

Classwork: US Navy ramps up efforts to get technologically advanced Ford into the fleet

[Content preview – Subscribe to **Jane's International Defence Review** for full article]

US Navy leadership has singled out the aircraft carrier USS *Gerald R Ford* as its immediate ship-acquisition priority. *Michael Fabey* reports

No other US Navy (USN) acquisition programme has received as much recent public scrutiny as the effort to get the aircraft carrier USS *Gerald R Ford* (CVN 78) operating correctly so it can meet its updated deployment schedule.

While most of the spotlight seems focused on cost increases and timeline delays, USN strategists are more interested in integrating the Ford-class carriers into the fleet, hoping that all the advanced technological promise of the vessels will yield the anticipated game-changing operational results.

The navy's top brass has called *Ford* a “centerpiece of innovation”. New ship systems are supposed to make it more operationally effective and affordable than any class of carriers put to sea.



Aircraft carrier USS Gerald R Ford went to sea again in October 2019 for further testing. (US Navy)

1713243

"I'm extremely bullish on *Gerald R Ford*," Admiral Mike Gilday, USN chief of naval operations (CNO), told *Jane's* in December 2019. "While we did make some mistakes along the way, it's a phenomenal capability and it's heading in the right direction.... It is designed to deliver more capability for today's air wing."

Adm Gilday also sees a continued future for USN aircraft carrier operations. "Aircraft carriers and carrier strike groups remain the centerpiece of our nation's security strategy, supporting and protecting America's national interests around the world," he said. "An aircraft carrier is lethal. It is reliable. It is survivable. It is multidimensional. And without a doubt, it is a symbol of military strength that immediately reassures allies, deters adversaries, and provides valuable options to national decision makers."

Ford's advanced technology is intended to add to that option set – and that hope is one of the driving forces behind the recent USN *Ford* programme triage.

"Finishing our work and delivering this capability to the fleet as quickly and effectively as possible is one of my highest priorities," US Acting Navy Secretary Thomas Modly detailed in a 20 December 2019 'Vector 3' memo outlining a plan to get *Ford* back on course.

By the second quarter of fiscal year (FY) 2020, the USN will complete Aircraft Capability Testing for all aircraft planned for deployment, as well as reach and maintain ship visual and material conditions "to the highest standard", Modly said. To do this, the USN will have to ensure that the ship's technologically advanced systems are working as they should and that contractors have built those systems to the precision tolerances necessary.

While the main new aircraft launch-and-recovery systems and the carrier's new radar suites have drawn the most attention, the vessel's other systems – and the combined integration of those technologies – are just as important and need to be understood to fully grasp the potential for the ship in future operations, USN officials note.

Launching and recovering more types of aircraft more quickly and efficiently would mean little, for example, if ordnance teams could not keep pace with weapons and payloads re-arming, or if refuelling teams could not keep up with the new operational speed, or even if the design of the flight deck itself did not allow for such quickened operations. *Ford* is intended to be optimised for all of that.

Launches and landings

The improved *Ford* flight operations are based on execution of the Electromagnetic Aircraft Launching System (EMALS) and Advanced Arresting Gear (AAG).

To appreciate EMALS enhancements, it is important to understand the concept of a carrier aircraft launch: to create and tap the sudden surge of power or energy needed to hurl thousands of pounds

of aircraft, weapons, payloads, and fuel down an extremely short runway off the deck of a rolling ship; and to do it again and again.

Such precision operations require precision shipbuilding. A slight construction variance here or there might not have a huge impact on legacy steam catapults – but that was far from the case with the electric-wave-producing magnets for the new launchers, where precise alignment means everything.

Newport News Shipbuilding (NNS) crews carried out the EMALS work on cool nights, breaking down the 300 ft (91 m) launch line into 29 segments and then balancing laser trackers down the trough to align the magnets along the laser's path to within tenths of centimetres. They took into consideration the effects of corrosion – a serious concern on any surface on a ship that would spend its life in saltwater – which could knock the alignment off by as much as a centimetre along the whole line length, yard officials noted.

[Continued in full version...]

(722 of 3656 words)

For the full version and more content:

Jane's Defence Equipment and Technology Intelligence Centre

This analysis is taken from [Jane's Defence Equipment and Technology Intelligence Centre](#), the world's only single resource for comprehensive, unclassified and up to date intelligence on military equipment (land, sea, air and space) in production and use around the world. With over 40,000 equipment profiles its structured database and detailed insight allows operators and analysts to rapidly identify equipment and accurately assess capabilities and status.

To learn more visit <http://janes.com/products>

For advertising solutions visit [Jane's Advertising](#)