving knife on the bolts front-to-back as needed to place the riving knife approximately 1/8 in. from the blade's outer points. Put the nuts back on and tighten.
- Bring the blade back to the desired angle and height. Lower the blade, insert the throat plate, then securely tighten the throat plate screw.

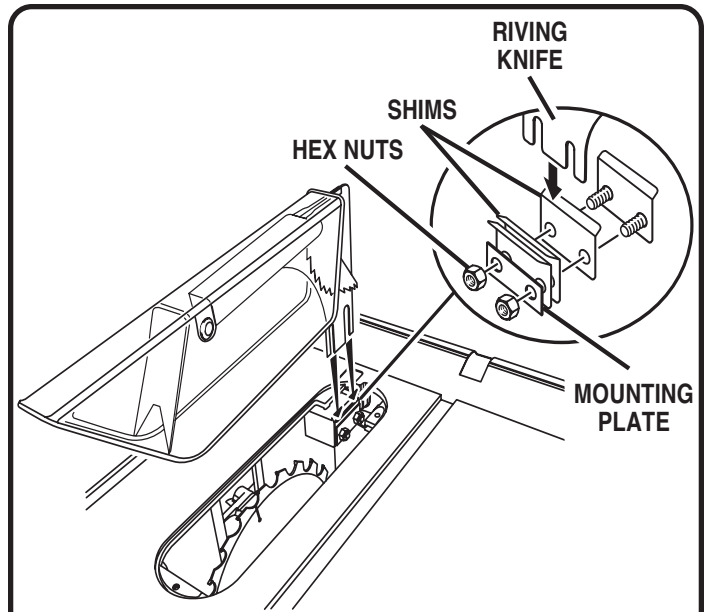


Fig. 23

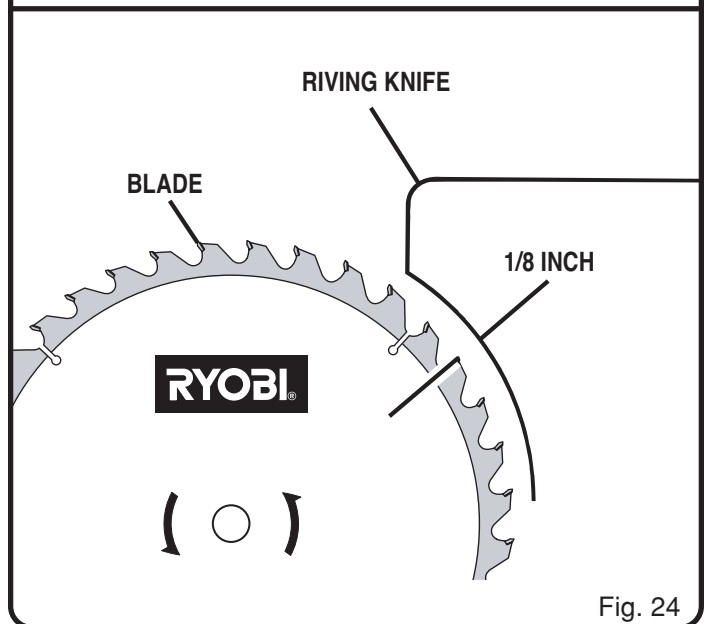


Fig. 24



# OPERATION

## TO ADJUST THE BLADE DEPTH

The blade depth should be set so that the outer points of the blade are higher than the workpiece by approximately 1/8 in. to 1/4 in. but the lowest points (gullets) are below the top surface. See Figure 25.

### **WARNING:**

Unplug the saw and make sure the blade guard assembly is installed and working properly to avoid serious personal injury.

- Raise the blade by turning the blade adjusting handle counterclockwise or lower it by turning the handle clockwise.

## TO ADJUST THE BLADE ANGLE

See Figure 26.

### **WARNING:**

Unplug the saw and make sure the blade guard assembly is installed and working properly to avoid serious personal injury.

- Unlock the bevel locking lever.
- Angle the blade by turning the bevel handle until the bevel indicator shows the correct angle.
- Lock the bevel locking lever securely while holding the bevel handle in place.

## TO SET THE SCALE TO THE BLADE

The scale is usable from 0-27 in. (0-686 mm) to the right side of the blade and 0-6 3/4 in. (0-171 mm) on the left side of the blade. The operator can select any desired dimension within those ranges. Use the following steps to set the scale to the blade and scale indicator. Begin with the blade at a zero angle (straight up).

- Loosen the rip fence by raising the locking handle.
- Using a framing square, set the rip fence 2 in. from the blade tip edge.
- Loosen the screw on the scale indicator. See Figure 27.
- Adjust the front rail until the 2 in. mark is placed at the scale indicator. Align the rear rail to the front rail.
- Tighten the screw and check the dimension and the rip fence.

### **WARNING:**

Blades coast after turn off. Possible serious injury can occur if hands come in contact with blade.

