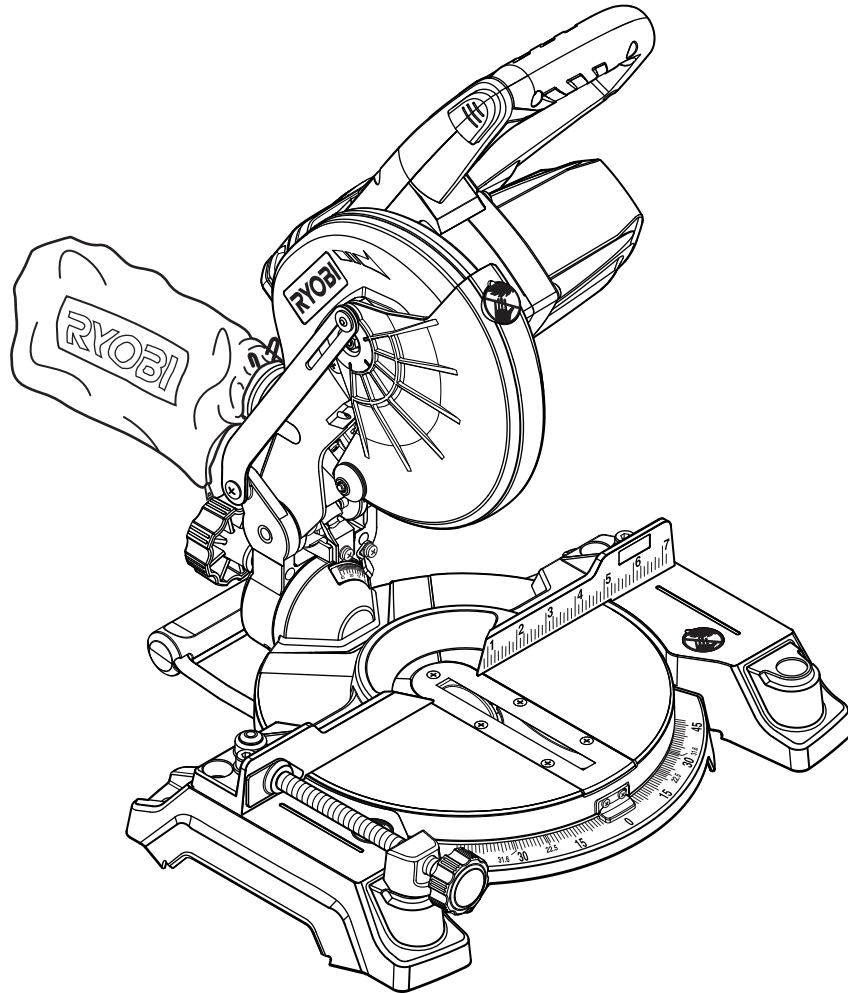




OPERATOR'S MANUAL

7-1/4 in., 18 Volt
Compound Miter Saw


P551



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

**BATTERY AND CHARGER
SOLD SEPARATELY**

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 your 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.ryobitools.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.
- **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.
- **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 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 the blade or cutter only.
- **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.
- **KEEP BLADES CLEAN, SHARP, AND WITH SUFFICIENT SET.** Sharp blades minimize stalling and kickback.
- **BLADE COASTS AFTER BEING TURNED OFF.**
- **NEVER USE IN AN EXPLOSIVE ATMOSPHERE.** Normal sparking of the motor could ignite fumes.
- **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 7-1/4 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.

GENERAL SAFETY RULES

- **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.
- **DOUBLE CHECK ALL SETUPS.** Make sure blade is tight and not making contact with saw or workpiece before connecting to power supply.
- **ENSURE THE SWITCH IS IN THE OFF POSITION BEFORE INSERTING BATTERY PACK.** Inserting the battery pack into power tools that have the switch on invites accidents.
- **RECHARGE ONLY WITH THE CHARGER SPECIFIED BY THE MANUFACTURER.** A charger that is suitable for one type of battery pack may create a risk of fire when used with another battery pack.
- **USE POWER TOOLS ONLY WITH SPECIFICALLY DESIGNATED BATTERY PACKS.** Use of any other battery packs may create a risk of injury or fire.
- **FOR USE WITH 18 V NICKEL-CADMIUM AND 18 V LITHIUM-ION BATTERY PACKS,** see tool/appliance/battery pack/charger correlation supplement 987000-432.
- **WHEN BATTERY PACK IS NOT IN USE, KEEP IT AWAY FROM OTHER METAL OBJECTS LIKE PAPER CLIPS, COINS, KEYS, NAILS, SCREWS, OR OTHER SMALL METAL OBJECTS THAT CAN MAKE A CONNECTION FROM ONE TERMINAL TO ANOTHER.** Shorting the battery terminals together may cause burns or a fire.
- **UNDER ABUSIVE CONDITIONS, LIQUID MAY BE EJECTED FROM THE BATTERY; AVOID CONTACT. IF CONTACT ACCIDENTALLY OCCURS, FLUSH WITH WATER. IF LIQUID CONTACTS EYES, ADDITIONALLY SEEK MEDICAL HELP.** Liquid ejected from the battery may cause irritation or burns.
- **DISCONNECT BATTERY PACK FROM TOOL OR PLACE THE SWITCH IN THE LOCKED OR OFF POSITION BEFORE MAKING ANY ADJUSTMENTS, CHANGING ACCESSORIES, OR STORING THE TOOL.** Such preventive safety measures reduce the risk of starting the tool accidentally.
- **TOOL SERVICE MUST BE PERFORMED ONLY BY QUALIFIED REPAIR PERSONNEL** using only identical replacement parts. This will ensure that the safety of the power tool is maintained.

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 THE SAW.** Lock the miter table by pushing the miter lock lever down to lock. Lock the saw arm (bevel function) by securely tightening the bevel lock knob.
- **USE THIS SAW TO CUT WOOD, WOOD PRODUCTS AND SOME PLASTICS ONLY. DO NOT CUT METALS, CERAMICS OR MASONRY PRODUCTS.**
- **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.
- **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.

SPECIFIC SAFETY RULES






- **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 your 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.
- **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 your miter saw on the floor or in a crouched position.
- **NEVER** stand or have any part of your 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 your saw) to cause a careless mistake. **ALWAYS REMEMBER** that a careless fraction of a second is sufficient to inflict severe injury.
- **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 your saw.
- **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 raising saw arm, moving workpiece or changing settings.
 - g) Disconnect the saw from the power source before changing blade or servicing.
- **ALWAYS** carry the tool only by the carrying handle.
- **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.
- **AVOID** direct eye exposure when using the laser guide.
- **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
	DANGER:	Indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.
	WARNING:	Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
	CAUTION:	Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.
	NOTICE:	(Without Safety Alert Symbol) Indicates important information not related to an injury hazard, such as 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
min	Minutes	Time
n_0	No Load Speed	Rotational speed, at no load
.../min	Per Minute	Revolutions, strokes, surface speed, orbits etc., per minute

GLOSSARY OF TERMS

Anti-Kickback Pawls (flooring, 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 (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 (flooring and 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 (flooring and 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 (flooring and 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

Arbor.....5/8 in.
 Blade Diameter.....7-1/4 in.
 No Load Speed4,500 r/min. (RPM)
 Motor.....18 Volt DC

Cutting Capacity with Miter at 0°/Bevel 0°:
 Maximum lumber sizes1-1/2 in. x 4-1/4 in.
 Cutting Capacity with Miter at 45°/Bevel 0°:
 Maximum lumber sizes1-1/2 in. x 3 in.
 Cutting Capacity with Miter at 0°/Bevel 45°:
 Maximum lumber sizes1-1/2 in. x 3-1/2 in.
 Cutting Capacity with Miter at 45°/Bevel 45°:
 Maximum lumber sizes1-1/2 in. x 3 in.

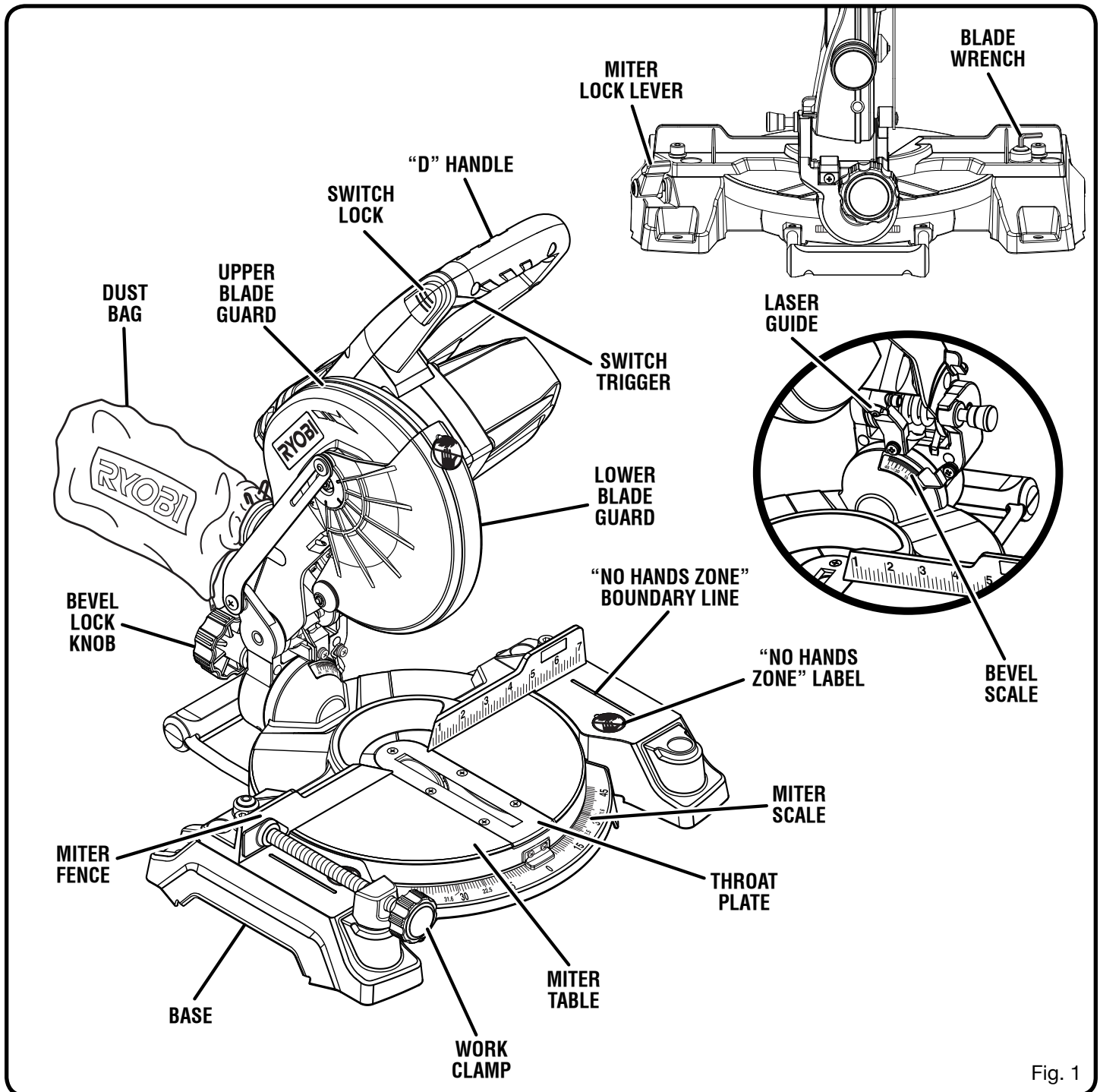


Fig. 1

FEATURES

KNOW YOUR COMPOUND MITER SAW

See Figure 1.

