

Additional Support Underneath the Tank Compartment Floor

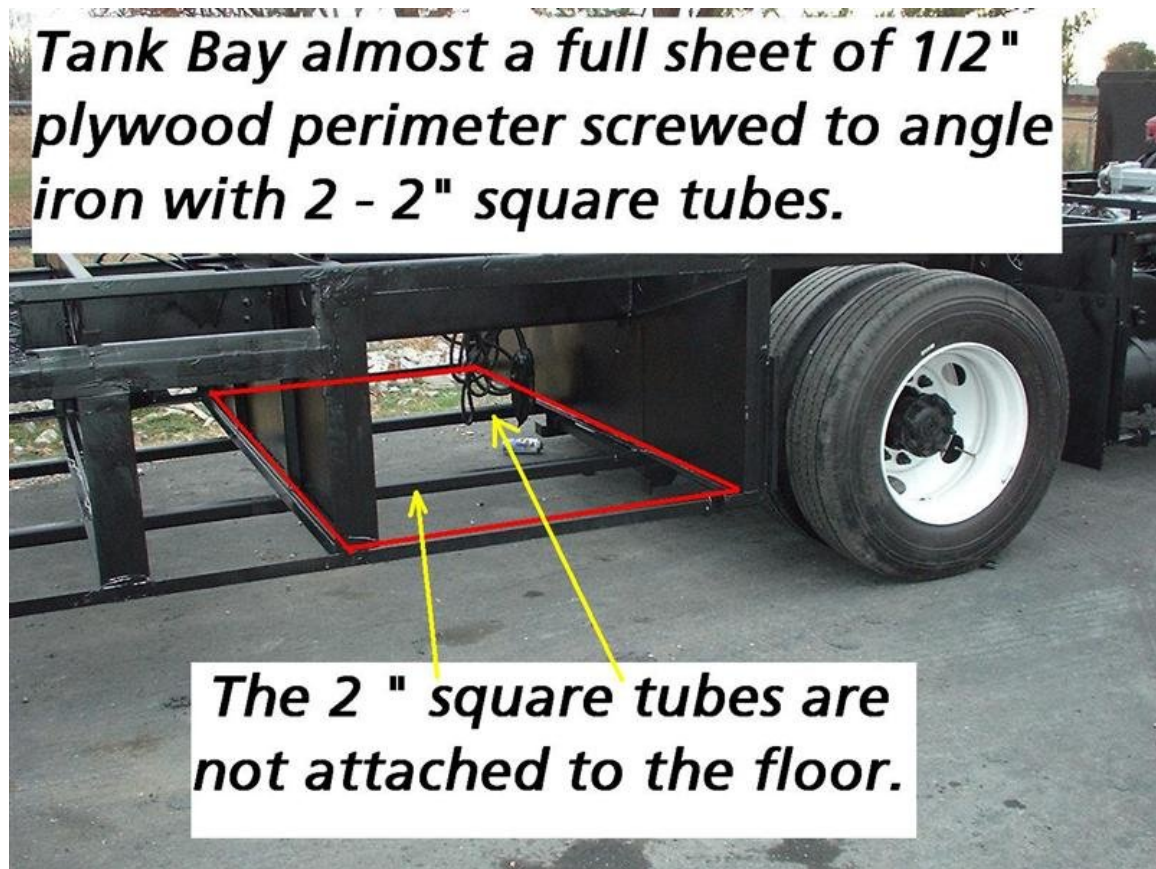
Reading in recent discussions about the sagging of the tank compartment floor caused me concern so I decided to check the condition of my coach's tank compartment floor. The good news, I do not have any leaking water or other fluids in that compartment. I have never overflowed the water tank nor had any problems with any of the pipe connections leaking.

I did check the sag in the water tank compartment floor with the water tank full and the gray and black tanks empty. Below is a picture of results of that test. I was too chicken to add any water to the gray or black tanks based on the sag with just the water tank full.



