

ICHCA International Limited



INTERNATIONAL SAFETY PANEL

SAFETY BRIEFING PAMPHLET SERIES #33

Safe Working with Reefer Containers

by

Pamela Fry

ICHCA INTERNATIONAL PREMIUM MEMBERS:



ICHCA INTERNATIONAL LIMITED is an independent, non-political, international membership organisation and is dedicated to the promotion of safety and efficiency in the handling and movement of goods by all modes and during all phases of both the national and international supply chains. Originally established in 1952 and incorporated in 2002, it operates through a series of Local, National and Regional Chapters, Panels, Working Groups and Correspondence Groups and represents the cargo handling world at various international organisations, including the International Maritime Organization (IMO), United Nations Conference on Trade and Development (UNCTAD), International Labour Organization (ILO) and the International Standards Organization (ISO).

Its members included ports, terminals, transport companies and other groups associated with cargo handling and coordination. Members of ICHCA International Panels represent a substantial cross-section of senior experts and professionals from all sectors of the cargo transport industry globally. Members benefit from consulting services and informative publications dealing with technical matters, “best practice” advice and cargo handling news.

For more information on ICHCA International and its services please visit/contact –

*ICHCA International Limited
Suite 2, 85 Western Road,
Romford, Essex, RM1 3LS
United Kingdom*

*Tel: +44 (0) 1708 735295
Fax: +44 (0) 1708 735225
Email: info@ichca.com.
Website: www.ichca.com.*

The International Safety Panel Briefing Pamphlet series consists of the following subjects:

- No. 1** International Labour Office (ILO) Convention No. 152 Occupational Safety and Health in Dockwork (*revised*)
- No. 2** Ships Lifting Plant (*revised*)
- No. 3** The International Maritime Dangerous Goods (IMDG) Code (*revised*)
- No. 4** Classification Societies (*revised*)
- No. 5** Container Terminal Safety (*revised*)
- No. 6** Guidance on the Preparation of Emergency Plans (*revised*)
- No. 7** Safe Cleaning of Freight Containers (*revised*)
- No. 8** Safe Working on Container Ships
- No. 9** Safe Use of Flexible Intermediate Bulk Containers (FIBCs) (*revised*)
- No. 10** Safe Working at Ro-Ro Terminals
- No. 11** The International Convention for Safe Containers (CSC) (*final stages of revision*)
- No. 12** Safety Audit System for Ports
- No. 13** Loading and Unloading of Solid Bulk Cargoes (*under revision*)
- No. 14** The Role of the Independent Marine Surveyor in Assisting Claims Handling (*revised*)
- No. 15** Substance Abuse
- No. 16** Safe Use of Textile Slings
- No. 17** Shore Ramps and Walkways (*under revision*)
- No. 18** Port State Control
- No. 19** Safe Handling of Interlocked Flats (*under revision*)
- No. 20** Unseen Dangers in Containers
- No. 21** Stow it right
- No. 22** Suspension Trauma
- No. 23** Safe Handling of Forest Products
- No. 24** Safe use of Road Vehicle Twistlocks
- No. 25** An Illustrated Guide to Container Type and Size Codes
- No. 26** Safe Handling of Dangerous Bulk Liquids and Gases at the Ship/Shore Interface
- No. 27** Safe Working with Pallets
- No. 29** Safe Handling of Logs from Water in British Columbia
- No. 30** Safe Handling of Tank Containers (*joint publication with ITCO*)
- No. 31** Safe Operation of Passenger Terminals
- No. 32** Safe Use of Cargo Strapping for Lifting Purposes
- No. 33** Safe Working with Reefer Containers

The International Safety Panel Research Paper series consists of the following research papers:

- No. 1** Semi-Automatic Twistlocks
- No. 2** Fumes in Ships Holds (*revised*)
- No. 3** Health & Safety Assessments in Ports (*revised*)
- No. 4** Container Top Safety, Lashing and Other Related Matters (*under revision*)
- No. 5** Port & Terminal Accident Statistics (*revised*)

