

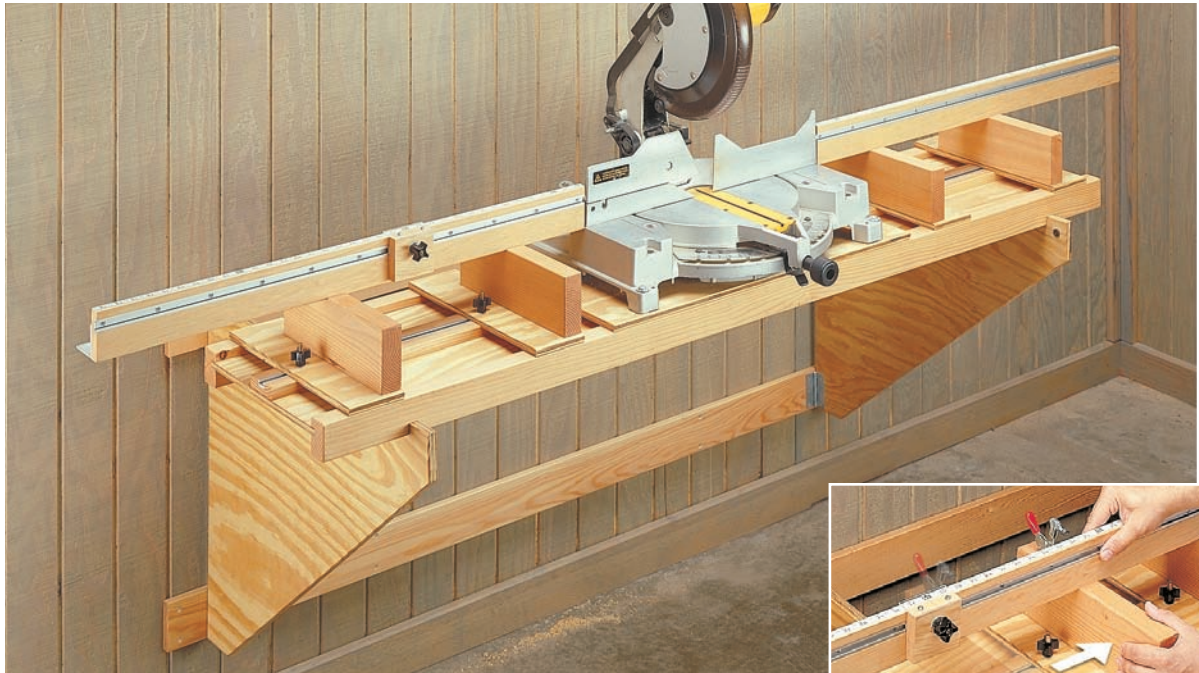


Woodsmith **PLANS**

MITER SAW STATION



MITER SAW STATION



A miter saw is an essential tool in most woodworking shops. For some woodworkers, it's essential outside the shop as well. That's the main reason for this miter saw station. It's packed with features that make it a great project — whether you're in the shop or on the job site.

PORTABLE. The station is designed to be portable. In the shop, it can rest on a bench or on a fold-out,

wall-mounted bracket (photo above). When you need to move outside the shop, just lift the station off the bracket and use a pair of sawhorses for support (photo below).

ADJUSTABLE. But there's something I like even more about this project — its adjustability. Instead of having the fence and miter saw in a fixed position, they're mounted to platforms that slide along the base

(see inset photo above). So when you need more support on one side of the saw than the other, just loosen the platforms, slide them where you need them, and lock them in place.

ACCURATE. But this versatility doesn't come at the expense of accuracy. An adjustable stop that slides in an aluminum T-track makes it extremely accurate. Along with a tape measure and hairline indicator, you can set precise, repeatable measurements.

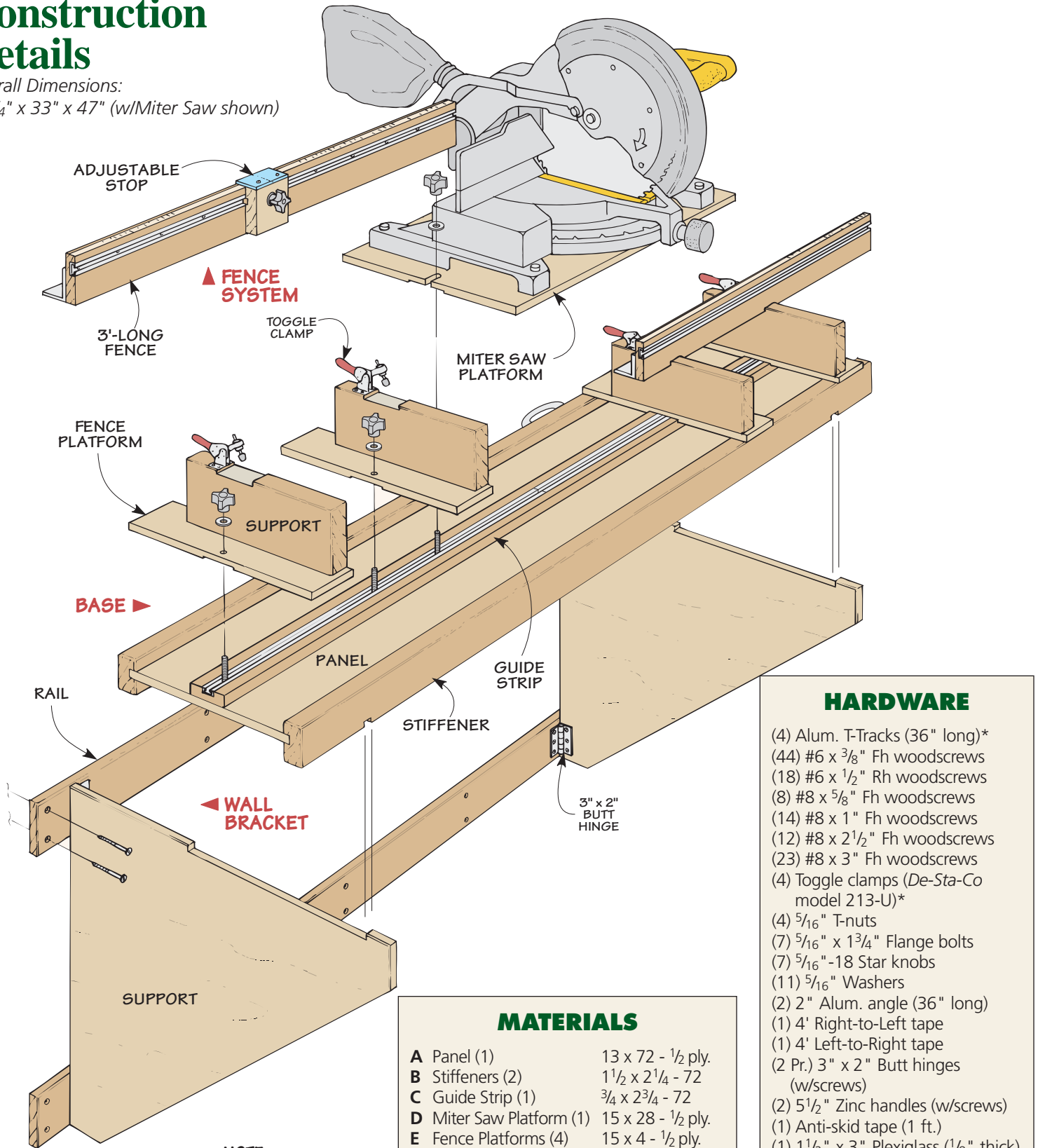
STORAGE. Now you might think this station will take up a lot of space when you aren't using it. But it's a real space-saver. To store the station, just remove the miter saw, slide the fences together, and hang the base (with the fences) on a cleat mounted to the wall (refer to page 8).



