

# **SECTION 14**

**FREIGHT CONTAINERS AND PORTABLE TANKS**



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## **14.1 SCOPE**

- 14.1.1 This section specifies the minimum requirements for the design and construction of various types of freight containers approved for transport by rail.
- 14.1.2 These requirements relate to compliance with ISO, Australian and other internationally recognised standards, codes and regulations. Provision is made for containers intended for use within Australia only which do not comply dimensionally with those standards, and additional requirements are included for containers designed specifically for rail transport.
- 14.1.3 In addition to original construction standards, this section describes faults on individual containers which may render them liable to rejection when presented for rail transport. Loading restrictions applicable to some types of containers are also included.
- 14.1.4 Specifications for specialised container securing devices, including their attachment and location on rail vehicles, are included in this Manual in Section 11.2. That Section also includes essential vehicle parameters for flat, skeletal and well-type wagons, both stand alone and articulated.

## **14.2 GENERAL REQUIREMENTS**

### **14.2.1 ACCEPTABILITY**

14.2.1.1 No container designed or constructed after 1 January 1993 shall be accepted for rail transport unless it complies with the requirements of this Section in relation to original construction, dimensions, modifications, repairs and service condition.

14.2.1.2 Each container shall possess an International Convention for Safe Containers (CSC) Safety Approval Plate or an ROA or SAA Container Compliance Plate (14.5), each incorporating the date of issue. These shall be located adjacent to the standard markings required by the original construction specification.

14.2.1.3 Any container constructed before 1 January 1993 other than those complying with 14.2.1.1 and 14.2.1.2 above may be accepted for transport on rail if approved by the rail System on which it is presented for loading. Such approval shall be based on adequacy of design, construction and performance during handling and rail transport, shall be independent of, and separate from, the requirements of 14-7, In-service Condition and shall be valid only for the journey for which the container is presented.

Owners and operators may submit such containers for long term certification as provided by 14.5. No container will be accepted for rail transport after 1 January, 1996 without a valid, current CSC, SAA or ROA Compliance Plate.

### **14.2.2 DOUBLE STACKING ON RAIL**

14.2.2.1 For the purposes of this Section, acceptability for double-stacking on rail refers to the ability of a container to withstand the dynamic forces experienced in transit on a rail vehicle while supporting another container secured to its top corner fitting with approved connection devices.

14.2.2.2 Containers constructed to comply with the ISO or Australian specifications listed in Table 14-1, or certified as acceptable for international intermodal use by any of the classification authorities listed in Table 14-2, shall be acceptable, subject to service condition, as the bottom unit in double-stack configuration.

14.2.2.3 Containers constructed to comply with the requirements of Section 14.4 shall be acceptable as the bottom unit in double-stack configuration *unless* marked otherwise.

14.2.2.4 No other containers shall be acceptable as the bottom unit in double-stack configuration.

14.2.2.5 Subject to the provisions of 14.8, Loading Restrictions, all containers shall be acceptable as the upper unit in double-stack configuration.

## **14.3 ORIGINAL CONSTRUCTION STANDARDS**

14.3.1 Containers shall be:

- (a) Constructed in compliance with one or more of the internationally recognised standards, codes or regulations listed in Table 14-1.

OR

- (b) Certified as acceptable for international intermodal use by any of the international classification authorities listed in Table 14-2.

OR

- (c) Constructed in compliance with the requirements of Section 14-4.

OR

- (d) Certified as acceptable for rail transport in Australia in accordance with Section 14-5.

14.3.2 Hereinafter, containers are referred to in accordance with the above construction standards, as follows:

- (a) International Containers: those complying with 14.3.1 (a) or (b)
- (b) Standard Domestic Containers: those complying with 14.3.1(c)
- (c) Special Domestic Containers; those complying with 14.3.1 (c) and classified as 'Special Domestic' by Section 14-4.
- (d) ROA Approved: those containers other than International, Standard Domestic or Special Domestic, and which have been granted ROA Compliance Plates (14.3.1(d)).

## **14.4 DOMESTIC CONTAINERS**

### **14.4.1 APPLICATION**

This sub-section 14.4 specifies the requirements for containers intended for transport on road and rail vehicles only within Australia. Overall dimensions exceed those specified as International sizes by ISO and Australian Standards. The containers are classified as Standard (sub-section 14.4.5) and Special (sub-section 14.4.6). Typical domestic containers are illustrated on Diagrams 14-3 and 14-4.

### **14.4.2 CERTIFICATION**

Certification and approval procedures shall be in accordance with the requirements of Section 14-5.

### **14.4.3 RAILWAY DOUBLE-STACK TESTS**

14.4.3.1 These tests are a requirement for all containers for which approval is sought for use as the bottom unit in double-stack configuration. Any container which fails, or is not subjected to, these tests shall not be approved for double stacking and shall be marked 'NO Double Stacking (Bottom Unit) On Rail' in 100 mm high characters. These markings shall be in red on a white background and located adjacent to the container identification markings on both sides and both ends where applicable.

14.4.3.2 The longitudinal restraint test shall be performed in accordance with Test No. 4 of AS 1563 except that the horizontal force applied to the bottom corner fittings shall be 39.2 R Newtons where R is the container rating (gross mass) in kilograms.

The test simulates a longitudinal acceleration of 2g applied to the base of the container where the base supports a load of 19.6 R Newtons and the top a load of 9.8 R Newtons.

