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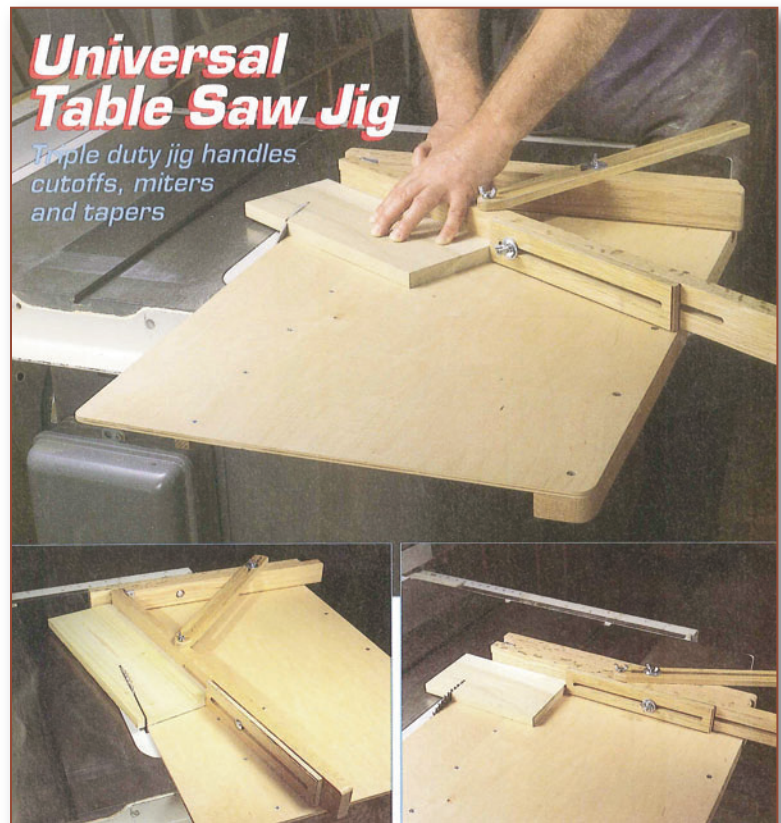


Classic Project

In this plan you'll find:

- Step-by-step construction instruction.
- A complete bill of materials.
- Construction drawings and related photos.
- Tips to help you complete the project and become a better woodworker.

Universal Table Saw Jig



Published in *Woodworker's Journal* September/October 1992



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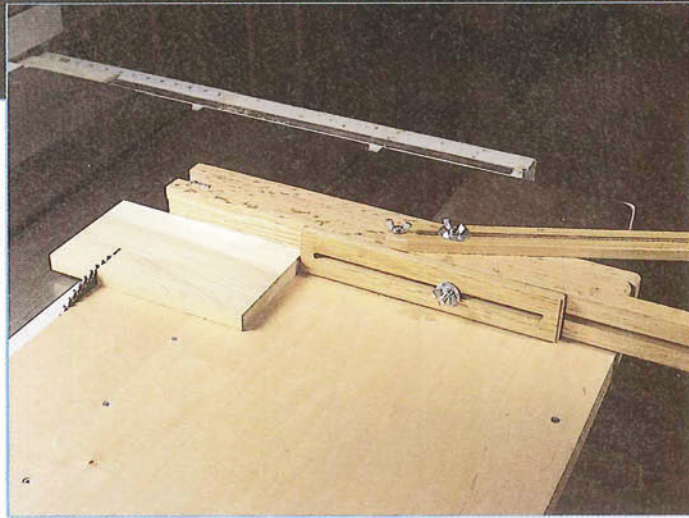
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WJC140

Universal Table Saw Jig

Triple duty jig handles cutoffs, miters and tapers



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For many woodworkers, a good part of the fun with their woodworking hobby is in making jigs and fixtures. Devising useful jigs to improve a tool's accuracy, capacity, or versatility also usually results in time savings and improved accuracy when building projects, so there's little wonder that jigs are

among our most popular projects.

When this Universal Table Saw Jig arrived in our shop from North Brookfield, Massachusetts woodworker Ray Hayden, we knew we had a winner. Although we call it a table saw jig, by removing the fence and arm assembly from the base, the jig can also be adapted for use with a radial-arm saw.

