

Getting the most from your **Miter Saw**

With a few handy tips and jigs, you can make your miter saw safer, work harder, and cut more accurately.



If you're looking to get better results with your miter saw right now, you don't have to spend a lot of time (or money) to do it. On the next few pages, you'll see a number of quick tips and a few simple jigs for getting great results.

Tune-Up – But tips and jigs won't help much if your miter saw isn't tuned up and running smooth. So it's a good idea to take a look through your owner's manual to see what it takes to tune up your saw. For a quick reference on the basics, take a look at the box below.

Tune-Up Checklist

- 1 Remove Sawdust.** Clean off any sawdust along with caked-on pitch and resin — especially around moving parts.
- 2 Inspect Brushes.** Check brushes for wear. Replace them once they become shorter than what's recommended in the owner's manual for the miter saw.
- 3 Lubricate Pivot Points.** Oil the main pivot points on the saw to ensure smooth operation and easy adjustment.
- 4 Check Blade Guard.** Tighten the blade guard if necessary and replace any worn parts in the linkage.
- 5 Align Fences.** Adjust two-part fences to ensure accurate alignment across the fence face.
- 6 Adjust Miter & Bevel Settings.** To produce accurate cuts, adjust miter and bevel settings according to the manual.

One last thing. The tips and jigs shown here will come in handy whether you own a small 8" saw that only cuts miters or a large 14" sliding, compound miter saw with all the bells and whistles.

ZERO-CLEARANCE INSERT

Take a look at most miter saws and you'll see an insert in the base that allows the saw blade to pass through. And it's the cause of one of the biggest problems with most miter saws.

The opening in the insert that the blade passes through is usually *quite*

a bit larger than the actual thickness of the blade. So there's nothing to support the edges of the workpiece when the blade cuts through. And that can cause some heavy tearout along the bottom face.

One way to solve this problem is to use a *zero-clearance insert*. A zero-clearance insert "wraps" around the blade as it passes through the workpiece. Since the workpiece is fully supported right up to the blade, it practically eliminates any tearout along the bottom.

Now, you can buy zero-clearance inserts for a number of miter saws. But you can also make your own. The first step is to start with a blank that's the same thickness as the existing insert for your saw.

Unfortunately, the thickness of the insert isn't likely to match any hardboard or plywood you have around the shop. So it's best to make the insert from a piece of hardwood that's planed to match the thickness of the existing insert. This way, you can be sure the insert will be flush with the surface of the miter saw table.

Once you have the blank the right thickness, you can rip it to width to match the opening in the saw table. (It's a good idea to make a few extras

blanks while you're at it.)

The next step is to shape the ends of the blank to match the opening. And that's an easy task because you can use the existing insert as a pattern and simply trace around the ends (Figure 1a). Then cut outside the layout lines on the blank and sand the ends until the insert fits perfectly.

At this point, all that's left to do is drill a set of counterbored (or countersunk) holes for the screws used to hold the original insert in place.

