NATO STANDARD

APP-27

DEMOUNTABLE LOAD CARRYING PLATFORMS (DLCP/FLATRACKS)

Edition A Version 1

JULY 2020

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED PROCEDURAL PUBLICATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

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NATO LETTER OF PROMULGATION

7 July 2020

1. The enclosed Allied Procedural Publication APP-27, Edition A, Version 1, DEMOUNTABLE LOAD CARRYING PLATFORMS (DLCP/FLATRACKS), which has been approved by the nations in the Military Committee Land Standardization Board (MCLSB), is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 2413.

2. APP-27, Edition A, Version 1, is effective upon receipt.

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4. This publication shall be handled in accordance with C-M (2002)60.

Zoltán GULYÁS
Brigadier General, HUNAF
Director, NATO Standardization Office

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATION BY NATIONS
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
BGR	The STANAG will be implemented only in declared to NATO units which participate in full-spectrum operations.
USA	The USA does not subscribe to Chapter 3, mini-flatrack.
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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CHAPTER 1 INTRODUCTION

1.1. REFERENCES

Related Documents:

AASTP-2 - Manual of Safety Principles for the Transport of Military Ammunition and Explosives.
STANAG 4062 - Slinging and Tie-down Facilities for the Lifting and Tying Down Military Equipment for Movement by Land and Sea.
ISO 668 - Series l freight containers. Classification, dimensions and ratings.
ISO 1161 - Series I freight containers - corner fittings - specifications.
EN 12195-1 - Load Restraint assemblies on road vehicles-Safety Part 1: Calculation of Lashing Forces.
EN 12640 - Securing of cargo on road vehicles- lashing points on commercial vehicles for goods transportation- minimum requirements and testing.
DIN 30722 - Roller contact tipper vehicles - roller containers - Part 2: Roller contact tipper vehicles up to 32 t, Roller containers type 1570 made from steel.
DIN 30722 - Roller contact tipper vehicles - roller containers - Part 3: Roller contact tipper vehicles up to 10 t; Roller containers type 900 made from steel (Applies to mini-flatracks only (See Annex B)).
SS 3020 - Road Vehicles-Multi buckets (Applies to mini-flatracks only (See Annex B)).

1.2. AIM

The aim of this agreement is that the flatrack be designed to be interoperable between national systems.

1.3. AGREEMENT

Participating nations agree that the relevant elements of each national system are to be produced in such a way that interoperability between each system is achieved.

For the purposes of this agreement interoperability is defined as the capability of the appropriate vehicles of each nation, under operational conditions, to pick up, transport and put down flatracks of the other countries, safely.

The technical requirements to achieve interoperability are contained in Chapters 2 and 3 with technical impressions within the SRD.

The STANAG applies to all NATO ground and air forces due to employ systems based on the use of flatracks.

1.4. TERMS AND DEFINITIONS

Terms and definitions used within this STANAG are listed as a Lexicon at Annex D.

1.5. GENERAL

There are three elements of the concept:

a. A vehicle or trailer able to transport a flatrack.

b. A load handling system (LHS) fitted to the vehicle to enable a special load carrying platform to be securely mounted onto or dismounted from the vehicle.

c. A flatrack.

1.6. IMPLEMENTATION

This STANAG is implemented when the necessary orders/instructions have been issued for the production of the equipment in accordance with the characteristics laid down in this agreement.

CHAPTER 2 FLATRACK (DLCP) TECHNICAL REQUIREMENTS

2.1. GENERAL

The technical requirements are derived directly from the DROPS/PLS/MULTI Letter of Understanding. The relevant extracts are published below.

2.1.1. TECHNICAL CONSIDERATIONS

The flatrack interface dimensions are set forth on the drawing at Annex A, attached hereto and made a part of this Understanding. For reference purposes this drawing is identified as “Project Manager Logistic Vehicles Drawing No 486/2 dated 24 March 1987”. These dimensions are based on DIN Standard No 30722. Each national LHS must be capable of operating with the interoperable flatrack, although national systems may have individual characteristics. The flatrack dimensions required to achieve interoperability are identified as follows:

a. Hook Bar. The hook bar is that part of the flatrack engaged by the LHS to effect loading. Key dimensions are:

(1) Height above the base of the flatrack.

(2) Radius, from the centre of the hook bar measured at its maximum height.

(3) Diameter of the hook bar.

