

**From:**

**Sent:** Friday, 6 July 2012 10:03 AM

**To:** Brown, Jerome (REPS)

**Subject:** FW: JSCFADT Submission: A Line Has Been Crossed . . .

Submission to JSCFADT Review of Defence Annual Report 2010-2011

To: Chair of Defence Sub Committee, JSCFADT  
Secretariat, JSCFADT

Dear Senator Furner and Mr Jerome Brown:

For completeness, the following is provided as part of the Supplementary Submission of Evidence to the APA Submission entitled "A Line Has Been Crossed".

Many of the statements in the testimony of Defence and the representatives of Lockheed Martin Corporation before the Committee are false, misleading and deceptive as well as offensive and damaging, to the Committee, the Parliament and other witnesses.

In relation to the false and misleading claims made about APA, these are epitomised by the statement:

"Air Power Australia made several errors of fact and misrepresentations about F-35 capability. . . .their analysis is basically flawed through incorrect assumptions and lack of knowledge."

*AVM Kym Osley, NACC Project Director General  
JSCFADT Review of DAR 2010-11, 16 March 2012*

Mr [redacted] appends this particular statement to the malicious missives he writes on the WWW based forums and the internet he frequents and often.

Prima facie and, at the very least, such behaviours constitute an offence against the Parliamentary Privileges Act of 1987. Not surprisingly, Mr

[redacted] attempts to misdirect and confabulate, the motives behind and purpose for which are obvious.

In relation to the claims of "basically flawed analysis", "incorrect assumptions" and "lack of knowledge", no substantiating evidence is provided to support such outrageous assertions. The motives behind and purpose of such behaviour may be seen in three of the eight characteristics of the organisational disease known as Groupthink, identified by Professor Irvin Janis nearly forty years ago. AVM Osley is part of the group of senior Defence officials who, repeatedly over the past decade, have made incorrect, false and misleading representations to the Australian Parliament and the Australian people by claiming, inter alia:

1. The JSF to be “affordable” by citing just one of the costs - the unit recurring flyaway cost (URFC) – rather than stating the unit aircraft price (UAP) and in a way reflective of Lockheed Martin Corporation marketing material that mirrors what, under the [Australian Trade Practices Act of 1974](#) (now the Competition and Consumer Act of 2010), came to be called ‘[Component Pricing](#)’ (a.k.a. ‘*Deceptive Component Pricing*’ in other jurisdictions). There are many costs that go into producing a product like an aircraft but there is only one price. To cite just one of these costs as the price is false and misleading as well as deceptive and has exposed the Commonwealth to all manner of risks. The following is provided for further clarification.

Component Pricing is marketing/advertising a price in its component parts ( or ‘costs’) rather than as a single figure, and can create an impression that a product is being offered for sale at a lower price than it actually is. The Australian Consumer Law (ACL), which is a schedule to the *Competition and Consumer Act 2010*, requires under section 48 that if you choose to use component pricing in advertisements, you must also provide consumers with a prominent single total price for goods and services, as they are able to be quantified at that time.

2. *“ . . the JSF Price (for Australia) - US\$55 million average for our aircraft . . in 2006 dollars . . ”*

*-Senate Estimates, AVM John Harvey and ACM Angus Houston, November 2006*

*“There are 108 different cost figures for the JSF that I am working with and each of them is correct”*

*-Dr Steve Gumley, CEO of the DMO, September/October 2007-*

*“...I would be surprised if the JSF cost us anymore than A\$75 million ... in 2008 dollars at an exchange rate of 0.92”*

*-JSCFADT Dr Steve Gumley, CEO DMO, July 2008-*

when Official US Government Reports to the US Congress put the unit price of the F-35A CTOL JSF (the one these same senior Defence officials want the Commonwealth to buy) at well over US\$100 Million per aircraft (Refer Submission No 2, Page 4 of 33 – ‘SAR Longitudinal Analysis: Compilation of Data & Facts on Price and Threshold Breaches’), while the current actual price is now as predicted and advised to Defence and others by APA back in 2006 and, through the application of standard risk management methodologies, it can be said will almost certainly be the subject of further increases.

