



F-35 Lightning II Program

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F-35 mission data programmers recognized by AF

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EGLIN AIR FORCE BASE, Fla. -- The 53rd Wing's 513th Electronic Warfare Squadron was awarded the Outstanding Scientist/Engineer Team of 2017 for their work on the F-35A Initial Operational Capability delivery here Oct. 25.

"I'm extremely proud of the work these Airmen, military, civilian and contractors alike, do every day with their Navy teammates," said Col. David Abba, 53rd Wing commander. "Winning this award is a testament to the incredible work they are accomplishing together for the warfighter."

This Air Force Science, Technology, Engineering and Math annual award recognizes the efforts and achievements of scientists and engineers who make significant contributions to technology and engineering.

For the last seven years, 513th EWS Airmen and Sailors of the F-35's U.S. Reprogramming Laboratory have been doing just that. They make the F-35 the fighter every aspiring pilot dreams of flying. How they accomplish that feat is quite complex.

While impressive to behold, the aspects that make the F-35 a multi-role fifth generation aircraft and provide the warfighter global precision attack capability against current and emerging threats, are not its looks. It's what's on the inside that counts.

Supercomputers, referred to as sensor fusion, make up the F-35's brain. That brain provides the fighter with unique capabilities, making it more lethal, survivable and adaptable than any fighter aircraft on Earth, according to the Secretary of Air Force Public Affairs.

However, without 513th EWS personnel inputting critical mission data into the F-35, sensor fusion wouldn't work as intended. The aircraft wouldn't know what threats to search for or when.

"America, our allies, and coalition partners need the F-35's unmatched capabilities, so we can fight and win in highly contested areas," said Abba. "The 513th Electronic Warfare Squadron allows the F-35 to realize its potential."

In the electronic warfare world, engineers refer to this ability to understand the world, the ability to sift through stimuli and make informed decisions about how to react, as mission data software.

This software helps compile countless pieces of information about the environment the F-35 will fly into. It also creates within the F-35's brain the means of deciphering that environment.

The men and women of the 513th EWS program this essential mission data software, thus teaching the F-35 how to distinguish between stimuli and making it efficient, intelligent, and lethal.

"It's great to be doing this work," said 1st Lt. Jeffery Bintz, 513th mission data engineer. "Every day, I know my efforts are being used to create the best fighter known to man."

Over the years, circumstances surrounding the maturation of the F-35 required Airmen, Sailors, and Marines to adapt and innovate.

One situation requiring innovation involves the constantly evolving aircraft software load. To use an iPhone analogy, the aircraft software load is similar to iOS. The mission data is similar to an iPhone's contact list and apps. The iOS is required for an iPhone to turn on, but the contact list and apps are what help translate this technology into a functional format. In this way, mission data interacts with the aircraft software in order to enable the F-35's sensor fusion and thus give pilots unprecedented battlefield situational awareness.

Similar to iPhone technology, the operating system of the F-35 continues to be updated. However, unlike the simple update transition with an iPhone between iOS versions, the F-35 situation is more complex and time consuming for the app creators.

With each new version of the F-35 operating system, the 513th EWS team must reprogram the previous mission data and build, package and input it anew. Basically, they must rewrite all the apps and retype the contact list. There is no automatic transfer and update of mission data.

Compounding this manually intensive situation is the software tool, known as the mission data file generation tool. It is used to program mission data, but has no “edit” or “save as” function.

Confronting these challenges, among many others, are why the 513th EWS was able to achieve accomplishments garnering Air Force recognition.

Innovation and utilizing the resources provided are standard operating procedures for the 513th EWS. Their focus remains steadfast: to provide the most operationally exceptional mission data for the world’s most advanced fighter.

“When I’m programming, testing, and re-testing the mission data, I know this work is not only for the Air Force, but for the Navy, the Marine Corps, and all our other coalition partners,” said Bintz. “I love to hear the F-35’s flying and know it was my brains that provided a little piece of the success of that great fighter.”

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