

PREMIUM EDITION

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31 May 2012
Issue 207

ANAO straight talk on M113 upgrade

The M113 Vehicle Upgrade project, that has been underway since 1992, is likely to cost more than \$1 billion, and will deliver the last of the 431 upgraded vehicles by late this year (2012). Now thanks to successive (and highly informative) reports by the Australian National Audit Office (ANAO) we have learned much about this costly project, including that:

- This project was originally based on an unsolicited proposal, without testing the market with an open tender, by prime contractor (Tenix) earlier selected for a \$50m interim 'cheap and cheerful' minimal upgrade of all M113 vehicles;
- The project suffered significant production delays over its life due in part to Defence's shortcomings, which did not always act as an informed purchaser of necessary engineering services;
- Senior decision-makers within Defence and government were not always kept informed of the project's status affecting their capacity to make informed decisions in relation to the project.

Originally expected to be withdrawn from service in 2020 the upgraded vehicles are now planned to be progressively withdrawn from service from 2025 with the last of the vehicles expected to leave service around 2030.

The electronic systems fitted do not permit optimal communication and data transfer with heavy tanks and the other force elements, such as artillery and aircraft, with which they are intended to operate. Their planned replacement by battle space communications systems under later phases of Land 200 will now no longer proceed due to the 2012-13 Federal budget

In respect to transportability a single C-17 can carry up to four upgraded M113s although relevant certification has yet to be completed. A single upgraded M113 can be transported by C-130 although significant preparation of the aircraft is required and significant limitations on aircraft air-land performance would be imposed. Certification for this procedure has yet to be achieved.

For land transport Army is able to utilise the M1A1 Abrams transport capability of its Armoured battalions, and lease commercial vehicles to transport the upgraded M113s by road. The heavy trucks to transport M113s are to be acquired under Land 121/3 but no date has been announced for delivering this capability.

While the upgraded M113 represents an improvement on the older vehicle, what was considered fit for purpose when the minor upgrade was first proposed 20

years ago, now lags behind armoured infantry vehicles in use with other armed forces, and is vulnerable in many current threat environments. This leaves Defence with an acknowledged capability gap until the introduction into service of the Land Combat Vehicle System (Land 400) some 13-14 years in the future.

Perhaps we could here reiterate what we wrote in a recent issue of DWP under the heading Simulation's role in Land 400 program development. "... perhaps there will be a growing realisation that some of the existing component systems of the CAFS are no longer up to the tasks ahead and that the L400 project should, in the first instance, be used to fast track the early acquisition of troop protecting combat vehicles—in particular the Infantry Fighting Vehicle (IFV) that originally featured as L400's primary requirement." - Ed.

Upgraded M113s to be stored.

According to the 2012-13 Defence budget, the Army is reducing the use of M113AS4 (upgraded M113) vehicles and M1A1 Abrams tanks.

Some of these vehicles will be placed in temporary storage and Army will continue to review these fleets to ensure a viable mechanised capability is maintained.

According to the ANAO report, the following vehicles were delivered to the Army as at March 2012: 252 (1 Bde); 24 (School of Armour); 12 (Other Units).

The status of upgraded M113s delivered to Army (as at March 2012) was: Fully Functional: 39%; Restricted Use: 37%; Do Not Use: 24%.

Orbital engine technology for Aerosonde

Australian company Orbital Engine Corp has been contracted to supply heavy fuel engines for use in AAI Unmanned Aircraft Systems' (AAI) Aerosonde Small Unmanned Aircraft System (SUAS).

AAI recently won significant military contracts from the US Navy and Special Operations Command to provide SUAS fee-for-service operations utilising the newest configuration of its Australian-developed Aerosonde SUAS.

This new engine and system uses Orbital's FlexDI Engine Management system to enable spark ignition operation of heavy fuels such as JP5 (naval operations) and JP8 (land based operations) satisfying a US Department of Defence initiative to eliminate gasoline fuels for safety and logistic reasons – the 'one fuel' policy.

The small but powerful engine package has been designed to be light weight, with size, weight and fuel efficiency being key factors to provide the required range and payload capability for this aircraft.

One key advantage of the Orbital technology is extended range; the improved

fuel efficiency can increase the range on a typical mission by 40% over current technology, or can allow AAI to increase the payload.

Orbital says its technology has been proven in more than 650,000 engine applications in the recreation, marine, and motorcycle consumer markets.

Terry Stinson, CEO and managing director of Orbital said: “New ground has been broken with AAI to meet their aggressive SUAS engine requirements, and we have been able to successfully develop and supply the demonstration engines from our Perth facility.

“This success now leads to production supply of engine systems.

“This is good example of Australian innovation, and demonstrates Orbital’s engineering and product development capabilities.