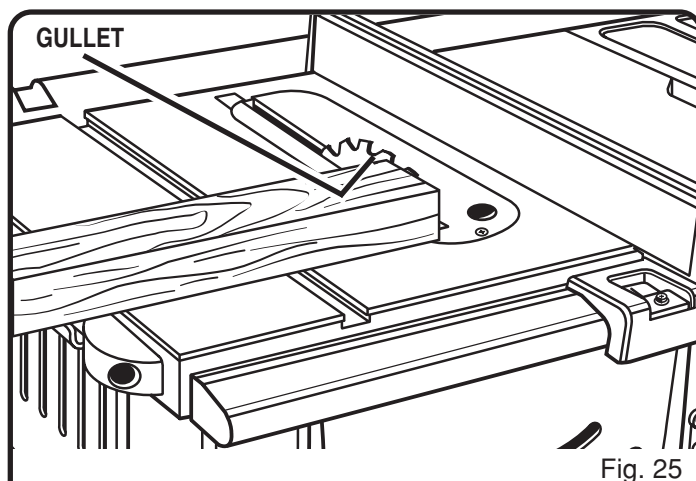


Fig. 25

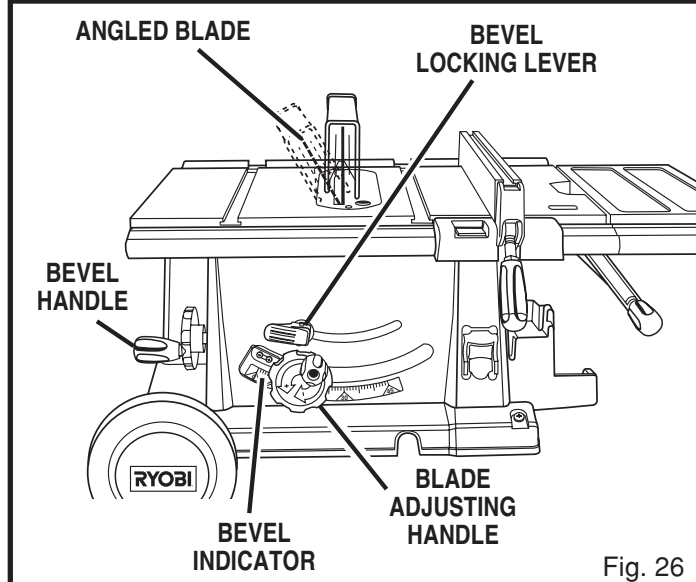


Fig. 26

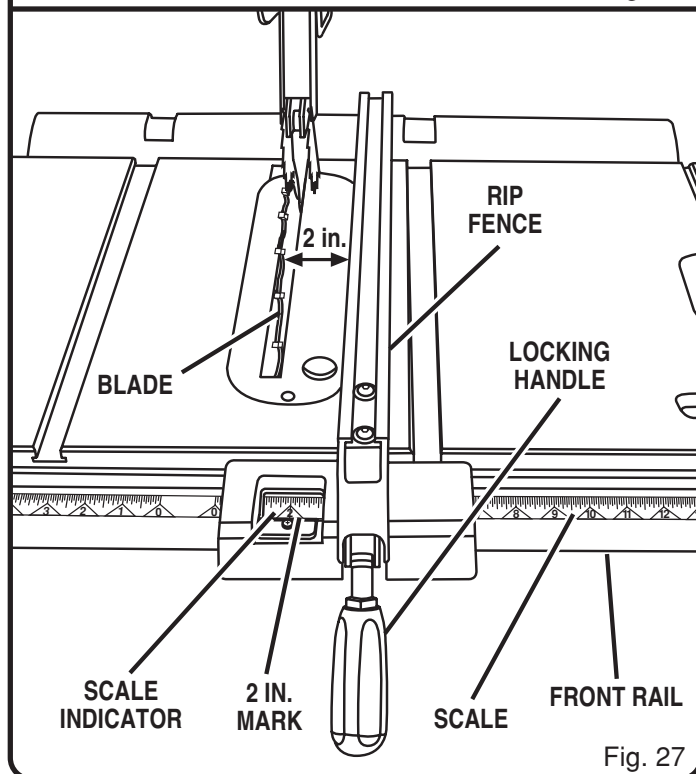


Fig. 27

# OPERATION

## HEELING (PARALLELING) THE BLADE TO THE MITER GAGE GROOVE

See Figures 28 - 30 .

### **WARNING:**

Make sure the switch is off, switch key is removed, and saw is unplugged. Failure to do so could result in accidental starting causing serious personal injury.

**Do not** loosen any screws for this adjustment until you have checked with a square and made test cuts to be sure adjustments are necessary. Once the screws are loosened, these items must be reset.

### **WARNING:**

The blade must parallel the miter gage slot so the wood does not bind resulting in kickback. Failure to do so could result in serious personal injury.

- Lift the blade guard. Raise the blade all the way by turning the height handwheel.
- Mark beside one of the blade teeth at the front of the blade. Place the body of a combination square against the miter gage groove as shown in figure 28. Measure the distance to the right gage groove.
- Turn the blade so the marked tooth is at the back.
- Move the combination square to the rear and again measure the distance to the right miter gage groove. If the distances are the same, the blade and the miter gage groove are parallel.
- If the distances measured are different, loosen the screws at the back of the table using a 4 mm hex key.
- If the back of the blade was too far from the miter gage groove, place a block of wood on the left side of the blade and push it into the blade until the blade is parallel to the miter gage groove. Retighten the screws.
- If the back of the blade was too close to the miter gage groove, place a block of wood on the right side of the blade and push it into the blade until the blade is parallel to the miter gage groove. Retighten the screws.

### **WARNING:**

To reduce the risk of injury from kickback, align the rip fence to the blade following any blade adjustments. Always make sure the rip fence is parallel to the blade before beginning any operation.

