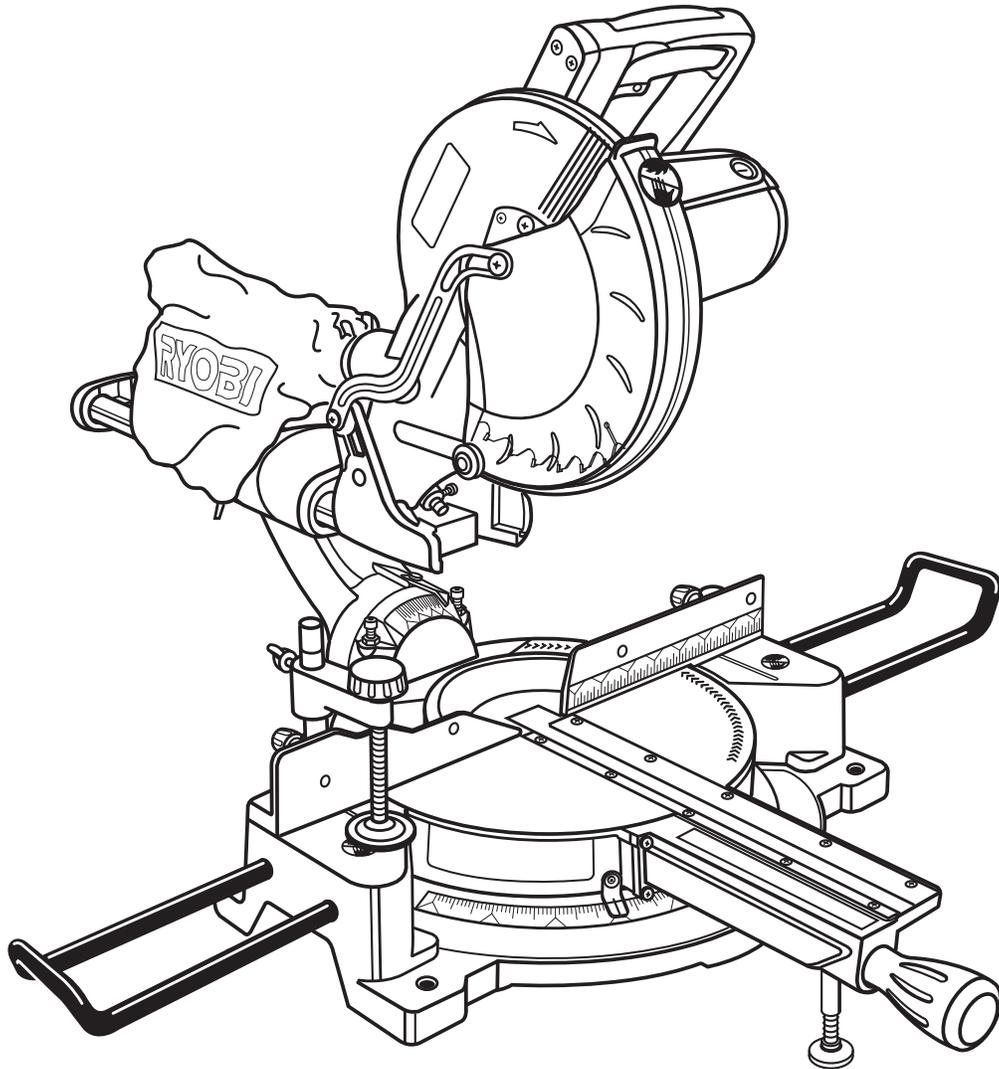




# OPERATOR'S MANUAL

## 10 in. SLIDING COMPOUND MITER SAW WITH LASER

### TSS101L



**REGISTER YOUR TOOLS**  
 <http://register.ryobitools.com>  
1-800-525-2579

Your miter saw has been engineered and manufactured to our high standard for dependability, ease of operation, and operator safety. When 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 before using this product.

Thank you for purchase.

**SAVE THIS MANUAL FOR FUTURE REFERENCE**

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## INTRODUCTION

This tool has many features for making its use more pleasant and enjoyable. Safety, performance, and dependability have been given top priority in the design of this product making it easy to maintain and operate.

## WARRANTY

### **RYOBI® POWER TOOL - LIMITED THREE YEAR WARRANTY AND 90 DAY EXCHANGE POLICY**

One World Technologies, Inc., warrants its RYOBI® power tools with the following conditions:

**90-DAY EXCHANGE POLICY:** During the first 90 days after date of purchase, you may either request service under this warranty or you may exchange any RYOBI® power tool which does not work properly due to defective workmanship or materials by returning the power tool to the dealer from which it was purchased. To receive a replacement power tool or requested warranty service, you must present proof of purchase and return all original equipment packaged with the original product. The replacement power tool will be covered by the limited warranty for the balance of the three year period from the date of the original purchase.

**WHAT THIS WARRANTY COVERS:** This warranty covers all defects in workmanship or materials in your RYOBI® power tool for a period of three years from the date of purchase. With the exception of batteries, power tool accessories are warranted for ninety (90) days. Batteries are warranted for three years.

**HOW TO GET SERVICE:** Just return the power tool, properly packaged and postage prepaid, to an Authorized Service Center. You can obtain the location of the Service Center nearest you by contacting a service representative at One World Technologies, Inc., P.O. Box 1207, Anderson, SC 29622-1207, by calling 1-800-525-2579 or by logging on to [www.ryobi-tools.com](http://www.ryobi-tools.com). When you request warranty service, you must also present proof of purchase documentation, which includes the date of purchase (for example, a bill of sale). We will repair any faulty workmanship, and either repair or replace any defective part, at our option. We will do so without any charge to you. We will complete the work in a reasonable time, but, in any case, within ninety (90) days or less.

**WHAT'S NOT COVERED:** This warranty applies only to the original purchaser at retail and may not be transferred. This warranty only covers defects arising under normal usage and does not cover any malfunction, failure or defects resulting from misuse, abuse, neglect, alteration, modification or repairs by other than Authorized Service Centers. One World Technologies, Inc. makes no warranties, representations or promises as to the quality or performance of its power tools other than those specifically stated in this warranty.

**ADDITIONAL LIMITATIONS:** Any implied warranties granted under state law, including warranties of merchantability or fitness for a particular purpose, are limited to three years from the date of purchase. One World Technologies, Inc. is not responsible for direct, indirect, or incidental damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

# GENERAL SAFETY RULES



## WARNING:

Read and understand all instructions. Failure to follow all instructions listed below, may result in electric shock, fire and/or serious personal injury.

## READ ALL INSTRUCTIONS

- **KNOW YOUR POWER TOOL.** Read the operator's manual carefully. Learn the 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 good working order.
- **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 tool while it is in operation.
- **DO NOT USE IN DANGEROUS ENVIRONMENTS.** Do not use power tools in damp or wet locations or expose to rain. Keep the 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, master switches, or by removing starter keys.
- **DON'T FORCE THE TOOL.** It will do the job better and safer at the feed rate for which it was designed.
- **USE THE RIGHT TOOL.** Do not force the tool or attachment to do a job for which it was not designed.
- **USE THE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. Use only a cord 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 gauge 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 gauge. The smaller the gauge number, the heavier the cord.
- **DRESS PROPERLY.** Do not wear loose clothing, neckties, or jewelry that 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 is safer than using your hand and frees both hands to operate the tool.
- **DO NOT 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 from power source.
- **AVOID ACCIDENTAL STARTING.** Be sure switch is off when plugging in any tool.
- **USE RECOMMENDED ACCESSORIES.** Consult the operator's manual for recommended accessories. The use of improper accessories may result in injury.
- **NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped.
- **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 the blade or cutter.
- **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN THE 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.
- **DO NOT ABUSE CORD.** Never carry tool by the cord or yank it 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.
- **KEEP BLADES CLEAN, SHARP, AND WITH SUFFICIENT SET.** Sharp blades minimize stalling and kickback.
- **BLADE COASTS AFTER BEING TURNED OFF.**

# GENERAL SAFETY RULES

- **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.
- **GROUND ALL TOOLS.** If tool is equipped with three-prong plug, it should be plugged into a three-hole electrical receptacle.
- **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.
- **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.
- **USE ONLY CORRECT BLADES.** Do not use blades with incorrect size holes. Never use blade washers or blade bolts that are defective or incorrect. The maximum blade capacity of your saw is 10 in.
- **BEFORE MAKING A CUT, BE SURE ALL ADJUSTMENTS ARE SECURE.**
- **BE SURE BLADE PATH IS FREE OF 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 A TOOL WHILE UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR ANY MEDICATION.**
- **WHEN SERVICING** use only identical replacement parts. Use of any other parts may create a hazard or cause product damage.
- **USE ONLY RECOMMENDED ACCESSORIES** listed in this manual or addendums. 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.

# SPECIFIC SAFETY RULES

- **FIRMLY CLAMP OR BOLT** the tool to a workbench or table at approximately hip height.
- **KEEP HANDS AWAY FROM CUTTING AREA.** Do not reach underneath work or in blade cutting path with hands and fingers for any reason. Always turn the power off.
- **ALWAYS SUPPORT LONG WORKPIECES** while cutting to minimize risk of blade pinching and kickback. Saw may slip, walk or slide while cutting long or heavy boards.
- **ALWAYS USE A CLAMP** to secure the workpiece when possible.
- **BE SURE THE BLADE CLEARS THE WORKPIECE.** Never start the saw with the blade touching the workpiece. Allow motor to come up to full speed before starting cut.
- **MAKE SURE THE MITER TABLE AND SAW ARM (BEVEL FUNCTION) ARE LOCKED IN POSITION BEFORE OPERATING YOUR SAW.** Lock the miter table by securely tightening the miter lock levers. Lock the saw arm (bevel function) by securely tightening the bevel lock lever.
- **NEVER USE A LENGTH STOP ON THE FREE SCRAP END OF A CLAMPED WORKPIECE. NEVER** hold onto or bind the free scrap end of the workpiece in any operation. If a work clamp and length stop are used together, they must both be installed on the same side of the saw table to prevent the saw from catching the loose end and kicking up.
- **NEVER** cut more than one piece at a time. **DO NOT STACK** more than one workpiece on the saw table at a time.

# SPECIFIC SAFETY RULES

- **NEVER PERFORM ANY OPERATION FREEHAND.** Always place the workpiece to be cut on the miter table and position it firmly against the fence as a backstop. Always use the fence.
- **NEVER** hand hold a workpiece that is too small to be clamped. Keep hands clear of the cutting area.
- **NEVER** reach behind, under, or within three inches of the blade and its cutting path with hands and fingers for any reason.
- **NEVER** reach to pick up a workpiece, a piece of scrap, or anything else that is in or near the cutting path of the blade.
- **NEVER** move the workpiece or make adjustment to any cutting angle while the saw is running and the blade is rotating. Any slip can result in contact with the blade causing serious personal injury.
- **AVOID AWKWARD OPERATIONS AND HAND POSITIONS** where a sudden slip could cause your hand to move into the blade. **ALWAYS** make sure you have good balance. **NEVER** operate the miter saw on the floor or in a crouched position.
- **NEVER** stand or have any part of the body in line with the path of the saw blade.
- **ALWAYS** release the power switch and allow the saw blade to stop rotating before raising it out of the workpiece.
- **DO NOT TURN THE MOTOR SWITCH ON AND OFF RAPIDLY.** This could cause the saw blade to loosen and could create a hazard. Should this ever occur, stand clear and allow the saw blade to come to a complete stop. Disconnect your saw from the power supply and securely retighten the blade bolt.
- **IF ANY PART OF THIS MITER SAW 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, remove the miter saw plug from the power source and have damaged, missing, or failed parts replaced before resuming operation.
- **ALWAYS STAY ALERT!** Do not allow familiarity (gained from frequent use of the saw) to cause a careless mistake. **ALWAYS REMEMBER** that a careless fraction of a second is sufficient to inflict severe injury.
- **IF THE POWER SUPPLY CORD IS DAMAGED**, it must be replaced only by the manufacturer or by an authorized service center to avoid risk.
- **MAKE SURE WORK AREA HAS AMPLE LIGHTING** to see the work and that no obstructions will interfere with safe operation **BEFORE** performing any work using the saw.
- **ALWAYS TURN OFF THE SAW** before disconnecting it to avoid accidental starting when reconnecting to power supply. **NEVER** leave the saw unattended while connected to a power source.
- **RELEASE THE SWITCH TRIGGER** and allow the saw blade to stop rotating before raising the blade out of workpiece.
- **THIS TOOL** should have the following markings:
  - a) Wear eye protection.
  - b) Keep hands out of path of saw blade.
  - c) Do not operate saw without guards in place.
  - d) Do not perform any operation freehand.
  - e) Never reach around saw blade.
  - f) Turn off tool and wait for saw blade to stop before moving workpiece or changing settings.
  - g) Disconnect power (or unplug tool as applicable) before changing blade or servicing.
  - h) No load speed.
- **ALWAYS MAKE SURE THE SAW BLADE HAS CLEARANCE OF ALL OBSTRUCTIONS BEFORE TURNING THE SAW ON.**
- **MAKE SLIDING CUTS** by pushing the saw blade down on top of the workpiece then sliding it back toward the rear of the saw. **DO NOT** pull the saw toward you while making a cut.
- **ALWAYS** carry the tool only by the carrying handle.
- **AVOID** direct eye exposure when using the laser guide.
- **THIS SAW CAN TIP OVER** if the saw head is released suddenly and the saw is not secured to a work surface. **ALWAYS** secure this saw to a stable work surface before any use to avoid serious personal injury.
- **SAVE THESE INSTRUCTIONS.** Refer to them frequently and use to instruct other users. If you loan someone this tool, loan them these instructions also.

# SYMBOLS

The following signal words and meanings are intended to explain the levels of risk associated with this product.

SYMBOL	SIGNAL	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 death or serious injury.
	<b>CAUTION:</b>	Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.
	<b>CAUTION:</b>	(Without Safety Alert Symbol) Indicates a situation that may result in property damage.

Some of the following symbols may be used on this tool. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to operate the tool better and safer.

SYMBOL	NAME	DESIGNATION/EXPLANATION
	Safety Alert	Precautions that involve your safety.
	Read Operator's Manual	To reduce the risk of injury, user must read and understand operator's manual before using this product.
	Eye Protection	Always wear eye protection with side shields marked to comply with ANSI Z87.1.
	No Hands Symbol	Failure to keep your hands away from the blade will result in serious personal injury.
	Wet Conditions Alert	Do not expose to rain or use in damp locations.
V	Volts	Voltage
A	Amperes	Current
Hz	Hertz	Frequency (cycles per second)
min	Minutes	Time
~	Alternating Current	Type of current
$n_0$	No Load Speed	Rotational speed, at no load
	Class II Construction	Double-insulated construction
.../min	Per Minute	Revolutions, strokes, surface speed, orbits etc., per minute

# 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.

\*\*Ampere rating (on tool data plate)

Cord Length	Wire Size (A.W.G.)					
	0-2.0	2.1-3.4	3.5-5.0	5.1-7.0	7.1-12.0	12.1-16.0
25'	16	16	16	16	14	14
50'	16	16	16	14	14	12
100'	16	16	14	12	10	—

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

**NOTE:** AWG = American Wire Gauge

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.

### **WARNING:**

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. Failure to do so can result in serious personal injury.

### **WARNING:**

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

## ELECTRICAL CONNECTION

This tool is powered by a precision built electric motor. It should be connected to a **power supply that is 120 V, AC only, 60 Hz, (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.

## SPEED AND WIRING

The no-load speed of this tool is approximately 5,000 RPM. This speed is not constant and decreases under a load or with lower voltage. For voltage, the wiring in a shop is as important as the motor's horsepower rating. A line intended only for lights cannot 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.

## 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.

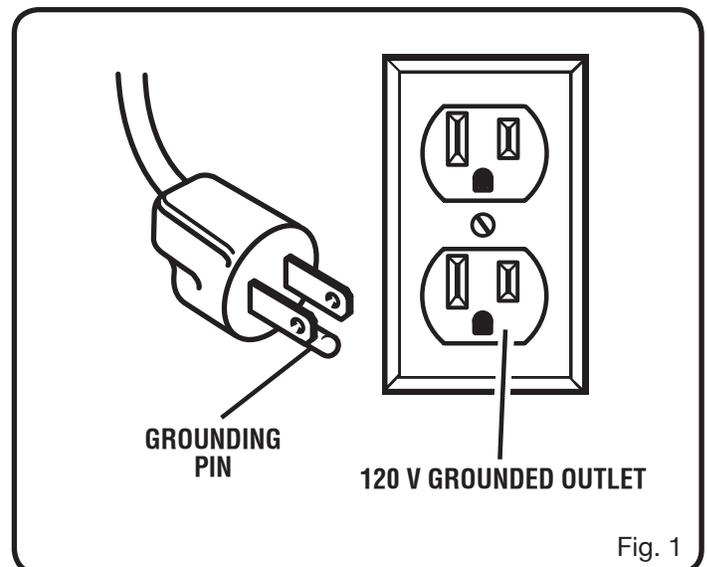


Fig. 1

# GLOSSARY OF TERMS

## **Anti-Kickback Pawls (radial arm and table saws)**

A 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 the blade at any angle other than 90° to the table surface.

## **Compound Cut**

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

## **Cross Cut**

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

## **Cutterhead (planers and jointer planers)**

A rotating cutterhead with adjustable blades or knives. The blades or knives remove material from the workpiece.