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.

7-1/4 in. BLADE

A 7-1/4 in. blade is included with the compound miter saw. It will cut materials up to 1-1/2 in. thick or 4-1/4 in. wide, depending upon the angle at which the cut is being made.

BEVEL LOCK KNOB

The bevel lock knob securely locks your compound miter saw at desired bevel angles. Positive stop adjustment screws have been provided on each side of the saw arm. These adjustment screws are for making fine adjustments at 0° and 45°.

BLADE WRENCH STORAGE

See Figure 1.

A blade wrench is packed with the saw. One end of the wrench is a phillips screwdriver and the other end is a hex key. Use the hex key end when installing or removing blade and the phillips end when removing or loosening screws. A storage area for the blade wrench is located in the saw's base.

LASER GUIDE

See Figure 2.

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

MITER FENCE

The miter fence on the compound miter saw has been provided to hold your workpiece securely against when making all cuts.

MITER LOCK LEVER

See Figure 2.

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

POSITIVE STOPS ON MITER TABLE

Positive stops have been provided at 0°, 15°, 22-1/2°, 31.62°, and 45°. The 15°, 22-1/2°, 31.62°, and 45° positive stops have been provided on both the left and right side of the miter table.

REAR BRACKET/CARRYING HANDLE

See Figure 2.

For convenience when carrying or transporting the miter saw from one place to another, a carrying handle has been provided at the rear of the saw. To transport, turn off and remove the battery pack from the tool, then lower the saw

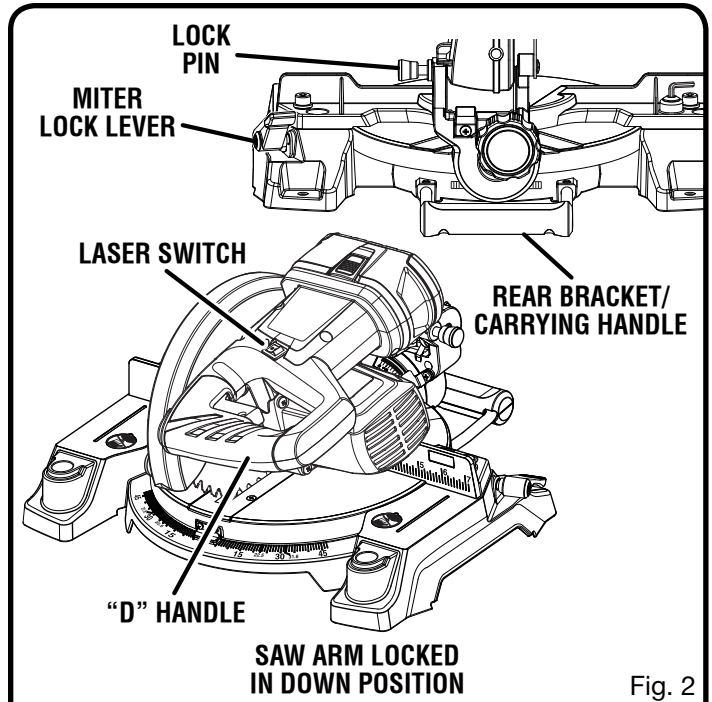
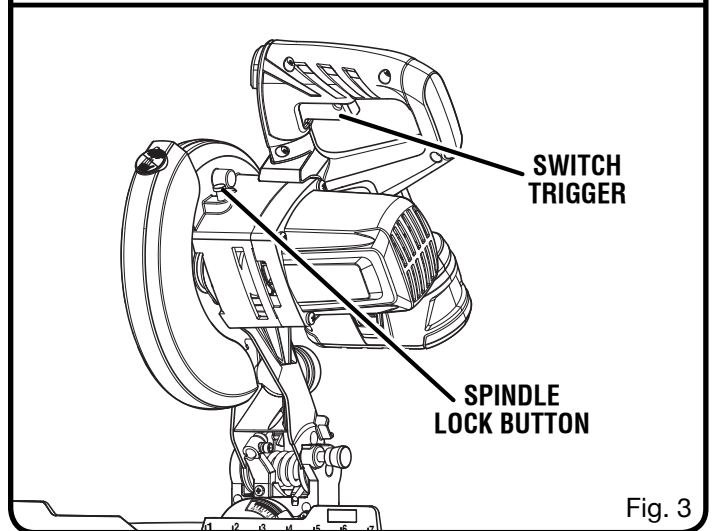


Fig. 2



arm and lock it in the down position. Lock saw arm by depressing the lock pin.

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.

SPINDLE LOCK BUTTON

See Figure 3.

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

FEATURES

SWITCH TRIGGER

See Figure 4.

The saw will not start until you depress the switch lock with your thumb then squeeze the switch trigger. To prevent unauthorized use of the compound miter saw, remove the battery pack, 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 of 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.

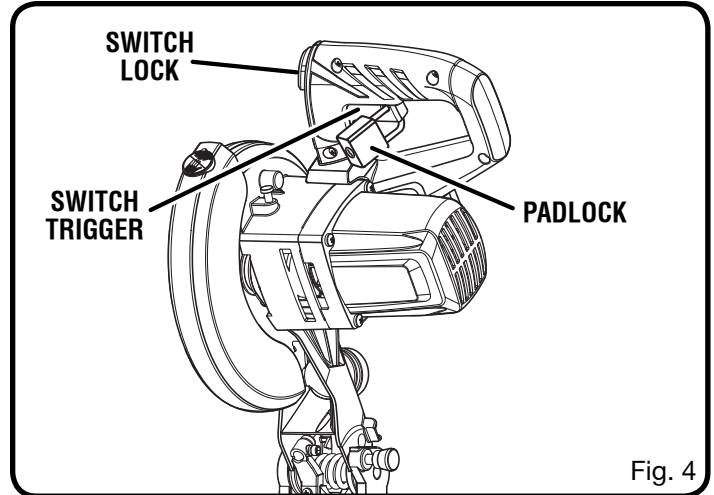
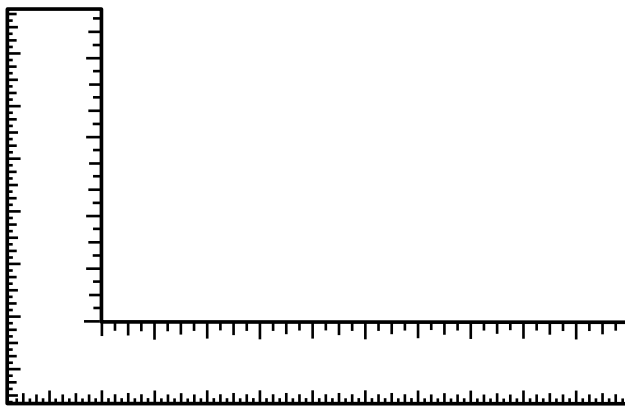


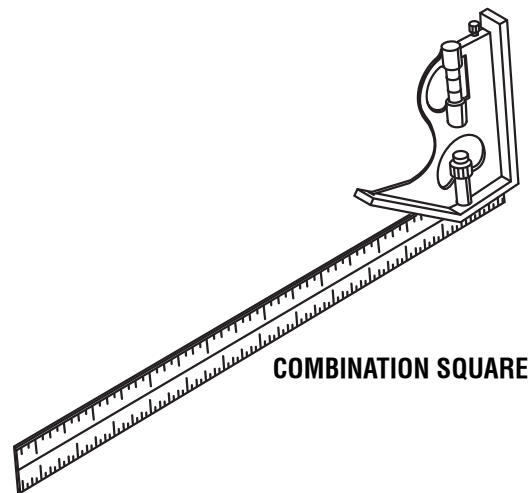
Fig. 4

TOOLS NEEDED

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



FRAMING SQUARE



COMBINATION SQUARE

Fig. 5

LOOSE PARTS LIST

The following items are included with your compound miter saw:

- Dust Bag
- Work Clamp
- Blade Wrench
- Rear Bracket/Carrying Handle
- Operator's Manual

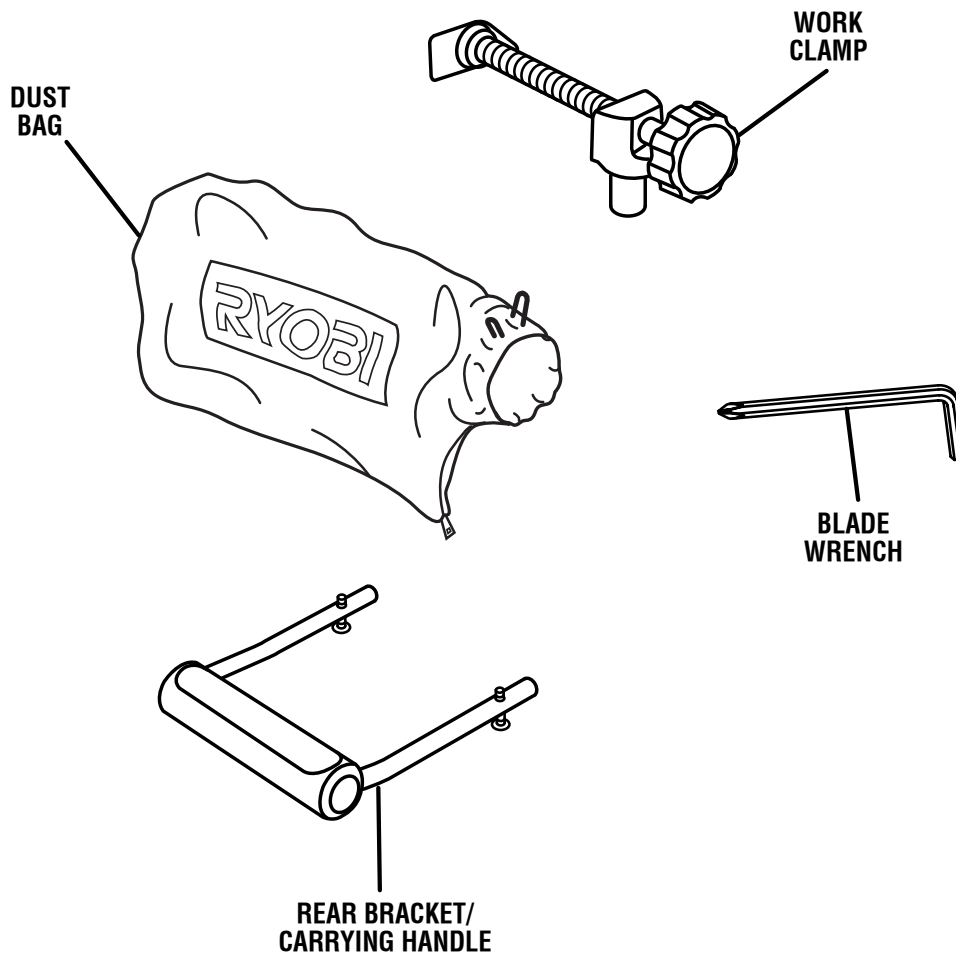


Fig. 6

⚠ 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 miter saw base from the carton by the “D” 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.