- No. 6** Safe Handling of Radioactive Materials in Ports and Harbour Areas
(revised))
- No. 7** Ship Design Considerations for Stevedore Safety (revised)
- No. 8** Safe Walkways in Port & Terminal Areas
- No. 9** Personal Protective Equipment & Clothing
- No. 10** Back Pain
- No. 11** Lifting Persons at Work for Cargo Handling Purposes in the Port
Industry
- No. 12** Whole Body Vibration
- No. 13** Lifting of Containers by Rubber Tyred Gantry Cranes
- No. 14** Lashing of Deck Containers
- No. 15** Terminal Operations in High Winds
- No. 16** Crane Driver Ergonomics

The International Safety Panel Technical/Operational Advice series consists of the following:

- No. 1** Vertical Tandem Lifting of Freight Containers
- No. 1A** Vertical Tandem Lifting – Operations Checklist
- No. 2** Container Vessels – Safety aspects of Lashing on Deck 40' and 45'
containers with particular regard to horizontal lashings
- No. 3** Guidelines on the Lifting of Persons for Cargo Handling Purposes

Plasticised Pocket Cards

- IIL/1** Dangerous Goods by Sea Documentation
- IIL/2** Dangerous Goods by Sea: The IMDG Code Labels, Placards, Marks
and Signs
- IIL/3** Confined Spaces on Board Dry Cargo Ships
- IIL/4** Entry into Freight Containers
- IIL/5, 6** Safe slinging

General Series

- No. 1** Guidelines to Shipping Packaged Dangerous Goods by Sea – Advice to
Consignors and Shippers
- No. 2** Fire Fighting in Ports and on Ships
- No. 3** WindStorm (*joint publication with TT Club*)

Other titles in many of the series are in preparation

This publication is one of a series developed by the International Safety Panel ("Safety Panel") of ICHCA International Limited ("ICHCA"). The series is designed to inform those involved in the cargo-handling field of various practical health and safety issues. ICHCA aims to encourage port safety, the reduction of accidents in port work and the protection of port workers' health.

ICHCA prepares its publications according to the information available at the time of publication. This publication does not constitute professional advice nor is it an exhaustive summary of the information available on the subject matter to which the

publication refers. The publication should always be read in conjunction with the relevant national and international legislation and any applicable regulations, standards and codes of practice. Every effort is made to ensure the accuracy of the information but neither ICHCA nor any member of the Safety Panel is responsible for any loss, damage, costs or expenses incurred (whether or not in negligence) arising from reliance on or interpretation of the publication.

The comments set out in this publication are not necessarily the views of ICHCA or any member of the Safety Panel

All rights reserved. No part of this publication may be reproduced or copied without ICHCA's prior written permission. For information, contact ICHCA's registered office.

ICHCA International Limited - INTERNATIONAL SAFETY PANEL

The International Safety Panel is composed of safety and training officers and directors, transport consultants, representatives from leading safety and training organisations, enforcement agencies, trade unions, insurance interests, institutions and leading authorities on the subject area from around the world.

