Lifeboat accidents with “on load” release hooks

Views and experiences of a P&I Club representative

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Alf Martin Sandberg, Gard AS
Lifeboats, for the purpose of saving lives

- Modern lifeboats are strongly built, fully enclosed, self-righting, engine powered, well equipped, can survive a fire. Expensive.

- One should be able to feel safe with such equipment onboard........
Only one problem......
Accidents with on load release hooks

- Over the last 20 years, numerous boats have fallen during exercises, resulting in a large number of people being killed or injured for life.

- Shipowners are concerned and looking for a solution.

- There is a feeling of anger, frustration and resignation.

- P&I Clubs, the insurers paying compensation to families and injured crewmembers, note there is no end to such accidents.

- Seamen have lost all faith in lifeboats.
Causes contributing to accidents:

- Lack of maintenance of the release systems (Management)
- Lack of training crew on complicated systems (Management)
- Poor design, complicated and unstable systems (Manufacturer)
- Unclear instructions, complicated posters (Manufacturer)
- Macho culture (Crew)
- Language problem. Human error. Lack of skills (Crew/Management)
- Regulations asking for an on load release capability (IMO)
Open type lifeboat with “off load” type hooks (Vessel’s keel laid before 1 July 1986)

- Less accidents and mostly due to visible defects:
  - Wire falls, hook attachments, davit sheaves breaking due to corrosion and chafing
  - Winch and winch brake not working properly

- There are still such boats onboard vessels built before 1986. Serious accidents during training are not common.
Alexander Kielland accident

- Ekofisk oilfield, 27 March 1980.
- Flotel with 212 persons.
- “Pentagone” type rig, 5 legs.
- One leg was lost during bad weather, and the rig capsized.
- 4 boats launched, but hooks were difficult or impossible to release.
- 123 people died due to the capzising of the rig.
The Commission’s report


- The Commission examined the circumstances of the accident and established the cause.

- Evaluated the life saving means and the evacuation to provide advice on improvements.

- Particular issue: lifeboats and the release of hooks.
A recommendation for “on load” release hooks

- “…it may seem natural to recommend only to approve of hooks that can be released under load…”

- The Commission also pointed to the fact that this would be against experience from other accidents, for instance the Alpha platform accident, where a life saving capsule fell from a great height and several people were killed.

- “The Commission has no solution to the problem of the release mechanism”. “It is of the greatest importance that a solution to the problem is found soonest possible, and it is recommended that this work is accelerated”.

- Norwegian authorities ended up with a requirement for “on load” release hooks for lifeboats of ships and oil rigs.
IMO - requirements

- For ships built after 1 July 1986, new IMO requirements stipulated that lifeboats should be fitted with a hook disengaging gear, capable of being operated both off and on load. (Life boats to be able to be released from no load on the hooks to a load of 1.1 times the total mass of boat with full complement of persons and equipment).

- UNFORTUNATELY NO STANDARD SOLUTION WAS REQUIRED:
  - Different manufacturers invented their own mechanisms for the on load release, some were quite complicated.
  - The world fleet ended up with a large number of different designs of on load release hooks.
How many “on load” release accidents?

- NO ONE KNOWS! They are not recorded. There is not even an official estimation.
- Some owners do not report accidents to Flag Authority.
- Near accidents (boat falling without injury to personnel) are not reported.
- Flag States do not report lifeboat accidents to IMO, only major accidents such as total loss, major oil spill etc are reported.
- P&I Clubs have no clear statistics on this type of accident and no central registration for such information.

- Guesstimate: 1,000 accidents? 1,000 injuries? 100-500 deaths?
Gard vessels with “on load” release hook accidents


Worst accidents:
- 1992: 6 men died, 6 were injured. Compensation: USD 1.6 million
- 1994: 14 men injured, one of them paralyzed. USD 4.4 million

A “typical” accident
- 1 dead, 2 injured may cost USD 200 - 500 thousand, if settled by contract

Worst scenario: American passengers in American courts
In 1996 a Gard covered vessel answered a distress call from a vessel with a burnt out engine room. At night time our vessel approached the stricken vessel and launched its starboard lifeboat with a 6 man crew.

They picked up 3 men with fire burns and returned to the ship.

The boat was attached to the davit falls and hoisted slowly by an air driven winch. Reaching the boat deck, one person jumped off to assist with the winch, while the others stayed onboard.

Hoisting continued, the boat reached its housing position, close to activating the limit-switch for the winch motor, when it suddenly fell, rolling over and ended up floating upside down.
b) The 8 men onboard

- The lifeboat fell at 2310 hours. At 2400 a line was attached to the lifeboat by crew paddling in a life raft.

- At 0100 the upturned lifeboat came alongside and crew started cutting a hole in the bottom to get survivors out.

- During the rescue operation the crew worked in shifts due to exhaustion. At 0300 they gained access through the bottom and pulled out one man alive.

- Of the 5 crew members onboard during the fall, 4 men died and 1 was injured.

- Of the 3 men evacuated from the other ship, 1 died and 2 were injured.
c) Notes from the report on the accident

- The entire crew had been replaced 7 weeks before the accident.
- At first port of call they had lowered both lifeboats to the water and found hooks were “frozen” due to corrosion and lack of grease.
- After one hour of physical hammering and using corrosion releasing fluid, the hooks were freed and the crew greased the moving parts.
- The port lifeboat was lifted to the davits and lowered again to test the hook mechanism. There was no time to test the starboard boat due to the vessel leaving.
d) The hook and release gear

- Manufacturer: Shigi  Boat type: SZ 73-TR
- Crew was noted having problems resetting the release mechanism and attaching the hooks before hoisting.
- Clear signs of lack of maintenance on all parts.
- Release cables not correctly adjusted.
- Safety pin of release lever, attached to string, was thinner than original and not fitted in the hole (difficult to see/locate).
- Release lever had not been reset properly, and the surveyor suspected that the person leaving the boat could have knocked the release lever into the “open” position.
- Instruction placard: Poor quality, paper, small print.
e) Warning

- Noted in red on a typewritten paper next to release handle:
  
  - EXERCISE EXTREME CAUTION TO AVOID ACCIDENTAL OR PREMATURE RELEASE.