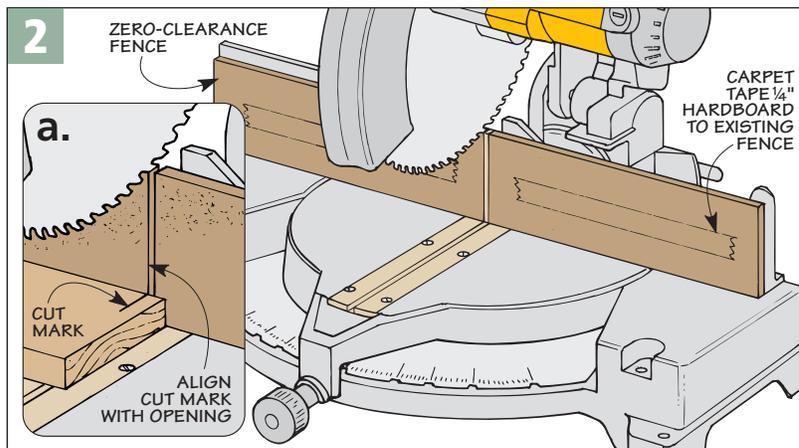
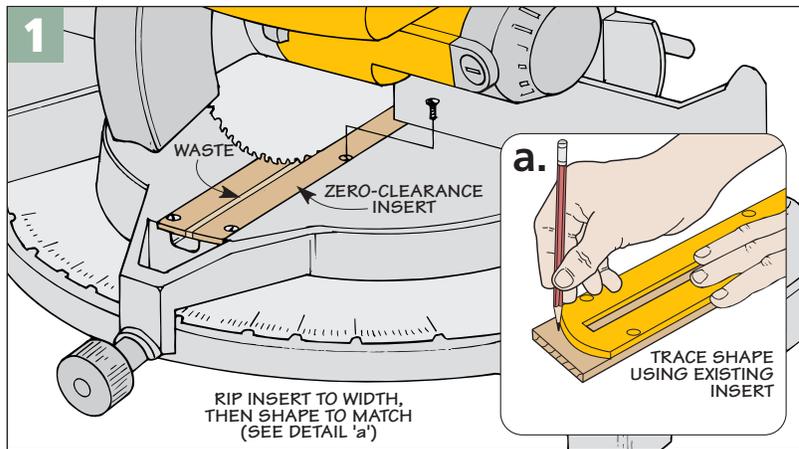
After installing the insert, creating the "zero clearance" is just a matter of turning the miter saw on and making a smooth, even cut.

ZERO-CLEARANCE FENCE

The zero-clearance insert eliminates tearout along the bottom of a workpiece. But tearout along the *back* of the workpiece is also a problem.

Just like in the base, tearout occurs because there's usually a large gap along the face of the fence where the blade passes through. Besides not supporting the workpiece, this gap can cause a small cutoff to catch on the blade and "explode" or "shoot" to a corner of the shop.

Here again, you can solve this problem by making a zero-clearance fence, as in Figure 2. What's different here is that instead of replacing the



existing fence, you simply add a strip of 1/4" hardboard that's sized to roughly match the height and length of the existing fence. This way, you maintain as much of the cutting

capacity of the saw as possible. A few strips of carpet tape is all it takes to attach the fence. Then once the fence is in place, the first cut you make will create a zero-clearance opening just like the insert in the base of the miter saw.

An added benefit is that the zero-clearance opening makes it easy to line up your cuts. All you need to do is make a small cut mark along the edge of the workpiece (Figure 2a).

One thing to keep in mind is that when you change the miter setting, the zero-clearance opening will "open" up. So be sure to replace the fence with a fresh one whenever you change to a new miter setting.

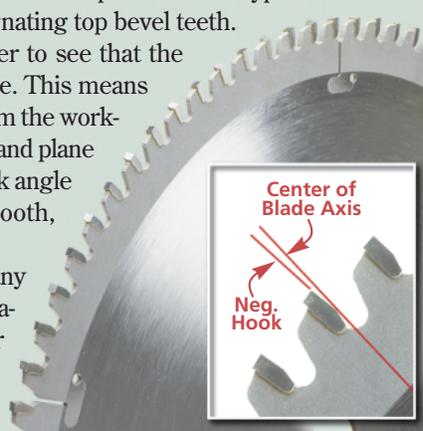
And one more tip. A zero-clearance insert and fence are sure to make a big improvement in your cuts. To improve your cuts even more, check out the box at left.

Miter Saw Crosscut Blade

The saw blade that comes with most miter saws is fine for general woodworking. But for better results, take a look at the blade shown below.

Hook Angle – This blade has a tooth pattern that's typical of most saw blades — a number of alternating top bevel teeth. But in the inset photo, it's easier to see that the teeth have a *negative* hook angle. This means the teeth angle slightly *away* from the workpiece as it cuts. Like skewing a hand plane for a smooth cut, a negative hook angle on a saw blade results in a smooth, tearout-free cut.

