

# **THE MILITARY-INDUSTRIAL COMPLEX: How I Learnt to Stop Worrying and Love the F-35 Lightning Jet**

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## THE F-35: THE MOST SUCCESSFUL PROGRAMME OF PUBLIC WEALTH EXTRACTION EVER DEvised BY A PRIVATE COMPANY

**The Lockheed Martin F-35 Lightning II is the most expensive military weapons system in history and may be the single most successful programme of public wealth extraction ever devised by a private company – moving (tens of) billions of dollars every year from ordinary taxpayers into the pockets of a single corporation Lockheed Martin and its sub-contractors and huge army of lobbyists. The programme's costs keep rising with never-ending new problems and delays, it is currently projected to cost more than \$1.5 trillion during its lifetime for the United States alone. It is the poster child of the "too big to kill" behemoth.<sup>1</sup>**

The costs in the F35 project have not just been sunk by the United States. The United Kingdom, Italy, Australia, Canada, Norway, Denmark, the Netherlands, and Turkey are partners who have already spent billions of dollars on its development, and alongside Japan, South Korea and Israel, each committed to purchase dozens or more of the 'Little Turds', nicknamed by American air force pilots for its inability to do anything well apart from being perfectly unsafe. Canada is the only country that has decided to write off its lost millions and terminate its purchase commitment.

*"A single Air Force F-35A costs a whopping \$148 million. One Marine Corps F-35B costs an unbelievable \$251 million. A lone Navy F-35C costs a mind-boggling \$337 million. Average the three models together, and a 'generic' F-35 costs \$178 million,"* estimated by Winslow Wheeler, a staff member at the Project On Government Oversight. These are just the production costs. Additional expenses for research, development, test and evaluation are not included.<sup>2</sup>

The F-35 Joint Strike Fighter is designed to be an effective multi-purpose aircraft and the USA intends to buy more than 2400 of them to replace almost every fighter and attack aircraft of the Air Force, Navy and Marine Corps. It is supposedly good at everything but turns out to be pretty rubbish at anything it is supposed to do. It is as – if not more – dangerous to its own pilot than the foes it will face. Why does the USA and its allies, notably the UK, put such a big stake (in the case of the US, all in) on the unproven, untested, error-prone, ineffective and mostly unavailable F-35s for their national (air) defense in the time of austerity and increasing international hostility? Why?

## THE TROUBLE WITH THE F-35

The F-35 is designed to replace the F-16 fighter, the A-10 "Warthog" ground attack plane, F-18C/D Hornet fighter and the Marine Corps' AV-8B Harrier jump-jet.

There are so many things that went, are going, will go wrong with the F-35, it is hard to pick where to begin. Let's start first with its name.

1. It is called the Lightning II, but ironically it has to be grounded whenever there is a thunderstorm within 25 miles because it **might explode if struck by lightning**.
2. There is a **significant risk of fire due to extensive fuel tank vulnerability**. *"There are fuel tanks all the way through the wing. There are fuel tanks through the fuselage. And the worst*

<sup>1</sup> <https://www.bloomberg.com/news/articles/2013-02-22/flawed-f-35-fighter-too-big-to-kill-as-lockheed-hooks-45-states>

<sup>2</sup> <https://medium.com/war-is-boring/how-much-does-an-f-35-actually-cost-21f95d239398#.xu3lyzm79>

*places that they cram fuel [are] around the inlets and back toward the engine. Think of this engine as a blowtorch surrounded by fuel. That's what it really is."*<sup>3</sup>

3. For years the F-35s engines have suffered design and performance problems, and these problems have never been fully solved. One F-35's **engine actually caught fire** during an aborted take-off in summer 2014, resulting in the entire fleet being grounded. It therefore prevented the F-35 from participating in the naming ceremony of the HMS Queen Elizabeth aircraft carrier that is expected to take a full complement of 36 F-35s coming into service in 2018. (update: not a single one was in service on board of HMS Queen Elizabeth in 2018.)<sup>4</sup>
4. The addition of the lift fan to satisfy the requirement for F-35B to take off vertically forces the plane to have just one rearward engine instead of two carried by many other fighters. Two engines are much safer.
5. In 2004, it was revealed F-35B variant was greatly overweight, owing in part to the addition of the lift fan. "The short takeoff/vertical landing variant would need to lose as much as 3,000 pounds to meet performance requirements."<sup>5</sup> The resulting reduction of the weight has made the plane 25% more likely to be destroyed when struck by enemy fire, according to Pentagon analysis.<sup>6</sup>
6. The F-35 **can't run on warm fuel**. To avoid aircraft 'shutdowns' due to high fuel temperatures, the fuel trucks have been repainted from standard green to bright white to reflect sunlight to help keep fuel cool enough.
7. When the F-35 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**. The opening doors might create flare that significantly impacts stealth and the constant heating and cooling will make the weapons electronics more likely to fail.
8. **The electrical wiring might short circuit**, jeopardising control of the jet in flight.
9. **Wing drop concerns**: when manoeuvring at high speeds, the F-35 may drop and roll to one side. This issue has been known to designers for years, and the fixes, unfortunately, will "further decrease manoeuvrability, acceleration, and range."
10. The F-35's helmet continues to show **unacceptable high false-alarm rates and false target tracks**. The pilot can only see through the helmet's complex video display system, but its resolution is far from adequate. Coupled with the plane's design that makes it **impossible for pilots to see anything behind or below the cockpit**, all these seriously reduce pilots' situational awareness and endangering their lives in combat.
11. Everything is controlled via the helmet. **When the helmet fails in flight, F-35 pilots will be unable to fire weapons and defend themselves**. And because the plane doesn't have backup

