



# Technical Bulletin

## RideStar™ RHP Series Sliding Tandem Air Suspension System Repair Procedure

### Hazard Alert Messages

Read and observe all Warning and Caution hazard alert messages in this publication. They provide information that can help prevent serious personal injury, damage to components, or both.

### How to Obtain Additional Maintenance and Service Information

Refer to Maintenance Manual 14S, RideStar™ RHP Series Sliding Tandem Trailer Air Suspension System. To obtain this publication, call ArvinMeritor's Customer Service Center at 800-535-5560 or visit the Tech Library at arvinmeritor.com.

### How to Obtain Parts

Call ArvinMeritor's Commercial Vehicle Aftermarket at 888-725-9355.

### Slider Identification

Refer to Figure 1, Figure 2, Figure 3 and Figure 4 for slider generation views. Refer to Figure 5 to view the numbered cross members. Refer to Figure 6 to identify the clips.

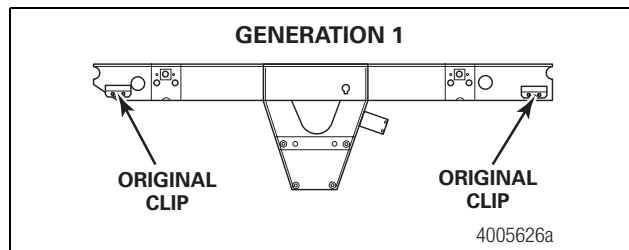


Figure 1

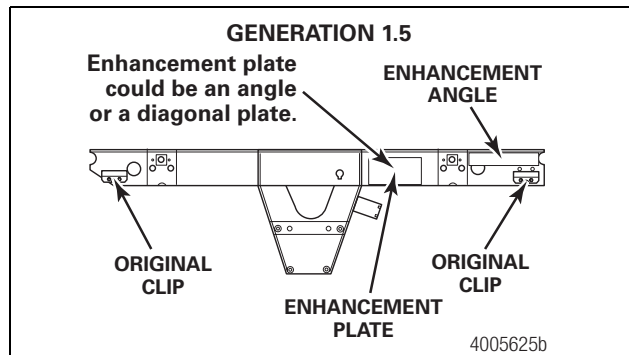


Figure 2

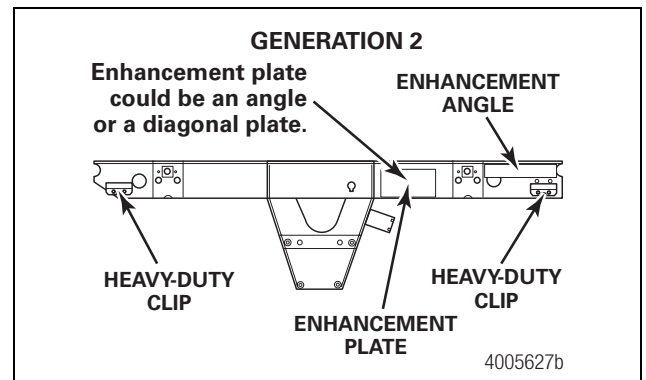


Figure 3

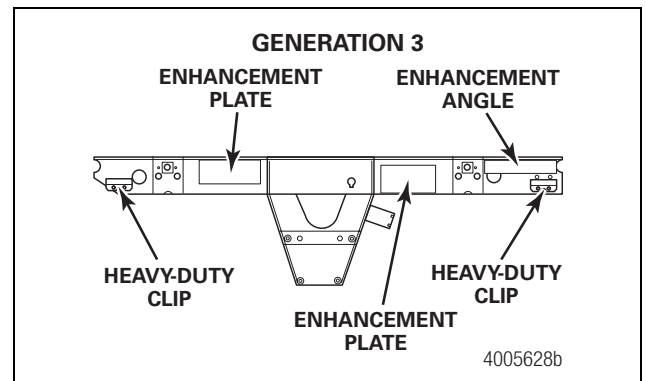


Figure 4

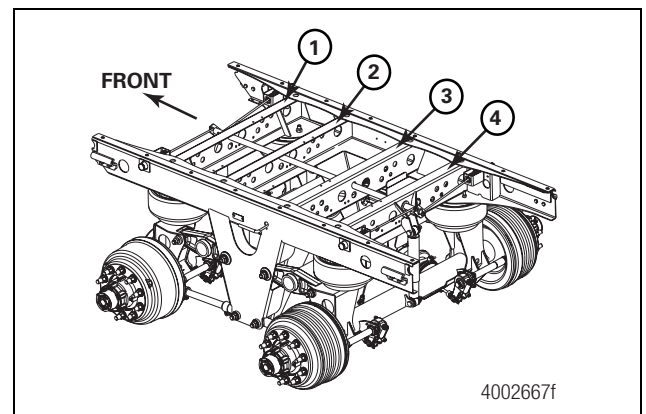


Figure 5

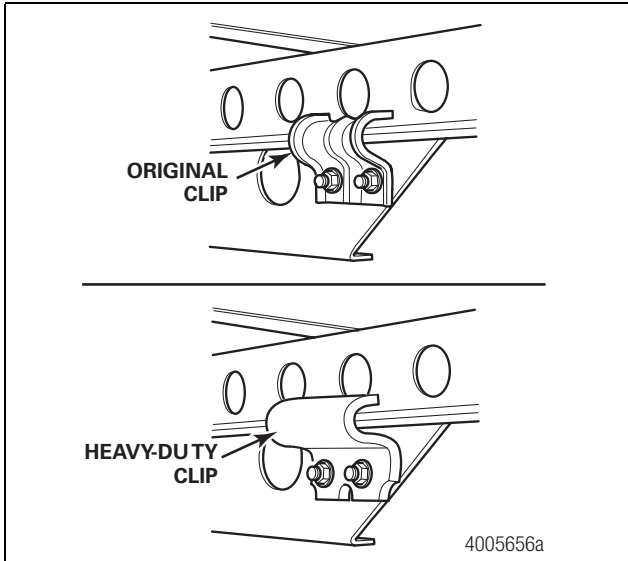


Figure 6

## Welding

### ⚠ WARNING

You must follow correct welding procedures and weld at locations authorized by Meritor when you weld to suspension components. Welding at locations other than those authorized by Meritor will void the warranty and can reduce trailer axle fatigue life. Serious personal injury and damage to components can result.

Do not weld onto the upper control arm, which can reduce the fatigue life of the control arm. Serious personal injury and damage to components can result.

Wear safe clothing and eye protection when you use welding equipment. Follow instructions provided by welding equipment manufacturers to prevent serious personal injury and damage to components.

Use 0.035-inch E70 wire and 75/25 (CO<sub>2</sub>/Argon) shield gas.

## Repair Procedures

### ⚠ WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Park the vehicle on a level surface. Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury and damage to components can result.

You must follow correct welding procedures when you weld to any suspension components. Incorrect weld placement will void Meritor's warranty and can reduce the fatigue life of the trailer axle beam. Serious personal injury and damage to components can result.

Do not weld on the upper control arm. Welding on the upper control arm can reduce the fatigue life of the control arm. Serious personal injury and damage to components can result.

Do not weld within 0.5-inch (12.7 mm) of the slider edges. Incorrect welding can reduce slider fatigue life. Serious personal injury and damage to components can result.

1. Wear safe eye protection. Park the vehicle on a level surface.
2. Move the slider to the rear of the slide rails. Stop a few holes short of the end to ensure there is no interference when you reinstall the slider.
3. Inspect the slider for damage.

### Generation One

- **If the slider is bent between cross members three and four:** Refer to Level One Repair — Slider Has a Wave in the Bottom Flange Between Cross Members Three and Four Without a Bend in the Vertical Side Wall in this bulletin. Figure 7.
- **If the slider has a crack in the bottom of the flange between cross members three and four:** Refer to Level Two Repair — Slider Has a Crack in the Bottom Flange Between Cross Members Three and Four in this bulletin. Figure 8.
- **If the slider has minor damage at the rear stop bar contact point:** Refer to Level Three Repair — Minor Damage Localized at the Rear Stop Bar Contact Point No Buckle in the Slider Forward of Cross Member Four in this bulletin. Figure 9.
- **If the slider has localized damage at the extreme rear:** Refer to Level Four Repair — Slider Has Localized Damage at the Extreme Rear in this bulletin. Figure 10.

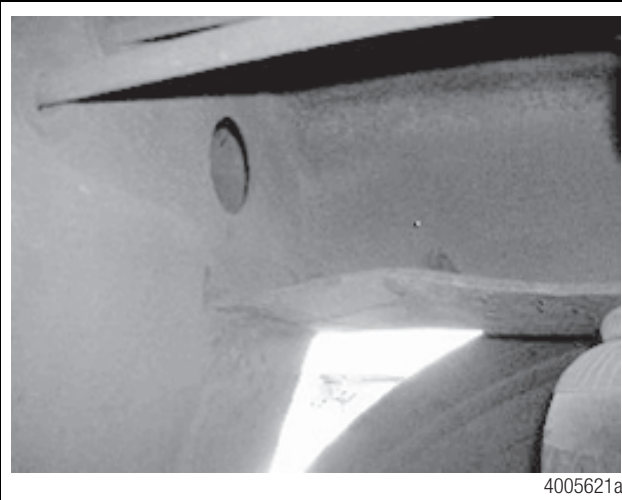


Figure 7



Figure 10



Figure 8

### Generation Two

- **If the slide rail is bent behind cross member three:** Replace the slider.
- **If the slider has a wave in the top flange between cross members one and two:** Refer to Level One Repair — Slider Has a Wave in the Top Flange Between Cross Members One and Two Without a Bend in the Vertical Wall in this bulletin. Figure 11.
- **If the slider top flange and vertical wall are bent, or there's a crack across the top flange between cross members one and two:** Refer to Level Two Repair — Slider Top Flange and Vertical Side Wall are Bent Between Cross Members One and Two or a Crack Across the Top Flange of the Slider Between Cross Members One and Two with a Crack Propagation in the Vertical Side Wall in this bulletin. Figure 12 and Figure 13.