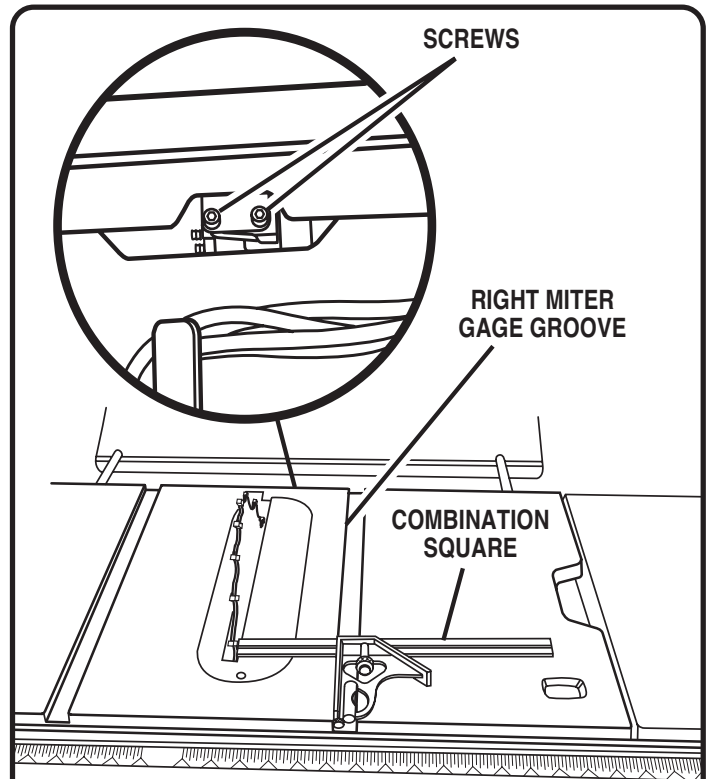


Fig. 28

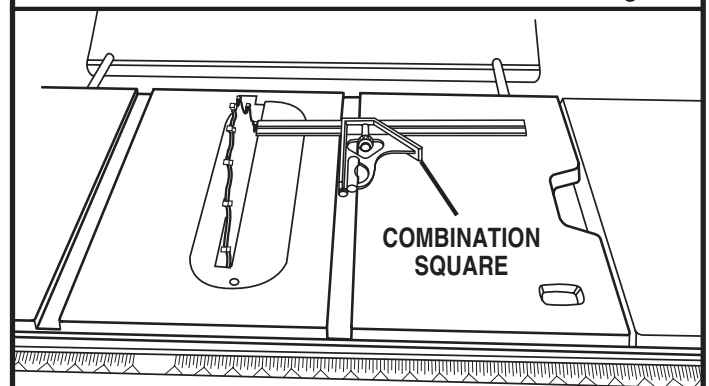


Fig. 29

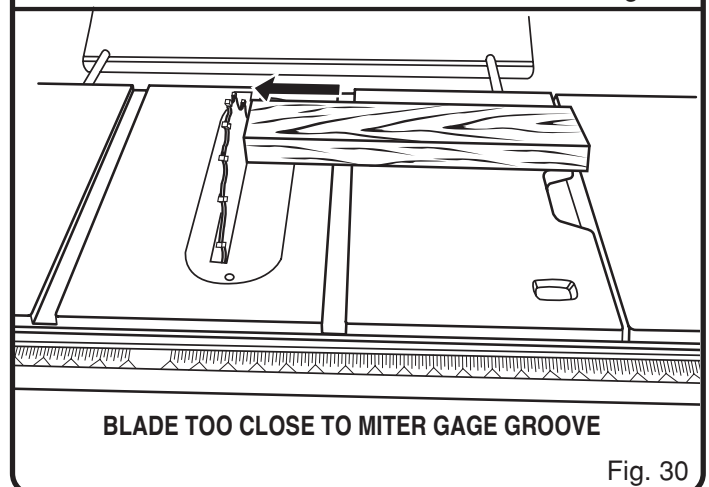


Fig. 30

# OPERATION

## TO USE OUTFEED SUPPORT

See Figure 31.

The outfeed support slides to give the operator additional support for cutting long workpieces.

- With the table saw in the off position, stand behind the saw.
- Grasp the outfeed support with both hands and pull the outfeed support until it is fully extended.

## TO USE SLIDING TABLE EXTENSION

See Figure 32.

The sliding table extension provides the operator with additional table width for supporting wider workpieces.

- Set the rip fence to 19 in. as shown in figure 32.
- Loosen the table extension knobs beneath the sliding table extension by turning them counterclockwise.
- Using the extension scale window, grasp the sliding table extension with both hands and pull the sliding extension table until it indicates the desired measurement.

**Note:** The sliding extension table will extend to 27 in. of rip capacity.

- Retighten the table extension knobs.

### **WARNING:**

Never stand directly in line with the blade or allow hands to come closer than 3 in. to the blade. Do not reach over or across the blade. Failure to heed this warning can result in serious personal injury.

## MAKING CUTS

The blade provided with your saw is a high-quality combination blade suitable for ripping and crosscut operations.

### **WARNING:**

All blades must be rated for at least 5,500 RPM to prevent possible injury.

## TO MAKE A CROSS CUT

See Figure 33.

### **WARNING:**

Never use rip fence as cutoff gauge when crosscutting.

### **WARNING:**

Make sure the blade guard assembly is installed and working properly to avoid serious personal injury.

It is recommended you make test cuts on scrap wood.

- Remove the rip fence by lifting the locking handle.
- Set the blade to the correct depth for the workpiece.

