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Audit Report No. 40, 1999-2000

Tactical Fighter Operations

Department of Defence

Background

2.1 Tactical fighter operations (TFOs) form the basis of Australia's current military capability to ensure air superiority. The Government's *Defence 2000* White Paper commented that air combat 'is the most important single capability for the defence of Australia, because control of the air over our territory and maritime approaches is critical to all other types of operation in the defence of Australia.'[1]

2.2 Australia seeks to achieve air superiority through its fleet of 71 F/A-18A tactical fighter aircraft. The *Defence 2000* White Paper stated that 'Australia must have the ability to protect itself from air attack, and control our air approaches to ensure that we can operate effectively against any hostile forces approaching Australia.'[2]

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1 Department of Defence, *Defence 2000, Our Future Defence Force*, Commonwealth of Australia, pp. 84-85.

2 Defence, *Defence 2000,* p. 85.

2.3 Tactical Fighter Group (TFG), which comprises 1395 personnel, is responsible for providing TFOs. TFG's main weapons systems include:

- 71 F/A-18A *Hornet* tactical fighter aircraft;
- 26 Macchi MB326 lead-in fighter aircraft which were planned to be withdrawn by December 2000, as advised in the Audit Report;
- Hawk lead-in fighter aircraft of which eight are already in service and 33 will be in service by 1 July 2001; and
- three PC–9 forward air control aircraft.[3]

2.4 The functional organisation of TFG comprises:

- headquarters at Williamtown, NSW which comprises No. 81 Wing Headquarters, and Nos. 3 and 77 Squadrons;
- No. 75 Squadron, Tindal, NT;
- No. 76 lead-in fighter training squadron, Williamtown, NSW; and
- No. 79 conversion training squadron, Pearce, WA.[4]

2.5 As at June 1999 TFG's assets were valued at $2.7 billion. In 1999-2000 the cost of TFOs was $785 million with a capital use charge of $505 million.[5]

Audit objectives and findings

2.6 In *Audit Report No. 40, Tactical Fighter Operations*, the audit objectives were to:

- assess whether the resources used to provide the F/A-18A tactical fighter force operational capability are managed cost-effectively; and
- identify areas for improvement in the coordination, planning and practices employed in administration of tactical fighter operations.[6]

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3 ANAO, Report No. 40, 1999–2000, *Tactical Fighter Operations*, Commonwealth of Australia, p. 23.

4 ANAO, Report No. 40, 1999–2000, p. 24.

5 ANAO, Report No. 40, 1999–2000, p. 24.

6 ANAO, Report No. 40, 1999–2000, p. 25.

2.7 The ANAO's findings focused on military preparedness, the *Hornet* pilot workforce, logistics support, and the management of *Hornet* related projects.

2.8 With respect to military preparedness, the 'audit found that TFG met the specific military preparedness requirements in the Chief of the Defence Force Preparedness Directive, subject to certain qualifications.'[7] The ANAO noted the need for 'some deficiencies in the aircraft maintenance management system to be remedied, and secondly to allow the *Hornet* aircraft to deploy into the full range of operational theatres envisaged in strategic policy.'[8] In particular, the ANAO stated:

> …Air Force should monitor the military vulnerability of the aircraft and remedy any identified shortcomings, particularly those relating to levels of technology employed.[9]

2.9 The Royal Australian Air Force (Air Force) does not have enough fast-jet pilots. At June 1999 Air Force had about 40 operational pilots in the three *Hornet* squadrons. The human resource management of the fast-jet pilot workforce is a critical responsibility for Air Force. The challenge of recruiting, training and retaining fast-jet pilots is significant. The ANAO has correctly brought attention to this issue.

