

Step 1: Weld-on Fifth Wheel Stand Repair Process

April 4, 2019 – Created

April 30, 2019 – Rev A

Introduction:

This procedure addresses the repair process for cracks at the fifth wheel stand as well as non-cracked dollies. Our objective is to show a safe and efficient method for repairing current cracking to prevent future.

⚠ CAUTION: Individuals who are working on repairs are advised to always use proper safety equipment, including: safety glasses, hearing protection, cut-resistant gloves, steel-toed shoes, and face shields, etc.

List of Materials:

- Parts Kit: 100M106
- 1 Set of gussets (2 pieces) (Used in Step 2)
- 1 Set of repair plates (4 pieces)
- 8 Bolts ,5/8-18 x 2" Grade 8
- 8 Nuts ,5/8" Locking Grade 8
- 16 Washers, SAE Hardened

Tools and Equipment Required:

- Two hand-held 3/8" air drills
- One hand-held 1/2" air drill
- 3/16", 1/4", and 11/16" Drill Bit
- One Air Grinder
- Grinding Disc
- Claw hammer and nail set
- Welding Blanket
- Can of Primer
- Can of Gloss Black Paint
- Grease Marker/Soap Stone
- Tape and painters' paper
- Caulking Gun
- 1 Tube of Caulk, any color
- Paint Respirator

Repair Preparation:

Unload the dolly, park on a level shop floor, chock the wheels and unplug the ABS valve. Completely removed and secure the fifth wheel plate to be reused after repairs are completed. Determine if cracking has occurred at the stands (See Fig 1).



Repair Procedure:

The repair plates will be used on all welded-on fifth wheels on Dollies. Process will slightly differ depending on cracks and non-cracking. If cracking as occurred proceed to step 1. If cracking has not occurred proceed to step 5.

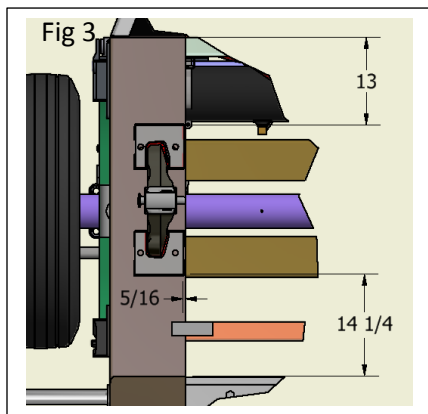
1. Locate the crack and follow to the end of the crack and drill 3/16" hole to prevent further cracking (see Fig 2).



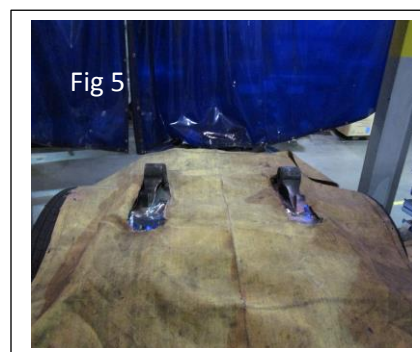
2. Grind along the crack form a 1/8" V bevel
3. Place the weld blanket over the dolly to prevent damage to wiring harness, hoses, and air plate assembly (see Fig 5).
4. Weld the 3/16" hole and the 1/8" V bevel ensuring Complete Joint Penetration to fuse the crack location.

▲ CAUTION: Always wear good ear protection (earmuffs/ear plugs), safety glasses, face shield, and cut resistant gloves while working with grinders

5. Grind area level with channel
6. Place the repair plate at each end of the stand. If plate does not slide up around the plate, slight grinding at the weld locations may be needed.
7. Rear stand repair plate will be place $5/16$ " offset from interior of the channel and $14 \frac{1}{4}$ " offset from the rear of the dolly (see Fig 3 & 4).
8. Front stand repair plate will be place $5/16$ " offset from interior of the channel and 13" offset from the front gusset of the drawbar of the dolly (see Fig 3 & 4).

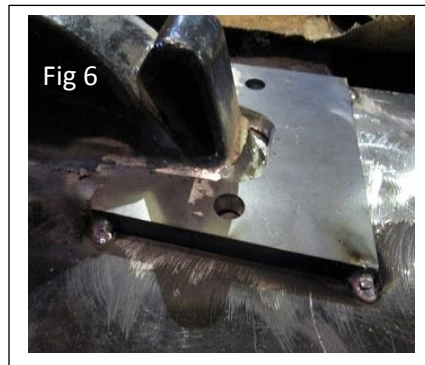


9. Mark the areas where the plates will sit with a grease marker/soap stone, remove plates and grind/wire wheel location for a clean weld.
10. Place the weld blanket over the dolly to prevent damage to wiring harness, hoses, and air plate assembly (see Fig 5).



▲ WARNING: To prevent personal injury, use a welding helmet and welding gloves for all welding processes.

11. Tack plates into locations as described in step 6 and 7. This will allow for 1/4-3/8" gaps around the interior of the repair plate and the stand for the weld out process (see Fig 6).



12. After plates are tack welded (see fig 7 & 8), drill the 11/16" mounting bolt holes. 1/4" drill bit can be used as a pilot hole for the 11/16" drill bit.