## **Dado Cut**

A non-through cut which produces a square-sided notch or trough in the workpiece (requires a special blade).

## **Featherboard**

A device used to help control the workpiece by holding it securely against the table or fence during any ripping operation.

## **FPM or SPM**

Feet per minute (or strokes per minute), used in reference to blade movement.

## **Freehand**

Performing a cut without the workpiece being guided by a fence, miter gauge, or other aids.

## **Gum**

A sticky, sap-based residue from wood products.

## **Heel**

Alignment of the blade to the fence.

## **Kerf**

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

## **Kickback**

A hazard that can occur when the blade binds or stalls, throwing the workpiece back toward operator.

## **Miter Cut**

A cutting operation made with the workpiece at any angle to the blade other than 90°.

## **Non-Through Cuts**

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

## **Pilot Hole (drill presses)**

A small hole drilled in a workpiece that serves as a guide for drilling large holes accurately.

## **Push Blocks (for jointer planers)**

Device used to feed the workpiece over the jointer planer cutterhead during any operation. This aid helps keep the operator's hands well away from the cutterhead.

## **Push Blocks (for table saws)**

Device used to hold the workpiece during cutting operations. This aid helps keep the operator's hands well away from the blade.

## **Push Sticks (for table saws)**

Device used to push the workpiece during cutting operations. A push stick should be used for narrow ripping operations. The aid helps keep the operator's hands well away from the blade.

## **Resaw**

A cutting operation to reduce the thickness of the workpiece to make thinner pieces.

## **Resin**

A sticky, sap-based substance that has hardened.

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

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

## **Ripping or Rip Cut**

A cutting operation along the length of the workpiece.

## **Riving Knife/Spreader/Splitter (table saws)**

A metal piece, slightly thinner than the blade, which helps keep the kerf open and also helps to prevent kickback.

## **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.

## **Snipe (planers)**

Depression made at either end of a workpiece by cutter blades when the workpiece is not properly supported.

## **Through Sawing**

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

## **Throw-Back**

The throwing back of a workpiece usually caused by the workpiece being dropped into the blade or being placed inadvertently in contact with the blade.

## **Workpiece or Material**

The item on which the operation is being done.

## **Worktable**

Surface where the workpiece rests while performing a cutting, drilling, planing, or sanding operation.

# FEATURES

## PRODUCT SPECIFICATIONS

Blade Arbor ..... 5/8 in.  
 Blade Diameter.....10 in.  
 No Load Speed ..... 5,000 r/min. (RPM)  
 Input .....120 V, AC only, 60 Hz, 13 A

Cutting Capacity with Miter at 0°/Bevel 0°:  
 Maximum nominal lumber sizes:.....2 x 12  
 Cutting Capacity with Miter at 45°/Bevel 0°:  
 Maximum nominal lumber sizes:.....2 x 8  
 Cutting Capacity with Miter at 0°/Bevel 45°:  
 Maximum nominal lumber sizes:.....2 x 12  
 Cutting Capacity with Miter at 45°/Bevel 45°:  
 Maximum nominal lumber sizes:.....2 x 8

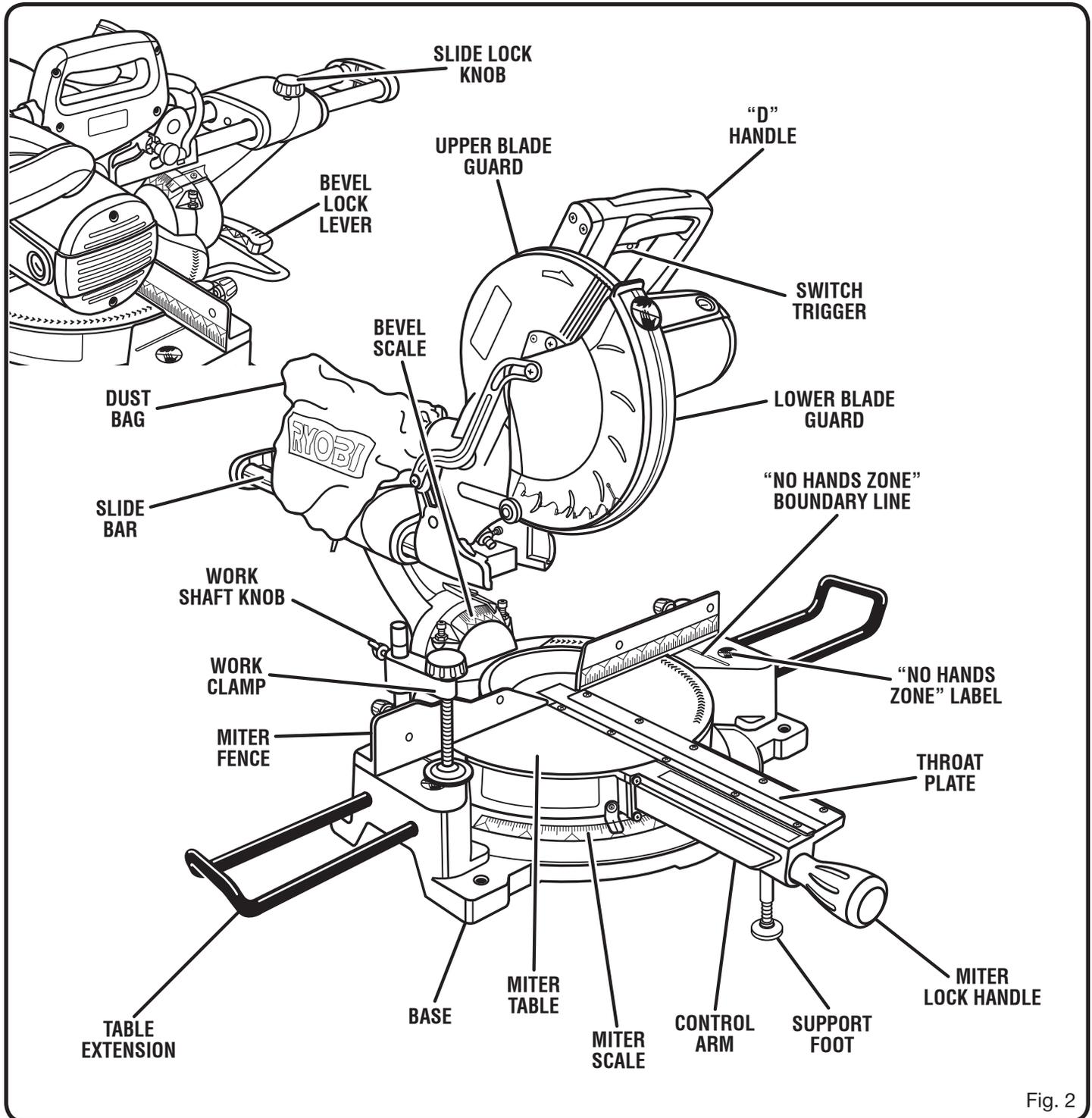


Fig. 2

# FEATURES

## KNOW YOUR COMPOUND MITER SAW

See Figure 2.

The safe use of this product requires an understanding of the information on the tool and in this operator's manual as well as a knowledge of the project you are attempting. Before use of this product, familiarize yourself with all operating features and safety rules.

### 10 in. BLADE

A 10 in. blade is included with the compound miter saw. It will cut materials up to 12 in. thick or 6 in. wide, depending upon the angle at which the cut is being made.

### 13 AMP MOTOR

The saw has a powerful 13 amp motor with sufficient power to handle tough cutting jobs. It is made with all ball bearings, and has externally accessible brushes for ease of servicing.

### BEVEL LOCK LEVER

The bevel lock lever securely locks your compound miter saw at desired bevel angles. The bevel lock lever is spring loaded and is released by pulling the lever away from the saw housing and ratcheting the lever.

### CARRYING HANDLE

See Figure 3.

For convenience when carrying or transporting the miter saw from one place to another, a carrying handle has been provided on top of the saw arm. To transport, turn off and unplug the saw, then lower the saw arm and lock it in the down position by pulling the lock pin away from the saw housing and rotating it until it clicks into the slot.

### ELECTRIC BRAKE

An electric brake has been provided to quickly stop blade rotation after the switch is released.

### LASER GUIDE

For more accurate cuts, a laser guide is included with the miter saw. When used properly, the laser guide makes accurate, precision cutting simple and easy.

### MITER FENCE

The miter fence on the compound miter saw has been provided to hold your workpiece securely against when making all cuts. The left side is larger providing additional support.

### MITER LOCK HANDLE

See Figure 2.

The miter lock handle securely locks the saw at desired miter angles.

### MITER SCALE

The miter scale has index points provided at 0°, 15°, 22.5°, 31.6°, 45°, and 60.°

### POSITIVE STOPS ON MITER TABLE

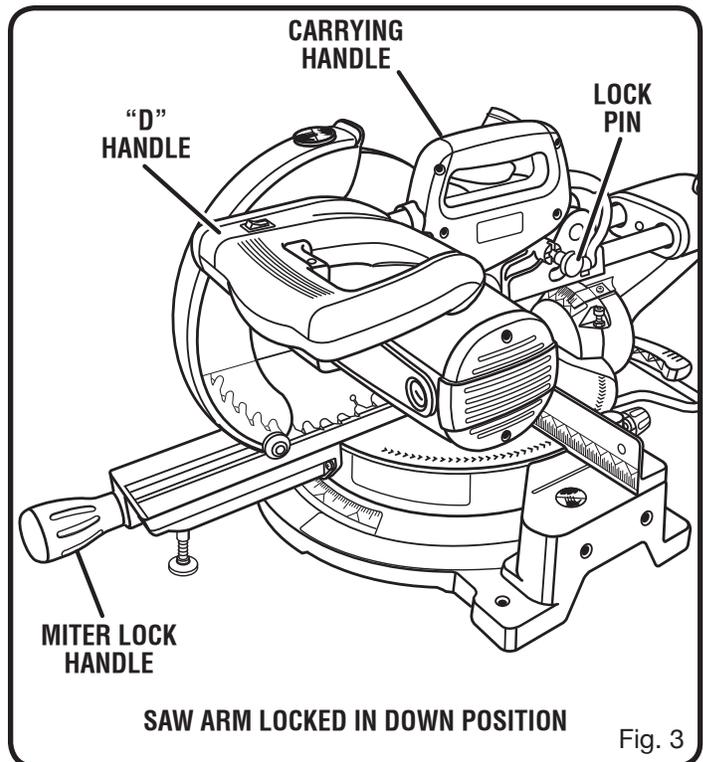
Positive stops have been provided at 0°, 15°, 22.5°, 30°, and 45° on both the left and right side of the miter table.

### SELF-RETRACTING LOWER BLADE GUARD

The lower blade guard is made of shock-resistant, see-through plastic that provides protection from each side of the blade. It retracts over the upper blade guard as the saw is lowered into the workpiece.

### SLIDE BAR

When unlocked, the saw arm will glide forward and backward the length of the slide bar for cutting various workpiece widths.



# FEATURES

## SLIDE LOCK KNOB

The slide lock knob locks and unlocks the sliding feature of this tool.

## SPINDLE LOCK BUTTON

See Figure 4.

The spindle lock button locks the spindle and stops the blade from rotating. Depress and hold the lock button while installing, changing, or removing blade.

## SWITCH TRIGGER

See Figure 5.

To prevent unauthorized use of the compound miter saw, disconnect it from the power supply and lock the switch in the off position. To lock the switch, install a padlock (not included) through the hole in the switch trigger. A lock with a long shackle up to 5/16 in. diameter may be used. When the lock is installed and locked, the switch is inoperable. Store the padlock key in another location.

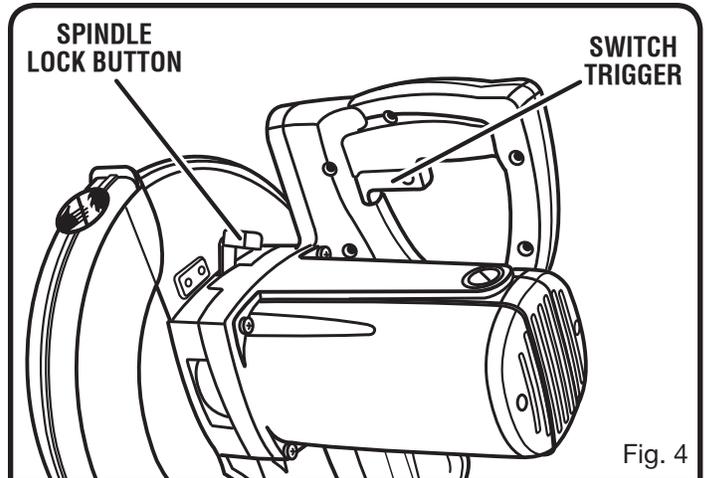


Fig. 4

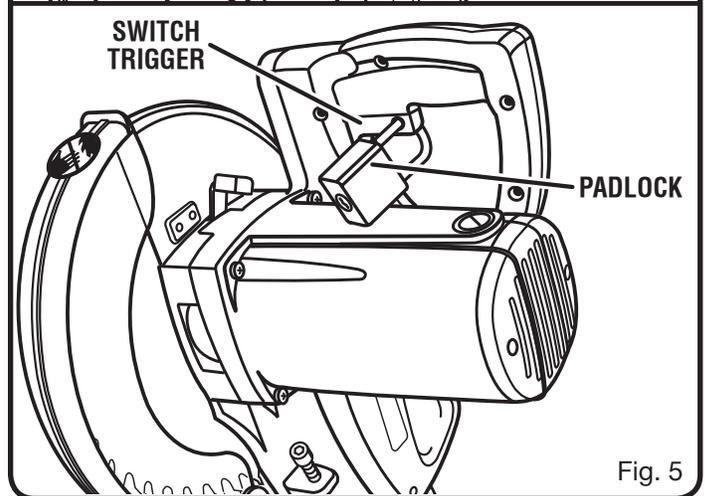


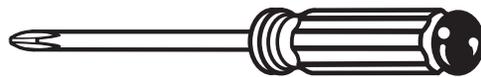
Fig. 5

# TOOLS NEEDED

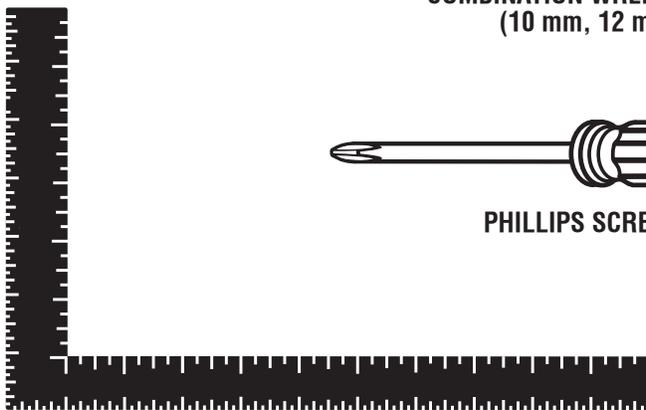
The following tools (not included) are needed for making adjustments or installing the blade:



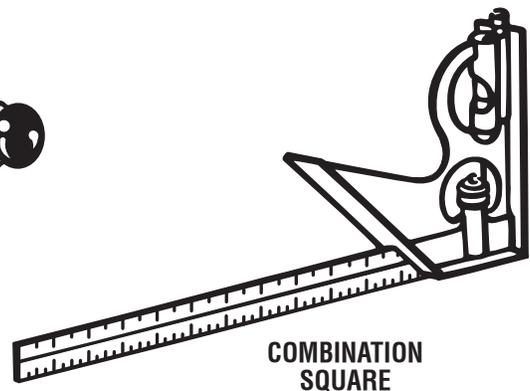
COMBINATION WRENCHES (2)  
(10 mm, 12 mm)



PHILLIPS SCREWDRIVER



FRAMING SQUARE



COMBINATION SQUARE

Fig. 6

# LOOSE PARTS LIST

The following items are included with your Compound Miter Saw:

- Dust Bag
- Table Extensions (2)
- Work Clamp
- Hex Key (3)
- Blade Wrench
- Blade
- Operator's Manual

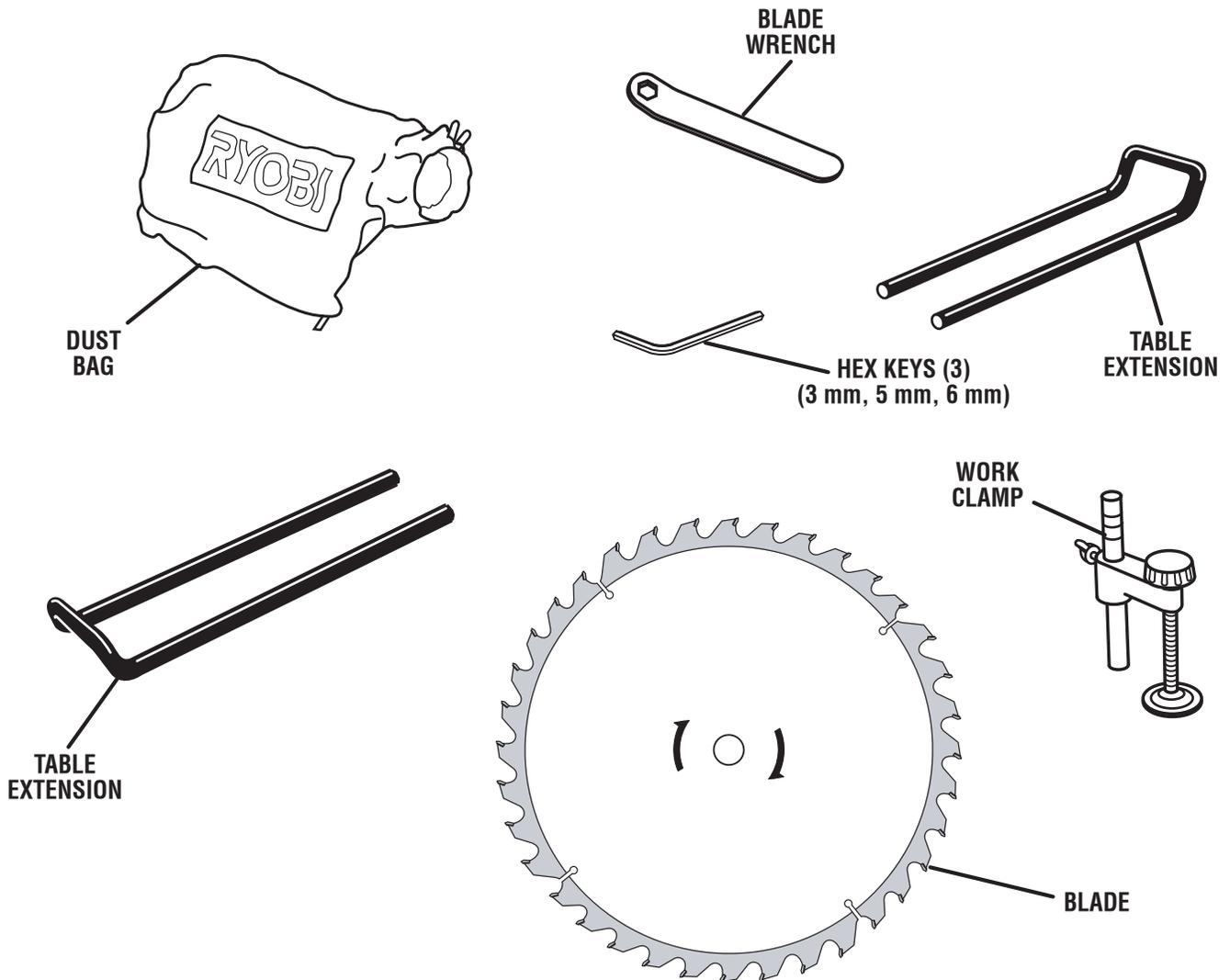


Fig. 7

## **⚠ WARNING:**

The use of attachments or accessories not listed might be hazardous and could cause serious personal injury.