2.10 The cost of training a fast-jet pilot is about $9 million. The ANAO commented that in order to maximise this investment, Air Force 'should give priority to the retention of existing pilots and apply greater rigour in investigating the capability of the training system to produce the required number of pilots.'[10] At the same time, the ANAO reported that Air Force 'has no comprehensive workforce plan or planning model relating to the fast-jet pilots and no formal coordinated strategy to address the fast-jet pilot shortage.'[11]

2.11 With respect to logistics expenditure, the ANAO reported that for 1999-2000 expenditure 'is expected to be 87.1 per cent more in real terms than in 1994–95, but flying hours are expected to be only seven per cent more.'[12] The ANAO concluded that bringing

7 ANAO, Report No. 40, 1999–2000, p. 14.
8 ANAO, Report No. 40, 1999–2000, p. 14.
9 ANAO, Report No. 40, 1999–2000, p. 14.
10 ANAO, Report No. 40, 1999–2000, p. 14.
11 ANAO, Report No. 40, 1999–2000, p. 15.
12 ANAO, Report No. 40, 1999–2000, p. 69

together 'all logistic costs into an integrated management framework would facilitate comprehensive monitoring and holistic decision making for the totality of logistic support of TFO's.'[13]

2.12 The ANAO's audit also reviewed project management relating to the *Hornet* Upgrade (HUG) program. The ANAO found some persistent project management deficiencies. In particular:

- some projects had experienced delays in early stages of project approval and development, when timing apparently did not seem critical to decision-makers, making it difficult to accelerate progress later when timeliness was needed; and
- there appeared to be a tendency by the proponents of projects to underestimate the risks in projects, which was partially corrected by the capability development process. A greater emphasis on realistic risk assessment, including contract risk, in original proposals would aid the overall decision making process.[14]

2.13 In response to these findings, the ANAO made eleven recommendations, of which Defence agreed to all, two with qualifications.[15]

Committee objectives

2.14 The Committee focused its examination on the following three areas:

- air superiority and regional capabilities;
- management of the fast-jet pilot workforce; and
- project management related to the *Hornet* Upgrade program.

Air superiority and regional capabilities

2.15 The *Defence 2000* White Paper states that 'control of the air over our territory and maritime approaches is critical to all other types of operation in the defence of Australia.'[16] The ANAO noted that

13 ANAO, Report No. 40, 1999–2000, p. 15.
14 ANAO, Report No. 40, 1999–2000, p. 16.
15 ANAO, Report No. 40, 1999–2000, p. 17.
16 Defence, *Defence 2000*, pp.84- 85.

air superiority plays a critical role in this concept. The Air Power Manual defines air superiority as:

> Control of the air is the campaign in which operations are conducted for the purpose of gaining freedom of action in the air. Once control has been established, other air, land and sea campaigns may be conducted when and where desired, without prejudice from enemy air power. Achieving control of the air means defeating or nullifying the effects of enemy air power, both in the air and on the ground.[17]

2.16 Dr Kopp, a defence analyst, stated that the necessary ingredients for achieving air superiority are 'superior fighters, superior radar, missiles, pilots, tactics, doctrine, superior airborne early warning and control, superior surveillance, ample aerial refuelling, superior electronic combat capabilities and the ability to destroy as many of the opponent's aircraft on the ground as possible.'[18]

2.17 The ANAO, in discussing military preparedness, alluded to issues of air superiority and competitiveness when it stated:

> …to allow the *Hornet* to deploy into the full range of operational theatres envisaged in strategic policy, Air Force should monitor military vulnerabilities of the aircraft and remedy any identified shortcomings, particularly those relating to levels of technology employed.[19]

2.18 The major features of the air superiority triangle include fighter aircraft, air-to-air refuelling (AAR), and airborne early warning and control (AEW&C) aircraft. The Committee, was advised that for the F/A-18A fleet to have 'genuine combat credibility over the last decade of its operational life, it will require supporting Wedgetail airborne early warning aircraft and adequate aerial refuelling.'[20]

2.19 Project Wedgetail refers to the Defence program to acquire AEW&C aircraft. Air Force, in commenting on the importance of Project Wedgetail, stated that it is 'a critical aspect of our air defence, of our general management capability and protection of

