

Packing and Handling Instruction for Type TC02, IP-2 ISO Container

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History sheet

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Definitions/Glossary

ALARP	As Low As Reasonably Practicable
ACEP	HSE Approved Continuous Examination Programme
ADR	European Agreement concerning the carriage of Dangerous Goods by Road
Approving Authority	LLWR Container Approval Authority is responsible for the issue of Certificates of Approval for IAEA self assessment container types on behalf of LLWR
Consignor	Consignor according to the provisions of ADR
Container Operator	Owner of the Container
Contract Authority	LLW Repository Ltd
CSC	(International) Convention for Safe Containers
Design Authority	Head of Engineering LLW Repository Ltd., Holmrook, Cumbria
Inspection Authority	An Inspection organisation approved by the Health & Safety Executive to approve designs as meeting ISO and CSC requirements.
IAEA	International Atomic Energy Agency.
IP-2	Industrial Container Type 2
ISO	International Standards Organisation.
LLW	Low Level Waste
LLWR	Low Level Waste Repository
LSA	Low Specific Activity
Manufacturer	The organisation responsible for producing hardware in accordance with the requirements of the Contract Authority.
OI	Operating Instructions
OQP	Operational Quality Plan
SCO	Surface Contaminated Object
SQEP	Suitably Qualified and Experienced Person
WAC	Waste Acceptance Criteria

1 Introduction

1.1 General

1.1.1 This document provides the Relevant Parties (Consignors, Consignees) with guidance regarding the operational requirements for the LLW Repository Ltd IP-2 Container Design TC02.

1.1.2 The TC02. It has been designed in compliance to ISO 1496-1 [1] and has been tested under the alternative arrangements in IAEA Regulations for the Safe Transport of Radioactive Material 2009 [2] for IP-2 packages

1.1.3 The container is designed for the transport and disposal of radioactive material in the form of LLW conforming to LSA or SCO material as defined in Reference [2]. Each container is supplied as an Industrial Container Type 2 (IP-2) container. The explicit use and restrictions of the packaging are defined in the Certificate of Approval issued by the LLWR Container Approval Authority.

Note: Where it is found that any part of these Packing and Handling Instructions cannot be complied with, the container shall be embargoed and advice shall be sought from the Contract Authority to allow the shipment to continue.

1.1.4 In specific circumstances the additional permission/approval/endorsement is required from the contract authority:

Contact: transportandlogistics@llwrsite.com

Activity	Requirement
Container restraint (other than twist lock)	6.2.2
Using alternative lifting frame for stillage	8.3
Lifting the lid by alternative means	6.8.1
Alternative Container Handling Methods Other than that permitted in section 6	6.9
Non standard use of stillages	5.2.2, 8.4.4
Resolution of identified damage/defects	7.1.1

Table 1 Controls requiring Contract Authority Permission

1.2 Temperature Range

1.2.1 Ambient temperature range for this package design is -40°C to +38°C.

2 Scope

2.1 General

2.1.1 This document identifies the operational requirements. The purpose of these instructions is to ensure that each container is safely and correctly handled and loaded prior to transportation, and is inspected this will ensure compliance with the requirements of reference [3]. Adherence to these Packing and Handling Instructions and Maintenance requirements as

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specified in reference [4] will ensure that the equipment remains in a serviceable and safe condition to meet the design parameters and maintain regulatory compliance within the safety justification.

- 2.1.2 These Packing and Handling Instructions address the following issues:
- Container handling operations (including turn-round inspection), to be carried out as required at loading and unloading
 - Minor maintenance tasks that can be carried out prior to loading and unloading, (as part of the container turnaround), by the operational staff.
 - Acceptance criteria requirements (norms and tests)
 - When further permission is requested from the Contract Authority.

2.1.3 These instructions are to be used in conjunction with any local instructions governing radiological and other safety issues related to movement of radioactive materials, as well as any national nuclear safety requirements and the agreement for the supply of the containers.

NOTE: It is recommended that a OQP is used to carry out these tasks

3 Compliance

3.1.1 The Consignor is responsible for ensuring that Container use complies with these Packaging and Handling Instructions and with other appropriate Regulatory requirements. (including the consignment of any empty containers).

4 Responsibilities

4.1.1 It is the responsibility of the Consignors to ensure that:

- Container operating and inspection activities are carried out in compliance with a quality management system that meets the requirements of Reference [5].
- Radioactive materials and transport containers are in compliance with applicable local and Regulatory requirements.
- Reference is made to the Certificate of Approval for the container identifying information on approved contents and other shipment and operating requirements.
- The material to be consigned satisfies the regulatory requirements for transport within an IP-2 ISO freight container.
- The material to be consigned complies with the acceptance criteria for the receiving facility.
- Personnel associated with packing, loading and unloading [8] carrying out examination of the container [9] are instructed to carry out the required operations as quickly as safely practicable in order to ensure personal radiation dose is ALARP.

5 Package Description

5.1 General

5.1.1 The package is uniquely identified by the LLW Repository Ltd IP-2 package design number TC02. The package is essentially a half height ISO freight container, which is primarily designed to transport solid waste items within the UK and to international locations.

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5.1.2 The package measures 6.058m x 2.438m x 1.325m high and consists of a carbon steel external frame and a stainless steel inner tub and floor.

5.1.3 The lid is secured to the container body using 24 number clamps on swing bolts. The clamps remain attached to the container. The lid is removed as per section 8.2 and fastened as per section 8.8.

5.1.4 There are eight internal twistlocks to enable securing of stillages within the container. Each TC02 stillage must constrain the load. This has been achieved on TC02/S1 using adjustable chocks to limit lateral and longitudinal movement and ratchet straps fixed to anchor points on the stillage to limit vertical movement. TC02/S1 stillage uprights enclose a twist lock mechanism which allows the Stillage to be fixed in position into the TC02. These uprights also locate and provide the attachment point for the specific lifting frame TC02/L1. Future stillages will be design to operate in a similar manner.

5.2 Payload

5.2.1 The rated payload for each container is 29,200 kg (excluding Stillages used for the securing of waste boxes).

5.2.2 The TC02 container shall only be used to transport items restrained on the LLWR approved Stillages. The operation of the stillage is described in section 8.4.

WARNING: Only stillages approved by LLWR may be used for securing waste within the container.

5.2.3 The eight (8) number internal anchor points within the package must be used to secure any stillage. These anchor points are designed to transfer the loads from the items to the base of the structure via an approved stillage. The exact location of these anchor points are shown on drawing OBE 2668153, (a copy of this drawing shall be supplied by the Contract Authority on request). Each of these anchor points can restrain 10Te. A minimum of 4 anchor points however shall be used to restrain each stillage.

5.2.4 Approval for Alternate stillages and/or securing methods shall be submitted to the Contract Authority for approval.

6 Container Handling Operations**6.1 General**

6.1.1 The consignor shall have a QA system in place covering the container inspection, handling, loading and dispatch as identified in this instruction.

6.1.2 The detailed QA system referenced above shall consider all operational hazards and limits including but not limited to the following:

- -Container inventory
- -Container and stillage lifting operations
- -Container payload size, weight, SWL, etc.

- -Container radiation and contamination levels.

6.2 Handling Methods

6.2.1 The container is based on a Series 1 ISO freight container conforming to Reference [1], incorporating standard corner fittings and fork lift pockets. The recommended handling methods are detailed below.

6.2.2 The container is to be restrained to the conveyance using the twist lock mechanisms twistlocks at the nominal spacing of 5855 mm (longitudinal) and 2260 mm (lateral) for effecting tie-down of the package to the vehicle via the four bottom corner fittings in compliance with BS ISO 3874 [6]. For any other method of container restraint, assessment must be carried out by SQEP personnel and submitted to the Contract Authority for endorsement.

6.2.3 The vehicle securing devices will be rated to carry the container as designed under routine conditions of transport.

6.2.4 Before any lifting the container must be free to be lifted e.g. ensure that the twistlocks mechanisms or any other securing systems are removed or disengaged (See Figure 1 and Figure 13)

6.3 Lifting and Loading Equipment

6.3.1 All container lifting and loading equipment must be rated to handle the container safely. See below for relevant weight information applying to the TC02 container design:

- Tare Weight (empty container fitted with lid and but excluding any internal stillages) 4100kg.
- Container lid weight approximately 525 kg.
- *For guidance only¹ Stillage TC02/S1 weight approximately 690kg and Stillage Lifting Frame TC02/L1 weight 160kg*

6.4 Lifting using a Fork Lift Truck

The container base is fitted with forklift pockets at 2050mm centres that are rated for the gross weight of the container. The forks shall be fully inserted in the proprietary fork pocket as shown in Figure 4.

6.5 Lifting using Bottom Fittings

6.5.1 The method of lifting illustrated in Figure 5 usually employs a four-leg wire or chain sling, which incorporates a top beam at least as wide as the container. This method can be used for lifting both loaded and unloaded containers. Each leg of the sling is attached to the side of the appropriate corner fitting using either shackles or monoblocks.

