

Three steps to a square SMT:

After years of fussing over the SMT and trying to understand what made it tick, I've developed this understanding of its alignment process. It is similar to Ryobi's with a few less ambiguities. There are three steps to follow when aligning the SMT's base, table, and fence. In each explanation, I give a brief description followed by the dirty details.

## THE BASE

First, align the base to the blade. Measuring the distance from the blade to some place on the table does this. Move the table to the opposite end of the miter base and check the measurement again. Be sure to measure to the same location on the table. It helps to make a pencil mark when doing this. The base is aligned when this distance measured in both places is the same.

Here is how I square my base: Leave all four plastic rail grips locked down. Slide the table to the rear of the saw. At the front of the base, locate two screws. Do not loosen the screws on the rail grips. Of the two screws located at the front of the base, loosen the left one only. Note: When loosening the screws, only loosen them a little or the sliding table will rub on them or not be able to pass at all. The base will eventually pivot on the rightmost screw. Slide the table as far to the front of the saw as it will go. Raise the blade as high as it will go. Hold your framing square against the center of the blade. Holding the framing square on the center of the blade will reduce blade movement. Note: Remember to avoid the carbide tips on the blade. Where the square crosses the sliding table, make a mark and note the distance. You are looking for high accuracy here. A 32<sup>nd</sup> of an inch is the minimum I would attain. A 64<sup>th</sup> of an inch is as good as it gets. Slide the table to the rear of the saw. Flip the framing square so the square is again against the blade and so you can measure the mark you just made. You will likely want the long end of the framing square against the blade for greater reach. Note the measurement on the framing square measured to the mark you previously made. It should be identical. If it is, your base is aligned. For those of us who know better, read on. Slide the table towards the front of the saw until the two screws at the rear of the base are uncovered. Note: Don't loosen the rail grip screws. Loosen the two screws holding the base. The rear of the table should now have free movement. Remember that the pivot screw is still tight allowing the table just enough freedom to pivot around it. Slide the table back to the rear of the saw. With your framing square against the blade, move the rear of the table either toward or away from the blade so the distance previously measured is exactly the same. Insure you are measuring to the previously made mark on the table. Now, at the front of the base, tighten the left most screw loosened earlier. You should not attempt to move the table and tighten the two screws at the rear of the table until the front left most screw is secure. The one at the front is already uncovered and will lock down the base. After tightening the front left screw, slide the table to the front of the saw and tighten the two rear base screws. Your base should now be aligned with the blade. If not repeat this process. It took me several times to become comfortable with this process. Don't become discouraged.

## THE TABLE

Second, align the table to the blade. As mentioned before, the table can slide on the square base and still be out of square to the blade. How you say? It's like that school bus going down the street.

We've all seen them. The back is shifted left or right of the front, yet it still goes straight. The sliding table can do the same, though it is preferred to have it square. The reason you want the table square is because of the miter angle markings on it. If the table is square, the markings will be square. Squaring the table does not change or effect the base's alignment. It only changes the table's squareness with respect to the blade.

Here is how I square my table: Locate the four eccentric screws and their companion hex nuts on the sliding table. The hex nuts are on the top of the table and the eccentric screws are on the bottom of the table. Don't loosen the front right eccentric screw or hex nut. Now, loosen the other three eccentric screws. Note: When loosening or tightening the eccentric screws, use the hex nut. When adjusting the eccentric screw, hold the hex nut steady and turn the eccentric screw itself. Remember, one tightens (Hex on top of table), the other adjusts (Eccentric underneath the table). Make sure your miter fence is in place and set at the zero marking. One of the unfortunates about the miter angle markings is they are so fat. You have to determine how, once square, you will use the markings. It doesn't matter so long as you are consistent. (i.e. if you move one degree by going from the top of one mark to the top of the next mark, then always use the top of the angle markings as your reference.) Lock down the miter fence. Raise the blade as high as it will go. Place your framing square against the blade and the miter fence. Your table, having loosened the appropriate eccentric screws, will have maximum play. Put a small amount of pressure on the table pushing it toward the blade. A bungee cord is a great idea here. Holding its hex nut steady, turn the right rear eccentric screw so the framing square aligns with both the blade and the miter fence. Once there, tighten the hex nut. Note: Do not allow the eccentric screw to move any amount once you've adjusted it. You will need three hands here. One to hold the framing square steady, one to adjust the eccentric screw and the third to hold and tighten the hex. You can do it alone, though I found it easier to involve my lovely assistant (my wife). Now the two rightmost screws, one being eccentric the other being fixed, are square with the blade. Now tighten the left rear eccentric screw to minimize play yet allow the table to slide freely. Do the same with the left front screw. These two left most screws only control the grip on the base and have nothing to do with square. I like to adjust them leaving less than a 64th inch of play. That's it, your table should be square.

## THE MITER FENCE

Third align the miter fence to the blade. Note: Don't absolutely depend on the angle markings on the table under 1.25 degrees. Though squaring the table usually causes the miter fence to be square, you can still adjust the fence separately. NOTE: You can adjust the fence even if the table is not aligned. The two are mutually exclusive. You may not want to bother keeping the table perfectly square, especially if you don't use the miter angle markings that much. Besides, it's much easier to align the fence if the table is close enough. There is another eccentric screw just to the left of the miter fence. As you turn it left or right, the stop will adjust allowing you to square the fence with the blade.

Here is how I square my miter fence: It is similar to the table procedure. Place a square against the blade and the fence. Hold the square against the middle of the blade. That will eliminate any blade movement. Move the table/fence up to the square. Ensure the eccentric locking tab is up and that the fence is against it. Holding the square against the blade, turn the miter fence's eccentric screw left or right until the fence is square with the blade. Slide the table back and forth, checking the

fence in several positions. It should remain square. Another good check following the fence alignment is to check the miter fence for square against the rip fence. It should also be in alignment. It is important to remember, if the base is not square with the blade, nothing will be square with the blade. Always start there when checking for square or adjusting for square. This is not the easiest of processes. I've included many details so as not to be vague. But once you understand the why behind the procedure, you will be able to do it consistently and quickly. And last, but not least, practice makes perfect. Or in Ryobi's case, practice makes your SMT square.