

Is the Joint Strike Fighter the right plane for Australia?

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IMAGE: A LOCKHEED MARTIN F-35 JOINT STRIKE FIGHTER IN FEBRUARY 2013. (LOCKHEED MARTIN)[LINK TO LARGER IMAGE.](#)

The JSF is not terribly fast and it's not terribly agile, and the high tech helmet could take the pilots head off if there is a mishap. **Sarah Dingle** investigates the over budget and over due Joint Strike Fighter

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Sarah Dingle: Hi, I'm Sarah Dingle. And have I got a deal for you, Australia. I'm going to sell you a plane which can do things you can't even fully describe. In fact, no one can, because it's just an untested idea on paper. 14 years later, and you still don't have a plane, but the price tag has more than doubled. And in fact the cost could keep rising. At the end of the day, you'll pay whatever I ask.

Finally, this unfinished plane overheats on the tarmac. To cool it down, you have to open some of its doors every ten minutes, even when you're flying. It's not faster than other planes, and it doesn't handle well. Chinese hackers could hack your plane out of the sky. And if you weigh less than 75 kilos and you need to eject, its helmet could actually kill you.

Sound good? If you still want in, you are the Australian government, and the plane is the Joint Strike Fighter, our next fleet of fighter jet and the most expensive weapons system in world history.

14 years and billions of dollars ago, in our haste to throw money at a paper plane, Australia abandoned due process.

Air Commodore Garry Bates:

Garry Bates: Basically the rule book was being rewritten in parallel to the decisions being made, and the acquisition process became defunct.

Sarah Dingle: Australia is hanging the air defence of our country on the Joint Strike Fighter, billed as an advanced stealth, agile fighter with cutting-edge software. The jet is still under development at the factory of global

aerospace company Lockheed Martin in Fort Worth, Texas. We've committed to 72 JSFs, and the recent White Paper hinted we could buy more next decade. Now the man who had to sign off on the testing and evaluation for the Joint Strike Fighter for Australia, Dr Keith Joiner, has spoken exclusively to *Background Briefing*. He wants the whole JSF project brought to a screeching halt.

Keith Joiner: So we need to get a little bit of spine back here and stand up to the company. The senate should put a dirty great big stop work order on any sign-up to any production aircraft that we've not already committed to.

Sarah Dingle: He's told *Background Briefing* that despite years of increasingly disturbing test reports coming out of the US, Australia's apparently unconcerned.

Keith Joiner: The test reports that we receive, my understanding is that they're not formally put through our test agencies for comment or feedback.

Sarah Dingle: When it comes to the Joint Strike Fighter program we are either rich optimists or we are fools?

Keith Joiner: Absolutely.

Sarah Dingle: The US is buying thousands of these jets. But they're now so over budget, the US may not be able to afford all of the jets it wants, and that poses a threat to the air force of our most important ally.

In his first Australian interview, the head of the JSF program at the supreme US auditing office reporting to Congress, Mike Sullivan, outlined his concerns to *Background Briefing*.

Mike Sullivan: If they don't get the capability that they wanted to get, either in terms of quantity or technical capability, they have to find some other way. They have to change the way they train or they have to buy other material or they have to look at their doctrine and go through all their threat scenarios again.

Sarah Dingle: A senior US air force strategist Colonel Michael Pietrucha has spoken out to *Background Briefing*, saying the US itself should pull the pin on the Joint Strike Fighter.

Colonel Pietrucha is a serving officer but is speaking here in a personal capacity.

Michael Pietrucha: I'd drop it like a hot rock.

Sarah Dingle: That's exactly what the Canadians have now done. Colonel Pietrucha says even the Pentagon top brass have questioned the plane and the unusual way in which it was commissioned.

Michael Pietrucha: Our own leadership in the building has called this acquisition malpractice. And there's just a point at which you can't effectively field something that you haven't completed the tests on.

Sarah Dingle: And *Background Briefing* can reveal the manager of Australia's Joint Strike Fighter program, RAAF's Air Vice Marshal Deeble, is unsure how many of Australia's jets are currently in production. He's being whispered the answers here by US Lieutenant General Chris Bogdan.

