

Acceptable Container Condition

ITCO ACC



International Tank Container Organisation

## Contact

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## ITCO ACC Manual

This Acceptable Container Condition Manual (ACC) describes a carefully structured procedure for the inspection of tank containers and in addition provides guidance for the maintenance of tank containers. However, inspection and maintenance depends on the skill of the operator performing the task and the conditions under which the work is performed.

Furthermore, it must also take into account variations in the design or specification of the subject containers. The International Tank Container Organisation and its members and those employed by 'the Organisation' or its members cannot accept any liability for injury to persons or damage to property or any other consequence arising from the use of the procedures and guidelines contained herein.

Issue No.3 January 1<sup>st</sup> 2003

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This Tank Container Inspection Manual has been prepared by the International Tank Container Organisation.

**Its purpose is to establish a basic minimum tank condition throughout the industry and to assist in maintaining the excellent safety record of the tank container in operation worldwide.** It is designed for use where tank containers are transferred from the care and custody of one party to another, such as between owner, operator, lessee, shipper, depot and carrier, and to give clear guidelines to the contractor responsible for repairs. For example, these standards will apply at the 'on-hire' of a leased container and will equally apply at the 'off-hire'.

This manual is not intended to supersede or take preference over special requirements, or specific agreements entered into between contracting parties.

It is the absolute responsibility of the user to ensure that the tank container complies with regulations or material requirements specific to the cargo, to the method of carriage or to the route over which the container is transported.

It is also the user's responsibility to ensure that the container complies with the International Convention for Safe Containers (CSC), the customs conventions on containers and all other applicable conventions, laws, regulations and government requirements.

Entry into tank vessels should be undertaken only after compliance with all of the prerequisites required or recommended by the health and safety authorities having jurisdiction over both the location of the tank container and the tank container itself.

## Confined Space Warning



## Definitions

### Acceptable and Not Acceptable Condition

The condition guide which follows lists the component parts of a tank container and describes what is acceptable and what is not acceptable according to the standards agreed by the ITCO.

### NOT Acceptable Condition

Is damage which affects the safety, structural integrity, cargo-carrying capability, the ISO dimensions of the tank container or where repairs are improper or not in compliance with the applicable regulations:

**THIS TYPE OF DAMAGE MUST BE REPAIRED**

### Acceptable Condition

Is minor damage or fair wear and tear which does not affect any of the above conditions:

**NO REPAIR IS REQUIRED**

## Fair Wear and Tear

'Fair Wear and Tear' is the age-related deterioration of the tank container or any of its component parts while being properly maintained and used for its intended purpose. Any deterioration resulting from improper use, improper maintenance or lack of maintenance is not 'Fair Wear and Tear.'

Replacement of leaking or contaminated seals and gaskets is a normal operating requirement and is not 'Fair Wear and Tear.'

### NOTES:

I Some tank containers may be fitted with equipment which does not conform to the make and specification stated in the text. Where there is doubt as to the suitability of this equipment please refer to the owner.

II Where it is necessary to replace a component, the replacement should be the same or, if not available, of a better quality than it replaces.

III The drawings included in this manual are not applicable to all types of tank containers.

### 1.1 Interior

#### NOT Acceptable Condition

- Previous cargo, contamination or odour.
- Discolouration or transferable stain which can be removed by the manual application of a plastic abrasive pad and/or solvent.
- Corrosion, pitting, grinding or gouges. (See Section 9).
- Missing or improper Cleanliness Certificate.

#### Acceptable Condition

- Abrasion or scratches to finer than 120 grit polish equivalent.

#### NOTE:

When the tank is received into depot for 'off-hire' the depot must be in possession of a valid Cleanliness Certificate stating the proper shipping name and U.N. number of the last cargo carried in the tank.

The Cleanliness Certificate must have the date of inspection later than the last cargo or any internal work or internal cleaning.

For man entry it is the responsibility of the depot supervisor to ensure that the tank is safe to enter. This may require an inspection for gas contamination or low oxygen. (Gas Free Certificate).

Tank containers are accepted for delivery into depot for off-hire only when accompanied by a Cleanliness Certificate. Tank containers without valid documentation must be considered unsafe and should not be inspected. A Cleanliness Certificate issued by an independent surveyor is required for all tanks redelivered for off-hire. (See Appendix A).

### 1.2 Exterior

#### NOT Acceptable Condition

- Previous cargo, contamination or odour.
- Oil, grease deposits.
- Road dirt reducing legibility of tank markings.