# ASSEMBLY

## UNPACKING

This product requires assembly.

- Carefully lift saw from the carton by the carrying handle and the saw base, and place it on a level work surface.

### **⚠ WARNING:**

Do not use this product if any parts on the Loose Parts List are already assembled to your product when you unpack it. Parts on this list are not assembled to the product by the manufacturer and require customer installation. Use of a product that may have been improperly assembled could result in serious personal injury.

- This saw has been shipped with the saw arm secured in the down position. To release the saw arm, push down on the “D” handle, cut the tie-wrap, and pull out on the lock pin.
- Lift the saw arm by the handle. Hand pressure should remain on the “D” handle to prevent sudden rise upon release of the tie wrap.
- Inspect the tool carefully to make sure no breakage or damage occurred during shipping.
- Do not discard the packing material until you have carefully inspected and satisfactorily operated the product.
- 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 this manual.
- If any parts are damaged or missing, please call 1-800-525-2579 for assistance.

### **⚠ WARNING:**

If any parts are damaged or missing do not operate this product until the parts are replaced. Use of this product with damaged or missing parts could result in serious personal injury.

### **⚠ WARNING:**

Do not attempt to modify this product or create accessories not recommended for use with this tool. Any such alteration or modification is misuse and could result in a hazardous condition leading to possible serious personal injury.

### **⚠ WARNING:**

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

### **⚠ WARNING:**

Do not start the compound miter saw without checking for interference between the blade and the miter fence. Serious personal injury or damage to the blade could result if it strikes the miter fence during operation of the saw.

### **⚠ WARNING:**

This saw can tip over if the saw head is released suddenly and the saw is not secured to a work surface. ALWAYS secure this saw to a stable work surface before any use to avoid serious personal injury.

## MOUNTING HOLES

See Figure 8.

### **⚠ WARNING:**

Always make sure the compound miter saw is securely mounted to a workbench or an approved workstand. Failure to heed this warning can result in serious personal injury.

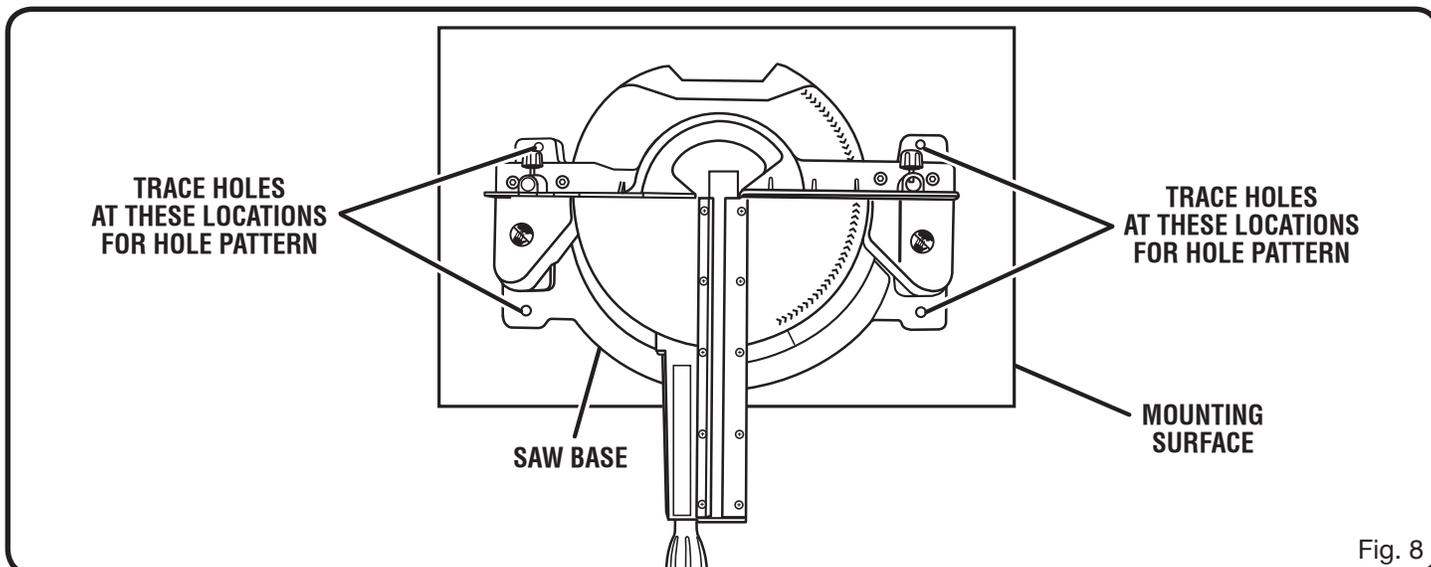


Fig. 8

# ASSEMBLY

The compound miter saw should be mounted to a firm supporting surface such as a workbench. Four bolt holes have been provided in the saw base for this purpose. Each of the four mounting holes should be bolted securely using 3/8 in. machine bolts, lock washers, and hex nuts (not included). Bolts should be of sufficient length to accommodate the saw base, lock washers, hex nuts, and the thickness of the workbench. Tighten all four bolts securely.

The hole pattern for mounting to a workbench is shown in figure 8. Carefully check the workbench after mounting to make sure that no movement can occur during use. If any tipping, sliding, or walking is noted, secure the workbench to the floor before operating.

**NOTE:** Many of the illustrations in this manual show only portions of the compound miter saw. This is intentional so that we can clearly show points being made in the illustrations. **Never operate the saw without all guards securely in place and in good operating condition.**

## LOCKING / UNLOCKING THE SAW ARM

See Figure 9.

### To unlock and raise the saw arm:

- Firmly grasp the “D” handle and apply downward pressure while at the same time pulling the lock pin out and away from the saw housing. Rotate lock pin 90° to lock (or unlock) the saw arm.
- Release the lock pin and slowly raise the saw arm.

### To lock the saw arm:

- Firmly grasp the “D” handle and apply downward pressure while at the same time pulling the lock pin out and away from the saw housing.
- Release the lock pin allowing it to lock the saw into place.

## DUST BAG

See Figure 10.

A dust bag is provided for use on this miter saw. It fits over the exhaust port on the upper blade guard.

**NOTE:** the exhaust port also accepts 1-1/4 in. vacuum hose.

### To install:

- Squeeze the two metal clips to open the mouth of the bag and slide it on the exhaust port.
- Release the clips. The metal ring in the bag should lock in between the grooves on the exhaust port.

### To remove the dust bag for emptying:

- Reverse the above procedure.

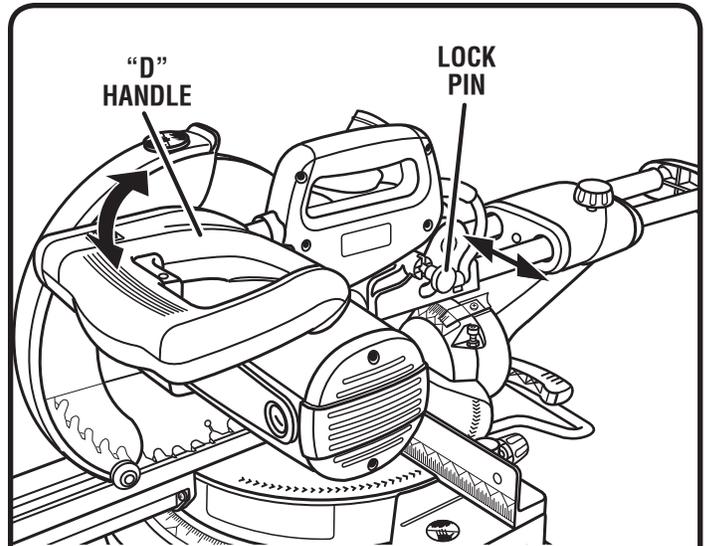


Fig. 9

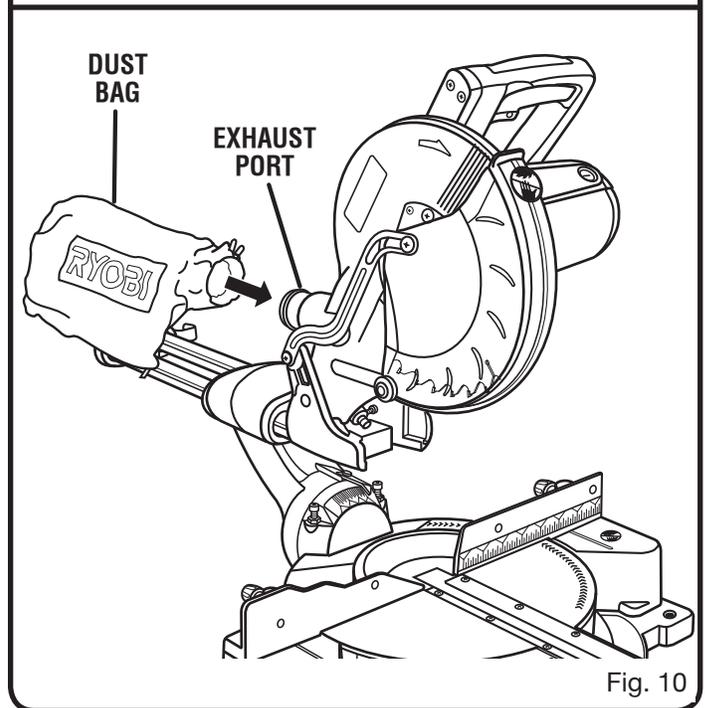


Fig. 10

# ASSEMBLY

## WORK CLAMP

See Figure 11.

### **⚠ WARNING:**

In some operations, the work clamp assembly may interfere with the operation of the blade guard assembly. Always make sure there is no interference with the blade guard prior to beginning any cutting operation to reduce the risk of serious personal injury.

The work clamp provides greater control by clamping the workpiece to the fence or the saw table. It also prevents the workpiece from creeping toward the saw blade. This is very helpful when cutting compound miters. Depending on the cutting operation and the size of the workpiece, it may be necessary to use a C-clamp instead of the work clamp to secure the workpiece prior to making the cut.

### **To install the work clamp:**

- Place the work clamp shaft in one of the holes located behind the miter fence. Tighten work clamp knob securely.
- Rotate the knob on the work clamp to move it up or down as needed.

## TABLE EXTENSIONS

See Figures 12 - 13.

To install table extensions, insert the ends of extensions into the holes in the sides of the base. Adjust the extensions to the desired length.

### **To secure table extensions:**

- Loosen lock nut.
- Tighten table extension screw securing the table extension.
- Retighten lock nut.
- Repeat for other extension.

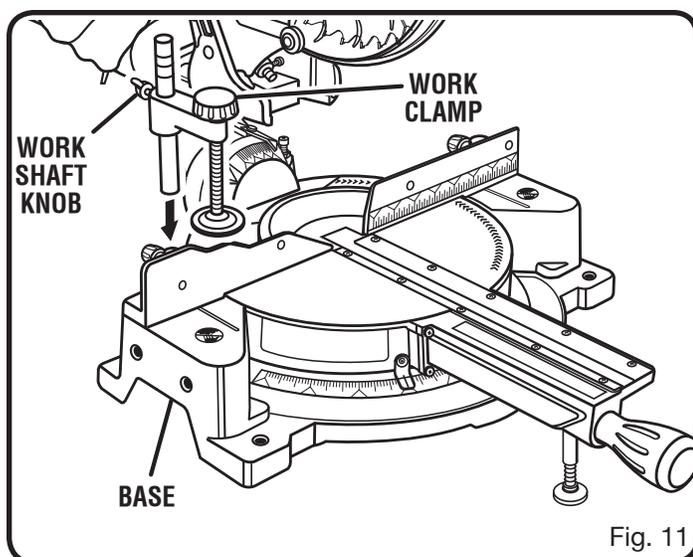


Fig. 11

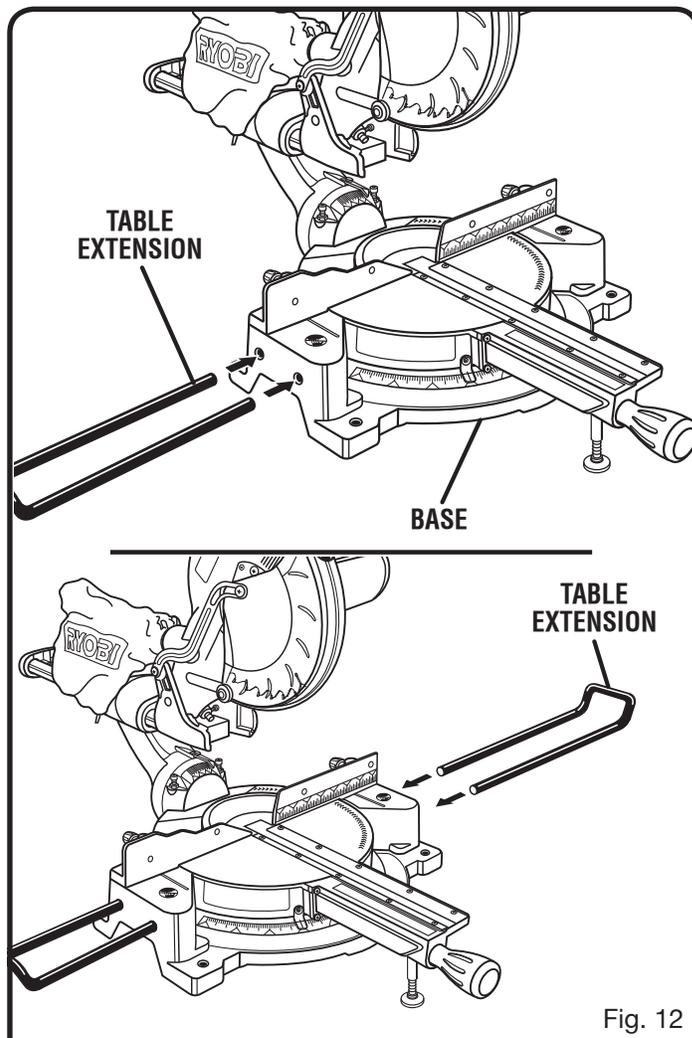


Fig. 12

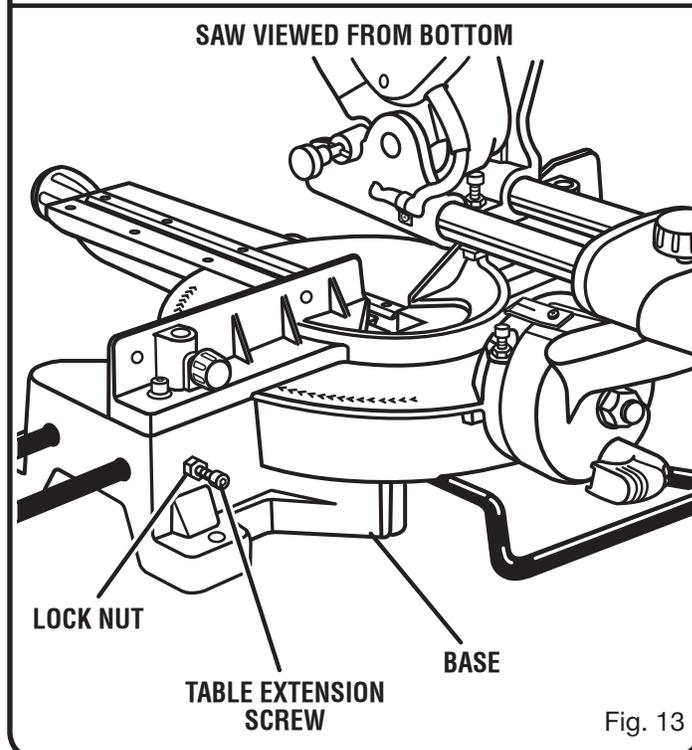


Fig. 13

# ASSEMBLY

## TO INSTALL / REPLACE THE BLADE

See Figures 14 - 15.