Christopher Bogdan: [whispering]... no more than 16.

Chris Deeble: No more than 16 aircraft...

Sarah Dingle: But you're not sure how many?

Christopher Bogdan: [Whispering]

Chris Deeble: We will get you the answer specifically about that. We'll take that on notice.

Sarah Dingle: Today on *Background Briefing*: Defence insiders question the wisdom of Australia's Joint Strike Fighter purchase, and ask; can we get out? [Audio: jet flying overhead]

It's a sunny day at the Royal Australian Air Force base in Williamtown, New South Wales.

So what were they?

Les Bowden: They're the Hawks, they're the trainers those ones, two-seat trainers, single engine. The Hornets are a little bit noisier...

Sarah Dingle: Les Bowden is a plane spotter. He's a military buff from way back, and he says he could die waiting for Australia's Joint Strike Fighter. When do you think they will arrive?

Les Bowden: 2018 they say. They say. We'll wait and see.

Sarah Dingle: You've been waiting a while already?

Les Bowden: Oh yeah, yeah. I can't wait long enough, I've gotta live long enough.

Sarah Dingle: The Joint Strike Fighter, or JSF, was supposed to be here in 2012. \$1.5 billion has been sunk into improvements at RAAF bases to prepare for its arrival.

Chris Doohan: Around this area now is the runway extension going nor-east...

Sarah Dingle: Chris Doohan works for JSF defence contractor BAE Systems, but today he's speaking in his other role as a local councillor.

Chris Doohan: I look forward to it, it's going to be a great thing when it's fully there.

Sarah Dingle: Does it bother you we don't know how much it is?

Chris Doohan: Yeah, that's an issue, that is an issue, no one likes not knowing what they're going to pay for. But considering it's for the protection of our country it's a great investment in the future of Australia and the defence of our country.

Sarah Dingle: What we're talking about is the biggest, most expensive, joint defence build in the world, involving eight partner nations.

Australia's jets were originally estimated at US\$40 million each, which the government says has now escalated to US\$90 million. But at this stage Australia is spending a total of almost AU\$18 billion on its Joint Strike Fighter program, that's more than \$200 million per plane. Despite it being the most expensive military item we've bought so far, it never went to tender.

[Music: Ricky Martin]

1998 in Australia. Ricky Martin's at the top of the charts, John Howard wins a GST election, and inside the Department of Defence, people are starting to worry about Australia's ageing fighter jets. We were going to need about 100 new planes. There were two American jets still in development. One of them was the JSF, and the other was the F-22. But the F-22 wasn't for sale.

In 1998, Paul Barratt was Australia's Secretary of Defence.

Paul Barratt: The discussion was around the F-22, or the F-35, the Joint Strike Fighter. One is designed specifically to be better than anything else in

the air in combat, and the other is designed to be an effective multi-purpose aircraft.

Sarah Dingle: The Joint Strike Fighter was designed to do a bit of everything. The other jet, the F-22, was explicitly designed for air superiority; basically, to win. The previous year the US had passed a law banning the export of F-22s.

Paul Barratt: The Defence Attaché expressed the opinion that the Americans simply wouldn't sell us the F-22. The Americans regarded that would be their jewel in the crown. I pricked up my ears at that, because I felt that if that was a candidate aircraft for us, we ought to test the idea that it would not be available to us. We're a very good and reliable ally, why can't we buy this aircraft?

Sarah Dingle: Did we really press the US on the F-22s?

Paul Barratt: Not that I'm aware of, no.

Sarah Dingle: What did they offer us instead?

Paul Barratt: The F-35 was the alternative.

Sarah Dingle: The F-35 was the Joint Strike Fighter.

Around that time, Federal Liberal MP Dennis Jensen was a defence analyst with the Defence Science and Technology Organisation. He's in no doubt as to which is the better plane.

Dennis Jensen: The F-22 absolutely spansks the JSF.

Sarah Dingle: The Americans were actively encouraging other nations to sign up to the Joint Strike Fighter, which at that stage was still on paper.

Dennis Jensen: The US had this program. They probably realised that it was going to be expensive. It also reduces costs for the US if there are more total airframes sold. This was a way for the US to get that capability more cheaply themselves.

