



## **Supplementary Submission No 34**

### **Inquiry into Australian Defence Force Regional Air Superiority**

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***SOME THOUGHTS ON THE  
JSFADT INQUIRY INTO ADF REGIONAL AIR SUPERIORITY***

As a retired RAAF aeronautical engineer of some 35 years service, I have followed with interest, and much concern, the direction that Australia's air power has taken since the imposition of the Defence Reform Programme (DRP). In particular, I have been following your inquiry into Australian Defence Force regional air superiority, as I see this as probably the most important inquiry impacting Australia's security and regional standing, both militarily and diplomatically, for the next 20 to 30 years.

Having read the evidence given your inquiry at Canberra on 31<sup>st</sup> May and Ipswich (Amberley) on 5<sup>th</sup> July, I feel compelled to voice some comments which, I hope, being based on experience might be of some interest. They are not exhaustive, but cover only those more important points that I feel need airing.

*The Problems with Evidence*

While much sound evidence has been forthcoming at both hearings, there was also much opinion which was not subject to test. Unsupported opinion is worth little, if anything, as reliable evidence, although it is sometimes difficult to dismiss it from the mind if it has been presented in a most plausible way. Specialist opinion is often useful provided, as one would expect from a specialist, the opinion is qualified and quantified to the point where the opinion has a high probability of being correct. If I had any criticism of the inquiry to date, it would be on the basis that too much opinion seems to have been graced with the mantle of 'evidence', qualified of course by the fact that the Committee is dealing with highly technical matters which implies a difficult learning curve for some of the members. Unfortunately, because it demands much effort and some expertise to understand, properly conducted analysis is at the top of the tree in terms of value and dependability. Furthermore, analyses may be, and indeed should be, submitted to peer review to test its accuracy and thus provide an even higher level of acceptability.

With this in mind, I was a little concerned when at Amberley the Acting Chair proposed (FADT 27) that:

*"The one issue of what we have been looking at in the public hearings is the antagonistic position that has been put by Dr Kopp and Mr Goon, which is that we could do this in other ways and extend its (F-111) life".*

Just where the antagonism was felt, by whom, and for what reason was left open to conjecture. He then quoted, in part, from evidence given by Mr Goon at the hearing on 31<sup>st</sup> March (FADT 13):

*"The upgrades proposed for the F-111 are principally technology insertion upgrades to upgrade the remaining legacy systems in the aircraft. The nature of the upgrades and the types of technologies that we are talking about are low risk technologies".*

Had he quoted Mr Goon in full, he would have added:

*"In fact, the work that was done during the avionics update programme and the subsequent block upgrade programme for the F-111 has in fact established the mechanisms whereby those technology insertion programmes can be undertaken with minimum risk", and (from the same page FADT13):*

*"But we are not talking about anything near the size in terms of avionics. We are talking about the remaining legacy avionics in the aircraft, which are principally the cockpit, the radar and the Pave Tack system".*

In the absence of the full quote, and with no knowledge of the detail contained in the full submission provided to the inquiry by the gentlemen in question, nobody at Amberley could reasonably be expected to comment on the question put. As it stands, readers might be pardoned for feeling that there was some prejudice in the question put, reflecting a tendency to 'play the man rather than the ball', somewhat along the lines of the 'inappropriate behaviour' with which the Department of Defence has been charged recently. Guided by previous hearings, I feel that such an impression was not intended, but here we have one of the 'problems with evidence'.

If the 'antagonistic' position put by the two gentlemen cannot be challenged by superior analysis, then it must stand as the best evidence put before the inquiry to date. It is not sufficient that the Department of Defence refuses to comment or debate in substance.

### *The Sudden Change of Mind*

From my understanding, the Defence White Paper of 2000 saw the F-111 fleet flying out to 2020, and the F-111 Support Study that led to this guidance showed that this date could be achieved. As a result, funds were allocated in the 1999-2000 timeframe to support the F-111 fleet to 2020. In effect, defence planning at that time saw a useful role for the F-111 out to 2020. The 2000 White Paper still remains the basis upon which our current defence planning has been developed.

However, during 2003 there was an abrupt and dramatic change in direction. The F-111 was to be retired early (2010), the F/A-18 fleet would be refurbished to provide an interim capability, and the JSF was selected as the replacement for both the F-111 and the F/A-18. As the ability of the F-111 to fly out to 2020 does not seem to be in any serious doubt, given timely notice to industry of the intention to do this, the reasons behind the abrupt change remain somewhat obscure. One can only hope that a robust requirements analysis was conducted, but Defence has been more than reluctant to provide much in the way of supporting evidence, so informed debate has not been possible.

