

Fatal fall from a ladder



Fatal fall from a ladder

BACKGROUND

- Product tanker en route from South Korea to Los Angeles, USA
- Preparations were being made for a USCG inspection while alongside in Los Angeles
- Turnbuckle for the free-fall lifeboat found corroded, with the securing pin seized
- An AB was to carry out the work involving rust removal and painting only, as specifically instructed by the chief officer to the bosun



Turnbuckle and the pin (marked with yellow circle) after the maintenance job completed.

Source: AIBN; USCG

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BACKGROUND (continued)

- No work permit issued for task, as work would take place at a height of only one metre and in an area secured by railings
- Chief officer carried out a verbal risk assessment
- No work aloft to be carried out due to moderate rolling
- Mandatory practice on board to use relevant personal protective equipment



Working area for the original maintenance task (turnbuckle marked with a yellow circle).

Source: AIBN; Thome Ship Management Pte. Ltd

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THE ACCIDENT

- While performing the task, the AB observed that the forward hook for the free-fall lifeboat needed lubrication
- AB asked the bosun to assist him by steadying a portable ladder to reach the forward hook
- The height from the deck to the hook was 4.8 metres
- The ladder was 5 metres long



Free-fall lifeboat and forward hook (marked with a yellow circle) with ladder as positioned by the AB

Source: AIBN; USCG

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THE ACCIDENT (continued)

- Ladder was equipped with rubber feet at the bottom of each leg but not secured by any other means
- The AB climbed up without any form of protection (safety line, helmet, etc.)
- The bosun tried to prevent this, but held on to the ladder while the AB continued to climb up
- Ladder slipped, but the bosun was unable to prevent this
- The AB fell along with the ladder and ended up motionless on deck; he was tragically pronounced dead 3 hours later



The feet of the ladder in the accident location

Source AIBN; USCG

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REFLECTIVE LEARNING

The questions below are intended to be used to help review the accident case study either individually or in small groups:

- **What do you believe was the immediate cause of the incident?**
- **What other factors do you think contributed to the accident?**
- **What do you believe were the barriers that should have prevented this incident from occurring?**
- **Why do you think these barriers might not have been effective on this occasion?**

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REFLECTIVE LEARNING (Continued)

The questions below are intended to be used to help review the accident case study either individually or in small groups:

- **How do you ensure that these barriers are effective on your ship?**
- **When does your company require a permit to work to be issued prior to working aloft?**
- **Is it acceptable to carry out a Risk Assessment verbally in your company? What is your company requirement for Risk Assessments and what aspects should be included?**
- **What should the bosun have done when the AB continued to climb ladder? What would you have done in the same situation on your ship?**

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LESSONS LEARNED

The following lessons learned have been identified based on the available information in the investigation report and are not intended to apportion blame on the individuals or company involved:

- **Lack of risk assessment and work permit** – Although the working aloft procedures in the company's SMS required a risk assessment and work permit to be prepared, these were not completed prior to the work starting so the were not correctly assessed and mitigated.
- **Non-compliance with the SMS** – The exact reasons why the AB chose to conduct the work without following the requirements of the company's SMS could not be determined. It is assumed that both the AB and bosun were well aware of the requirements; following these should have prevented the incident from occurring.
- **Complacency** – It is possible that the completion of the maintenance task on the turnbuckle, which did not involve working at height, led the AB to assume that it would be acceptable to also lubricate the hook without a work permit or risk assessment. Complacency may lead a person to take shortcuts from established safe work procedures to save time and effort, but it can also lead to undesirable consequences.

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LESSONS LEARNED (Continued)

The following lessons learned have been identified based on the available information in the investigation report and are not intended to apportion blame on the individuals or company involved:

- **Use of unsafe equipment** – The portable ladder was inappropriate for the task; the poor condition of the feet meant they were not both in contact with the deck. The fact that it had not been safely secured would also have contributed to it being unstable and probably contributed to the ladder slipping and the AB falling off it.
- **Lack of PPE** – If the AB had used proper PPE while climbing the ladder, as required by company procedures (eg. safety helmet with chin strap, safety harness and fall arrest) this would have afforded him some protection when he fell and may have reduced the severity of his injuries.
- **Lack of intervention** – The incident would have been prevented if the bosun had stopped the job rather than assisting the AB by attempting to steady the ladder. Stop Work Authority (SWA) programmes provide crew members with the responsibility and obligation to stop work in case of an apparent unsafe condition or behaviour.

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| <u>HIERARCHY OF BARRIER CONTROLS</u> | | EXAMPLES OF POSSIBLE RISK MITIGATION CONTROL MEASURES RELATED TO THE CASE STUDY | |
|--------------------------------------|-------------------------------------|--|--|
| MOST EFFECTIVE | <p>ELIMINATE THE HAZARD</p> | <p>INVESTIGATE with lifeboat manufacturer/service technician whether system/arrangement can be modified/designed to enable hook to be lubricated without working aloft?</p> | |
| | <p>SUBSTITUTE THE HAZARD</p> | <p>ESTABLISH different platform to safely access the forward lifeboat hook e.g. permanent platform, scaffolding</p> | |
| | <p>ISOLATE THE HAZARD</p> | <p>PHYSICAL CONTROLS/BARRIERS</p> | <p>ENSURE platform to access the forward lifeboat hook provides adequate protection against falling, e.g. quadrails</p> |
| | <p>INFLUENCE BEHAVIOURS</p> | <p>ADMINISTRATIVE CONTROLS/BARRIERS</p> | <p>EFFECTIVE implementation of SMS CORRECT USE of work permit and risk assessment when working aloft</p> |
| | <p>PROTECT</p> | <p>PPE CONTROLS</p> | <p>MEANS OF AVOIDING complacency IMPLEMENTATION of a Stop Work system QUALITY CONTROL of applied equipment</p> <p>CORRECT USE of safety harness, fall arrest and safety helmet with chinstrap when working aloft</p> |
| LEAST EFFECTIVE | | | |

The suggested barriers/controls above are provided to help generate reflective discussions, and should not be considered as conclusive/definitive or comprehensive for the provided case study. The risk and control measures relating to any similar scenario or activity must always be appropriately assessed based on the specific onboard arrangement and circumstances.

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CONCLUSION

- The working aloft procedures in the company's SMS required a risk assessment and work permit to be prepared. The completion of these prior to the task would have enabled the hazards to be identified and the appropriate risk controls put in place to help prevent the tragic death of the AB. The investigation report noted:

Documents on safe work processes are not enough to prevent accidents; it is also necessary to ascertain what makes well-trained crew members choose to take a higher risk when carrying out a scheduled task.

- The condition of the portable ladder was poor and its use was inappropriate for the task.
- The use of appropriate PPE by the AB would have afforded him some protection when he fell.
- A more effective intervention by the bosun could have stopped the AB from climbing the ladder.

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QUESTIONS

