

Lt. Gen. Bogdan Roundtable Roll-Up
February 10-11, 2016

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Cost of making pricey US fighter jet on decline: General
The Express Tribune
February 11, 2016

The cost of making the US military's futuristic F-35 fighter jet — already the most expensive weapons project in history — is on the decline, the officer in charge of the program said Wednesday.

"Production costs continue to come down," US Air Force Lieutenant General Chris Bogdan told a news briefing. "When it comes to the price of the airplane and the price of the engine, it continues to come down lot after lot."

'JF-17 thunder fighter has capability to compete with any modern fighter jet'

The plane, including a version that can take off and land vertically, is supposed to form the backbone of the military's future fighter fleet, ensuring US dominance in the skies with radar-evading technology.

The military has already taken delivery of dozens of the planes, but new batches continue to be refined and tested, with more than a few bumps in the road.

In the latest blow to the program, engineers uncovered a slew of flaws during extensive testing of the newest versions of the F-35 Joint Strike Fighter, a Pentagon report out last week found, adding to a litany of issues including software bugs, technical glitches and cost overruns.

Still, starting in 2018, the F-35 A may reach a price tag for US military and foreign clients of about \$80-85 million, Bogdan said.

The Pentagon just inked a deal with enginemaker Pratt and Whitney that could reduce costs on the order by two to three percent, he added.

Twin-engine fighter: Pakistan in talks with Russia to buy Su-35 jets

And it is working on an agreement with Lockheed Martin aimed at further reducing production costs down the line, Bogdan said.

He acknowledged some delays were expected but that “most of the work for the SDD (system development and demonstration) is going to be done by the start of 2018.”

The Pentagon has budgeted nearly \$400 billion for a total of 2,443 F-35 aircraft.

India concerned after Pakistan’s JF-17 export order

Nine international partners including Britain, Canada and Turkey are helping pay for the jet’s development and are buying hundreds more of the planes.

<http://tribune.com.pk/story/1044767/cost-of-making-pricey-us-fighter-jet-on-decline-general/>

F-35 JSF development programme to complete in autumn 2017
Air Force Technology
February 11, 2016

Executive officer of the F-35 Lightning II joint strike fighter (JSF) programme has said that the aircraft development is scheduled to be completed in the autumn of 2017.

According to US Air Force (USAF) lieutenant general Christopher C. Bogdan, the development programme is moving forward while addressing various challenges including incorporating fixes to address the current flight restrictions on lightweight pilots.

Currently, the programme has 419 deficiencies to be corrected. So far, 700 to 800 deficiencies have already been addressed.

Bogdan said: "In the big picture, I would tell you that the programme right now is accelerating, growing and changing."

"The mark of a good programme is you find the problems, you solve the problems and you keep the programme moving forward without derailing it.

"What we're trying to do right now is work toward that very large \$50bn-plus contract and turn that into a modernisation programme."

The problems observed in the programme include issues with software, hardware, and the Autonomic Logistics Information System (ALIS).

Bogdan added that due to a possible risk of neck injury should ejection be necessary, lightweight pilots are restricted from flying the F-35s.

For a pilot weighing between 103lb and 136lb, the odds of that person having to eject and then being injured in the ejection are one in 50,000.

The changes being implemented include a 'heavy / light' weight switch and when in the 'light' position, the seat would delay the parachute's extraction by milliseconds if the pilot had to eject, so the shock and stress on the neck would be reduced.

As part of the programme, a restraining device also was sewn into the risers behind the parachute so that if a lightweight pilot were to eject at a 'weird angle' it would stop the pilot's head from going backward.

The head restraint and the seat switch have been tested, and they work, adding that those fixes are ready to go into the field and in production by the end of this year.

In addition, the helmet's weight has to be reduced from 5.1lb to between 4.6 and 4.8lb.

Bogdan noted that the USAF's announcement to buy 43, rather than 48 F-35s in fiscal 2017 is 'almost a non-news event'. He explained that the intention is to defer purchases, not cut aircraft.

The programme is aimed at delivering more than 870 airplanes over the next six years.

