

JSF PROGRAM: RISK ASSESSMENT SUMMARY TABLE

Joint Strike Fighter (JSF) Mantra KPP	Identified Risk (What if?)	Probability of Risk Arising	Outcome if Risk Arises	Assessed Level of Risk	Comments
					Issue 7.2 16 July 2010
JSF: "A Truly Fifth (5 th) Generation Fighter"	JSF Turns Out Not to be a Fifth Generation Fighter	P = 1.0 REALITY	NUMEROUS & SEVERE INCLUDING: OVERMATCHED & UNCOMPETITIVE SEC ANTI-TRUST ASIC/ACCC TPA LIABILITIES	EXTREME LEVEL OF RISK MATERIALISED REAL ISSUE/ PROBLEM	See: Mr Secretary - Why Does the Pentagon Say the JSF is a 5th Generation Fighter . . . Really?
Affordable	JSF is Not Affordable in Numbers Needed	P = 1.0 REALITY	>95% Increase in JSF Program Budget > 90% Increase in Unit Costs (PAUC & APUC)	EXTREME LEVEL OF RISK MATERIALISED REAL ISSUE/ PROBLEM	Already Massively Exceed the SEVERE Consequence Ratings of DMO and Defence Guidelines for CATASTROPHIC events: >10% cost increase/ >12 months delay See: F-35 JSF Program: When is "Affordability" Not?
Survivable	JSF is Not Survivable Against Reference Threats	ALMOST CERTAIN P = >0.9 (1)	SEVERE Loss of Air Superiority	EXTREME LEVEL OF RISK	For Reference Threats , see relevant papers and analyses via the linked buttons below. Loss of access to and control of Air/Sea/Land Gap
Lethal	JSF is Less Lethal than Reference Threats	ALMOST CERTAIN P = >0.9 (1)	SEVERE Loss of Air Superiority	EXTREME LEVEL OF RISK	For Reference Threats , see relevant papers and analyses via the linked buttons below. Loss of access to and control of Air/Sea/Land Gap
Supportable JSF O&S Costs to be < 90% of F-16C	High Costs for JSF O&S > F-16C Big Dependence on Foreign Companies	P = 1.0 REALITY	Unit O&S Costs now > 1.2 Times F-16C/D >175% Increase in Total O&S Budget Estimate	EXTREME LEVEL OF RISK MATERIALISED REAL ISSUE/ PROBLEM	Origins of Issue/Problem lie in: (1) Reliance on overly optimistic estimates from Contractor/US Govt; (2) Failure to understand cost structures; and, (3) DMO adopted TSPR (Total System Performance Responsibility) contracting models earlier this decade.

APA NOTAMS

SUKHOI

SAMS/IADS

REGION

WEAPONS

AIR POWER AUSTRALIA ANALYSES

(1) Assessment of capabilities of the Russian T-50 PAK-FA; Upgrade of assessment of the Sukhoi Su-35S capabilities, particularly CLO and EWSP/ECM systems; and Upgrade of assessment of the S-300V/PMU1/PMU2, S-400 Triumf SAM systems has resulted in status upgrade.

Legend for Assessed Level of Risk (in keeping with AS/NZS4360:2004 and ISO31000):

E	Extreme level of risk (Immediate action required by Oversight, Executive and Directing Governance levels, i.e. do not proceed with activity until this level of risk is reduced)
H	High level of risk (Executive Management attention required with Directing Governance level oversight)
M	Moderate level of risk (Able to be delegated to Implementation Management Level with ongoing Executive Management oversight)
L	Low level of risk (Able to be managed through routine procedures)
P = 1.0	Risk MATERIALISED ; Consequences have or are happening, Failure to Manage Risk

JSF TOP LEVEL PROGRAMMATIC RISK ASSESSMENT

PRECIS OF REPORT: (Refer Summary Table)

PRE-AMBLE AND DISCUSSION:

Source documents for the data and other relevant information used in this Risk Analysis and Assessment include the JSF December 2009 Selected Acquisition Report (SAR), in addition to the JSF SARs and DAE APBs dating back to the original DAE APB of 15 November 1996; Dr Ashton Carter's JSF Program Re-certification Letter of 01 June 2010 along with supporting documentation; CAPE Assessment of May 2010; JET MkI & MkII Briefings; AT&L Memos; and, various other relevant briefings, analyses and memo reports.

A number of other salient Non-U.S. Government documents were used though privacy/proprietary caveats preclude their disclosure at this time. Given their nature and origin, we would expect the DMO and Defence to have access to such documents.

The basis of comparison is the U.S. Defense Acquisition Executive (DAE) JSF Acquisition Program Baseline (APB) – Base Year 2002 [**Reference A**] on which the Australian Government's decision to join the SDD Phase of the JSF Program was largely based.

The last Risk Assessment Advisory (Issue 6 dated 19 Nov 09) should have been cause for extreme concerns, due to one (1) Issue Arising and four (4) Extreme Risk Levels presented.

In 7 months, reporting on the JSF Program has gone from an extremely bad situation to one that is calamitous - a failed project, on the verge of collapse - which, if not properly managed, will almost certainly be catastrophic, with dire consequences for all involved.

CONCLUSIONS:

This independent Risk Assessment shows the JSF Program of Record is what can only be categorised as "*a failed project*". All valuations are in US Then-Year Dollars (TY\$).

Three of the five top level programmatic risks have already materialised while the other two are assessed to be at Extreme Levels of Risk. All standard measures of program performance and their related consequence ratings for "*Severe*" (a.k.a. *Catastrophic*) outcomes (i.e. the APB Limits, Nunn-McCurdy Limits, and DMO/Defence Risk Management Limits) have been exceeded by what can only be described as massive amounts.

