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Quickstep opens new Sydney site

Julian Kerr | Sydney

Quickstep Holdings formally marked its move from Perth to Sydney with the official opening on 22 June of its new composites facility in a former Hawker de Havilland Aerospace hangar at Bankstown airport.

The importance of the **Quickstep** operation to both **Northrop Grumman** and **Lockheed Martin** was emphasised by the presence of **Gary Ervin,** President of Northrop Grumman's Aerospace Systems Division (who jointly opened the new plant with NSW Premier Barry O'Farrell) and **Jonathan Rambeau,** Lockheed Martin's Vice-President of F-35 International Programs.

Quickstep is already manufacturing carbon fibre components for the Lockheed Martin F-35 Joint Strike Fighter under a long-term agreement (LTA) signed in February 2011 with Northrop Grumman, a major subcontractor to Lockheed Martin on the F-35 program.

A second LTA announced at the opening by Quickstep Managing Director **Philippe Odouard** will see the range of components extended to take in lower skin sides, maintenance access panels, fuel tank covers, and inboard bomb bay doors.

A third and final LTA under a Memorandum of Understanding that was signed with Lockheed Martin and Northrop ▶

Grumman in November 2009 is anticipated before the end of this year on successful conclusion of a qualification process that is currently under way.

Meanwhile discussions are understood to be taking place on Quickstep taking over from **BAE Systems** in the UK the assembly of JSF vertical tail units, the composite skin for which is produced by Quickstep and the structure by Marand Engineering in Melbourne. The completed units would be shipped direct to the US.

The 4,000 square metre Quickstep hangar has a lengthy aviation history, being used for flight testing of the Mosquito fighter bomber in World War II and then for the Vampire fighter, maintenance of the RAAF's Caribou tactical transports, and assembly of the RAAF's Pilatus PC-9 trainers.

Quickstep will shortly be taking over another nearby ex-Hawker de Havilland Aerospace hangar to implement its new contract as sole-source manufacturer of flaps for the Hercules C-130J.

About half of the current 50-strong Quickstep workforce is now in place in Sydney, with the balance expected by next January. But Odouard said the contracts the company has already secured represent more than 200 jobs "and we have a number of other prospects likely to increase that number significantly".

Quickstep was very close to being cash flow positive and had all the contracts necessary to get there, he added.

Romeo ahead of schedule

Julian Kerr | Sydney

Delivery of the 24 MH-60R Lockheed Martin/Sikorsky naval combat helicopters ordered for the RAN has been accelerated and training on the first seven aircraft will take place in the US, Defence has confirmed to ADM.

Captain Scott Lockey RAN, project director for Air 9000 Phase 8, told an industry briefing last September that the first MH-60R, known as the Seahawk Romeo, would be delivered in January 2014 and the last in 2018.

However, Defence now says the first two MH-60R will be accepted in the US in December 2013, followed by the third and fourth aircraft in February 2014. The final aircraft will be delivered in the third quarter of 2016.

The first seven aircraft will be operated in the US, alongside a number of US Navy Seahawk Romeo squadrons, at Naval Air Station Jacksonville in Florida.

"The earlier delivery of Australian Seahawk Romeos has provided an opportunity to slightly modify the already-approved US-based initial training to model it on the initial training regime successfully used to introduce the Australian Super Hornet," a Defence spokesperson said.

"This will allow Navy to quickly build aircrew and maintainer competency by operating the new aircraft alongside operational US Navy Seahawk Romeo squadrons, capitalising on their experience and access to their training devices and ranges."

Initial Operating Capability was still planned for mid-2015 in Australia.

While the US training may already have been planned it will also be very convenient since, the spokesperson acknowledged, MH-60R facilities at *HMAS Albatross* would not have been ready in time to support the early delivery of the aircraft.

AIDN launches SME participation plan

The Australian Industry & Defence Network (AIDN) officially launched its SME participation plan for the defence and security industry, at the AIDN-QLD annual dinner in Brisbane on Thursday, 21 June 2012.

