

New Rip Fence for the Hammer B3 / K3

New Rip Fence

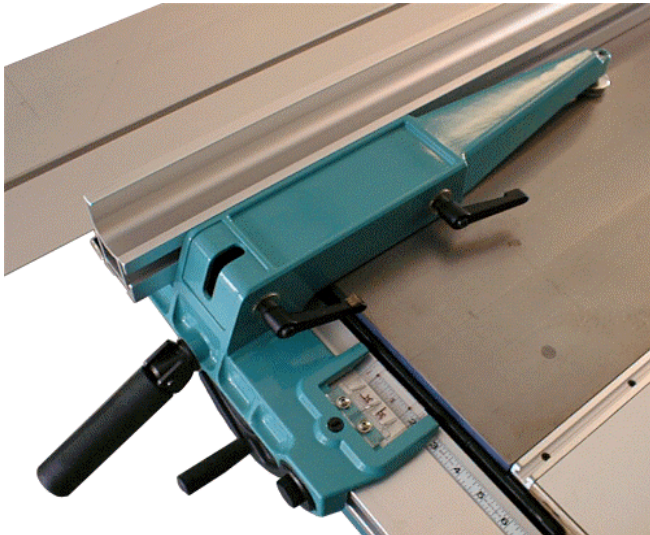
The motivation for replacing the new rip fence on my Hammer B3 was because I considered the ones supplied by the factory to be substandard, especially considering the price of the machine. I looked at all the major aftermarket fence systems, unfortunately, all the ones I considered required modification to some degree. This is due primarily to the location of the blade relative to the sliding table; the sliding table interferes with the T-square head of most rip fence systems.

The primary reasons for my selection were cost, performance, and the ease of installation. The fence system I chose is basically a European design so except for the interference with the T-square head it is fundamentally compatible with a European saw.

One of the constraints I had to account for in the selection was the fact that the right extension table of my machine normally abuts a wall. This effectively eliminates either of the two precision positioning systems from consideration since they require a significant amount of free space to the right of the table to be used to full capacity.

Installation

The fence I selected was fairly easy to install. The only real



modification required was the removal of about 1/8" of material from the bottom of the T-square head to allow it to sit lower on the table.

Due to the lower position of the T-square section on the table the stock fence clamping nuts would hit the table when turned. To eliminate this I replaced the stock knobs with 5/16" lever knobs. A 180 degree twist is all it takes to tighten or loosen the fence.

Instead of bolting the rip fence rail directly to the main iron table as is commonly done I used a 1/4" thick, 2 1/2" wide angle iron section to mount the fence. The angle iron section made the installation a little easier than bolting the rail directly to the machine.

Extension Table

For other reasons, I built a new right extension table to go along with the new fence however the installation does not require a new table. The original Hammer sectional table could be used if holes were made in the appropriate positions in the new rail. The holes in the Hammer table sections conveniently line up in the center of a channel in the rip fence rail.

Numbers

The fence I bought is a 30" version but the rail is actually 62" long. On the Hammer this length of rail yields a rip capacity of 49 3/4". I cut 9" off of my rail due to other space considerations, this left me with 40 3/4" of rip capacity. The rail is much stiffer than the Hammer rail and is self supporting in this length. I had originally planned to support the end of the rail but have decided it is unnecessary.

With the fence in the high position it can be moved to within 7/8" of the blade. With the fence in the low position it can be moved all the way to the blade. Using the fence-low position to make up for the short-fall was acceptable to me; otherwise I would have used some form of spacer to make up the difference. The fence (in the high position) can be moved all the way to the blade if the slider is moved even with the table.

With the rail installed on the machine I measured it at 0.8955" below the plane of the table. This provides for a small amount of clearance between the head and the sliding table without having to modify the fence to head attachment in any way. With the fence installed at this level below the table, the fence can be set onto the table or raised a little above to create a saw-dust relief.

Differences

Like any system there are implications in making a change, the following is my evaluation of the pro's and con's of installing this particular system over the B3L fence.

Pro:

1. Much stiffer fence section. My sample is also visibly straighter than the fence it replaced (because it is straight and flat).
2. Far easier to align. The controls for parallelism to blade, perpendicularity to table, cut indicator, and the clamping force are all located on the T-square head.
3. Easier to read cursor for the tape measure makes settings more precise and repeatable.
4. Easier to micro-adjust the position of the fence.
5. More parallel when moved.
6. Easier to move, the fence does not bind when skewed and glides much more smoothly.
7. Can be removed and replaced easier, this fence can be removed and installed at any point on the rail. The previous system could only be slid off of the end.
8. Able to cut thin laminates (with the fence set on the table).

Con:

1. The Hammer table extension accessories cannot be used on the infeed side. The outfeed side could retain the Hammer rail if desired so the table extensions could still be used there.
2. The new fence requires 6 1/2" more space than an equivalent capacity Hammer fence.
3. The new fence adds about \$270 to the cost of the machine.

Conclusion

The performance of the new rip fence is remarkably better than the system supplied by Hammer. To me this modification was well worth the cost and time it took to accomplish, I feel like I have a rip fence worthy of the machine now.

Unifence Installation Details for a Hammer B3 / K3

There are a few ways that the new fence could have been installed. I chose to install a piece of angle iron to the cast iron table, this allowed me to work out any squaring issues prior to actually installing the fence rail. It is also an easier platform to deal with on what is essentially an experimental installation.