17 C. Kopp, Submission no. 1, p. 4.
18 Kopp, *Transcript*, p. 111.
19 ANAO, Report No. 40, 1999–2000, p. 14.
20 Kopp, *Transcript*, p. 114.

our fleet units at sea and of our land based operations, wherever they may occur, if we are going to control the air.'[21]

2.20 Air-to-air refuelling (AAR) was considered to be no less important than AEW&C. The Committee was advised that to 'provide the required fighter patrol endurance in defence of the Pilbara, Timor Sea and Northern Territory, should the need arise, the RAAF [Royal Australian Air Force] will need a robust fleet of operational aerial refuelling tankers.'[22] Air Force stated that to maintain a presence in areas at reasonable range, 'air-to-air refuelling is critical, whether we are in a defensive posture or whether we are in an offensive posture, to carry a task to an area for a strike or for protection of a land based or sea based operation at some distance from our airfields.'[23]

2.21 On 6 December 2000 the Government released the Defence White Paper. The paper addressed the issues of AEW&C and AAR. The Government committed itself to acquiring four AEW&C aircraft with the possibility of acquiring a further three aircraft later in the decade.[24] The Committee was advised that between six and nine aircraft would be required for proper coverage of the Pilbara, Timor Sea and Darwin.[25]

2.22 In relation to AAR, the Government has scheduled a major project to replace and upgrade our AAR capability which will result in up to five new generation AAR aircraft.[26] It was suggested that in meeting combat scenarios in the Pilbara, Timor Sea and Darwin areas for example, Air Force would need to field 12–16 heavy tankers in the Boeing 747 class or 25-30 medium tankers in the Boeing KC-135R class.[27] Heavy tankers such as the 747 and KC-10A are considered to be more effective than medium tankers such as the KC-135R and Boeing KC-767. Dr Kopp suggests that 'typically half as many heavy tankers are required to deliver the same load of fuel, thus reducing support costs and aircrew numbers.'[28]

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21 P Devine, Royal Australian Air Force, *Transcript*, p. 123.

22 Kopp, *Transcript*, pp. 114-15.

23 Devine, *Transcript*, p. 123.

24 Defence, *Defence 2000*, p. 86.

25 Kopp, Submission no. 1, p. 77.

26 Defence, *Defence 2000*, p. 87.

27 Kopp, Submission no. *8*, p. 6.

28 Kopp, Submission no. 8, p. 10.

2.23 The other feature in assessing air superiority is the need to examine regional capabilities. The Committee heard that there has been and will continue to be a proliferation of high tech weapons in the region. This development is mainly attributed to the break-up of the Soviet Union, and Russia's existing financial condition which is forcing it to offload weapons.[29]

2.24 In assessing regional capabilities, attention was drawn to the proliferation of Russian made fighters such at the Su-27 and Su-30. At the same time, there has been a proliferation of Russian supersonic and subsonic air, sub and ship launched cruise missiles, and launch platforms such as the Tu-142M Bear and Tu-22M-3 Backfire bombers which translate into significant power projection weapons.[30] In relation to the uptake and use of Su-30 aircraft within the region, Dr Kopp stated:

> The Sukhoi Su-27 and Su-30 fighters are the Russian equivalent to the Boeing F-15, which is the finest Western air superiority fighter in operational service. With advanced aerodynamics, large internal fuel load and range, powerful engines, a large radar and potent missiles, the Sukhoi fighters are a direct challenge to the F-15 supremacy and more than a match for many lightweight fighters such as the F16 and F/A–18A.[31]

2.25 While the F/A–18s were the most capable fighter in the region when they became operational during the 1980s, 'the arrival of the F-15 class Su 27 swung the capability balance against the F/A-18.'[32] In addition, the ability of Air Force to commit its assets is influenced by the management of its fast-jet pilot workforce. This issue is discussed in the next section.