Cost & Availability – Like any good saw blade, one with a negative hook angle can cost \$60 or more. You can find this blade at most woodworking stores.



Quick Tips

After adding a zero-clearance insert and fence, the quick tips below should provide the answers to a few common miter saw problems.

SHIM IT RIGHT

One of the more frustrating things about cutting a miter is that it isn't all that unusual for it to be off just a hair. And that little bit can easily ruin how pieces fit together. The problem is trying to adjust the miter saw table to trim a small amount off the end of the workpiece is all but impossible.

To solve this, I don't adjust the miter setting. Instead, I turn to an old deck of playing cards I keep around the shop. To change the angle slightly, I clamp a playing card (or two) along the fence and then slide the workpiece in position (Figure 3). Note: You can use just about any thin piece of material to do this.

The playing card "kicks" the workpiece out slightly, as in Figure 3a. This allows you to trim a small sliver off the end. To vary the amount of material you slice off, simply add another card or two (to remove more material) or slide the card away from the blade (to remove a little less).

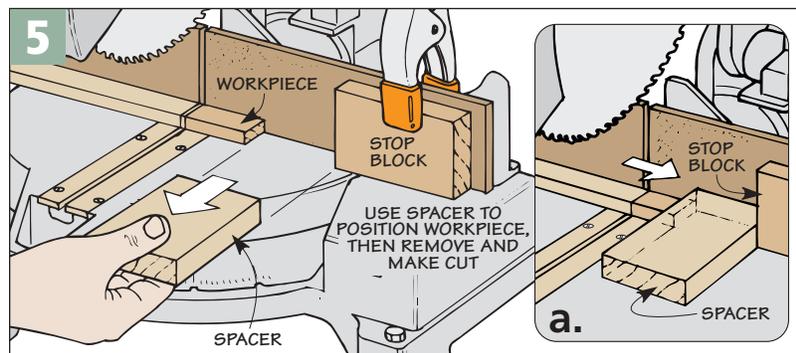
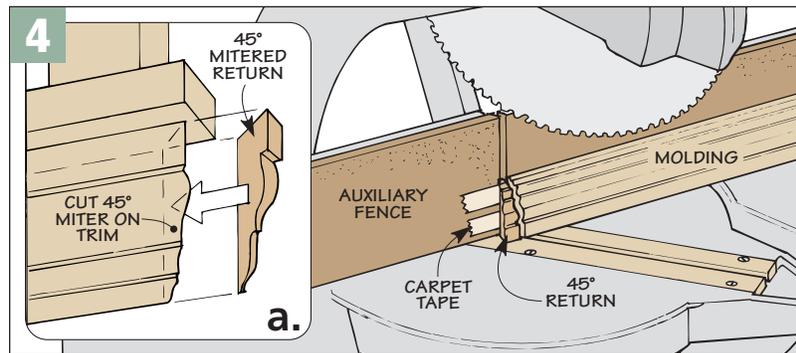
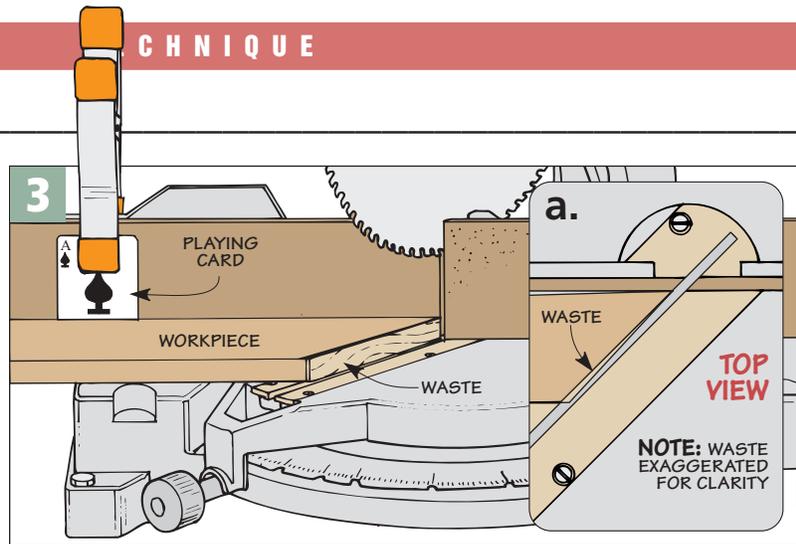
MITERED RETURNS

Exposed end grain on trim moldings really stands out in a room. A good way to solve this is to cut a mitered return, like you see in Figure 4a.

