F-35 Production Facilities Near Completion At Lockheed Martin

An array of advanced and highly accurate manufacturing machines that will produce major subassemblies for the F-35 Joint Strike Fighter are in the final stages of assembly and testing on the factory floor at Lockheed Martin in Fort Worth, Texas.

"These are the most advanced machines ever applied to fighter aircraft assembly," said Tom Burbage, Lockheed Martin executive vice president and general manager of the F-35 JSF program. "Their efficiency and accuracy will help the F-35 achieve its goals of affordability, quality and manufacturing speed."

Lockheed Martin's Fort Worth plant will be the final assembly point for the F-35, a stealthy, supersonic multirole fighter designed to replace a wide range of aging fighter and strike aircraft. Production of the center fuselage began on May 18 at Northrop Grumman in Palmdale, Calif. Lockheed Martin will start production of the forward fuselage and wings at Fort Worth later this summer, and BAE SYSTEMS will begin building the aft fuselage and tails at Samlesbury, England, shortly thereafter. The three major subassemblies will be joined at Fort Worth beginning next year. First flight is planned for 2006.

The new production equipment includes a flexible overhead gantry (FOG) that will mill the inside surface of the F-35's composite skin to ensure that the aircraft's outer form is exact, ensuring proper stealth performance. The machine is accurate to within 50 microns. (One micron equals one one- millionth of a meter.) Another machine, a forward-fuselage autodrill cell, can operate 24 hours a day, seven days a week to ensure that the F-35 meets its ultimate production goal of one aircraft per work day. An autodrill for the wing is nearing completion, as well. Also accurate to 50 microns is a precision milling machine with an equipment enclosure that is temperature- controlled to plus or minus one degree Fahrenheit. Temperature stability also helps assure that precision is achieved in the manufacturing process.

Large wing-assembly platforms nearing completion will have the ability to move up and down to optimize the processes for building the wing structure and installing the upper and lower wing skins. Meanwhile, the job of moving large component pieces from one work station to the next belongs to driverless, wheeled transporters called Automated Guided Vehicles (AGV). Each autonomous, battery-powered AGV is capable of toting a load of up to 35,000 pounds, and is equipped with obstacle-detection sensors to prevent collisions.

Inspection of the F-35 carbon-fiber wing skins and other composite components falls to the Laser Ultrasonic Technology (Laser UT) machine, a laser-based system designed to detect imperfections that would cause a part to be rejected. Laser UT inspects parts at a rate that is 10 times faster than current water-coupled ultrasonic inspection machines.

Other major facilities being prepared for the F-35 at Lockheed Martin in Fort Worth include a building for testing the F-35's radar-cross section (stealth) performance; a structure for the application of external coatings; and a hover pit to test the short-takeoff/vertical-landing version of the F-35.

Three F-35 variants -- conventional takeoff and landing (CTOL), carrier vehicle (CV) and STOVL -- each derived from a common design will ensure that the F-35 meets the performance needs of the U.S. Air Force, Marine Corps, Navy and allied defense forces worldwide, while staying within strict affordability targets.

Lockheed Martin is developing the F-35 in conjunction with its principal industrial partners, Northrop Grumman and BAE SYSTEMS. Companies worldwide are participating in the F-35's development. Among the aircraft the F-35 will replace are the AV-8B Harrier, A-10, F-16, F/A-18 Hornet and the United Kingdom's Harrier GR.7 and Sea Harrier.

Lockheed Martin Aeronautics Co., a business area of Lockheed Martin, is a leader in the design, research and development, systems integration, production and support of advanced military aircraft and related technologies. Its customers include the military services of the United States and allied countries throughout the world. Products include the F-16, F/A-22, F-35 JSF, F-117, C-5, C-130, C-130J, P-3, S-3 and U-2. The company produces major components for the F-2 fighter, and is a co-developer of the C-27J tactical transport and T-50 advanced jet trainer.

Headquartered in Bethesda, Md., Lockheed Martin employs about 130,000 people worldwide and is principally engaged in the research, design, development, manufacture and integration of advanced technology systems, products and services. The corporation reported 2003 sales of $31.8 billion.

Link to Photo (click on F-35 Production Facilities):http://www.lmaeronautics.com/news/prlist.html

Photo Caption:

An Automated Guided Vehicle (AGV) prepares to load an F-35 wing-tooling fixture on the Lockheed Martin factory floor in Fort Worth, Texas. An operator is shown monitoring the work but the vehicle ultimately will be fully automatic, moving parts from one work station to the next. The AGV is among many new production machines and tools undergoing check-out before initial F-35 forward-fuselage and wing assembly begins this summer.

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