



# THE DEFENSE MONITOR



## HOW NOT TO BUILD A SHIP

# The USS Ford

The Navy conducts a shock trial for the *San Antonio*-class ship.

U.S. NAVY PHOTO  
(RELEASED)

BY DAN GRAZIER AND PIERRE SPREY

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President Trump used the Navy's next generation aircraft carrier, the CVN-78 *USS Gerald R. Ford*, as a backdrop to unveil his vision for the next defense budget in March 2017. The moment was meant to symbolize his commitment to rebuilding the military, but it also positioned the President in front of a monument to the Navy's and defense industry's ability to justify spending billions in taxpayer dollars on unproven technologies that often deliver worse performance at a higher cost. The *Ford* program also provides another example of the dangers of

the Navy's and industry's end-running the rigorous combat testing that is essential to ensuring our fighting men and women go to war with equipment that works.

The Navy had expected to have the ship delivered in 2014 at a cost of \$10.5 billion.<sup>1</sup> But the inevitable problems resulting from the concurrency the Navy built into developing the *Ford*'s new and risky technologies, more than a dozen in all, caused the schedule to slip by more than three years and the cost to increase to \$12.9 billion—nearly 25 percent over budget.<sup>2</sup>

1 Courtney Mabeus, "Delivery of Navy's Most Expensive Aircraft Carrier Delayed Again," *The Virginian-Pilot*, October 7, 2016; Senator John McCain, "Capsizing the Defense Budget: \$4.7 Billion Wasted on Cost Overruns for the Navy's First Two New Ford-Class Aircraft Carriers," October 14, 2015.

2 Government Accountability Office, *Ford-Class Aircraft Carrier: Congress Should Consider Revising Cost Cap Legislation to Include All Construction Costs*, November 2014.

## PROJECT ON GOVERNMENT OVERSIGHT

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For all this time and money, “poor or unknown reliability of the newly designed catapults, arresting gear, weapons elevators, and radar, which are all critical for flight operations, could affect CVN-78’s ability to generate sorties, make the ship more vulnerable to attack, or create limitations during routine operations. The poor or unknown reliability of these critical subsystems is the most significant risk to CVN-78.”<sup>3</sup>

### EMALS Catapult: Failure to Launch

The problems with the ship’s systems, including the catapult, are well-known. But President Trump still caught virtually every Pentagon watcher off guard when, in the middle of a wide-ranging *Time Magazine* interview, he said he had directed the Navy to abandon the new “digital” aircraft catapult on future *Ford*-class carriers. Instead he wants the Navy to revert to the proven steam catapults, which have been in use for decades.<sup>4</sup>

The President is correct when he says there are significant problems with the *Ford*’s “digital” catapult, but abandoning it in future ships will pose significant problems.

The *Ford*’s “digital” catapult is, in fact, the Electromagnetic Launch System (EMALS). It was designed to provide the boost necessary for aircraft to reach take-off speed within the short deck length of an aircraft carrier. In the long run, it is intended to be lighter, more reliable, and less expensive than the steam system.<sup>5</sup> Unfortunately, the EMALS is immature technology, and its development is proceeding concurrently with the ship’s design and development. So far, the program has not lived up to the promises made.

Steam-powered catapults, though said to be maintenance-intensive, are proven technology. They have been in service with continuous upgrades and satisfactory reliability for more than half a century.<sup>6</sup> In this system, steam pressure pushes a piston down a track set into the deck of the ship. The ship’s crew prepares the airplane for launch by attaching its nosewheel to a shuttle connected to the piston. When the steam valve opens, the pressure behind the piston accelerates the shuttle and plane down the track, reaching a speed high enough to allow aircraft to take off.

The steam to power the catapult is generated by the ship’s nuclear reactor main boiler, the same boiler that generates the steam for the propulsion turbines. That steam is piped from the boiler room to the catapults at the bow.<sup>7</sup>

The new EMALS stores an enormous electrical charge (enough to power 12,000 homes three seconds, the time it takes to launch an aircraft) and then quickly releases the current into massive electromagnets that push the shuttle down the track.

The new electromagnetic catapult is intended to launch everything from small unmanned vehicles to heavy fighter planes. The Navy claims EMALS will save money over time because it is said to require less people to operate and is predicted to be easier to maintain.<sup>8</sup> But testing has already revealed

3 Director of Operational Test and Evaluation, “CVN-78 Gerald R. Ford Class Nuclear Aircraft Carrier,” *FY 2015 Annual Report*, January 2016, p. 183. (Hereinafter DOT&E FY 2015 Annual Report)

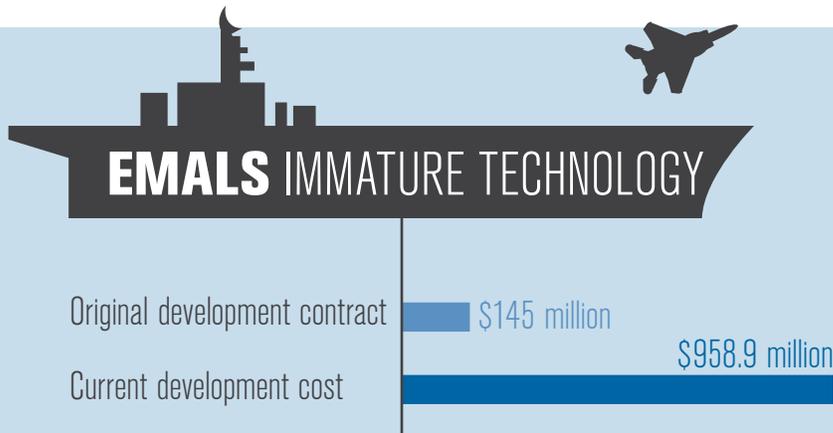
4 Zeke J. Miller, “Read Donald Trump’s Interview with TIME on Being President,” *Time Magazine*, May 11, 2017.

5 General Atomics Corporate Website, “EMALS.”

6 “Launch and Recovery: From Flywheels to Magnets,” *Naval Aviation News*, August 5, 2013.

7 “EMALS/AAG: Electro-Magnetic Launch & Recovery for Carriers,” *Defense Industry Daily*, June 28, 2017.

8 Naval Air System Command, “Electromagnetic Aircraft Launch System (EMALS):”



## LAUNCH FAILURE

SYSTEM FAILURE RATE: **1 in 400**

CONTRACT SPECIFICATION FAILURE RATE: **1 in 4,166**

## UNRELIABLE

Surge combat sorties last about four days at the start of major combat. There's only a **7%** chance the USS *Ford* could complete its mission without launch failure.

the Navy underestimated the workload and the number of people necessary to operate the system. As a result, the Navy has to redesign some berthing areas to accommodate more people.<sup>9</sup> EMALS was also supposed to increase the lifespan of aircraft by putting less stress on their airframes by using a more controlled release of energy during a catapult launch. Unfortunately, recent tests of land-based EMALS prototypes showed that the system actually overstressed F-18 airframes during launch.<sup>10</sup>

Perhaps even more serious is that the design makes it impossible for the crew to repair a catapult while the ship is launching planes with other catapults. This is done as a matter of routine on current carriers, as each catapult operates independently of the others.<sup>11</sup> When one of the steam catapults fails, the crew can make the necessary repairs while the adjacent catapults continue launching.

