I am creating this in an attempt to demonstrate the table alignment of the extension table relative to the main table on a Mark 5 or Mark V(500) vintage shopsmith. Not so much the actual steps, but to show how to determine if alignment is correct, and to point out the areas of this vintage that differ from later models(505/510/520).

I am not going to describe the alignment of the main table, but feel it is necessary to mention the following:

Regardless of what adjustment is being made, all items must be locked in their normal secured position. This includes the quill lock, the carriage lock, the headstock lock, the table height lock and the table tilt lock if not itself being adjusted. If the extension table is involved, the mounting post clamp must be tight.

The proper main table alignment is realized when the axis of the output spindle(horizontal from clamp end to hinge end) is at a right angle to the table top surface both from front to rear and left to right(as viewed facing the front of the table). Different procedures make use of either a saw blade or a sanding disk and a square or the miter gauge.

The left to right alignment is actually an adjustment of the table tilt 0 degree stop. This is usually performed with a square placed left to right across the table and the saw or sanding disk provides a plane(vertical) perpendicular to the output shaft for the other leg of the square to reference.

The front to rear alignment is actually positioning the miter gauge slots relative to the shaft axis. The miter gauge is slid between front and rear positions and set to be equidistant at both points to a single point on either a saw blade(tooth) or a sanding disk. Actual adjustment is accomplished by loosening the table-trunion bolts and positioning the table. Any vertical equalization across the table surface may only be accomplished by inserting washer shims between the table and trunion at each mounting screw.

An additional adjustment is usually included that sets the miter gauge zero degree stop, and also uses a square and a saw blade or a sanding disk. That adjustment must be performed AFTER the miter gauge slot alignment.

I offer the following recommendations to be observed when doing

I offer the following recommendations to be observed when doing those alignments. It is necessary to rotate the saw blade or sanding disk when checking distance front and rear. Since touching the blade or disk MAY alter the measurement, I suggest rotating them from the idler output shaft.

Since there is a mechanical advantage between the idler and output shafts a face plate is sufficiently large enough to be used as a 'knob'. Also when adjusting the tilt stop, use the miter gauge as a 'prop' to help support the square

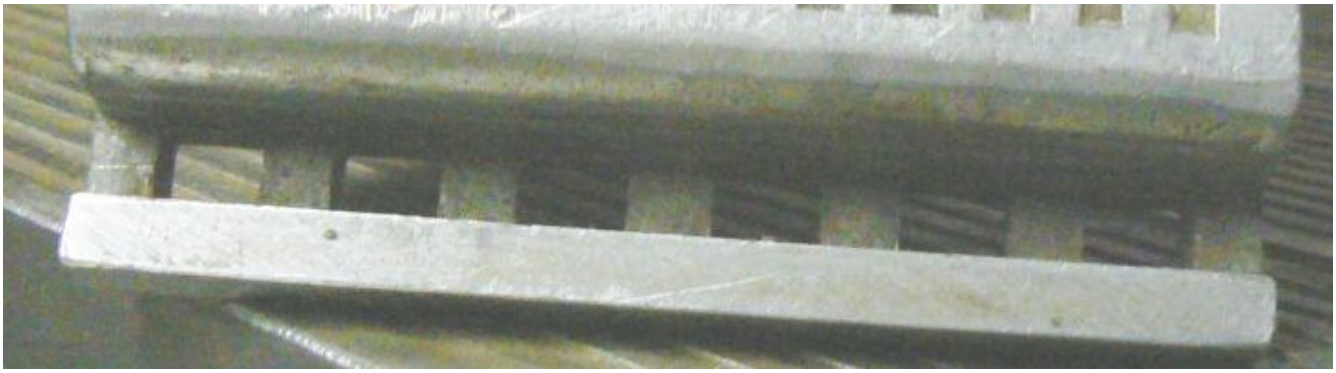
AFTER the miter gauge slots are properly aligned, the rip fence can be aligned. Normally this is thought of as a blade to fence adjustment, but if the blade to slot alignment is correct, the miter gauge slot becomes an excellent secondary reference.

