The US Navy will replace its touchscreen controls with mechanical ones on its destroyers

The US Navy will replace the touchscreen throttle and helm controls currently installed in its destroyers with mechanical ones starting in 2020, says *USNI News*. The move comes after the National Transportation Safety Board released an accident report from a 2017 collision, which cites the design of the ship's controls as a factor in the accident.

On August 21st, 2017, the USS John S. McCain collided with the Alnic MC, a Liberian oil tanker, off the coast of Singapore. The report provides a detailed overview of the actions that led to the collision: when crew members tried to split throttle and steering control between consoles, they lost control of the ship, putting it into the path of the tanker. The crash killed 10 sailors and injured 48 aboard the McCain.

The report says that while fatigue and lack of training played a role in the accident, the design of the ship's control console were also contributing factors. Located in the middle of the McCain's bridge, the Ship's Control Console (SCC) features a pair of touch-screens on both the Helm and Lee Helm stations, through which the crew could steer and propel the ship. Investigators found that the crew had placed it in "backup manual mode," which removed computer-assisted help, because it allowed for "more direct form of communication between steering and the SSC." That setting meant that any crew member at another station could take over steering

operations, and when the crew tried to regain control of the ship from multiple stations, control "shifted from the lee helm, to aft steering, to the helm, and back to aft steering."

The ship's touchscreen controls and procedures were overly complicated

The NTSB report calls out the configuration of the bridge's systems, pointing out that the decision to transfer controls while in the strait helped lead to the accident, and that the procedures for transferring the controls from one station to another were complicated, further contributing to the confusion. Specifically, the board points to the touchscreens on the bridge, noting that mechanical throttles are generally preferred because "they provide both immediate and tactile feedback to the operator." The report notes that had mechanical controls been present, the helmsmen would have likely been alerted that there was an issue early on, and recommends that the Navy better adhere to better design standards.

Following the incident, the Navy conducted fleet-wide surveys, and according to Rear Admiral Bill Galinis, the Program Executive Officer for Ships, personnel indicated that they would prefer mechanical controls. Speaking before a recent Navy symposium, he described the controls as falling under the "'just because you can doesn't mean you should' category," and that ship systems were simply too complicated. He also noted that they're looking into the design of other ships to see if they can bring some system commonalities between different ship classes.

The Navy will begin to replace the controls in the summer of 2020

Admiral Galinis tells *USNI News* that plans are currently underway to switch out the systems. "We're already in the contracting process, and it's going to come on almost as a kit that's relatively easy to install." According to the Naval Sea Systems Command, all *Arleigh Burke* class destroyers with the

Integrated Bridge and Navigation System will get physical throttles, beginning in the summer of 2020 with the USS *Ramage.*

Touchscreens weren’t the only issue in the collision: the report calls out that several crew members on the bridge at the time weren’t familiar with the systems that they were overseeing and were inexperienced in their roles, and that many were fatigued, with an average of 4.9 hours of sleep between the 14 crew members present. The report recommended that the Navy conduct better training for the bridge systems, update the controls and associated documentation, and ensure that Navy personnel aren’t tired when they’re on the job.

https://www.theverge.com/2019/8/11/20800111/us-navy-uss-john-s-mccain-crash-ntsb-report-touchscreen-mechanical-controls