CAUTION: The angle between the container base and the sling leg must be 45 degrees or greater. This method of lifting can be used to lift empty or loaded containers.

¹ The consignor must confirm the weight of the stillage and/or lifting frame type that is being used

6.6 Lifting using Top Fittings

6.6.1 Lifting using top fittings requires a spreader frame which is designed to ensure that only a vertical force is applied to the top twist lock fittings. The attachment to the corner fitting must be as shown in Figure 6. This method of lifting is suitable for either loaded or empty containers.

6.6.2 A four-legged sling can be used when each leg of the sling is attached to the side or top of the top corner fitting using either shackles or monoblocks can be used to lift an empty container only (including the unloaded stillages). This must not be used when any other items are in the container.

WARNING: The use of a four-leg sling (when applied to the top corner fittings) is Not Permitted for lifting a LOADED container.

6.7 Maximum Stacking Height

6.7.1 The maximum stacking height for a fully loaded container is six (6) high including the base container. Where containers are to be stacked, it is recommended that ISO intermodal connecting twist locks are used to aid stack stability.

CAUTION: The ground upon which the containers are stacked must be flat and level and rated to support the accumulated gross weight of the containers.

6.8 Lifting Container Lid

WARNING: The lid lifting lugs are only designed for lifting the lid ONLY. Lid lifting lugs shall not be used to lift containers.

6.8.1 The lid shall be lifted with a suitable four-leg sling with lifting shackles (SWL 6 cwt (300kg) each) attached to the four lifting plates/rings on the lid (See Figure 7). If alternative equipment is proposed approval must be gained through the Contract Authority prior to lifting the lid..

6.9 Handling by other methods

6.9.1 The container may be handled by methods other than those described above. This can only be carried out after a full evaluation of the equipment and method and any impact on the container has been assessed and approved by the Contract Authority.

6.9.2 Additional methods and guidance for the handling of both loaded and empty containers can be obtained from reference [6] .

7 Inspections

7.1 General

7.1.1 The container should be in a fit-for-purpose condition before being used and shall satisfy the inspection/checking criteria described below at a minimum. All inspections must be carried out by a Suitably Qualified and Experienced Person (SQEP). If any defects, incidents or

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abnormalities are identified then the container shall be placed on hold and it must be must be reported to the Contract Authority for resolution.

7.2 Certificate of Approval

7.2.1 The container Certificate of Approval for transport issued by the Approving Authority must be checked to ensure it is valid and will remain valid throughout the period during which the container is to be transported in the public domain.

7.3 Summary of Turn-round Inspection

7.3.1 On package turn-round (i.e. loading and unloading), the following visual inspections, shall take place. Record of these inspections shall be kept and any defects or difficulties reported.

Ref.	Inspection Requirement	Record Requirement	Acceptance Criteria Ref
1.	Package general condition	Corrosion, defect, wear	7.5
2.	Other safety related features.	Vents, control systems and mechanical interlocks etc.	7.10
3.	Package markings	All regulatory markings/labels are present and legible.	7.5
4.	Seals and seal surfaces	No damage or debris.	7.9
5.	Check package internally	No debris, damage, corrosion or water present.	7.6
6,	Swing bolt operation	Wear, interface, clearances, any defects or difficulties	8.2.2
7	Package license validity	Confirm package license validity.	7.2

Table 2: Turnaround Inspection TC02 Main Body

Ref.	Inspection Requirement	Record Requirement	Acceptance Criteria Ref
1.	Stillage general condition	Corrosion, defect, wear	7.7
2.	Ratchet Straps	Damage, wear	8.5.4
3.	Chocks.	Wear, interface, clearances, any defects or difficulties	7.7
4.	Twistlocks	Wear, interface, clearances, any defects or difficulties	7.6.1

Table 3 Turnaround Inspection TC02 Stillage

7.4 CSC (Safety Approval) Plate

7.4.1 The CSC safety approval plate must be checked to verify that the container is in date i.e. within 5 years of manufacture. Where the CSC plate is found to have expired, confirm that a valid ACEP decal is displayed adjacent to the CSC plate and the date of the next examination is due is valid. Re-inspection and re-plating will be required if the period of validity will expire prior to filling or consignment. The Contract Authority shall be contacted regarding container re-inspections. This shall include a confirmatory lid seal leakage testing see guidance document PAA/GN01 (Technical Inspection with Associated Seal Leakage Tests) [9].

7.5 Visual Inspection of External Container Body and Lid

NOTE: If in any doubt contact the Contract Authority for advice

WARNING: Inspection of the container base should be carried out from the side of the container (do not work under the container)

7.5.1 Visually examine all the external surfaces (including the base) of the container for signs of damage.

- i) Cracking of welded joints is unacceptable.
- ii) Puncturing of the container body or lid is unacceptable
- iii) Cuts or scratches in the container skin greater than 1.5 mm deep are unacceptable
- iv) Small dents are acceptable (less than 25 mm),
- v) The external paint finish must be checked for damage/corrosion (except base). Minor scuffing of the paint finish is acceptable but there shall be no exposed bare metal. Any exposed bare metal should be reported to the Contract Authority. Note: The inside of the container including the underside of the lid is unpainted as the surfaces are stainless steel.
- vi) All decals are present and correct

7.6 Internal Visual Inspection of Container

7.6.1 Visually examine the package internals for signs of damage and cleanliness. There shall be no visible mechanical damage.

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- i) Cracking of welded joints is unacceptable.
- ii) Tie –down points - There shall be no visible mechanical damage corrosion, deformation, change in section, or cracks evident in the main body or welds of any tie down points.
- iii) Puncturing of the container body or lid is unacceptable
- iv) Cuts or scratches in the container skin greater than 1.5 mm deep are unacceptable
- v) Small dents are acceptable (less than 25 mm)
- vi) There shall be no water present in the container

7.7 Visual Inspection of the Stillage

7.7.1 Inspect the stillage(s) for signs of damage. This shall include a visual inspection of the following:

- i) Check anchor points (four on each side) on stillage are free from damage. There shall be no cracks, distortion or gross deformation visible
- ii) Check chocks and fixing pins for damage
- iii) Check there are no cracks or deformation on the floor of the stillage, especially around the chock fixing locations.
- iv) Check stillage uprights for signs of deformation or cracks in welds.

7.7.2 If any damage is found the stillage shall be placed on hold and the Contract Authority notified.

7.8 Visual Inspection of the Lifting frame

7.8.1 Visual inspection and maintenance of the lifting frame shall be in accordance with the item owners processes and procedures this will typically include a visual inspection of the following.

- i) Check pins on lifting frame are free from damage. There shall be no cracks, distortion and gross deformation visible
- ii) Check welds for damage
- iii) Check there is no deformation on the beams and plate.
- iv) Check chains for any damage. .

The item owner is solely responsible for ensuring the appropriate thorough examinations take place in accordance with reference [7]

NOTE: Lifting frames hired from LLWR will be provided with documentation detailing the next inspection date.

7.8.2 If any damage is found the lifting frame advice can be obtained from the Contract Authority.

7.9 Lid Seals and Seal Support Channel

CAUTION: The seals should be handled with care and not twisted.

7.9.1 Particular attention should be given to checking the features which secure the lid, and also to the lid seal faces and seal channels. If any damage is found on the lid seal faces or seal support channels then repairs will be required. The container shall be placed on hold and the Contract Authority contacted for resolution.

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7.9.2 For information on seal leakage testing see guidance document Reference: PAA/GN01 (LLWR IP2 ISO Container CSC Plate Inspection, Technical Inspection with Associated Seal Leakage Tests).[9]

7.10 HEPA Filter

7.10.1 Check that the HEPA filter assembly mounted in the A end of the container is undamaged. If HEPA filter is damaged the container shall be placed on hold and the Contract Authority contacted for resolution

8 Preparing, Loading, and Unloading of the Container**8.1 Positioning of Container**

8.1.1 During loading/unloading operations the container shall be either:

- i) Positioned on a flat & level hard standing/floor such that the floor and/or all the four corner fittings can take the load. Care must be taken to ensure that the container is not set-down on any sharp objects that could damage the floor. Note: proprietary castor wheel can be secured to each base corner twistlock to aid manoeuvrability of the container provided that: the castor wheels are rated to support the maximum gross weight of the loaded container, and; movement of the container, supported on the wheels is attempted only on a level hard standing/floor. Or,
- ii) If the container is to be operated whilst residing on its transport trailer, then the tractor unit must be removed and an independent jacking system must be used to support the front of the trailer as shown in Figure 3.

8.1.2 During all loading operations, water must not enter the container body at any time. Ingress of water and dirt into the seal areas should also be prevented. Any such water ingress shall be removed.

8.2 Lid Removals

8.2.1 To remove the lid, loosen the 24 nuts on the ¾" BSW swing bolts that hold the clamps down and rotate the bolt and clamp away from the lid. This will allow the removal of the lid as shown in Figure 7.