14.4.3.3 The longitudinal rigidity test indicates the ability of the container to withstand racking forces due to longitudinal accelerations imposed on the lower containers in a double-stack configuration.

The test shall be performed in accordance with Test No. 9B of AS 1563 except that the applied force shall be 150 kN in lieu of 75 kN.

14.4.3.4 The above tests shall be performed on prototype and production containers as required by the relevant construction standard.

14.4.3.5 Where the tests are performed by the container manufacturer or an associated firm/group, the tests shall be witnessed and the results verified by the Certifying Engineer.

### **14.4.4 CORNER FITTINGS**

14.4.4.1 All containers shall be fitted with corner fittings for lifting and securing conforming to the requirements of AS E45.

14.4.4.2 Location dimensions and tolerances shall be as given in Table 14-3 and Diagram 14-2. The width over the outside faces of the bottom corner fittings shall not be greater than 2438 mm.

Containers longer than 12 240 mm shall have the corner fittings (or equivalent components) for securing and lifting symmetrically located at 11985 mm longitudinal centres with location tolerances as specified in AS 1563 (see Diagrams 14-2 and 14-4). Structural members to carry lifting forces shall also be located at these points.

14.4.4.3 Top and bottom fittings shall be fitted to all containers other than platform units or platform-based containers with collapsible sides or ends.

14.4.4.4 All containers with top corner fittings shall be designed and tested for top lift.

### **14.4.5 STANDARD DOMESTIC CONTAINERS**

#### **14.4.5.1 Application**

This sub-section 14.4.5 applies to standard domestic containers of the various types specifically described herein.

#### **14.4.5.2 Dimensions**

- 14.4.5.2.1 The containers shall comply with the external dimensions and tolerances given in Table 14-3 and Diagram 14-2. Refer to Section 14.4.4.2 for the requirements applicable to containers longer than 12,240 mm.
- 14.4.5.2.2 Table 14-3 lists the dimensions, tolerances and capacity rating for seven (7) lengths of containers, each length having nine (9) permissible heights.
- 14.4.5.2.3 Containers shall be fitted with top and bottom corner fittings as required by 14.4.4. The body of containers up to 12240 mm long shall not project beyond the external faces of the corner fittings within an area defined by:
- (a) 145 mm above the base of the corner fitting.
  - (b) 225 mm longitudinally inboard of the outer end face of the corner fittings.
  - (c) 165 mm laterally inboard of the outer side face of the corner fittings.
- 14.4.5.2.4 Containers intended specifically for the transport of high mass, low volume products (steel billets, bars, batteries, etc) may be constructed with a height less than 2438 mm. Standard heights shall be 1800 mm (classified as  $\frac{3}{4}$  height) and 1400 mm (classified as half height).

#### **14.4.5.3 General Purpose Freight Containers**

- 14.4.5.3.1 General purpose Domestic Containers accommodate load pallets with dimensions of 1168 mm X 1168 mm. The minimum internal width shall be 2390 mm.
- 14.4.5.3.2 Except as specified hereafter the containers shall comply in all other respects with the requirements of AS 1563.
- 14.4.5.3.3 External dimension and tolerances shall be as specified in 14.4.5.2. and Table 14.3. Intermediate lengths shall not be permitted.
- 14.4.5.3.4 Fork lift pockets and grapple arm lift areas shall be in accordance with AS 1563, modified where applicable to suit the 2502 mm container width.
- 14.4.5.3.5 All tests required by AS 1563 shall be performed as specified except for Tests 4 and 9B which shall be as required by 14.4.3 above.

#### **14.4.5.4 Thermal Containers**

- 14.4.5.4.1 Thermal containers may be refrigerated, heated or insulated only.
- 14.4.5.4.2 Except as specified hereafter the containers shall comply in all other respects with the requirements of AS 1780.
- 14.4.5.4.3 External dimensions and tolerances shall be as specified in 14.4.5.2. Only two overall lengths are permitted viz 12240 mm and 6120 mm.
- 14.4.5.4.4 Fork lift pockets and grapple arm lift areas shall be in accordance with AS 1780, modified where applicable to suit the 2502 mm container width.
- 14.4.5.4.5 All tests required by AS 1780 shall be performed as specified except for Tests 4 and 10 which shall be as required by 14.4.3. above.
- 14.4.5.4.6 Containers equipped with electrically powered refrigeration units and intended for transportation on rail vehicles equipped with an electric power source shall incorporate an exterior electrical socket compatible with the equipment specified in Section 21-10, Specially Equipped Vehicles for Electrically Powered Containers.

#### **14.4.5.5 Tank Containers**

- 14.4.5.5.1 Tank containers are used for the transport of liquids and/or gases, whether under pressure or not, and which may



be classified as dangerous nor non-dangerous goods.

- 14.4.5.5.2 Except as specified hereafter the containers shall comply in all other respects with the requirements of AS 1727.
- 14.4.5.5.3 External dimensions and tolerances shall be as specified in 14.4.5.2. Only two overall lengths are permitted viz. 12 240 mm and 6120 mm. Overall heights shall be a maximum of 2743 mm.
- 14.4.5.5.4 Grappler arm lift areas shall be in accordance with AS 1727, modified where applicable to suit the 2502 mm container width. Fork lift pockets are not permitted.
- 14.4.5.5.5 All tests required by AS 1727 shall be performed as specified except for tests 4 and 7 which shall be as required by 14.4.3 above.
- 14.4.5.5.6 Containers intended for the transport of Liquefied Petroleum Gas (LPG) shall comply with the requirements of AS 1596, LP Gas - Storage and Handling.