There are a host of factory-made table saw attachments that serve many of the same functions as this jig, but they often cost well over \$100, and we haven't found any single jig that so well com-

bines the three primary functions of miters, cutoff work and tapering. If you have a suitable piece of plywood available for the base, plus a few scraps for the remaining parts, about the only expense you'll have for this jig is a few dollars for the hardware—the assembly screws, bolts and hinge.

About Jig Making

Remember, anytime you make a jig, you are building a tool. Accuracy and attention to details are important. Mark reference surfaces, and always measure

twice. Resist the temptation to sand excessively, as this tends to produce unevenness.

Materials selection is also important with jig making. Although you could use hardboard or birch plywood for the base, we used Appleply. Appleply is the domestic equivalent of Baltic birch plywood, but costs a bit less than the imported version. Its name notwithstanding, Appleply is not made from apple wood. Instead, it's a multilayered sandwich (five layers for the 1/4 in. thickness that we used) of aspen, a wood that's very similar in strength and characteristics to Baltic birch. The beauty of Appleply (and Baltic birch) is that it has exceptional strength and stability when compared with construction grade plywoods of the same thickness. Although Appleply is relatively new, it is now carried by many building supply centers.

The remaining wood parts on our jig are made of oak, but maple would also be a good choice. The important points here are that the stock you use be thoroughly kiln-dried, straight-grained and true; you don't want jig parts warping or twisting.

Construct the Platform

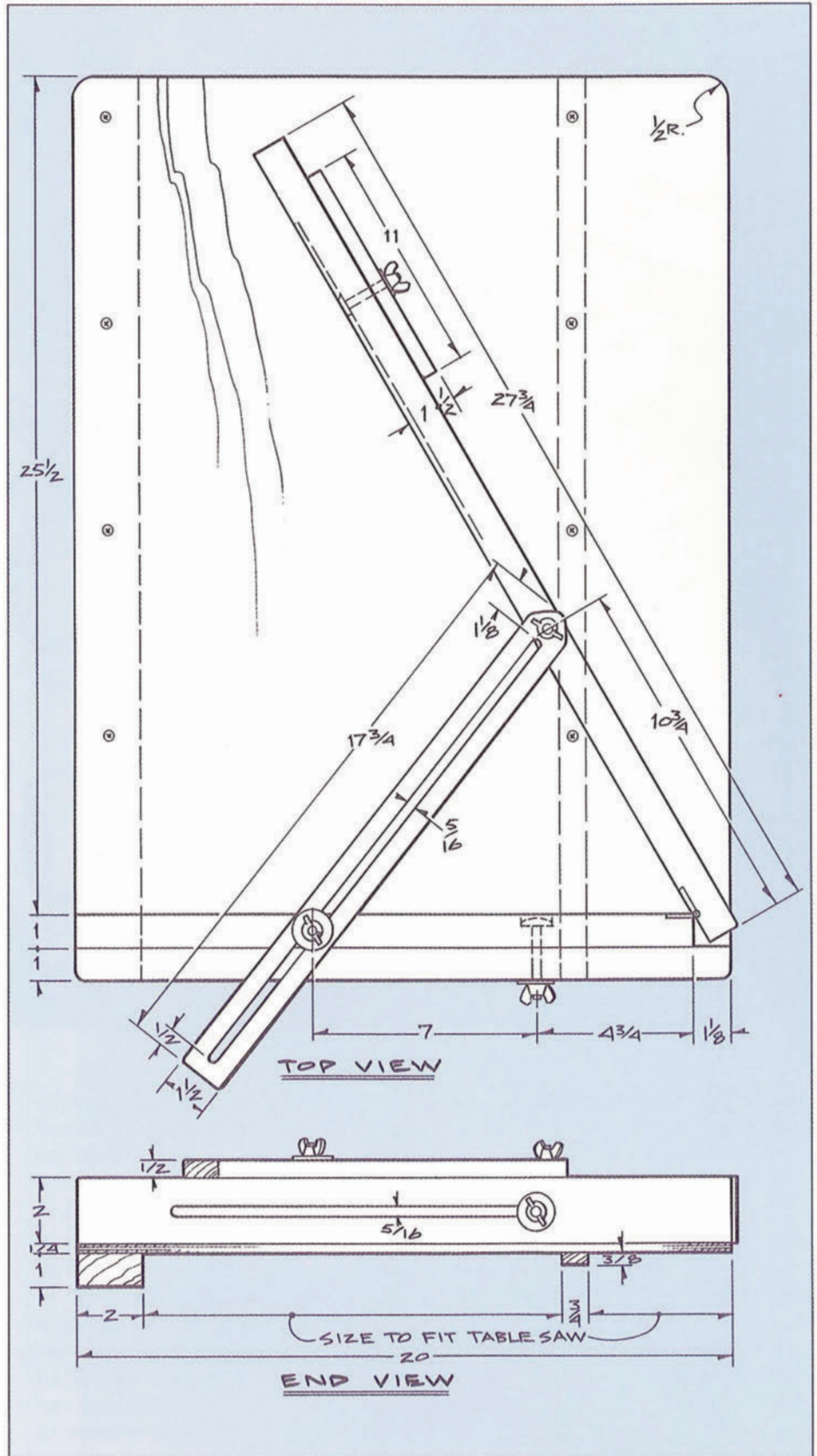
The jig shown was sized to fit on a Delta Unisaw, but the jig you make should be sized specifically for the saw you plan to use it on. The jig consists of two sections, a platform and a fence assembly. The platform consists of the base (A), the miter gauge runner (B) and the end runner (C).