The Mark 5 and Mark V(500) fence is different from the later vintage fences. Whereas the 510 and 520 rails are the fence clamp reference, an extrusion is located on the front edges of the earlier tables. The fence clamps to that extrusion and is referenced by a beveled surface on the underside of the table.

Mark 5 main table front extrusion – Used by fence as a position reference

Mark 5 fence front casting referenced against extrusion

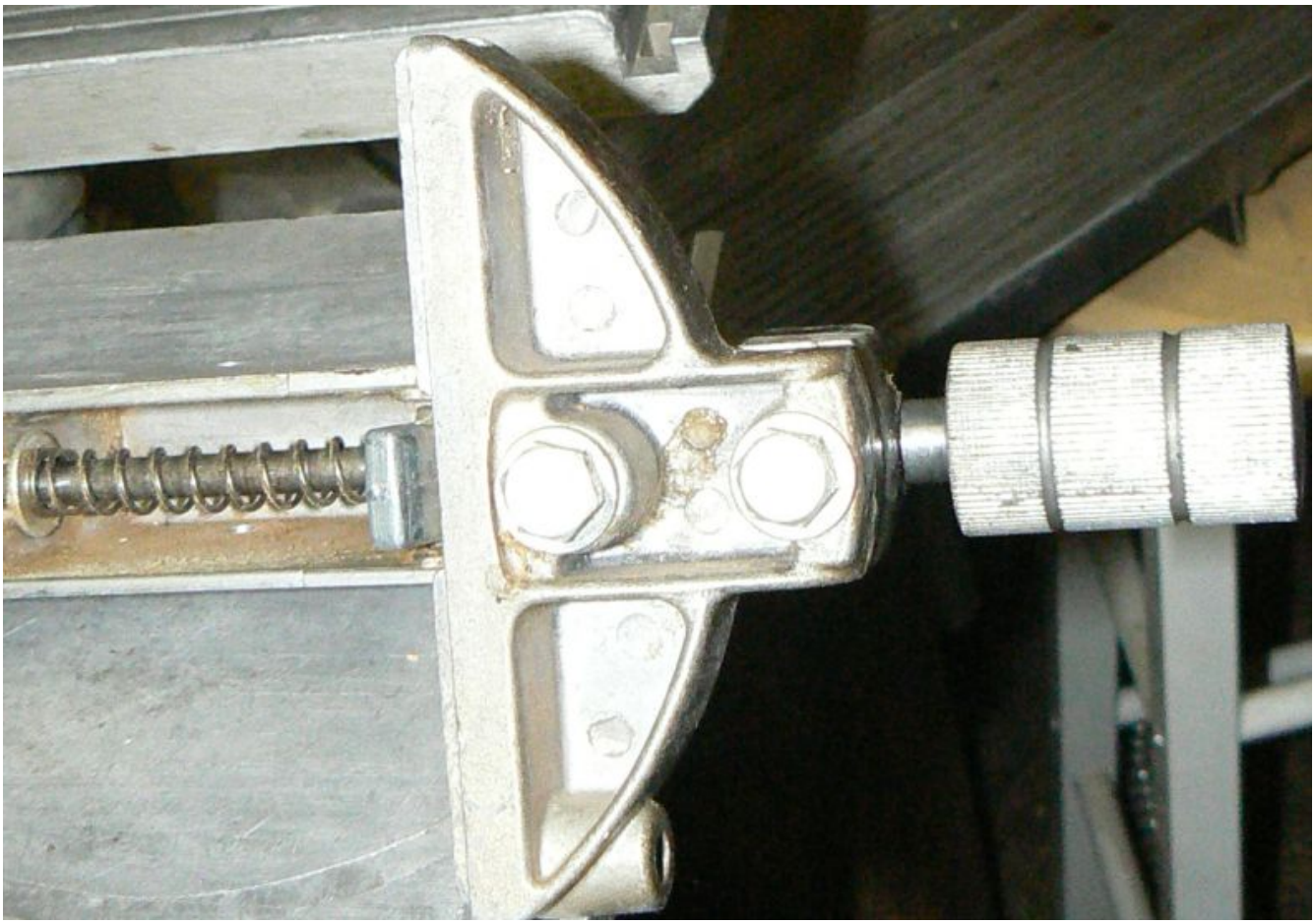
The extension tables have a similar surface for referencing the fence, but that surface is cast into the table itself.