(4) Angle of the hook bar to the vertical plane.

(5) Angle of the hook bar to the horizontal plane.

(6) Width of the bar access and free space behind the hook bar.

(7) Bottom width of the A-frame.

b. Flatrack. The key dimensions of the flatrack are:

(1) Runner Width. Both internal and external dimensions.

(2) Tunnel Height of 150 mm minimum. Having vertical clearance both between and outside runners. (Rollers, cross members, restraining points and support structures shall not obstruct these areas unless removable).

(3) Locking Points. The facility that enables the flatrack to be secured to the LHS substructure or to the vehicle frame rails. Key

dimensions are the shape and position of the locking plate, relative to the hook bar.

c. Space Claim Dimensions. Annex A defines the areas/volume/outline that the flatrack cannot exceed. It details certain flatrack dimensions and the areas of free space around the flatrack that have to be fulfilled to achieve interoperability. See also Annex B for a visual impression.

d. The LHS for flatracks which have a container handler (if not in use) shall not interfere with the areas/volume/outline that is specified for a flatrack.

e. According to Annex A, a flatrack can have:

(1) ISO corner fittings with supporting structure.

(2) A length varying from 5900 mm to 6650 mm.

(3) A cable lift attachment as detailed in DIN 30722.

f. The design of all flatracks shall give due consideration to the requirements of ISO 668 and, where applicable, ISO 1161. The container corners (if specified) are to be placed according to a 20 ft. container in this IS0 standard.

g. Gross Weight and Maximum Payload. Gross weight and Maximum Payload shall not exceed 16.5 tons (18.15 short tons) uniformly distributed load (UDL).

2.1.2. OPERATIONAL CONSIDERATIONS

The following points should be considered:

a. Vehicle. The performance of vehicles, especially in the area of cross country operations is determined primarily by wheel articulation and the centre of gravity of the load. When carrying another nation's flatrack, optimum vehicle performance may not be possible.

b. Vehicles designed for use with a short flatrack may have problems carrying the longer flatracks, particularly with respect to stability and visibility of vehicle lighting.

c. LHS. Optimum national LHS performance may not be achievable when loading and offloading another nation's flatrack.

d. Maximum Payload. The flatracks detailed in this STANAG have a designed payload of up to 15 metric tons (16.5 short tons). However all Nations LHS may not have the capacity to carry this payload.

e. Trailers. The use of trailers may be precluded.

f. Flatrack Length. The critical dimension relevant to flatrack length as defined at Annex A is the distance from the hook bar to the locking plate. This dimension, applicable to the hook bar/locking plates length of 3765 mm, reflects DIN Standard No 30722, and will accommodate flatracks having a length greater than 5900 mm and up to 6650 mm. Interoperability may not be achieved in the case of flatracks that are significantly different in these dimensions.

g. Data Plate. Flatracks shall be fitted with an inspection safety/manufacturer's plate and if to be transported by sea or rail, then they shall be fitted with a shipping data plate (See STANAG 4062). The inspection safety/manufacturer's plate could be a convention for safe containers (CSC) plate:

(1) Gross weight.

(2) Payload.

(3) Tare weight.

(4) Serial Number (unique identification number).

(5) The name of the manufacturer or his trademark.

(6) Year of production.

(7) Description (Example: Flatrack STANAG 2413 L 2400-W 2000):

(a) L = length in mm (in).

(b) W = width in mm (in).

h. All lifting and tie down points shall be in accordance with STANAG 4062.

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CHAPTER 3 MINI FLATRACK TECHNICAL REQUIREMENTS

3.1. GENERAL

A new LHS has been developed to increase the rate of distribution of combat supply to operational units over rough terrain. This system allows the mini-flatrack to be transported from the depot area to the operational unit by a truck, a trailer, a tracked over-snow vehicle or a helicopter. A small DLCP, described as the mini-flatrack, is the most important part of the system to achieve interoperability between national systems. The relevant technical requirements for the mini-flatrack are described below.

3.1.1. TECHNICAL CONSIDERATIONS

The mini-flatrack dimensions are given by the drawing in Annex C. These dimensions are based on DIN 30722. Each national LHS must be capable of operating with the interoperable flatrack, although national systems may have individual characteristics. The flatrack dimensions required to achieve interoperability are identified as follows:

a. Lift pockets. On mini-flatracks the hook bar is not a part of the flatrack, but a part of the LHS. The interface between the mini-flatrack and the LHS is <<lift pockets>> attached to the runners in both ends of the tunnel. Key dimensions are:

   (1) Distance between the inner sides of the two (2) lift pockets.

