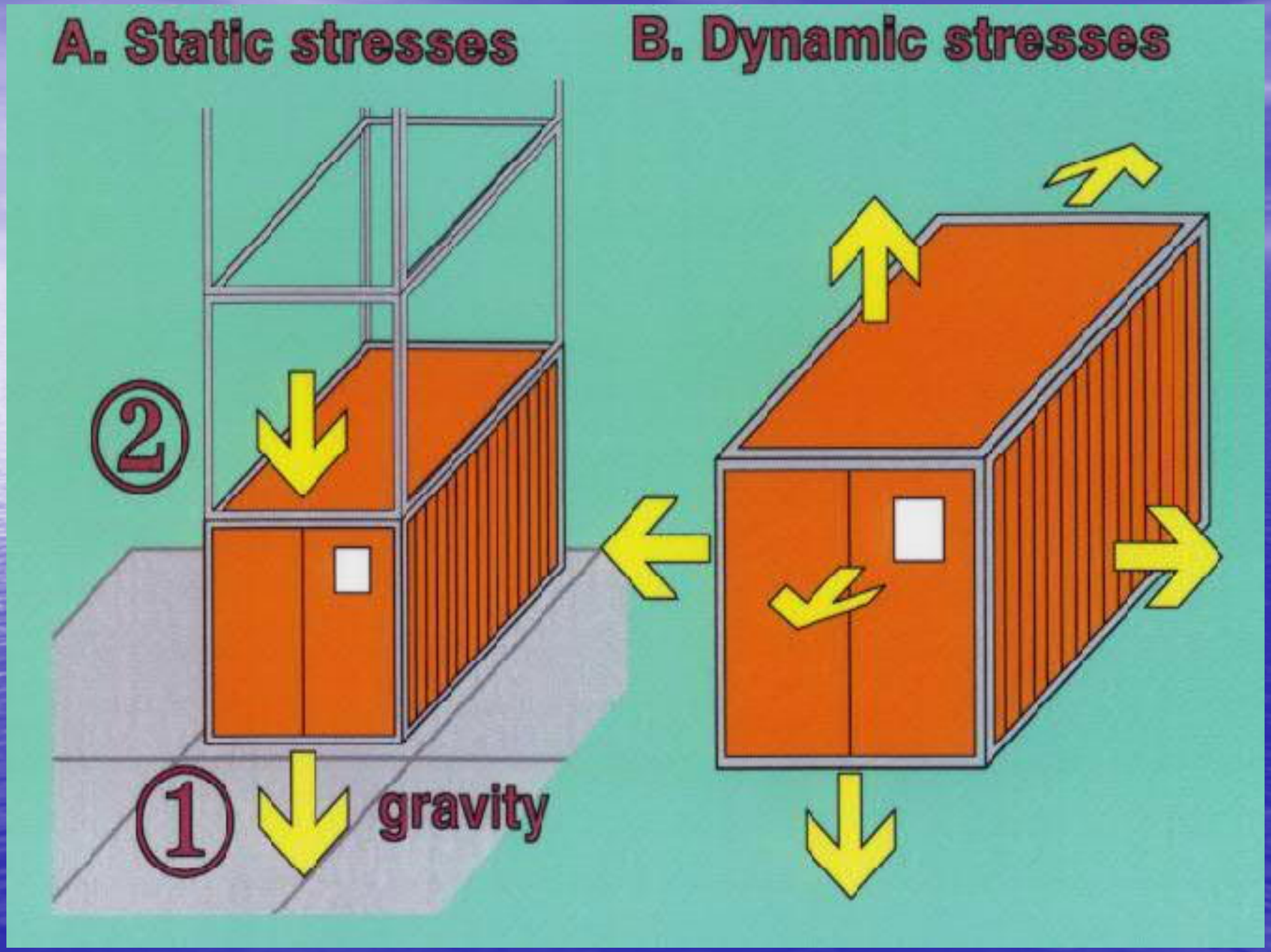
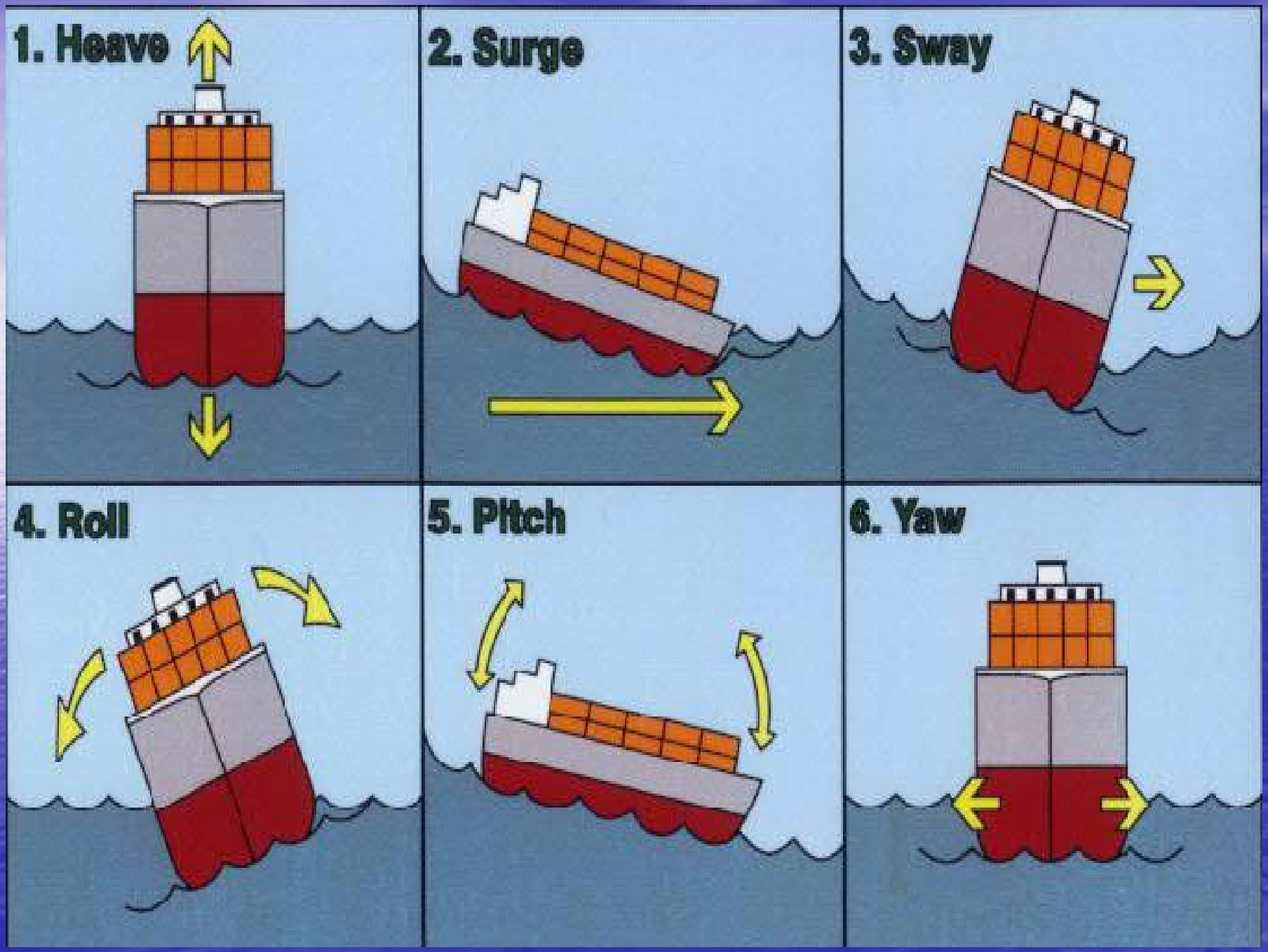
CONTFAM COURSE