#### Acceptable Condition

- Road dirt. (Except as stated above).

#### NOTE:

The valve and manlid spillage trays must be clean and free of cargo spillage. Check areas of overspill for damage to paint and cladding and inspect drain tubes for blockage.



### 1.3 Foreign Markings

#### NOT Acceptable Condition

- Hazard warning labels or cargo labels.
- Non-standard labels or misleading marks.
- Remnants of labels.
- Insecure label holders.

#### Acceptable Condition

- Serviceable non-standard label holders.
- Glue residue.

## 2 → Frame

### 2.1 Corner Posts

#### NOT Acceptable Condition

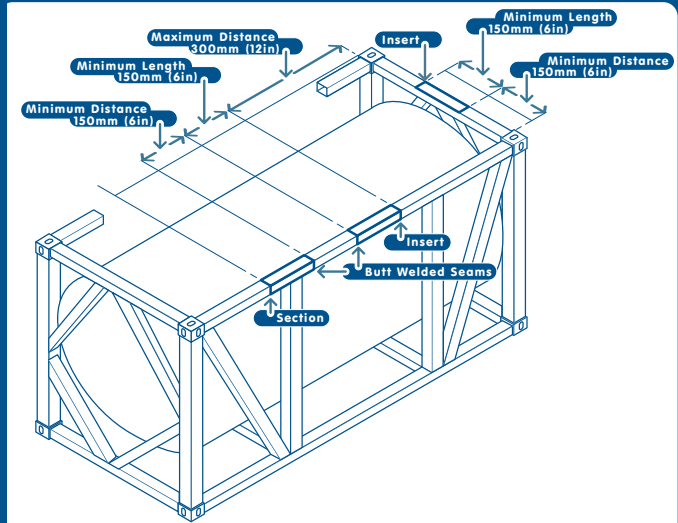
- Cuts or holes or gouges.
- Cracks or splits in welds or parent metal.
- Improper repairs.
- Dents or distortions of a formed or folded edge or face greater than 15 mm (0.6 inch) in depth irrespective of length of deformation.
- Dents greater than 10 mm (0.4 inch) and less than 15 mm (0.6 inch) in depth in excess of two per post.
- Dents greater than 10 mm (0.4 inch) extending over a length greater than 300 mm (12 inch).
- Twisted, bent or overplated beyond the requirements of ISO.
- Corrosion affecting the structural strength of the member.

#### Acceptable Condition

- Dents or distortions not exceeding 15 mm (0.6 inch) in depth except as qualified above.

## Tank Frame Repairs

Figure 1 → Tank Frame



cont..