- If factory assembled, the saw has been shipped with the saw arm secured in the down position. To release the saw arm, push down on the top of the saw arm, cut the tie-wrap, and pull out on the lock pin.
- Lift the saw arm by the handle. Hand pressure should remain on the saw arm 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 tool.
- 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 tool 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:

To prevent accidental starting that could cause serious personal injury, always remove the battery pack from the tool when assembling parts.

⚠ WARNING:

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.

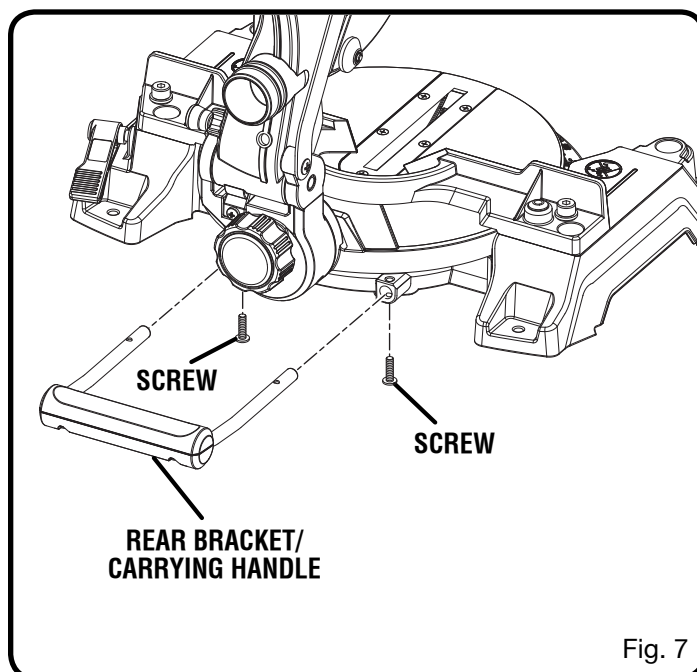
INSTALLING THE REAR BRACKET/CARRYING HANDLE

See Figure 7.

⚠ WARNING:

A rear bracket is included with this miter saw to prevent tipping if the saw arm is released suddenly. Do not use this saw before installing the rear bracket and securely mounting the saw to a work surface or stand.

- Remove the screws from the rear bracket/carrying handle and set aside.
- Slide the bracket in the openings on the saw base, aligning the holes underneath the base with the holes in the bracket.
- Insert the screws into the holes and tighten securely.



ASSEMBLY

⚠ 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.

MOUNTING HOLES

See Figure 8.

If not using a stand, the 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 1/4 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.

DUST BAG

See Figure 9.

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

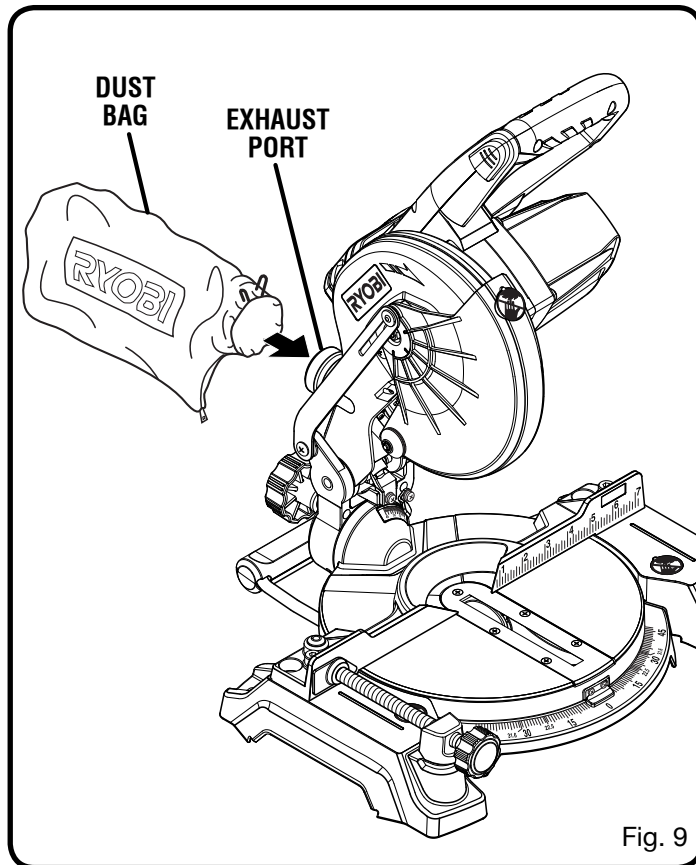
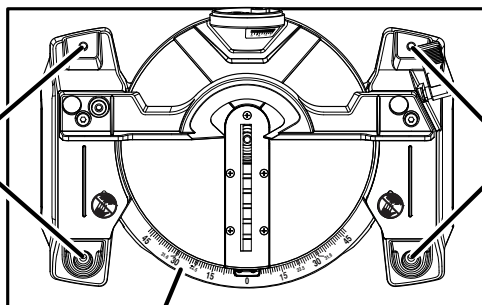


Fig. 9

**TRACE HOLES
AT THESE LOCATIONS
FOR HOLE PATTERN**



BASE

**TRACE HOLES
AT THESE LOCATIONS
FOR HOLE PATTERN**

**MOUNTING
SURFACE**

Fig. 8

ASSEMBLY

WORK CLAMP

See Figure 10.

The work clamp provides greater control by clamping the workpiece to the fence. 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.

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.

To install the work clamp:

- Place the shaft of the work clamp in either hole on the saw table base.
- Rotate the knob on the work clamp to move it in or out as needed.

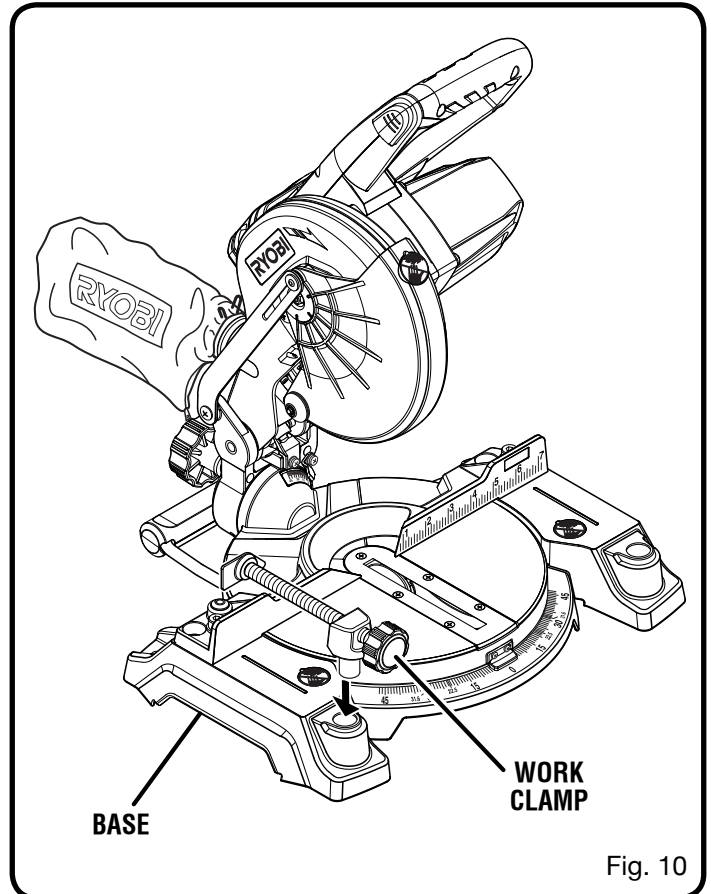


Fig. 10

ASSEMBLY

TO INSTALL/REPLACE THE BLADE

See Figures 11 - 12.

WARNING:

A 7-1/4 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.

- Remove the battery pack from the tool.
- Raise the saw arm.
- Rotate lower blade guard up and remove blade bolt cover screw. Rotate 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 outer blade washer. **Do not** remove 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 12.
- Replace outer blade 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 blade bolt cover screw and tighten securely.

