A somewhat different kneewall repair

Facts
- Owner: CamperAndy
- Titanium 29E34RL
- Built in May 2001
- Glendale frame
- Atwood AB-72 pinbox
- Gooseneck & kneewall work done in October 2014

Observation
After a few years of ownership and about 30’000 km/19’000 miles made by myself with this trailer, the pinbox deflection went from about 12 mm/half an inch static to 25 mm/1 inch static and a bit more dynamic (when driving down the highway).
So I had to assume that my kneewall had separated from the sidewall and the screws were sheared off as experienced by other Ti owners. Well, I was in for a surprise!

Beginning of ownership: half an inch deflection.


Before the repair: one inch deflection.

My opinion
If the kneewall is strong, screwed together with the sidewalls AND is resting on the pinbox, each and every pothole we drive through would hammer on the kneewall-sidewall connection and this connection (screws, bolts, wood, etc.) would eventually fail again after so and so many hammer actions while driving down the highway.
Therefore, the metal gooseneck construction should be free floating under the kneewall and bedroom floor. Or should at least have enough play so it wouldn't hit the kneewall-sidewall each time we drive through a pothole.

The work

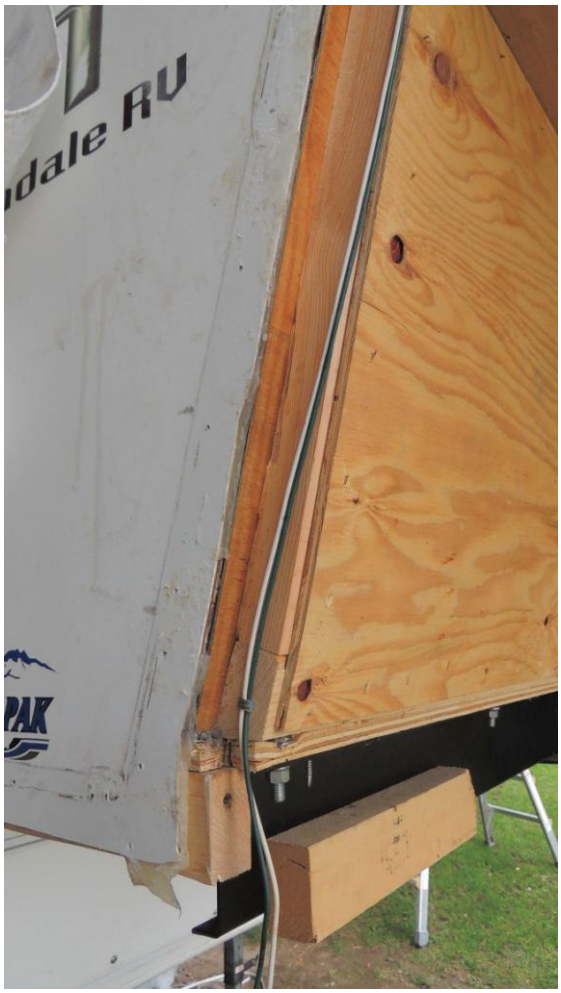
The screw covers/inserts are off and off come the screws.

With the help of friend, a heat gun and a putty knife we take off the corner elements.

The corner elements are off.


Next is the fibreglass cap on top of the pinbox.

And then a big surprise: Absolutely no damage at the kneewall! No sheared of screws, everything is still intact at the kneewall-sidewall connection. The metal gooseneck construction had enough play not to damage anything above the pinbox.



Right side kneewall-sidewall.

Left side kneewall-sidewall.

Passenger’s side kneewall, after removing the front plywood, no damage at all.

Driver’s side kneewall, after removing the front plywood, no damage at all.

Off comes the front basement wall and the top gooseneck elbow gets a thorough inspection – and the bottom one too. However, all the welds are still good. I have to assume that the whole deflection comes from a weak gooseneck construction.

To minimize the deflection of the pinbox, I welded a flat piece of metal to the foremost possible point at the upper horizontal frame part and the lowest possible point at the vertical frame part of the gooseneck, left side & right side.

With the truck hanging on the kingpin, we brought down the pinbox to the lowest possible position and then welded these 2 flat pieces of metal to the frame. This alone brought down the deflection to about 6 mm or ¼ inch.

After reinforcing the kneewall and kneewall-sidewall connection, I installed an airbag on top of the pinbox in such a way to make sure, the kneewall doesn't contact the top of the gooseneck/pinbox. As before, I wanted my gooseneck free floating under the kneewall to prevent any damage to the kneewall and/or sidewall.
In case I hit a deep pothole or something similar and to prevent the gooseneck from using up all available play between gooseneck and kneewall, I filled the airbag with 30, 40, 50, 60 and 70 PSI and went on several test drives. It was nice to see how the airbag did what it was supposed to do while I was driving down a gravel road like a mad man. From my observations, 50 PSI seemed just about right.

The airbag is screwed to the plywood on top of the pinbox, the valve stem is routed through the pinbox and is easily accessible if the pressure has to be changed or checked.

As we put everything together again, we did some improvements or reinforcements along the way, wherever we could.

Finally, we had everything together again. Even the fibreglass cap on top of the pinbox fit again – after some adjustments – as the pinbox is now somewhat lower than before.

All the marker lights still have to be connected and installed again, and the inserts/screw covers are still missing, but we see the light at the end of the tunnel.

The pinbox deflection is now less than 6 mm or a ¼ inch but it could be just about double of that without hitting the kneewall. The more it flexes, the more the airbag resists against it.

The next time I take that fibreglass cap on top of the pinbox off, I will build in a little window, just to see the airbag do its work!