## NOT Acceptable Conditions

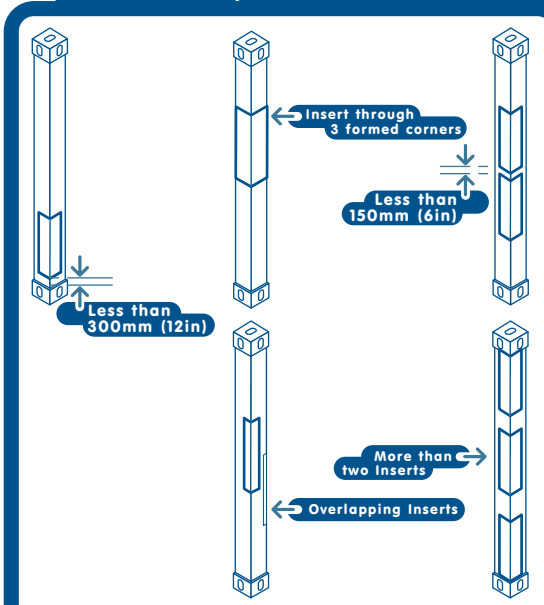


Figure 1 → Tank Frame

## Acceptable Conditions

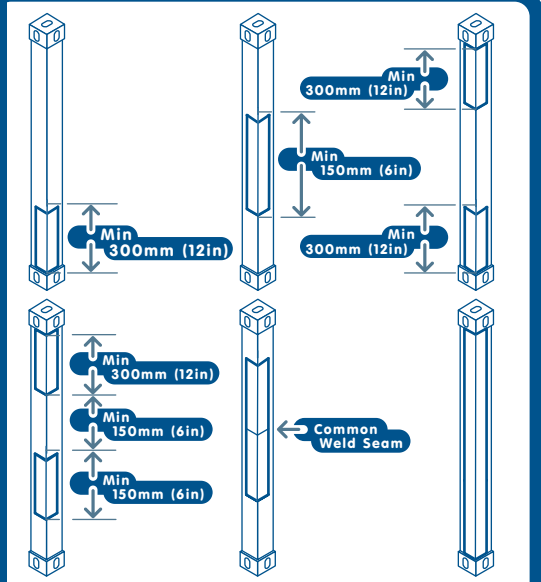


Figure 1 → Tank Frame



## 2.2 Top and Bottom Side and End Rails

### NOT Acceptable Condition

- Cuts, holes, gouges or splits.
- Cracks in welds or parent metal.
- Improper repairs.
- Dents greater than 25 mm (1 inch).
- Out of straight greater than 25 mm (1 inch) per 2 m (79 inch) length.
- Distortion reducing clearance preventing operation of discharge valve.
- Twisted or bent outward beyond the limits of the ISO corner fittings.
- Severe corrosion.
- Loose or missing fasteners.

### Acceptable Condition

- Dents not exceeding 25 mm (1 inch).
- Dents in bottom face of bottom rails which do not affect any formed edge.

## 2.3 Ancillary Bracing

### NOT Acceptable Condition

- Cuts, holes, gouges or splits.
- Cracks in welds or parent metal.
- Improper repairs.
- Dents and distortions greater than 25 mm (1 inch).
- Twisted or bent outward beyond the limits of the ISO corner fittings.
- Severe corrosion.

### Acceptable Condition

- Dents and distortions less than 25 mm (1 inch).

## 2.4 Tank Bearer Supports

### NOT Acceptable Condition

- Cuts, holes, gouges or splits.
- Cracks in welds or parent metal.
- Improper repairs.
- Dents or distortion of a formed edge greater than 13 mm (0.5 inch).
- Dents and distortions of the face greater than 20 mm (0.75 inch).
- Severe corrosion.
- Twisted or bent outward beyond the limits of the ISO corner fittings.

### NOTE:

In all cases of damage to a tank bearer support the tank shell must also be inspected for damage. In all cases of corrosion to the tank bearer supports the section of the bearer attached to the shell below the insulation must be checked for structural integrity. This will require local removal of insulation.

## 2.5 Stacking Supports

### NOT Acceptable Condition

- Holed
- Cracked
- Outside of the limits of the ISO corner fittings
- Loose

### NOT Acceptable Condition

- Insecure.
- Cuts, holes or splits, sharp edges or dents affecting safety.
- Distortions greater than 50 mm (2 inch).
- Dents greater than 25 mm (1 inch).
- Twisted or bent outward beyond the limits of the ISO corner fittings.
- Missing fasteners or electrolytic barriers.

### Acceptable Condition

- Distortions smaller than 50 mm (2 inch) measured over not less than 1m length and not affecting safety.
- Dents up to 25 mm (1 inch) and not affecting safety.
- Cuts not affecting safety.

### NOT Acceptable Condition

- Paint removed by spillage of cargo.
- Paint removed by improper handling.
- Corrosion or paint abrasion equal to, or more severe than Euro Standard Re4.

### Acceptable Condition

- Superficial corrosion.
- Light discoloration.
- Light scuffs and scratches.

### Note :

Paint damage and resulting corrosion must be repaired as part of routine maintenance.

# 3 → Walkway and Ladder Assembly

# 4 → Paintwork

## 5 → Insulation and Cladding

### 5.1 Insulation

#### NOT Acceptable Condition

- Missing insulation material.
- Saturation by water or cargo.
- Improper repairs.
- Deterioration by heat (burnt or baked).

### 5.2 Cladding

#### NOT Acceptable Condition

- Cuts, holes, cracks or splits penetrating the cladding thickness and allowing moisture ingress.
- Gaps in cladding and patch joints allowing moisture ingress.
- Deterioration by heat (burnt or baked).
- Insecure cladding or retaining straps.
- Surface damage or staining of cladding due to cargo contamination.
- Heavy corrosion.
- Improper repairs.
- Distorted outward beyond the limits of the ISO corner fittings.
- Dents greater than 25 mm (1 inch).