▲ **Portable.** A lightweight design and carrying handles make the miter saw station easy to move to the job site.

Construction Details

Overall Dimensions:
94¹/₄" x 33" x 47" (w/Miter Saw shown)



NOTE: HARDWARE LIST DOES NOT INCLUDE REQUIREMENTS FOR OPTIONAL 6'-LONG FENCE (SEE PAGE 6)

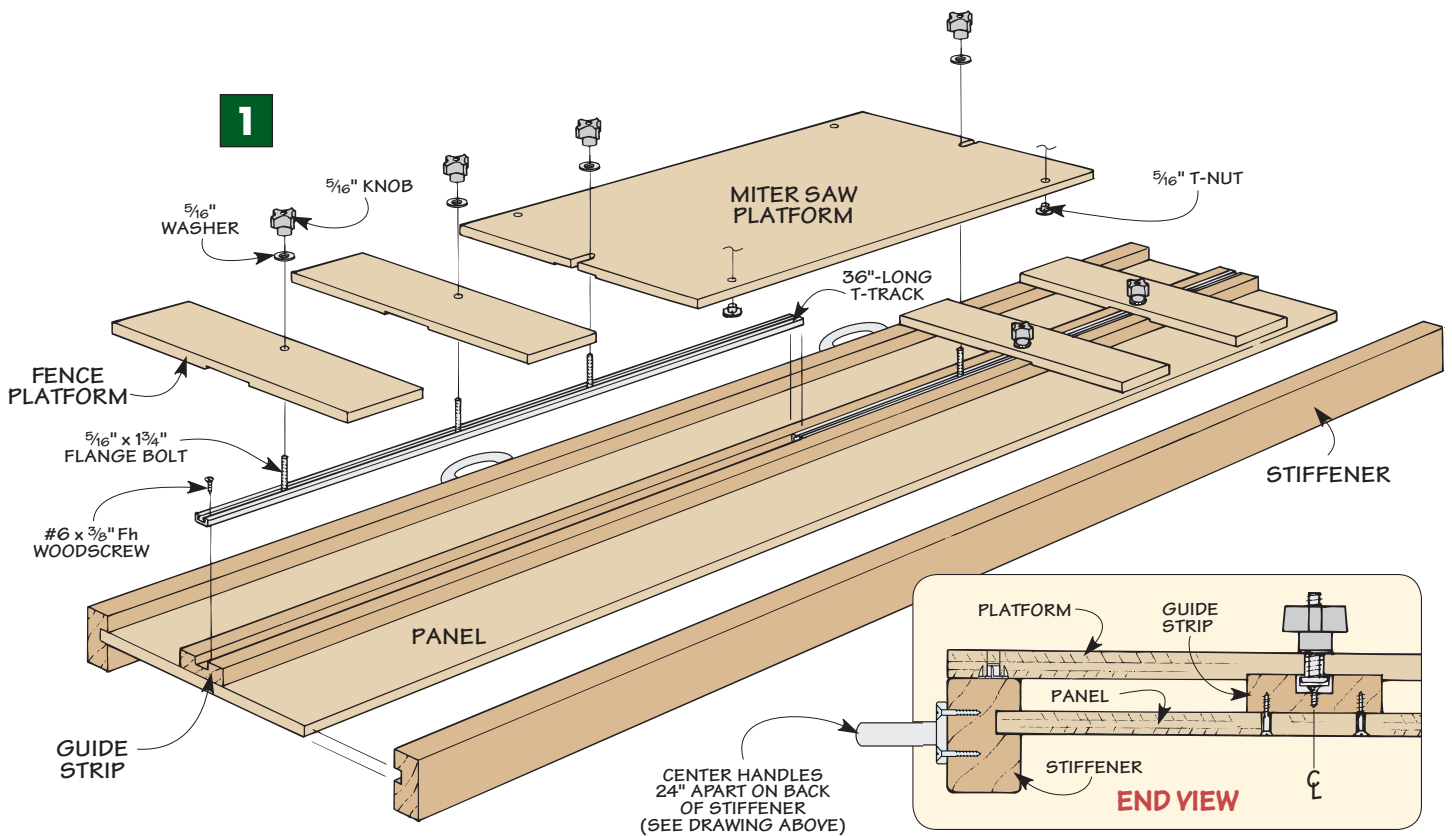
MATERIALS

A	Panel (1)	13 x 72 - 1/2 ply.
B	Stiffeners (2)	1 1/2 x 2 1/4 - 72
C	Guide Strip (1)	3/4 x 2 3/4 - 72
D	Miter Saw Platform (1)	15 x 28 - 1/2 ply.
E	Fence Platforms (4)	15 x 4 - 1/2 ply.
F	Supports (4)	1 1/2 x 4 (rgh.) - 12
G	Fence Face (2)	3/4 x 3 - 36
H	Long Fence Face (1)	3/4 x 3 - 72 (opt.)
I	Adjustment Block (1)	3/4 x 2 13/16 - 3
J	Alignment Key (1)	3/8 x 3 - 1/4 hdbd.
K	Rails (2)	3/4 x 4 - 66
L	Supports (2)	24 x 28 - 3/4 ply.
M	Cleats (2)	1 1/8 x 3 - 48