   (2) Internal length of the pockets.

   (3) Internal height of the pockets.

   (4) Internal width of the pockets is limited by the runners.

b. Flatrack. The key dimensions of the mini-flatrack are:

   (1) Runner Width. Both internal and external dimensions.

   (2) Tunnel Height. Vertical clearance both, between and outside runners.

   (3) Locking Points. The facility that enables the mini-flatrack to be secured to the LHS substructure or to the vehicle frame rails. Key dimensions are the shape and position of the locking bolt, relative to the lift pockets of the LHS.

c. Data Plate. Mini-flatracks shall be fitted with an inspection safety/manufacturer's plate and if to be transported by sea or rail, then they shall be fitted with a shipping data plate (See STANAG 4062). The inspection safety plate could be a Convention for Safe Containers (CSC) plate.

(1) Gross weight.

(2) Payload.

(3) Tare weight.

(4) Serial Number (unique identification number).

(5) The name of the manufacturer or his trademark.

(6) Year of production.

(7) Description (Example: Flatrack STANAG 2413 L 2400-W 2000)

(a) L = length in mm (in).

(b) W = width in mm (in).

d. All lifting and tie down points shall be in accordance with STANAG 4062.

3.1.2. OPERATIONAL CONSIDERATIONS

The following points should be considered:

a. Vehicle. The performance of vehicles, especially in the area of cross country operations is determined primarily by wheeled or tracked articulation and the centre of gravity of the load. When carrying another nation's mini-flatrack, optimum vehicle performance may not be possible.

b. LHS. Optimum national LHS performance may not be achievable when loading and offloading another nation's mini-flatrack.

c. Payload. The mini-flatracks detailed in this STANAG have a designed payload of up to 4 metric tons (4.4 short tons). However all nation's LHS may not have the capacity to carry this payload.

d. Transportation. Mini-flatracks can be transported on the platform of trucks and trailers of all types.

e. Flatrack Length. The mini-flatrack has a total length identical with the space between drop sides of the national trucks. Interoperability may not be achieved in the case of mini-flatracks, which are significantly different in these dimensions. The total width of a truck is different from country to country. Drop sides can be removed.

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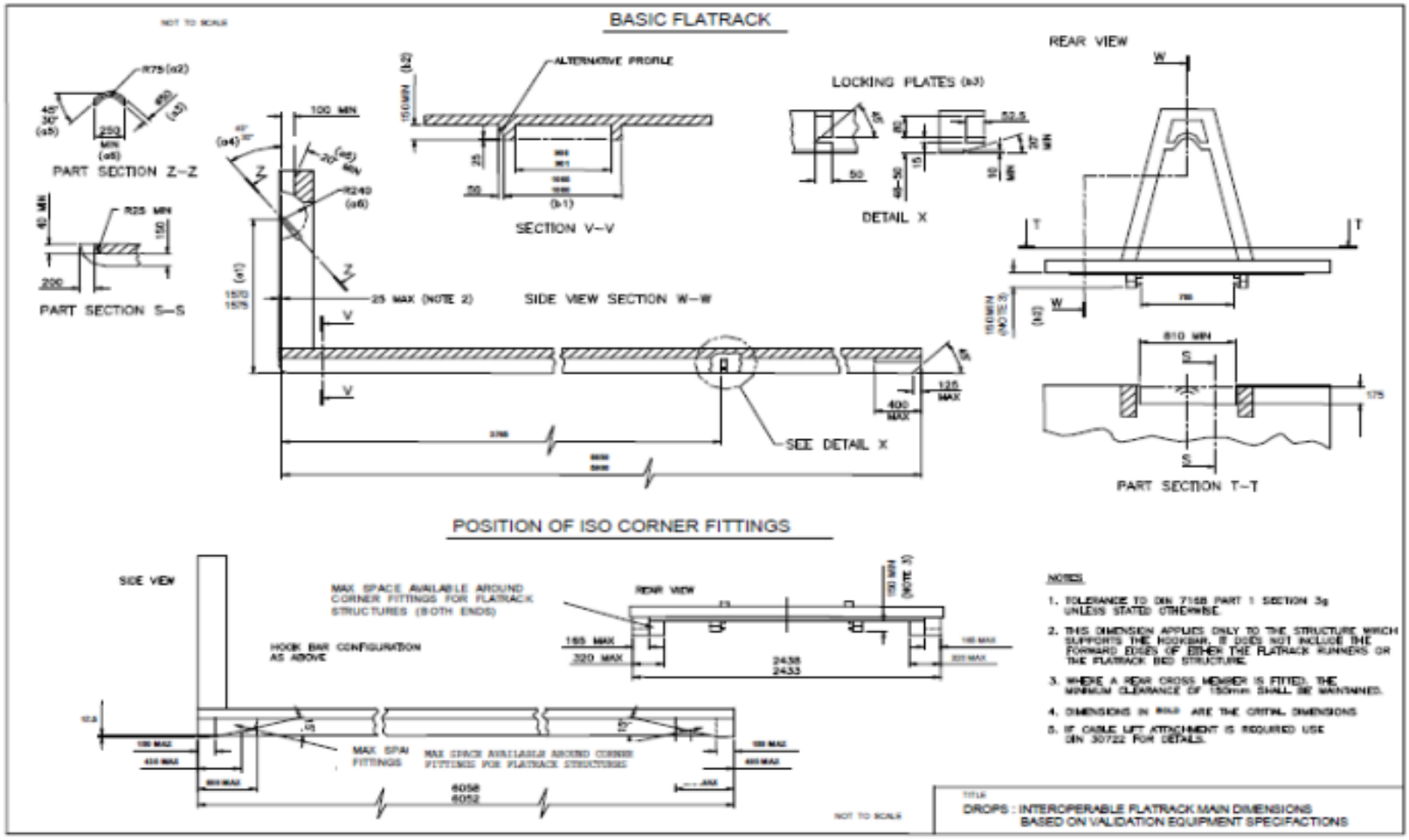
ANNEX A BASIC FLATRACK OR DLCP



