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VLS part of AWD keel structure

Tom Muir

The final keel block for the future Air Warfare Destroyer, Hobart, has been successfully lifted into place by the AWD Alliance in Adelaide.

The final keel block, which will house flotation and stabilisation equipment, is the 18th of 31 blocks to be joined into what is rapidly becoming the recognisable structure of the *Hobart*. The block will now be consolidated into the existing ship structure to complete the keel with consolidation of the entire hull due for completion early next year, when it will be followed by fit-out and testing of the ships' systems before sea trials are undertaken.

The AWD keel blocks contain part of the **Vertical Launch System (VLS)** as well as the diesel and gas turbine main engine rooms, auxiliary engine rooms, ballast tanks, propeller shafts and sonar equipment. Six **MK 41** Vertical Launch System (VLS) modules for installation on *Hobart*, were delivered last year. A critical part of the AWD's combat system, the VLS enables the AWD to perform and execute tasks in air defence, ship self-defence and anti-surface warfare. Each of the three Hobart Class AWDs will be equipped with six VLS modules, each containing eight cells to give a total of 48 cells available to store and launch missiles. Each cell can be armed with





As the Navy's Mk 41 VLS Mechanical Design Agent, BAE Systems has more than 30 years of experience in the development, production and support of this system for naval forces throughout the world.

The work will continue through December 2016 and will be performed at BAE Systems' Minneapolis, Minnesota facility.

either a single **SM-2 Missile** or four **Evolved Sea Sparrow** missiles.

Just recently **BAE Systems** has been awarded a USN contract to develop technical solutions for new VLS canister and missile integration as well as launcher improvements to meet emerging threats to the US Navy fleet. The contract also includes work on the design of canister and launcher mechanical efforts, as well as continued work for the support of the **Aegis Ballistic Missile Defense Program**, development of the **MK 29 canister** and **Aegis Ashore** systems.



No more reviews in Defence: Coalition

Katherine Ziesing

The past week in politics has been turbulent to say the least. Both **Defence stalwarts on the Labor side of the house, Defence Minister Stephen Smith and former Defence Materiel Minister Greg Combet, will not be standing at the next election**

As to who the ALP would put forward for their Defence team, should they retain government, is a matter for conjecture at this point.

On the other side of the house, **Tony Abbott** has said that the front bench that people see now is what he would take into government should the Coalition win. This would see **Senator David Johnston** as Defence Minister with **Stuart Robert** as the junior Defence minister.

Johnston has been noted for his work on the on the **Joint Standing Committee on Foreign Affairs, Defence and Trade** since 2002. He has held some very senior people to account over this time, asking more than a few uncomfortable questions of senior Defence officials. Robert is one of the few sitting members of parliament with military experience having spent 12 years in the Army as an officer, with most of his time spent in security and intelligence roles.

"We intend to hit the ground running, should we form government" Robert told *ADM*. "There will be no reviews this time around. We're going to lead the change we



want to see in Defence.” Johnston has been keen to turn the Defence Capability Plan and the White Paper into what he calls bankable documents’ in mining terminology. This is a document that companies can take to market and say this is the work we’re doing’ in terms of funding and timelines.

There is a sense from both men that they are very much over the review culture that Defence has been operating under and that larger scale change is needed particularly in the DMO.

Regardless of which party should win government this year, the same budget reality faces them both. As **Major General Steve Day** commented at the *ADM* 3rd Cyber Security Summit last month, flat is the new up when it comes to Defence dollars.



AUS/US Joint Defence Facilities

Tom Muir

In a statement to Parliament last week Defence Minister Stephen Smith described the general purpose and functions of the Australian-based

defence facilities operated jointly with the US, and the Full Knowledge and Concurrence principles under which they operate. Following are extracts from the statement describing the functions of the facilities and some recent developments.

The Joint Facilities: Australia currently hosts two Joint Facilities with the US – the **Joint Defence Facility Pine Gap** and the **Joint Geological and Geophysical Research Station**, originally established in 1955. Both are located near Alice Springs.