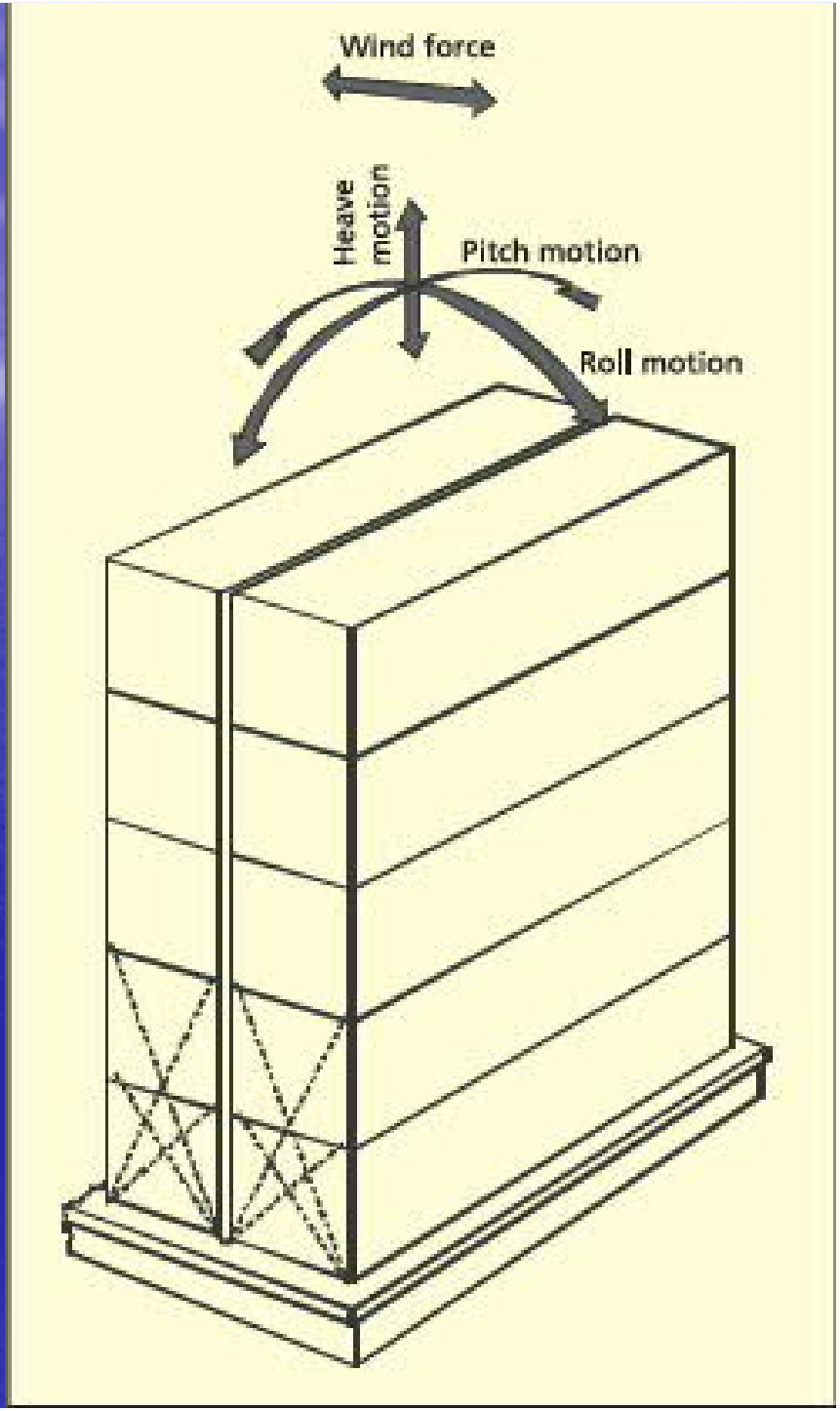
PART IV

Container Securing


A. Static stresses
B. Dynamic stresses
②
①
gravity


1. Heave
2. Surge
3. Sway
4. Roll
5. Pitch
6. Yaw

- Forces acting on a container on a seaway.
- The higher the stack, the greater the lever



