



TECHNICAL BULLETIN

Subject: **Converter Dollies**

Date: June 01, 2016 Rev. A No.: TB16007

Re.: Version 2B: Welded Repair

Priority: As soon as practical

Units Affected: See attached list

Background:

We have found that a number of Converter Dollies have developed cracks along the vertical plane of the welds attaching the Counterbalance assembly to the Dolly Main Frame. This procedure was developed to restore the structural integrity and prevent any fatigue damage in the future.

Tool Requirements:

- 1/2" Drill
- 2.63" Hole Saw
- Pneumatic Ratchet
- Welder (Mig or Stick)
- 3/4" Socket
- 2 LB Hammer
- Plasma Cutter
- Grinder
- Pad Sander
- Magnetic Cutting Guide (optional)
- Cut Off Wheel
- Cold Galvanizing Compound (brush-able)
- Cold Galvanizing Compound (spray)
- Tectyle or Undercoating (spray)
- Paint Stick or Metal Marker



CAUTION

- Wear appropriate personal protective equipment [PPE] like gloves, safety glasses and hard hat for example, when carrying out the following procedure.
- Should welding or cutting be needed, do so in a well-ventilated area and wear appropriate head/face/eye protection, welding gloves and clothing.
- Refer to adhesive manufacturer's MSDS for safe use and handling instructions if applicable.
- Follow your company's safety procedures in addition to these recommendations.
- When welding on galvanized surfaces wear the appropriate respirator to help avoid smoke inhalation.

Procedure:

While performing this procedure, the Counterbalance could become detached from the Dolly Main Frame. Therefore, it is required that the rear Counterbalance be supported by using a floor jack, jack stand, bottle jack, etc. while performing the rework as shown in Fig. 1 below.



Figure 1

Step 1: Welded Rework – Preparation (Fig 2)

- Remove the rear covers by drilling out the four mounting fasteners using a drill and a ¼”-dia. drill bit. This is to gain access to the mud flap mtg. bolts, and for future rework in this area.
- Remove mud flap bracket assemblies using a ¾” socket and a ratchet.

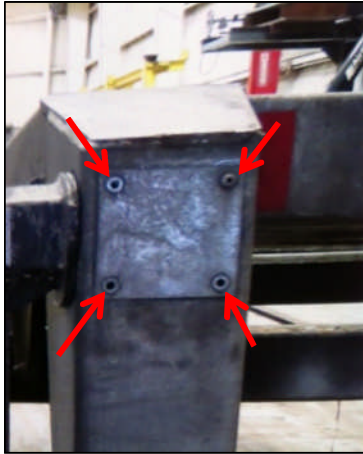
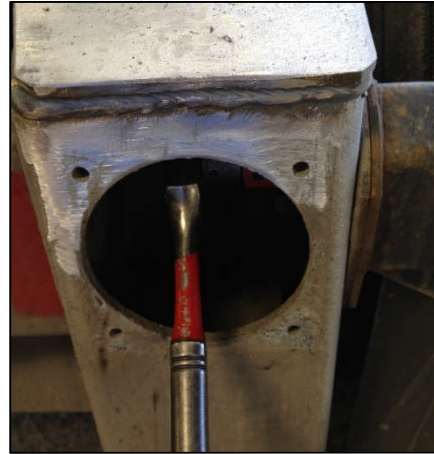


Figure 2



Step 2: Remove Top Plate (Fig 3)

- If the unit exhibits a vertical crack, a ½” long weld section must be applied to hold the Counterbalance assembly in position while removing the Top Plate. (Fig 3A)
- Using a plasma cutter, and a magnetic bar (optional) as a guide, cut through all 4 welds attaching the Top Plate to Dolly Main Frame and Counterbalance assembly.(Fig. 3B)



Figure 3A



Figure 3B

Step 3: Remove portion of Z-plate (Fig 4)

- Once the Top Plate has been removed, using a plasma cutter or oxyacetylene torch, remove the top section of the Z-plate as shown below.

