



DEFENCE WEEK

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Awards gained from F-111 tear down manual

Tom Muir

While the timing may seem strange - an award for contributions to a tear down manual for an aircraft long gone from RAAF service - it appears that the work performed by DSTO engineers John Boyce and Kevin Watters, now employed by QinetiQ Australia, will help all Technical Cooperation Program (TTCP) member countries justify, plan, cost and undertake aircraft structural teardown programs in future.

Messrs Boyce and Watters won an Achievement Award from the TTCP, whose member countries Australia, Canada, NZ, the UK and the US, collaborate in defence, scientific and technical information exchange and program harmonisation.

The two were members of the DSTO team that contributed to a best practice manual for planning and executing the teardown inspection of aircraft structures. The experience of planning and executing the disassembly of the fuselage of a **F-111 strike fighter** for the DSTO, and the resulting development of an information and results database, was their main contribution to the manual. The database they developed contains the comprehensive history of over 50,000 pieces and parts including inspections, findings, images and storage locations. The DSTO has since used the database for the teardown of other aircraft structures including a **P-3C Orion** maritime patrol aircraft.

John Boyce said it was a great honour to receive international recognition for their contribution to the manual, which brings together recognised "best practice" within the DSTO, as well as the experience and advice of experts from the TTCP countries. His colleague said there were many lessons learned from previous teardowns that the DSTO had incorporated into this manual



which was a step-by-step process for planning and executing the teardown inspection of any aircraft structure. The award came from TCCP Aerospace Systems Group Technical Panel 4. The panel's mission is to identify, promote and conduct cooperative programs in structures and dynamics of aerospace vehicles of mutual benefit to member nations. QinetiQ Australia provides engineering services to the DSTO at its Fisherman's Bend facility in Melbourne.

And while the DSTO manual has broadscale utility, it seems that F-111 teardown expertise is still in demand. Earlier this month, the world's last operational F-111C bomber was transported by road from RAAF Base Amberley in Queensland to the **Historical Aircraft Restoration Society (HARS)** at Illawarra Regional Airport, near Wollongong.

Designated A8-109, the aircraft departed Amberley at 2:00am on Saturday, April 6, the convoy then travelling more than 1100km over three days, stopping through regional NSW at towns including Goondiwindi, Narrabri, Gunnedah, Muswellbrook and Beresfield, as well as the Sydney suburb of Ingleburn.

A8-109 is ex-US Air Force and saw combat in Vietnam and purchased by the RAAF in 1982. With its engines shutdown for the final time on 3 December 2010, following a flying display at the F-111 retirement ceremony, A8-109 became the world's last operational F-111.

The aircraft had its wings and tail control surfaces removed to enable safe transit with its reassembly in the hands of F-111 disposal team members. Reassembly involves reattaching the wings, tail fin and horizontal stabilators and final preparations for public display.



Selex and BAE Systems in joint bid for Defence ATC

Tom Muir

Selex ES has partnered with BAE Systems in a bid to replace radar surveillance sensors for Australia's Defence Air Traffic Control.

The team submitted a proposal this week for **Air 5431 Phase 2** which seeks to acquire ATC sensors to replace existing **Alenia** (now Selex) radars at RAAF Bases East Sale and Tindal and the Army Aviation Centre at Oakey, and to replace the ADATS



radars at RAAF Bases Amberley, Darwin, Pearce, Townsville and Williamtown and the Naval Air Station at Nowra.

The Selex/BAES proposed solution includes the integration of air traffic control radar, tower transmitters and approach automation systems with the aim of increasing security protection. It also facilitates wider interoperability between military and civil air traffic management systems, ensuring continued safe and reliable air traffic control.

Selex ES' vice president for regional marketing **Michael Lenton** said the relationship with BAE Systems began more than 20 years ago. "We teamed up in 1993 to deliver a reliable Defence Air Traffic Management System in Australia, which we've jointly supported for more than two decades," Lenton said. "It was the very best technology available then and has proven to be highly reliable over all these years.

