

Tank Car Inboard Stub Sill Inspection and Modification

INSPECTION BULLETIN



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This Inspection Bulletin provides details for the inspection and modification of cradle pads by the addition of cradle pad reinforcements at the inboard termination of the draft sill. This Inspection Bulletin discusses the inspection to be conducted, and identifies the tank car modifications to be performed based on the identified condition.

Application Criteria: Tank Cars built prior to October 1, 2011 with ARI300 stub sills.

Inspection

Inspect the cradle pad for any cracks at the inboard termination of the draft sill, this area is shown in Figure 1. Visual inspection can be aided with non-destructive testing as deemed necessary by the inspector. The type of modification to be performed is to be determined by the results of the inspection:

FIGURE 1



Condition 1: No cracks found in cradle pad. (Modification 1)

Condition 2: Cracks of any length found in cradle pad. (Modification 2)

Modification Procedures

Modification 1: No cracks found in cradle pad or cracks repaired in Modification 2.

1. Obtain one cradle pad reinforcement for each end of the car by selecting the correct reinforcement for the diameter tank being modified. To order modification components, please call (877) 947-2787.

TABLE 1

Part Number	Tank Diameter (inches)
3Y585200	122.50
3Y585201	110.25
3Y585202	117.88
3Y585203	98.00
3Y585207	106.00
3Y585208	100.45
3Y585209	119.13
3Y585210	94-96
3Y585211	87-89

2. Remove any paint, rust or contamination from the welds attaching the rear of the draft sill to the cradle pad and the area where the cradle pad reinforcement will be welded to the cradle pad.

If the car has a reinforcement between the tails of the draft sill webs (AAR splice plate or foot ball shaped) remove it, this reinforcement will be replaced with the new cradle pad reinforcement.

3. Position the cradle pad reinforcement as shown (Figure 2.) The reinforcement may require grinding or trimming to maintain the proper weld joint geometry shown in Figure 2; the weld preparation should be 1/2 inch wide minimum around the draft sill side webs, to allow for the application of a 5/8 inch groove weld.