Pine Gap collects intelligence data which supports the national security interests of both countries. Through the information gathered Australia is able to access intelligence and early warning that would be unavailable from any other means and is unique in our region. The facility also provides ballistic missile early warning information, performed remotely through the Space Based Infrared System (SBIRS) Relay Ground Station at Pine Gap.

The Joint Geological and Geophysical Research Station is a seismic monitoring station originally established to monitor nuclear explosions during the Cold War. It continues to monitor such explosions as part of the International Monitoring System of the Comprehensive Test Ban Treaty. It also monitors earthquakes. It is jointly operated by Geoscience Australia and the US Air Force.

Australian Defence facilities to which the US has access to include:

- the Naval Communication Station, Harold E. Holt, which provides communications facilities for US and Australian submarines;
- the Mobile User Objective System (MUOS) located at the Australian Defence Satellite Communication Station near Geraldton which provides satellite communications (see MUOS update below); and
- the Extended High Accuracy Network Determination System (Ext-HANDS) research installation in Learmonth in Western Australia comprising optical research sensors which collect data for space situational awareness research.

Space Situational Awareness Partnership: At the 2010 **AUSMIN** consultations in Melbourne, the two countries agreed to a Space Situational Awareness Partnership and signed a joint Statement of Principles to guide bilateral cooperation in this area. In November 2012 an MOU was signed regarding the establishment of a jointly-operated C-band radar space surveillance installation at the **Harold E. Holt naval communication facility**. Included was a proposal to transfer a highly advanced Space Surveillance Telescope to Australia.

WGS Combined Communications Gateway: At the 2012 AUSMIN consultations in Perth it was agreed that the two countries would discuss the possible establishment of a Combined Communications Gateway in Western Australia, which would provide both Australia and the US greater access to the Wideband Global Satellite communications system.



MUOS update

Tom Muir

The US Navy's Lockheed Martin-built second mobile user objective system (MUOS) satellite is due for launch aboard the Atlas V launch vehicle July 19, 2013. Designed to enhance current secure mobile satellite communications, the MUOS features modern mobile-based facilities capable of providing voice, video and data simultaneously, while replacing the existing ultra high-frequency follow-on (UFO) system, which is nearing its expiry date.

The next-generation narrowband tactical satellite communications system will provide enhanced communications for troops on the move. Compatible with the current UHF follow-on system and legacy terminals, a single MUOS will provide four times the capability that is being provided by the entire UFO constellation of eight satellites for the US Navy.

The MUOS narrowband satellite communication system constellation comprises four satellites and an on-orbit spare, in addition to four ground stations, to provide users with worldwide coverage and the ability to connect anywhere worldwide. The full operational capability of the MUOS constellation is scheduled to be achieved in 2015 and will extend narrowband availability beyond 2025.

Since its launch in 2012, the US Navy's first MUOS satellite has offered voice communications for users, and terminals, which are already testing using the advanced payload that enables data exchanges. The Australian ground station is located at the Defence Echelon Satellite Communications Station at Kojarena, 30 km east of Geraldton in Western Australia.





Watpac wins Defence base project

Watpac Construction Pty Ltd has been awarded the head contract for Defence's Base Infrastructure Works project.

Part of the **Base Security Improvement Program**, this project will deliver a range

of security infrastructure works to 16 Defence establishments across Australia. The Base Security Improvement Program was established in late 2009 following a review of Defence's protective security arrangements and includes a range of projects designed to improve security across Defence bases.

It is anticipated Watpac will commence delivery of \$146 million worth of security infrastructure works from August 2013. Construction is expected to last approximately 18 months, with all works to be completed by the end of 2014. Enhanced security at defence establishments will be achieved through state of the art electronic access control systems that will manage vehicle and pedestrian access. Facilities designed to improve command and control in the event of a serious security incident will be provided. Additional closed circuit television, base wide alert systems and other electronic security systems will also be delivered by the project.



AU heritage for Lockheed Martin's JLTV prototype?