#### Acceptable Condition

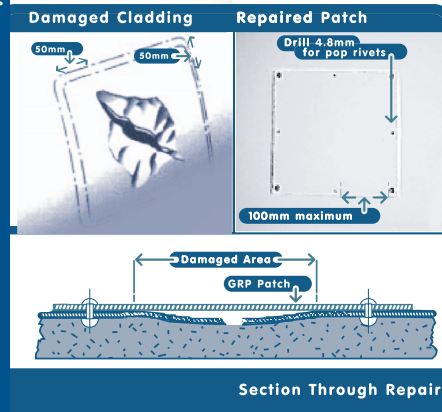
- Distortion not affecting security nor allowing moisture ingress except as stated above.
- Abrasion.
- Full belly GRP patch on existing aluminium cladding.

#### NOTE:

I. In all cases of damage to the cladding the tank shell, heating tubes and electrical components must also be checked.

II. The following criteria will apply when assessing the type and extent of repair required. Use self colour polyester in-fill or overlay rivetted patches [minimum 2 mm (0.08 inch) thick G.R.P. for G.R.P. cladding - minimum 0.9 mm (18 s.w.g.) Alum Alloy for Alum Alloy cladding in the same colour]. Minimum patch size 150 x 150 mm (6 inch x 6 inch).

## Figure 2 → Cladding Patch Repair



For Guidance Only.

#### IMPORTANT:

When drilling holes for cladding repair, it is vital to ensure that no damage is caused to the shell, steam tubes, circumferential steam tubes or electrical components beneath the cladding.



## 6 → Manway Assembly

### 6.1 Manlid and Swing bolt Assemblies

#### NOT Acceptable Condition

- Leaks.
- Missing, insecure, seized or non-operational parts.
- Dents or distortion greater than 6mm (0.25 inch) or affecting proper sealing of the manlid.
- Cracks.
- Missing Customs sealing ring.
- Pitting, corrosion or contamination.
- Improper repairs.

#### Acceptable Condition

- Non-standard hand nuts which are similar design and similar material.

### 6.2 Manlid Seal

#### NOT Acceptable Condition

- Cuts, cracks or distortion affecting sealing.
- Contamination.
- Square butt joint.
- Missing.

#### Acceptable Condition

- Minor surface degradation (ozone or chemical) which does not contain contamination and does not affect sealing.

#### Note :

The following criteria will apply when assessing the type and extent of repair required : Seals fitted must be to owner's specification. Solid seals may be cleaned.

### 6.3 Dipstick and Calibration Chart

#### NOT Acceptable Condition

- Distortion or damage to the dipstick assembly preventing operation.
- Non-stainless steel.
- Contamination or corrosion.
- Illegible or insecure.

#### Note :

Dipsticks may or may not be standard. When in doubt refer to the owner.

## 7 → Safety Relief Valves

### 7.1 Pressure Only or Pressure Vacuum Relief Valves

#### NOT Acceptable Condition

- Contamination or corrosion.
- Missing parts.
- Distortion or damaged or worn threads affecting correct operation or security.
- Leaks or incorrect pressure setting.
- Missing or defective Customs sealing ring.
- Improper repairs, seals or gaskets.

#### Acceptable Condition

- Missing dust plug.
- PTFE or CF gaskets.

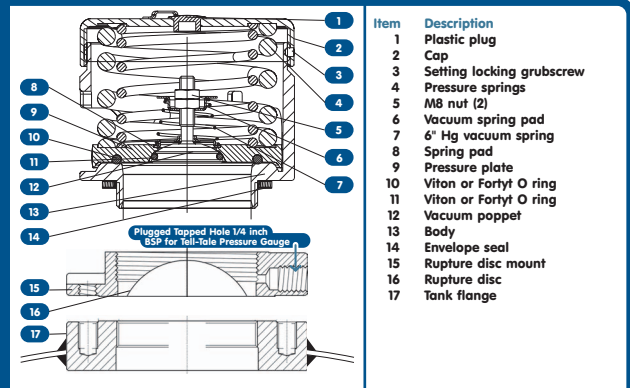


Figure 3 → Pressure Relief Valve

### 7.2 Flame Arrestor Gauze (where fitted)

#### NOT Acceptable Condition

- Missing, if originally fitted.
- Damage affecting operation.
- Contamination.

#### Note :

Flame arrestors are not necessary on non-hazardous tanks or on Pressure Only Valves.



### 7.3 Bursting Disc (where fitted)

#### NOT Acceptable Condition

- Leaks or incorrect pressure rating.
- Contamination or corrosion.
- Broken disc.
- Improper parts.
- Damaged pressure gauge affecting correct operation.
- Missing tell tale pressure gauge.