### **WARNING:**

A 10 in. blade is the maximum blade capacity of the saw. Never use a blade that is too thick to allow outer blade washer to engage with the flats on the spindle. Larger blades will come in contact with the blade guards, while thicker blades will prevent the blade bolt from securing the blade on the spindle. Either of these situations could result in a serious accident and can cause serious personal injury.

- Unplug the saw.
- Remove screws. Rotate lower blade guard and blade bolt cover up and back to expose the blade bolt.
- Depress the spindle lock button and rotate the blade bolt until the spindle locks.
- Using the wrench provided, loosen and remove the blade bolt.

**NOTE:** The blade bolt has left hand threads. Turn blade bolt clockwise to loosen.

- Remove the flat washer and the outer blade washer. **Do not** remove the inner blade washer.
- Wipe a drop of oil onto inner blade washer and outer blade washer where they contact the blade.

### **WARNING:**

If inner blade washer has been removed, replace it before placing blade on spindle. Failure to do so could cause an accident since blade will not tighten properly.

- Fit saw blade inside lower blade guard and onto spindle. The blade teeth point downward at the front of saw as shown in figure 15.
- Replace the outer blade washer and the flat washer. Double "D" flats on blade washers align with flats on spindle.
- Depress spindle lock button and replace blade bolt.

**NOTE:** The blade bolt has left hand threads. Turn blade bolt counterclockwise to tighten.

### **CAUTION:**

Always install the blade with the blade teeth and the arrow printed on the side of the blade pointing down at the front of the saw. The direction of blade rotation is also stamped with an arrow on the upper blade guard.

- Tighten blade bolt securely.
- Replace the lower blade guard and blade bolt cover.
- Replace screws and tighten securely.

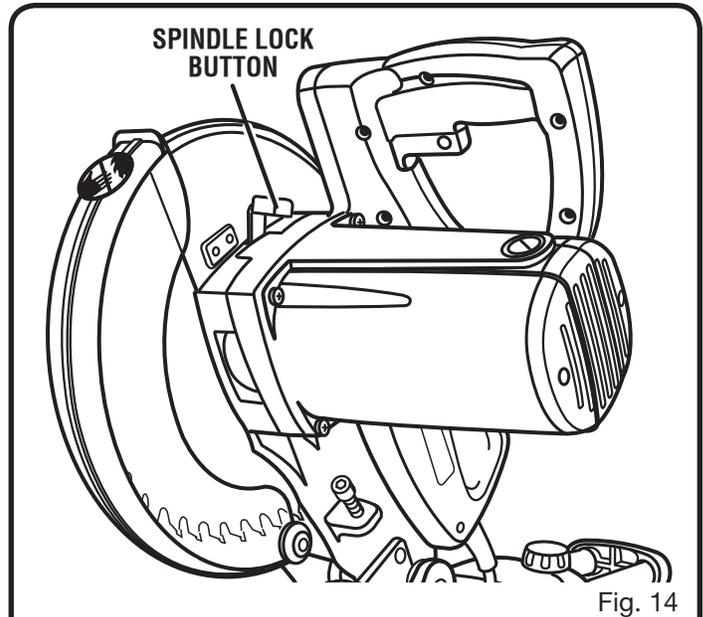


Fig. 14

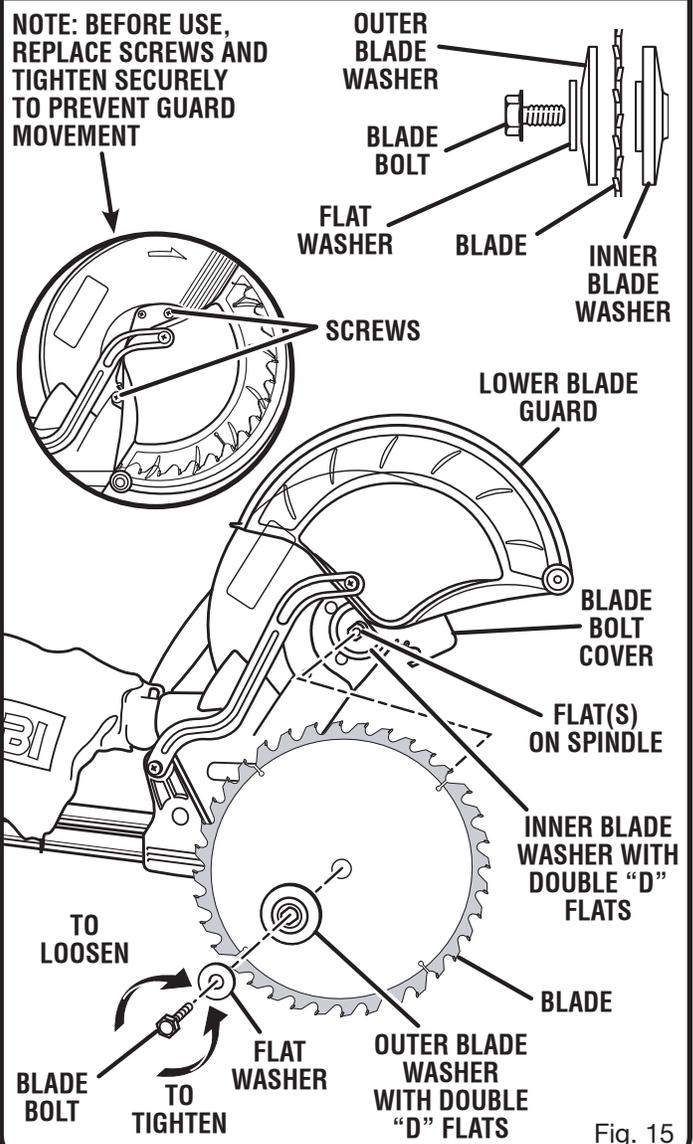


Fig. 15

# ASSEMBLY

## **WARNING:**

Make sure the spindle lock button is not engaged before reconnecting saw into power source. Never engage spindle lock button when blade is rotating.

## **DANGER:**

Laser radiation. Avoid direct eye contact with light source.

## **WARNING:**

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

## **ALIGNING THE LASER GUIDE LINE**

See Figure 16.

Lock the switch by installing a padlock (not included) through the hole in the switch trigger and closing the shackle.

Draw a line on the workpiece. When the laser guide switch is turned on it will generate a red line on the work surface. This line will let you see your mark and the laser guide line at the same time, and will assist you in lining up the mark for more accurate cutting of the workpiece.

Align the laser line and the mark with the blade at the uppermost position. Once both lines are in alignment, do not move the workpiece.

Remove the padlock then plug the saw into the power source. Make several practice cuts on different styles and thickness of material. Repeat the steps above as necessary.

### **Removing Your Mark:**

Position the laser line near the left edge of your mark on the work surface in order to remove the mark.

### **To Cut Your Mark:**

Position the laser line near or over your mark on the work surface in order to cut the mark.

### **To Leave Your Mark:**

Position the laser line near the right edge of your mark on the work surface in order to leave the mark.

After you have become familiar with using the laser guide, you will be able to remove, cut, or leave your mark on the work surface. Practice will teach you the correct position for aligning the laser line with your mark.

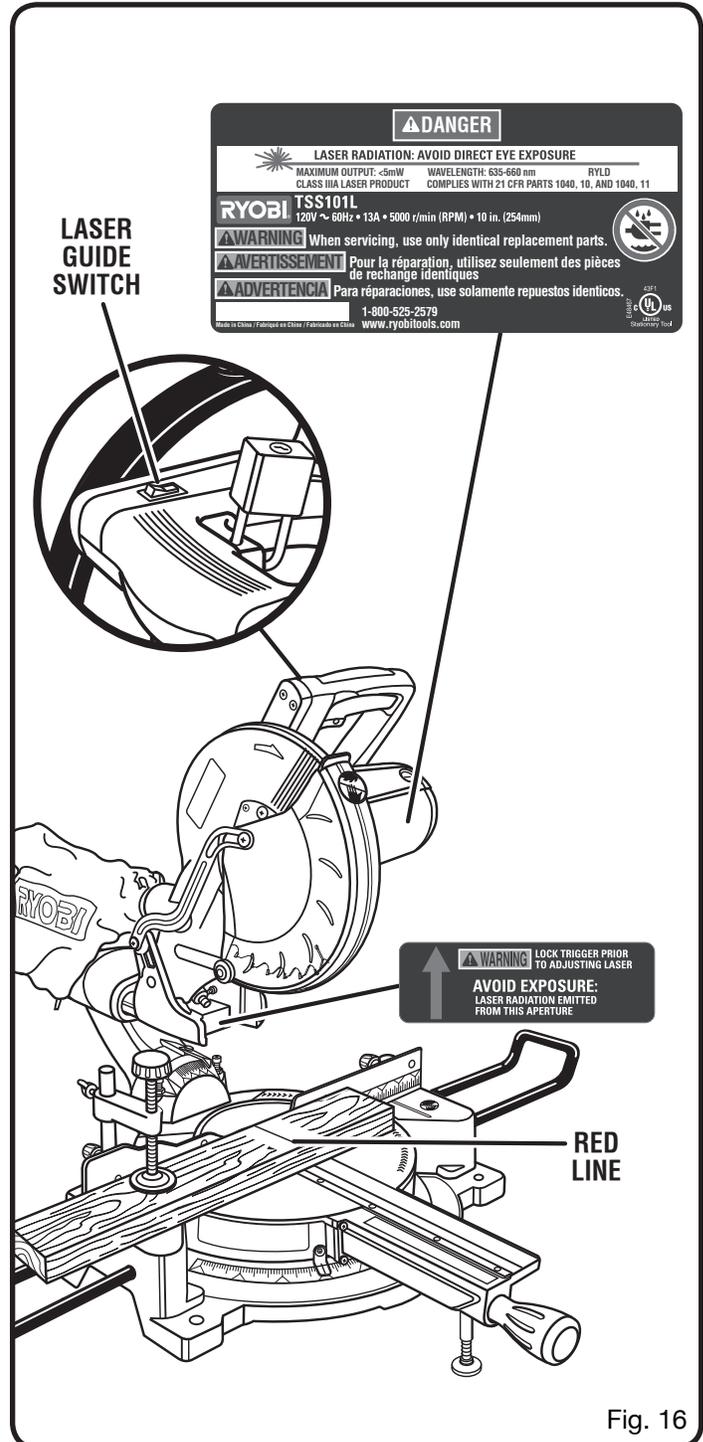


Fig. 16

# ASSEMBLY

## REMOVING / REPLACING THE THROAT PLATE

See Figure 17.

### **⚠ WARNING:**

The throat plate must be below the saw table. If the throat plate is too high or too low, the workpiece can catch on the uneven edges resulting in binding which could result in serious personal injury.

Never operate the saw without a throat plate installed.

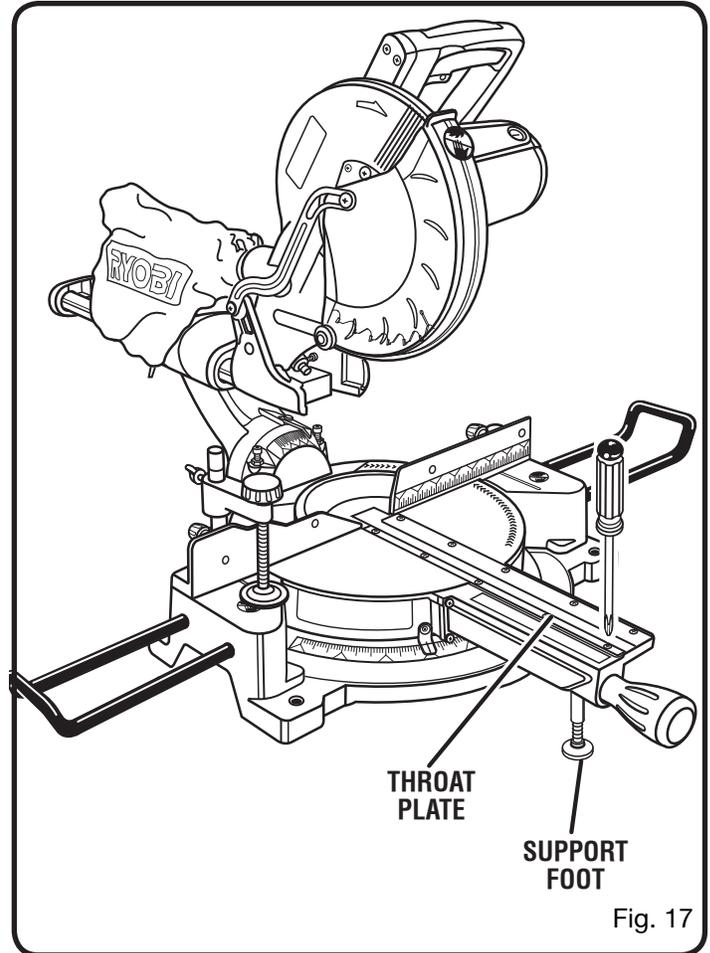
### **To remove / replace:**

- Unplug the saw.
- Remove the screws securing the right side of the zero clearance throat plate.
- Lift the throat plate from the saw. Repeat the above steps for the left side of the throat plate.
- To reinstall the throat plate, align the holes in the throat plate with the holes in the saw base.
- Retighten the screws, being careful not to overtighten which can cause the throat plate to bow or bend.

## ADJUSTING SUPPORT FOOT

See Figure 17.

When making sliding cuts, turn the support foot clockwise or counterclockwise depending on the amount of support needed.



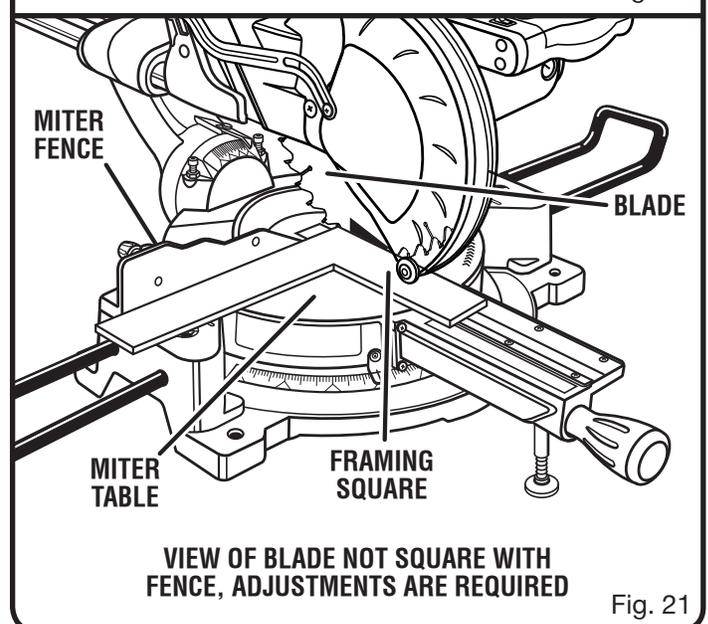
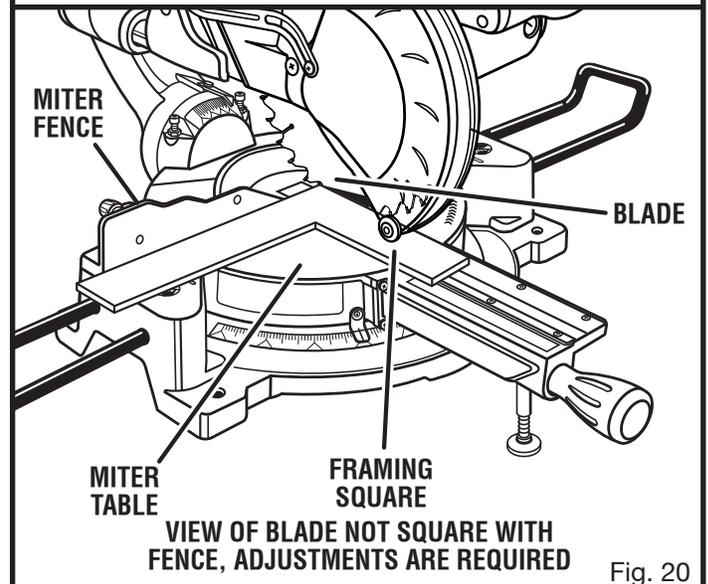
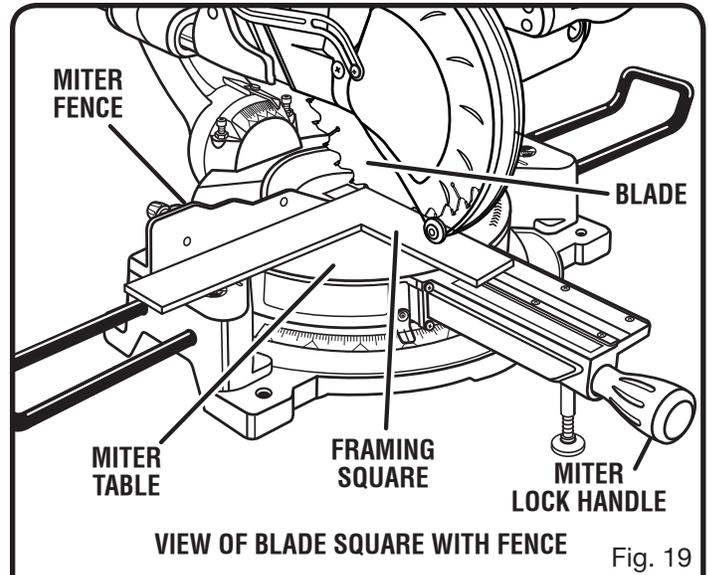
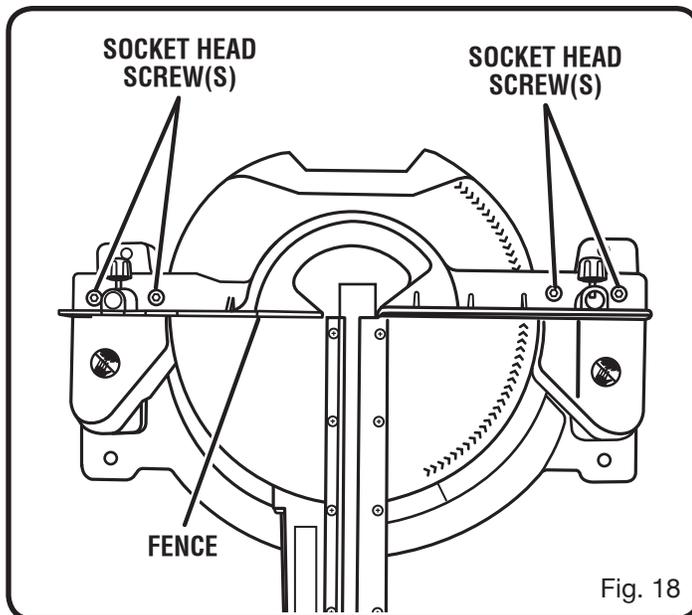
# ASSEMBLY

## SQUARING THE BLADE TO THE FENCE

See Figures 18 - 21.