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<sup>3</sup> According to Pierre Sprey, a former Pentagon analyst who helped design the F-16 in the early 1970s.  
<http://america.aljazeera.com/watch/shows/america-tonight/articles/2015/3/26/f35-trillion-dollar-fighter-jet-pentagon.html>

<sup>4</sup> <https://www.gov.uk/government/news/first-uk-fighter-jets-land-onboard-hms-queen-elizabeth>

<sup>5</sup> [http://www.jsf.mil/downloads/documents/F-35\\_2004\\_Year-In-Review.PDF](http://www.jsf.mil/downloads/documents/F-35_2004_Year-In-Review.PDF)

<sup>6</sup> <https://timemilitary.files.wordpress.com/2013/01/f-35-jsf-dote-fy12-annual-report.pdf>

instruments, pilots will also not be able to land at night or in weather if the helmet malfunctions. Equally serious, **when the helmet fails, the pilot is grounded.** It's not just a matter of simply borrowing another helmet—**each one has to be custom-fitted.**<sup>7</sup>

12. The helmet is so heavy, there is **1 in 4 chance that the pilot who weighs less than 75 kilos will be killed during ejection and 100% chance that some sort of neck injury will be sustained.**
13. The F-35B's **structure had a tendency to crack.** The problem aroused from changing extremely strong titanium parts to aluminium to reduce weight to meet the Marine Corps requirement of the vertical landing ability.
14. Testing continues to find new problems. **The speed of finding new problems is much faster than their ability to resolve them** so naturally the problems are deferred to be resolved later.
15. Why bother fixing the problems when you can just re-define what counts as an aircraft failure? Or simply fail to count them to improve the statistics?. This is exactly what the Office in charge did.
16. The F-35 has **minimal capacity for fuel and weapons load** (only TWO missiles and TWO bombs) because of the restrictions on the design and structure forced on by the mutually incompatible requirements of stealth, speed and vertical landing.
17. The Small Diameter Bomb II (SDB II) intended to be used by the F-35B — the Marine Corps variant — **does not fit its weapons bay.** Also the F-35 will not have the software package required to operate the bomb until 2022.
18. The F-35's **25mm cannon won't be operational until 2019 at the earliest.** Apparently the software that will power the four-barrelled rotary cannon on the Air Force version of the jet, the F-35A, won't be ready for at least four more years until 2019! The US Navy and Marine Corps version use a different cannon, but it'll also be years before the software's ready for those guns. But even when the jet will be able to shoot its gun, the F-35 barely carries enough ammunition to make the weapon useful.<sup>8</sup>
19. The F-35's manoeuvrability is so **“substantially inferior” to much older planes like F-15s, F-16s and F-18s, it will not win a dogfight against them.**
20. The F-35 carries only TWO air-to-air missiles whereas Russian and Chinese fighter jets, eg SU-27 routinely carry 10 or more air-to-air missiles. In one 2008 study, the RAND Corporation, a think tank closely aligned with the U.S. Air Force, optimistically assumed that an F-22 would never miss when it fired an AIM-120 missile at a Chinese fighter and, by contrast, Chinese fighters would never hit an F-22 with their own missiles. While unrealistic, that handicap didn't actually benefit U.S. forces in the RAND war game. The F-22s and F-35s quickly ran out of missiles and fuel, and surviving Chinese fighters penetrated U.S. aerial defenses and shot down tankers, radar early-warning planes and maritime patrol planes, effectively disabling the American force by depriving it of sensor coverage and range-extending aerial refueling. “The F-35 is double-inferior,” the study's two authors John Stillion and Harold Scott Perdue concluded

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<sup>7</sup> <https://medium.com/war-is-boring/everything-wrong-with-the-f-35-3b62e8b3b432#.mxf8oozb8>

<sup>8</sup> <https://www.thedailybeast.com/new-us-stealth-jet-cant-fire-its-gun-until-2019>

in their written summary. The new plane “**can’t turn, can’t climb, can’t run,**” they warned.<sup>9</sup> Soon afterwards, the two authors left RAND and Lockheed and the Pentagon rejected their findings.