#### **14.4.5.6 Dry Bulk Containers - Non-Pressurised**

- 14.4.5.6.1 These containers are of the non-pressurised box-type employing gravity discharge.
- 14.4.5.6.2 Except as specified hereafter the containers shall comply in all other respects with the requirements of AS 2511.
- 14.4.5.6.3 External dimensions and tolerances shall be as specified in 14.4.5.2. Only two overall lengths are permitted, viz 12 240 mm and 6120 mm.
- 14.4.5.6.4 Fork lift pockets and grappler arm lift areas shall be in accordance with AS 2511, modified where applicable to suit the 2502 mm container width.
- 14.4.5.6.5 All tests required by AS 2511 shall be performed as specified except for Tests 4 and 10 which shall be as required by 14.4.3 above.

#### **14.4.5.7 Platform and Platform-based Containers (Cargo Trays and similar)**

- 14.4.5.7.1 Platform containers shall be constructed to the limiting dimensions of length and width specified in Table 14-3, and in accordance with the provisions of the draft SAA Standard for Series R Platform and Platform-based Containers.
- 14.4.5.7.2 Containers shall be subject to the load test requirements specified in the above Draft Standard. All platform containers which are to be approved for unrestricted loading as the upper unit in double-stack configuration shall be capable of being supported and lifted by the bottom corner fittings only, when loaded to twice their rated capacity with an evenly distributed load. Under these conditions, no part of the platform shall protrude, due to deflection, more than 30 mm below the plane through the lower surface of the bottom corner fittings.
- 14.4.5.7.3 The provision of fork-lift pockets is optional. Grappler lifting pads as specified in AS 1563 are mandatory on all types and sizes of platform containers.
- 14.4.5.7.4 Platform containers with fixed end walls, bulkheads or corner posts fitted with top corner fittings shall also be subjected to the Railway Double Stacking Test in accordance with Section 14.4.3, if approval is required for use as the lower unit in double-stack configuration. Containers not so tested and approved shall be marked as not suitable for double-stacking as specified in 14.4.3.1.
- 14.4.5.7.5 Platform containers may be fitted with fixed, removable or collapsible sides and ends. Provision shall be made for storing and securing non-fixed sides and ends within the base outline when transported in the empty or partly-loaded condition.
- 14.4.5.7.6 Containers with removable or collapsible ends and/or corner posts shall not be approved or accepted for double-stacking and shall be marked accordingly (14.4.3.1).

**14.4.5.8 Curtain Side Containers**

- 14.4.5.8.1 Curtain-sided containers shall be designed and constructed as general-purpose containers with open sides to AS 1563 or Section 14.4.5.3.
- 14.4.5.8.2 The curtains shall be constructed and installed in accordance with Section 21-12, Curtain Sided Vehicles. Corner posts and top and bottom rails shall be designed to satisfy the installation requirements of 21-12.
- 14.4.5.8.3 Containers shall be fitted with effective load securing and/or restraining devices to prevent damage to curtains by load movement. Inner cargo nets and removable pillars may also be fitted.

**14.4.6 SPECIAL DOMESTIC CONTAINERS**

- 14.4.6.1 Special Domestic Containers may be of various types other than box-type or tank, built for specific tasks or products, and not necessarily incorporating all the features of a standard type.
- 14.4.6.2 Containers shall comply with the requirements of Section 14.4.5 as applicable to the general type to which the container is classified.
- 14.4.6.3 The maximum width shall be 2502 mm with a tolerance of plus 0, minus 5 mm. The length may vary between 6120 mm and 12240 mm, according to requirements and shall be approved by the rail System(s) over which the container will be transported.
- 14.4.6.4 No part of the container structure, load or securing equipment shall extend beyond the maximum width allowed.
- 14.4.6.5 Containers less than 12240 mm long shall have the corner fittings (or equivalent components) for securing and lifting, symmetrically located at 5853 mm longitudinal centres. Structural members to carry lifting forces shall also be located at these points.
- 14.4.6.6 Drawings and design data for all Special Domestic Containers shall be submitted to the appropriate rail System for approval before construction is commenced.

## **14.5 CERTIFICATION AND APPROVAL REQUIREMENTS**

- 14.5.1 Containers which possess a current, valid CSC Safety Approval Plate are exempt from these requirements.
- 14.5.2 All other containers shall be certified as acceptable for rail transport in accordance with this Section.
- 14.5.3 All tests, inspections and certification required by this Section shall be performed and/or supervised by a 'Certifying Engineer', who shall be a Professional Engineer listed on the National Professional Engineers Register of the Institution of Engineers Australia.
- 14.5.4 For new containers, the certifying Engineer shall certify that the container complies with the requirements of this Section and the Specification to which it is constructed. After verifying the prototype and production tests, the Certifying Engineer shall provide to the manufacturer in writing a detailed report of the test and inspection results. The initial approval of new containers shall be valid for a period of five (5) years from the date of manufacture.
- 14.5.5 For existing containers manufactured before 1 January 1993 and without current Compliance Plates, the Certifying Engineer shall determine if each container complies with the requirements of this Section in relation to physical condition and ability to carry its rated load, and is safe to use for a period of either three (3) or five (5) years. Existing containers shall be certified on an individual basis only.
- 14.5.6 Each container approved by a Certifying Engineer shall have a Compliance Plate conforming to Diagram 14-1 attached according to 14.2.1.1.2. The required dates shall comprise the month and year eg. 5/92 and may be stamped prior to attachment to the container.
- 14.5.7 On expiry of the original approval period, each container shall be individually re-examined by a Certifying Engineer in accordance with the requirements of 14.5.5.
- 14.5.8 Any container structurally damaged by an accident, abuse or deterioration shall lose its approved status and shall not be accepted for transport until repairs have been effected in accordance with 14.6.
- 14.5.9 Container owners or operators shall, on request from a rail System to which a container has been presented for transport, supply to that system written evidence of the inspection and certification of that container by a Certifying Engineer in accordance with the requirements of this Section.
- 14.5.10 Nothing in this section shall preclude the Certifying Engineer from being an employee or associate of the container manufacturer, owner or operator.

