

The following script is from "The F-35" which aired on Feb. 16, 2014. David Martin is the correspondent. Mary Walsh, producer.

The F-35 Joint Strike Fighter is the Pentagon's newest warplane and its most expensive weapons system ever -- nearly \$400 billion to buy 2,400 aircraft. To put that in perspective, that's about twice as much as it cost to put a man on the moon -- this at a time when the White House and Congress are fighting over ways to reduce the federal deficit and cuts in defense spending are forcing the Pentagon to shrink the size of the military.



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60 Minutes Overtime

Can the U.S. military's new jet fighter be hacked?

A computer named ALIS is the brain of the U.S. military's controversial new F-35 jet fighter. Is she vulnerable to cyber attack?

The Air Force, Navy and Marines are all counting on the F-35 to replace the war planes they're flying today. If it performs as advertised, the F-35 will enable U.S. pilots to control the skies in any future conflict against the likes of China or Russia. But the F-35 has not performed as advertised. It's seven years behind schedule and \$163 billion over budget, or as the man in charge of the F-35 told us, "basically the program ran itself off the rails."

[Chris Bogdan: Good morning.]

Lt. Gen. Chris Bogdan is the man in charge of the F-35 and every morning starts with problems that have to be dealt with ASAP. This morning it's a valve that's been installed backwards and has to be replaced.

Chris Bogdan: How long does it take?

Answer: It's about a seven day operation.

Chris Bogdan: OK. And now you know what I'm going to say next.

Answer: Yes sir.

Chris Bogdan: What am I going to say next?

Answer: You're going to say, "We're not going to pay for it."

Chris Bogdan: That's right. We're not going to pay for it.

Chris Bogdan: Long gone is the time where we will continue to pay for mistake after mistake after mistake.

When Bogdan took over the F-35 program a year ago, it was behind schedule, over budget and relations with the plane's manufacturer, Lockheed Martin, bordered on dysfunctional.

David Martin: How would you characterize the relationship between the Pentagon and Lockheed Martin?

Chris Bogdan: I'm on record after being in the job for only a month standing up and saying it was the worst relationship I had seen in my acquisition career.



Lt. Gen. Chris Bogdan

CBS News These planes coming off the Lockheed Martin assembly line in Fort Worth cost \$115 million a piece, a price tag Bogdan has to drastically reduce if the Pentagon can ever afford to buy the 2,400 planes it wants.

Chris Bogdan: I know where every single airplane in the production line is on any given day. You know why that's important? Because Lockheed Martin doesn't get paid their profit unless each and every airplane meets each station on time with the right quality.

David Martin: So if this plane doesn't get from that station to this station.

Chris Bogdan: On time with the right quality they're going to lose some of their fee. You've got to perform to make your profit.

David Martin: They must love you at Lockheed Martin.

Chris Bogdan: I try and be fair, David and if they want what I call "winner's profit," they have to act like and perform like winners, and that's fair.

Although the F-35 won't begin to enter service until next year at the earliest, pilots are already conducting test flights and training missions at bases in California, Florida, Maryland, Arizona and Nevada. It's supposed to replace virtually all of the jet fighters in the United States military. There's one model for the Air Force, another for the Navy – designed to catapult off an aircraft carrier – and a third for the Marines which seems to defy gravity by coming to a dead stop in mid-air and landing on a dime.

David Berke: This is a fighter that has amazing capabilities in a lot of ways.



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60 Minutes: Segment Extras

The F-35's Vertical Landing

Lockheed Martin's chief F-35 test pilot Alan Norman takes 60 Minutes into the cockpit of an F-35 for a first-hand look.

Lt. Col. David Berke says there's no comparison between the F-35 and today's jet fighters.
David Berke: I'm telling you, having flown those other airplanes it's not even close at how good this airplane is and what this airplane will do for us.

David Martin: We have planes that are as fast as this.

David Berke: You bet.

David Martin: And can maneuver just as sharply as this one.

David Berke: Sure.

David Martin: So why isn't that good enough?

David Berke: Those are metrics of a bygone era. Those are ways to validate or value an airplane that just don't apply anymore.



You can see from its angled lines, the F-35 is a stealth aircraft designed to evade enemy radars. What you can't see is the 24 million lines of software code which turn it into a flying computer. That's what makes this plane such a big deal.

David Berke: The biggest big deal is the information this airplane gathers and processes and gives to me as the pilot. It's very difficult to overstate how significant of an advancement this airplane is over anything that's flying right now.

Without the F-35, says Air Force Chief General Mark Welsh, the U.S. could lose its ability to control the air in future conflicts.

Mark Welsh: Air superiority is not a given, David. It never has been. And if we can't provide it everything we do on the ground and at sea will have to change.

"The biggest big deal is the information this airplane gathers and processes and gives to me as the pilot. It's very difficult to overstate how significant of an advancement this airplane is over anything that's flying right now."