Sarah Dingle: At the time there was major upheaval within Australia's Defence Department. In 1999 the then Defence Minister John Moore declared he'd lost confidence in Secretary Paul Barratt and sacked him.

By Christmas 2000, Air Commodore Garry Bates recalls the Defence Minister telling his troops he'd just boosted defence spending, and that they should toughen up.

Garry Bates: We had a direction that there was to be no more bad news.

Sarah Dingle: Who said to you 'don't give us any more bad news'?

Garry Bates: The Minister. It was to a gathering of all the star-ranked officers of Defence in Parliament House.

Sarah Dingle: Air Commodore Garry Bates was the then director-general of aerospace combat systems in the Defence Materiel Organisation. A defence white paper had just been released.

Garry Bates: In fact I remember his words. 'I've given you everything you've asked for, just get on with the job and don't give me any more bad news.'

Sarah Dingle: Air Commodore Bates says there were immediate consequences.

Garry Bates: To my mind, and this was my judgement, that's when frank and fearless advice went out the window.

Sarah Dingle: *Background Briefing* contacted John Moore who said he had no recollection of saying this and it was an outrageous claim. John Moore added that as Defence Minister he shut down Defence's acquisition department because they had no management skills whatsoever.

The acquisition department included Garry Bates, who was on the team which ran the process to select a new jet for Australia. It was his job to ask big aircraft manufacturers to throw their hat into the ring.

Garry Bates: Well, at the end of 2001 we'd just reached the stage of putting out our requests for expressions of interest from the major aircraft manufacturers around the world. Those letters were signed off by me in I believe it was November.

Sarah Dingle: Seven expressions of interest in providing the next fighter jet for Australia came back, and they were locked away unread until the submission period finished at the end of January 2002.

Garry Bates had left the DMO one month before, but he says those expressions of interest were never analysed.

Garry Bates: There was no comparative analysis of the expressions of interest.

Sarah Dingle: How do you know there was no comparative analysis done of all those responses you received?

Garry Bates: Because I asked and I was told by some of my former colleagues that no, that did not occur.

Sarah Dingle: Garry Bates says it didn't occur because apparently the rules had changed.

Garry Bates: Basically the rule book was being rewritten in parallel to the decisions being made, and the acquisition process became defunct.

Sarah Dingle: Outside of the tender process, Australia had another offer. We were invited to sign up to the development phase of the JSF, at a cost of \$302 million, an initial stake which would supposedly mean we could buy cheaper planes later on. The more nations signed on, the cheaper the jets would be overall for the US and other smaller customers.

Documents released under Freedom of Information show that in March 2002, Australia's Defence Capability and Investment Committee considered the pros and cons. The cons included not enough information to know whether this paper plane could actually replace our existing fighters, and that buying a stake would effectively end the competition process we'd just begun, 'possibly to Australia's disadvantage'.

The pros included 'a more favourable view of Australia may be generated in the US Defence community'. The Committee concluded that buying a stake 'is not recommended at this time'. But three months later, in June 2002, we were in.

Matt Brown [archival]: For the head of the air force, Air Marshal Angus Houston, it's almost as if all his Christmases have come at once.

Angus Houston [archival]: It's a great day for the Royal Australian Air Force.

Matt Brown [archival]: Air Marshall Houston has managed to get the government to commit to a plane that is still being developed and is thus an unknown quantity.

Sarah Dingle: It wasn't just Australian bureaucrats worried about this unknown quantity.

The US Government Accountability Office is the States' supreme auditing agency, which investigates and reports to Congress on how taxpayers' dollars are being spent. Michael Sullivan is the head of the GAO's Defence Weapons

System Acquisition program. He's given his first ever Australian interview to *Background Briefing*.

Mike Sullivan: The Joint Strike Fighter was one of the last really big complex weapons systems where they kind of bit off more than they could chew. If I'm talking about my household budget, it would be an addition to my house that included technologies that were very expensive and my wife and I would go broke.