Like earlier carriers, The *Ford* has four launch catapults so that (theoretically), should one fail, the ship could continue operations using the remaining three. But the Navy found there is no way to electrically isolate each EMALS catapult from the others during flight operations, raising questions about the system's operational suitability.<sup>12</sup> The massive electrical charge needed to power the catapults is stored in three Energy Storage Groups, each using four heavy flywheel-generators. The three groups together power all four catapults and cannot be electrically disconnected from a single failed catapult to allow repairs while the other three catapults launch planes.

This means that repairing the failed catapult must wait until all flight operations have been completed, or,

in the event that multiple launchers fail, all flights may have to be suspended to allow repairs. Thus there is the possibility that the ship might not be able to launch any planes at a critical moment because the EMALS designers failed to provide independent power for each of the four catapults.

This problem is particularly acute because the EMALS has a poor reliability track record. The system thus far fails about once every 400 launches.<sup>13</sup> This might seem like a reasonable record, but it is ten times worse than the 4,166 launches between failures the system is supposed to achieve per the contract specifications. At least four days of surge combat sortie rates are to be expected at the beginning of any major conflict—and delivering those sorties is, after all, the primary reason carriers are built. At the current failure rate, there is only a 7 percent chance that the USS *Ford* could complete a four-day flight surge without a launch failure, according to the office in charge of testing the ship, the Director of Operational Test and Evaluation (DOT&E).

The decision to pursue immature EMALS technology has been a boon to contractors, particularly San Diego-based General Atomics. With only a nuclear fusion magnetics background and no previous experience in carrier catapults, the company won the EMALS System Development and Demonstration contract on April 2, 2004.<sup>14</sup> At the time, the contract was valued at \$145 million. This figure has predictably ballooned over the years as risky, concurrent technology programs tend to do. The most recent figures released by the Pentagon's Cost Assess-

9 Director of Operational Test and Evaluation, "CVN-78 Gerald R. Ford Class Nuclear Aircraft Carrier," *FY 2016 Annual Report*, January 2017, p. 221. (Hereinafter DOT&E FY 2016 Annual Report)

10 Gareth Corfield, "US Navy Runs into Snags with Aircraft Carrier's Electric Plane-slingshot," *The Register*, January 11, 2017.

11 DOT&E FY 2015 Annual Report, p. 186.

12 DOT&E FY 2016 Annual Report, p. 224.

13 DOT&E FY 2016 Annual Report, p. 224.

14 Navy.mil, "General Atomics Awarded Contract for EMALS," April 7, 2004.



U.S. NAVY PHOTO BY MASS COMMUNICATION SPECIALIST 3RD CLASS LEX T. WENBERG/RELEASED

Aviation Boatswain's Mate (Equipment) 3rd Class Jesus Garcia, from Uvalde, Texas, guides an aircraft into the catapult shuttle aboard the aircraft carrier USS *Abraham Lincoln* (CVN 72).

ment and Program Evaluation (CAPE) office show the Navy will have spent approximately \$958.9 million simply to develop this one component—and more may well be required to correct current deficiencies.<sup>15</sup>

The cost to build and install an EMALS system (four catapults) is another thing entirely. In January, the Navy awarded General Atomics another \$532 million contract to install the system on the third-in-class *Ford*-class carrier, the USS *Enterprise*.<sup>16</sup>

And although EMALS is problem-ridden and enormously expensive, replacing it with the proven steam catapult substitute would likely be more so. Using the steam catapult instead is impossible without a complete redesign of the nuclear reactor plant's steam generating system. Because the Navy planned the *Ford* to be an electric ship, the reactor was not designed to produce service steam for major ship systems.<sup>17</sup> So the reactor now can't deliver the 4,050 pounds per minute of high pressure steam required by a steam-powered four-catapult installation. Furthermore, installing four new steam-

powered catapult tracks would require a complete redesign and rebuilding of the supporting deck structure. The cost of both would be staggering and the delay could be upwards of two to three years.

### **AAG Arresting System**

Launching a fighter jet over the bow of the carrier is only one part of the equation. The jets also need to land, which is another enormous challenge on a moving ship. Aircraft don't really land on a ship; they essentially crash in a highly controlled fashion. Instead of rolling to a stop on a conventional runway, a plane landing on an aircraft carrier has to catch a cable on the flight deck with a hook attached to the plane to bring it to a stop on the relatively short deck.

As it did with the catapult, the Navy decided to use unproven technology for the *Ford*'s electrical arresting system to capture aircraft during landings. This system, too, has been more of a challenge than the Navy expected. In an August 2016 memo about the *Ford*, the Pentagon's top weapons buyer Frank Kendall said, "With the benefit

15 Department of Defense, *Selected Acquisition Report: CVN-78 Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78)*, March 21, 2016, p. 23.  
16 Defense World.net, "General Atomics Wins \$532 Million to Manufacture EMALS On-board CVN 80 Aircraft carrier," January 30, 2017.  
17 Navy.mil, "Aircraft Carriers – CVN," January 31, 2017.



An EA-6B Prowler catches one of four arresting wires on the flight deck of an aircraft carrier.

of hindsight, it was clearly premature to include so many unproven technologies."<sup>18</sup>

Navies around the world have been using arresting systems for more than a century to land aircraft on ships. The US Navy installed its first system, consisting of sandbags and cables, on the USS *Pennsylvania* in 1911. It now uses a hydraulically braked arresting system called the MK-7 on the current *Nimitz*-class aircraft carriers.<sup>19</sup> When the hook on the landing aircraft catches one of the cables on the deck, the cables are braked by an engine inside the ship.<sup>20</sup> In effect a very large shock absorber, this engine is a plunger inside a cylinder filled with hydraulic fluid. When pulled by the deck cable, the plunger compresses the fluid which then flows through a metered valve calibrated to handle the weight of the type of aircraft being landed. The compressed fluid absorbs the energy of the landing and brings the aircraft to a stop in only 340 feet.

