

PICTURE-PERFECT MITRES

There's no secret or "trick" to cutting perfect mitres. They just take a careful setup and some fine tuning to get tight-fitting joints.

There's nothing very complicated about a mitre joint. Just two 45° angles that fit together to form a right angle. And making a mitre joint is also pretty simple. You adjust your mitre gauge to 45° and make a cut on the end of two pieces of wood. Sometimes, you might have to do a little "tweaking" to the mitre gauge, the saw blade, or both. But all in all, it's not too difficult to get the two pieces to fit together in a nice, tight mitre.

When you're dealing with more than one mitre however (like in a picture frame), it's another story entirely. That's because if just one of the mitres is off, it will throw the other three out of whack as well. In cases like this, *fitting* the mitres is every bit as important as *cutting* the mitres.

Making a picture frame, or any other mitred project, with perfect-fitting joints is really a matter of following a sequence of steps. And that sequence starts with setting up your equipment properly.

SAW TUNE-UP. In order to cut accurate mitres, it's important to start with a



well-tuned table saw. So if you haven't tuned up your saw in a while, now might be a good opportunity.

First off, the saw blade must be parallel to the mitre gauge slots. If it's not, you'll need to realign the trunnions of your saw. (Refer to your table saw manual for tune-up procedures on your specific table saw.)

You'll also want to take a minute to

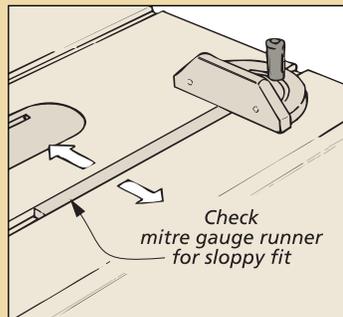
inspect the fit of the mitre gauge in the mitre gauge slot. The mitre gauge should slide freely without any side-to-side movement, see box below.

After taking care of any play in the mitre gauge, check the saw blade to make sure that it is set exactly 90° to the saw table. A good way to do this is by making a test cut in a scrap piece of wood, see Figs. 1 and 1b.

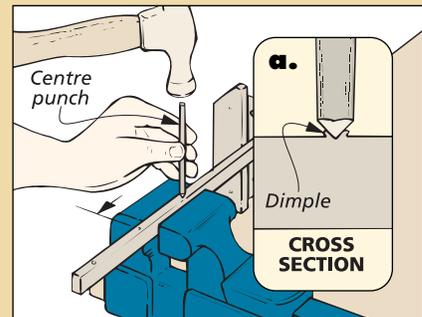
ADJUSTING A MITRE GAUGE

With use, the runner (or bar) on your mitre gauge can wear to the point that it fits rather loosely in the mitre gauge slot, see Step 1. This can create side-to-side movement in the mitre gauge, making it difficult to cut mitres consistently.

To reduce the amount of "play," you need to make the runner "wider." An easy way to do this is to make a few raised dimples on one side of the mitre gauge runner, see Step 2.



1 You can detect a loose-fitting mitre gauge runner by checking the amount of side-to-side play in the mitre gauge slot.



2 To take up the play in the mitre gauge, strike the side of the runner with a hammer and centre punch to create raised "dimples."