The primary objective of the Plan is the establishment and maintenance of an Australian defence and national security industry base with the depth, capability and viability to cost-effectively contribute to the achievement of the necessary level of Australian defence self-reliance. The Plan makes recommendations on six key issues which, if supported by Government, will increase defence industry SMEs participation in providing innovative and 'leading edge' capability solutions to the ADF.

In launching the SME PP, AIDN National President **Graham Priestnall** stated that the plan's development was a result of a collaborative effort of the eight AIDN Chapters.

"Over the past four years, AIDN National has given serious consideration to issues surrounding the defence industry SME's participation in supporting the development and sustainment of ADF capability and the development of defence industry policy initiatives which support Australian defence industry SME's access to and participation," Priestnall said.

The SMEPP recognises several of the relatively recent Government policy initiatives that seek to support Australian defence industry SMEs. The Plan's recommendations will further enhance these initiatives and provide confidence to Australia defence industry SMEs that the policies will reach the stated goals. AIDN fully understands that the role of the Australian defence industry is to provide and sustain effective capability for the ADF. However, in AIDN's opinion some of the current practises and implementation of defence industry policy prevents Australian defence industry SMEs in fulfilling their potential to deliver and sustain this capability.

For a copy of the report, contact **Graham** on **president@aidn.org.au** or 0408 655 249.

JSF strike a learning experience

Julian Kerr | Sydney

The nine-week long machinists' strike affecting F-35 Joint Strike Fighter (JSF) manufacture at Lockheed Martin's Fort Worth plant has a silver lining – it's allowing the company to plan improvements to the production line, according to Jonathan Rambeau, Lockheed Martin's Vice President of F-35 international programs.

Speaking to ADM at the opening of **Quickstep Holdings'** composites facility in Bankstown on 22 June, Rambeau said the strike meant that a number of personnel who were responsible for the manufacturing process and production aspects of the F-35 were getting hands-on experience in building the aircraft.

"They're able to identify things that perhaps could be done more efficiently and we're making a long list of opportunities," he commented.

"Some of these little things can become major cost drivers down the road; there will certainly be improvements but it's hard to quantify the significance at this point."

Rambeau acknowledged the impact on suppliers of JSF order deferrals such as those recently announced by the US and Australia.

"The reality is, for many firms on the JSF program there is some challenge to the business case they had originally set forth when they made their investment, so we're working with them on how best we can minimise those impacts."

Rambeau noted that there were "very few unqualified guarantees to anybody on the program".

Nevertheless, if the program retained the numbers of aircraft that were firmly forecast "that work will be offered, that's really just a matter of timing".

No more white knuckles for aircrew

Since 2000, most aircraft operated by the Australian Defence Force (ADF) have been delivered for service with a range of missile countermeasure systems installed, including flares, aluminium 'chaff', missile warning systems and electronic jammers.

"Installation of the countermeasure systems alone, however, is insufficient to provide effective protection," explains DSTO researcher **Mark Pitt**, writing in *Defence Science.* "In some cases, the modes of system operation designed by the manufacturers

are not optimal for ADF needs, and all operation techniques must be shown to have validated effectiveness for ADF operational uses before the aircraft can be flown into harm's way."

This being so, Defence has sought to establish an in-country capability for the development of countermeasures (CMs) and tactics, techniques and procedures (TTPs). This also requires testing them for effectiveness. The work is being done by DSTO in partnership with the RAAF's Joint Electronic Warfare Operational Support Unit (JEWOSU) in a Defence-wide R&D countermeasures development program. The range of aircraft supported includes fixed wing wide-bodied aircraft as well as helicopters operated by all three services.

The Australian Airborne Countermeasures Team (AACT) in DSTO's Survivability Integration Laboratory (SIL) undertakes testing of electronic warfare technologies. Electronic warfare operators and equipment can thereby be subjected to realistic threat conditions for the study of various performance issues.

An ongoing program to continually upgrade the performance of all countermeasure and warning systems is in place, and has delivered upgrades for aircraft deployed in Iraq and Afghanistan. It has ensured that all aircraft have electronic warfare systems at a suitable degree of readiness.