8.2.2 Examine the swing bolts for damage, ensure all welds are free from defect and that the retaining nuts can be freely rotated by hand all the way down the thread

8.2.3 After removing the lid, it should be set down on a clear area where it will not obstruct loading operations and it should be supported at regular intervals (1.2 m) on timber, one at each end and one in the centre, as shown in Figure 7, the timber being spaced so as to line up with the 6 feet on the lid.

8.3 Removal of the stillage

8.3.1 Unlock the stillage from the container Base Stillage lower twist lock mechanisms as shown in Figure 9.

8.3.2 Fit the lifting frame to the Stillage by

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- i) Guide the lifting frame over the top and down to locate on the four base Stillage lower uprights see Figure 10.
- ii) Insert pin through both the lifting frame and base Stillage lower uprights and fix with the corresponding lynchpins.

Or

- iii) Attach required lifting equipment as required by the specific stillage design.

Note: When Using the TC02/L1 & TC02/S1, a single point lift is to be used. The lifting height required is 3.02 m above the top of the Container.

Note: The TC02/L1 lifting frame has been designed such that it cannot be fitted to the Base Stillage with the internal twist lock mechanisms in the locked positions in order to prevent the Stillage from inadvertently being lifted with it fixed to the container

Note: Use of a customer designed lifting frame for the TC02/S1 is not permitted without the consent of the Contract Authority. (in any such case the force applied to the stillage shall be vertical only) The Contract Authority will issue a Statement of Compatibility if the lifting method/non standard lifting frame is found to be suitable.

8.3.3 Lift stillage out of the container and place on a flat & level hard standing/floor. Care must be taken to ensure that the stillage is not set-down on any sharp objects that could cause damage with sufficient space to facilitate placement of the waste box or item on it.

8.3.4 Removing the lifting frame from the stillage

- i) Remove the lynchpin from the end of the lifting pin and remove the lifting pin itself, replacing the lynchpin into the lifting pin and store them both in the chain tray.
- ii) Lift frame clear of the Base Stillage
- iii) Store on a suitable clean flat surface
- iv) Lower the lifting chain down into the chain tray to ensure no chain is resting on the floor

Or

- v) detach required lifting equipment as required by the specific stillage design.

8.3.5 Following the removal of the stillage ensure that inspection of the internals of the container is carried out in accordance with Section 7.6 and inspection of the stillage is carried out in accordance with section 7.7.

8.4 Loading of the stillage and securing of the item(s)

8.4.1 Waste boxes and Items shall be prepared in accordance with section 9

8.4.2 Each approved Stillage has been designed for a Safe Working Load (SWL) evenly loaded over the base of the stillage surface. The box shall be placed so that the centre of gravity of stillage and box are as central as possible. (Item(s) placed on the stillage should be located in a way that no more than 60% of the total stillage load is placed over 50% of the area.

8.4.3 The SWL of the stillage is clearly marked on it and must not be exceeded

8.4.4 The maximum item size (L xWx H) is, L x 1680mm x 890mm. where The length (L) can vary up to a maximum of 5450mm. The item may in some cases extend over the end of the stillage in this case proposals for longitudinal restraint must be submitted to the Contract Authority for approval.

Note The approved envelope for stillage TC02/S1 is 1680mm x 2420mm x 890mm high.

8.4.5 Measure the item or box and position three (3) chocks in the predrilled holes on the base of the stillage so that when the item(s) is placed it is central on the stillage and the vertical face of the chock is as close to each end of the item as practicable. The chocks do not need to be in contact with the box or item but should be placed as close to the item or box as possible.

Note: these chocks are required to restrict the longitudinal restraint to the item during transport. On stillage TC02/S1 lateral restriction is provided by the vertical legs of the stillage. If a box or item is placed on this stillage that does not span between the vertical posts of the stillage then additional chocks shall be used to restrict the lateral movement of the box or item during transport.

8.4.6 The box(es)/item(s) shall be restrained in the vertical direction using ratchet straps attached to the anchor points on the stillage, Figure 10. Two ratchet straps rated 2.5 Tonnes each shall be fixed over the box(s)/items(s) in both the longitudinal and lateral directions.

8.5 Removal of Waste box(es)/Items From The Stillage

8.5.1 Loosen and remove Ratchet Straps securing the item

8.5.2 Remove waste box(es) / item(s) from the Stillage referencing consignors guidance if appropriate

8.5.3 Following the removal of the waste form the Stillage, ensure that inspection of the Stillage is carried out in accordance with section 7.7.

8.5.4 Inspect the ratchet straps and discard if there is any sign of damage

Note the chocks are to remain with the stillage and can be repositioned prior to future loading

8.6 Loading and Securing of the Stillage into the Container

8.6.1 Before loading a Stillage into the container, the waste item or waste box must be secured to the Stillage as appropriate, in accordance with section 8.6.

8.6.2 Fit the lifting frame to the Base Stillage by:

- i) Guide the lifting frame over the top and down to locate on the four base Stillage lower uprights.(See Figure 10)
- ii) Insert pin through both the lifting frame and base Stillage lower uprights and fix with the corresponding lynchpins.

8.6.3 Lift the stillage

8.6.4 Place the Stillage in the container so that the four uprights site correctly over the tie-down points in the base of the container. (Guides have been marked on top of container to assist the alignment over fixing points).

8.6.5 When transporting a single Stillage, it should be placed in the centre of the container.

8.6.6 When transporting two Stillages, they should be placed one at each end. The Stillages can be placed either way around, as shown in Figure 11.

8.6.7 When loading two stillages with waste the weight distribution shall be no more than 60% of the load over 50% of the length of the container.

Note: If the above cannot be adhered to for two stillages in one container then appropriate counter weights can be used on the second stillage. Alternatively the second stillage may be shipped seperately

8.6.8 After ensuring that the Stillage is in the correct position within the container, remove the lifting frame as detailed in section 8.3.4 and turn the Stillage twist locks to the locked position as shown in Figure 9.

Note: The container cannot be assembled for transport with the lifting frame in place.

8.7 Replacing the Container Lid

8.7.1 A light surface of silicone based grease must be maintained on the seal surface and there must be no signs of age or hardening of the seal. This grease shall be certified for use between -40°C and +38°C

8.8 Closing the Lid

WARNING: Always ensure that lifting frames are detached before fitting the lid

8.8.1 Ensure all swing bolts are in the approximately horizontal position. The clamps need not be removed from the swing bolts. Apply 'Copaslip' or a similar anti-seize lubricant to the bolt threads as required. If there is any issue with the swing bolt assembly these can be replaced with parts applied by the Contract Authority.

Note: Never attempt to replace the spherically seated washer with a plain washer. The spherical seated washer is required because it significantly reduces the offset loading during bolt tightening operations.

8.8.2 Check that the seals are in a serviceable condition, are free from damage, and that the seal interspace is clear; reference section 7.9

8.8.3 The lid should only be located in one position on the container. When positioning the lid onto the top of the container, ensure the decals match on each end of the container, and the A end has the HEPA filter. The lid must be guided using the lid guide bars, which are on each corner of the lid.

WARNING: On no account shall the operator's hands be placed under the lower edge of the lid as it could shift or fall during lowering (see Figure 12).

8.8.4 Rotate the lid swing bolts and the clamps onto the lid edge and the clamp blocks (spherically seated washers are included in the assembly so no additional washers are required), ensure that clamps are located properly and not touching the lid, and then tighten all the nuts to a torque of 170 +/-10 Nm.

8.8.5 The seals are leak tested at the container manufacturers on completion of manufacture; therefore, there is no requirement to re-test the seals unless they have been damaged or replaced.

8.8.6 Once the lid is secured, fit the security seals in each of the two positions located at each end of the lid/container.

9 Preparation of Waste Box(es)/item(s)

9.1 Boxes

9.1.1 The waste shall be evenly distributed along the length of the box and shall be distributed so that the centre of gravity is lower than half the height of the box.

9.1.2 When loading waste care shall be given to placing waste within the box. Items of waste shall not be dropped into the box, as this could lead to damage of the base or walls of the box.

9.1.3 The waste shall be loaded into the boxes in an efficient manor that makes maximum use of the available space. Accessible voidage (air space) shall be kept to a minimum to avoid any movement of contents during transport.

9.1.4 Large heavy items must be packed such that no significant movement can occur.

9.1.5 Any waste material which has the ability to penetrate the walls of the container during normal conditions of transport must not be loaded adjacent to the internal surfaces of the box .

9.2 Items

9.2.1 Direct loading of items on to the stillage a loading plan (WSC-FOR-WLP) shall be completed and submitted to the Contract Authority and approved prior to loading to ensure that any issues at the receivers facility can be addressed .

9.2.2 To minimise contamination of the internal of the container, items placed on the stillage shall be wrapped in suitable semi-flexible packaging Advice can be provided by the Contract Authority upon request..

10 Pre Dispatch Checks

10.1.1 The container shall again be subjected to a visual examination of all exterior surfaces (including the underside and fork pockets). Reference section 7.5

10.1.2 All decals must be legible and securely affixed to the container body

10.2 Monitoring and Labelling

10.2.1 Prior to dispatch the Consignor shall monitor the radiation and contamination levels on the outside of the package in accordance with the applicable requirements as listed in the regulations [2]

10.3 Documentation

10.3.1 The Consignor shall complete the necessary consignment documentation as required by Reference [2] by the Consignors/Consignees Site Procedures and the receiving facility acceptance criteria.

