

W8JI's 2025 Ranger Truck HF Antenna Mount

My 2025 Ranger has tie downs, not stake holes, in the bed top rails. These tie-down holes are for passing ropes to a lower bracket. They are under small easily-removable plastic covers.



Figure 1

This is how I made an HF antenna mount.

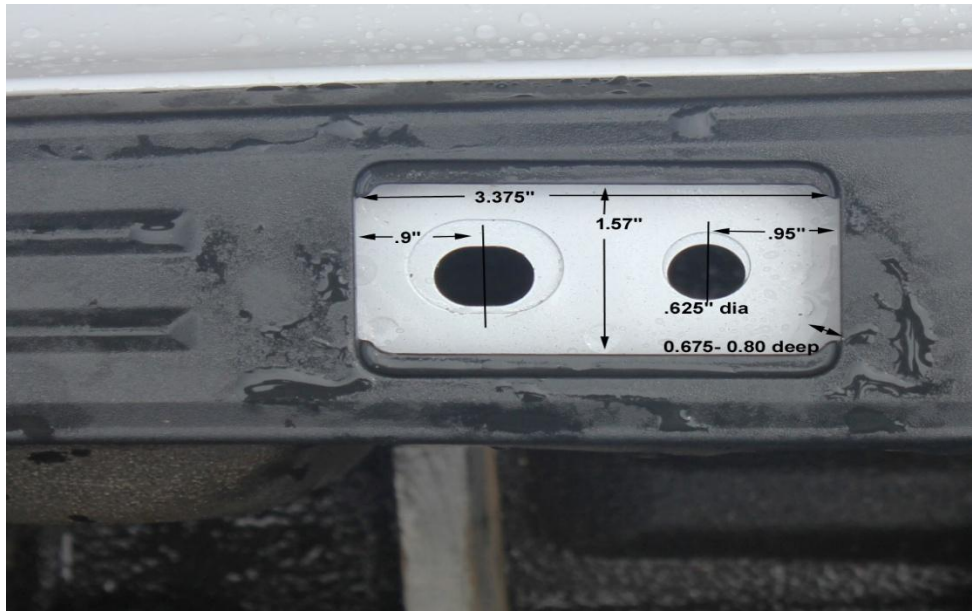


Figure 2

There are six of these with three on each side of the bed top rail. Note the depth varies from .675 to .80 inches depending on the location. The other dimensions were reasonably consistent. A single mount could use any of six locations, although to have better tree and obstruction clearance I will probably only use the left-hand side for my tall antennas.

I cut a 1.5 inch wide, $\frac{3}{4}$ inch tall stainless-steel bar stock to 3.375 inches length.



Figure 3

This stuff was tough to work with. It ate up about five drill bits!

I rounded the corners to perfectly fit the top rail tie-down pockets. This is to form a load distributing spacer.



Figure 4

I drilled a half inch hole and a 1-inch hole in the thick stainless steel flat bar.

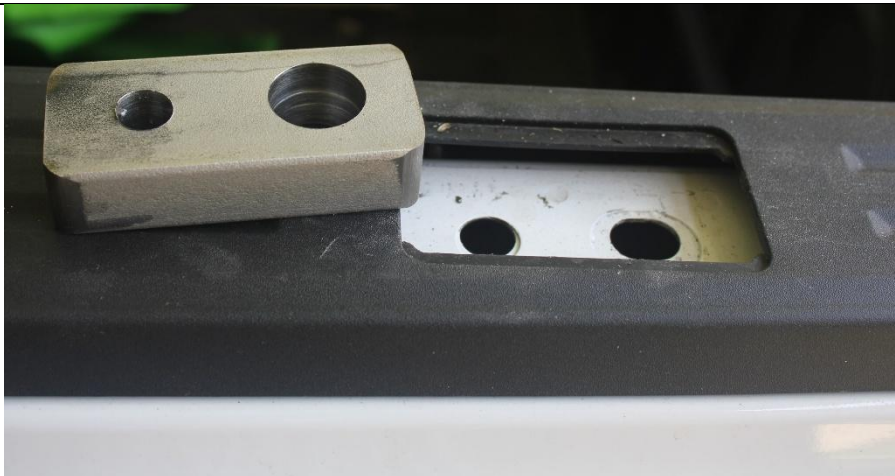


Figure 5 bar holes

I bolted the spacer securely and used the spacer as a drill guide. I drilled all the proper holes to a tight clearance for the stainless-steel support rod.



Figure 6 Drill using spacer plate as guide



Figure 7 test fit all locations to find maximum allowable rod length

These are a few of the refinished tie down holes. The largest hole is rearward on the driver's side and forward on the passenger side. This is so the antenna mounts outward from the bed rails and not over the bed. Over the bed would be possible if you do not use a bed cover or put big loads in the bed.



Figure 8 finished holes

While I could weld the assembly together, I decided, at least for now, to let everything bolt together. This allows me to redo things or swap antenna plates. To bolt the support rod, I drilled and tapped the rod for an SAE 7/16-20 thread grade 8 bolt. This makes the $\frac{3}{4}$ inch thick stainless-steel spacer a “floating spacer” that is fastened to the bed rail by large bolts. This will be the primary ground point.



Figure 9 assembly all ready to go!

This is how the assembly fits. It is bolted securely.

The top rail is an excellent ground and the upper sheet metal is where most of the ground currents collect. The frame is not the primary ground plane. The large sheet metal areas like the bed and the passenger cab are the primary RF grounds, not the frame. It is important to secure solid connections to the bed top area and the cab between cab and bed for the antenna RF ground, not the frame. The frame actually has very little to do with being a ground plane for RF, although it can tie the cab sheet metal to the bed metal.

This is a test fit with the support rod. The support rod will anchor to the lower bed tie loops with a bracket system. You can see the Ford factory anchor loop forward of the support rod.



This is the mounted antenna bracket. The antenna bracket is 3/16th inch stainless steel and gusseted at the corner bends. Any antenna can bolt to it. This includes a screw driver, a bug catcher, or a simple whip antenna. I already have numerous bolt on adaptors.



Figure 10 center mounting spot

The lower mounting bracket is incomplete now but will fit across and bolt to the existing Ford lower tie loops. These tie loops are very strong. I may need to bridge across the bed liner coating with braided straps for grounding. I will just need to see if that makes any difference. (I think it is likely not important.) Most of the ground currents will be easily handled by the upper body shell connection at the top rail of the bed.



Figure 11 lower support bracket



Figure 12 lower support bracket

The lower support bracket will bolt to the existing rope hooks seen on the lower bed wall.