"It's now time for a generational change and Selex ES is proposing a solution that embodies all the experience, innovation and reliability that has allowed it to deliver safe and secure air operations through its air surveillance radars in over 150 countries.

"By joining forces with BAE Systems Australia a second time, we're building on our strong track record and ensuring that the cutting edge technology of our radar systems will continue to enjoy the best local support services for a cost effective and dependable solution.

"This teaming approach will further strengthen our presence in Australia and will allow us to work in co-operation to promote key technologies," Lenton said.

In addition to Selex with BAE Systems, other contenders for Air 5431 Phase 2 are likely to include **Raytheon**, **Indra**, and possibly **Lockheed Martin**. The bid outcome is expected next year with system delivery starting from September 2017.



Robotic arm with feelings!

Tom Muir

A prototype bomb disposal system providing operators with a realistic 'grasp and feel' of remote objects could become an important force protection capability for Australian troops during operations. The new robotic arm to counter improvised explosive devices (IEDs) relies on haptics (or touch feedback) and could potentially be employed by the ADF to safeguard troops or perform battlefield surveillance.

The system comprising a mobile robotic platform incorporating the haptically enabled arm, was adapted from an existing chassis design developed by Deakin University. The technology was further developed as part

of the Defence Science and Technology Organisation (DSTO) administered Defence Capability and Technology Demonstrator extension program to increase fidelity and reduce potential for operator fatigue.



DSTO and **Deakin University** signed a licence agreement recently to further develop the technology to a standard suitable for future ADF consideration. The haptic arm system allows operators to remotely grasp and feel the weight and texture of objects in real time and improves their awareness of the situation to take appropriate action. Remotely operated robots fitted with the haptic arm system could also be employed in civilian environments to safely remove or neutralise hazardous materials.

Chief Defence Scientist **Dr Alex Zelinsky** said the licence agreement allows Deakin University to engage commercial partners to manufacture and distribute the technology and other haptic systems.

He said the licence agreement was the capstone of a thorough development and evaluation process that has produced technology of potential benefit to Defence. "Our collaboration provides another opportunity to showcase how DSTO and universities can jointly mature new technologies in support of Defence."



Further delay for Collins comms upgrade

Tom Muir

Despite the RFT for the Collins communications upgrade project under Sea 1439 being flagged as 'imminent' in Australian Defence Magazine's April Sea Power issue, we understand that contenders for this important project have now been informed that the project has been further delayed.

Those successful respondents to the original ITR, include **Raytheon, Rohde & Schwarz, DRS Technologies, Lockheed Martin Australia, QinetiQ Australia, L-3 Communications, Boeing, Hagenuk, Thales Australia, Rafael** and **Selex**.

ADM Cyber Security Conference

Date: 12-13 June 2013, Hotel Realm, Canberra

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Milestone for BAE Systems and Marand



The first shipset of parts from BAE Systems advanced manufacturing facility at Edinburgh Parks was delivered to Marand's F-35 vertical tail fin assembly line in Victoria today.

The shipset comprises around 30 complex titanium components of varying sizes that will form part of two vertical tails for each of more than 700 next generation **Joint Strike Fighter jets**.

BAE Systems CEO **David Allott** said that this was a significant advanced manufacturing milestone for both companies.

"This is the first shipset of parts delivered at the beginning of a 20-year contract," he said.

Over the next two decades, BAE Systems Australia will provide parts to Marand to enable the assembly of 722 shipsets of vertical tail fins for the JSF.

"This year, BAE Systems will deliver three sets of aircraft parts to Marand, which will increase to up to 70 shipsets annually over the life of the contract."

Allott said the contract complemented the investment by BAE Systems and the South Australian Government in new titanium machining currently underway at Edinburgh Parks.

"Producing Joint Strike Fighter parts for the F-35 Lightning II program will form a large part of our expanded facility," he said.

"The investment will provide a machining capability at BAE Systems – only one of two in the world – that we hope will open a door to other defence and commercial opportunities."