FIGURE 2

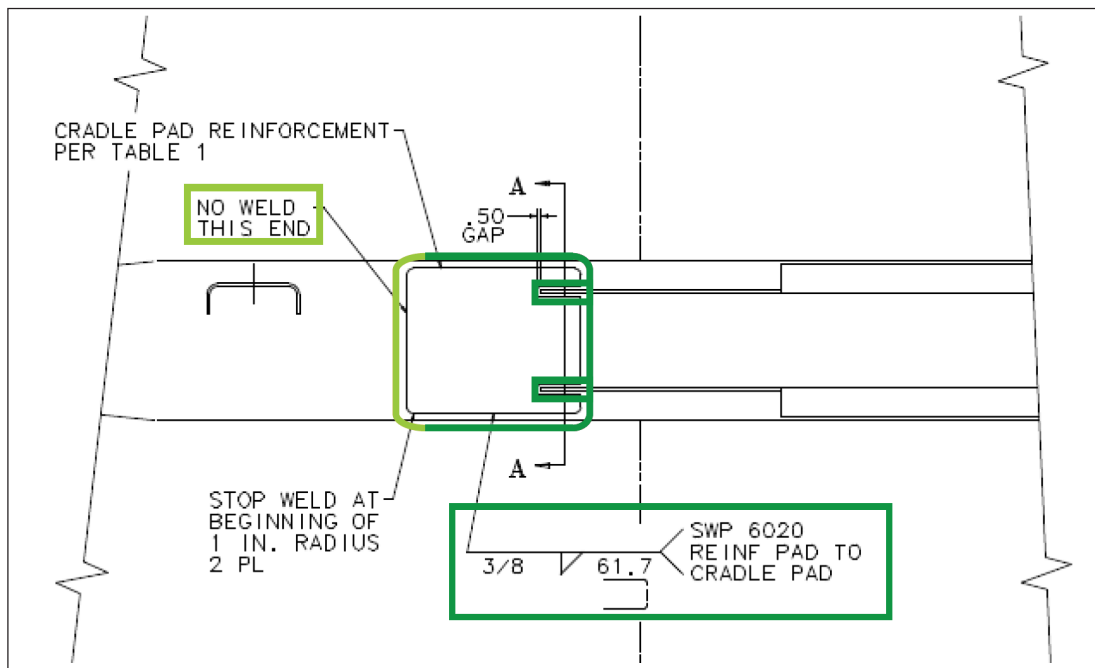
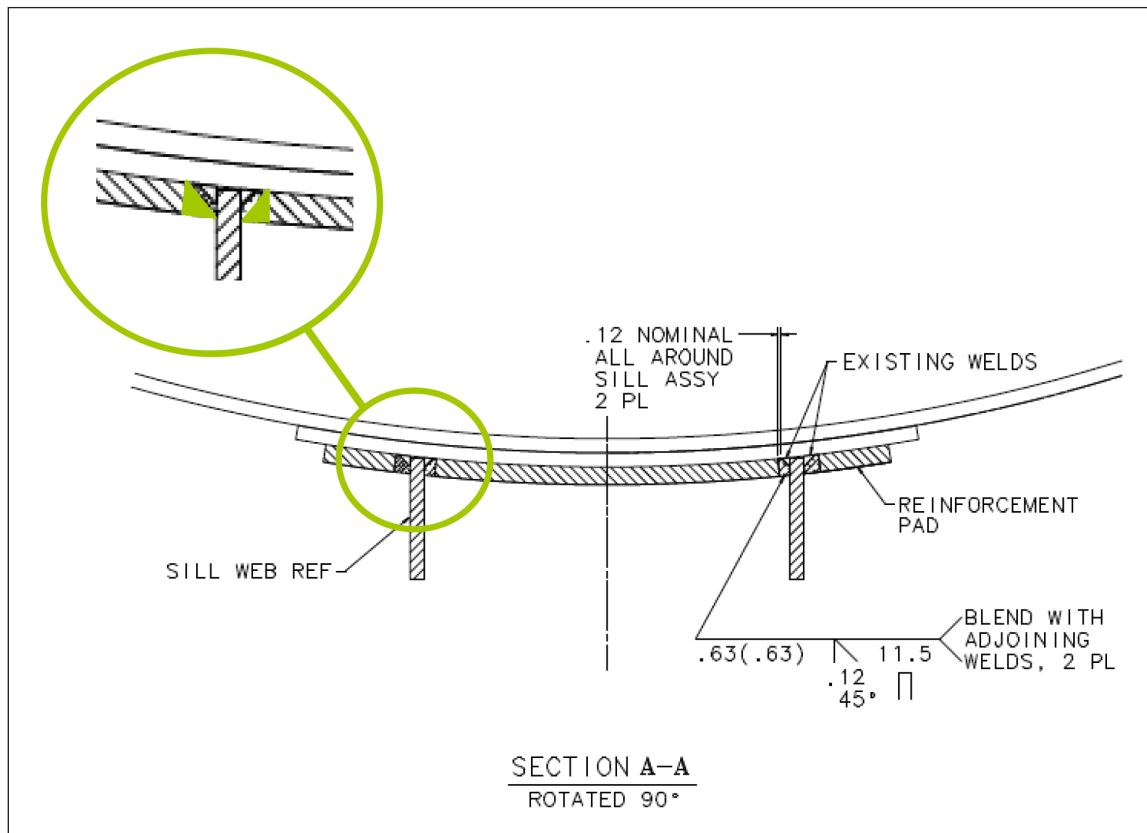


FIGURE 2



4. Weld the cradle pad reinforcement to the draft sill and cradle pad per Figure 2, using an E-7018 electrode or equivalent. All Welding is to be in accordance with AWS D15.1, and the AAR Manuals of Standards and Recommended Practices Appendix W.

