



# The Wheelbook

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*SWO Rule: "Good shipdrivers prevent themselves from getting into situations where good shipdriving is necessary."*

## Out of Extremis

*by LT Lawrence Heyworth IV*

*"80 feet to the oiler, sir!"*

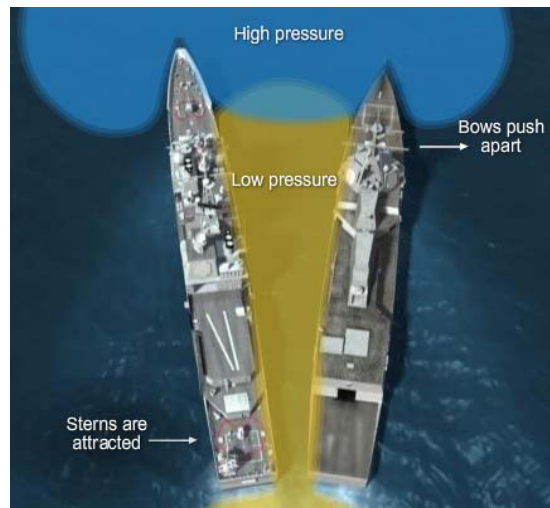
I looked aft and saw that 80 feet was generous: while the phone and distance line was amidships, our port quarter was still rapidly closing the oiler's starboard side. My shoulders drooped with a sense of helplessness as I looked at the rate of closure. With the spanwire of the STREAM rig still tensioned aft there was simply no way that we would escape this one without swapping paint.

*"Captain has the Conn"*

As the oiler sounded five short blasts our Captain clearly and calmly took the rudder in hand over the bridgewing handset, issuing a flurry of engine and rudder orders in short succession. In one minute the oiler was abaft the beam, and in three minutes the Captain had turned the Conn back over to an Ensign who had been onboard less than one week. She had to be reassured that not every underway replenishment (UNREP) was like this. For the Junior Officers it would take a thorough review of the deck log and several conversations to straighten out what had just happened, and how our Captain had driven his ship out of extremis.

*Back to an UNREP Basic*

The Venturi effect had been briefed, as it always should be prior to any UNREP evolution, but rarely do conning officers understand it in practical terms. The experienced shiphandler will feel his ship's bow pushed away from the oiler at the very end of the approach, and will subsequently notice the Master Helmsman keeping the rudder a few degrees *towards* the oiler throughout the UNREP just to keep the ship on steady course. An inexperienced Helm Safety Officer or a Sailor working to qualify as a Master Helmsman may not yet understand or feel these nuances.



*Error Chain*

The UNREP had progressed without incident and it was nearing completion. The distance to the oiler was fluctuating between 180 and 200 feet on our port side and the Conning Officer was giving rudder orders in half-degree increments. The ordered speed was fluctuating around 14.5 knots and the Inhaul/Outhaul line had just been detensioned amidships, while the spanwire of the STREAM rig was still tensioned aft. The Chief Engineer reported 35 minutes to completion.

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In the minutes leading up to the near-mishap, the Conning Officer ordered a routine half-degree course change to starboard to slightly open the distance to the oiler. The under-instruction helmsman chose to use a 5-degree right rudder to come to course. Because of the Venturi Effect, an amidships rudder would have been more than enough for the course change. The helmsman subsequently overshot the ordered course and came left abruptly in an attempt to catch the swing of the ship. After the helmsman's overcompensation the Conning Officer noticed lateral separation fall from 180 to 160 feet and ordered another half-degree course change to starboard. The course change was not enough to stop the swing of the ship, and the Conn saw lateral separation quickly fall from 160 to 140 and then 120 feet. Desperate to come to the ordered course, the inexperienced helmsman used a 20° right rudder, which finally caught the swing of the ship but caused the lateral separation of the sterns to decrease even more rapidly.

### ***Out of Extremis***

At "80 feet to the oiler, sir!" the Captain took the Conn and calmly ordered the following: "all ahead full, left standard rudder." By simultaneously turning *into* the oiler and putting more wash over the rudder, our stern quickly caught and lateral separation began to open. Seeing this the Captain then ordered "rudder amidships" followed closely by "steady as she goes" and "all ahead standard," in order to prevent the ship from turning into the oiler. With an emergency breakaway complete and a standard bell on, the ship slowly pulled away from the oiler, a mere two minutes after likely being less than 50 feet from a major mishap.

### ***Debrief***

The chain of events that day very simply highlighted the value of an experienced Master Helmsman and underscored the necessity of an attentive Helm Safety Officer that fully understands the nuances of shiphandling. Perhaps the Conning Officer could have noticed the situation deteriorating sooner through a more aggressive forward-midships-aft scan. But when all else fails, the Commanding Officer, as the most seasoned shiphandler onboard, has to have the confidence to drive his ship out of extremis.