But there is one small problem. The size of the mitered return makes it all too easy for it to get chewed up by the saw blade after you make the cut.

One way to handle a workpiece this small is to secure the piece of trim molding to the auxiliary fence with carpet tape, as illustrated in Figure 4. This helps keep the return from flying across the room or getting chewed up by the blade.

And regardless of the size of the workpiece, it's always a good idea to make a smooth cut through the workpiece *and* let the saw blade come to a complete stop before raising it.



CUTTING MULTIPLES

Whenever I have to cut a number of pieces to identical length, I like to use a stop block. A stop block ensures that each piece is identical without having to lay out each piece and then line the cut up perfectly.

But cutting a number of *short* pieces to identical length is a challenge. Since you can't clamp a stop block at the proper position *and* hold the workpiece without your fingers being too close to the blade, it's best to change the technique slightly.

Instead, position the stop block and clamp it in place allowing for a

spacer between the block and the workpiece. You can see this illustrated in Figure 5a.

Then when you're ready to cut the workpiece to size, rest the spacer against the stop block and then butt the workpiece against the spacer. As you hold the workpiece in place safely on the opposite side of the blade, slide the spacer out.

Now you can make the cut without having to worry about the small workpiece being trapped and possibly binding. To cut the remaining workpieces, just repeat the process using the spacer once again to position the workpiece.

Handy Jigs

Although quick tips will get you through a number of problems, there are times when you might need just a little more. In the drawings at right you'll see a workstation and a couple jigs that are sure to help out.

WORKSTATION

The nice thing about miter saws is they're portable. But that portability comes at a price — the saw table doesn't always provide solid support for cutting longer workpieces.

A simple way to make your miter saw work "bigger" without creating an elaborate system is to mount it to a simple workstation, as in Figure 6.

The workstation starts out as a plywood base that's sized to fit the depth of the saw. But you'll want to make it about 16" longer than the width of the saw.

The extra length provides space for a pair of U-shaped extensions that are attached to the base to form a "box" on each side of the saw. The tops of the extensions are plywood, while the sides are $\frac{3}{4}$ "-thick hardwood to provide a solid bite for the screws that hold the pieces together.

The sides are sized so that once everything is assembled, the top of the extensions are flush with the saw table, as in Figure 6a.