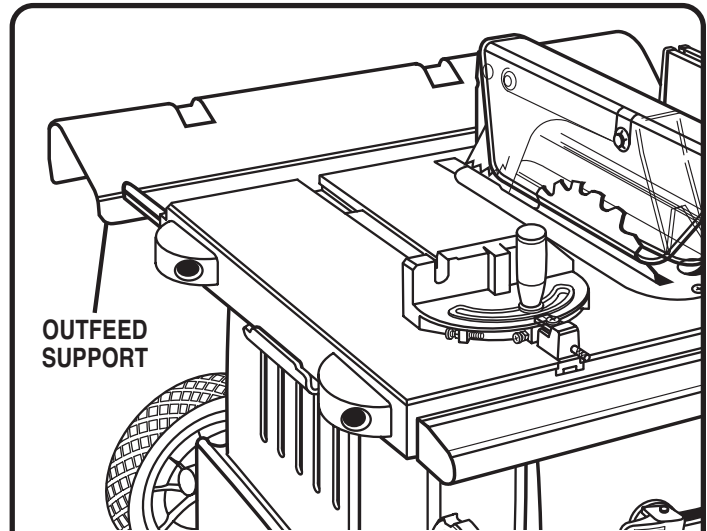


Fig. 31

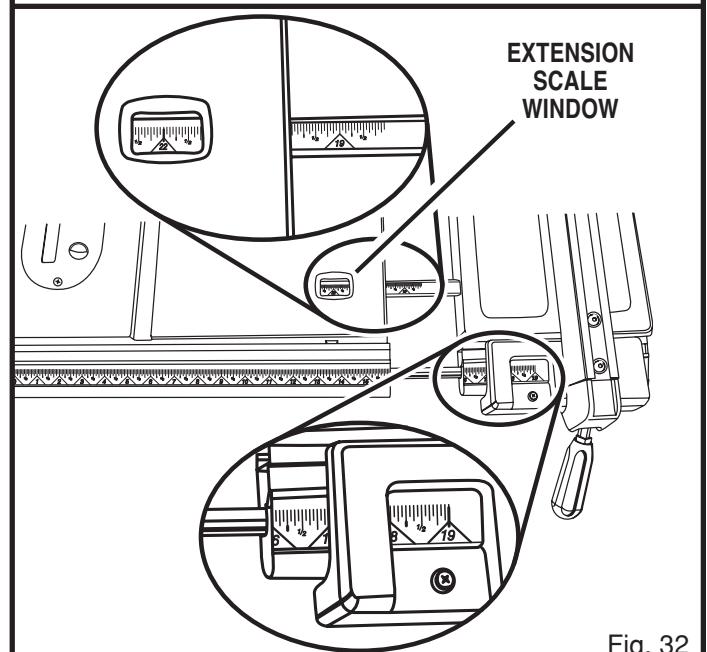


Fig. 32

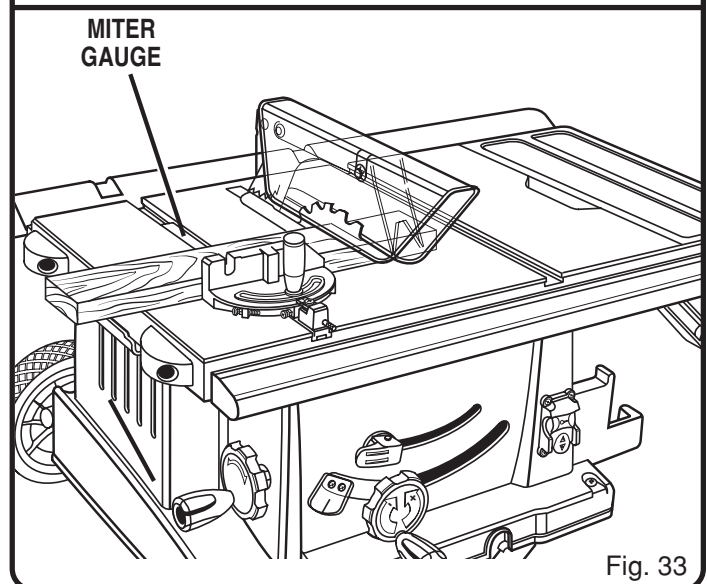


Fig. 33

# OPERATION

- Set the miter gauge to 0° and tighten the lock knob.
  - Place a support (the same height as saw table) behind the saw for the cut work.
  - Make sure the wood is clear of the blade before turning on the saw.
  - To turn the saw on ( $\triangle$ ), lift the switch button.
  - To turn saw off ( $\nabla$ ), press the switch button down.
- Note:** To prevent unauthorized use, remove the switch key as shown in figure 34.
- Let the blade build up to full speed before moving the workpiece into the blade.
  - Hold the workpiece firmly with both hands on the miter gauge and feed the workpiece into the blade.
  - When the cut is made, turn the saw off ( $\nabla$ ). Wait for the blade to come to a complete stop before removing the workpiece.

## TO MAKE A MITER CUT

See Figure 35.

It is recommended you make test cuts on scrap wood.

### **WARNING:**

Make sure the blade guard assembly is installed and working properly to avoid serious personal injury.

- Remove the rip fence by lifting the locking handle.
- Set the miter gauge to the desired angle and tighten the lock knob.
- Place a support (the same height as saw table) behind the saw for the cut work.
- Make sure the wood is clear of the blade before turning on the saw.
- Let the blade build up to full speed before moving the workpiece into the blade.
- Feed the workpiece into the blade until the cut has been completed.

## TO MAKE A STRAIGHT RIP CUT

See Figure 36.

It is recommended you make a test cut on scrap wood.

### **WARNING:**

Make sure the blade guard assembly is installed and working properly to avoid serious personal injury.

- Position the rip fence the desired distance from the blade for the cut and securely lock the handle. Adjust the scale to zero at the cutting edge of the blade.
- Place a support (the same height as saw table) behind the saw for the cut work.
- Make sure the wood is clear of the blade before turning on the saw.
- Use a push block or push stick to move the wood through the cut past the blade. **Never push a small piece of wood into the blade with your hand, always use a push stick.** The use of push blocks, push sticks, and featherboards are necessary when making non-through cuts.

- Stand to the side of the wood as it contacts the blade to reduce the chance of injury should kickback occur. **Never stand directly in the line of cut.**
- Make sure the wood is clear of the blade before turning on the saw.
- Let the blade build up to full speed before feeding the workpiece into the blade.
- When the cut is made, turn the saw off ( $\nabla$ ). Wait for the blade to come to a complete stop before removing the workpiece.

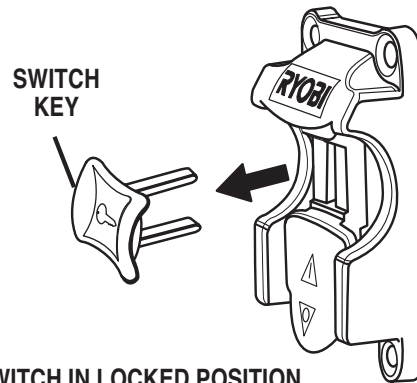
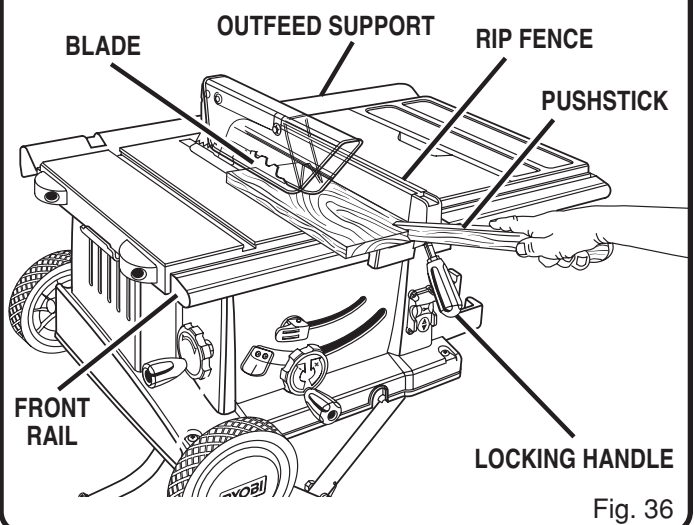
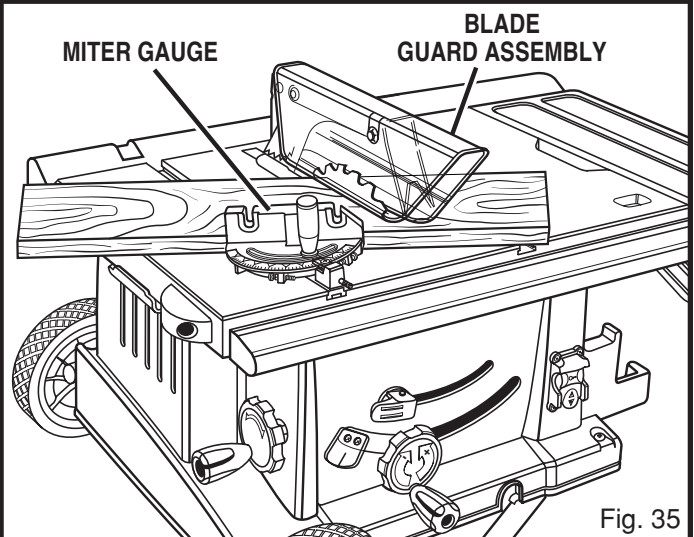