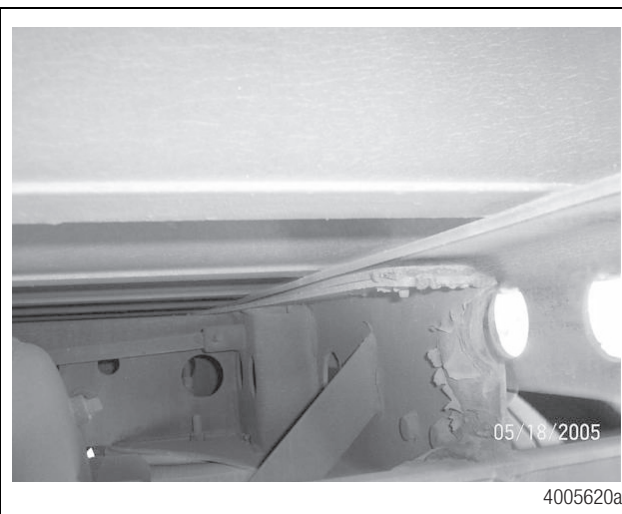


Figure 9

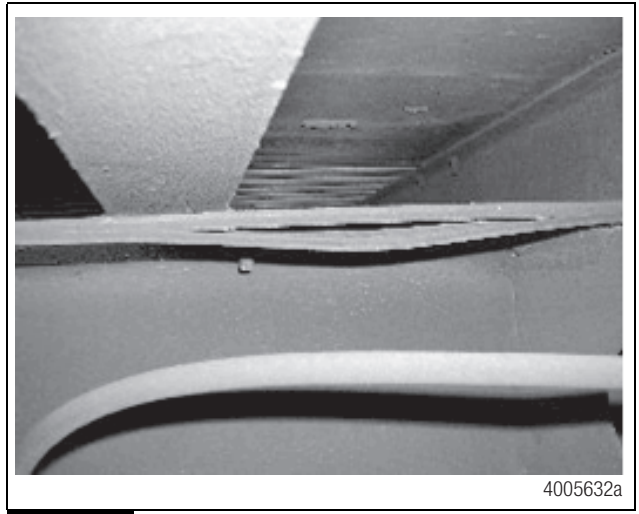


Figure 11

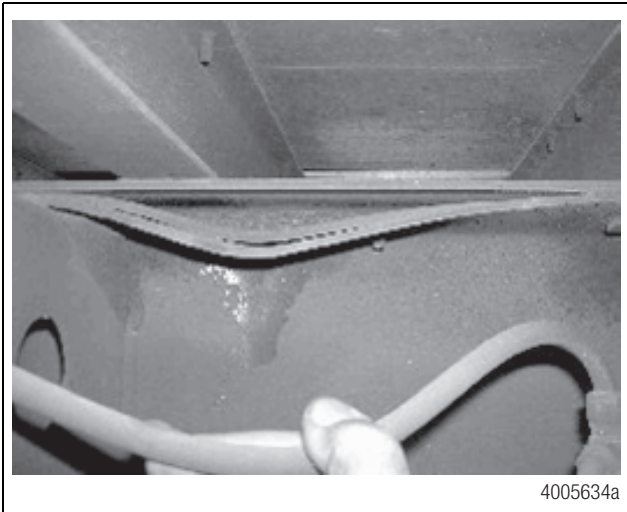


Figure 12

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Figure 13

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## Generation One Slider

### Level One Repair — Slider Has a Wave in the Bottom Flange Between Cross Members Three and Four Without a Bend in the Vertical Side Wall

1. Wear safe eye protection. Park the vehicle on a level surface.
2. Identify the slider. Figure 14 and Figure 15.
3. Before removing the slider from the trailer, ensure the locking pins will engage and the locking system operates correctly.
4. Remove the hold-down clips.
5. Lift the trailer off the suspension. Raise the trailer as high as the jack will lift and secure the trailer with safety stands.

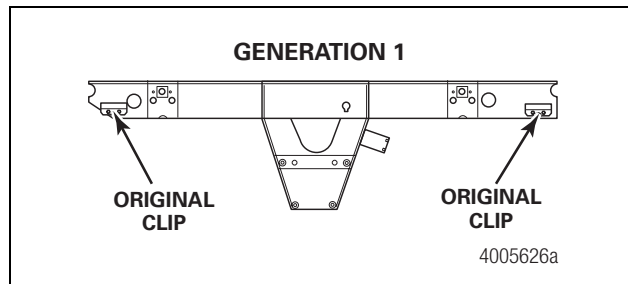


Figure 14

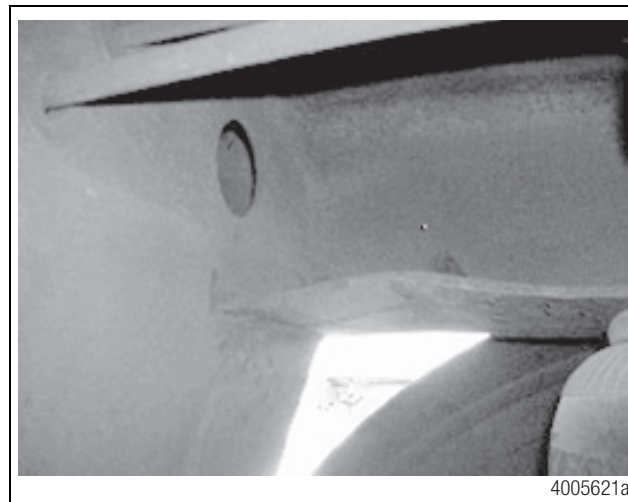


Figure 15

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6. Straighten the bottom flange.
7. Remove the undercoating from the areas where you will be welding.
8. Position and weld the enhancement plates between cross members three and four. Refer to Figure 16 and Figure 17.

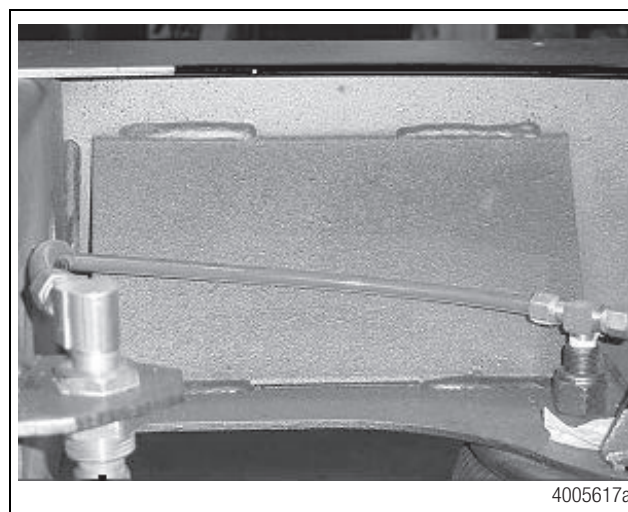


Figure 16

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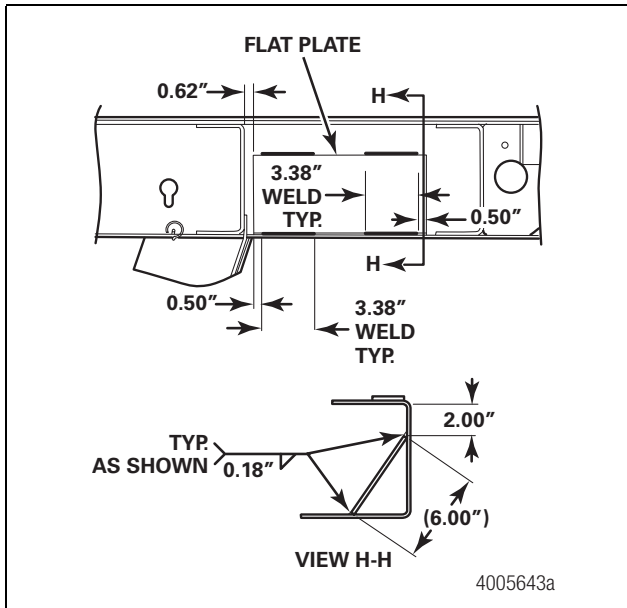


Figure 17

- Position and weld the enhancement plates between cross members one and two. Refer to Figure 18 and Figure 19.

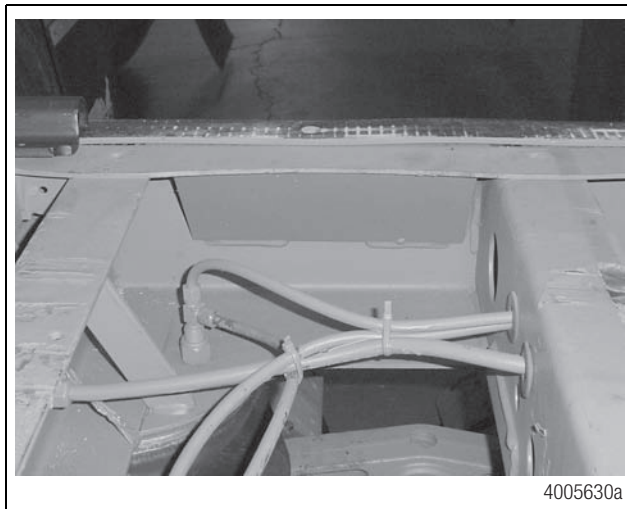


Figure 18

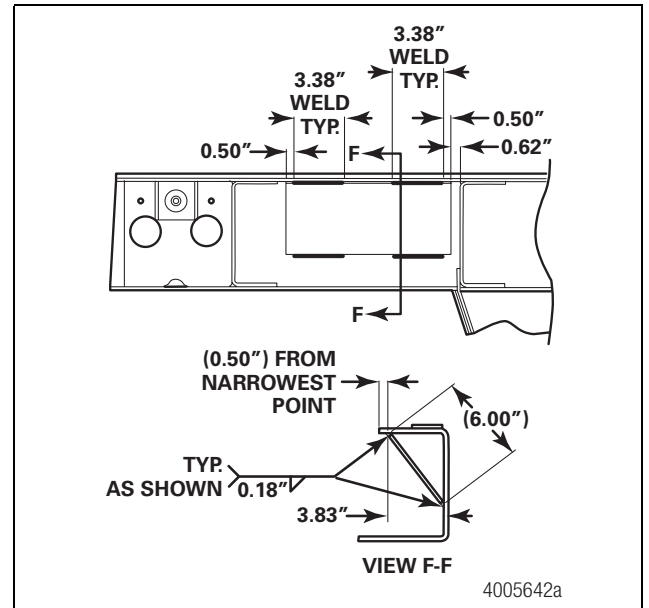


Figure 19

- Position and weld the enhancement angles at the extreme rear. You may need to modify the air tank bracket to install the enhancement angle. Refer to Figure 20 and Figure 21.