<http://www.airforce-technology.com/news/newsf-35-jsf-development-programme-to-complete-in-autumn-2017-4807823>

US Moving Forward With F-35 Program
Eurasia Review
Lisa Ferdinando
February 11, 2016

The F-35 Lightning II joint strike fighter program is moving forward while addressing various challenges, the program's executive officer said Wednesday.

"In the big picture, I would tell you that the program right now is accelerating, growing and changing," Air Force Lt. Gen. Christopher C. Bogdan said at a media roundtable in Arlington, Virginia.

He detailed a number of challenges in the program, including incorporating fixes to address the current flight restrictions on lightweight pilots.

"The mark of a good program is you find the problems, you solve the problems and you keep the program moving forward without derailing it," he said.

The development program, he said, is scheduled to be completed in the fall of 2017.

"What we're trying to do right now is work toward that very large \$50-plus-billion contract and turn that into a modernization program," he said, adding that the program will have to be more efficient than has been the case in the last 15 or more years.

Addressing Issues, Moving Forward

The program currently has 419 deficiencies to be corrected, Bogdan said, explaining that the figure is "not that many." Despite the challenges, he added, the program is advancing.

"We are making progress," the general said. "Sometimes it's not as fast as we want. Sometimes it's messy. Sometimes we have setbacks."

The problems include issues with software, hardware, and the Autonomic Logistics Information System, or ALIS. He noted that 700 to 800 deficiencies already have been addressed.

Possible Dangers for Lightweight Pilots

Due to a possible risk of neck injury should ejection be necessary, lightweight pilots are restricted from flying the F-35s. For a pilot weighing between 103 and 136 pounds, Bogdan said, the odds of that person having to eject and then being injured in the ejection are one in 50,000.

The changes being implemented include a “heavy/light” weight switch, the general said. When in the “light” position, the seat would delay the parachute’s extraction by milliseconds if the pilot had to eject, so the shock and stress on the neck would be reduced, he explained.

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The head restraint and the seat switch have been tested, and they work, he said, adding that those fixes are ready to go into the field and in production by the end of the year.

Meanwhile, Bogdan said, the helmet’s weight has to be reduced from 5.1 pounds to between 4.6 and 4.8 pounds. That change is lagging behind the other fixes by at least eight or nine months.

“I don’t like that,” he added, noting that all three solutions must be in place before the restriction on lightweight pilots can be lifted.

Air Force Deferring Orders

Bogdan said the Air Force’s announcement yesterday that it intends to buy 43, rather than 48, F-35s in fiscal year 2017 is “almost a non-news event.” The Air Force is deferring purchases, not cutting airplanes, he explained.

The Navy kept its fiscal 2017 “C” models of the jet at four, and the Marine Corps went from 14 to 16 airplanes for the “B” model, he said, noting that amounts to a net loss of three airplanes for the U.S. services.

The program plans to deliver more than 870 airplanes over the next six years, Bogdan said, adding that one can “barely measure” the reduction from the Air Force in that timeframe, he said.

The general said he is looking at the program “holistically,” taking into account international partners as well as possible future customers.

<http://www.eurasiareview.com/11022016-us-moving-forward-with-f-35-program/>

Pentagon budget 2017: Five-year plan funds but slows purchase of 404 F-35s

IHS Jane's Defence Weekly

Marina Malenic

February 10, 2016

Key Points

- The United States plans to buy 404 F-35s over the next five years
- An acceleration of US orders expected in 2018 will now occur in 2021 instead

The US Defense Department (DoD) has requested funding for 404 Lockheed Martin F-35 Lightning II Joint Strike Fighters over the next five years, known as the Future Years Defense Program (FYDP), but a long awaited acceleration of orders will not occur until 2021, according to budget documents and officials.

From fiscal year 2017 (FY 2017) through FY 2021, the Pentagon still plans to procure 404 jets - specifically, 63 F-35s in FY 2017, 70 in FY 2018, 80 in FY 2019, and 86 in FY 2020, according to budget documents released on 10 February. The ramp-up would instead occur in FY 2021 when the US expects to order 105 F-35s, Pentagon F-35 programme manager Lieutenant General Christopher Bogdan said during a 10 February press briefing.

Further, the order defers 45 conventional takeoff and landing (CTOL) A-model jets for the US Air Force (USAF) over the FYDP while accelerating orders of B- and C-model aircraft for the US Navy (USN) and US Marine Corps (USMC) over the same time period. The USN is purchasing carrier variant C-models for its own pilots and a combination of short-takeoff and landing (STOVL) B-models and some C-models for the USMC.