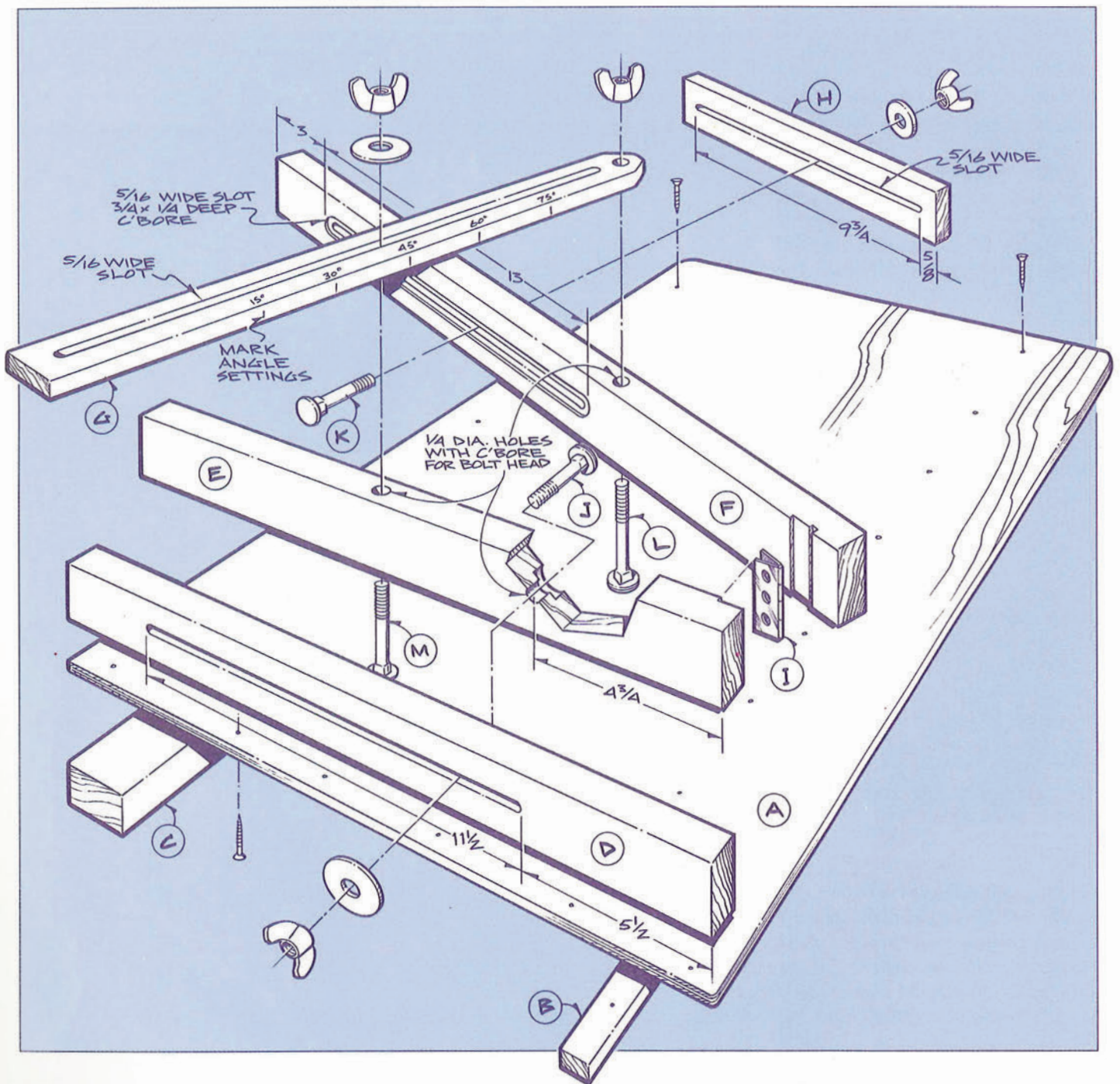
Size The Base: As the photos show, one edge of the jig base kisses against the saw blade; the overall width of the base, and therefore the length of the fence parts, will depend on the size of your saw table. However, the base should have a width of at least 20 in., to accommodate the slot length and adjustability that we show. If your saw measures less than 18 in. from the blade to the saw table edge, make the jig base 20 in. wide, and just increase the width of the end runner as needed. Although we show the jig used on the left side of the blade, you can also construct and