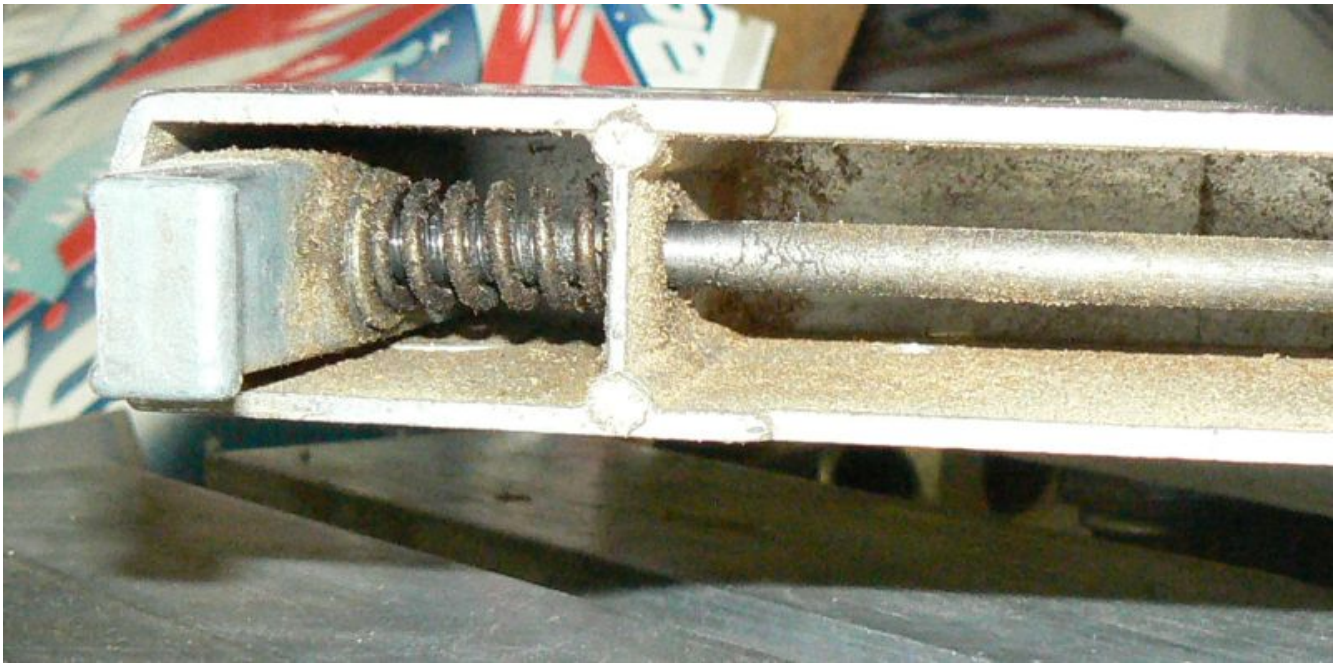
Extension table front showing cast in fence reference(under side beveled)

As you can see in the previous picture, the extension tables are bolted directly to the mounting post bracket. The only adjustment possible is to shift the table on the bracket with the mounting screws loosened. Flatness is possible by washer shimming as is done for the main table.

