

How to modify your MK101.

First off, the MK101 tile saw is a fantastic tile saw, without any modifications what so ever. That being said, all tile saws tend to have a significant amount of overspray which can be reduced with the following additions. There are 3 basic modifications that I made to my saw. The most important to most of you I am assuming are the water splash guards. The second is the additional water feed and the third is the lift kit. I will cover each of these items separately so that you can focus on just one item if that is all you are interested in doing. Please read these instructions through once before you cut any items outlined in these instructions!!

Splash Guard

In order to make the modifications I used the following parts that were ordered from McMaster Carr. The McMaster Carr web site can be found at www.mcmaster.com. This site is quite impressive, with close to 500,000 parts which can be ordered on line. To help you out I've listed the part number and catalog page number so that you can find each item.

Parts:

<i>Part No.</i>	<i>Page #</i>	<i>Description</i>	<i># Req</i>	<i>\$/Unit</i>
88713T715	1391	Zinc-Plated Malleable Steel Beam Clamp Standard, For 1/4"-20 Rod, 335 lb Work Load Limit	2	1.07
88955K25	3479	Type 416 Stainless Steel Precision Ground Rod 1/4" Diameter, 3' Length	3	14.19
74715T9	1133	Type 316SS Backed Conveyor Strip Brush Nylon Bristles, 6" O'all HT, 2' Lg, 3/16" Backing	1	7.39

Note: The stainless rod should be ordered in 3' lengths and you will require 3 of them. The brush is priced by the foot and you should require 2'.

You can probably find cheaper rod that is not stainless, it will rust however and eventually fail or potentially cause problems. The choice is yours.

The stainless rods do not come threaded and you must thread the ends in order to be able to screw them into the clamps. To this you will require a 1/4"-20 Gauge Die, a die wrench and some 3-in-1 oil or something equivalent. For those not familiar with taping a rod to put on threads, it is actually a very simple thing to do. I've taken some pictures to help you out on this process. Two of the three rods will need to be threaded. For an MK101 saw, the rods need to be cut to the following length. Rod A is 27" long, Rod B is 33" long and Rod C is 20" long. Cut the rods using a hack saw and a vise. Use a steel file or a bench grinder if you have one available to debur any sharp edges from the cutting. Rod's A and B will need to be threaded on one end. I would recommend cutting the threads on the end that you just cut.

If you don't have a die set with a wrench you can either purchase a small tap and die set or simply buy the specific die and wrench separately. A typical tap and die set can be seen below:



Front of Die
(Note taper of threads into hole in center)

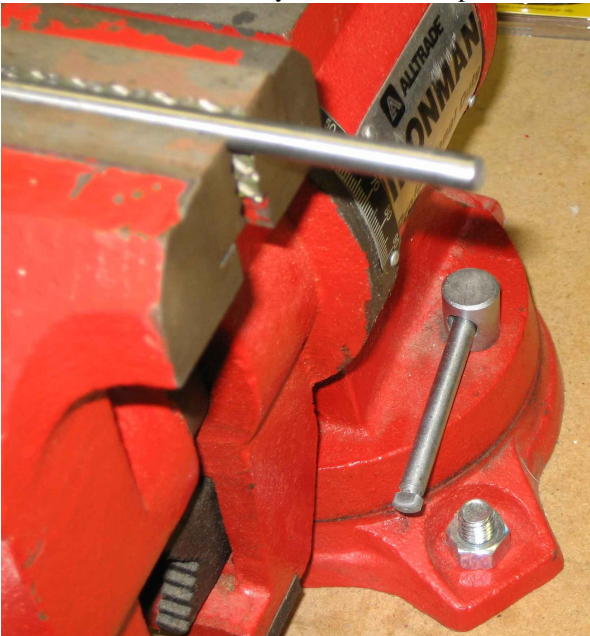


Back of Die
(Note lack of thread taper)



Typical Tap and Die set. The wrench in the center is for a tap (threading a hole) and the wrench on the bottom is for the die (threading a rod)

In order to thread the rod you need to clamp it into a vise. Place the rod, horizontal and clamp firmly in a standard tool vise.