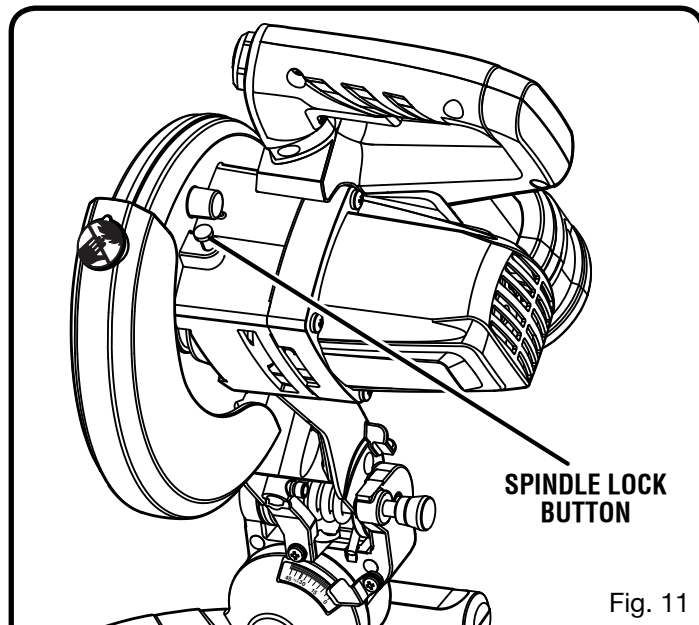


Fig. 11

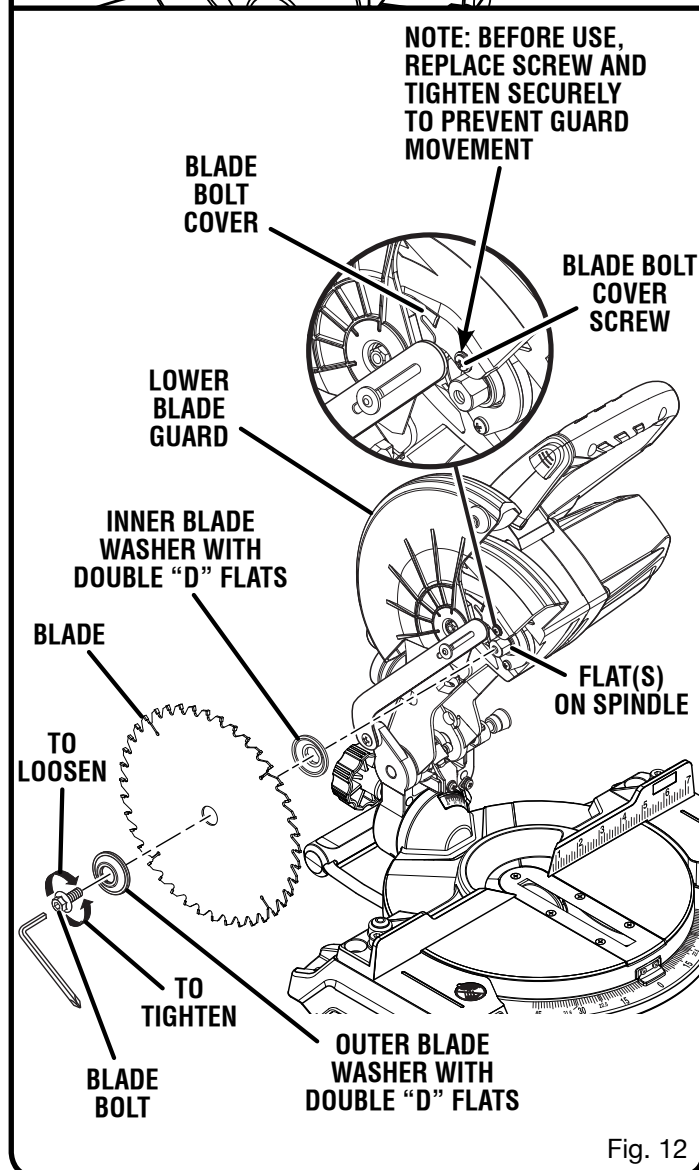


Fig. 12

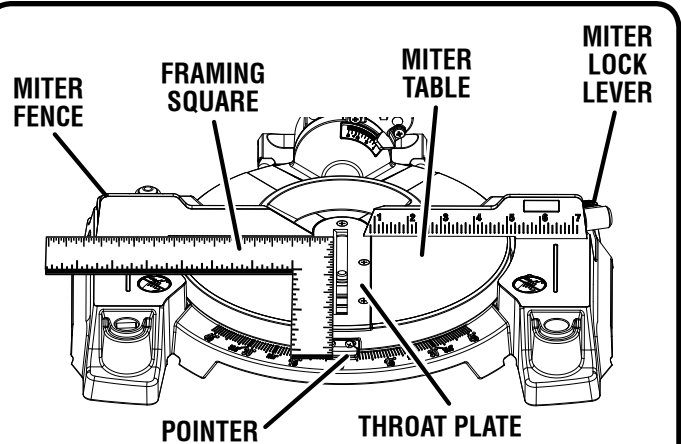
ASSEMBLY

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.**

SQUARING THE MITER TABLE TO THE FENCE

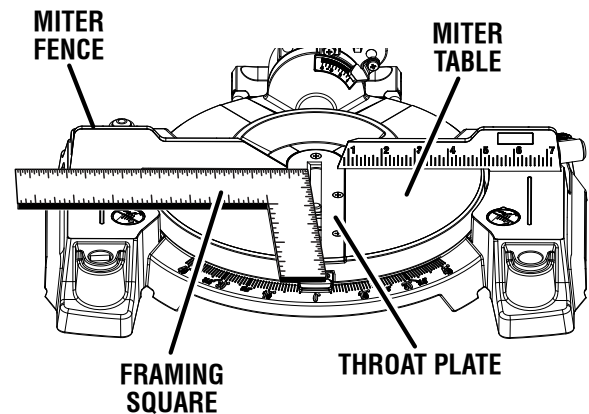
See Figures 13 - 16.

- Remove the battery pack from the tool.
- Push down on the saw arm and pull out the lock pin to release the saw arm.
- Raise the saw arm.
- Lift the miter lock lever.
- Rotate the miter table until the pointer aligns with zero on the miter scale.
- Push the miter lock lever down to lock the miter table.
- Lay a square flat on the miter table. Place one leg of the square against the fence. Place the other leg of the square beside the throat plate in the miter table. The edge of the square and the throat plate in the miter table should be parallel as shown in figure 13.
- If the edge of the square and the throat plate in the miter table are not parallel as shown in figures 14 and 15, adjustments are needed.
- Using the blade wrench provided, loosen the socket head screws securing the fence. Adjust the fence left or right until the square and throat plate are parallel.
- Retighten the screws securely and recheck the fence-to-table alignment.



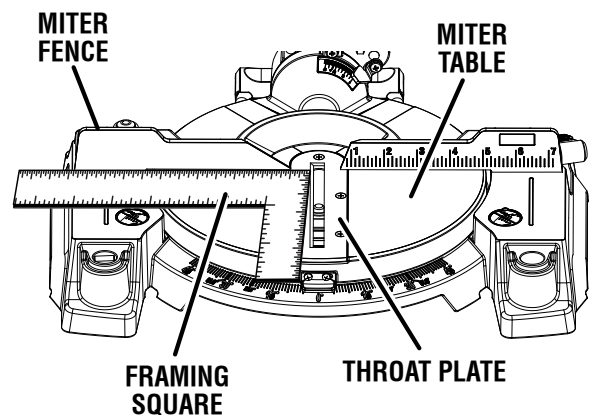
VIEW OF MITER TABLE SQUARE WITH FENCE

Fig. 13



VIEW OF MITER TABLE NOT SQUARE WITH FENCE, ADJUSTMENTS ARE REQUIRED

Fig. 14



VIEW OF MITER TABLE NOT SQUARE WITH FENCE, ADJUSTMENTS ARE REQUIRED

Fig. 15

ASSEMBLY

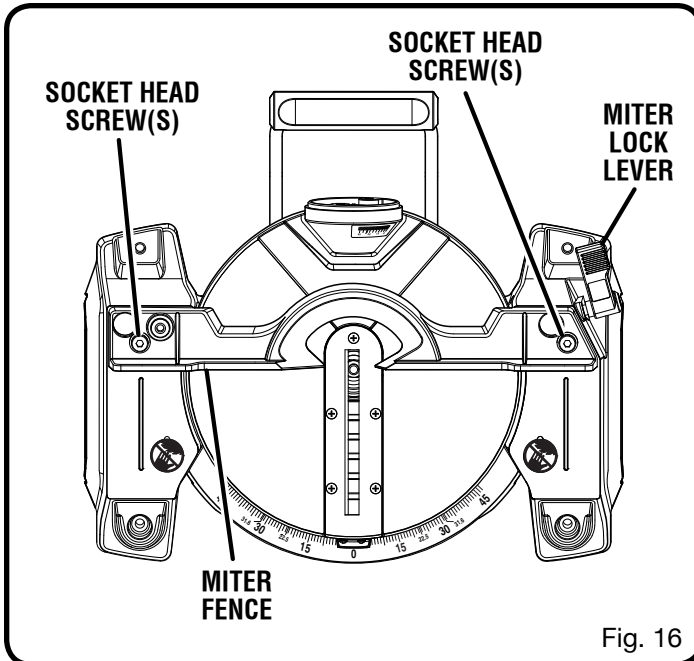


Fig. 16

SQUARING THE BLADE TO THE FENCE

See Figures 16 - 19.

- Remove the battery pack from the tool.
- Pull the saw arm all the way down and engage the lock pin to hold the saw arm in transport position.
- Lift the miter lock lever.
- Rotate the miter table until the pointer aligns with zero on the miter scale.
- Push the miter lock lever down to lock the miter table.
- Lay a 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 17.
- If the front or back edge of the saw blade angles away from the square as shown in figures 18 and 19, adjustments are needed.
- Using the blade wrench, loosen the socket head screws that secure the miter fence to the miter table. See figure 16.
- 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 indicator screws and reset them to zero.

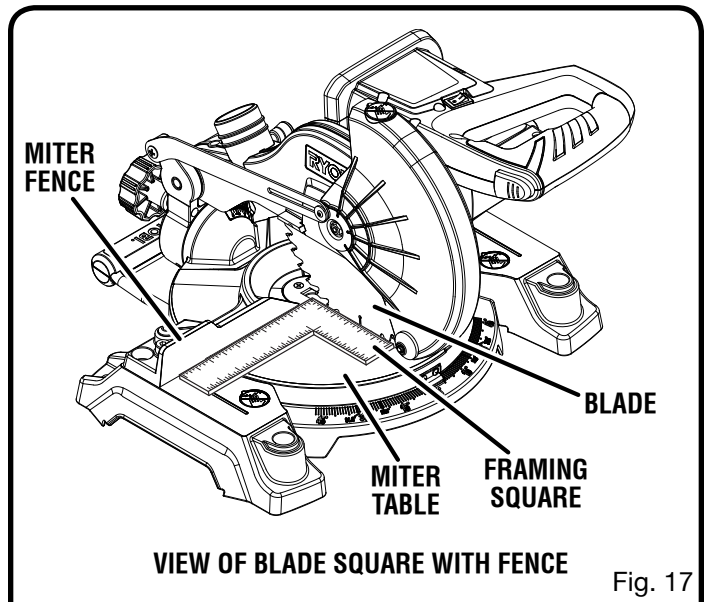


Fig. 17

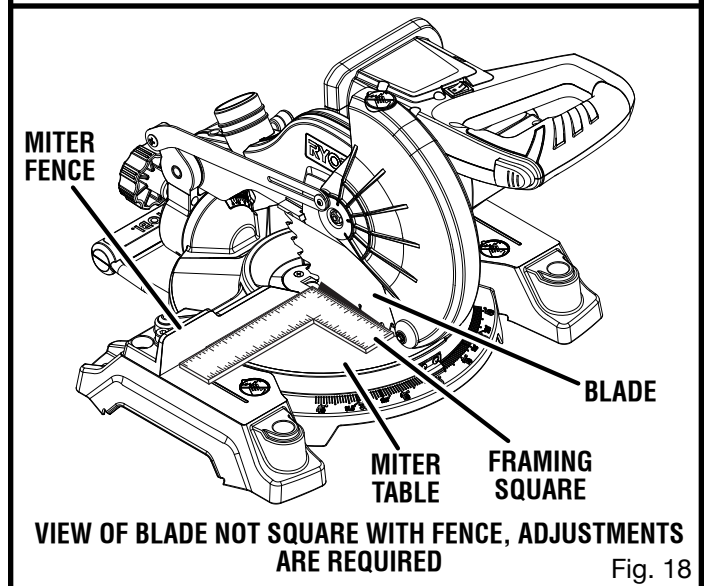


Fig. 18

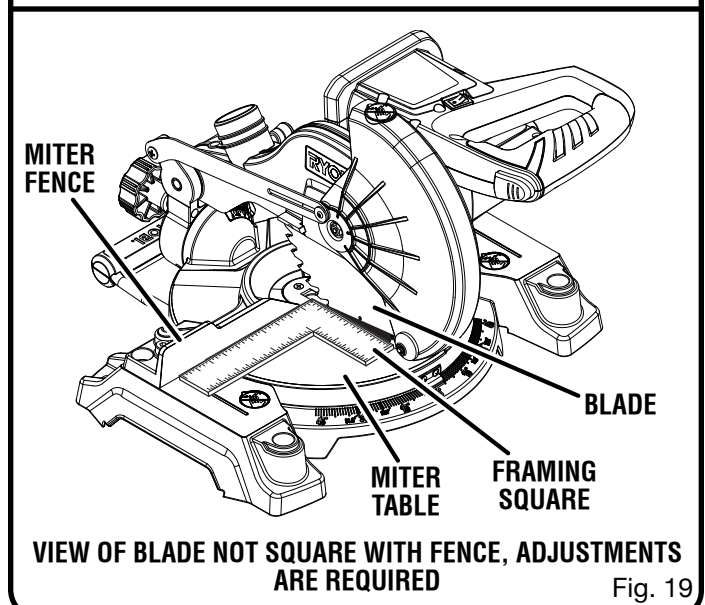


Fig. 19

ASSEMBLY

SQUARING THE BLADE TO THE MITER TABLE

See Figures 20 - 23.