3. The JSF would be available in time to replace the F-111 fleet in 2010 and no interim air combat aircraft would be necessary, while, back in 2001, experts in Industry and Academia, as well as within Defence itself, were advising the Defence senior leadership group that JSF aircraft were unlikely to be operational till sometime after 2018. Note this was back in 2001, before senior Defence officials recommended to the government of the day to cease all evaluations and join the SDD Phase of the JSF. The latest official advice out of the USA on the yet to be announced date for initial operational capability (IOC) of the F-35A JSF suggests this will be sometime after 2019. (Refer JSF

Selected Acquisition Report to the US Congress dated 31 December 2011 and GAO Report No 12-437 dated 14 June 2012).

4. The operating and support (O&S) costs of the JSF would be 20% to 50% lower than the legacy aircraft they are intended to replace when experts knowledgeable in such things and having done the analyses predicted the O&S costs would be greater than 150% of legacy aircraft for the simple (and obvious) reasons that the JSF, for starters, would be a much heavier but constrained/limited volume and, therefore, extremely dense aircraft design, resulting in higher O&S costs due to, inter alia, (a) over twice the internal fuel load; (b) two non-standard shaped internal weapon bays; (c) over three times the avionics, much that is new and untried, with; (d) new, untried electrically powered flight control actuators; (e) over ten times the software load; (f) the biggest, heaviest, hottest operating and fuel thirstiest single military jet engine ever built; and, (g) the higher maintenance costs associated with low observable technology coatings with stealth related internal components and design features. That fellow Australians allowed themselves to be misled and deceived by this blatant load of *“a total indifference to what is real”* is extremely disappointing and disgraceful. The GAO Report cited above in sub-paragraph 3 has this to say about JSF O&S costs:

*“The sustainment affordability target for the Air Force’s CTOL (\$35,200 per flight hour) is much higher than the current cost for the F-16 it will replace (\$22,500 per flight hour, both expressed in fiscal year 2012 dollars).”*

which puts the current estimate of JSF O&S costs at around 156% those for the F-16 aircraft. For the purposes of comparison, the results of APA analysis of the O&S costs currently puts them at between 170 to 180 per cent of those for the single seat F-16C.

5. They have claimed the JSF is *“a truly 5<sup>th</sup> Generation fighter aircraft”*. However, it doesn’t have four of the six cardinal key capabilities of the F-22A Raptor nor of the two other 5<sup>th</sup> Generation designs (the Russian Sukhoi T-50 PAK-FA and the Chinese Chengdu J-20), namely: the JSF is not capable of super-cruising; does not have super-agility like the F-22A let alone the extreme plus agility of the T-50 PAK-FA; does not have a large internal air combat weapon load; and, does not have the ability to loiter and operate at high (>50kft MSL) combat altitudes. Though low observable technologies have been included in the JSF design, it does not have the all aspect, broad bandwidth stealth of the F-22A. The other cardinal 5<sup>th</sup> Generation capability – highly integrated sensor fusion – has yet to be demonstrated in the JSF. The JSF designs are also single engine, relatively small though rotund aircraft due to the STOVL F-35B being the baseline design for the other two JSF variants, while the three 5<sup>th</sup> Generation designs are large, twin engine machines. The CTOL and STOVL JSF variants have very high wing loadings – over double that of most other fighter aircraft – resulting in mediocre to low manoeuvrability/agility and other less desirable characteristics for a purportedly stealthy fighter aircraft such as visible and observable vortex shedding (VOVS). Recent claims that the VOVS issues and problems on the JSF have been fixed through the fitment of a small

tab on the wing and software are simply fanciful; defy the Laws of Physics, Engineering and Common Sense; and, are just more of the same load of “a total indifference to what is real” that has been the hallmark of the JSF Program and what senior Defence officials have been saying about this program since 2002.