Leave approx 3-4" of the rod free from the vise on the end.



Have your tools ready. The 3-in-1 oil is for lubricating the end of the rod. This will drip some oil so you may want to put a

paper towel under your work. The die wrench has the 1/4"-20 die placed and screwed tight in the wrench. I tend to place them in the wrench with the work side up as you see it in the picture. Now place a few drops of the oil on the end of the rod. A few drops is all that is required.



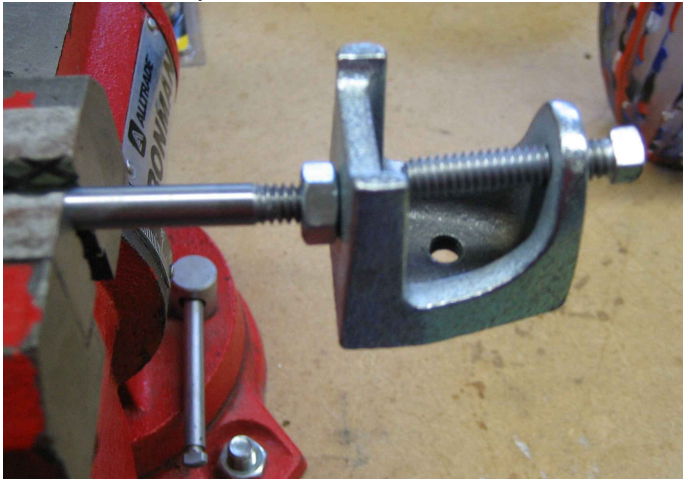
Place the die on the end of the rod and holding it in the center, start to turn it in a clockwise rotation. Initially it will be a little wobbly until the threads start to cut in. Try to keep the die square to the face of the rod as you turn. After a few rotations the teeth will have cut in enough that you can grab the wrench on the ends and continue rotation. After about 5-6 full rotations, place a few more drops of oil on the rod just before where it is to be cut.



You should continue to cut the threads until there is about 3/4" of the end of the rod with threads. This allows enough threads for a 1/4"-20 nut to be placed on the end if front of the clamp.