Fig. 34





# OPERATION


## TO MAKE A BEVEL CROSS CUT

See Figure 37.

It is recommended that you place the piece to be saved on the left side of the blade and that you make a test cut on scrap wood.

### WARNING:

Make sure the blade guard assembly is installed and working properly to avoid serious personal injury.

- Unlock the bevel locking lever.
- Remove the rip fence by lifting the locking handle.
- Turn the bevel handle until the bevel indicator is at the desired angle. Push the bevel locking lever securely to the left to lock the angle.
- Set the blade to the correct depth for the workpiece.
- Set the miter gauge to 90° and press the bevel locking lever towards the table to lock.
- Place a support (the same height as saw table) behind the saw for the cut work.
- Make sure the wood is clear of the blade before turning on the saw.
- Let the saw blade build up to full speed before moving the miter gauge and the workpiece into the blade.
- Hold the workpiece firmly with both hands on the miter gauge and feed the workpiece into the blade.
- When the cut is made, turn the saw off () . Wait for the blade to come to a complete stop before removing the workpiece.

## TO MAKE A BEVEL RIP CUT

See Figure 38.

It is recommended you make test cuts on scrap wood.

### WARNING:

The rip fence must be on the right side of the blade to avoid trapping the wood and causing kickback.

### WARNING:

Make sure the blade guard assembly is installed and working properly to reduce the risk of serious personal injury.

- Remove the miter gauge.
- Position the rip fence the desired distance from the right side of the blade and lock down the handle.
- Adjust the bevel angle to the desired setting.
- Set the blade to the correct depth.
- If ripping a piece larger than 36 in. long, place a support the same height as the table surface behind the saw for the cut work.

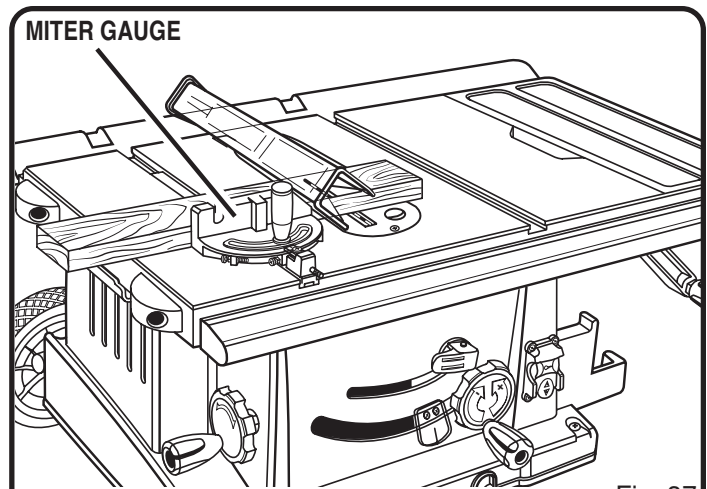


Fig. 37

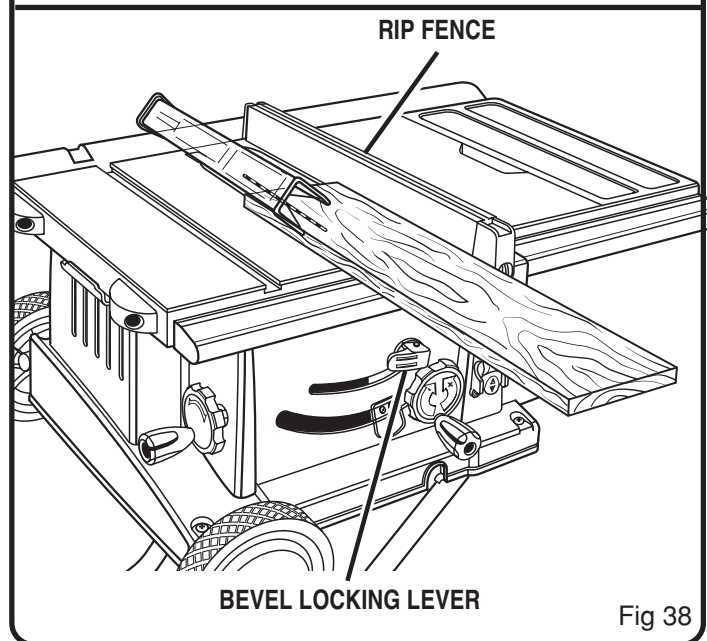




Fig 38

- Turn the power switch to the on () position.
- Position the workpiece flat on the table with the edge flush against the rip fence. Let the blade build up to full speed before feeding the workpiece into the blade.
- Using a push stick and/or push blocks, slowly feed the workpiece toward the blade. Stand slightly to the side of the wood as it contacts the blade to reduce the chance of injury should kickback occur.
- Once the blade has made contact with the workpiece, use the hand closest to the rip fence to guide it. Make sure the edge of the workpiece remains in solid contact with both the rip fence and the surface of the table. If ripping a narrow piece, use a push stick to move the piece through the cut and past the blade.
- When the cut is made, turn the saw off () . Wait for the blade to come to a complete stop before removing the workpiece.
- After the blade has stopped completely, remove the cutoff stock.
- Grasp the workpiece from the lead end (the end fed into the blade first) and carefully remove it from the table.



