



Unitas Repair Manual

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INTRODUCTION

The purpose of the Uritas Repair Manual (“Manual”) is to establish a uniform tank condition after repair throughout Uritas’ global network of depots and maintaining safe tank container operation.

The Manual should be used by both depots (for repair criteria) and Lessees for following the required maintenance and handling procedures. The standards described in this Manual apply to Lessees during On-hire and Depots at Offhire.

It is the complete responsibility of the Lessee to ensure the tank container (“tank”) complies with all conventions, laws and regulations or material requirements specific to the cargo, to the method of carriage or to the route over which the tank is transported.

Lessee should comply with the requirements of any Customs Conventions on Containers including (but not limited to) temporary admission. The tanks have been registered under the Approved Continuous Examination Program (ACEP) of CSC and marked with ACEP decals. Lessee shall maintain the Containers in full compliance with all the standards and regulations of CSC.

Any person going inside the tank vessel should be in compliance with all the prerequisites required or recommended by the health and safety authorities having jurisdiction over both the location of the tank and the tank itself.

DEFINITIONS

Acceptable and NOT Acceptable Condition

The condition guide which follows lists the component parts of a tank and describes what is acceptable and what is not acceptable according to the standards laid out below.

NOT Acceptable Condition

Any damage or deterioration to a tank due to but not limited to Lessee failing to operate it according to the below requirements shall not be deemed normal wear and tear. 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.

THESE TYPES OF DAMAGES ARE THE LESSEE'S RESPONSIBILITY

Acceptable Condition

Acceptable condition or fair wear and tear which does not affect any of the above conditions.

ACCEPTABLE CONDITION IS THE LESSOR'S RESPONSIBILITY

NOTES:

- If any clarification is required as to acceptability or suitability of equipment then UNITAS should be contacted.
- Where any component has to be replaced, the component should be "as built with". If not available then the component should be of a better quality than what it replaces.
- 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 consult UNITAS.

Fair Wear and Tear

'Fair Wear and Tear' is defined as deterioration of the tank or any of its component parts whilst 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'.

1. CLEANLINESS

1.1. Exterior and Markings

NOT Acceptable Condition:

Previous cargo, contamination or odour
Oil, grease deposits
Road dirt reducing legibility of tank markings
Hazard warning labels or cargo labels
Operator logos
Non-standard labels or misleading marks
Remnants of labels
Insecure label holders
Glue residue

NOTE:

- The valve and manlid spillage trays must be clean and free of cargo spillage. Check any areas of overspill for damage to paint and cladding and inspect drain tubes for blockages and check for possible corrosion inside the spill box after removal of product stains.

1.3 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, corrosion pitting, scratches or gouges
Missing, expired or Improper Cleanliness Certificate

Acceptable Condition:

Abrasion or scratches to finer than 120 grit polish equivalent
Only with zero pitting

NOTES:

- When the tank is received into the 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. No brand names. See Appendix A.
- The Cleanliness Certificate is valid for 7 days and 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 to be accepted into the 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 party is required for all tanks delivered off-hire.

2. PRESSURE VESSEL (Tank Shell)

NOT Acceptable Condition:

Leaks

Cuts, cracks

Defects to welds or parent materials

Gouges, scratches and badly executed grinding, deeper than 0.1mm (0.004inch)

Excessive grinding or other metal depletion which reduces the shell thickness to less than the minimum

Grinding coarser than 120grit and excessive grinding scars/ uneven pattern.

Corrosion or corrosion pitting of any kind

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

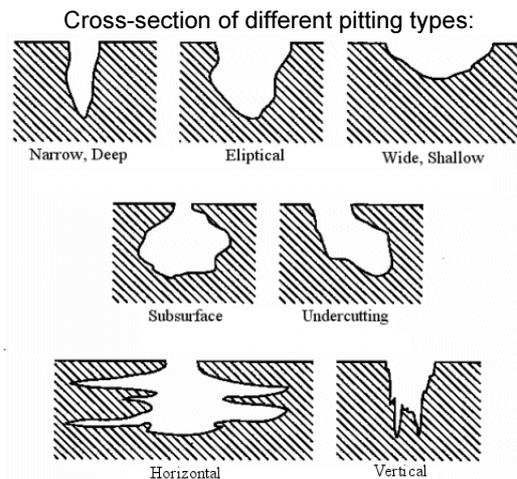
Dents greater than 6mm (0.25inch) to the top third of the tank shell