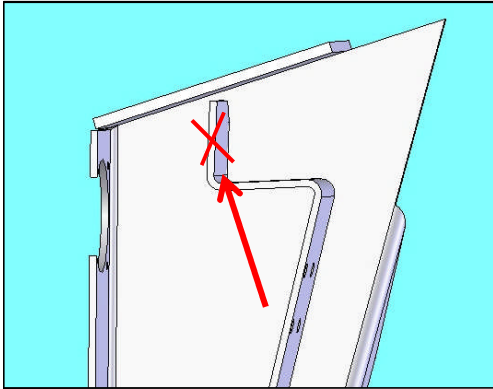
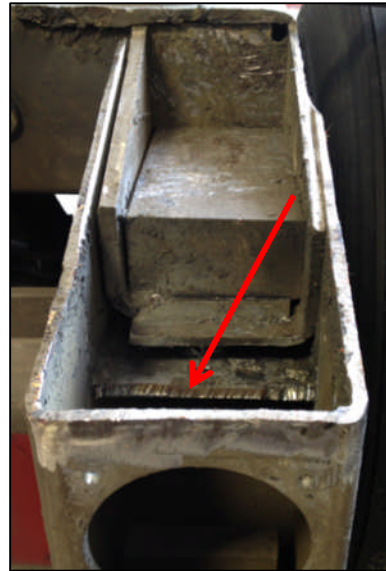


Figure 4



Step 4: Prep for Interior Welds (Fig 5)

- Using a disk grinder groove the lap joints prior to tacking into position to ensure adequate penetration when applying the welds in Step 5 below.
- A C-clamp should be used to limit the gap when tacking the lap joints into position prior to completing the welding process in Step 5 below.
- Place tack welds approximately 1" away from the ends of the weld joint so as to not be at the start and stop positions of the weld bead.

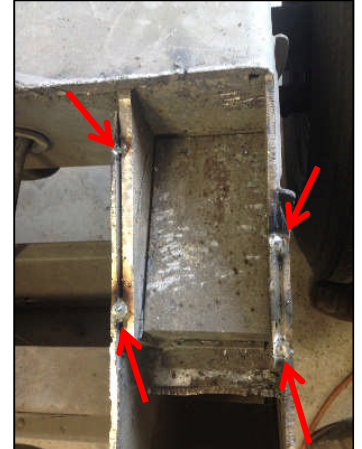
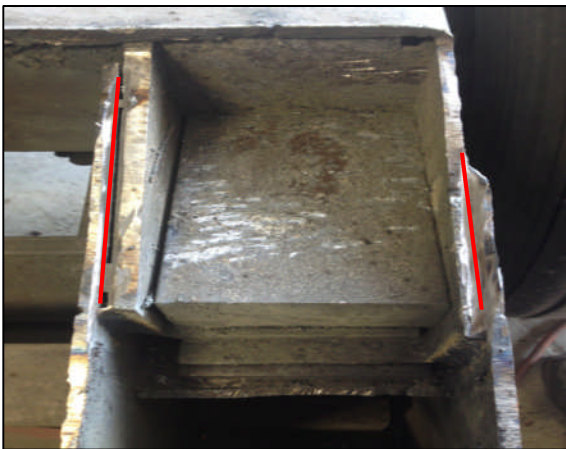
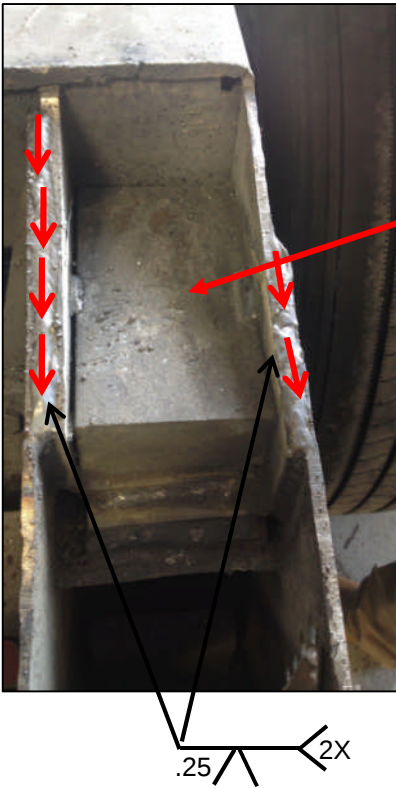


Figure 5

Step 5: Apply Interior Welds –Top and Block (Fig 6)

- Apply the 4" lap joint welds along the edges of the Counterbalance Legs and the Dolly Frame.



