



# F-35 Lightning II Program

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## International Partnerships Flourish on America during DT-III

PACIFIC OCEAN (NNS) -- In 2006, the first F-35 Lightning II rolled out of the Lockheed Martin factory in Fort Worth, Texas. Since that time, the program has exponentially expanded around the globe, creating new partnerships and reaffirming alliances.

The Joint Strike Fighter (JSF) program consists of three variants; nine partner countries which include Australia, Canada, Denmark, Italy, the Netherlands, Norway, Turkey, the U.K., and the U.S.; and three Foreign Military Sales (FMS) customers -- Japan, Israel, and the Republic of Korea. Within the joint, multinational F-35 acquisition program, the U.K. is the only Level 1 partner. This major partner role enables the U.K. to integrate its personnel into the System Design and Demonstration (SDD) phase, which features its forces working side-by-side with the U.S. during developmental test phases -- including the third and final developmental test phase (DT-III) of the F-35B aboard amphibious assault ship USS America (LHA 6).



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The integration of the U.K. Royal air force (RAF) and Royal navy within joint squadrons and operations worldwide hearkens back to RAF Harrier and Royal Navy Sea Harrier initiatives to economize and streamline operations by leveraging resources and personnel operating across common platforms.

Based upon the success of that integration, the U.K. determined to apply similar tactics to its F-35B Lightning II operations and executed a Long Lead Specialist Skills (LLSS) program developed under the U.K.-U.S. Statement of Intent to help the U.K. regain specific skills for carrier strike regeneration.

As part of the LLSS program, the U.K. sent a small team to USS America to take part in DT-III. While LLSS covers a wide variety of skills and trades, the DT-III team featured an air traffic controller, five engineers, handlers, and maintainers responsible for the safe movement and handling of F-35B aboard future Queen Elizabeth-class (QEC) carriers HMS Queen Elizabeth (R08) and HMS Prince of Wales (R09).

During the F-35B Short Takeoff and Vertical Landing (STOVL) flight operations aboard America, the U.K. embarked a 10-member strong team from the F-35 Pax River Integrated Test Force (ITF) assigned to Air Test and Evaluation Squadron (VX) 23 from Naval Air Station Patuxent River, Maryland. The U.K.'s DT-III contingent featured a RAF test pilot, three flight test engineers, and six maintainers responsible for the detachment's maintenance evaluation. The team worked together during the 23-day embarkation to gain knowledge and experience of maintenance procedures and techniques, familiarize themselves with the aircraft structure and systems, identify maintenance routines, and generate lessons learned from shipboard operations with the F-35B Lightning II.

"This is our new class of aircraft carrier currently under build," said Warrant Officer 1 Jaime Howard, Royal navy air engineer technician. "They are twin ships, both 65,000 tons, 283 meters long with a ski ramp six meters high to launch the F-35B."

Each new British ship has a crew of just over 700 and room for 40 aircraft which include the F-35B and an assortment of helicopters. Currently, Queen Elizabeth is due to sail for trials in spring 2017, with Prince of Wales following approximately 18 months later.

With the upcoming sea trials for Queen Elizabeth approaching, it was imperative for their sailors to gain the necessary knowledge to support the next generation of aircraft scheduled to deploy with them, including the F-35B.

"We have worked hard for the last 12 months in making this period a success," said Royal navy Lt. Cmdr. Dale Collins, U.K. F-35 air engineer and ship integration project officer embedded with the F-35 Pax River ITF.

"Planning and production of the Joint Test Plan, participating in conferences and discussions, and working together with the crew of the America and U.S. Marine Corps has been vital to achieving all of our DT-III milestones," Collins added. "This is the last at-sea trial period for this aircraft, so the enormity of the tasks and requirements has been daunting; but, by working together we have delivered."

The objective for the Royal navy is to establish a maintenance guideline for the F-35B to compare and integrate with the new QEC carriers, while also gathering information from lessons learned from members of America's team -- experience which will prove valuable for the U.K.'s own flight trials in 2018.

In addition to the U.K.'s team, Australian service members integrated with various departments from the America and F-35 team.

"We were integrated into the test program to put these aircraft and all three variants through their paces," said Royal Australian air force Sgt. Justin Kelly. "It's not often that all the nations will get together and basically develop an aircraft or request an aircraft to meet certain specifications. There is now an opportunity to share a lot of things. It's very rewarding."

According to RAF Squadron Leader Andy Edgell, a F-35 test pilot embedded at the Pax River ITF, integration is important between personnel as testing moves forward and the America team learns how to support the F-35B's DT-III testing, while learning the ship and aircraft parameters.

"For the first couple of days, each element is feeling each other out, finding out where we are going to experience challenges and how we can overcome these challenges," said Edgell. "Once the ship knew what the F-35B needed to do and when the F-35B finally found out the ship's limitations and what the ship can do for us, then all the rest of the testing went thoroughly smoothly."

Overall, the outcome of the integration resulted in a group of U.K. military service members confident in what they learned with America Sailors.

"Through the development of the F-35B Lightning II, the U.K. Royal navy and Royal air force have further cemented excellent working relationships with the U.S. Navy and Marine Corps," Collins said. "At all times, whether it be at [Naval Air Station] Patuxent River, our home, or aboard USS America, we have been made to feel at home, part of the team, and had the opportunity to work together once again to further enhance this immensely-capable aircraft for the future of our great nations. I am immensely proud to have been aboard this fine ship."

The U.K.'s status as the only Level 1 partner on the F-35 program and its major role in the F-35's SDD phase is enabling the regeneration of the U.K. carrier strike capability, which will result in significant contracts and jobs for U.K. industry as the F-35B Lightning II and Typhoon become the U.K.'s Fast Jet Combat Air Elements of the future.

The primary role of the F-35B STOVL aircraft is ground attack with a secondary air-to-air role. The aircraft is powered by a single main engine with a vertically-mounted, shaft-driven lift fan propulsion system.