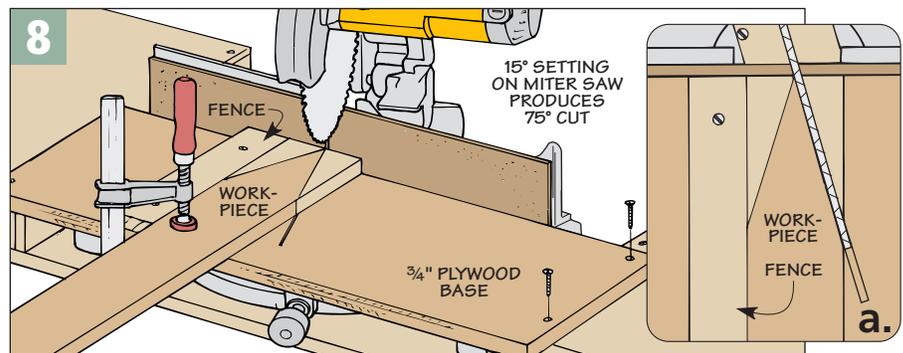
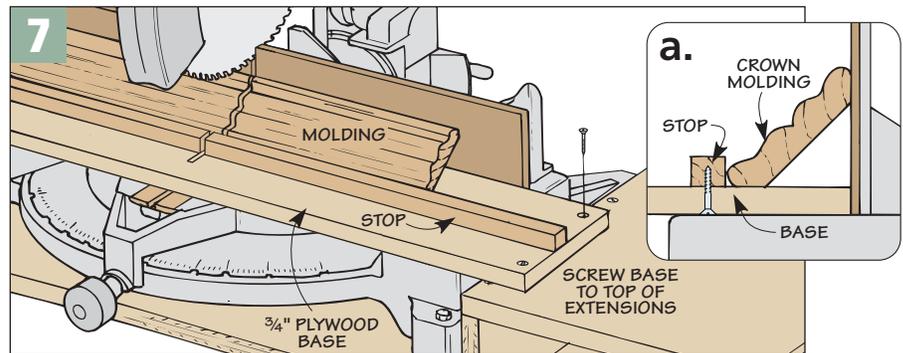
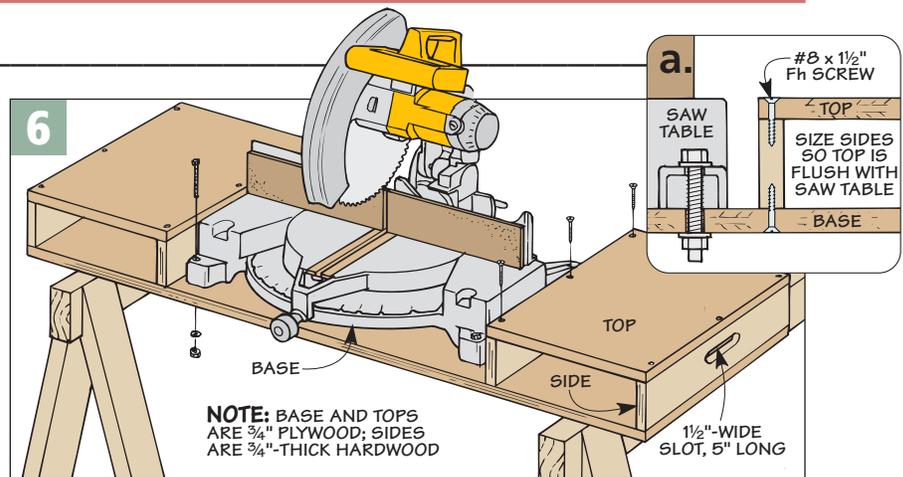
CROWN MOLDING JIG

Miter saws are great for cutting crown molding. Especially since you can often cut it so that it's laying flat on the table. Most miter saws have settings for one or two of the common spring angles (the angle the crown tilts away from the wall).

But this often involves "eyeballing" the settings, which isn't very accurate. And it doesn't help when you have to cut crown molding that has a different spring angle.

I find it best to cut crown molding the "old-fashioned" way — with the molding tipped upside-down and backwards between the table and fence.

But holding the workpiece in place securely can be a problem. To solve



this, all you need to do is add a plywood base, like you see in Figure 7. The table is sized extra-wide to avoid cutting all the way through the table. To position the molding properly, simply screw a hardwood stop along the front edge of the base so the crown molding rests at the correct angle, as illustrated in Figure 7a.

BEYOND 45°

Although it doesn't happen often, sometimes I need to cut angles well past 45°, like the top of a picket for a fence, as shown in Figure 8a. As you may have expected, the solution to this problem is a shop-made jig.

The jig is just a plywood base with a hardwood fence screwed perpendicular to the back edge, as you can see in Figure 8a. Since the fence "rotates" the workpiece 90°, you end up with the complementary angle of the setting on the miter saw.

Confused? Well think of it this way. When the saw table is set to 15°, the jig gives you the complementary angle, or 75° in this case.

Angles like this often result in long cuts that work best on a sliding miter saw. But in many cases, you can use any type of miter saw, cutting as far as possible. Then you can complete the cut with a hand saw. 