21. A “**hangar queen**”: The F-35 will have limited operational availability for flight training because maintenance crews will find it difficult to keep up with the inevitable mechanical failures - it simply cannot fly often enough for first-rate pilots to hone their flight-winning skills.<sup>10</sup>
22. Lockheed Martin have increasingly sold the F-35 as a sort of “flying computer” whose software can outthink enemy pilots even when the enemy’s own planes fly faster, maneuver better and carry more weaponry than the F-35 does. **The plane's software will include more than 30 million lines of code**, more than any aircraft. Problems with the code are causing navigation system inaccuracies, false alarms from sensors, and false target tracks. The operating system is so cumbersome that it requires the "design and development of a whole new set of...computers." The software glitches also affect the plane's ability to "find targets, detect and survive enemy defenses, deliver weapons accurately, and avoid fratricide." Despite its importance, the code is far from combat-capable (not to mention combat-ready), and the development keeps hitting severe delays.
23. Software development and testing keep hitting problems and delays. Some systems actually become worse than the earlier version. **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.**<sup>11</sup>
24. 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.**
25. ALIS is the IT backbone of the F-35. "ALIS is behind schedule, has several capabilities delayed or deferred to later builds, and has been fielded with deficiencies."<sup>12</sup> Some of these deficiencies include misrepresenting the health of F-35 aircraft. The system, which is brought on board the F-35 in flight, has also gone beyond the approved size, bulk, and weight.
26. **The radar may malfunction and requires the pilot to turn it off and on again**, potentially hinder its performance against less developed fighter jets.
27. 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.
28. At least twice since 2007 Chinese hackers have stolen data on the F-35 from the developers’ poorly-guarded computer servers, potentially including detailed design specifications.<sup>13</sup> The Chinese J-31 unveiled in 2012 bears an uncanny external resemblance to the F-35.

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<sup>9</sup> [https://www.defenseindustrydaily.com/files/2008\\_RAND\\_Pacific\\_View\\_Air\\_Combat\\_Briefing.pdf](https://www.defenseindustrydaily.com/files/2008_RAND_Pacific_View_Air_Combat_Briefing.pdf)

<sup>10</sup> <https://medium.com/war-is-boring/everything-wrong-with-the-f-35-3b62e8b3b432#.ieempqra6>

<sup>11</sup> <http://www.abc.net.au/radionational/programs/backgroundbriefing/2016-03-06/7224562#transcript>

<sup>12</sup> <http://www.dote.osd.mil/pub/reports/FY2014/pdf/dod/2014f35jsf.pdf>

<sup>13</sup> [http://www.washingtonpost.com/world/national-security/confidential-report-lists-us-weapons-system-designs-compromised-by-chinese-cyberspies/2013/05/27/a42c3e1c-c2dd-11e2-8c3b-0b5e9247e8ca\\_story\\_2.html](http://www.washingtonpost.com/world/national-security/confidential-report-lists-us-weapons-system-designs-compromised-by-chinese-cyberspies/2013/05/27/a42c3e1c-c2dd-11e2-8c3b-0b5e9247e8ca_story_2.html)

29. The Chinese F-35 clone, the J-31, unconstrained by the US Marine Corps's demand of the ability for vertical landing, can concentrate on manoeuvrability and stealth. "With no lift fan bay to worry about, the designers have been able to install long weapon bays on the centerline." The centerline bay helps keep the J-31 skinny and therefore likely fast and maneuverable.<sup>14</sup> **It is conceivable that the cheap Chinese clones will be more useful than the originals in the real combats.**

## MR. LOCKHEED GOES TO WASHINGTON

**One of the biggest drivers of military spending today is the F-35 Joint Strike Fighter jet.** The plane is too expensive and sophisticated for 'simple' bombing runs in Syria or Afghanistan, but too crippled to use in dogfights against Russia's or China's most advanced fighters. It is ideal for one purpose only: with a total projected program cost of more than \$1.5 trillion, this program will keep Lockheed Martin and its subcontractors in 46 states afloat for at least the next two decades.

Lockheed is also the maker of the F-22, the most expensive fighter jet in history (each plane costs approximately \$412 million)<sup>15</sup> and notoriously unreliable fighter jet, suffering a critical failure after every 1.7 hours of flight, on average. Although first flown in 1997, it was not allowed into combat until 2014, on a mission over Syria. F-22's high cost and unreliability made the Congress to terminate the programme and the production in 2009. Lockheed has certainly learnt the lesson and has done everything they can to ensure the F-35 programme is too big to kill.