Making sense (and targets) of 'fuzzy blobs'

The winner of the 2011 DSTO Eureka prize for research in support of defence and national security has significantly advanced a technology for imaging objects through opaque materials.

Professor Salim Bouzerdoum, Associate Dean (Research) in the Faculty of Infomatics at the University of Wollongong has been leading team research work on a technology known as through-the-wall radar imaging (TWRI) for the past several years.

A TWRI system transmits radio waves that travel through solid materials, and its antennae capture the return signal bouncing off features on the other side. For TWRI operations, however, walls impede both the signal sent from the transmitter and the signals reflected from objects of interest inside the space, meaning that signals received are extremely faint. Advanced signal processing techniques therefore have to be applied to filter and amplify the return signal.

The images obtained by TWRI technology to date feature fuzzy blobs depicting the position and motion of objects behind a wall as seen from a top-down 2-D view. But because of the way that radar waves are affected by motion, users of TWRI systems are able to establish the position of humans in a space and the likely nature of activities being engaged in. Motion correspondingly alters the frequencies of radar waves. Anything that rotates, including the movements of arms and legs around the hinge points of limb joints, will thus show up in radar signal returns.

Professor Bouzerdoum's research has also produced significant advances in

automated target recognition capabilities. One technique is that developed for the detection of human movement in very short time frames, another has also produced advances for ground penetrating radar, used for detection of IEDs and mines. The eventual aim is to develop a low-cost, portable, TWRI system that supports real-time target detection and tracking with high resolution 3-D imaging.

Radar proofing Collins periscopes

DSTO has delivered an improved form of Radar Absorbing Material (RAM) that makes Collins class submarine periscopes less detectable.

Development of the new material was carried out in a collaborative effort with Melbourne based rubber manufacturer, **Mackay Consolidated Industries.**

"The development process began with work done in DSTO's laboratories to produce rubber samples containing various concentrations of different additives," explains DSTO researcher **Dr Andrew Amiet.**

"We tested these samples for radar wave absorption and reflectivity over a range of radar frequencies. The data obtained was then entered into a computer program written in-house that calculates the percentages of additives needed to achieve optimal radar absorption over a given frequency range."

Using the optimised recipe generated by the program, Mackay produced RAM in large sections for attachment to periscope masts. The material comprised rubber layers at the required thicknesses, with each layer containing certain levels of additive concentrations. The rubber was laid down in custom-designed mouldings engineered by Mackay to fit the particular shape of each periscope mast perfectly.

To test the effectiveness of the applied material, DSTO scientists undertook a study at sea, measuring the strength of radar return signals from periscopes with the new RAM installed. The work verified that the range at which other sea or airborne platforms can detect a Collins class submarine is much reduced compared to an untreated mast.

The RAM is now being progressively installed on the entire Collins class submarine fleet

Additional to the development of RAM for submarines, DSTO has undertaken to develop similar materials for use on other Defence platforms. These materials range from lightweight flexible sheets, radar absorbing paints and rigid fibreglass structures.

A possibility for future development Dr Amiet is looking into is that of a RAM comprising meta-materials, which offer the ability to easily transform the properties of the absorber without the need for a complete redesign.

"A RAM made of active meta-materials can potentially produce an absorber that can dynamically alter its performance to accommodate a change in requirements," he says.

Dutch auction perhaps?

Romania is interested in buying 15 surplus F-16's from the Dutch Air Force. A number of other countries have also shown interest in Dutch military vehicles and ordnance. Last week, the Dutch Ministry of Defence confirmed reports that it is looking to sell equipment in order to raise funds.

It is not clear how much money the Netherlands will be able to raise with the sale of the fighter jets.

The defence ministry must shave a billion euros from its budget. The ministry is also in preliminary discussions with an undisclosed number of potential buyers, including Chile, which are interested in eight Cougar helicopters. Just recently parliament discussed the potential sale of 80 Leopard tanks to Indonesia.