“The small unmanned aerial systems market is an emerging market for Orbital and we look forward to realising this potential,” added Stinson—Defpro

Global Combat Ship a SEA 5000 contender?

The 2009 White Paper stated that a fleet of eight new Future Frigates, would be acquired. They would be larger than the ANZAC Class ships they replace and would be designed and equipped with a strong emphasis on anti-submarine warfare (ASW).

They would also include a land attack cruise missile (LACM) capability.

While First Pass approval – the go-ahead for this project – possibly won’t occur until 2021 plans are to approach the market from 2012 onwards, to obtain estimated cost, capability and schedule information to assist in determining the preliminary requirements.

These will likely be followed by formal requests for information or proposals to elicit more robust information.

The \$10 billion Sea 5000 project will begin with funded studies to explore the ship platform, combat, and support system options in the quest for an affordable ANZAC Class replacement.

And, in acknowledgement of the common need among smaller navies to share in ship design and in the use of shared components (and shared logistics) the RAN is showing interest in a number of new ship designs, including the UK’s Type 26.

So will the Type 26 design be a RAN Future Frigate candidate?

At this very early stage in the development of both the RAN’s Future Frigate and the RN’s Type 26 concept frigate, there is one aspect that particularly favours a collaborative RAN/RN program – the schedule.

BAE Systems has indicated that the aim is to deliver the first Type 26 frigate in

2021 well ahead of the planned Initial Operational Capability (2028-29) for the RAN program.

But while Australian official (and commercial) interest in the UK Type 26 program has been ongoing and may eventually bear fruit, there is no indication at this early stage that such may be the case.

Indeed there is more likely to be a dearth of common ground between the Australian Navy's requirements and those of the Royal Navy and a one-size-fits-all global Type 26 may not suit our very different maritime environment or strategic outlook.

And the Type 26 concept is by no means the only design with development and build timelines in broad harmony with SEA 5000 planning.

Hunter-killer drones for future ADF?

Following confirmation by Australian defence chiefs that they were examining the future application of armed

UAVs as part of a force structure review, the Chief of Defence Force, General David Hurley said at Tuesday's Senate estimates hearing: "I wouldn't discount the fact that we might have armed UAVs, thinking through our force structure review into the future."

Could 'armed UAVs' include Textron's BattleHawk squad-level 'loitering munition' which has recently completed a demonstration for the United States Army's Rapid Equipping Force.

BattleHawk - Textron's solution for the Lethal Miniature Aerial Munition System (LMAMS) concept - integrates a 40 mm high-explosive fragmentation grenade with Pioria Robotics' Maveric mini-unmanned aerial vehicle (UAV).

Defence and industry leaders meet to develop Future Submarine Skills Plan

Minister for Defence Materiel Jason Clare announced that the first meeting of the Future Submarine Industry Skills Plan Expert Industry Panel was held this week.

"The Future Submarine Project is the biggest and most complex Defence project Australia has ever embarked upon," Mr Clare said.

"Hundreds of companies and thousands of workers will be required to support the construction of Australia's future submarines.

"The Industry Skills Plan will establish a roadmap to build and sustain the skills

required to successfully deliver Australia's Future Submarine capability.

"In order to develop an effective Skills Plan we need to engage industry early and work closely together throughout the life of the project."

An Expert Industry Panel has been established to consult with industry and key stakeholders.

It is headed by David Mortimer, AO who has over 40 years of business experience.

The Expert Industry Panel includes representatives of major Defence companies, unions, Department of Industry, Innovation, Science, Research and Tertiary Education, Skills Australia and Defence and Unions.

The Panel will undertake a program of consultation with State Governments, Australian industry, industry associations, universities and other academic organisations and think tanks.

The Future Submarine Industry Skills Plan will be presented to Government by the end of the year.

Pentagon to cut ISR spending?

A nine-month audit of ISR assets by the House Permanent Select Committee on Intelligence is recommending cuts to 'redundant' capabilities and disbanding of the Pentagon task force that has driven much of the ISR spending over the last four years.

According to the report the joint fleet of ISR aircraft has increased from 167 airframes in 2002 to 7500 today.

Many of the new aircraft have only appeared on the scene recently, which explains why there are three times as many of them in Afghanistan today as there were in Iraq at the height of the campaign there.

The congressional committee's audit proposes rationalising ISR investment plans to save money and analysts suggest that systems that are versatile and deeply rooted in the operational community like the U-2 Dragon Lady may remain in the joint fleet for decades to come, but a lot of the newer ISR efforts are likely to fall by the wayside as the focus of US military strategy shifts to offshore presence in places like the Western Pacific.