6. They have made representations intimating the F-35A CTOL JSF is a lethal fighter aircraft. A key requirement for lethality is the number of weapons an aircraft is capable of taking into battle and delivering on target. The specified (and Program of Record) internal air-to-air weapons load of the JSF aircraft is only a quarter of the missile load able to be carried in the F-22A Raptor (i.e. 2xBVR missiles versus 6xBVR + 2xWVR missiles). At this stage, the marketing promises of the JSF being able to carry a greater number missiles sometime in the future are as hollow as the promise of “*affordability is the cornerstone of the JSF Program*” and as empty as the list of the number of missiles that have been launched, let alone successfully, and number of bombs that have been delivered onto targets by JSF aircraft after almost 6 years in flight testing. This observation is supported by the report on JSF Program Risks provided to the NACC Project Office back in 2002 by the RAAF Flight Test Centre which was ignored. In summary, this report observed that clearing weapons out of the oddly shaped and complex internal weapon bays of the JSF is almost certainly “*going to be both interesting and exciting!*”. Anyone with experience in weapons clearance and certification tasks, one of the more hazardous aspects of flight test, knows precisely what this observation means.
7. They have made representations the JSF has “*high manoeuvrability and agility*” and have premised this on the F-35A CTOL JSF variant being a “9 g aircraft”. Nothing could be further from the truth and such claims are, at best, naive if not fallacious. Any Aeronautical Engineer with a modicum of experience in aircraft design or flight test knows that the “9 g” figure is the maximum instantaneous ‘g’ or maximum normal load factor and this requirement is predominantly for designing the aircraft structure, not for manoeuvrability and agility. Manoeuvrability relates to the ability to change the state of the aircraft in flight with the predominant measures being sustained ‘g’ and the rates at which such changes can be made (e.g. turn rate, roll rate, yaw rate which, being angular rates, are usually expressed in degrees per second or deg/sec). Agility results from the combination of manoeuvrability and controllability, the latter being how precisely and quickly changes to the aircraft’s state are able to be initiated and completed. Reference to the JSF Operational Requirements Document (ORD) shows no requirements were set for the agility of the aircraft and the requirements for manoeuvrability are, at best, quite average if not mediocre. The results of the APA analyses (overlaid in **red on the following chart**) confirm the prediction in the JSF Selected Acquisition Reports back in 2003 that Threshold Level KPIs (the bare minimum acceptable level) will not be met by all variants of JSF aircraft. Refer Submission No 2, Page 22 of 33.



## APA Analysis & Assessment of JSF ORD Maneuverability KPIs

**X Likely Fails to meet Threshold Specification**

### Maneuverability

JSF ORD, March 2000 - Change 3

Air Power Australia (AP A) Assessment/Estimate s, circa 2006/07, in RED  
Copyright © Air Power Australia, PG AA, Peter Gooch : January 2012,  
2006-2011

		Threshold Minimum Acceptable	Objectives Target Specifications
Corner Speed	CTOL/CV	F-16 like	F/A-18 like
Instantaneous G	STOVL (At 15K feet)	+7.0 320 KCAS 0.76M @ ISA	+7.5 305 KCAS
Sustained G	CTOL	+5.3 X <b>+4.7g</b>	+6.0
	CV	+5.1 X <b>+4.0g</b>	+6.0
	STOVL (At 15K feet/.8 Mach)	+5.0 X <b>+4.3g</b>	+6.0
Sustained G (< 1.15 G) Mil Power performance at 30K ft ≤ 0.9M <i>Climb rate of 1,000 fpm @ 30Kft is less than half that of a "comparably" mid-dling laden Boeing B737 airliner!</i>	CTOL <sup>1</sup>	Sustained 30 degree bank turn X < 27 degree 1000 fpm climb (straight and level). X < 800 fpm	Sustained 45 degree bank turn 2500 fpm climb (straight and level).
Acceleration:	CTOL	≤ 55 sec X <b>60+ secs</b>	≤ 40 sec
	CV	≤ 65 sec X <b>74+ secs</b>	≤ 45 sec
	STOVL (At 30K feet/0.8 to 1.2 Mach)	≤ 65 sec X <b>69+ secs</b>	F-16C Bk60 + 2 x BVR + 2 x WVR Weapons + 50% Internal Fuel ~28 secs <small>(approx. 40% CTOL)</small>
Ps	STOVL (At 15K feet/0.8 Mach)	550 feet/sec X < 490 ft/sec	
G at Maneuver Weight	CTOL <sup>2</sup>	+9.0/-3.0 (Mach ≤ 1.05) X +7.0/-2.0 (Mach > 1.2) X	<b>Will be N<sub>2</sub>W Limited!!!</b>
	CV	+7.5/-3.0 (Mach ≤ 1.05) +6.5/-2.0 (Mach > 1.2)	+8.0/-3.0
	STOVL	+7.0/-3.0 (Mach ≤ 1.05) +6.0/-2.0 (Mach > 1.2)	+8.0/-3.0