Dents greater than 10mm (0.4inch) to the bottom two thirds of the tank shell

Shell movement under overpressure / vacuum

Discolouration caused by cargo attack or overheating of the steel (internal/external)

Pitting and Porosity: Any pitting noted must result in a thorough investigation. An IIR (see Appendix F) should be completed mapping the type of defect, area affected and location. The investigation must ensure that cavity pitting is not present and that 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 penetrating test.



Acceptable Condition:

Light abrasions or scratches to 120 grit polish equivalent or finer.

Only with zero pitting

NOTES:

- When the tank is received by the depot for Off-hire, the depot must provide UNITAS with an Internal Inspection Report (“IIR”), see Appendix F. The IIR, on instruction by UNITAS, should include a shell thickness test of between 18-21 points.
- Gas tanks should be purged after repair, as specified by UNITAS.

NOTE: (Lined tanks)

- Lined tanks must be opened with extreme caution to avoid damage to the linings. Ladders for man entry must be cushioned against manlid neckring and tank shell. Non-destructive test of lining

continuity should be performed in accordance with lining manufacturer's specifications. If ensure seek advice from Unitas. Do not carry out spark test without approval from Unitas.

3. HEATING and COOLING

3.1 Steam Tube and Cap

NOT Acceptable Condition:

Leaks
Damaged screw fittings
Missing dust caps
Missing or broken chain or cable
Distortion to the tank shell (due to over pressure)

NOTE:

- In all cases of damage the steam tubes must be pressure tested.
- Defective steam traps should be removed, replacement is not required
- Steam tube dust caps may be made from aluminium casting or stainless steel

3.2 Thermometer

NOT Acceptable Condition:

Not operating correctly
Broken face or dial
Missing or insecure
Improperly fitted

Acceptable condition:

Condensation which does not prevent legibility

3.3 Electric Heating

NOT Acceptable Condition:

Non-operational
Damage or deterioration that may allow moisture ingress 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.

3.4 Refrigeration Machinery (Reefer tanks)

NOT Acceptable Condition:

Non-operational
Damage or deterioration that may allow moisture ingress to control boxes or elements
Insecure components, cables or terminals
Corroded terminals or components
Improper repairs
Missing parts

Unoriginal parts (not from original manufacturer)

NOTES:

- All parts must be well-maintained and fully operational. A Pre-trip Inspection (“PTI”) is required by the depot at off-hire and on-hire for every reefer tank. The following criteria must be observed:
 - Unit mounting bolts must be present and tight
 - Condenser fins and grille must be clean and unclogged
 - Electrical compartments must be clean, corrosion-free and have effective door seals
 - All decals, wiring diagrams and instruction plates must be present and legible
 - Electrical connectors, air change vents and gas ports must be free of corrosion and be capped as required
 - There must not be excessive corrosion on lower steel parts which are at risk of contact with sea water, such as the compressor and received tank mounting brackets
 - The main power cord must be in good condition and free from cuts and corrosion
 - Use a primary (mains) power supply in preference to a generator set for a PTI machinery inspection
- When depot surveyor performs the visual check, ensure that each of the following machinery sections are examined carefully:
 - Main frame
 - Compressor section
 - Temperature record and/or controller compartment
 - Condenser section
 - Electrical compartment
 - TX (thermostatic expansion) valve compartment
 - Evaporator section
 - Diesel drive
 - Main power cable compartments
 - Electrical cables, wiring and refrigerant piping
 - Interior panels, plenums and screens

4. INSULATION AND CLADDING

4.1 Insulation

NOT Acceptable Condition:

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

4.2 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 beyond the limits of the ISO corner fittings
Dents, scratches, cracks greater than 15mm

Acceptable Condition:

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

NOTES:

- In all cases of damage to the cladding the tank shell, heating tubes and electrical components must also be checked.
- The following criteria will also apply when assessing the type and extent of repair required. Use self-colour polyester in-fill or overlay riveted patches [minimum 2mm (0.08inch) G.R.P. for G.R.P. cladding – minimum 0.9mm(18swg) Alum Alloy for Alum alloy cladding in the same colour]. Minimum patch size 150x150 mm (6inchx6inch)
- Extend patched to the retainers strap (stainless steel (“SS”) where the patch is within 30mm of the SS strap. Care must be taken to ensure that drills or rivets do not damage the shell, steam tubes beneath the cladding.