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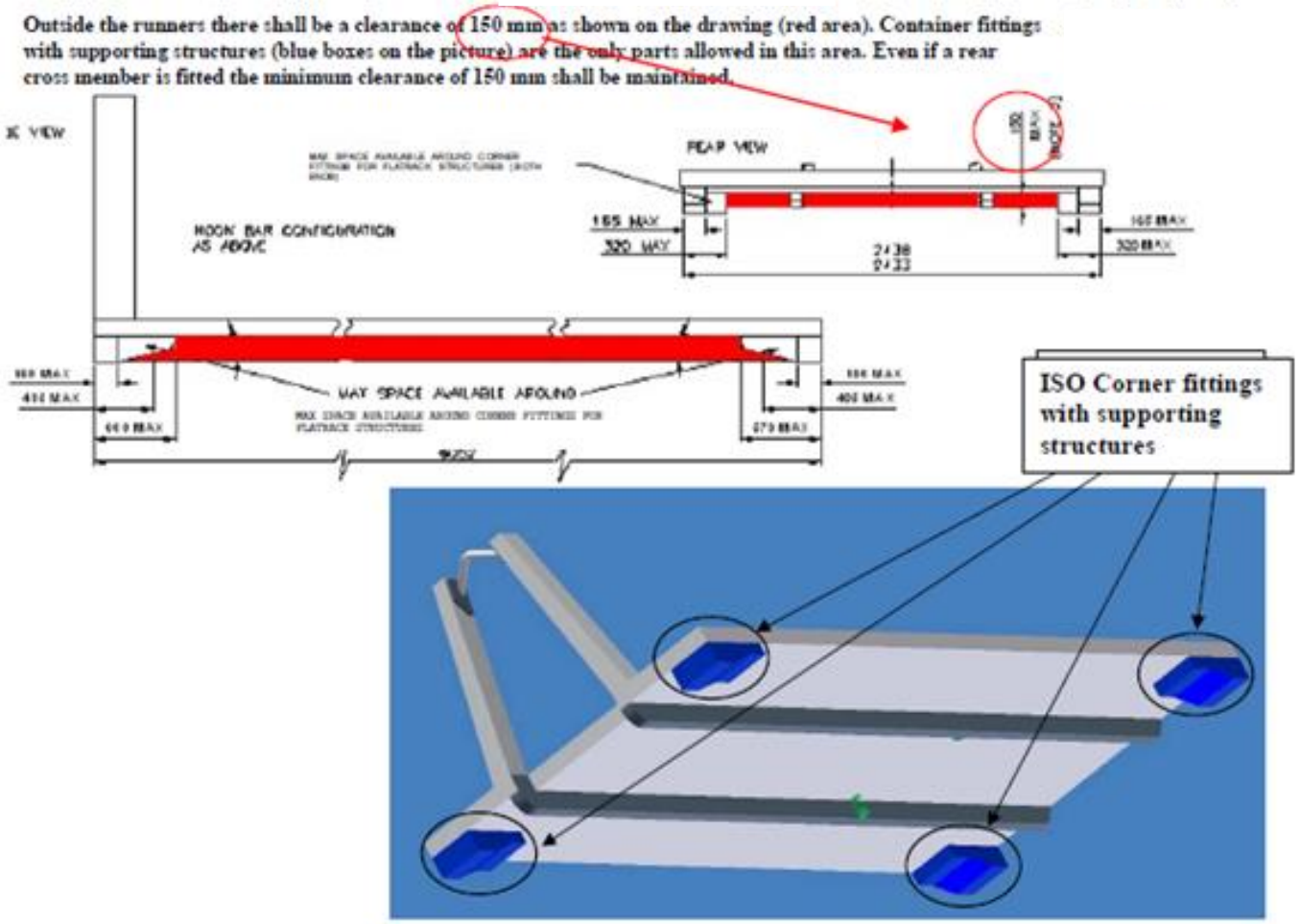
ANNEX B BASIC FLATRACK VISUAL IMPRESSION



