‘Riveting Jeeps’

Recently my brother, Dallas and I purchased a ’42 Ford Jeep for restoration. This jeep suffered from all the problems with it’s chassis that most other jeeps of that era had; front and rear chassis damage, as well as years of repairs, such as plates under the rear shackles and some angle iron under front shackles. We had seen other jeeps with bolted-on front gussets and rear crossmembers, even though these were done well, they didn’t replicate the original rivets we were working towards having, in our jeep.

We did a search on the net and found a guy in America who had riveted his jeep chassis (http://members.aol.com/darryld/wwii-jeep/index.htm), which influenced us to have a go. Although we did refine and alter his method a bit, it worked out in the end very well.

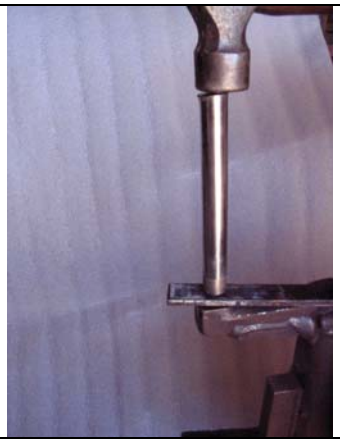
We started by stripping the chassis of the previous front and rear repairs, which we then repaired ourselves before sandblasting and priming it. We then re-bolted the cross member and gussets back on using a new repo front bumper to hold it all into align. The chassis was also out of diagonal alignment by ½”. We pulled this back into alignment with a diagonal brace, only removing this brace at the end of the riveting and the welding processes.

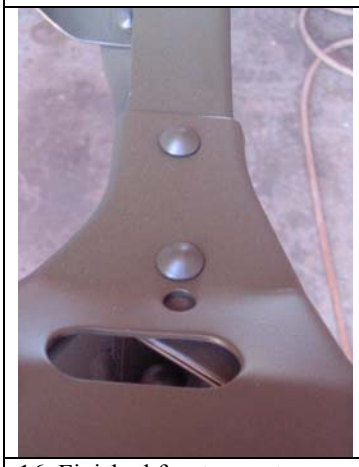
With everything aligned and bolted together again, it was time to start riveting. Before we could do this we had to make a bucking bar to fit our Air-chisel. We did this by grinding an old 11/16 drill, into the shape of the pointed Ford rivet that we were trying to replicate. Being lucky enough to have a lathe made this job a whole lot easier. We then part drilled the end of a ¾” shaft to the same depth as a Ford rivet, and turned the other end to suit the air-chisel. We also made another bucking bar to use as a former, as well as a punch to go over the rivet shaft, this allowed us to punch it down nice and tight. A number of support bars were needed to be made, in order to support the round head of the rivet, this being done, by reshaping the drill back into a round shape the same as the rivet head. A lot of trial and error went into getting both shapes correct.

The support for the rivet head was made from a solid square bar, part drilled with the reshaped drill, which was welded to other supports and firmly bolted to a large old anvil we had. We found that the ⅜” rivets needed to be dressed up on the face under the head, so they sat nice and flat, also the rounded head needed reshaping with a file to replicate the smaller dome shape (this could be done in a drill press or drill with a file if a lathe isn’t available).

Using the above method and remembering OH&S, we replaced 22 rivets in our chassis. It was not that hard to do, just a bit time consuming.

We have put together the following step-by-step photos to help explain what we mean and hopefully be of some use to others who want to fix the same problem as we had with our chassis.

		
1. 11/16 “ Drill reground to shape of Ford rivet	2. Facing off the back of the rivet head and reshaped rounded head with a file.	3. Support bolted to the anvil
		
4. Finished rivet	5. Rivet showing it’s depth in one the supports	6. Rivet cut off at 3/8” gave the right amount of length for our bucking bar, for the finished head
		
7. The bucking bars and punch that were made. After each rivet the ends were sandblasted before the next rivet.	8. Hollow punch used to punch things down tight.	9. First heating to red-orange, don’t overheat. (note: scrap plate with 3/8” slot cut to act as a heat sink trying not to get to much heat into the chassis)
		
10. Flatten the rivet to spread it	11. Reheat and use hand-bucking	12. Reheat and use the air chisel

the hole, but don't go lower than the finished rivet head.	bar to start shape.	bucking bar, rocking it around in a slight circular motion as you peen it down.
		
13. Finished Ford pointed rivet.	14. Ready to do another rivet on the rear cross member	15. All the rivets finished on the new cross member
		
16. Finished front gusset	17. Inside rear cross member finished	