- Unplug the saw.
  - Pull the saw arm all the way down and engage the lock pin to hold the saw arm in transport position.
  - Loosen the miter lock handle approximately one-half turn.
  - Rotate the miter table until the scale indicator on the control arm is positioned at 0°.
  - Securely tighten the miter lock handle.
  - Lay a framing square flat on the miter table. Place one leg of the square against the fence. Slide the other leg of the square against the flat part of saw blade.
- NOTE:** Make sure that the square contacts the flat part of the saw blade, not the blade teeth.
- The edge of the square and the saw blade should be parallel as shown in figure 19.
  - If the front or back edge of the saw blade angles away from the square as shown in figures 20 - 21, adjustments are needed.
  - Loosen the socket head screws that secure the miter fence to the miter table.
  - Rotate the miter fence left or right until the saw blade is parallel with the square.
  - Retighten the screws securely and recheck the blade-to-fence alignment.

The saw has two scale indicators, one on the bevel scale and one on the miter scale. After squaring adjustments have been made, it may be necessary to loosen the indicators screws and reset them to zero.



# ASSEMBLY

## SQUARING THE BLADE TO THE MITER TABLE

See Figures 22 - 25.

- Unplug the saw.
- Pull the saw arm all the way down and engage the lock pin to hold the saw arm in transport position.
- Loosen the miter lock handle approximately one-half turn.
- Rotate the miter table until the scale indicator on the control arm is positioned at 0°. Securely tighten the miter lock handle.
- Loosen the bevel lock lever and set saw arm at 0° bevel (blade set 90° to miter table). Tighten bevel lock lever.
- Place a combination square against the miter table and the flat part of saw blade.

**NOTE:** Make sure that the square contacts the flat part of the saw blade, not the blade teeth.

- Rotate the blade by hand and check the blade-to-table alignment at several points.
- The edge of the square and the saw blade should be parallel as shown in figure 23.
- If the top or bottom of the saw blade angles away from the square as shown in figures 24 and 25, adjustments are needed.
- Loosen the lock nut securing positive stop adjustment screw. Also loosen bevel lock lever.
- Adjust positive stop adjustment screw to bring saw blade into alignment with the square. See **Positive Stop Adjustment** in the *Adjustment* section.
- Retighten bevel lock lever. Next, retighten lock nut securing the positive stop adjustment screw. Recheck blade-to-table alignment.

**NOTE:** The above procedure can be used to check blade squareness of the saw blade to the miter table at both 0° and 45° angles.

The saw has two scale indicators, one on the bevel scale and one on the miter scale. After squaring adjustments have been made, it may be necessary to loosen the indicator screws and reset them to zero.

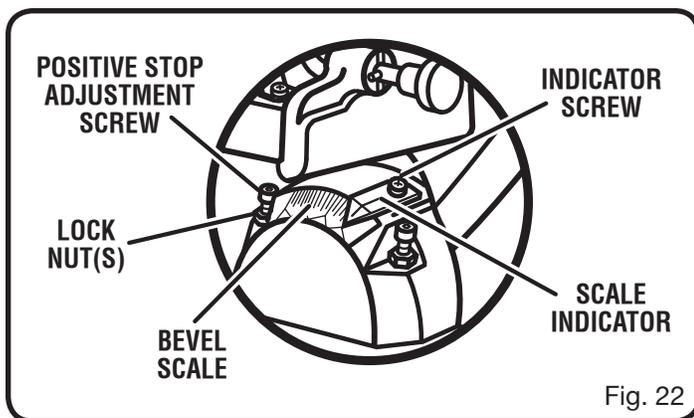


Fig. 22

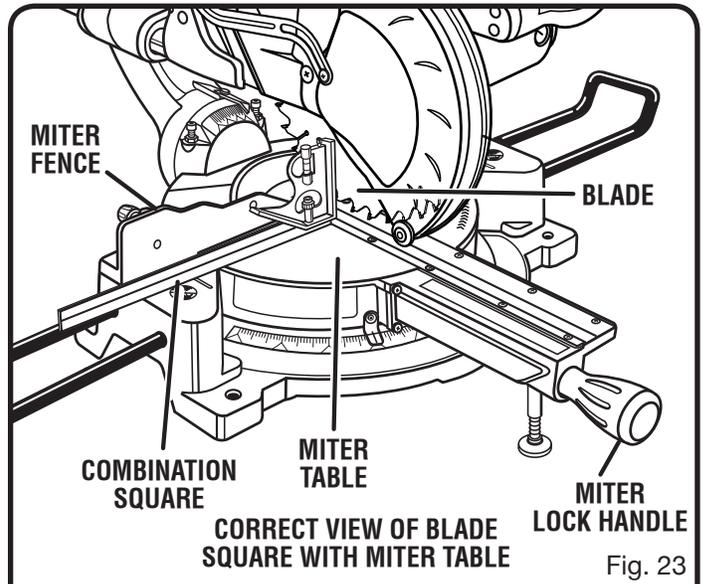


Fig. 23

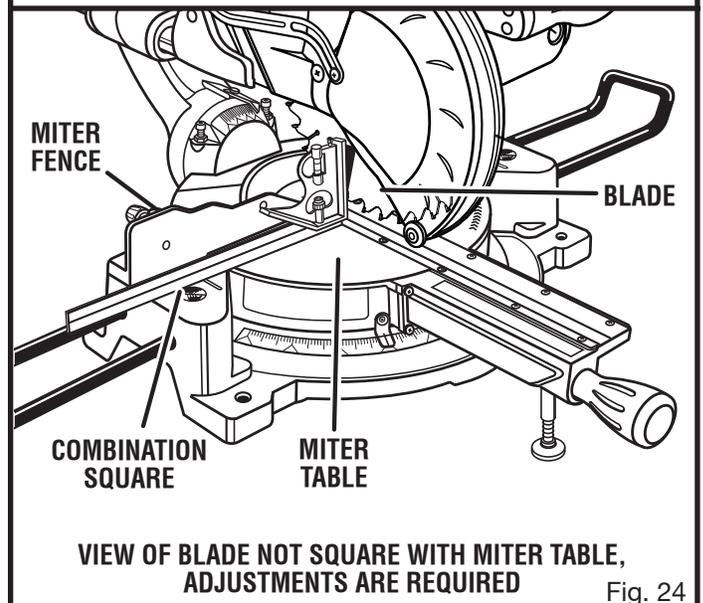


Fig. 24

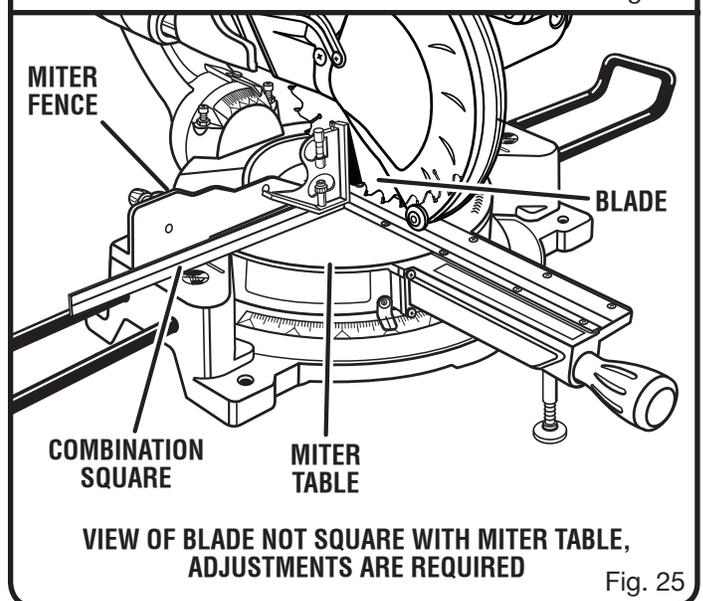


Fig. 25

# OPERATION

## **WARNING:**

Do not allow familiarity with tools to make you careless. Remember that a careless fraction of a second is sufficient to inflict serious injury.

## **WARNING:**

Always wear eye protection with side shields marked to comply with ANSI Z87.1. Failure to do so could result in objects being thrown into your eyes, resulting in possible serious injury.

## **WARNING:**

Do not use any attachments or accessories not recommended by the manufacturer of this tool. The use of attachments or accessories not recommended can result in serious personal injury.

## APPLICATIONS

This product has been designed only for the purposes listed below:

- Cross cutting wood and plastic (do not cut metals, ceramics or masonry products.)
- Cross cutting miters, joints, etc., for picture frames, moldings, door casings, and fine joinery
- Bevel and compound cutting
- Cross cutting wide workpieces

**NOTE:** The blade provided is fine for most wood cutting operations, but for fine joinery cuts or cutting plastic, use one of the accessory blades available from the Ryobi dealer.

## **WARNING:**

Before starting any cutting operation, clamp or bolt the compound miter saw to a workbench. Never operate the miter saw on the floor or in a crouched position. Failure to heed this warning can result in serious personal injury.

## **WARNING:**

To avoid serious personal injury, always tighten the miter lock handle securely before making a cut. Failure to do so could result in movement of the miter table while making a cut.

## **WARNING:**

To avoid serious personal injury, keep hands outside the no hands zone, at least 3 in. from the blade. Never perform any cutting operation freehand (without holding workpiece against the fence). The blade could grab the workpiece if it slips or twists.

## **CAUTION:**

Do not start the compound miter saw without checking for interference between the blade and the miter fence. Damage could result to the blade if it strikes the miter fence during operation of the saw.

## CUTTING WITH THE SLIDING COMPOUND MITER SAW

## **WARNING:**

When using a work clamp or C-clamp to secure your workpiece, clamp workpiece on one side of the blade only. The workpiece must remain free on one side of the blade to prevent the blade from binding in workpiece. The workpiece binding the blade will cause motor stalling and kickback. This situation could cause an accident resulting in possible serious personal injury.

## **WARNING:**

NEVER move the workpiece or make adjustment to any cutting angle while the saw is running and the blade is rotating. Any slip can result in contact with the blade causing serious personal injury.

## **WARNING:**

Do not try to cut narrow pieces using the sliding feature. Failure to heed this warning could result in serious personal injury.

# OPERATION

## TO MAKE NON-SLIDING CUTS

### **⚠ WARNING:**

Securely tighten the slide lock knob when making any non-sliding cuts. Failure to tighten the knob could result in the saw head moving during the cutting operation.

## TO MITER CUT / CROSS CUT

See Figures 26 - 27.

A cross cut is made by cutting across the grain of the workpiece. A straight cross cut is made with the miter table set at the 0° position. Miter cross cuts are made with the miter table set at some angle other than 0°.

- Raise saw arm to its full height.
- Loosen the miter lock handle. Rotate the miter lock handle approximately one-half turn to the left to loosen.
- Rotate the miter table until the pointer aligns with the desired angle on the miter scale. Securely tighten the miter lock handle.
- Place the workpiece flat on the miter table with one edge securely against the fence. If the board is warped, place the convex side against the fence. If the concave edge of a board is placed against the fence, the board could collapse on the blade at the end of the cut, jamming the blade. See Figures 37 - 38.
- When cutting long pieces of lumber or molding, support the opposite end of the stock with a roller stand or with a work surface level with the saw table. See Figure 32.
- Align cutting line on the workpiece with the edge of saw blade.
- Grasp the stock firmly with one hand and secure it against the fence. Use the work clamp or a C-clamp to secure the workpiece when possible.
- Before turning on the saw, perform a dry run of the cutting operation to make sure that no problems will occur when the cut is made.
- Grasp the saw handle firmly. Squeeze the switch trigger. Allow several seconds for the blade to reach maximum speed.
- Slowly lower the blade into and through the workpiece.
- Release the switch trigger and allow the saw blade to stop rotating before raising the blade out of workpiece and removing the workpiece from the miter table.

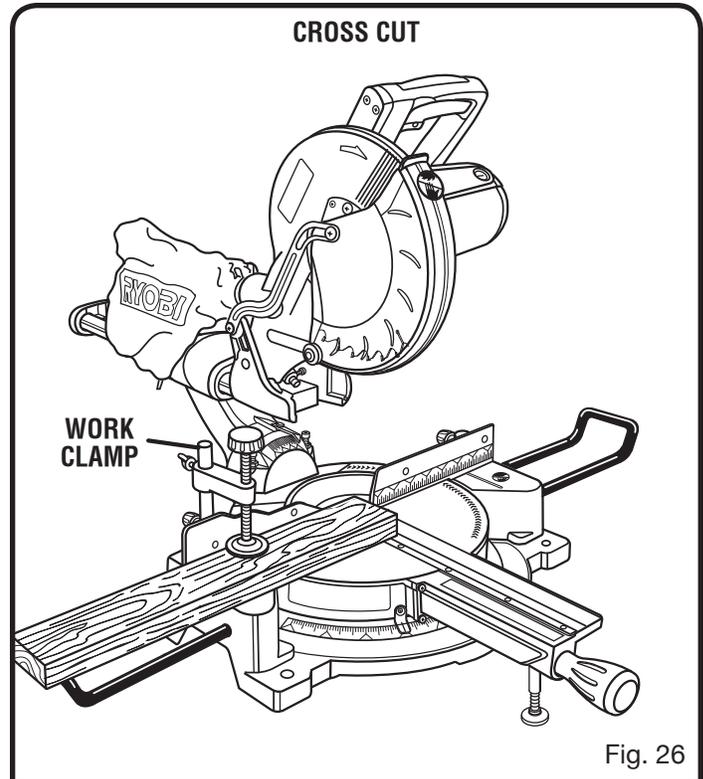


Fig. 26

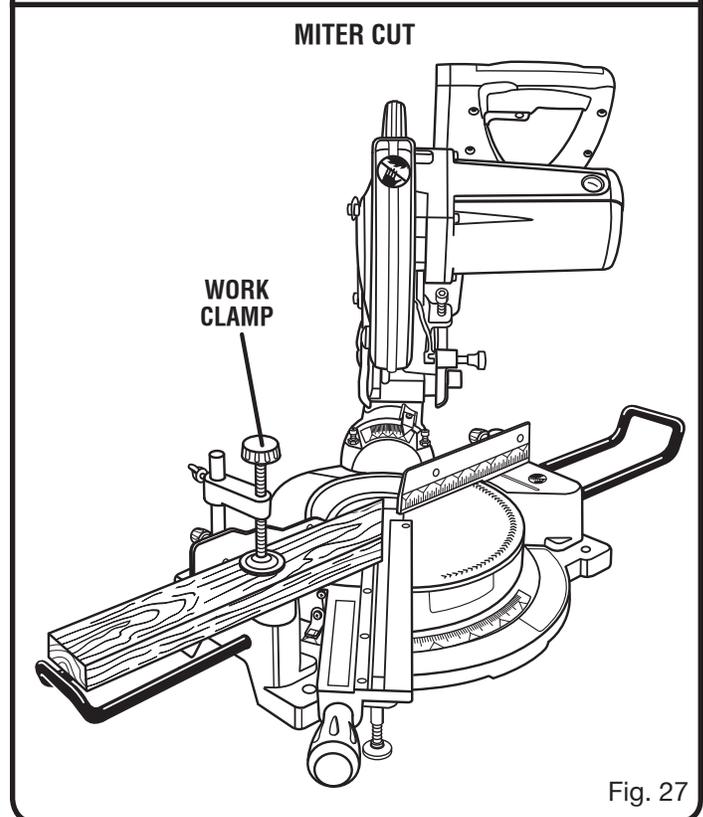


Fig. 27

# OPERATION

## TO BEVEL CUT

See Figures 28 - 29.

