



## F-35 Lightning II Program Status and Fast Facts

February 18, 2014

### Program Status

- SDD flight test activity totals for 2014 as of Feb. 5, are provided below:
  - F-35A Flight Science aircraft have flown 19 times
  - F-35B Flight Science aircraft have completed 23 flights
  - F-35C Flight Science aircraft have flown 15 times
  - The Mission Systems Test Aircraft have flown 52 times
- Since December 2006, F-35s have flown more than 12,000 cumulative flight hours.

### F-35 Fleet Status

93 F-35s have been delivered to the Department of Defense as of Jan. 23:

- 73 Low Rate Initial Production (LRIP) Aircraft
  - There are 40 LRIP F-35s based at Eglin AFB, Fla. (23 F-35A (two international aircraft), 14 F-35B (including three international aircraft) and 3 F-35C).
  - There are 2 LRIP F-35As, 2 LRIP F-35Bs, and 1 F-35C based at Edwards AFB, Calif. on loan for SDD.
  - There are 6 LRIP F-35As based at Edwards AFB, Calif., for Operational Testing.
  - There are 16 LRIP F-35Bs based at MCAS Yuma, Ariz.
  - There are 4 LRIP F-35As based at Nellis AFB, Nev.
  - There are 2 LRIP F-35s based in Fort Worth expected to ferry to MCAS Yuma and Eglin AFB.
- 20 System Development and Demonstration (SDD) aircraft complete the test and development fleet:
  - There are four F-35As assigned to Edwards AFB, Calif., and five F-35Bs along with five F-35Cs stationed at PAX River NAS, Md. This count includes six static aircraft and AA-1.

### Highlights of the Last Two Months

- Capt. Joshua Ark, 61<sup>st</sup> Fighter Squadron instructor pilot and chief of weapons and tactics, is selected as the first Luke F-16 pilot to transition to F-35 (**Jan. 17**)
- Navy's F-35C Completes Shore-based Testing at Naval Air Engineering Station Lakehurst, NJ. (**Jan. 16**)
- Royal Navy handlers and engineers tested moving the F-35 with the remote-controlled Electric Shipboard Handler (Aircraft) (**Jan. 2**)
- The first Netherlands F-35 pilot took to the skies in an F-35A Lightning II at Eglin Air Force Base (**Dec. 18**)
- Lockheed Martin celebrated the inauguration of the 100<sup>th</sup> F-35 (**Dec. 13**)
- Turkish Aerospace Industries, Inc. delivered its first F-35 center fuselage at a ceremony in Turkey (**Dec. 11**)
- An F-35B successfully employed a GBU-32 Joint Direct Attack Munition (JDAM) weapon against a fixed ground test target, completing a successful flight test and verification year for weapons integration (**Dec. 6**)

## **Planned Quantities\***

USAF	1,763 F-35As
USN	260 F-35Cs
USMC	340 F-35Bs/80 F-35Cs
U.K. RAF/RN	138 F-35Bs
Italy	60 F-35As/30 F-35Bs
Netherlands	85 F-35As
Turkey	100 F-35As
Australia	100 F-35As
Norway	52 F-35As
Denmark	30 F-35As
Canada	65 F-35As
Israel	19 F-35As
Japan	42 F-35As

*\*Based on current programs of record.*

## **Funding**

- Long-Lead funding LRIP lot 8 (45 aircraft)
- Full funding approved for LRIP lots 6&7 (71 aircraft)
- Full funding approved for LRIP lot 5 (32 aircraft)
- Full funding approved for LRIP lot 4 (32 aircraft)
- Full funding approved for LRIP lot 3 (17 aircraft)
- Full funding approved for LRIP lot 2 (12 aircraft)
- Full funding approved for LRIP lot 1 (2 aircraft)

## **Cost**

- The U.S. government has stated the projected cost of an F-35 purchased in 2018 will be \$85 million. That's the equivalent of \$75 million today.
- More than \$500 million reduction in concurrency costs over the first five production lot contracts.
- Unit costs have dropped more than 55 percent since the procurement of the first production aircraft.
- The average aircraft unit cost for an LRIP 6 aircraft is approximately 2.5 percent lower than LRIP 5 aircraft. An LRIP 7 aircraft has an average unit cost approximately six percent lower than LRIP 5 aircraft.
- LRIP 6 Aircraft Costs (not including engine):
  - 23 F-35As CTOL - \$103 million/jet
  - 6 F-35B STOVL - \$109 million/jet
  - 7 F-35C CV - \$120 million/jet
- LRIP 7 Aircraft Costs (not including engine):
  - 24 F-35As CTOL - \$98 million/jet
  - 7 F-35B STOVL - \$104 million/jet
  - 4 F-35C CV - \$116 million/jet