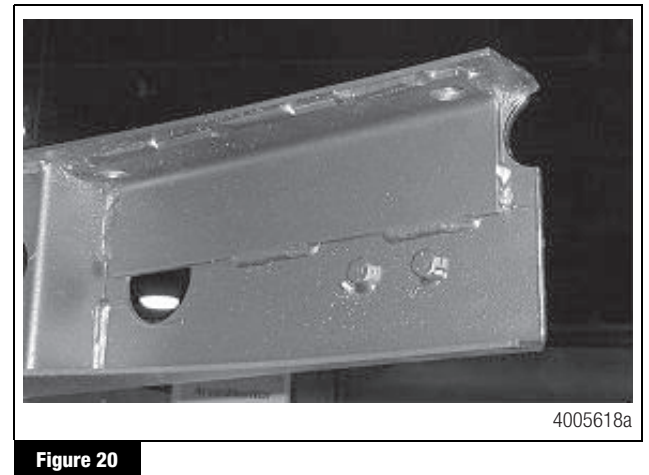
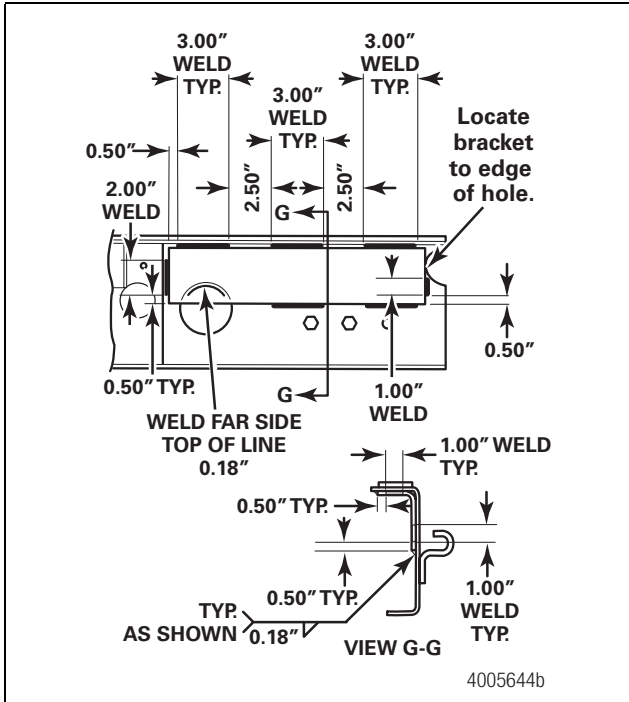
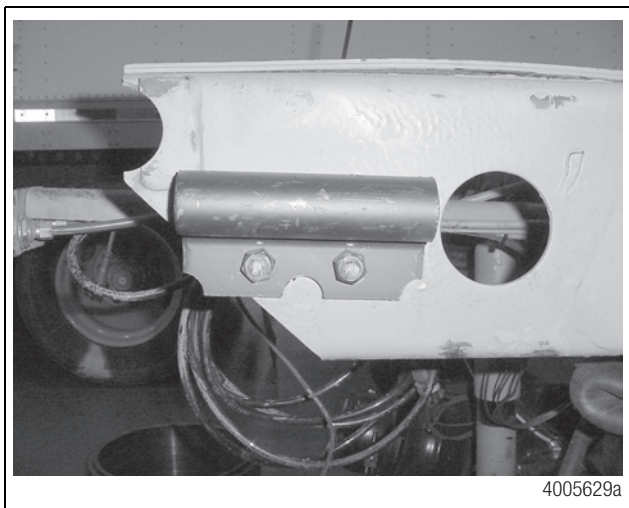


Figure 20

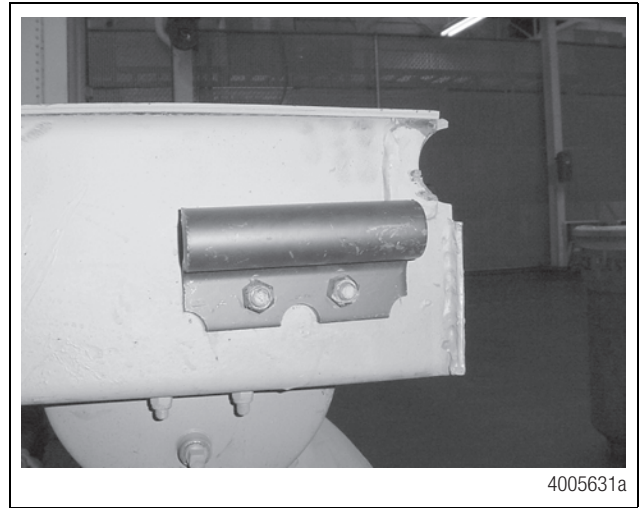


**Figure 21**

11. Paint the newly installed enhancement plates, angles and areas that were welded.
12. Apply undercoating to the newly installed enhancement plates, angles and areas where undercoating was previously removed for welding.
13. Remove the safety stands and lower the trailer onto the sliders.
14. Re-engage the slider lock pins into the trailer body rails.
15. Replace the hold-down clips with the heavy-duty version. Refer to Figure 22 and Figure 23.



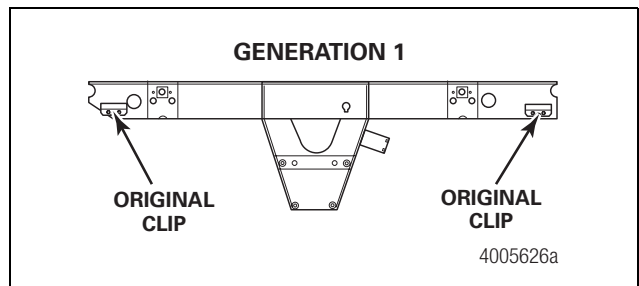
**Figure 22**



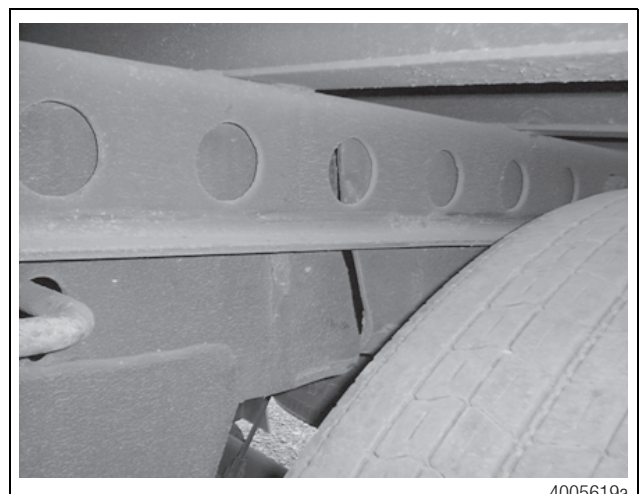
**Figure 23**

### Level Two Repair — Slider Has a Crack in the Bottom Flange Between Cross Members Three and Four

1. Wear safe eye protection. Park the vehicle on a level surface.
2. Identify the slider. Figure 24 and Figure 25.

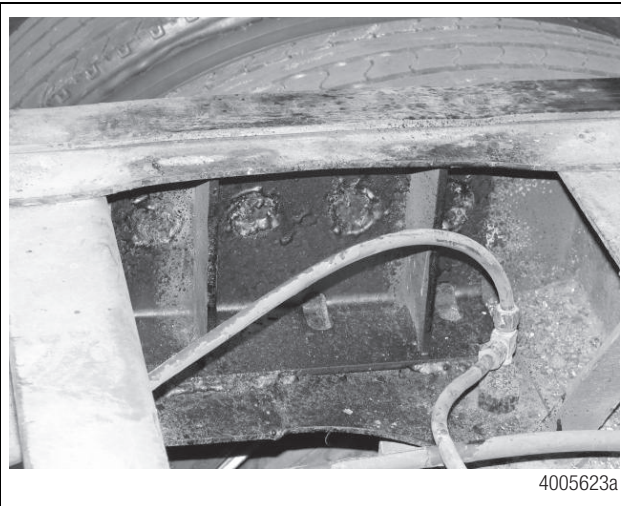


**Figure 24**



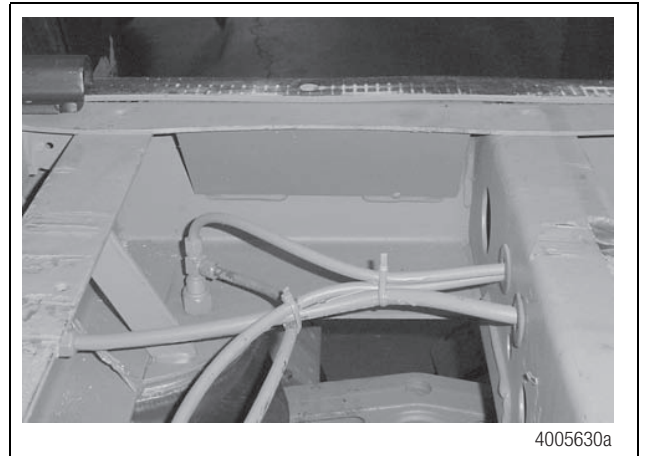
**Figure 25**

3. Remove the hold-down clips.
4. Lift the trailer off the suspension. Raise the trailer as high as the jack will lift and secure the trailer with safety stands.
5. Remove the wear strips. Remove the air lines to the air springs and any other lines that can be damaged by heat in the cross member cavity between three and four.
6. Remove the undercoating from the areas where you will be welding.
7. Check the vertical wall of the slider side rail between cross members three and four for deformation. If a bulge is present, cut up through the bulge continuing the path of the crack, to the upper radius of the side rail.
8. Straighten the slider side rail and bottom flange in this area. Ensure the slider side rail is straight in both directions. From the top side of the slider, weld the crack in the bottom flange. Grind it smooth and level with the surface.
9. Install the repair sleeves between cross members three and four. Ensure the slots in the top of the sleeve align with the holes in the slider used for mounting the wear strips. Ensure the repair sleeves are firmly clamped in place against the vertical wall of the slider. Refer to Figure 26. Weld the repair sleeve to the slider.



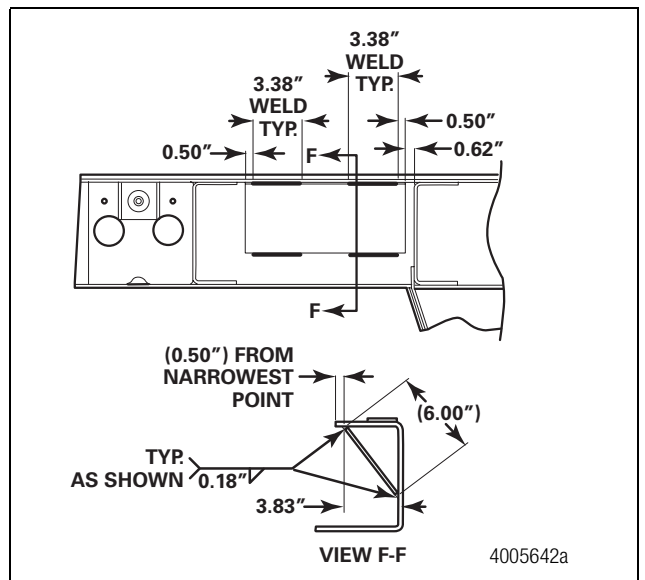
**Figure 26**

10. From the outside of the slider, weld the vertical cut, straightening the side rail as you go.
11. Position and weld the enhancement plates between cross members one and two. Refer to Figure 27 and Figure 28.



