McNeilus

Technical Service Information Bulletin

Control Arm Radius Plate Doubler Kit
Control Arm Base Reinforcement Kit
Control Arm Fork Lug Reinforcement Kit
Repair Procedure

Date: April 29, 2022
Bulletin Name: FEL-TSIB-061
Model: Pacific (Model 85)
Pacific Ultra (Model 76)
Contender (Model 87)
Front End Loaders

Purpose:

This repair procedure describes how to reinforce the rear inner radius of the arm, the arm base, and the top arm fork lug on all Pacific (Model 85), Pacific Ultra (Model 76), and Contender (Model 87) Front End Loaders. Perform this repair procedure only on those vehicles that show signs of metal fatigue in these areas. Before performing the Control Arm Radius Plate Doubler Kit installation or any other repair procedure outlined in this bulletin, visually inspect the rear inner radius of the arm for metal fatigue and if metal fatigue is present, repair any damage in that area first per FEL-TSIB-045.

Notice:

- This bulletin should be read and understood in its entirety before performing this repair.
- All procedures outlined in this bulletin and in FEL-TSIB-045 must be performed by skilled service personnel.

⚠ WARNING

Use safe welding practices when applying any welding procedure on a Packer body or components. Disconnect battery and locate welder ground cable as close as possible to the area being welded. Begin weld operation only after the LOCKOUT/TAGOUT procedure has been completed on the Packer unit. Follow all welding recommendations supplied by the chassis original equipment manufacturer (OEM). Do not weld near any components that contain flammable material (i.e. fuel tanks, wire harnesses, batteries, and hydraulic components). Always wear a polarized welder's mask to protect eyes from the burn flash of the welding torch. Wear additional personal protective equipment (PPE) to protect skin from hot flying debris caused by the weld application. Do not wear watches, rings, and jewelry while performing any welding procedure. Failure to follow safe welding practices and procedures can result in personal injury or death.

SAFETY NOTICE

Perform your company's Lockout/Tagout procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.

Tools and Equipment Required:

- Arc welder
- Welding wire (.035 (90 mm), 70,000 psi tensile or 7018 low hydrogen rods)
- Appropriate wrenches, welding clamps and torque wrench
- Grinder with grinding wheel and a “pencil” style grinder
- Impact wrench with 1 1/2” socket
- Small step ladder
- Appropriate welding and personal protection equipment
- Fire blankets

Parts Required:

Item	Part Number	Qty.	Description
1	**1533577**	**1**	**Control Arm Radius Doubler Plate Reinforcement Kit**
	1533475	4	Control Arm Radius Doubler Plates (Two per Arm)
2	**1540360**	**1**	**Control Arm Base Reinforcement Kit**
	1540284	2	Control Arm Base Weldment (One per Arm)
	1540283	2	Control Arm Base Top Plate (One per Arm)
	1137020	4	Control Arm Base Mounting Bolt (1.00x8x4.50 G8) (Two per Arm)
	0120284	4	Control Arm Base Flat Washer (1.00x2.00x12) (Two per Arm)
	0016698	4	Control Arm Base Hex Lock Nut (1.00-8) (Two per Arm)
3	**1533578**	**1**	**Control Arm Fork Lug Reinforcement Kit**
	1533536	2	Control Arm Fork Lug “H” Brackets (One per Arm)
	1533537	4	Control Arm Fork Lug Gusset Plates (Two per Arm)

One (1) of each kit is required to repair a truck.

McNeilus recommends installing all three (3) kits when repairing trucks with arm fatigue, regardless of where the fatigue is occurring.

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Bracket Removal Procedure

1. If the truck has hydraulic lines and cabling installed on the arms, perform the following steps before installing the kits to temporarily remove various mounting brackets. Removing the brackets allows for installation of the Arm Radius Doubler and Arm Base reinforcement kits. If the truck does not have these lines installed, proceed to Arm Radius Doubler Kit Procedure.

   Note that the location of the brackets varies slightly from truck to truck. You may have to grind or remove more or fewer brackets as needed.

2. Place unit on a flat surface, block truck tires, and observe all conditions of the Safety Notice concerning Lockout/Tagout and Welding Safety posted in the Notice section of this bulletin.
3. Ensure that all vehicle fuel sources are turned off and the working area is thoroughly and safely prepared for welding.
4. Cover exposed areas with a fire blanket as needed.
5. Ensure the arms are in the retracted position (Figure 1).

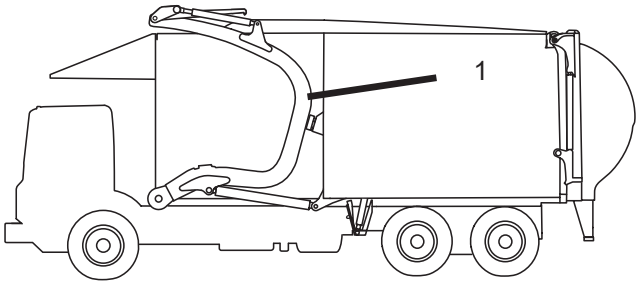

Figure 1

6. Use a cutting wheel to cut off the mounting brackets on the arm (Figure 2). Be careful to not nick or cut hydraulic lines or cables. The curb side arm will likely not have hydraulic lines, but will have some cabling.
7. Do not cut off, only remove and retain the bolts and hardware for the remaining brackets as shown in Figure 2. The curb side arm will likely not have hydraulic lines, but will have some cabling. Remove the bolts and hardware as needed.

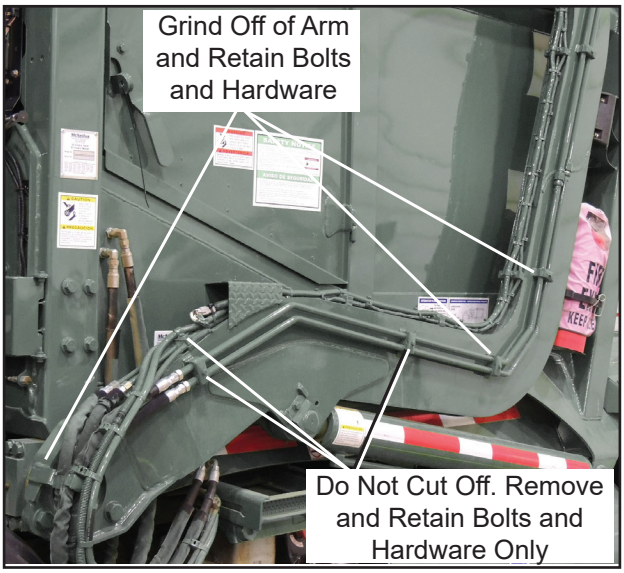

Figure 2

8. Grind the areas on the arm clean and smooth where the brackets were ground off. These brackets will be welded in place again later.
9. You may also have to grind just the face of a cable bracket if it interferes with placement of the Arm Radius Doubler or Arm Base Weldment (Figure 3, Item 1).

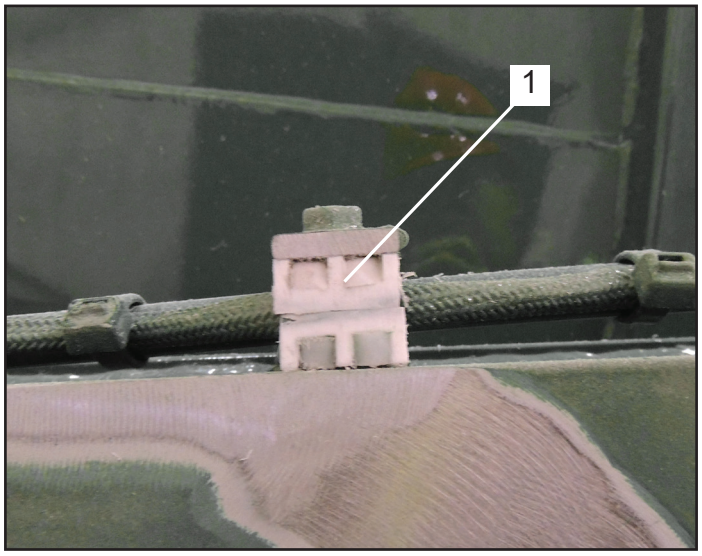

Figure 3

10. Use a scrap of lumber (Figure 4, Item 1) placed under the hydraulic lines as needed to temporarily space the lines away from the arm face and allow room for prep work and welding. Be careful to not twist, kink, or damage any of the hydraulic lines.

Figure 4

11. Use appropriate strapping (Figure 5, Item 1) to safely secure the hydraulic lines out of the way at the arm base. Be careful to not bend, kink or damage any of the cables or hydraulic lines.