Sarah Dingle: For 15 years Mike Sullivan and the GAO have been filing reports to Congress, sounding the alarm on the Joint Strike Fighter program. Mike Sullivan says the planes are so late, and have sucked up so much money from the Defence Budget, that the US Air Force—the biggest air force in the world and the cornerstone of Western air power—is now being held hostage by Lockheed Martin.

Mike Sullivan: We're beholden to a single source. We are held hostage to one contractor.

Sarah Dingle: The problems were obvious from the start. In 2001, when the US bought into the Joint Strike Fighter program, Mike Sullivan delivered a report saying it was too early for the Americans to commit to the project.

Mike Sullivan: That it had critical technologies that weren't mature enough for product development. Of course our recommendation was ignored by the Pentagon and they started the program at that point with a cost plus contract with Lockheed Martin.

Sarah Dingle: Australia bought a stake in 2002.

By 2005, the program was over budget by about \$10 billion. Regardless, in 2006 the US decided to buy before you fly.

Mike Sullivan: So in 2006 it actually entered production before development was done, that's something known over here as concurrency. Before they had 1% of their flight test program complete they began buying aircraft, procurement aircraft. And we recommended they not do that.

Sarah Dingle: That sounds disastrous.

Mike Sullivan: 2005-2006 was the first really bad...the bad real jump in cost, delays in schedule. And at that time they stopped and wondered whether or not they were going to be able to do this.

Sarah Dingle: In Australia it was clear the iconic F-111 had only a few years left until retirement, and the JSF was still a long way off. Our air force was staring at a big problem.

In 2006, former Defence Minister Brendan Nelson was visiting the Lockheed Martin plant in Texas and still insisting Joint Strike Fighters would arrive in Australia in 2012.

Brendan Nelson [archival]: All of the software and indeed the hardware for the aircraft is very much on schedule and in fact in some cases ahead of schedule and programming. As far as Lockheed Martin is concerned, yes indeed, it will be ready by 2012.

Sarah Dingle: Three years later in 2009, JSF testing was still nowhere near complete, but the Australian government put its first serious money on the table, committing \$3 billion to buy 14 of them, and leaving the door open to buy more later.

The next year the Joint Strike Fighter program had a budget over-run so big the US actually has a name for it. It's called a 'critical Nunn-McCurdy breach', which means your defence project is more than 50% more expensive than originally estimated. By law such projects have to be terminated, unless you can demonstrate a good reason why they shouldn't be.

Mike Sullivan: So anyway they declared it essential for national security. So the next thing was to put an honest review to the program and come up with actual costs.

Sarah Dingle: The US injected an extra \$4.6 billion into the program. By 2012, the JSF was still unfinished but the cost per jet had doubled. The acting Pentagon head of procurement, Frank Kendall, admitted that the entire Joint Strike Fighter program was 'acquisition malpractice'.

Mike Sullivan: It's because the most important weapons system program over here had doubled in cost. It's gone from \$233 billion to develop and procure the aircraft, to \$389 billion, almost \$400 billion.

Sarah Dingle: How frustrating is it for you to see the United States progress with a program which you think is acquisition malpractice?

Mike Sullivan: It's very, very, very frustrating for someone in my position who...you know, my whole career has been devoted to good government. You think about the doubling of costs, you know, the \$180 billion of unplanned money that has gone into this, and you think about where that money could have gone in our country or anywhere, it's very disheartening.

Sarah Dingle: In 2012 the first JSFs were supposed to land in Australia, but they still weren't ready. A year later, the US head of testing Michael Gilmore found overheating was causing part of the engine to crack, and the entire fleet was temporarily grounded. In 2014, a JSF caught fire during take-off, and there were speed restrictions on all JSFs.

Michael Pietrucha: I'd drop it like a hot rock.

Sarah Dingle: Colonel Michael Pietrucha, callsign 'Starbaby', is a decorated member of the US air force and an electronic warfare specialist who's flown more than 150 combat missions and deployed to Iraq and Afghanistan. He's a serving officer, but these are his personal views.

Colonel Pietrucha is speaking to *Background Briefing* from the Pentagon.

Michael Pietrucha: There's no such thing as a one-size-fits-all airplane and we have to beware of thinking that there is. Cost is one big issue, sustainability is another. And I think we pushed the limits of what we can actually achieve in a program too far and too fast.