"We rushed to buy an aircraft with a huge amount of testing concurrency, then hid future costs by deferring testing, upgrades and retrofits," Democratic California Rep. Jackie Speier said, referring to the F-22. "The result was a program we had to cancel after producing 555 fewer planes than the Air Force initially wanted." A similar trend is evident in the development of the F-35. "The magnitude of these deferrals is staggering," she said of the F-35. "The price of adding all the testing, retrofits and capabilities the program office has deferred will be higher than the entire cost of the F-22 program."<sup>16</sup>

The F-35 program is designed so that there is no requirement to prove its combat capability before approving an annual production rate of 57 aircraft, a rate unprecedented for any fighter with so little operational testing accomplished and so many unresolved problems.<sup>17</sup>

At the current pace of testing, the contractors being paid by the federal government will have produced as many as 500 of the jets – at \$100 million or so apiece – before the Defense Department can say for sure that the plane can do what it's supposed to do. Considering the plane's track record so far, it seems that the Pentagon will have hundreds of incredibly expensive planes on its hands that may perform far below expectations. Not one of the jets built so far is combat-ready.

*"One great asset that the F-35 has is that it's almost too big to fail. So many nations now are in the programme, and the numbers of aircraft overall are so significant... that they're going to have to solve these problems – or it's going to be an absolute catastrophe for the future of Western aerospace power."*

*Philip Sabin, professor of strategic studies in the War Studies department of King's College London<sup>18</sup>*

<sup>14</sup><https://medium.com/war-is-boring/fd-how-the-u-s-and-its-allies-got-stuck-with-the-worlds-worst-new-warplane-5c95d45f86a5#.1hd584azi>

<sup>15</sup> <http://www.gao.gov/assets/320/317081.pdf>

<sup>16</sup> <http://edition.cnn.com/2015/07/16/politics/f-35-jsf-operational-costs/index.html>

<sup>17</sup> <http://www.pogo.org/blog/2015/02/f-35-still-years-away-from-being-ready-for-combat.html>

**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. In 2010 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 the defence project is more than 50% more expensive than originally estimated.** By law such projects have to be terminated, unless it can demonstrate a good reason why they shouldn't be.<sup>19</sup> The acting Pentagon head of procurement, Frank Kendall, admitted in 2012 that the entire Joint Strike Fighter program was 'acquisition malpractice' — “putting the F-35 into production years before the first test flight was acquisition malpractice.”<sup>20</sup>

**Acquisition 'concurrency' means putting something into production while still in testing, or - in the case of the F-35 - not really tested at all.** The increasingly common instances of this practise is the clear demonstration of the military-industrial-congressional complex, with the F-35 programme being the worst example ever by far. It relies on the fantasy that aided by computer modelling, defense contractors can design and build cutting edge, advance machinery on the first try such that testing will just be a formality. Adding in the budget hungry - any way to get more money is welcome - Department of Defense and special-interest driven Congress/Parliament, the F-35 programme is almost a collective work of art that was always bound to happen, as long as concurrency is *the way* because it saves 'cost and time'.

Lockheed spends more than \$14 million annually on lobbying; two-thirds of its lobbyists have previously held government jobs.<sup>21</sup> Lockheed paid \$4.7 million in 2015 to settle charges that it illegally used taxpayer dollars to lobby the government for a no bid contract extension at one of the nation's nuclear weapons labs.<sup>22</sup> Lockheed has been fined over \$750 million for contract mismanagement in the last decade, but continues to show little regard for the rules.<sup>23</sup>

Defense contractors are regularly among the top campaign contributors. These individual donations have grown significantly since the JSF began development in 2001, consistently linking F-35 supporters on Capitol Hill to some of the biggest names in the defense industry. According to the Center for Responsive Politics, 2014 was a record year for contributions by the JSF's main contractor, Lockheed Martin (\$4.1 million), as well as for JSF subcontractors Northrop Grumman (\$4.1 million), United Technologies (\$2.1 million) and BAE (\$1.4 million).<sup>24</sup>

In winning the 2001 competition to build the multipurpose F-35, Lockheed set a course to eventually becoming America's sole active builder of new-generation jet fighters, leaving competitors such as Boeing pushing older warplane designs.

