



**MAERSK**

**M R I C**

**MAERSK Reefer Inspection Criteria**

**(All Lines)**

**(For use with all Refrigerated Containers (Reefers) in-service)**

**Version 4: 2016**

# **1. INTRODUCTION**

## **1.1 General**

- These criteria are designed for use at all container inspections.
- Items not specifically detailed in the criteria are covered by this general introduction only if they require repair.
- The tolerances and permitted damages listed are not the minimum necessary to meet basic safety requirements but are selected to ensure the container is serviceable while minimizing the need for repair and thereby preserving asset life, security and cargo carrying ability.
- The repair method selected should be the most economical and suit the particular repair location. When parts have to be replaced on a container material of the same, or better, quality has to be used.
- If any doubt whether to repair or not - do not commence repair and seek advice from CENEMR

## **1.2 Acceptable damage**

This is defined as damage that is not to be repaired and includes:

- All flange damages except damage to weld connections.
- Deformation of structural members up to ISO +10 mm on the side face of the corner casting and ISO +5 mm on the end face of the corner casting.
- Previous repairs should not be reworked unless the structural integrity of the container is compromised or it is unsuitable for cargo.

## **1.3 Non-acceptable damage**

This is defined as damage that must be repaired because:

- The International Convention for Safe Containers, 1972, as amended (CSC), is violated and container safety is affected.
- The Customs Convention (TIR) is violated.
- Cracks, deformation or excessive wear in corner castings are present.
- There is a reduction in the internal height dimension by more than 60 mm and/or the internal width dimension by more than 50 mm.
- Door hinge pins are cracked or broken
- The container is unsuitable for cargo.
- Cracks in welds are present.
- Corrosion, not due to paint failure, causing loss of structural integrity is present.
- A condition which causes loss of water tightness or thermal tightness is present.

## 1.4 Wear & tear

This is defined as unavoidable change or deterioration of the condition of the container brought about by routine operational use and includes:

- General paint deterioration.
- Deterioration of door gasket and fittings.
- Deterioration of door fixings arising from deterioration of doors, which is not affecting the water tightness or thermal tightness.
- Floor delamination resulting from routine cargo loading and unloading cycles - refer to table following for allowable delamination.

## 1.5 Manufacturers defects

This is defined as difference to builder's specification with regard to material, workmanship and factory guarantees.

Manufacturing defects or suspected manufacturing defects are to be reported to CENEMR.

## 2. GLOSSARY OF TERMS

**Bent/Bowed:** sharp deflection in a component, which causes a permanent change in the original geometry of the component over some portion of its length or width.

**Broken:** fractured or shattered into two or more separate pieces.

**Cracked:** having a fracture, which penetrates the entire thickness of material and causes it to split slightly? In addition, if a weld between two different metal components has any separation in it, even if the entire thickness of the weld material is not penetrated, that weld is considered 'cracked'.

**Cut:** separated throughout the entire thickness of material along a sharp edge.

**Delamination:** any foamed area (roof, side, doors or sub-floor) is considered damaged if one of the panels (external or internal) is delaminated (separated from the underlying foam) more than 25 percent of the area of the panel in question.

**Dent:** a localized depression in a panel or structural member made by pressure or an impact or blow that causes a sharp change in the shape of a component over a limited area of the component.

**Holed:** perforated through the entire thickness.

**Torn:** pulled apart by ripping or rending through the entire thickness of the material.

### **3. MAIN STRUCTUAL COMPONENTS**

<b>Components</b>	<b>Damage</b>	<b>Recommended repair methods (in priority sequence)</b>
<b>Rails, headers &amp; sills</b>		
Top side rails	<p>Holed, cut, torn, broken or cracked.</p> <p>Deformation in excess of <u>35</u> mm or ISO + 10 mm.</p> <p>Heavy corrosion causing reduction in metal thickness and strength.</p>	<p>Weld, or insert, or section, or renew</p> <p>Straighten, or Straighten and Weld, or vice versa, or insert, or section, or renew</p> <p>Weld, or insert, or section, or renew</p>
Bottom side rail/web	<p>Holed, cut, torn, broken or cracked.</p> <p>Deformation in excess of 50 mm or ISO + 10mm.</p> <p>Heavy corrosion causing reduction in metal thickness and strength.</p>	<p>Weld, or insert, or section, or renew</p> <p>Straighten, or Straighten and Weld, or vice versa, or insert, or section, or renew</p> <p>Weld, or insert, or section, or renew</p>
Flange	Cracks or tears, which extend into the web radius.	Weld, or insert, or section, or renew
Front, rear header & sills	<p>Holed, cut, torn, broken or cracked.</p> <p>Deformation in excess of 50 mm interference with door closure securing and/or water tightness.</p> <p>Deformation which interferes with fitting of a clip-on Genset.</p> <p>Broken component and/or weld, except flanges.</p>	<p>Weld, or insert, or renew</p> <p>Straighten, or Straighten and Weld, or vice versa, or insert, or renew</p> <p>Straighten, or Straighten and Weld, or vice versa, or insert, or renew</p> <p>Weld, or insert, or renew</p>

