INSTITUTE OF INTERNATIONAL CONTAINER LESSORS

June 24, 2026

IICL Technical Bulletin - FTB-016

Title: Inspection & Repair limitations on understructure components

Reference: Amendment to the IICL Guide for Flatrack Container Inspection and; addendum to the IICL Guide for Flatrack Container Repair.

Purpose: This Technical bulletin (FTB-016) aims to update the IICL manuals referenced above and amend IICL current manual to clarify important safety aspects of inspection and repairs on understructure components.

Amendment to the IICL Inspection guide:
Page 53:
Delete: Crossmember and forklift pocket top flanges, Any deformation such as bend, bow, dents, etc. If more than 15 mm (9/16 in) deep, REPAIR.

Add: Crossmember and forklift pocket top flanges and web- Any vertical deformation such as bend, bow, dents, etc. If more than 15 mm (9/16 in) deep, REPAIR.

**** IICL Revised Table – 24 June 2026**

July 2003

TABLE 3.5 UNDERSTRUCTURE (CROSSMEMBERS FORKLIFT POCKETS, GOOSENECK TUNNELS AND CROSS BRACES)

COMPONENT	CONDITION	ACTION REQUIRED
Crossmembers (cross bearers), forklift pocket and gooseneck components, underframe diagonal (cross) braces, etc.	Holed, cut, torn or cracked; broken component and/or weld	REPAIR **See Photo 3.19**
	Missing or loose parts and fasteners	REPAIR
Crossmember, forklift pocket and gooseneck webs	Any deformation such as bend, bow, dents, etc.	If more than 50 mm (2 in) in any direction, REPAIR **See Photo 3.20**
Crossmember and forklift pocket top flanges and web.	Any vertical deformation such as bent, bow, dents, etc.	If more than 15 mm (9/16 in) deep, REPAIR **
Crossmembers	Any deformation such as bend, bow, dents, etc.	If raises the deck more than 15 mm (9/16 in), REPAIR

(Continued on page 54)

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Criteria for Repair

Addendum to the IICL Repair guide:

Vertical bowing down of understructure components can occur for various reasons, cargo overloading, improper weight distribution, impact damage, etc. Cargo overloading and improper weight distribution are exacerbated during normal container lifting operations and at sea when the structure is submitted to gravitational forces (g-force), typically acceleration and deacceleration. The IICL Guide for Flatrack Container Inspection provides guidance on how to properly load Flatrack containers and distribute the load however, due to a variety of Flatrack designs it is recommended that users consult the owner or manufacturer if in doubt.

TYPICAL FLATRACK POINT LOADING CHARTS.

CONSULT OWNER AND/OR MANUFACTURER FOR CHART FOR SPECIFIC FLATRACK

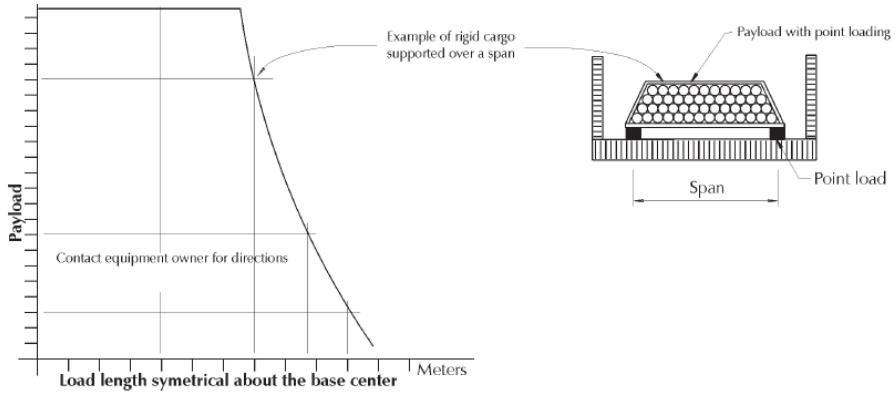


Fig. 2.22/Point loading (rigid cargo) chart: 20-ft flatrack

TYPICAL FLATRACK UNIFORM LOADING CHARTS.