A bevel cut is made by cutting across the grain of the workpiece with the blade angled to the workpiece. A straight bevel cut is made with the miter table set at the zero degree position and the blade set at an angle between  $0^{\circ}$  and  $45^{\circ}$ .

- Pull out the lock pin and lift saw arm to its full height.
- Loosen the miter lock handle. Rotate the miter lock handle approximately one-half turn to the left to loosen.
- Rotate the control arm until the pointer aligns with zero on the miter scale.
- Tighten the miter lock handle securely.
- Loosen the bevel lock lever and move the saw arm to the left to the desired bevel angle.
- Bevel angles can be set from  $0^{\circ}$  to  $45^{\circ}$ .
- Align the indicator point for the desired angle.
- Once the saw arm has been set at the desired angle, securely tighten the bevel lock lever.
- Place the workpiece flat on the miter table with one edge securely against the fence. If the board is warped, place the convex side against the fence. If the concave edge of a board is placed against the fence, the board could collapse on the blade at the end of the cut, jamming the blade. See Figures 37 - 38.
- When cutting long pieces of lumber or molding, support the opposite end of the stock with a roller stand or with a work surface level with the saw table. See Figure 32.
- Align the cutting line on the workpiece with the edge of saw blade.
- Grasp the stock firmly with one hand and secure it against the fence. Use the optional work clamp or a C-clamp to secure the workpiece when possible.
- Before turning on the saw, perform a dry run of the cutting operation just to make sure that no problems will occur when the cut is made.
- Grasp the saw handle firmly then squeeze the switch trigger. Allow several seconds for the blade to reach maximum speed.
- Slowly lower the blade into and through the workpiece.
- Release the switch trigger and allow the saw blade to stop rotating before raising the blade out of workpiece. Wait until the electric brake stops blade from turning before removing the workpiece from miter table.

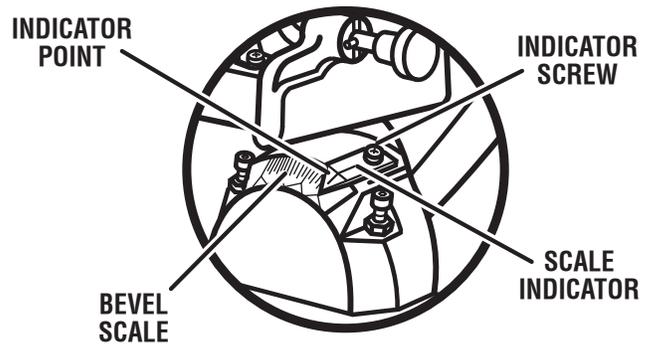


Fig. 28

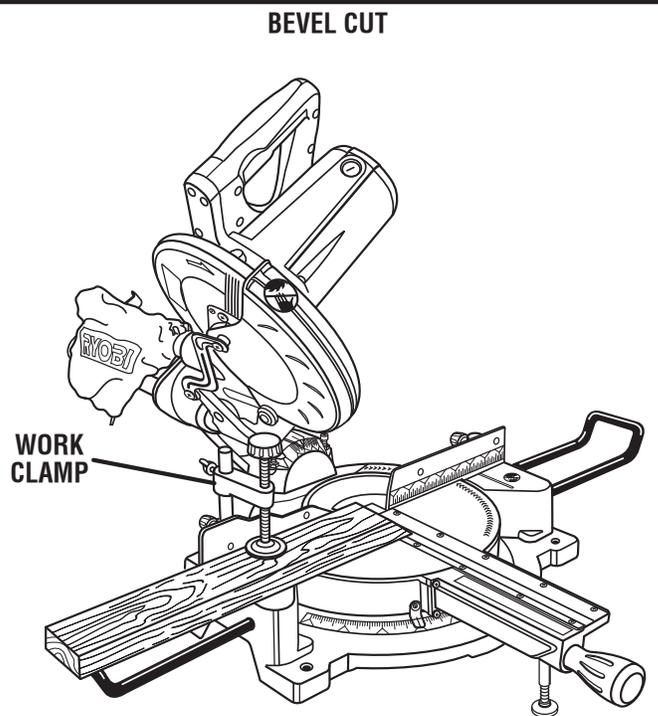


Fig. 29

# OPERATION

## TO COMPOUND MITER CUT

See Figures 30 - 31.

A compound miter cut is a cut made using a miter angle and a bevel angle at the same time. This type of cut is used to make picture frames, cut molding, make boxes with sloping sides, and for certain roof framing cuts.

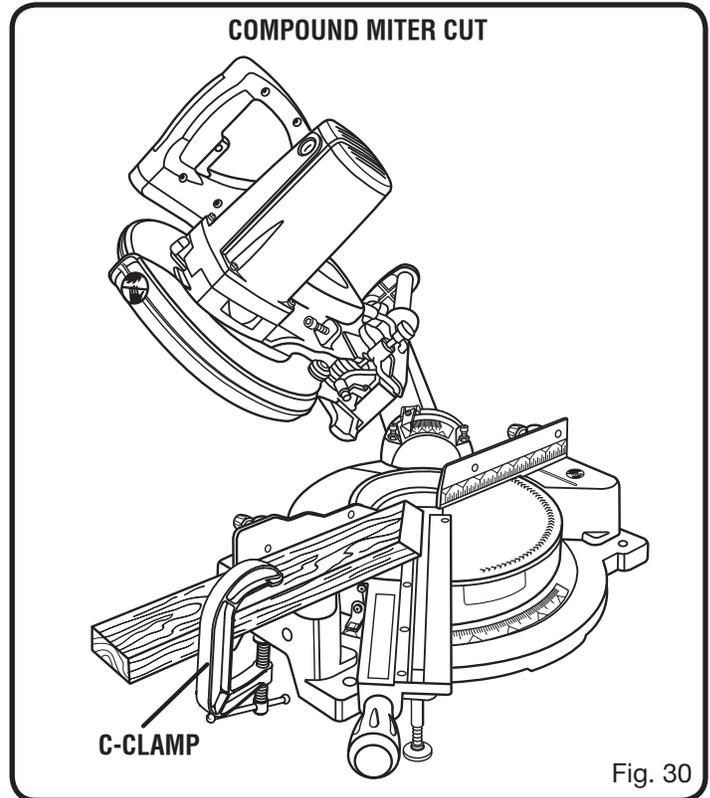
To make this type of cut the control arm on the miter table must be rotated to the correct angle and the saw arm must be tilted to the correct bevel angle. Care should always be taken when making compound miter setups due to the interaction of the two angle settings.

Adjustments of miter and bevel settings are interdependent with one another. Each time you adjust the miter setting you change the effect of the bevel setting. Also, each time you adjust the bevel setting you change the effect of the miter setting.

It may take several settings to obtain the desired cut. The first angle setting should be checked after setting the second angle, since adjusting the second angle affects the first.

Once the two correct settings for a particular cut have been obtained, always make a test cut in scrap material before making a finish cut in good material.

- Pull out the lock pin and lift saw arm to its full height.
- Loosen the miter lock handle. Rotate the miter lock handle approximately one-half turn to the left to loosen.
- Rotate the control arm until the pointer aligns with the desired angle on the miter scale.
- Tighten the miter lock handle securely.
- Loosen the bevel lock lever and move the saw arm to the left to the desired bevel angle.
- Bevel angles can be set from 0° to 45°.
- Once the saw arm has been set at the desired angle, securely tighten the bevel lock lever.
- Recheck miter angle setting. Make a test cut in scrap material.
- Place the workpiece flat on the miter table with one edge securely against the fence. If the board is warped, place the convex side against the fence. If the concave edge of a board could collapse on the blade at the end of the cut, jamming the blade. See Figures 37 - 38.
- When cutting long pieces of lumber or molding, support the opposite end of the stock with a roller stand or with a work surface level with the saw table. See Figure 32.



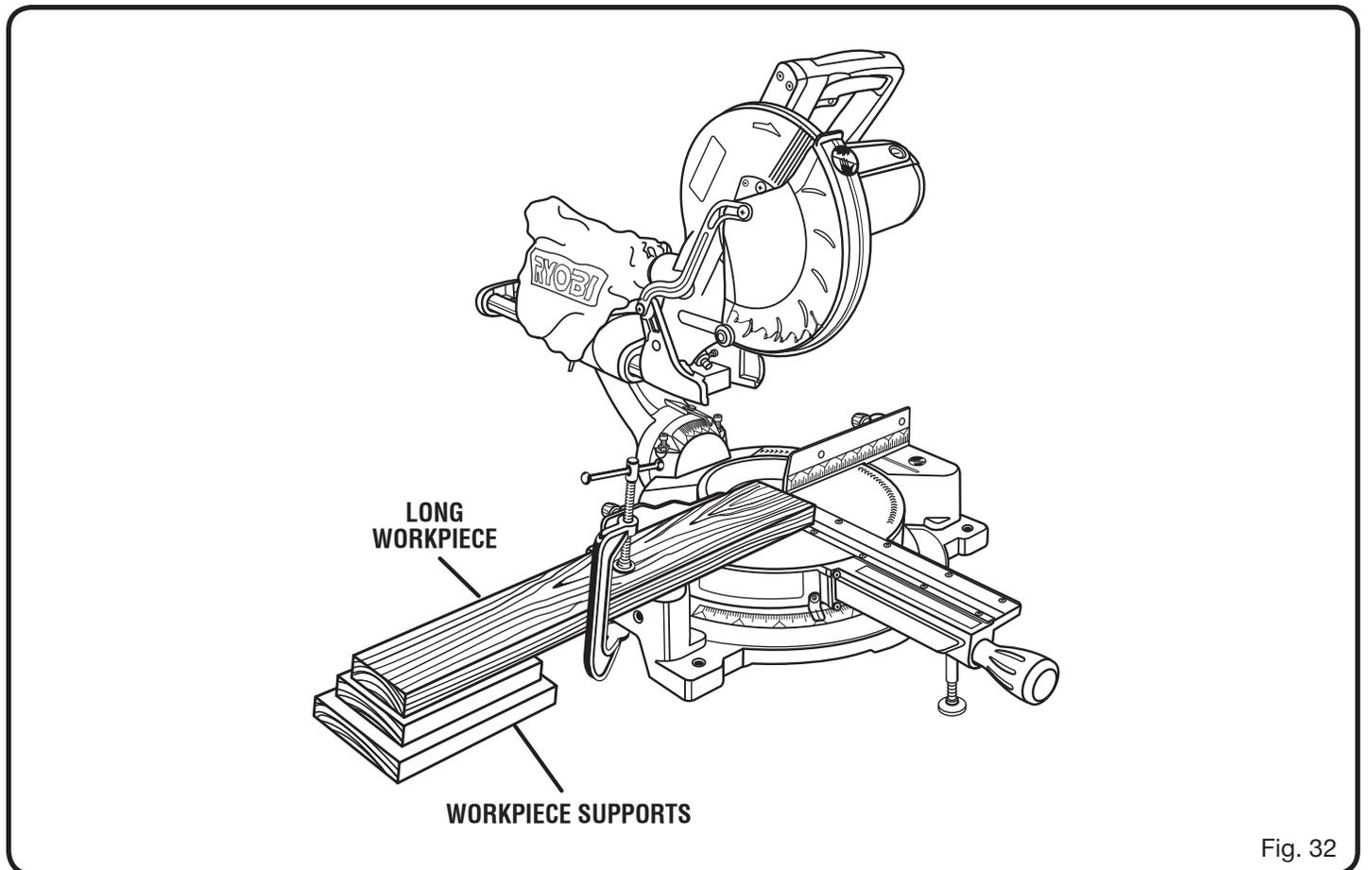
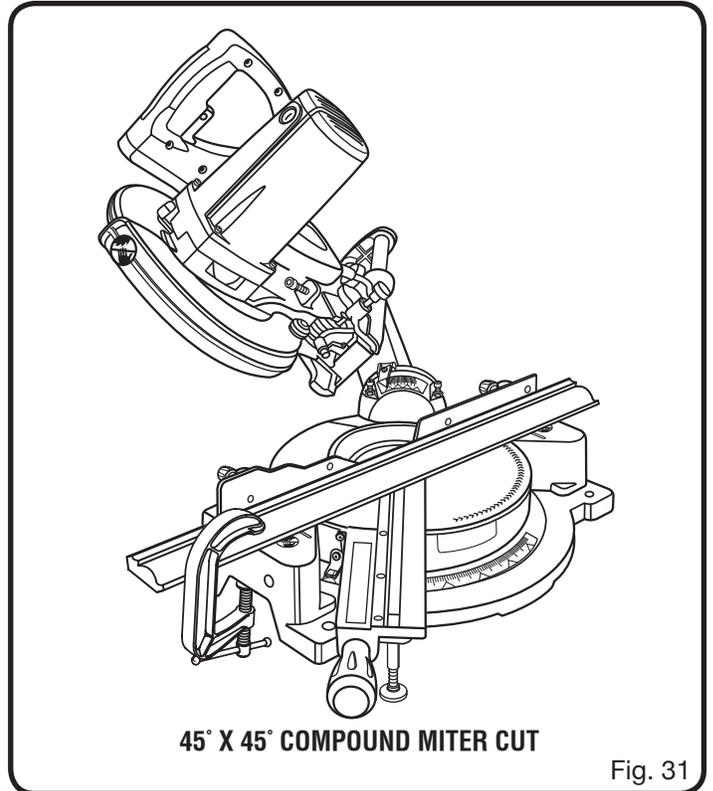
- Align the cutting line on the workpiece with the edge of saw blade.
- Grasp the stock firmly with one hand and secure it against the fence. Use the optional work clamp or a C-clamp to secure the workpiece when possible.
- Before turning on the saw, perform a dry run of the cutting operation just to make sure that no problems will occur when the cut is made.
- Grasp the saw handle firmly then squeeze the switch trigger. Allow several seconds for the blade to reach maximum speed.
- Slowly lower the blade into and through the workpiece.
- Release the switch trigger and allow the saw blade to stop rotating before raising the blade out of workpiece. Wait until the electric brake stops blade from turning before removing the workpiece from miter table.

# OPERATION

## TO SUPPORT LONG WORKPIECES

See Figure 32.

Long workpieces need extra supports. Supports should be placed along the workpiece so it does not sag. The support should let the workpiece lay flat on the base of the saw and work table during the cutting operation. Use the optional work clamp or a C-clamp to secure the workpiece.



# OPERATION

## WARNING:

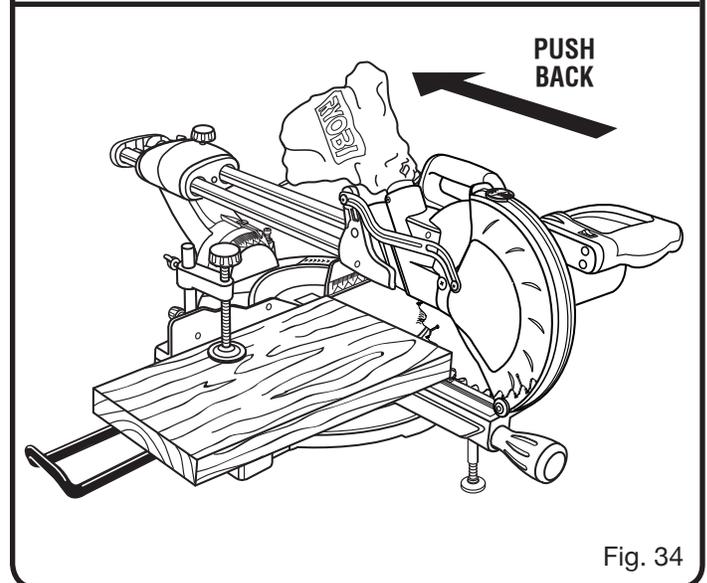
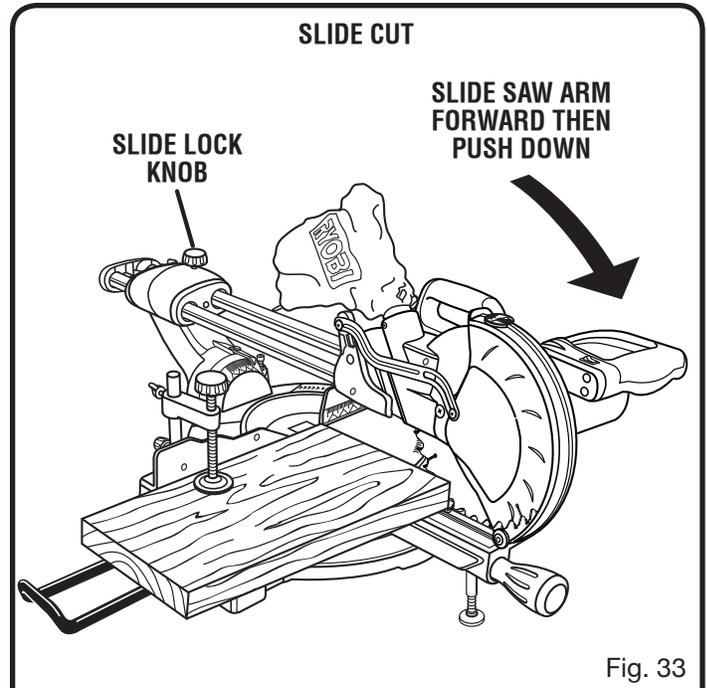
Never make a cut by pulling the saw toward you as the blade can climb on top of the workpiece and come toward you. Failure to heed this warning could result in serious personal injury.