One aspect of the current plan of concern is the critical dependency upon the F/A-18 as an interim force to take up both F-111 and F/A-18 roles. This aircraft has not been subject to any servicings deeper than R2, although there are moves now to start R3 servicings where some indication of its fatigue status might be gained. Notwithstanding Australia's participation in the International Follow-On Structural Test (IFOST) Program, the absence of a full Australian F/A-18 fatigue inspection programme, where leading hour aircraft would be put through a thorough fatigue inspection process, has left us with some serious doubts about its fatigue condition. Unfortunately, an R3 servicing will not get down to those areas where fatigue is likely to be a serious problem, for example, the wing internal structure. In short, the fatigue condition of the fleet, which is already impacting operational use, as well as the downtime and cost to repair those aircraft found to need rectification, has a high probability of dramatically effecting the current plans of Defence.

### *The Joint Strike Fighter (JSF)*

Turning to the JSF, the decision by the Department of Defence to halt the source selection process and announce, in effect, the decision to purchase the JSF came rightly as a surprise. The JSF has, within the RAAF and the Department of Defence, been touted as unequivocally the best aircraft to meet the needs of the RAAF in terms of capability, cost, and risk. However, this was not the way in which the RAAF traditionally and most successfully selected its aircraft. The RAAF, pre-DRP, with an engineering branch to guide it, would never have taken such a decision at such an early stage, as the total risk involved was completely unknown and so could not be assessed. New, advanced technology systems will always meet major obstacles in performance, cost, timing, and risk objectives, and the JSF is no exception, but merely confirms this reality. Australia's commitment was unnecessarily early.

True to the past, the JSF project has moved, and is continuing to move markedly in terms of performance, cost, timing, and risk, and all in the wrong direction. Defence, for whatever reasons, seems not to want to recognise this or to take any pre-emptive action. We appear to place far too much reliance on what we are told by the manufacturer and others, and place far too little trust in the sound expertise that exists in Australia, limited as it may be. There is an inevitability that dreams and reality must eventually collide in the JSF project. It would be a wise Department of Defence that reviewed both our operational requirements and our air force capabilities, and that quickly, if Australia is not to be committed to a poor choice that we will live to rue over the next 20 to 30 years.

### *The Balancing Act*

For some 50 years, the RAAF has maintained Australia's air defence (air superiority) and ground attack capabilities with different aircraft. There has been a well-founded feeling in most air forces that these very separate tasks cannot be done by a single aircraft; and to attempt to do so will only result in both tasks being done sub-optimally. However, under pressures of cost and competing political priorities, Australia is now being forced to choose a single aircraft to cover both roles. The balancing act between air superiority, which is essentially a solely RAAF role, and ground support, which is essentially a 'joint' role, will lead to the most crucial airpower choice that Australia has had to make, probably since WWII.

If we are to be saddled with one aircraft for two roles, the decision really boils down to whether we:

- have a first-class air superiority aircraft which has an 'acceptable' ground support capability, or
- a first-class ground support aircraft with an 'acceptable' air superiority capability.

There has, naturally, to be a useful definition of 'acceptable', again a very complex operational analysis task upon which much depends. I have sympathy for those involved in doing the operational trades analysis! The choice, however, will need to reflect very soberly the defence capabilities of those in our region and their likely intentions over the next 20 to 30 years, a not inconsiderable task needing experience and a cool and steady aim. The emergence of China and India as new world powers and the move away from a simple self defence stance by Japan can be expected to impact the current military/diplomat balance in South-East Asia.

### *The Region*

The Acting Chair at the hearing at Amberley (FADT30) also made the following remark when discussing the presence of Sukhoi aircraft in our region:

*"There are insignificant numbers in the region".*

In discussing possible air superiority challenges in the future, we must first remember two things:

- We have already passed the milestones of 'if' and 'when' very advanced air superiority aircraft will be operating in our region.
- The questions of concern to us now are 'how many' and 'where'.

Hideaki Kaneda, a retired Vice Admiral of Japan's Self Defense Force and Director of the Okazaki Institute in Tokyo, advises that this year:

- Indonesia has discussed with Russia the procurement of their newest fighter jets. Indonesia is seeking to form an air defence squadron of 12 jets, with an additional 8 Russian fighters to complement the two Russian Su-27SKs and two Su-30MKMs already bought.
- Thailand has also tentatively agreed to purchase 12 Su-30MKMs.
- Malaysia has agreed to purchase 18 Su-30MKMs over the next two years.
- Vietnam has purchased 36 Su-27SKs, 12 of which are already in service.