The F-35 has been engineered to incorporate favoured technology. The technology is dictating how troops will be able to fight rather than battlefield experience shaping the technology incorporated in the aircraft.<sup>25</sup> This is in complete contrast to the tried and tested way of designing the A-10 where many veterans pilots were interviewed to ensure technology would match with the way the aircraft would

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<sup>18</sup> <https://www.gizmodo.co.uk/2015/08/what-is-the-f-35b-and-why-is-the-uk-buying-it>

<sup>19</sup> <http://www.abc.net.au/radionational/programs/backgroundbriefing/2016-03-06/7224562#transcript>

<sup>20</sup> <http://breakingdefense.com/2012/02/f-35-production-was-acquisition-malpractice-top-dod-weapons-b/>

<sup>21</sup> <https://www.opensecrets.org/orgs/summary.php?id=d000000104>

<sup>22</sup> <http://warisboring.com/articles/lockheed-martin-took-taxpayer-dollars-spent-it-lobbying-for-more-dollars/>

<sup>23</sup> <http://www.contractormisconduct.org/contractors/38/lockheed-martin>

<sup>24</sup> <http://edition.cnn.com/2015/07/16/politics/f-35-jsf-operational-costs/index.html>

<sup>25</sup> <http://warisboring.com/articles/in-a-contest-the-u-s-air-force-knows-the-f-35-will-lose-to-the-a-10/>

actually be used. “The cheap, effective A-10 is a symbol and counterpoint for how broken today’s acquisition system for expensive systems like the F-35 is,” said Mandy Smithberger, director of the Straus Military Reform Project at the Center for Defense Information. Unfortunately, the service is insistent on sending the A-10s to the ‘boneyard’. If this happens, A-10 designer Pierre Sprey has a pretty good idea what will happen to American service members serving overseas if these plans go ahead. “Many more will die,” he said. The A-10 is universally praised by people in the field and many have claimed it made no sense to retire the whole fleet to be replaced by F-35s.<sup>26</sup> Despite the strong backlash, the retirement and replacement programme will still go ahead, albeit a few years later than initially planned.

To help pay for the overruns, between 2007 and 2012 the Pentagon decommissioned nearly 500 existing A-10s, F-15s, F-16s and F/A-18s – 15 percent of the jet fighter fleet – before any F-35s were ready to replace them. Unless additional orders from the U.S.A or abroad extend the F-15, F-16 or F/A-18 assembly lines. The JSF could be openly acknowledged as the worst fighter in the world and, in the worst case, still be the only new fighter available for purchase by the U.S. military.

## **RASHOMON II – WHAT DOES THIS HEADER MEAN?**

The costs and progress are deliberately opaque. Official correspondence and press releases by the Pentagon and Lockheed barely tell half the story. For example, the official quoted cost of a single F-35 is far too low with many costs (eg engine, development, testing, evaluation etc.) not included and misleading categorisation of what’s included. Estimates of costs by analysts and observers are significantly higher. Without better transparency, it is easy for the Pentagon and Lockheed to compare apples with oranges and hence mislead us and avoid accountability.

The F-35 is being designed by some 6,000 engineers led by a rotating contingent of short-tenure managers, with no fewer than 2,000 government workers providing oversight. The sprawling Joint Strike Fighter programme staff, partially a product of the design’s complexity, has also added to that complexity like a bureaucratic feedback loop, as every engineer or manager scrambles to add his or her specialty widget, subsystem or specification to the plane’s already complicated blueprints... and inexperienced leaders allow it. “The F-35—that whole thing has gotten away from us as a country,” lamented retired Alan Brown, the design team leader of the Lockheed F-117, the world’s first operational stealth warplane.<sup>27</sup>

Four years ago, Lockheed Martin appeared before an Australian Parliamentary Committee to answer questions about some combat simulations, which showed the F-35 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. In his own words: “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.”

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<sup>26</sup> <https://pjmedia.com/trending/2016/02/25/sanity-temporarily-prevails-a-10-thunderbolt-retirement-plan-postponed-until-2022/>

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[http://www.realcleardefense.com/articles/2015/04/25/the\\_jsf\\_has\\_made\\_our\\_air\\_arsenal\\_more\\_vulnerable\\_107889.html](http://www.realcleardefense.com/articles/2015/04/25/the_jsf_has_made_our_air_arsenal_more_vulnerable_107889.html)

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 in February 2016, Dr Gilmore revealed there was still no verified flight simulation to even begin checking that the JSF can do what it's supposed to. It means that every officer who's flown the Joint Strike Fighter in a simulator has been seeing a model which is not yet verified.<sup>28</sup>

When asked about how many F-35s out of the 58 Australia has ordered were in production, US Lieutenant General Christopher Bogdan, head of the office managing the Joint Strike Fighter program, was unable to give a clear answer: "I would tell you that there's probably somewhere between 0 and 16."