10.4 Planned Maintenance

10.4.1 It is a regulatory requirement to ensure compliance with the Package Design Safety Report that planned maintenance shall be performed under a Maintenance Quality Plan (MQP). It is the responsibility of the container operator to carry out maintenance in accordance with Maintenance Instruction [4]. The consignor must check the supplied documentation held within the document holder, which will clearly define the next maintenance due date. The consignor must check that this date has not been past.

10.4.2 Routine maintenance and annual inspections are the responsibility of the container operator and shall be carried out in accordance with Reference 4 and will be carried out under an ACEP scheme.

11 Storage of Containers

11.1 Storage of Empty Containers

11.1.1 The container should be stored on a hard flat surface that is well drained. It is important that the Container paint finish is not damaged during this operation. The container shall not be used for storage. If the container is to rest at the consignors or consignees site for longer than one month then Contract Authority permission is required.

11.1.2 If the Container is to be stored for a period of 3 months or longer, a thin coat of lubricant applied to the threaded swing bolts. The swing bolts shall be tightened to 60Nm +/- 10Nm.

11.2 Container Retrieval from Storage

11.2.1 Upon retrieval from storage the container shall be examined in accordance with 7 to preserve the life of the seal and clamping arrangement.

12 References

- [1] BS 3951: Part 2: Section 2.1 (ISO 1496/1), Freight Containers. Part 2, Specification and Testing of series 1 freight containers. Section 2.1, General Cargo Containers for General Purposes Amendment 1: 1AAA and 1BBB Containers Fifth Edition; Amendment 1: 03/01/93; Amendment 2: 07/01/98
- [2] IAEA Safety Standard Series No TS-R-1: Regulations for the Safe Transport of Radioactive Material, 2009 Edition.
- [3] International Convention for Safe Containers, 1972 (CSC).1996 Edition
- [4] OM_LLWRGR_MECH_0002.Maintenance Specification for Container Design Number TC02
- [5] BS EN ISO 9001 Quality Management Systems – Requirements
- [6] BS ISO 3874: Series 1 Freight Containers - Handling and Securing Fifth Edition; 1997. Corrected and Reprinted 15/07/1999; Amendment 1 15/11/2000; Amendment 2 01/07/2002.
- [7] Lifting Operations and Lifting Equipment Regulations 1998 SI2307
- [8] European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) 2011
- [9] PAA/GN01 LLWR IP2 ISO Container CSC Plate Inspection, Technical Inspection with Associated Seal Leakage Tests

