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DEFENCE WEEK
PREMIUM EDITION

Northrop Grumman has handed over the first two Triton platforms to the USN. AINONLINE

Triton program making gains in US, Germany and Australia

Katherine Ziesing | Canberra

News that Northrop Grumman has handed over the first two Triton platforms to the USN is another step towards the long running Australian program.

Naval Base Ventura County (NBVC) Point Mugu is home to the maintenance detachment of Unmanned Patrol Squadron (VUP)-19 DET Point Mugu, the USN's first unmanned patrol squadron. Maintainers are conducting training and tests on the Triton aircraft before it deploys to Guam later this year.

Point Mugu has also completely refurbished an existing hangar that will accommodate up to four Triton aircraft with a 130.9-foot wingspan. The first two Triton aircraft are located at Point Mugu and will continue flight operations there until their deployment.

As per the 2016 Defence White Paper, the Commonwealth of Australia plans to acquire up to seven Triton unmanned aircraft systems for maritime patrol and other surveillance roles.

IN THIS ISSUE

"At eight million square kilometres, Australia's economic exclusion zone is the third largest in the world, with extensive economic interests and strategic engagements in the wider Indo-Pacific region," Ian Irving, chief executive, Northrop Grumman Australia said. "Only a high altitude, long endurance unmanned aircraft system has the range, endurance and capabilities required for such an exhaustive broad area maritime surveillance mission."

Triton is a high altitude, long endurance autonomous aircraft providing up to 24 hours flight time. Its sensor suite provides a 360-degree view of its surroundings at a radius of more than 2,000 nautical miles. The system has multiple intelligence, surveillance and reconnaissance capabilities that contribute to the overall situational awareness of the ADF.

"While ADM understands the Australian program is due to reach a critical milestone this year, Germany has already made the decision to buy the system."

While *ADM* understands that the Australian program is due to reach a critical milestone sometime in the third quarter of this year, with Gate 2 imminent, Germany has already made the decision to buy the system.

A notification from the Defence Security Cooperation Agency in April outlined the US$2.5 billion German shopping list for the program.

"The Government of Germany has requested to buy four MQ-4C Triton Unmanned Aircraft Systems (UAS), one Mission Control Station (MCS) comprised of one Main Operating Base (MOB) (MD-3A) and one Forward Operating Base (FOB) (MD-3B), ten Kearfott Inertial Navigation System/ Global Positioning System (INS/GPS), units (two per aircraft plus two spares), and ten LN-251 INS/GPS units (two per aircraft plus two spares). This proposed MQ-4C UAS sale will be a modified version of the USN Triton configuration.

"Also included is one Rolls Royce Engine (spare), communication equipment, support equipment, mission planning element to include Joint Mission Planning System (JMPS) Global Positioning System (GPS) items, Communications Security (COMSEC) equipment, mapping, training, support equipment, consumables, spare and repair parts, tools and test equipment, ground support equipment, flight test support, airworthiness support, personnel training and training devices, applicable software, hardware, publications and technical data, facilities and maintenance support, US Government and contractor engineering,

Australia plans to acquire up to seven Triton unmanned aircraft systems for maritime patrol and other surveillance roles. NORTHROP GRUMMAN

"If that is what US$2.5 billion buys the Germans for their Pegasus program, what will the Australian package look like?"

technical, and logistics supports services, and other elements of unique engineering efforts required to support the integration, installation and functional platform compatibility testing of Germany's indigenous payload and other related elements of logistics and program support," according to the notification.

This begs the question: if that is what US$2.5 billion buys the Germans for their Pegasus program, what will the Australian package look like? *ADM* understands that there are substantial local industry arrangements in place with the German program, most notably with Airbus on the sensor front.

The German program is also subject to its own version of local industry support despite the FMS nature of the program. While the Tritons seen in the US, Germany and Australia may all look similar from the outside, the payloads are set to differ significantly.

Northrop Grumman would not be drawn on the finer details of the Australian program arrangements, either in terms of capability or AIC, so close to a government decision and referred all questions to the USN.

"It's the US Navy's goal to to be as common as possible through life of program," the USN project spokerperson said in terms of the Australian program, while declining to comment on any of the industrial plans in either Germany or Australia.

The USN spokesperson also confirmed that fitting of an airborne gateway into the Australian Triton program was not on the cards at this stage as that technology (BACN) "is an Air Force asset and Australian Triton will be common with US Navy Triton". *ADM* understands that a few of the Australian Tritons may be fitted with the technology in the future.