Lockheed Martin claimed in 2013 that all three versions of the F-35 Joint Strike Fighter (JSF) will perform better than or equal to any combat-configured fourth-generation fighter.<sup>29</sup> This claim was widely disputed by experts at the time. A leaked report in 2015 by a F-35 test pilot with significant experience in F-16 showed the F-35 was consistently outmatched by a 30-year-old F-16 in a series of dogfights, further confirming scepticism about F-35 's present and future performance.<sup>30</sup>

## INEQUALITY FOR ALL — BUT NOT THE DEFENCE INDUSTRIES

The Pentagon, with its \$600 billion budget and tens of thousands of contractors, helps to explain why northern Virginia is home to the richest counties in the entire nation. The top three wealthiest counties in the United States are all in suburban Virginia; there are 4 Virginia counties in total in the Top 10. The richest country Falls Church is only 20 minutes away from Lockheed Martin's headquarter by car; the second richest Loudoun County 47 minutes; and the third richest Fairfax County only 19 minutes.<sup>31</sup> Falls Church is where the other big defence contractors, General Dynamics and Northrop Grumman (a F-35 subcontractor), are based.

The F-35 already accounts for 20 per cent of annual revenues (\$46 billion) for Lockheed. "This figure is expected to grow as production rates increase for deliveries to US and international customers," said Marillyn Hewson, chief executive.<sup>32</sup>

After the 2008 financial crisis, the banks were bailed out but no help was given to troubled homeowners and renters. One out of every two Americans is living in - or damn near close - to flat out poverty. Half of all Americans have no savings at all, and nearly three out of four people who have saved have less than \$1,000 on hand to cover emergency expenses.<sup>33</sup>

It is austerity for everyone but banks and **defence contractors**. The finance and defence industries are the two true stars of the 21st century capitalism - no matter boom and bust, the wealth extraction continues and their profits just keep growing.

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<sup>28</sup> <http://www.abc.net.au/radionational/programs/backgroundbriefing/2016-03-06/7224562#transcript>

<sup>29</sup> <https://www.flightglobal.com/news/articles/in-focus-lockheed-claims-f-35-kinematics-better-than-or-equal-to-typhoon-or-super-382078/>

<sup>30</sup> <https://medium.com/war-is-boring/test-pilot-admits-the-f-35-can-t-dogfight-cdb9d11a875#.f4c9p029u>

<sup>31</sup> <http://cnsnews.com/news/article/terence-p-jeffrey/3-wealthiest-counties-usa-are-virginia-suburbs-dc>

<sup>32</sup> <https://next.ft.com/content/b99b7446-7728-11e5-933d-efcdc3c11c89>

<sup>33</sup> <http://www.truth-out.org/news/item/34123-on-the-news-with-thom-hartmann-half-of-all-americans-are-living-in-or-close-to-poverty-and-more>

## WE NEED TO TALK ABOUT BRITAIN

F-35B was designed to replace the Harrier jump-jet, which went out of service in 2011. The UK once envisaged ordering 150 F-35s, to be ready by 2012. Four years on, the F-35 is still far from ready to fly in combat and the cost of a single jet has risen from £33m to £100m. Britain's Conservative-led government was embarrassed by its decision in 2012 to flip-flop on which variant of the radar-evading aircraft to buy, which cost the British taxpayer at least 74 million pounds (\$122.72 million). And yes, after themselves rationally and convincingly explaining to us why the F-35B is the worst performing and most expensive to run out of the three varieties on offer, rather than ditching, we are then told we have to stick with it.

The F-35B is the model designed for short take-off and vertical landing (STOVL). Without catapults to fling planes off the end of aircraft carriers and catch them when they land (which Britain's new Queen Elizabeth class carriers don't have), this is the only way to get planes into the air and to get them back again.

The problem is the extra hardware that goes into the B variant to make STOVL possible. Not only does the engine have to tilt down 90 degrees, but to balance the lift (and provide more of it), the F-35B has to incorporate a giant fan in the front half of the plane that pushes air downwards. The fan doesn't have a use outside of take-off and landing, which means while the F-35B is flying, it's lugging around that extra weight to no benefit. But the fan is also taking up space in the body of the plane which the other two non-STOVL variants (the F-35A and F-35C) can use for other things. As a result, the F-35B has to use a smaller fuel tank, limiting range and loiter, but also has less space for ordnance. The B's internal weapons bays, tucked into the body to maintain its stealth profile, are limited to two 1000-pound bombs and two air-to-air missiles, while the A and C variants can carry bombs that are twice that size. To cap it all, all that extra gadgetry also makes the B variant the most expensive option of the three.

Despite the huge costs and apparent uselessness, the UK is now apparently committed to purchasing 138 F-35s for around £12bn at current prices, primarily to fly off its two new aircraft carriers.