The ministries of defence and foreign affairs are in favour of the sale but a majority in parliament is against the transaction. The tanks would be sold for 200 million euros.

Some years back an offer by the Netherlands Government for Australia to take over 18 self-propelled KMW PzH 2000 howitzers, still to be manufactured but surplus to their requirements and at an advantageous price, was declined due to the absence of accurate in-service support costs.

While the PzH 2000 was believed to be more expensive than its Korean rival — the Samsung Techwin AS-9 proposed by **Raytheon Australia** — it was felt that there would be considerable cost reductions if we were to acquire those KMW systems intended originally for the Dutch Forces.

The recent cancellation of the self-propelled howitzer component of the Land 17 artillery replacement requirement, for which the AS-9 is believed to have been preferred, has brought no joy to Raytheon Australia which did an extraordinary job of promoting it and ensuring it met the Land 17 tender requirements.

Growlers versus Dongfen ASBM?

As has been reported, the US Congress has been notified of a possible sale of EA-18G Growler conversion kits to Australia for $1.7 billion. The kits include 34 AN/ALQ-99F jamming pods, 22 CN-1717A interference cancellation systems, 22 R-2674 joint tactical terminal receiver systems, 30 LAU-118 guided missile launchers together with spares, training and support.

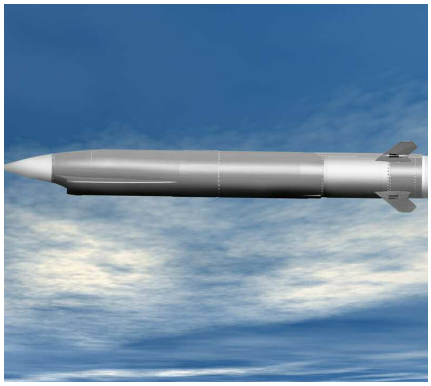
In late March Australia ordered $19 million worth of electronic systems, antennae and other long lead items for the (as yet unconfirmed) conversion of the 12 F/A-18 Super Hornets pre-wired for Growler.

It seems the US Navy wields several means of deflecting potential attacks involving the Chinese antiship ballistic missile, the Dongfen 21D. Wired magazine quoted the USN's chief of naval operations, Adirmal Jonathon Greenert as saying: "You want to spoof them, preclude detection, jam them, shoot them down if possible, get them to termination, confuse it."

The Navy's pursuit of interference capabilities could yield equipment capable of misdirecting the weapon's tracking mechanisms, he said. The EA-18G Growler fighter aircraft would presently assume a key role in an interference attempt, and a future system could be capable of infiltrating hostile electronics with software to undermine their functioning.

Seasprite sale to New Zealand cleared

Helicopter manufacturer Kaman has confirmed that the US State Department has approved a possible sale to New Zealand of 11 SH-2G(I) Super Seasprite maritime combat helicopters that were rejected by Australia in 2008. The Connecticut-based company said in a statement that it had been given permission to discuss a sale to replace New Zealand's existing fleet of SH-2Gs, which have been in service since 2001.



Long range ASM under test and review

The US Long-Range Anti-Ship Missile (LRASM) program is conducting a series of key tests and preparing for an interim program review scheduled for next week, according to Glenn Kuller, director of advanced programs at Lockheed Martin's Missiles and Fire Control business.

LRASM was due for review by DARPA on June 28 and 29 Kuller said in an interview with *Inside the Pentagon*. Lockheed is confident that the program is on track, he added. "We see no showstoppers currently. The first captive series went better than expected. All the individual components have passed their individual tests," Kuller said.

The joint DARPA/US Navy LRASM program was initiated in 2009 to deliver a new generation of highly capable anti-ship weapons. During the program's initial phase, preliminary designs of the LRASM-A and LRASM-B variants were successfully completed. LRASM-A leverages the state-of-the-art JASSM-ER airframe, and adds additional sensors and subsystems to achieve a stealthy and survivable subsonic cruise missile. LRASM-B leverages prior ramjet development activities and a suite of supporting sensors and avionics to achieve a supersonic cruise missile with balanced speed and stealth for robust performance.