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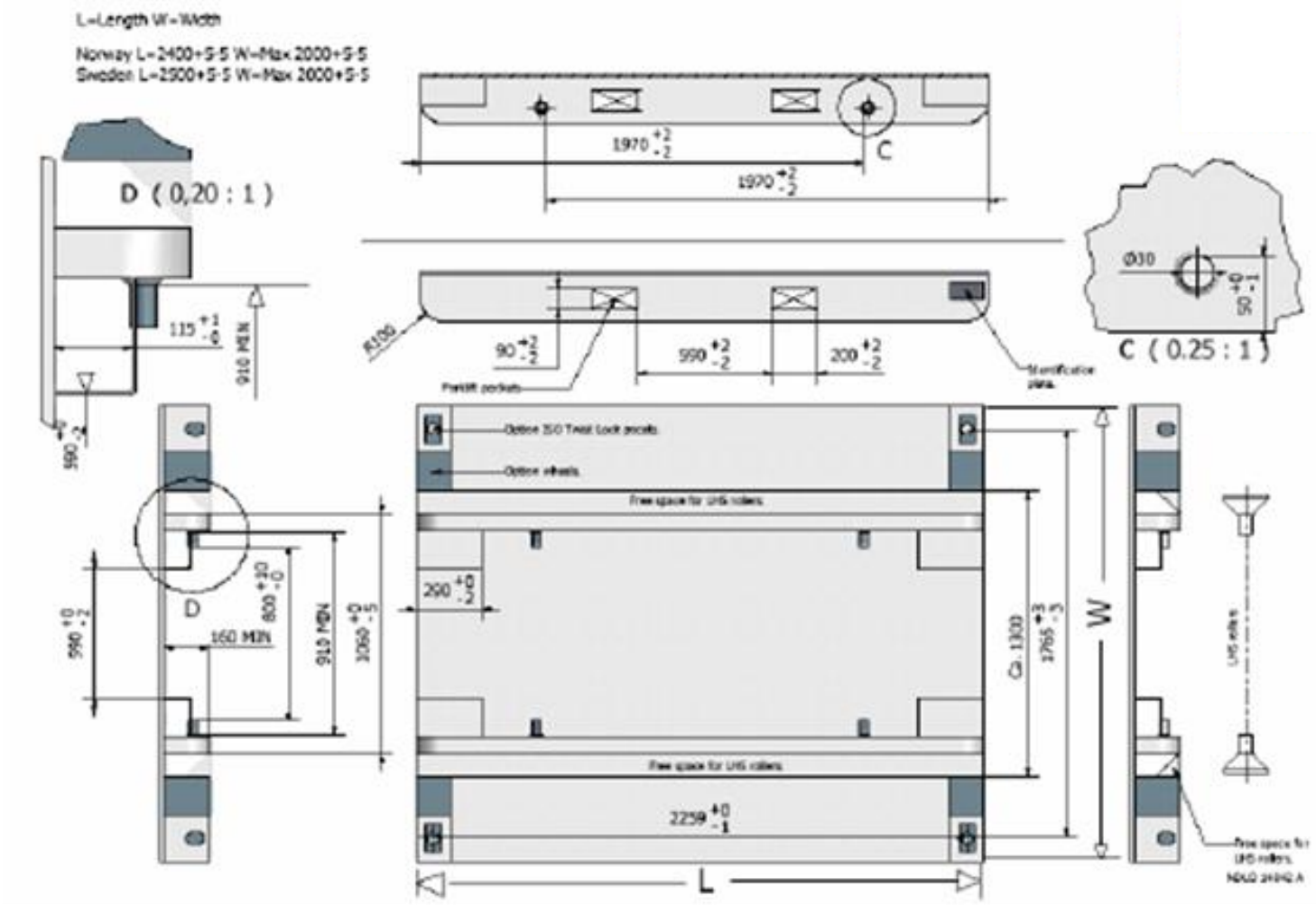
ANNEX C MINI FLATRACK VISUAL IMPRESSION