Please note that this block will not be present on all models, and is of no structural concern.

Figure 6

.25

Step 6: Prep for Interior Horizontal Welds (Fig 7)

- If a gap larger than 1/8" exists between frame and Z-plate (Fig. 7A), a shim is required. To shim, prep an approximately 2" x 4" shim (Fig. 7B) in the thickness necessary to reduce the gap between frame and Z-plate. The shim thickness required, shall allow no more than a 1/8" gap to be welded.

View of the gap before shimming



Figure 7A



Example of shim installed in the gap

Figure 7B

Step 7: Apply Horizontal and Vertical Welds (Fig 8)

- Apply two vertical welds as shown in Fig. 8 below. The welds can be applied as a down pass, but vertical ups are preferred.
- Apply 3 Horizontal Welds tying the Dolly Main Frame, the shim, and the Z Plate together as a solid unit as also shown in Fig. 8 below.

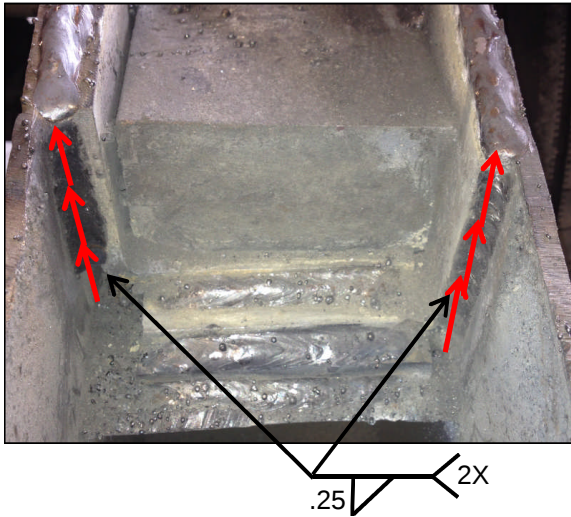
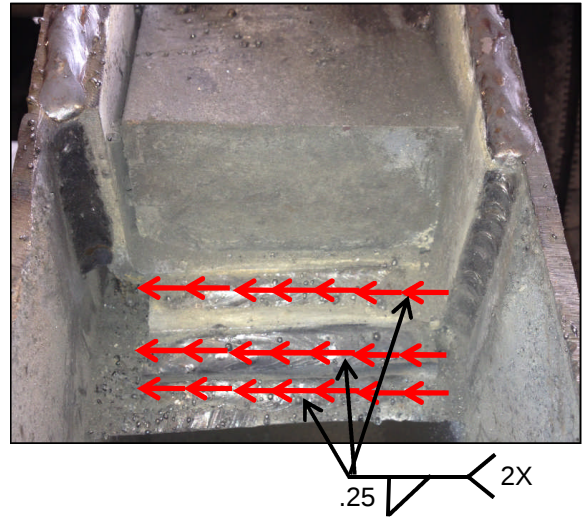


Figure 8



Step 8: Prep for “Outboard Vertical Weld” (Fig 9)

- Grind out the entire crack. If crack does not exist, it is still required that the existing weld be ground out and reapplied. (Fig. 9B)
- It is important to grind to new material behind crack or existing weld, and through the entire vertical leg to prevent creating a Stress Riser. See cut line as an example showing where to grind. This will vary depending on crack position. (Fig. 9C)
- Use caution so to not gouge the Dolly Main Frame when completing this step, see (Fig. 9A)