The next phase will continue the development of both missiles and culminate in flight demonstrations of tactically relevant prototypes of both missiles, including a common sensor system from **BAE Systems**.

Unlike current anti-ship missiles the LRASM will be capable of conducting autonomous targeting, relying on on-board targeting systems to independently acquire the target without the presence of prior, precision intelligence, or supporting services like GPS navigation and data-links. These capabilities will enable positive target identification, precision engagement of moving ships and establishing of initial target cueing in extremely hostile environment. The missile will be designed with advanced counter-countermeasures, to effectively evade hostile active defense systems.

Austal strengthens links with Kelvin Hughes

UK-based Kelvin Hughes has appointed Austal to lead its defence, border protection and paramilitary sales and support activities in Australia and New Zealand. The agreement will enable both companies to best support customers in Australasia.

Austal, which has provided systems maintenance services for KH products since 1993, will sell and support Kelvin Hughes' naval and marine products, including naval transceivers, digital displays and processors and spares.

Austal CEO **Andrew Bellamy** said the Kelvin Hughes appointment demonstrated further progress in the expansion of the company's defence and systems activities.

"This agreement, and the one with mission system integrator **General Dynamics Advanced Information Systems** we announced in March, demonstrates our ability to leverage our in-house capabilities and market position to expand the Austal business," he said.

Cloud computing security

While the US Defense Science Board's study on cybersecurity and reliability in a digital cloud, is 'poised' for release pending a final security review with suggestions that this may be four to six weeks away, here in Australia the Defence Signals Directorate has released a discussion paper on cloud computing security considerations.

Available in pdf format, the April 2012 DSD paper notes that cloud computing offers potential benefits including cost savings and improved business outcomes for Australian government agencies. However, there are a variety of information security risks that need to be carefully considered. Risks will vary depending on the sensitivity of the data to be stored or processed, and how the chosen cloud vendor (also referred to as a cloud service provider) has implemented their specific cloud services.

The discussion paper is aimed at assisting agencies to perform a risk assessment to determine the viability of using cloud computing services. The document provides an overview of cloud computing and associated benefits. Most importantly, it provides a list of thought provoking questions to help agencies understand the risks that need to be considered when using cloud computing.

Among its many topics the document includes overviews of: cloud computing; business drivers to adopt cloud computing; risk management; security considerations; protecting data from unauthorised access by a third party, vendor's customers and rogue vendor employees.

International

JSF price bickering

A Lockheed Martin official said last week that he believes the company will reduce the price of the three variants of the F-35 Joint Strike Fighter to the point that the F-35A will only cost $US70 million apiece, at least 10 percent lower than government

estimates, because it doesn't include costs for things like spares and support equipment.

Asked at a June 19 media event what the eventual price target is for the F-35, **Steve O'Bryan**, **Lockheed** vice president for F-35 business development, said "we still believe that the F-35A, with all the mission systems and all that, comes out to about $70 million in 2012 dollars."

Michael Rein, a Lockheed spokesman, said later that while the company didn't have similar targets for the Navy and Marine Corps variants, the price drop would be similar. That estimate includes the engine, according to Rein.

O'Bryan said his belief is based on the company's estimates as well as the government's in a Selected Acquisition Report. However, the SAR lists the F-35A's unit recurring flyaway (URF) cost at $US67.8 million plus $US10.9 million for the engine, or about $US9 million above the figure quoted by O'Bryan — *Inside Defense*

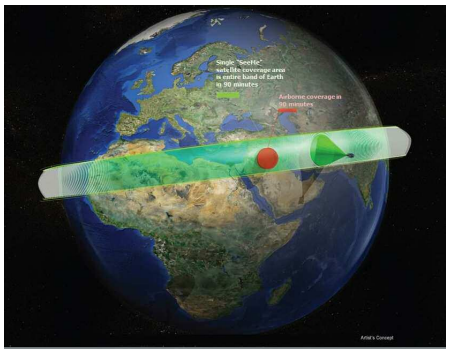
Thales wins French theatre comms development contract

The French defence procurement agency (DGA) officially notified Thales of the award of the development contract for the CONTACT program on 21 June. This strategic program is designed to equip the majority of the French forces' platforms with next-generation tactical radios incorporating innovative software-defined radio technology.