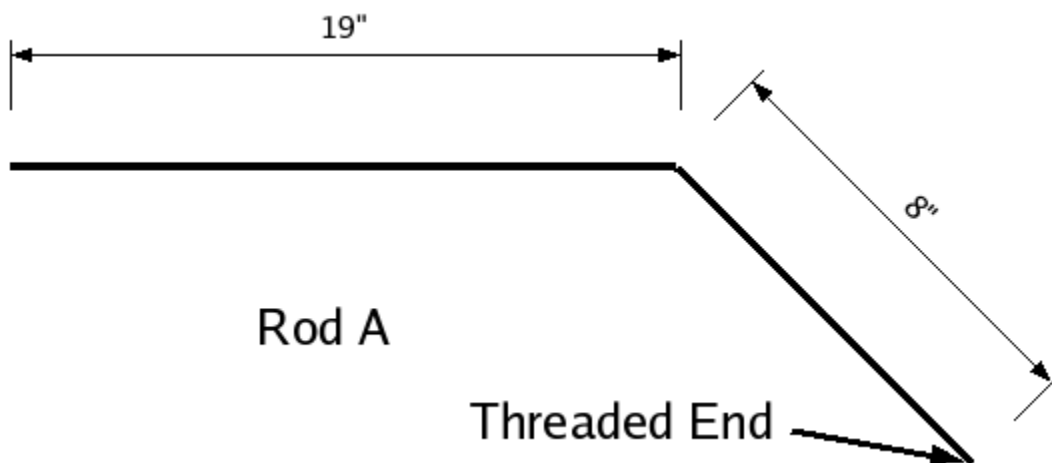


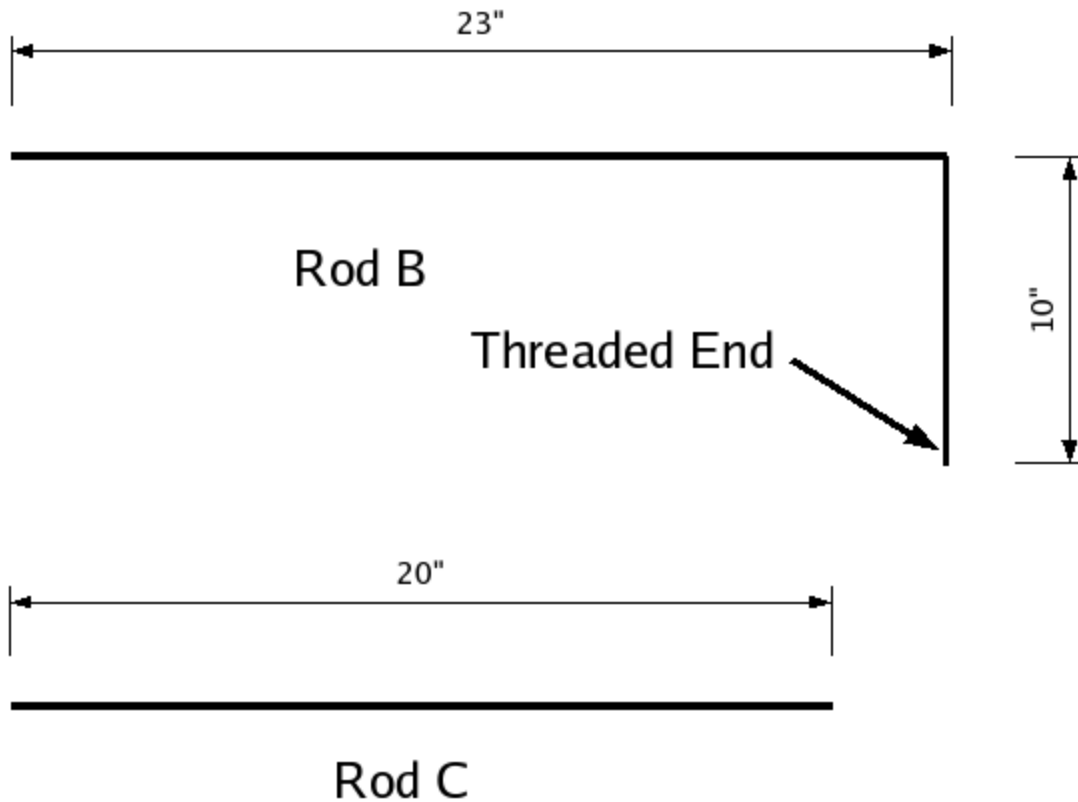
Threaded rod (sorry for the bad focus)



Finished clamp with nut on rod.

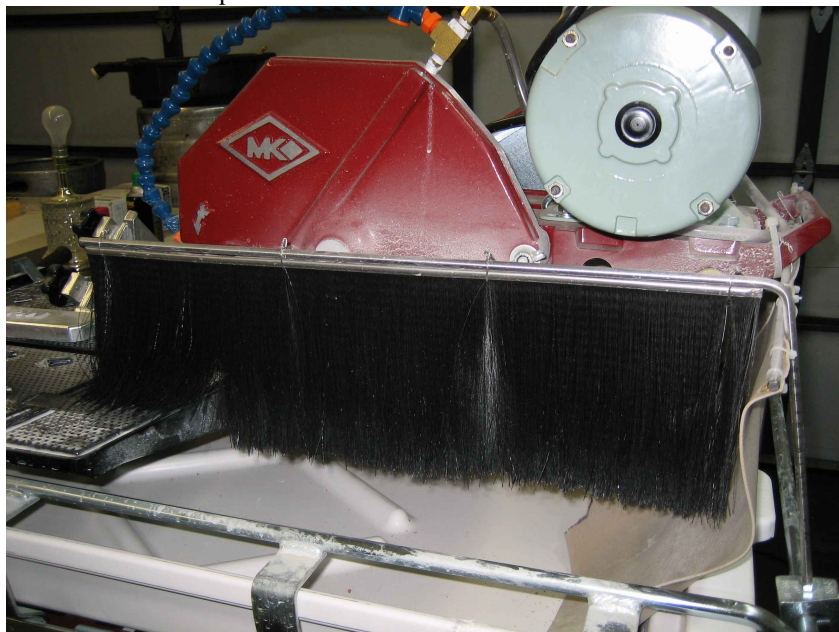
Two of the rods will need to be bent. Rod B is the rod that holds the rubber matting on the left side of the blade. Rod B is pretty much a right angle with the long side 23" long and the short side with the threaded end 10" long. Rod A is the rod that holds the brush on the left side. Rod A will need to be "adjust in field to suit". It's approx 100 to 120 degrees but you will need to fit it such that it is the right height to hold the brush. The long side of Rod A is 19" and the short side with the threaded end is 8". Rod C is used to hold the matting on the back and is 20" long. A diagram of the three different rods is shown below:



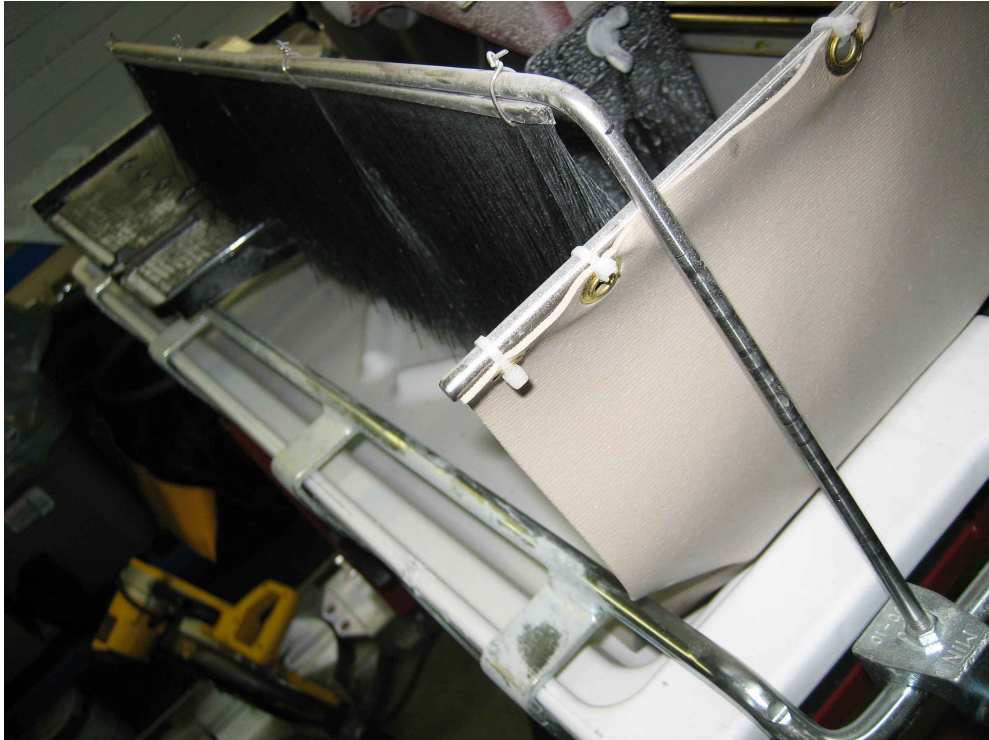


Bending the rods can be accomplished by measuring and making a mark on the rod with a marker like a sharpie. Place the rod in the vise and put the mark about 1/4" outside of the jaws on the side. You want to put the smaller of the lengths into the vise. For example in bending Rod B, place the 10 side in the vise and the 23" side outside of the vise. This gives you more to grab on to and gives you more leverage. Hold the rod about 10" from the bend point and apply pressure. These are stiff rods so they will require some elbow grease to make them bend. If you are grabbing anywhere near the new threads be sure to wear gloves as the newly cut threads are sharp and can easily cut you. When you bend Rod A, you will need to make some adjustments. Bend it to about 100 degrees and then roughly place it on the saw and look at how it fits.