HARDWARE

- (4) Alum. T-Tracks (36" long)*
- (44) #6 x 3/8" Fh woodscrews
- (18) #6 x 1/2" Rh woodscrews
- (8) #8 x 5/8" Fh woodscrews
- (14) #8 x 1" Fh woodscrews
- (12) #8 x 2 1/2" Fh woodscrews
- (23) #8 x 3" Fh woodscrews
- (4) Toggle clamps (*De-Sta-Co* model 213-U)*
- (4) 5/16" T-nuts
- (7) 5/16" x 1 3/4" Flange bolts
- (7) 5/16" -18 Star knobs
- (11) 5/16" Washers
- (2) 2" Alum. angle (36" long)
- (1) 4' Right-to-Left tape
- (1) 4' Left-to-Right tape
- (2 Pr.) 3" x 2" Butt hinges (w/screws)
- (2) 5 1/2" Zinc handles (w/screws)
- (1) Anti-skid tape (1 ft.)
- (1) 1 1/2" x 3" Plexiglass (1/8" thick)
- (2) Magnetic catches w/strike plates
- (4) 5/16" Hex bolts (length will vary depending on miter saw)

**De-Sta-Co* toggle clamps can be ordered from ReidSupply.com. T-track is available at Rockler.com.



Building the Base

When designing the base of the miter saw station, there were a couple of features I knew I wanted. First, it had to be lightweight so it would be easy to move around. But the base also needed to provide solid support for the miter saw, fences, and workpiece. So it had to be strong and rigid.

BASE. To accomplish this, I made the base by connecting a pair of stiffeners with a plywood panel, as shown in Figure 1 above.

The panel is nothing special. It's just a piece of $\frac{1}{2}$ " plywood (Figure 2). But when it came time to make the stiffeners, I took a little extra time selecting a workpiece and didn't just grab a couple of ordinary 2x4s. Instead, I sorted through a stack of wider 2x stock to find a nice straight-grained workpiece (Douglas fir).

ASSEMBLY. Fitting the panel into the stiffeners is just a matter of cutting a

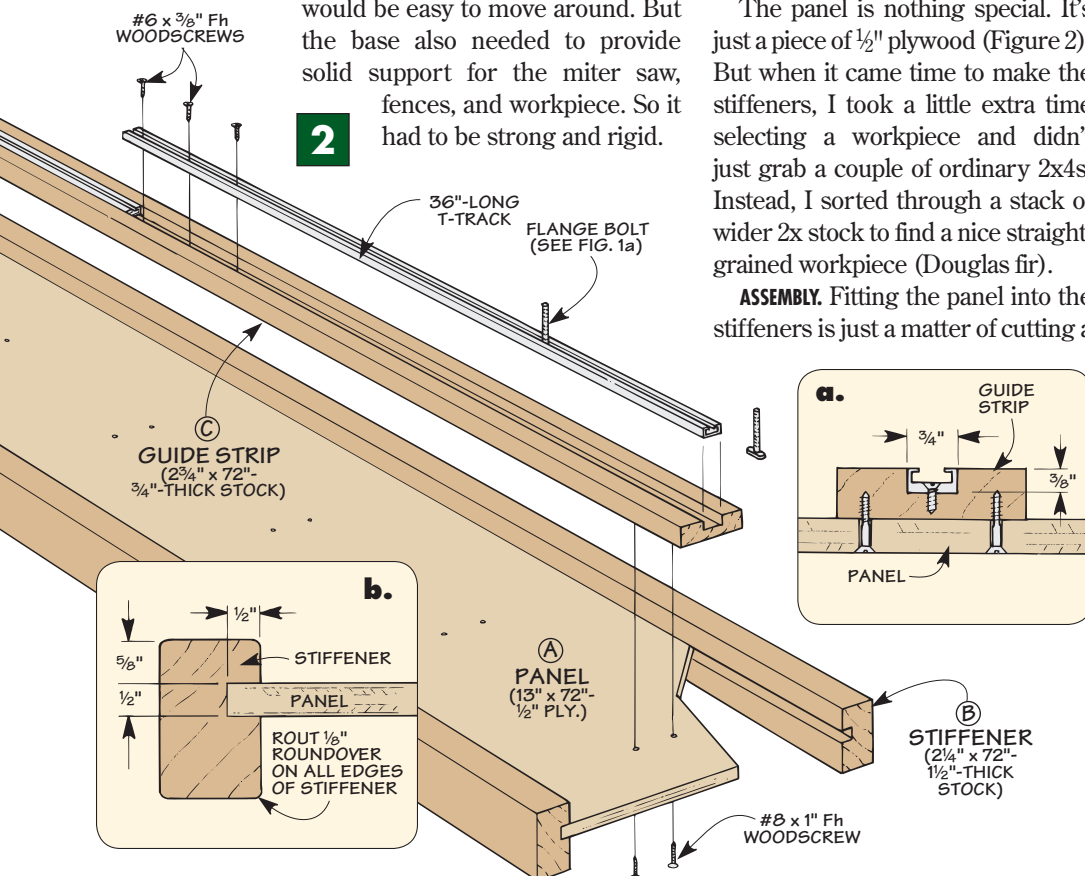
groove along the inside edge of each stiffener and then gluing the panel in place. This groove is positioned $\frac{5}{8}$ " down from the top edge of the stiffener (Figure 2b).

GUIDE STRIP. At this point, the base will support the platforms (added later) for the miter saw and fence. But to keep them aligned as you move them around and lock them in place, I added a guide strip, as shown in Figure 2.

The guide strip is just a piece of 1x stock that runs down the center of the base (see End View in Figure 1). To lock the platforms in place with knobs and flange bolts, there's a pair of aluminum T-tracks installed in a groove cut down the center of the strip (Figure 2a). After installing the T-tracks, center the guide strip on the base and screw it in place.

PLATFORMS

With the base complete, you can turn your attention to the $\frac{1}{2}$ " plywood platforms (Figure 1) that rest on the base and will support the fences and miter saw. To keep the platforms aligned, there's a wide groove cut in the bottom of each platform that fits over the guide strip (Figure 1a).



Of course, for this to work, the groove needs to be centered identically on each platform. The key to doing this is to cut the groove in all the parts at the same time.

The first thing to do is cut the miter saw platform to final size (Figure 3). But make a large blank for the fence platforms.