Tom Muir

While the US Army and the USMC bicker over the future of the JLTV program, further to our [June 20 report](#) on Oshkosh's JLTV demo, we now learn that of the

two other JLTV EMD phase contenders, AM General has completed integration trials while Lockheed Martin has completed production of their final vehicle for the US Army and Marine Corps' multi-billion dollar joint light tactical vehicle (JLTV) program.

Like the other two, Lockheed Martin has built 22 JLTV prototype vehicles under the program's 24-month \$US66.3 million engineering, manufacturing and development (EMD) phase contract awarded by the army in August 2012. Manufactured at **BAE Systems'** manufacturing facility the vehicles are to be shipped for comprehensive testing and evaluation in August.

Of interest are the company's comments that as well as a significant reduction in weight, the vehicle also retains the proven force protection, transportability and reliability of its previous technology development (TD) phase model. That AU prototype



underwent reliability, maintainability and ballistic testing by the Australian Army at Monegeetta, Victoria. The tests culminated with user evaluations in early 2011.

Since Lockheed Martin's EMD phase prototype appears to be based on its earlier TD phase design vehicle it would be of interest to know how that one performed at Monegeetta. Lockheed Martin is the only company to have won both TD and EMD contracts. No doubt Defence has been monitoring the testing and evaluation of the EMD phase prototypes. -TM/Inside Defense



OEMs Supacat and Navistar in joint support bid for UK fleet

Tom Muir

Supacat has signed an MoU with Navistar Defence to deliver collaborative future support to the UK Ministry of Defence's (MoD) protected mobility (PM)

vehicle fleet at the recent Defence Vehicle Dynamics (DVD) 2013 exhibition in Bedford, UK. The MoU allows integration of the two companies' existing urgent operational requirement (UOR) based support structures to improve combined capabilities on offers as the vehicles are reintroduced into the Army 2020 core fleet following their arrival from Afghanistan.

Specifically, the MoU involves delivery of support services for around 1000 vehicles that have been supplied under several UORs. More than 600 **Jackal** and **Coyote** vehicles that are based on the Supacat **HMT vehicle**, and 300 **Husky** vehicles based on Navistar's MXT platform were procured by the MoD as part of the Tactical Support Vehicle (TSV) program. The vehicles are scheduled to be brought into the core fleet to serve as part of the UK Armed Force's equipment plan for the next ten to 15 years.

For Australian Special Ops requirements Supacat was last year selected as Preferred Bidder by the DMO for the Special Operations Vehicle element of the Project Definition and Evaluation phase of JP2097 Ph 1B (REDFIN) program and was awarded an initial contract for this phase based on its latest version of its Special Forces **HMT Extenda vehicle**. When approved, **JP2097 Ph 1B (REDFIN)** will provide the Australian Defence Force with a new family of Special Operations Vehicles. On completion of the PD&E phase the DMO is expected to acquire a fleet of vehicles under a separate contract.

Supacat Pty Ltd handed over the prototype Extenda Special Operations Vehicle on December 13th 2012. The new vehicle, while retaining a high level of commonality with the Australian Army's existing 'Nary' HMT fleet, delivered by Supacat in 2009, provides improved capabilities, particularly, in the areas of crew protection and vehicle versatility.



Industry warns against further long delays in the DCP

The AIDN National Committee met late last month to discuss concerns for the future prospects of the Australian defence industry. Its members have called upon the AIDN executive to advocate on their behalf and have tabled a number of concerns to be raised for discussion leading into the next federal election.

According to AIDN's President, **Graham Priestnall**, "regardless of the outcome of the next Federal election, Australia's defence industry is not in a position to withstand delays implementing the Projects in the **DCP**. Decisions and acquisition Project commitments must be made within six months of the election. The DCP must clearly define what the Government can afford to enable business to invest in real opportunities."