## **14.6 REPAIRS AND MODIFICATIONS**

- 14.6.1 Repairs to any container shall be carried out in such a manner as to preserve or restore the structural integrity of the container and its compliance or conformity with the original or current applicable standards.
- 14.6.2 Repairs of damage to structural load-carrying members shall be inspected by a Certifying Engineer who shall certify that the container conforms to requirements and is safe to return to service.
- 14.6.3 Modifications to a container, which similarly involve structural members, will also be subject to approval as described in 14.6.2.
- 14.6.4 The Certifying Engineer shall be as defined at 14.5.3.
- 14.6.5 Certification by any of the International Classification Organisations listed in Table 14-2 following repairs or modification is an acceptable alternative to an engineer's certification.

## **14.7 IN-SERVICE CONDITION**

14.7.1 All containers presented for rail transport shall be in good structural and mechanical condition, with all attachments, fittings and auxiliary equipment in good working order.

Rail systems reserve the right to refuse the loading and transport of any container which is considered to be unsafe or unsuitable to be carried.

14.7.2 The following faults are grounds for the rejection of containers:

- (a) Fractures, distortion or corrosion of any part of the structural load-bearing frame which may affect the integrity of the container and its ability to withstand the loads experienced in transit.
- (b) Damage to load restraining or protection components (walls, floor, roof etc) which may result in damage to, or displacement of, the loading.
- (c) Distortion of the frame resulting in overall dimensions and configuration not in compliance with the tolerances prescribed by the construction standards.
- (d) Damage or misalignment of doors, hinges, seals, closing and securing mechanisms, surrounds etc which may reduce security or retention of the load (including susceptibility to water damage).
- (e) Improperly constructed or secured side walls or panels on platform containers (including loose or damaged tarpaulins and other coverings).
- (f) Mechanical or electrical faults on refrigerated containers, leaking fuel tanks or pipework, damaged or missing components including electrical equipment covers, connection cables etc.
- (g) Spilt or leaking product, leaking valves or venting on tank containers, missing or incorrect emergency information panels.
- (h) Any other readily identified faults or irregularities which may reduce the ability of the container to safely reach its destination and retain and protect its contents.

14.7.3 The primary authority to reject containers when presented for loading is vested in the loading supervisor at the receiving terminal; inspection shall be restricted to an external visual examination so as not to unnecessarily delay loading procedures, unless the examination indicates a more detailed inspection is warranted.

14.7.4 It is recommended that loading supervisors and staff use a standard fault checklist for inspection and fault recording. The form should be used as an inspection guide and completed only if the visual inspection reveals faults which result in the container being rejected. The completed form will be retained at the terminal and the consignor advised of the reasons for the rejection. A format for the fault recording form is given in Diagram 14-5.

## **14.8 LOADING RESTRICTIONS**

### **14.8.1 INTERNATIONAL CONTAINERS**

No loading restrictions apply to these containers other than those imposed by the ROA Dangerous Goods Code as applicable. Thermal containers fitted with external refrigeration units may be restricted to vehicles with securing devices located to provide adequate spacing between units.

### **14.8.2 HIGH DOMESTIC CONTAINERS (OVER 2743 mm)**

These containers are restricted as to the routes over which they may be transported in conjunction with the vehicles on which they may be carried.

### **14.8.3 SPECIAL DOMESTIC CONTAINERS**

The non-standard features of these containers impose some restrictions on the classes of vehicle on which they may be carried and their position on a vehicle. Suitable vehicles may not always be readily available for loading at all terminals.

### **14.8.4 DOUBLE-STACKING**

Containers not approved or not suitable for double-stacking may be carried as the upper unit in a double-stack configuration. Loaded units shall not be carried on top of empty units.

Only those containers certified under the provisions of 14.2.2 are permitted to be loaded as the bottom unit in double-stack configuration.

Platform and platform-based containers may be loaded as the top unit subject to the following:

- a) 12,240 mm long platforms which are not self-supporting and capable of being lifted at the extreme ends as specified in 14.5.7.2 shall only be loaded on top of containers which have vertical posts at intermediate positions capable of supporting the platform when it deflects,
- and
- b) 12,240 mm long platforms which are self-supporting may be loaded on top of any unit approved as a bottom unit for double-stack configuration.