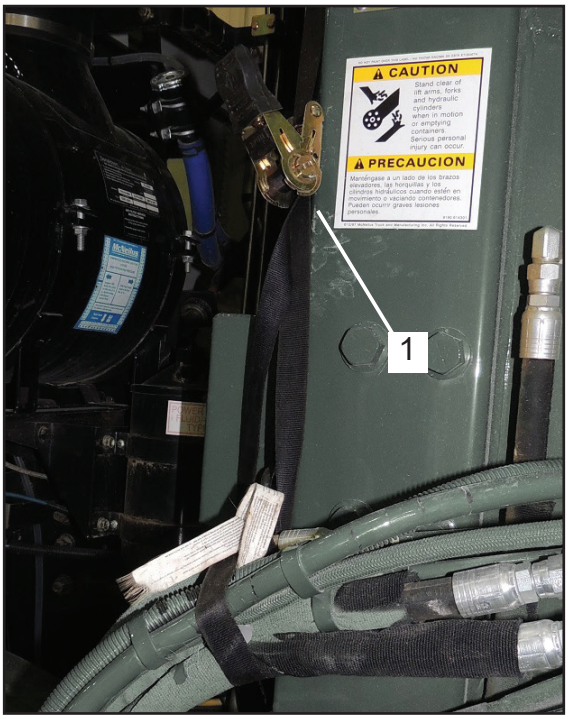

Figure 5

12. Grind the serial number plate off the arm and retain for reinstallation later (Figure 6, Item 1).

Figure 6

13. Once you are sure all the bracketing is removed and all hydraulic lines and cables are safely pulled out of the way, proceed to the Arm Radius Doubler Plate Installation Procedure.

Arm Radius Doubler Plate Installation Procedure

1. Place unit on a flat surface, block truck tires, and observe all conditions of the Safety Notice concerning Lockout/Tagout and Welding Safety posted in the Notice section of this bulletin.
2. Ensure that all vehicle fuel sources are turned off and the working area is thoroughly and safely prepared for welding.
3. Cover exposed areas with a fire blanket as needed.
4. Ensure the fork arms are in the fully retracted position (Figure 1).

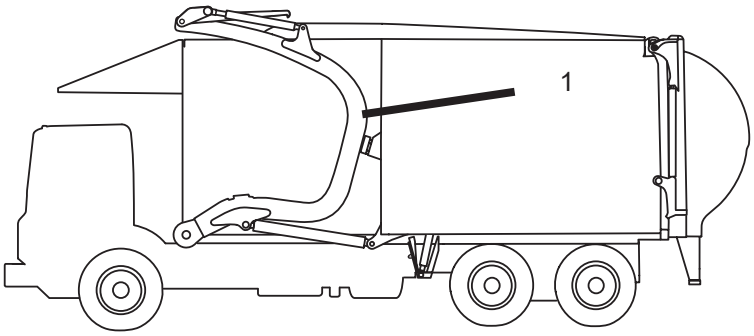

Figure 1

5. Inspect for visible cracking at the rear bend radius of the arm starting with the street side outside face (Figure 2, Item 1). Also inspect the inside face of the street side arm in the same general area (Figure 2, Item 2).

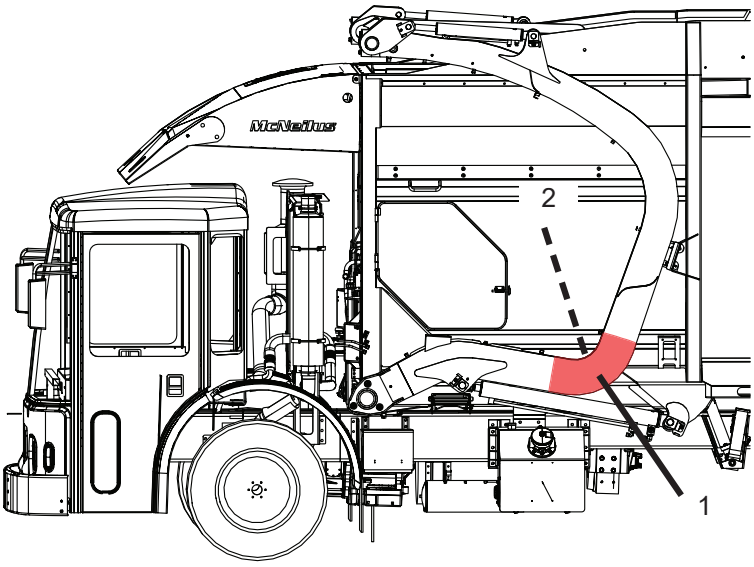

Figure 2

- If visible cracking IS NOT evident, continue to Step 7.
- If visible cracking IS evident, repair the cracks per the procedure outlined in FEL-TSIB-045.

6. Repeat Step 5 for the curb side arm.

- Only after any and all cracks are repaired, proceed to Step 7.

7. Temporarily place and clamp one of the doubler plates (Figure 3, Item 1) on the outside face of the inner radius of the arm and mark a general outline of the doubler plate (Figure 3, Item 2) on the arm.

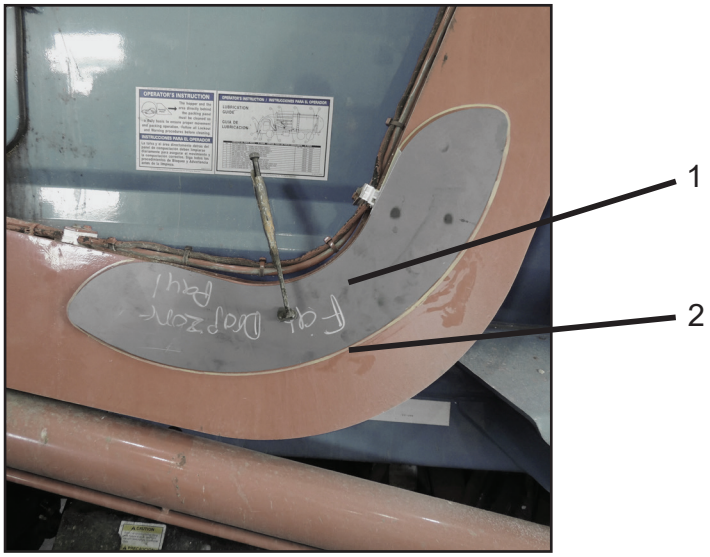

Figure 3

8. Remove the doubler plate, and use an angle grinder to grind, clean, smooth, and prep the area for welding. Include the face of the arm, plus an extra inch or so (Figure 4, Item 1), the backside upper lip of the arm (Figure 4, Item 2), and the up facing edge of the arm (Figure 4, Item 3).

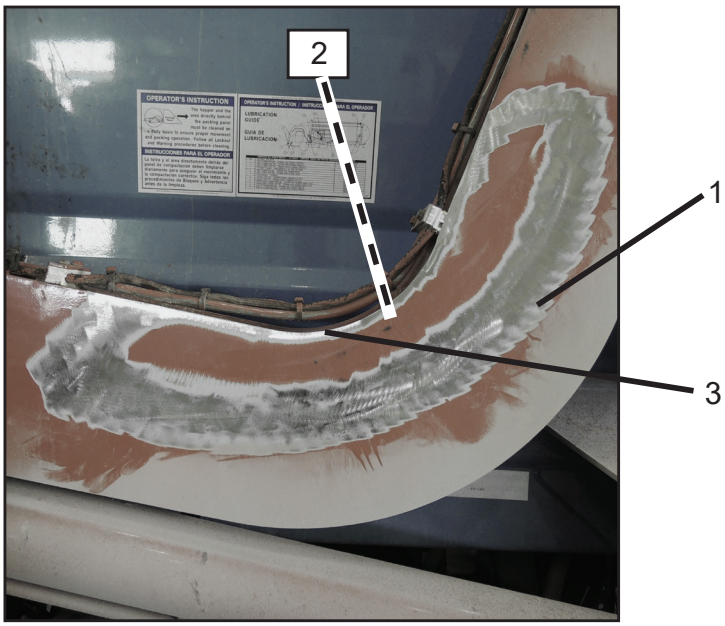

Figure 4

9. After cleaning the marked out area, plus an extra inch or so (Figure 5, Item 1), securely clamp the doubler plate in place (Figure 5, Item 2).

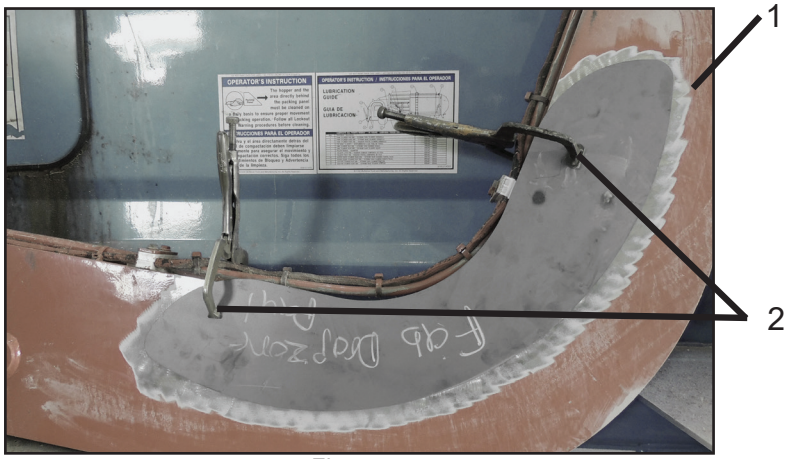

Figure 5

10. Position the doubler plate until the doubler plate overlaps the inside arm edge by 3/8” at each end, approximately 1” from where the doubler plate and the arm intersect (Figure 6) Do this on BOTH ends of the doubler plate.