2.26 The ANAO made four recommendations which addressed military preparedness and aircraft battle damage repair capability. All four recommendations were agreed to, one with qualification. Defence in responding to the recommendations, however, suggested that the subject of some of the recommendations were already part of its initiatives.

2.27 For example, in recommendation one, the ANAO proposed that 'in order to maintain a cogent link between Defence's strategic

29 Kopp, *Transcript*, p. 111.
30 Kopp, *Transcript*, pp. 111-112.
31 Kopp, *Transcript*, p. 111.
32 Kopp, *Transcript*, p. 115.

planning and its military preparedness assessments of the tactical fighter force, Defence include in these latter assessments periodic and comprehensive intelligence assessments relevant to preparedness requirements.'[33] Defence responded that 'these assessments are considered during the periodic review of Military Response Options.' The ANAO subsequently responded arguing that 'Defence's assessments of TFG's military preparedness did not show evidence of a systematic and regular incorporation of intelligence assessments'.[34]

2.28 In recommendation 2, the ANAO proposed that Defence determine a longer term military preparedness capability for the Tactical Fighter Group (TFG) including the requirements for maintaining core skills. Defence responded that the TFG 'has already identified the longer term core skill requirements which are the basis of the pilot categorisation scheme.'[35]

Conclusions

2.29 *Audit Report No. 40* has provided the Committee with the opportunity to review aspects of tactical fighter operations including trends in regional capabilities and air superiority. Air superiority is critical to the defence of Australia. All defensive and offensive operations rely on air superiority for success. It is essential that the efficiency and effectiveness by which Tactical Fighter Group (TFG) delivers tactical fighter operations be examined, and where possible improvements made.

2.30 The Committee notes the critical importance of Airborne Early Warning and Control (AEW&C) Aircraft and air-to-air refuelling (AAR) to air superiority. Similarly, the importance of these air superiority elements was identified in the *Defence 2000* White Paper released on 6 December 2000. The Committee fully supports the initiatives outlined to acquire AEW&C and enhance Air Force's AAR capability.

2.31 The Committee notes that in response to some of the recommendations, Defence suggested that it was already undertaking the initiatives expressed in some ANAO recommendations. While this is positive because both the ANAO

33 ANAO, Report No. 40, 1999–2000, p. 33.
34 ANAO, Report No. 40, 1999–2000, p. 34.
35 ANAO, Report No. 40, 1999–2000, p. 36.

and the audited agency are in agreement, the implication is that the recommendation has less relevance. The Committee suggests, that in future, the ANAO and the audited agency should seek to resolve matters, prior to tabling, where it is argued that an audit recommendation reflects an existing agency practice. In those cases where similarities are found, the audited agency could be asked to provide more information on implementation.

Management of the fast–jet pilot workforce

2.32 In November 1998 the Government stated that a key objective for 1998 and 1999 would be to 'increase pilot numbers in operational fast–jet squadrons.'[36] The ANAO reported that as at 'June 1999 Air Force had about 40 operational pilots in the three *Hornet* squadrons.'[37] While the required number of fast–jet pilots is not disclosed publicly the current workforce is well below operational requirements. A similar problem exists for fast–jet pilots for the F111 squadrons.[38] Air Force acknowledged that it has ‘a problem with the number of fast jet aircrew in totality', and similar problems exist with the F111s.[39]

2.33 Air Force indicated that '*Hornet* pilot numbers in operational squadrons will recover gradually and that numbers will be fully restored in 5–7 years. However, the ANAO commented that 'previous Air Force projections on expected times of recovery in pilot numbers have been incorrect.'[40]

2.34 In examining these matters, the following discussion will examine some of the reasons explaining the inadequate fast–jet pilot numbers and the proposed strategies for improving the situation.