To install the angle iron square to the table I used the existing Hammer rail bolt holes. These holes are counter bored with a flat face that is 90 degrees to the plane of the cast iron table. All that needed to be done was to place a couple of flat washers in between the angle iron and the saw table. This keeps the angle iron from abutting the cast iron table which would induce an angle.

This particular fence system will tolerate an installation bias angle of a few degrees but it is always best to start out as square as possible.

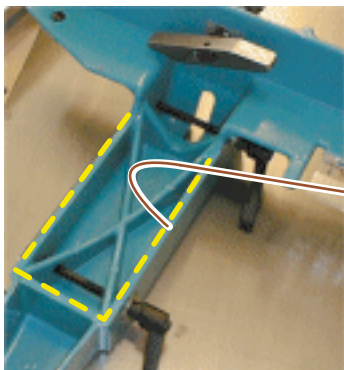
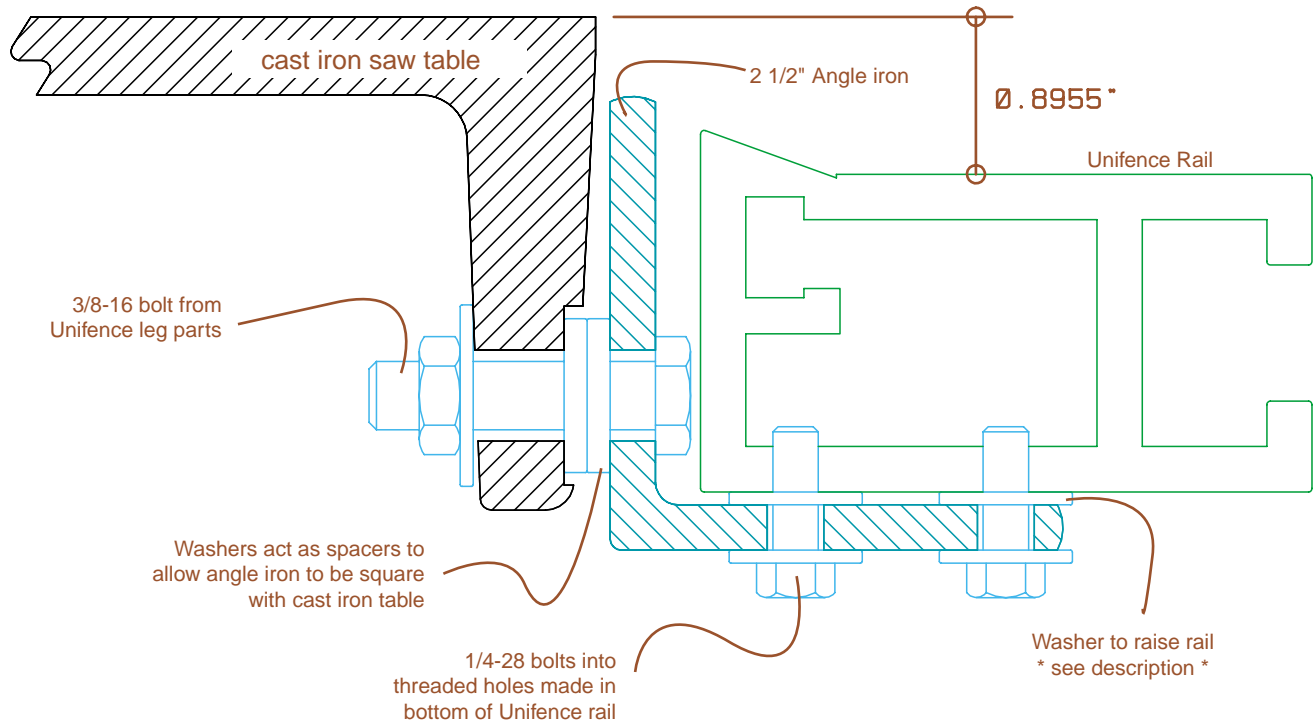
I used the two bolts with over-size heads that came with the fence to install the angle. Flat-head Allen bolts could also be used and their holes in the angle could be counter sunk with an appropriate taper. This would allow the fence rail to be installed closer than is possible with the hex-head bolts shown. In order to do this the edge of the rip fence rail would have to be relieved to accommodate the fillet in the angle iron. The way I have presented the installation is easier, the extra gap between the angle and rip fence rail poses no problems.

As stated, this is an experimental installation, to allow for calculation errors I intentionally installed the angle iron a little low. The reason for this was that it is easier to shim something up than completely re-install or re-engineer the parts to lower the assembly.

To that end there are four flat washers between the fence rail and the angle iron. The fence rail itself is attached to the angle using bolts that thread directly into the bottom of the fence rail.

The measurement of the rip fence rail below the table is critical; the measurement given (0.8955") is a direct reading from my calipers. The rail could be lowered more than the measurement I have given however that may require more material to be removed from the bottom of the T-square head. It may also require new holes to be made into the rip fence head for the fence attachment bolt assembly and impact the operation of the fence lock-down nuts on the T-square head.

Cross Sectional Detail of Rip Fence Rail Installation



Remove 1/8" of material from the bottom of the T-square head in the areas shown. This will allow the fence to be installed in a lower than normal position on the machine.

The removal of the material is not really noticeable and will not hinder its use on another machine.

This view shows the amount of clearance with the fence in the high position about 7/8" away from the blade.

With heavy slider loads it is possible that the slider wagon could contact the T-square head.



Phil Bumbalough
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