- Did the crew read the small print?

- If they did, how could they exercise caution, operating a hook system that is ill maintained and which they are not familiar with? In the middle of the night, in the open sea, on a rescue mission?
A large number of accident reports, studies, warnings and guidance have been issued

- OCIMF
- ICS
- INTERTANKO
- NAUTICAL INSTITUTE
- IMO
- SIGTTO
- ILAMA
- Flag States
- P&I Clubs
- Investigators
- Seamen unions
- Class Societies
- Lifeboat Manufacturers
- Media

But the accidents continue.......
Flag and Port State investigations of accidents

**NOTED:**
- GOOD investigations by:
  - Australia
  - Canada
  - New Zealand
  - UK
- Often the investigations end up with a recommendation to Class Society and manufacturer, pointing to weaknesses of the "on load" release system.

**IMPRESSION:**
- Hook type may be improved upon, but no hook is being banned
- Class Societies appear not to withdraw any approvals
- A manufacturer may stop producing an accident-prone type of hook, but is not withdrawing the old ones existing onboard. For older vessels there are no accurate records of type of hook.
MAIB Statement after 1989-2000 safety study

- Marine Accident and Investigation Branch, UK 1/2001:
  - Accidents with lifeboats and launching gear represented 16% of total lives lost on merchant ships.
  - "...the MAIB suggests that anyone using a lifeboat, be it in a drill or a genuine evacuation, runs the risk of being injured or even killed."
  - "It recommends that IMO undertakes a study of the present value, need and desirability of lifeboats."
INTERTANKO/OCIMF/SIGTTO initiatives

- 1994 “Results of a Survey into Lifeboat Safety” by OCIMF
- 2000 “Lifeboat Incident survey” INTERTANKO, OCIMF, SIGTTO (Based on 89 completed questionnaires)
- 2001 INTERTANKO raised the issue in IMO, in DE/44
IMO actions

- 26 March, 2001: IMO invited the Maritime Safety Committee to take action.

- 18 May, 2002: The MSC issued a statement concerning “the unacceptably high number of accidents with lifeboats, in which crew were being injured, sometimes fatally, while participating in lifeboat drills or inspections”. “Pending further considerations of the problem.....”

- 17 June, 2003; MSC Circular 1093 “Guidelines for periodical servicing and maintenance of lifeboats, launching appliances and on load release gear. “Member governments are invited to give effect to the annexed guidelines as soon as possible....”

New requirements

- New amendments to SOLAS Ch III, adopted by MSC 78 entered in force 1 July, 2006 for: "Training, Servicing and Maintenance of Lifesaving Appliances".
- No longer necessary for crew to be on board during launching.
- Maintenance is specified (MSC Circ 1093).
- Weekly and monthly inspections (detailed requirements) to be carried out and recorded in log-book.
- Annual thorough examination and operational test of "on load" release gear by the manufacturer’s representative or a person appropriately trained and certified by the manufacturer.
Problems of 2006-2007

- Many shipowners are always slow to act on new regulations.
- Service work by some manufacturers was delayed.
- Some hook manufacturers no longer exist.
- Some owners want to use independent service providers.
- IMO took one step backwards and regulations became guidelines only. (MSC 1206)
- Regulations to become mandatory only in 2010.
  - THAT IS CLOSE TO 10 YEARS AFTER THE MAIB and INTERTANKO STUDIES STARTED THE PROCESS
Maintenance alone will not solve the problem

- The ongoing debate is focusing only on maintenance and inspection and who to carry it out.

- It should be noted that new lifeboats have also fallen down.

- In 2007 Gard has a case of a tender/lifeboat of a cruise vessel falling down only 2 months after being serviced by the manufacturer - 1 dead, 2 injured.

- The launching of a lifeboat was recently (30.07.07) tested at an annual service, and fell with 4 people being injured. A service engineer and a class surveyor were present.
Are all hooks equally safe? Or equally dangerous?

- There are 70 – 80 different “on load” release hooks and the number is growing.

- There is no such thing as a “Safe Hook Standard”.

- Hooks are tested by Class for strength and for functionality, but not evaluated for safety against human error, and not evaluated for risk of accidents.
Desperate attempts

- Due to the many accidents IMO no longer requires the crew to be onboard during launching and recovery of lifeboats at time of exercises. This has reduced the number of accidents, but are the crew now sufficiently trained for an emergency?

- There are suggestions for the fitting of safety slings between boat and davit arms, in case of accidental release.

- New hook designs have a safety bolt through the side plates of the hook, a bolt that is only allowed during exercises.

- Are we “patching up” the on load release system? Are we approaching an off load solution?
Future of “on load” systems must be discussed

- Are such systems necessary? Has there been any situation since Alexander Kielland, where the crew needed an “on load” release capability to release the hooks?

- Or to make a voluntary drop of the boat to reach the water? (LSA Code requires capability to drop 1.1 X weight of boat and full complement). If so, did the the people onboard survive?

- “On load” release hooks have been tested out “live” for more than 20 years. Can anyone say they have been a success?
Thank you for your attention!

alf.martin.sandberg@gard.no