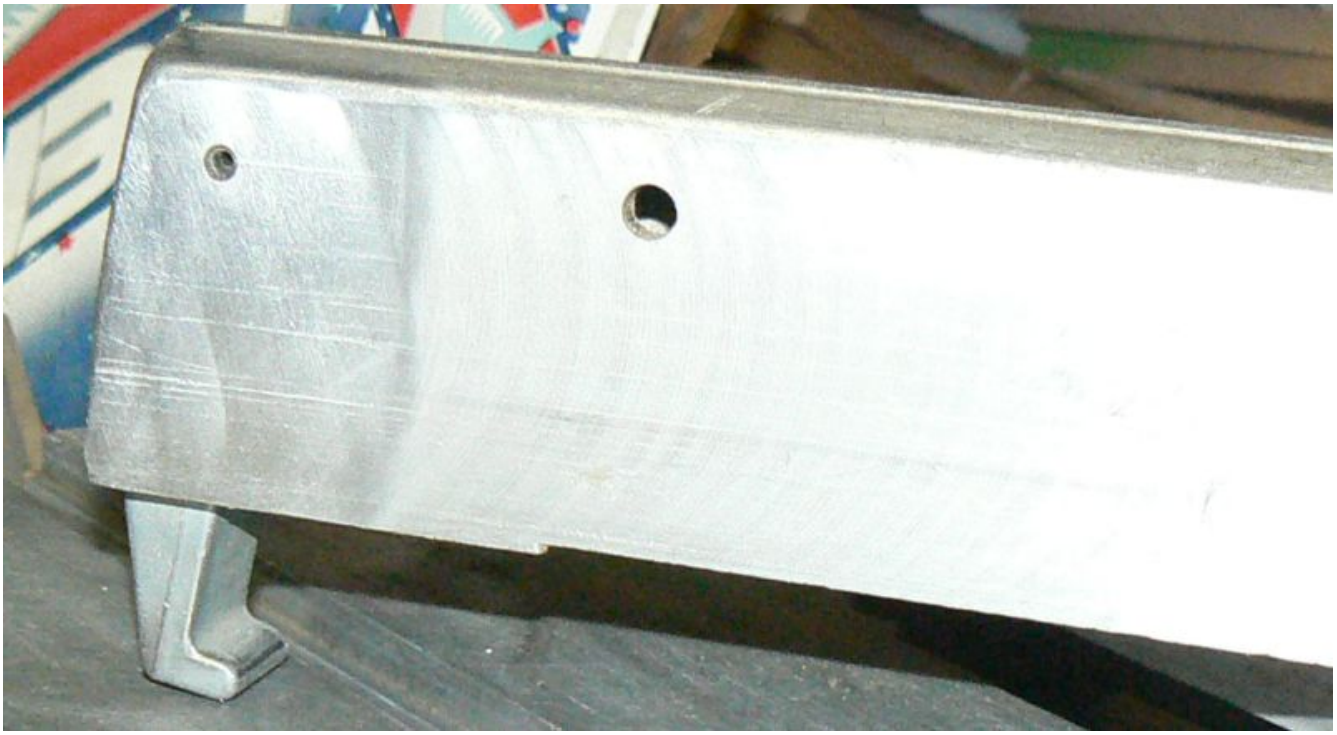
The Mark 5, Mark V(500) fence is much different from the later versions. It is secured by a single knob which when tightened first pulls the front of the fence bracket into the aforementioned bevel and when that is tight, further tightening of the knob causes a rear clamp to pull into the rear of the table thus securing both front and rear ends of the fence.