DO NOT WELD THE INBOARD TRANSVERSE END OF THE REINFORCING PAD.

5. Dye penetrant inspect the welds joining the cradle pad reinforcement to the cradle pad and draft sill. Repair any defects and reinspect.
6. Report the application of the cradle pad reinforcement on a R1 or R2 form, whichever is appropriate to the railcar's situation.
7. Change the UMLER designation from ARI300 to ARI301.
8. Add a supplemental badge plate reflecting the new underframe designation.

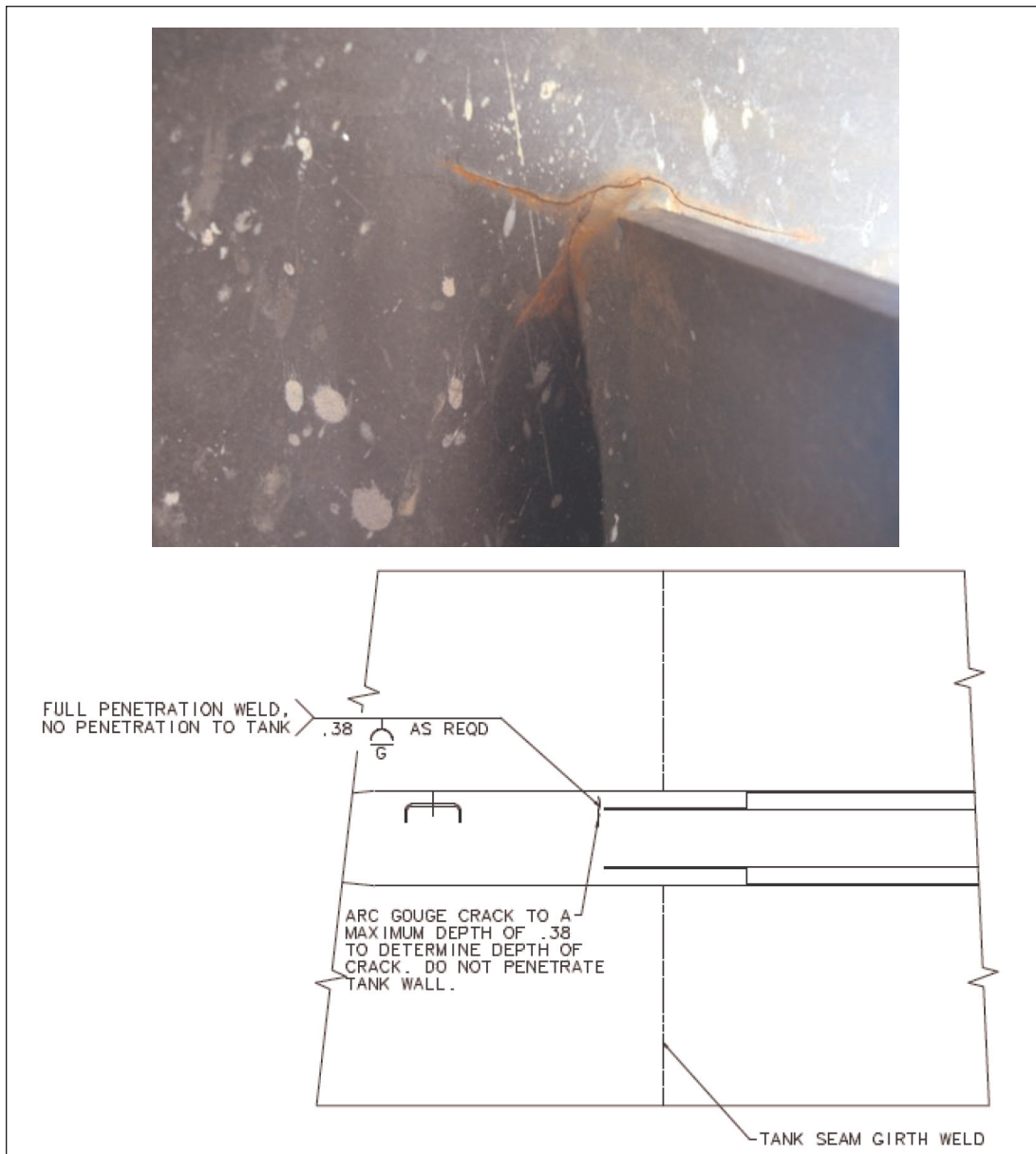
Modification 2: Repair of cracks found in the cradle pad.