ADM will be keeping an eye on the program at home and abroad as details become available.

Space economy set for lift-off

Ewen Levick | Sydney

Australia's space economy is set for substantial growth, according to a presentation by CEO of SABER Astronautics Dr Jason Held, who was hosted by the Royal Aeronautical Society at UNSW last week.

Dr Held, a former US Army major who served in US STRATCOM, is also a member of the Expert Reference Group advising the Commonwealth on the design of Australia's new space agency, announced in the Budget this year.

He noted that Australian businesses currently spend $3 billion on space technology and sell $3 billion worth of data, resulting in no net economic gain or loss. However, whilst Australia has the fifth-largest research output of any nation, the result of this import economy is a poor international brand and a brain drain of experts to countries engaged in the full spectrum of space operations.

The creation of a space agency, however, will allow Australia to grow its industry and take advantage of current and upcoming disruptions to the space sector.

One such disruption is miniaturisation. Satellites have shrunk from the size of

a car to roughly the size of a shoebox and can now be constructed in as little as three months. This allows for faster technological evolution, and most importantly for Australia, a start-up culture. CubeSats have revolutionised the space game, particularly for new entrants.

In the past two years, the number of space start-ups in Australia has increased from 35 to 85, making Australia's space economy the fastest growing on the planet.

There are still constraints on this growth, according to Dr Held. Currently, the number of available launches worldwide is far outstripped by demand. The sky is also increasingly congested – over 100,000 objects are now in orbit, and all are tracked by the US Department of Commerce (this used to be the preserve of the USAF, which has since passed on the burden of being the world's 'space traffic cop').

"The number of space start-ups in Australia has increased from 35 to 85, making Australia's space economy the fastest growing on the planet"

Yet these challenges also create opportunities for Australia's nascent agency, according to Dr Held. Satellites based in Australia can track objects crossing 1/6th of the Earth's surface, meaning there is potential to share the tracking load with the US using new artificial intelligence and automation technologies.

There are also opportunities for Australia's space industry in two upcoming disruptors to the sector.

The next disruption, Dr Held argued, will be the ability to manufacture objects directly in space using 3D printing. This could reduce the cost of satellites to as low as $15,000.

Australia's space economy is the fastest-growing in the world. IMGUR

A long-term disruption is the expansion of the human economy into low-earth orbit and beyond – space mining, for example. This is a long way off, but Dr Held argued that it should nevertheless be on the radar of Australia's space industry as it looks to develop 'leap-ahead' technology.

Ultimately, he argues, the new space agency is the implementation arm of the government's space policy. That policy should be directed towards nurturing a domestic space economy. Dr Held suggested taxing space imports to protect

A growing number of space start-ups are launching in Australia. DEFENCE

"It seems the space agency could learn from the AIC tenets underpinning the Defence Industrial Capability Plan"

local companies, and setting out requirements for international firms to use local suppliers as two ways of achieving this goal.

It seems the space agency could learn from the AIC tenets underpinning the Defence Industrial Capability Plan, the Defence Innovation Hub, and other policies used to strengthen local participation in Australian defence acquisitions.

The agency, however, may also have to navigate the state-state infighting that has come to characterise Defence project bids.

Dr Held concluded by noting that Australia's space industry is currently an experiment in the art of the possible.

"Will it work?" he asked the 100-strong audience. "That's up to all of us."

TOP COMMENTS: FIRST PATROL BOAT LAUNCHED IN WA

Can someone explain to me why Austal continues to avoid a conventional skeg in its designs? These vessels are either going to require a custom cradle or very careful blocking every time they come out of the water.
– Johnno

Considering Austal are also doing the maintenance, they probably do not really care. I am just hoping they worked at the design and operational issues from the Armidale Class to ensure that these can survive longer than the Armidales will.
– Thomas

They are doing major work in Cairns so a cradle stationed at the NorShips site will do fine, but if the ships have to be docked at other sites it will be an issue. The use of a fin below the stern in lieu of a skeg is almost an Austal trademark. They started using it on small vessels and have carried it forward into larger and larger vessels and I have never seen an explanation. I have often wondered if the lack of a skeg contributed to the engine room bulkhead cracking on the Armidales.
– Johnno

WA to host Zephyr pseudo satellite trials

Nigel Pittaway | Melbourne

Airbus will conduct a series of test flights of its solar-powered Zephyr High Altitude Pseudo Satellite (HAPS) from north-west Australia in the second half of the year.