This hydraulic arresting gear system has been in use since 1961 and has been improved several times over the

years. But as a high-tech selling point, it's a non-starter. In order to get increased funding for the *Ford* program, the Navy chose to replace the proven hydraulics with an entirely new and untested electrical system, called the Advanced Arresting Gear (AAG). The original 2005 estimate for AAG development alone was \$172 million. This figure was revised upwards in 2009 to \$364 million, and has now ballooned to well over \$1.3 billion, an astounding 656 percent increase.<sup>21</sup>

The AAG is also built by General Atomics, and, as with the EMALS, the company doesn't have any prior arresting gear experience. The AAG is based on a "Water Twister," a paddlewheel inside a cylinder of water. When spun by the pull of the deck cable, the paddlewheel uses the resistance of the water to absorb 70 percent of the energy of the landing plane and bring it to a stop—with fine-tuning of additional braking forces provided by a large electric motor. At least that is how it is supposed to work.

CONTINUED ON PAGE 14

18 Anthony Capaccio, "Pentagon Weapons Buyer Orders Review of Troubled New Carrier," *Bloomberg Technology*, August 29, 2016.

19 Global Security.org, "MK-7 Aircraft Recovery Equipment."

20 Andrew Tarantola, "How to Stop a Jet Dead in Its Tracks in Two Seconds," *Gizmodo*, October 31, 2011.

21 Department of Defense Inspector General, *Advanced Arresting Gear Program Exceeded Cost and Schedule Baselines*, July 5, 2016, p. 11. (Hereinafter DoD IG Report)

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# The Pentagon's Silver-Bullet Hype Machine

But don't go blaming just the Defense Department

BY MARK THOMPSON

ILLUSTRATION BY MATT WUERKER

The Pentagon's announcement of how much money it says it needs for 2018 (around \$650 billion, wars included) and attempts by Congress to increase it even further illustrates the inanity of how we arm the nation. The military is seeking nearly a 20 percent boost in research and development funding next year to prepare for future weapons purchases. But, contrary to tradition, the budget proposal was for only a single year and included no details about what it wants to buy between 2019 and 2022.

While the lack of the usual five-year plan is likely because Defense Secretary Jim Mattis is pretty much running the Pentagon all by himself (only 19 of the 53 political appointees have been nominated or confirmed as of this writing), that lack of oversight won't derail the US military's love of technology.<sup>1</sup>

As the world's richest country since at least WWII (although now being challenged by China), the United States and its military have always sought to trade treasure for blood. With dollops of hardware and hubris, the American way of war has been to spend more on weapons so that fewer GIs will die. There is a logic to this argument, although the Pentagon has taken it too far for several decades. And its enablers increasingly are the reporters covering the Defense Department.

The stories fly by like photons from a futuristic ray gun:

- Pentagon to Accelerate Rail Gun Hypervelocity Projectile - Fires From Army Howitzer<sup>2</sup>
- The New Weapon That Could Make Military Drones Even More Lethal<sup>3</sup>
- F-35: The iPhone of Stealth Combat Aircraft<sup>4</sup>
- Drone-Killing Laser Stars In Army Field Test<sup>5</sup>
- WiFi Technology Connects Soldiers for Underground Combat<sup>6</sup>

1 *The Washington Post*, "Tracking how many key positions Trump has filled so far," June 28, 2017.

2 Kris Osborn, "Pentagon to Accelerate Rail Gun Hypervelocity Projectile - Fires from Army Howitzer," *Scout Comms*, May 19, 2017.

3 Ciro Scotti, "The New Weapon That Could Make Military Drones Even More Lethal," *The Fiscal Times*, May 19, 2017.

4 Daniel Gouré, "F-35: The iPhone of Stealth Combat Aircraft," *The National Interest*, May 17, 2017.

5 Sydney J. Freedberg Jr., "Drone-Killing Laser Stars in Army Field Test," *Breaking Defense*, May 11, 2017.

6 Kris Osborn, "Wifi technology connects soldiers for underground combat," *Defense Systems*, May 9, 2017.

Way back in the 20th Century, when the United States used to win at least some of its wars, stories about breakthroughs in military technology were few and far between. Sure, there was the *New York Times* exclusive on the A-bomb in 1945,<sup>7</sup> but in the decades afterward there were few such stories. In part, that was because only a few outfits—*Aviation Week & Space Technology* was at the top of the pecking order—were writing well about new weapons.

*AvWeek* would report something new about the still-secret radar-eluding “stealth” bomber, which, like a stone tossed into the middle of a pond, would lead to a ripple of stories in the mainstream press. Then all would settle down and the pond would soon enough become calm again. There was never this constant daily drumbeat extolling the next wonder weapon.

In part, that was because most reporters covering the Pentagon focused on the big picture. Sure, we reported on hometown projects (as a reporter in Washington for the *Fort Worth Star-Telegram* from 1979 to 1985, I spent what seemed like three years in Congressional hearings trying to figure out how many Fort Worth-built F-16s would be in next year’s budget). Those planes represented paychecks to many *Star-Telegram* readers.

But all of that has changed over the past two decades as newspapers and magazines, if they haven’t folded, stopped covering the Pentagon as a beat. They were replaced by dozens of newsletters and blogs popping up to cover advances in the defense industry—and skim their share of cream from defense-contractor advertisers and subscribers.

Most of these stories about defense hardware aren’t about workers bending metal. They’re written for, and read by, those trying to influence the beast known as the military-industrial complex as it weighs what embryonic concepts might warrant funding. Besides, writing about military hardware is much easier than writing about what really counts in war: personnel, command and control, and leadership—the true keys to victory.

Top stories are salted with buzzwords: today’s are “drones” and “lasers” (it used to be “stealth” and “lasers,” and before that it was “cavalry” and “lasers”). This might make sense if all this reporting were dedicated to prevailing in war. But one thing the US military has proven over the past half-century: the best hardware is no guar-

antee of success on the battlefield.

Here’s the dirty little secret about wonder weapons: they ain’t that wonderful. The military spends billions seeking weapons that can prevail 99 percent of the time. For a lot less money, we could buy weapons that would do the job 95 percent of the time. You wouldn’t be able to tell the difference. Moving the fulcrum on that lever is a political act.

This new generation of reporting hypes the weapons the United States needs because it also hypes the threats it might someday face. “Balance” is achieved by emphasizing weapons under development (make that “under consideration”) by potential adversaries. In fact, very few of these are ever built. In keeping with that “balance,” very few of the US versions are ever built, either.

Everything has become urgent, dangerous, a crisis. As Pete Townsend of the Who can attest, playing your music with the amp cranked to 11 doesn’t make you stand out from your peers.<sup>8</sup> It just makes you deaf.

*[Newspapers and magazines] were replaced by dozens of newsletters and blogs popping up to cover advances in the defense industry—and skim their share of cream from defense-contractor advertisers and subscribers.*

Just as important, the stories always suggest breakthrough. But when they invariably fall through, there is scant follow-up. The military-industrial complex is as close as we’ve ever come to a perpetual-motion machine.