Mike Compton (Chairman), *Circlechief AP*, UK
John Alexander, UK
Meir Amar, *Port of Ashdod*, ISRAEL
Paul Auston, *Checkmate UK Limited*, UK
David Avery, *Firefly Limited*, UK
Peter Bamford, CANADA
Philip Beesemer, *ECT*, THE NETHERLANDS
Christian Blauert, *HHLA*, GERMANY
Jan Boermans, *DP World*, THE NETHERLANDS
Mike Bohlman, *Horizon Lines*, USA (Deputy Chairman)
Roy Boneham, UK
Bill Brassington, UK
Jim Chubb, *BMT Marine & Offshore Surveys Ltd (incorporating BMT Murray Fenton Limited)* UK
Daniele Ciulli, *Contshipitalia*, Italy
Rob Dieda, *SSA*, USA
Trevor Dixon, *WNTI*, UK
Steve Durham, *Trinity House*, UK
Patricia Esquivel, *OPCSA*, SPAIN
Margaret Fitzgerald, IRELAND
Pamela Fry, *DP World*, CANADA
Kirsty Goodwin, *SAMSA*, SOUTH AFRICA
Fabian Guerra, *Fabian Guerra Associates*, EQUADOR
Charles Haine, *DP World*, DUBAI
Harri Halme, *Min. of Social Affairs & Health, Dept for Occupational Health & Safety*, FINLAND
Trevor Harris, *DP World*, DUBAI
Les Heather, *Drake International*, UK
Geoff Holden, *LEEA*, UK
Lawrie Holman, *DP World*, DUBAI
Laurence Jones, *TT Club*, AUSTRALIA
Henrik Kristensen, *APM Terminals*, THE NETHERLANDS
Fer van de Laar, *IAPH*, THE NETHERLANDS
Shimon Lior, *Israel Ports, Development and Assets*, ISRAEL
John Mace, *International Group of P&I Clubs*, UK
Jerome Marinier, *Port of Le Havre*, FRANCE
Richard Marks, *Royal Haskoning*, UK
Joachim Meifort, *Hamburger Hafen-u Lagerhaus A-G*, GERMANY
Marios Meletiou, *ILO*, SWITZERLAND
John Miller, *Mersey Docks & Harbour Company*, UK
Al le Monnier, *ILWU*, CANADA
Greg Murphy, *Patrick Stevedoring*. AUSTRALIA

Hannu Oja, *Kone Cranes and PEMA*, FINLAND
Manuel Ortuno, *Lloyds Register*, GERMANY
Nic Paines, *Gordon, Giles & Coy Ltd*, UK
Irfan Rahim, *IMO*, UK
Peter Rasmussen, *BIMCO*, DENMARK
Risto Repo, *Accident Investigation Bureau of Finland*, FINLAND
David Roach, *DP World*, Dubai
Raymond van Rooyan, *SAPO*, SOUTH AFRICA
Ron Signorino, *The Blueoceana Company, Inc.*, USA
Tom Sims, UK
Matt Smurr, *Maersk Inc*, USA
Armin Steinhoff, *Behörde für Arbeit, Hamburg*, GERMANY
Peregrine Storrs-Fox, *TT Club*, UK
Bala Subramaniam, INDIA
Mark Sultana, *Malta Freeport Terminals Ltd*, MALTA
Chris Symonds, *Drake International*, UK
Markus Theuerholz, *German Lashing*, GERMANY
David Tozer, *Lloyds Register*, UK
Hubert Vanleenhove, BELGIUM
Evert Wijdeveld, *Environmental & Safety Affairs, Deltalinqs*, THE NETHERLANDS
(Deputy Chairman)
Bill Williams, *Maersk Inc*, USA
Dave Wilson, *Hutchison Ports (UK) Limited*, UK
Beat Zwygart, *LASSTEC*, FRANCE

OBSERVERS:

Capt. Jim McNamara, *National Cargo Bureau, Inc.*, USA
Mick Payze, AUSTRALIA
Charles Visconti, *International Cargo Gear Bureau, Inc.*, USA

CORRESPONDING/ASSOCIATED MEMBERS:

Paul Ho, *HIT*, HONG KONG
Richard Day, *Transport Canada*, CANADA
Samuel Ng, *Maritime Department*, HONG KONG
Pedro J. Roman Nunez, *Puertos del Estado*, SPAIN

The above lists those persons who were members of the Panel when the pamphlet was published. However, membership does change and a list of current members can always be obtained from the ICHCA International Secretariat.

ABOUT THE AUTHOR

Pamela Fry

Pamela Fry is Director of Safety, Security, Environment and Training for Dubai Ports World, Americas Region and is responsible for the regional risk management program.

Pamela began her career in risk management in 1995 as Coordinator of Safety and Environment in the forest industry, for McMillan Bloedel Ltd, which was bought by Weyerhaeuser in 1999.

In 2003, Pamela decided leave the forest industry and became Manager of Safety and Environment for P & O Ports in Vancouver, B.C. looking after S&E for both container terminal and stevedoring operations.

In this capacity, she was responsible for all regulatory compliance requirements and enjoyed working closely with the International Longshore and Warehouse Union (ILWU) on safety related issues.