Recruitment, training and retention

2.35 The ANAO notes that problems of achieving fast-jet pilot numbers first began to appear in the 1980s, and was 'caused mainly by high wastage rates as Air Force pilots took up employment with

36 ANAO, Report No. 40, 1999–2000, p. 42.
37 ANAO, Report No. 40, 1999–2000, p. 44.
38 J Blackburn, Royal Australian Air Force, *Transcript*, p. 119.
39 Blackburn, *Transcript*, p. 119.
40 ANAO, Report No. 40, 1999–2000, p. 44.

civilian airlines, and stagnation in recruitment rates.' The ANAO also noted that these problems are not unique to Australia as 'United States (US), Canadian, United Kingdom (UK) and many European air forces face similar, though generally less severe shortages for similar reasons.'[41]

2.36 In relation to recruitment, Air Force indicated that it aims to 'graduate in the order of 57 pilots a year'. However, Air Force commented that 'the percentage of those pilots who have the skill sets and abilities to fly fast jets has not met the number we actually need to send to the F/A-18 and the F111.'[42] Air Force concluded that as a result, 'with recent high resignation rates, we have not been able to maintain the number of people in the squadrons that we need'.[43]

2.37 In addition, more pilots will need to be trained in the coming years to service Air Force's intention of having AAR and AEW&C aircraft. While this is not specifically related to the fast-jet pilot issue under consideration it is another matter that must be dealt with. The Committee was advised that fulfilling the crewing needs for AEW&C and, in particular, AAR will not be easily solved.[44]

2.38 The *Defence 2000* White Paper addressed the issue of human resource management in the Defence force in general. The White Paper indicated that research undertaken in 1998 found that only four per cent of those aged between 18 and 35 would 'definitely consider' a career in the Defence Force. The White Paper concluded that if the Australian Defence Force (ADF) 'is to become the employer of choice for more people, its culture and approach will need to change–and be seen to change.'[45]

2.39 In relation to fast-jet pilots, Defence identified the following reasons for the difficulty in meeting pilot recruitment quotas:

- the lack of specific, targeted pilot recruitment campaigns;
- increased competition with other industries as the economy grows;

41 ANAO, Report No. 40, 1999–2000, p. 42.
42 Blackburn, *Transcript*, p. 119.
43 Blackburn, *Transcript*, p. 119.
44 Kopp, Submission no. 8, p. 7.
45 Defence, *Defence 2000*, p. 67.

- the reluctance by applicants to commit to Defence employment for 10 years or more as required by the pilot 'return of service' obligation; and
- strict physical criteria for pilots.[46]

2.40 The ANAO concluded:

> It has proved difficult for Defence to attract a sufficient pool of suitable applicants and then identify potential fast-jet pilots within that pool. A variety of tests are applied to applicants; Air Force is conducting research to identify particular characteristics that suggest ultimate success as a fast-jet pilot.[47]

2.41 Training for fast-jet pilots can take between two and half and three years. The cost of training a fast-jet pilot is estimated at about $9 million.[48] The ANAO reported that the challenge for Defence is to accurately estimate the training outcomes for a given set of pilot trainees. If, for example, pass rates fluctuate significantly from year to year then pilot projections will be under pressure. The ANAO 'considers that the fast–jet pilot training system could be made more predictable and stable with improvements to data management and overall organisation.'[49]

2.42 Air Force and Defence documents attribute the major cause of the shortage of fast–jet pilots to high wastage rates. The ANAO reports that the key drivers of wastage are:

- the posting cycle;
- career paths;
- attractiveness of other careers and pay;
- perceptions of poor career management;
- return of service obligations; and
- limited flying hours.[50]

2.43 In relation to retention rates, the Air Force commented:

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46 ANAO, Report No. 40, 1999–2000, p. 49
47 ANAO, Report No. 40, 1999–2000, p. 49.
48 ANAO, Report No. 40, 1999–2000, p. 42 and 57.
49 ANAO, Report No. 40, 1999–2000, p. 60.
50 ANAO, Report No. 40, 1999–2000, p. 62.