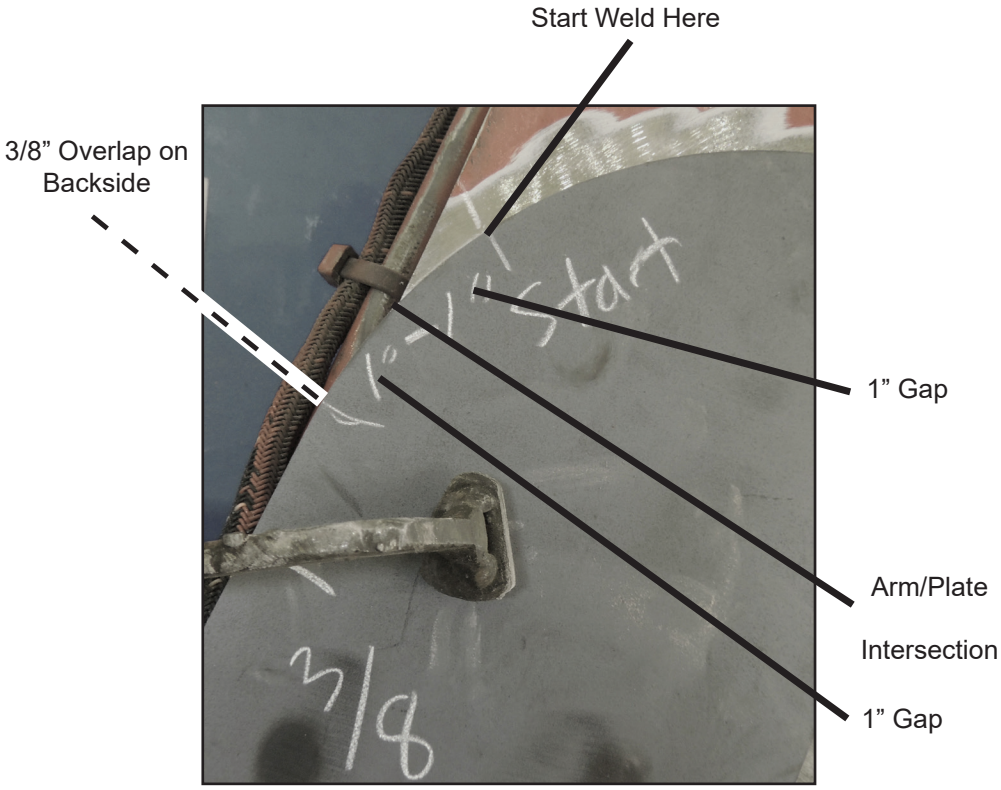

Figure 6

11. Measure the distance that the backside of the doubler plate overlaps the arm at the approximate center of the doubler plate and ensure it is 1/2” (Figure 7, Item 1). If the measurement is 1/2”, proceed to Step 12. If not, adjust each end of the doubler plate until it overlaps the arm at the required dimensions: 3/8” at each end, 1” from the arm/plate intersection as shown in Figure 6, and 1/2” overlap at the approximate center as shown in Figure 7.

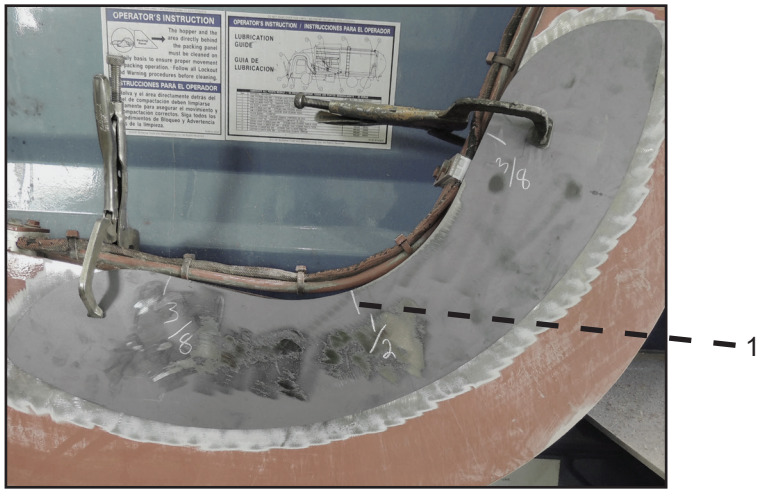

Figure 7

12. Once the proper overlap is achieved, tack weld (Figure 8, Item 1) to the inside overlapping edge of the doubler plate to the arm. (Figure 8, looking rearward and down into the inside curve of the street side arm.) Tack weld the facing edge of the doubler plate as well (not shown). Apply approximately 1/4” welds.

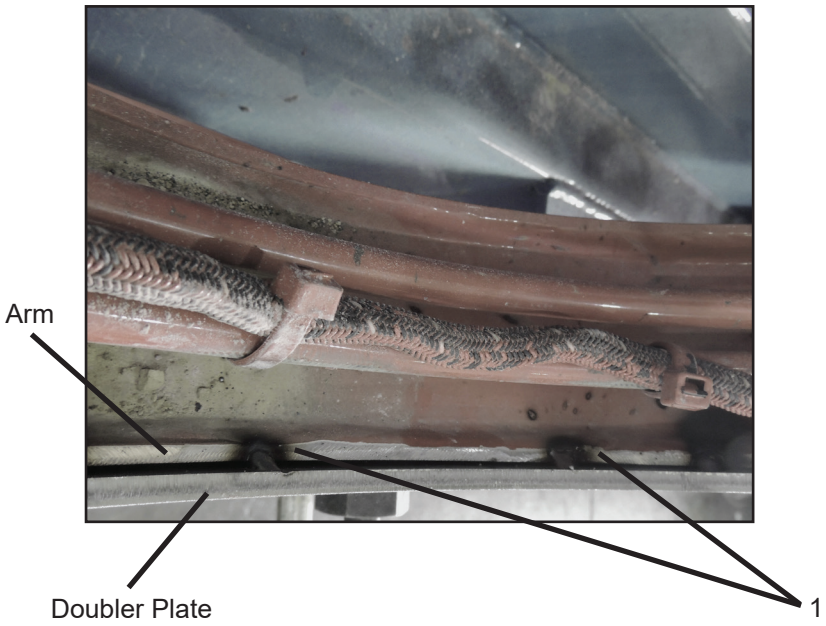

Figure 8

13. Weld the outside facing edge of the doubler plate to the arm (Figure 9). Start the weld at one end of the plate approximately 1” from where the doubler plate and the arm intersect and weld half way around the facing edge. Go to the other end and weld the remaining half. Apply approximately 1/4” welds. (Figure 9). **Do NOT weld all the way to where the doubler plate and the arm intersect.**

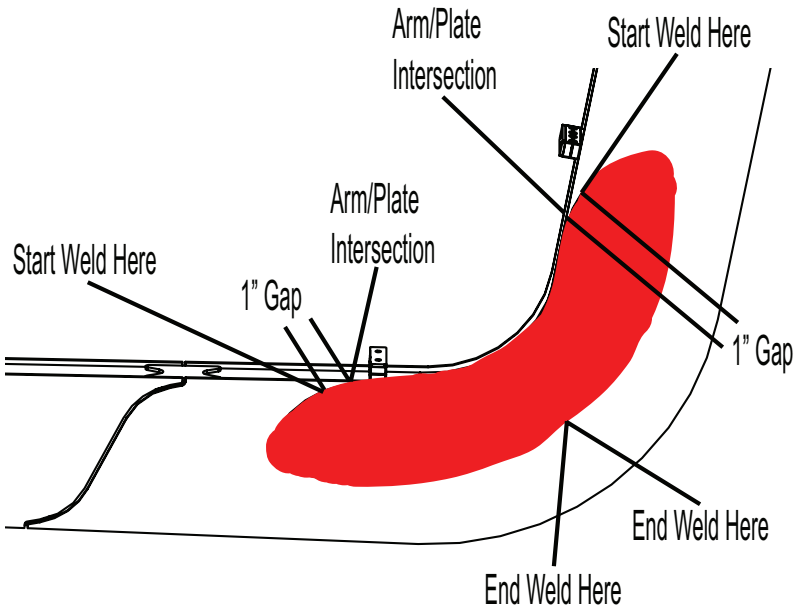

Figure 9

14. Stitch weld the overlapping inside edge as follows:

    Note that Figure 10 looks rearward and down into the inside curve of the street side arm.