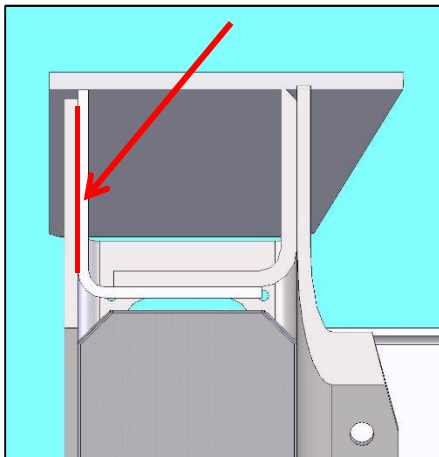


Figure 9A



Figure 9B

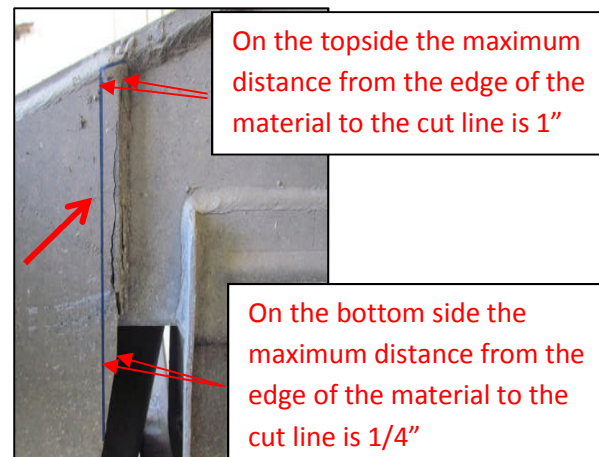


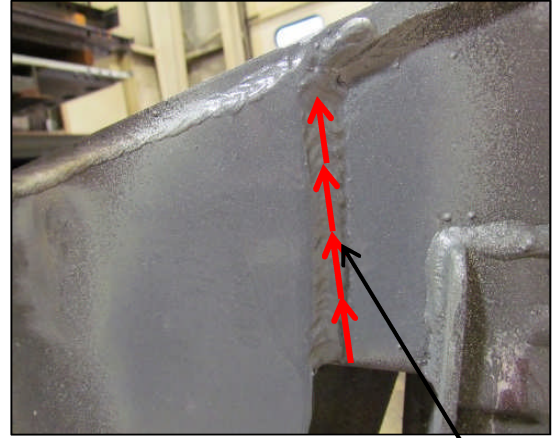
Figure 9C

Step 9: Replace the “Outboard Vertical Weld” (Fig 10)

- Once the grinding and weld removal has been completed, apply a vertical up weld as shown below. (Fig. 10)



Figure 10



.25 2X

Step 10: Measure and mark center of 2.63”-dia. hole on Inboard Side of the Counterbalance Leg (Fig 11)

- Using a tape measure and a sliding square, mark the drilling location for the 2.63”-dia. hole as shown below. (Fig. 11)

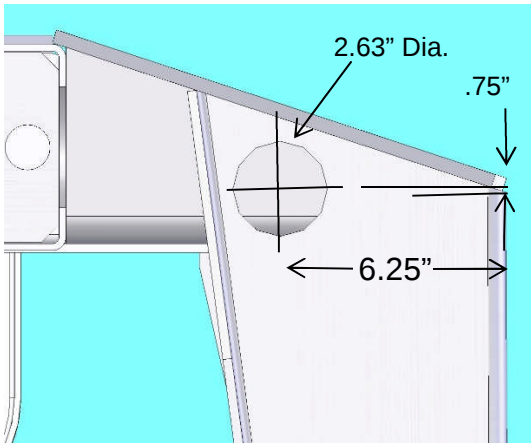


Figure 11

Step 11: Drilling the 2.63" diameter hole on the inboard side of the Counterbalance Leg. (Fig12)

- Using a ½" power drill and a 2.63" –dia. hole saw, drill the hole at the previously marked location. It is recommended that a high quality hole saw be used in conjunction with cutting oil when completing this step.



Figure 12

Step 12: Introduce weld on Inboard Side of Counterbalance Leg (Fig 13)

- If the gap between the inner and outer plate is 1/8" or less, introduce a .25"-size full circumference weld by starting at the 12-o'clock position and stopping at the 6-o'clock position going clock-wise. Complete the weld by starting at an approximate 12-o'clock position and finishing at an approximate 6 o'clock position when going counter-clock-wise. Overlap passes by .50" to .75" at both places as illustrated in Fig. 12 above.
- If the gap between the inner and outer plate is greater than 1/8" use the provided ring to bridge the gap between the inner and outer plates as shown in Fig. 13 below.
- **Note: When using the ring the welding step will need to be performed on the inside and outside of the ring so as to connect the inside and outside surfaces of the assembly as illustrated below.**
- Plug weld pilot hole created by the hole saw.