5. FRAME

Frames should be carefully examined for corrosion and paint degradation and where this is showing loss of materials and paintwork estimates should be prepared to clean, de-rust and repaint frames using approved paint systems and paint shade (RAL5002).

5.1 Corner Posts

NOT Acceptable Condition:

Cuts, 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 15mm (0.6inch) in depth irrespective of length of deformation

Dents greater than 10mm (0.4inch) and less than 15mm (0.6inch) in depth in excess of two per post.

Dents greater than 10mm (0.4inch) extending over a length greater than 300mm (12inch)

Twisted bent or overplated beyond the requirement of ISO

Corrosion affecting the structural strength of the member.

Acceptable Condition:

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

5.2 Top and Bottom Side and End Rails

NOT Acceptable condition:

Cuts, holes , gouges or splits

Cracks in welds or parent metal

Improper repairs

Dents or distortions greater than 25 mm (1 inch)

Out of straight greater than 25mm (1 inch) per 2m (79inch) length

Top and Bottom end rails bent more than 30mm over the full length of rail measured midway

Side rails bent more than 50mm over the full length of the rail measured midway

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 25mm (1 inch)

Dents in the bottom face of bottom rails which do not affect any formed edge

5.3 Ancillary Bracing

NOT Acceptable Condition:

Cuts, holes, gouges or splits

Cracks in welds or parent metal

Improper repairs

Dents or distortions greater than 25mm (1 inch) Twisted or bent outward beyond the limits of the ISO corner fittings

Severe corrosion

Mislocation compared to original design

Acceptable Condition:

Dents and distortions less than 25mm (1 inch)

5.4 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 13mm (0.5 inch)

Dents or distortions of the face greater than 20mm (0.75 inch)

Severe corrosion

Twisted or bent outwards beyond the limits of the ISO corner fittings

Acceptable:

Dents not exceeding 13-20mm in depth as qualified above.

NOTE:

- In all cases of damage to the to the 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.

5.5 Stacking Supports

NOT acceptable Condition:

Holed

Cracked

Outside the limits of the ISO corner fittings

Loose

6. PAINTWORK

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:

Very superficial corrosion

Light discoloration

Light scuffs and scratches

NOTES:

- Paint damage and resulting corrosion must be repaired as part of routine maintenance
- Repaired area should be prepared for painting by cleaning to bright metal. An approved primer and paint system must be used with the colour RAL 5002.

7. WALKWAY AND LADDER ASSEMBLY

7.1 Walkway

NOT Acceptable Condition:

Any type of damage affecting safety
Insecure loose fasteners, missing parts
Improper welds and cuts affecting safety
Dents or distortions greater than 25mm (1inch)
Carbon steel bolts/nuts/washers
Twisted or bent upwards beyond the limits of the ISO corner-fitting
Unintentional differences in height between sections affecting safety
Elements of different origin of material (aluminium/galvanised steel) or different shapes

Acceptable Condition:

Dents or distortions not exceeding 25mm and not affecting safety
Cuts not affecting safety

7.2 Ladder

Ladder should be clean, secure and safe to use

NOT Acceptable Condition:

Insecure
Cuts, holes, or splits, sharp edges or dents affecting safety
Dents and Distortions greater than 50mm (2 inch) measured over more than 1m length.
Dents and distortions greater than 25mm on ladder rungs
Dents greater than 25mm (1 inch)
Twisted or bent outwards beyond the limits of the ISO corner fittings
Missing fasteners or electrolytic barriers

Acceptable Condition:

Distortions smaller than 50mm (2 inch) measured over not less than 1m length and not affecting safety
Cuts not affecting safety

8. MANWAY ASSEMBLY

8.1 Manlid and Swing Bolt Assemblies

NOT Acceptable Condition:

Leaks

Missing, insecure, seized or non-operational parts

Dents or distortion greater than 6mm (0.25inch) 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 e.g. bronze or stainless steel

8.2 Manlid Seal

NOT Acceptable Condition:

Cuts, cracks or distortion affecting sealing

Contamination

Square butt joint

Missing or insecure

Acceptable Condition:

Minor surface degradation 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 UNITAS' specification. Solid seals may be cleaned.