- Remove the battery pack from the tool.
- Pull the saw arm all the way down and engage the lock pin to hold the saw arm in transport position.
- Lift the miter lock lever.
- Rotate the miter table until the pointer aligns with zero on the miter scale.
- Push the miter lock lever down to lock the miter table.
- Loosen bevel lock knob and set saw arm at 0° bevel (blade set 90° to miter table). Tighten bevel lock knob.
- Place a 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 21.
- If the top or bottom of the saw blade angles away from the square as shown in figures 22 and 23, adjustments are needed.
- Loosen the bevel lock knob.
- Adjust positive stop adjustment screw to bring saw blade into alignment with the square. See **Positive Stop Adjustment** in the *Adjustments* section.
- Retighten bevel lock knob. 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.

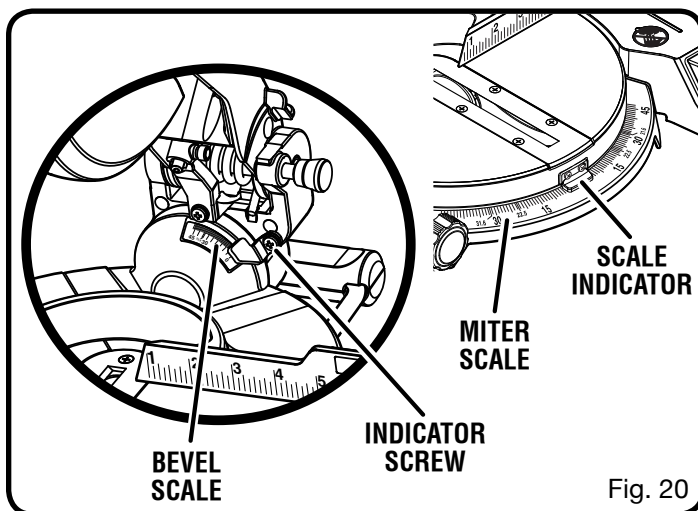


Fig. 20

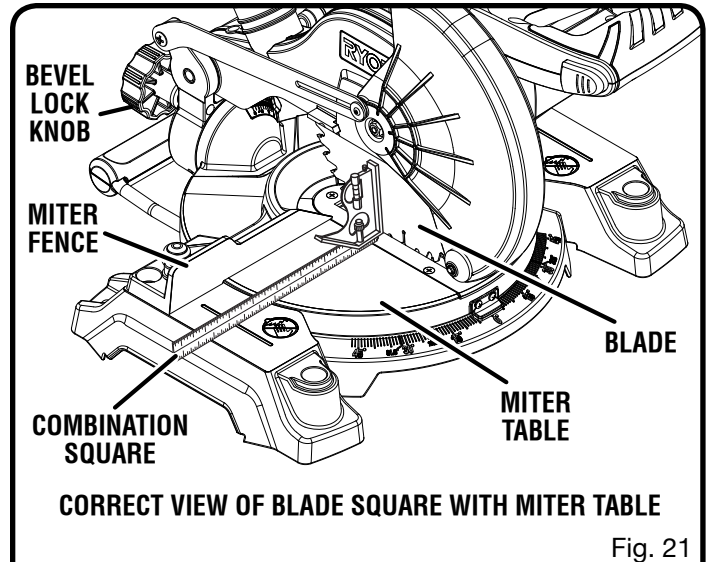


Fig. 21

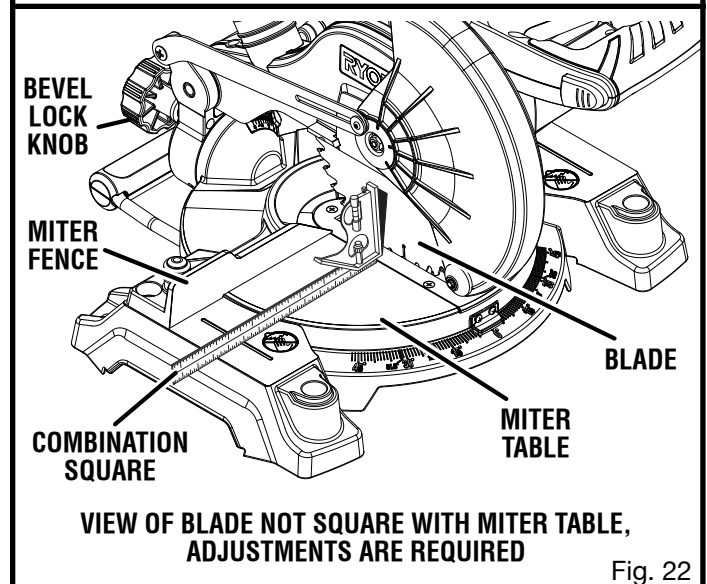


Fig. 22

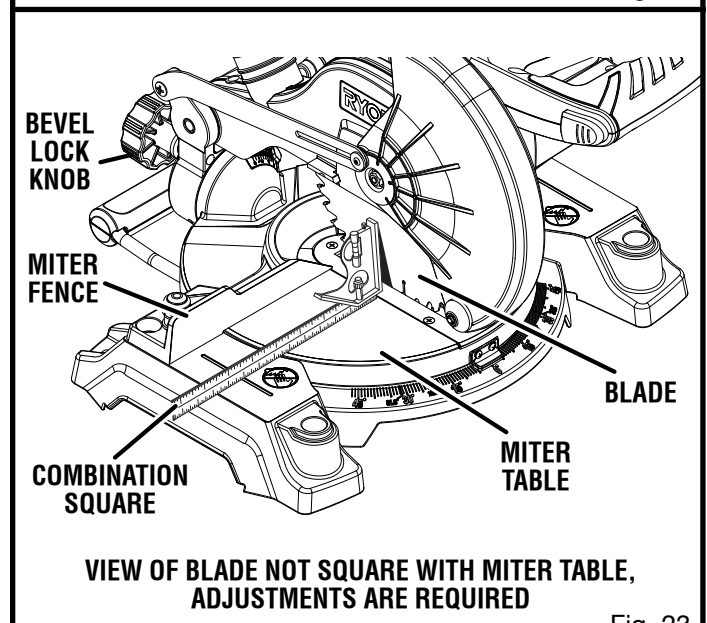


Fig. 23

ASSEMBLY

⚠ 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 24.

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.

Make several practice cuts on different styles and thickness of material. Repeat the steps above as necessary.

Follow the directions below for using the laser guide.

Removing your mark:

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

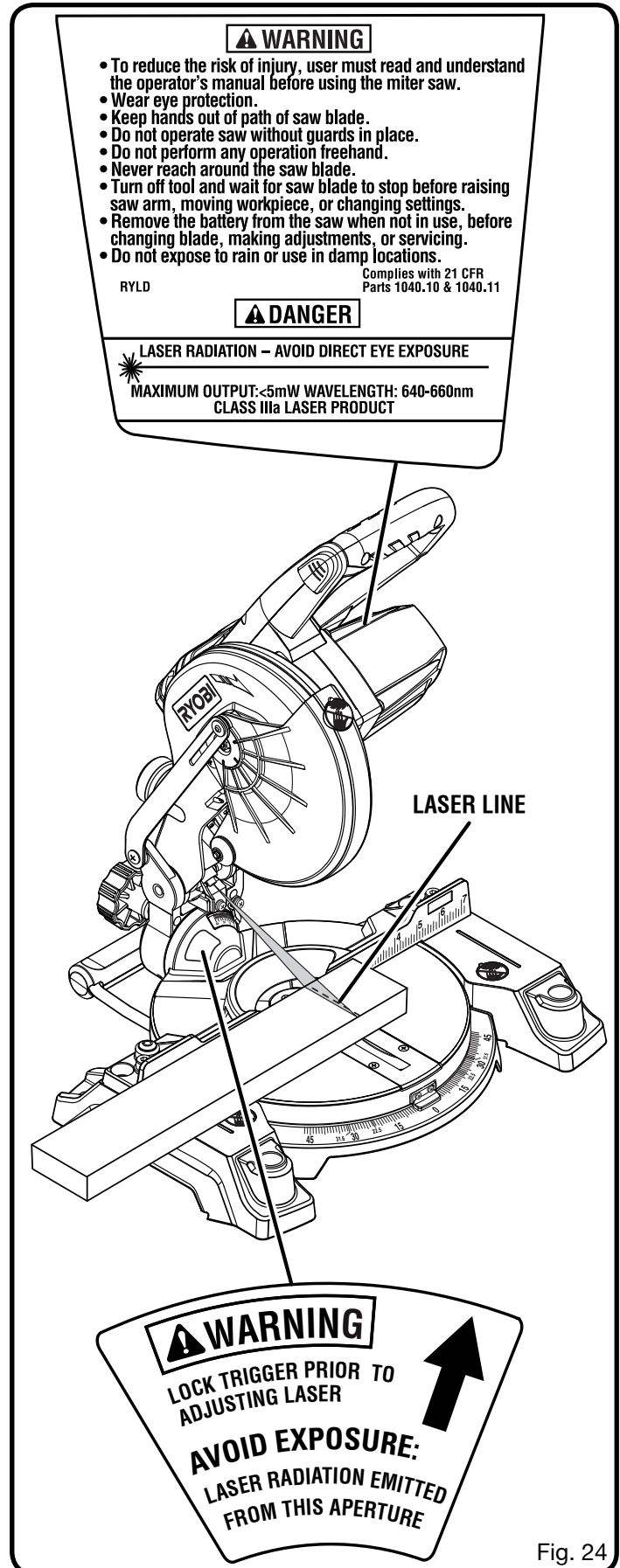
To cut your mark:

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.



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 cutting and compound cutting

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 dealer.

This product will accept Ryobi One+ 18 V lithium-ion battery packs and Ryobi One+ 18 V nickel-cadmium battery packs.