Arc gouge the crack in the cradle pad to determine if it extends through the full thickness of the cradle pad. To prevent damage to the tank shell do not gouge to a depth more than 3/8 inches. Visually inspect to determine if the crack extends through the cradle pad. Cracks not extending through the cradle pad are to be repaired per section A. Cracks extending through the cradle pad are to be repaired per section B.

A. Cracks not extending through the cradle pad.

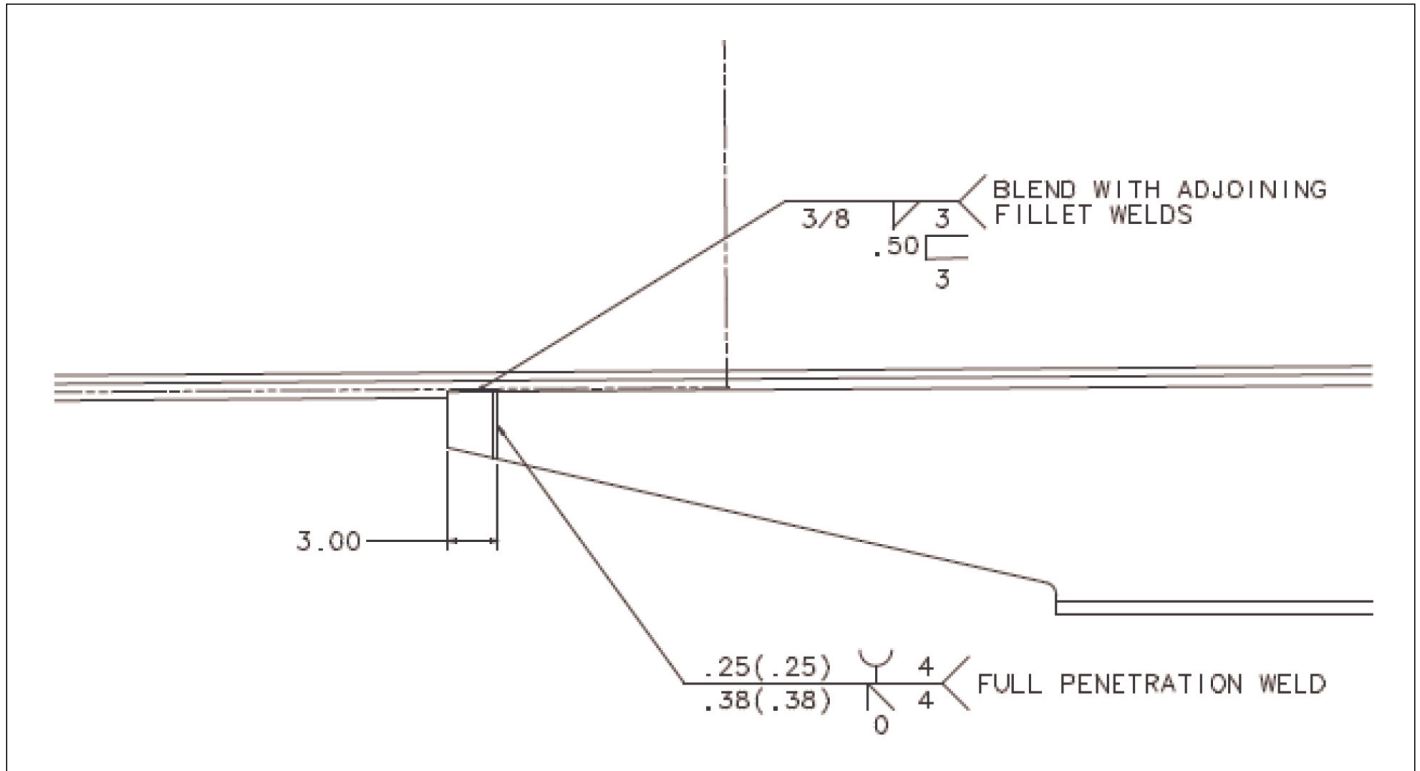
- i. Dye Penetrant inspect the full length of the crack removal area to ensure the crack has been completely removed.
- ii. Weld repair the crack by groove welding, ensuring that there is no penetration to the tank shell (Figure 3.)
- iii. Welding is to be performed using an E-7018 electrode or equivalent. All Welding is to be in accordance with AWS D15.1, and the AAR Manuals of Standards and Recommended Practices Appendix W.
- iv. Grind the weld flush with the cradle pad surface.