Tipping & Separation

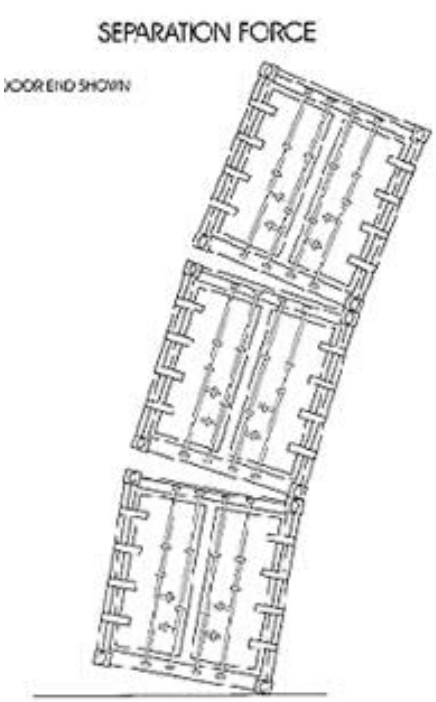


Diagram 3

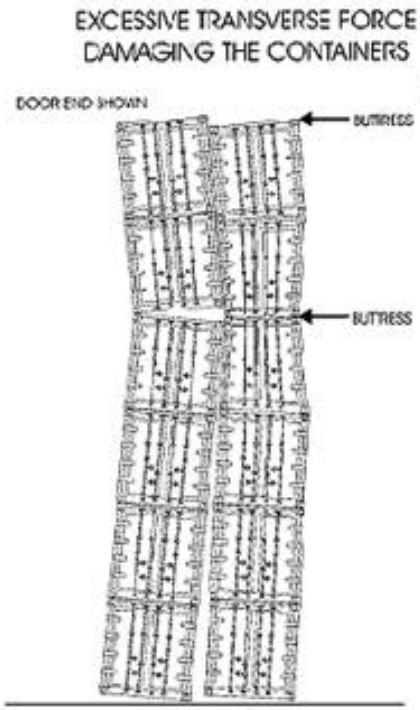


Diagram 4

Racking & Compression

COMPRESSION FORCE

DOOR END SHOWN

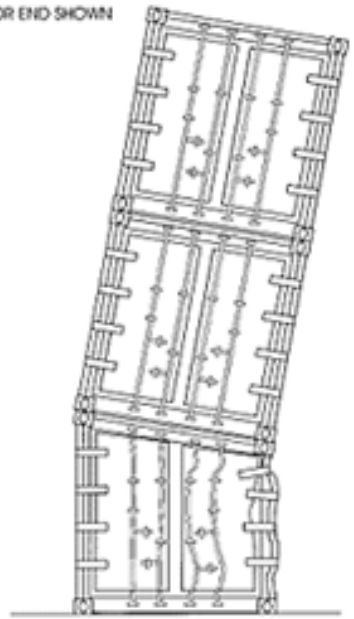


Diagram 1

RACKING FORCE

DOOR END SHOWN

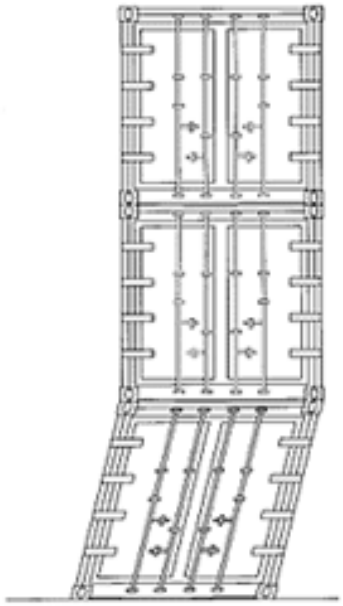


Diagram 2

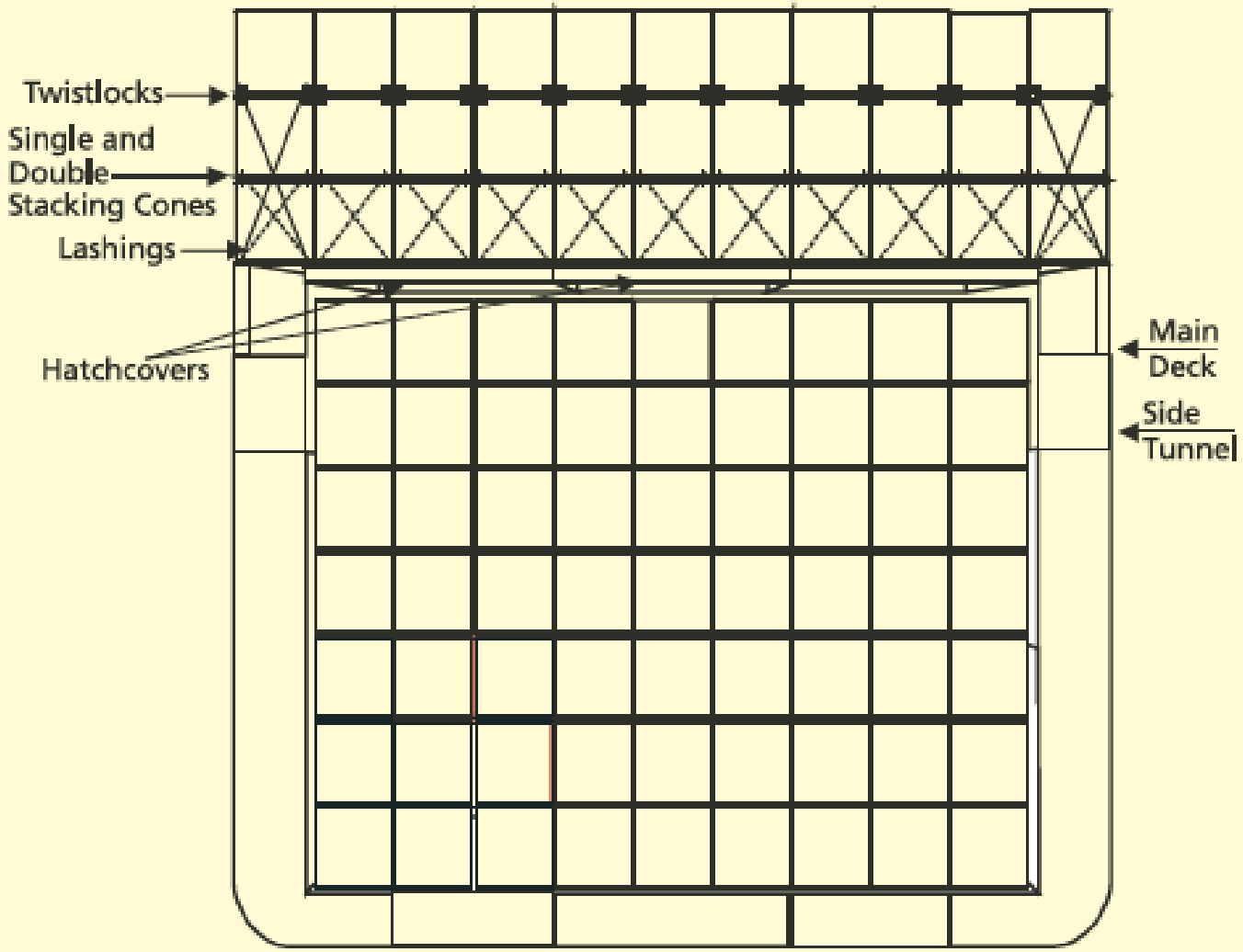
Typical common lashing system

- Using short rods which are crossed

  (notice rods are inserted in the corner post of container above)
- Turnbuckles that are tightened
- All corner posts will be also secured by twistlocks