### **3. MAIN STRUCTUAL COMPONENTS (Continued)**

<b>Component</b>	<b>Damage</b>	<b>Recommended repair methods (in priority sequence)</b>
<b>Corner Posts</b>		
Corner posts	Holed, cut, torn, broken or cracked.	Weld, or straighten and Weld, or insert, or renew
Front Corner Posts	Dents exceeding 25mm Deformation in excess of 25mm	Straighten or insert or renew
Rear Corner Posts	Dents exceeding 20mm Deformation in excess of 20mm	Straighten or renew Insert on J Bar only
	Bend, bow or deformation, if exceeding outer face of corner casting by +5 mm on end face or +10 mm on side face.	Straighten or renew Insert on J Bar only
	Interference with door operation, securing, water tightness or thermal tightness	Straighten or renew Insert on J Bar only
<b>Corner Castings (Fittings)</b>		
Corner Casting & Welds	Cracked, deformed or broken.	Replace
	Deformation preventing correct twist-lock operation.	Replace
	Aperture width greater than 65 mm	Replace
	Aperture length greater than 127 mm	Replace
	Thickness of the top corner casting top plate 24.5 mm or less	Replace
<b>Understructure &amp; Floor</b>		
Forklift pockets & Gooseneck Tunnel assembly	Lower flange / web holed, cut, torn, broken or cracked in excess of 50 mm or extending into a weld radius.	Weld, or insert, or section, or renew
	Web deformation below line of corner casting. Deformation in excess of <u>35</u> mm but not affecting ISO tunnel dimensions or internal height reduced by more than <u>35</u> mm.	Straighten, or straighten and weld, or insert, or section or renew
	Strap broken, cracked, cut, torn or missing	Weld or straighten or replace

### **3. MAIN STRUCTUAL COMPONENTS (Continued)**

<b>Understructure &amp; Floor (cont'd)</b>		
Cross Members, Tunnel Rails and Tunnel Bolster	<p>Top flange separated from base panel over a max length of 1000 mm .</p> <p>Bowed up by more than <u>35</u> mm or down below line of corner castings.</p> <p>Deformation such as bend, bow, dent etc. in excess of <u>35</u> mm but not affecting tunnel ISO dimensions OR internal height reduced by more than 35 mm</p>	<p>Weld, or straighten &amp; weld, or insert, or renew.</p> <p>Straighten, or insert, or renew.</p> <p>Straighten, or insert, or renew</p>
Base panel incl. Corrugations	<p>Holed - less than 20 mm - more than 20 mm</p> <p>Cut, torn, or cracked - less than 200 mm - more than 200 mm</p> <p>Broken component or weld</p> <p>Missing drains (kazoo)</p> <p>Delamination from insulating foam by more than 25 percent of panel area</p> <p>Deformation such as bend, bow, dent, etc. in excess of 50 mm depth or below line of corner castings.</p>	<p>Apply sealant Weld/glue patch</p> <p>Stop crack Weld/glue patch insert/patch</p> <p>Weld, or renew</p> <p>Replace</p> <p>Remove old foam, clean, apply primer and re-foam.</p> <p>Straighten, or insert, or renew.</p>
Aluminium T-floor	<p>Floor panel holed, cut, torn, or cracked.</p> <p>Broken T-section/weld.</p> <p>T-bar bent or crushed - if at least 4 adjacent T-bars and if more than 150 mm in length and more than 30 mm sideways.</p> <p>T-bar flange protrudes into cargo space.</p> <p>Contamination from previous cargo</p> <p>Delamination of floor panel exceeds 25 percent of total area.</p>	<p>Weld, or insert, or renew section.</p> <p>Weld or replace</p> <p>Repair</p> <p>Straighten and weld</p> <p>Clean/remove</p> <p>Remove old foam, clean surfaces, apply primer, and re-foam</p>

### **3. MAIN STRUCTUAL COMPONENTS (Continued)**

<b>Components</b>	<b>Damage</b>	<b>Recommended repair methods</b>
<b>Floor (continued)</b>		
T-section floor end reinforcement  Lashing bars	Broken, bent upwards or missing.  Blocked drain holes, missing drain plug.  Broken welds. Missing. Bent.	Only to be repaired if operation affected. Clean, replace  Re-weld Renew if needed No action