What Kaneda did not note were numerous public statements by the TNI-AU Chief of Air Staff to the effect that TNI wanted up to 48 Sukhois, but the requirement was deferred because of Tsunami calls upon the budget. In addition, Malaysia also wanted a second squadron, but their requirement was also deferred for the same reason.

This is the situation in 2006, so we now have to estimate the likely population of advanced capability Russian (and Chinese?) air superiority aircraft in our region during the life of our next aircraft purchase. The choices are simple:

- The situation today will remain the same.
- We will see a reduced number.
- We will see an increasing number.

The central question that we must now answer is:

Is Australia to purchase an aircraft that will ensure that we retain demonstrable air superiority (the F-22) in our region (at best) or a very hopeful parity of air superiority (the JSF) with the best in our area (as a minimum)? The latter choice, of course, will most likely involve us in a continuing round of rushed catch-up or pre-emptive upgrades in an effort to maintain parity while the former choice should give us more breathing space in which to update our capabilities.

If we choose to retain a clear air superiority in our region, that is, opt for the F-22, then we not only have a sound defence capability but we are able to take a lead role in regional defence matters. If we choose not to retain such a capability, that is, opt for the JSF, then our commitment to regional defence may well be questioned and some of our neighbours may feel that they have to take up this capability for the protection of themselves as well as for the benefit of the region under cooperative defence arrangements. In this case, our voice in regional defence and other matters would hold less sway, and Australia's contribution to regional security would be diminished.

### *The Choice*

Returning to the choices we have in selecting the next generation aircraft best suited to maintaining air superiority in our region, it seems to me that:

- If we should have to select a predominantly air superiority aircraft having somewhat less than optimal ground support capabilities, we can 'guarantee', to the extent possible, control of the air space in our region. We may then have to work harder, or smarter, in the ground attack role, but at least we would have some advantage in time and the necessary freedom of action to do this. However, in choosing the F-22, we should expect to have an aircraft that will perform the ground attack role as well as can the JSF. The only advantage that the JSF has at present over the F-22 is its electro-optical sensor, but that system is available as a retrofit option for the F-22.
- If we select an aircraft primarily for the ground attack role which cannot assure us air superiority, in our theatre of operations, then we have lost the military initiative and we expose our ground forces to hostile air. The current concentration on 'jointery', with its heavy dependency upon networking, seems to have drawn attention away from one of the fundamental basics of air power - ***that without air superiority we cannot mount and sustain military operations.***

The F-22 can ensure air superiority with a high level of confidence, and it is currently subject to significant developments in the ground support role. To say that the JSF is network designed and capable, but the F-22 is not, is probably too short-sighted, as the USAF plan for the F-22 is to give it the NCW capabilities planned for JSF. In effect, the F-22 can be evolved, within reason, to make it what you want. As the JSF cannot assure air superiority over its life, we will need inevitably to consider the possibility of operating under hostile air, notwithstanding the network centric force multiplier supposedly capable of bridging any gap in our air superiority. We should be looking at the F-22 seriously as being able to provide air superiority as well as meet our ground support needs. We cannot now say that it is too costly in relation to the JSF.

### *Networking*

The concept of networking, or Network Centric Warfare (NCW), has been raised at both hearings of the inquiry, usually as being an overwhelmingly critical factor driving the ADF's structure and capabilities through a force multiplier mechanism. I have two areas of concern with this concept:

- Firstly, too much weight is being placed on the ability of a networked ADF and Air Force to give us a very decisive advantage over any adversary. Specifically, it has been described as *giving us the ability to engage in combat at a time and place of our choosing with an outcome that is almost predetermined.* From my 35 years of experience in the

RAAF, followed by a decade or so involved in defence and industry projects, this is rather optimistic and skims over the horrendous technological problems involved. The military advantages sought through networking will come only through a long, concentrated, and very pragmatic engineering and operational analysis phase, followed by complex system design, integration, and test programmes. This effort will probably need to proceed along an iterative path if we are not to get things thoroughly scrambled. The delays now being encountered, not surprisingly, with Wedgetail may give the proponents of networking some idea as to the engineering difficulties involved. We must also resist the temptation to confuse the benefits of networking the ADF with the underlying capabilities of the weapon systems being networked. In short, it is dangerous to accept the suggested benefits of networking to the extent that they drive and perhaps distort our force structure. We need to gain greater operational confidence before we can rely upon the benefits promised.