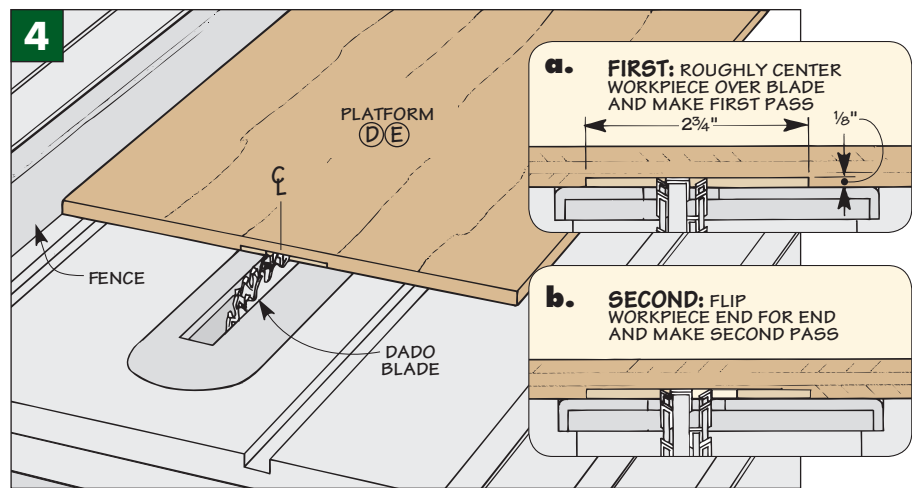
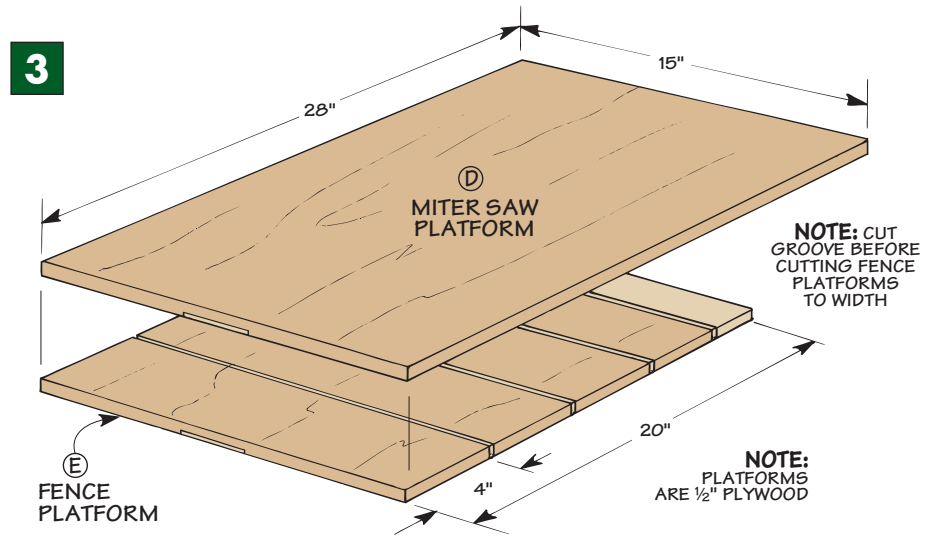
Here's where I used a little trick to center the groove. First, position the rip fence so the blank is roughly centered over the blade (Figure 4a). Then after making one pass, flip the workpiece end for end and make a second pass (Figure 4b). Now you have a perfectly centered groove.

To widen the groove, slide the fence closer to the blade and make two more passes, flipping the workpiece between passes. Continue this until the groove just fits over the strip.

SAW PLATFORM. Now you're ready to complete the miter saw platform. Start by cutting a slot centered on each side of the platform (Figure 5a). The slot provides a way to lock the platform to the base, yet still makes it easy to remove.

Then to attach the miter saw, you'll need to drill a set of counterbored holes (Figures 5 and 5b) to accept a set of T-nuts. To locate these holes, center the saw on the platform, mark each location, and then drill the holes.

After installing the T-nuts, you can mount the saw with a set of hex bolts and washers (Figure 5b). Mounting the platform to the base is just a matter of slipping a pair of flange

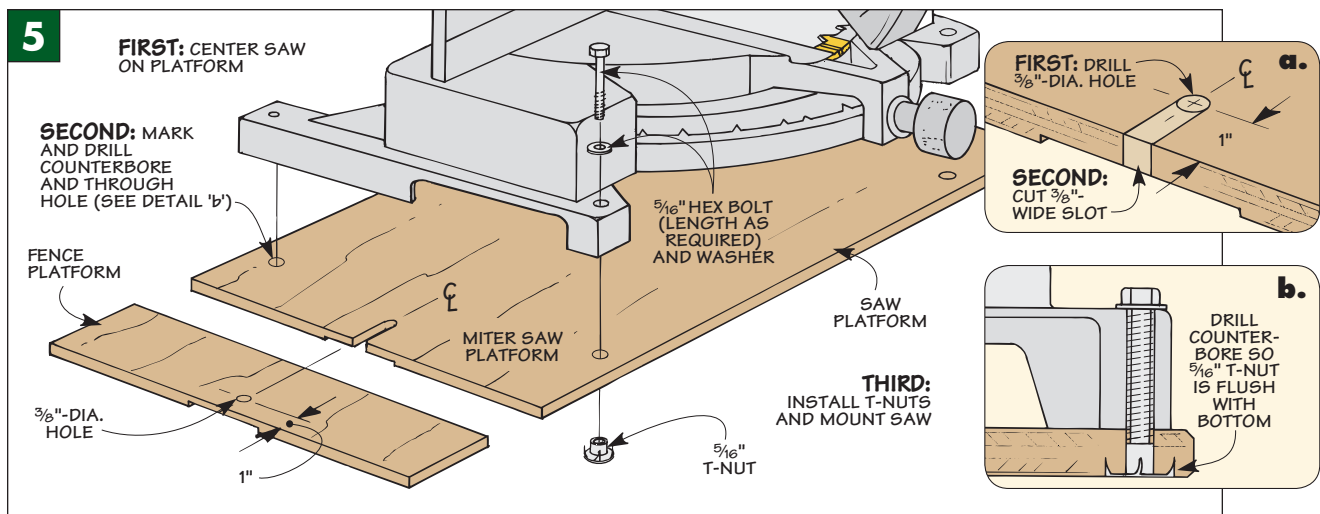


bolts in the T-track and adding a couple of washers and knobs.

