



# NAVAL SAFETY COMMAND

## SAFETY AWARENESS DISPATCH



### *Underway Replenishment Emergency Breakaway*

*This dispatch is derived from an unclassified administrative critique of an emergency breakaway during underway replenishment (UNREP) where the receiving ship was unable to maintain lateral separation from the replenishment ship.*

#### **Near miss summary**

A USNS replenishment ship and USN Littoral Combat Ship (LCS) were connected by a tensioned spanwire while conducting UNREP certification operations, with the LCS to the replenishment ship's starboard side. The replenishment ship first conducted a five-degree incremental course change to port in three increments, 1, 2 and 2 degrees changes respectively. With each incremental course change, the LCS reported steady on course, but was advised by the replenishment ship to adjust lateral distance to 180 ft. Once on and settled on course, the replenishment ship's master initiated a course change "CORPEN-N" to starboard using incremental changes as with the turn to port. The replenishment ship's crew could see that the LCS was not opening (turning) to starboard. The LCS appeared to have difficulty maintaining course and separation. As the LCS continued to close the distance between the two ships, the replenishment ship's master repeatedly warned the LCS to alter course to starboard. When the LCS did not come right, the replenishment ship's master initiated an emergency breakaway.



#### **"...The rest of the story." — on the LCS bridge**

Why did the LCS continue to close the distance to the replenishment ship? As our subtitle quote from the late great radio broadcaster, Paul Harvey, suggests, we have your answer. The autopilot was not adjusting to the small, ordered course changes as expected. During the incremental starboard course changes, autopilot orders were not resulting in the LCS moving to the new course. After about a minute and a half of the course not adjusting as ordered and the ships' closing from 190 ft to 175 ft, a sea swell from the LCS's starboard bow caused the ship to roll approximately 4.5 degrees to port (toward the replenishment ship), which was immediately followed by a heading fault alarm on the autopilot and the autopilot still not responding as ordered. The LCS then disengaged autopilot and manually initiated a 25-degree starboard rudder (jets). The minimum distance before the USNS initiated emergency breakaway was 120 ft. The LCS then opened up to a lateral distance of 240 ft by steering with the combinators in hand steering mode. The LCS came back to within 200 ft to disconnect all lines. After the emergency breakaway, the LCS reported to the replenishment ship that they had an issue with autopilot during the CORPEN-N.

#### **Root Causes**

- 1. Ineffective Autopilot Settings.** A report from an LCS of a different class provides lesson learned about autopilot capabilities and limitations concerning seas and the Venturi effect on the LCS when low on fuel (due to the shallow draft and lighter tonnage compared with other combatants). While the LCS in this incident is not the same class and may have slightly different autopilot limitations and shiphandling abilities, than the one in the report, none of the known characteristics were discussed prior to the UNREP to allow both the replenishment ship and the LCS to plan for and execute the event. The autopilot settings utilized were based on schoolhouse training and baseline settings given to the ship, along with other LCS class ships whose settings were used for UNREPs. Autopilot was noted to be responding as anticipated during testing before the UNREP.
- 2. Lack of Coordination and Communication.** The LCS report discussed in root cause #1 recommended a course with seas off the port bow. This "proved to be more effective and [the] autopilot maintained course more accurately while driving into the seas." Although seas were calm with waves less than three feet during this UNREP near miss, UNREP ships should coordinate prior on a preferred ROMEO CORPEN

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(course and speed that the replenishment will take place) and disclose and discuss any impacts on ship's maneuverability based on autopilot.

3. The LCS crew did not appear to be proficient in shiphandling to maintain lateral separation or change course safely during an UNREP. The LCS report from root cause #1 provides recommended LCS autopilot settings for UNREP with a non-NATO oiler. These settings recommended increasing the autopilot weather settings and course change increments based on sea states and tonnage of the vessel to help mitigate autopilot overcorrections or lags. Autopilot settings for both classes of LCS should be widely distributed and practiced.

4. The deck crew on the LCS UNREP station failed to perform the emergency breakaway in a timely manner. The delay resulted in the two ships being connected by the un-tensioned spanwire longer than necessary with the potential for equipment damage had the spanwire been let go into the water.

### Short-term actions

1. Near-term change to Combat Logistic Force (T-AO, T-AOE, and T-AKE) and LCS procedures to address pre-UNREP RASREQ/OPTASKRAS and CO to CO discussions incorporating shiphandling capabilities and limitations, operating conditions, and preferred Romeo CORPEN based on LCS potential autopilot use.
2. LCS, utilize a Helm Safety Officer when conducting UNREPs if possible and at least have a proficient helmsman on station in the event of an autopilot casualty.
3. LCS, conduct UNREP shiphandling training for the bridge crew to include best practices for UNREPs including a Helmsman/Conning Officer steering as well as in autopilot to facilitate station keeping and incremental course changes alongside.
4. LCS, conduct hands-on UNREP station refresher training with the deck crew to become proficient in disconnecting the UNREP rig including the untensioned spanwire.

**Long-term actions.** Recommend LCS squadron (LCSRON) and expeditionary strike group review LCS class operating procedures and training requirements as they pertain to UNREP readiness and crew proficiency and update if necessary. Recommend ships share updates and lessons learned with LCSRON.

### Key Takeaways

Safe UNREP takes effective communication, training, teamwork, supervision and qualifications. If any one of these elements (not all-inclusive) is weak or nonexistent, then the risk of a mishap increases. Consider these takeaways when planning and executing your next UNREP.

1. **Breakaway, then troubleshoot.** If something is awry with any propulsion or steering system while alongside a ship for UNREP, breakaway first – and then troubleshoot. We understand that the decision to breakaway shouldn't be taken lightly, but it needs to be made before you're in an extremis situation.
2. **Share what you have learned.** In this near miss, the LCS could have benefited from the lessons of another LCS that had a similar incident. UNREP lessons learned should be shared across all Military Sealift Command and LCSs to provide situational awareness and recommendations for additional pre-UNREP coordination between the ships. The full near-miss critique with enclosures can be found on the SURFLANT Sharepoint Portal at: <https://flankspeed.sharepoint-mil.us/sites/USFF-SURFLANT-HQ/N05/Near%20Miss%20Critique%20Program/Forms/AllItems.aspx>.
3. **Talk to me!** Effective communication during high-risk evolutions like connected replenishment can be the difference between a "routine" event or a Class A mishap. Discussing ship's capabilities and limitations (including use of autopilot and crew experience/recency) during the UNREP bridge to bridge briefing can help address minor issues before they become major problems.

*And, like we always remind you, "Let's be careful out there."*

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