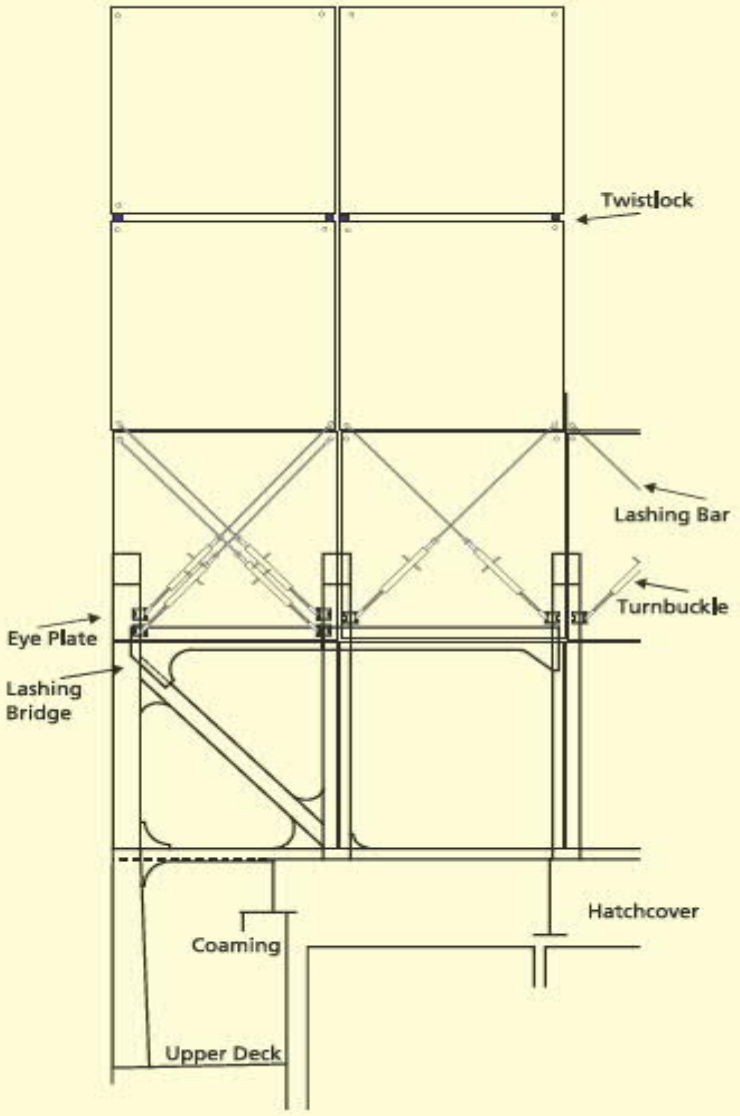
Lashing Systems - 1

Older container ships

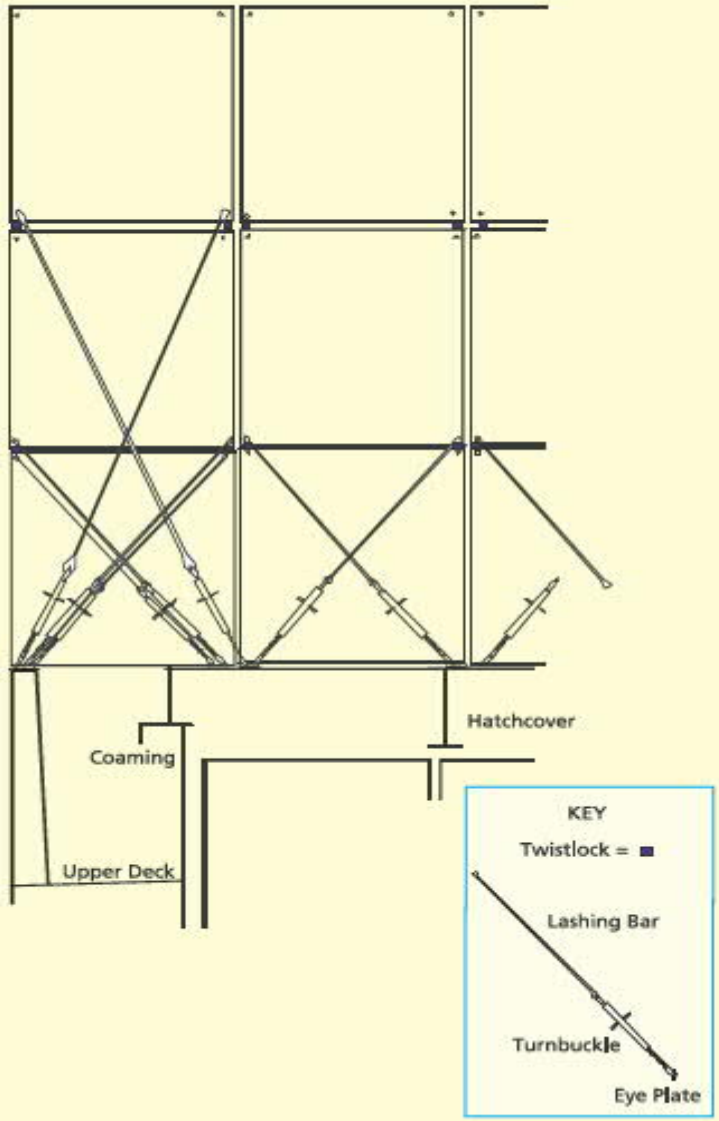


Lashing Systems - 2

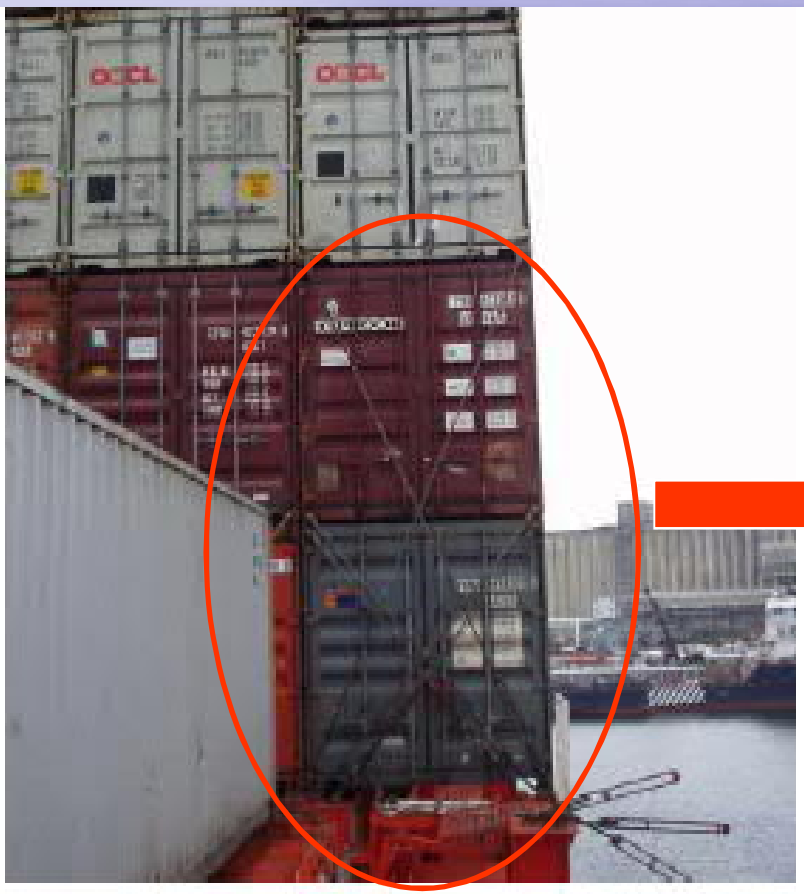
Ship with Lashing Bridge



Normal modern lashing system



Details of typical lashing system



TYPICAL CONTAINER STACK
INTERNALLY LASHED TO THREE TIERS

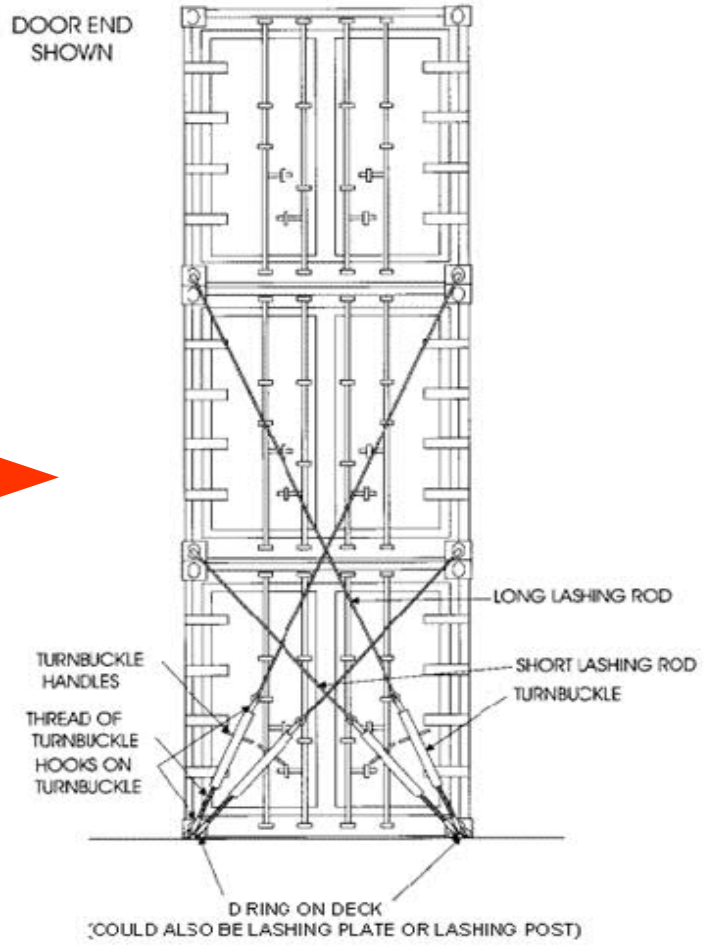
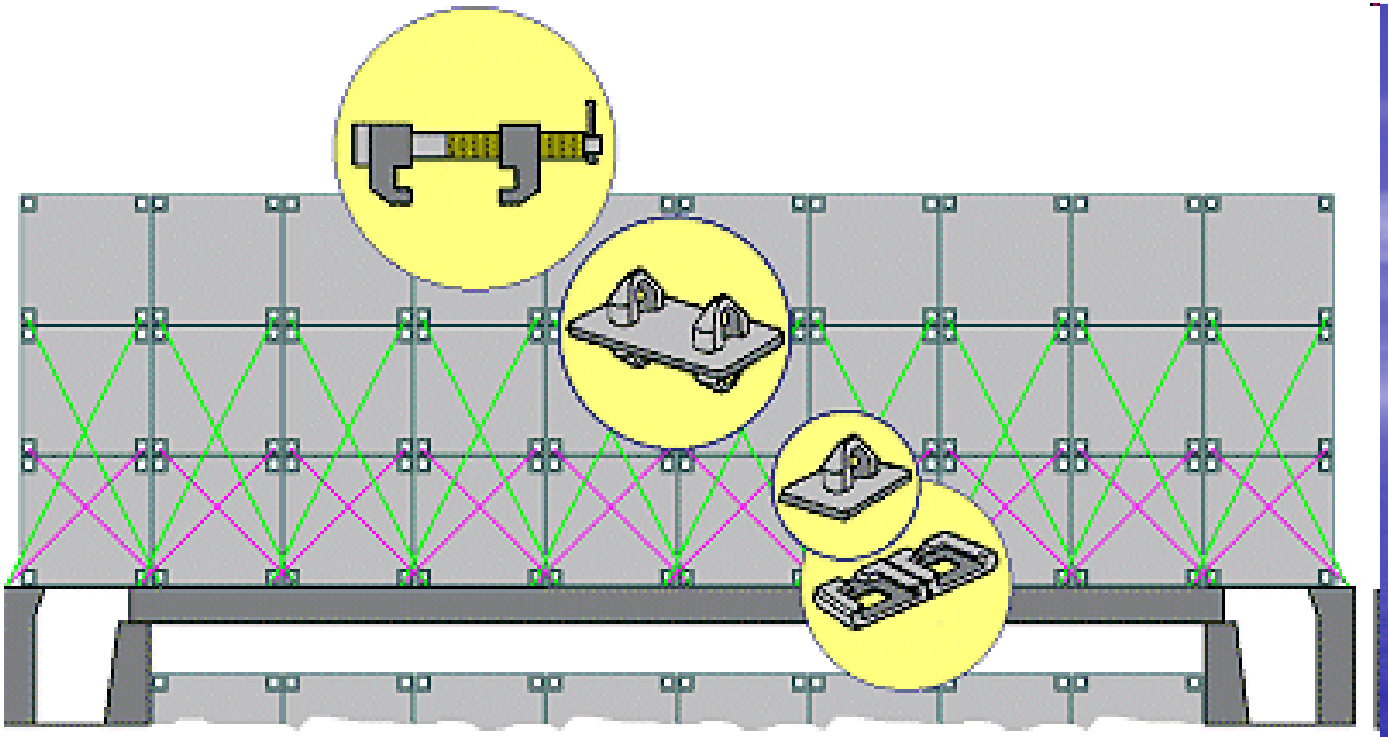
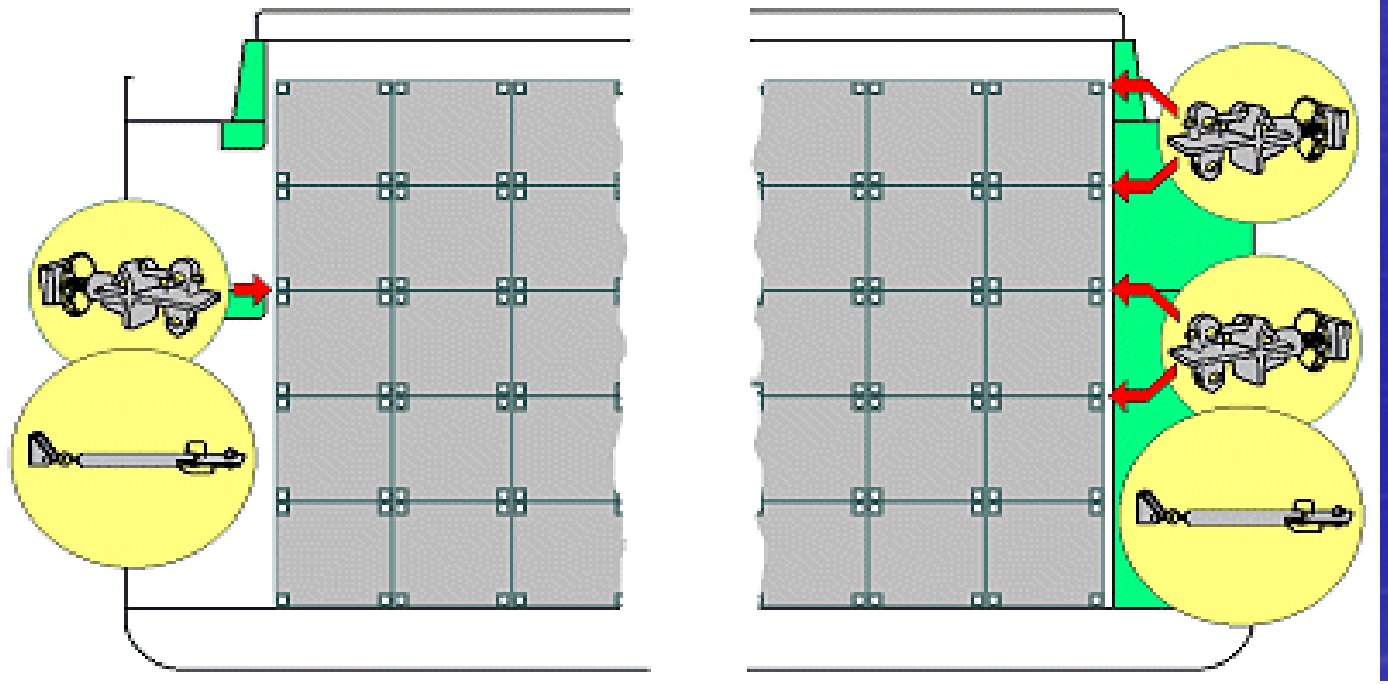