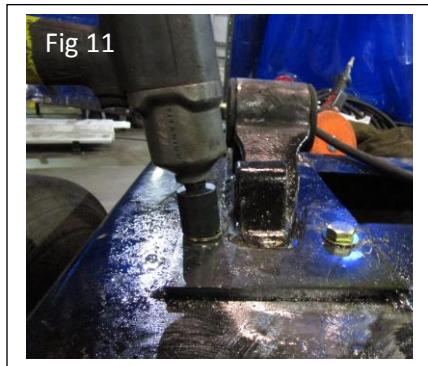
13. Proceed to weld out a plate as shown in Fig 9 & 10. (Repeat for each plate) Exterior weld will consist of 5/16" fillet weld with 2" center spacing on sides of plates. Interior weld will consist of the 1st pass will be to fuse the repair plate to the channel. 2nd and 3rd pass will be to fuse the plate, channel, and stand. (see Weld Callout)



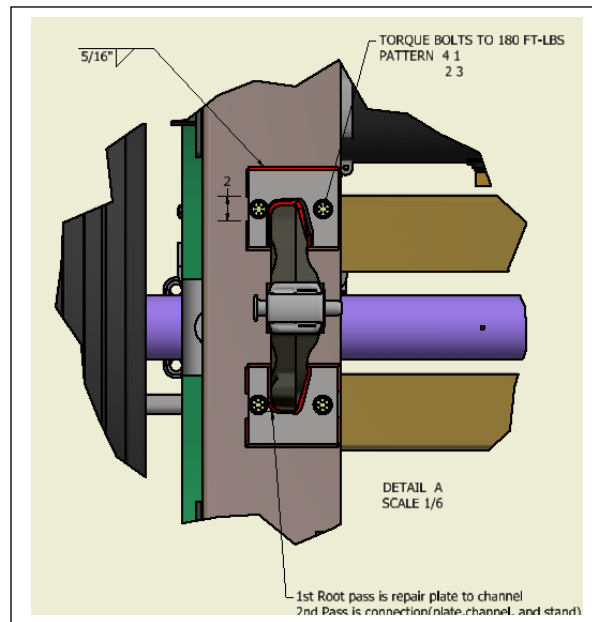
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14. Place one washer onto 5/8"-18 x 2" Grade 8 bolt and installed into the top of repair plate mounting holes. Install one washer and Grade 8 lock nut located on the underside of the channel. Snug the bolt and nut, do not over tighten as these will need to be torque to 180 ft-lbs. (see Fig 11 & 12). (Repeat for each mounting location)



Weld Callout



15. Allow the plates to cool, clean slag, and prep for painting (clean plates, channel, and stands). Once cool, caulk between the welds to prevent moisture accumulation.

16. Continue to Reinforcement Gusset Process

Step 2: Reinforcement Gusset Process

Introduction:

This procedure must be completed after the weld-on fifth wheel repair process. The process addresses the installation of the reinforcement gusset on dollies. Our objective is to show a safe and efficient method for installing the reinforcement gussets.

⚠ CAUTION: Individuals who are working on repairs are advised to always use proper safety equipment, including: safety glasses, hearing protection, cut-resistant gloves, steel-toed shoes, face shields, full dress leathers, Nomex hood, welding gloves, and welding hood, etc.

List of Materials:

- Parts Kit: 100M106
- 1 Set of gussets (2 pieces)
- 1 Set of repair plates (4 pieces) (Used in Step 1)
- 8 Bolts ,5/8-18 x 2" Grade 8 (Used in Step 1)
- 8 Nuts ,5/8" Locking Grade 8 (Used in Step 1)
- 16 Washers, SAE Hardened (Used in Step 1)

Tools and Equipment Required:

- One Air Grinder
- Grinding Disc
- Welding Blanket
- Can of Primer
- Can of Gloss Black Paint
- 4 small welding angles

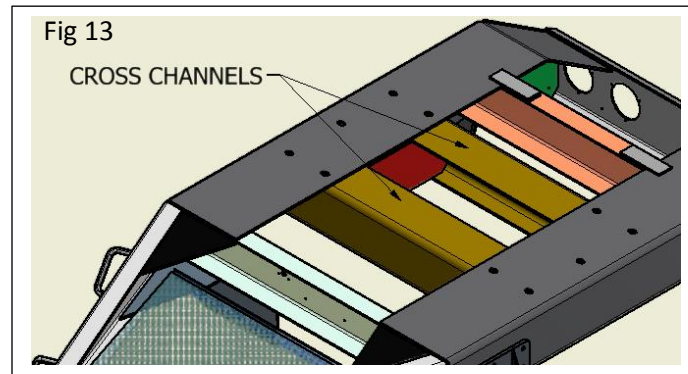
Repair Preparation:

Unload the dolly, park on a level shop floor, chock the wheels and unplug the ABS valve. Completely removed and secure the fifth wheel plate to be reused after repairs are completed. Dolly will need to be secured for underneath welding.

Repair Procedure:

The reinforcement gussets will be installed after completing the weld-on fifth repair plates. Gussets will fit within the 1/8" tolerance. Gussets may need slight modifications for length and height to achieve tolerance.