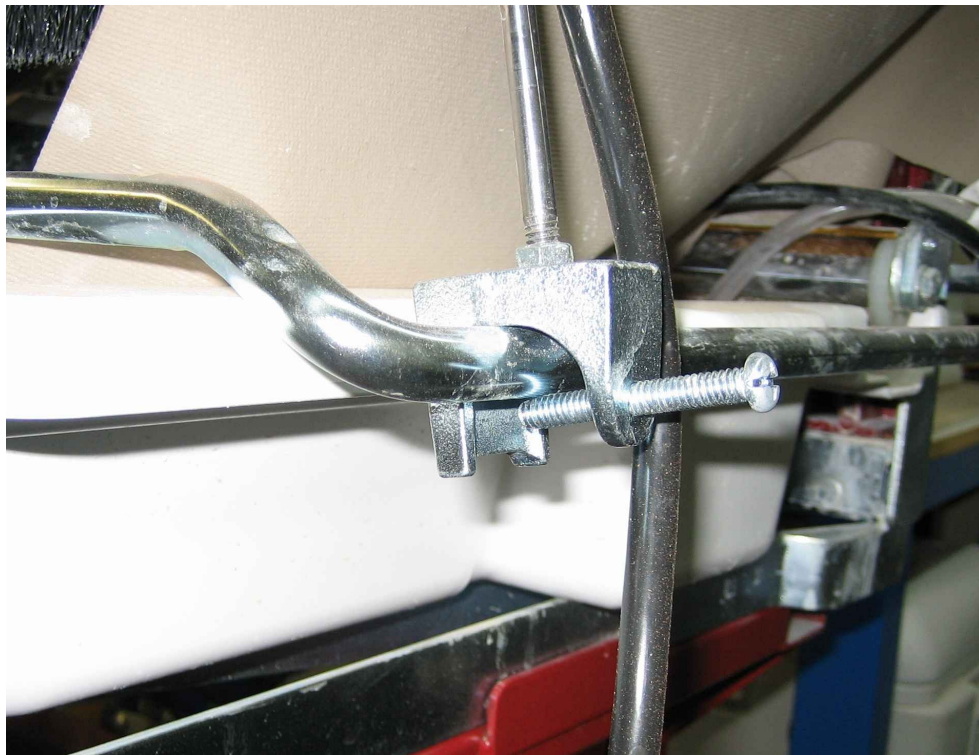
Here is a close up detail of Rod A fixed in place with the brush on it:



Here is a top view showing the Rod A attachment:



Here is a detailed shot showing the Rod A clamp attached to the saw:



Another thing to note is the jam nut placed on the threaded end before you screw the clamp on to the rod. You do not want to tighten this nut down until you have clamped the clamp to the saw and adjusted the rod so it is where you would like it. Once that has been done, then you hold the rod in place and tighten the jam nut. This locks the rod in place so that it does

not move. Do this with Rod A and Rod B. Make sure the ends of Rod C are smooth and free from burrs. Simply zip tie Rod C to the back handle of the saw as shown in the picture below:



As you can see, I did use TIG welding wire to attach the rod to the saw but you can use zip ties just as easy.

Here is another detail showing Rod B attached.



The picture of Rod B above also shows good detail of the rivit and attachment of the rubber mat to the rod. The matting you will need to cut and size to suit. All I did was put the rods in place and then kind of held the mat roll in place and unrolled the matting until it would be long enough to go into the tray by a few inches. I cut the general length and then marked and trimmed them down to fit. Once they are trimmed, you should use fabric rivets (available at Home Depot or Lowes) and hammer them in to make reinforced holes. If you don't, you run the risk of the punched holes ripping out over time. Once the finished mats have been cut and riveted I simply put them on to the rods with zip ties. Be sure to cut the back mat so that it does not cover the pump intake.