This week, WA premier Mark McGowan announced that Wyndham had been selected by Airbus from one of several sites under consideration around the country. The Premier's office said the WA State Government had been working with Airbus since February to establish site development at Wyndham airport for the trials.

"The Zephyr operates at an altitude of 65,000 feet (19,800 metres) for between 14 and 40 days"

Airbus' Zephyr is a solar powered unmanned aerial system (UAS), able to accommodate voice and data communications payloads and operate at an altitude of 65,000 feet (19,800 metres) for between 14 and 40 days. The Zephyr S (single tail) aircraft, capable of uplifting a five kg payload, has been ordered by the UK Ministry of Defence.

The larger Zephyr T (twin tail) vehicle now under development will be capable of carrying a 25 kg payload, which will allow a larger range of sensors to be incorporated, including a nano-radar.

Last year, Airbus Australia Pacific managing director Tony Fraser said the Zephyr S system would be based in Australia for a series of trials on behalf of potential customers, including the ADF, and that Airbus was working with a number of State Governments to establish a suitable location for the trials. Mr Fraser also said that Airbus was looking to partner with Australia on the Zephyr program in the areas of battery technology and laser data link capability.

However at the Singapore Airshow in February, CEO of Airbus Defence and

Wyndham will be the world's first operational base for Zephyr. AIRBUS

The aircraft can fly for weeks at 65,000 feet. AIRBUS

Space Dirk Hoke told *ADM* that Australia was only one of a number of launch sites under consideration in the region.

The WA Premier's office said on Tuesday that Wyndham had ultimately been chosen due to the largely unrestricted surrounding airspace and reliable weather. The Zephyr requires relatively calm conditions and a large amount of sunlight, as the air vehicle takes about a day to climb to its operating altitude.

"This is a major coup for Western Australia. I'm thrilled that Airbus has chosen Wyndham airport as the operational and launch site for the Zephyr project," Premier Mark McGowan said.

"From my meeting with the company in March, I was very impressed with the proposal and Airbus' international reputation. The technically advanced nature of the project will also help build Western Australia's profile in the aerospace, defence and innovation spaces.

"The Government looks forward to the operational success of Zephyr and to exploration by both local and other Australian government agencies and companies for opportunities to utilise such HAPS technology to improve economic, social and environmental outcomes in our region."

MOST READ ONLINE AT WWW.AUSTRALIANDEFENCE.COM.AU

1. Special Report: Sea 5000 and ASW – Meeting the future threat
2. First patrol boat launched in WA
3. Full steam ahead for Osborne shipyard rebuild
4. BAE to host Australian industry leaders in Glasgow
5. Chemring launches world-first EW tech

UniSA wins $450 million dollar grant from Siemens

"The $450 million grant will see Siemens share its industrial Product Lifecycle Management (PLM) software systems with the University"

Siemens and the University of South Australia (UniSA) have signed a partnership that will transfer industrial software to train students for work in advanced manufacturing, including naval shipbuilding.

The announcement was made this week by Siemens Australia chairman and CEO Jeff Connolly at the UniSA's Museum of Discovery in Adelaide, supported by Premier Steven Marshall, Minister for Defence Industry Christopher Pyne and Professor David Lloyd, Vice Chancellor and president of UniSA.

It is the largest software grant in Australia, and is linked to the recommendations and work of the Prime Minister's Industry 4.0 Taskforce – an industry-led group established to support improved bilateral relations between Australia and Germany.

The $450 million grant will see Siemens share its industrial Product Lifecycle Management (PLM) software systems with the University, ensuring students have access to advanced software, processes and best practices that are used to develop sophisticated global products and systems in industries including automotive, aerospace, shipbuilding and high-tech electronics.

"It's exciting to think that our students will soon have access to the same software used to design and develop everything from Space X, the Mars Curiosity

Minister Pyne announcing the grant in Adelaide. CHRIS PYNE VIA TWITTER

Minister Christopher Pyne, SA Premier Steven Marshall, UniSA Vice Chancellor David Lloyd, Siemens Australia CEO Jeff Connolly and Tanya Monro, UniSA's Deputy Vice Chancellor of Research and Innovation. SIEMENS

Rover, Maserati Ghibli and other world leading innovations, such as the digital shipyard for Newport News (US) where aircraft carriers are built," Professor Lloyd said.

