ALLIED Air Enterprises
A Lennox International Company

PRODUCT INFORMATION BULLETIN

PIB# 320 September 12, 2012

Subject: Oil Furnace Heat Exchanger Welds
Brand Name: Armstrong Air, AirEase, Ducane & Concord

Allied from time to time receives inquiries regarding the presence of poor quality heat exchanger welds on oil furnaces. Allied has conducted a thorough inspection of units and our welding practices. The inspections confirmed our assembly and welding processes produce a high quality and leak free oil heat exchanger.

Figure 1 shows two views of a suspected defect on an external weld on a heat exchanger. While the weld appears to be incomplete and what appears to have open area, testing confirms that this heat exchanger meets all performance and operational criteria.

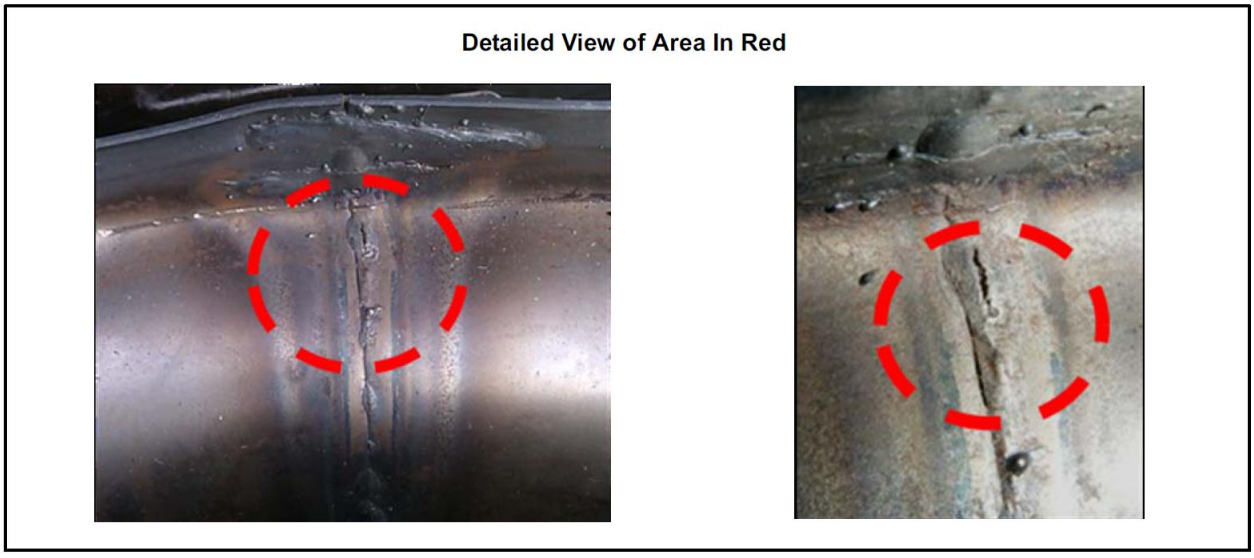
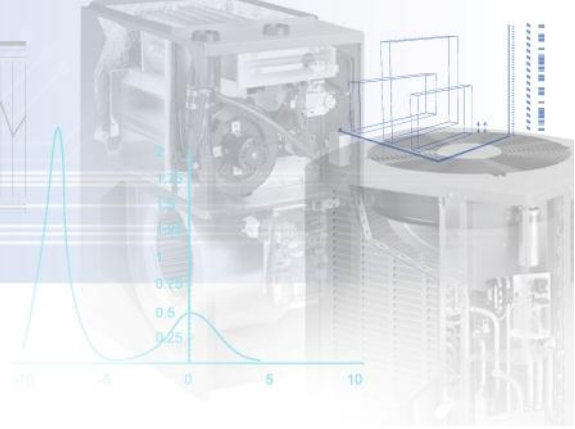


FIGURE 1

The following steps are conducted during the assembly of an Oil furnace heat exchanger:

1. The inside of each heat exchanger joint is manually welded.
2. In selected critical locations such as the area shown in figure 1, an additional bead of weld is added to the outside surface of the joint
3. The heat exchanger is subjected to additional forming to achieve its final shape.



4. 100% of heat exchangers are pressurized and leak checked.
5. 100% of the oil furnaces manufactured are run tested.

The outside or external welds are added to create reinforcement of the weld joint during the additional forming process. They are not intended to be continuous, nor are they necessary to seal the joint between sections of the heat exchanger. The seal between sections is, in fact, created by the continuous weld bead that is located on the inside of the heat exchanger.

During this forming operation, the loads are largely transferred to the outside weldment. This is where the greatest curvature is created, and therefore the greatest tension on each joint occurs. These reinforcing welds prevent the transfer of loading to the inside weldment, which is critical to sealing the heat exchanger. Occasionally, a small fracture will occur in an outside weld; however, the outside fracture prevents damage to the inside weldment.

While the appearances of the external welds on the heat exchanger are not attractive and, in some areas, may be cracked, the inner weld provides a tight seal that will prevent the escape of any combustion gases or ingress of external air into the heat exchanger under negative pressure conditions. This is supported by the production leak test of the unit.

If you have any questions please call, Tech Services at 800-515-3501.

Sincerely,

ALLIED AIR ENTERPRISES, LLC.

Joe Leonard

Joe Leonard
Manager, Technical Services