ModTiger Engineering llc

TECHNICAL TIPS

ON THE SUNBEAM TIGER

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The Panhard Mount Repair / Replacement Kit

The Panhard Bar frame mount is another area in the Tiger that frquently suffers from fatigue failure. Like the rear spring mounts, this is an area where the OEM design was marginal and can be substantialy improved for better performance and strength. This is true even it it has not failed and shows no outward indication of impending failure on inspection. I think in this case it's strongly advisable to be proactive and replace the OEM mount before it fails.

Many Tiger owners hear new strange noises eminating from the rear suspension area, only to find the Panhard frame mount has totally torn loose from the side of the frame.

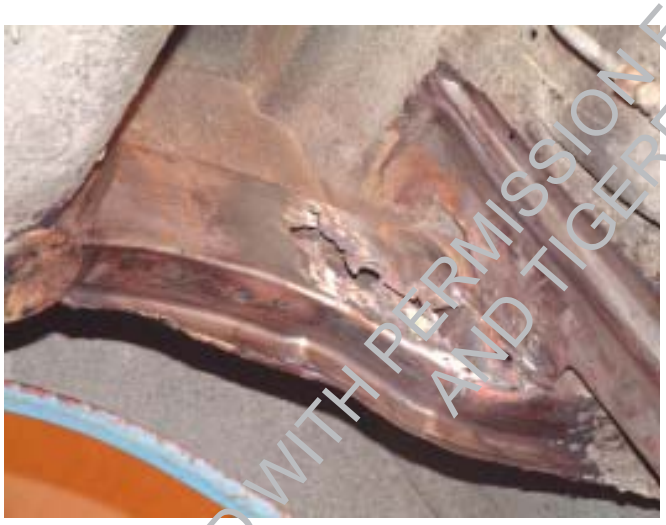

Figure 1. Here we have a fairly typical frame failure where the U shaped mount has torn loose from the frame and has taken a substantial portion of the side of the frame with it. This is another area where repeated stress has fatigued the sheetmetal frame. This is not normally an area that is subject to rust, so it's simply been overworked.

In addition to the reduction in driver control with the loss of the Panhard Bar attachment, the frame has also been weakened and is now open to the elements. The kit has been designed to address both problems by closing off the frame, and spreading the stresses out to adjacent areas, better able to cope and absorb these loads.

Figure 2. These are the basic components of the Panhard Mount Repair Kit. The 1/8" thick curved piece will cover the frame in the exposed area. It will be welded all around it's perimeter which bonds it to the top and bottom of the frame adding substantial strength and spreading the applied loads over a much larger area. The rest of the kit is laser cut from 3/16" thick steel plate. The narrow pointed piece is the front face of the new mount. It's shorter length will be welded to the side of the frame. The diamond shaped piece is the side face of the new mount. Note that it has three available mounting holes which allow you to better adjust the bar to horizontal. It will be welded to the front piece and to the trunk wall. The final piece is a brace from the bottom of the new mount to the bottom of the frame rail, completing the distribution of the loads to an area as large as possible.

We begin the repair process by removing the ac-

cumulated road dirt and undercoating form the work areas. The metal areas to be welded must be clean and bare in order to make strong welds. The most effective way to do this cleanup is with a propane torch, scrappers and small wire brushes. The undercoating is flamable when heated so be sure to wear appropriate protective gear and clothing. A friend on fire watch duty is also strongly advised to protect your Tiger from inadvertant fires in the interior and trunk while your busy cleaning. After you've cleaned and prepared the work area, your going to want to grind any reminants of the original mount and attachment welds off the frame.

Figure 3. It's a little hard to see because of the head, but we're applying heat with a propane torch to soften and loosen the accumulated road dirt and undercoating. You're also working adjacent to the fuel lines and pump, so your going to want to be sure that there is no fuel seapage and vapors in this area before you light up the torch.

Figure 4. Here's a shot of what you'd have if you removed the OEM Panhard frame bracket before it fails. This is as close as you want to get with a cutting torch. The rest must be ground down to the frame surface.

It's pretty tough to get the grinder in to cleanup the perimeter you're going to weld to but you want the side of the frame as flat as you can get it. The frame isn't really flat, but you don't want metal bumps holding the plate off the surface. Wire brush to bare metal.

Figure 5. Here's a shot of the frame area cleaned up and ready to accept the cover plate.

Figure 6. Here we have the cover plate placed and clamped to the frame. You're going to want to even out the gap at the perimeter so that you can weld to the edge of the frame in the area of the bends. This will give you the strongest attachment.

Figure 7. This is how the completely welded perimeter plate should appear when you're done welding. You can grind these edges smooth if you like, or simply notch the 3/16 front piece to fit the weld buildup as required. .

This perimeter piece will spread the loads from the new Panhard bracket over a much larger area and reduce the chances of further stress cracking. It also reinforces the frame where existing damage was present.

At this point we're ready to begin preparation of the new Panhard Mount. We begin by aligning the front plate to the side plate as shown. A quick tack in a couple of places will allow you to make sure the plates are correctly aligned before you make a complete weld. You'll also want to find the stamped recess in the back wall of the trunk which allows you to line up this two piece assembly square with the frame face. You can lap the front piece on the front or the side of the side piece to give you the squarest fit for your application.

Figure 8. The magnetic clamp makes a nice right angle for the weld setup. The two plates are the same length making alignment pretty easy.

Figure 9. I typically like to skip weld the inside weld and full weld the outside seam. Make sure your assembly fits reasonably square with the frame before you complete these welds.

When you have this assembly welded and ground to your satifaction, it's time to place it on the frame. If you align the top and the bottom of the front plate with the frame cover plate the topmost hole should be very close to the OEM location. Since in most Tigers the Panhard Rod runs down hill from the frame to the axle, this gives you an opportunity to lower the frame mount and correct this missalignment.

Figure 10. Here we have the mount placed and aligned with both the side plate on the frame and the stamped bump in the back wall of the trunk.

Figure 11. These two locations are completely welded as shown. You're going to want to be especially careful with the weld to the trunk wall not to burn through the thinner sheet metal of the trunk wall.

The location is not that critical, but the idea is to be able to mount the frame end of the Panhard Bar as close to level as possible with the wheels on the ground. A wheel lift hoist is the best way to get the proper loading in the suspension and put the components in the proper position for final assembly. At the present time the rubber bushings are difficult to obtain. You may have to be creative while the Sunbeam suppliers network locates appropriate replacement pieces.

Figure 12. The last piece to place is the clip from the bottom the the frame flange. This piece adds the last piece of rigidity that make this kit stiff enough to stand up to substantial abuse or simply restore the OEM function with a better chance of survival.

Figure 13. Here's the final assembly completely welded into the chassis.

Figure 14. Here's a shot of the trunk showing the substantial weld penitration in the back wall of the trunk. In all cases, this will require a repainting of this area, but this is a small price to pay for the increased durability of this installation.

Figure 15. Another shot of a different installation. Same net result.

Figure 16. Same installation as above, but back to the installation of the frame cover plate. This installation was done on a hoist while the previous installation was accomplished on a rotisserie. Either method is acceptable, but the hoist installation requires a bit more talent by the welder for obvious reasons.