- Weld one approximately 2” long by 1/4” stitch weld above the uppermost hydraulic line bracket, no closer than 1” from where the doubler plate and the arm intersect.
  Do NOT weld all the way to where the doubler plate and the arm intersect.
- Weld three approximately 2” long by 1/4” stitch welds, evenly spaced below the uppermost hydraulic line bracket with the last weld no closer than 1” from where the doubler plate and the arm intersect.
  Do NOT weld all the way to where the doubler plate and the arm intersect.

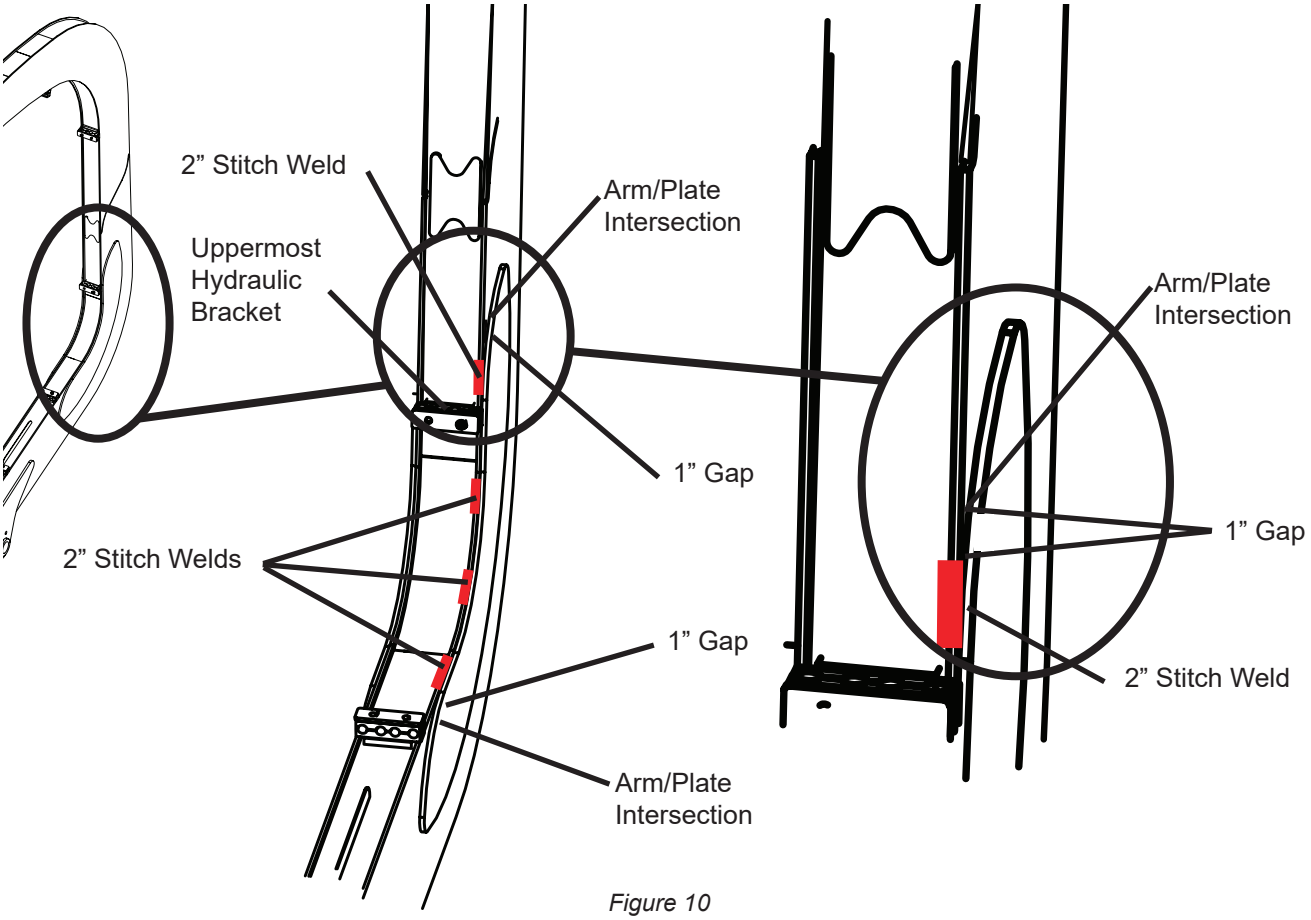

Figure 10

15. Remove the block of wood from under the hydraulic lines.
16. Thoroughly clean and inspect every weld for uniformity.
17. Repeat Steps 1 through 16 on the inside face of the street side arm.
18. Repeat Steps 1 through 16 on both inside and outside face of the curb side arm.
19. Installation of the Arm Radius Doubler Plate is complete.
20. Proceed to Arm Base Reinforcement Installation Procedure.

Arm Base Reinforcement Installation Procedure

1. Place unit on a flat surface, block truck tires, and observe all conditions of the Safety Notice concerning Lockout/Tagout and Welding Safety posted in the Notice section of this bulletin.
2. Ensure that all vehicle fuel sources are turned off and the working area is thoroughly and safely prepared for welding.
3. Cover exposed areas with a fire blanket as needed.
4. Ensure the fork arms are still in the fully retracted position (Figure 1).

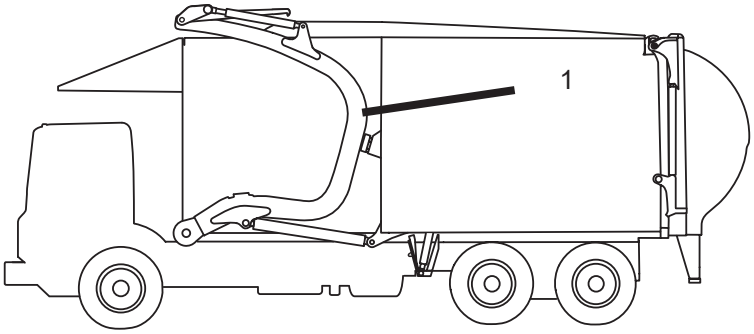

Figure 1

5. Starting on the street side arm base, use the impact wrench to remove and discard two of the three bolts and nuts (Figure 2, Items 1 and 2) from the arm base.

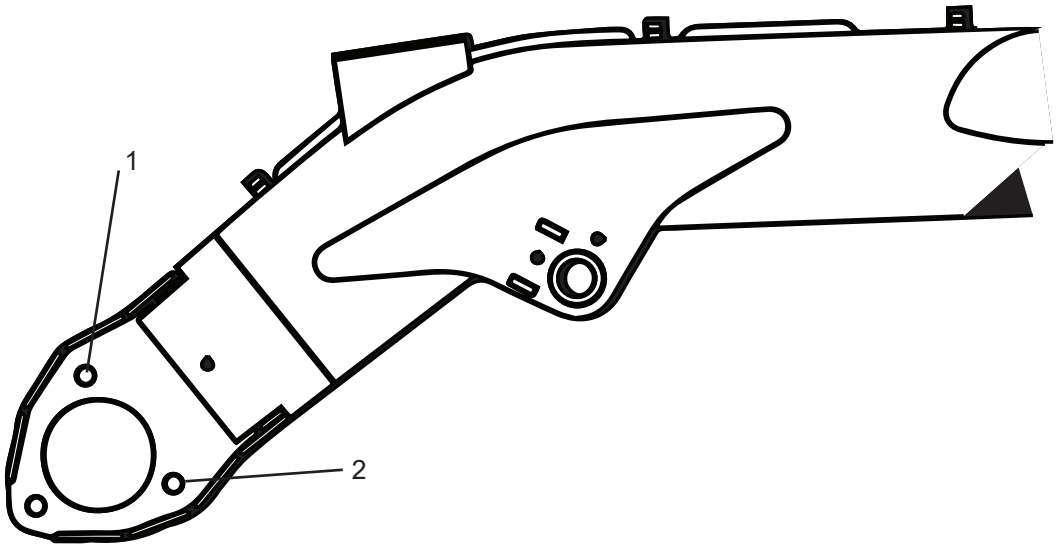

Figure 2

6. Temporarily hold one of the arm base reinforcement weldments to the arm (with the spacers on the weldment facing toward the arm), align the holes using the new bolts and mark the weldment upper end as shown in Figure 3.