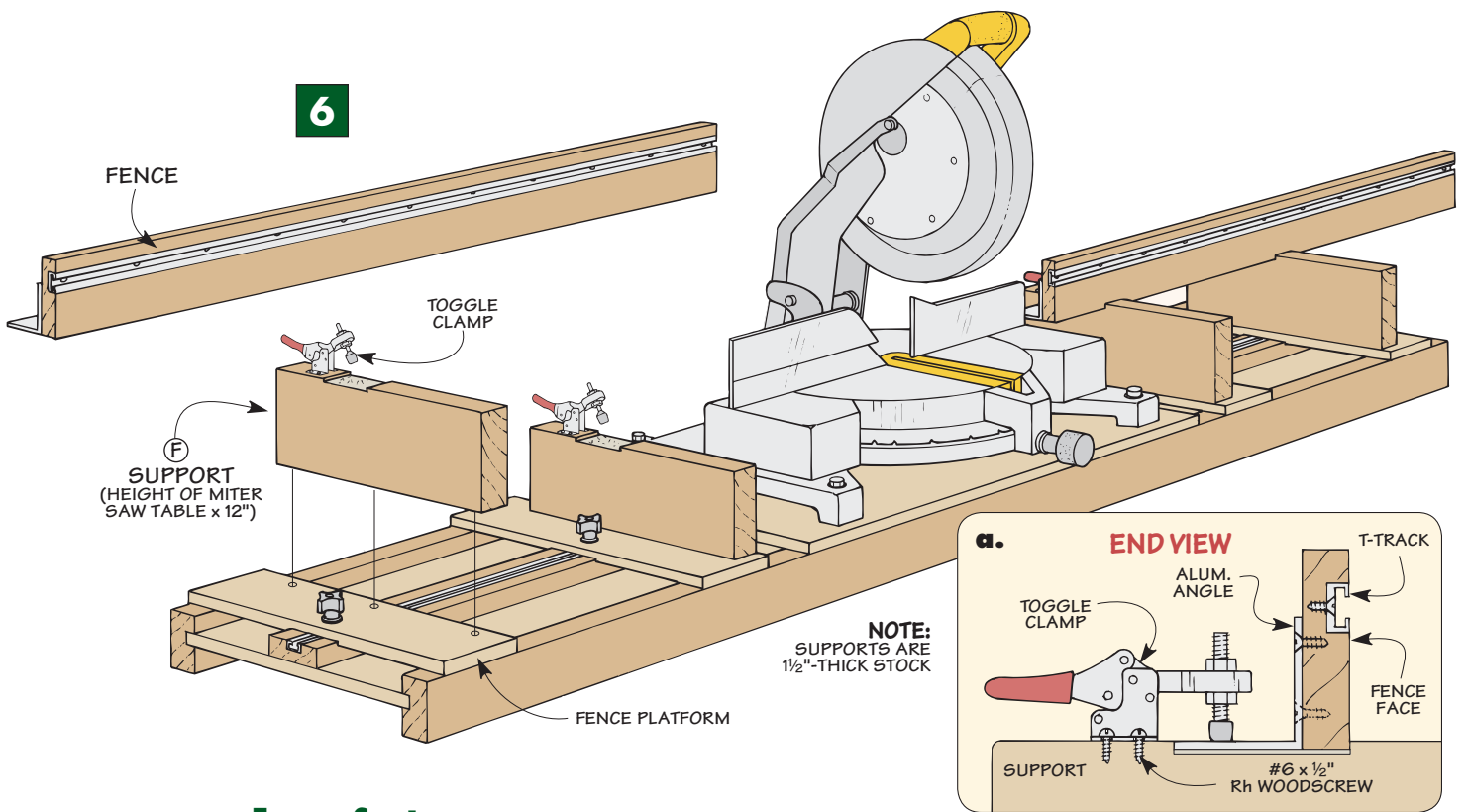
FENCE PLATFORMS. There are still two things left to do to complete the fence platforms. First, you need to cut them to final length (Figure 3). And then drill a centered hole near each edge for attaching the platform

to the base (Figure 5). Finally, mount each platform to the base with a flange bolt, washer, and knob.

HANDLES. If you plan to move the station fairly often, it's a good idea to add a set of handles to make it easy to carry. They're attached to the back stiffener (Figure 1).



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Fence System

With the base complete, you can turn your attention to the fence system. This system consists of two main parts — a set of workpiece supports and a pair of fences.

SUPPORTS. The supports are nothing more than short lengths of 2x stock cut 12" long. What's critical is the height — they need to match the height of your saw table so they keep the workpiece level.

The easiest way to establish this height is to start with an oversized workpiece. Then it's just a matter of sneaking up on the final width (height) by trimming a little off the edge of the support.

To check the height as you're trimming, place a straightedge

across the saw table and the support (Figure 7). Once the straightedge rests level on both the support and the saw table, you can cut the rest of the supports to final width.

ALIGNMENT NOTCH. One thing I was concerned about was making sure the face of the fence would be easy to align with the miter saw — no matter where the supports and fences were positioned along the base. An easy way to do this is to cut a shallow (1/8") notch in the top edge of each support to accept the fence, as you can see in Figure 6a.

Here again, I used a straightedge to locate the position of the notch. Note: The support will be set in from the front edge of the

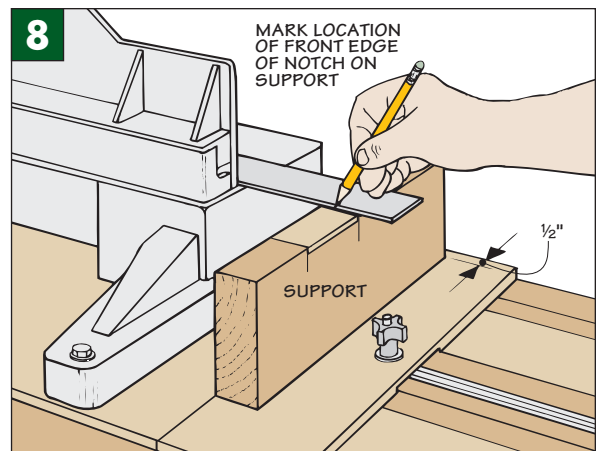
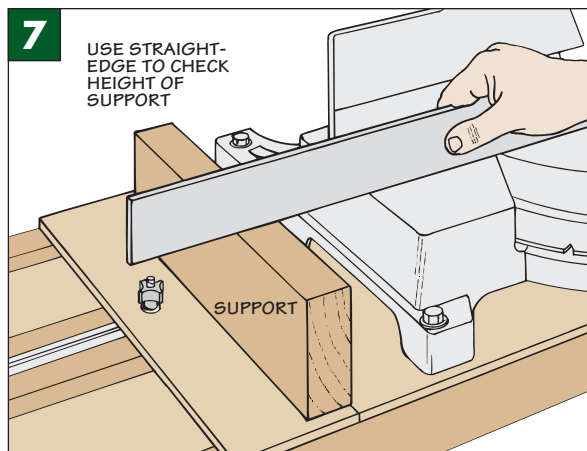
platform slightly (1/2"). To do this, place the straightedge against the fence of the miter saw and mark the location of the front edge of the notch (Figure 8).