Sarah Dingle: In 2014 Colonel Pietrucha publicly called for the US Air Force to cut its losses and get out of the JSF.

Michael Pietrucha: You can't afford to put all your eggs in one basket. By going to a one-size-fits-all model I think we've become incapable of doing all the things that America is used to doing with airpower.

Sarah Dingle: That year former Prime Minister Tony Abbott committed Australia to buy another 58 JSFs. That dismayed the director general of test and evaluation for the entire Australian Defence Force, Dr Keith Joiner.

Keith Joiner: And I disagreed with that.

Sarah Dingle: Dr Joiner is now a researcher with the University of New South Wales, and he's spoken exclusively to *Background Briefing*. When politicians went shopping for hardware, Dr Joiner says his job was to make sure it actually worked.

Keith Joiner: With further delays we decided we couldn't wait any longer, that we needed those production aircraft, that we needed to sign up for production now and not wait until the end of the testing. And I disagreed with that.

Sarah Dingle: Despite being head of testing and evaluation for the entire Australian Defence Force, Dr Joiner couldn't order tests on the JSF. This was because we'd asked the Americans to do all our developmental testing for us. Defence does send a number of Australians to the US to witness the testing. Keith Joiner says that's not enough.

Keith Joiner: And for me their assessment only really counts if they're a participant. The most important thing is the number of people participating. So as a full participant, it's zero.

Sarah Dingle: Dr Joiner was so concerned that in 2014 when Australia committed to buy another 58 JSFs, he asked if we could send flight engineers to fully participate in the testing program. He says defence said no.

Keith Joiner: I suggested that if the risk of our ageing aircraft was so bad, that we were prepared to sign up for aircraft for production before they're tested, then we were at the point where we should commit some T and E people to that program to help make sure that it occurs. But at that point I got a lot of interference that, well no, that's not the strategy, we're trying to avoid the expenses of developmental testing by not participating until the aircraft is complete. I thought that that argument was getting a little shallow.

Sarah Dingle: Australia does receive test progress reports coming out of the JSF plant in Fort Worth. Dr Joiner says not much is done with them.

Keith Joiner: My understanding is that they're not formally put through our test agencies for comment or feedback.

Sarah Dingle: So they're on the shelf somewhere.

Keith Joiner: I won't directly answer that one Sarah.

Sarah Dingle: If someone in Australian Defence has been reading those reports, they'll be learning some very alarming things. Let's start with the helmet, which has special software. If you're wearing the JSF helmet and you weigh less than 75 kilos and you need to eject, there's a 1 in 4 to 1 in 5 chance that the helmet itself will actually kill you. This is because it's so heavy that when you eject it will snap your neck. And even if it doesn't kill you, there is a

100% chance you will sustain some sort of neck injury. 75 kilos might not be much for a man, but that weight range captures a lot more women, at a time when the RAAF is touting its new female pilot program for the JSF.

The helmet isn't the only problem, another one is heat.

It's about 28 degrees at the Williamtown RAAF base, the future home of Australia's JSFs. Local councillor Chris Doohan says today is cool compared to the previous weekend.

It's pretty hot out here today, you can't see us but we're both sweating in our clothes.

Chris Doohan: Sweating it up, yep.

Sarah Dingle: There's been a lot of reports, the test reports that the Joint Strike Fighter doesn't do well in terms of heat and withstanding heat, are you concerned about that at all?

Chris Doohan: That's the first I've heard of it.

Sarah Dingle: If it had been 4 degrees warmer at Williamtown base, any JSF would have run into problems. When the JSF is on the ground, if it's 32 degrees or more and internal stores are loaded, crews have to constantly open and shut the weapons bay doors. To prevent overheating, the doors can't be left shut for more than 10 minutes on the tarmac and even sometimes when it's in the air.

Chris Mills is a former Wing Commander with the RAAF.

Chris Mills: If you were talking about cars you'd call it a lemon.

Sarah Dingle: Chris Mills was an air warfare strategist for the Department of Defence and now works as a private consultant. He says the JSF's not so stealthy when it has to open and shut the weapons bay doors all the time.