When the Pentagon rolls out its budget each year, reporters are consumed with the hardware accounts. But it’s the everyday reportage on blue-sky weapons that’s the real problem. A more balanced approach—weighing real costs of additional pie-in-the-sky technologies—would help citizen-taxpayers and citizen soldiers (if not defense contractors). In our post-9/11 environment, any failure to fund a possible silver bullet is deemed unpatriotic, and is too often cited as evidence that skeptics don’t care about our men and women in uniform. Balderdash.

The true bottom line is obvious: people are more important than weapons.

And will is more important than both. ■

7 David Dunlap, “1945: The Times Learns an Atomic Bomb Will Soon Fall,” *The New York Times*, May 12, 2016.

8 Ben Todd, “Talking about Pete’s degeneration: Townsend now relies on hearing aids,” *Daily Mail*, July 22, 2011.

# TOTAL US NATIONAL SECURITY SPENDING, 2017-2018

(ALL FIGURES ARE \$ BILLIONS; THEN-YEAR \$)

National security is more than Pentagon spending. Below is a chart calculating the full cost of our national security budget, including mandatory spending, funding for nuclear weapons, veterans affairs, homeland security, international affairs, and the share of interest on the debt.

National Security Program	2017 as Enacted	2018 as Requested	Comments
DoD Base Budget (Discretionary)	523	574.5	The “base” budget purportedly contains all routine, peacetime expenses; however, DoD and Congress have loaded tens of billions of such “base” spending into the Overseas Contingency Operations fund for declared wartime expenses. See below.
DoD Base Budget (Mandatory)	7.5	7.8	DoD often does not count this mandatory spending in its budget presentations to the public; however, being for military retirement and other DoD-only spending, it is as much a part of the DoD budget as military pay and acquisition.
DoD Base Budget (Total)	530.5	582.3	Total spending is discretionary and mandatory combined.
Overseas Contingency Operations	82.4	64.6	The Overseas Contingency Operations (OCO) account operates as a slush fund for various pet projects for Congress and the Pentagon.
<b>DoD Subtotal (Total)</b>	<b>612.9</b>	<b>646.9</b>	
DOE/Nuclear (Total)	20.1	21.8	For nuclear weapons activities.
“Defense-Related Activities” (Total)	8.8	8.4	This spending is usually just for international FBI activities, Selective Service, the National Defense Stockpile, and other miscellaneous defense-related activities.
<b>National Defense (Total)</b>	<b>655.1*</b>	<b>677.1</b>	This is the OMB budget function “National Defense” (also known as “050”) which is sometimes confused as Pentagon-only spending.
Military Retirement Costs Not Scored to DoD	7	11.5	This category shows funds paid by the Treasury for military retirement programs, minus interest and contributions from the DoD military personnel budget. The data for the amounts shown here are in functions 600, 900 and 950. As DoD-unique spending, they should be displayed as part of the DoD budget, but they are not by either DoD or OMB. This is separate from mandatory 050 costs.
DoD Retiree Health Care Fund Costs	-7.7	-6.7	These are net costs to the Treasury for this DoD health care program. See functions 550, 900, and 950. As DoD-unique spending, they should be displayed as part of the DoD budget, but they are not either by DoD or OMB. This is separate from mandatory 050 costs.
Veterans Affairs (Total)	177.1	183.5	
International Affairs (Total)	54.8	41.5	
Homeland Security (Total)	51	49.4	
Shares of Interest on the Debt	108.2	112.7	Total On-Budget Federal Authorities are \$4.1 trillion in 2017 and \$4.3 trillion in 2018. Total gross interest paid (outlays) on Treasury debt is \$474.5 billion in 2017 and 505.6 billion in 2018. The calculable shares of defense-related spending relative to the federal totals at 22.8% in 2017 and 22.3% in 2018.
<b>Grand Total</b>	<b>1,045.5</b>	<b>1,069</b>	

\* Available information did not include all FY 2017 enacted.

SOURCES: Office of Management and Budget, “Table 25-1 Policy: Net Budget Authority by Function, Category, and Program”; Office of Management and Budget, “Table 26-1. Budget by Agency and Account, FY2018 Budget”; Office of the Under Secretary of Defense (Comptroller) Chief Financial Officer, Defense Budget Overview: United States Department of Defense Fiscal Year 2018 Budget Request, May 23, 2017.



# Littoral Combat Ship Budget Games

The littoral combat ship USS *Independence*.

BY MANDY SMITHBERGER

Any restraint in Pentagon spending often buckles under the pressure of pork barrel politics. This year's Pentagon budget originally included a small victory for taxpayers: it reduced its request for the troubled Littoral Combat Ship (LCS) to only one ship for \$1.2 billion.<sup>1</sup> "The Navy doesn't want them," Office of Management and Budget (OMB) Director Mick Mulvaney told radio host Hugh Hewitt in May.<sup>2</sup>

Yet, while sailors and Navy brass may not want any more LCSs, Members of Congress do.

The LCS program currently includes two variants, one built by Austal in Mobile, Alabama, and the other built by Lockheed Martin in Marinette, Wisconsin. So it should be no surprise that, in bipartisan parochial posturing by those states' Senators during an appropriations hearing with Navy officials, Senators Richard Shelby (R-AL) and Tammy Baldwin (D-WI) decried the negative impacts of buying one less ship on jobs in their home states.<sup>3</sup>

But their concerns are exaggerated and run counter to the reality of the program. Acting Navy Secretary Sean

Stackley assured them the budget as introduced would be sufficient to take care of jobs. Independent watchdogs have also found there is no compelling industrial base considerations in the near-term because shipyards will be building the LCS under contract through fiscal year 2021.<sup>4</sup>

The LCS has already been forced into multiple major program changes, initially driven by large cost overruns, the lack of combat survivability and lethality discovered during operational testing and deployments, the almost crippling technical failures, and schedule delays in each of the three mission modules necessary for the LCS to perform its missions.<sup>5</sup> The rush to prove the capabilities of the LCS led to premature deployments, leaving a crew "marooned in Singapore on an open-ended deployment" for nine months.<sup>6</sup> The Congressional Budget Office (CBO) estimated taxpayers could have saved \$12 billion if the program had been canceled.<sup>7</sup> What's kept it going is pressure from Senators like Shelby and Baldwin.

In what must have been record-setting speed in pork pressure politics, the White House announced a few

1 Department of Defense Office of the Under Secretary of Defense (Comptroller / CFO, *Fiscal Year 2018 Budget Request*, May 2017, p. 9.

2 Hugh Hewitt, "OMB Director Mulvaney On All Things Budget...And More," May 4, 2017.

3 "Review of the FY2018 Budget Request for the U.S. Navy & Marine Corps," before the Senate Appropriations Subcommittee on Defense, May 24, 2017.

4 Government Accountability Office, *Littoral Combat Ship and Frigate: Delaying Planned Frigate Acquisition Would Enable Better-Informed Decisions*, April 18, 2017, p. 9.

