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Title: Addendum to the IICL General Guide for Refrigerated Container Inspection & Repair, 4th Ed

Reference: Guidelines to Gooseneck Tunnel components repairs.

General Repair guidelines to:

- **Gooseneck tunnel rails**
- **Gooseneck tunnel plate**
- **Tunnel bolster**
- **Floor stringers & bows connected to the gooseneck tunnel**

Gooseneck Tunnel Components

When repairing, it is important to preserve the dimensions of the gooseneck tunnel so that it will mate with the chassis properly.

Gooseneck Tunnel Longitudinal Rail

If the gooseneck tunnel rail is deflected in such a manner as to impede loading the unit to a gooseneck chassis or the damage extends beyond the ISO tolerance by 10 mm (3/8 in) or more, it may be repaired by straightening, welding or straightening *and* welding, inserting or replacement. Sections are **not** permitted in box- or other closed-section rails.

Gooseneck Tunnel Rail Straightening

Whenever possible, straighten any dents or other distortions to the component by hydraulic or mechanical means without heat. Applying heat to straighten tunnel rails will adversely affect the foam therefore it is not recommended. Whatever method used must not adversely affect the structural integrity of the component nor restrict its safe operation. The completed repair must be cosmetically acceptable. If the paint film of any component is damaged as a result of the repair, clean and coat the component to restore its original coating system.

8.6.1.2 Welding or Straightening and Welding

Fractures, cracks, cuts or tears in a component or a weld joining components can, in many cases, be repaired by welding or a combination of straightening and welding. Straighten the damaged area, if necessary.



The following limitations apply:

- The maximum length of any crack, fracture, cut or tear that may be welded is 200 mm (8 in), and the maximum width of separation is 5 mm (3/16 in).
- A crack, fracture, cut or tear may **not** be welded if it penetrates more than 50% of the height of a gooseneck tunnel rail. If the gap between the damaged edges is too great to meet the acceptable separation criterion, or if a crack is either too long or too wide as indicated above, even after straightening, then the damaged area must be removed and fitted with an insert otherwise replace the component, as appropriate. Make sure that the foam is not compromised otherwise repair the foam.

If welding up a crack, drill stop holes at each end of the crack to prevent it from propagating. Weld edges together using the correct welding material for the parent metal being joined; if the parent metal is unknown, use welding material with kg/mm² (65,000 psi).

Gooseneck Tunnel Rail Inserting

To install an insert in a gooseneck tunnel rail, determine the length of the original component to be removed. Mark where the cuts are to be made. Adjacent subfloor areas will have to be opened for access and foam removal. When installing an *insert*, ensure that the clearance between surfaces is no more than 2 mm (5/64 in), and that the insert is flush with the adjoining area.

NOTE: To ensure full weld penetration at the joint, bevel adjoining surfaces to a 30° angle from the vertical to create a minimum inclusive angle of 60° around the entire perimeter of the insert seam.

Gooseneck tunnel rail inserts and sections are subject to the following limitations:

- Sections are **not** permitted in box- or other closed-section rails
- Must be fitted flush with the original rail.
- Must not terminate on any formed edge.
- It must be at least 150 mm (6 in) in length.
- If an insert or section would end within 150 mm (6 in) of another vertical rail weld, the repair must be extended to that weld. This also means that if the repair would start or *end* within 150 mm (6 in) of the tunnel bolster or the front sill, the repair should be extended to the bolster or sill.

Special considerations are as follows:

- Cutting out the damaged area: When installing an insert or section in the longitudinal rail, it is necessary to cut the weld attaching the rail, tunnel plate, tunnel stringers and bows, bolster rail and front bottom rail.
- Stiffening plates and back-up plates: If any stiffening gussets are removed from the damaged area, refit or replace these gussets in the rail profile before fitting



insert or section. NOTE: A back-up plate may be welded on the inside edge of the original rail to allow the insert to be firmly positioned during welding.

- All affected areas including stringers and bows, that were worked on to enable the proper repair must be restored to their original condition and properly coated.
- Any removed tunnel stringers/bows must be restored or replaced
- To ensure the structural strength (connection strength of the foaming layer), additional stringers/bows should be added as necessary.

Gooseneck Tunnel Plate and Bolster

Damage to a gooseneck tunnel plate or bolster can be repaired by straightening, welding or welding *and* straightening, installing an insert or a *transverse* full profile section (tunnel *plate* only), or by replacement. *Longitudinal* full-length tunnel plate sections are **not** acceptable

Gooseneck Tunnel Plate or Bolster

Straightening, Welding or Straightening *and* Welding,, Inserting or sectioning.

Follow the same criteria and limitations outlined above.

Gooseneck Tunnel Component and Assembly Replacement

If tunnel components cannot be repaired economically or practically by inserting (or sectioning, if permitted), replace components or the entire assembly.

Detach or free-up any adjoining components. Shield any nearby components to protect against burning damage. Using an oxygen-acetylene torch or disc cutter, cut out the damaged component. Take care not to damage any adjoining components. Check ISO dimensions to ensure that the minimum tunnel opening and prescribed length, width and height are maintained (see ISO Dimensions and Tolerances) figure below.

Components	IICL + ISO damage limits
Gooseneck tunnel	LENGTH L: Minimum 3140 mm (123-7/8 in); Maximum 3510 mm (138-1/4 in)
	WIDTH of tunnel opening X: Minimum 1019 mm (40-1/8 in); Maximum 1042 mm (41 in)
	HEIGHT of tunnel opening B: Minimum 107 mm (4-1/4 in); Maximum 130 mm (5-1/8 in)

End.