For complete charging instructions, refer to the Operator's Manuals for your Ryobi One+ battery pack and charger models.

WARNING:

Before starting any cutting operation, clamp or bolt the compound miter saw to a workbench or an approved workstand. 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 lock the miter lock lever before making a cut. Failure to do so could result in movement of the control arm or 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.

TO INSTALL BATTERY PACK

See Figure 25.

- Place battery pack in the saw. Align raised rib on battery pack with groove inside saw.
- Make sure the latches on each side of the battery pack snap in place and that the battery pack is secured in the tool before beginning operation.

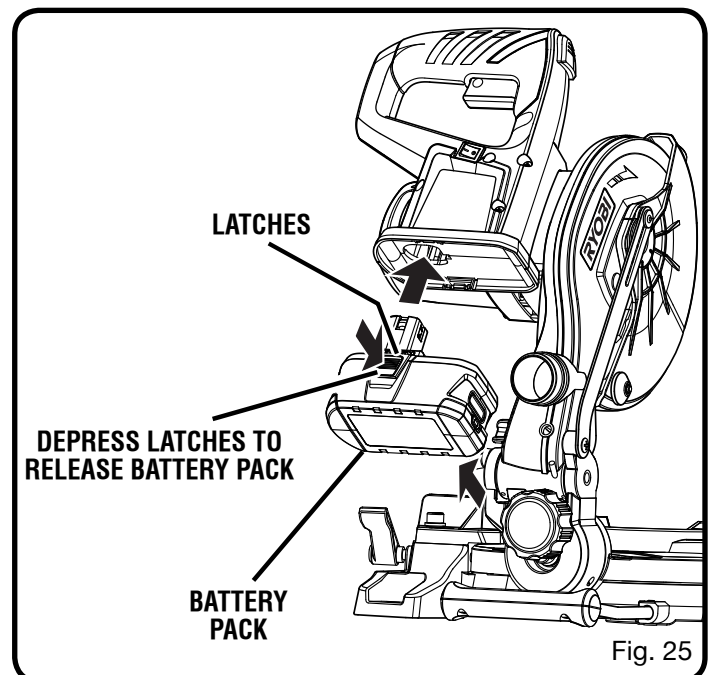
WARNING:

Always remove battery pack from your tool when you are assembling parts, making adjustments, cleaning, or when not in use. Removing battery pack will prevent accidental starting that could cause serious personal injury.

TO REMOVE BATTERY PACK

See Figure 25.

- Locate latches on each side of the battery pack. Depress the latches to release the battery pack from the tool.
- Remove the battery pack from the tool.



OPERATION

BATTERY PROTECTION FEATURES

Ryobi lithium-ion batteries are designed with features that protect the lithium-ion cells and maximize battery life.

If the tool stops during use, release the trigger to reset and resume operation. If the tool still does not work, the battery needs to be recharged.

CUTTING WITH YOUR 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.

TO CROSS CUT

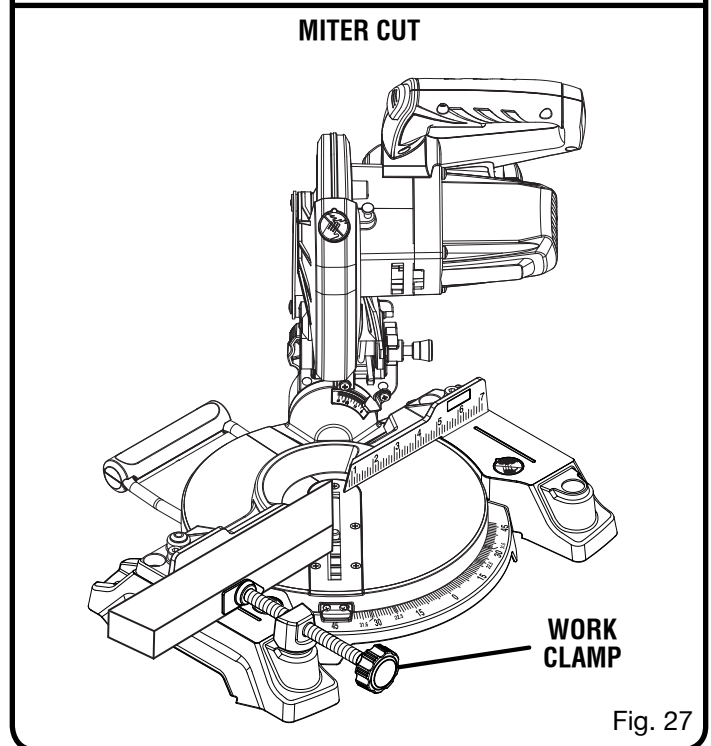
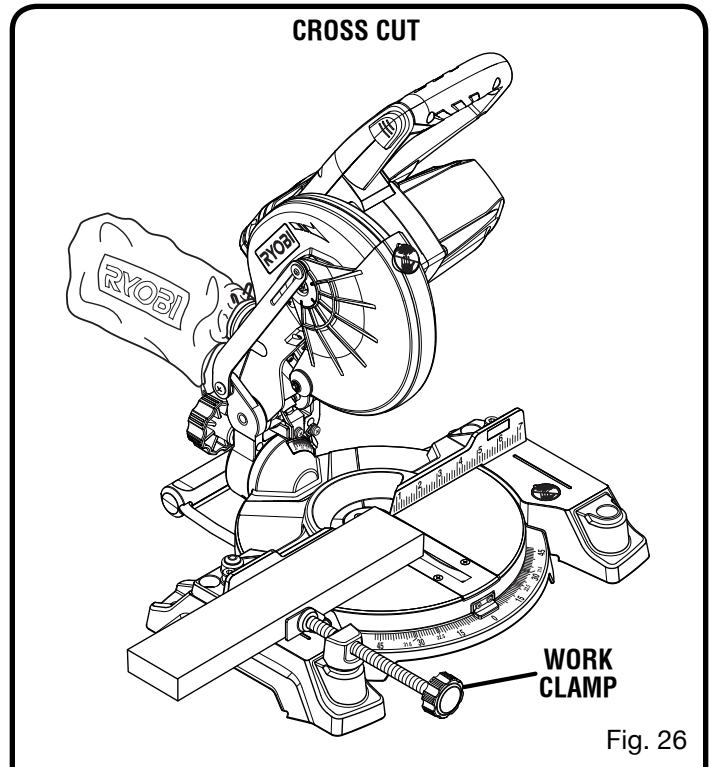
See Figures 26 - 27.

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 zero.

- Pull out the lock pin and lift saw arm to its full height.
- Lift the miter lock lever.
- Rotate the miter table until the pointer aligns with zero on the miter scale.

NOTE: You can quickly locate 0°, 15°, 22-1/2°, left or right, 31.62° and 45° left or right as you rotate the control arm. The miter table will seat itself in one of the positive stop index points, located in base.

- Push the miter lock lever down to lock the miter table.
- 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.
- 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.



OPERATION

- Align cutting line on workpiece with 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. Depress the switch lock with thumb 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 blade to stop rotating before raising the blade out of the workpiece. Wait until the blade stops before removing the workpiece from the miter table.

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° and 45°.

- Pull out the lock pin and lift saw arm to its full height.
 - Lift the miter lock lever.
 - Rotate the miter table until the pointer aligns with zero on the miter scale.
- NOTE:** You can quickly locate 0° as you rotate the control arm. The miter table will seat itself in one of the positive stop index points, located in base.
- Push the miter lock lever down to lock the miter table.
 - Loosen the bevel lock knob and move the saw arm to the left to the desired bevel angle.
 - Bevel angles can be set from 0° to 45°.
 - Align the indicator point for the desired angle.
 - Once the saw arm has been set at the desired angle, securely tighten the bevel lock knob.
 - 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.
 - 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.

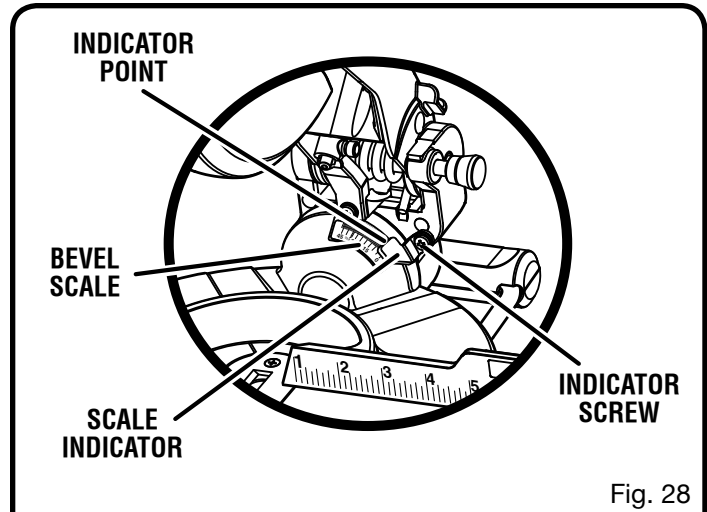


Fig. 28

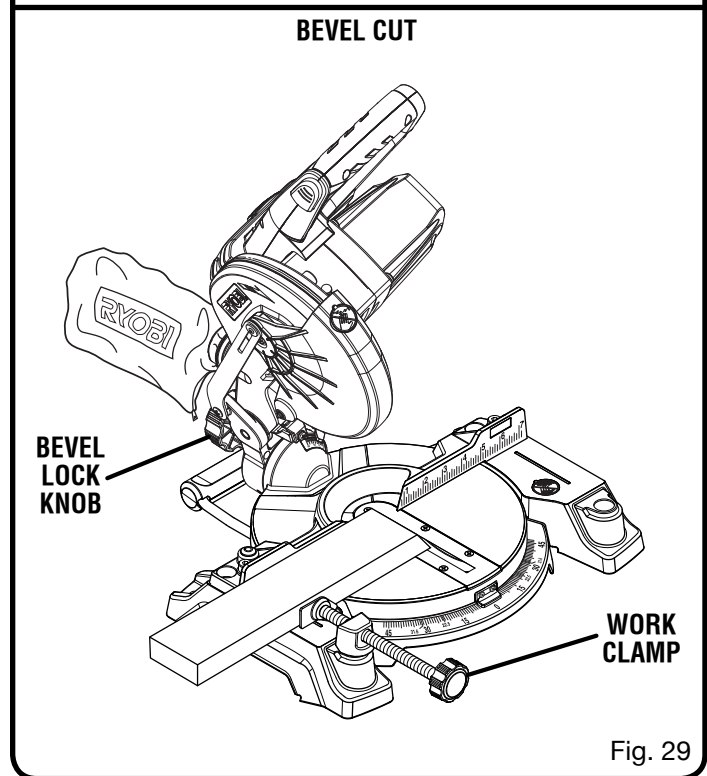


Fig. 29

OPERATION

- 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. Depress the switch lock with thumb 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 the workpiece. Wait until the blade stops before removing the workpiece from the miter table.