Chris Mills: So when they open the weapons bay doors it loses its low observability, so first of all you get a great big flare saying 'oh guess what we've got, we've got a Joint Strike Fighter here, it's closed its doors again'. But it induces other problems. You'll cook the weapons inside. In addition, every time you open the weapons bay doors you heat and cool the weapons, and electronics hates that, so you get a very high failure rate.

Sarah Dingle: Chris Mills says the JSF already has a nickname.

Chris Mills: It was conferred, I have heard, from the fighter weapons school and these are the top guns of the United States air force, and they call it the 'little turd'.

Sarah Dingle: Does that seem like an appropriate name to you?

Chris Mills: Absolutely.

Sarah Dingle: It might be called a little turd, but for Keith Joiner, the former head of the ADF's testing and evaluation, the worst thing about the JSF is its software.

Keith Joiner: Okay, the Joint Strike Fighter is a completely software driven aircraft.

Sarah Dingle: The JSF has more than 24 million lines of code, more than any aircraft.

Keith Joiner: Some systems like the radar control are fundamentally worse than the earlier version, which is not a good sign. You don't want your software testing going backwards. The next software version is block 4. It won't be available until 2020. So there'll be nothing but fixing bugs in the original software between 2013 and 2020. That's seven years with nothing but fixing bugs. That doesn't give you a lot of confidence for a completely software driven aircraft going into the future.

Sarah Dingle: According to the test reports, the logistics software, which tracks maintenance, randomly prevents user logins and collects inaccurate data, meaning it could allow a jet to fly when that jet should not be in the air. And in an age of hackers, the most software-heavy aircraft ever made has still not undergone any cyber security testing, which means it could be vulnerable to hackers from China, Russia or even that kid down the road.

Keith Joiner: It hasn't done any cyber security testing yet, the aircraft. The only system that has done cyber security, vulnerability and penetration testing is the logistics software. So ordering spares. And it didn't go very well. So the most software driven aircraft ever built hasn't yet been tested against cyber security and the modern cyber warfare threats.

Sarah Dingle: That sounds appalling.

Keith Joiner: It is. There's no other way to look at it.

Sarah Dingle: When it comes to the Joint Strike Fighter program we are either rich optimists or we are fools?

Keith Joiner: Absolutely.

Sarah Dingle: Not only are there worries about the JSF being hacked, there are also deep concerns about air superiority.

Four years ago, the makers of the Joint Strike Fighter, Lockheed Martin, appeared before an Australian Parliamentary Committee to answer questions about some combat simulations, which showed the JSF didn't do well against enemy aircraft.

As the bells were ringing for a Senate division, Lockheed Martin's Tom Burbage told the committee that the company's own simulation showed everything was fine.

Tom Burbage [archival]: Pilots from the Royal Australian Air Force and all the participating nations' air forces and all three US services have come into the manned tactical simulator, the pilot-in-the-loop high-fidelity simulation of an advanced high-threat environment, and the results of those simulations show that the airplane is effectively meeting the operational requirement that it has.

Sarah Dingle: Less than a year later the senior weapons system adviser to the US Secretary of Defence contradicted that claim. In his 2012 report, Dr Michael Gilmore said there was no verified flight simulation for the JSF, showing what it could do.

And just last month, Dr Gilmore revealed there was still no verified flight simulation to even begin checking that the JSF can do what it's supposed to.

Former Australian Defence Force head of testing and evaluation, Keith Joiner:

Keith Joiner: It means that every Australian officer who's been over there and flown the Joint Strike Fighter in a simulator has been seeing a model which is not yet verified.

Sarah Dingle: If they thought they were flying a verified Joint Strike Fighter, that that was an accurate replication of the experience, they were wrong?

Keith Joiner: It would appear that they're wrong, yes.

Sarah Dingle: As an Australian Senate Committee prepares to once again examine the Joint Strike Fighter program, *Background Briefing* has obtained an invitation being sent around to MPs. It's from Lockheed Martin, the maker of the JSF, offering Senators the chance to fly a special JSF 'cockpit demonstrator'. The accuracy of that term aside, Committee member Senator Peter Whish-Wilson says he's not too keen.

