

F-35 Lightning II Program Status and Fast Facts

4Q 2015

Highlights of the Last Three Months

- Hill AFB celebrates its first operational F-35As with an Arrival Ceremony. **(Oct. 14)**
- The F-35C completes the second ship trials (DT-2) aboard the USS Dwight D. Eisenhower (CVN 69), completing 66 catapults and arrestments four days early. **(Oct. 10)**
- Norway's first F-35A completes first flight. **(Oct. 6)**
- The Royal Australian Air Force (RAAF) completes the first fuel transfer from a RAAF KC-30A Multi-Role Tanker Transport (MRTT) to an F-35A at Edwards AFB. **(Sept. 28)**
- The Air Force's first two combat coded F-35As fly their first missions at Hill AFB. **(Sept. 26)**
- Norway receives its first F-35A at roll out ceremony in Fort Worth, Texas. **(Sept. 22)**
- AL-1, Italy's first F-35A produced at Cameri, Italy FACO, completes its first flight and is the first F-35 to fly in international airspace. **(Sept. 7)**
- Hill AFB receives its first two operational F-35As. **(Sept. 2)**
- The U.S. Secretary of the Air Force Deborah Lee James visits the Fort Worth production facility. **(Aug. 26)**
- The Italian Air Force completes the first fuel transfer from a KC-767A to an F-35A at Edwards AFB. **(Aug. 6)**
- USMC declares F-35B Initial Operational Capability with 10 jets at MCAS Yuma. **(July 31)**
- F-35B completes Operational Readiness Inspection at MCAS Yuma. **(July 20)**
- Hill AFB reactivates the 34th Fighter Squadron in preparation to receive its first F-35A. **(July 17)**
- F-35s have flown more than **42,000** cumulative flight hours since Dec. 2006.

F-35 Delivery Status

162 F-35s have been delivered to the Department of Defense as of Oct. 20:

- 142 Low Rate Initial Production (LRIP) Aircraft
 - 81 F-35As (including four international aircraft)
 - 43 F-35Bs (including three international aircraft)
 - 18 F-35Cs
- 20 System Development and Demonstration (SDD) aircraft complete the test and development fleet:
 - Edwards AFB, Calif. - four F-35As.
 - PAX River NAS, Md. - five F-35Bs and four F-35Cs.
 - This count includes six static aircraft and AA-1 stationed around the world.

Program Status

- 2015 SDD flight test activity totals through Oct. 17:
 - F-35A Flight Science aircraft have flown 183 times
 - F-35B Flight Science aircraft have completed 263 flights
 - F-35C Flight Science aircraft have flown 225 times
 - The Mission Systems Test Aircraft have flown 419 times

Planned Quantities

USAF	1,763 F-35As
DoN (USN/USMC)	680 F-35B/Cs
U.K. RAF/RN	138 F-35Bs
Italy	60 F-35As/30 F-35Bs
Netherlands	37 F-35As
Turkey	100 F-35As
Australia	100 F-35As
Norway	52 F-35As
Denmark	30 F-35As

Current as of Oct. 22, 2015

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Canada	65 F-35As
Israel	33 F-35As
S. Korea	40 F-35As
Japan	42 F-35As

Funding

- Long-lead funding LRIP lot 10 (94 aircraft)
- Long-lead funding LRIP lot 9 (57 aircraft)
- Full funding approved for LRIP lot 8 (43 aircraft)
- Full funding approved for LRIP lots 7 (35 aircraft)
- Full funding approved for LRIP lots 6 (36 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. DOD announced an agreement known as Blueprint for Affordability in July 2014, aimed at reducing the price of an F-35 to the equivalent of today's 4th generation fighters by the end of the decade.
- The U.S. government stated the projected cost of an F-35 purchased in 2018 will be \$85 million. That's the equivalent of \$75 million in FY 2012 dollars.
- In 2014 the DOD announced a more than \$500 million reduction in concurrency costs over the first five production lot contracts.
- The LRIP 8 contract reflects an average airframe unit cost approximately 3.5 percent lower than the LRIP 7 contract signed in 2013 and a 57 percent reduction since LRIP 1.
- 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
- LRIP 8 Aircraft Costs (not including engine):
 - 19 F-35As CTOL-\$94.8 million/jet
 - 6 F-35B STOVL - \$102.0 million/jet
 - 4 F-35C CV - \$115.7 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

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

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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
Length	51.4 ft / 15.7 m	51.2 ft / 15.6 m	51.5 ft / 15.7 m
Height	14.4 ft / 4.38 m	14.3 ft / 4.36 m	14.7 ft / 4.48 m
Wingspan	35 ft / 10.7 m	35 ft / 10.7 m	43 ft / 13.1 m
Wing area	460 ft ² / 42.7 m ²	460 ft ² / 42.7 m ²	668 ft ² / 62.1 m ²
Horizontal tail span	22.5 ft / 6.86 m	21.8 ft / 6.65 m	26.3 ft / 8.02 m
Weight empty	29,300 lb	32,300 lb	34,800 lb