FIGURE 3



- v. Apply a 3 inch x 4 inch x ½ inch ASTM A-572 Gr. 50 draft sill web extension to each side of the inboard end of the sill webs per Figure 4.
- vi. Apply the cradle pad reinforcement per Modification 1 of this Inspection Bulletin.

FIGURE 4



B. Cracks extending through the cradle pad.

- i. Arc gouge or flame cut, to remove 18 inches of the stub sill vertical side webs, per Figure 5. Save for reapplication.
- ii. Cut back the longitudinal attachment welds from the draft sill webs to the cradle pad approximately 6" longer than section of draft sill side webs to be removed.
- iii. Remove the damaged section of cradle pad by arc gouge, being careful not to damage the tank (Figure 5.)

The cradle pad should be removed with the outboard transverse weld seam located 10" outboard of the former draft sill termination location; this location may need to be extended outboard to ensure the cut location is at least 4" from the tank girth weld.

The inboard cut line is to be 6 inches inboard of the former draft sill termination location.

FIGURE 5

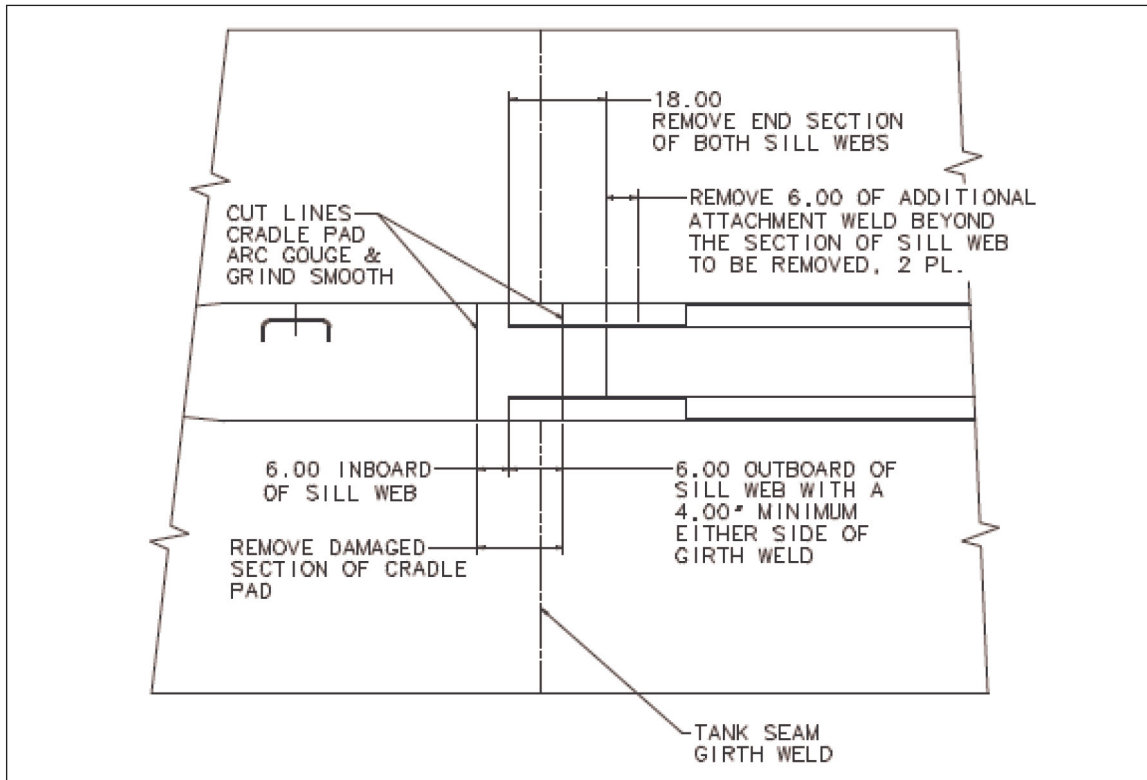
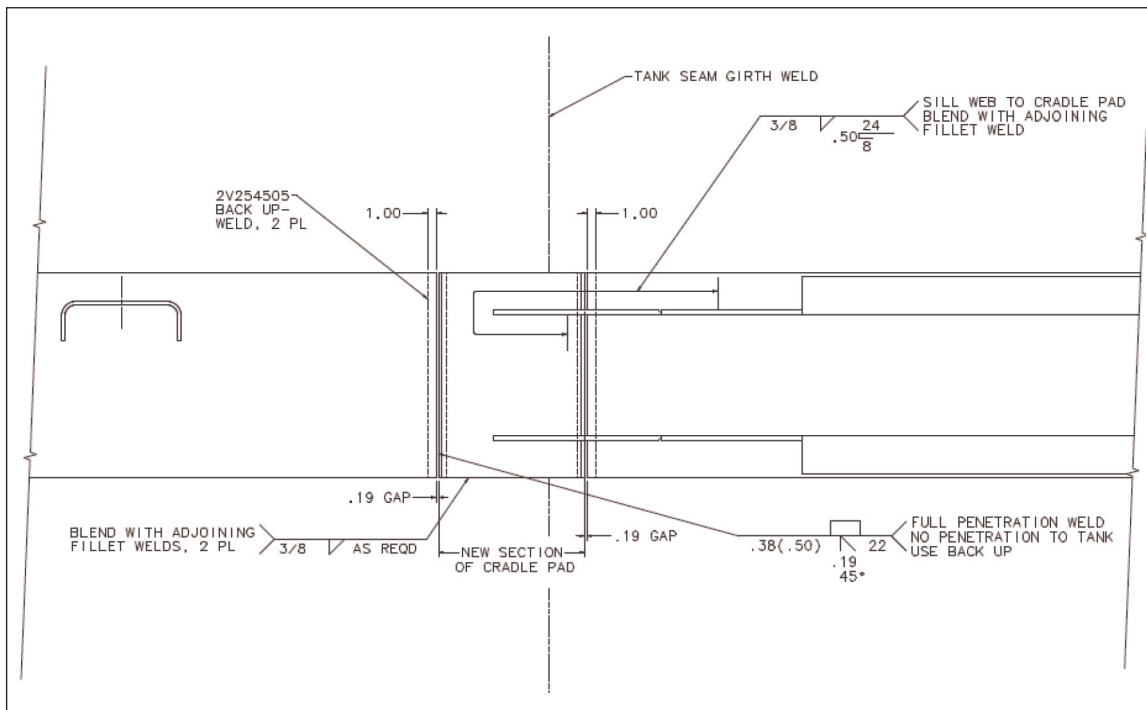
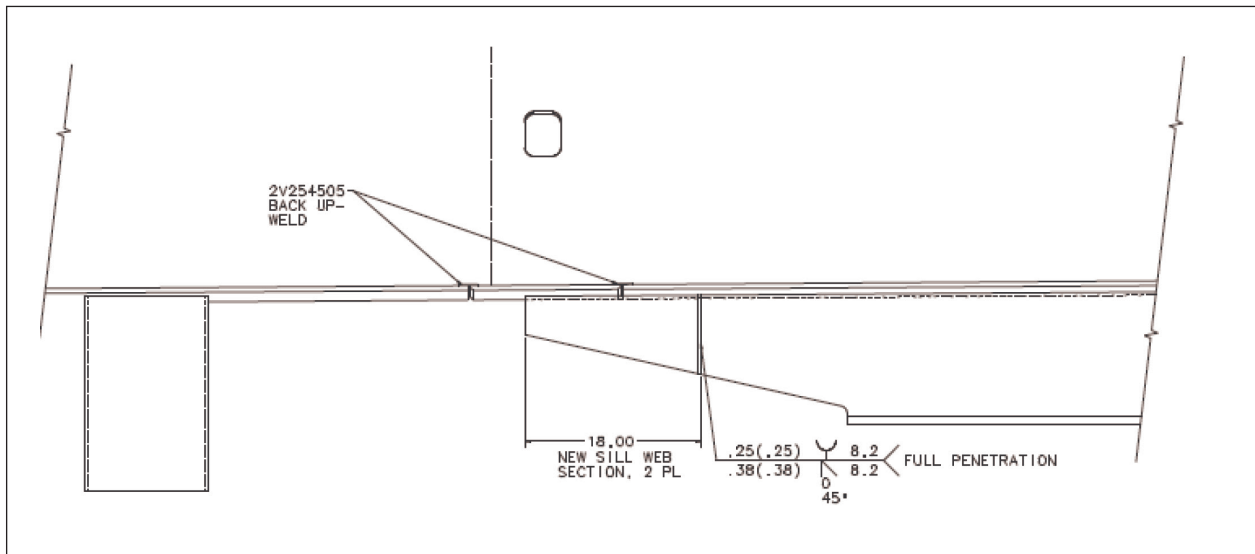