5 "Cost Growth Puts the Brakes on the USA's Littoral Combat Ship Program," *Defense Industry Daily*, March 19, 2007; Department of Defense, "Statement by Secretary Hagel on the Littoral Combat Ship," Release No: NR-613-14, December 11, 2014; Megan Eckstein, "Navy's Remote Minehunting System Officially Canceled, Sonar May Live, On," *USNI News*, March 24, 2016; *Defense Industry Daily*, "It's All in the Package: the Littoral Combat Ship's Mission Modules," *Defense Industry Daily*, October 15, 2015.

6 David B. Larter, "LCS crew marooned in Singapore on an open-ended deployment," *Navy Times*, February 20, 2017; "After a 9-month extended deployment to Singapore, LCS Crew 204 is back home," *Navy Times*, April 17, 2017.

7 Congressional Budget Office, "Cancel the Littoral Combat Ship Program," *Options for Reducing the Deficit: 2014 to 2023*, November 13, 2013.

hours after the appropriations hearing that they would add an LCS to the budget they'd already submitted after all. Adding a ship to the budget so quickly after the budget has been released is seemingly unprecedented.<sup>8</sup> "I've never seen anything like it," Senate Armed Services Committee Chair John McCain (R-AZ) said. The House Armed Services Committee's Ranking Member, Representative Adam Smith (D-WA), put it more colorfully: "they pulled that ship out of their asses."<sup>9</sup>

According to CNN the sudden change—which had no offset at the time—was led by Rick Dearborn, deputy chief of staff of policy for the White House and formerly the chief of staff to the other former Alabama Senator, Jeff Sessions.<sup>10</sup>

It remains to be seen whether this administration will truly put military effectiveness and taxpayers first. How it handles a troubled program like the LCS will be a key test. The Navy plans to stop buying LCSs once the current contract obligations are complete, and will instead purchase "frigates" that are supposed to have better survivability and lethality in combat.

However, the frigate program largely appears to be the LCS by another name. A Government Accountability Office (GAO) review of the Navy's decisions to analyze alternatives to the LCS for the new "frigate" program found the Navy had biased the study to favor LCS-based alternatives. This bias included making "assumptions related to crew size that resulted in the non-LCS options appearing more costly by comparison": the Navy had assigned to the alternatives a worst-case scenario of crew sizes that was "considerably higher than even the upper range identified by the manning estimates." For the LCS, the Navy picked an overly optimistic scenario, with a lower crew estimate for the modified LCS options, making any non-LCS design appear considerably more costly.<sup>11</sup>

In April, the GAO urged Congress to slow down acquisition of the new frigate due to concerns Congress would otherwise have to "make significant program decisions and commitments in 2017 without key cost, design, and capability knowledge."<sup>12</sup> Initially the Navy wanted to buy frigates under a block buy. The problem with a block buy is that it ties the hands of both Congress and the Navy to cut the program or make needed modifications if the Navy and shipbuilders continue to deliver ships that don't meet the program's requirements. It could also increase costs if testing or deployments show more ships may need significant retrofits and changes.<sup>13</sup> While one would assume a block buy would result in cost savings, auditors previously found defense block buys increased unit cost growth by 10 to 30 percent.<sup>14</sup> The GAO report makes clear that approval of the block buy would be a terrible decision for taxpayers.

The report echoed concerns the Project On Government Oversight (POGO) raised in an analysis last year and in POGO's Baker's Dozen of recommended Congressional reforms this year.<sup>15</sup>

The Navy agreed to delay the frigate contract award until 2020, and received praise from House Armed Services Committee Seapower Chair Rob Wittman (R-VA) for doing "due diligence."<sup>16</sup> Unfortunately it looks like the House's authorization bill will include three LCS.<sup>17</sup> Boosters for the program claim this rate of procurement is necessary to increase the size of the fleet, but forget that committing taxpayers to a ship with so many deficiencies undermines its overall effectiveness.

The ultimate success of any frigate program will depend upon the Navy's discipline in truly assessing and addressing shortfalls in previous designs, and in resisting external interference by members of Congress to continue this program's troubled trajectory. ■

8 Megan Eckstein, "Trump Administration 'Supportive' of Second Littoral Combat Ship in 2018 Despite Only Including 1 in Budget," *USNI News*, May 24, 2017.

9 Jeremy Herb, "White House intervened to add extra littoral combat ship to Navy's budget," *CNN*, May 26, 2017.

10 *Ibid.*

11 Government Accountability Office, *Littoral Combat Ship: Need to Address Fundamental Weaknesses in LCS and Frigate Acquisition Strategies*, June 9, 2016, p. 23.

12 Government Accountability Office, *Littoral Combat Ship and Frigate: Delaying Planned Frigate Acquisition Would Enable Better-Informed Decisions*, April 18, 2017, Executive Summary. (Hereinafter GAO Frigate study)

13 GAO Frigate study, p. 9.

14 Government Accountability Office, *Defense Acquisitions: DoD's Practices and Process for Multiyear Procurement Should Be Improved*, February 2008, Executive Summary.

15 Mandy Smithberger and Pierre Sprey, "Overhaul of Littoral Combat Ship Program Likely to Increase Risks and Costs," Straus Military Reform Project, December 13, 2016; Project On Government Oversight, 2017; *Baker's Dozen of Suggested Congressional Oversight Priorities and Legislative Reforms*, March 28, 2017.

16 Sydney J. Freedberg Jr., "LCS: HASC Seapower Chair Praises Frigate Delay," *Breaking Defense*, May 4, 2017.

17 Megan Eckstein, "House Armed Services Committee Debates Hypoxia, LCS Buys, CVN-78 Shock Trials, Flight III Upgrade Schedule," *USNI News*, June 29, 2017.

# Congress is Afraid to be Responsible for Our Current Wars

BY MANDY SMITHBERGER

The following piece was first published in July 2017. It has been excerpted and updated. The original and the sources can be found at <http://www.pogo.org/strauss/issues/congress/2017/congress-is-afraid-to-be-responsible-to-current-wars.html>.



Soldiers march to the ramp of the CH-47 Chinook helicopter that will return them to Kandahar Army Air Field.

**Congress is debating and approving** legislation to authorize and appropriate over \$1 trillion in national security spending. That debate should include authorization for our current wars. But yet again leadership proved its cowardice when it comes to its constitutional responsibility to declare wars, and to be held accountable for those wars, by using a procedural trick to block an up-or-down vote to authorize them.

Last month Rep. Barbara Lee (D-CA) offered an amendment to the House Appropriations bill to repeal the 2001 Authorization for the Use of Military Force—referred to as the AUMF. The amendment would have repealed the 2001 AUMF 240 days after the appropriations bill went into effect, which Lee hoped would force Congress to vote on a new AUMF to reflect our current wars.