#### Note :

Bursting discs may or may not be fitted as standard. Refer to owner if in doubt. Many tanks have bursting-disc flange assemblies fitted in series with the relief valve for the fitting of bursting discs if required.

## 8 → Top Valves

### 8.1 Airline and Airline Valves

#### NOT Acceptable Condition

- Leaks.
- Contamination or corrosion.
- Damage or distortion of valve or screwed fittings affecting correct operation.
- Non-stainless steel, (300 series).
- Defective pressure gauge where fitted.
- Missing outlet cap or seal or retaining wire.
- Improper repairs, seals or gaskets.
- Missing Customs sealing ring.

#### Acceptable Condition

- SWR or PTFE airline cap seals.
- Caps of non-corrodible material.

### 8.2 Top Outlet

#### NOT Acceptable Condition

- Leaks.
- Contamination or corrosion.
- Damage or distortion affecting correct operation or sealing.
- Missing or defective parts.
- Improper repairs, seals or gaskets.
- Non-stainless steel, (300 series).
- Non-standard parts. (Refer to owner).
- Missing Customs sealing ring.

### 8.3 Syphon Tube (where fitted)

#### NOT Acceptable Condition

- Contamination or corrosion.
- Non-stainless steel, (300 series) except lined tanks.
- Damage or distortion affecting correct operation or sealing.

## 9 → Pressure Vessel

#### NOT Acceptable Condition

- Leaks.
- Cuts, cracks.
- Defects to welds or parent materials.
- Gouges, scratches and badly executed grinding, deeper than 0.1 mm (0.004 inch).
- Excessive grinding or other metal depletion which reduces the shell thickness to less than the minimum.
- Grinding coarser than 120 grit.
- Corrosion or pitting which results in a shell thickness below the required minimum or creates contamination traps.
- Stress corrosion.
- Improper repairs or non-standard fittings.
- Sharp indentations, creases or dents causing the elastic limit of the material to be exceeded resulting in permanent deformation.
- Dents greater than 6 mm (0.25 inch) to the top third of the tank shell.
- Dents greater than 10 mm (0.4 inch) to the bottom two thirds of the tank shell.

#### Acceptable Condition

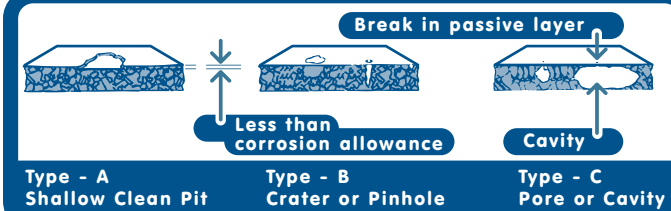
- Gradual distortions measured over the length between exterior stiffeners of less than 10 mm (0.4 inch) in bottom two thirds or less than 6 mm (0.25 inch) in top third of tank shell.
- Light abrasions or scratches to 120 grit polish equivalent or finer.
- Superficial pitting with no resulting contamination traps see Type A on page 20.



### Pitting and Porosity

All pitting must be reported by type, area and position on the chart shown in Appendix B. An investigation must be carried out to ensure that cavity pitting is not present and that the pitting is not masking stress corrosion. The investigation will involve localised polishing of the surface followed by visual examination with the aid of a magnifying glass and dye penetrant.

## Figure 4 → Corrosion Pitting



### Note :

Mandatory retesting is required after all welded repairs to the tank shell.

## 10 → Bottom Valves

### 10.1 Foot Valve

#### NOT Acceptable Condition

- Leaks.
- Contamination or corrosion.
- Damage or distortion affecting correct operation or sealing.
- Improper repairs, seals or gaskets.
- Non-stainless steel parts (300 series).
- Missing Customs sealing ring.

### 10.2 Bottom Outlet Valve

#### NOT Acceptable Condition

- Leaks.
- Contamination, or corrosion.
- Damage or distortion affecting correct operation or sealing.
- Improper repairs, seals or gaskets.
- Non-stainless steel parts (300 series).
- Missing Customs sealing ring.

### Note :

Foot valve to tank flange gaskets must be PTFE envelope CF.