## **F-35 Quantities by Variant and Country for LRIP 1 – 8**

### **LRIP 1 (2 Total) - 2 U.S. / 0 International**

#### United States

- 2 F-35A CTOL for the U.S. Air Force

### **LRIP 2 (12 Total) - 12 U.S. / 0 International**

#### United States

- 6 F-35A CTOL for the U.S. Air Force
- 6 F-35B STOVL for the U.S. Marine Corps

### **LRIP 3 (17 Total) - 14 U.S. / 3 International**

#### United States

- 7 F-35A CTOL for the U.S. Air Force
- 7 F-35B STOVL for the U.S. Marine Corps

#### International

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- 1 F-35A CTOL for the Netherlands
- 2 F-35B STOVL for UK

**LRIP 4 (32 Total) - 30 U.S. / 2 International**

United States

- 10 F-35A CTOL for the U.S. Air Force
- 16 F-35B STOVL for the U.S. Marine Corps
- 4 F-35C CV for the U.S. Navy

International

- 1 F-35A CTOL for the Netherlands
- 1 F-35B STOVL for the UK

**LRIP 5 (32 Total) - 32 U.S. / 0 International**

United States

- 22 F-35A CTOL for the U.S. Air Force
- 3 F-35B STOVL for the U.S. Marine Corps
- 7 F-35C CV for the U.S. Navy

**LRIP 6 (36 Total) - 31 U.S. / 5 International**

United States

- 18 F-35A CTOL for the U.S. Air Force
- 6 F-35B STOVL for the U.S. Marine Corps
- 7 F-35C CV for the U.S. Navy

International

- 3 F-35A CTOL for Italy
- 2 F-35A CTOL for Australia

**LRIP 7 (35 Total) - 29 U.S. / 6 International**

United States

- 19 F-35A CTOL for the U.S. Air Force
- 6 F-35B STOVL for the U.S. Marine Corps
- 4 F-35C CV for the U.S. Navy

International

- 3 F-35A CTOL for Italy
- 2 F-35A CTOL for Norway
- 1 F-35B STOVL for the UK

**LRIP 8 (43 Total) - 29 U.S. / 14 International (4 UK, 2 Norway, 2 Italy, 4 Japan, 2 Israel)**

United States

- 19 F-35A CTOL for the USAF
- 6 F-35B for the U.S. Marine Corps
- 4 F-35C for the U.S. Navy

International

- 4 F-35B STOV for UK
- 2 F-35A CTOL for Norway
- 2 F-35A CTOL for Italy
- 4 F-35A CTOL for Japan
- 2 F-35A CTOL for Israel

## F-35 Specifications

	F-35A CTOL	F-35B STOVL	F-35C CV
<b>Length</b>	51.4 ft / 15.7 m	51.2 ft / 15.6 m	51.5 ft / 15.7 m
<b>Height</b>	14.4 ft / 4.38 m	14.3 ft / 4.36 m	14.7 ft / 4.48 m
<b>Wingspan</b>	35 ft / 10.7 m	35 ft / 10.7 m	43 ft / 13.1 m
<b>Wing area</b>	460 ft <sup>2</sup> / 42.7 m <sup>2</sup>	460 ft <sup>2</sup> / 42.7 m <sup>2</sup>	668 ft <sup>2</sup> / 62.1 m <sup>2</sup>
<b>Horizontal tail span</b>	22.5 ft / 6.86 m	21.8 ft / 6.65 m	26.3 ft / 8.02 m
<b>Weight empty</b>	29,300 lb	32,300 lb	34,800 lb
<b>Internal fuel capacity</b>	18,200 lb	13,100 lb	19,200 lb
<b>Weapons payload</b>	18,000 lb / 8,160 kg	15,000 lb / 6,800kg	18,000 lb / 8,160 kg
<b>Standard internal weapons load</b>	<ul style="list-style-type: none"> <li>• 25 mm GAU-22/A cannon</li> <li>• Two AIM-120C air-to-air missiles</li> <li>• Two 2,000-pound GBU-31 JDAM guided bombs</li> </ul>	<ul style="list-style-type: none"> <li>• Two AIM-120C air-to-air missiles</li> <li>• Two 1,000-pound GBU-32 JDAM guided bombs</li> </ul>	<ul style="list-style-type: none"> <li>• Two AIM-120C air-to-air missiles</li> <li>• Two 2,000-pound GBU-31 JDAM guided bombs</li> </ul>
<b>Maximum weight</b>	70,000 lb class	60,000 lb class	70,000 lb class
<b>Propulsion*</b> (uninstalled thrust ratings)	F135-PW-100 40,000 lbs Max. 25,000 lbs Mil. Vertical N/A	F135-PW-600 40,000 lbs Max. 25,000 lbs Mil. 40,500 lbs Vertical	F135-PW-100 40,000 lbs Max. 25,000 lbs Mil. Vertical N/A
<b>Speed (full internal weapons load)</b>	Mach 1.6 (~1,200 mph)	Mach 1.6 (~1,200 mph)	Mach 1.6 (~1,200 mph)
<b>Combat radius (internal fuel)</b>	>590 nm / 1,093 km	>450 nm / 833 km	>600 n.mi / 1,100 km
<b>Range (internal fuel)</b>	>1,200 nm / 2,200 km	>900 nm / 1,667 km	>1,200 n.mi / 2,200 km
<b>Max g-rating</b>	9.0	7.0	7.5