The 2001 AUMF authorized the use of force in response to the September 11 attacks, but has since been twisted to cover a number of conflicts that have little to no connection to those attacks. The Congressional Research Service found that the AUMF has been used to allow deploying and directing forces, or to engage in other actions, in Afghanistan, the Philippines, Georgia, Yemen, Djibouti, Kenya, Ethiopia, Eritrea, Iraq, and Somalia. Lee, along with Representative Justin Amash (R-MI) and 53 other colleagues in the House, and Senators Jeff Flake (R-AZ) and Tim Kaine (D-VA) in the Senate, have spent years trying to get Congress to vote on a new AUMF to reflect our current commitments without success.

The Lee amendment was a brief bit of progress, surprisingly passing in the committee on a bipartisan

vote. Representatives Chris Stewart (R-UT) and Scott Taylor (R-VA), both military veterans themselves, criticized Congress's inaction on debating and approving a new AUMF. But that progress has been halted for now by the House Rules committee—which proudly touts itself as the “Speaker’s Committee” because it’s the Speaker’s way of controlling the House Floor—which stripped the language from the bill in the dead of night before it could get to the Floor for a vote.

Speaker Paul Ryan (R-WI) told *Real Clear Politics* it was “a mistake” that the amendment had passed and that an appropriations bill was the wrong vehicle for debating the issue. But it appears there’s *never* going to be a right vehicle. The Speaker and his Republican and Democratic predecessors have repeatedly blocked votes on this issue on defense authorization bills—a pretty natural vehicle for the debate. They have not allowed standalone legislation to be considered, either.

Congress is truly broken if they think they can absolve themselves of responsibility for our war efforts. Large Pentagon budgets don’t show support for the troops so much as they do for defense contractors and campaign donors. Real support for our troops would be Congress giving serious consideration to where and why we send our men and women into harm’s way, and then having the guts to vote for it on the record. ■

# Why We Need Foreign Lobbying Reform Now

BY LYDIA DENNETT

As foreign influence dominates the news cycle with President Trump's former National Security Advisor, Michael Flynn, and former campaign manager, Paul Manafort, registering as foreign lobbyists, an obscure law the Project On Government Oversight has been following for years has been thrust into the spotlight.<sup>1</sup>

Under the Foreign Agents Registration Act (FARA), lobbyists working for foreign governments must disclose information about their activities to the Department of Justice (DOJ). The law is intended to provide transparency into how foreign governments attempt to influence US policy. FARA includes a legal obligation for the registrant to file reports on their activities every six months, as well as to record and file any instances where they send any document to two or more people.<sup>2</sup>

These requirements are intended to allow the public to see exactly how foreign entities are working to influence US policies on everything from foreign aid to multi-billion dollar arms deals. But as POGO detailed in our 2014 report *Loopholes, Filing Failures, and Lax Enforcement: How the Foreign Agents Registration Act Falls Short*, there are several significant issues with the law and the DOJ's enforcement of it.<sup>3</sup>

A recent lobbying push by the Kingdom of Saudi Arabia helps demonstrate how foreign lobbying works, and why enforcement of foreign lobbying laws is so vital. The Kingdom's multi-million dollar lobbying effort in 2016 and 2017 included at least 22 different lobbying firms working to stop the passage of the Justice Against Sponsors of Terrorism Act (JASTA), a bill that would allow family members of 9/11 victims to sue Saudi Arabia for any involvement in the terrorist attacks.<sup>4</sup>

Part of the Saudi lobbying strategy was to offer all-expense-paid trips to Washington, DC, for veterans willing to meet with Members of Congress and urge them to vote "no" on the bill. But according to several veterans who participated, they were not aware the trips were funded by the Saudi government. This likely violated FARA rules that require lobbyists to disclose when they're working on behalf of a foreign government in any communications they make to two or more people. Ultimately, weak enforcement of FARA left several US military veterans unaware that they were part of a massive foreign lobbying effort.

Although the bill ultimately passed and was signed into law, the Saudi lobbying campaign demon-



Every year foreign governments spend millions of dollars on lobbying efforts to affect US policies.

strates that compliance with FARA is spotty, the law is rarely enforced, and there are political and personal consequences resulting from both problems.

Just last year the DOJ Inspector General found that the lack of compliance with the law was "unacceptable."<sup>5</sup> Over 50 percent of new FARA registrants from 2013-2015 filed their registration documentation late, and 47 percent of registrants failed to properly disclose their work was on behalf of a foreign government.

Additionally the DOJ's enforcement of the law has been negligible. The Department typically relies on "voluntary compliance" and only has two enforcement mechanisms to deal with violations: pursuing criminal charges or filing a civil injunction.

1 Theodor Meyer, "Manafort registers as foreign agent," *Politico*, June 27, 2017.

2 Department of Justice, "FARA: Foreign Agents Registration Act."

3 Project On Government Oversight, *Loopholes, Filing Failures, and Lax Enforcement: How the Foreign Agents Registration Act Falls Short*, December 16, 2014.

4 114th Congress, "Justice Against Sponsors of Terrorism Act" (S.2040), Introduced September 16, 2015, by Senator John Cornyn.

5 Department of Justice Office of the Inspector General, *Audit of the National Security Division's Enforcement and Administration of the Foreign Agents Registration Act*, September 2016.