Specifically, the USAF would purchase 243 F-35As through FY 2021, while the Department of the Navy would purchase 64 F-35Cs, and 97 F-35Bs. The Pentagon's entire programme of record remains unchanged at 2,457 aircraft.

The USMC declared the F-35B combat-ready in July 2015, and the USAF is expected to do the same with the F-35A in August. The USN will be the last to declare its variant operationally ready by early 2019.

Meanwhile, the USN also plans to buy two more Boeing F/A-18E/F Super Hornets with FY 2017 overseas contingency operations (OCO) money and another 14 over the FYDP because of a shortfall in carrier-based strike aircraft.

<http://www.janes.com/article/57922/pentagon-budget-2017-five-year-plan-funds-but-slows-purchase-of-404-f-35s>

F-35 Chief Lays Out Biggest Development Risks

Defense News

Lara Seligman

February 10, 2016

Ahead of a fast-approaching deadline for the US Air Force to declare its variant of the F-35 joint strike fighter operational this summer, the general in charge of the program laid out the biggest risks ahead in development of the fifth-generation fighter jet.

During a roundtable with reporters Wednesday, Lt. Gen. Chris Bogdan, head of the F-35 joint program office (JPO), stressed that the Pentagon and industry team are making great strides. The team has completed 80 percent of the plane's system development and demonstration (SDD) program, he said.

Meanwhile, the JPO is in final negotiations with contractor Lockheed Martin on the ninth and tenth batches of the jet, and expects to get the unit cost down to the target of \$80 to \$85 million by 2019.

Beyond 2019, Bogdan expects the price-per-jet to come down even more as the program adds international customers and generates additional savings with an expected bulk purchase starting in FY19 through FY21. This so-called "block buy" could yield well over \$2 billion in savings over three years for the 14 international partners, Bogdan said.

But despite progress in maturing the program and bringing down the cost, Bogdan still sees several areas of risk before the Air Force declares initial operational capability with its F-35A models on Aug. 1. Overall, there are 419 deficiencies in the SDD program the JPO must mitigate, he said.

Autonomic Logistics Information System

For the F-35 program, the number one area of risk is the Autonomic Logistics Information System (ALIS), Bogdan said. ALIS is the backbone

to the F-35 fleet, designed as a kind of internal diagnostic system that tracks the health of each part of each plane worldwide.

As the JPO updates ALIS by way of new increments, the team is still trying to fix many of the original problems, Bogdan said.

“We’re adding significant capability to ALIS at the same time trying to fix many of the things that we didn’t get fixed when we first deployed it,” Bogdan said. “It is a software-intensive system that connects to almost every piece of the F-35 program.”

The Pentagon’s director of operational test and evaluation also raised concern about ALIS in his annual report, particularly regarding cyber deficiencies.

“[ALIS] continues to struggle in development with deferred requirements, late and incomplete deliveries, high manpower requirements, multiple deficiencies requiring work-arounds, and a complex architecture with likely [but largely untested] cyber deficiencies,” Michael Gilmore wrote in his annual report.

The JPO aims to field the next increment, ALIS 2.02, on time, followed by ALIS 3.0 18 months to two years later, Bogdan said.

Software Development

Behind ALIS, the biggest risk to the F-35 program is software development, Bogdan said. The JPO is currently working to finish the next increment of software, Block 3i, as well as the final software block required for full war-fighting capability, Block 3F. The Marine Corps declared its F-35B models operational with Block 2B software last summer; the Air Force needs Block 3i to do the same this summer.

The JPO is still seeing some problems with software “stability” — a measure of how well the sensors work — and is behind in getting mature versions to flight test, Bogdan said. As the team adds capability to Block 3i and Block 3F, the stability of the system is not improving, he explained. The root cause is a timing misalignment of the software of the plane’s sensors and the software of its main computers, he said.

“If you don’t get that right, the system just clogs,” Bogdan said. “We’re seeing as we add different radar modes and as we add different capabilities to the [distributed aperture system] and the [electro-optical targeting system] that the timing of the software of the sensors to the timing of the software of the main computers is misaligned, and when it gets misaligned the system kind of chokes.”

