



F-35 Lightning II Program

Public Affairs Release – 2014 02 26

AIR FORCES WELCOMES NEW MULTI-ROLE FIGHTER

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Her movements are deliberate as she works on the aircraft. Cutting tape to cover a minor repair on the aircraft's tail, her precision mirrors a doctor performing surgery - everything she does is exact. Her hands run smoothly but firmly across the aircraft as she applies sealant to the repair, ensuring the fighter is smooth - a key component to its stealth capabilities.

Senior Airman Jessa Fleming is a low observable technician with the 33rd Aircraft Maintenance Squadron, responsible for maintaining the stealth capabilities of the F-35A Lightning II Joint Strike Fighter. She is representative of the caliber of Airmen tasked to maintain and repair a fighter where, in many cases, the technical orders are being written as they maintain the aircraft.

The 33rd Fighter Wing at Eglin Air Force Base, Fla. is responsible for training pilots, maintainers and support service members from the Air Force, Marine Corps and Navy on three versions of the new fighter jet, as well as maintaining the aircraft between training sorties.

Airmen on the flightline at this Florida panhandle base call the F-35 the "Swiss Army Knife" of fighter jets because of its ability to perform multiple missions that currently require three separate aircraft to accomplish. As the Air Force's latest fifth generation fighter, the F-35 combines speed and agility, fully fused sensor information and advanced stealth capabilities.

Fleming has dedicated her career to perfecting these stealth capabilities. She feels the work LO does with stealth technology will not only keep pilots safe, but will enable the F-35 to reach out and strike targets without being seen.

"Our enemies are using advanced technology, looking to the skies to find us," said Fleming, who previously worked on the F-22 Raptor. "With the F-35, I like to think of it as a submarine that uses radar under the water to make the boats up top think it's just a school of tuna. But really, it's a huge destroyer. With counter technology used by the enemy, we'd be shot down. We'd lose pilots. It would affect our freedom. That's something that has been instilled in me to always keep in mind."

For Fleming, anything other than perfection is not an option. "Every time I come to work, I remember what could happen if I don't do my job perfectly," she said. "If I am not perfect, or if something isn't perfectly smooth, a pilot may not come home to his family. I have a daughter; I can't allow for a father or mother to not come home to their children because I wasn't having a great day at work."

Just as Fleming explained the need for air power and her role in supporting it, similar words, uttered more than 80 years ago, still influence military doctrine today.

"Not to have an adequate air force in the present state of the world is to compromise the foundations of national freedom and independence," Prime Minister Winston Churchill said March 14, 1933.

Since the Vietnam War, the United States military has operated under a blanket of air superiority and air supremacy during major conflicts. The F-35 is the next aircraft in line to provide that security.

Maj. Jared Santos, an F-35 pilot with the 58th Fighter Squadron, believes this aircraft is like an invisible boxer, capable of avoiding detection from the enemy on the way to delivering a knock-out punch.

Contributing to the stealth characteristics of the F-35 is its body design, which Fleming maintains. Every inch of the aircraft was shaped with a specific purpose in mind. She says the curves and lines of the aircraft resemble a European sports car, elegant, yet full of power. Many Airmen here describe the aircraft as a cockpit built around an engine. Even the guns of the aircraft are built up within the body to improve the aerodynamics.



Staff Sgt. Bradley Anthis, a 58th Aircraft Maintenance Unit crew chief, monitors the F-35 Lightning II during a maintenance engine run at Eglin Air Force Base, Fla. (U.S. Air Force photo/Tech. Sgt. Bennie J. Davis III)

With previous generations of fighters, each aircraft had a specific purpose, Santos explained. With the capabilities of the F-35, he said, it can do all of the tasks associated with the F-16, F-15 and A-10.

"If you have a conventional strike package, you may have eight F-15s in order to provide fighter protection. You may have 10 F-16s to take out the surface-to-air missiles, and you're going to have to have 10 F-15E Strike Eagles to go in there and bomb the target," Santos said. "In order to support those aircraft, you're going to need probably 10 tankers to refuel those fighters, to get them into and out of the target area, and an AWACS to control it."

As budgets shrink and resources become limited, Santos believes the F-35 is the perfect aircraft for the Air Force and sister services to field in response to constantly changing requirements.

"The four-ship of F-35's might be able to do the job of 20-30 fourth generation aircraft," Santos said. "You can send in four F-35's. They can slip past the fighters, they can sneak past the surface-to-air missiles, they can bomb the target and they can defend themselves out of the target area. You need fewer tankers because you have fewer airplanes going in."

With the F-35's ability to slip past enemy defenses without detection and with fewer aircraft, Santos says there may be less collateral damage overall. This means a reduction of targets for the Air Force to drop bombs on, structures to rebuild and lives lost.

As technology in the world advances, the F-35 will bring a combination of capabilities under one airframe that the Air Force was previously operating without. The F-35 is bringing together all the capabilities of different fighter aircraft, and placing them underneath one canopy, with that canopy invisible to enemy radar.

"The F-35 is the wave of the future," Santos said. "The capability of stealth and fusion it brings is just something the fourth generation aircraft don't have."

Along with this technological combat multi-mission tool, people knowing and performing their roles in support of air power remains a key to U.S. military dominance. From the daring pilots like Santos to the dedicated, skilled maintainers like Fleming, every Airman plays a part in meeting the nation's challenges today and in the years to come.