

# SAFETY TRAINING GOUGE #10

## SHIPBOARD LADDERS

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### About This Training Resource

If you're an afloat safety officer or division officer, you have a challenging, important role at your command. This series of pamphlets will help you meet your bi-monthly training requirements. Modify and use them at quarters or muster. You can also check the Naval Safety Center website at <http://www.public.navy.mil/navsafecen/Pages/safety-gouge/SafetyGouge.aspx> for the latest issues. We welcome feedback so we can continue to provide you with topics you need. Email LTJG Melissa Balint at [melissa.balint@navy.mil](mailto:melissa.balint@navy.mil).

*This series is prepared by the Naval Safety and Environmental Training Center and the Naval Safety Center.*

### Introduction

Falls down ladders are a common shipboard mishap. Many of these mishaps occur while Sailors are moving equipment or carrying various items up and down inclined ladders. Typically, ship ladders are inclined at a 68 degree angle, which is fairly steep. Ladders are often installed at even steeper angles or are completely vertical to allow more storage room for other items in the space constrained shipboard. Steep angles can make ascending and descending ladders awkward, especially while carrying bulky materials. Numerous other factors lead to falls from ladders:

- Uneven surfaces,
- Poor traction (lack of non-skid surfaces),
- Lack of materials-handling alternatives,
- Lack of adequate lighting to see ladder rungs,
- Lack of guard rails, chains, or man ropes at the first four steps of hatch openings.

This issue looks at why ladder mishaps occur and what can we do about them.



**An electronics technician climbs a ladder leading to the tactical air navigation platform on a guided-missile destroyer.**

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## Definitions

We all know the saying about having one hand for the vessel. If you slip or trip, you may be able to catch yourself or minimize the impact with the deck.

**Slips:** Occur when there is little or not enough friction or traction between footwear and the walking/working surface. Causes include wet or slippery decks (water, oil, or grease spills); loose/unanchored/unattached rugs, mats; worn non-skid; areas that had non-skid and have just been painted without new non-skid put down; and badly worn footwear that doesn't have the same degree of traction in all areas.

**Trips:** Tripping is a loss of balance due to hitting an object or obstruction. Causes include poor design; uneven surface or steps; loose or no handrails or stair rails; insufficient lighting; unmarked deck fit-

tings; individual behavior (lack of attention).

**Falls:** A loss of balance or footing that makes someone hit the deck. A fall may be from a higher level or the same level. The primary cause is slips and trips (but a slip or trip doesn't have to result in a fall).

We all know the saying about having one hand for the vessel. If you slip or trip, you may be able to catch yourself or minimize the impact with the deck. Sometimes this is not practical due to the task at hand.



## What Can You Do?

- Pay attention.
- Make sure that the ladder rungs you use are in good shape.
- Use handrails when ascending or descending stairs.
- Don't skip steps.
- Fix loose handrails and chains or submit a hazard report.
- Clean up spills.

## REFERENCES

Military Sealift Command (March 2007) *Afloat Fall Protection*:  
<http://www.msc.navy.mil/n7/SOSs/SOS102.pdf>

Ladder safety: [http://www.public.navy.mil/navsafecen/Pages/Afloat/surface/Damage\\_Control.aspx](http://www.public.navy.mil/navsafecen/Pages/Afloat/surface/Damage_Control.aspx)

## Fleet Mishaps

**From an aircraft carrier:** During an underway, a pilot was hustling up a ladderwell and fell. He put his arm through a gap and ended up with a greenstick fracture, which required surgery. He was off the flight schedule for several months. (Jan. 2012)

**From an aircraft carrier:** While carrying deck plates down a ladderwell, an E-5 lost control and smashed her right index finger against the deck. (Oct. 2011)

**From an aircraft carrier:** An E-3 slipped and fell down a ladderwell while carrying boxes to the ship's laundry storeroom, resulting in a knee injury. (Oct. 2011)

**From an aircraft carrier:** An E-4 was transiting down a ladderwell carrying a BRU-32 bomb rack. He lost his footing and slipped, slicing his finger on the rack. Two weeks of light duty. (Aug. 2011)

**From a destroyer:** A CS2 was going up the ship's ladderwell from the storeroom when he missed a step and struck his left eyebrow against the railing, causing a 1" laceration. (Feb. 2011)

**From a destroyer:** A CW02 was climbing down a ladder. His right foot slipped and landed on deck while his left leg stayed on ladder. He heard and felt an audible pop in his lower back. He fell backwards from a height of 4 feet, striking a panel box with his lower back. (Nov. 2011)

**From a submarine:** A CWO2 was going down a ladder during a drill. He hit his head, causing a laceration. Two staples were used to close the wound. (Sept. 2011)

**From a helicopter squadron:** An AT3 and another Sailor were carrying an extremely heavy cruise box up a ladderwell on an LHD. The AT3 was behind, pushing up and guiding the box up the ladderwell. The box slipped from his grip. The other Sailor fell, jarring his back and hitting the AT3 on the shoulder.

## Data

- **1,224 ladder-related mishaps** reported from CY06 through May CY12.
- **10,648 lost work days** as a result of these mishaps.

## Ladders in Use



An electrician's mate climbs down a ladder while wearing firefighting protective equipment during a general quarters drill.



A Sailor climbs a ladder while participating in a chemical, biological, and radiological drill.

## Correct and Incorrect Ladder Arrangements



### ***Inclined Ladder-Chain Arrangement*** **NSWCCD-SSES Code 974**

Both chains (at left) are slack. Chains should be taut as possible.

NAVSEA TYPE Drawings S1604-860040 (Steel) & 804-1749113 (Aluminum) show correct chain hand-grab arrangement for inclined ladders.

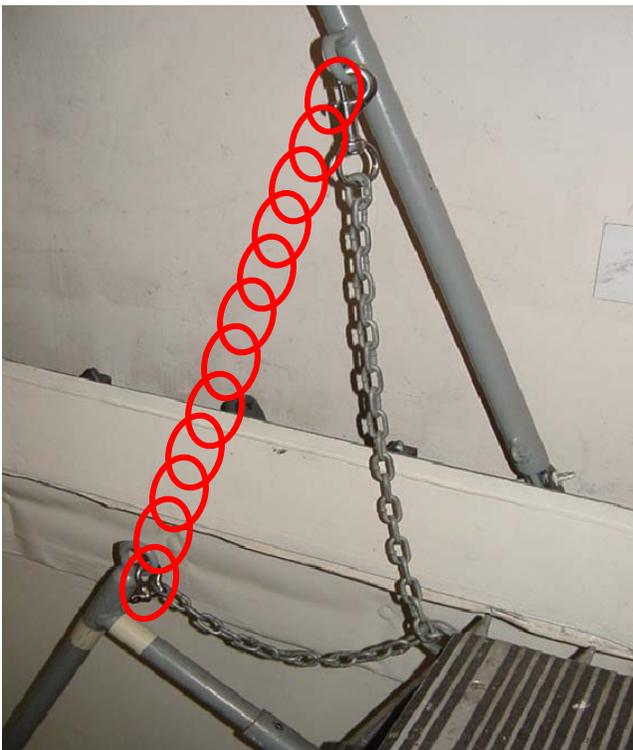
This shackle (circled in orange) can be used to tighten up the chain by inserting the shackle pin in different links and letting the excess chain hang down.



## Correct and Incorrect Ladder Arrangements, cont.



- Incorrect chain arrangement on inclined ladder used in conjunction with hatch.
- Missing chain segment.



- Chain hand grab as configured offers no assistance or support when ascending or descending ladder.
- Chain hand grab is missing.