Peter Whish-Wilson: No doubt it'll be a hell of a joyride for most people.

Sarah Dingle: Ahead of the Committee's hearings, Greens Senator Peter Whish-Wilson wants Australia to rethink its commitment to the JSF.

Peter Whish-Wilson: Lockheed Martin, my understanding is they went to great lengths to lobby against the Senate inquiry happening. Certainly Nick Xenophon phoned my office and said, 'I've got a small family company in my office and they won't leave.' I said, 'Who are they?' He said, 'Lockheed Martin.'

Sarah Dingle: Senator Xenophon has confirmed the conversation took place and says it was a tongue in cheek moment.

This is a crucial time for Australian defence, we've got a new Defence White Paper, a new Defence Minister, and a new-ish Prime Minister committed to increase defence spending to 2% cent of GDP.

US top brass was in town recently, the head of the office managing the Joint Strike Fighter program, US Lieutenant General Christopher Bogdan. *Background Briefing* phoned in to his press conference. We asked him why, after so many years, there was still no proper simulation to fully check out what the JSF can do in flight.

Christopher Bogdan: They are right, we're late with it, that's on me, okay, I gotta get it moving, I gotta get it fixed, I gotta get it done, but it's late because it's really hard to do. And I that's about the best answer I can give you.

Sarah Dingle: Lt Gen Chris Bogdan did not dispute any of the concerns the test report raised about the helmet, the overheating, the software or the simulation.

Christopher Bogdan: It lays out issues and problems that we have on the program, which are accurate, but instead of putting a comma after that it puts a period at the end of the sentence, where what I would like to do is put a comma there and tell you, okay, we have that problem but it's either fixed or

we're in the process of fixing it or we're in the process of implementing the fix already.

Sarah Dingle: But he said he had all the data, and what it showed gave him confidence.

Christopher Bogdan: The critics have no data to base their opinions on. They have no data. I have the data. I have the pilots who are flying the airplane. Here's what I will tell you; there is not an airplane in the world today anywhere that if put up against an F-35, in an air-to-air environment we will see them first, shoot them first, and kill them first. Period dot.

Sarah Dingle: *Background Briefing* wanted to know, of the latest Australian order of 58 JSFs, how many were actually in production.

Christopher Bogdan: Your airplanes started being built in 2015. Maybe a little earlier than 2015.

Sarah Dingle: The RAAF's Air Vice Marshal Deeble, the Australian program manager for the Joint Strike Fighter, jumped in to assist.

Chris Deeble: Not all of those aircraft are in production. So the LRIP 10 and LRIP 11 will be long lead activity associated with those aircraft being produced.

Sarah Dingle: So how many of those 58 approved for purchase in 2014 are currently in production?

Christopher Bogdan: [whispering] I would tell you that there's probably somewhere between 0 and 16.

Chris Deeble: Yeah, it'd be somewhere between zero and 16 as General Bogdan's comment, and again we do track them down the production line but again, I can't give you a definitive answer, you know, on exactly where they are.

Sarah Dingle: Thank you Air Vice Marshal. So you don't know how many of those 58 aircraft are currently in production?

Christopher Bogdan: [whispering] No more than 16...

Chris Deeble: No more than 16 aircraft.

Sarah Dingle: But you're not sure how many?

Christopher Bogdan: [Whispering]

Chris Deeble: We will get you the answer specifically about that. We'll take that on notice.

Sarah Dingle: So the answer is somewhere between zero and 16. Either none, or some.

At the end of the press conference, Air Vice Marshal Deeble said eight might be beginning production soon.

Chris Deeble: Sarah, I'd just like to clarify the point around the production line. So the answer is that their component parts at the moment that are coming globally and they're going to be mated together to make up an aircraft in the immediate future. It's not as simple as saying how many aircraft are in there.

Sarah Dingle: You can read Defence Media's response to our questions on our website.

Lockheed Martin cancelled a scheduled interview with *Background Briefing* after that press conference.

That number of aircraft in production is important because aircraft made while JSF testing is still incomplete have more problems. Dr Keith Joiner wants our buy halted until testing is complete.