> If you look at the problems across Defence, there are significant difficulties in our retention rates across the three services. In the past, resignation rates have been in the order of eight or nine per cent on average. We have in the order of 13 to 14 per cent loss rates right now. On the recruiting side, Army and Navy are in the region of mid-80 per cent of achieving recruiting goals—and I understand Navy is down to 55 or 60 per cent. This is not a problem that just exists in the fighter force or in a single area.[51]

2.44 A range of initiatives has been used to help improve retention. The Pilot Retention Bonus (PRB), for example, was introduced in 1996 with a cost of $32 million since inception. The PRB is available to pilots who have completed, or are within two years of completing, their return of service obligations. The ANAO noted that the PRB 'can be repaid and has been characterised as a free loan that pilots can take up, invest and refund at little net cost to the pilot.'[52] Air Force stated that 'preliminary findings by my staff indicated that the PRB in its current form is not an effective retention tool.'[53] The ANAO concluded:

> High wastage rates are the major cause of the fast-jet pilot shortage. Defence has introduced some initiatives to try to control wastage but they have not been effective. Until recently, Defence's rigid personnel system has provided little scope to respond flexibly to market pressures. To try to retain fast–jet pilots who would otherwise leave, Defence could seek pilots' views on the PRB as part of a broader review of the Bonus. Consideration should also be given to using individual agreements or particular arrangements for jet–pilots as a specialist employment stream.[54]

Human resource management solutions

2.45 In proposing solutions to the management of the fast–jet pilot workforce, the ANAO suggested the need for a comprehensive human resource management approach to the problem. In order

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51 Blackburn, *Transcript*, p. 121.
52 ANAO, Report No. 40, 1999–2000, p. 63.
53 ANAO, Report No. 40, 1999–2000, p. 63.
54 ANAO, Report No. 40, 1999–2000, p. 64.

to achieve adequate fast–jet pilot numbers, the ANAO suggested that achieving this goal should proceed on the basis of:

- robust and firm planning targets for the desired number of pilots;
- appropriate recruitment targets and selection processes;
- research on workforce planning and modelling; and
- agreement on key result areas and measures for recruitment, selection, training and retention.[55]

2.46 The ANAO made five recommendations seeking to achieve better administration and outcomes associated with fast–jet pilots. Air Force agreed to all recommendations. In particular, recommendation nine proposed that 'Defence coordinate its efforts to acquire and retain sufficient numbers of pilots for the Tactical Fighter Group (TFG) by formulating and implementing a TFG pilot workforce plan'.[56]

2.47 Air Force, in evidence to the Committee, suggested that it was moving to a more strategic approach to its human resource management. Air Force acknowledged that in the past, it has 'actually looked at the elements rather than at the totality of the system.'[57] Air Force suggested that it is seeking to integrate the various stages of recruitment, training and retention strategies. In relation to retention issues, Air Force stated:

> Accepting there are market forces that change, depending upon the economy, we are now trying to address the retention far more holistically: not just looking at throwing a bonus at somebody to stay in the service, but really looking at what it is that encourages them to leave: the lifestyle, the remuneration, their career opportunities, vocational stability, spousal issues. We have a strategic aircrew management cell now that looks at it from one end to the other of the system. It is going to take a few years to see if those changes we have made in these elements are effective. What we do not want to do is continually react as we did in the past when we see a blip or a problem without having seen if one change we have

55 ANAO, Report No. 40, 1999–2000, p. 65.
56 ANAO, Report No. 40, 1999–2000, p. 65.
57 Blackburn, *Transcript*, p. 119.

made is going to be effective overall. This is going to take five to eight years to try and recover, if we can get all of those pieces of the puzzle together.[58]

Conclusions

2.48 The management of the fast-jet pilot workforce comprising recruitment, training and retention is a major issue for the Royal Australian Air Force, and ultimately Australia's defence. It is unacceptable that there are insufficient numbers of fast–jet pilots. In a crisis situation, Australia's ability to sustain extended air combat could be under serious pressure.