Pamela was promoted to Regional Director of Safety and Environment for Dubai Ports World Americas Region in 2006 with the responsibility of establishing a regional strategy for safety and environment that adhered to all global requirements.

In 2009, security and training were added to her responsibilities and she was promoted to Director of Safety, Security, Environment and Training. In addition to her continuing management of safety and environment, Pamela directs all security initiatives for the region and assures that Dubai Ports World terminals and facilities are compliant with all security regulations.

Pamela completed her studies at the University of Victoria in Environmental and Occupational Health. Pamela is a designated Canadian Registered Safety Professional (CRSP) and is currently working towards her masters in Environmental Studies at Royal Roads University.

Contents	Page
1 Introduction	1
2 Equipment	1
2.1 Refrigerated Container	2
2.2 Electrical Cord and Plug	2
3 Receptacle and Power Supply	3
4 Reefer Transportation	3
5 Reefer Handling	3
5.1 General	3
5.2 Personnel	4
5.3 Equipment	4
5.4 Personal Protective Equipment	6
6 Hazards	7
7 Operations	7
7.1 General Plug In Procedures	7
7.2 General Pre Plug-In Inspection	8
7.3 General Unplug Procedures	9
8 Photographs	10
9 References	14

ISBN: 978-1-85330-024-0

First Published: April 2010

Safe Working with Reefer Containers

Shipside & Shoreside



SAFE WORKING WITH REEFER CONTAINERS

1. Introduction

- 1.1 Refrigerated containers (reefers) are used to transport goods, which must be kept at a constant temperature either above or below freezing. Refrigerated goods are transported by land, sea and air through container terminals, loading and transfer stations, railway stations, ports, airports, warehouses and on board ships. This includes such items as fruit, vegetables, meat and dairy products, such as butter and cheese. These goods are divided into chilled goods and frozen goods, depending on the specified transport temperature. Reefer cargo can also comprise of chemicals and dangerous goods classified under IMDG code.
- 1.2 There is a wide variety of plugs and receptacles for refrigerated container handling to reduce the risks associated with plugging in and unplugging reefer containers. Refer to section 4.3 for further details. Some of these controls include high heat resistant materials, interlocking plugs, hinged lids, caps to protect the plug against corrosive environments. Container receptacle combinations vary internationally.
- 1.3 The purpose of this pamphlet is to establish some general guidelines to be used in the process of plugging in and unplugging of reefer containers both on vessel and on dock, which may be described as best practice.
- 1.4 The primary hazard in relation to plugging in and unplugging reefer containers is working with electrical power and the potential for injury. Ensuring the power circuit is turned off prior to plugging in or unplugging the plug is key to reducing such hazard. One main contributing factor relating to accidents that have occurred include defective equipment where moisture has been able to enter the plug.
- 1.5 The maintenance of the containers, cords and plugs may not be within the direct control of the terminal or stevedores, however concerns should be brought to the attention of the appropriate persons to have these issues addressed. This requires a pre-use inspection to be completed on each plug prior to being plugged in or unplugged in order to identify any defects.

2. Equipment:

In the context of "reefer operation" referred to in this pamphlet the equipment discussed includes:

2.1 Refrigerated Container

- 2.1.1 The reefer container is manufactured to the specifications listed in ISO 1496-2. It must have a cord storage space large enough to securely stow the power cable.



Figure 1 - Reefer plug

- 2.1.2 If a portion of the cable is intended to be stored in the compartment during operation, the storage space must be ventilated.
- 2.1.3 Controls must be clearly marked indicating if the unit is ON or OFF. The controls also must be easily accessible. This is to prevent operation of the unit when in the OFF position.
- 2.1.4 All electrically live metal parts shall be protected from accidental contact. If any metal parts are exposed, a Supervisor or appropriate ship personnel should be notified immediately.
- 2.1.5 All non-current carrying metallic components in a plug assembly, which can become energized when the unit is plugged in must be grounded. This includes all receptacle box assemblies.

