

PROJECT AIR 5416

Case builds for indigenous helo support for the ADF in Afghanistan



■ Trevor J Thomas/CANBERRA

The robustness of the Australian Government's 'duty of care' in attending to injured soldiers in the battlefield has fallen under a cloud, as claims and counter-claims impact on the findings of a 9 October ADF inquiry into the death of a soldier in Afghanistan.

According to the inquiry report, after suffering 'massive wounds' in a bomb attack, SAS signaller Sean McCarthy, would not have survived even if air-based medical support had arrived within minutes of the explosion. The findings, however, have been disputed by Dutch and Australian medical officers experienced in combat trauma medicine, suggesting the soldier might have lived if a properly equipped medical team had attended him earlier.

The findings come on questioning within the Rudd Government as to whether it remains satisfied with International Security Assistance Force (ISAF) performance benchmarks readily agreed to by the former Howard Government, that envisage wounded Australian troops in Afghanistan being delivered into field hospitals within two hours of the incident in which they sustained their injuries.

Key Points

- **With counter-terrorism operations** in the Afghanistan-Pakistan border region expected to intensify as the spring/summer fighting season returns in 2009, the Rudd Government has called for options to boost the ADF's in-theatre medical support and casualty evacuation capability.
- **The project Air 5416 upgrade** of the electronic warfare (EW) capability of the Army's 'Black Hawk' helicopters is now well behind original schedule, with the ADF unable to mount an effective EW self-protected helicopter-based medical evacuation capability until late-2009, at the earliest.
- **Defence admits that complexities** relating to the 'Echidna' EW system's overall integration into the extant 'Black Hawk' fleet makes it very difficult to know exactly when the capability will be ready to use, and subsequently, the exact number of aircraft to be upgraded is "undergoing further review."
- **Off-the-shelf purchases (or short-term leases)** of either Sikorsky's HH-60M 'Black Hawk' or Eurocopter's UH-72A 'Lakota', are two options the ADF could pursue to secure upgraded aero-medical evacuation capability, in advance of deliveries of new project Air 9000 MRH90 helicopters.

Responding to questions relating to a potential deployment of indigenous aero-medical evacuation capability into the Afghanistan theatre, the Vice Chief of the Defence Force, Lieutenant General David Hurley, told media in late-August that "medical evacuation processes provided in-theatre are provided for all forces. That's a tried and tested 'medevac' process, it's been in operation in Iraq & Afghanistan for the last four or five years. It's designed to get casualties to treatment as soon

as possible, and we're satisfied with that system."

The controversy has since found further fuel with debate over the utility of helicopter-based care across the spectrum of trauma treatment, with the Vice Chief of the Defence Force submitting 9 October – in response to the McCarthy inquiry findings – that the nature of emergency care delivered by medical specialists on the ground, has a major impact on patient survivability, irrespective of what medical treat-

ment is subsequently received in a field hospital.

As the ADF casualty list has grown in Afghanistan, the ongoing AME debate has pricked a further sensitivity in the Rudd Government, in terms of wider concern over the adequacy of air-based support for coalition forces, subsequent to reports that French troops – caught in a mid-August fire-fight in the Saroubi area (50km east of Kabul) with Taliban forces – had to effect their own helicopter-based relief due to an alleged deficiency in ISAF resources.

Australian troops operating in Afghanistan's Oruzgan province do not have any indigenous air cover, and currently rely on US/NATO 'Black Hawk' UH-60 helicopters for aero-medical evacuation (AME), with only one helicopter said by officials to be regularly based at Tarin Kowt – the main stepping off point for ADF operations in the Baluchi and Chora Valleys.

If this aircraft is not available, a replacement must fly from Kandahar, 40 minutes away to the south. Defence maintains such a contingency does not pose an unacceptable risk to the lives of injured ADF soldiers, although Defence Minister Fitzgibbon has since confirmed to ADBR that mounting controversy over heli-

copter-based support in Afghanistan had prompted him to direct the Defence Materiel Organisation (DMO) to explore options for improving Army medical evacuation capabilities, and did not discount the option of despatching in 2009 specially-equipped helicopters to Afghanistan.

Should new CENTCOM Commander for the Middle East, Gen David Petraeus decide after his 100-day review that US and NATO-led forces should mount a substantive campaign in regions of Afghanistan along the border with Pakistan early in 2009 to halt the infiltration of Taliban forces re-deploying to Afghanistan from Pakistan's Federally Administered Tribal Areas after winter, the anticipated voracity of conflict – as experienced over 2008 – suggests that moves to boost the adequacy of immediate medical treatment on the ground, supplemented by effective and reliable AME capability would be a sensible policy move.

Unfortunately, the ADF's most appropriate platform to undertake such missions – the Army's S-70A-9 'Black Hawk' helicopters – are presently stuck at the front end of an elongated upgrade under project Air 5416, that intended to fit them with an indigenously-developed electronic warfare self-protection (EWSP) suite, considered by all parties as a 'must have' to ensure safe operations in the hotly-contested Afghanistan battlespace.

