

Army Aviation

Tiger Armed Reconnaissance Helicopter (ARH) Project

- 6.1 The Tiger Armed Reconnaissance Helicopter (ARH) Project was approved to provide for a new and significant all-weather reconnaissance and fire support capability for the Australian Defence Force. The project has contracted for delivery of 22 aircraft, together with supporting stores, facilities, ammunition and training equipment. The first four aircraft are being manufactured in and delivered from France; whilst the remaining 18 aircraft are being manufactured in France and assembled in Brisbane.¹
- 6.2 The project includes a suite of sophisticated training devices, advanced mission planning systems as well as logistics and maintenance management systems; all of which involve cutting edge digital technology that will assist Army in achieving its Hardened and Networked Army initiatives.²
- 6.3 The weapons and communications systems are a differentiating characteristic of the Australian Tiger ARH, compared to the French Tiger variant. The United States designed Hellfire missile system is being integrated with the Australian Tiger fleet. This process of

1 *Management of the Tiger Armed Reconnaissance Helicopter Project Air-87*, <http://www.anao.gov.au/director/publications/auditreports/2005-2006.cfm?item_id=1EB3A32B07BA5F78BC06A8A52A12D968> (Accessed on 7 May 2007).

2 Major General Tony Fraser, *Transcript 30 March 2007*, p. 50.

integration has thus far been very successful as eight missiles have been fired (including one at night) at ranges out to eight kilometres, with all striking their targets with lethal precision.³

Current status

- 6.4 At present six of the helicopters have been accepted and nearly 1,400 hours have been flown in the aircraft. Moreover, nine Australian pilots have gained limited pilot qualifications, with three of those pilots having also qualified as flying instructors for the Tiger.⁴
- 6.5 In terms of progress, 70 per cent of the contractual milestones (103 out of 148) have been attained. Moreover, this progress has been achieved with an expenditure of only 60 per cent of the budget or \$1.171 billion out of an authorised budget of \$1.962 billion.⁵
- 6.6 However, due to a range of challenges, Defence has advised that the Tiger ARH project is running behind schedule. The key reasons behind this delay are:
- low aircraft serviceability rates within Australia;
 - insufficient test crews for both development testing as well as acceptance flight testing;
 - detailed documentation requirements; and
 - delays in the Franco-German program, which meant that initial instructors did not complete their training in France.⁶
- 6.7 On these project delays Defence advised that:
- Australian Aerospace and their parent company Eurocopter ...have invested additional resources to prevent further slippage...[Moreover] the contractor and the Commonwealth have collaboratively instigated a number of initiatives to address the scheduled slippage.⁷
- 6.8 Notwithstanding these delays, Defence stated that a troop capability will be achieved by December 2008 and that the full squadron capability will be realised some time after that. In the interim, the

3 Major General Tony Fraser, *Transcript 30 March 2007*, p. 50.

4 Major General Tony Fraser, *Transcript 30 March 2007*, p. 50.

5 Major General Tony Fraser, *Transcript 30 March 2007*, p. 50.

6 Major General Tony Fraser, *Transcript 30 March 2007*, p. 50.

7 Major General Tony Fraser, *Transcript 30 March 2007*, p. 50.

Army will extend the operational service life of the Kiowa helicopter fleet, which is presently being utilised in a reconnaissance role in East Timor.⁸

Future acceptance schedule

6.9 The first six aircraft of the Tiger ARH fleet have already been accepted by Defence. However since July 2006 no additional aircraft have been accepted, as Defence has:

...made a conscious decision to bring [aircraft seven] to eleven all to exactly the same configuration as one to six so we would have one aeroplane type here.⁹

6.10 Three more Tiger ARH aircraft are to be accepted by Defence in the near future. Shortly thereafter, two more Tigers will then be accepted. In relation to aircraft twelve through fourteen, test flights are now being conducted by Australian Aerospace in Brisbane.