size the jig for use on the right side of the saw table.

The rough starting width of the base needs to be at least 2 1/2 in. greater than

the distance from the blade to the saw table edge. Of that 2 1/2 in., 2 in. is for the area of the base that overhangs the saw table, and the remaining 1/2 in. is a little





extra to allow for a trimming cut to establish the edge of the base that kisses against the blade.

Cut the base to rough width (be sure to allow that 1/2 in. extra), then cut the miter gauge runner strip, sizing it for a snug sliding fit (no slop) within the miter gauge slot. Also cut the end runner, adjusting the width as described earlier if your blade to table edge distance is less than 18 in. Place the miter gauge runner in the miter gauge slot, and apply a thin bead of glue to the top side. Position the rip fence 1/2 in. away from

the blade (on the side opposite the miter gauge runner), place the base on the saw table with the oversize edge butted tight against the rip fence, then screw the base to the miter gauge runner. At the same time, glue and screw the end runner to the base, flush with the saw table edge. Be sure to countersink for the screws so the heads don't protrude from the base's working surface. Now remove the base assembly and set it aside to dry. Don't forget to wipe any excess glue squeeze-out from the assembly, and to clean up any glue that may have gotten on the saw

table or in the miter gauge slot.

Once dry, place the base assembly on the saw table and cut off the 1/2 in. extra from the base, establishing the edge that kisses the saw blade. Also, slightly round the corners of the platform, as shown.

Make the Fence Assembly

The fence assembly consists of a fixed fence (D), a sliding fence (E) a pivoting fence (F), a locking arm (G) and an adjustable stop (H). The three fence parts are all made from 1 in. thick by 2



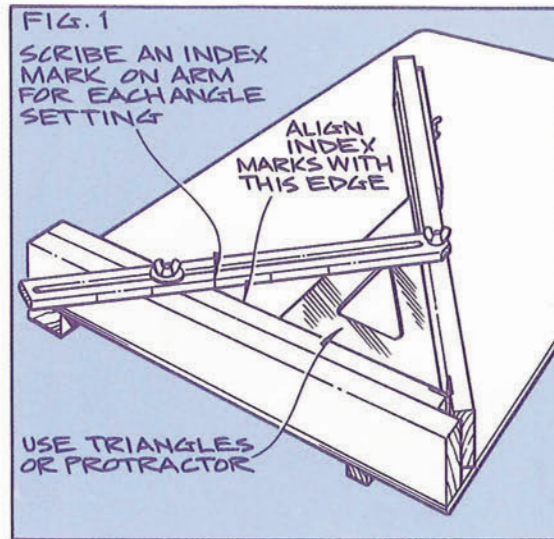
in. wide stock. The arm and stop are made from 1/2 in. thick stock.

The lengths of the fixed and sliding fence parts will be determined by the width of the platform. However, they shouldn't be any shorter than the 20 in. and 18 7/8 in. lengths, respectively. Whatever the platform width, make certain that the sliding fence is 1 1/8 in. shorter than the fixed fence.

Once the fence, arm and stop parts have been cut to length and width, establish the various holes and slots. The slots are all cut on the router table using a straight bit that's equal to the slot diameter, with stopblocks clamped to the router table fence to index where the slots will start and stop. Don't try to make the slots in a single pass. Instead, make the slot in a series of passes, raising the bit about 1/8 in. for each subsequent cut until the slot is complete.