8.3 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. If there is doubt refer to UNITAS.

9. SAFETY RELIEF VALVES

9.1 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

9.2 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

9.3 Bursting Discs (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 UNITAS 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.

10. TOP VALVES

10.1 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 or non-operational Customs sealing ring

Acceptable Condition:

SWR or PTFE airline cap seals
Caps made from SS

10.2 Top Outlet

NOT Acceptable Condition:

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

10.3 Syphon Tube (Where Fitted)

NOT Acceptable Condition:

Contamination or corrosion
Non-stainless steel Damage or distortion affecting correct operation or sealing
Gap between end tub and bottom of tank greater than 25mm

11. BOTTOM VALVES

11.1 Foot Valve

NOT Acceptable Condition:

Leaks
Contamination or corrosion
Damage or corrosion affecting correct operation or sealing
Improper repairs seals or gaskets
Non-stainless steel
Missing or non-operational Customs sealing ring

11.2 Bottom Outlet Valve

NOT Acceptable Condition:

Leaks
Contamination or corrosion
Damage or corrosion affecting correct operation or sealing
Improper repairs, seals or gaskets
Non-stainless steel
Missing or non-operational Customs sealing ring

NOTE:

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

11.3 Outlet Blank

NOT Acceptable Condition:

Leaks
Contamination or corrosion
Non-stainless steel
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

11.4 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

11.5 Remote Emergency Closure

NOT Acceptable Condition:

Damage rendering remote closure inoperable

Seized

Insecure

12. APPENDAGES

12.1 Data Plates and Decals

NOT Acceptable Condition:

Insecure
Incorrect Owner & Address information (CSC plate)
Missing or illegible plates (CSC, Customs, Data, Owner)
Missing, illegible, obscured or partly missing decals and logos
Twisted or bent beyond the limits of ISO (Data Plates)
Missing Approved Cargo List (gas tanks only)

Acceptable Condition:

Scuffs (Data Plates only)
Dents to Data Plates except as stated above

NOTES:

- All Data Plates and decals required by applicable regulations must be in place. Refer to UNITAS for details of the data plates and decals to be fitted
- UNITAS decals should be fitted after depot repair as per the UNITAS Decals Specification, see Appendix H.

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
Insecure doors/lids where fasteners do not properly secure the lid for transport
Missing customs sealing ring and door fasteners
Improper repairs affecting structural integrity
Severe corrosion

12.4 Earthing (Ground) Lug

NOT Acceptable Condition:

Damaged

Missing

Painted

13 TESTING

13.1 Air Leak Test

- The tank must be pressurised with air to 1 bar (15 psi) and all fittings and flanges checked with liquid soap at Offhire
- Leak checks to 1 bar (15 psi) are required to all tanks as part of the completed depot repair inspection
- Where tanks are stored in depot for periods more than six months from the time of the completed repair inspection, the air leak test should be repeat prior to Onhire

13.2 Hydraulic Test

- Mandatory retesting with water is required after all welded repairs to the shell of hazardous tanks (see applicable regulations)

13.3 Statutory Test

- Hazardous cargoes may only be transported in tanks which have a valid 2.5 or 5 year Periodic Test Certificate issued by a Classification Society. Consult UNITAS for which Classification Society to use.
- Data plate should be inspected to check when the last Periodic Test was conducted