The Australian 2012-13 Defence Budget cuts include a one year delay to the acquisition of new P-8A Maritime Patrol Aircraft under Air 7000 Phase 2B, and no word on the acquisition of high altitude, long endurance unmanned aircraft systems for maritime patrol and other surveillance, under Phase 1B.

Perhaps consideration should be given to contracting USAF U2 aircraft, possibly currently tooling around the Asia Pacific region, to undertake portions of the high altitude surveillance requirements of Air 7000, until new systems are acquired to meet the unmanned component of the AP-3C Orion replacement project.

Singapore develops new 8x8 artillery system

While Australia cancels its self-propelled howitzer (SPH) system in favour of more towed artillery, Singapore Technologies Kinetics (STK) is carrying out feasibility studies on the 155 mm Advanced Mobile Gun System (AMGS).

The AMGS is based on an 8x8 cross-country platform offering greater strategic mobility than a conventional tracked self-propelled (SP) artillery system and lower operating and support costs.

Gross system weight is 28 tonnes, including crew and ammunition, with a maximum road speed of 80 km/h, with 30 km/h across country.

While the Federal Government has saved \$250 million by cancelling plans to buy two SPH batteries, in a Senate Estimates hearing this week the Chief of Army, Lieutenant General David Morrison was asked by Senator David Fawcett whether the decision could expose troops to 'greater harm'.

"I don't think there's any need to prevaricate in answering here. The simple answer is yes," LTGEN Morrison said.

Turkey rejects BAES Type 26 concept

According to Janes, Turkey has rejected UK proposals to become a partner on BAE Systems' Global Combat Ship (GCS).

The UK has long been eager to obtain a partner for BAE's GCS program, of which the UK is expected to buy 13 vessels - to be known as the Type 26 Frigate in UK service.

The first ships of the Type 26 class are due to enter service in the early 2020s, and by the 2030s around half of front line Royal Navy personnel are expected to operate on either a Type 26 or the 2nd FSC variant.

At present, there is no real design or equipment set for the Type 26, though DESi 2009 did feature some initial models that included an aft "mission bay" for swappable payloads.

Armament is expected to include the standard BAE 127mm gun, and the new MBDA/Thales CAMM (Common Anti-air Modular Missile) for short range air defence, to replace the current Seawolf system.

CAMM benefits from carrying an active radar seeker, reducing the need to rely on the ship's radar illuminators for targeting during saturation attacks.

Little is certain beyond that.

Rumoured design options for customers include a choice of gas turbine engines for maximum speed, or a slower but more efficient all-diesel design; as well as optional ship equipment fit-outs focused on either anti-submarine warfare (ASW) or

air defence.

Both FSC variants will be developed with an eye to export orders.

So far, countries that have been reported as expressing some level of interest have included Australia, Brazil, Canada, Malaysia, and New Zealand.

Pilatus PC-21 for Saudi pilot training

Pilatus Aircraft has signed a contract with BAE Systems to supply the Royal Saudi Air Force (RSAF) with a fleet of 55 Pilatus PC-21 turboprop aircraft, together with an integrated ground based training system and a comprehensive logistics support package.

This makes it by far the biggest ever order in the history of Pilatus.

Following agreement between the governments of Saudi Arabia and the UK, deliveries of the aircraft, ground based training systems and the logistics support package are scheduled to commence in 2014.

The aircraft will provide basic flying training in Riyadh to the RSAF and will replace the PC-9 with the state of the art PC-21 platform in the shortest possible time.

Twenty-five years have passed since the initial batch of Pilatus PC-9 training aircraft were delivered to the RSAF under an agreement with BAE Systems.

After Switzerland, Singapore and the UAE, Saudi Arabia is now the fourth country to procure the PC-21 aircraft, in line with today's training philosophies which are required for advanced operational aircraft now coming into service with major air forces around the world.

The PC-21 has been offered to the RAAF as part of project Air 5428 to replace its Pilatus PC-9s.

The Air 5428 Pilot Training System has been delayed for one year due to cuts in the 2012-13 Defence budget.

Indian Air Force selects Pilatus PC-7 MkII Training System

Pilatus Aircraft Ltd this week also announced that the Indian Air Force has entered into a contract in excess of 500 Million Swiss Francs to procure a fleet of 75 PC-7 MkII turboprop aircraft, together with an integrated ground based training system and a comprehensive logistics support package.

The contract also contains an option clause for extending the scope of this contract within three years from initial signature and we are optimistic that this will indeed be executed.

Delivery of the aircraft and the complete training system is scheduled to commence in Q4 2012.

The decision to select the PC-7 MkII training system was made after a thorough evaluation by the Indian Air Force, which looked at all available options.

