THE ULTIMATE ELAN GAS TANK

The original gas tank in our S3 Elan lasted eleven years. When we had to replace it, I tried two used tanks with bad results. What I needed was a tank that would never have a rust problem, so I designed the aluminum tank described below.

The tank is similar in size and shape to the original, but more squared off for ease of design and assembly. To make one like it you need to buy materials and line up a good heliarc welder. The materials must be weldable, so buy from among the following acceptable alloys: 50-52 H32; 30-03 H14; 60-61 T4; or 60-61 T6. If you make your shopping list carefully and have the metal supply place make as many cuts as possible you will save time. Figure 1. will make the materials list that follows make more sense.

Part	Width	Length	Thickness
top	15.25	19.5	.0625
rear	15.25	6.0	.0625
front	15.25	8.5	.125 or .1875
bottom	15.25	12.25	.0625
	15.25	7.75	.0625
sides	8.5	19.5	.125
filler pipe	2.25 x 12.0		
pick up block	2.0 x 2.0 x 3.0		
pick up pipe	.250 I.D. x 18.0		
interior baffles	cut to fit from extra .0625 material		

***NOTE : ALL DIMENSIONS ARE GIVEN IN INCHES

Before you are ready for the welder, there is some fabricating to do. The rear and the two bottom pieces are ready to go. The sides need to be cut so the bottom will slope up slightly at the rear. Figure 2. shows how to mark and cut the material.

In the front plate, cut a 2.0 inch diameter hole in the center for the gas gauge sender. Use the sender unit to mark the positioning of the six bolt holes. Drill the holes and thread with a 10-32 tap. I used 10-32 stainless cap screws about .75 inches long with lock washers. You can buy the cork gasket from your local Jaguar dealer; just bring your sender unit to show the parts man.

In the top at the right front corner about an inch from the edges, cut a hole slightly larger than 2.25 inches for the filler pipe. The hole needs to be slightly oversize to allow you to position the pipe. Cut the filler pipe to size by measuring the height of the stock pipe above the top of the tank. The filler pipe should not extend into the interior of the tank.

The small block of aluminum for the pick up pipe needs to be drilled and tapped to accept an aluminum or brass fitting to connect to your fuel line. I used quarter pipe thread. Cut a corner off the block per Figure 3. into which the pick up pipe will be attached. Measure the O.D. of your pick up pipe and select a drill bit the same size. Drill a hole for the pick up pipe in the block so that it intersects with the other hole and so that the pipe is at an appropriate angle to point to the middle of the tank parallel to the front plate. It should touch the bottom under the sender unit. Have the pick up pipe heliarced to the block, eyeball the desired length by holding the side of the tank in place with the bottom and the front, and cut it to length. (See Figure 3.)

In the left side of the tank at the front and as close to the top as possible, drill about a 1.0 inch hole through which the hose fitting will be screwed into the pick up block. (Use the finished block to position the hole.) Fit the block into place and have it welded to the inside of the left wall.

I recommend at least one interior baffle parallel to the front and rear walls positioned 10.0 inches from the front plate (so it will not interfere with the gas gauge sender). If you want to get fancy you can make an intersecting baffle from the middle of the first baffle to the rear wall. Be sure to cut the corners off the baffles at the bottom and drill a few .5 inch holes in the baffles to allow the gas to level itself. (See Figure 4.)

You are now ready for the welder. Start with the bottom and the two side plates. The bottom should overlap the side plates. The order of assembly should be obvious from here. The top is the last big piece to be welded. Study your assembly carefully before welding the top in place. The filler pipe is the last piece to be welded. Remember that the filler pipe must not extend into the interior of the tank.

You are now the proud owner of a 9.5 gallon aluminum gas tank weighing 12.5 pounds. The best way to install the tank is to put pieces of inch thick foam padding under the tank and tie it down with a piece of mild steel strap with bolt holes drilled in the ends.