2.2 Electrical Cord and Plug:

- 2.2.1 A flexible power cable of adequate electrical capacity is attached to the refrigeration unit at one end. It has a male plug at the other end. The cable length as per ISO standard (1496-2:2008(E)) must be a minimum length of 18 meters.
- 2.2.2 The cord end is equipped with a four pin male plug with a bayonet-retaining ring.

- 2.2.3 The cable connections to the plug must be equip with a cable anchorage in order to relieve strain, including twisting of the cord. This also helps to protect from abrasion.

3. Receptacle and Power Supply:

- 3.1 The electrical power supply system should be designed and constructed in accordance with appropriate national standards and /or legislation. Where no standards exist, the design and construction should be in accordance with the International Electrotechnical Commission.
- 3.2 The power supply is equipped with a receptacle also referred to as an outlet socket. These receptacles are fitted with an isolating switch or circuit breaker often in the form of an interlock. This prevents the plug from being inserted or withdrawn while in the ON position and reducing the risk of injury.
- 3.3 The plug and receptacle must be designed to conform with IEC 60947-1.
- 3.3.1 The level of voltage and frequency being handled can varies from 380 Volts / 50 Hz to 460 Volts / 60 Hz volt.
- 3.3.2 The level of amperage varies from 10 - 25 amps.

4. Reefer Transportation:

- 4.1 Refrigerated containers are transported via:
- i) Ship
 - (ii) Rail
 - ii) Truck
 - iii) Yard equipment (ie: top pick, reach stacker)

5. Reefer Handling

5.1 General

- 5.1.1 Safe systems of work and operational procedures should be established and personnel should be trained in these procedures. This training should include;
- (i) How to safely access the reefer stack areas
 - (ii) An understanding of the mobile equipment that is working in the area

- (iii) How to communicate with the equipment operators (ie: radio)
 - (iv) How to identify defective equipment and what to do if any defects are identified
 - (v) General operational procedures for plugging in and unplugging the reefers
 - (vi) Hazards of working with low voltage
 - (vii) Personal protective equipment required
 - (viii) Associated hazards relating to working at heights
- 5.1.2 The necessary personal protective equipment to be worn by employees and contractors should be established and the equipment used. The people required to use this equipment should be trained in the proper use, maintenance and storage of the required PPE.
- 5.1.3 A safe means of access should be provided to the reefer stacks for those individuals who are required to plug and unplug, both on dock operations as well as on board the vessel. This includes procedures to inform mobile equipment operators that employees are working in the reefer stacks. In regard to safety onboard the vessel, refer to ICHCA International Safety Briefing Pamphlet #8, Safe Working On Container Ships.
- 5.1.4 Artificial lighting and emergency lighting should be available in the event that work must be undertaken during evening or night shifts where natural light is low or not available.
- 5.2 Personnel**
- 5.2.1 Personnel engaged in activity relating to plugging in and unplugging of reefer containers should be trained in the safe operating procedures as well as procedures for doing a pre- use inspection on the equipment. For further comments see 6.1.1.
- 5.2.2 Employees and contractors should report any defective equipment immediately to their Supervisor prior to using the equipment or plugging in / removing the plug.
- 5.2.3 It is important that once the training is completed, that personnel accept and comply with requirement to wear the personal protective equipment and wear it in the designated areas.
- 5.2.4 If an employee or ship personnel is not trained or authorized, they should avoid entering any of the working areas such as the reefer towers or reefer bays.
- 5.3 Equipment:**
- 5.3.1 Reefer containers as shown above, as well as porthole containers are used to transport items requiring refrigeration. Porthole containers do not have their own refrigeration unit. These containers are reliant on an external supply of cold air. This is achieved by refrigeration units being permanently installed on the ship, or the terminal or by clip-on units for individual containers.

- 5.3.2 Porthole containers are thermally insulated and have two sealable openings on the end walls (the portholes) through which cold air can be blown into the container and warm air can be extracted.
- 5.3.3 Plugs are attached to the end of the electrical cord, which is used to connect the reefer container to the power source. The plug is inserted into a socket, also known as a receptacle. Sockets and receptacles mounted at an angle facing downwards help to ensure rainwater does not enter the socket. Some socket designs incorporate an arrangement. This ensures the plug is securely connected before the operator can switch the power to the ON position. In order to remove the plug, the power must be in the OFF position.