Figure 1 General View of Container

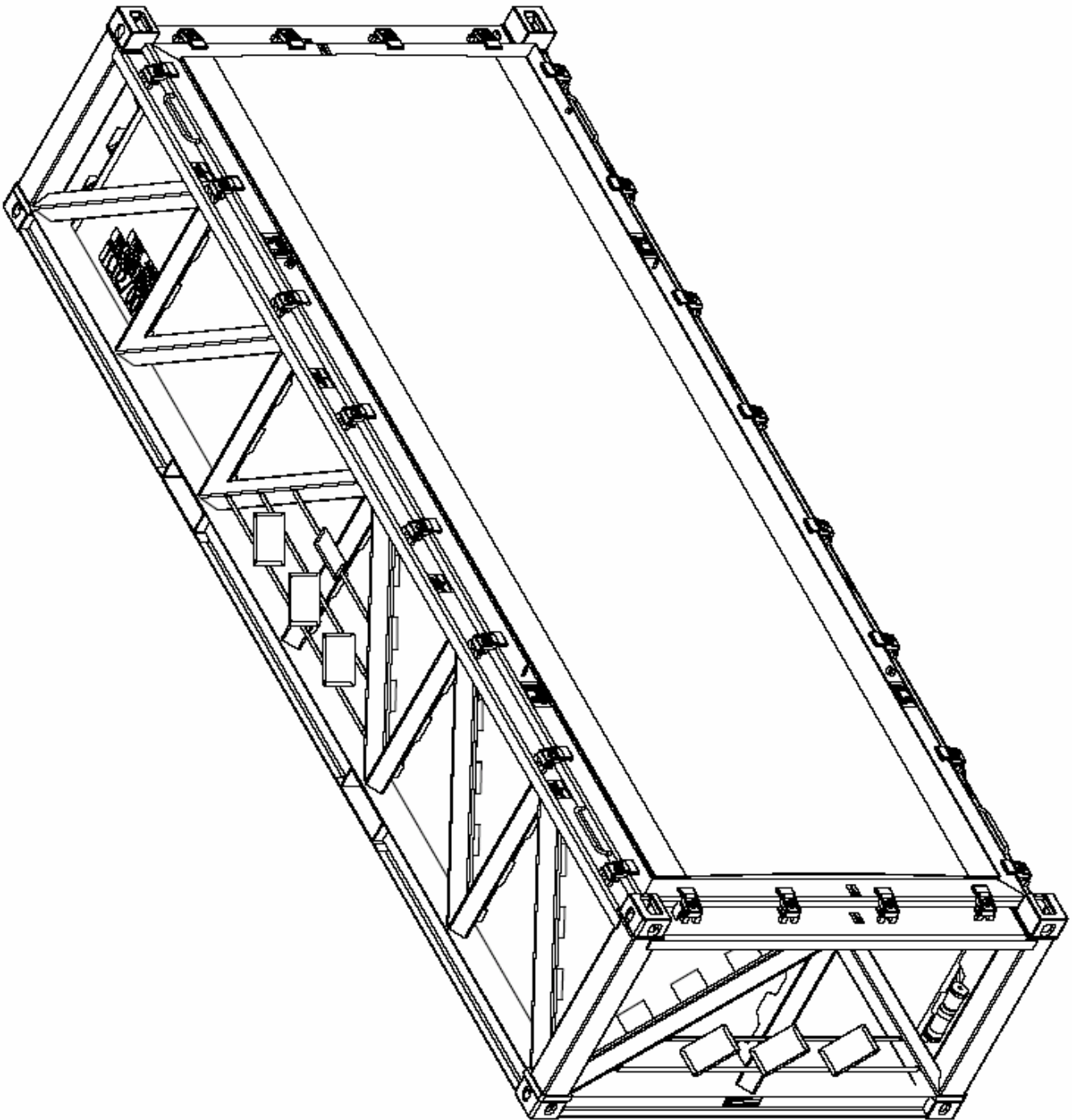


Figure 2 – General View of Half Container Stillages

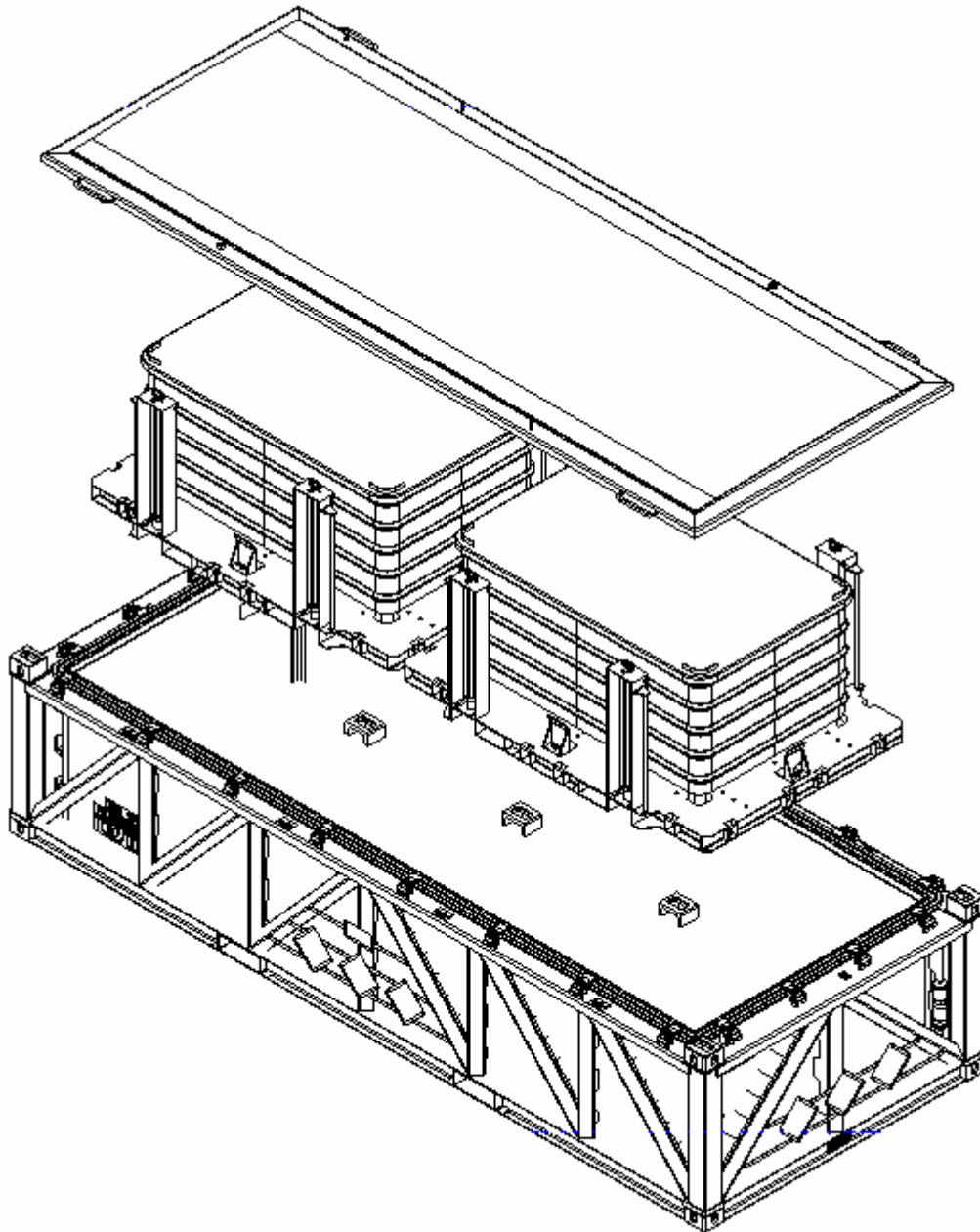
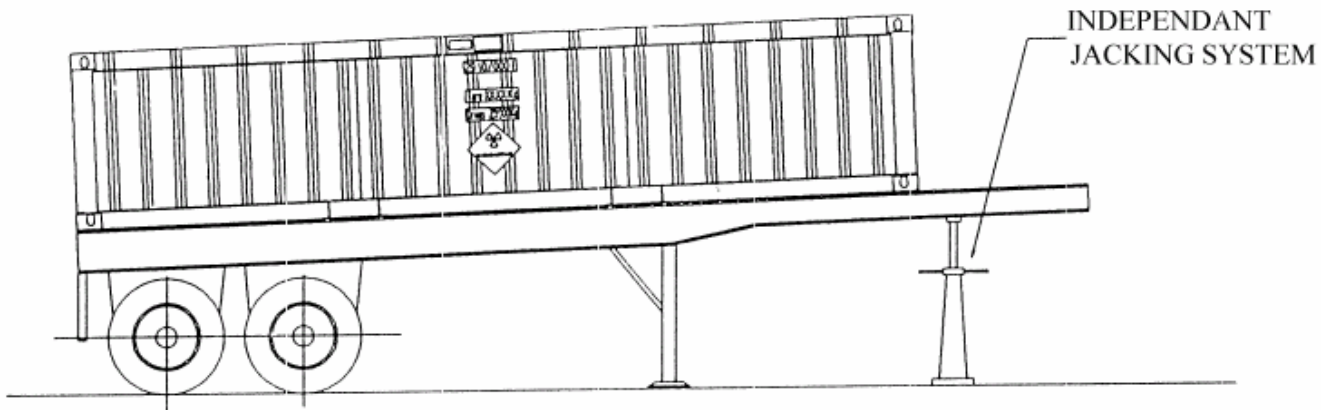


Figure 3 – Trailer Support



SUPPORT ARRANGEMENT WHEN THE CONTAINER IS LOADED WHILST ON A TRAILER

Figure 4 – Lifting Using Fork Lift Truck

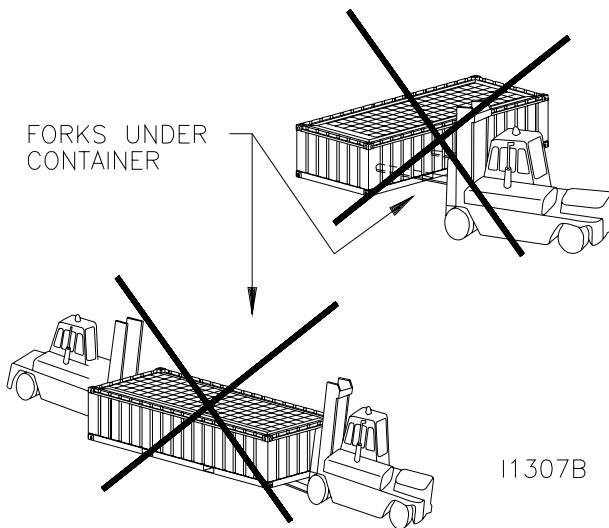
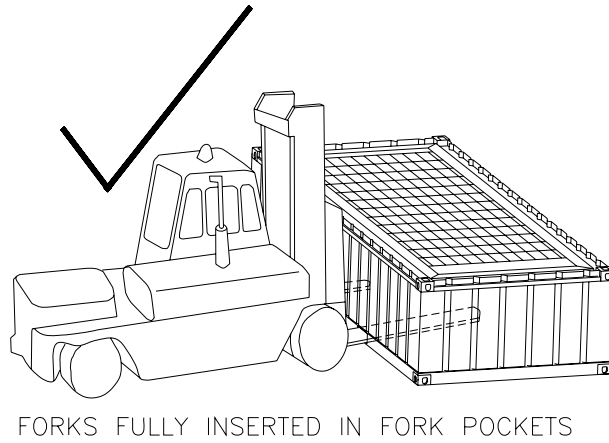