Priestnall also noted that AIDN is concerned that Defence and Government do not appear to have a clear understanding or definition of what constitutes the defence industry. The Defence Industry Policy statement makes reference to 3,000 plus suppliers but ignores the multiplier effect of the supply chain that involves the whole of the defence industry and its support base. By not clearly defining the defence industry, the Defence Industry Policy ignores the importance of the contribution made by thousands of Australian's and in so doing, weakens the relevance of the policy document. AIDN is critical of the level of engagement with industry before the release of the current Defence Policy Statement and believes more rigorous engagement is required if the Government is to produce a meaningful statement.

Priestnall also advised the committee that the current funding arrangements for the **Defence Industry Innovation Centre (DIIC)** was due to expire within one year. AIDN recognises the important contribution the DIIC has made to strengthening SME businesses and assisting them to become export ready and strongly advocates its continuation. The AIDN National Committee noted that its members have greatly benefitted from the services provided by DIIC which is part of **Enterprise Connect**.

The director general of the **Australian Military Sales Office (AMSO)**, **Brendhan Egan** attended AIDN's national meeting and was the key note speaker at the AIDN-Qld Annual Dinner. Egan discussed the role of AMSO in facilitating government-to-government sales on behalf of industry and also talked about Defence export programs including **Team Defence Australian** and the **Global Supply Chain (GSC)** program. He advised that the GSC program had resulted in \$550 Million worth of international work to Australian companies with defence primes.

2nd annual ADM Defence Support Services Summit

Date: 19 September 2013, Hyatt Hotel, Canberra

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CSIRO and DSTO join to strengthen research capability

The CSIRO and the Defence Science and Technology Organisation (DSTO), have signed a Strategic Relationship Agreement aimed at high-impact research priorities.

Technologies which will come under the umbrella of the agreement include horizon scanning and emerging

technologies, manufacturing technologies, advanced materials, intelligent processing, energy storage, autonomous systems, sensors and bio-technology.

Under the alliance the two organisations will also share professional development training programs for staff, undertake staff exchanges and joint community outreach activities and share infrastructure including participation in each other's innovation precincts.

The agreement is the culmination of a process where CSIRO and DSTO, have worked together to identify opportunities to improve the quality, focus, and depth of the relationship.

"This agreement puts two powerhouses together to support high-tech development for Australia," CSIRO chief executive **Dr Megan Clark** said.

Chief Defence Scientist **Dr Alex Zelinsky** said the agreement was a significant step in conducting world-leading collaborative research for dual use technologies.



ADM Online: Weekly Summary

A summary of the latest news and views in the defence industry, locally and overseas. Check out our webpage for daily news updates on the ADM home page and make sure you bookmark/RSS this for a regular visit.

This week, **Chemring Australia** and **Electro Optic Systems** were awarded Priority Industry Capability Innovation Program Grants.

BAE Systems Detica launched its **Advanced Threat Detection** service in Australia in response to growing concerns around targeted cyber-attacks.

And, Boeing delivered the first of 15 new **CH-147F Chinook helicopters** to the Royal Canadian Air Force, making Canada the operator of one of the most capable Chinook variants delivered to the global market.



International



Kongsberg wins contract for F-35 JSF deliveries

Kongsberg has received two orders with a total value of MNOK 190 (AUD\$34.2million) for deliveries of rudders and vertical leading edges and centre fuselage parts for F-35 Joint Strike Fighter.

The orders are based on frame agreements signed in 2008 and 2009 with **Lockheed Martin** and **Northrop Grumman**.



LCS program update

Tom Muir

According to a recent Congressional Research Service report, the Littoral Combat Ship program has become controversial due to cost growth, design and construction issues. As *Defence Week Premium* readers know two very different LCS designs are being built. One was developed by an industry team led by Lockheed, (LCSs 1,3,5 and so on), the other by an industry team led by Austal USA (LCSs 2,4,6 and so on).

The 20 LCSs procured or scheduled for procurement in FY2010-FY2015 (LCSs 5 through 24) are being procured under a pair of 10-ship, fixed-price incentive contracts that the Navy awarded to Lockheed and **Austal USA** on December 29, 2010.