Diagram 7

Examples of Block Stowage

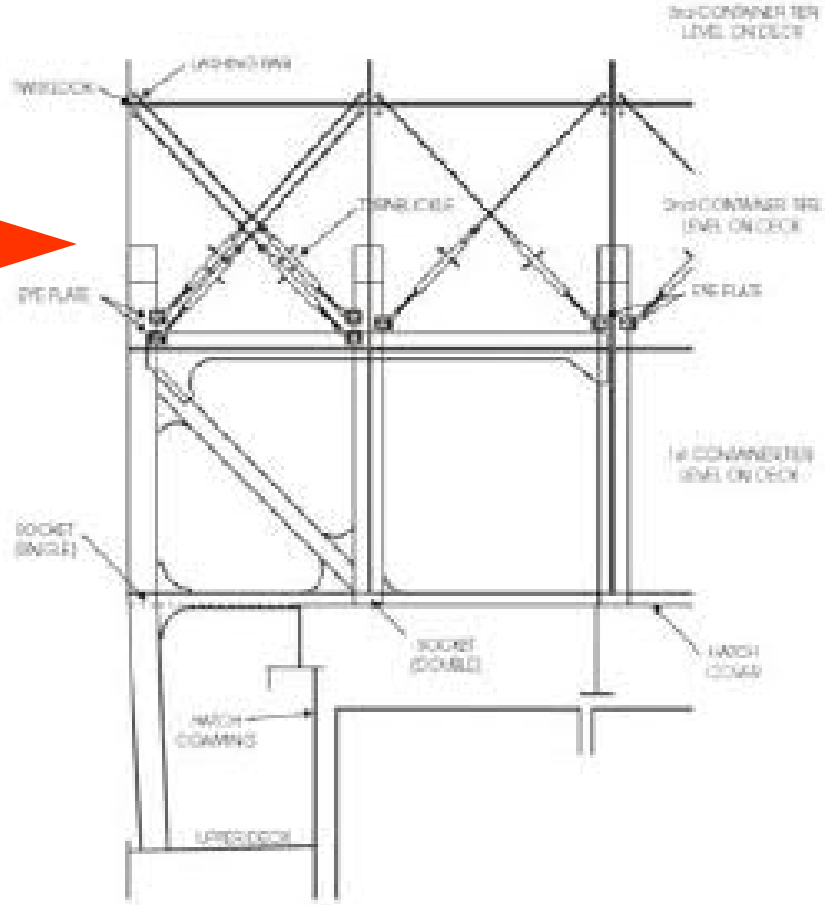


On Deck



Under Deck

Details of typical lashing system-2

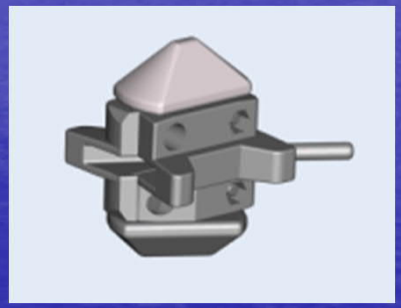


Some company basic rules

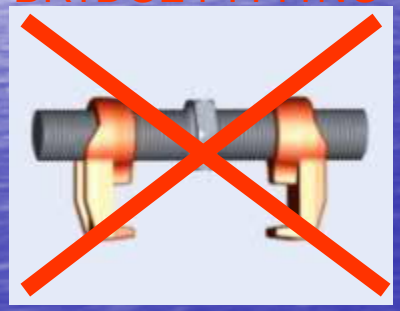
- 20 foot containers are never to be loaded on top of 40 foot containers.
- Single standing rows of more than 2 tiers to be avoided. Deck cargo must be block stowed consisting of minimum 3 rows.
- 20 foot and 40 foot container mixed stowage is un-desirable on deck. If the situation cannot be avoided, the 40 foot containers are to be stowed on the center rows and minimum of two 20 foot containers rows on the outside in order to allow lashing of the 20 foot containers to be carried out.