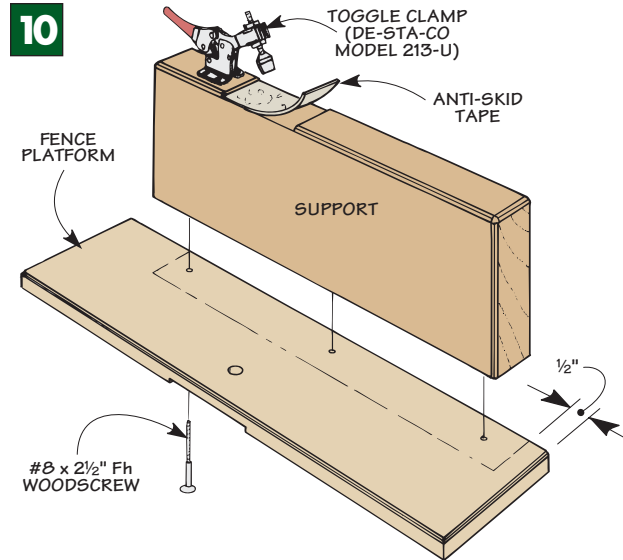
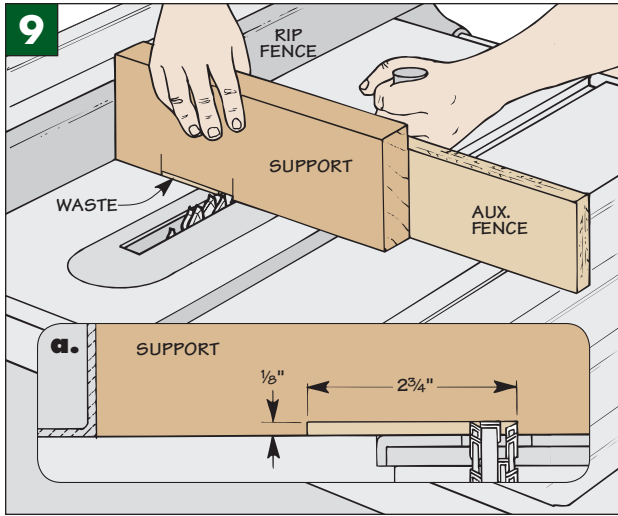
With the front edge of the notch marked, you're ready to cut the notches in all four supports (Figures 9 and 9a). The notches are sized to accept the aluminum angle and solid wood face of the fence that's added later. (In my case, this was 2 3/4".)

ATTACH SUPPORTS. The next step is to attach the supports to the fence platforms, as shown in Figure 10. They're screwed to the platforms so they're flush with the inside edge of the platform. Don't forget to set them back 1/2".



▲ Small toggle clamps make it easy to quickly adjust the position of the supports and fences.





TOGGLE CLAMPS. To make it quick and easy to lock the fence in place, I added a toggle clamp to the back end of each support, as shown in Figure 6a. (I used a *De-Sta-Co* model 213-U.) To ensure the fence didn't slide around during use, I added some anti-skid tape to the bottom of each notch (Figure 10).

FENCES

With the supports complete and toggle clamps screwed in place, you've laid the groundwork for the two fences shown in Figure 6.

FENCE. Each fence is made up of three parts — an aluminum angle, a solid wood face, and a single piece of T-track (Figure 11). The T-track accepts an adjustable stop that's added later.

Unless you're able to find the aluminum angle already cut to final length (3'), you'll need to cut it to size. A carbide-tipped saw blade makes quick work of this.

With the angles cut to final length, cut the fence faces to the same length from 1x stock, as shown in Figure 11. But before attaching the faces to the aluminum angle, you'll need to cut a shallow groove near the top edge of each face to accept the T-track (Figure 11).

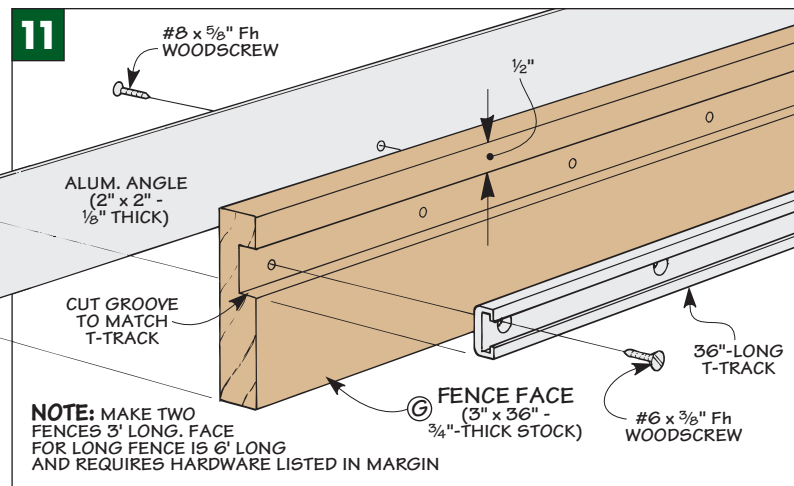
After the grooves are complete, you can screw the T-track in place. Then all that's left to do to complete

the fence is to attach the wood face to the aluminum angle. It's screwed from the back so the face is flush with the bottom edge of the angle, as shown in Figure 6a.

OPTIONAL LONG FENCE. If you regularly have to cut a lot of long stock to identical length, you might want to consider making a longer fence, like the one shown in the photo at the bottom of the page.