According to Minister Pyne, the grant will provide young South Australians with training in advanced shipbuilding design and production software.

"Ensuring young Australians are trained and ready to take up roles in the shipyards that will build the Future Frigates, the Future Submarines and the Offshore Patrol Vessels is a vital task," Minister Pyne said.

This grant is part of Siemens' commitment of over $1 billion in advanced PLM software grants to universities nationally.

"This announcement is a direct outcome of the Prime Minister's Industry 4.0 Taskforce and the third series of high-tech PLM grants by Siemens, who have already committed $135 million to Swinburne University of Technology and $447 million to the University of Western Australia," Minister Pyne said.

Premier of South Australia Steven Marshall welcomed the partnership and said that the venture is a fantastic way of engaging young students in advanced technologies and up skilling them for jobs of the future.

"This investment in shipbuilding technology will act as a catalyst for South Australian skills development in advanced manufacturing, as well as having broader applications, in particular for our growing space sector," Premier Marshall said.

"The defence and space industries will create future jobs for young South Australians, and it's exciting that students will now have access to state-of-the-art software and when they finish study there will be jobs for them here in their home state.

"Growing a highly skilled workforce to take advantage of the Turnbull Coalition Government's investment in naval shipbuilding is a key priority for South Australia and we are committed to taking a proactive role in developing a local workforce to meet the future demands of the defence industry."

The Australian Army is the largest user of nano-UAS in the world. DEFENCE

Next gen Black Hornet nano UAV launched

FLIR Systems has launched the Black Hornet 3, the latest iteration of the Black Hornet line of nano unmanned aerial vehicles (UAVs).

The 32-gram Black Hornet Personal Reconnaissance System (PRS) is the world's smallest combat-proven nano UAV.

The Black Hornet 3 adds the ability to navigate in GPS-denied environments. It can fly two kilometres at speeds of over 21 kilometres an hour, and also incorporates sharper imaging processing, a visible sensor to allow greater image fidelity, and an improved encrypted digital datalink.

The nano UAV enables small combat units and first responders to access intelligence, target acquisition, and reconnaissance capabilities. It also plugs into existing battlefield information networks.

> "Nano UAV technology enables small combat units and first responders to access intelligence, target acquisition, and reconnaissance capabilities"

"We are excited to bring this advanced Black Hornet 3 to our warfighters and first responders," James Cannon, president and CEO of FLIR, said. "With longer range and indoor flight capabilities, the latest generation Black Hornet provides full surveillance coverage continuity to the mission."

The US Army's Soldier Borne Sensor (SBS) program has awarded FLIR a US$2.6 million contract to deliver the Black Hornet in a first batch order.

The company also confirmed that the units recently deployed by the Australian Army were Black Hornet 3s.

The nano UAVs were rolled out to 20th Surveillance Target Acquisition Regiment in Brisbane. Brigadier Susan Coyle, commander of 6th Brigade, said the Australian Army is now the largest user of nano UAVs in the world.

"It is also the first in the world to proliferate this technology to the conventional forces down to combat platoon level," BRIG Coyle added.

For more on Army's growing use of UAS, keep an eye out for *ADM*'s July edition next month.

Martin Baker sets up at Williamtown ahead of F-35 arrival

Martin-Baker Australia has opened a full workshop at the Williamtown Aerospace Centre in advance of the arrival of Australia's first F-35A JSFs.

Martin-Baker ejection seats are also used in the RAAF's PC-9, PC-21, Hawk LIF, F/A-18A/B, F/A-18F, and EA/18G Growler aircraft.

The NZ Defence Force recently purchased a T-6 Texan II training aircraft that also uses the company's ejection seats.

"We have an obligation to support the F-35A Joint Strike Fighter from December 2018 at Williamtown," managing director of Martin-Baker Australia Andrew Eden said. "The Williamtown Aerospace Centre was the obvious choice for us as we needed space to support these and other customer maintenance, repair, overhaul and upgrade requirements.

"The F-35 and other platforms that use our products will be operating at RAAF Williamtown for the foreseeable future. WAC will house our second workshop in Australia giving us full coverage for our customers on both east and west coasts. The workshops are commissioned with our newest support and test equipment."