### **14.8.5 DANGEROUS GOODS**

In addition to the quantity, labelling and separation requirements of the ROA Dangerous Goods Code, containers carrying dangerous goods and tank containers in general, are prohibited from transport in open wagons or as the bottom unit in well cars. Venting of leaking liquids or gases, and easy accessibility in transit for inspection or attention requires these classes of container to be transported on flat cars. Containers carrying dangerous goods in bulk and tank containers shall not be loaded as the upper unit in double-stack loading.

Only one container carrying Class 1 (Explosives) or Class 2.1 (Flammable Gases) is permitted on each vehicle or articulated platform. Other general freight containers may be loaded on the same vehicle if approved by the operating System.

### **14.8.6 NO TOP LIFTING**

Containers which are not equipped or not suitable for top lifting shall not be loaded into open or well cars.

### **14.8.7 LOAD-SHARING FRAMES**

Containers incorporating load-sharing frame members (flush with the base of the bottom corner fittings) or platform containers with excessive deflection under load shall not be loaded on skeletal-type vehicles which have not been designed and constructed to accommodate such loading.

### **14.8.8 CENTRE OF GRAVITY**

Containers loaded in double-stack configuration shall be selectively positioned on the carrying vehicle according to mass and load distribution, so that the height of the centre of gravity of the loaded vehicle is not greater than that allowed over the route(s) on which the containers will be transported.

#### **14.8.9 TRANSIT DELAYS**

Special Domestic and other containers of non-standard dimensions may be subject to delays in loading or transit according to the availability of suitable rail vehicles.

Containers not suitable for top lift or grapple handling may be subject to similar delays or additional handling charges incurred in changing lifting equipment.

**TABLE 14-1**

**ACCEPTABLE STANDARDS FOR ORIGINAL CONSTRUCTION**

**ISO**

ISO 668	Freight Containers - External Dimensions and Ratings
ISO 1161	Corner Fittings
ISO 6346	Freight Containers - Coding, Identification and Marking
ISO 1496	Series 1 Freight Containers - Specifications and Testing
Part I	General Cargo Containers
Part II	Thermal Containers
Part III	Tank Containers - Liquids and Gases
Part IV(a)	Bulk Containers - Non-pressurised
* Part IV(b)	Bulk Containers - Pressurised
Part V	Platform Containers
* Part VI(a)	Platform-based Containers - Fixed Ends
Part VI(b)	Platform-based Containers - Folding Ends
Part VI(c)	Platform-based Containers - Open-sided with Complete Superstructure

**AUSTRALIAN**

AS E45	Corner Fittings for Freight Containers
AS 1563	General Purpose Freight Containers (International Sizes)
AS 1564	Marking and Identification of Freight Containers
AS 1727	Tank Containers
AS 1780	Thermal Containers
AS 2511	Dry Bulk Containers - Non-pressurised
AS ..... *	Platform and Platform-based Containers

Association of American Railroads:

AAR Manual of Standards and Recommended Practices:

Section I - Intermodal

Specification AAR M-930: Closed Van-type Dry Cargo Containers (including Appendix A) for COFC Service

Section CIII - Tank Cars:

Specification AAR 600: Acceptability of Tank Containers

International Maritime Dangerous Goods Code

International Regulations Concerning the Carriage of Dangerous Goods by Rail (RID)

International Convention for Safe Containers (CSC)

International Customs Convention on Containers (CCC)

\* In course of preparation



**TABLE 14-2**

**ACCEPTABLE INTERNATIONAL CLASSIFICATION ORGANISATIONS**

**Lloyds Register of Shipping**

**Des Norske Veritas**

**Germanischer Lloyd**

**Bureau Veritas**

**American Bureau of Shipping**

**US Coast Guard**

**Nippon Kaiji Kyokai**

**Registro Italiano Navale**

**TABLE 14-3**

**DIMENSIONS AND LOAD RATING OF FREIGHT CONTAINERS**

1. **MAXIMUM OVERALL WIDTH (MW)**; 2502 MM, +0, -5 mm
2. **MAXIMUM WIDTH OVER CORNER FITTINGS (W)**; 2438 MM +0, -5 mm
3. **OVERALL HEIGHT (H)**: Tolerance +0, -5
  - (a) 1400
  - (b) 1800
  - (c) 2438
  - (d) 2591
  - (e) 2743
  - (f) 2895
  - (g) 3048
  - (h) 3350
  - (i) 3650

NOTE: The maximum permissible height of containers for rail transport in Queensland is 2650 mm.