The new facility will have the capability to manufacture large-scale components to support commercial aircraft, commercial industries and other defence projects and will start production in January 2014.



Spanish tanker refuels HMAS Sydney



The Australian guided missile frigate *HMAS Sydney* has successfully completed a replenishment at sea (RAS) with the Spanish tanker *ESPS Cantabria* off the coast of Cairns, while on passage to Japan, where the Australian warship will embed with the US Navy's 7th Fleet.

HMAS Sydney's Commanding Officer, Commander **Karl Brinckmann**, said the RAS was an excellent opportunity to build on his crew's experience working with other navies. "Conducting replenishment at night is always challenging, but the professionalism shown by Commander Jose Fernandez and his crew ensured the activity was completed safely and efficiently," said CMDR Brinckmann.

It was the first night RAS conducted by *Cantabria* since arriving in Australia in February. *ESPS Cantabria* is in the middle of a 10 month deployment to Australia, which will culminate with participation in the **International Fleet Review** in October.



L to R – Brydon Johnson, Rhiannon Stratford, Dr Mike Kelly, GA (Tony) D'Andreti

Kelly visits RPC

Dr Mike Kelly, Minister for Defence Materiel, Michelle Rowland, Greenway MP and Ed Husic, Federal Member for Chifley have recently visited the Seven Hills RPC factory.

A tour of the factory was led by GA (Tony) D'Andreti – executive manager - Defence, which included showing the Life of Type Extension refurbishment process for Floating Support Bridges (FSB), and RPC's manufactured ballistic spill curtains.

Dr Kelly commended RPC by saying that what RPC do here in Seven Hills helps the



Australian Defence Force survive.

RPC Defence survey and repair structures, and also manufacture, maintain and refurbish military equipment in composite and metal materials, covering Land, Air and Maritime Systems. RPC use new or established designs, specialist manufacturing and repair techniques.

Some of the new projects RPC have tendered for are the Bridge Adaptor Pallet as part of Army's Land 121 Phase 3B project and Land 121-4 Hawkei. RPC Defence recently submitted an offer to the Defence Science and Technology Organisation (DSTO) to improve the current spall curtains made by RPC, in conjunction with CSIRO, as part of the Capability Technology Demonstration (CTD) Program.

Work begins on new entry to Holsworthy Barracks



Upgrading access to Holsworthy Barracks as part of the \$870 million Moorebank Units Relocation (MUR) Project has begun.

Construction activities at Holsworthy Barracks commenced in December 2012, with works for the new entry to the Barracks and associated improvements to Heathcote Road now under way.

Parliamentary Secretary for Defence, Senator David Feeney, said the changes will have a positive impact.

"Once work on the new entry is complete, the improvements are expected to reduce traffic congestion in the area by around 30 per cent and that is good news for people in the area," Senator Feeney said.

The roadworks on Heathcote Road, between Macarthur Drive and The Avenue in Hammondville, include:

- relocating the Barracks entry from its current location close to Holsworthy Railway Station to approximately 800m south on Heathcote Road and away from the busy station precinct;
- upgrading 600 metres of Heathcote Road between the Williams Creek Bridge and railway overpass into a dual carriageway; and



- providing new drainage, street lights, pedestrian and cycle crossings, improved bicycle access, traffic signals, guardrails and landscaping.

Work on the new entry is expected to be completed later this year.

For more information about the works and the scope of the MUR Project please visit www.defence.gov.au/id/moorebank



Training for an army of leaders

Tom Muir

While the ‘strategic mafia’ wring their hands over the decline in defence capability and a force structure perennially unsuited to the unknown, we were struck by an article in a recent issue of the *Australian Army Journal*

describing how the German Army (Reichswehr) was transformed from its impoverished state at the end of World War 1 to its brilliance in World War 2.

Author Major *Ben McLennan* sees the Australian Army as being on the cusp of its most challenging period since the end of the Vietnam War.