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Internal fuel capacity	18,250 lb / 8278 kg	13,500 lb / 6,125 kg	19,750 lb / 8,960kg
Weapons payload	18,000 lb / 8,160 kg	15,000 lb / 6,800kg	18,000 lb / 8,160 kg
Standard internal weapons load	<ul style="list-style-type: none"> • 25 mm GAU-22/A cannon • Two AIM-120C air-to-air missiles • Two 2,000-pound GBU-31 JDAM guided bombs 	<ul style="list-style-type: none"> • Two AIM-120C air-to-air missiles • Two 1,000-pound GBU-32 JDAM guided bombs 	<ul style="list-style-type: none"> • Two AIM-120C air-to-air missiles • Two 2,000-pound GBU-31 JDAM guided bombs
Maximum weight	70,000 lb class	60,000 lb class	70,000 lb class
Propulsion* (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
Speed (full internal weapons load)	Mach 1.6 (~1,200 mph)	Mach 1.6 (~1,200 mph)	Mach 1.6 (~1,200 mph)
Combat radius (internal fuel)	>590 nm / 1,093 km	>450 nm / 833 km	>600 n.mi / 1,100 km
Range (internal fuel)	>1,200 nm / 2,200 km	>900 nm / 1,667 km	>1,200 n.mi / 2,200 km
Max g-rating	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 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 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.

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- 2013** – F-35 completes first in-flight dual refueling. 100th 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. An F-35B successfully employed a GBU-32 Joint Direct Attack Munition (JDAM) weapon against a fixed ground test target. The first Netherlands F-35 pilot took to the skies. Lockheed Martin celebrated the inauguration of the 100th F-35
- 2014** – Royal Air Force Squadron Leader Hugh Nichols, an instructor pilot, completed the U.K.’s first F-35B vertical landing at Eglin AFB. The first F-35A with a Magellan-manufactured horizontal tail assembly successfully flew for the first time. The names of the first two Australian pilots selected to undergo training in the U.S. on the F-35A announced. The first Alenia Aermacchi-manufactured wing components installed flew on AF-44. Luke AFB received their first of 144 F-35s in March. Republic of Korea selected F-35A to replace its fighter fleet. Eglin AFB began night training program. Eglin surpassed 100 pilots and 1,000 maintainers trained. Australia announces additional procurement of 58 aircraft. The Turkish Ministry of Defence announced its intent to purchase the country's first two F-35As. An F-35B sequentially engaged two aerial targets with two AIM-120 AMRAAMs for the first time during a Weapon Delivery Accuracy mission. The final F-35A delivered to Eglin AFB, marking the 58th Fighter Squadron as the first complete Air Force F-35A squadron. U.S. DOD announced an agreement aimed at reducing the price of an F-35 to the equivalent of today's 4th generation fighters by the end of the decade known as Blueprint for Affordability. The first F-35B assigned to VMFAT-501 arrived at Marine Corps Air Station Beaufort. The F-35B completed required wet runway and crosswind testing at Edwards Air Force Base, California. First pipeline class of F-35 crew chiefs graduated from Eglin AFB training center. The Department of the Navy decided to base F-35C aircraft at NAS Lemoore, California. The F-35C completed its first phase of developmental test (DT) aboard an aircraft carrier Nov. 14, three days ahead of schedule.
- 2015:** Turkey announced its decision to order four more F-35As. Royal Air Force Lakenheath, United Kingdom, was selected as the first U.S. Air Force base in Europe. Nellis AFB received its first F-35A as part of fleet for the USAF Weapons School. The first F-35C for the U.S. Marine Corps touched-down at Eglin AFB. Four F-35As from the 61st Fighter Squadron at Luke Air Force Base, Arizona, flew the first ceremonial flyover of F-35s at a public event. Squadron Leader Andrew Jackson, Australia’s first F-35A pilot began training at Eglin AFB. Israel signed a contract to buy 14 additional F-35 fighter jets. The Dutch Parliament approved an order for the nation’s first production batch of eight F-35As. The first internationally built F-35A rolled out of Italian FACO. Luke AFB officially began training pilots. Australia’s first F-35A pilot, Squadron leader Andrew Jackson, flew his first flight at Eglin AFB. The Edwards ITF completed F-35 aerial refueling testing for the KC-135 SDD flight test program. The F-35B completed Climatic Chamber testing. Marines complete Operational Test 1 (OT-I) with six F-35Bs aboard the USS Wasp. Luke AFB conducted a change of mission ceremony to formally include the F-35 as part of the wing’s new mission statement. The F-35B successfully released first UK Paveway IV bomb. Marines conducted the first F-35B operational ordnance expenditures at MCAS Yuma. Hill AFB reactivated the 34th Fighter Squadron in preparation to receive their first F-35A. F-35B completes Operational Readiness Inspection at MCAS Yuma ahead of USMC IOC declaration. USMC declares F-35B Initial Operational Capability with 10 jets at MCAS Yuma. The Italian Air Force completes the first fuel transfer from a KC-767A to an F-35A at Edwards AFB. Secretary of the Air Force Deborah Lee James visited the Fort Worth facility for the first time. Hill AFB received first two F-35As, AF-77 and AF-78. AL-1 became the first F-35 to fly outside the U.S. and it is also the first F-35 manufactured outside the U.S. at the Italian FACO in Cameri Italy. The first F-35A Norway Delivery Ceremony was held at the Lockheed Martin Fort Worth facility. Hill AFB flew the first combat coded F-35As for the first time as part of the 34th Squadron. The Royal Australian Air Force (RAAF) completed the first fuel transfer from a RAAF KC-30A Multi-Role Tanker Transport (MRTT) to an F-35A at Edwards AFB. Norway’s first F-35A accomplished first flight. F-35C completed DT-II ship trials aboard the USS Eisenhower, completing 66 catapults and arrests four days early. Hill AFB celebrated the arrival of their first F-35As with an Arrival Ceremony at Hill.