# OPERATION

## TO MAKE A COMPOUND MITER CUT

It is recommended that you place the piece to be saved on the left side of the blade and that you make a test cut on scrap wood first.

### **WARNING:**

Make sure the blade guard assembly is securely installed and working properly to avoid serious personal injury.

- Remove the rip fence by lifting the lock down handle.
- Unlock the bevel locking lever.
- Adjust the bevel angle to the desired setting.
- Lock the bevel locking lever.
- Set the saw blade to the correct depth.
- Loosen the lock knob on the miter gauge, set the miter gauge to the desired angle and tighten lock knob.
- Turn the power switch to the on () position.
- Position the workpiece flat on the table with the edge flush against the miter gauge. Let the blade build up to full speed before feeding the workpiece into the blade.
- Advance the workpiece and the miter gauge toward the blade. Keep the workpiece flush against the miter gauge. Push the miter gauge and workpiece toward the blade. Stand slightly to the side of the wood as it contacts the blade to reduce the chance of injury should kickback occur.
- When the cut is made, turn the saw off (). Wait for the blade to come to a complete stop before removing the workpiece.
- After the blade has stopped completely, remove the cutoff stock.

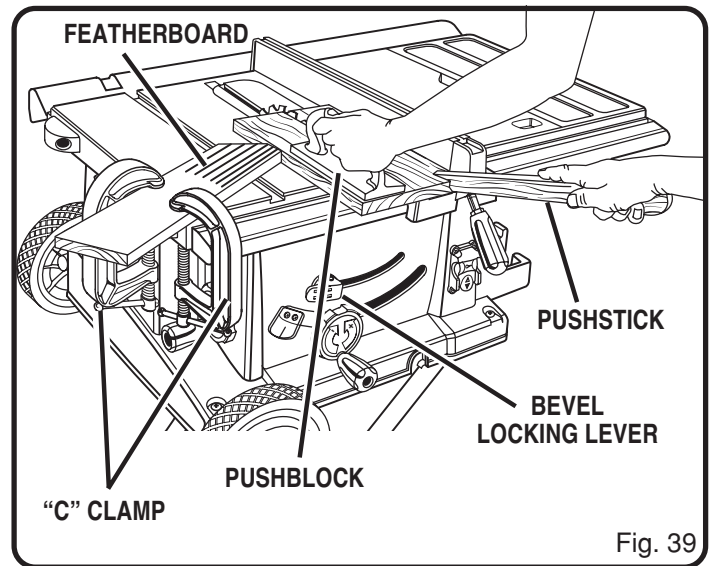
## TO MAKE NON-THROUGH CUTS

Non-through cuts can be made with the grain (ripping) or across the grain (crosscut). The use of a non-through cut is essential to cutting grooves, rabbets, and dadoes. This is the only type cut that is made without the blade guard installed. Make sure the blade guard assembly is reinstalled upon completion of this type of cut. Read the appropriate section which describes the type of cut in addition to this section on non-through or dado cuts. For example, if your non-through cut is a straight cross cut, read and understand the section on straight cross cuts before proceeding.

### **WARNING:**

Unplug the saw to avoid possible injury.

- Remove the screw holding the throat plate in place. Remove the throat plate.
- Raise the saw blade.
- Put the saw in angle mode by pushing the bevel locking lever to the right. Turn the blade adjusting handle until the blade indicator shows a 30° angle. Push the bevel locking lever securely to the left to lock the angle.



- Loosen the two hex nuts at the base of the riving knife. **Do not remove hex nuts.** Remove the riving knife/guard assembly. Retighten the two hex nuts on the base.
- Lower the blade and insert the throat plate, then securely tighten the throat plate screw.
- Bring the blade back to 90°.
- Raise the blade to the correct height by turning the blade adjusting handle counterclockwise.
- Feed the workpiece into the blade.

### **WARNING:**

Carefully check all setups and rotate the blade one full revolution to assure proper clearance before connecting saw to power source.

- Always use pushblocks, pushsticks, and featherboards when making non-through cuts to avoid the risk of serious injury. *See Figure 39.*

### **WARNING:**

When making a non-through cut, the cutter is covered by the workpiece during most of the cut. Be alert to the exposed cutter at the start and finish of every cut to avoid the risk of serious personal injury.




# OPERATION

## WARNING:

Never feed wood with your hands when making any non-through cut such as rabbets or dados.

## WARNING:

When making a non-through cut, the cutter is covered by the workpiece during most of the cut. Be alert to the exposed cutter at the start and finish of every cut to avoid the risk of serious personal injury.

- When the cut is made, turn the saw off () . Wait for the blade to come to a complete stop before removing the workpiece.
- Unplug your saw.
- Remove the screw holding the throat plate in place. Remove the throat plate.
- Raise the saw blade.
- Push the bevel locking lever to the right. Rotate the blade adjusting handle until the bevel indicator shows a 30° angle. Push the bevel locking lever securely to the left while holding the blade adjusting handle to lock the angle. Reinstall the blade guard assembly.
- Retighten the nuts at the base of the riving knife. Check riving knife alignment to the blade and adjust shims if necessary.
- Move the bevel locking lever to the right and rotate the blade back to 90°. Push the lever to the left to lock the angle.
- Lower the blade, insert the throat plate, then securely tighten the throat plate screw.

## TO MAKE DADO CUTS

A dado is a non-through cut and typically refers to a channel cut, both with the grain and across the grain. (The Ryobi part number for the dado set is 4650306.)

- Unplug your saw.

## WARNING:

Unplug the saw to avoid possible injury.

- Remove the blade guard assembly.
- Retighten the two hex nuts on base assembly.
- Remove the saw blade.
- Remove the inner blade washer and both the small and large spacers.
- Reinstall the inner blade washer.
- Mount the dado blade, using the blade and chippers appropriate for the desired width of cut.
- Reinstall the outer blade washer and arbor nut.
- Make sure the arbor nut is fully engaged and the arbor extends at least one full thread past a securely tightened arbor nut.
- When mounting dado blades, make sure both the inner blade washer and outer blade washer are used.
- Replace the throat plate with optional Dado Throat Plate (#0131030330-35). When ordering parts, always give the model number. Call 1-800-525-2579 for assistance.