Review of the relevant documents and comparison with Reference A show that:

1. The JSF is not and should not be categorised in the same class of capabilities as the F-22A Raptor; namely, the Fifth (5th) Generation Fighter Aircraft category, while the advent of the Russian Sukhoi T-50 PAK-FA goes to reinforce and confirm this fact.
2. Alerts to this situation started to become obvious in 2002/03 (prior to the SWAT and the follow-on increases in the aircrafts' design empty weights) and were being flagged by capability assessments at the time. These led to reports on the performance of the aircraft containing comments such as, "*JSF is projected to meet or exceed all KPP threshold requirements; degradation of performance margins is anticipated in future configuration updates. Some non-KPP threshold requirements will not be met*". The non-KPPs referred to were underlying KPI design requirements. These include level flight speed performance; level flight acceleration performance (Mach 0.8 to Mach 1.2 @ 30 kft, ISA); turn and cruise performance; as well as the design speeds.

3. The fact that “*threshold*” requirements are the minimum considered acceptable and that key performance indicators in the design are not meeting the “*threshold*” requirements should have been cause for concern. Failure to meet the “*threshold*” level of a particular requirement puts the requisite performance at an “*unacceptable*” level. The JSF Program and JSF designs are assessed to be below this level in many key areas; even more so when compared with new and emerging Reference Threats.
4. The JSF Program of Record Total Acquisition Budget has increased by over 95% - US\$382.426 Billion vice US\$194.140 Billion for 409 fewer aircraft.
5. The JSF Program Development (RDT&E) Budget has increased by over 65% - US\$57.368 Billion vice US\$34.400 Billion, yet no APB breach has ever been reported.
6. The Development (RDT&E) Budget specifically excludes “*Follow-On Development Funding*”. The unprecedented amounts of development work that have migrated beyond the SDD Phase (e.g. weapon clearances, still-in-planning Block Upgrades 4 to 7 and beyond, Design Changes and Modifications resulting from the Developmental and Operational Ground/Flight Testing still to be done), means the level of funds required will be considerable.
7. Both the JSF program acquisition and average procurement units costs (PAUC/APUC) have increased by over 90%, not the 57% that some reports encourage people to infer.
8. At Reference A, the original estimate of the O&S Unit Costs (directs, only, with exclusions) had the F-35A CTOL JSF costs around 75% of the combined costs of the F-16C and dual place D aircraft while around 90% of those for the single place F-16C.
9. Note: The advice provided to Australia, at the time (2002), by U.S. DoD as well as Contractor representatives was that “*the F-35A JSF would cost less to operate and support than the F-16 by at least 10%, and more than likely significantly less*”.
10. The estimate of O&S unit costs for the F-35A CTOL JSF aircraft has increased by over 65% (in BY 2002 Dollars), since Reference A.
11. The latest estimates for the F-35A CTOL JSF O&S Unit Costs (*directs, only, with exclusions*) exceed those of the combined F-16C/D fleets by over 20% (that is, over 1.2 times the combined O&S Unit Costs for the F-16C/D) and those for the F-16C fleet by around 30% (that is, around 1.3 times the O&S Costs for the single place F-16C). Risk based estimates yield somewhat higher margins over the F-16 fleet figures.
12. The latest budgetary estimate for the Total O&S Costs, that include all categories, for all three US variants based on an estimated 8,000 hour service life and predicted attrition and usage rates, has increased by over 175%, when adjusted for the 409 fewer aircraft since Reference A – US\$915.7 Billion vice US\$332.0 Billion. Risk based estimation puts this figure well over a Trillion Dollars.
13. Some eight (8) years after the JSF Program of Record was contracted, the overall program development (SDD/EMD) schedule has slipped by seven (7) years.

RECOMMENDATIONS:

In keeping with the risk standards (i.e. AS4360:2004 & ISO 31000), immediate actions are required by the Oversight, Directing and Executive levels of governance of this program.

As was the principle recommendation to the Project Manager, Project Director and Director General of the SEA 1411: *Super Sea Sprite Helicopter Project* back in 1998, 1999 and 2000, we recommend immediate action to plan Australia's withdrawal from the JSF Program, with the following important imperative.

Apply lessons learned from the GFC experience and not ignore the warnings signs but, rather, encourage the collaborative development and implementation of plans to:

- a. Avert the calamity that would ensue from a precipitous, unchecked collapse of the program;
- b. Maximise return on the investments already made, realising that much value within the JSF Program is highly perishable and would likely be lost in a calamitous collapse;
- c. Minimise disruptions and damages to the many people who are relying on the JSF Program for their livelihood, both in America and Internationally;
- d. Specifically in Australia, avoid adding to the GFC induced corporate carcasses across the Australian industrial landscape that would result from a calamitous collapse of the JSF Program, and the almost certain legal wrangles that would follow;
- e. Ensure the TACAIR/Air Combat Capabilities of all nations involved with the JSF Program can be availed with options to ensure no capability gaps of significance arise while doing so in an innovative, cost effective way such that greater capabilities could be procured for, in most cases, around half the amount they had budgeted to pay and, if required, in a significantly shorter timeframe (both being somewhat less than they would have ended up with as members of the JSF Program);
- f. Manage the obvious political and diplomatic risks appropriately, as well as the risks to survival of the Team JSF Contractors; and,
- g. Assure, wherever possible, that all risks can be properly managed into opportunities.

Recommend this assessment be formally presented to the Minister for Defence, the Hon John Faulkner, and the Minister for Defence Procurement, the Hon Greg Combet, ASAP.

This report and its recommendations have been commended to the ministerially appointed senior contact in Defence for Air Power Australia, the CEO of the DMO, Dr Steve Gumley, for his consideration and action.

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