*"We are going to step up the aircraft carrier punch of the United Kingdom. We are going to make sure that when these aircraft carriers are available, they are going to have planes that can fly from them in force. By 2023, we will be able to have these [24] jets - some of the most powerful in the world - the F35, on the decks of these carriers and Britain, second only to the United States, will be able to project power abroad in order to defend ourselves at home."*

*George Osborne, Chancellor of the UK*



The UK was the sole "level 1" partner and hence the second-biggest industrial partner to the US, contributing about £1.7 billion to the development of the plane. This allowed BAE to secure much more than just a stake in the relatively small number of jets the UK is planning to buy.

British companies such as BAE Systems and Rolls Royce build 15 percent of each F-35 aircraft. Given the scale of the two aircraft carriers with their combined price tag of £6.2bn, it might seem that the largest warships ever built for the British navy would represent the bigger return for BAE in financial terms. But it is the 15 per cent stake the UK defence contractor holds in the F-35 project, that is the prize. "The scale, scope and complexity of the F-35 programme is beyond that of any other programme on the planet," says Stuart Forsyth, BAE's F-35 development director.<sup>34</sup>

BAE's stake in the F-35 though small is expected to deliver both revenues and profits that should exceed those of its biggest defence contract to date: the Eurofighter Typhoon fighter jet, in which it is one of the lead industrial partners. "People might think that the Typhoon would be a larger programme because it is the only [complete] combat aircraft that BAE builds," says Nick Cunningham, an aerospace and defence analyst at Agency Partners in London. "But it is the sheer volume of F-35 that makes the difference. So even if BAE only has a small part of each aircraft, the aggregate value [of the contract] will be bigger."

The UK currently has three F-35s, but they will remain in the US to operate at test locations, according to the MoD. Another jet ordered by Britain will not be ready until sometime this year. Four F-35s ordered in November 2014 will take more than two years to be delivered. At current prices, it would cost around £6bn to buy the 72 F-35s that Britain's two aircraft carriers are designed to hold – which is roughly the cost of the carriers themselves.

Britain's ageing Tornados will be out of service in three years, leaving the UK with a maximum "offensive capability" of 60 aircraft, said Air Chief Marshal Sir Michael Graydon CBE. He also accused MoD officials of being "in denial" over the ability of Britain to run a "serious air force".

**Australia.** Documents released under Freedom of Information show that in March 2002, Australia's Defence Capability and Investment Committee considered the pros and cons of signing up to the Joint Strike Fighter programme. The cons included not enough information to know whether this paper plane could actually replace existing fighters, and that buying a stake would effectively end the competition process that had 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, Australia was in. Dr Keith Joiner says the biggest risk confronting Australia is that they may end up with 72 JSFs which are faulty and not fit for purpose. By that point, it will be too late to fix it.

## THE INCONVENIENT TRUTH

Simply going along with the "too big to kill" procurement plan of unreliable and problem-ridden F-35s means acquiescing to shrinking air forces, growing defense budget shortages, and the likelihood of disastrous failures in combat.

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<sup>34</sup> <https://next.ft.com/content/8523e7b2-fd5c-11e3-96a9-00144feab7de>

*“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.”*

*Chris Mills, former Wing Commander with the RAAF.*

## NOTABLE QUOTES

*“You could argue it was already one of the biggest white elephants in history a long time ago.”*

*former Armed Forces Minister Sir Nick Harvey<sup>35</sup>*

*“Cutting defense spending is difficult because of the jobs at stake in every corner of the country,”*

*Patty Murray, chairwoman of the Senate Budget Committee, said in an e-mailed statement that cited planemaker Boeing Co.<sup>36</sup>*

*F-35 is described as a “flying credit card” by a Canadian politician quoted by author William Hartung in Prophets of War - Lockheed Martin and the Making of the Military-Industrial Complex.*

*“The F-35 has come to symbolize all that's wrong with American defense spending: uncontrolled bloat, unaccountable manufacturers (in this case, Lockheed Martin), and an internal Pentagon culture that cannot adequately track taxpayer dollars.”*

*David Francis, The Fiscal Times<sup>37</sup>*

*The Joint Strike Fighter programme: “I'd drop it like a hot rock.”*

*senior US air force strategist Colonel Michael Pietrucha<sup>38</sup>*

*“We need to get a little bit of spine back here, and stand up to the company.”*

*Dr Keith Joiner, former ADF Director-General of test and evaluation, on the F-35*

*“the rule book was being rewritten in parallel to the decisions being made, and the acquisition process became defunct.”*

*Air Commodore Garry Bates, former director-general of aerospace combat systems in the Defence Materiel Organisation, on Austrian Government's procurement of the F-35.*

*“We're beholden to a single source. We are held hostage to one contractor.”*

*Michael Sullivan, head of the US Government Accountability Office 's Defence Weapons System Acquisition program<sup>39</sup>*