## WARNING:

Always put all spacers in proper location when changing back to saw blade. Failure to do so may result in possible injury and damage to the tool.

## WARNING:

Always use push blocks, push sticks, or featherboards when making dado cuts to avoid the risk of serious injury.

## WARNING:

All blades must be rated for at least 5,500 RPM to prevent possible injury or damage to the tool

# MAINTENANCE

## GENERAL MAINTENANCE

### WARNING:

Always begin by disconnecting the power supply.

- Periodically check all clamps, nuts, bolts, screws, and belts for tightness and condition. Make sure the throat plate is in good condition and in position.
- Check the blade guard assembly.

- To maintain the table surfaces, fence, and rails, periodically apply paste wax to them and buff to provide smooth functioning.
- Protect the blade by cleaning out sawdust from underneath the table and in the blade teeth. Use a resin solvent on the blade teeth.
- **Clean plastic parts only with a soft damp cloth. DO NOT** use any aerosol or petroleum solvents.

## LUBRICATION

This saw has been lubricated at the factory prior to shipment. Following extended use, you should inspect and lubricate to assure smooth operation.

# MAINTENANCE



## WARNING:

Before performing any adjustment, make sure the tool is unplugged from the power supply and the switch is in the off (⏏) position. Failure to heed this warning could result in serious personal injury.

### TO SET BLADE AT 0° OR 45°

See Figure 40.

The angle settings of your saw have been set at the factory and, unless damaged in shipping, should not require setting during assembly. After extensive use, it may need to be checked.

- If the blade is not perfectly vertical (0°), loosen the nuts on the stop bolt inside the cabinet, position the blade, adjust the stop bolt, then retighten nut. See Figure 40, insert.
- Turn the blade adjusting handle until the bottom of the blade has moved completely to the left side of the slot. Lock the angle by pushing the bevel locking lever.
- If the blade is not an exact 45°, loosen the nuts on the stop bolt inside the cabinet, position the blade, adjust the stop bolt, then retighten lock nut. See Figure 40, insert.
- Make a test cut.

### TO CHECK THE ALIGNMENT OF THE RIP FENCE TO THE BLADE

See Figure 41.



## WARNING:

Before performing any adjustment, make sure the tool is unplugged from the power supply and the stop is in the off (⏏) position. Failure to heed this warning could result in serious personal injury.

- Raise the locking handle to permit the rip fence to be moved.
- Place a framing square beside the blade and move the rip fence up to the square. Take the dimension on the rip scale.
- Move the fence back and turn the framing square 180° to check the other side.
- If the two dimensions are not the same, loosen the two screws on the fence and align it.
- Retighten the two screws.
- Make two or three test cuts on scrap wood. If the cuts are not true, repeat the process.



## WARNING:

Before plugging the saw back in to make test cuts, make sure the switch is in the off (⏏) position and the blade guard is in place. Failure to do so may result in serious injury.