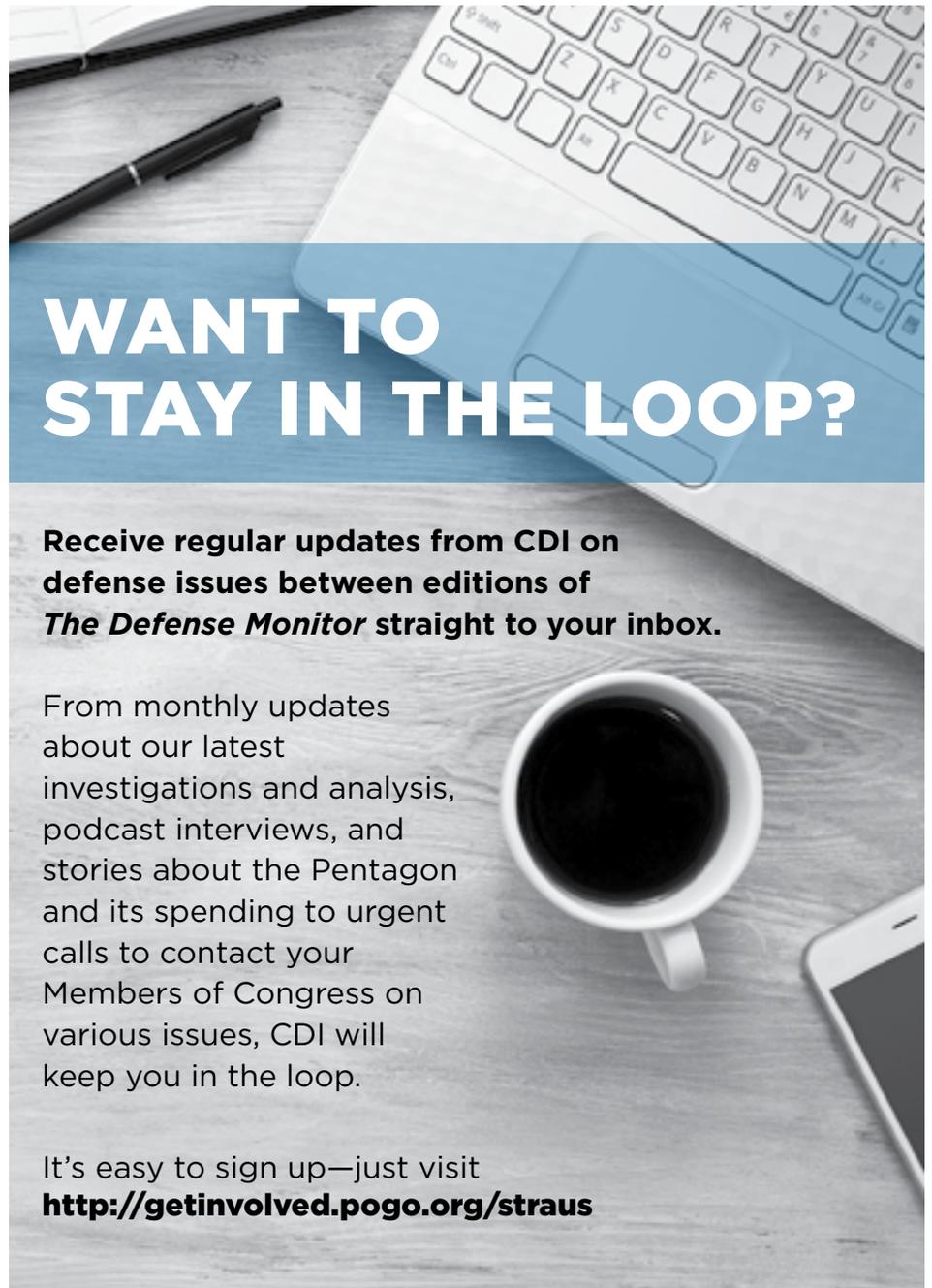
The DOJ has only pursued criminal charges for FARA violations seven times in the last 50 years and has not pursued a civil injunction for FARA violations since 1991.

Yet even within the law there are significant loopholes that can make it difficult to know exactly which foreign powers are attempting to influence US policy. For example, there are several exemptions that allows foreign lobbyists to register under the Lobbying Disclosure Act (LDA), which requires the lobbyist to provide much less information about their activities.

If a lobbyist is working solely on behalf of a foreign commercial interest, rather than a foreign government or political party, he or she may register under the LDA and would be exempt from FARA requirements. But the lines between foreign businesses and governments is not always as clearly defined as it is in the United States.

Furthermore, the LDA exemption is not well understood and can allow foreign lobbying to go unreported to the DOJ. Donald Trump's former national security advisor, Michael Flynn, cited an "uncertain standard" as his reason for registering his activities under the LDA instead of FARA.<sup>6</sup> Although Flynn was hired by a private Dutch company in August 2016, the work he was doing was to promote Turkish interests in the United States after a failed military coup.<sup>7</sup> Because the Turkish government was the primary beneficiary of his lobbying work, he should have registered under FARA. But this isn't clear in the law or on the FARA website.

POGO has been advocating for FARA reforms to fix these issues for years. We have encouraged the DOJ



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to clarify registration and reporting requirements to make this information useful and to help prevent the kind of uncertainty Flynn referenced. We've also encouraged the DOJ to require additional information about the political activities foreign lobbyists are engaging in, including a list of any meetings conducted with policymakers, who they met with, the

dates of the meetings, and the issue or issues discussed.

POGO has also begun working with policymakers to amend the law to give the DOJ the authority to levy civil fines to punish offenders who do not properly label their FARA filings, who file late, who don't file if they should have, or who don't register if they should have. ■

6 Letter from Robert Kelner on behalf of Flynn Intel Group, to Heather Hunt, FARA Registration Unit, regarding Flynn Intel Group Registration, March 7, 2017.

7 Tim Arango and Ceylan Yeginsu, "As Turkey Coup Unfolded, 'the Whole Night Felt Like Doomsday,'" *The New York Times*, July 16, 2016.

The Department of Defense Inspector General concluded in a July 2016 report that the entire program has been mismanaged.

“Ten years after the program entered the engineering and manufacturing development phase, the Navy has not been able to prove the capability or safety of the system to a level that would permit actual testing of the system on an aircraft carrier.”<sup>22</sup>

Test personnel found damage due to insufficient strength of several subcomponents inside the water twister following developmental tests in 2012.<sup>23</sup> The water twister required two years of “significant redesign”; the revised prototype passed land-based dead load tests two years later. The first aircraft tests, also land-based, occurred in 2016.<sup>24</sup>

Separately from the twister failures, earlier failed tests revealed damage to the AAG’s cable shock absorber that the Navy attributed to the design’s complexity. This problem was also reportedly corrected.

Nevertheless, the latest reliability results show only 25 landings between operational mission failures of the AAG, 660 times fewer than the Navy’s requirement of 16,500. This makes it utterly impossible for the *Ford* to meet its surge sortie rate requirements. And, in an astonishing design oversight exactly like that of the EMALS, General Atomics engineers made it impossible to repair AAG failures without shutting down flight operations: the AAG power supply can’t be disconnected from the high-voltage supply while flights continue.

Even after spending an estimated \$1.3 billion, the ability to correct the AAG’s dangerous unreliability remains so uncertain that the Navy cannot yet commit to a schedule for actual at-sea testing of the *Ford*.