### 10.3 Outlet Blank

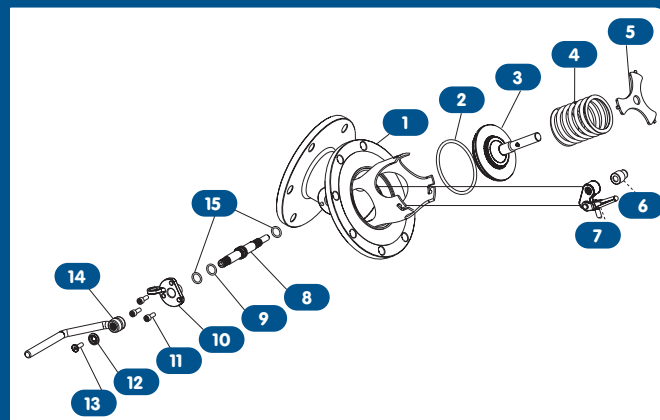
#### NOT Acceptable Condition

- Leaks.
- Contamination, or corrosion.
- Non-stainless steel (300 series).
- Damage or corrosion affecting operation.
- Missing Customs sealing ring.

### Note :

Where renewal is necessary bolts should be stainless steel.  
Replacement gaskets should be PTFE envelope CF or solid PTFE.

## Bottom Outlet Valve (Foot Valve)



## Figure 5 → Foot Valve

Item	Description
1	Body weld assembly
2	Fortyt O Ring
3	Solid poppet
4	Spring
5	Bayonet cap
6	PTFE crankshaft end bush
7	Crank block assembly
8	Spindle
9	Viton O ring
10	Stuffing clamp
11	M6 socket head capscrew (3)
12	Handle retaining washer
13	Handle retaining screw
14	Handle
15	PTFE O ring (2)

#### 10.4 Screwed Outlet Cap.

##### NOT Acceptable Condition

- Leaks.
- Contamination or corrosion.
- Missing parts.
- Non-metallic, or a material which is not corrosion resistant.
- Damaged or improper screw threads.
- Broken or missing retaining wire or chain.
- Damage affecting operation.

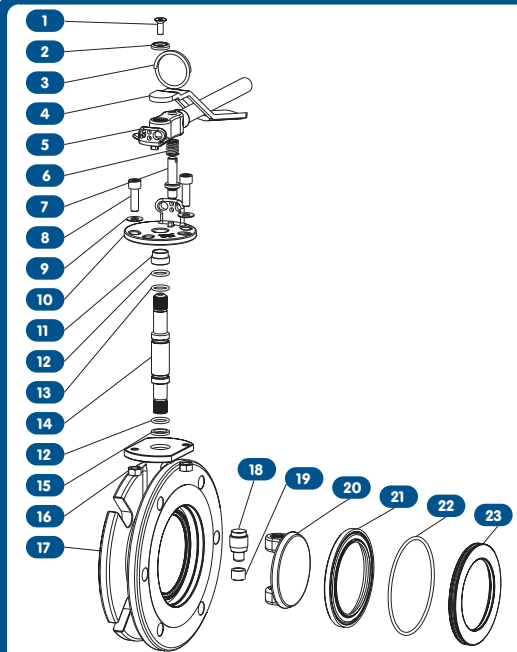
##### Acceptable Condition

- SWR seals.

##### Note :

Replacement caps must be secured by a chain.

Figure 6 → Butterfly Valve



Top and Bottom Outlet and Airline Valve

Item	Description
1	Countersunk setscrew
2	Washer
3	Split ring
4	Operating lever
5	Handle
6	Handle location spring
7	Handle location pin
8	Socket head cap screw (2)
9	Plain washer (2)
10	Stuffing clamp
11	PTFE stuffing clamp bush
12	PTFE O ring (2)
13	Viton O ring
14	Spindle
15	PTFE spindle seat
16	Full nut (2)
17	Body
18	Bottom spindle
19	PTFE bottom bush
20	Closure plate
21	PTFE main seal
22	Nitrile O ring
23	Seal clamp plate

#### Butterfly Valve

#### 10.5 Remote Emergency Closure

##### NOT Acceptable Condition

- Damage rendering remote closure inoperable.
- Seized.
- Insecure.



## 11 → Heating

### 11.1 Steam Tube and Cap

#### NOT Acceptable Condition

- Leaks.
- Damaged screwed fittings.
- Missing dust caps.
- Missing chain or cable.

#### Note :

In all cases of damage the steam tubes must be pressure tested. Defective steam traps should be removed, replacement is not required.

### 11.2 Thermometer

#### NOT Acceptable Condition

- Not operating correctly.
- Broken fascia or dial.
- Missing or insecure.
- Improperly fitted.

#### Acceptable Condition

- Condensation which does not prevent legibility.