Keith Joiner: The senate should put a dirty great big stop work order on any sign-up to any production aircraft that we've not already committed to.

Sarah Dingle: Dr Keith Joiner says the biggest risk confronting Australia is that we may end up with 72 JSFs which are faulty and not fit for purpose.

Keith Joiner: It's just the fact that we might end up with 72 of them and then find out what they can't do or can do.

Sarah Dingle: Dr Joiner says, at that stage we can't fix it.

Keith Joiner: It's a little bit beyond what Australia is capable of. And that's the real risk.

Sarah Dingle: Now Dr Joiner wants to halt the buy, send Australian engineers to the US to participate and help finish the testing, fly alternatives in the meantime, and at the end of it, be prepared to dump the Joint Strike Fighter.

Keith Joiner: Get some Australian testers over there to help out and, if necessary, get out. That's my view. We don't do the US any favours when we appear such a soft touch. This is not the war against ISIS where we need to show allegiance and a determination to the enemy. It's an acquisition

involving a sole sourced major multi-national corporation that is consistently undervaluing the test program, and a US program office that will not or cannot stand up to them. And our defence is mixing up its strategies here and it needs to put some pressure back on the program like Canada has. So we need to get a little bit of spine back here and stand up to the company.

Sarah Dingle: Canada bought into the JSF program at the same time as Australia in 2002, eventually ordering 65 planes. But at the end of last year, the new Canadian government disregarded dire warnings that the JSF program was too big to fail. They dumped it, and announced they would instead hold an open tender for their new jets. The Canadian who literally signed his country up to the JSF program in the first place is relieved that Canada has now dumped it.

Alan Williams: I'm very positive about it, I think it was the right thing to do. I'm surprised that the previous government continued to stick with the same mantra, even though they knew there was no basis for it any longer. I'm also a strong believer that competition saves money. There's a lot of anecdotal information to say that that you can save up to 20%.

Sarah Dingle: Alan Williams is the former Canadian assistant deputy minister for Defence Materiel. He says Canada may have to cut its losses.

Alan Williams: It's a sunk cost and I think you just move on.

Sarah Dingle: Rather than throw good money after bad?

Alan Williams: For sure. And it's not just a money thing. As I said, the most important thing is getting what our men and women in the military need.

Sarah Dingle: In 2002, when we first bought a stake in the JSF, then defence minister Robert Hill estimated how much each jet would cost Australia.

Robert Hill [archival]: It is believed to be in the vicinity of about US\$40 million per aircraft.

Sarah Dingle: Now, 14 years later, the government says it's US\$90 million per jet. But Australia is set to pay almost AU\$18 billion in total for all costs associated with its Joint Strike Fighter program. Minus RAAF base upgrades, that comes to more than US\$160 million per jet. And Keith Joiner says that figure could still rise.

Keith Joiner: There's no warranties in the way that we go into this. It's whatever it costs us in the future, it costs us in the future. How can we be so sure that it's only \$17.7 billion if we haven't done the testing that dictates how many deficiencies need to be corrected?

Sarah Dingle: The total cost of more than AU\$17 billion doesn't include maintenance costs over their lifetime. Australia doesn't even have an estimate for that, but the US does.

Mike Sullivan from the Government Accountability Office:

Mike Sullivan: The estimate is still coming in at really close to US\$1 trillion.

Sarah Dingle: Retired Wing Commander Chris Mills says the JSF will cost Australia dearly.

Chris Mills: Well, this is what I say about the Joint Strike Fighter; you pay for it five times. You pay the capital costs, you pay the operating costs, you then pay the opportunity costs of what you could have bought with the money. You pay for it diplomatically because having a good capable military changes the calculus in international relationships. And finally, if push comes to shove, when your air force is defeated, you can lose sovereignty. And that is the ultimate price to pay.

Sarah Dingle: The Defence Minister Marise Payne, Lockheed Martin, and former Prime Minister John Howard all declined an interview with *Background Briefing*.

Background Briefing's coordinating producer is Linda McGinness, research by Jess Hill and Tim Roxburgh, technical production by Andrei Shabunov, our executive producer is Wendy Carlisle, and I'm Sarah Dingle.

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