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Betts	**ENGINEERING BULLETIN**	**EB-08-25** (Form: DEF-003A-1)
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	How to Verify Integrity of Welded Clips on Betts Clamp Ring Style Manholes	Page: **1 of 2**

Description of Bulletin: This bulletin outlines critical instructions for verifying the integrity of welded clips on Betts clamp ring style manholes. Details are also provided for removal and replacement of clamp rings that do not meet the integrity test.

Bulletin Instructions:
Prior to performing any work on cargo tank, review all relevant safety precautions shown in Appendix 1.

1. How to inspect a manhole clamp ring that has already been installed:
    a. Ensure the clamp ring was installed according to Engineering Bulletin EB-01-08.
    b. Use a torque wrench to apply 18 ft-lbs of torque on the clamping bolt.
    c. Clamp rings that are installed and torqued properly will display clips that are parallel or nearly parallel, with a visible gap between the ends, as illustrated in Figure 1. Rings and clips showing these characteristics can be considered acceptable.
    d. Clamp rings with broken or compromised welds will show visible signs of failure—such as significant distortion, bending, detachment from the ring, or contact between clips—as illustrated in Figures 2 through 5. Any clamp ring exhibiting these conditions must be immediately removed from service and replaced.

Fig. 1 - Acceptable clamp ring clips

Acceptable clips on installed clamp ring are near parallel and show no distortion.

Fig. 2 - Unacceptable clamp ring clips

Unacceptable clip is pulled and twisted and may show distortion on top surface of clip.

Fig. 3 – Unacceptable broken weld on clip as shown from bottom.

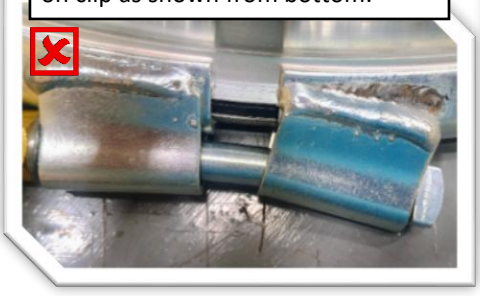

Fig. 4 – Unacceptable cracked weld on clip as shown from bottom.

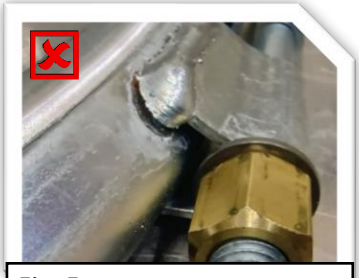

Fig. 5 – Unacceptable broken weld on clip as shown from bottom.

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2. What to do if a clamp ring does not meet integrity inspection or is questionable:
    a. If clamp ring is identified as being unacceptable, remove and quarantine for return to Betts Industries. This can be coordinated through Betts Customer Service.
    b. Install new clamp ring following EB-01-08 ensuring final clamping bolt torque to a range of 15 to 18 ft-lbs.
    c. Inspect the newly installed clamp ring to the criteria in Section 1.

For any questions, contact Betts Customer Service or Design Engineering at 814-723-1250.

Appendix 1:

Several known hazards are listed below but any additional hazards must be identified and addressed by the tank manufacturer or owner/operator.

⚠ WARNING		**Fall Hazard** – Climbing on top of a cargo tank is dangerous and should be avoided without proper safety equipment. Falling can result in death or serious injury.
⚠ WARNING		**Pressure Hazard** – Cargo tank may contain residual pressure. Failure to safely relieve could result in sudden loss of pressure causing death or serious injury.
⚠ WARNING		**Flammable Product** – Cargo tank may contain product that could present a risk of fire, explosion, asphyxiation or other hazards resulting in death or serious injury.
⚠ CAUTION		**Pinch Point** – Clamp ring may be challenging to install. Keep fingers away from the interior diameter of the clamp ring.