

Technical Bulletin

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Lifting equipment – shackles and other loose gear

The Club ship inspectors / risk assessors have noted an increasing lack of awareness regarding marking and certification of lifting equipment

Lifting appliances

Lifting appliances such as derricks and cranes are subject to regular inspection, but even these items frequently cause problems prior to thorough examination:

- Lack of documentation
- Lack of safe access
- Loose gear and wire ropes – identification, certification and maintenance
- Lack of maintenance and excessive corrosion
- Incorrect function
- Safety devices not functioning or by passed.

These major items are usually clearly marked and recorded in the 'Register of Lifting Appliances' but it is the smaller items such as shackles, wire strops and lifting beams that are often poorly marked or not marked at all.

Members are reminded that they have a 'duty of care' to ensure that such equipment is examined by a 'competent person' and that this person has the necessary skills to effectively carry out such examinations. These skills should cover awareness of lifting accessories, visual inspection and some knowledge of what testing is required by 'shore based' establishments.

Loose gear

Any item which is associated with a lifting appliance and not permanently attached is referred to as 'loose gear'. This is a very wide description of equipment including slings, blocks, chains, shackles, swivels, rings, grab buckets, spreaders, lifting beams and frames. In this

technical bulletin we will deal only with the small items, the larger items such as grab buckets, spreaders, lifting beams and frames will be covered in a separate bulletin.

Shackles and lifting eyes

Shackles are by their nature a 'link' between two components and therefore play an essential role in terms of safety. They can be made of mild steel, galvanised steel or stainless steel.

There are many differing types of shackles in common use on board ships – 'D' shackles, long 'D' shackles, bow shackles, twist shackles, long twist shackles and key pin shackles, to name a few. However they all should have one thing in common and that is they should be marked and stamped with the *safe working load (SWL)*.

Shackles when they are manufactured are randomly batch tested and once this is completed they are marked with a batch reference number and a SWL – a certificate of test will also be issued.

Screwed 'pad eye' well marked with SWL and batch number



Different flag states will have their own test criteria for 'Lifting operations and Lifting equipment regulations' (LOLER) but each state has the same basic legal requirements that will be familiar to all seafarers – Docks Regulations, Register of Lifting Appliances, Cargo Gear records, etc.

The regulations will require that the lifting equipment in use must be:

- Strong and stable
- Marked with the SWL
- Used safely by competent and trained personnel
- Examined on a regular basis by a 'competent person' and records maintained of the inspections.

Bow shackle marked with SWL



'D' shackles not marked with SWL



Members should consider what is needed by their particular flag state but also be aware of various HSE (health and safety executive) requirements or safety at work acts, which under the flag requirements, may put a more onerous 'duty of care' on their shoulders.

Slings and other accessories

It is not only shackles that need to be clearly marked but also lifting eyes and slings. How many times have the ship inspectors shuddered at the thought of the slings in the engine room – frayed / broken strands and generally unfit for use being used to lift an expensive piece of essential main engine equipment.

Colour coding can be very useful in this case and the 'offshore industry' is well ahead of the merchant marine industry in the clear marking of all such equipment.

'I' beams are part of the lifting equipment as well: Beam over generators marked with test date



Engine room crane beams

The engine room transverse crane beam should be clearly marked in several locations – not only on the travelling beam itself and on the hook but also on the internal fore and aft 'I' beam – so that no matter where you are standing on the engine room top plates the SWL of the equipment is clearly visible.

This not only applies in the engine room crane but also on any transverse travelling crane on the main deck

Engine room crane beam clearly marked



Transverse travelling crane hook on the main deck – note the spring loaded retaining 'tongue' is broken