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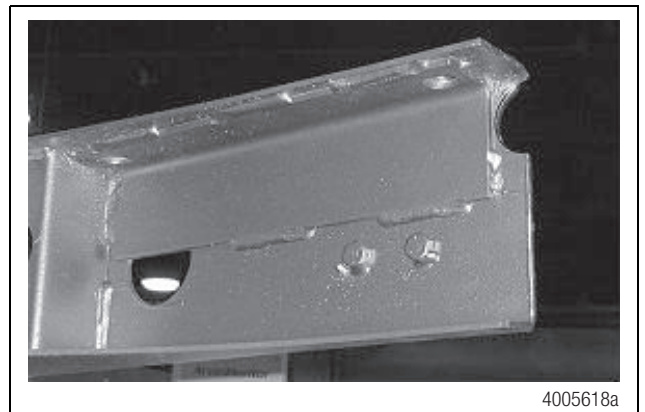
**Figure 27**



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**Figure 28**

12. Weld the enhancement angles at the extreme rear. You may need to modify the air tank bracket to install the enhancement angle. Refer to Figure 29 and Figure 30.



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**Figure 29**

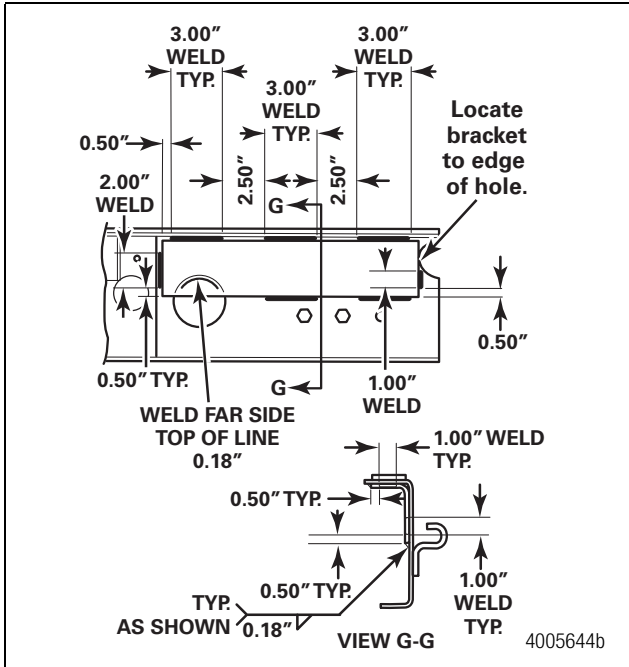


Figure 30

13. Paint the newly installed enhancement plates, angles, repair sleeves and areas that were welded.
14. Apply undercoating to the newly installed enhancement plates, angles, repair sleeves and areas where undercoating was previously removed for welding.
15. Reinstall the wear strips. Reconnect any air lines that were previously disconnected.
16. Remove the safety stands and lower the trailer onto the sliders.
17. Re-engage the slider lock pins into the trailer body rails.
18. Replace the hold-down clips with the heavy-duty version. Refer to Figure 31 and Figure 32.

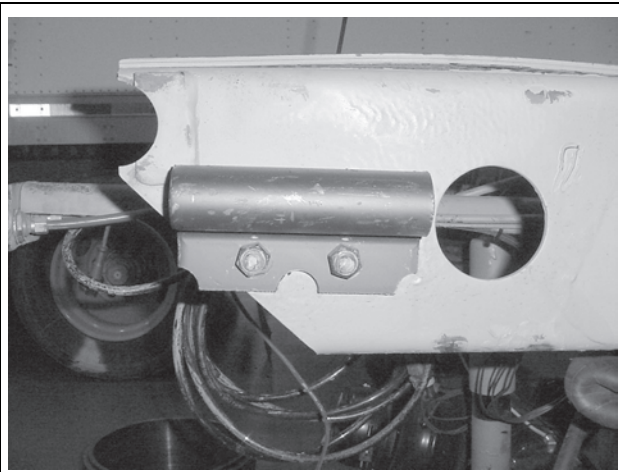


Figure 31

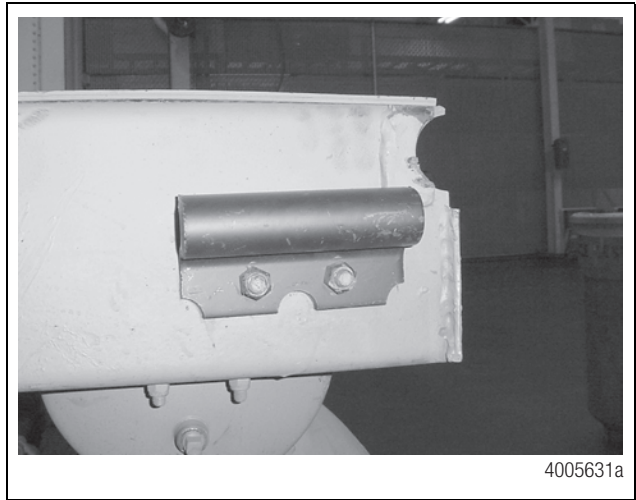


Figure 32

### Level Three Repair — Minor Damage Localized at the Rear Stop Bar Contact Point No Buckle in the Slider Forward of Cross Member Four

1. Wear safe eye protection. Park the vehicle on a level surface.
2. Identify the slider. Figure 33 and Figure 34.

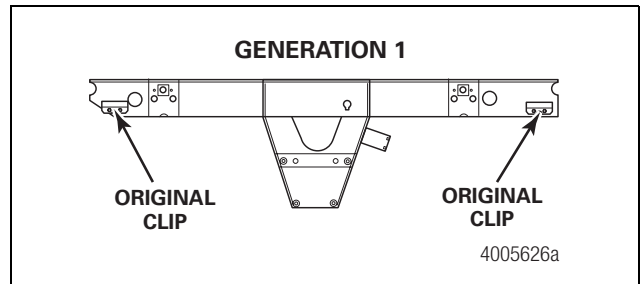


Figure 33

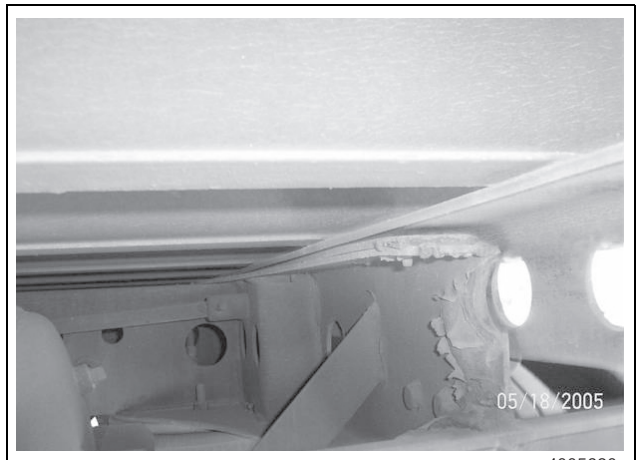


Figure 34



3. Before removing the slider from the trailer, ensure the locking pins will engage and the locking system operates correctly.
4. Remove the hold-down clips.
5. Lift the trailer off the suspension. Raise the trailer as high as the jack will lift and secure the trailer with safety stands.
6. Remove the deformation at the extreme rear.
7. Remove the undercoating from the areas where you will be welding.
8. Position and weld the enhancement angles at the extreme rear. You may need to modify the air tank bracket to install the enhancement angle. Refer to Figure 35 and Figure 36.