Network-centric operations hinge on the ability to move ever-increasing volumes of information between all the players in the battlespace. To accommodate the growing complexity of communications in network centric operations, six European nations — Finland, France, Italy, Poland, Spain and Sweden — launched the ESSOR project (European Secure Software defined Radio) in 2009.

The CONTACT program will therefore draw on a foundation of communication architecture standards and on the European waveform developed by the ESSOR partners to guarantee interoperability. Future CONTACT radio products will be fielded with the French Army, Air Force and Navy, providing faster transmission speeds, better security and heightened interoperability. They will be interoperable with the communication systems of other nations to support coalition operations.

These products will be interoperable with the PR4G waveform, thus assuring upward interoperability with PR4G radio equipment currently in service.



SeeMe: cheap satellite for deployed troops

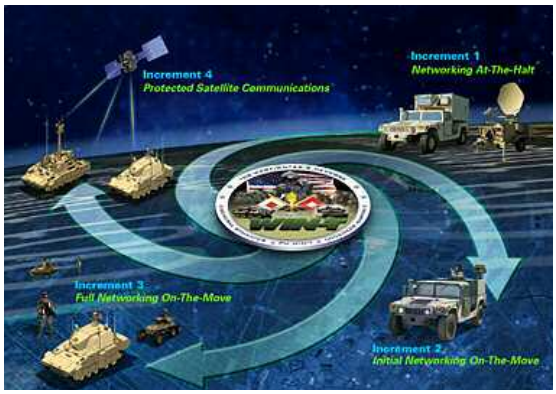
Providing US troops with on-demand battlefield images, hitherto impossible due to the limited fleet of US military satellites, has spurred the Pentagon to introduce cheap, disposable

satellites that can provide soldiers or Special Forces at platoon level with the latest battlefield images on their mobile phones or tablet computers.

The Defense Advanced Research Projects Agency (DARPA) research lab aims to launch about two dozen satellites — each costing about $US500,000 — for missions lasting 60 to 90 days in low-Earth orbit. Such satellites would not only launch cheaply from aircraft rather than ground-based rocket launch pads, but could also de-orbit at the end of their mission lifetime and burn up safely in the Earth's atmosphere.

"We envision a constellation of small satellites, at a fraction of the cost of airborne systems, that would allow deployed warfighters overseas to hit 'see me' on existing handheld devices and in less than 90 minutes receive a satellite image of their precise location to aid in mission planning," said Dave Barnhart, program manager for DARPA.

Concerned over how quickly insurgents can access commercial imagery services, the Agency is seeking industry proposals for inexpensive satellites that could respond to requests from U S troops within 90 minutes. The proposals are due by June 29 with about $45 million allocated to developing the process to make the satellites. According to the notice, the satellites should cost no more than $500,000 each and should be able to be produced at the same cost point regardless of how many are ordered. The program, called SeeMe, is intended to reduce the lag time between when a warfighter requests and receives information.



US Army mismanaging WIN-T?

Daniel Goure of the Lexington Institute opines that over the past 20 years the US Army has achieved a record of successfully implementing major acquisition programs virtually unblemished by success. The list of failures is quite long: Crusader, Future Combat System, Armed Reconnaissance Helicopter, Aerial Common Sensor, etc.

According to Dr Goure, the Army leadership says that its number two modernisation program, right behind the GCV, is its new tactical communications network called the Warrior Information Network-Tactical (WIN-T) which is designed to provide secure and near-certain communications from the individual soldier all the way to the global information grid. The current version of WIN-T system, called Increment 2, will deliver continuous, secure, on-the-move broadband networking for mobile formations from division and brigade down to company level.