Figure 2 – Reefer Container



Figure 3 – Reefer Stacks and Access Platforms



Figure 4 – Reefer Power Source

5.3.4 Equipment in reefer operations includes the items shown in Figures 1 – 4 as well as mobile equipment, which is utilized to move the containers within the terminal. Some of the various pieces of equipment include reach stackers, RTG's, top picks, straddle carriers, RMG's.

5.4 Specific personal protective equipment used to protect the employees

5.4.1 All personnel working with low voltage should be equipped with the appropriate personal protective equipment. Recommended items include the following:

- (i) Electrically insulated gloves
- (ii) Safety Glasses or Face Shield
- (iii) Safety Vest
- (iv) Approved Safety Footwear
- (v) Hearing Protection

6. Hazards

The following possible hazards can apply to working with reefer containers:

- (i) Electric shock 220 or 440 volts
- (ii) Skin burns from contact with live parts
- (iii) Contact with electrical conductor due to faulty or damaged cable, plugs or equipment
- (iv) Explosive impact from plug caused by short circuit
- (iv) Falls/strains -
 - a) Slip / trip
 - b) Muscular skeletal injury
 - c) Strain due to reaching while holding heavy cords
- (vi) Overloading of power supply
- (vii) Injury due to containers being moved by mobile equipment while employee is plugging or unplugging a container
- (viii) Injury due to pedestrian and mobile equipment interaction while employee is gaining access to reefer area

7. Operations

7.1 General Reefer Plug In Procedures

- 7.1.1 Specific caution should be used when in any container handling area such as when access or exiting the reefer stacks.
- 7.1.2 Containers on occasion can be placed at a distance from the reefer tower that requires personnel to reach for the cord. It is important that personnel always ensure a steady footing when reaching for the reefer cord and never stand on the rails in order to gain better access as this can put the individual at risk of falling.
- 7.1.3 Caution should be taken to ensure the cord is not able to unwind and fall to the ground when working with multi stacking. This is to protect anyone below from being struck by the cord.
- 7.1.4 There must be indication on the power panel that the power is turned in the OFF position prior to the reefer being plugged in. If the unit is not powered off, the reefer plug should not be inserted.

- 7.1.5 All cords and plugs should be given a pre plug in inspection. If any concerns are identified with the plug or cord it is important that it not be plugged in. The Supervisor or appropriate ship personnel should be informed of the concern. If there are no concerns identified the plug is then ready to be inserted into the receptacle.
- 7.1.6 Personnel should be sure to have all the recommended personal protective equipment on as well as ensuring that any PPE being used is in good working condition.
- 7.1.7 By either an indicator light or by listening to the sound of the unit powering up, this is indication that the unit has powered on. If no power is present a Supervisor should be informed or the appropriate ships personnel.

7.2 General Pre Plug-In Inspection

Figure 5 – Reefer Power Source



- 7.2.1 Before a reefer plug is inserted into the receptacle a thorough pre-plug inspection should be completed. This will reduce the chances of a damaged plug being used and the potential for an incident to occur.

- 7.2.2 The cord should be visually inspected for any obvious signs of damage. This includes viewing the portion of the cord that may still be coiled up. Any signs of a damaged cord such as cuts or the presence of electrical tape may indicate a problem.
- 7.2.3 The receptacle should be thoroughly inspected by checking the pins in the receptacle for any signs of moisture; dirt, carbon tracking or any other visible damage that indicates the condition of the plug may be a concern.
- 7.2.4 The plug housing should be thoroughly inspected for any cracks or holes. The rubber sealing ring should be securely in place.
- 7.2.5 The socket should also be checked for any signs of moisture. It may be necessary to use a flashlight to get a good visual. The cord can be bent back and forth at the back of the plug to see that it is snug in the housing. A snug fit indicates the rubber grommet is in place. In order to check for moisture inside the socket, the plug can be shaken to see if any moisture is present.
- 7.2.6 If any of these mentioned defects are present the plug should not be inserted into the receptacle. A Supervisor or appropriate ship personnel should be notified.

