OPERATION OF LIFEBOATS AND SAFETY

AS A FUNCTION OF DESIGN, TRAINING AND MAINTENANCE
Lifeboat safety has been an area of concern in recent times as evidenced by changes adopted to SOLAS regulation III/19.3.3.3 by MSC/Circ.152(78).

In Australia a recent incident in October 2004 that cost 2 lives and injured three others …..
.... combined with a number of incidents in recent years has resulted in even greater focus on this issue.

As a result, AMSA moved to adopt the revised SOLAS regulation III/19.3.3.3 early through a change to domestic legislation. This came into effect in mid October 2004.
The effect of this change is that ships have the **option** of raising and lowering the lifeboats without the crew actually in the boat at the time.

It is not a prohibition on manning boats during such operations.
AMSA and Sweden had moved to promote early adoption of the revised SOLAS regulation III/19.3.3.3 prior to the October 2004 incident, with a submission made to MSC 79 in September of 2004.

The reason for this submission was that AMSA had become aware that ……
….. incidents were regularly occurring with lifeboats as a result of:

- Design of release mechanisms;
- Training of crew;
- Maintenance of lifeboats; and
- Poor operational practices
Some examples of how these issues can cause incidents that put the safety of crews at risk can be drawn from experience in Australia. (It should be noted that this is a small sample)
Example One

An incident arising as a result of issues relating to:

• Design of release mechanism:
  • Maintenance; and
• Operator competence.
In 2003 a tanker was carrying out a safety equipment survey and the starboard lifeboat was lowered with crew in the boat. During the operation the forward, then after, hooks released and the boat fell vertically into the water, seriously injuring one crew member.

Noting that: …..
• The boat had been lowered without incident 10 days before;
• The crew were ‘apparently’ familiar with the mechanism; and
• Records indicated the required maintenance should have been carried out.
..... How did this happen?

The causes were identified as a combination of poor maintenance, operator competence and design.

During the previous drill the locking piece and hook stopper had not fully reset…
Hook stopper in fully reset position

Hook stopper drops into this slot in the release position
…. but had been forced into position, bending teleflex cable that drove the locking piece. As a result it appears the hook stopper was held in position by the tapered face of the locking piece.

The boat was recovered with the load only held by resistance exerted by the loaded release lever ….
RELEASE CONDITION

- Releasing lever
- Hook
- Slot
- Locking piece
- Hook stopper
- Teleflex cable
This vessel had not been retrofitted with viewing ports to determine if the locking mechanism was properly reset.

As a result when the boat was lowered and forces exceeded the resistance of the tapered face of the locking piece, the hook operated and the boat fell.
The arrangement of the teleflex cables and lack of view ports contributed to this incident.

Cover plates with viewing ports were available and could have been retrofitted. In addition poor maintenance was the reason the hook did not reset….
Locking piece and hook stopper covered in rust and debris
Finally, if the crew had been aware of the manufacturer’s instructions and not ‘forced’ the release lever closed, the condition of the locking piece and hook stopper should have been discovered.

And the crew would not have been put at risk.
Example Two

An incident arising as a result of:

- Design of release mechanism;
- Training of operators; and
- Unauthorised modification of the release mechanism.
In this incident, the aft on load hook released and the boat dropped, but was held by the forward fall. The crew were shaken but not seriously injured…..
Which was fortunate in the circumstances
It was found that the securing arrangement for the operating cable had been modified, increasing the pressure on the sheath holding the cable. This reduced the motion of the operating cable and the hook did not fully reset.

But …..
….. the design of the system was such that it was not apparent the hook was not fully reset.
a. Operating mechanism end

b. Hook mechanism end
And again a common theme was the lack of maintenance and care both:

• Through the unauthorised modification of the on load release mechanism operating cable; and
• The general general upkeep of the boat
Condition of forward and after release hooks
Example Three

An incident arising as a result of issues mainly related to design of release mechanism
The previous two incidents resulted as a combination of factors, however, it is recognised that design alone can be the major cause of an incident.

A vessel was conducting a repeat drill when the aft hook released while the boat was being secured. The boat dropped and swung, distorting the forward davit arm...
Fortunately nobody was in the boat.
The investigation found the design was very poor, providing:

- no effective indication of whether the hooks were secured; nor
- any mechanical safeguards against incomplete resetting of the hooks.
Example Four

An incident arising as a result of issues mainly related to inadequate training of operators
A vessel fitted with a free fall lifeboat was undergoing a PSC inspection. The inspector was accompanied by the vessel 2\textsuperscript{nd} Mate and 3\textsuperscript{rd} Engineer. The boat’s engine had just been tested and it was asked that the rudder be swung.

The 2\textsuperscript{nd} mate was outside with the surveyor so the 3/E attempted to operate the rudder…
Unfortunately he operated the boat pin release wheel located next the coxswains position....
As opposed to the helm located on the control position behind the seat which was in the launch position.
The release mechanism was clearly marked but the 3/E was unaware of its purpose …

The end result was a crush fracture of the spine.
Example Five

An incident arising as a result of issues mainly related to inadequate maintenance of Lifeboats
A passenger vessel was carrying out a routine load test on the ship’s lifeboats.

The process employed a water bag in the boat to apply the load. The boat was suspended on its falls until this happened ....
During the test one of the hook arrangements separated from the boat, and the boat fell from the embarkation deck into the water, causing considerable damage.

The lifeboat davit was also seriously damaged in the incident.
Investigation found that the hook mechanism itself had not failed but that the securing arrangement had.

This occurred because the steel braces between the keel of the boat and base of the hook were seriously wasted, similar to this...
Conclusion

As shown, AMSA has not taken action in respect to early adoption of the revised SOLAS regulation III/19.3.3.3 solely on the basis of the design of release mechanisms, as this is not a universal problem with all arrangements.
Rather AMSA is concerned that some issues with some designs combined with:

- Poor maintenance;
- Poor training; and
- Poor practices

are the cause of many of the incidents.
To demonstrate ....

In the incident noted at the beginning of the presentation, it was assumed by many that the release mechanism was responsible, however .....
like the cruise ship example, the hook mechanism itself was still intact after the incident but had separated from the boat.
What had failed was the nut and bolt securing the vertical braces between the deck and the keel of the lifeboat.

This arrangement appeared to have failed because it was poorly maintained …
..... as demonstrated by the condition of the other boat ...
… despite the fact the boats appeared to be in good condition.
It appears that time pressures of vessel operations and other factors are creating situations where:

• Maintenance and inspections are not being carried out; and

• Drills are not being conducted in a manner the ensure proficiency.
These are situations that should not be occurring on vessels where the ISM code has been implemented.

As such AMSA is not promoting a reduction in drills, rather we would like to see a situation where regular drills and regular and appropriate maintenance and inspections are carried out, so ....
Lifeboats can be operated without risk to the crew....

And avoid....