Locate the two cross channels which are located between the fifth wheel stands (see fig 13).



▲ CAUTION: Always wear good ear protection (earmuffs/ear plugs), safety glasses, face shield, and cut resistant gloves while working with grinders

17. Grind paint/road film from the gusset welding areas.
18. Place the weld blanket over the dolly air brake system to prevent damage to wiring harness, hoses, and air plate assembly and unplug the ABS valve.
19. Install CS gusset in between channels, using welding angles square the gusset with side channel (see fig 14). Flush the gusset with CS side channel.

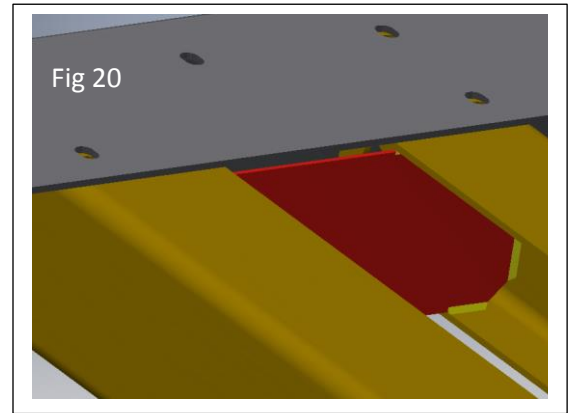
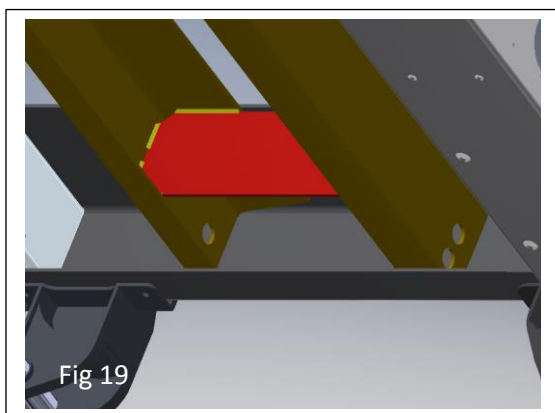
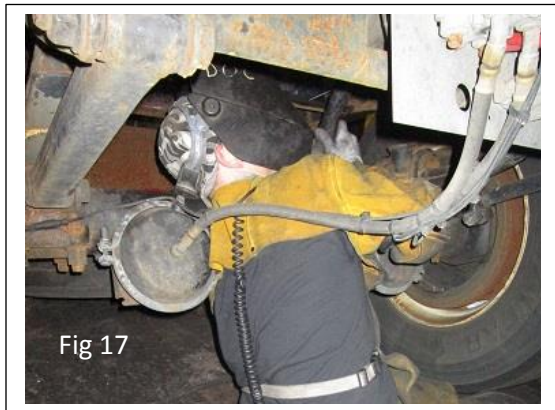


▲ WARNING: To prevent personal injury, use a welding helmet, Nomex hood, full leathers, and welding gloves for all welding processes.

20. Tack the gusset in place at the 4 corners (see fig 15 & 16).

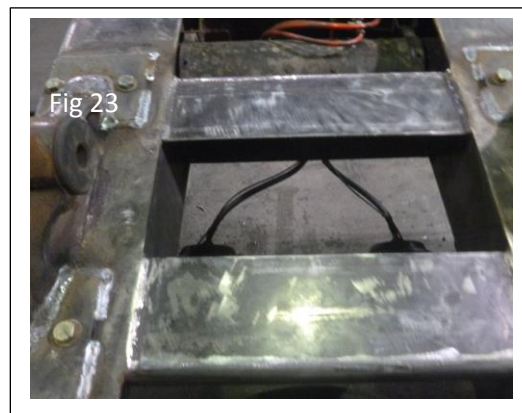
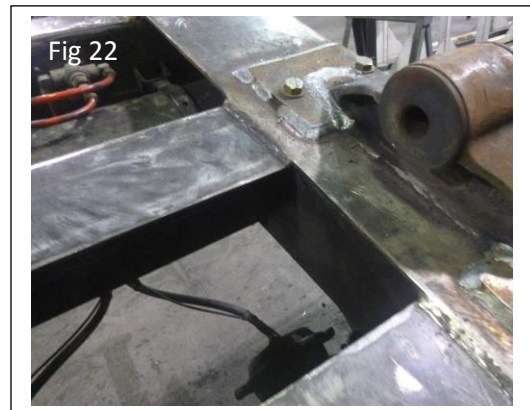


21. Remove the weld angles and complete the 3/16" fillet weld (see fig 17,18,19, & 20).



22. Restart from step 17 to complete the RS gusset installation

23. Gussets are now completed see fig 21,22, & 23).



24. Allow the gussets to cool, clean slag, and prep for painting (clean plates, channel, and stands).

25. Tape off the area needing to be primed with paper and tape (Repair Plates and Gussets).

26. Primer the affected areas and allow to dry.

27. Paint the primed areas with gloss black paint and allow to dry. Then plug the ABS valve back in.

28. Install the fifth wheel and secure.