2.49 The ANAO has correctly focused on this matter and examined the historical situation and the efficiency and effectiveness of administration of this problem. The ANAO's chief message is that Air Force should bring a more rigorous and integrated human resource management approach to this issue. Air Force to its credit has accepted that in the past it has not applied a holistic approach focusing on the elements rather than the totality of the system. Air Force indicated that it now has 'a strategic aircrew management cell' that looks at all parts of the system. At the same time, Air Force suggested that constructing an effective human resource management system and achieving improvements will take five to eight years.

2.50 The Committee accepts that Defence understands some of the key issues causing the high wastage rates and ultimately low numbers of fast-jet pilots. Some of these issues were listed in paragraph 2.40. The ANAO also cited the posting cycle, career paths, attractiveness of other careers and pay, perceptions of poor career management, return of service obligations and limited flying hours as key drivers of wastage. The Committee is less convinced, however, about Defence's capacity to address these problems and reverse the current wastage rates.

2.51 It is reassuring that Air Force has indicated that it will bring a holistic approach to its human resource management. But as the *Defence 2000* White Paper states, 'if the ADF is to become the employer of choice for more people, its culture and approach will need to change—and be seen to change.'[59] In respect to fast-jet

58 Blackburn, *Transcript*, p. 114.

59 Defence, *Defence 2000*, p. 67.

pilot recruitment, training and retention, Defence has a serious human resource management (HRM) challenge. In addressing this problem it must be prepared to confront its cultural constraints. At the same time, the best HRM experts, from both the public and private sectors, should be brought to bear in developing an effective HRM strategy.

2.52 For example, in relation to the issues of career paths and limited flying hours, Air Force may need to be more flexible. Pilots should not be required to undertake 'desk duties' during their core flying years. At the same time, pilots who reject desk duties should not have their careers disadvantaged through promotional setbacks.

2.53 The Committee considers the management of the fast-jet pilot workforce as the key issue identified in Audit Report No. 40. For example, the recruitment and training of a fast-jet pilot costs about $9 million and wastage rates are unacceptably high. At the same time, air superiority is the most critical aspect of Australia's defence. The ANAO's audit has helped target these matters and ensured that Defence gives greater focus to its human resource management in the coming years.

2.54 The Committee, however, would like further reassurance that Air Force is achieving its targets and is on course to meets its objectives in five to eight years. Therefore, the ANAO should conduct a follow-up audit in two to three years focusing on Air Force management of the fast–jet pilot workforce strategy.

Recommendation 1

2.55 **The Committee recommends that the ANAO should conduct a follow-up audit in two to three years focusing on Air Force management of the fast–jet pilot workforce.**

Project management related to the *Hornet* Upgrade program

2.56 As discussed in part one of this chapter, the maintenance of air superiority is a vital part of Australia's defence strategy. When the F/A–18As entered service in 1985 they were highly competitive and gave Australia clear air superiority in the region. However, as discussed in part one, the competitiveness of the F/A–18As is

being challenged. In order to maintain competitiveness, a range of upgrades is planned for the *Hornets* during the next decade. The projects are complex and will cost over $1.5 billion.[60]

2.57 The ANAO, as part of the audit, examined aspects of the project management of the *Integrated Avionics Systems Support Facility* and the *Hornet Upgrade Program* (HUG).[61] Both projects are managed by the Defence Acquisition Office with Air Force input.