Mark 5 rip fence bottom



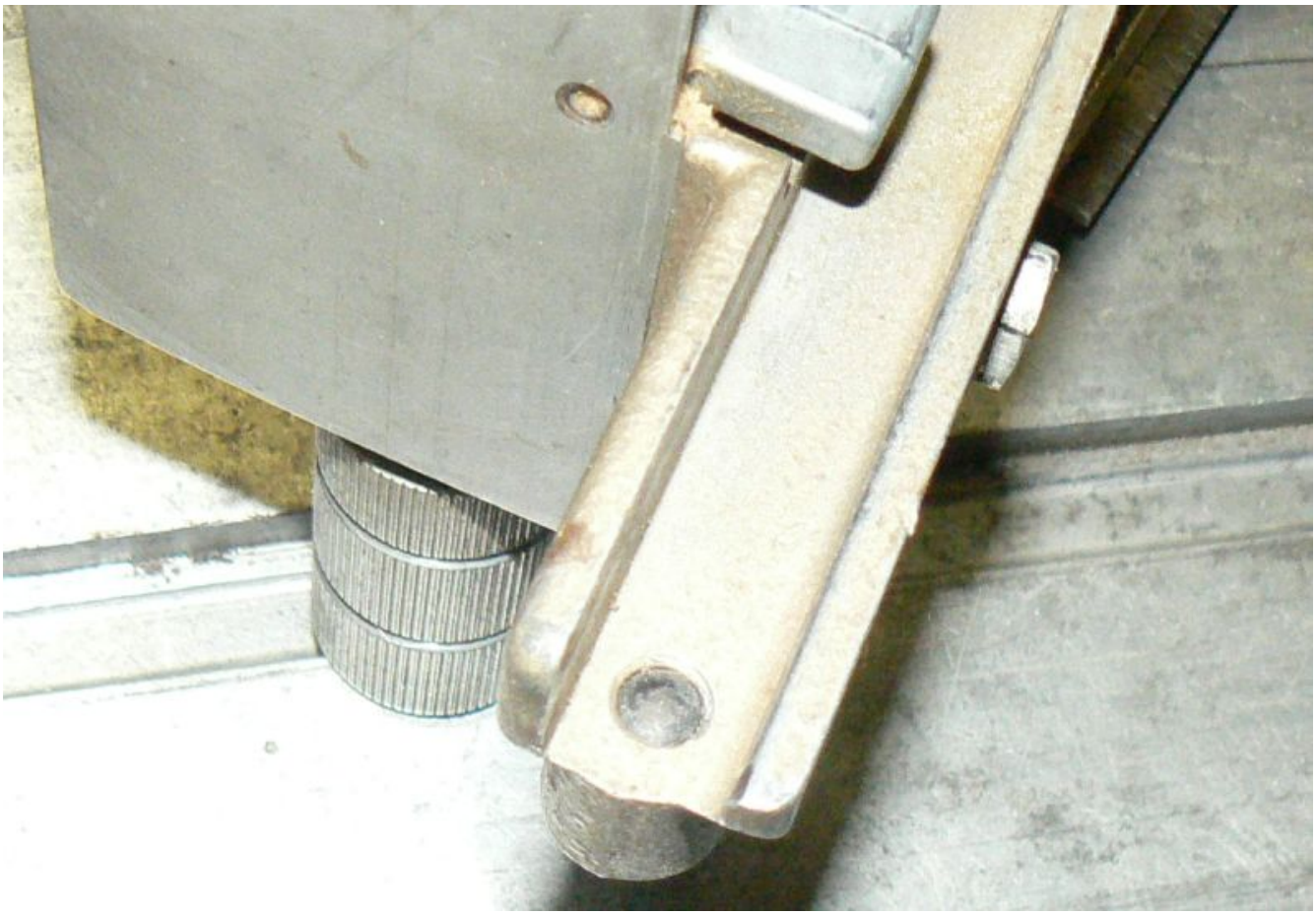
Mark 5 rip fence rear clamp bottom



Mark 5 rip fence rear clamp side

The fence is adjusted by loosening the two cap screws and moving the fence relative to the front casting.

I call your attention to a set screw located in the front casting which should be either completely removed, or backed out so as to NOT contact the extrusion on the front of the table. This screw is intended to be used to intentionally off set the fence for certain operations without altering the fence normal alignment. Mark V(500) fences have this setscrew on both sides of the casting. They should both be 'out of the way' except when intentionally used. The bandsaw fences are the same.



Mark 5 offsetting setscrew

A check for alignment may be performed as follows: Move the fence close to one side of the miter gauge slot, slip a flat bar between the fence and the side of the slot, push the fence snugly against the bar and secure the fence. The bar should just slip into the gap between the fence and the side of the slot. Make sure the bar is held against the fence so that it is parallel to the side of the fence

Slip the bar out and slip it into the gap at the rear of the fence.