Common lashing material

TWISTLOCK

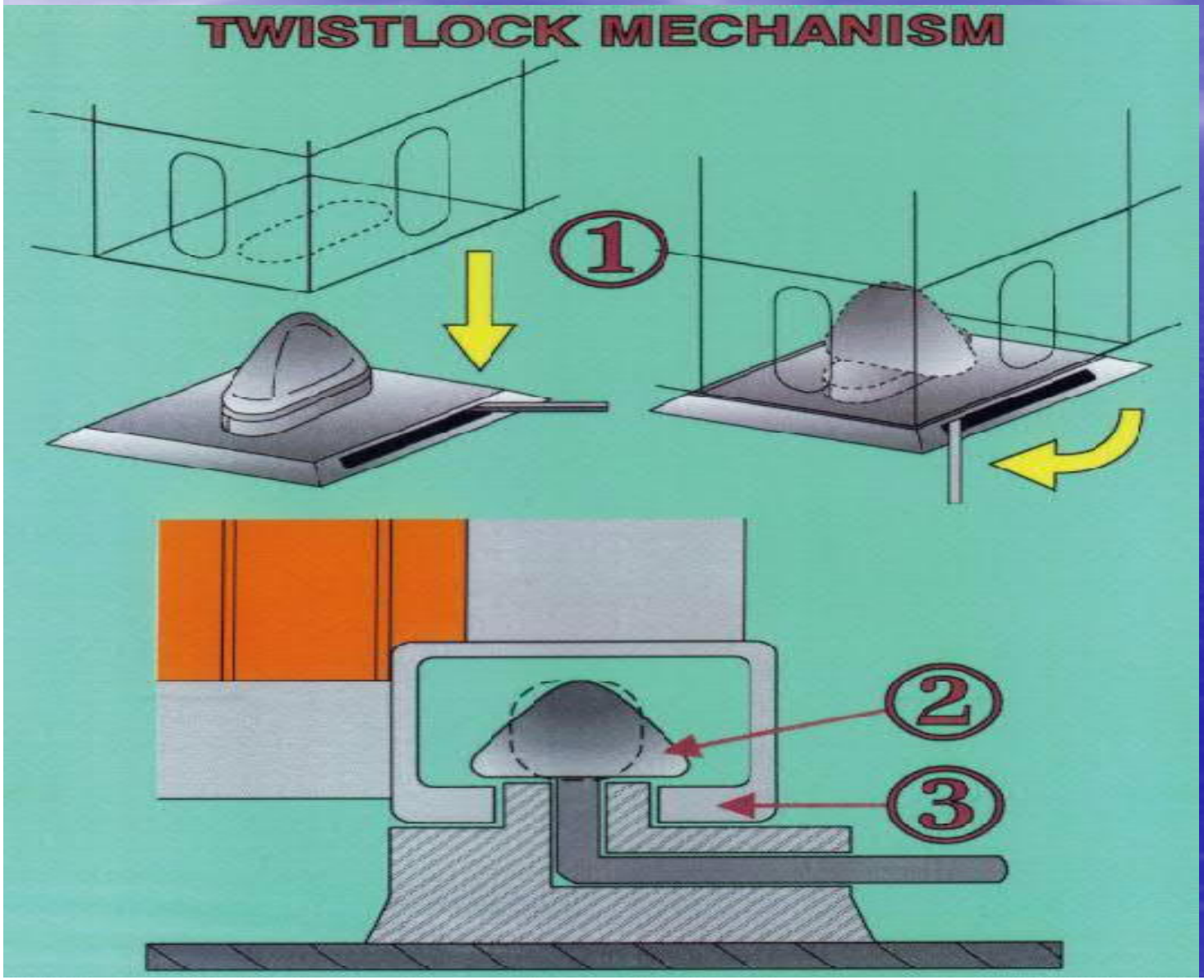


BRIDGE FITTING



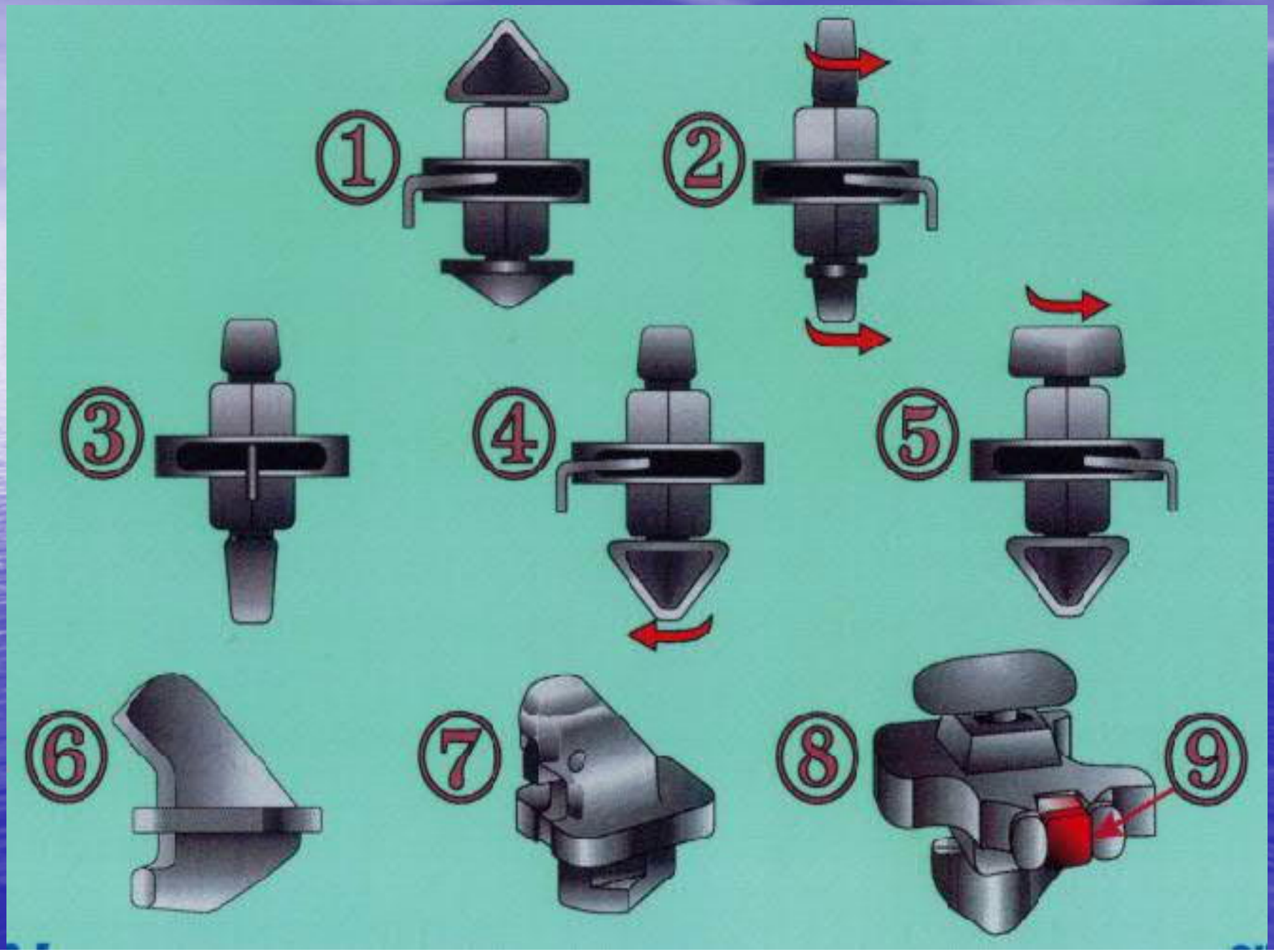
Currently not using

TWISTLOCKS – as the name suggests – it twists & locks

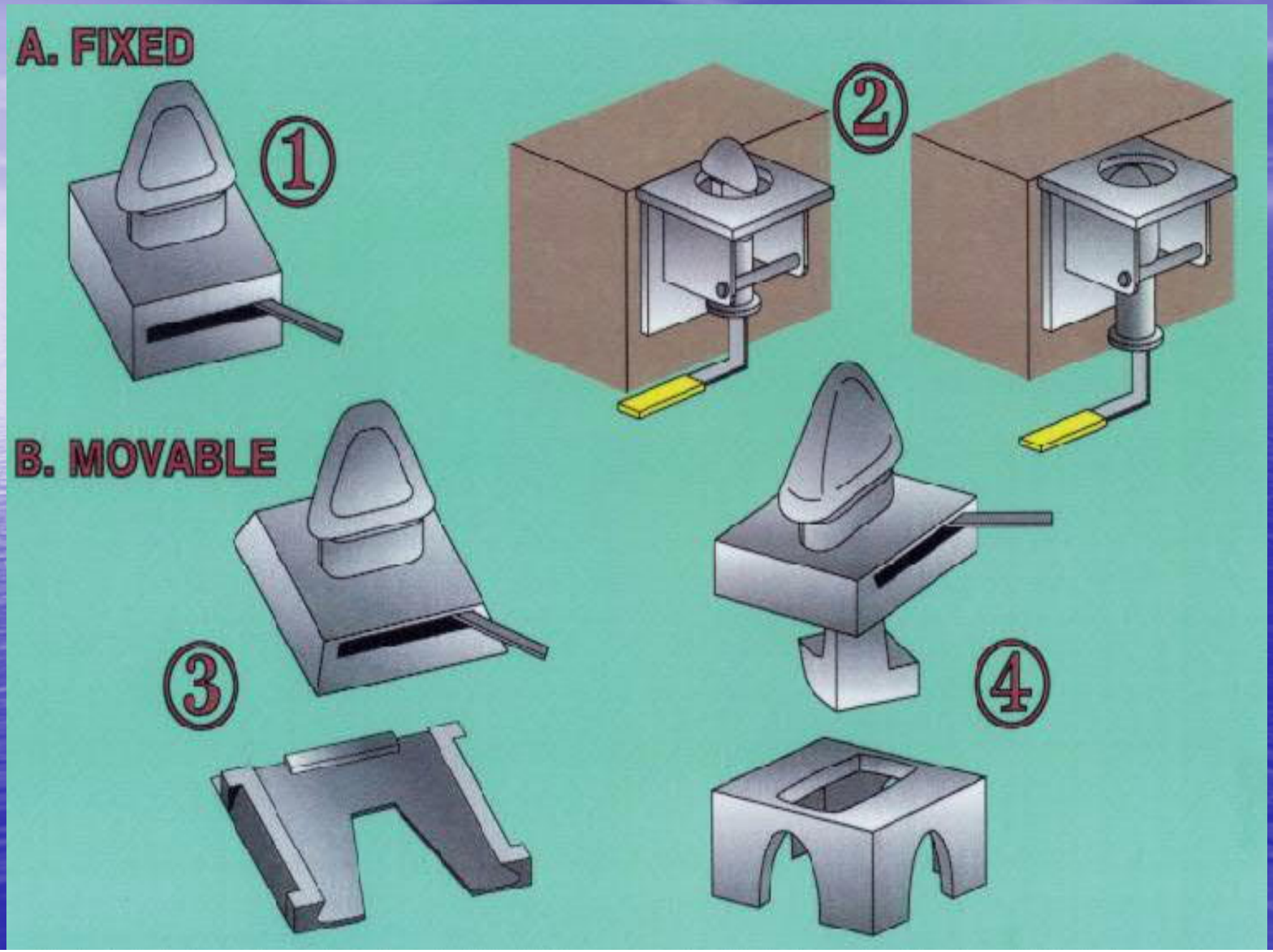


TWISTLOCKS are either LEFT handed (they lock when twisted to the LEFT) or RIGHT handed. It is important to have only one type on board so that there is no confusion as to whether they are locked or not