Figure 5– Lifting Using Bottom Fittings

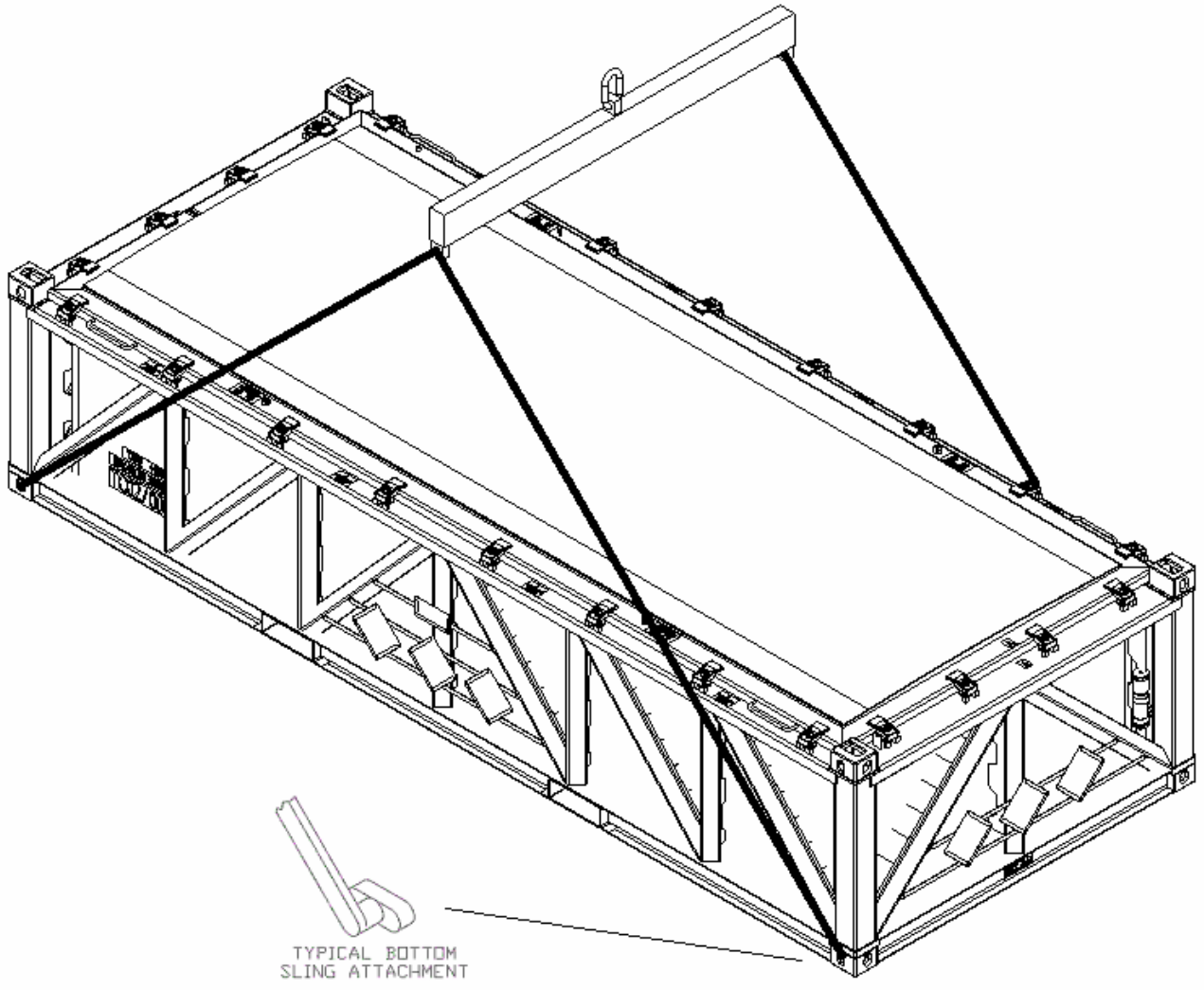


Figure 6- Lifting Using Top Fittings

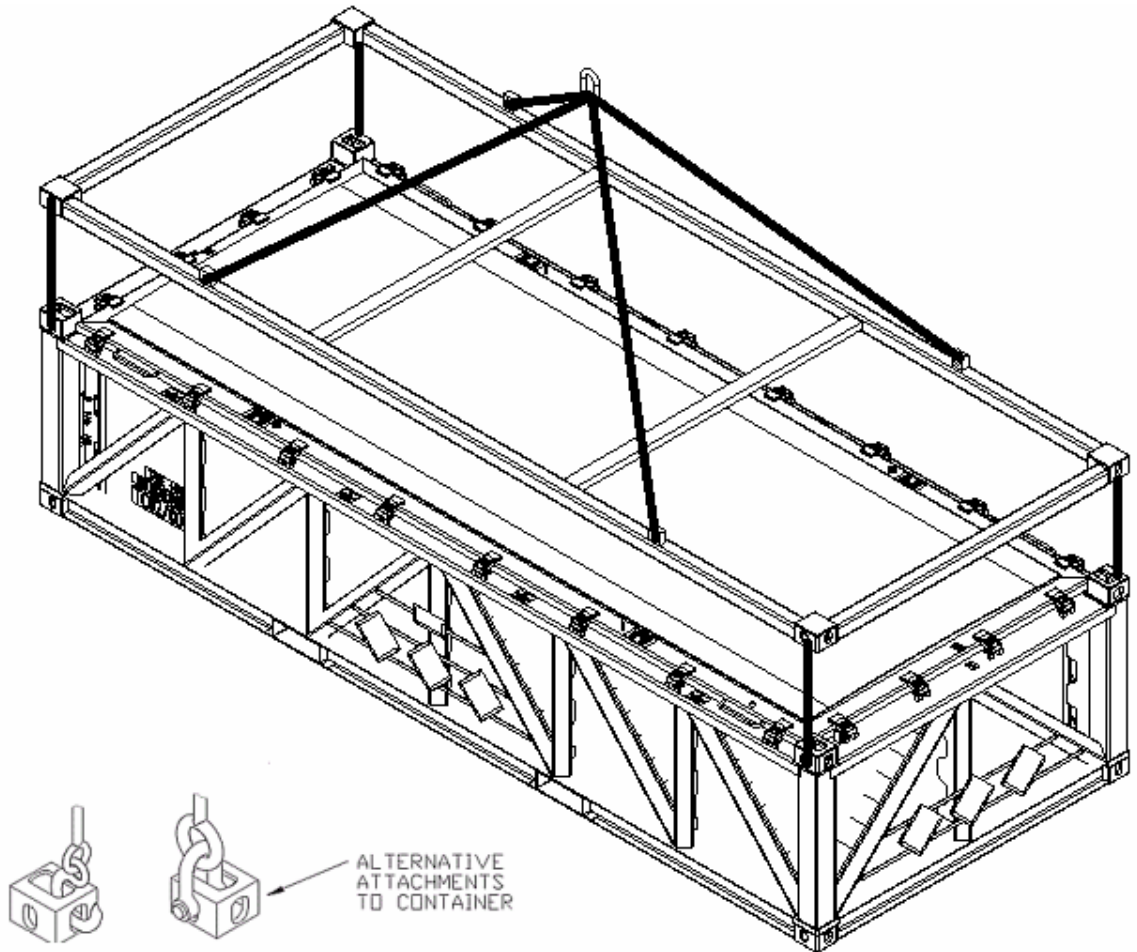


Figure 7 – Lid Lifting Lugs and Swing Clamps

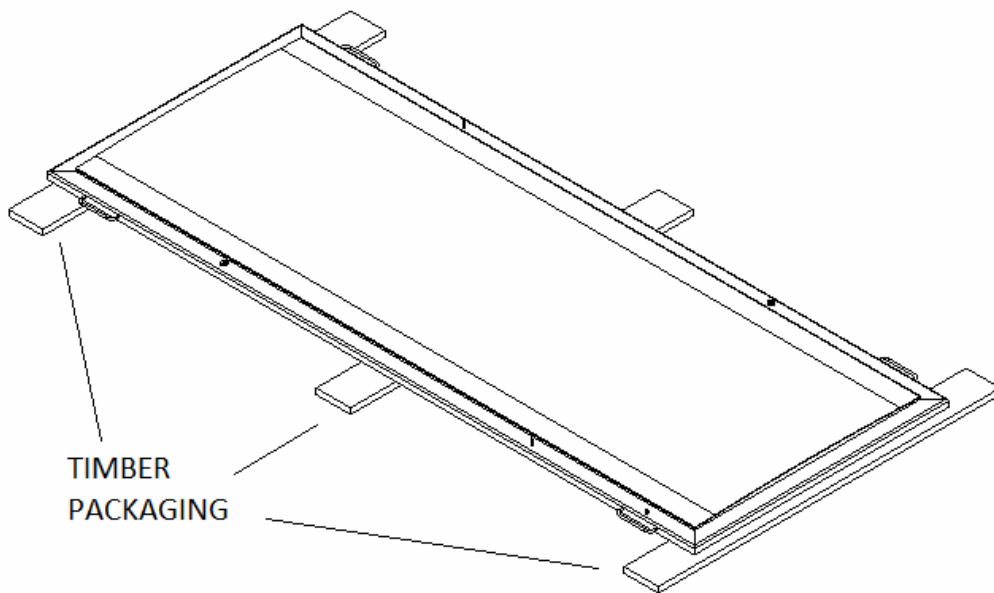
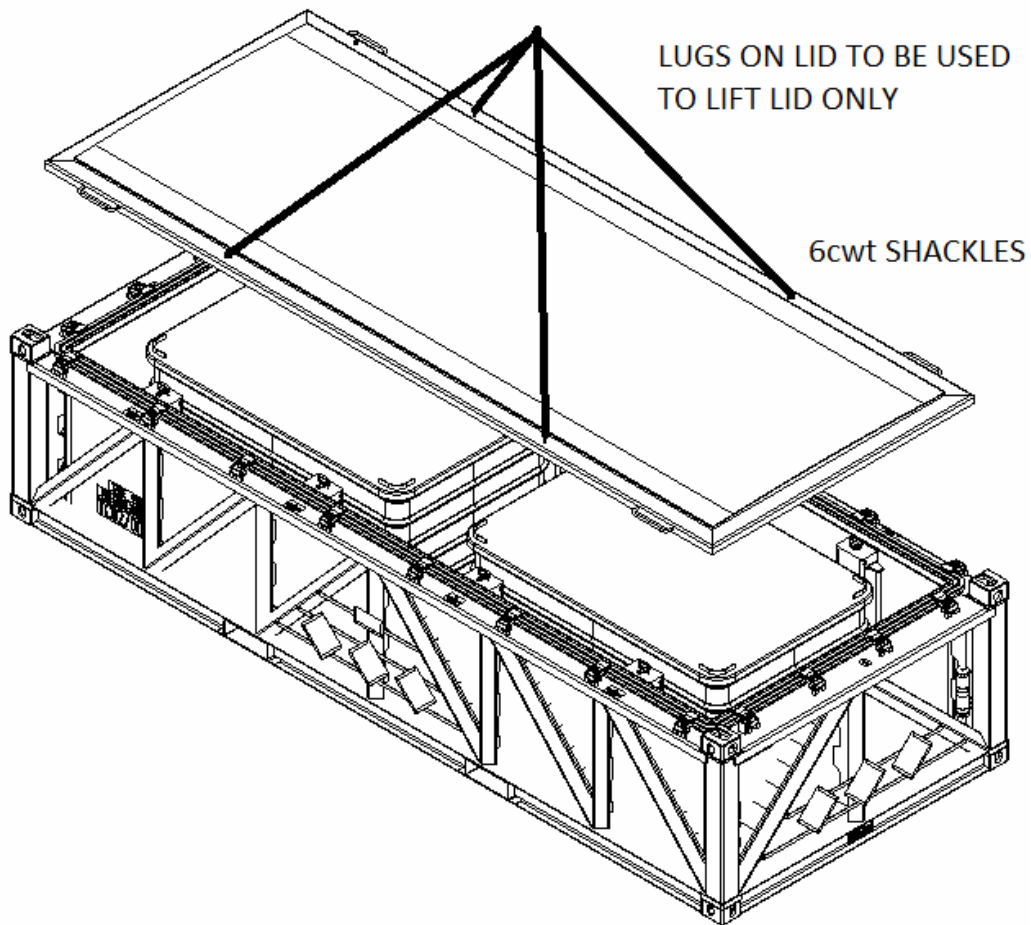
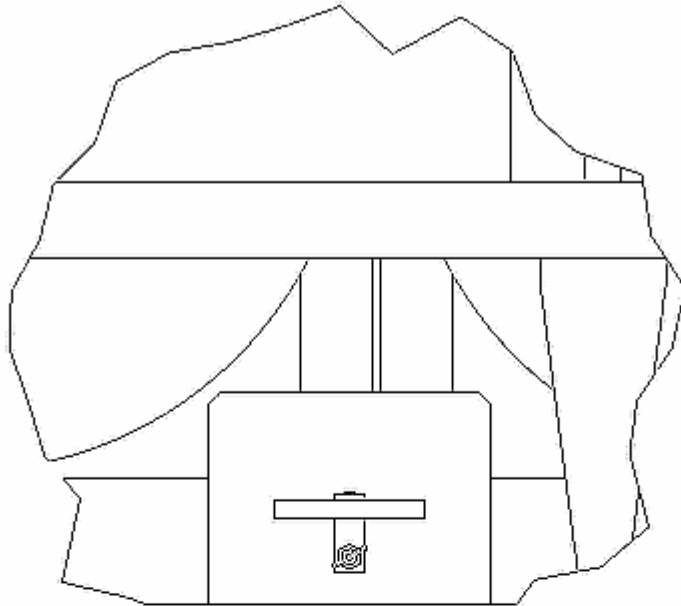
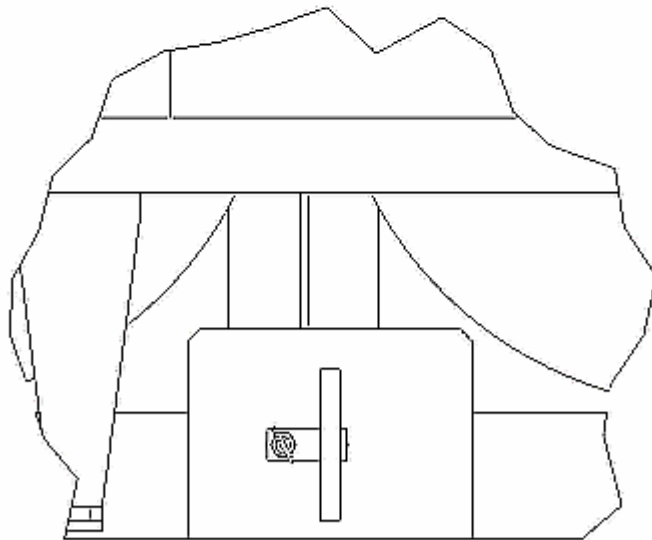