7.3 General Reefer Unplug Procedures

- 7.3.1 Specific caution should be used when in any container handling area such as when access or exiting the reefer stacks. Containers on occasion can be placed at a distance from the reefer tower that requires personnel to reach for the cord. It is important that personnel always ensure a steady footing when reaching for the reefer cord and never stand on the rails in order to gain better access as this can put the individual at risk of falling.
- 7.3.2 There must be indication on the power panel that the power is turned in the OFF position prior to the reefer being unplugged. If the unit is not powered off, the reefer plug should not be unplugged.
- 7.3.3. The locking ring needs to be unsecured and the reefer plug can be removed.

8 Photographs: Figures 6 Reefer Stack In Yard

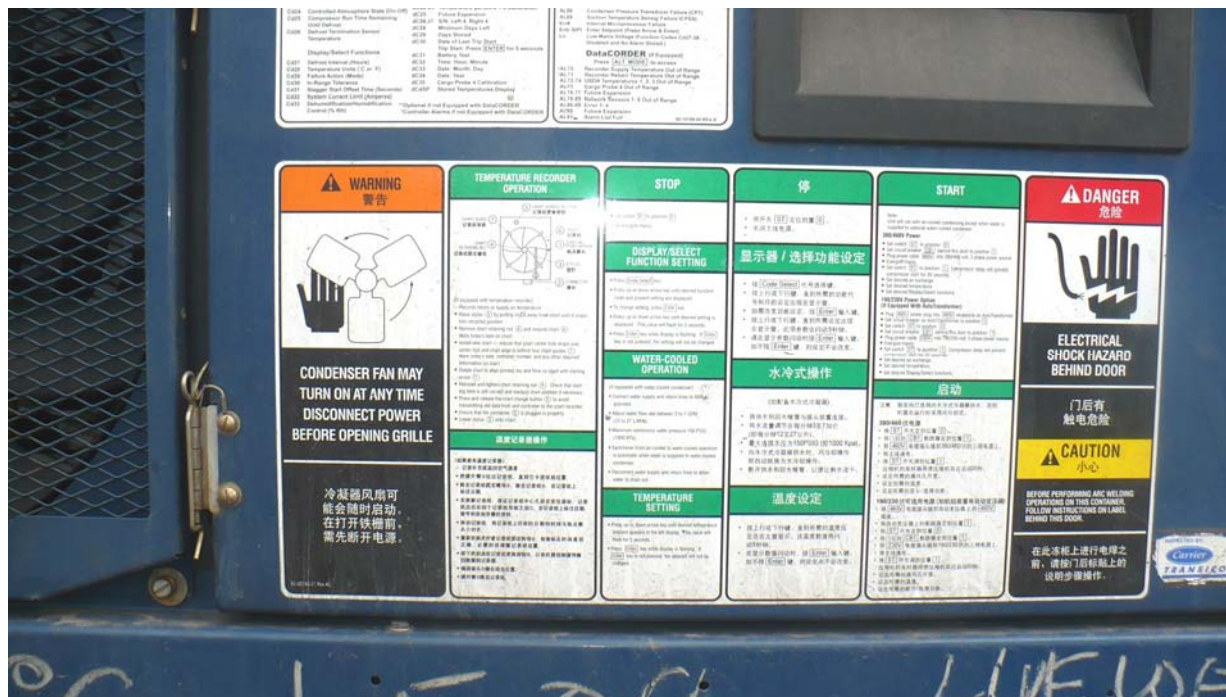


Figure 7 – Safety Placard on Reefer Container

Figure 8 – Reefer Stack in Yard





Figure 9 / 10 / 11 / 12 – Reefer Platform



9. References:

- (i) ISO 1496 Series 1 Freight Containers, Specifications and Testing: Part 2- Thermal Containers
- (ii) IEC 60309-1 Plugs, Socket-Outlets and Couplers for Industrial Purposes
- (iii) ICHCA International Safety Briefing Pamphlet #8 Safe Working on Container Ships