### **4. OTHER COMPONENTS**

<b>Components</b>	<b>Damage</b>	<b>Recommended repair methods, (in priority sequence)</b>
<b>Doors</b>		
Door assembly incl. hardware and hinges	Holed, cut, torn, broken, cracked component or weld, or deformation affecting security and operation of doors.  Missing/ broken or loose parts incl. gasket which affect door operation or water tightness	Weld, or straighten, or vice versa or insert, or section or renew  Renew or refit
Locking bars	Seized, frozen or stiff.	Free-up / loosen
Hinge pins	Broken, Seized, frozen etc.	Check with "paper test", Replace, Free-up / loosen
Keepers/cams	Cracked or deformed.	Weld or straighten or replace
Handle	Bent or deformed.	Straighten or Replace
J-bars	If interfering with door operation.	Weld or straighten, or straighten and weld, or insert
Door Tie-back Door Hook	Missing, inoperable Missing, bent	Replace Replace, straighten
Door gasket	Holed, cut, torn, cracked, Burned or showing light or water leaks	Minor damage, if light- and watertight, no action. If not, repair or section or replace

#### **4. OTHER COMPONENTS (Continued)**

<b>Components</b>	<b>Damage</b>	<b>Recommended repair methods</b>
<b>Doors (Continued)</b>		
External/internal	Any deformation affecting door operation or water tightness.  Holed, cut, torn, cracked or creased panel.  Exposed foam.  Delamination of panel from foam insulation more than 25 % of panel area.	Straighten, repair or renew  Weld, repair or seal if foam exposed  Repair - patch/section  Remove old foam, apply primer, re-foam
Miscellaneous	Loose, missing, illegible data plates.	Refasten, replace
Follow TIR procedures for securing bolts on locking rod large brackets. Bolt heads to outside, tack weld nuts on inside of door panel.		
<b>Panels</b>		
Exterior/interior panels and interior coving or flashing	Holed, cut, torn, broken or cracked.  Exposed foam.  Deformation which reduces internal width by more than 50 mm.  Any condition causing loss of water tightness or Thermal tightness. Dents exceeding the outer face of the corner Casting by +40 mm.  Delamination exceeding 25 % of the panel area.  Missing or loose fastenings, screws, bolts, rivets	Weld or straighten or vice versa or weld, patch, insert or section.  patch / seal  straighten, repair  repair  To be repaired  remove old foam, clean surface, apply primer ,re-foam  replace, re-secure



#### **4. OTHER COMPONENTS (Continued)**

<b>Components</b>	<b>Damage</b>	<b>Recommended repair methods</b>
<b>Panels (Continued)</b>		
Roof panel	<p>Holed, cut, torn, broken or cracked panel.</p> <p>Broken or punctured component or weld</p> <p>Exposed foam.</p> <p>Any condition causing loss of water tightness or thermal integrity.</p> <p>Deformation in excess of 50 mm which exceeds ISO +10mm or reduces interior height by 30 mm</p> <p>Delamination of panels from foam insulation by more than 25 %.</p>	<p>Weld or straighten or vice versa or weld or patch, or insert or section</p> <p>patch/section</p> <p>repair – patch/section</p> <p>repair</p> <p>repair</p> <p>remove old foam, clean surface, apply primer and re-foam</p>
Corner protection plates & header extension plates	Deformation such as bend, bow, dent, more than 50 mm in any direction.	Straighten or weld or insert or replace.

#### **5. OTHER ITEMS**

<b>Components</b>	<b>Damage</b>	<b>Recommended repair methods, (by priority sequence)</b>
<b>Other items</b>		
ISO Decals / compulsory markings	Missing or illegible	replace
Owners Logo and Brand name (all lines)	Missing, illegible, damaged, defaced	Replace/repair only in conjunction with a repair to the same area.
Hazardous labels	Remaining on panels	Remove (do not paint over)

## **5. OTHER ITEMS (Continued)**

<b>Components</b>	<b>Damage</b>	<b>Recommended repair methods, (by priority sequence)</b>
<b>Other items (Continued)</b>		
Machinery back panel (interior)	Missing screws, rivets, fasteners	Replace
Return air vent	Missing fasteners Cargo residues, rubbish	Replace Remove
Air guide (kick plate)	Bent, bowed, deformed, Missing  Hinges missing, damaged, loose  Alignment with T floor	Straighten to original profile  Replace, repair, refasten  Adjust to ensure alignment
Graffiti, Foreign markings	Any political, religious, sexual or possible offensive markings.	Remove or clean
Surfaces	Glue (sticky).  Odour, infestation, debris, contamination	clean/remove  clean/vent/remove
Foam insulation	Exposed foam (interior or exterior).  Delamination – any panel see separate tables  Waterlogged	patch/seal  repair if delamination exceeds 25 % of the panel area  Replace
Improper repair	Structurally sound, watertight, thermally tight	No action
Cleanliness (interior)	T floor channels  Drain holes and area under air guide (kick plate)	Clean/free of debris/dunnage /cargo residues – suitable for local requirements  Clean/free of debris/dunnage /cargo residues
See Maersk Line Global Cleaning Guidelines for specific details on required container condition and associated cleaning activities.		