2.58 The ANAO sought to identify particular features of the upgrade program that place additional pressures on Defence. For example, Air Force operates the A/B model *Hornet*. The US Navy operates a large fleet of *Hornets* comprising the A/B and C/D models and it will be upgrading to the E/F Super *Hornet*. The US is currently retiring its A/B fleet. The decision by the US Navy not to upgrade its A/B fleet means that Australia will have to fund a significant amount of the engineering and design work for the upgrade.[62]

2.59 The HUG is divided into two phases. Phase 1 is considered low technical risk because most of the equipment has been installed on US Navy *Hornets*. This phase is expected to be completed by the end of 2001. Phase 2 is considered to have more technical risk because the equipment has not been installed into A/B model *Hornets* overseas. The electronic warfare component of this upgrade is expected to be completed by the end of 2002. Other elements of this phase will begin in 2003 and proceed past 2005.[63] The ANAO stated:

> Defence assumed that Air Force would be able to incorporate US experience in its upgrades. However, due to delays in the US Navy programs, Phase 2 of the HUG will be the lead aircraft integration program and will be incorporating some systems in advance of the US Navy. This increases the technical and cost risk of the upgrades. The original documentation portrayed the project as low to moderate risk, but over time this changed. Phase 2 is now described as having '…medium to high schedule and cost risks that are based on technical and management uncertainties with the acquisition strategy.'[64]

60 ANAO, Report No. 40, 1999–2000, p. 79.
61 ANAO, Report No. 40, 1999–2000, Chapter Five.
62 ANAO, Report No. 40, 1999–2000, p. 81 & 88.
63 ANAO, Report No. 40, 1999–2000, pp. 86–87.
64 ANAO, Report No. 40, 1999–2000, p. 87.

2.60 The ANAO reported that HUG Phase 1 was delayed for over a year based on two developments. First, the US Navy decided not to upgrade its *Hornet* A/B models. Second, McDonnell Douglas Aerospace, 'the original manufacturer of the *Hornet* notified Defence that it would not participate in a competitive tender for the work or act as subcontractor in the project.'[65]

2.61 In its conclusion, the ANAO noted some persistent deficiencies, namely:

- some projects had experienced delays in early stages of project approval and development, when timing did not seem critical, making it difficult to accelerate progress later when this was needed;
- there appeared to be a tendency by the proponents of projects to underestimate the risks in projects, which was partially corrected by the capability development process; and
- there was limited consideration of life-cycle costs at the acquisition stage of HUG.[66]

Conclusions

2.62 The *Hornet* Upgrade is a vital part of keeping the F/A–18As competitive and maintaining air superiority through to about 2010–2012 when Australia will acquire a new state of the art fighter. Efficient and effective project management is essential to ensuring that the HUG is achieved on time and within budget. The Committee's examination of Defence's project management of HUG follows a chequered history relating to other projects. In the past, most concerns related to poor contract management, and cost and delivery blowouts. Hence, whenever the ANAO draws attention to issues of Defence project management, the Committee takes this extremely seriously.

2.63 The Committee notes the ANAO's concern that there have been delays with some projects. For example, HUG Phase 1 was 'delayed for over a year'. This was due to the US Navy deciding not to upgrade its *Hornet* A/B models, and the original manufacturer deciding not to tender for the upgrade. It is debatable whether Defence could have included these outcomes

65 ANAO, Report No. 40, 1999–2000, p. 88.

66 ANAO, Report No. 40, 1999–2000, pp. 92–93.

as possible contingencies in its risk assessment strategy. Based on these reasons, which are outside the influence of Defence, the Committee does not hold Defence to account for the delay in Phase 1.

2.64 In relation to risks, the ANAO found that there was a tendency to underestimate risks in the project. For example, in relation to HUG Phase 2, Defence will have to accept increased technical and cost risks because of delays in US Navy programs. Consequently, Defence will have to incorporate some systems in advance of the US Navy. While Defence initially portrayed this project as 'low to moderate risk', it has correctly revised this assessment and rated Phase 2 as 'medium to high schedule and cost risks'. The Committee finds that Defence has acted correctly in revising its risk assessment. It is standard procedure in developing risk strategies to revise assessments where either internal or external factors change.

2.65 Not withstanding these issues, there is now increased pressure on Defence to deliver the HUG on budget and within projected times. The Committee places a high priority on this program.