Problems with the AAG are so bad that the Department of Defense asked the Navy to study shelving the idea completely for the follow-on ships in favor of an

enhanced version of the proven MK-7 system currently in service.<sup>25</sup> However, recommending to drop the AAG after spending \$1.3 billion would have been a major admission of failure. Unsurprisingly, the Navy decided to stick with the AAG and push forward with plans to install it aboard the second *Ford*-class ship, the USS *John F. Kennedy*.<sup>26</sup>

### Shock Trials

All of these systems have yet to be pitted against perhaps the biggest testing challenge any new Navy ship must face: Full Ship Shock Trials. These critical tests discover whether each new ship class is suitable for combat, and occur when the fully kitted-out ship heads out to sea with its crew. Explosives are detonated underwater in relatively close proximity to the ship in order to learn if the ship’s systems are sufficiently hardened to carry out missions in the rigors of combat conditions, and if the crew would be able to rapidly identify and fix any problems that resulted during those conditions.<sup>27</sup>

The Navy first identified the need for such testing in World War II. It was observed that several newly designed ships were rendered useless because of “inadequate shock proofing of the ship systems” when mines or torpedoes exploded nearby. Since then, the Navy has required that shock hardness be “designed and engineered into ship platforms, aircraft and shipboard interface systems, ordnance and related equipment.”<sup>28</sup> The official Navy instructions for ship-hardening lists 16 mission-essential systems that must continue functioning after a shock event, including propulsion, navigation, and communications. Thousands of components are put to the test. During shock trials for the *Arleigh Burke*-class destroyers, for instance, 4,460 unique components were monitored.<sup>29</sup>

Navy rules used to require the first-in-class ship to go through shock trials.<sup>30</sup> Despite the obvious importance of verifying shock-hardening, the Navy changed its rules in 2013. Now the Program Executive Officer for each ship class may select the first-in-class ship “or an early ship of each shock hardened class that shall be subjected

22 DoD IG Report, p. i.

23 DoD IG Report, pp. 8-9.

24 Sam LaGrone, “NAVSEA: Advanced Arresting Gear Design Flaw Delayed Testing Schedule Two Years, Adds Risk to On Time Ford Carrier Delivery,” *USNI News*, March 19, 2015.

25 Lara Seligman, “U.S. Navy’s Advanced Arresting Gear May Face Cancellation,” *Aerospace Daily & Defense Report*, December 21, 2016.

26 Sam LaGrone, “Navy Sticking With Advanced Arresting Gear in Next Carrier,” *USNI News*, January 23, 2017.

27 Young S. Shin and Nathan A. Schneider, “Ship Shock Trial Simulation of USS Winston S. Churchill (DDG 81): Modeling and Simulation Strategy and Surrounding Fluid Volume Effects,” Naval Post Graduate School thesis, March 2003.

28 Department of the Navy, “OPNAV Instruction 9072.2A: Shock Hardening of Surface Ships,” February 19, 2013. (Hereinafter OPNAV Instruction 9072.2A)

29 MITRE Corporation, *Navy Ship Underwater Shock Prediction and Testing Capability Study*, October 2007. (Hereinafter MITRE Report)

30 Department of the Navy, “OPNAV Instruction 9072.2: Surface Ship Shock Test and Shock Trial Requirements,” January 12, 1987. (Hereinafter OPNAV Instruction 9072.2A)

to the shock validation process as part of post-delivery test and trials when required.”<sup>31</sup> The timing of the rule change is important within the context of the USS *Ford* and the subsequent ships in her class: on June 18, 2012, the Navy attempted to abandon its plans to conduct Full Ship Shock Trials on the *Ford*, claiming that deferring the tests to a later ship was justifiable because components like the EMALS and AAG were shock hardened by design. Instead, the Navy announced its intention to conduct the shock trials on the second-in-class ship, CVN-79 USS *John F. Kennedy*. The Navy altered the testing plan while its own instructions still mandated the tests be conducted on the lead ship. It wasn’t until eight months later that the Navy issued its new instructions regarding shock trials.

The Navy met with resistance on the change of plans for the *Ford* from the DOT&E, which disapproved the USS *Ford*’s Test and Evaluation Master Plan.<sup>32</sup> The plan didn’t sit well with the two senior members of the Senate Armed Services Committee, either. Senators John McCain (R-AZ) and Jack Reed (D-RI) both objected, saying that sending the ship out to sea before the tests “and potentially fighting without this testing gives us pause.”<sup>33</sup> In the end, Deputy Secretary of Defense Robert Work, under pressure from SASC, overruled the Navy and ordered the USS *Ford* to undergo shock trials, saying the tests “will be conducted to ensure the survivability of the CVN-78 design is understood prior to beginning operational deployments.”<sup>34</sup>

It is particularly important that the *Ford* go through early shock testing because of its multiple new, high-risk systems, all of them critical to the carrier mission but particularly susceptible to shock and battle damage. These vulnerable, unproven systems include the highly automated A1B nuclear reactor, the EMALS catapults, the AAG arresting gear, the ultra-high 13,800-volt electrical distribution system, the dual-band radar, and the new main turbine generators. Postponing the test to the second ship in class is fraught with risks and potential costs. Had the Navy’s change in plans gone unchallenged, the shock trials to confirm whether the ship’s design could operate successfully in combat conditions likely wouldn’t be completed until 2025. The Navy would run the risk of sending the \$13 billion *Ford* with 4,300 crew members

into a situation where a single close-proximity explosion could render it useless and vulnerable to being sunk. Moreover, if the tests reveal fundamental design problems when they are finally completed, the Navy would have to engage in an expensive retrofit of the *Kennedy* and the *Ford*. In fact, by the time the deferred tests would take place, construction of the third-in-class ship, CVN-80 USS *Enterprise*, would be well underway and it, too, would need expensive retrofitting.

The decision to test the *Ford* as originally required was a clear—though unfortunately reversible—victory for long-time advocates of realistic combat and live-fire testing. The whole saga is a clear example of how and why the services and contractors work to thwart the testing process. The MITRE Corporation, a federally funded research and development center, published a report titled *Navy Ship Underwater Shock Prediction and Testing Capability Study* that found service officials and contractors with an interest in rushing ships into full scale production—namely, the concurrency advocates—often want to avoid this kind of realistic combat testing:

“Shock trials cost time and money, and [Full Ship Shock Trials] occurs at exactly the time where there is the least incentive to go back to the drawing board to fix any issues that arise.”<sup>35</sup>

Certainly, until the trials are completed, DoD officials and Congress need to maintain vigilant oversight to ensure the ship’s combat suitability is properly tested and evaluated before it enters service.

## Conclusion

The *Ford*-class carrier program is in much deeper trouble than the Navy and the DoD are willing to admit. As further testing reveals serious deficiencies, cost overruns will balloon and promised combat capabilities will shrink. There is the very real possibility that, as currently configured, the *Ford* will prove to be unsuitable for combat because the EMALS catapults or the AAG arresting gear might be unreliable at sea under surge conditions or because the reactor and electrical system might not function in the face of battle damage. Or, worse, because of all of the above. ■

31 OPNAV Instruction 9072.2A, p. 1 of Enclosure 2.

32 DOT&E FY 2015 Annual Report, p. 183.

33 Anthony Capaccio, “Senators Protest Delay in Survival Test for New Aircraft Carrier,” Bloomberg Business, April 8, 2015.

34 Christopher Cavas, “Pentagon Directs Shock Tests on Carrier Ford,” *Defense News*, August 11, 2015.

35 MITRE Report, p. 38.



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**Center for Defense Information**  
 1100 G Street, NW, Suite 500  
 Washington, DC 20005  
 Tel: 202.347.1122 / Fax: 202.347.1116



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