As seen in the picture. The sag is more than I wanted to leave as it was. I am out of warranty by a long way and to me I believe I can figure out a better and cheaper way to correct the above problem without the trip to Red Bay. As I see this problem Tiffin did nothing to support the passenger end of the water tank and as a result the two tanks (black and gray) are nested on top of

the water tank. The water tank is 40 inches wide and 72 inches long when placed on the 48 inch by 96 inch sheet of 1/2 inch plywood there is nothing except plywood under the three tanks. On my coach there were only 18 screws secured the 1/2 inch plywood to the surrounding 1/8" x 1 1/2" angle iron perimeter supporting the three tank's. Tiffin installs two 2" square tubes under the basement compartment floor running from just in front of the rear suspension to the just behind the front suspension. These two tubes are not attached to the tank compartment floor they just run under the plywood flooring. The only support for the floor is just contact pressure of the plywood on the 2" square steel.

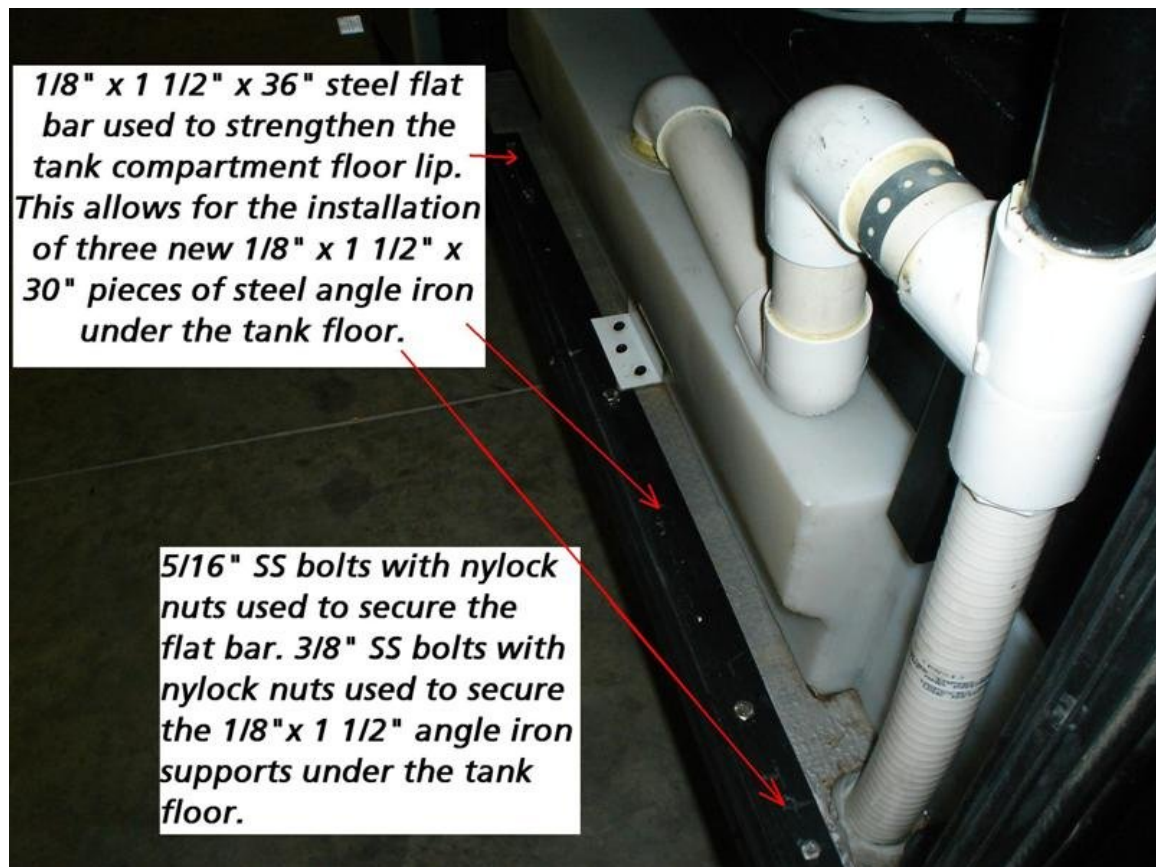


After thinking about this floor sagging situation and doing a little planning I went to Lowes and purchased the following materials:

- 2 - 1/8" x 1 1/2" x 72" pieces of steel angle iron.
- 1 - 1/8" x 1 1/2" x 36" piece of steel angle iron.
- 1 - 1/8" x 1 1/2" x 36" piece of steel flat bar.
- 2 - spray cans of gray primer.
- 2 - spray cans of flat black paint.