The JPO is seeing this choking effect, where the plane's systems shut down and need to be rebooted, about once every four flight hours with both 3i and 3F software, Bogdan said. The goal is to get to one event every eight or nine flight hours, which is in line with legacy airplanes, he said.

The JPO has until May to fix or at least mitigate the stability problems on Block 3i before the Air Force's Aug. 1 IOC date could be impacted, Bogdan said.

"There are 14 different elements we are looking at for Air Force IOC," Bogdan stressed. "The two that are red right now are software and ALIS."

Reprogramming Labs

Another area of risk for the program is delays at the so-called "reprogramming" laboratories that will build mission data files (MDFs), a vast databank of information needed for combat that can be loaded into the plane. Just one reprogramming lab is currently up and operating, and it is overloaded with orders from international partners as well as the US services, Bogdan said.

"We have so many customers in the next three years that require mission data files, partners as well as the services as well as different [areas of operations] that the one lab we do have up and operating right now, the US reprogramming lab, is just bearing down and working as hard as they can," Bogdan said. "It's just a throughput issue."

The MDF is a critical capability that enables the F-35 to be a "smart" plane, Bogdan explained. The MDF compiles all the information about different assets in an area - from the friendly jets to the threats - in a "brick" that operators can load into the airplane as a kind of reference volume.

"When the radar is working and it sees a particular radar signature, it can go to the lookup tables in the MDF and say, 'aha, that's a Mig31,'" Bogdan said, emphasizing that the MDF will lend the F-35 the ability to provide the pilot with the clearest battlefield picture of any modern platform.

<http://www.defensenews.com/story/defense/air-space/strike/2016/02/10/f-35-chief-lays-out-biggest-development-risks/80202432/>

Pentagon Upbeat On F-35 Savings For International Buyers
Investor's Business Daily
Gillian Rich
February 10, 2016

The Pentagon and Congress haven't yet agreed on a bulk order for Lockheed Martin's (LMT) F-35, but international buyers who want to participate can expect "massive savings," even if the U.S. doesn't join until later, according to the stealth fighter program's chief.

The Defense Department's new budget request doesn't include early funding or seek authorization for a block buy in fiscal 2017.

But Air Force Lt. Gen. Chris Bogdan, the F-35 program executive officer, told reporters Wednesday that partner countries and foreign military sale customers would still want to do a three-year block buy starting in 2018.

"Even if U.S. services decide not to become part of the block buy in 2018 but come in later, we are still looking at \$2 billion in savings," he said at a briefing.

Defense acquisition officials hope a block buy order for up to 500 planes can cut costs for the \$400 billion program.

But the Pentagon's top weapons tester recently cast doubt on prospects for savings, noting the risk of going ahead with a block buy while technical issues still need to be fixed.

A report from the Operational Test & Evaluation office last week said a block buy could mean large batches of faulty planes enter service that will need several expensive fixes, resulting in no net cost savings.

"The department should carefully consider whether committing to a 'block buy,' composed of three lots of aircraft, is prudent given the state of maturity of the program," the report said.

Lockheed shares closed down 0.9% to 213.95 in the stock market today.

<http://www.investors.com/news/foreign-partners-will-see-f-35-block-buy-savings-without-the-u-s/>

Pentagon Still Plans F-35 Increase
Wall Street Journal

Doug Cameron
February 10, 2016

Plans by the Air Force to trim its F-35 Joint Strike Fighter order this year won't affect a planned long-term increase in output to make the plane more affordable, a senior Pentagon official said Wednesday.

Production is expected to rise from more than 50 this year and climb every year until the mid-2020s, peaking at 160 to 170 jets, Gen. Chris Bogdan, the military chief of the F-35 program, told reporters.

Boosting production is crucial to efforts to reduce the average cost of the radar-evading jets as the Pentagon looks for more export deals at a time when the U.S. has again slowed its own purchases.

The Pentagon had at one point hoped to build as many as 200 jets a year, though the proposed rise to 170 is at the top end of many analysts' forecasts. The defense department budget for fiscal 2017 cut more than \$11 billion from weapons spending, including five F-35s.