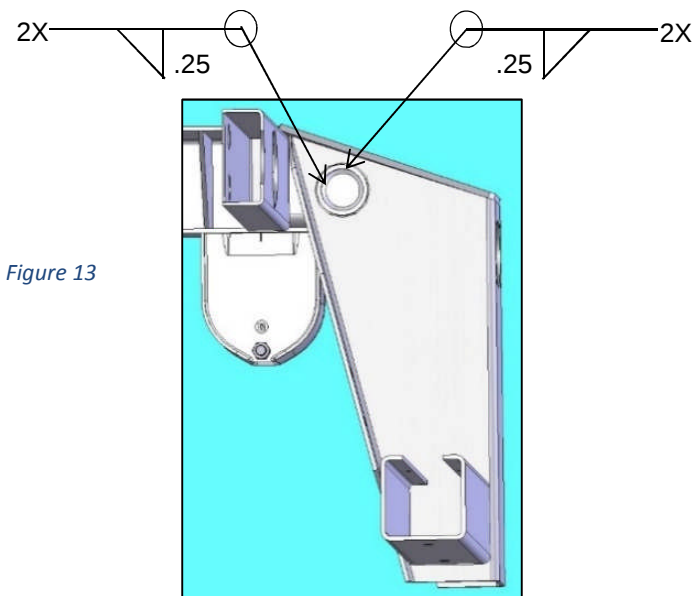
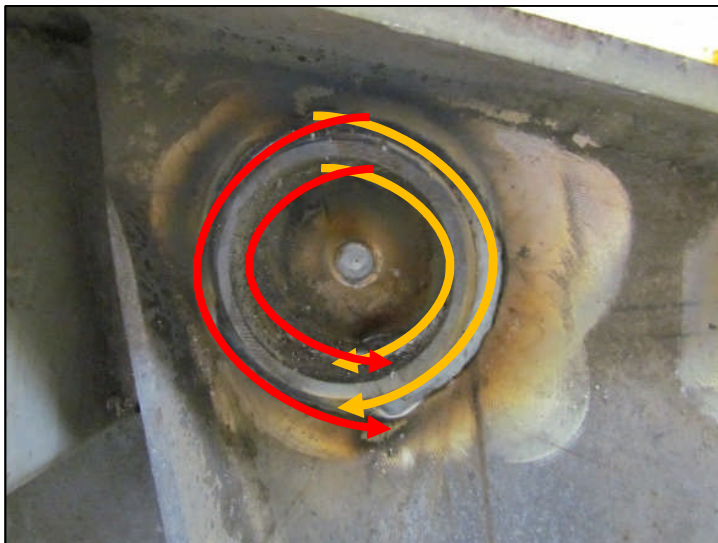


Figure 13

Step 13: Prep for welding on new Top Cap (Fig 14)

- Using a grinder or a pad sander remove the galvanizing from the areas in which you will be welding on the new Top Cap. **Remove any high spots from previously placed welds to ensure proper fit up of the Top Cap.**



Figure 14

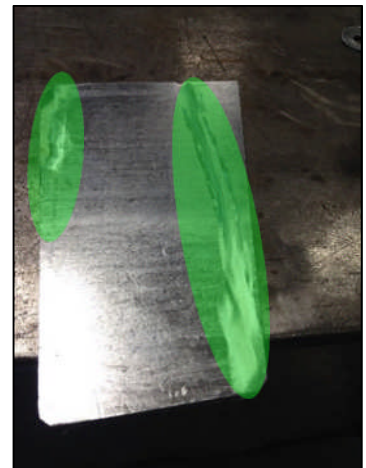


Step 14: Prepping the Top Cap for installation. (Fig. 15)

- Place the Top Cap into position, and using a marker trace around the areas of the Top Cap in which the welding will be introduced.
- Using a grinder or a pad sander remove the galvanizing from the pre-marked areas as shown below. (Fig. 15)



Figure 15



Step 15: Installing the Top Cap (Fig. 16)

- Before installing the Top Cap, clean all debris and weld spatter from inside the internal areas of the channel.
- **V groove** the forward joint for proper penetration. (Fig. 16A)
- Correctly position the Top Cap onto suspension sub-frame.
- Securely tack the cap at all four corners.
- Weld all four sides connecting the Top Plate to the Counterbalance Assembly **creating a continuous weld around the circumference of the assembly.**
- After welding, dress up the welds using a pad sander to ensure weld bead reinforcement, and eliminate other possible stress risers.