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ANNEX D LEXICON

DROPS vehicle/véhicule à plateau déposable - A specially designed vehicle to deposit or pick up its DROPS platform.

Demountable rack offloading and pickup system/système de chargement et de déchargement par plateau déposable - A transport system where the load carrying platform, loaded or unloaded, can be picked up from or deposited on the ground. Normally called DROPS.

Demountable load carrying platform (DLCP)/plateau déposable de transport de charge (PDTC) - A large pallet like structure with suitable fittings to enable it to be offloaded or picked up by a DROPS vehicle. When on the vehicle it becomes the vehicle load carrying platform. Normally called a flatrack.

Container handling unit (CHU)/engin de manutention de conteneurs (EMC) – A device which hooks on to the hook bar and allows the load carrier to pick up an ISO container.

Load Handling System/système de manutention de charge - A system (LHS) fitted to the vehicle to enable a special load carrying platform to be securely mounted onto or dismounted from the vehicle.

Hookbar/barre de levage - The hook bar is that part of the flatrack engaged by the LHS to effect loading.

Flatrack (Demountable Load Carrying Platform)/plateau déposable (plateau deposable de transport de charge) – The DLCP or flatrack is a flat platform which is picked up by the vehicle LHS.

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ANNEX E TEST DATASHEET

1. **GENERAL**. The following is an outline of the procedures to be used.

2. **AIM**. The objective is to ascertain if nations can safely pick up, carry and drop down flatracks of other nations, and check critical dimensions against Annexes A and B.

3. **TEST EQUIPMENT**. A vehicle fitted with a load handling system (LHS) and DLCP (flatracks).

4. **SAFETY**.

   a) Check for damage prior to use above flatrack and prime mover,
   b) Check that the all up load within the capability of the vehicle,
   c) Check if the load hook is compatible,
   d) Check if the overall size of the DLCP (flatrack) is compatible with the vehicle.

5. **PROCEDURE**

   a) Use the vehicle with the LHS to pick up the flatrack,

   b) Check to ensure arms engage and pick up correctly,

   c) Check if the vehicle picked up the DLCP (flatrack) safely,

   d) Once loaded onto vehicle, check locking plates are engaged with vehicle, and flatrack is secured,

   e) Drive a short distance to ensure that flatrack is secure,

   f) Place DLCP (flatrack) on ground,

   g) Record any problems, which occur and complete the compatibility checklist,

   h) Check and record critical dimensions.

6. Compatibility checklist

<table>
<tr><td rowspan="3">Prime Mover. From Table 1 SRD:</td><td colspan="3">Flatrack. From Table 2 SRD:</td></tr>
<tr><td>GREEN
Fully Interoperable</td><td>YELLOW
Partially Interoperable
(Notes Required)</td><td>RED
Not Interoperable
(Notes Required)</td></tr>
<tr><td colspan="3">Notes:</td></tr>
</table>

*use the checklist to collect in the data into the SRD (interoperability matrix)
** for any updates to the SRD, please post the new data to the NSO/MCLSB/Supply panel forum or contact your national representative to the NSO/ CSS Working group.

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APP-27(A)(1)