APPENDIX A: Cleanliness Certificate

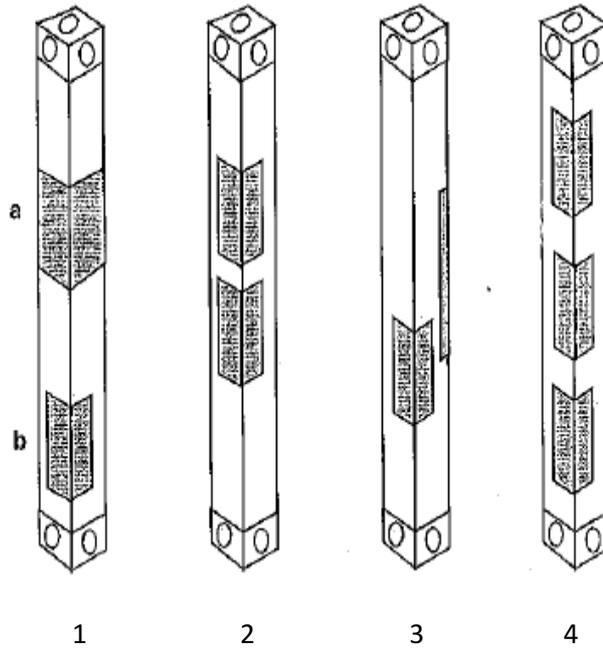
CLEANLINESS CERTIFICATE

ISSUED BY SURVEYOR

SURVEY COMPANY NAME AND ADDRESS:		
TANK NO:		
PLACE OF ISSUE:	DATE OF ISSUE / TIME :	
CLEANING COMPANY:	LOCATION:	
CLEANING PROCESS:		
LAST CARGO :	UN NO. :	
EXTERIOR free from all cargo and contamination		
Exterior frame, tank & walkways	YES	<input type="checkbox"/>
Manlid and valve compartments	YES	<input type="checkbox"/>
Serial nos. and statutory markings	YES	<input type="checkbox"/>
Cargo labels removed	YES	<input type="checkbox"/>
INTERIOR		
Entry made into tank by surveyor	YES	<input type="checkbox"/>
Free from odour	YES	<input type="checkbox"/>
Free from all cargo and contamination	YES	<input type="checkbox"/>
Free from corrosion or pitting (If no, report detail below)	YES	<input type="checkbox"/>
Dry	YES	<input type="checkbox"/>
VALVES/FITTINGS free from all cargo and contamination		
Valves	YES	<input type="checkbox"/>
Manlid seal	YES	<input type="checkbox"/>
Dip-pipe/ Syphon pipe	YES	<input type="checkbox"/>
Gas free Entry Permit issued	YES	<input type="checkbox"/>
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) (being the qualified surveyor)	SIGNED	

APPENDIX B: Corner Post Repairs

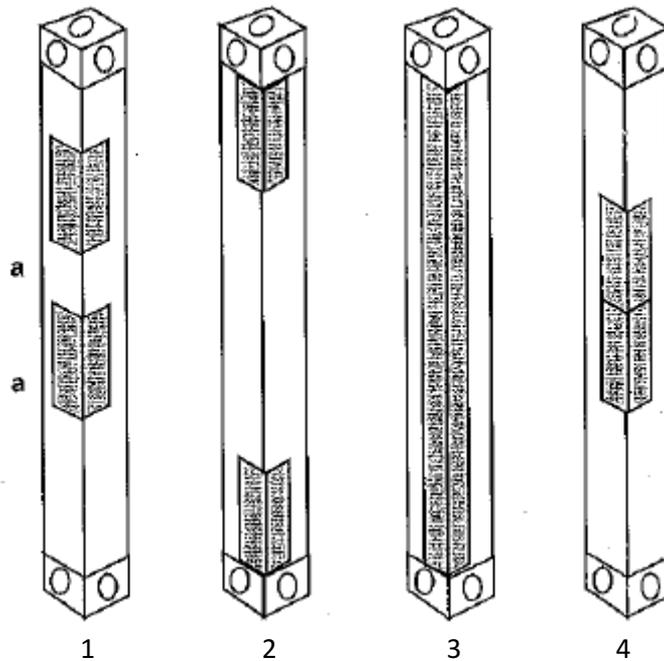
NOT Acceptable Repairs:



- 1a. insert through 3 formed edges
- 1b. less than 300mm from casting
2. less than 150mm between inserts
3. overlapping inserts
4. more than two inserts per post