Figure 16A

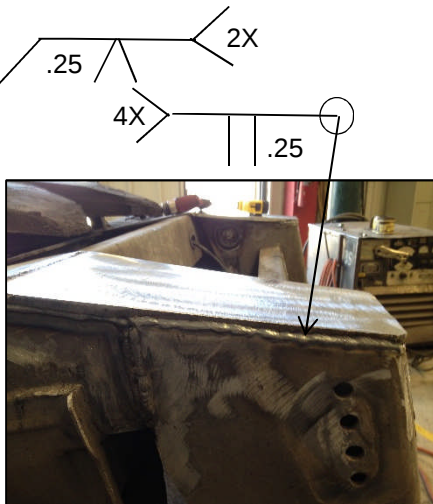


Figure 16B

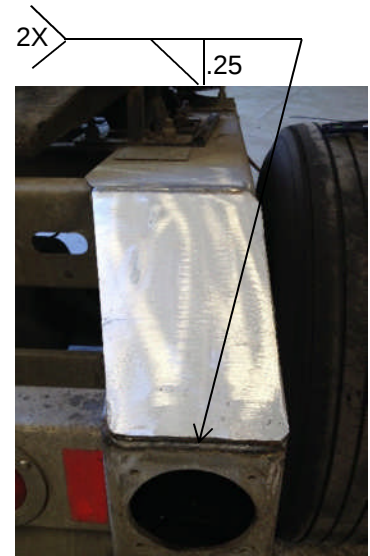


Figure 16C

Step 16: Introduce additional welds inside the Counterbalance assembly. (Fig.17)

- Introduce internal overhead welds to the Top Plate on both side of the unit by gaining access through holes at the rear of the Counterbalance assembly.

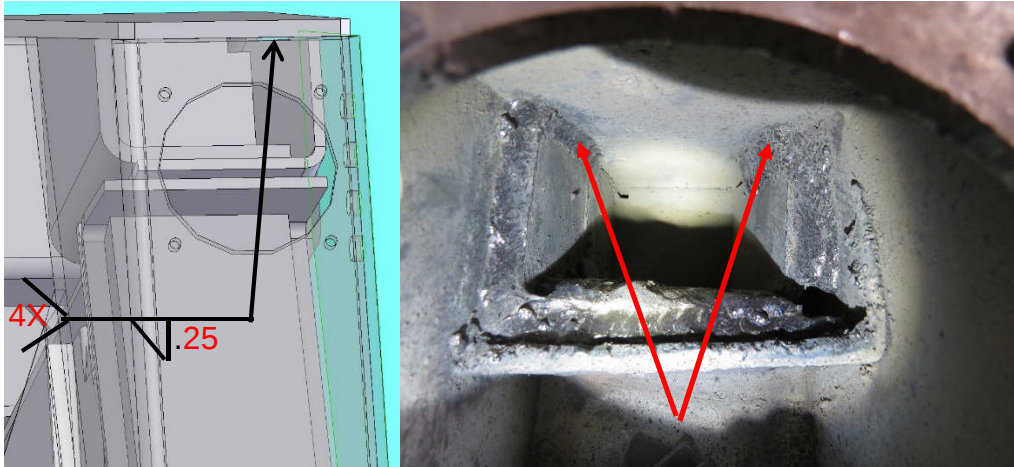


Figure 27

Step 17: Prepping and Coating the exterior areas of the assembly. (Fig. 18)

- Using a pad sander remove all loose debris and weld spatter from all reworked areas of the assembly.
- After allowing ample time to cool, coat all exposed reworked areas using a Cold galvanizing compound (spray) or a brush able cold galvanizing compound with Zinc (preferred).
- Use care to get into all hidden areas when applying the coating.