Gen. Bogdan's comments contrasted with concerns raised this week by a senior Pentagon official about efforts to boost production.

"It's unclear we'll be able to get this program back to the [production] ramps that we had hoped for previously," Pentagon Comptroller Mike McCord said Tuesday.

Lockheed Martin Corp., the lead contractor, delivered 45 planes last year and expects this to rise to 53 in 2016 and to around 100 from 2018.

"The program right now is accelerating, growing and changing" Gen. Bogdan said. He said that this week's move to trim orders for the Air Force wouldn't harm the effort to cut the average cost of the main model to between \$80 million and \$85 million, by 2019, when adjusted for inflation. This compares to around \$100 million for the batch currently being negotiated.

Gen. Bogdan said he expected to reach a final agreement in March with Lockheed on the next round of aircraft.

The Pentagon reached a preliminary deal with United Technologies Corp's Pratt & Whitney unit last month for two more batches of engines for the jets.

He said efforts to secure a three-year deal potentially covering hundreds of jets and land two new overseas customers could cut the

cost further. The Pentagon has pushed back plans for a block-buy of the planes by a year until fiscal 2019.

The Pentagon plans to invest up to \$100 million during the next year on cost-cutting efforts, building on the combined \$170 million spent by Lockheed and its two largest partners-- Northrop Grumman Corp. and BAE Systems PLC--during the past three years on reducing the cost of the plane.

Gen. Bogdan said he expected overseas deals would fill most of the gap left by the Pentagon's reduced purchase. He forecast total domestic and international sales of 873 jets between now and 2021--20 fewer than expected a year ago.

However, this includes a hoped-for deal involving as many as 60 jets from Canada, whose new Liberal government has reopened a long-running competition to supply new jets.

The defense department cut weapons spending from its fiscal 2017 budget to focus resources on the new Air Force tanker being built by Boeing Co., a new bomber contract awarded to Northrop Grumman Corp.--which is being protested by Boeing and Lockheed--and work on a new ballistic missile submarine.

The Air Force is due to declare the F-35 combat ready in August, while Israel, the first overseas customer, is due to receive its initial planes in December.

<http://www.wsj.com/articles/pentagon-still-plans-long-term-f-35-increase-1455151328>

Joint Strike Fighter chief plays down F-35A deferrals
Flightglobal
James Drew
February 10, 2016

The head of the multinational F-35 programme Lt Gen Christopher Bogdan is playing down the US Air Force's decision to reduce its annual purchase of F-35A Lightning IIs from 60 to 48 per year until fiscal year 2021. He says the overall adjustment translates to just 20 fewer orders in the six years from 2016 to 2021 when accounting for other adjustments by the US Navy and Marine Corps and international orders.

That math doesn't delete Canada, which remains a programme partner but intends to withdraw and hold a competition to replace its CF-18s.

The air force was planning to buy 48 jets in budget year 2017 and then 60 per year thereafter, but will now procure 43 units in 2017, 48 in 2018 and then 48 per year through 2020. It expects to order 60 jets in 2021.

As the programme's largest customer with a firm requirement for 1,763 fighters, that reduction of 45 aircraft through this decade has some concerned about delayed modernisation in the face of new Russian and Chinese aircraft, and a repeat of the budgetary "death spiral" experienced by the Lockheed F-22 and Northrop Grumman B-2 programmes where cuts begot cuts.

Gen Larry Spencer, who retired last October as air force vice chief of staff, says the F-35A might have been the only "checkbook" the air force could turn to for monetary savings, but he warns against setting the programme on the same slope as the F-22 and B-2, which were cancelled prematurely due to expense and technical problems. "I remember when the F-22 decision was made, the rationale was that we had the F-35 coming," Spencer tells Flightglobal. "OK, well here we are and we're starting to slip it.

"There's no question for the air force about that 1,763 [aircraft requirement], but I just get nervous when we start slipping it. I just hope this is not the beginning of a slope that will continue."

Bogdan said at a briefing in Washington DC today that the deferral by the air force would raise the overall unit cost by "less than 1%".

"We have all kinds of puts and takes with our eight partners and three [foreign military sales] customers, both in 2017 and in the future," he says. "The plan last year was to build 893 airplanes [from fiscal 2016 to 2021]. Now we're going to build 873 airplanes."