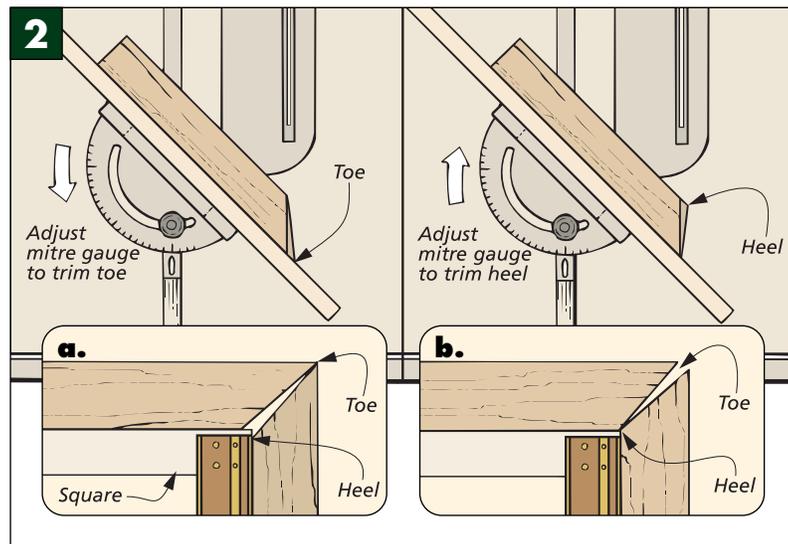
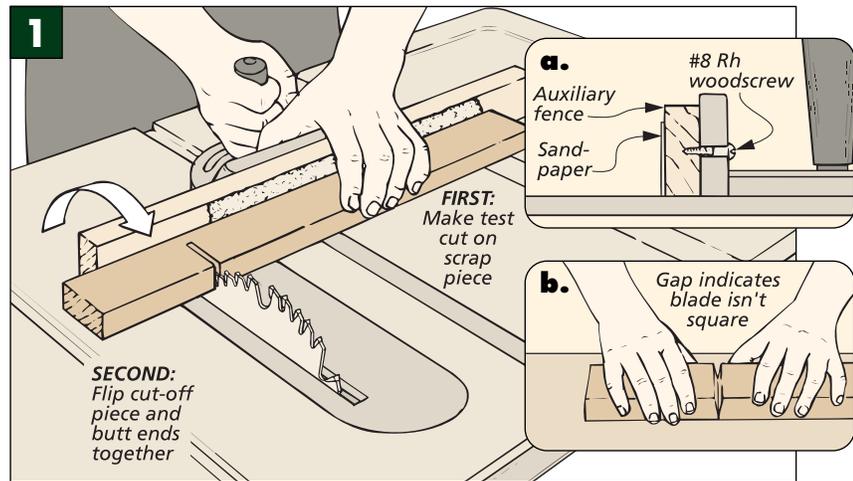
Speaking of saw blades, if you've got a good crosscut blade, you'll want to use it. A crosscut blade will leave a smooth cut with a minimum of splintering. But if you don't own a crosscut blade, a sharp combination blade should work fine.

AUXILIARY FENCE. For cutting mitres, I like to attach an auxiliary fence to the face of my mitre gauge. This does two things. First, it helps to back up the cut to prevent chipout. Second, it gives you plenty of support, making it easier to hold the workpiece while pushing it past the saw blade. And to prevent the workpiece from "creeping" while making the cut, I affix a strip of adhesive-backed sandpaper to the face of the mitre gauge for a little extra gripping power, see Fig. 1a.

When setting my mitre gauge to 45°, I don't rely on the markings on the gauge itself. Instead I use my combination square. By simply removing the graduated rule from the head of the square, you can easily check the angle of the mitre gauge in relation to the saw blade, see photo in margin.

TEST CUTS. Although the combination square is pretty accurate, there's an old saying that the proof is in the pudding. So before cutting any of my frame stock, I like to make one final check by making a couple of test cuts. If the two test pieces fit together in a perfect right angle, you're ready to move on to your frame pieces. If not, you'll need to do a little "tweaking" of your miter gauge and trim a bit off the ends, see Fig. 2.

CUTTING THE MITRES. After the set up work and test cuts are done, you're ready to start cutting the mitres on the actual work pieces. I like to follow a



▲ Use the head of a combination square to set the mitre gauge at 45°.

sequence here as well. First I mitre *one* end of each frame piece, see Fig. 3. Hold each workpiece firmly against the mitre gauge while making the cut to prevent it from slipping.

To mitre the opposite end of each piece, you'll have to move the mitre gauge over to the slot on the other side of your saw blade and readjust it to the opposite 45° setting, see Fig. 4.

(Don't forget to make test cuts again on a few scrap pieces.)

To make sure each opposing pair of frame pieces ends up the same length, I use a stop block to position the pieces when making the second mitre cut, see Fig. 4. Shop Note: If the end of the stop block is also mitred, it will provide better support for the workpiece, see Fig. 4a.