\*Maximum Power (Max) = with afterburner; Military Power (Mil) = without afterburner; Vertical = without afterburner

## Program Highlights by Year

- **2001** –The Pentagon announced that an international team led by Lockheed Martin won the competition to build the Joint Strike Fighter (JSF). The X-35B takes off and lands vertically for the first time.
- **2002** – Canada, Denmark, Norway, Italy, Turkey, Australia and the Netherlands join F-35 partnership.
- **2003** – Production of first F-35 major airframe components begins. Lockheed Martin completes the first F-35 hardware delivery with the installation of LM-STAR™.
- **2004** – Assembly begins on the first F-35 in Fort Worth. Engineers remove more than 2,700 pounds of unwanted estimated weight from the short-takeoff/vertical-landing (STOVL) variant.
- **2005** – Lockheed Martin and Pratt & Whitney successfully perform the first start of an F-35 aircraft test engine. The first F-35 completes assembly of major structural components in Fort Worth.
- **2006** – The U.S. Navy dedicated a \$24 million facility at NAS Patuxent River, Md., for testing of the Navy and Marine Corps' jets. The first F-35 is completed on schedule and moves from the factory for ground testing. The F-35 is officially named Lightning II. The Netherlands becomes the first partner nation to extend its participation into the production and support phase of the program. AA-1 completes its inaugural flight.
- **2007** – Electrical power is applied to the F-35B for the first time. The F-35B makes its debut amid customers from the U.S. Marine Corps, the U.K.'s Royal Navy and Royal Air Force, and the Italian Air Force and Navy at a rollout ceremony in Fort Worth.
- **2008** – The shaft-driven lift fan propulsion system operates for the first time in the aircraft during ground testing. The F-35B flies for the first time. The first F-35 finishes all planned testing at Edwards AFB. The F-35 flies supersonic for the first time. Lockheed Martin rolls out the first weight-optimized CTOL variant.
- **2009** – The U.K. announces they will purchase three F-35B operational test aircraft. A ceremony in Fort Worth marks the rollout of the U.S. Navy's first F-35C. The first F-35B arrives at NAS Patuxent River.
- **2010** – An F-35B completes a vertical landing for the first time. F-35A successfully completes full-scale static testing. The F-35B flies faster than the speed of sound for the first time. The Government of Canada announces plans to acquire the F-35. F-35 center wing production operations begin in Marietta. Israel becomes the first country to receive the F-35 through the U.S. government's Foreign Military Sales process. "Block 1," the first

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- of three principal software-development blocks for the F-35's mission systems, made its inaugural flight.
- **2011** – The U.S. Air Force accepts the first production-model F-35. F-35 successfully completes static structural testing. BF-2 successfully executed a vertical landing on the deck of the USS WASP. AF-1 achieves the maximum design limit Mach number for F-35, Mach 1.6. Japan announces that the F-35 has been selected as the country's next generation fighter.
  - **2012** – The first night flight in the history of the F-35 program was completed at Edwards AFB. An F-35A flew the first external weapons test mission in F-35 program history. The program completed in-flight refueling of an F-35B STOVL while configured with external weapons. Norway orders its first F-35. The first international F-35 was delivered to the U.K. Luke AFB selected for F-35A Pilot Training. Operational Utility Evaluation at Eglin Air Force Base successfully completed. F-35 completes more than 5,000 flight hours. AETC declares Eglin AFB ready for training.
  - **2013** – F-35 completes first in-flight dual refueling. 100<sup>th</sup> F-35 completes production in Fort Worth. F-35A completes 3-year clean wing flutter testing. First F-35C production model delivered. The first four F-35s arrive at Nellis AFB for operational testing. Marine Corps' conduct first operational F-35B vertical landing. U.K. announces RAF Marham in Norfolk as home for F-35. First international student flies F-35. U.S. services declare IOC dates. F-35A completed its first in-flight missile launch with AIM-120 C5 AAVI. Australia recommitted to their program of record which includes purchasing 100 aircraft beginning in LRIP 10. \$4.5 billion reduction in acquisition, operating and support costs reflected in the SAR 12. Cameri, Italy, FACO operations commenced in July. Netherlands officially announces F-35 win in fighter replacement competition. Contract agreements for LRIP 6 and 7 were signed for 71 aircraft. F-35B completes successful ship suitability testing aboard USS Wasp.