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, and make boxes with sloping sides.

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.

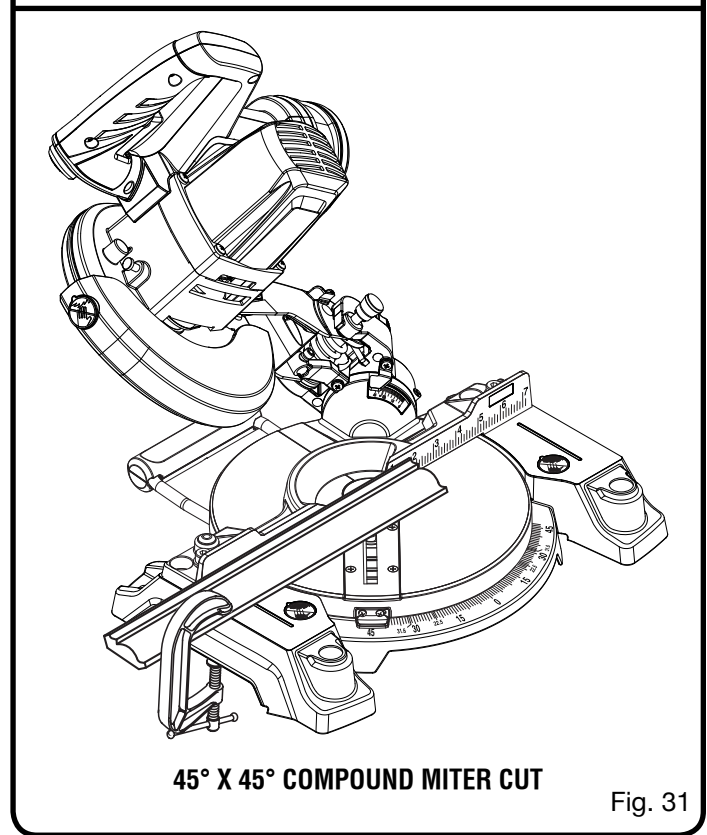
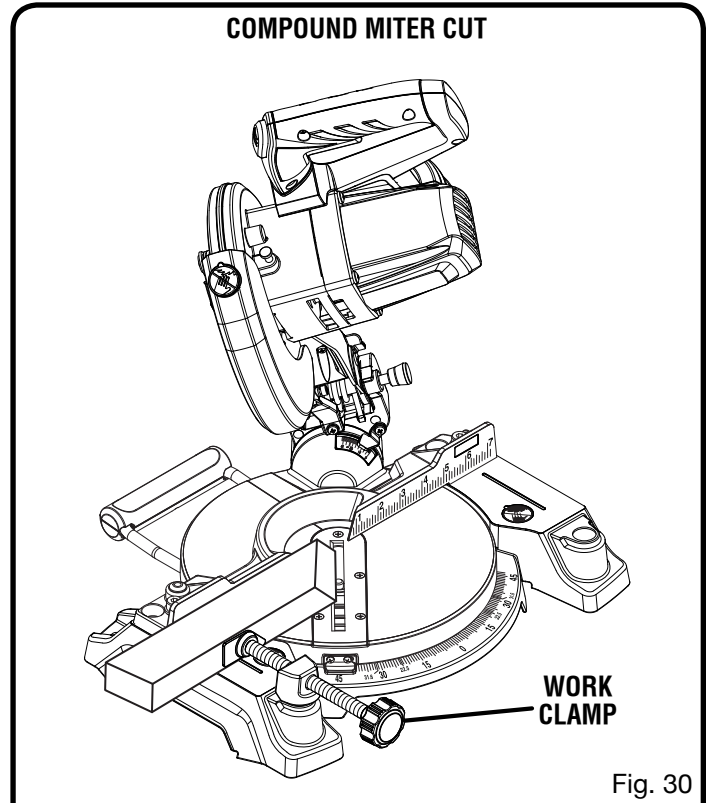
It may take several settings to obtain the desired cut. The first angle setting should be checked after setting the second angle, since adjusting the second angle affects the first.

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.
- Lift the miter lock lever.
- Rotate the miter table until the pointer aligns with zero on the miter scale.

NOTE: You can quickly locate 0°, 15°, 22-1/2°, left or right, 31.62° and 45° left or right as you rotate the control arm. The miter table will seat itself in one of the positive stop index points, located in base.

- Push the miter lock lever down to lock the miter table.
- Loosen the bevel lock knob 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 knob.
- Recheck miter angle setting. Make a test cut in scrap material.



OPERATION

- 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.
- 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. Depress the switch lock with thumb 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 the workpiece. Wait until the blade stops before removing the workpiece from the miter table.

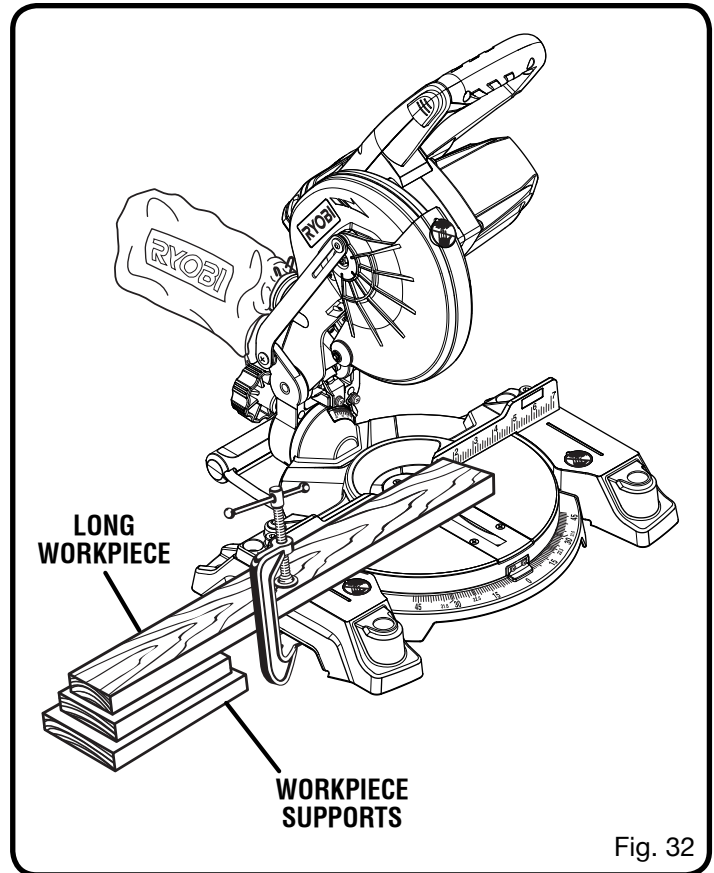


Fig. 32

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 worktable during the cutting operation. Use the optional work clamp or a C-clamp to secure the workpiece.

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

This 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° . Most crown molding has a top rear angle (the section that fits flat against the ceiling) of 52° and a bottom rear angle (the section that fits flat against the wall) of 38° .

LAYING MOLDING FLAT ON THE MITER TABLE

See Figure 33.

To use this method for accurately cutting crown molding for a 90° 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° , 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° . The miter angle should be set at 31.62° either right or left, depending on the desired cut for the application. See the chart for correct angle settings and correct positioning of crown molding on miter table.

The settings in the chart can be used for cutting all Standard (U.S.) crown molding with 52° and 38° angles. The crown molding is placed flat on the miter table using the compound features of the miter saw.

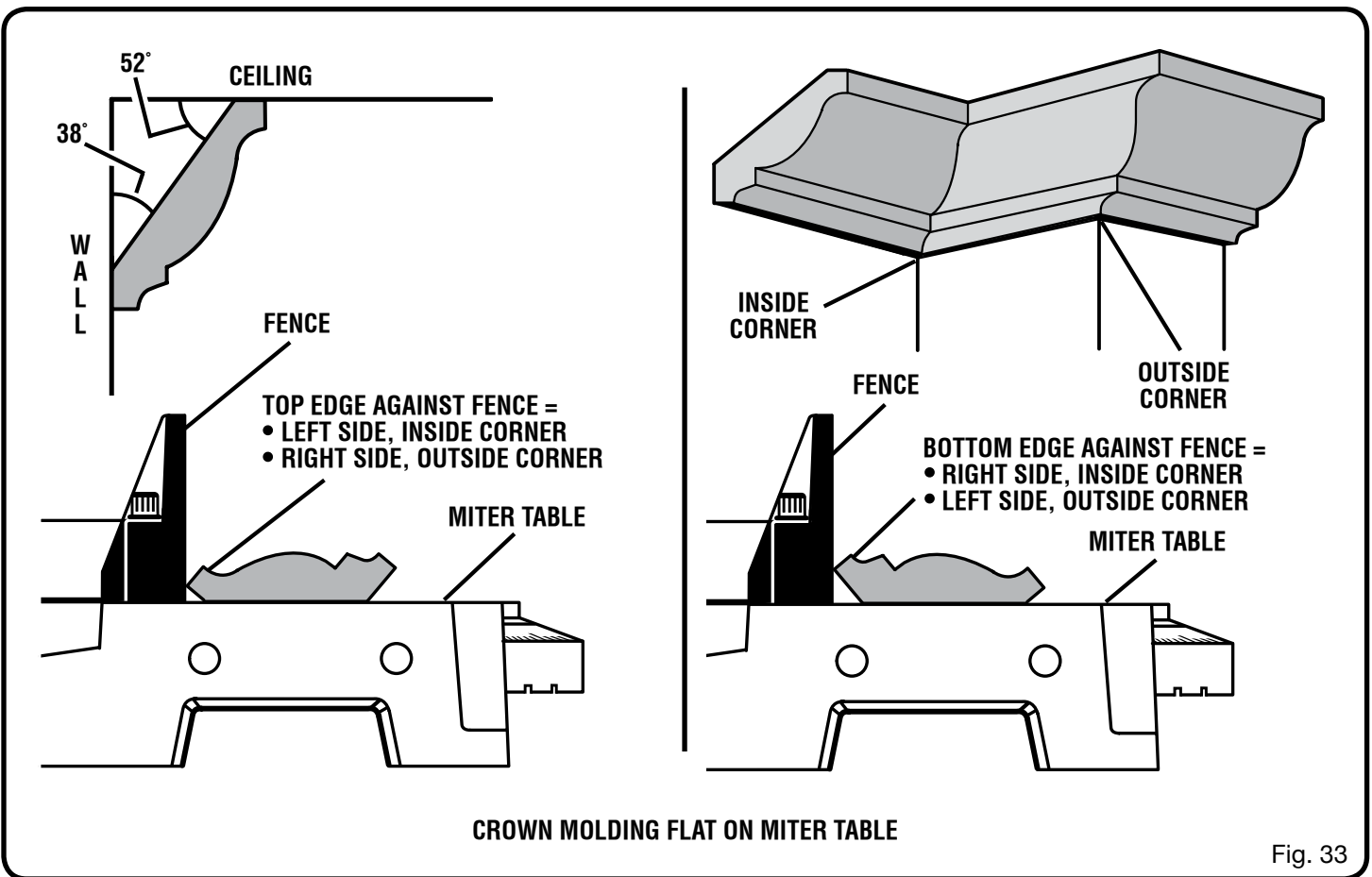
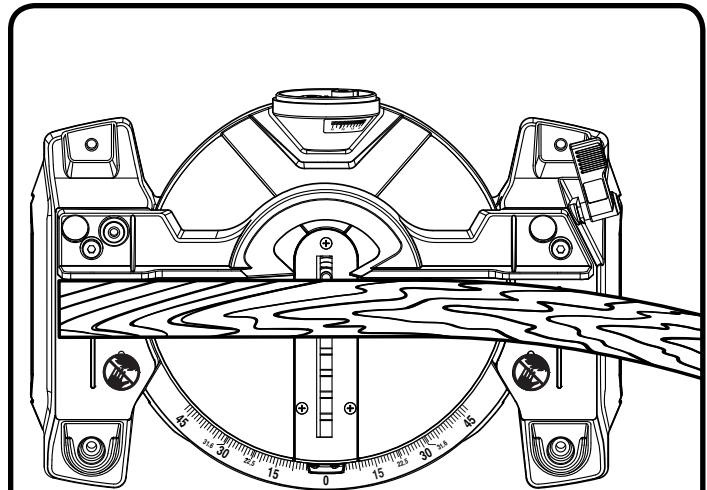