Of those 873 aircraft, 54% are being procured by the US government. "Relative to the cost of the airplane and FMS commitment, it's a non-news event," Bogdan claims.

Aerospace analyst and former air force pilot Wayne Plucker of Frost & Sullivan says the F-35 hasn't quite "caught the maturity curve" yet with approximately 20% of developmental testing remaining, and the deferral of higher production rates to 2021 will save costly modifications later.

“There are enough individual problems out there that are interrelated and significant enough that a slowdown in procurement such that you don’t have to go back and fix a boat-load of aircraft is probably in the overall best interest [of the air force]. I think that’s a reflection of those issues because they’re not really solved issues. There’s some band-aids but they’re not long-term fixes.”

Bogdan says the number of technical problems that must be rectified stands at 419 deficiencies, which is “not that many” compared to two or three years ago.

The programme office’s largest concern is the F-35’s networked logistics system called Autonomic Logistics Information System, or ALIS, followed by mission system software issues related to the radar, sensors and sensor fusion algorithms.

<https://www.flightglobal.com/news/articles/joint-strike-fighter-chief-plays-down-f-35a-deferral-421798/>

Pentagon expects to reach \$15 bln F-35 deal with Lockheed in March
Reuters

Andrea Shalal
February 10, 2016

The Pentagon on Wednesday said it expects to reach agreement with Lockheed Martin Corp in March on contracts for the next two batches of F-35 fighter jets, orders worth about a combined \$15 billion that will lower the cost of each warplane to below \$100 million.

Air Force Lieutenant General Chris Bogdan, who runs the F-35 program for the Pentagon, said the negotiations with Lockheed were taking longer than expected because of differences over cost.

"I'm not rushing into a bad deal," Bogdan told reporters during an update on the Pentagon's biggest weapons program.

Lockheed and Pentagon officials had expected to reach a deal on contracts for the ninth and 10th batches of jets last year.

Lockheed is building three models of the F-35 for the U.S. military and nine international customers - Britain, Australia, the Netherlands, Norway, Turkey, Italy, Japan, Israel and South Korea. The Pentagon expects to spend \$391 billion to develop the plane and buy 2,457 of the supersonic, stealthy new warplanes.

Bogdan spoke to reporters a day after the U.S. Defense Department released its fiscal 2017 budget, which calls for spending of \$56.3 billion on 404 F-35 jets over the next five years, about 24 less than initially planned.

Bogdan said delays in 45 Air Force orders over that time would be offset by increased orders for the U.S. Navy, Marine Corps and foreign countries and would have a minimal effect on ongoing efforts to drive down the cost of the plane.

Over six years beginning in the current fiscal year, which ends Sept. 30, the program expects to order 873 jets, 20 less than planned last year, for U.S. and foreign customers, he said.

He said he still expected the jets to cost around \$80 million to \$85 million each by 2019, including inflation.

Bogdan said the program was about 80 percent done with its \$50-billion-plus development program for the jets, with the remaining flight tests to be completed in 2016 or 2017.

He said the Pentagon decided to delay its participation in a planned block purchase of F-35 jets until 2019, but international partners still planned to proceed with a deal in 2018 that he said could help drive the price of the airplanes even lower than the \$80 million target price.

A modernization program to upgrade the jets would begin in late 2018, about six to 12 months later than expected, he said.

<http://www.reuters.com/article/lockheed-fighter-idUSL2N15P2TM>

F-35 Program Moving Forward, Addressing Challenges, Official Says
U.S. Department of Defense

Lisa Ferdinando

February 10, 2016

The F-35 Lightning II joint strike fighter program is moving forward while addressing various challenges, the program's executive officer said today.

"In the big picture, I would tell you that the program right now is accelerating, growing and changing," Air Force Lt. Gen. Christopher C. Bogdan said at a media roundtable in Arlington, Virginia.

He detailed a number of challenges in the program, including incorporating fixes to address the current flight restrictions on lightweight pilots.

"The mark of a good program is you find the problems, you solve the problems and you keep the program moving forward without derailing it," he said.

The development program, he said, is scheduled to be completed in the fall of 2017.

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<http://www.defense.gov/News-Article-View/Article/654271/f-35-program-moving-forward-addressing-challenges-official-says>