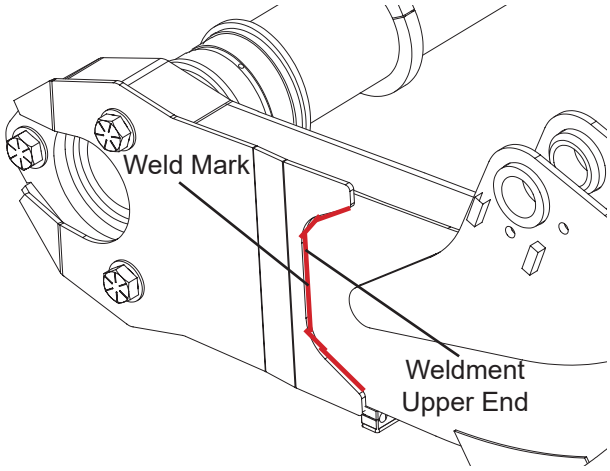

Figure 3

7. Remove the bolts and the arm base reinforcement weldment.
8. Prepare the up facing area of the arm for welding by grinding the areas clean and smooth. Clean the area to be covered by the weldment upper end (plus about 1”) (Figure 4, Item 1). Grind the edges and the up facing surface of the arm base (Figure 4, Item 2). Grind the edge and the area of the arm base currently facing down (Figure 4, Item 3). This area will be welded later when the arm base reinforcement top plate is installed and the arms are extended for easier access.

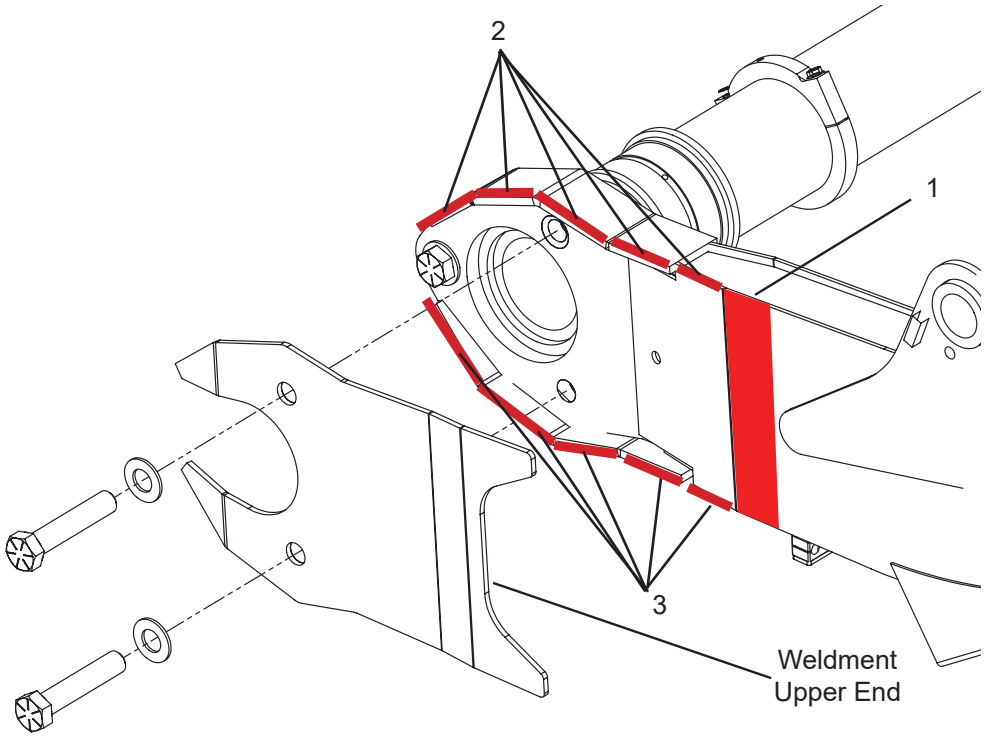

Figure 4

9. Using two each of the bolts, washers, and nuts from the Arm Base Reinforcement Kit, install the weldment to the arm (Figure 5, Item 1). Do not tighten or torque the bolts and nuts yet.

10. Clamp the weldment upper end tight to the arm and tack weld it in place with 1/4” tack welds (Figure 5).

11. After the weldment upper end is tack welded in place, tighten the bolts to 613 ft lbs.

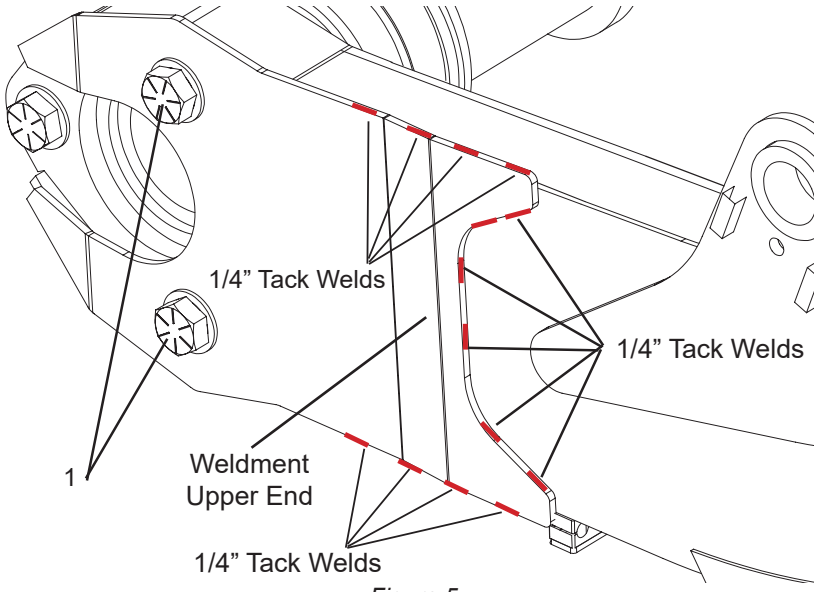

Figure 5

12. Remove the clamps and use a 1/4” wide weld to weld the weldment to the arm along the up facing edge and weldment upper end. Stop the welds approximately 1/2” from the weldment upper end and the weldment bolt end (Figure 6). The down facing edge will be welded later.

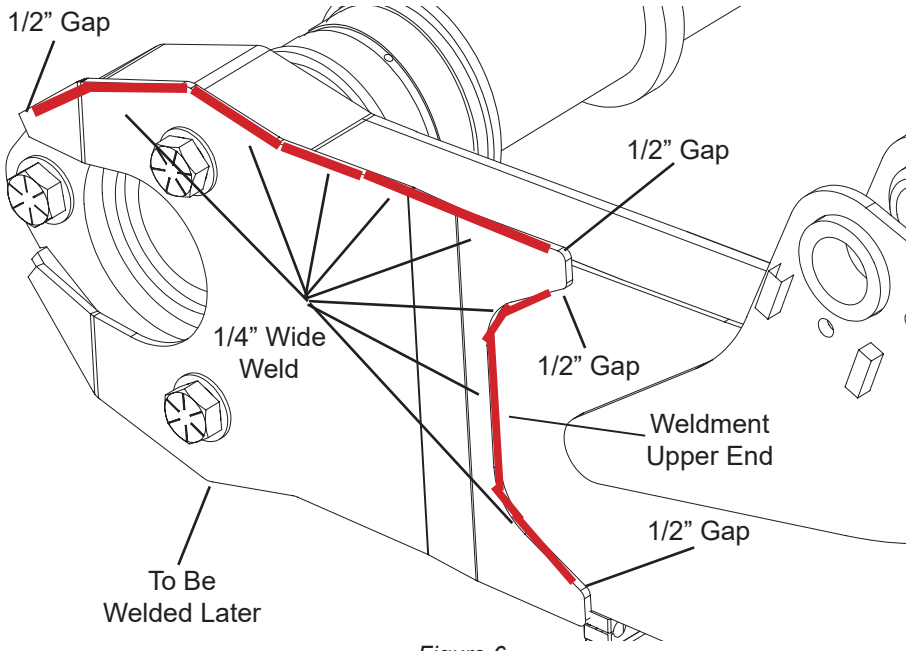

Figure 6

13. Repeat Steps 1 through 12 on the curb side arm.

14. Use a 1/4” wide weld (ends only) and weld the correct serial number plates back to each arm (Figure 7, Item 1).

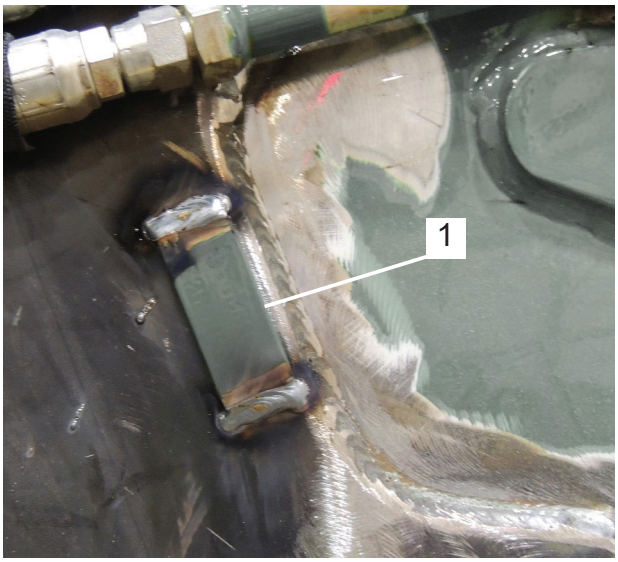

Figure 7

15. Reinstall cable bracket hardware and bolts and using a 1/4” wide weld, weld hydraulic line brackets back into position on both arms. (Figure 8) Be careful to not nick, burn, or cut cables and lines.