## TO SLIDE CUT

See Figures 33 - 34.

The sliding feature will cut workpieces 12 in. wide by 3-1/2 in. thick. With the saw off, pull the saw arm forward. Turn the saw on (let blade reach maximum speed), push the blade down cutting into the workpiece then back toward the rear of the saw to make a cut. Cuts are made by pushing the saw blade away from you and toward the bevel scale at the back of the saw stopping when the full rear position has been reached after each cut. When the saw is running (turned on), **NEVER** pull the saw blade toward you or toward the front of the saw.

- Raise saw arm to its full height.
- Place the workpiece flat on the miter table with one edge securely against the fence. If the board is warped, place the convex side against the fence. If the concave edge of a board is placed against the fence, the board could collapse on the blade at the end of the cut, jamming the blade. See Figures 37 - 38.
- When cutting long pieces of lumber or molding, support the opposite end of the stock with a roller stand or with a work surface level with the saw table. See Figure 32.
- Align the cutting line on the workpiece with the edge of saw blade.
- Loosen the slide lock knob by turning the knob counter-clockwise.
- Grasp the stock firmly with one hand and secure it against the fence. Use the work clamp or a C-clamp to secure the workpiece when possible.
- Before turning on the saw, perform a dry run of the cutting operation to make sure that no problems will occur when the cut is made.
- With the saw off, grasp the saw handle firmly then pull the saw forward until the blade arbor (center of the saw blade) is over the front of the workpiece.
- Squeeze the switch trigger. Allow several seconds for the blade to reach maximum speed.
- Slowly lower the blade into and through the front edge of the workpiece.
- Push the saw handle away from you and toward the bevel scale at the back of the saw.



- Release the switch trigger and allow the saw blade to stop rotating before raising the blade out of workpiece and removing the workpiece from miter table.

**NOTE:** A cross cut is made by cutting across the grain of the workpiece. A straight cross cut is made with the miter table set at the 0° position. Miter cross cuts are made with the miter table set at some angle other than 0°.

# OPERATION

## MAKING AN AUXILIARY FENCE

See Figure 35.

Certain unusual cuts may benefit from a thicker miter fence (auxiliary fence) due to the size and position of the workpiece. The holes provided in the miter fence are there for just this purpose. The miter fence holes are used to secure the auxiliary fence which requires a piece of wood 1/2 in. thick, 3-1/2 in. high, and 23 in. long to make.

**NOTE:** The auxiliary fence can only be used when the bevel is set at 0°. When making a bevel cut, the auxiliary fence **MUST** be removed.

### To attach the auxiliary fence to the saw:

- Place the wood against the miter fence and mark the hole location from behind the fence using a pencil.
- Drill holes through the wood then countersink the holes on the front of the wood.
- Secure the wood to the miter fence using flat head screws.
- With the miter table set at 0°, make a complete cut through the auxiliary fence to create the blade slot.

**NOTE:** Check for interference between the auxiliary fence and the lower blade guard. Correct any interference before proceeding.

- Make a full 45° left miter cut and a 45° right miter cut through the completed auxiliary fence.

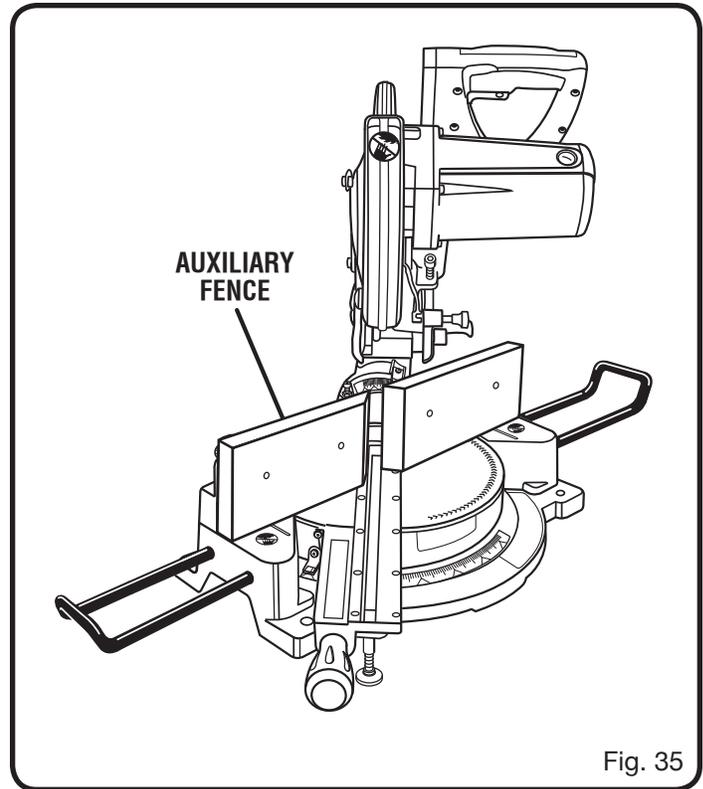


Fig. 35

# OPERATION

## CUTTING COMPOUND MITERS

To aid in making the correct settings, the compound angle setting chart below has been provided. Since compound cuts are the most difficult to accurately obtain, trial cuts should be made in scrap material, and much thought and planning made, prior to making the required cut.

PITCH OF SIDE	NUMBER OF SIDES						
	4	5	6	7	8	9	10
0°	M- 45.00° B- 0.00°	M- 36.00° B- 0.00°	M- 30.00° B- 0.00°	M- 25.71° B- 0.00°	M- 22.50° B- 0.00°	M- 20.00° B- 0.00°	M- 18.00° B- 0.00°
5°	M- 44.89° B- 3.53°	M- 35.90° B- 2.94°	M- 29.91° B- 2.50°	M- 25.63° B- 2.17°	M- 22.42° B- 1.91°	M- 19.93° B- 1.71°	M- 17.94° B- 1.54°
10°	M- 44.56° B- 7.05°	M- 35.58° B- 5.86°	M- 29.62° B- 4.98°	M- 25.37° B- 4.32°	M- 22.19° B- 3.81°	M- 19.72° B- 3.40°	M- 17.74° B- 3.08°
15°	M- 44.01° B- 10.55°	M- 35.06° B- 8.75°	M- 29.15° B- 7.44°	M- 24.95° B- 6.45°	M- 21.81° B- 5.68°	M- 19.37° B- 5.08°	M- 17.42° B- 4.59°
20°	M- 43.22° B- 14.00°	M- 34.32° B- 11.60°	M- 28.48° B- 9.85°	M- 24.35° B- 8.53°	M- 21.27° B- 7.52°	M- 18.88° B- 6.72°	M- 16.98° B- 6.07°
25°	M- 42.19° B- 17.39°	M- 33.36° B- 14.38°	M- 27.62° B- 12.20°	M- 23.56° B- 10.57°	M- 20.58° B- 9.31°	M- 18.26° B- 8.31°	M- 16.41° B- 7.50°
30°	M- 40.89° B- 20.70°	M- 32.18° B- 17.09°	M- 26.57° B- 14.48°	M- 22.64° B- 12.53°	M- 19.73° B- 11.03°	M- 17.50° B- 9.85°	M- 15.72° B- 8.89°
35°	M- 39.32° B- 23.93°	M- 30.76° B- 19.70°	M- 25.31° B- 16.67°	M- 21.53° B- 14.41°	M- 18.74° B- 12.68°	M- 16.60° B- 11.31°	M- 14.90° B- 10.21°
40°	M- 37.45° B- 27.03°	M- 29.10° B- 22.20°	M- 23.86° B- 18.75°	M- 20.25° B- 16.19°	M- 17.60° B- 14.24°	M- 15.58° B- 12.70°	M- 13.98° B- 11.46°
45°	M- 35.26° B- 30.00°	M- 27.19° B- 24.56°	M- 22.21° B- 20.70°	M- 18.80° B- 17.87°	M- 16.32° B- 15.70°	M- 14.43° B- 14.00°	M- 12.94° B- 12.62°
50°	M- 32.73° B- 32.80°	M- 25.03° B- 26.76°	M- 20.36° B- 22.52°	M- 17.20° B- 19.41°	M- 14.91° B- 17.05°	M- 13.17° B- 15.19°	M- 11.80° B- 13.69°
55°	M- 29.84° B- 35.40°	M- 22.62° B- 28.78°	M- 18.32° B- 24.18°	M- 15.44° B- 20.82°	M- 13.36° B- 18.27°	M- 11.79° B- 16.27°	M- 10.56° B- 14.66°
60°	M- 26.57° B- 37.76°	M- 19.96° B- 30.60°	M- 16.10° B- 25.66°	M- 13.54° B- 22.07°	M- 11.70° B- 19.35°	M- 10.31° B- 17.23°	M- 9.23° B- 15.52°
65°	M- 22.91° B- 39.86°	M- 17.07° B- 32.19°	M- 13.71° B- 26.95°	M- 11.50° B- 23.16°	M- 9.93° B- 20.29°	M- 8.74° B- 18.06°	M- 7.82° B- 16.26°
70°	M- 18.88° B- 41.64°	M- 13.95° B- 33.53°	M- 11.17° B- 28.02°	M- 9.35° B- 24.06°	M- 8.06° B- 21.08°	M- 7.10° B- 18.75°	M- 6.34° B- 16.88°
75°	M- 14.51° B- 43.08°	M- 10.65° B- 34.59°	M- 8.50° B- 28.88°	M- 7.10° B- 24.78°	M- 6.12° B- 21.69°	M- 5.38° B- 19.29°	M- 4.81° B- 17.37°
80°	M- 9.85° B- 44.14°	M- 7.19° B- 35.37°	M- 5.73° B- 29.50°	M- 4.78° B- 25.30°	M- 4.11° B- 22.14°	M- 3.62° B- 19.68°	M- 3.23° B- 17.72°
85°	M- 4.98° B- 44.78°	M- 3.62° B- 35.84°	M- 2.88° B- 29.87°	M- 2.40° B- 25.61°	M- 2.07° B- 22.41°	M- 1.82° B- 19.92°	M- 1.62° B- 17.93°
90°	M- 0.00° B- 45.00°	M- 0.00° B- 36.00°	M- 0.00° B- 30.00°	M- 0.00° B- 25.71°	M- 0.00° B- 22.50°	M- 0.00° B- 20.00°	M- 0.00° B- 18.00°

Each B (Bevel) and M (Miter) Setting is Given to the Closest 0.005°.

### COMPOUND-ANGLE SETTINGS FOR POPULAR STRUCTURES

# OPERATION

## CUTTING CROWN MOLDING

The compound miter saw does an excellent job of cutting crown molding. In general, compound miter saws do a better job of cutting crown molding than any other tool made.

In order to fit properly, crown molding must be compound mitered with extreme accuracy.

The two contact surfaces on a piece of crown molding that fit flat against the ceiling and the wall of a room are at angles that, when added together, equal exactly  $90^\circ$ . Most crown molding has a top rear angle (the section that fits flat against the ceiling) of  $52^\circ$  and a bottom rear angle (the section that fits flat against the wall) of  $38^\circ$ .

## LAYING MOLDING FLAT ON THE MITER TABLE

See Figure 36.

To use this method for accurately cutting crown molding for a  $90^\circ$  inside or outside corner, lay the molding with its broad back surface flat on the miter table and against the fence.

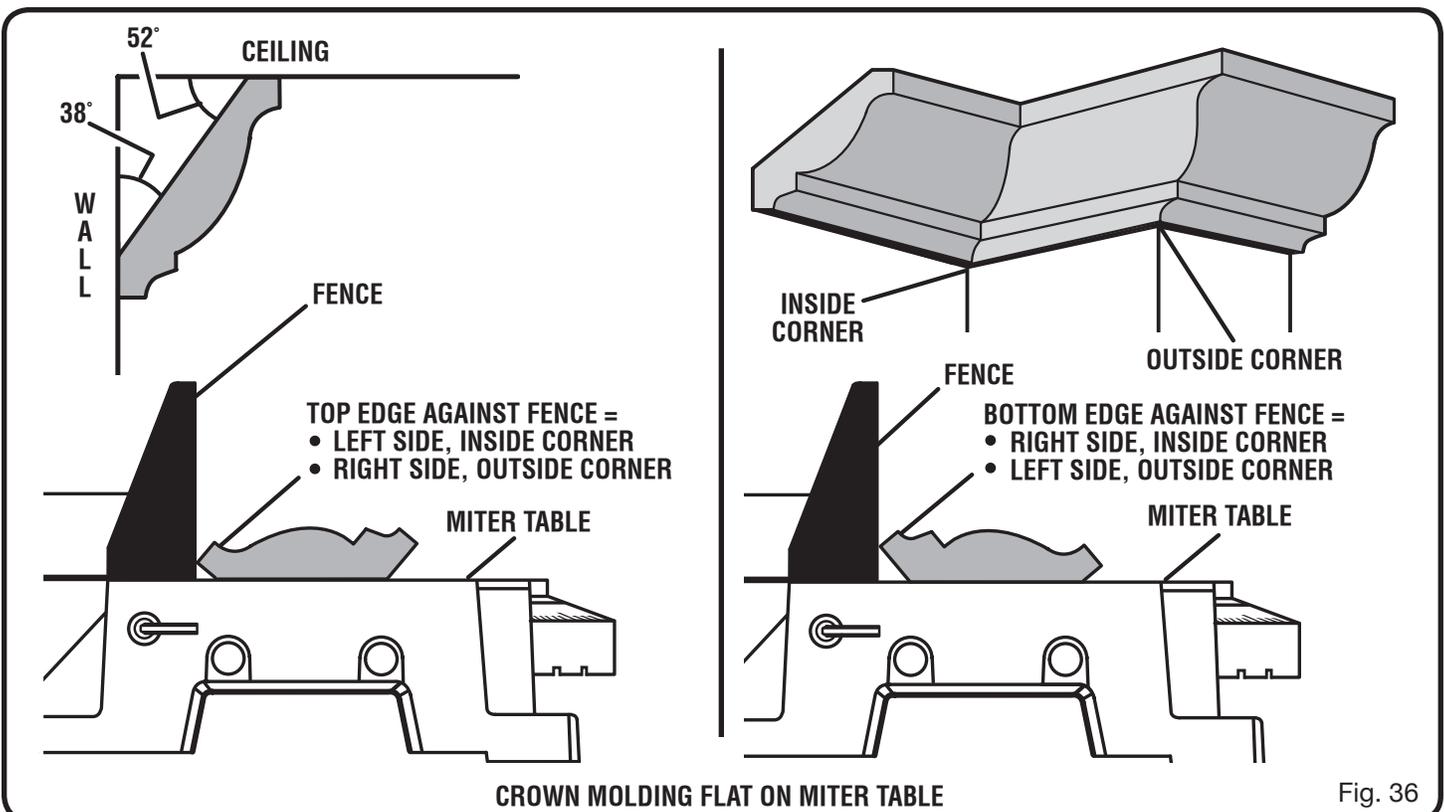
When setting the bevel and miter angles for compound miters, remember that the settings are interdependent; changing one angle changes the other angle as well.

Keep in mind that the angles for crown molding are very precise and difficult to set. Since it is very easy for these angles to shift, all settings should first be tested on scrap molding. Also most walls do not have angles of exactly  $90^\circ$ ; therefore, you will need to fine tune your settings.

When cutting crown molding by this method, the bevel angle should be set at  $33.85^\circ$ . The miter angle should be set at  $31.6^\circ$  either right or left, depending on the desired cut for the application. See the chart below for correct angle settings and correct positioning of crown molding on miter table.

The settings in the chart below can be used for cutting All Standard (U.S.) crown molding with  $52^\circ$  and  $38^\circ$  angles. The crown molding is placed flat on the miter table using the compound features of your miter saw.