Fig. 33

OPERATION

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



RIGHT

Fig. 34

CUTTING WARPED MATERIAL

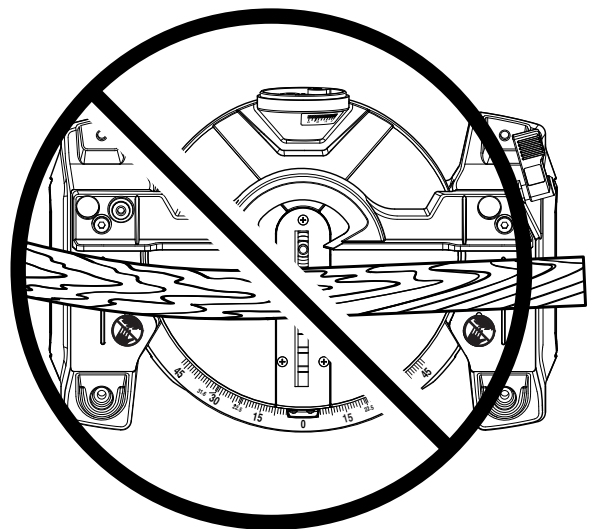
See Figures 34 - 35.

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 34.

If the warped material is positioned the wrong way as shown in figure 35, 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.



WRONG

Fig. 35

ADJUSTMENTS

⚠ WARNING:

To prevent accidental starting that could cause serious personal injury, always remove the battery pack from the tool when assembling parts.

The compound miter saw has been adjusted at the factory for making very 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 the saw. Make any readjustments that are necessary and periodically check the parts alignment to make sure that the saw is cutting accurately.

⚠ CAUTION:

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

PIVOT ADJUSTMENTS

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

TRAVEL PIVOT ADJUSTMENT

- 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 by at your nearest authorized service center.

BEVEL PIVOT ADJUSTMENT

- The compound miter saw should bevel easily by loosening the bevel lock knob and tilting the saw arm to the left.
- If movement is tight or if there is play in the pivot, have saw repaired by at your nearest authorized service center.

POSITIVE STOP ADJUSTMENTS

See Figure 36.

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

To adjust:

- Remove the battery pack from the tool.
- Loosen the bevel lock knob by turning the knob counterclockwise.
- Square the blade to the miter table as described in the *Assembly* section of this manual.
- If the blade is out of square, adjust by tightening or loosening the positive stop adjustment screw.
- Retighten bevel lock knob. 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.

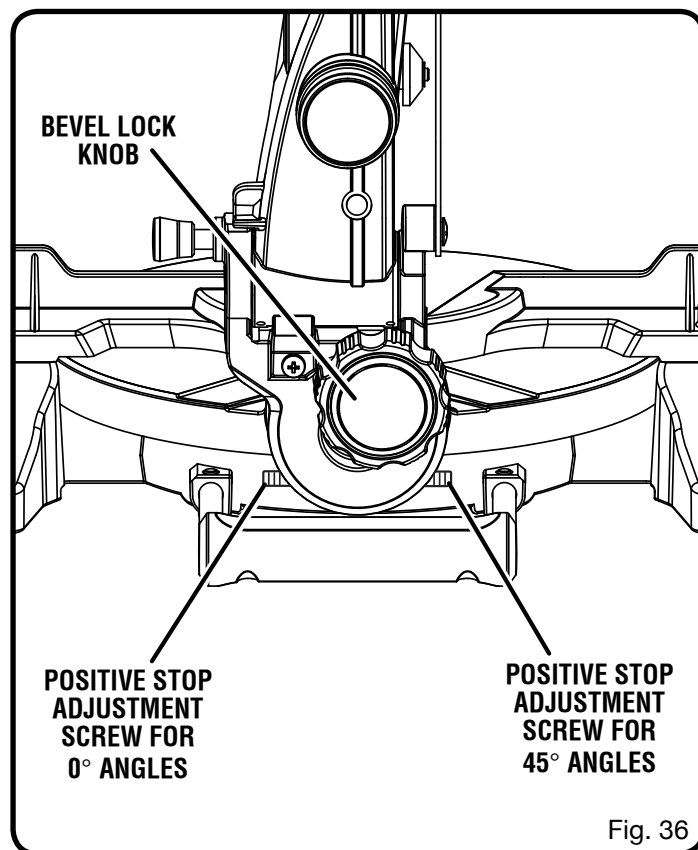


Fig. 36

ADJUSTMENTS

⚠ 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.

TO ADJUST THE LASER GUIDE

See Figure 37.

- Set miter and bevel angles to 0°.
- Use the work clamp or a C-clamp to secure a piece of scrap wood.
- Turn the saw on and make a slight cut to score the wood.
- Release the switch trigger and allow the saw blade to stop rotating before raising the saw arm.
- Using a padlock, lock the switch trigger to make the saw inoperable.
- Turn on the laser switch.
- To adjust the laser, loosen the laser adjustment screw using the Phillips end of the supplied blade wrench.
- Move the laser left or right until properly aligned.

NOTE: The laser should be on the left edge of the kerf.

- Once aligned, tighten the screw.

NOTE: If laser does not align correctly, return to your nearest Ryobi Authorized Service Center for repair.

TO ADJUST THE MITER LOCK LEVER

See Figure 38.

Prior to squaring the saw blade to the fence, check and adjust the miter lock lever, if needed. In the “locked” position, the action of pushing the miter lock lever fully down should feel tight and secure. Considerable effort should be required to move the miter table. If the table moves easily when in the “locked” position, an adjustment of the miter lock lever is required.

To adjust:

- Remove the battery pack from the tool.
- Push the miter lock lever fully down to lock.
- Pull the miter lock lever out to the right to disengage, then pull forward to adjust.
- Release miter lock lever to re-engage
- Recheck the miter table to ensure proper tightness.

LASER ADJUSTMENT SCREW

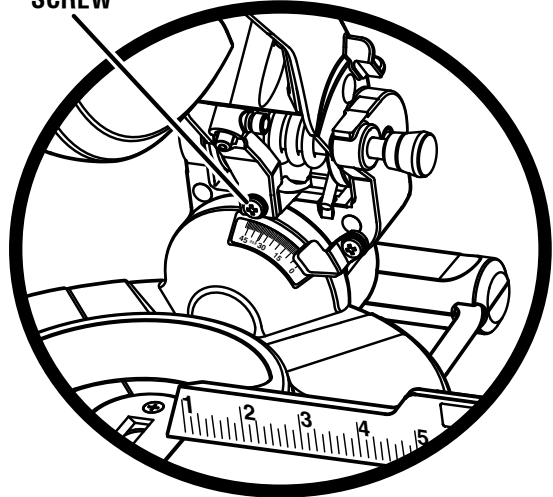


Fig. 37

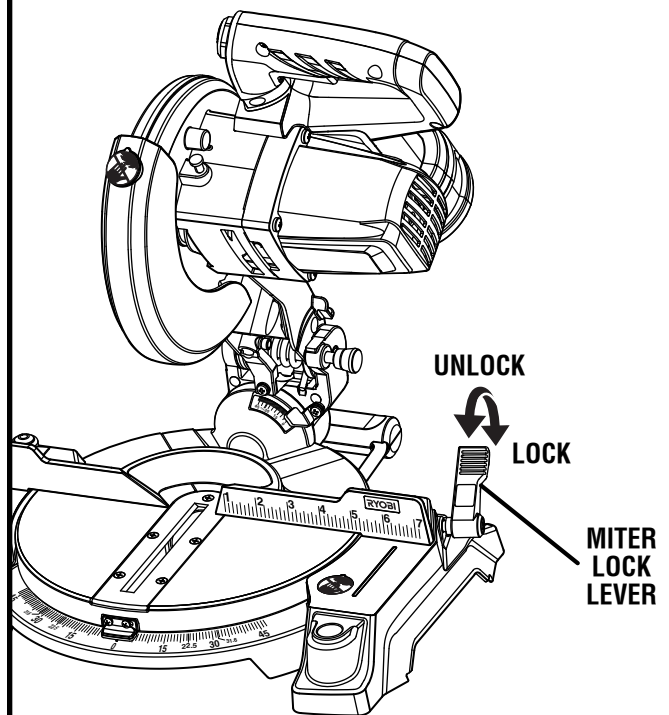


Fig. 38

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 eye protection with side shields marked to comply with ANSI Z87.1 during product operation. 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.

BATTERY PACK REMOVAL AND PREPARATION FOR RECYCLING

 **WARNING:**

Upon removal, cover the battery pack's terminals with heavy-duty adhesive tape. Do not attempt to destroy or disassemble battery pack or remove any of its components. Batteries must be recycled or disposed of properly. Also, never touch both terminals with metal objects and/or body parts as short circuit may result. Keep away from children. Failure to comply with these warnings could result in fire and/or serious injury.

NOTES



OPERATOR'S MANUAL

7-1/4 in., 18 Volt Cordless Compound Miter Saw

P551

WARNING:

This product and some dust created by power sanding, sawing, grinding, drilling, and other construction activities may contain chemicals, including lead, known to the State of California to cause cancer, birth defects, or other reproductive harm. **Wash hands after handling.**

- 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 exposure to these chemicals varies, depending on how often you do this type of work. To reduce your exposure, work in a well-ventilated area and with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.

• **SERVICE**

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

• **MODEL NO. AND SERIAL NO.**

The model number of this tool will be found on a plate attached to the motor housing. Please record the model number and serial number in the space provided below.

• **HOW TO ORDER REPAIR PARTS**

When ordering repair parts, always give the following information:

- MODEL NUMBER _____
- SERIAL NUMBER _____

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