Today's enemies – al Qaeda and the Taliban – pose no threat to American jets. But Welsh is worried about more powerful rivals.

Mark Welsh: We're not the only ones who understand that going to this next generation of capability in a fighter aircraft is critical to survive in the future of battle space and so others are going, notably now the Chinese, the Russians and we'll see more of that in the future.

And this is what the competition looks like – the Russian T-50 and China's J-20 Stealth Fighter. According to Welsh, they are more than a match for today's fighters.

Mark Welsh: If you take any older fighter like our existing aircraft and you put it nose to nose in, in a contested environment with a newer fighter, it will die.

David Martin: And it will die because?

Mark Welsh: It will die before it even knows it's even in a fight.

In aerial combat, the plane that shoots first wins, so it all comes down to detecting the enemy before he detects you. The F-35's combination of information technology and stealth would give American pilots what Marine Lt. Gen. Robert Schmidle describes as an astounding advantage in combat.

Robert Schmidle: I shouldn't get into the exact ranges because those ranges are classified, but what I can tell you is that the range at which you can detect the enemy as opposed to when he can detect you can be as much as 10 times further when you'll see him before he'll ever see you and down to five times...

David Martin: I want to nail that down here. If the F-35 was going up against another stealth aircraft of the kind that other countries are working on today, it would be able still to detect that aircraft at five to 10 times the range?

Robert Schmidle: You would be safe in assuming that you could detect that airplane at considerably longer distances than that airplane could detect you.

The F-35's radars, cameras and antennas would scan for 360 degrees around the plane searching for threats and projecting, for example, the altitude and speed of an enemy aircraft, onto the visor of a helmet custom-fitted to each pilot's head.

It is so top-secret no one without a security clearance has ever been allowed to see what it can do...

[Alan Norman: If you want to head up to my office, come on up.]

...until Lockheed Martin's chief F-35 test pilot Alan Norman took us into the cockpit for a first-hand look.

Alan Norman: So, if you put that over your face . . .

That blindfold is to make sure I can see only what cameras located in different parts of the plane project onto the visor.

Alan Norman: You're looking through the eyeballs of airplane right now. And you can even look down below the airplane. So you're looking actually through the structure of the airplane right now.

We've positioned 60 Minutes cameraman Tom Rapier underneath the plane so we can test the system.

David Martin: So now I look and there's Tom Rapier and he's giving me one finger up.

Alan Norman: You're the only person in the world that can see him with that imagery right now.

We're not allowed to show you what's on the visor because much of it is still classified. But wherever I turn my head, I can see what's out there.

Chris Bogdan: So there's a lot riding on that helmet, David, there's no doubt.

David Martin: How much does it cost?

Chris Bogdan: The helmet itself plus the computer system that is used to make the helmet work is more than a half million dollars.

But there have been problems with the helmet and when we visited the Marine Corps station in Yuma, Ariz., a malfunction caused a scheduled flight to be scrubbed.

In fact, on any given day more than half the F-35s on the flight line are liable to be down for maintenance or repairs.

Bugs and glitches in the plane first reveal themselves in testing at Edwards Air Force Base in California where every test flight is monitored and recorded as if it were a space flight.

The plane has to go through 56,000 separate tests – everything from making sure a bomb will fall out of the bomb bay to seeing what happens when it is dropped at supersonic speeds.

[Rod Cregier: Of course you never like to lose an aircraft.]

Col. Rod Cregier runs the test program.

Rod Cregier: You're taking an aircraft that's unknown and you're trying to determine does it do what we paid the contractor to make it do. Does it go to the altitudes, the air speeds? Can it drop the right weapons? We're trying to get all that stuff done before we release it for the war fighter, so that they can actually use it in combat.

David Martin: So are you basically the guy who has to deliver the bad news about the plane?

Rod Cregier: Sometimes it's hard to tell folks that their baby is ugly, but you have to do it because if you don't get it done, who else is gonna do it?

A number of surprisingly basic defects have been uncovered. The F-35 was restricted from flying at night because the wingtip lights, shaped to preserve the plane's stealth contours, did not meet FAA standards.



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60 Minutes: Segment Extras

Getting F-35 costs under control

David Martin speaks with Frank Kendall, the Pentagon's chief weapons buyer, about the problem-plagued F-35 Joint Strike Fighter program. What hap...

Chris Bogdan: When you hear something like that, you just kind of want to hit your head like this and go: "Multibillion dollar airplane? Wingtip lights? Come on!"

And then there are the tires, which have to be tough enough to withstand a conventional landing and bouncy enough to handle a vertical landing.

David Martin: We found out that the tires were wearing out two, three, four times faster than expected. Tires.

Chris Bogdan: Tires aren't rocket science. We ought to be able to figure out how to do tires on a multibillion dollar highly advanced fighter.