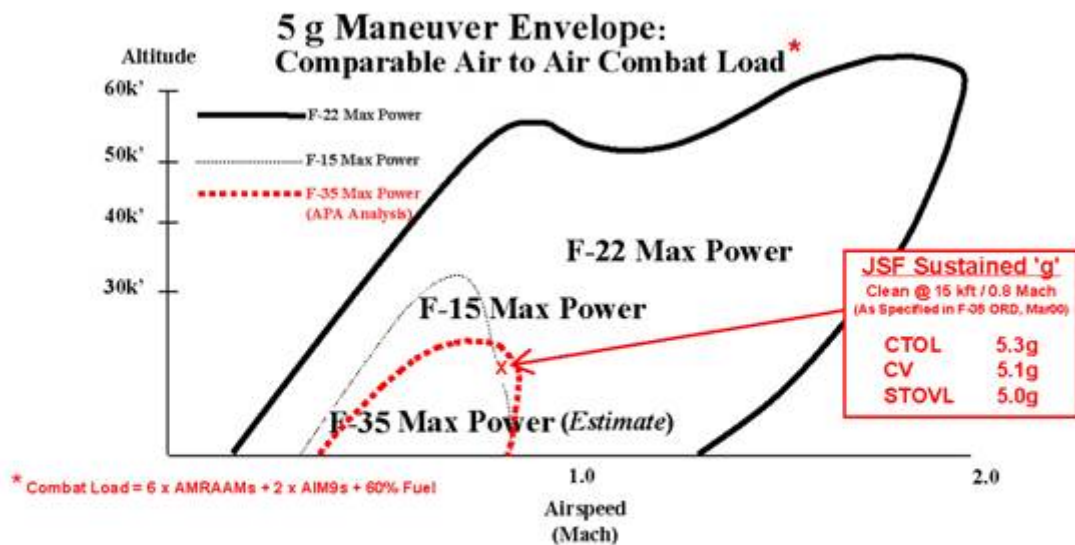
1. Configuration: 2 x empty external 370 gallon tanks internal fuel for 540nm combat radius, 4 x JDAM Mk-84, 2 x AIM-120, gun with 150 rounds. Airspeed ≤ 0.9M. *Specifies 'useful' Combat Ceiling Limit for this configuration!!!*

2. With 60% of internal fuel load required for 540nm combat radius and JDAMs jettisoned/released.

*Maneuver Weight = NTE + 1,200 lb (2 x AIM-120 + SSE) + 10,800 lb fuel = 41,371 lb, but . . . with WE (Max Nz) @ 28,948 lb, Maneuver Weight = 40,948 lb. So data point (60% fuel load and 540nm combat radius) likely not achievable. As empty weights increase, as predicted & shown, performance will degrade even further!!!*

The as-specified manoeuvrability requirements for the F-35A CTOL JSF are, at best, quite average for 1960's and 1970's aircraft designs.

For example, aircraft in which I flew, back in 1981 (over 30 years ago), at United States Naval Test Pilot School (USNTPS) were capable of sustaining 6 g turns at 15K feet/0.8 M, yielding a sustained rate of turn of ~13.5 deg/sec. Today, the situation is even more bleak for the outlier designs of JSF, as the following starkly demonstrates, particularly since the Russian Gen 4++ Sukhoi Su-35S (a.k.a. 'Not your Father's Flanker') along with the T-50 PAK-FA and China's Chengdu J-20 all have been specifically designed to be competitive with, if not superior to, the F-22A Raptor.