Following twelve years of unprecedented operational tempo, he finds the Army is steadily moving towards a ‘peacetime army’ with its training focus shifting from attaining expertise in counter-insurgency operations towards achieving mastery in combined arms warfare. Noting that it has entered a period of fiscal austerity and that the future will not be easy, he argues that Army can readily confront its forthcoming challenges through the implementation of a training regimen that emulates the one which transformed the Reichswehr in the years following the World War 1. This is based on the ‘train better, fight best’ philosophy implemented by **Generaloberst Hans Von Seeckt**.

Analysing the features of his training philosophy the author found Von Seeckt optimised the time and limited material resources that he had for training, reforming the Reichswehr as a leader’s army (Führerarmee), and inculcating an obsession for learning amongst his officers and soldiers as the pillars underpinning his training methodology.

A first pillar of his transformation of the Reichswehr was developing it as a ‘leader’s army’. Due to the constraints imposed by Versailles on the limited number of officers, Von Seeckt had little choice but to craft this from its noncommissioned officers and privates. From the outset, he aimed to ensure that the Reichswehr’s 100,000 soldiers were to be leaders or capable of leadership, maintaining that it was of fundamental significance that junior leaders were taught to be independent-thinking and acting men. He also regularly reminded his commanders at all levels that even the youngest leaders in their respective organisations needed to understand ‘the many-sided problems of the combined efforts of all arms’.

An obsession for learning was the second pillar underpinning this transformative training philosophy. Due to this training philosophy, by 1921 a solid outline of combined arms concepts and manoeuvre warfare had been crafted. The superiority of this ‘train better, fight best’ philosophy can be validated by contrasting it with the deleterious approach to training adopted by the British army prior to the



Second World War. McLennan says the Australian Army can, and must, take heed of the legacies of both methodologies. Unlike Germany, during the interwar years the British did not suffer under the severe dictates of Versailles. Moreover, they ended the First World War as the victor, not the vanquished. In short, its nation and army confronted a better set of circumstances than Von Seeckt did.

Despite these advantages, the British army atrophied during the interwar years. A negative, lackadaisical and incoherent approach towards training was the underlying reason for this decline.

French notes that 'the rank and file never thought for themselves and all, including warrant officers and NCOs, lacked initiative'.

McLennan says the Australian Army can successfully confront its forthcoming challenges through the implementation of a 'train better, fight best' philosophy. But this methodology must incorporate an unwavering focus on making the most of the time and limited material resources available for training, determinedness towards enhancing the depth and breadth of leadership and initiative within Army, and the relentless pursuit of learning, improvement and physical and mental robustness.

He says many inventive, transformative and cost-effective techniques can be employed to realise these features of Von Seeckt's training philosophy. 'Mud model' exercising is one. The study of military books, academic/military case studies and articles is another. The critical review of films provides a third option. The options are many. They are only constrained by the imagination and motivation of the leader designing the training.

Further reading: Major Ben McLennan: Train Better, Fight Best, Australian Army Journal, Volume IX, Number 3, Summer 2012.



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, the second rotation of around 200 **US Marine Corps** personnel arrived in Darwin for a six month deployment.

The US Navy declared an updated MH-60S "**Sierra**" operational flight trainer (OFT) as ready-for-training at Naval Air Station (NAS) North Island near San Diego, California.

And, harbour acceptance trials of Babcock's containerised **life raft system** developed for the Royal Netherlands Navy (RNLN) were successfully completed on *HNLMS Walrus*



International



Keeping LCS costs down

The US Navy is working to keep the Littoral Combat Ship program's cost down, prioritising cost over schedule as the program continues through its 20-ship block buy, the Navy's acquisition chief told the House Armed Services

seapower and projection forces subcommittee last week.