- 3 - 3/8" x 1 1/2" Stainless steel bolts.
- 3 - 3/8" Stainless steel Nylock nuts.
- 2 - 5/16" x 1 1/2" Stainless steel bolts.
- 2 - 5/16" Stainless steel Nylock nuts.

I drained the tanks then used my 20 ton air over hydraulic jack to lift the plywood floor which removed the sag from the plywood. I needed to add a way to keep the bolts from pulling through the 1/2 inch plywood when the additional steel supports were added to the passenger side 1/8" steel angle iron. I decided to make a sandwich of two pieces of 1/8" steel with the 1/2 inch plywood sandwiched between them. I added a 1/8" x 1 1/2" x 36" piece of steel over the end of the plywood then bolted the sandwich together using 5/16" stainless steel bolts with stainless Nylock nuts.



I now have a solid foundation on which to build my tank floor support system. Part of my plan was to add additional support under the whole tank assembly and not just the end with the sag. I cut two 38 1/2 inch pieces of the angle iron from the two 72" pieces of steel. Using my reciprocating saw I

cut one side of the angle off 2 1/2 inches from each end. This left me with one flat side on either end of the piece of steel. I first primed then painted the steel with flat black paint. With 46 inches floor width from side to side I equally spaced the two pieces of angle iron under the plywood tank floor and laid the two flat ends on top of the two 2 inch pieces of square tubing. I did not secure the steel angle iron to the square tubing as I am relying on the weight of plywood flooring, tank and water will keep the steel in place.



Then I cut three pieces of angle iron 30 1/2 inches long. I again cut one side off of the angle iron but only on one end, that cut was again 2 1/2 inches long. On the opposite end I cut a 45 degree angle as this end will be bolted to my steel sandwich, I cut the steel this way as I wanted to make the transition from angle iron to flat steel look a little neater. All of the new steel was first primed and then painted with several coats of flat black paint. Something which might or might not be obvious in the pictures is the missing protruding screws through the plywood flooring. Tiffin when they secure the plywood flooring in place uses drill screws which protrude about 5/8 inch through the perimeter steel. These screws can cause a lot of pain and blood loss when contacted with a hand or head while under the chassis,

as I perform all of my own maintenance I know this from past experience. I used my angle grinder and removed the protruding screw ends a long time ago then spray painted over the cut off screw ends.

I moved my jack to the end of one of my new angle iron supports. After sliding one end of a new tank support over the 2 inch square tube I jacked the support steel into place. I drilled through the new steel support and through the steel sandwich I had previously made. After drilling through three layers of steel and the plywood I inserted a 3/8 inch bolt and secured everything together with a Nylock nut. I performed the same operation to the two remaining steel supports as I had done with the first support. Then I cleaned up my mess and took these pictures.



Now I will never have fears that the tanks are going to crash through the plywood floor at some point in the future. The plywood may deteriorate if it ever gets wet but the tanks are not going anywhere unless a lot of steel rusts out.

Tiffin in my thinking could have avoided this problem by installing at least one piece of 1/8" angle iron under the passenger end of the tanks, six inches from the passenger outside angle iron rail. That would have supported the

tanks and any liquid weight when the water tank was full and or black and gray tanks had some portion of a full tank or even full tanks. This is a last picture of the undercarriage of my coach after modifications had been completed.



Labor time was around six hours not including about two hours for the planning and acquisition of the various materials. Total cost of materials was under \$ 80.00.