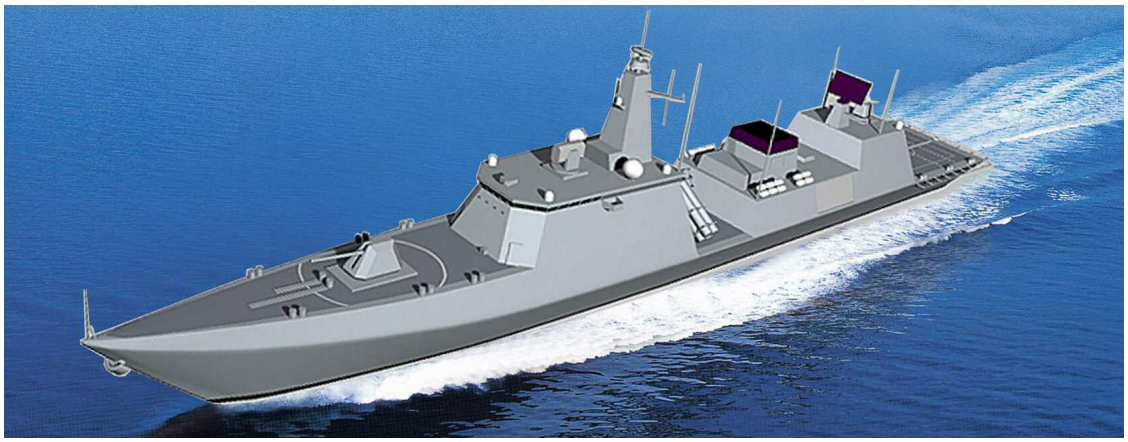
So why has the Army been moving so slowly to procure WIN-T, particularly when Congress allocated the funds to do so? News reports indicate the Army will be forced to cough up hundreds of millions of dollars appropriated for WIN-T but unobligated as of this date. This means that the Army will have to redefine the procurement strategy and the system's contractors must provide a new, certainly higher, price for the system. As the cost of WIN-T increases and the time to deployment lengthens, it becomes more difficult to justify the program. As one observer noted, the danger is you go into a "death spiral" in which there are fewer dollars each year to spend on a program that becomes more expensive over time. Goure says that this is pretty much what happened to other US Army modernisation programs.

WIN-T is at the heart of Raytheon Australia and GD C4's bid for the battlefield

telecommunications network (BTN) and its various elements including Satcom C2 on the move systems under JP 2072 Phase 2B. Raytheon Australia's managing director, Michael Ward has made no bones about what his team proposes for Phase 2B.

"We believe that the US WIN-T is the most viable MOTS solution for Phase 2B. It is fielded and in service with the US Army, it has the form and size requirements sought by the Australian Army and has a publicly declared growth path," Ward said. "There is also strong merit in selecting a system that is not only interoperable with the US but can be integrated with US operations. That the US Government has committed to invest in WIN-T for years to come is particularly beneficial."

Rolls-Royce to supply MT30 Gas Turbine for Korean Navy



Rolls-Royce has been selected to supply its MT30 gas turbine to power a new FFX frigate for the Republic of Korea's Navy. The FFX frigate will use a single MT30 rather than a pair, which demonstrates that the engine is suitable to power a variety of naval ships.

The MT30 is derived from Rolls-Royce aero engine technology and builds on over 45 million hours of operating experience. Producing 36 to 40 megawatts, it is the world's most powerful marine gas turbine and has the highest power density - a key factor in naval propulsion where delivering a high power output in a compact space is essential.

The FFX Batch II program is for eight ships. This order is for the first vessel in the program, which will be built by Daewoo Shipbuilding and Marine Engineering (DSME). The MT30 engine will be built and tested in the UK before being shipped to Korea, where Hyundai Heavy Industries (HHI) will integrate it into the steel enclosure which also houses the air inlets, exhausts and ancillary equipment, prior to installation in the ship.

The MT30 has also been selected for the US Navy's DDG-1000 Zumwalt class destroyer as well as the UK Royal Navy's new Queen Elizabeth class aircraft carriers, and is already powering the US Navy's Freedom class Littoral Combat Ships. ▲

ABOUT THE PUBLICATION

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