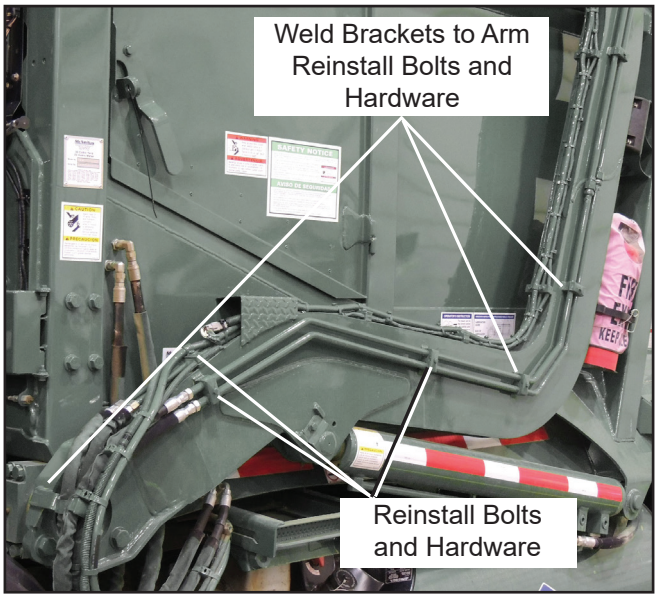

Figure 8

16. Ensure all welding materials, fire blankets and tools are safely out of the way.
17. Start the vehicle and move the arms to the fully extended position (Figure 9).

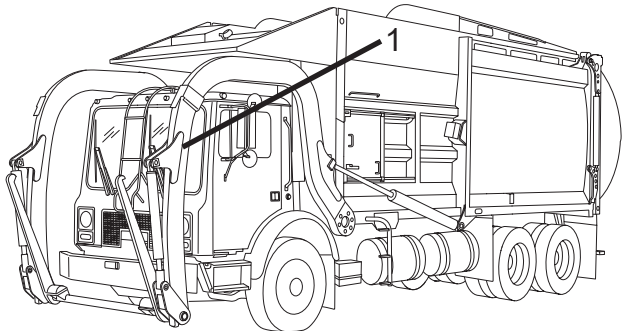

Figure 9

18. Ensure that all vehicle fuel sources are turned off and the working area is thoroughly and safely prepared for welding.
19. Cover exposed areas with a fire blanket as needed.
20. Using a 1/4” wide weld, weld the remaining edge of the arm base weldment Figure 10.

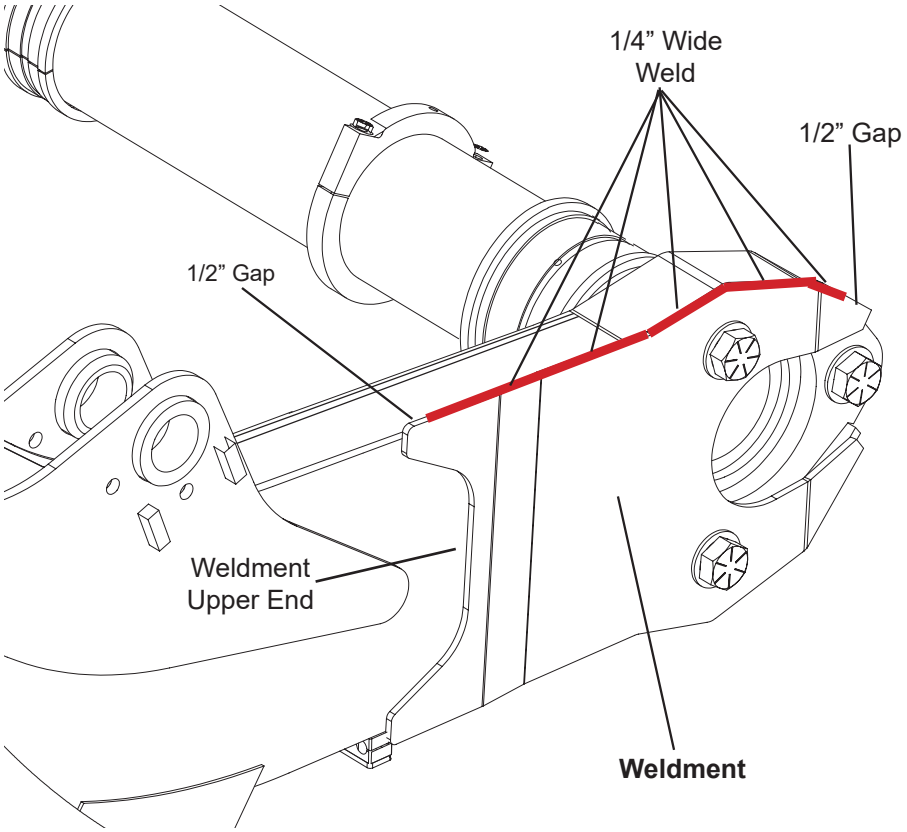

Figure 10

21. Use a pencil grinder to grind the area clean in the arm channel where the top plate will be installed (Figure 11). The view (Figure 11, Item 1) is looking forward and down into the street side arm channel just above the arm base.

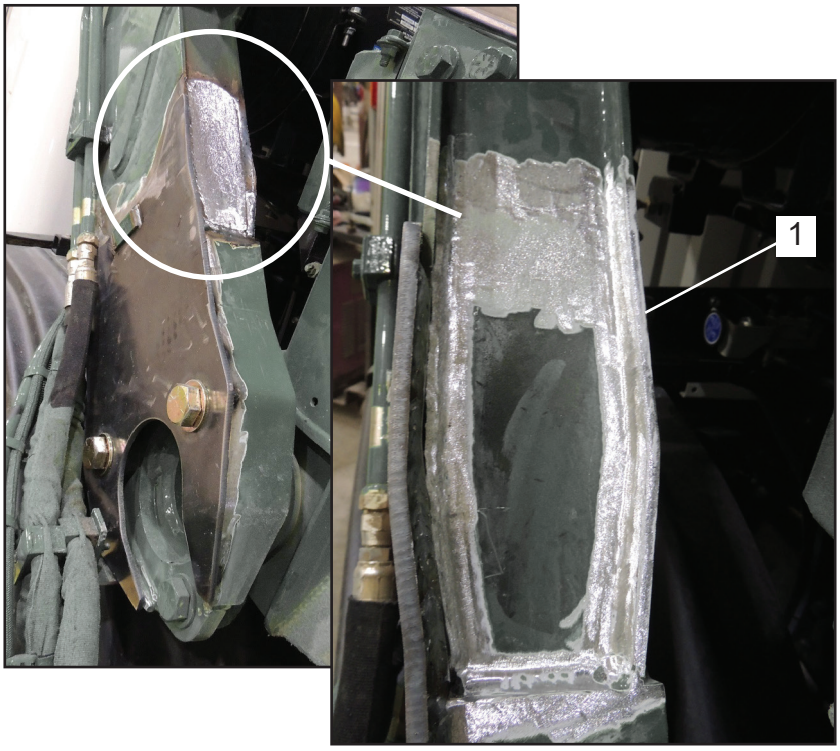

Figure 11

22. Place one of the Arm Base Reinforcement Kit top plates into the arm channel with the rounded edge oriented as shown in Figure 12, Item 1. The view (Figure 12, Item 1) is looking forward and down into the street side arm channel.