CONSULT OWNER AND/OR MANUFACTURER FOR CHART FOR SPECIFIC FLATRACK

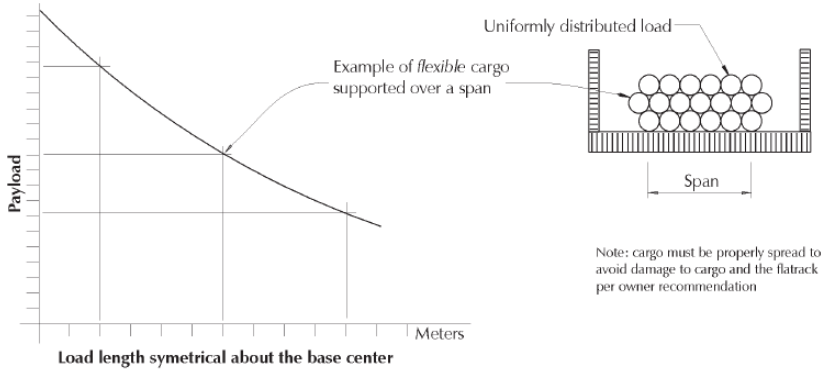


Fig. 2.24/Uniformly distributed loading chart: 20-ft flatrack

Understructure components that are bowed down, typically crossmembers and forklift pocket components, less frequently bottom rails, gooseneck tunnel bolster and rails, have exceeded their material structural yield point when the IICL limits are exceeded. The yield point is the point on a stress-strain curve that indicates the limit of elastic behavior and the beginning of plastic behavior. The material has stretched and entered the plastic behavior where deformations are permanent. Once the material has entered the plastic behavior it is no longer possible to reverse the process or "shrink" the deformation through straightening using heat or not, vertical cutting notches or inserts. The material strength and ability to withstand future loads is then compromised.

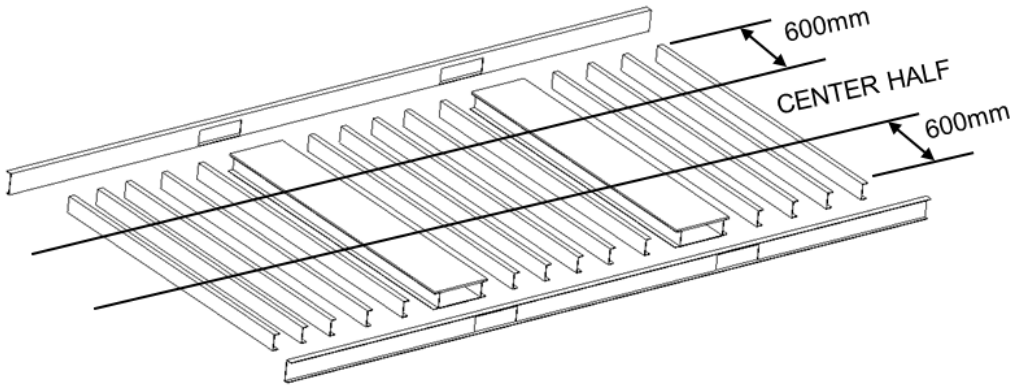
The IICL repair recommendation is that bowed down webs of understructure components, exceeding IICL tolerances, shall be repaired through:

- *Full Replacement.*

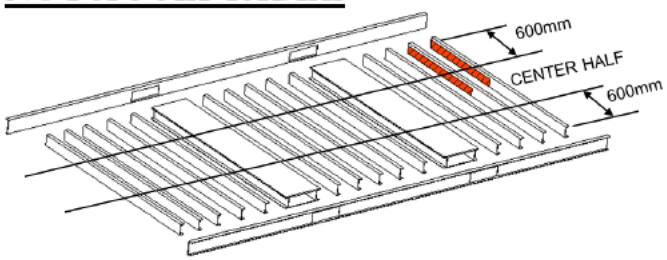
Note: Cutting relief notches for straightening of understructure components or straightening bowed down understructure whether using heat or not, straightening and/or inserting bowed down components are considered non-conforming repair methods.

A proper repair should restore the profile and integrity of the damaged component and surrounding areas as close as possible to the original profile.

Weld repairs to members (crossmember / forklift pocket side wall) are not allowed within the center one half of two adjacent members. The center one half of a member is defined as that part of the member that is greater than 600mm from the nearest bottom side rail. If two adjacent members have weld repairs within the center halves, either one of the members must either be replaced or the inserts must be lengthened such that they do not terminate within the center half of the member.

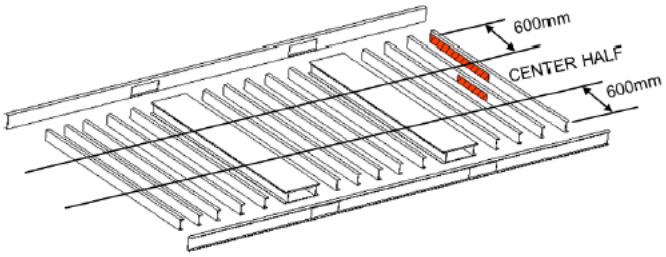


NOT ACCEPTABLE



NOT ACCEPTABLE

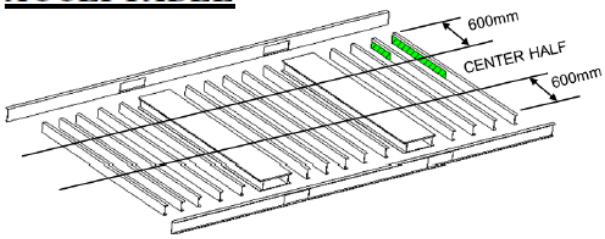
The insert on the right side is acceptable because it is the 1st crossmember with an insert. But the 2nd insert on the left is not acceptable because the weld seam terminates in the center half of the container.