9. Position and weld the enhancement plates between cross members one and two. Refer to Figure 37 and Figure 38.

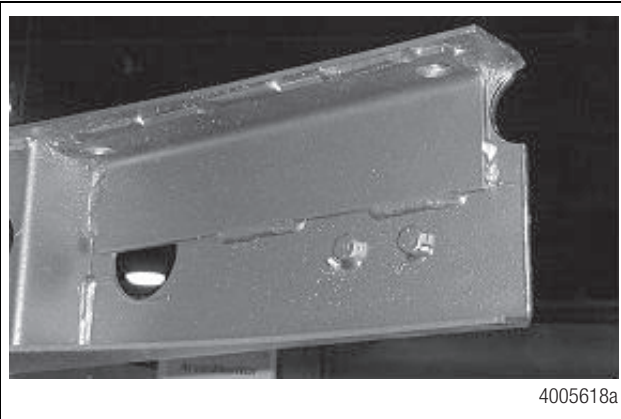


Figure 35

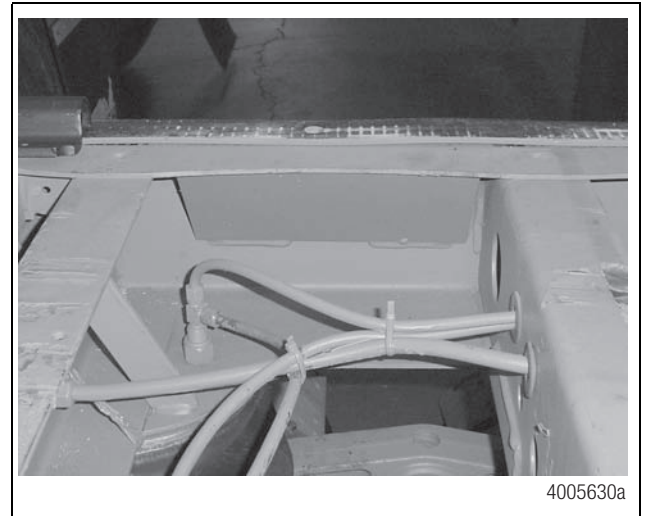


Figure 37

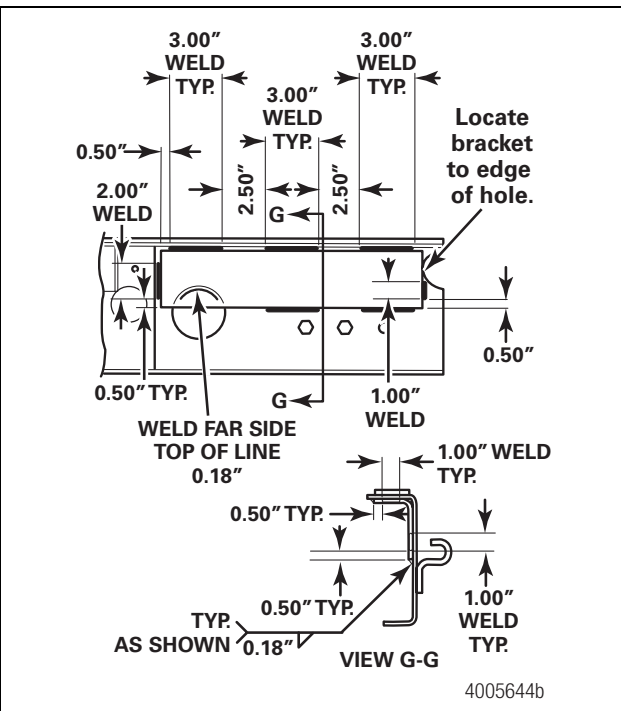


Figure 36

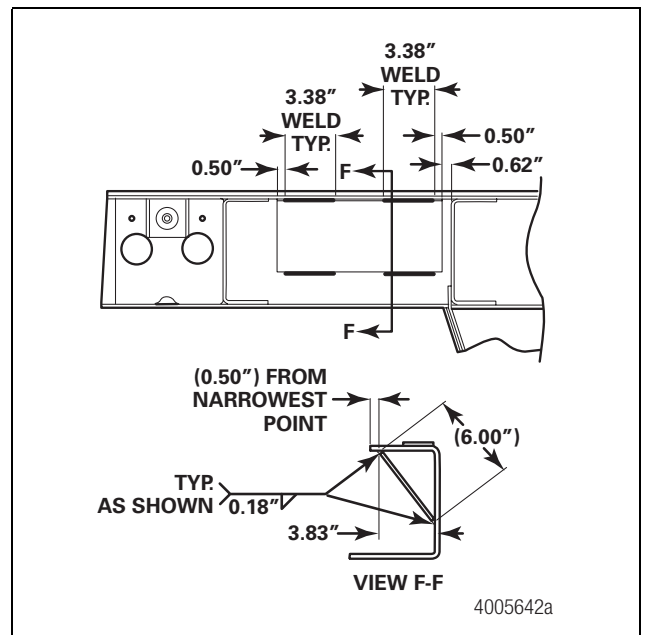
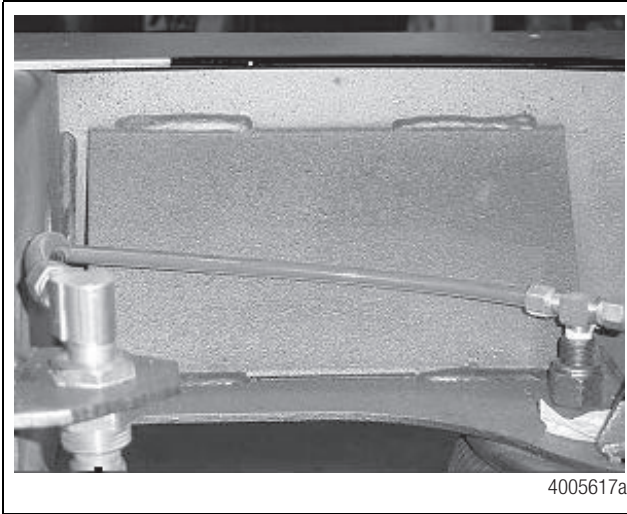
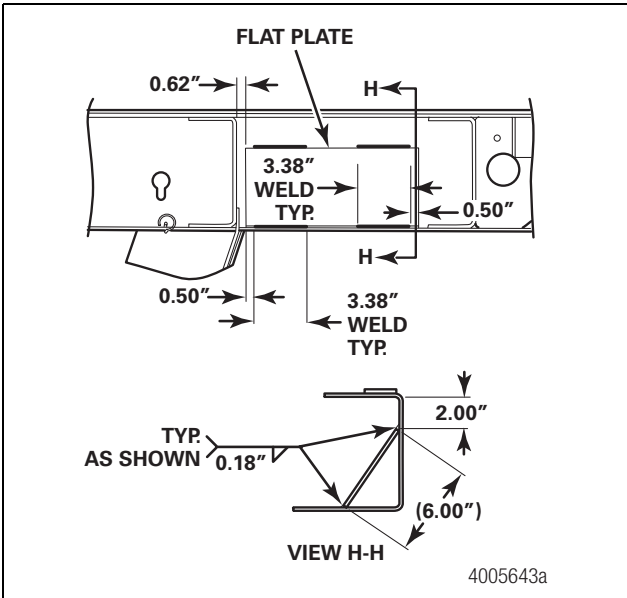


Figure 38

- Position and weld the enhancement plates between cross members three and four. Refer to Figure 39 and Figure 40.

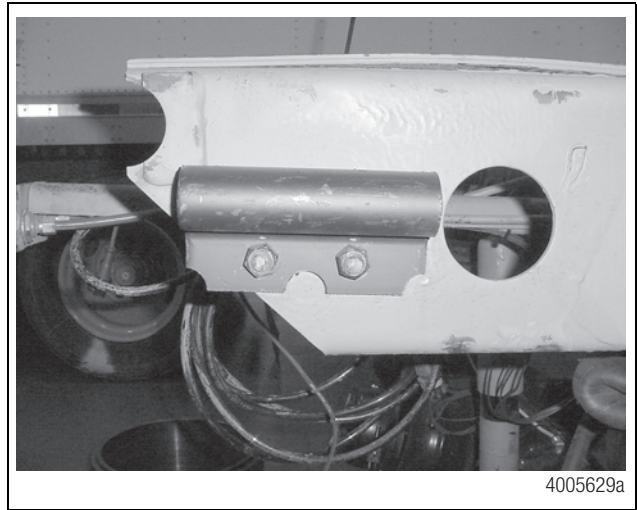


**Figure 39**

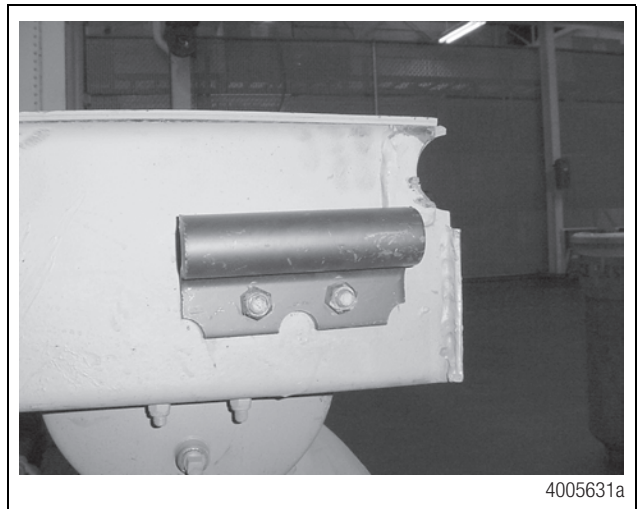


**Figure 40**

- Paint the newly installed enhancement plates, angles and areas that were welded.
- Apply undercoating to the newly installed enhancement plates, angles and areas where undercoating was previously removed for welding.
- Remove the safety stands and lower the trailer onto the sliders.
- Re-engage the slider lock pins into the trailer body rails.
- Replace the hold-down clips with the heavy-duty version. Refer to Figure 41 and Figure 42.



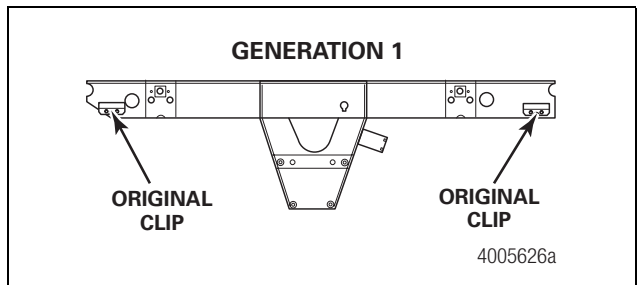
**Figure 41**



**Figure 42**

### Level Four Repair — Slider Has Localized Damage at the Extreme Rear

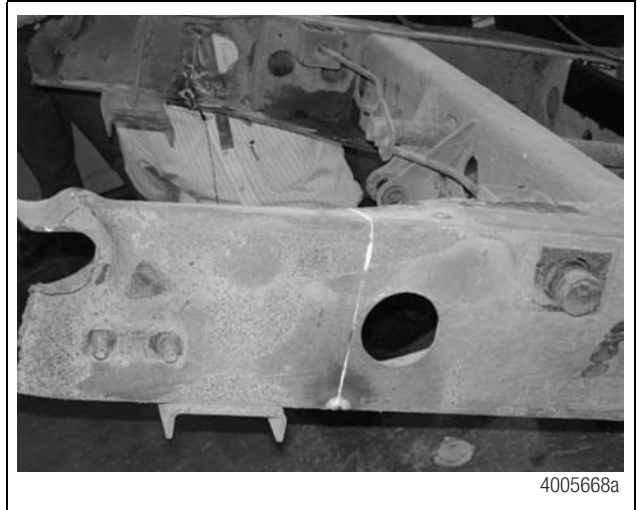
- Wear safe eye protection. Park the vehicle on a level surface.
- Identify the slider. Refer to Figure 43 and Figure 44.



**Figure 43**



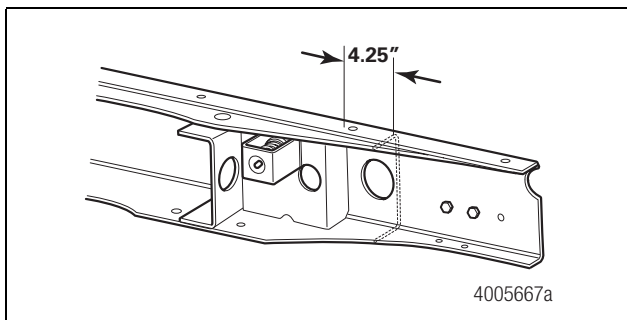
**Figure 44**



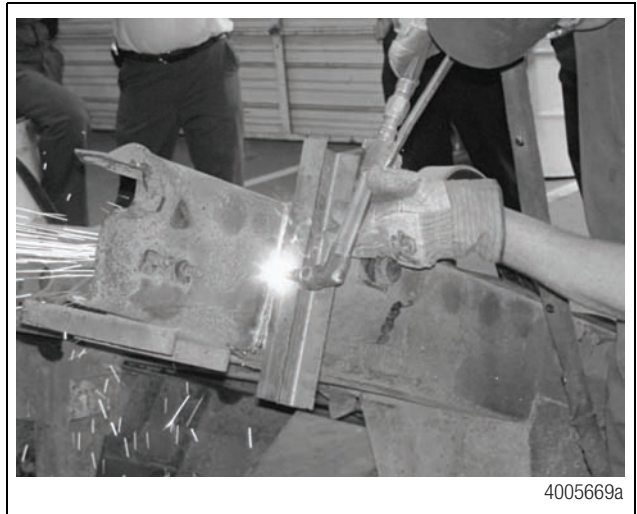
**Figure 46**

3. Before removing the slider from the trailer, ensure the locking pins will engage and the locking system operates correctly.
4. Remove the hold-down clips.
5. Lift the trailer off the suspension. Raise the trailer as high as the jack will lift and secure the trailer with safety stands.
6. Remove the wear pad from the area to be repaired.
7. Measure rearward from the slider locking pin boxes 4.25-inches and make a straight line through the flanges and vertical web of the slider rail. Refer to Figure 45 and Figure 46.

8. Cut the damaged area off. Make sure this cut is straight and square. Refer to Figure 47.



**Figure 45**



**Figure 47**

- Straighten any bends in the remaining top and bottom flange. Refer to Figure 48.