APPENDIX B: Corner Post Repairs

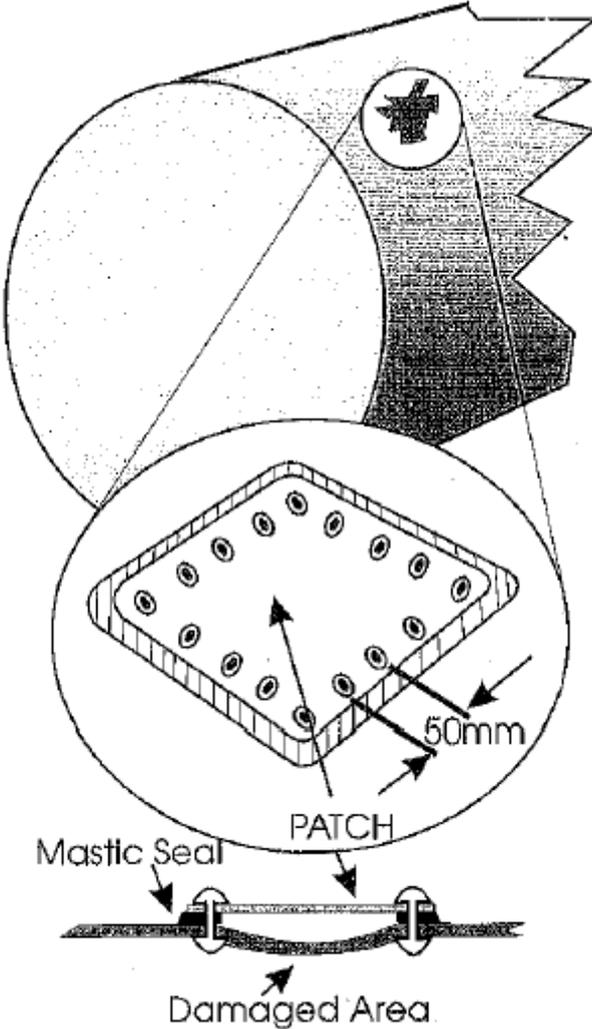
Acceptable Repairs:



- 1a. Minimum distance between inserts is 150 mm.
- 1b. Minimum size insert is 150 mm.
2. Minimum insert at post ends is 300 mm.
3. A full-length insert is allowed.
4. Two inserts may have a common weld.

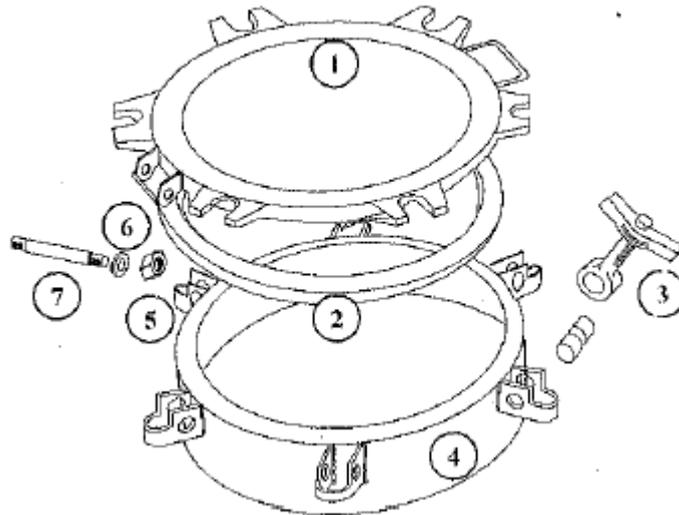
APPENDIX C: Cladding

Section through cladding patch:



APPENDIX D: Manlid

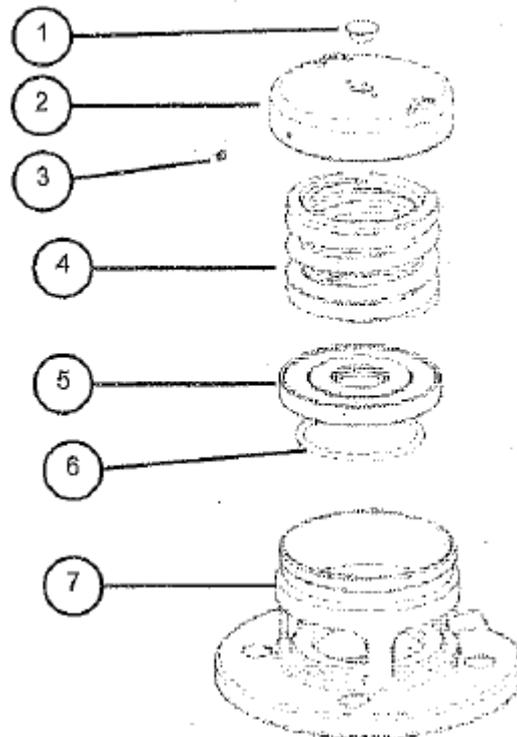
Section through manlid:



ITEM	DESCRIPTION
1	Cover
2	Seal ring
3	Swingbolt assembly
4	Neckring
5	Hinge pin
6	Self locking nut
7	Washer
8	Main hinge pin

APPENDIX E: Safety Relief Valve

Section through relief valve:



Item	Description
1	Plastic plug
2	Cap
3	Setting locking grub screw
4	Pressure spring pair
5	Pressure Plate
6	Vacuum spring pad
7	Body

APPENDIX F: Internal Inspection Report

TANK SERIAL NO. _____

LAST PRODUCT: _____

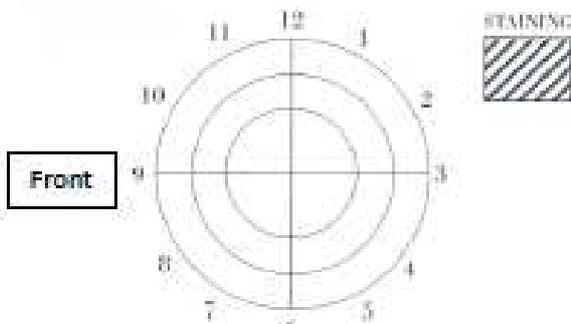
Location: _____

Ref. No.: _____

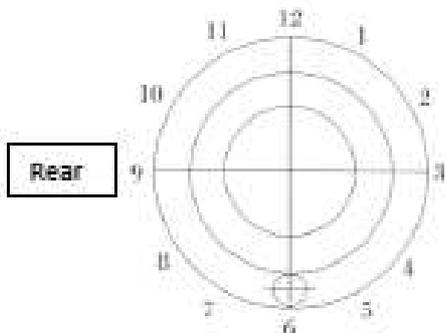
Order No.: _____

Inspected By: _____

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



PITTING DESCRIPTION
Indicate Type & Shape
See Figure 5 of Section 9 on Corrosion Pitting in ACC.

DRAW PITTING TYPE
or indicate A, B or C.

DRAW PITTING SURFACE SHAPE
(Circular, elongated, etc.)