Bevel Angle Setting	Type of Cut
$33.85^\circ$	Left side, inside corner 1. Top edge of molding against fence 2. Miter table set right $31.62^\circ$ 3. Save left end of cut
$33.85^\circ$	Right side, inside corner 1. Bottom edge of molding against fence 2. Miter table set left $31.62^\circ$ 3. Save left end of cut
$33.85^\circ$	Left side, outside corner 1. Bottom edge of molding against fence 2. Miter table set left $31.62^\circ$ 3. Save right end of cut
$33.85^\circ$	Right side, outside corner 1. Top edge of molding against fence 2. Miter table set right $31.62^\circ$ 3. Save right end of cut



CROWN MOLDING FLAT ON MITER TABLE

Fig. 36

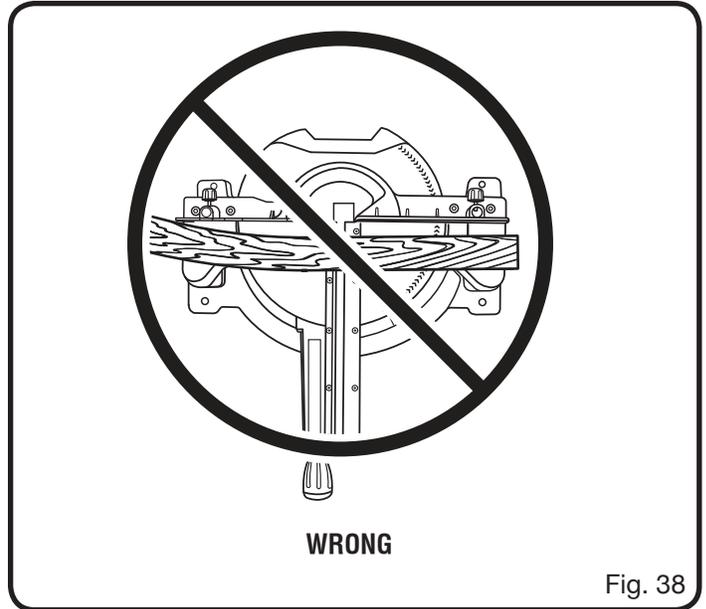
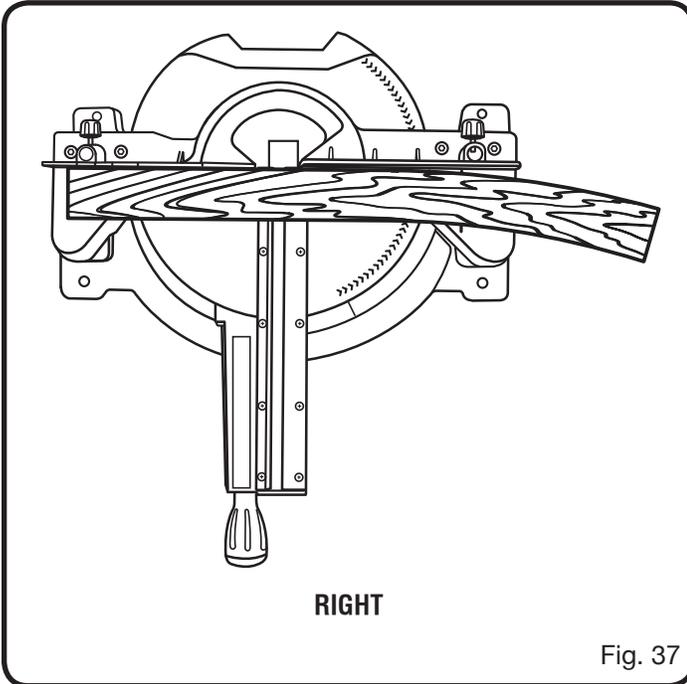
# OPERATION

## CUTTING WARPED MATERIAL

See Figures 37 - 38.

When cutting warped material, always make sure it is positioned on the miter table with the convex side against the fence as shown in figure 37.

If the warped material is positioned the wrong way as shown in figure 38, it will pinch the blade near the completion of the cut.



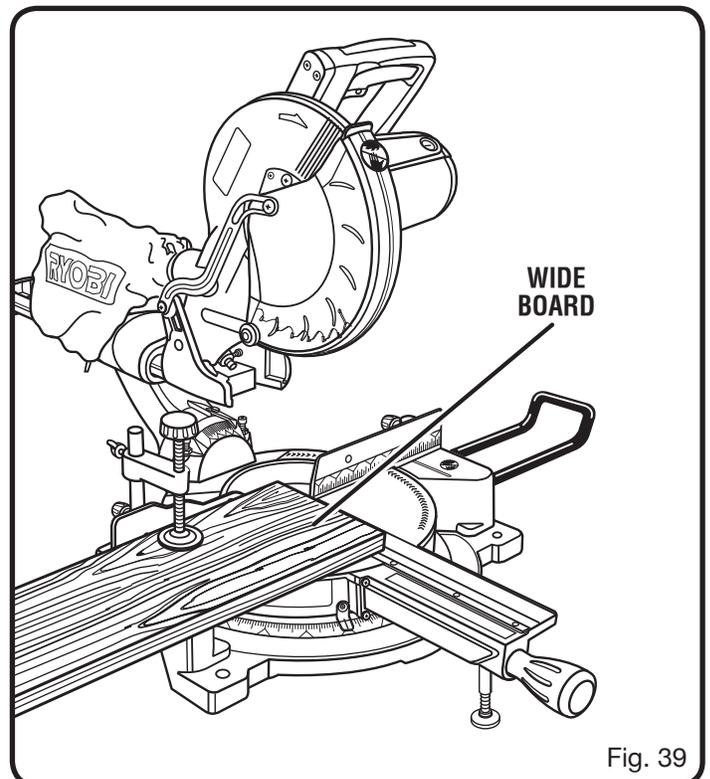
### WARNING:

To avoid a kickback and to avoid serious personal injury, never position the concave edge of bowed or warped material against the fence.

## CLAMPING WIDE WORKPIECES

See Figure 39.

When cutting wide workpieces, such as 2 in. x 6 in., boards should be clamped with a work clamp as shown in figure 39.



# ADJUSTMENTS

## **⚠ WARNING:**

Before performing any adjustment, make sure the tool is unplugged from the power supply. Failure to heed this warning could result in serious personal injury.

The compound miter saw has been adjusted at the factory for making accurate cuts. However, some of the components might have been jarred out of alignment during shipping. Also, over a period of time, readjustment will probably become necessary due to wear. After unpacking the saw, check the following adjustments before you begin using saw. Make any readjustments that are necessary and periodically check the parts alignment to make sure that the saw is cutting accurately.

## **TO ADJUST THE BEVEL PIVOT**

See Figure 40.

The saw should smoothly pivot when the bevel lock lever is “unlocked” and the saw is beveled. A “grating” sound indicates that the bevel needs to be loosened slightly. If the movement is tight, too loose, or there is play in the pivot, an adjustment is required.

- Unplug the saw.
- Turn the hex nut with the blade wrench.
- Once all adjustments have been made, lift the bevel lock lever to relock the bevel. Recheck and readjust as needed.

## **TO ADJUST THE LASER GUIDE**

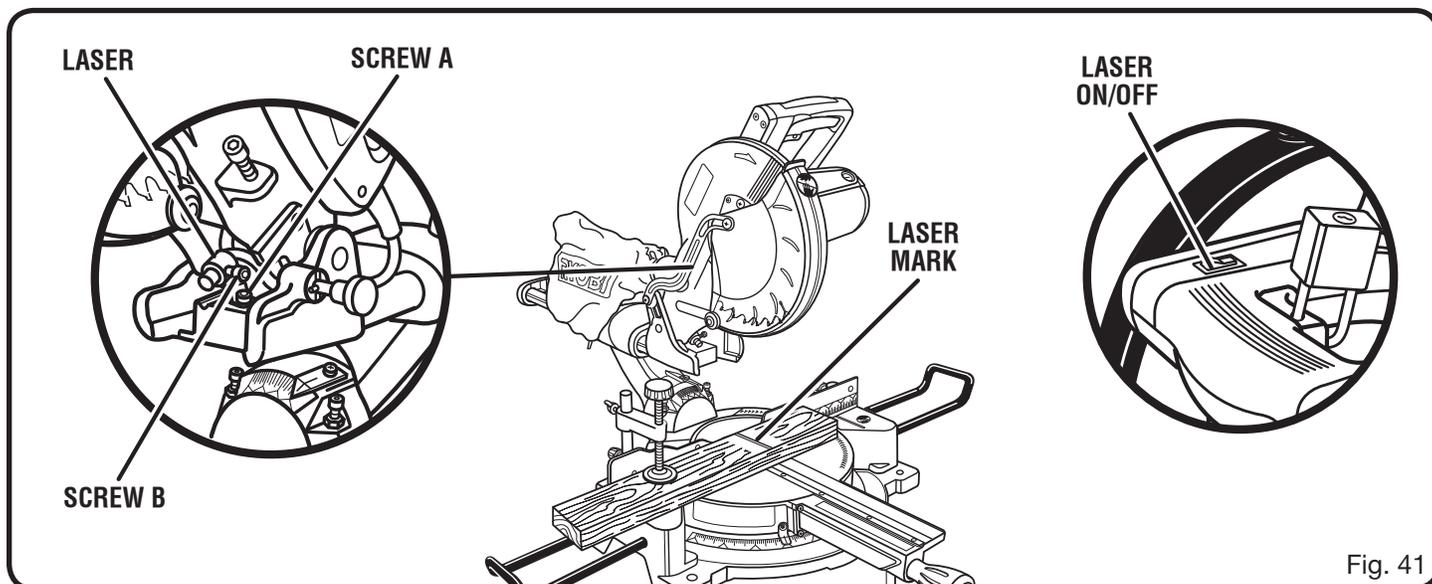
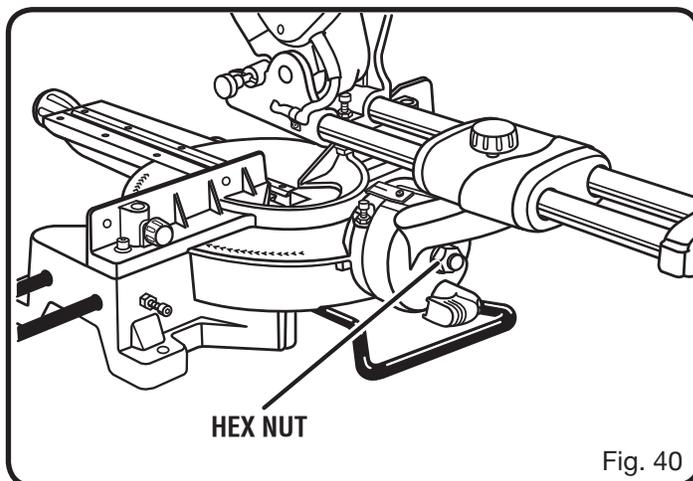
See Figure 41.

**NOTE:** Avoid direct eye exposure when using the laser guide.

- Use the work clamp or a C-clamp to secure a piece of scrap wood.
- Plug the saw into the power source and make a slight cut to score the wood.
- Release the switch trigger and allow the saw blade to stop rotating before raising the blade.
- Raise the saw arm.
- Lock the switch by installing a padlock (not included) through the hole in the switch trigger.
- To adjust the laser, loosen screw A using a hex key.

**NOTE:** When properly aligned, the laser should be on the left edge of the kerf. Loosen and adjust screw B only if adjustment of screw A fails to properly align the laser.

- Once aligned, tighten the screws then remove and store the hex key.



# ADJUSTMENTS

## TRAVEL PIVOT INSPECTION

- The saw arm should rise completely to the up position by itself.
- If the saw arm does not raise by itself or if there is play in the pivot joints, have saw repaired at the nearest authorized service center.

## DEPTH STOP

The depth stop limits the blade's downward travel. It allows the blade to go below the miter table enough to maintain full cutting capacities. The depth stop positions the blade 1/4 in. from the miter table support.

**NOTE:** The miter table support is located inside the miter table.

The depth stop is factory set to provide maximum cutting capacity for the 10 in. blade provided with the saw. Therefore, the saw with blade provided should never need adjustments.

However, when the diameter of the blade has been reduced due to sharpening, it may be necessary to adjust the depth stop to provide maximum cutting capacity. Also, when a new blade is installed, it is necessary to check the clearance of the blade to the miter table support before starting the saw. Make adjustments if needed.

## DEPTH STOP ADJUSTMENTS

See Figure 42.

- Unplug the saw.
- To adjust the depth stop use a 10 mm wrench and loosen the hex nut located on the top of the upper saw arm.
- Use a 5 mm hex key wrench to adjust the depth stop adjustment screw. The saw blade is lowered by turning the screw counterclockwise and raised by turning the screw clockwise.
- Lower the blade into the miter table. Check blade clearance and maximum cutting distance (distance from fence where blade enters) to front of miter table slot.
- Readjust if necessary.
- Tighten the hex nut with a 10 mm wrench or adjustable wrench.
- To prevent the depth stop adjustment screw from turning while tightening the hex nut, carefully hold it with the hex key wrench while tightening the hex nut.

## POSITIVE STOP ADJUSTMENTS

See Figure 42.

**NOTE:** These adjustments were made at the factory and normally do not require readjustment.

**To adjust:**

- Unplug the saw.
- Using two wrenches (one on the lock nut and one for the positive stop adjustment screw), loosen the lock nut securing the positive stop adjustment screw.
- Loosen the bevel lock lever by turning the knob counterclockwise.
- Square the blade to the miter table as described in the *Assembly* section of this manual.
- Retighten bevel lock lever. Next, retighten lock nut securing the positive stop adjustment screw. Recheck blade-to-table alignment.

**NOTE:** The above procedure can be used to check blade squareness of the saw blade to the miter table at both 0° and 45° angles.

The saw has two scale indicators, one on the bevel scale and one on the miter scale. After squaring adjustments have been made, it may be necessary to loosen the indicator screws and reset them to zero.

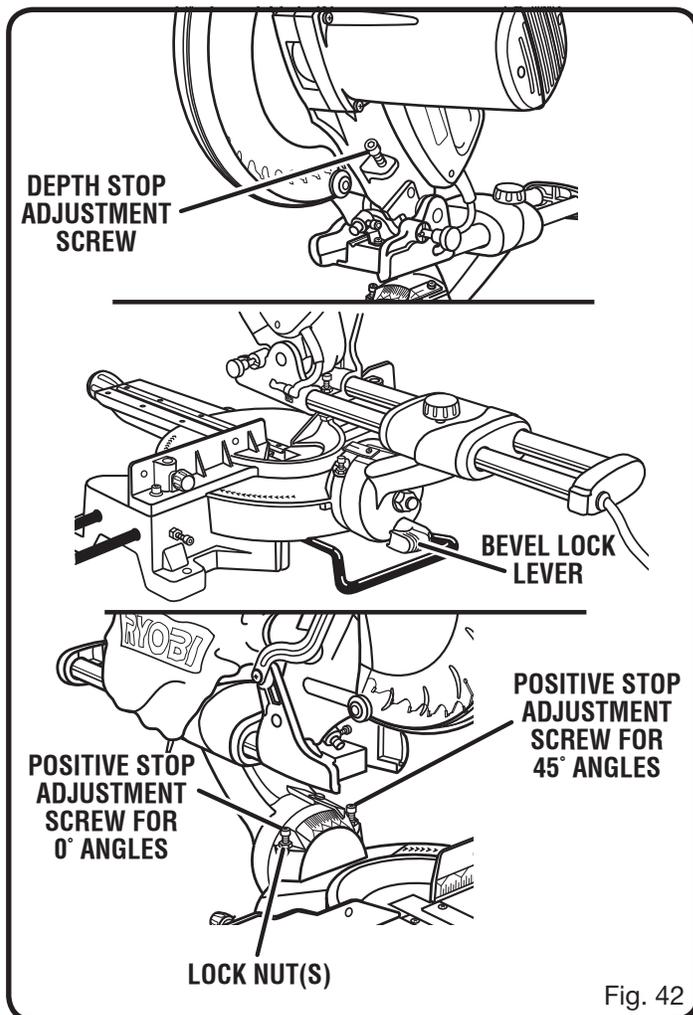


Fig. 42

# MAINTENANCE

## **⚠ WARNING:**

When servicing, use only identical replacement parts. Use of any other parts may create a hazard or cause product damage.

## **⚠ WARNING:**

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

## GENERAL MAINTENANCE

Avoid using solvents when cleaning plastic parts. Most plastics are susceptible to damage from various types of commercial solvents and may be damaged by their use. Use clean cloths to remove dirt, dust, oil, grease, etc.

## **⚠ WARNING:**

Do not at any time let 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.

Electric tools used on fiberglass material, wallboard, spackling compounds, or plaster are subject to accelerated wear and possible premature failure because the fiberglass chips and grindings are highly abrasive to bearings, brushes, commutators, etc. Consequently, we do not recommend using this tool for extended work on these types of materials. However, if you do work with any of these materials, it is extremely important to clean the tool using compressed air.

## LUBRICATION

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

## BRUSH REPLACEMENT

See Figure 43.

The saw has externally accessible brush assemblies that should be periodically checked for wear.

**Proceed as follows when replacement is required:**

- Unplug the saw.
- Remove brush cap with a screwdriver. Brush assembly is spring loaded and will pop out when you remove brush cap.
- Remove brush assembly.
- Check for wear. Replace both brushes when either has less than 1/4 in. length of carbon remaining. **Do not** replace one side without replacing the other.
- Reassemble using new brush assemblies. Make sure curvature of brush matches curvature of motor and that brush moves freely in brush tube.
- Make sure brush cap is oriented correctly (straight) and replace.
- Tighten brush cap securely. **Do not** overtighten.

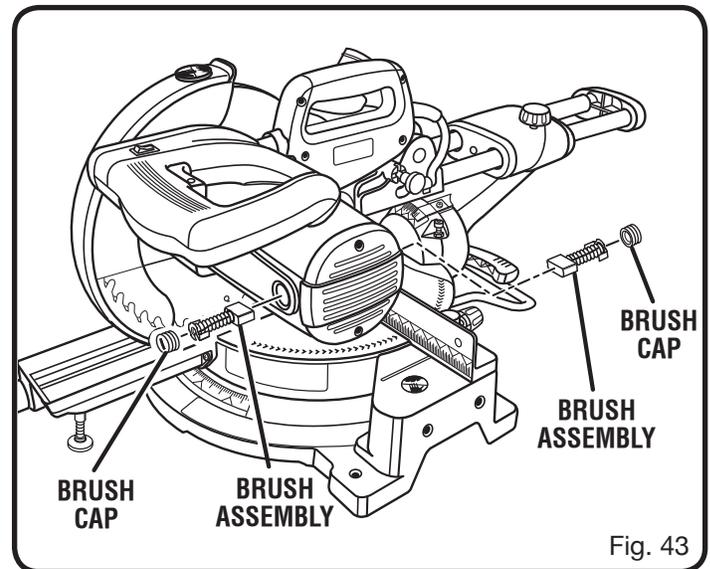


Fig. 43