With the lead ships built to each design, there are concerns over the



ships' ability to withstand battle damage, and concerns over whether the ships are

sufficiently armed and will be able to perform their stated missions effectively. Some observers, citing one or more of these issues, have proposed truncating the LCS program to either 24 ships (i.e stopping procurement after procuring all the ships covered under the two block buy contracts) or to some other number well short of 52. Other observers have proposed down selecting to a single LCS design by continuing production of only one of the two designs, after the 24th ship.

In response to criticisms of the LCS program, the Navy has acknowledged certain problems and stated that it was taking action to correct them, disputed other arguments made against the program, and maintained its support for continuing the program. Reported comments from some Navy officials suggest that the Navy might be open to changing the design of one or both LCS variants after the 24th ship or perhaps down selecting to a single LCS design after the 24th ship.

The USN's first-of-class LCS USS Freedom (LCS 1) recently completed its first major deployment in Southeast Asia, participating in the Malaysian phase of a cooperative readiness and training exercise that took place from 17-23 June. Over 2,000 Malaysian and US military personnel took part in the exercise, held in the South China Sea close to the Malaysian port city of Kuantan.

Raytheon developing Excalibur with naval potential

Raytheon has introduced its upgraded 155mm Excalibur extended-range global positioning system (GPS) guided projectile, as part of its internally funded program for enhancing Excalibur's ability to combat against swarming boat threats.

The Excalibur weapon has been modernised with a new guidance and navigation unit (GNU), fitted with a semi-active laser (SAL) end-game targeting capability, to strike targets that re-position after firing, or change the point of impact to reduce casualties and collateral damage. The newly enhanced Excalibur would provide the ability to re-target the munition in-flight for troops, as well as ability to hit targets on the move as a semi-active laser seeker. The SAL seeker has also undergone trials and validated its design robustness in a severe gun-firing environment.

The SAL equipped new Excalibur variant is also expected to pave way for the enhancement of Excalibur 1b with guidance and navigation units, featuring a GPS/SAL capability. Available for both 155mm and 5in (127mm) naval guns, the GPS/SAL will enable the Excalibur precision-guided projectile to combat moving targets on land and at sea.



Low-cost X-ray vision

Researchers at MIT's Computer Science and Artificial Intelligence Laboratory have developed what could become low-cost, X-ray vision. The system, known as "Wi-Vi," is based on a concept similar to radar and sonar imaging, but rather than



using high-power signals, this tech uses reflected Wi-Fi signals to track the movement of people behind walls and closed doors.

When a Wi-Fi signal is transmitted at a wall, a portion of that signal penetrates through and reflects off any humans that happen to be moving around in the other room. Since only a tiny fraction of the signal passes through the wall, with the rest being reflected, the researchers had to devise a technology that could cancel out the arbitrary reflections, and keep only those reflecting from moving human bodies.

Dina Katabi, a professor in MIT's Department of Electrical Engineering and Computer Science, and her graduate student **Fadel Adib** have tuned a system that uses two transmission antennas and a single receiver. The two antennas transmit almost identical signals, except the second antenna's signal is the inverse of the first, resulting in interference.

This interference causes the signals to cancel each other out. Since any static objects that the signals hit create identical reflections, they are also cancelled out by this effect. Only the reflections that change between the two signals, like moving bodies on the other side of the wall, arrive back at the receiver, allowing the system to track the moving people.

Adib says, "So, if the person moves behind the wall, all reflections from static objects are cancelled out, and the only thing registered by the device is the moving human." - *GIZMAG*

Cubic acquires AIS

Cubic Defense Applications has acquired certain assets and foreign subsidiaries of Advanced Interactive Systems (AIS) through a bankruptcy auction. AIS is a supplier of live fire specialized range facilities, virtual simulation products, and engineering design and project management services for counter-terrorism, law enforcement, and traditional military forces worldwide.