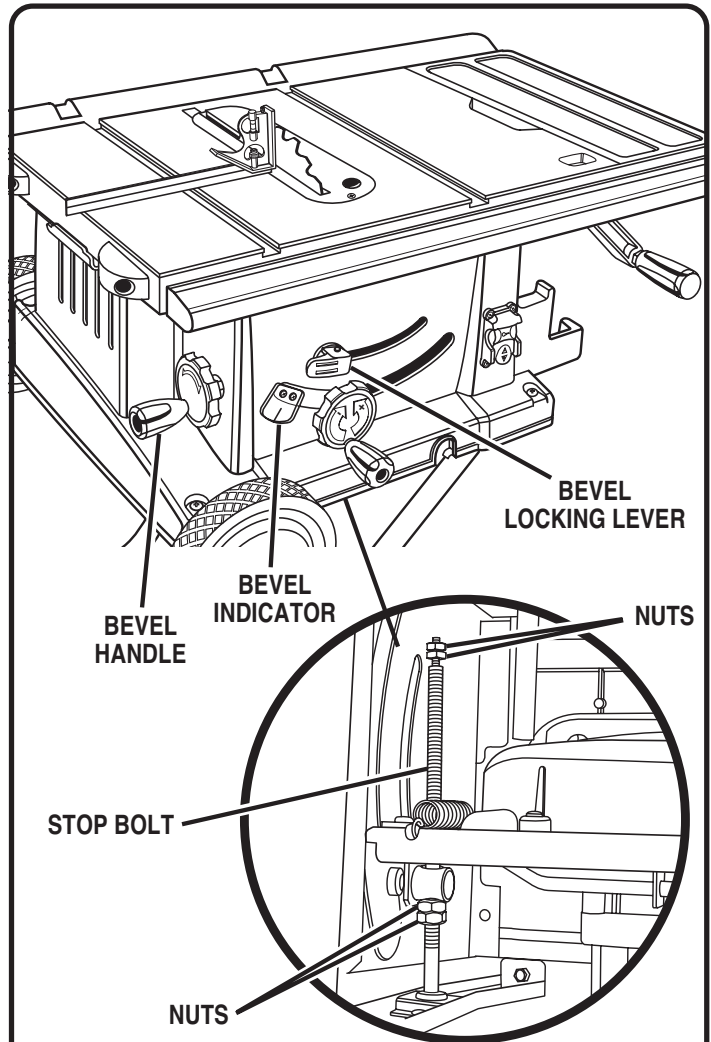


Fig. 40

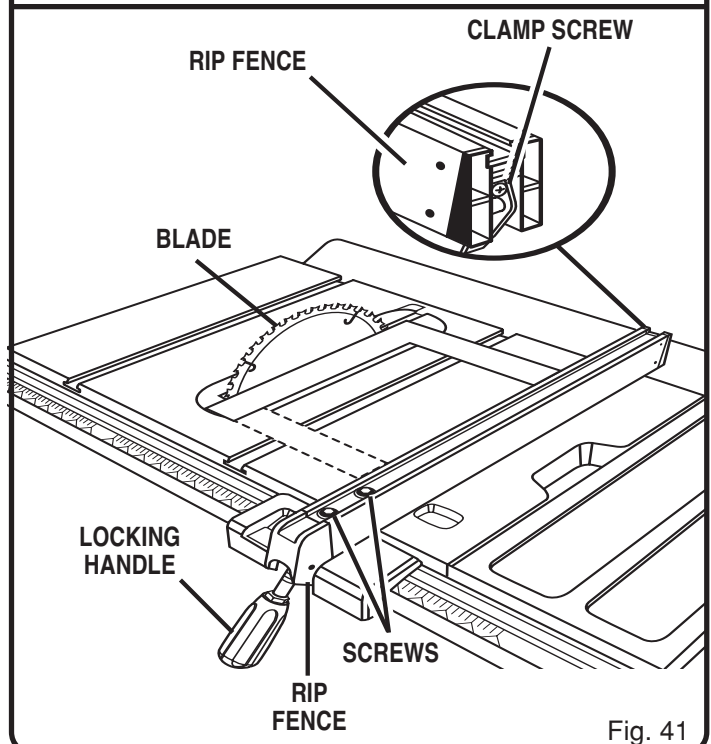


Fig. 41

# TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Excess Vibration.	<ol style="list-style-type: none"> <li>1. Blade is out of balance.</li> <li>2. Blade is warped or damaged.</li> <li>3. Saw is not mounted securely to a level work surface.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remount and recheck blade. Replace if necessary</li> <li>2. Replace blade immediately. See page 22.</li> <li>3. Reposition on a level surface and tighten all mounting hardware securely.</li> </ol>
Rip fence does not operate smoothly.	<ol style="list-style-type: none"> <li>1. Rip fence not mounted correctly.</li> <li>2. Rails are dirty or sticky.</li> <li>3. Adjustment nut needs adjusting.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remount the rip fence. See page 17.</li> <li>2. Wax underneath front bar of rip fence and front rail.</li> <li>3. Adjust nut counterclockwise.</li> </ol>
Cutting binds or burns work.	<ol style="list-style-type: none"> <li>1. Blade is dull.</li> <li>2. Work is fed too fast.</li> <li>3. Wood is warped.</li> <li>4. Blade is heeling.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace or have blade sharpened.</li> <li>2. Slow the feed rate.</li> <li>3. Replace wood.</li> <li>4. Call Ryobi Technical Service at 1-800-525-2579</li> </ol>
Wood edges away from rip fence when ripping.	<ol style="list-style-type: none"> <li>1. Blade not properly sharpened.</li> </ol>	<ol style="list-style-type: none"> <li>1. Have blade resharpened.</li> </ol>
Saw does not make accurate 90° or 45° bevel cuts.	<ol style="list-style-type: none"> <li>1. Positive stops need adjusting.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust positive stops. See page 31.</li> </ol>
Saw does not make accurate 90° or 45° miter cuts.	<ol style="list-style-type: none"> <li>1. Miter gauge is misaligned.</li> </ol>	<ol style="list-style-type: none"> <li>1. Recheck setting on miter scale.</li> </ol>
Blade makes poor cuts.	<ol style="list-style-type: none"> <li>1. Blade is dull or dirty.</li> <li>2. Blade is wrong type for cut</li> <li>3. Blade is mounted backwards.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean blade or have blade sharpened.</li> <li>2. Replace with correct type.</li> <li>3. Remount blade.</li> </ol>
Blade does not lower when turning blade control handle.	<ol style="list-style-type: none"> <li>1. Saw dust build up underneath saw.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean underside of saw.</li> </ol>





# OPERATOR'S MANUAL

## 10 in. (254 mm) Table Saw

### Model BTS20

#### EXTENSION CORD CAUTION

When using a power tool at a considerable distance from a power source, be sure to use an extension cord that has the capacity to handle the current the tool will draw. An undersized cord will cause a drop in line voltage, resulting in overheating and loss of power. Use the chart to determine the minimum wire size required in an extension cord. Only round jacketed cords should be used.

When working with a tool outdoors, use an extension cord that is designed for outside use. This is indicated by the letters "WA" on the cord's jacket.

Before using any extension cord, inspect it for loose or exposed wires and cut or worn insulation.

**\*\*Ampere rating**

(on tool data plate) 0-2.0 2.1-3.4 3.5-5.0 5.1-7.0 7.1-12.0 12.1-16.0

Cord Length	Wire Size (A.W.G.)					
	16	16	16	16	14	14
25'	16	16	16	16	14	14
50'	16	16	16	14	14	12
100'	16	16	14	12	10	—

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

*\*\*Used on 12 gauge - 20 amp circuit.*

#### • SERVICE

Now that you have purchased your tool, should a need ever exist for repair parts or service, simply contact your nearest Ryobi Authorized Service Center. Be sure to provide all pertinent facts when you call or visit. Please call 1-800-525-2579 for your nearest Ryobi Authorized Service Center. You can also check our web site at [www.ryobitools.com](http://www.ryobitools.com) for a complete list of Authorized Service Centers.

#### • MODEL NO.

The model and serial numbers of your tool will be found on the data plate attached to the tool. Please record the serial number in the space provided below.

- MODEL NUMBER \_\_\_\_\_ BTS20 \_\_\_\_\_
- SERIAL NUMBER \_\_\_\_\_

#### RYOBI TECHNOLOGIES, INC.

1428 Pearman Dairy Road Anderson, SC 29625  
 Post Office Box 1207 Anderson SC 29622-1207  
 Phone 1-800-525-2579  
[www.ryobitools.com](http://www.ryobitools.com)

## Free Manuals Download Website

<http://myh66.com>

<http://usermanuals.us>

<http://www.somanuals.com>

<http://www.4manuals.cc>

<http://www.manual-lib.com>

<http://www.404manual.com>

<http://www.luxmanual.com>

<http://aubethermostatmanual.com>

Golf course search by state

<http://golfingnear.com>

Email search by domain

<http://emailbydomain.com>

Auto manuals search

<http://auto.somanuals.com>

TV manuals search

<http://tv.somanuals.com>