FIGURE 6



- iv. Remove the longitudinal fillet weld attaching the cradle pad to the tank for 6 inches past the transverse cut lines, at four locations.
- v. Grind tank shell and remaining cradle pad smooth where welds were removed.
- vi. Inspect the tank shell for cracks and repair per car owners instructions.
- vii. Apply 1/8" metal weld backing under the full width of the cradle pad transverse splice, part number 2V254505; trim to the width of the cradle pad as required.
- viii. Fabricate a cradle pad splice in the same thickness as the removed cradle pad; material is ASTM A572 Gr. 50 modified to 70,000 psi tensile and rolled to match tank diameter. Apply weld prep on the transverse edges of the cradle pad splice as shown in the weld in Figure 6.
- ix. Groove weld the cradle pad splice section into place per Figure 6. The transverse welds are to be full penetration groove welds using the backing applied in 2.B.vi above to prevent penetration to the tank. Fillet weld the longitudinal edges of the cradle pad to the tank with 3/8 inch fillet welds including the 6 inch tie in created at the original cradle pad on the inboard and outboard ends of the cradle pad splice.
- x. Welding is to be performed using an E-7018 electrode or equivalent. All Welding is to be in accordance with AWS D15.1, and the AAR Manuals of Standards and Recommended Practices Appendix W.
- xi. Local post weld stress relieve welds to tank shell.
- xii. Inspect the repair welds after stress relief with Dye Penetrant.
- xiii. Re-apply the draft sill side web sections removed in part 2.B.i. 100% penetration butt weld the vertical weld joint per Figure 7.

FIGURE 7



- xiv. Re-apply the 3/8 inch longitudinal fillet weld attaching the draft sill side web to the cradle pad. Ensure the weld properly ties-in to existing attachment weld.
- xv. Apply the cradle pad reinforcement per Modification 1 of this procedure.

Reference 7-Y-8638-00