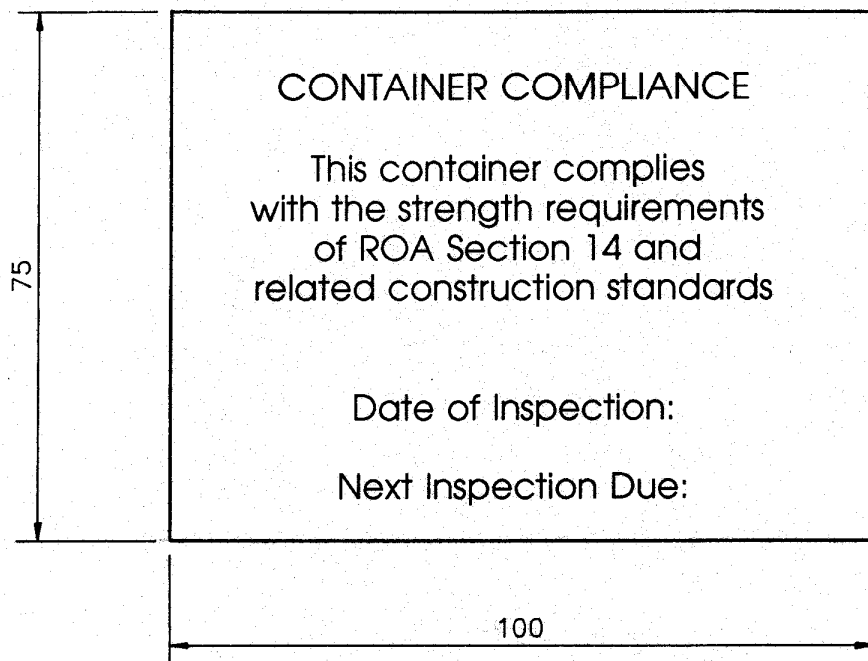
**4. OTHER DIMENSIONS**

Refer to Diagram 14-2

Length L	P	S	K <sub>1</sub> Max	K <sub>2</sub> Max	Rating R, kg
2991	2259	2787	10	10	10 160
6120	2259	5853	13	10	20 320
12,240	2259	11,985	19	10	32 000
13,106	2259	11,985	19	10	32 000
13,776	2259	11,985	19	10	32 000
14,630	2259	11,985	19	10	32 000
16,154	2259	11,985	19	10	32 000

DIAGRAM 14-1

CONTAINER COMPLIANCE PLATE



NOTES:

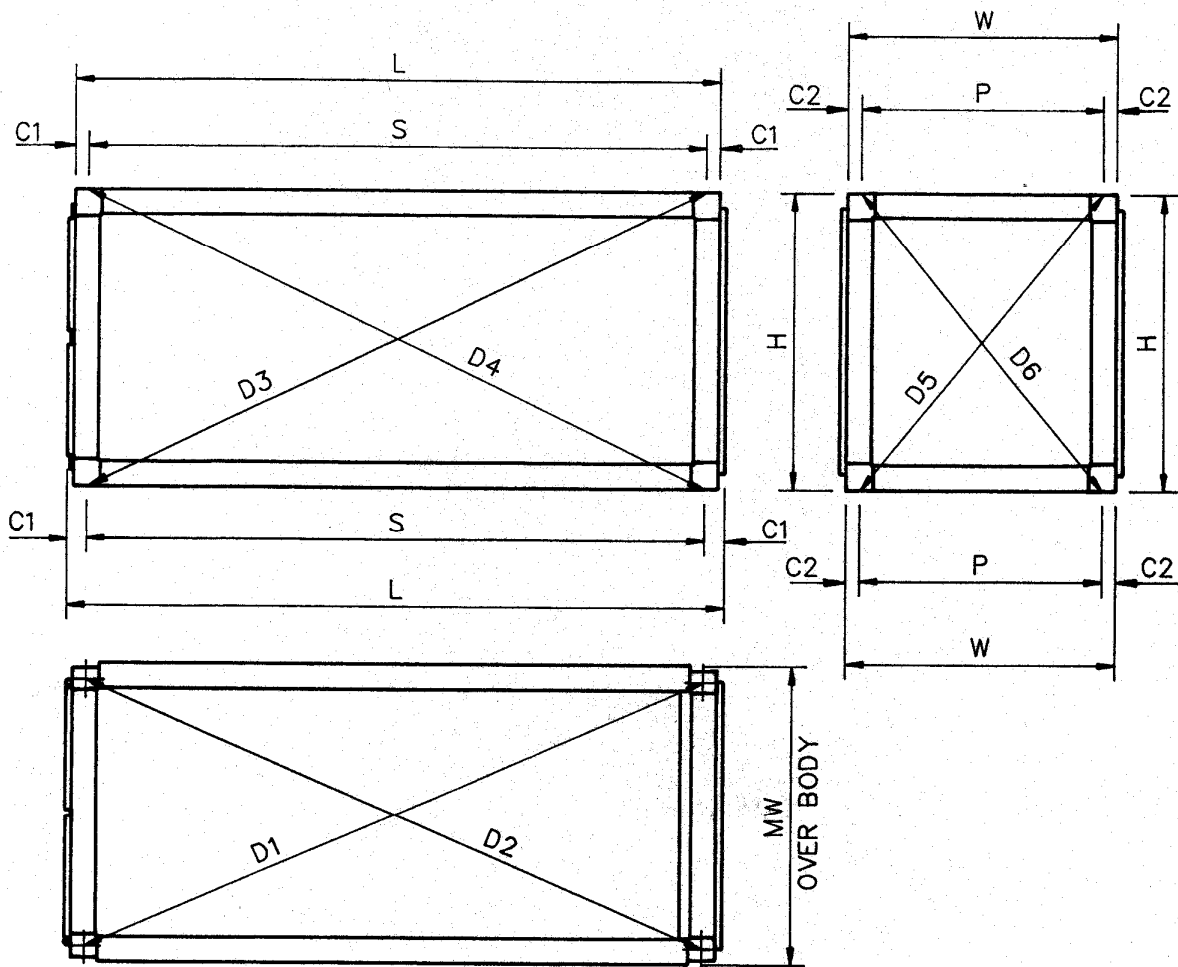
MATERIAL: STAINLESS STEEL, BRASS OR ALUMINIUM SHEET 1.6mm THICK.