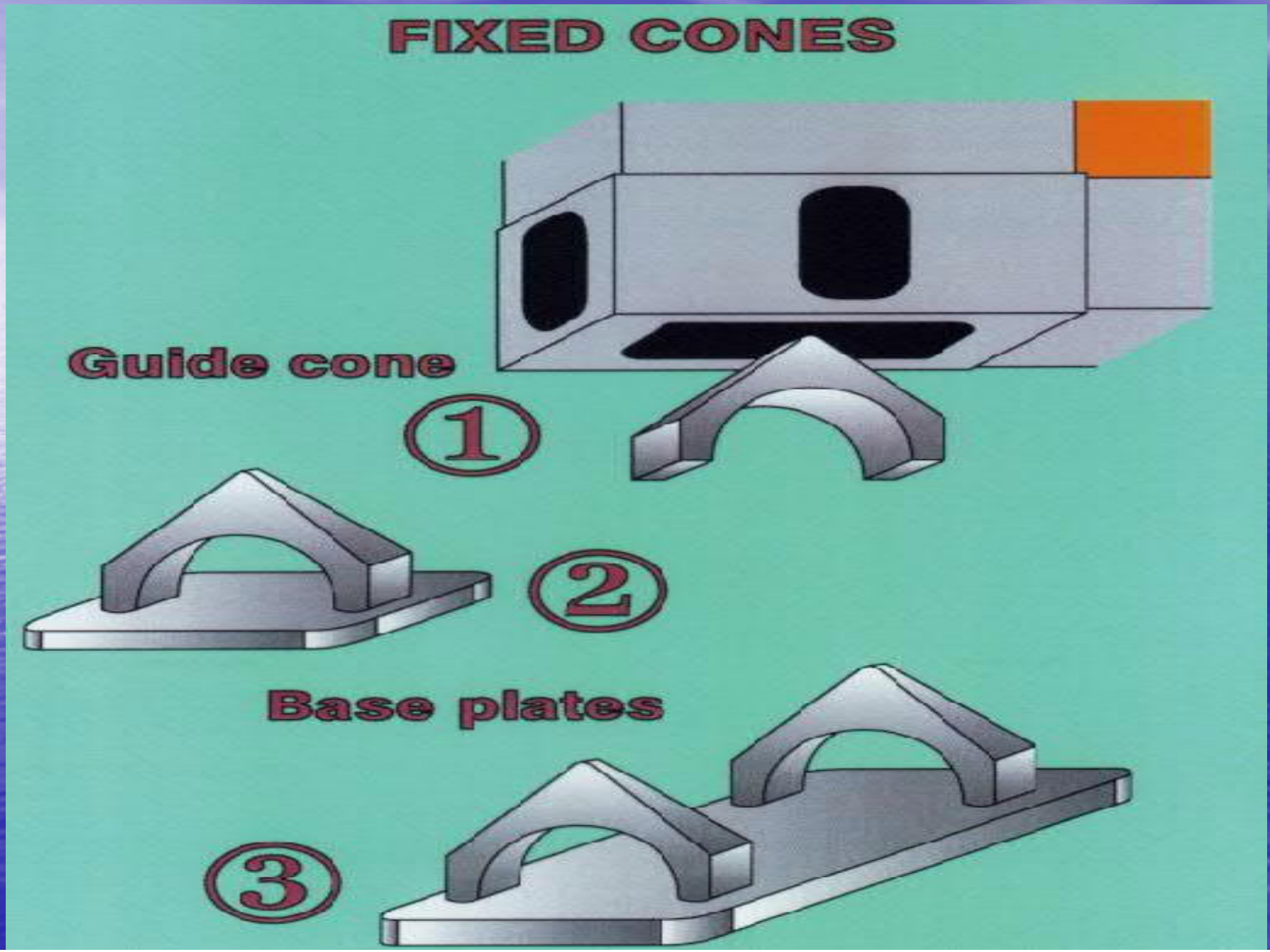
TYPES OF TWISTLOCKS



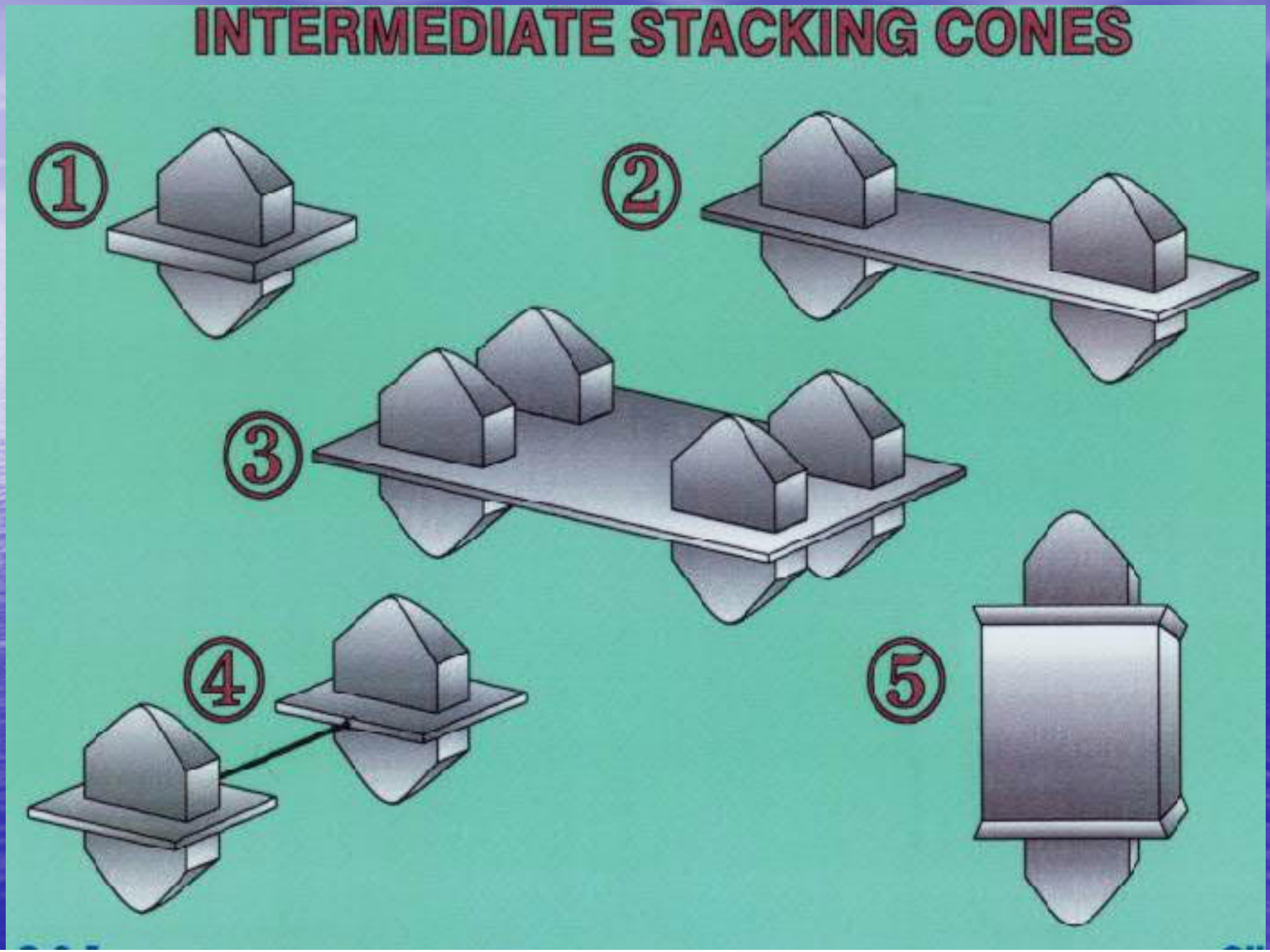
TYPES OF TWISTLOCKS



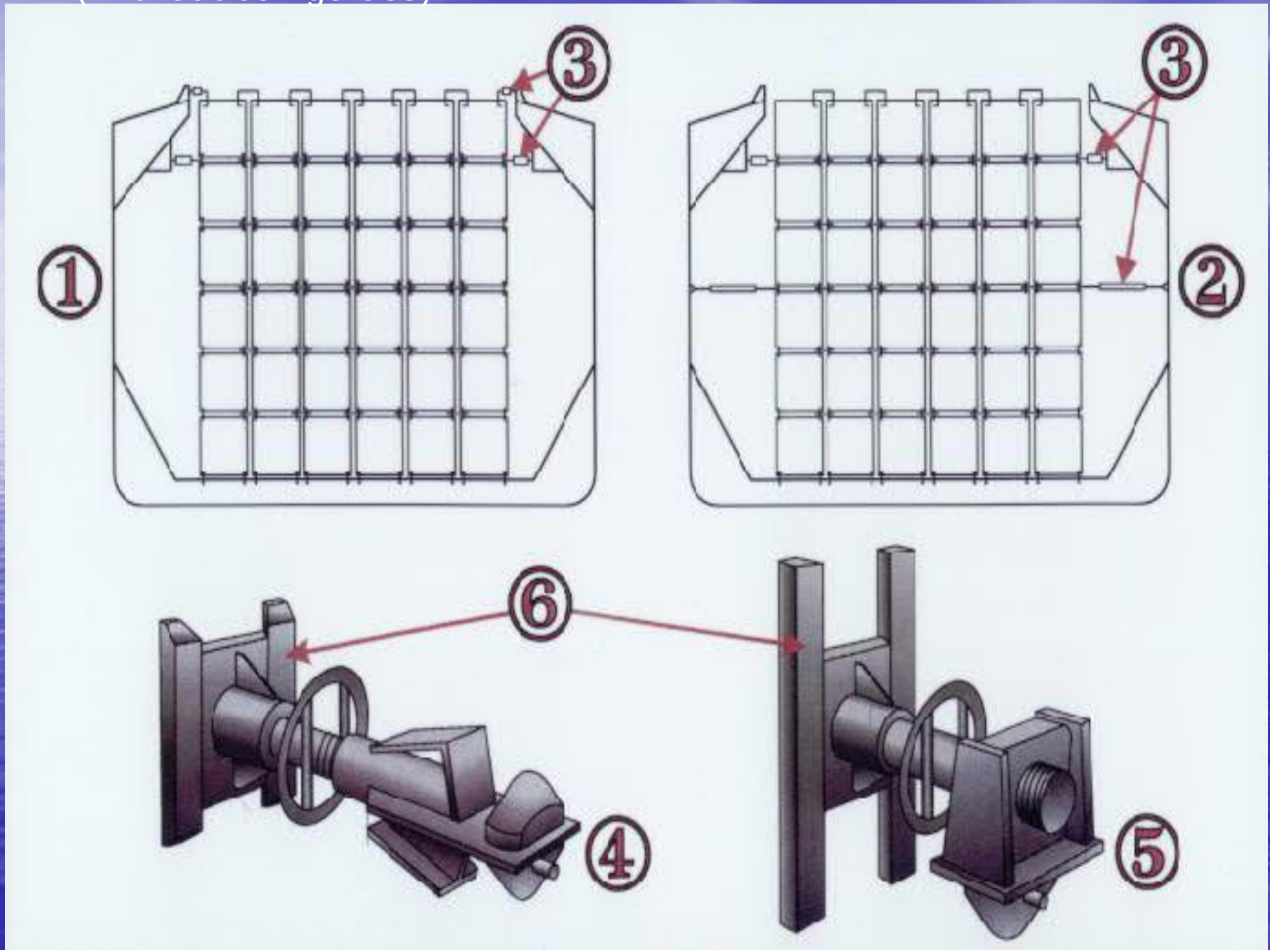
VARIOUS CONTAINER LASHING EQUIPMENT – be familiar with their names



VARIOUS CONTAINER LASHING EQUIPMENT – be familiar with their names



PRESSURE/TENSIONING ELEMENTS – found on older vessels (without cell guides)



Container Seals – vital security

Containers are sealed for security against tampering & theft. Seals have unique numbers which can be checked & verified by the Chief Officer

Lashing- Responsibilities

- Lashing is usually done by shore lashing gang as per lashing plan provided by Chief Officer. In some ports lashing may be done by ship's crew
- Duty Officer to check lashing in his watch to ensure lashing gang/crew is tight and as per lashing plan.
- The proper seating of the container and locking of the base twistlocks must be checked by the duty officer immediately on loading of the bottom tier of containers on deck. The locking is to be confirmed by visual sighting of orientation of top part of the twistlocks.
- Chief Officer is directly responsible to ensure that the cargo lashing is carried out as per the CSM prior departure of the vessel. The Chief Officer shall report to the Master that all lashings are satisfactory prior departure and on every day of the voyage.

Checking of Lashings

- Lashings are to be checked at least once daily (and tightened if required) during the voyage; the checking of lashings to be reported in the daily noon message. The chief officer is responsible for this
- It must be borne in mind that lashings can get loose in seaway with rolling, pitching and vibration. The frequency of checks should be increased in heavy weather. Alteration of ship's heading must be considered to allow for crew safety during lashing inspection in heavy weather. A record is to be maintained of the inspection of lashing.