Technical elements of the 'Black Hawk' upgrade envisaged the fitting of a Common EW Self Protection (CEWSP) Suite that integrated the BAE Systems

Australia ALR-2002 Radar Warning Receiver (RWR) with Thales Vicon 78 Countermeasures Dispensing System (CMD5), and EADS AN/AAR60 'MILDS' Missile Warning Receiver (MWR) system. In addition to the CMD5, RWR and MWR, the CEWSP was to include the EW Suite Controller (EWC) Processor, EWC Control Panel, EWC Support Panel, Safing Unit and EWC Primary Display.

The CEWSP is understood to have the potential to integrate other EW components such as a Laser Warning Receiver, Directed Infrared Countermeasures (DIRCM), Active Radio Frequency Countermeasures and a Towed Decoy. Also to be developed under Phase 2A was an Integrated Electronic Warfare Mission Support System (IEWMSS), and including an EW radio frequency stimulator, to be located at the Joint Electronic Weapons Operational Support Unit. The IEWMSS would allow in-country modification and adaptation of EWSP system software and EW support packages, one of the critical capability objectives which first drove the ALR-2002 endeavour.

The system comprises an EW Data Transfer System which will use the Defence Communications Network to provide a near real-time secure data communications capability to transfer EW support packages from the IEWMSS to 'Echidna'-modified aircraft home bases, and deployed units. It also includes an EW Mission Data System to enable aircrew to develop in-aircraft training scenarios for up-load to each modified air-

craft and aircraft simulator, and subsequent debrief and playback to aircrew of the EWSP aspects of a mission.

Defence Budget documents obtained by ADBR indicate the holistic system described as 'Echidna' is not, however, expected to be fully tested and operational until late-2009. Hence, the Rudd Government must soon decide on whether it will risk another spring/summer fighting season in Afghanistan on US/NATO-provided AME infrastructure, or opt to quickly secure other resources to cover ADF operations.

One option – assuming it could be arranged in time – would be to lease a detachment (3-4 aircraft) of US Army's UH-60 'Black Hawk' helicopters, which already come fitted with generic self-protection capability. Alternatively, Defence might effect a rapid procurement of a military-off-the-shelf EWSP solution that could quickly be 'bolted on' over the coming Xmas/New Year break to a small number of ADF 'Black Hawks' capable of taking an AME pack. As demonstrated in the recent Pakistan earthquake relief effort, Army 'Black Hawk' crews have accumulated significant international AME experience utilising capability packs already in the Australian Defence Force's possession.

Significantly, ITT Corporation confirmed mid-October the emergence of "a low cost, light weight, high reliability" alternative to existing EWSP systems following the conclusion of successful tests of a new Infrared Countermeasures (IRCM) system

integrated with an infrared missile warning system (IRMWS) aboard a UH-60 'Black Hawk' helicopter.

Outside of these short-term fixes, the principal issue holding back the application of the 'Black Hawk' fleet to more demanding military environments remains the lack of an effective EWSP solution that can be quickly brought to bear on the Australian fleet courtesy of a rapid kick-on to the current status of Phase 2A of project Air 5416.

Defence says it is satisfied with progress being made with the BAE Systems-designed ALR-2002 Radar Warning Receiver (RWR), but admits complexities relating to the system's overall integration "make it very difficult to know exactly when the system would be ready to deploy on operations." A prototype 'Black Hawk' has only just (15 July 2008) been inducted into the 'Echidna' EWSP modification program, with hardware modifications on this airframe not expected to be completed until the end of 2008.

Defence has also told ADBR that ground testing is then expected to occur in Townsville, in May 2009. The first flight test of this aircraft (at Edinburgh and/or Woomera), and fitted with the initial version of the Sensor Independent Integrated Defensive Aids Suite (SIIDAS) EW Controller software, is scheduled for June 2009, with the final version not scheduled for tests until September 2009. Given the accumulating delays, Defence adds, the exact number of aircraft to be fitted with the 'Echidna' system is now "undergoing further review."

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ESCORTS ALSO REQUIRED FOR MEDEVAC FLEET: One reason cited by Defence for delays in the despatch of medical evacuation helicopters is their frequent need for a combat helicopter escort, such as an AH-64 'Apache' or EC-725 (far R). A contract re-negotiation in June promises nine (of 22) project Air 87 'Tiger' helicopters (L) – with desert sand filters in place – will be ready for operational deployment by November 2009. An early deployment of Tigers to Afghanistan would sensibly boost ground force protection prior to IOC of the first four MRH90s (R) in late-2011.