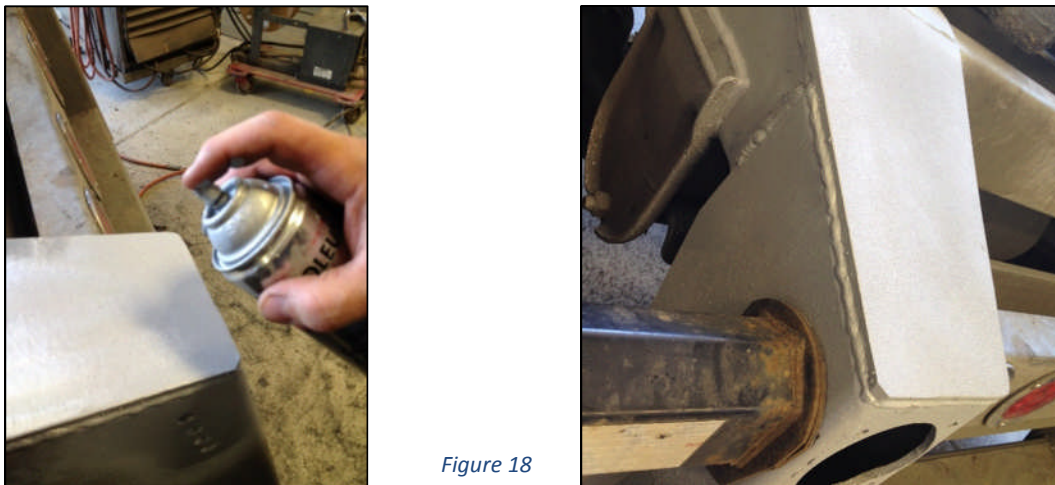


Figure 18

Step 18: Coating the internal areas of the Counterbalance Assembly. (Fig. 19)

- Again, after allowing ample time to cool, and by gaining access through the holes at the rear of the Counterbalance assembly, coat the internal areas of the assembly by first using a cold galvanizing compound (spray), followed by a heavy coat of undercoating or Tectyle (Spray)
- Use caution to coat all hidden areas.



Figure 19

Step 19: Reinstallation of the Cover Plates and Mud Flaps. (Fig. 20)

- Reinstall the Mud Flaps using the original hardware, a Ratchet, and a $\frac{3}{4}$ " Socket tighten fasteners to a minimum of 25 ft.-lbs.
- Reinstall the Cover Plate using a monobolt gun and four (4) $\frac{1}{4}$ "-dia. Magna Bulb pull fasteners with a grip range of .080" / .375"



Figure 20



Step 20: Installing the Air Tank reinforcement brackets. (Fig. 21)

- Properly locate the reinforcement channels onto the assembly.
- Using a marker mark the weld location on the dolly frame.
- Remove the galvanizing from the pre-marked location on the dolly frame.
- Remove the galvanizing from the edges of the reinforcement channel.
- Relocate the reinforcement channel onto the frame and tack at all 4 corners.
- Introduce the required welds as shown below.
- Apply a galvanized coating to all exposed areas once the welding has been completed.
- **Repeat Step 20 on both sides of the unit.**

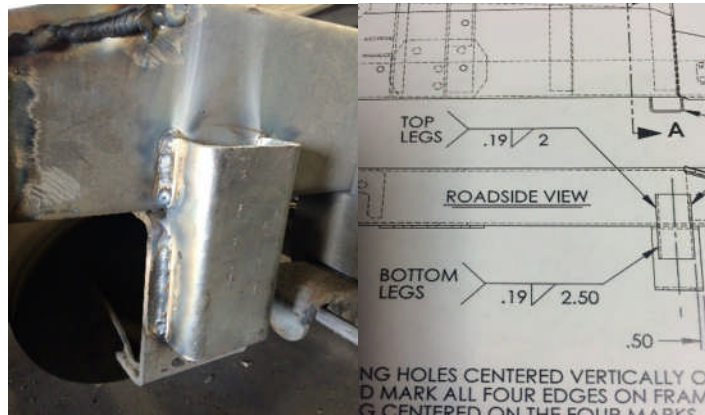


Figure 31