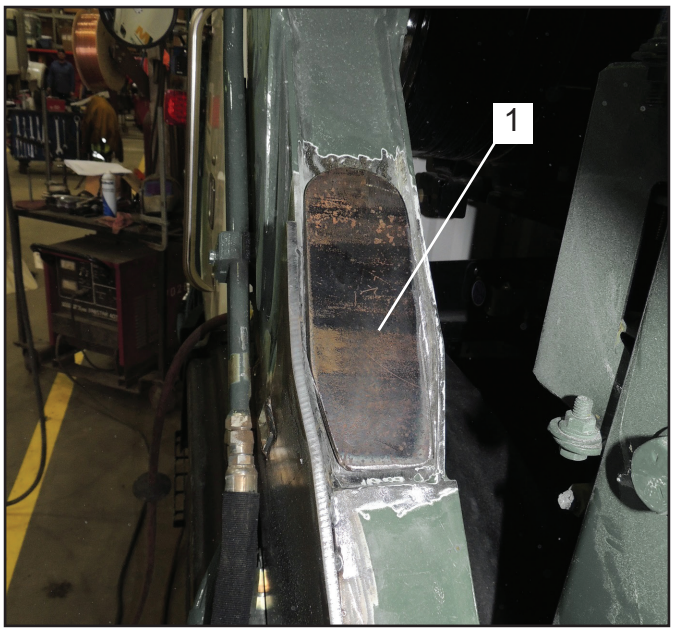

Figure 12

23. Using a 1/4” wide weld, weld the top plate into the arm channel (Figure 13, Item 1).

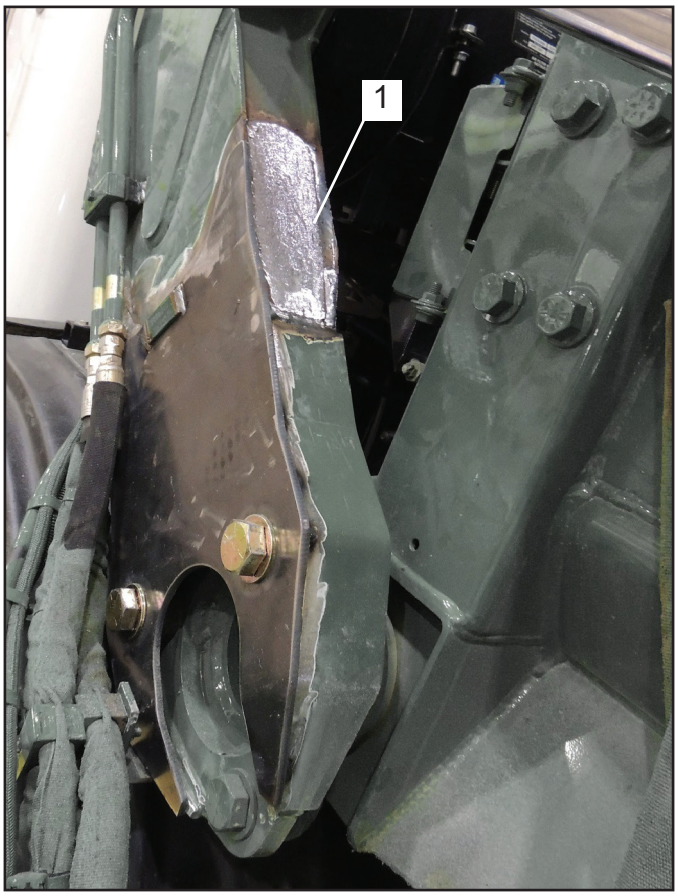

Figure 13

24. Repeat Steps 20 through 23 on the curb side arm.
25. The installation of the Arm Base Reinforcement Kit is complete.
26. Proceed to the Arm Fork Lug Reinforcement Procedure.

Arm Fork Lug Reinforcement Installation Procedure

1. Place unit on a flat surface, block truck tires, and observe all conditions of the Safety Notice concerning Lockout/Tagout and Welding Safety posted in the Notice section of this bulletin.
2. Ensure that all vehicle fuel sources are turned off and the working area is thoroughly and safely prepared for welding.
3. Ensure that the arms are in the fully extended position (Figure 1) and locate the arm fork lugs (Figure 1, Item 1).

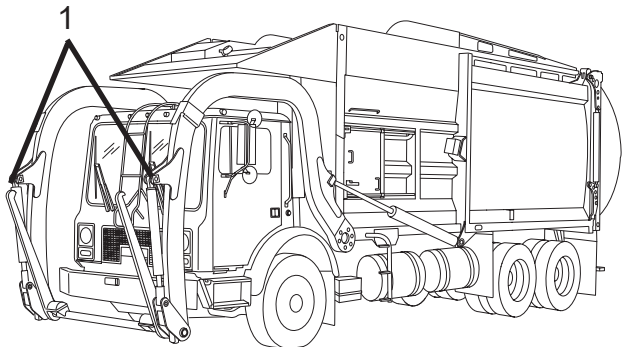

Figure 1

4. Starting on the street side arm fork lug, remove and retain the bolt (Figure 2, Item 2) and nut (not shown) from the retaining plate (Figure 2, Item 1) at the top of the arm fork cylinder (Figure 2, Item 3).

Safely and securely support the cylinder, remove the cylinder retaining plate and pin (Figure 2, Item 1) and move the cylinder out of the way. Moving the cylinder just a couple of inches away from the lug cavity is all that is required. Bolt, nut, plate, and pin shown removed in Figure 2, Item 5.

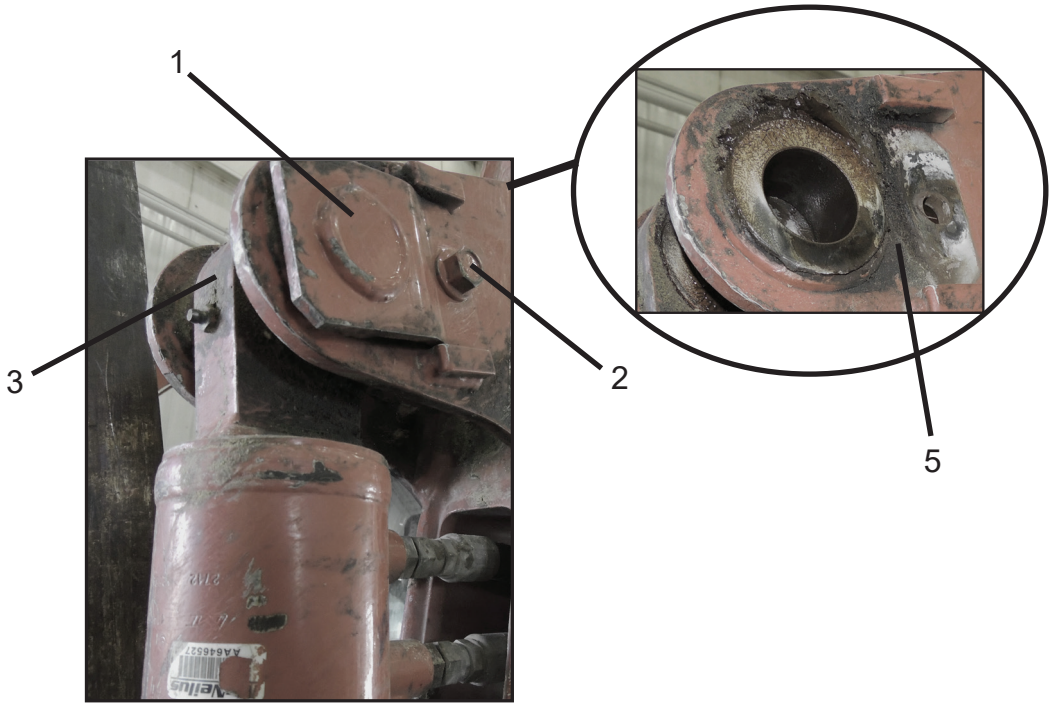

Figure 2

5. Inspect for visible cracking at the rear welds of the street side arm fork lug cavity (Figure 3, Item 1, looking down from the front into the arm fork lug cavity.) Repeat this step for the curb side arm fork lug cavity rear welds.

Figure 3

- If visible cracking IS NOT evident in the weld, continue to Step 7.
- If visible cracking IS evident in the weld, use a pencil grinder to grind out the weld until the affected area is smooth. This area will be welded later in this procedure.
- Only after any and all cracks and welds have been ground smooth, proceed to Step 7.

6. Use a pencil grinder to clean and prep the area around the arm fork lug opening, including facing edges and inside the arm fork lug cavity (Figure 4).

Figure 4

7. Place the arm fork lug reinforcement “H” plate on the inside of the arm fork lug cavity with the long “H” plate opening facing down (Figure 5, Item 1). Note there may be a small void at the radius (Figure 5, Item 2).