NOT ACCEPTABLE

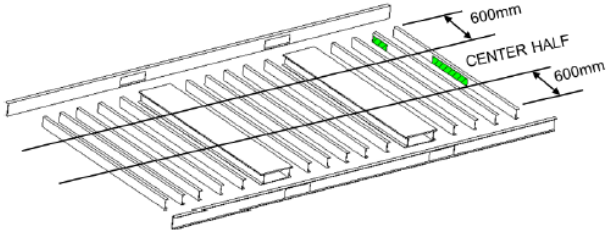
The insert on the right side is acceptable because it is the 1st crossmember with an insert. The 2nd insert on the left is not acceptable because the weld seams terminate in the center half of the container.

ACCEPTABLE



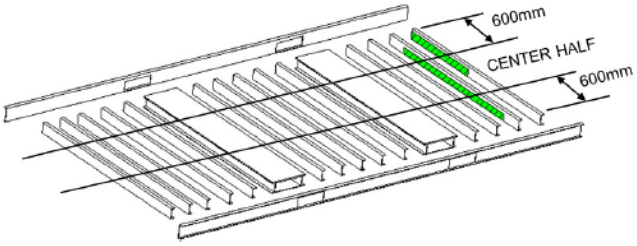
ACCEPTABLE

The insert on the right side is acceptable because it is the 1st crossmember with an insert. The 2nd insert on the left is also acceptable because the weld seams terminate within 600mm from the bottom side rail.



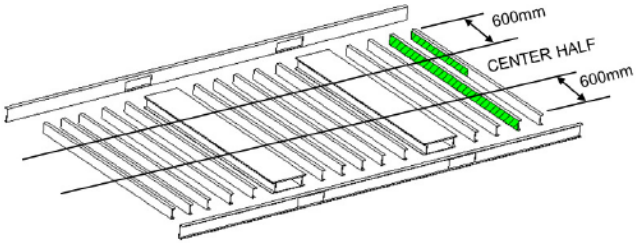
ACCEPTABLE

The insert on the right side is acceptable because it is the 1st crossmember with an insert. The 2nd insert on the left is also acceptable because the weld seams terminate within 600mm from the bottom side rail.



ACCEPTABLE

The insert on the right side is acceptable because it is the 1st crossmember with an insert. The 2nd insert on the left is also acceptable because the weld seams terminate within 600mm from the bottom side rails.

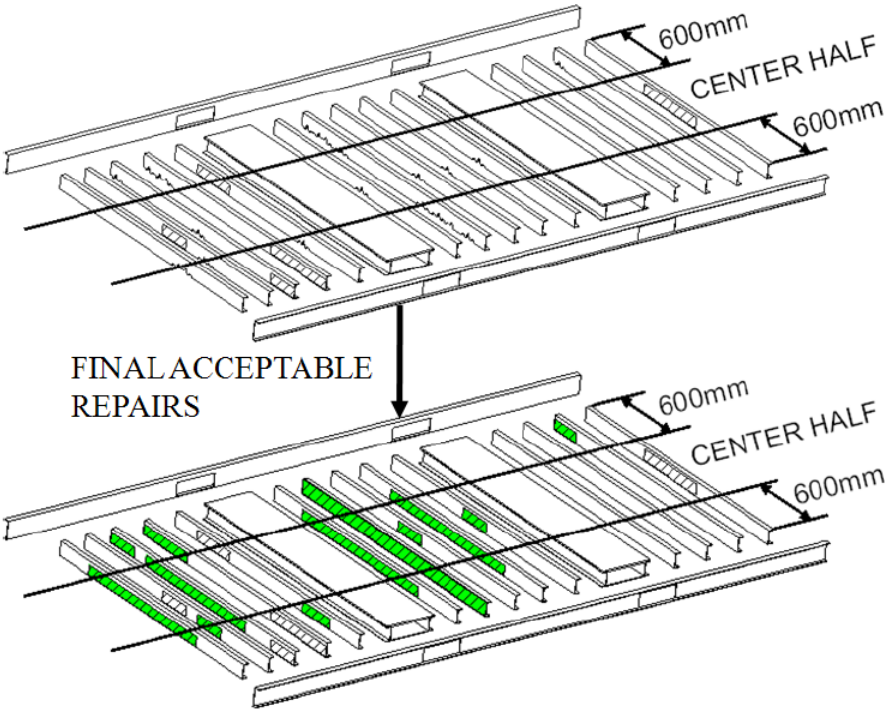


ACCEPTABLE

The insert on the right side is acceptable because it is the 1st crossmember with an insert. The 2nd cross member is also acceptable because it is actually a full replacement.

FULL CONTAINER EXAMPLE

AN EXAMPLE of new damage locations and pre-existing inserts.



Acceptable inserts based on new damage locations and pre-existing inserts, as shown above. It is important to note that this is one EXAMPLE of a possible combination of damage and acceptable repair inserts. There may be many different possibilities. This drawing should only be used as a guide to determine the safest and most economical type of repair on a case-by-case basis.

In addition to the above limitation requirements and illustrations for weld repairs to ADJACENT members, crossmember and forklift pocket inserting to also continue to follow other insert repair instructions per IICL Guide for Flatrack Container Repair.

For questions about this technical bulletin, you may contact technical@iicl.org