Pitting depth Average mm/inch
Pitting depth Maximum mm/inch

Area of shell affected %

Is pitting light or heavy? L/H

Pitting in weld head? Y/N

Pitting in heat zone of weld head? Y/N

STAINING DESCRIPTION
If tank is stained indicate colour

Area of shell affected %

Condition of siphon tube

Indicate weld seam on the plan

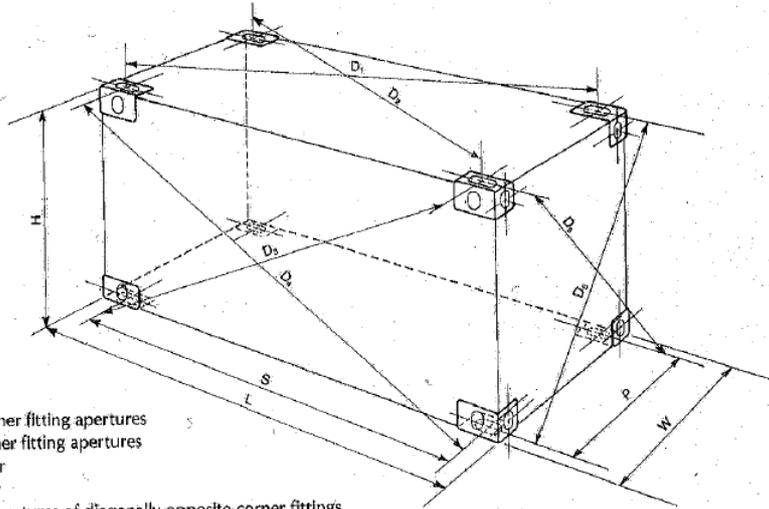
ADDITIONAL COMMENTS

Name (Print) _____

Signed _____

Date _____

APPENDIX G: ISO Dimensions & Tolerances



- S = Length between centers in corner fitting apertures
- P = Width between centers in corner fitting apertures
- L = External length of the container
- W = External width of the container
- D = Distance between centers of apertures of diagonally opposite corner fittings
- K₁ = Difference between D₁ and D₂ or D₃ and D₄
- K₂ = Difference between D₅ and D₆
- H = Overall height

EXTERNAL DIMENSIONS AND TOLERANCES IN MILLIMETERS AND IN FEET AND INCHES

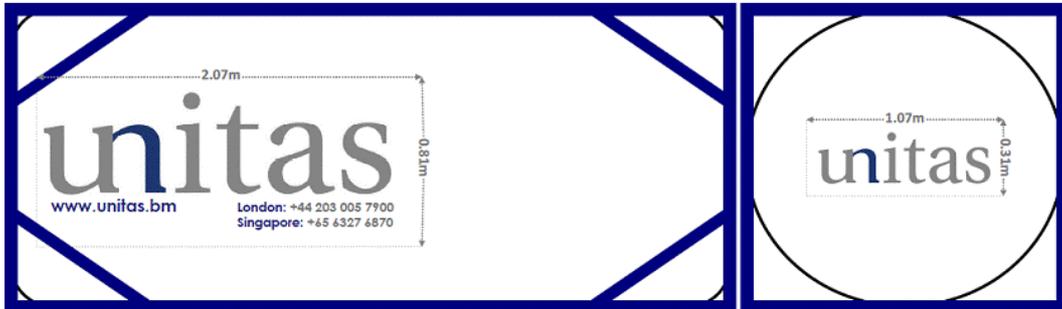
Height - 8 ft. high: 2 438 $\pm \frac{0}{5}$ mm (8 ft 0 in. $\pm \frac{0}{3/16}$ in.) Height - 8 1/2 ft. high: 2 591 $\pm \frac{0}{5}$ mm (8 ft 6 in. $\pm \frac{0}{3/16}$ in.)
 Height (external) - 9 1/2 ft. high: 2 896 $\pm \frac{0}{5}$ mm (9 ft 6 in. $\pm \frac{0}{3/16}$ in.) Width - All containers: 2 438 $\pm \frac{0}{5}$ mm (8 ft 0 in. $\pm \frac{0}{3/16}$ in.)

Freight container designation	Length (external)			S			P			K ₁ max.		K ₂ max.	
	mm	ft	in.	mm	ft	in.	mm	ft	in.	mm	in.	mm	in.
40'	12 192 $\pm \frac{0}{-10}$	40	0 $\pm \frac{0}{-3/8}$	11 985	39	3-7/8	2 259	7	4-31/32	19	3/4	10	3/8
30'	9 125 $\pm \frac{0}{-10}$	29	11-1/4 $\pm \frac{0}{-3/8}$	8 918	29	3-1/8	2 259	7	4-31/32	16	5/8	10	3/8
20'	6 058 $\pm \frac{0}{-6}$	19	10-1/2 $\pm \frac{0}{-1/4}$	5 853	19	2-7/16	2 259	7	4-31/32	13	1/2	10	3/8

MINIMUM INTERNAL DIMENSIONS

Freight container designation	Minimum height	Minimum width		Minimum length		
		mm	in.	mm	ft	in.
20'	Nominal container external height minus 241 mm (9-1/2 in.)	2,330	91-3/4	5,867	19	3
8,931				29	3-5/8	
11,998				39	4-3/8	

APPENDIX H: UNITAS Decals Specification



New larger decal to be placed on both sides of the tank shell

Old small decals to be placed centrally (where possible) on both ends of the tank shell.