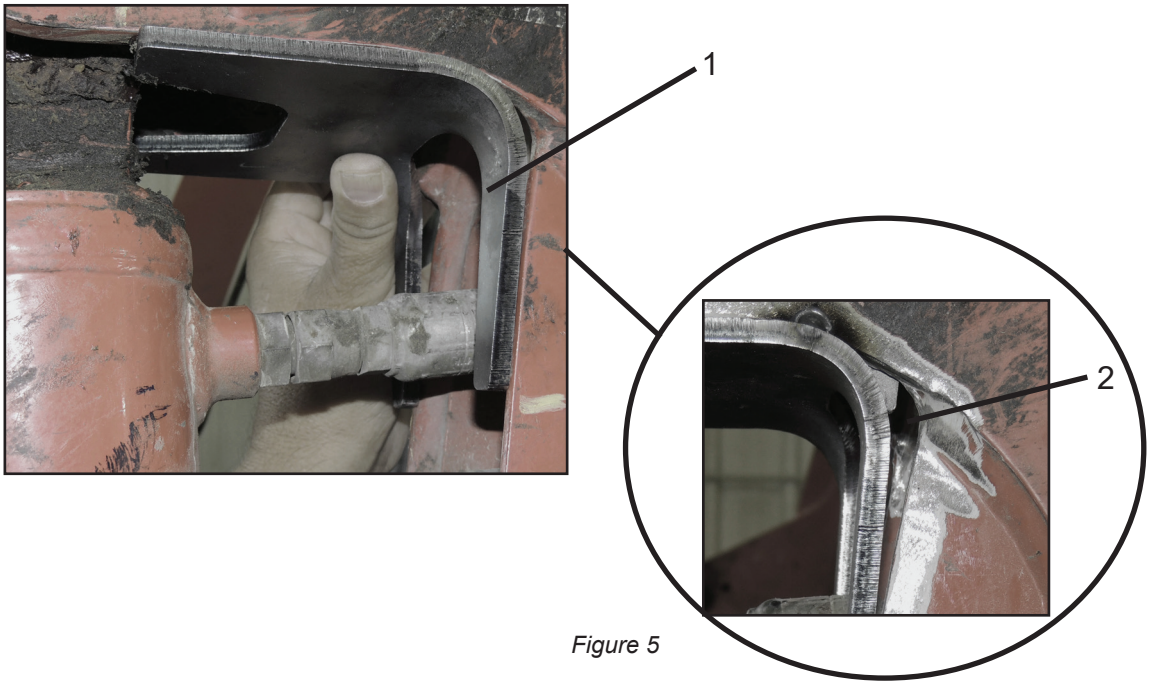

Figure 5

8. Tack weld the “H” plate on both upper edges to the facing edge of the arm fork lug cavity (Figure 6, Item 1). Apply approximately 1/4” welds.

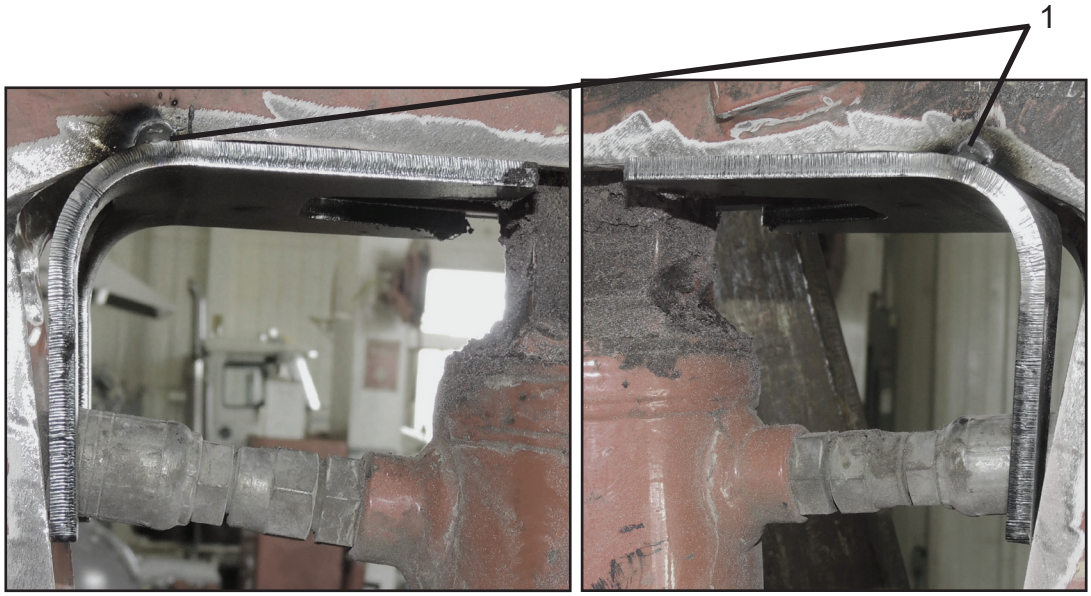

Figure 6

9. Place the two gussets (left and right) inside the arm fork lug cavity (Figure 7, Item 1). Ensure that they are placed to follow the contour of the “H” bracket (Figure 7, Item 2, looking down from the front of the truck into the arm fork lug cavity.)

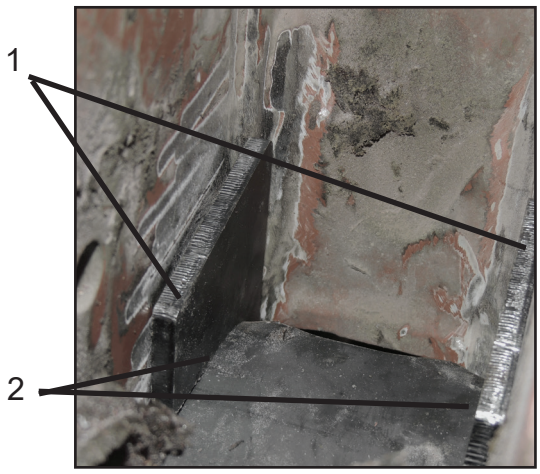

Figure 7

10. Tack weld the gussets in place (Figure 8, looking down from the front of the truck into the arm fork lug cavity.) Apply approximately 1/4” welds.

Figure 8

11. Weld the “H” bracket in place. Weld to within 1/2” of the ends of the “H” bracket (Figure 9). **Do NOT weld all the way to the end of the “H” bracket.** Apply approximately 1/4” welds.

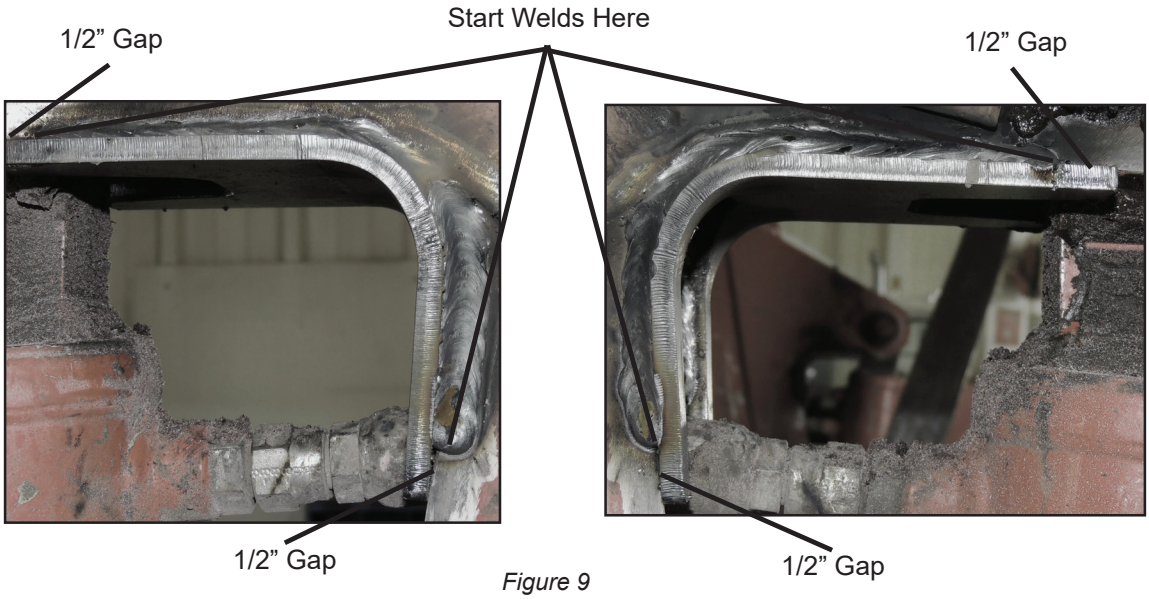

Figure 9

12. Weld the gussets in place (Figure 10). Space is limited, but try to weld to the edge of each gusset. If there was any cracking at the rear welds of the arm fork lug cavity and you have that area already ground smooth as stated in Step 6, be sure to weld those areas as well. Apply approximately 1/4” welds.

Figure 10

13. Thoroughly clean and inspect every weld for uniformity.
14. Reinstall retaining plate, pin, nut, and bolt on cylinder end and torque bolt to 409 ft lbs.
15. Repeat Steps 1 through 14 on the curb side arm fork lug.
16. Installation of the Arm Fork Reinforcement Kit is complete.
17. Prep, prime, and paint all affected areas to match existing paint.
18. Remove your company’s Lockout/Tagout per your company’s procedure. If your company does not have a Lockout/Tagout procedure, follow OSHA 1910.147 and 1910.146 Confined Space as appropriate.
19. Return the vehicle to service.

Continuous Improvement:
The change included in this document is part of the McNeilus Continuous Improvement Process.

McNeilus's quality policy is providing customer satisfaction through innovative products, dedicated service, and a constant focus on continuous improvement.

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