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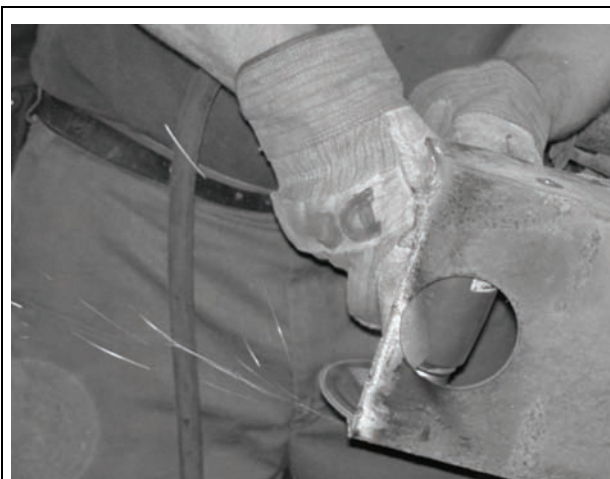
**Figure 48**

- Clean the area of the existing rail that extends from the cut area to the pin box for a clean area for the angle to mount in and be welded to. Refer to Figure 49 and Figure 50.



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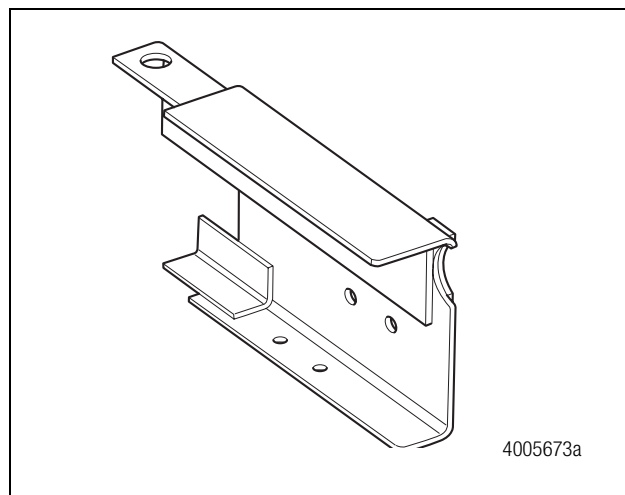
**Figure 49**



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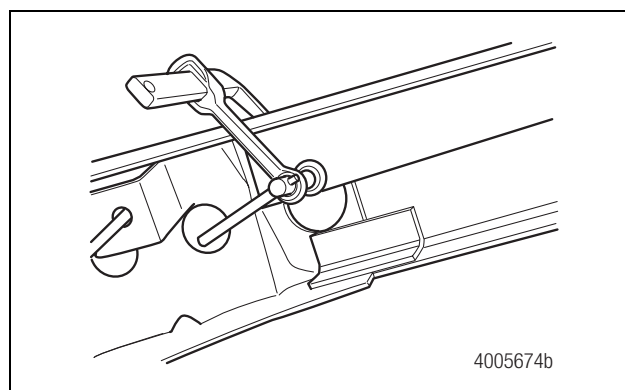
**Figure 50**

- Place the replacement part in place and clamp it to the main rail on the angle. Refer to Figure 51 and Figure 52.



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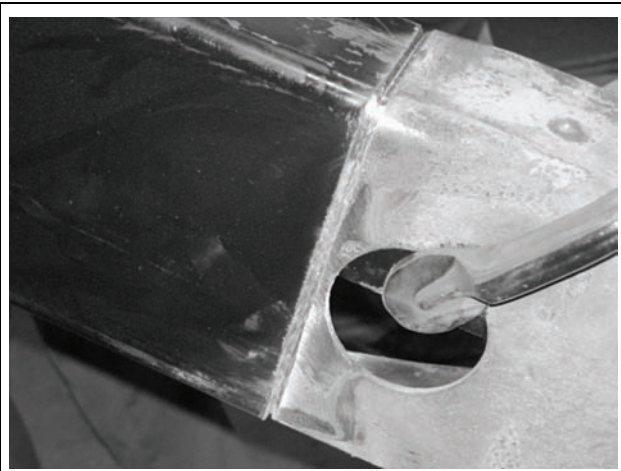
**Figure 51**



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**Figure 52**

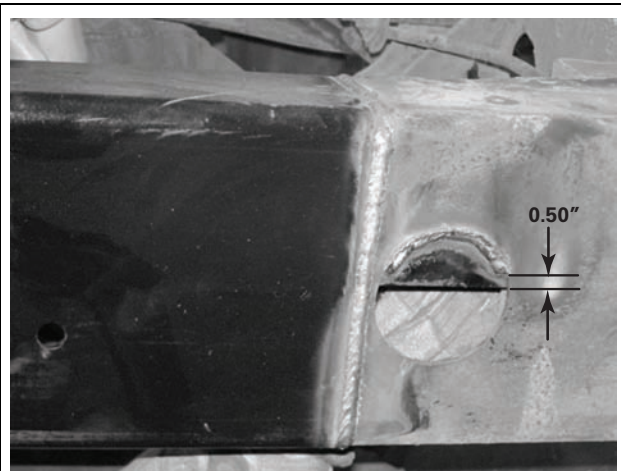
- Using a straight edge, confirm the replacement clip is in line with the top and side of the slider side rail. If it is not level, grind the main rail to make the mounting areas meet squarely. Grind a groove at the butt joint to prep for welding. Refer to Figure 53.



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**Figure 53**

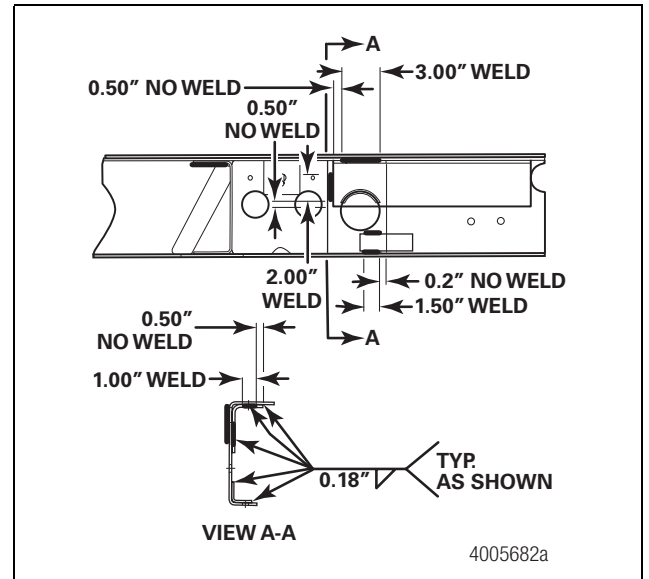
- Tack weld the clip at the top, bottom, two places on the vertical and where the angle passes over the 3-inch hole in the slider side rail. Confirm the clip is still square and straight. Weld the angle to the 3-inch hole. Weld the butt joint on the outside (bottom, vertical and top). Refer to Figure 54.



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**Figure 54**

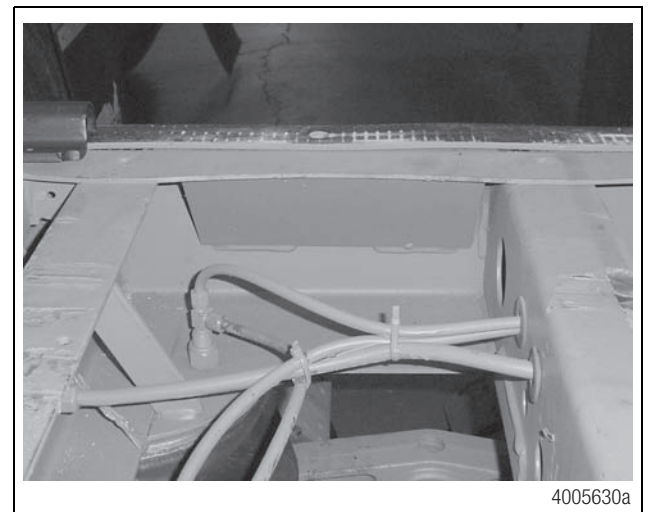
- Weld the lower angle. Finish the exposed vertical butt weld on the inside. Finish welding the angle at the front to the slider pin box and weld the top. Refer to Figure 55.



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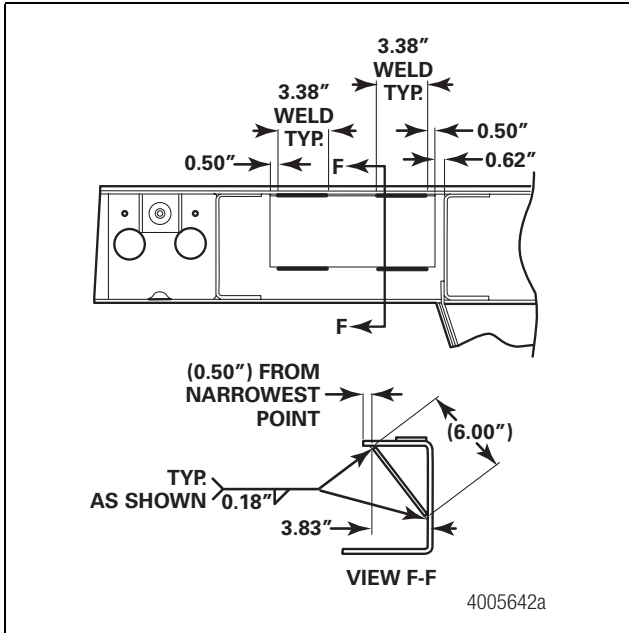
**Figure 55**

- Install the hold-down clip bolt from the inside and tack weld the head of the bolt to the newly installed channel.
- Reinstall the slider wear pad. Drill a 9/32-inch diameter hole in the newly installed channel for the mounting screw. Install the self-tapping screw(s).
- Repeat Steps 6 through 16 on the opposite side of the slider.
- If applicable, reinstall the air tank.
- Remove the undercoating from the areas between the cross members where you will be welding.
- Position and weld the enhancement plates between cross members one and two. Refer to Figure 56 and Figure 57.