Coupled to this award will be the establishment of in-country depot level maintenance capabilities, which includes the required transfer of technology to Hindustan Aeronautics Limited (HAL), enabling in-country maintenance of the platform throughout its service life of over 30 years.

The Indian Air Force is the fourth largest air force in the world with approximately 170,000 personnel and 1,500 aircraft operating from more than 60 air bases.

This contract will extend the fleet of Pilatus turboprop trainers to more than 900 aircraft operating worldwide.

Cyber-espionage worm worse than Stuxnet discovered

A cyber weapon, twenty times more sophisticated than Stuxnet, has been discovered by Russian internet security firm Kaspersky Lab it has been revealed. (Stuxnet is a computer worm discovered in June 2010. It initially spreads via Microsoft Windows, and targets Siemens industrial software and equipment.)

The malicious program, called the Flame, is thought to have been undetected for two years having been active since March 2010.

Middle Eastern countries including Iran, Israel, Sudan, Syria, Lebanon, Saudi Arabia and Egypt have all been affected according to reports.

Due to the complex nature of the virus, the Flame has been labelled a “super-cyberweapon.”

Fears have been growing over a possible ‘cyber war’ for a number of years; the uncovering of the Flame as the next phase in that conflict is unlikely to allay those fears.

Eugene Kaspersky, CEO and co-founder of Kaspersky Lab, said: “The risk of cyber warfare has been one of the most serious topics in the field of information security for several years now.

“Stuxnet and Duqu belonged to a single chain of attacks, which raised cyber-war-related concerns worldwide.

“The Flame malware looks to be another phase in this war, and it’s important to understand that such cyber weapons can easily be used against any country.

“Unlike with conventional warfare, the more developed countries are actually the most vulnerable in this case.”

Kaspersky said that the Flame “can steal valuable information, including but not

limited to computer display contents, information about targeted systems, stored files, contact data and even audio conversations.”

It's believed that such a complex program is unlikely to be the work of cyber criminals or individuals within a group, such as Anonymous or LulzSec, and is probably a government-backed virus just as the Stuxnet virus was.

Long range torpedo from Atlas

Atlas Elektronik has increased the reach of its torpedoes substantially, setting a new range record for torpedoes.

At a test-firing in March 2012, the heavyweight torpedo SeaHake mod4 ER (Extended Range) achieved a range of over 140 kilometres.

The Mod 4 SeaHake is the latest advancement of the DM 2 A4 heavyweight torpedo, which is in service with the German Navy as well as the navies of Turkey, Pakistan and Spain.

By fully exploiting the system's unique propulsion and battery technology, it became possible to surpass the maximum ranges usual for modern heavyweight torpedoes in the global market by considerably more than 50 percent—*Atlas Elektronik*.

LEMV's maiden flight in early June

Reports indicate that Northrop Grumman's military Long Endurance Multi-Intelligence Vehicle (LEMV) is scheduled to make its maiden flight early next month when the LEMV should begin test flights at Lakehurst, NJ, sometime between June 6 and 10.

It will then head to Florida, where it will be outfitted with a custom gondola containing its cameras and radios.

By early winter (Northern Hemisphere) it should be crossing the Atlantic Ocean, unmanned, for a front-line combat demonstration in an unspecified theatre (presumably Afghanistan).

The Long Endurance Multi-Intelligence Vehicle (LEMV) is a hybrid military airship which will provide intelligence, surveillance and reconnaissance support for ground troops.

Northrop Grumman is building the LEMV for the US Army under an agreement signed on June 14, 2010.

Dependant on all options the airship will cost between \$154 million and \$517 million, a cost which includes the design, development and testing of the airship system within an 18-month time period, and then the transportation to Afghanistan for military assessment.

The agreement also includes options for procuring two additional airships.

The football field-sized hybrid airship's design requirements include the capability to operate at 20,000 feet above mean sea level, a 2000 mile/3200 km radius of action, and a 21-day on-station availability; provide up to 16 kilowatts of electrical power for payload; be runway independent; and carry several different sensors at the same time.

According to the US Army, the LEMV will be a recoverable and reusable multi-mission platform.

It can be forward located to support extended geostationary operations from austere locations and capable of beyond-line-of-sight command and control.

Essentially British built and designed, the Northrop Grumman LEMV contractors include:

- Hybrid Air Vehicles Ltd. in Cranfield, UK (HAV304 platform)
- Warwick Mills in New Ipswich, NH (Fabrics engineering)
- ILC Dover in Kent County, DE (Airship manufacturer and designer)
- Textron subsidiary AAI Corp. in Hunt Valley, MD (Makes the US Army's OneSystem UAV/surveillance aircraft control & information distribution stations); and
- SAIC in McLean, VA.

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