Figure 8 – Lid Lifting Lugs and Swing Clamps

Figure 9– Stillage TC02/S1 Locking Positions



**STILLAGE IN THE
OPEN POSITION**



**STILLAGE IN THE
CLOSED / LOCKED POSITION**

Figure 10 – Stillage (TC02/S1) and Lifting Frame (TC02/L1)

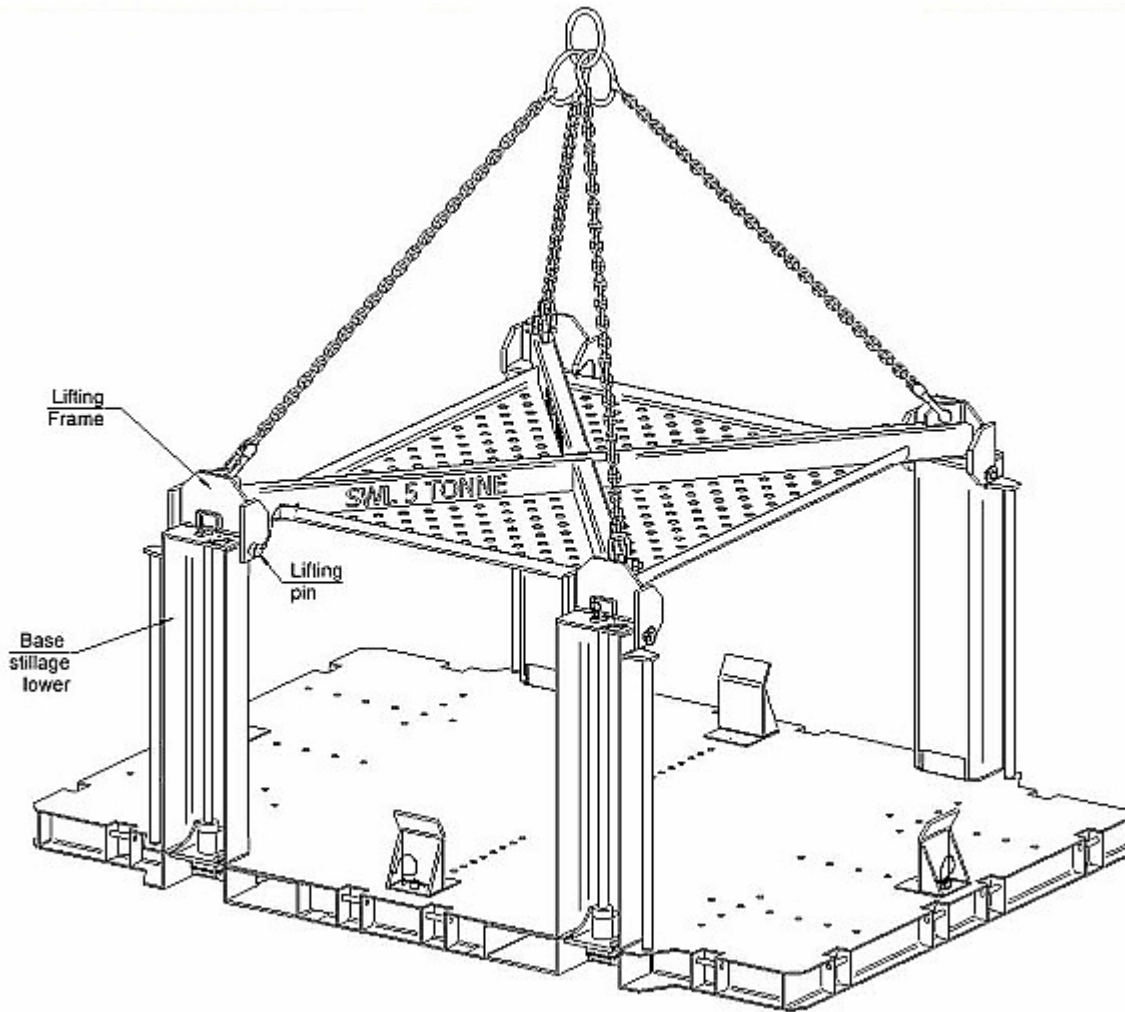
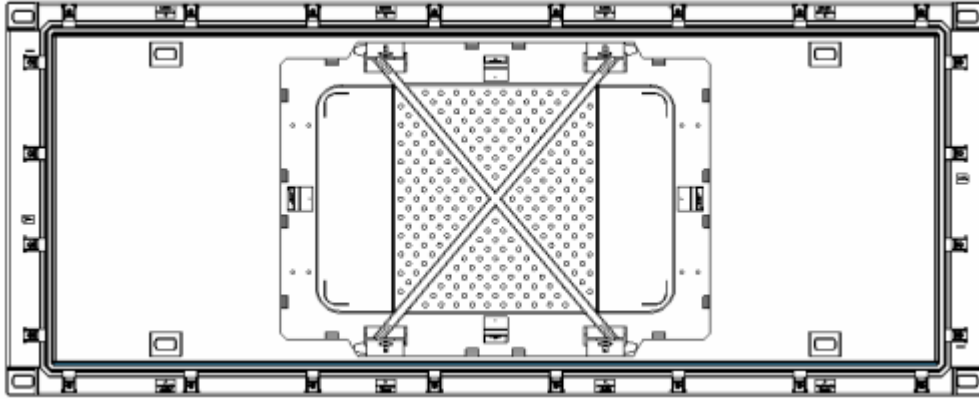
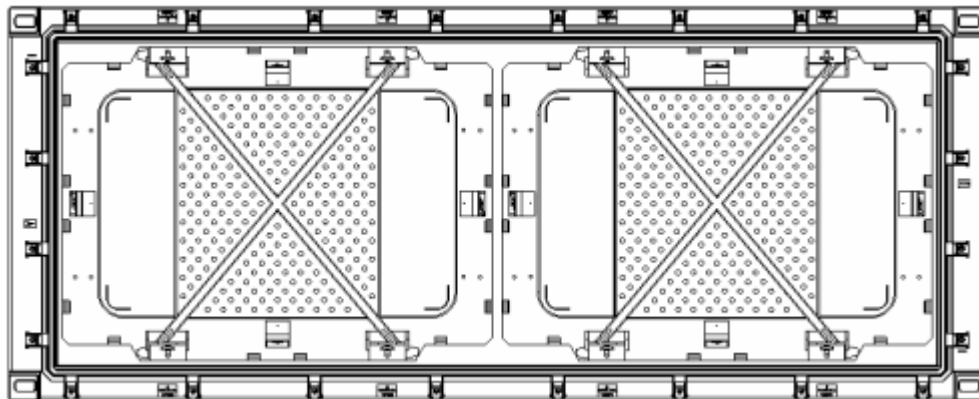