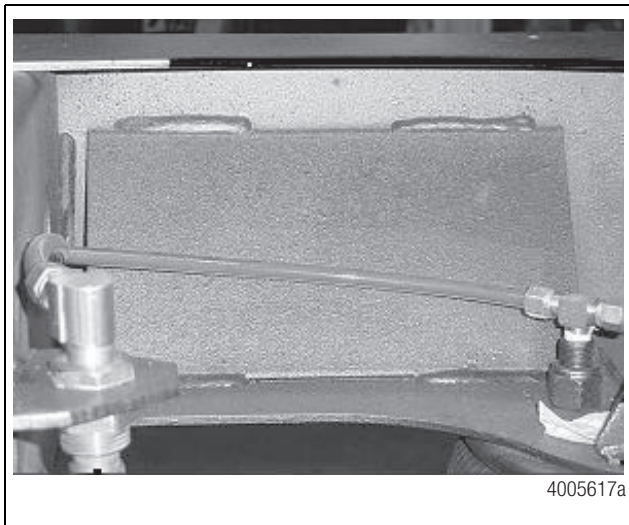
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**Figure 56**

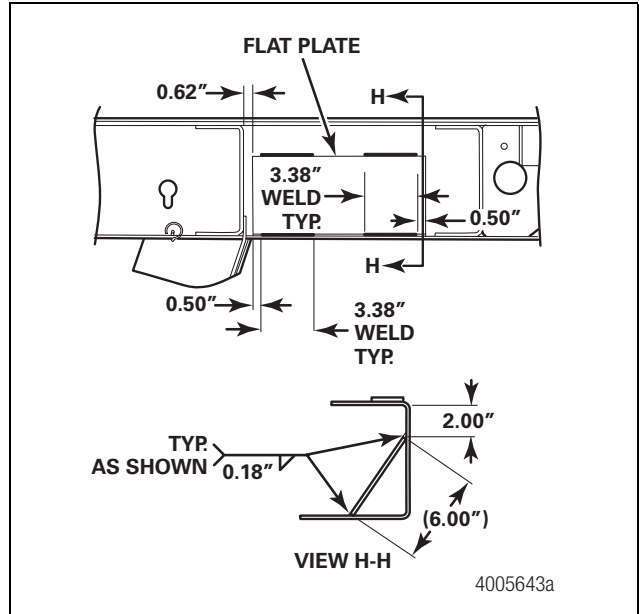


**Figure 57**

21. Position and weld the enhancement plates between cross members three and four. Refer to Figure 58 and Figure 59.

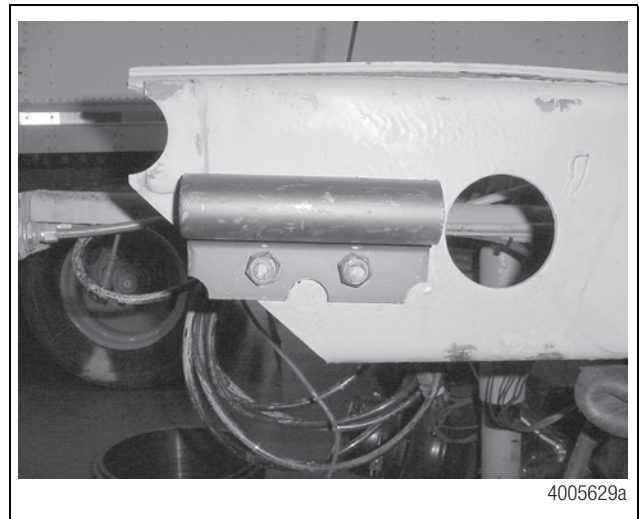


**Figure 58**



**Figure 59**

22. Paint the newly installed enhancement plates, angles and areas that were welded.
23. Apply undercoating to the newly installed enhancement plates, angles and areas where undercoating was previously removed for welding.
24. Remove the safety stands and lower the trailer onto the sliders.
25. Replace the hold-down clips with the heavy-duty version. Refer to Figure 60 and Figure 61.



**Figure 60**

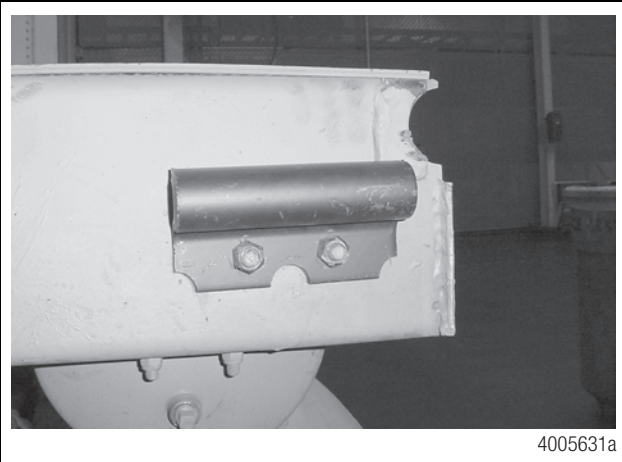


Figure 61

## Generation Two Slider

### Level One Repair — Slider Has a Wave in the Top Flange Between Cross Members One and Two Without a Bend in the Vertical Wall

1. Wear safe eye protection. Park the vehicle on a level surface.
2. Identify the slider. Figure 62 and Figure 63.

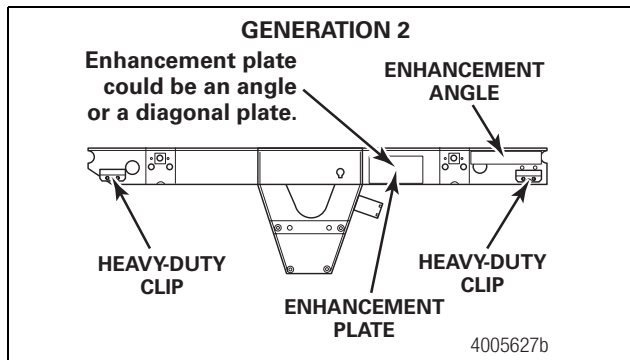


Figure 62

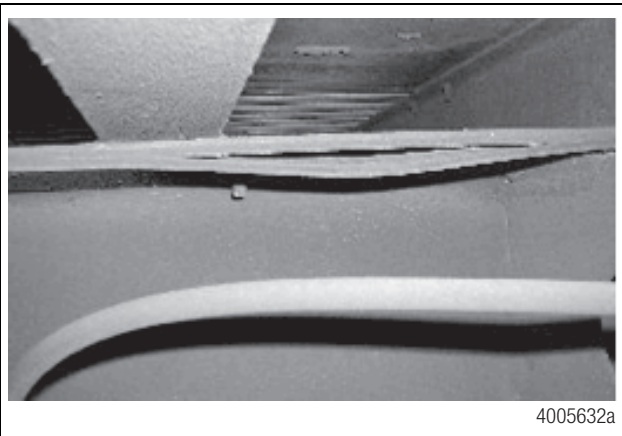


Figure 63

3. Ensure the locking pins will engage and the locking system operates correctly.
4. Remove the hold-down clips.
5. Lift the trailer off the suspension. Raise the trailer as high as the jack will lift and secure the trailer with safety stands.
6. Straighten the top flange.
7. Remove the undercoating from the areas to be welded.
8. Position and weld the enhancement plates between cross members one and two. Refer to Figure 64 and Figure 65.

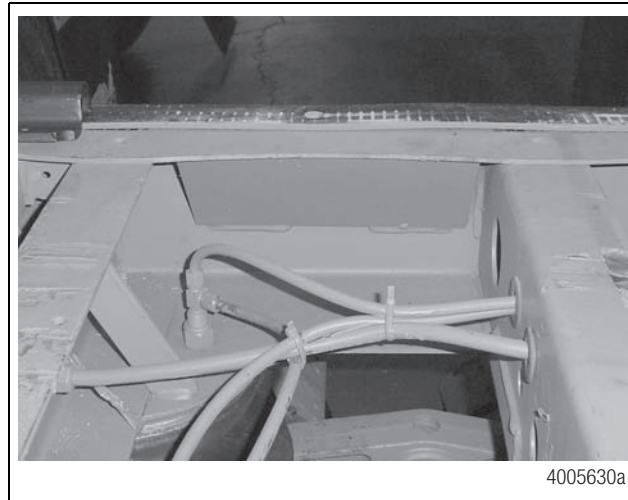


Figure 64

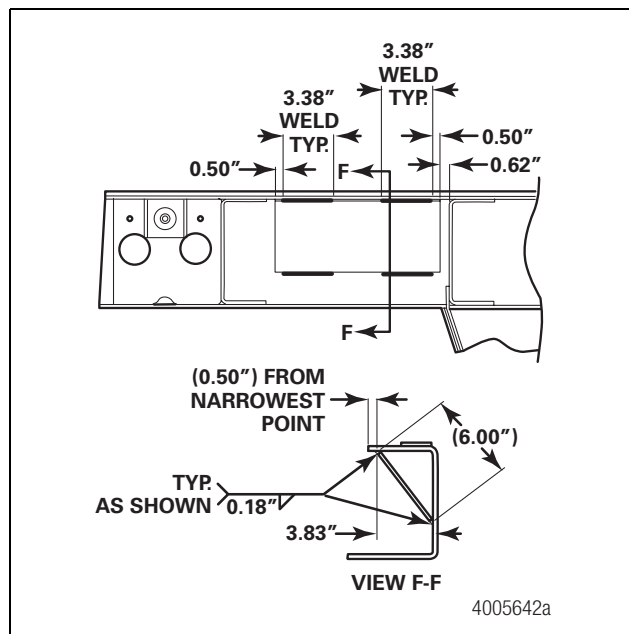


Figure 65

9. Paint the newly installed enhancement plates and areas that were welded.
10. Apply undercoating to the newly installed enhancement plates and areas where undercoating was previously removed for welding.
11. Remove the safety stands and lower the trailer onto the sliders.
12. Re-engage the slider lock pins into the trailer body rails.
13. Reinstall the hold-down clips.

## Level Two Repair — Slider Top Flange and Vertical Side Wall are Bent Between Cross Members One and Two or a Crack Across the Top Flange of the Slider Between Cross Members One and Two with a Crack Propagation in the Vertical Side Wall

1. Wear safe eye protection. Park the vehicle on a level surface.
2. Identify the slider. Figure 66, Figure 67, Figure 68 and Figure 69.