- Secondly, from the evidence I get the impression that only the ADF will possess the overwhelming military advantages conferred by networking, and will presumably be able to maintain this decisive edge in our region into the future. I have much trouble accepting this inference. Networking is not an Australian copyright and we must expect that others will also adopt possibly superior networking to meet their own particular needs, so we can expect competition in keeping a networking advantage, much as with other military systems. We cannot rely upon a decisive networking advantage over the next 20 to 30 years.

The problems faced in developing a battle-worthy networking system have been well and thoroughly covered by Dr Kopp in his submissions to the inquiry. Regrettably, his analysis of networking does not seem to have been given the importance that it deserves.

### *How Did We Get Here?*

There are many reasons why we have reached the point where the selection and procurement of military aircraft has been riven by maladministration, major errors in judgement, and an inability to bring new systems into service within the constraints of performance, time, cost, and risk. All this, supposedly, in the name of achieving cost savings and greater efficiency through the use of modern business methods!

In the air power sphere, one fundamental problem is the absence of a technical backbone in the RAAF. We now rely upon 'generalist' managers to recommend and take decisions in highly technological matters. While good in their specialist sphere, they are lacking sadly in the deeper engineering analytical skills upon which sound and timely planning decisions must depend. We just do not now have, either in the RAAF (or Navy or Army), or in the Department of Defence, the management and technological skills needed for the proper evaluation, selection, and introduction of military aircraft. To believe that the skills and experience required may be obtained from advertisements in local newspapers is unrealistic.

Before the imposition of the Defence Reform Programme (DRP), the RAAF had accumulated some 70 years of experience that could be drawn upon when specifying, evaluating, selecting, contracting, procuring, and introducing aircraft and their supporting systems. New aircraft and other equipment were introduced overwhelmingly within the required performance, time, cost, and risk parameters and were supported fully either within RAAF or industry on introduction into service. All

this happened as a matter of course within an air force of quite modest size and Australia was getting very good value for money.

The DRP swept aside 70 years of engineering expertise in the RAAF as well as the highly successful management systems and procedures that had been developed over that time. With the Commercial Support Programme, which outsourced the RAAF' deeper maintenance work, the result was to almost totally de-skill the Service technically. We will continue in much the way we are now until we re-skill the RAAF, as it is here that requirements are established, the aircraft operated and their performance evaluated both operationally and technically. The small technological base still existing in the RAAF needs to be seeded and grown to provide the range and depth of skills we need. The technology and management loops need to start with and be closed through the user Service.

### *What to do?*

It is not suggested that the inquiry redress the lack of technological depth within the RAAF overnight, but it should be aware of that problem. In regard to the immediate question of air superiority, there needs to be much more openness within the Department of Defence, together with a more professional approach to proper technical analysis than appears evident at present. Achieving and maintaining our force capabilities, particularly air superiority in our region, will demand a range and depth of technological skills and experience that we do not have because CSP/DRP wittingly destroyed most of what had been built up over the decades, both in the Services and Industry. If Australia is to proceed with confidence, the skills problem will need to be faced realistically. We will have to make do with what we have. In this regard, the Department of Defence should expend less energy and good will defending the often indefensible and listen to and use the informed advice being offered to it. The response (or lack of response) of the Department to the evidence given by Dr Kopp and Mr Goon demonstrates the problem well, and would be a good place to start some corrective action. The 'stone walling', so characteristic of over-sensitive public service bureaucracies, must be penetrated if we are to know what is happening and why. All this may need a behavioural change within that organisation, but it is not impossible, and there are few, if any, alternatives.

At a higher level, the current situation has arisen to a large extent because politicians on all sides have not had sufficient background or the time/interest/motivation to inform themselves in any detail as to the practical and obvious implications of the Tange proposals and the Commercial Support Programme, and then those of the Defence Efficiency Review and the Defence Reform Programme. The Structural changes that were imposed upon the Services, who were completely unable to have their voices heard, together with the flawed management structures built up within the higher defence machinery, have led to the situation where the Military has come under civilian control, rather than civil control through Parliament, as should be the case.

I do hope that these observations are of some use to the inquiry. I repeat that this inquiry goes to the heart of Australia's security for the next 20 to 30 years, as well as to what is ailing the Department of Defence. I do sincerely wish the inquiry all success in their endeavours.

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