US DoD, A DoD, ADBR & EADS PHOTOS

tion Agreement for the 'Echidna' capability states the delivery of the prototype 'Black Hawk' aircraft is now scheduled for between March to June 2009. Further, actual achievement of the six 'Echidna'-modified aircraft initial operating capability (IOC) remains dependent upon the availability of aircraft for modification – in turn determined by the deeper maintenance schedule – for a fleet being run hard in flying 7,500 hours this financial year.

May 2008 Defence budget papers reported that phase 2A of project Air 5416 had only "completed detailed design against 'Black Hawk' aircraft design, electronic warfare controller software development and mission support system development." Responsibility was also assumed during 2007 for implementing an approved Army Minor Project designed to achieve interim early delivery of an 'Echidna' 2A capability subset, namely a Missile Warning System & Counter-Measures Dispensing System onto 12 of the 34 'Black Hawk' aircraft in-service.

As a consequence of this change, delivery of the full 'Echidna' 2A capability on the first 'Black Hawk' aircraft was extended by six months, as part of an acknowledgement the software development aspects of the SIIDAS EW Controller was extremely complex ... (and) "there

is significant risk that software developmental problems could affect the overall project delivery schedule." Recognising this risk, the program was then restructured into a 'two-build' approach to allow incremental delivery of capability in case more complex areas of the software development started causing schedule slippage.

The more complex areas of EW Controller second build software development are said to "principally relate to the increased functionality required to control the RWR and to incorporate an in-aircraft EW training function." GE Fanuc (previously SBS) is providing the hardware for the EW Controller, and software from SELEX is being modified under license by BAE Systems Australia.

Looking at other off-the-shelf options for Australia to quickly acquire an AME capability, the US government and Sikorsky Aircraft signed in December 2007 a five-year, multi-service contract for 537 H-60 'Hawk'-series helicopters to be delivered to the US Army and US Navy. In addition to the UH-60M helicopters, the contract involves HH-60M 'Medevac', MH-60S 'Seahawk' and MH-60R 'Seahawk' aircraft.

The contract value for expected deliveries is approximately US\$7.4b, and includes options for an additional 263 aircraft and spares, with the total contract



'LAKOTA' LIGHT UTILITY HELICOPTER - US ARMY PHOTO

value potentially reaching \$11.6b.

The HH-60M, is specially fitted to conduct AME operations, and can carry up to six litter patients. It has a bigger engine, an all-glass cockpit for better visibility, an improved gearbox to drive the main transmission, and an externally mounted electric hoist so cabin space is not lost. An advanced infrared suppression system is installed on a strengthened fuselage. The onboard medical suite, provided by Air Methods Corporation, includes an oxygen generation system that runs off the engine's air output, and climate control.

The US Army also has a Light Utility Helicopter (LUH) program, which was initiated to replace its ageing Hueys and Kiowas, and also to free up UH-60 'Black Hawk' airframes for other duties. EADS/Eurocopter North America signed a contract in June 2006 to produce 322 new helicopters (a modified version of the civilian FAA-certified EC145/BK117C-2), and subsequently designated the aircraft the UH-72A 'Lakota'.

The Air Ambulance Detachment (ADD) at Fort Irwin (California), took official delivery of the first six Lakotas in May 2007, after having flown them for operational evaluation and testing since February. The helicopter is equipped with a 600-pound capacity hoist, with modifications planned to include a 110-volt AC generating system for the AME version.

The 'Lakota' can fly for about three and a half-hours, and is almost as fast as a 'Black Hawk', with 120 knots cited as its typical cruise speed. Lakotas are not armed, however. ADD sources nevertheless indicate they are finding the helicopter more efficient in many of the roles currently undertaken by the significantly more expensive (but more spacious and powerful) 'Black Hawk' helicopters.

The EC145 has some attractiveness to the Australian Army in terms of its suitability to the project Air 9000 Helicopter Aircrew Training System (HATS) requirement. Given the EC145 is well-suited to a broad spectrum of utility and 'medevac' missions (not just training), there is potential to wield better 'value for money' output from this platform, compared to dedicated training platforms – especially given the ADD medical equipment fit is portable and modular.

The 'Lakota' is designed to carry two patients in NATO litters, with one attendant (or one patient and two attendants), and has built into its design 'clamshell' doors assist with patient loading and unloading. The US Navy has since become a user of the UH-72 Light Utility Helicopter, with the service announcing 6 October it had ordered five aircraft for use in pilot training at the Naval Test Pilot School at Patuxent River, in Maryland.



PAKISTAN EARTHQUAKE ASSISTANCE: Australian Army 'Black Hawk' aircraft were purchased with pilot/co-pilot armour seats and armour in the forward cabin area. Project Air 5416, Phase 1/Stage 3 purchased rear cabin ballistic protection kits, and aircrew armour vests in 2001. The cabin ballistic protection kits can be rapidly transferred between aircraft. Additional rear cabin kits are on order with Sikorsky, with deliveries planned for early-2009.