ALL CHARACTERS 3mm HIGH, STAMPED, EMBOSSED OR ENGRAVED,  
BLACK ON WHITE BACKGROUND.

ALUMINIUM PLATES MAY BE NATURAL ANODISED WITH TEXT  
PHOTO-ANODISED IN CONTRASTING COLOUR.

DIAGRAM 14-2

STANDARD DIMENSIONS FOR DOMESTIC CONTAINERS



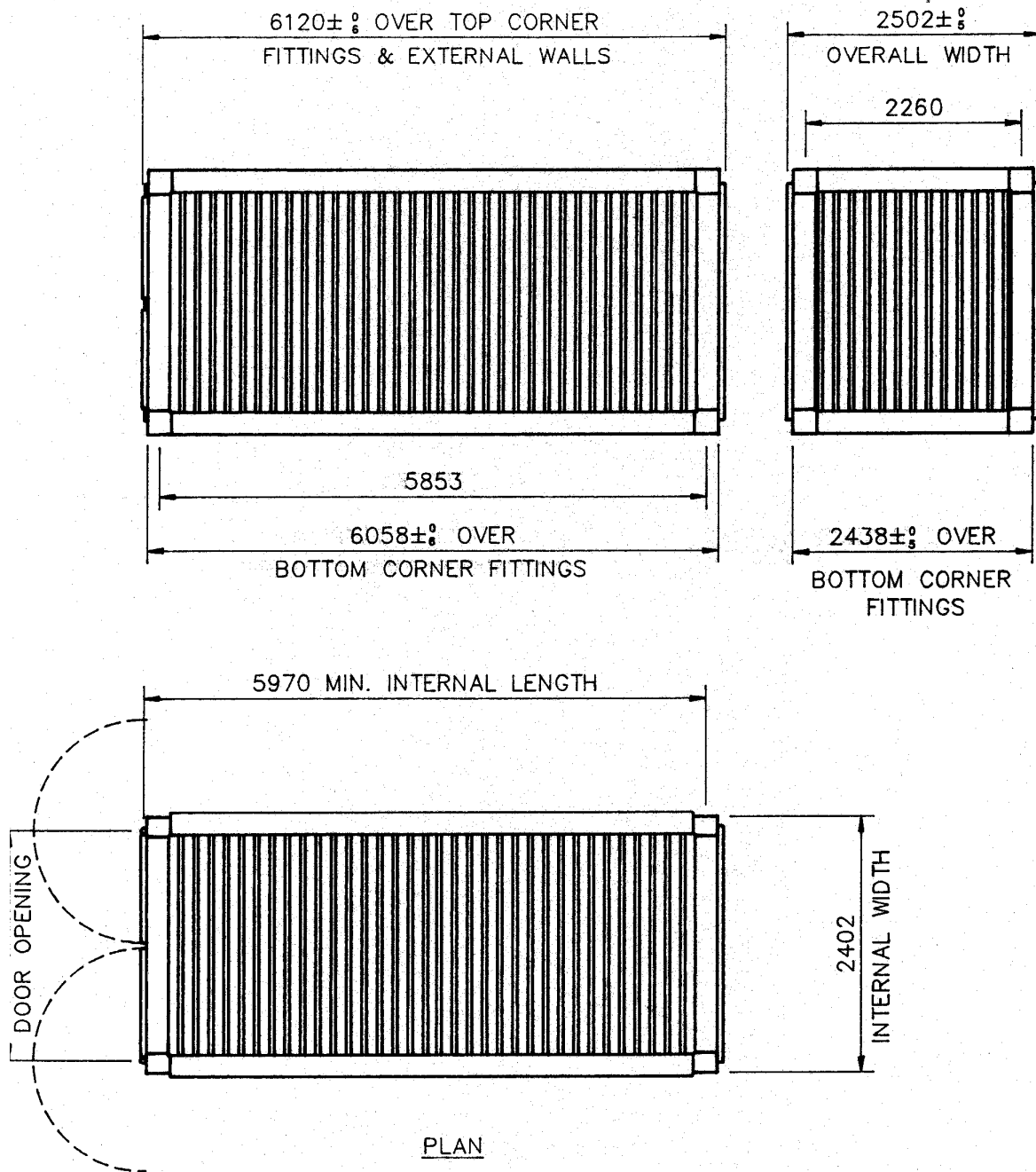
PLAN VIEW

LEGEND:

- S: LENGTH BETWEEN CENTRES OF APERTURES IN CORNER FITTINGS.
- P: WIDTH BETWEEN CENTRES OF APERTURES IN CORNER FITTINGS.
- C1: CORNER FITTINGS MEASUREMENT  $101.5 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix} \text{ mm}$
- C2: CORNER FITTINGS MEASUREMENT  $89 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix} \text{ mm}$
- L: MAXIMUM LENGTH OF THE CONTAINER OVER BODY.
- W: EXTERNAL WIDTH OF THE CONTAINER OVER END FACES OF CORNER FITTINGS.
- D: DISTANCE BETWEEN CENTRES OF APERTURES OF DIAGONALLY OPPOSITE FITTINGS RESULTING IN SIX MEASUREMENTS – D1,D2,D3,D4,D5 & D6.
- K1: DIFFERENCE BETWEEN D1 & D2 OR BETWEEN D3 & D4, IE.  $K1=D1-D2$  OR  $K1=D2-D1$  OR  $K1=D3-D4$  OR  $K1=D4-D3$ .
- K2: DIFFERENCE BETWEEN D5 & D6 IE.  $K2=D5-D6$  OR  $D6-D5$ .
- H: OVERALL HEIGHT