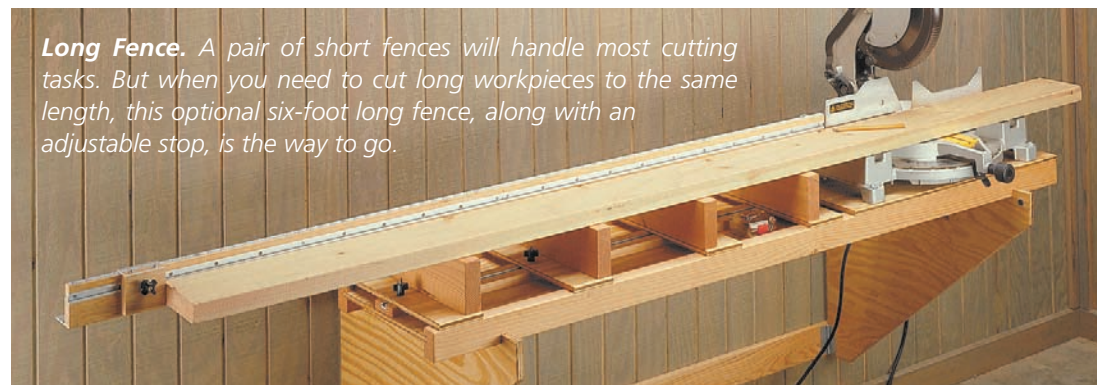
Building a long fence isn't much different than making a short one — you'll just make everything longer. (I made my fence 6' long to accept two pieces of T-track.)

After cutting the groove for the T-tracks and screwing them in place, completing the long fence is just a matter of attaching the face to a longer piece of aluminum angle just like you did before.



OPTIONAL LONG FENCE HARDWARE

- (2) Alum. T-Tracks (36" long)
- (22) #6 x 3/8" Fh woodscrews
- (7) #8 x 5/8" Fh woodscrews
- (1) 2" Alum. angle (72" long)
- (1) 8" left-to-right-tape



Long Fence. A pair of short fences will handle most cutting tasks. But when you need to cut long workpieces to the same length, this optional six-foot long fence, along with an adjustable stop, is the way to go.

Adjustable Stop

One of the most useful features of this miter station is the adjustable stop that works on either side of the fence. Along with a tape measure installed on the top of each fence, it makes cutting multiple workpieces to the same length a snap.

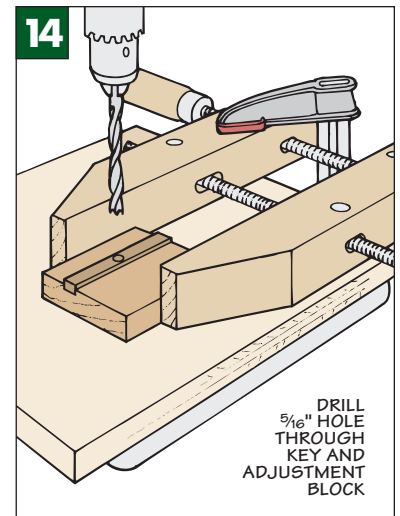
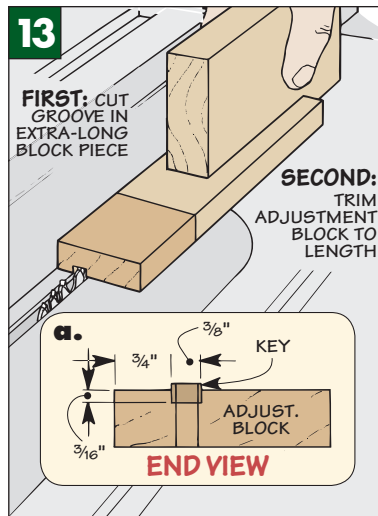
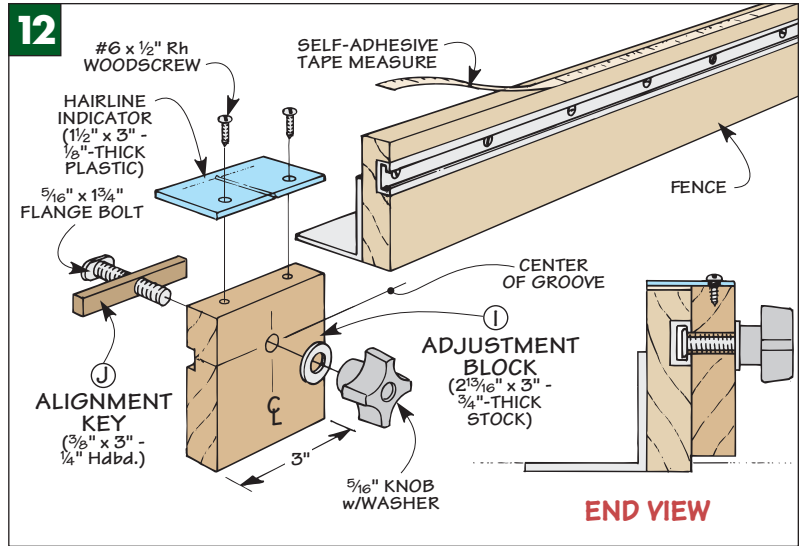
ADJUSTMENT BLOCK. As you can see in Figure 12, the adjustment block is made from a small piece of $\frac{3}{4}$ "-thick stock. To prevent the block from turning as you slide it along the fence, there's an alignment key that fits into a groove in the block.

But you don't want to cut a groove like this in such a small workpiece. So to avoid this, I started with an extra-long workpiece that's cut to width. Then it's a simple matter to cut the groove for the key (Figures 13 and 13a).

Once the groove is complete, you can cut the adjustment block to final length. Then all that's left to do is to fill the groove with an alignment key cut from a piece of $\frac{1}{4}$ " hardboard.

An adjustable stop isn't much use without a way to lock it in position. To do this, there's a flange bolt that slips into the T-track on the fence and passes through the block. A turn of a knob locks the block in place (End View in Figure 12). Note: Clamp the adjustment block in a handscrew to hold it steady when drilling the hole for the flange bolt (Figure 14).

INDICATOR. To increase the accuracy of the stop, I added a hairline



indicator made from $\frac{1}{8}$ "-thick plastic, as shown in Figure 12. What makes this indicator accurate is the hairline scored on the bottom of the indicator. To make it easier

to see the hairline, I filled it in with a marker (see margin photo) and then screwed the indicator to the top of the adjustment block.

ADD TAPE MEASURES. The hairline works with a tape measure installed on the top of each fence. (One reads right-to-left, the other left-to-right.) Putting the tape down is easy, the trick is locating it accurately.

To do this, I used a 12"-long scrap as a gauge. Start with the scrap resting against the teeth of the saw blade (Figure 15). Then slide the stop against the opposite end of the scrap and lock it in place.