### 11.3 Electric Heating

#### NOT Acceptable Condition

- Non-operational.
- Damage or deterioration that may allow moisture entry to control boxes or elements.
- Insecure components, cables or terminals.
- Corroded terminals or components.
- Improper repairs.
- Earth leakage less than 1 megohm.
- Missing parts.

#### Note :

All parts must be well-maintained and fully-operational. An electric function test is required at off-hire and on-hire for every electric heated tank.

### 12.1 Decals and Data Plates

#### NOT Acceptable Condition

- Insecure.
- Missing or illegible plates.
- Missing, illegible, obscured or partly missing decals and logos.
- Twisted or bent beyond limits of ISO.

#### Acceptable Condition

- Scuffs.
- Dents except as stated above.

#### Note :

All plates and decals required by applicable Regulations must be in place. Refer to owner for details of the data plates and decals to be fitted.

### 12.2 Document Holder

#### NOT Acceptable Condition

- Missing or defective.
- Insecure.
- No drain hole.
- Water filled.

#### Acceptable Condition

- Non-standard type.

### 12.3 Compartments and Compartment Lids

#### NOT Acceptable Condition

- Non-operational.
- Twisted or bent beyond the limits of the ISO corner fittings.
- Splits or tears.
- Cargo residues, dirt, sundry waste.
- Blocked drain tubes.
- Damaged

### 12.4 Earthing (Ground) Lug

#### NOT Acceptable Condition

- Damaged.
- Missing.
- Painted.

## 12 → Miscellaneous



## 13 → Test

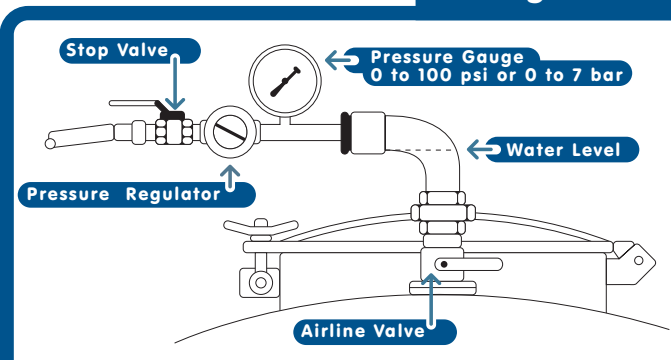
### 13.1 Air Leakage Test

- The tank must be pressurised with air or inert gas to 1 bar (15 p.s.i.g.) and all fittings and flanges checked with liquid soap at off-hire.
- Leak checks to 1.0 bar (15 p.s.i.g.) are required to all tanks as part of the completed repair inspection.
- Where tanks are stored in depot for periods greater than six months from the time of the completed repair inspection, a repeat leak test is required prior to lease.

### 13.2 Hydraulic Test (after repair)

- Mandatory retesting is required after all welded repairs to the shell of hazardous tanks (see applicable Regulations).

Figure →7



Equipment Necessary for Mandatory Hydraulic Test

### 13.3 Mandatory Test 5 year or 2 1/2 year

- Hazardous cargoes may only be transported in tank containers which have a valid 5 year or 2 1/2 year mandatory test certificate.
- Ensure by inspecting the Data Plate that a test is not required.

## Cleanliness Certificate

### TANK CONTAINER CLEANLINESS SURVEY REPORT AND CERTIFICATE

(Certificate invalid if not fully completed)

Survey Company Name \_\_\_\_\_  
 Company Address \_\_\_\_\_  
 \_\_\_\_\_  
 Tank Container Serial No \_\_\_\_\_  
 Inspection Date \_\_\_\_\_  
 Inspection Time \_\_\_\_\_  
 Inspection Location \_\_\_\_\_  
 Cleaning Co \_\_\_\_\_  
 Cleaning Procedure \_\_\_\_\_  
 Last Cargo Carried \_\_\_\_\_  
 UN No \_\_\_\_\_

#### EXTERIOR

Frame, tank and walkways free of contamination and cargo	Yes	No
Manlid and valve compartments free of contamination and cargo	Yes	No
Serial numbers and statutory markings legible	Yes	No
Cargo labels removed	Yes	No

#### INTERIOR

Entry made into tank by surveyor	Yes	No
Free from odour	Yes	No
Clean and free from all cargo and contamination	Yes	No
Free from corrosion or pitting (if no, report details below)	Yes	No
Dry	Yes	No

#### VALVES/FITTINGS free from all cargo and contamination

Valves	Yes	No
Manlid seal	Yes	No
Syphon Tube	Yes	No
Spillage Drain Tubes clear	Yes	No
Gas free Entry Permit issued	Yes	No

#### REMARKS:

\_\_\_\_\_  
 \_\_\_\_\_

A thorough visual examination has been carried out and the interior of the tank, valves and fittings are free of contamination, previous cargo and odour. The tank is clean and dry.