6.11 Although the acceptance of aircraft represents a contractual milestone – it is not the limiting factor in delivering capability to Chief of Army. Defence has focused on ensuring its instructors gain the necessary qualifications to operate the Tiger as they have had limited training due to delays in the French program.¹⁰

Technical issues

Crew evacuation

6.12 Crew evacuation from the Tiger in case of a water ditching has posed a particular engineering challenge to the project. In the event the crew has to evacuate, the Tiger is equipped with a ballistic jettison system which blows the windows out. However, this system is unsuitable in cases where the helicopter is submerged, and therefore the design must incorporate:

...a manual break out system...[so] that either pilot, front or rear, can [manually] jettison the windows.¹¹

8 Major General Tony Fraser, *Joint Committee of Public Accounts and Audit Transcript 1 March 2007*, p. 3.

9 Brigadier Andrew Dudgeon, *Transcript 30 March 2007*, p. 53.

10 Major General Tony Fraser, *Transcript 30 March 2007*, p. 51.

11 Major General Tony Fraser, *Transcript 30 March 2007*, p. 52.

- 6.13 Although it is important work, the required engineering effort is not a high priority at present as the Tiger is not yet in operational service. Defence also advised that both the US and UK have similar concerns regarding crew evacuation in a tandem seat helicopter.¹²

Computer systems

- 6.14 The Tiger is a very software-intensive helicopter and although all the computer systems have been delivered, there are a number of different loads of software. At present the project has seen stage 2, baseline 2 software successfully installed. Stage 3 is scheduled to be introduced shortly. However, before this step is implemented it must first undergo the necessary acceptance testing before it can be installed.
- 6.15 In light of the fact that the Tiger fleet will require ongoing software upgrades, and importantly for Australia, a software support facility is being established as part of the contract. This facility will cater for both the Tiger ARH and the MRH-90. As part of the contract, Eurocopter will also send a base element of software to Australia. Although Eurocopter will configuration manage¹³ the generic software baseline across the fleet, 'where it is Australian specific, we have the capacity in-country [to make modifications].'¹⁴
- 6.16 When queried by the Committee on whether the Army would receive a fully mature and capable system, Defence replied:
- We have full confidence we will reach full capability. The software caused some concerns but we have been able to work through that with the company and we are continuing to address those software issues.¹⁵

Engine performance

- 6.17 The purchase contract for the Tiger ARH stipulates a requirement for a higher level of engine performance, whereby a 10 per cent margin is

12 Major General Tony Fraser, *Transcript 30 March 2007*, pp. 51–2.

13 This is a term used commonly in airworthiness regulations and has several connotations. In the case of software, it relates to data integrity and the control of changes to the base element, such that the airworthiness accreditation is maintained and changes made conform to the regulatory framework. Eurocopter maintains responsibility for the software configuration; therefore, Australia is assured that the software support centre is always using approved and correct software.

14 Major General Tony Fraser, *Transcript 30 March 2007*, p. 52.

15 Major General Tony Fraser, *Transcript 30 March 2007*, p. 53.

mandated.¹⁶ At present only 7 ½ per cent has been achieved, however, the company has made further technical modifications to the aircraft to address this issue. The effectiveness of these adjustments is yet to be ascertained as Defence is yet to test and verify the engine model. Testing is expected to be undertaken when the fully instrumented Tiger is provided to Army.¹⁷

Serviceability rates

- 6.18 As mentioned previously, aircraft serviceability rates have been a key factor behind the delays in the program. The reasons behind this setback are a shortage of qualified aeronautical engineers in addition to a lack of familiarity and confidence in the aircraft and engineering support.
- 6.19 In tackling this hurdle, the contractor has taken steps to bring experienced personnel from France to train additional engineering staff in Australia. Moreover, Defence advised that it is training fifteen personnel to help alleviate the serviceability deficiency.¹⁸

MRH-90 Troop Lift Helicopters Project

- 6.20 The Government's \$2 billion acquisition of thirty-four MRH-90 helicopters complements its earlier decision in 2004 to acquire an initial twelve. The decision to make this additional acquisition has been based upon the need to replace Army's Black Hawk helicopters which will be progressively replaced between 2011 and 2015 as well as Navy's Sea King Helicopters which will be retired in 2010.¹⁹
- 6.21 The MRH-90 is an extremely capable helicopter featuring a modern damage tolerant design, large cabin volume with ramp and enhanced levels of marinisation.
- 6.22 The benefits associated with the purchase of the MRH-90 for both Army and Navy include greater operational flexibility and efficiency through common operational, training and logistic systems as well as