- The locking of the higher tier twistlocks should be confirmed by the Duty Officer by observing the position of the twistlock lever / actuating wire.
- Turnbuckles should be fully tightened. The locking nut should be tightened till the pipe bush. Correct spanners, devices should be used to ensure proper tightening of the turnbuckles.

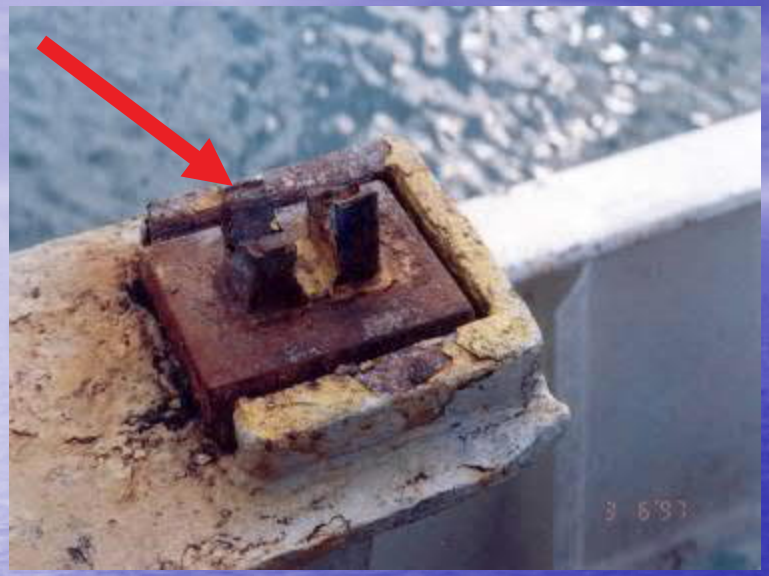
Be careful

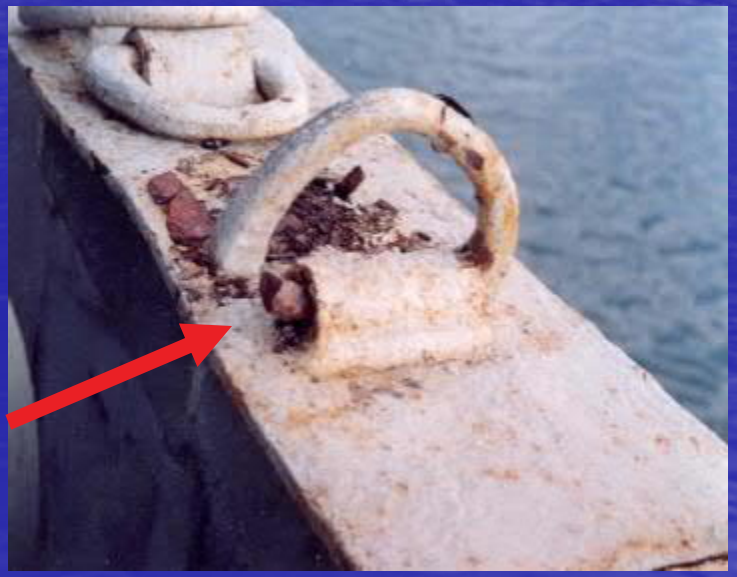
There have been many instances of collapse of deck stows in the aft bays, bays just forward and aft of accommodation in heavy weather, collapse of deck stows in extreme forward bays due to shipping of seas on deck and the compressive forces of pitching. Particular attention to be paid to cargo securing in these areas. Failure of even one container to stay in place can cause a ‘domino effect’ and the collapse of entire deck stows

Lashing Material Inventory

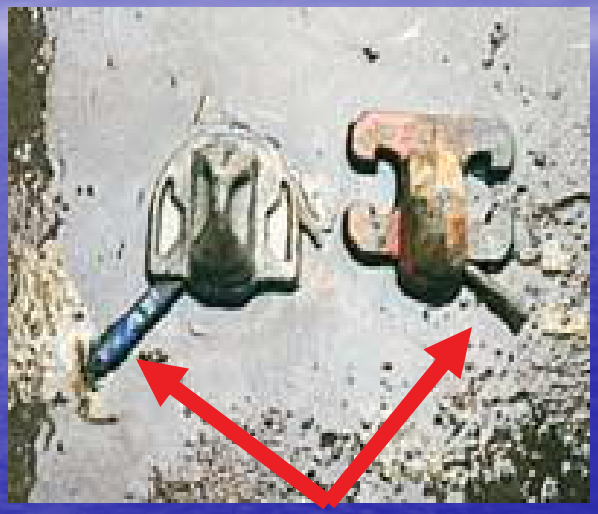
- The lashing material must be maintained and recorded in accordance with the Cargo Securing Manual. Inventory of the lashing material should be kept updated and requisitions raised well in advance. Maintenance procedures as per the CSM and relevant sections of the Fleet Operation Manual must be followed.
- Damaged/ old/ worn out/ ‘rogue’ lashing material (from other ships - through lashing bins when kept ashore) - should be removed from cargo loading areas.

Damages to Container Securing Equipment





Damages to Container Securing Equipment



End of Part IV of CONTFAM course

For further & more detailed Company Instructions, refer to QSEEMS Manual

Now please proceed to Part V of the CONTFAM course