<sup>35</sup><http://www.independent.co.uk/news/uk/home-news/new-us-fighter-jet-on-course-to-becoming-one-of-history-s-biggest-white-elephants-10238761.html>

<sup>36</sup> <http://www.bloomberg.com/news/articles/2013-02-20/defense-cut-hypocrisy-makes-gop-converge-with-democrats>

<sup>37</sup> <http://www.cnn.com/2014/07/31/how-dods-15-trillion-f-35-broke-the-air-force.html>

<sup>38</sup> <http://www.abc.net.au/radionational/programs/backgroundbriefing/2016-03-06/7224562#transcript>

*"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'."*

*Chris Mills, former Wing Commander with the RAAF.*

*"Further accelerating a program with this many major design, safety, and reliability problems is a disservice to our people in uniform who have to fly, maintain, and go to war with this weapons system."*

*Mandy Smithberger, Director of the Straus Military Reform Project at the Center for Defense Information at the Project On Government Oversight.*

*"The biggest lesson I have learned from the F-35 is never again should we be flying an aircraft while we're building it."*

*Air Force Secretary Deborah Lee James<sup>40</sup>.*

*The F-35 "is a dog ... overweight and underpowered." It "will needlessly spill the blood of far too many of our pilots."*

*Winslow Wheeler, director of the Straus Military Reform Project at the Project on Government Oversight in Washington, D.C.<sup>41</sup>*

*"It was policy people who did that report, [people] with no airplane experience," O'Bryan said, adding that many critics of the F-35 "are people who are self-proclaimed experts who live in their mom's basement and wear slippers to work."*

*Steve O'Bryan, a Lockheed vice president and former fighter pilot, commenting on the 2008 report that heavily criticised F-35s, despite the report's authors being highly experienced jet pilots.<sup>42</sup>*

*"What you have to understand is that problems with the F-35 are the result of pathological decision-making patterns that go back at least to the 1960s,"*

*explained Chuck Spinney, a retired Defense Department analyst and whistleblower whom one senator called the "conscience of the Pentagon."<sup>43</sup>*

*"I see a program that should have been held up," said Tom Christie, who was the Pentagon's director of operational test and evaluation from 2001 to 2005. "You've got to take your time and wring this thing out before you start delivering these aircraft and [not] have to go back and spend billions fixing them." "The*

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<sup>39</sup> <http://www.abc.net.au/radionational/programs/backgroundbriefing/2016-03-06/7224562#transcript>

<sup>40</sup> <http://www.military.com/daily-news/2015/07/28/air-force-secretary-acknowledges-wide-range-problems-f35.html>

<sup>41</sup> <http://www.counterpunch.org/2009/11/10/the-self-dismembering-f-35/>

<sup>42</sup>

[http://www.realcleardefense.com/articles/2015/04/25/the\\_jsf\\_has\\_made\\_our\\_air\\_arsenal\\_more\\_vulnerable\\_107889.html](http://www.realcleardefense.com/articles/2015/04/25/the_jsf_has_made_our_air_arsenal_more_vulnerable_107889.html)

<sup>43</sup>

[http://www.realcleardefense.com/articles/2015/04/25/the\\_jsf\\_has\\_made\\_our\\_air\\_arsenal\\_more\\_vulnerable\\_107889.html](http://www.realcleardefense.com/articles/2015/04/25/the_jsf_has_made_our_air_arsenal_more_vulnerable_107889.html)

*program has been embarrassing,” he said. “And they’re just at the point to say, ‘We’re going to take whatever we get.’”<sup>44</sup>*

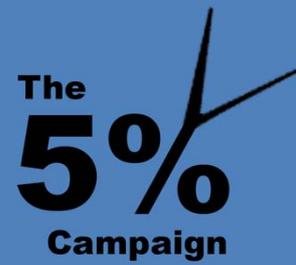
## PLANNED PURCHASES

The numbers of aircraft each country is planning to buy (at the time of writing, 2016), eventually.

Country	Variant	Numbers
USAF	A	1763
USN	C	260
USMC	B	340
	C	80
United Kingdom	B	138
Turkey	A	100
Australia	A	100
Italy	A	60
	B	30
Netherlands	A	37 (down from 85)
Canada	A	65
Norway	A	52
Japan	A	42
South Korea	A	40 (+20 optional)
Israel	A	33 (+17 optional)
Denmark	A	30

<sup>44</sup> <http://america.aljazeera.com/watch/shows/america-tonight/articles/2015/3/26/f35-trillion-dollar-fighter-jet-pentagon.html>

The Five Percent project is funded by Polden-Puckham Charitable Foundation and is a project of Tipping Point North South, a 'for the benefit of community' co-operative, supporting and initiating creative, campaign-driven projects that advance the global social justice agenda.



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