Name (Print) \_\_\_\_\_ Signed \_\_\_\_\_ Date \_\_\_\_\_



# Internal Inspection Report

Tank Serial No. \_\_\_\_\_ Last Product: \_\_\_\_\_  
 Location: \_\_\_\_\_ Ref. No.: \_\_\_\_\_ Order No.: \_\_\_\_\_  
 Date: \_\_\_\_\_ Inspected By: \_\_\_\_\_

## Surface Condition



### Pitting Description

Indicate Type & Shape  
 See page 20 Figure 4  
 on Corrosion Pitting in ACC.

Draw Pitting Type  
 or indicate A, B, C.

Draw Pitting  
 Surface Shape  
 (Circular, elongated, etc.)

Pitting depth Average  
 Pitting depth Maximum

mm/inch  
 mm/inch

Area of shell affected

%

Is pitting light or heavy?

L/H

Pitting in weld bead?

Y/N

Pitting in heat zone of weld bead?

Y/N

### Staining Description

If tank stained indicate colour \_\_\_\_\_

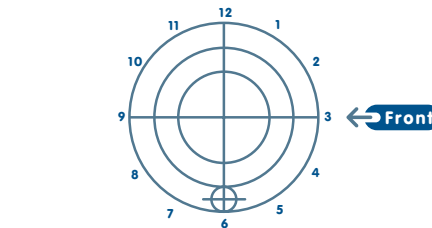
Area of Shell affected \_\_\_\_\_ %

Condition of syphon tube \_\_\_\_\_

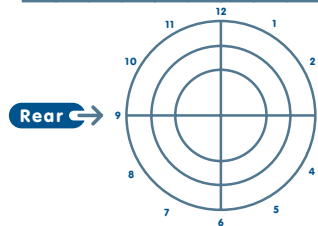
Indicate weld seam on the plan \_\_\_\_\_

Additional Comments \_\_\_\_\_

Name (Print) \_\_\_\_\_ Signed \_\_\_\_\_ Date \_\_\_\_\_



	12	11	10	9	8	7	6	5	4	3	2	1	
A													A
B													B
C													C
D													D
E													E
F													F
G													G
H													H



## STANDARD SEALS AND GASKETS

The seals and gaskets below are listed for guidance only. Many other materials exist which may be used as seals for standard cargoes or specified to obtain compatibility with special cargoes.

COMPONENT	T3 – T22	T1 – T2	NON HAZARDOUS
<b>Pressure Relief Valve</b>			
Pressure 'O' Ring	PTFE encapsulated rubber	VITON A	VITON A
Vacuum Seal	Solid PTFE	VITON A	VITON A
Gasket to Tank	PTFE envelope CF Gasket or solid PTFE	PTFE envelope CF Gasket or solid PTFE	PTFE envelope CF Gasket or solid PTFE
<b>Airline</b>			
Airline Seals	Solid PTFE	Solid PTFE	Solid PTFE
<b>Manlid</b>			
Manlid Seal	Braided PTFE, SWR or E.P.D.M. with PTFE envelope	SWR	SWR
<b>Top Outlet</b>			
Valve 'O' Ring	PTFE encapsulated rubber or solid PTFE	-	-
<b>Top Outlet</b>			
Valve Seals	Solid PTFE		
<b>Blank Plate</b>	PTFE envelope CF Gasket	-	-
<b>Foot Valve</b>			
'O' Ring	PTFE encapsulated rubber	VITON A	-
<b>Valve to Tank Gaskets</b>	PTFE envelope CF Gasket	PTFE envelope CF Gasket	PTFE envelope CF Gasket
<b>Bottom Outlet</b>			
Valve Seals	Solid PTFE	Solid PTFE	Solid PTFE
<b>Outlet Cap</b>			
Seals	Solid PTFE	SWR	SWR

### Legend

SWR	= Sweet White Rubber or Food Quality Neoprene
PTFE	= Polytetrafluoroethylene (Teflon)
CF Gaskets	= Composite Fibre
E.P.D.M.	= Ethylene-propylene-diene monomer