AIS's virtual simulation products, **PRISim**, addresses basic marksmanship, judgmental evaluation and "shoot don't shoot" technologies that incorporate a wide range of customizable virtual simulation scenarios for use in classrooms or indoor live fire ranges. Additionally, AIS technology includes QuickRange, a customizable and modular solution for live fire and virtual training ranges. Internationally, the company's design, construction and support capabilities are aimed at highly realistic and reusable live-fire law enforcement and counter-terrorism training.

The company has operations in the US, UK, Singapore and UAE. The company's largest customer base is concentrated in Asia Pacific and the Middle East.

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FORTHCOMING EVENTS

For a full list of defence and industry events, head to **ADM's** online events page at www.australiandefence.com.au

DSEI

DATE: 10-13 September, 2013, ExCel, London

ENQUIRIES: Web: www.dsei.co.uk

DSEI is the largest fully integrated defence and security show in the world, featuring Air, Naval, Land and Security show content. Based in ExCel, London every two years, the event provides unrivalled access to key markets across the globe.

ADM will
be in
attendance

SimTecT

DATE: 16 - 19 September, 2013, Brisbane Convention and Exhibition Centre, Queensland

ENQUIRIES: Web: www.simtect.com.au

SimTecT is the annual Simulation Technology and Training Conference held by Simulation Australia. Since its inception in 1996, SimTecT has grown to become Australasia's premier simulation conference for industry, government and academia.

ADM will
be in
attendance

2nd annual ADM Defence Support Services Summit

DATE: 19 September, 2013, Hyatt Hotel, Canberra

ENQUIRIES: ADM Events - Jamie Burrage, Ph: 02 9080 4321;

Email: Jamie.burrage@informa.com.au

Web: www.admevents.com.au

The Defence Support and Reform Group has an annual budget of \$3.9 billion, with an asset base in excess of \$20 billion and around 2,600 civilian and 1,100 military staff. It provides a diverse range of products and services to support over 100,000 ADF personnel and Australian Public Service (APS) employees.

ADM will
be in
attendance

Pacific 2013

DATE: 07 - 09 October, 2013, Sydney Convention & Exhibition Centre, Darling Harbour

ENQUIRIES: Web: www.pacific2013imc.com

Pacific 2013 IMC provides a unique opportunity for people involved in maritime and naval affairs around the world to discuss the latest

ADM will
be in
attendance

maritime developments in design, naval architecture, engineering, science and technology. With the concurrent Maritime Exposition, the event will provide a meeting place for industry representatives to exchange ideas and to establish personal and business contacts.

SIA 2nd Submarine science, technology and engineering conference

DATE: 15 - 17 October, 2013, Adelaide

ENQUIRIES: Web: www.submarineinstitute.com/sia-conferences/

The peak event in Australia for engineering of what is one of the most complex Defence assets - conventional submarines. In addition the conference covers the full range of underwater technologies, many of which are relevant and in use for under-sea resources exploration and exploitation. This conference also provides a national focus for shipbuilding and land-based research, development, test and evaluation and systems integration relevant to submarines.

ADM will
be in
attendance

Safeskies

DATE: 16 - 17 October, 2013, Hotel Realm Canberra

ENQUIRIES: Web: www.safeskiesaustralia.org

Safeskies Conferences is an Australian based not-for-profit organisation which holds a biennial aviation safety conference in Canberra. The 2013 conference has as its theme 'People and Technology', and speakers will probe some of the issues surrounding this theme, including UAVs, rotary wing aircraft developments, pilot training and automation, cabin safety, the latest technology in large passenger jets and a case study from the Air France flight 447 accident investigation.

ADM Northern Australia Defence Summit

DATE: 29 Oct - 30 October, 2013, Darwin Convention Centre

ENQUIRIES: ADM Events - Jamie Burrage, Ph: 02 9080 4321;

Email: Jamie.burrage@informa.com.au

Web: www.admevents.com.au

Bringing together key figures from the NT Government, senior military figures, and senior industry representatives, this conference is all about the continuing development and support of Defence in the Top End. Hear about the current and new initiatives offered by Government and what industry can bring to support Defence's strategic objectives..

ADM will
be in
attendance