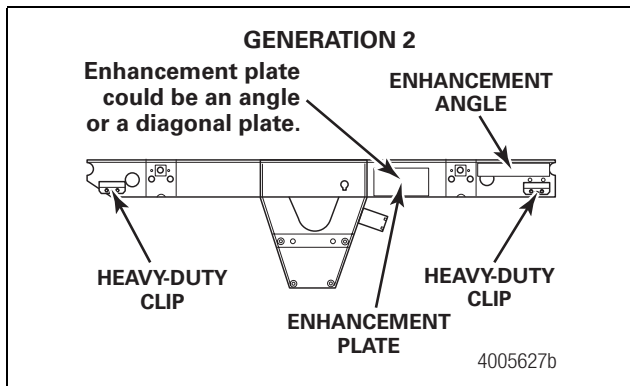


Figure 66

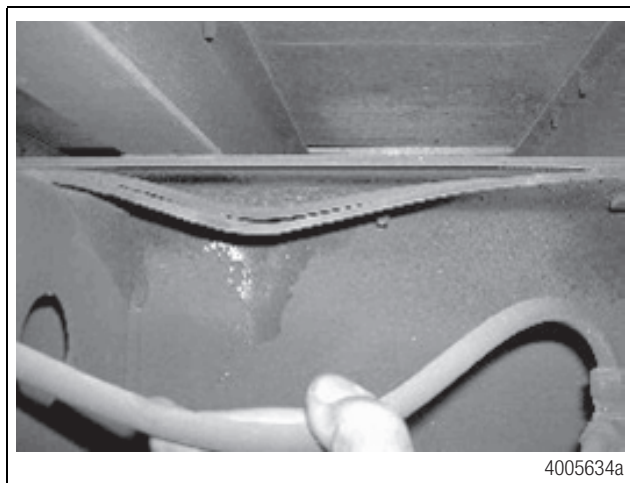


Figure 67



Figure 68

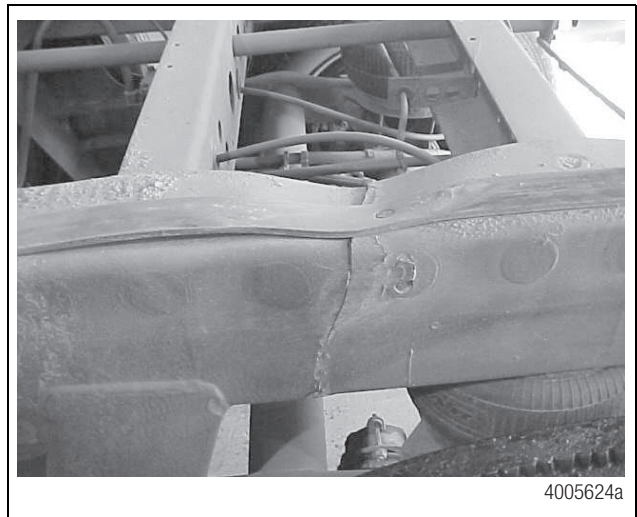
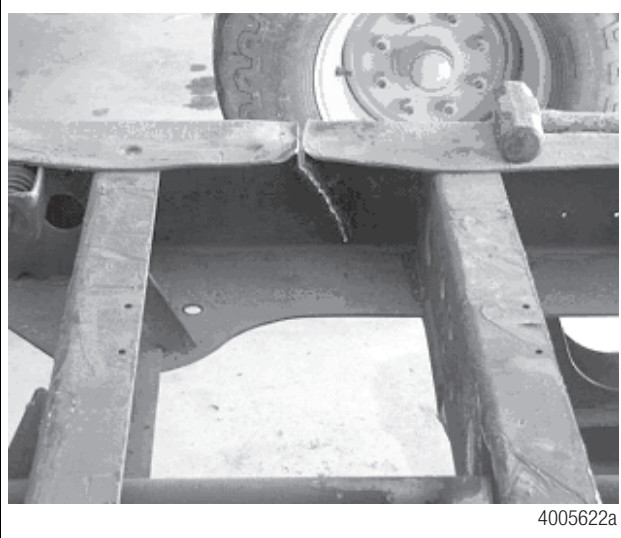


Figure 69

3. Remove the hold-down clips.
4. Lift the trailer off the suspension. Raise the trailer as high as the jack will lift and secure the trailer with safety stands.
5. Remove the wear strip retaining fasteners from the front to the middle and fold the wear strips back out of the way and secure.
6. Remove the air lines to the front air springs and any other lines locally that can be damaged by heat.
7. Remove all undercoating where welding will be performed.
8. Cut through the top flange in the center of the bent area and down the vertical web of the slider on both sides all the way to the lower corner radius on both sides. If the slider is cracked in the top flange, cut down through the vertical wall of the slider side rail on both sides continuing the path of the crack stopping short of the lower corner radius. Refer to Figure 70.





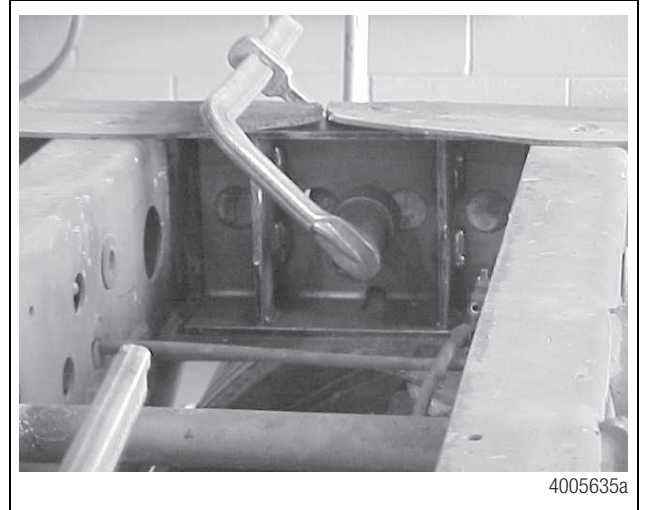
**Figure 70**

9. Bend the top flanges up and remove any inward dimpling of the vertical wall to ensure the repair sleeve fits tightly against the vertical wall.
10. Push the frame as straight as possible. If the center torque tube is bent, straighten it by applying heat to the long side of the bent area with pressure still applied and set it with a hammer.
11. Push the top flange bends upward to provide clearance for the repair sleeve. Ensure that no part of the side rail is bent inward. Grind off any slag created by the cutting. Refer to Figure 71.



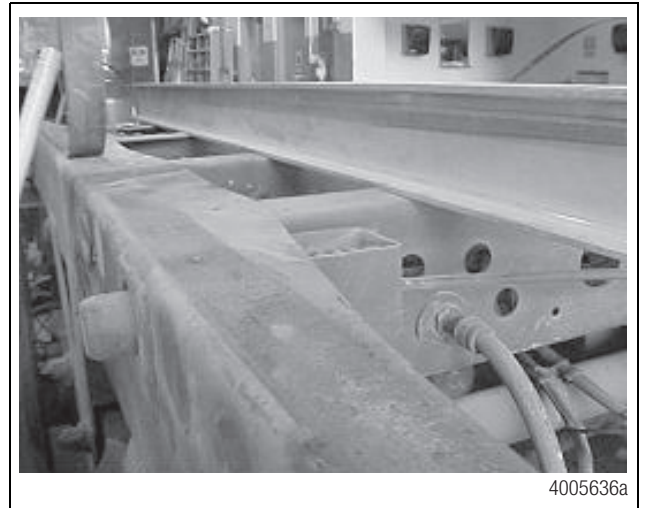
**Figure 71**

12. Install the repair sleeves. Ensure the slots in the top of the sleeve align with the holes in the slider used for mounting the wear strips. Ensure the repair sleeves are firmly clamped in place against the vertical wall of the slider. Refer to Figure 72.



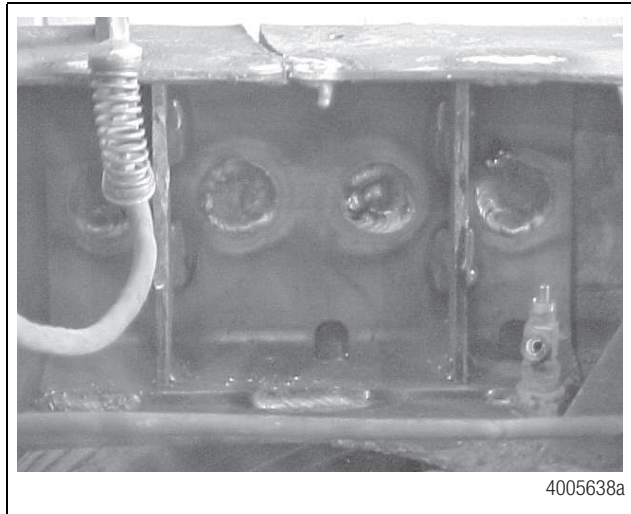
**Figure 72**

13. With a straight edge, check to ensure the three front cross members are aligned. Refer to Figure 73.

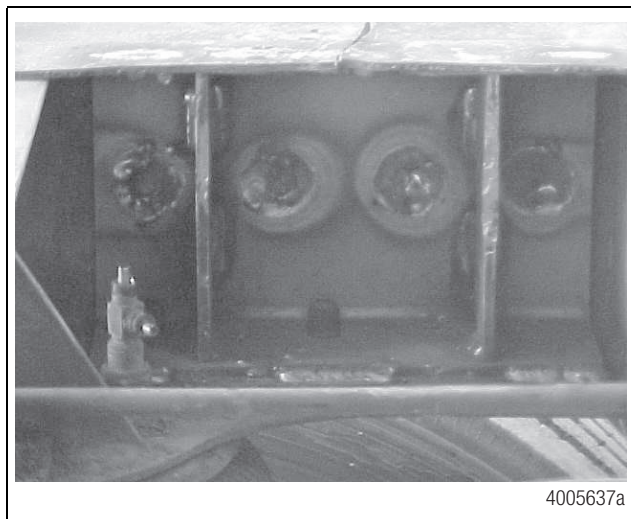


**Figure 73**

14. After the slider is straightened to the repair sleeve, finish welding the plug welds and weld the slider to the repair sleeve through the cut line, straightening the slider to the repair sleeve as you go. Ensure the stitch welds securing the top flange to the repair sleeve cross the crack or cut repair welds. Refer to Figure 74 and Figure 75.



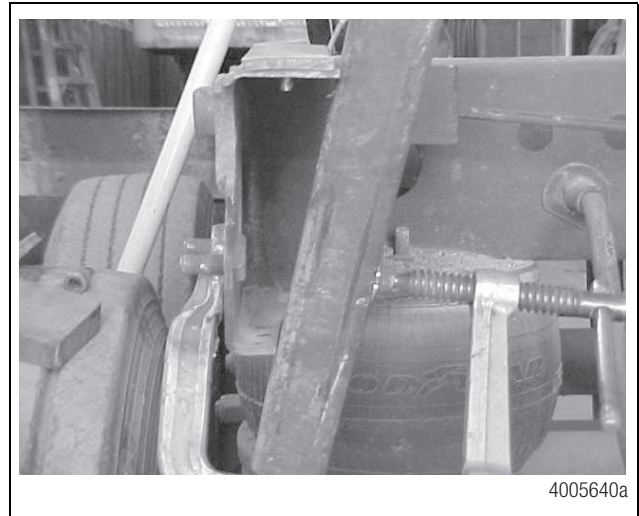
**Figure 74**



**Figure 75**

15. Grind the welds smooth in the area where the wear strip will lie.
16. Paint the inside and outside of the slider.
17. Apply undercoating to the newly installed repair sleeves and areas where undercoating was previously removed for welding.
18. Reinstall the wear strips. Reconnect any lines that were previously disconnected.

19. Straighten the area at the front of the slider where the hold-down clips get attached. Refer to Figure 76.



**Figure 76**

20. Remove the safety stands and lower the trailer onto the slider.
21. Re-engage the slider lock pins into the trailer body rails and reinstall the hold-down clips.



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