Figure 11 – Layout of Stillage and Lifting Frame (TC02/S1 & TC02/L1) Within the Container

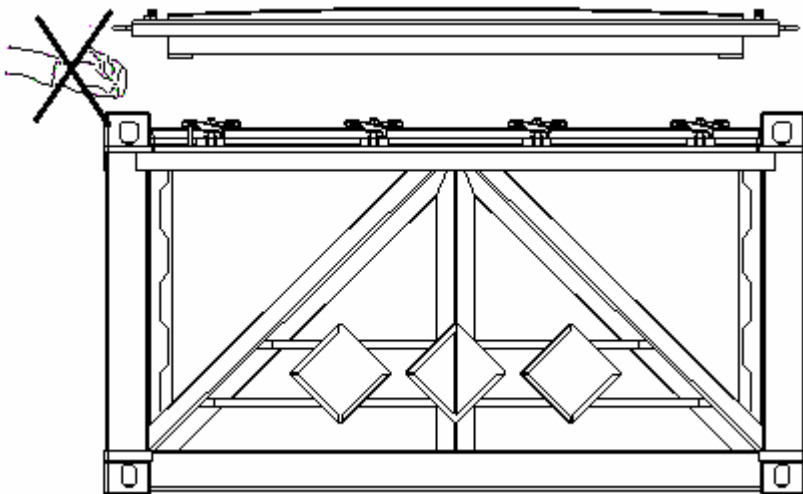
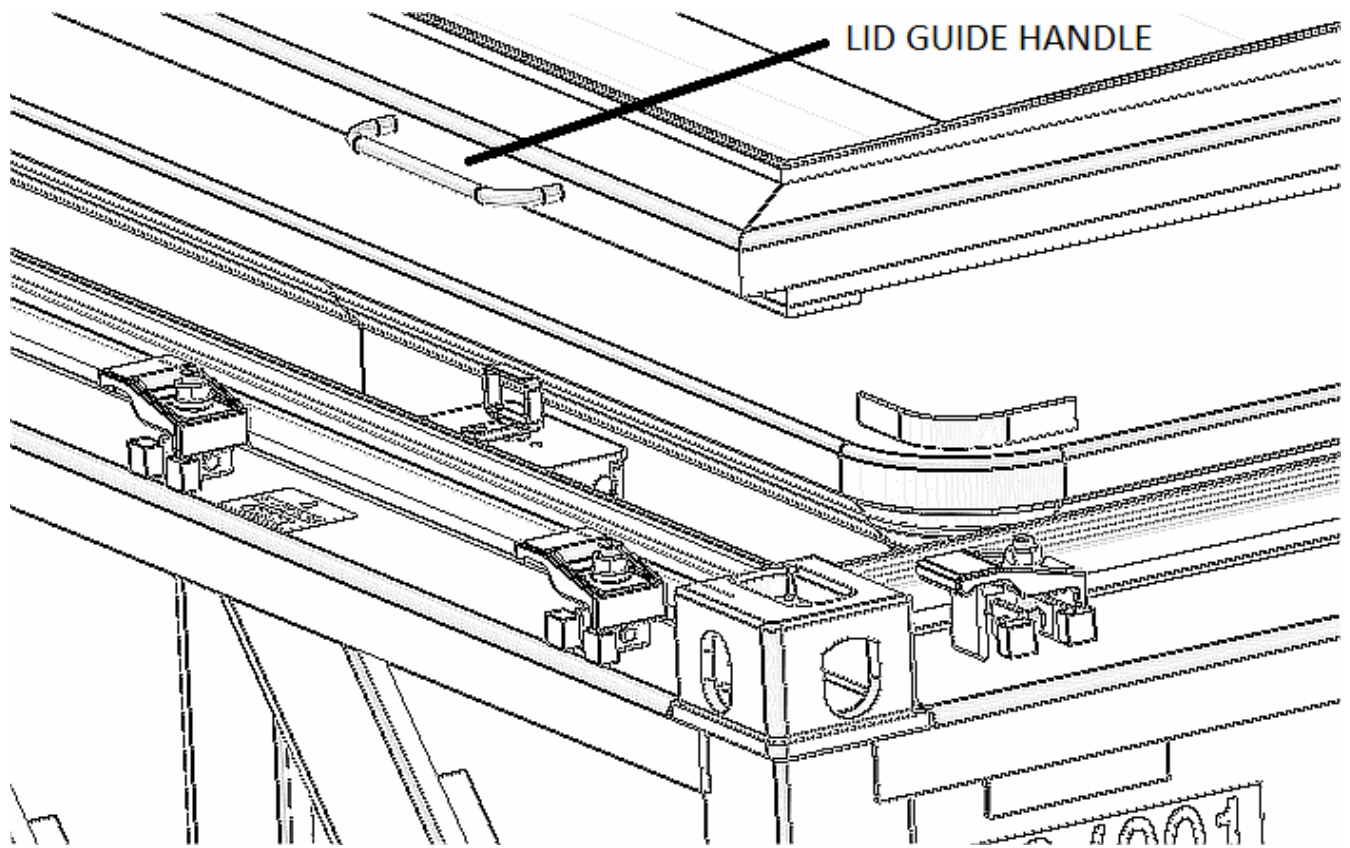


SINGLE STILLAGE ARRANGEMENT



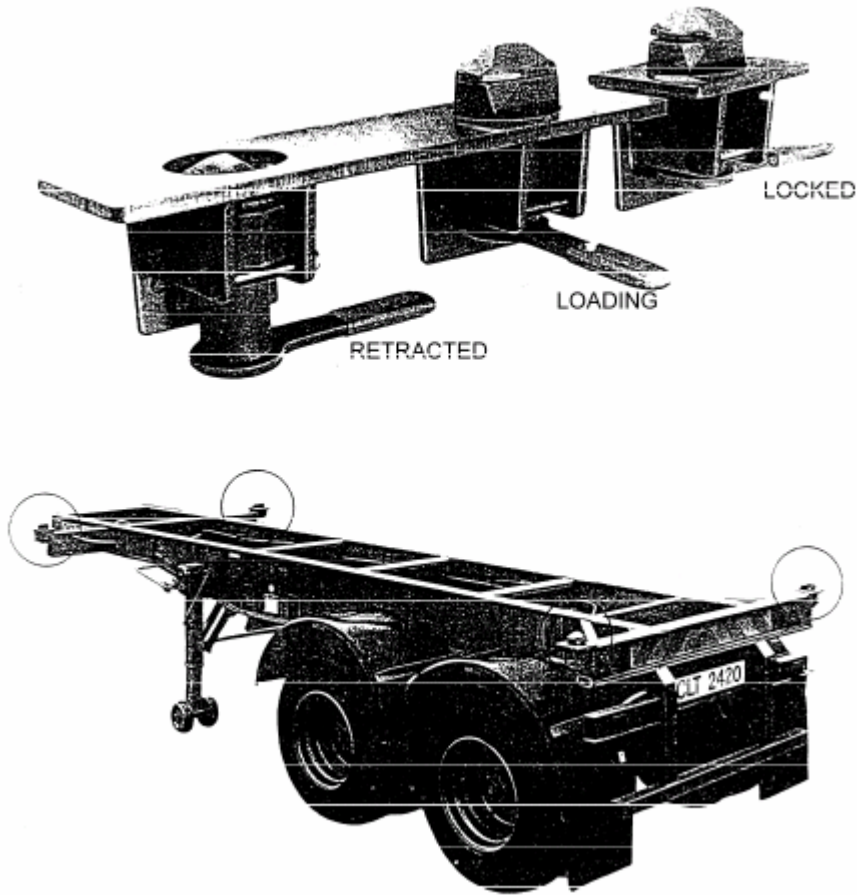
DOUBLE STILLAGE ARRANGEMENT

Figure 12 – Lid Guidance



USE THE LID GUIDE HANDLES AS THERE IS NO CLEARANCE UNDER THE LIP IN THE FINAL POSITION

Figure 13 – Twistlock System on Trailer



Appendix A Container Specification

G.A. Drg. No	.OBE 2668146
Indicative Weights (kgs)	
Body	3575
Lid	525
Permissible Gross Weight	35000
Indicative External Dimensions:	
Height (mm)	1325
Width (mm)	2438
Length (mm)	6058
Volume (m ³)	12
Apperture Dimensions:	
Length (mm)	5040
Width (mm)	2008
Maximum Stacking Height:-.	6
Lid Seal Configuration	Double
Seal Leak Test Method	Interspace

Specific Information For the use of Stillage TC02/S1 & associated Lifting Frame TC02/L2

	TC02/S1	TC02/L1
G.A. Drgs. No	.OBE 2688291	OBE 2688295
Indicative Weights (kgs)		
Weight	690	160
Safe Working Load	4310	5000
Indicative External Dimensions:		
Height (mm)	1137	N/A
Width (mm)	1950	1752
Length (mm)	2667	1650
Available Envelope		
Height (mm)	890	N/A
Length (mm)	2420	N/A
Width (mm)	1680	N/A
Minimum Height required from Hook to Top Of Container during loading/unloading (mm)		3020