16 Major General Tony Fraser, *Transcript 30 March 2007*, p. 53.

17 Major General Tony Fraser, *Transcript 30 March 2007*, p. 53.

18 Major General Tony Fraser, *Transcript 30 March 2007*, p. 54.

19 *MRH 90 to Replace Sea King and Black Hawk Helicopters*, <<http://www.defence.gov.au/media/download/2006/jun/20060619.cfm>> (Accessed on 7 May 2007).

a capability to rotate personnel, aircraft, spare parts and role-specific equipment between troop lift, special operations and maritime support commitments.

- 6.23 Once delivered, the MRH-90s will be based at RAAF Base Townsville, Holsworthy Barracks in Sydney and HMAS *Albatross* in Nowra. A contingent will also be based at a joint training facility at Oakey in Queensland.²⁰

Current status

- 6.24 At present the MRH-90 project is on schedule for delivery of the first two aircraft in December 2007. These two aircraft are part of an initial four which will be assembled in France. The remaining forty two aircraft will be assembled in Australia. Importantly, lessons learnt from the Tiger project have been transitioned to the MRH-90 project. Defence also advised the Committee that:

...the very first flight for the Australian MRH-90 was conducted yesterday morning...this was a significant project achievement.²¹

- 6.25 To facilitate achieving this project on time, Chief of Army has established an aviation capability implementation team at Army Headquarters. This team has developed plans which will ensure that the helicopters will be airworthy and capability ready as quickly as possible.²²

Training

- 6.26 Defence is focusing on training a mix of instructors before they transition to the new aircraft. These instructors will have had twin-engine experience on either Black Hawk and/or Kiowa aircraft.

20 *MRH 90 to Replace Sea King and Black Hawk Helicopters*, <<http://www.defence.gov.au/media/download/2006/jun/20060619.cfm>> (Accessed on 7 May 2007).

21 Major General Tony Fraser, *Transcript 30 March 2007*, p. 50.

22 Lieutenant General Peter Leahy, *Transcript 30 March 2007*, p. 51.

ARH

6.27 At present, training is 24 months behind schedule due to the delays outlined earlier in this chapter.²³ In addressing this setback Army has sent a number of aircrew to training courses in the United States and the United Kingdom as well as to hire/lease local glass cockpit helicopters from different manufacturers in order to bring in a lead-in skills program. It is hoped that this alternative training program will:

...build up those skills to enable the aircrew when they get the Tiger to, hopefully, be used to like technology. They will be used to a glass cockpit and pushing buttons – unlike the old analogue instruments...It is all part of this lead-in skills program to hopefully reduce the length of time needed to train when they eventually get on it.²⁴

Conversion training

6.28 In terms of converting pilots to the new helicopter models, Defence advised that it takes approximately six months for a pilot to complete initial conversion training. Following this, pilots are then posted to a regiment in order to gain further flying experience in the aircraft. Subsequently, an additional six month course is then conducted which trains pilots to be a battle captain of the aircraft.

6.29 Conversion training for the MRH-90 has proved to be slightly less challenging than that for the Tiger ARH as its seating arrangement is more familiar given that MRH-90 pilots sit next to each other rather than in a tandem seating arrangement, which is the case with the Tiger. In overcoming the hurdle posed by the tandem seating arrangement, Defence advised that it has:

...set up a test bed where the 1st Aviation Regiment have gone and rehearsed, practised and developed this tandem seat procedure, which has now been exported to every other Army aeroplane.²⁵

23 Major General Tony Fraser, *Transcript 30 March 2007*, p. 50.

24 Brigadier Andrew Dudgeon, *Transcript 30 March 2007*, p. 55.

25 Brigadier Andrew Dudgeon, *Transcript 30 March 2007*, p. 55.

Conclusion

- 6.30 The introduction of the ARH and MRH-90 will greatly enhance Army's aviation capability. Whilst challenges lie ahead, Defence is implementing the necessary steps to ensure schedule slippage is minimised. Moreover, it is putting into place strategies to deliver sufficiently trained crews to operate the aircraft when accepted into service.