Lt. Gen. Schmidle remembers the day one of the planes delivered to the Marines had gaps in its stealth coating.

Robert Schmidle: They sent me the pictures within half an hour of the thing landing and I then sent them on to Lockheed Martin and said, "So talk to me."

David Martin: I got a feeling you said more than just "talk to me."

Robert Schmidle: Um, (laugh).

David Martin: Did you say, "What the hell?"

Robert Schmidle: You know Marines tend to be relatively direct in the way that we try to help people understand what our, what our particular concerns are.

Executives at Lockheed Martin declined our request for an interview and instead sent us this email saying, in part: “We recognize the program has had developmental and cost challenges and we are working with our customers, partners and suppliers to address these challenges.”

That stealth coating was repaired and the problem with the running lights fixed but, so far, not the tires. With about 35 planes a year coming off the Lockheed Martin assembly line, it seems awfully late to be discovering such basic flaws. That’s because early in the program the Pentagon counted on computer modeling and simulators to take the place of old-fashioned flight testing.

Frank Kendall: An old adage in the, in this business is, “You should fly before you buy.” Make sure the design is stable and things work before you actually go into production.

Frank Kendall is the under secretary of Defense for Acquisition – the Pentagon’s chief weapons buyer.

Frank Kendall: We started buying airplanes a good year before we started flight tests.

David Martin: So you buy before you fly?

Frank Kendall: In that case yes.

David Martin: Just saying, it doesn’t sound like a good idea.

Frank Kendall: I referred to that decision as acquisition malpractice.

This May 2010 Pentagon memo detailed the “flawed...assumptions,” “unrealistic...estimates” and “a general reluctance to accept unfavorable information” that put the program seven years behind schedule and more than \$160 billion over budget. To stop the bleeding, Kendall pumped an extra \$4.6 billion into flight testing and froze production.

Frank Kendall: We need to face the truth in this business. We need to understand what works and what doesn’t.

David Martin: Is this F-35 program now under control?

Frank Kendall: Yes, it is.

Shortly after he spoke with us, Kendall issued this memo stating “progress is sufficient” to increase production next year. But, he warned, the plane’s software “is behind schedule” and “reliability...is not growing at an acceptable rate.”

Still, the Pentagon plans to buy as many as 100 F-35s a year by 2018.

David Martin: Has the F-35 program passed the point of no return?

Chris Bogdan: I don’t see any scenario where we’re walking back away from this program.

David Martin: So the American taxpayer is going to buy this airplane?

Chris Bogdan: I would tell you we’re going to buy a lot of these airplanes.

The fiscal 2015 request, to be released March 4, will include funds to buy 26 of the Air Force's model, six of the Marine Corps' short-takeoff and vertical-landing jets and two of the Navy's version for aircraft carriers, according to officials familiar with the plans, who asked not to be identified because the budget hasn't been made public.

Even with the decrease from past plans, the defense budget reflects pledges by officials to do all they could to insulate the costliest U.S. weapons program from federal budget cuts. Marillyn Hewson, chairman and chief executive of Bethesda, Md.-based Lockheed, predicted in a Feb. 10 interview that the company's F-35 program is "going to continue to grow and become a larger part of our portfolio."

Although the budget request will be down from the 42 fighters the Defense Department had projected it would buy next year, it's an increase from the 29 the Pentagon requested and Congress approved for the current fiscal year.

"It would be inappropriate to comment or speculate prior to the formal budget release," Lockheed spokeswoman Laura Siebert said in an e-mail when asked about the F-35 plans.

The projected price tag of \$391.2 billion for an eventual fleet of 2,443 F-35s is a 68 percent increase from the estimate in 2001, measured in current dollars. The number of aircraft is 409 fewer than called for in the original program. The Pentagon's chief tester has repeatedly questioned the plane's progress, finding last month that the fighter wasn't sufficiently reliable in training flights last year.

The five-year defense budget plan also calls for 55 F-35s for the U.S. military in fiscal 2016, seven fewer than planned, and adds a projection for 96 of the jets in 2019. The figures don't include purchases by other nations that are partners for the F-35. Among them are Britain, Norway, Australia, Italy and Canada.

Subcontractors on the F-35 include Northrop Grumman, BAE Systems and United Technologies' Pratt & Whitney military engine unit.

Under last year's bipartisan budget agreement, the Pentagon must reduce its total budget request by about \$43 billion to stay within a cap of about \$498 billion for fiscal 2015.

The spending request, not including spending on war operations, will be about \$496 billion, with plans for it to increase to about \$535 billion in fiscal 2016, officials said.

"Will there be cuts across the board?" Defense Secretary Chuck Hagel said this month in outlining the general approach he's taking to hitting the budget cap. "Of course there will. You can't do it any other way. Are there going to be adjustments across the board? Of course."

— **Bloomberg News**

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