



## IICL Container Inspection & Repair Manual

### Authoritative Training & Reference Guide

Developed from the perspective of a senior container surveyor and inspector, aligned with IICL standards

#### 1. Introduction

This manual provides a comprehensive, practical, and standardized reference for container inspection, damage evaluation, repair criteria, terminology, and acceptable limits, fully aligned with IICL (Institute of International Container Lessors) Technical Bulletins and Repair Manuals.

It is designed for:

- Container inspectors and surveyors
- Depot and repair supervisors
- Shipping lines and lessors
- Cargo interests and logistics professionals
- Training and certification programs

#### 2. Key International Standards & References

- IICL TB (Technical Bulletins)
- IICL Repair Manual (Latest Edition)
- ISO 668 – Series 1 Freight Containers
- ISO 6346 – Container Identification & Codes
- CSC – International Convention for Safe Containers
- CTU Code (Cargo Transport Units)

**Note: Whenever differences exist, IICL standards prevail for leasing, interchange, and repair decision-making.**

### 3. Container Terminology & Common Acronyms (IICL Based)

#### 3.1 Structural Components

- Top Rail / Bottom Rail – Upper and lower longitudinal structural members
- Corner Post – Vertical load-bearing columns
- Corner Casting – ISO standardized lifting and securing points
- Cross Member – Understructure floor support
- Header / Sill – Door frame upper and lower members

#### 3.2 Panels & Flooring

- Side Panel / End Panel – Corrugated steel or aluminum walls
- Roof Panel – Top covering structure
- Marine Plywood Floor – Hardwood laminated flooring
- Bamboo Composite Floor – Eco-certified flooring alternative

#### 3.3 Door Components

- Door Leaf – Left-hand (LH) and Right-hand (RH) door
- Locking Bar – Vertical steel rods
- Cam / Keeper – Locking mechanism components
- Gasket – Rubber sealing system



### 3.4 Common Acronyms

- IICL – Institute of International Container Lessors
- CSC – Convention for Safe Containers
- ACEP – Approved Continuous Examination Program
- DPP – Damaged Beyond Permissible Limits
- WWT – Wind & Watertight
- OOG – Out of Gauge
- PTI – Pre-Trip Inspection (Reefer)

## 4. Container Types & Applications

### 4.1 Dry Cargo Containers (DC / GP)

- 20' GP (20DC) – General cargo, heavy commodities
- 40' GP (40DC) – General cargo
- 40' HC (40HC) – High cube, increased internal volume
- 45' HC – Extended length, pallet-optimized

#### Typical Cargo:

- Palletized goods
- Machinery
- Bagged cargo
- Consumer products
- Flexitanks
- Tyres
- Wood

### 4.2 Food Grade Containers

#### Food-grade containers must:

- Be odor-free
- Have clean, stain-free floors
- Be free from rust scale, flaking paint, and contamination
- Maintain WWT integrity

#### Typical Cargo:

- Coffee
- Cocoa
- Rice
- Sugar
- Packaged food

IICL does not allow temporary repairs or cosmetic damage in food-grade units.

### 4.3 Refrigerated Containers (Reefers)

- Temperature-controlled units
- Equipped with refrigeration machinery
- Key Inspection Points:
  - Insulation integrity
  - T-floor condition
  - Airflow channels
  - Door gasket sealing
  - PTI compliance

### 4.4 Special Containers

- Open Top (OT) – Overheight cargo
- Flat Rack (FR) – Heavy machinery
- Platform (PL) – Project cargo
- Tank Containers – Liquids and chemicals



## 5. Container Sizes & ISO Dimensions (Overview)

The following table outlines the external dimensions for the most used container types. These specifications are essential for determining cargo compatibility, planning logistics, and ensuring compliance with ISO standards.