To attach the brush to Rod A you can use zip ties however I used welding wire. The wire is not as wide as the zip ties and thus does not spread the brushes that far. If you don't have access to welding wire, any stainless picture hanging wire or garden wire should do the trick. As you can guess, I cut the 24" brush down to about 19" to fit the rod that was cut. If you have a MK101Pro, this dimension will probably be longer as is the length of Rod A and Rod B as the MK101Pro has a 24" depth of cut vs the 18" depth of cut that the MK101 has. If you do have a MK101 Pro, I would use a tape measure and check your dimensions before you cut your stainless rods and your brush.

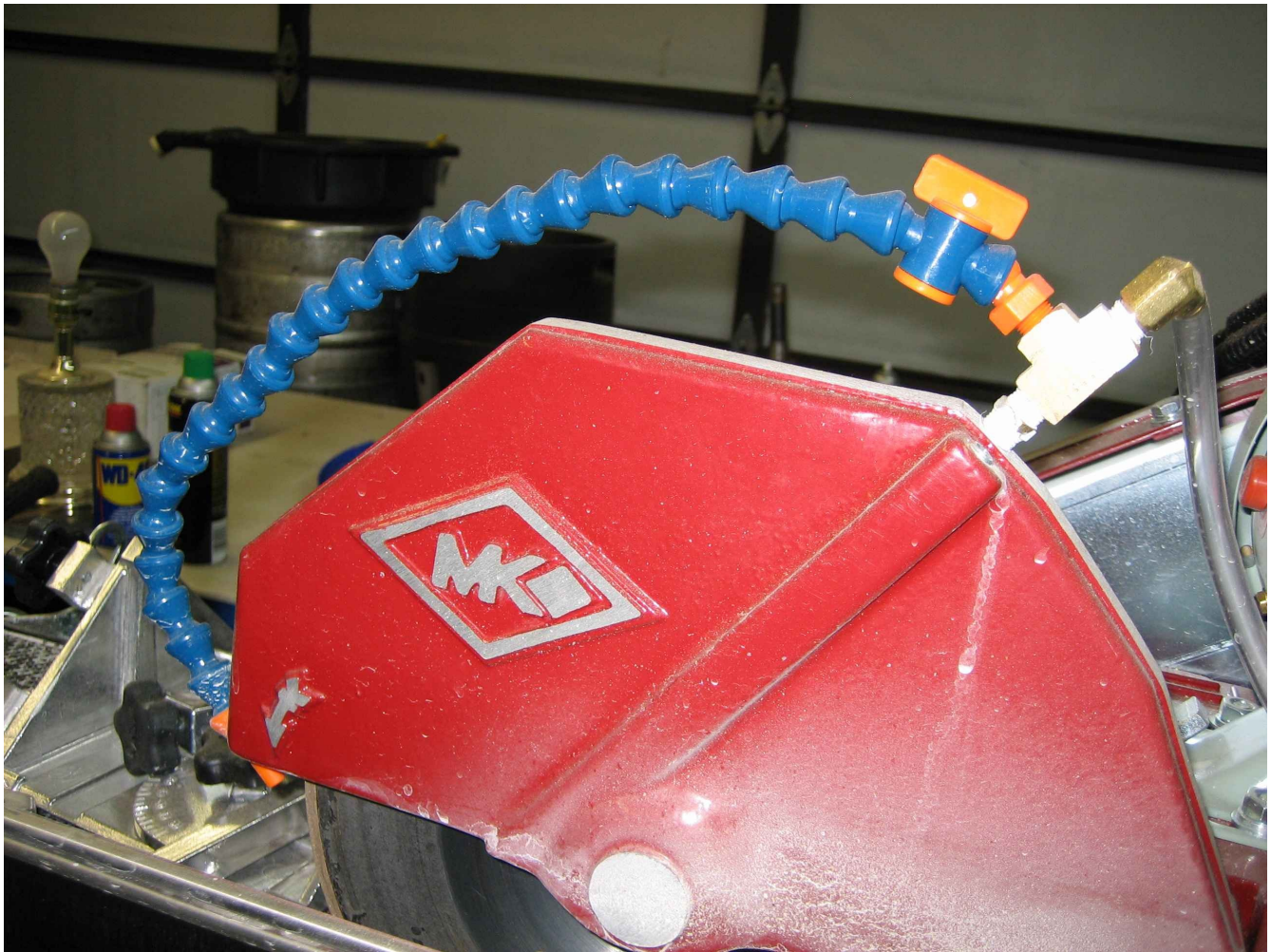
Water Feed System:

If you want you can add an additional water feed system to your saw. To tell you the truth, on the MK saws I really don't think this is necessary. I put this on before I had used the saw much and now in hind sight, I don't think it really adds much other than to water the glass a little more just before it feeds into the blade. For those that want to make the add-on the parts from McMaster Carr are detailed below:

<i>Part No.</i>	<i>Page #</i>	<i>Description</i>	<i># Req</i>	<i>\$/Unit</i>
10095K51	2048	1/4" NPT Male Threaded Valve For 1/4" Hose Any-Which-Way Loc-Line Coolant Hose Assembly, Packs of 2	1	9.85
10095K52	2048	1/4" In-Line Valve For 1/4" Hose ID Any-Which-Way Loc-Line Coolant Hose Assembly, Packs of 2	1	9.85
10095K21	2048	1/8" Round Nozzle For 1/4" Hose ID Any-Which-Way Loc-Line Coolant Hose Assembly, Packs of 4	1	3.90
10095K42	2048	12" Of 1/4" ID Hose Segments For 1/4" Hose ID Any-Which-Way Loc-Line Coolant Hose Assembly, Packs of 1	2	5.90
10095K41	2048	Assembly Pliers For 1/4" Hose ID Any-Which-Way Loc-Line Coolant Hose Assembly	1	10.96

Note: Yes, you really need the assembly pliers to put this stuff together. Loc-Line is fantastic stuff and makes a great lubricating system for all of your tools that use water. I have it all over my shop but you can't put this stuff together or take it apart without the pliers.

You will also need a 1/4" T with NPT Female on the T and one side with male on the other. You can use an all female T with a 1/4" Male-Male threaded nipple to connect the original hose fitting. Looking at the picture (worth a 1000 words) you can see the detail of how I put the system together. Once you get the Loc-Line parts you will see in the pliers a tapered and non tapered side. The tapered end of the loc-line fits to the tapered side of the pliers. You put both ends into the pliers and simply close them and the pieces snap together. Conversely, if you put the pliers between two joined pieces and pull the handle apart the pieces will unsnap. I recommended you order 2 – 12" packages as I couldn't remember if one 12" is enough to make the full bend. The longer you can make the line and the closer you get it to the glass the better it works.



Saw Lift Kit – This is a very complicated piece to put together. If you are really interested, I can possibly put some plans together or better yet, I can get you a quote on having one built. This requires a steel cutter, a MIG welder and special tools for inserting threaded inserts into the steel. Having a 3 – axis mill to do precision drilling and offset boring is also a plus.

The final mods I did was to add some blade stiffeners from HIS Glassworks. I believe I purchased the 5” stiffeners. You can just see them on the picture above. Note the difference in the color of the blade about half a diameter across. These are simply two pieces of steel with an arbor cut in the center to apply pressure to the blade further out from the normal attachment point in the center.

Some other points/tips. Always run clean water through your pump when you are done cutting. Better yet, if you can set it up, run your pump outside of the bottom tray and only feed clean water through it or better better yet, work off a direct water feed system. Make sure you have plenty of water on the glass and blade before cutting. Feed the glass slow and let the blade do the work. Dress the blade as required using a blade dressing block which also can be purchased from HIS Glassworks.

Feel free to contact me if you are having difficulty or have any additional questions.