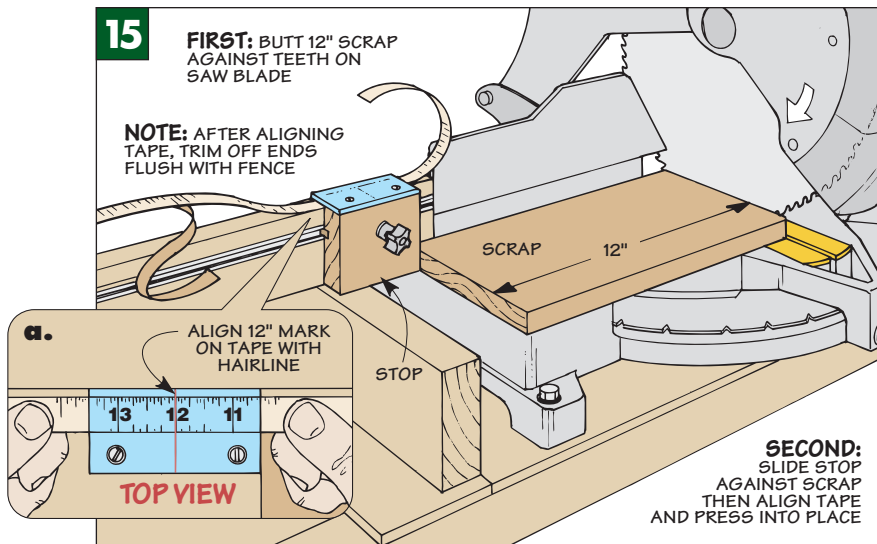
After slipping the tape under the indicator, align the 12" mark with the hairline and press the tape in place (Figure 15a). To install the other tape, simply repeat the process. Finally, trim the ends of the tape flush with each end of the fence.



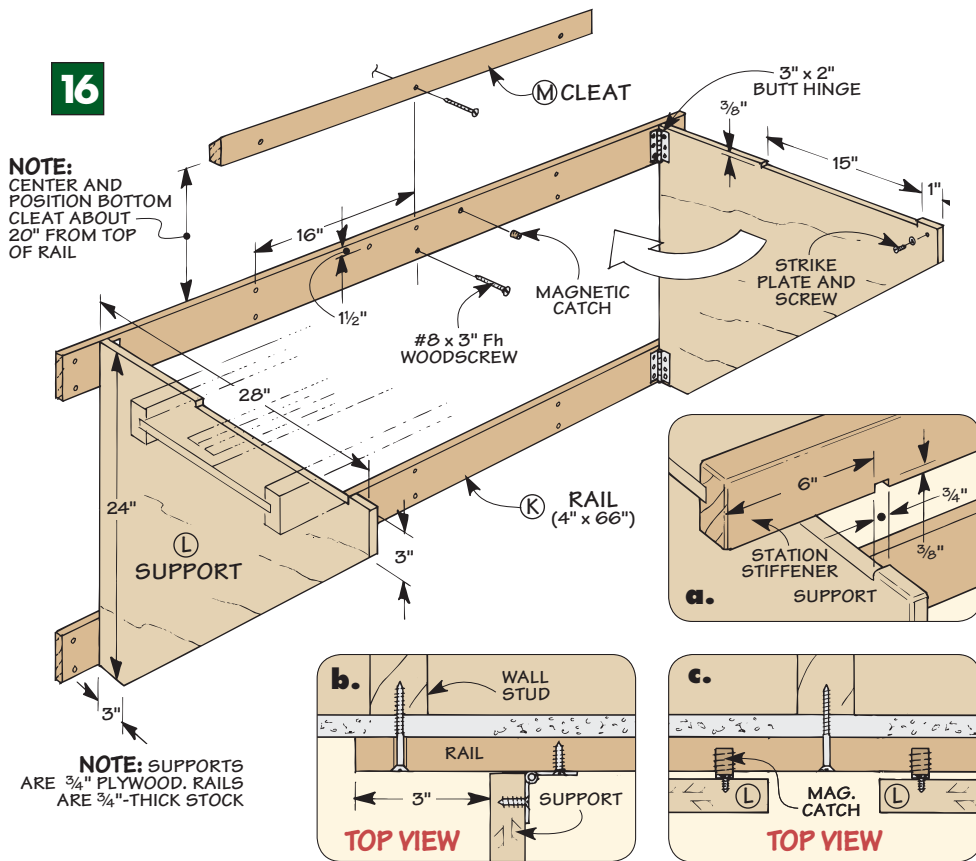
▲ To produce accurate results, this adjustable stop combines a sliding wood block with a plastic hairline indicator.



▲ To make the hairline stand out on the indicator, fill in the line with a permanent marker and then wipe off any excess.



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▲ After removing the miter saw, storing the station is just a matter of hanging it on a cleat and folding the supports for the station against the wall.

Wall Bracket

If you don't have the room to keep the miter saw set up on a benchtop, you might want to consider the wall bracket shown above. It doesn't take up any floor space because the station rests on supports that swing out from the wall. Once you're done using the station, simply hang the base on a cleat attached to the wall and swing the supports back in place, as shown in the photo at right.

RAILS. I started on the wall bracket by making the rails. There's nothing special about them. Each rail is nothing more than a piece of 1x stock cut to final size.

SUPPORTS. With the rails complete, I turned my attention to the supports. The supports are made from triangular-shaped pieces of 3/4" plywood with a shallow notch cut in the top edge (Figure 16). This notch is sized to accept the base of the miter saw station and prevents it from sliding off the front of the supports.

INSTALLATION. The main challenge in building the wall bracket is installing it. That's because it's fairly large once it's assembled. So instead,

I started by mounting just the rails to the wall (Figures 16 and 16b).

The only thing that's critical is the height of the top rail. I wanted the top of my miter saw table about 38" from the floor, which is a comfortable working height for me. So I placed the top rail 32" from the floor and then spaced the lower rail 16" below that. Note: Be sure to screw the rails into the wall studs (Figures 16 and 16b).

Completing the assembly is just a matter of mounting the supports to the rails. To do this, first attach the hinges to the supports and then screw them to the rails (Figures 16 and 16b). Finally, add a pair of magnetic catches to hold the supports closed for storage (Figure 16c).

NOTCH BASE. As I mentioned before, the notch in the supports keeps the base from sliding off the supports. But to "lock" it in and keep it from moving side to side, I added notches to the base (Figure 16a).

CLEATS. All that's left to do at this point is to make a pair of interlocking cleats that allow you to store the station on the wall (Figure 17).

Each cleat is identical and cut from 2x stock. I planed them to fit between the base of the station and the wall (Figure 17a). To allow the cleats to lock together, there's a 45° bevel cut along one edge.

Finally, glue one cleat to the base of the station and screw the other one to the wall (Figure 16). Here again, you'll want to be sure to screw the cleat into the wall studs.