Type	External Length	External Width	External Height
20'	6,058 mm	2,438 mm	2,591 mm
GP			
40'	12,192 mm	2,438 mm	2,591 mm
GP			
40'	12,192 mm	2,438 mm	2,896 mm
HC			
45'	13,716 mm	2,438 mm	2,896 mm
HC			

## 6. Inspection Principles (IICL Standard)

### 6.1 Inspection Categories

- On-Hire / Off-Hire Inspection
- In-Service Inspection
- Post-Repair Inspection

### 6.2 Inspection Conditions

- Clean container
- Adequate lighting
- Empty unit
- Safe access

## 7. Damage Classification (IICL)

### **7.1 Acceptable Damage (No Repair Required)**

- Minor dents within IICL depth limits
- Superficial scratches without corrosion
- Cosmetic waviness not affecting structure

### **7.2 Repairable Damage**

- Dents exceeding limits but structurally intact
- Localized corrosion
- Deformed components within repair scope

### **7.3 Damage Beyond Permissible Limits (DPP)**

- Structural cracks
- Broken welds on primary structure
- Excessive corrosion reducing thickness
- Distorted corner castings

## 8. IICL Acceptable Damage Limits (Selected Examples)

### 8.1 Side & End Panels

- Dent depth  $\leq$  10 mm (acceptable)
- Creases allowed only if no sharp edges
- No perforation permitted



## **8.2 Roof Panels**

- Dent depth  $\leq$  10 mm
- No sharp deformation
- No water ingress

## **8.3 Floor**

- Broken boards: Not acceptable
- Delamination: Not acceptable
- Contamination (oil/chemical): Not acceptable

## **8.4 Door Gaskets**

- Minor compression marks acceptable
- Cracks, gaps, or missing sections: Not acceptable

## **9. Repair Philosophy (IICL)**

- Repairs must restore original strength and function
- Temporary repairs are not acceptable
- Welding must follow approved procedures
- Replacement parts must be ISO compliant

## **10. Documentation & Reporting**

### **10.1 Inspection Report Must Include**

- Container number (ISO 6346)
- Size & type
- CSC plate validity
- Damage location & description
- Repair recommendation
- Photographic evidence

## **10.2 Damage Coding**

- Component code
- Damage type
- Damage extent
- Repair code

## **11. Safety & Compliance**

- Always follow depot safety rules
- Use PPE during inspection
- **Do not enter unsafe containers**

## **13. Detailed IICL Acceptable Damage Limits**

### **13.1 Side & End Panels (Steel / Aluminum)**

- Damage Type IICL Acceptable Limit Action
- Dent (no crease)  $\leq$  10 mm depth Acceptable
- Dent with crease Not acceptable Repair
- Scratch (no corrosion) Any length Acceptable
- Corrosion  $\leq$  20% thickness loss Repair

### **Perforation    0 tolerance    DPP**

### **13.2 Roof Panel**

<b>Condition</b>	<b>Limit</b>	<b>Action</b>
Dent	$\leq$ 10 mm	Acceptable
Sharp deformation	Not permitted	Repair
Water ingress	Not permitted	DPP



### **13.3 Floor (Marine Plywood / Bamboo)**

Damage	Acceptable	Action
Hairline crack	No	Repair
Broken board	No	Re-place
Delamination	No	Re-place
Oil/Chemical contamination	No	Re-place

### **14. Door System – IICL Criteria**

- Door leaf deformation: Not permitted if sealing affected
- Locking bar bending: Repair required
- Cam wear:  $\leq 25\%$  acceptable
- Gasket damage: Zero tolerance for gaps or cracks

### **15. Food Grade vs Cargo Grade Containers (Certified Standard)**

#### **15.1 Food Grade Requirements**

- Odor free
- No rust scale or flaking paint
- Floor fully sealed
- No temporary repairs
- WWT mandatory

### **15.2 Cargo Grade Allowances**

- Minor cosmetic dents
- Repaired areas allowed
- Industrial floor wear acceptable
- Food Grade units must always meet stricter-than-IICL cosmetic standards.

### **16. Damage & Repair Coding (Depot / Lessor Standard)**

#### **16.1 Damage Type Codes**

- DT – Dent
- CR – Crack
- CO – Corrosion
- HO – Hole
- BR – Broken

#### **16.2 Repair Codes**

- RP – Replace Panel
- WT – Weld Treatment
- CP – Clean & Paint
- RB – Replace Board