DIAGRAM 14-3

TYPICAL STANDARD DOMESTIC CONTAINER



PLAN

DIAGRAM 14-4

EXAMPLES OF DOMESTIC CONTAINERS

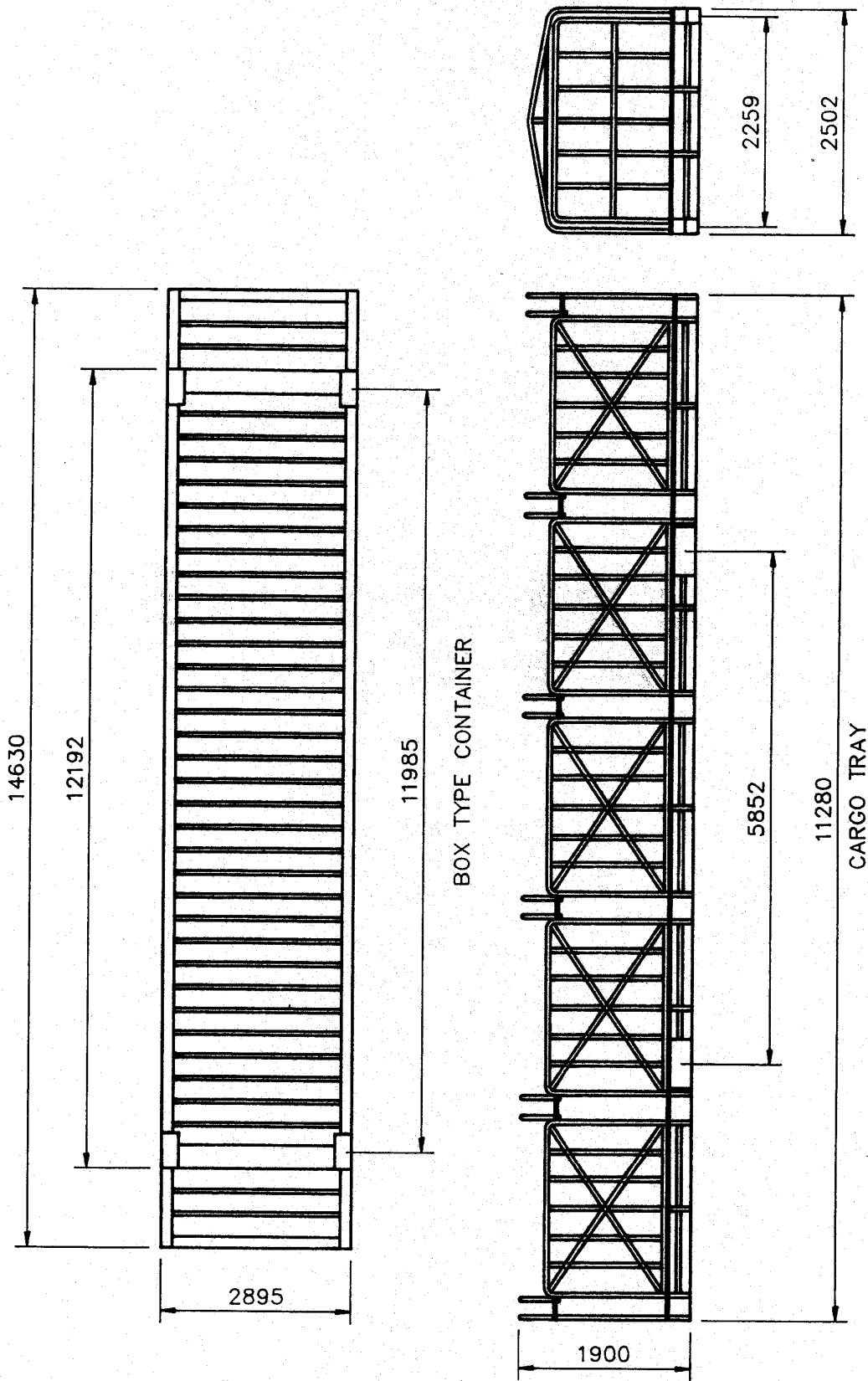


DIAGRAM 14-5

CONTAINER FAULT CHECK LIST

Refer to ROA Section 14.11

Frame Rails

- Cracked or broken welds
- Bent or distorted
- Fractured
- Severe corrosion

Top Bottom Sides Ends

Body Panels (incl roof)

- Loose or missing
- Punctured or torn
- Severe corrosion

Fork and Grappler Pockets

- Badly corroded
- Cracked or broken welds
- Severe distortion
- Punctured or torn

Dangerous Goods

- Leaking product
- Missing labels
- Incorrect labels
- Incorrect loading
- Faulty valves/pipes

Doors

- Inoperable mechanism
- Not secured
- Faulty seals/fittings

Refrigerated Units

- Fuel leaks
- Faulty operation
- Missing/damaged fittings

General

- Misalignment of fittings/frame
- Load adjustment required
- Inadequate load securement

Other (give details)

CONTAINER FAULT ADVICE

Date ..... Time ..... Terminal.....

Container No..... Consignor..... Consignee .....

Contents .....

Faults recorded as above by .....

Consignor advised at..... on.....

Contact ..... by.....