Source: Lockheed Martin Corp.; Matthew Molloy, LtCol USAF; Air Power Australia; PGAA

**Figure 2. Maneuver Envelope: F-22 vs. F-15 vs. F-35 JSF**

There is little doubt the JSF Program has put much emphasis on the sub-systems that are being installed and integrated into the aircraft to provide the pilot with advanced situational awareness. While some of these sub-systems are highly advanced and capable, being evolved versions of existing systems, many are yet unproven as is their integration and the intended level of data fusion in the aircraft. Sub-systems are an important part of the 'systems of systems' of air combat capabilities, but as the Head of Academics when I attended USNTPS said, "*Beware of snake-oil aircraft marketers who try to sell their aircraft on the back of the sub-systems being installed into the machines they are marketing. Sub-systems are important but they do not a fighter aircraft make*". When very capable sub-systems are carried into battle in less-than-capable aircraft against adversaries who knew better than to listen to marketers, the incredible situation awareness they will provide to the pilots of these less-than-capable aircraft will be about how and when they are going to die.

The above are some examples of the evidence that supports the observation "*a line has been crossed*". Not only have senior Defence officials ignored these and the assessed levels of extreme risks, along with the supporting data and facts, provided to them by independent domain experts but, to defend their groupthink held beliefs, have falsely and maliciously besmirched, denigrated and set out to cause damage to, as the DLA Piper Review into abuses in Defence concluded, "*those who have the courage to stand up for what is right when others in the ADF do wrong*".

This completes the provision of the evidence requested on the matters raised in our original submission, entitled "**A Line Has Been Crossed**".

However, we respectfully wish to point out that the far more important matter before the Committee is what independent domain experts have been saying all along -

there are more things wrong than are right with the JSF designs and the JSF Program, itself and, of even greater importance, what needs to be done to address and remedy the catastrophic situation that has been allowed to materialise.

More broadly, the JSF is but a symptom – albeit a big, virulent and cankerous symptom - of a much greater problem as evidenced by the other similarly diseased Defence acquisition programs such as the Collins Submarine, the Wedgetail AEW&C, the Air Warfare Destroyer (AWD), and the Helicopter Programs, to name just a few.

On the latter, clearly the lessons are not being learned even with the former Project Director of the Super Sea Sprite Helicopter acquisition malpractice now as the Head of the Helicopter Systems Division of the DMO.

The ANAO audits over the past four years into DMO major projects have gone some way to open up the DMO and its activities to some scrutiny but, sadly, not enough nor soon enough to prevent billions of dollars to continue to be directed into trashing large and significant parts of Australia's defence capability force structure.

That the ANAO audits have been constrained to the point of being hijacked and made far less effective by DMO insistence that "*capability and schedule are out of scope for these audits*" should be a lesson to all.

Meanwhile, members of the Defence senior leadership group continue to have firmly held beliefs and about which they say, repeatedly, they are "*extremely confident and very comfortable*".

The fact that the prevailing response of senior Defence officials to views that are countervailing to their own firmly held beliefs is to refuse to engage let alone even participate in any form of critical debate by "ignoring the message and shooting the messengers" is the principal reason for the absence of any form of effective contestability let alone accountability in Defence, today.

While ever the people's representatives in the Australian Parliament allow this situation to continue, more of the same is guaranteed and Australia's Defence capability force structure along with the Australian Defence Industry will continue to be trashed as they have been over the past decade or so (since the Purge in Defence of 1999 – 2002). The application of standard performance assessment and root cause analysis/assessment (PARCAA) along with the application of the principles of Risk Management (RM) show this situation will not only continue but will almost certainly accelerate.

Failure to heed this message and to listen to what independent experts have been advising, for years, on what needs to be done will only embolden those responsible for this travesty and lead to more of the same from Defence. This will almost certainly result in Australia, post 2015, losing the technological and strategic edge to maintain and sustain regional superiority which, at the very least, means those responsible in whom the Australian people have placed their trust have failed to honour that trust. In so doing, they have failed to meet the strategic directives of

successive governments and, thus, have put the defence and security of Australia's sovereignty at serious and quite unacceptable risk.

Yours Sincerely,

*Peter Goon*

Peter Goon

Principal Consultant/Advisor

Head of Test and Evaluation

Co-Founder, Air Power Australia

Peter Goon and Associates

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*"Scientists discover the world that exists; Engineers create the world that never was."*

Theodore Von Karman, Aerospace Engineer

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