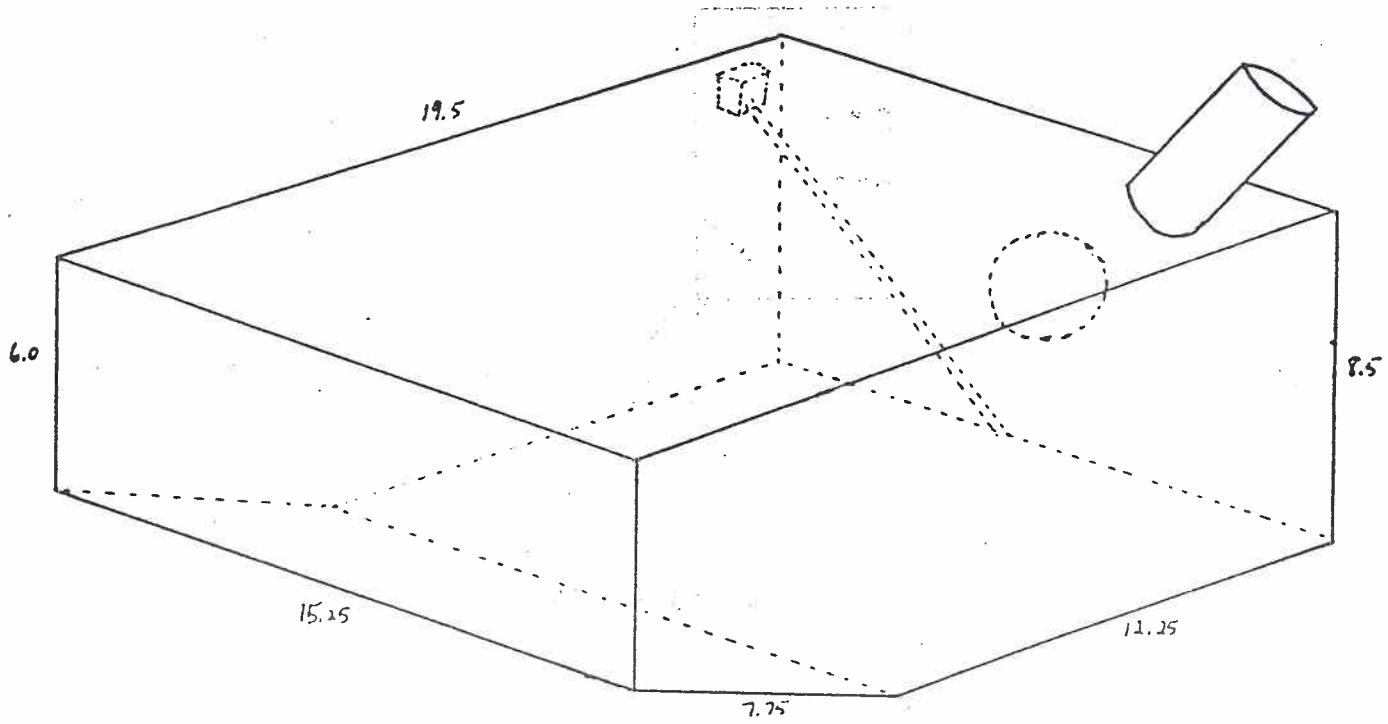

Figure 1

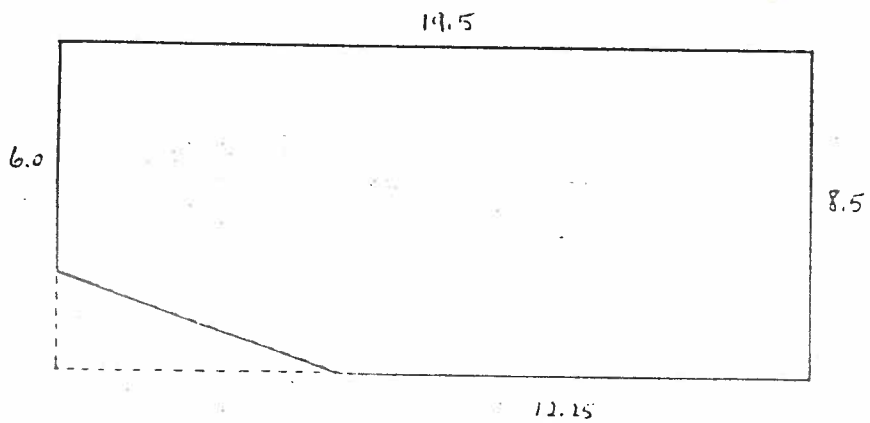

Figure 2

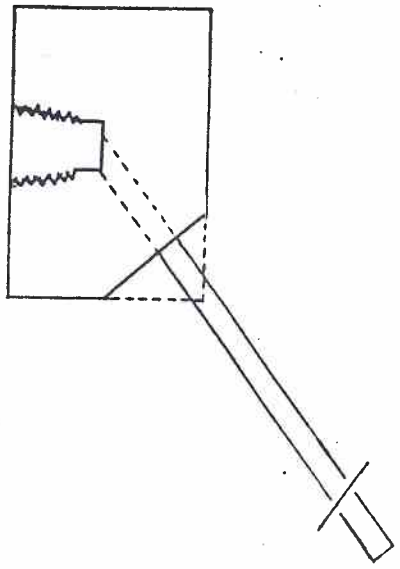

Figure 3

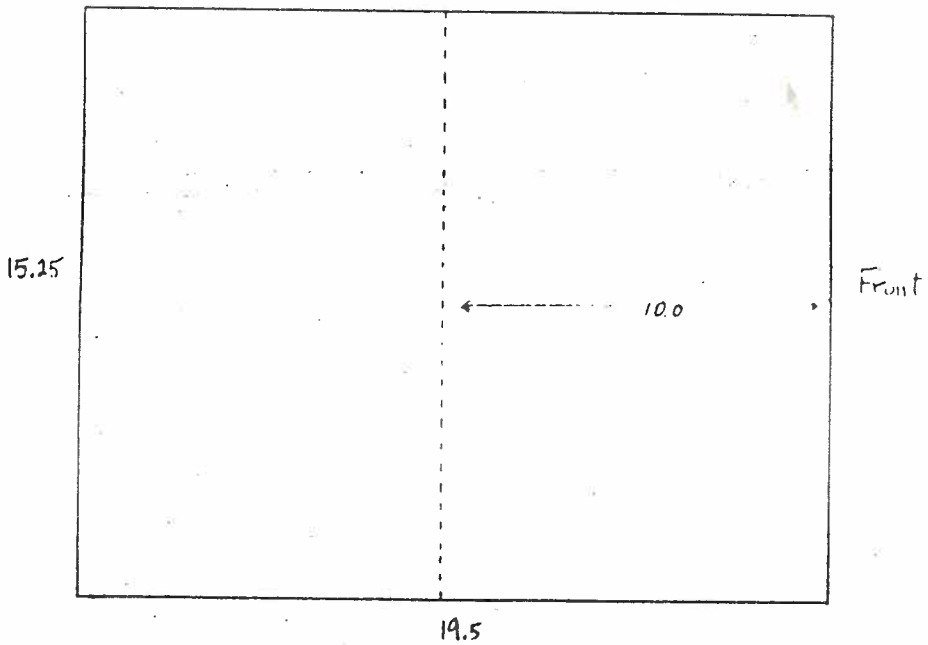

Figure 4

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