Sean Stackley said that in both LCS variants "we're seeing a steady rate of improvement in terms of cost performance, operating within our budget." Cost is being balanced with delivery in such a way that "we're not going to put a lot of pressure on delivery schedule if it creates any cost challenges on the program," he told the subcommittee at its April 24 hearing-*Inside Defense*



Additional HELLFIRE missiles for the UK

The Defense Security Cooperation Agency notified Congress April 16 of a possible Foreign Military Sale to the UK for 500 AGM-114-N4/P4 HELLFIRE missiles. The estimated cost is \$95 million.

This program will directly contribute to the US foreign and national security policies by enhancing the close air support capability of the UK in support of NATO, ISAF, and other coalition operations. Common close air support capabilities greatly increases interoperability between our two countries' military and peacekeeping forces and allow for greater burden sharing.

The proposed sale will support the UK's ability to meet current and future threats by providing close air support to counter enemy attacks on coalition ground forces in Afghanistan. The UK, which already has HELLFIRE missiles in its inventory, will have no difficulty absorbing these additional missiles.

The prime contractor will be **Lockheed Martin** Corporation of Orlando, Florida. There are no known offset agreements proposed in connection with this potential sale.

Implementation of this proposed sale will not require the assignment of any additional US Government or contractor representatives to the UK.



RPC expands in South East Asia

RPC has taken steps to expand their footprint in South East Asia, by creating two new companies; RPC Technologies Co Ltd of Thailand and RPC International Sdn Bhd (Malaysia).

“This now opens up our ability to provide services to our customers in the Defence, Energy, Environment, Infrastructure, Resources and Transport sectors,” **Tony Caristo**, managing director said.



Kongsberg to Provide Navy with Marinized CROWS

The US Navy will be ordering marinized version of the M153 Common Remotely Operated Weapon Station (CROWS) from Kongsberg Protech Systems to fulfill requirements for its remotely operated Stabilized Small Arm Mount (SSAM) weapon systems program.

The marinized CROWS will keep sailors protected from hostile fire while enhancing overall ship protection and providing unique operational capabilities including enhanced target interrogation and the ability to counter asymmetric threats. The CROWS will allow sailors to operate the array of sensors and weaponry from safely inside a vessel, instead of from unprotected, open positions.

From harbor protection to littoral missions and into the open water, the naval optimized CROWS offers the same proven precision capabilities as those currently deployed around the world. The standard sensor package includes a daylight colour camera, a thermal night camera (IR) and a laser range finder allowing all-weather, day and night operations. The target tracking and comprehensive fire control provide first-burst on target capabilities while limiting collateral damage. These enhancements allow troops and commanders to operate with greater confidence and effectiveness.

The system production and technical engineering support of the M153 CROWS will continue to be carried out in Johnstown, Pa.

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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

Land Environment Working Group

DATE: 21 June 2013, National Convention Centre, Canberra
ENQUIRIES: Erin Frazier: erin.frazier@defence.gov.au, Ph: 6265 4820
Web: www.govdex.gov.au

This meeting is an opportunity for Industry representatives to discuss projects in the DCP with project managers. The way ahead for Land Development Branch in Capability Development Group will also be discussed. Interested participants can register and RSVP for the event through the Govdex website. Access to this website can be granted by sending an email to Erin Frazier..

2013 Hunter Defence Conference

DATE: 22-23 May 2013, Fort Scratchley
ENQUIRIES: **Web:** www.sticktickets.com.au/10869

The 2013 Hunter Defence Conference, supported by NSW Trade & Investment, HunterNet and Hunter Business Chamber, is an excellent opportunity for SMEs to hear about current Defence opportunities, diversification, innovation and skilling in supporting Defence.

ADM Cyber Security Conference

DATE: 12-13 June, 2013, Hotel Realm, Canberra
ENQUIRIES: ADM Events - Jamie Burrage, Ph: 02 9080 4321;
Email: Jamie.burrage@informa.com.au **Web:** www.admevents.com.au

ADM's 3rd Cyber Security Summit will see stakeholders from Australia's Defence and National Security agencies address the current and emerging cyber threats to Australia's security. More details to be released closer to the date.

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.

SimTecT

DATE: 16 Sep - 19 Sep, 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.