As shown in the exploded view, the 5/16 in. wide by 11 1/2 in. long slot in the fixed fence starts 5 1/2 in. from the end of the fence that's flush with the base edge that kisses the saw blade. Also cut the slots in the pivoting fence, locking arm and adjustable stop. Note that there's a second slot, 3/4 in. wide by 1/4 in. deep, cut into the inside face of the pivoting fence. This oversize slot, which is cut with a 3/4 in. diameter router bit, serves as a counterbore so the head of the bolt that holds the stop in place doesn't protrude, a situation that would be a problem when the jig is used as a cutoff table. When drilling the various bolt holes, note that the two holes through the sliding fence and the single hole through the pivoting fence are also counterbored.

Mortise the sliding and pivoting fence parts for the hinge (I), then make small rabbet cuts into the fence parts and stop, as a relief area to prevent sawdust buildup between the fence parts and platform, and on the inside corner where the pivoting fence and stop meet. Finally, you may want to add a sandpaper surface to the working face of the pivoting fence. The sandpaper (which should be glued in place with a spray-type adhesive that would allow for easy



paper replacement) serves to provide some extra support to keep stock from creeping when the jig is being used for tapering or mitering.

Fence Assembly

Locate and mount the fixed fence to the

platform. Don't assume that the back edge of the base is automatically square to the blade edge. Instead, use a large square (such as a framing square) to set the fixed fence at an exact right angle to the base edge that kisses the blade. Then use glue and countersunk screws to permanently fasten the fixed fence to the base.

Join the sliding and pivoting fence parts with the hinge, insert the 2 1/2 in. long carriage bolts (L, M) and mount the locking arm, then mount the stop to the pivoting arm, and the sliding fence to the fixed fence, using the remaining carriage bolts (J, K).

Setting the Scale

As shown in Fig. 1, you'll want to scribe a scale on the locking arm, making index marks for, at the very least, the most common angles. We've scribed index marks at 15, 30, 45, 60 and 75 degrees, but you can add more if you wish.

Here's how to locate the various points on the locking arm. First, using an adjustable triangle, a machinist's protractor, or fixed triangles, set the adjustable fence to each desired angle, and lock it in place. One by one, at each specific angle setting, scribe an index mark vertically on the edge of the locking arm, so it aligns with the top edge of the sliding fence. Use a combination square as a guide to scribing these index marks, to insure that they are straight. You can write in the angle at each scribe mark on the locking arm, or use a set of number punches, as we have, to stamp the numbers into the wood. Given the length of the locking arm, if you are reasonably accurate in making the index marks, this jig will yield superior accuracy compared to using your table saw's miter gauge angle settings.

Finishing Up

As mentioned earlier, don't sand surfaces. However, the back edge of the fixed fence should be gently rounded, since this is where your hands grasp the jig. No finish is needed, though you may want to rub in a little penetrating oil to give the piece a finished appearance.

Bill of Materials (all dimensions actual)			
Part	Description	Size	No. Req'd.
Platform			
A	Base	1/4 x 20 x 27 1/2*	1
B	Miter Gauge Runner	3/8 x 3/4 x 27 1/2*	1
C	End Runner	1 x 2 x 27 1/2*	1
Fence Assembly			
D	Fixed Fence	1 x 2 x 20*	1
E	Sliding Fence	1 x 2 x 18 7/8*	1
F	Pivoting Fence	1 x 2 x 27 3/4	1
G	Locking Arm	1/2 x 1 1/2 x 17 3/4	1
H	Adjustable Stop	1/2 x 2 x 11	1
Hardware			
I	Hinge	1 1/2 x 2 long	1
J	Bolt, Washer, Wing Nut	5/16-20 x 2 1/2 long	1 each
K	Bolt, Washer, Wing Nut	5/16-20 x 1 3/4 long	1 each
L	Bolt/Wing Nut	1/4-20 x 2 1/2 long	1 each
M	Bolt, Washer, Wing Nut	1/4-20 x 2 1/2 long	1 each

* Width of base, and length of fixed and sliding fence parts will depend on the size of your saw table, but should not be less than the sizes indicated. If the distance on your saw table from the blade to the left edge of the table measures less than 18 in., then increase the width of the end runner to a dimension that, when added to the distance from the blade to the table edge, will total 20 in. Thickness and width of miter gauge runner is sized to fit your miter gauge slot.

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