"We have an obligation to support the F-35A Joint Strike Fighter from December 2018 at Williamtown"

"We are excited to welcome ejection seat company Martin-Baker Australia to the Williamtown Aerospace Centre estate," director James Garvey said. "Discussions with the UK parent company began as far back as 2009 with the introduction by the NSW Government, the then Department of Industry.

"When local subsidiary Martin-Baker Australia was formed in 2015, those discussions led to a detailed look at the company's requirements in the Williamtown area. We have met their short term office needs with space while their bespoke permanent parachute and ejector seat assembly workshop, warehouse and office premises."

The company will be joining a number of primes on the Williamtown site. WILLIAMTOWN AEROSPACE

RAN seeks new anti-corrosion covers

The RAN is seeking new cover designs to combat corrosion on topside naval assets.

The vinyl covers currently in use trap humidity and can accelerate corrosion.

Envelop covers were developed by NAVSEA to protect US Navy topside equipment. The covers have also been adopted by the Australian Army.

Distributor Australian Pump has been invited to design Envelop covers for the huge deck mounted capstans on HMA Ships *Canberra* and *Adelaide*.

"The process is simple," Australian Pump's chief engineer John Hales said. "We visit the ship, inspect the asset in company with crew, use our modelling camera to take a series of photographs, and take basic dimensions.

HMAS Canberra in the Eastern Australian Exercise Area during Exercise Ocean Explorer 2018.

"The next step is a prototype which, if acceptable, results in the production of the finished product, its part numbering and codification."

Australian Pump expects the savings to the RAN to echo those of the US Navy, which has made Envelop covers mandatory on all vessels.

"We hope to work with Land 400 and believe that if the country is going to spend that much on these phenomenal 8-wheelers, we might as well spend a little more on covers to protect them from deterioration from corrosion, high temperature and dust," Hales said.

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Forthcoming Events

ADM EVENTS

More detail on ***ADM*** Events can be found on our dedicated website: admevents.com.au

- ADM Women in Defence Awards – 27 July 2018
- ADM STEM in Defence Summit – 21 August 2018
- ADM Defence Estate & Base Services Summit – 19 September 2018
- ADM Defence in Northern Australia Summit – 10-11 October 2018

ASDEFCON TD/IP Roadshow

Location Sydney, Melbourne, Newcastle, Cairns, Brisbane, Adelaide, Perth, Darwin

Date 2 May – 5 July 2018

Register procurement.ASDEFCON@defence.gov.au

Following the official launch of the new ASDEFCON Technical Data/ Intellectual Property (TD/IP) framework on 11 April, roadshows have been scheduled around the country from May to July 2018. The roadshow is open for both Defence and industry personnel to attend. Each roadshow will comprise a general overview of the new framework and interactive sessions.

Building Australia's Strategy for Space: ASPI

Date 13-15 June 2018

Location QT Hotel Canberra

Website www.ivvy.com.au

The conference will bring together distinguished international and Australian experts for two days of debate on Australia's long-term strategic plan to grow its burgeoning space industry.

IFRS Next

Location Canberra

Date 28 June 2018

Register https://www.regionalsecurity.org.au/event-2861870

Future strategic leaders will deliver six-minute presentations about a topic they're passionate about and they also feel is of importance to Australia's national security. Expect innovative thinking and insights, even some controversy. It runs for one hour in the arthouse-style setting of Palace Electric Theatre, and is followed by a networking event. It is your chance to engage in conversation with Australia's future security leaders.

Defence + Industry Conference and Gala Awards 2018

Date 1 August 2018

Location Canberra

Website CASG

The annual CASG and Defence Industry gathering in Canberra to discuss policy and programs with a range of speakers gathering to discuss the way forward. A Gala Awards night will take place on the evening preceding the event, where *ADM*'s Essington Lewis Awards will be presented, recognising excellence in collaboration.

Project and program management symposium

Date 14-15 August

Location UNSW @ ADFA, Canberra

Register www.pgcsymposium.org.au

The annual Project and Program Management Symposium provides a forum that brings together project management people to share knowledge and improve the governance and controls skill sets available to deliver successful project outcomes for the nation. A highlight of the symposium is its access to thought leaders from the USA and Europe. Each year, selected speakers from overseas are brought to the symposium to share knowledge and provide an international perspective on project and portfolio management.

Hunter Valley Defence Conference 2018

Date 30-31 August 2018

Location Crowne Plaza Hunter Valley

Website HunterNet

The 2018 Defence Conference will focus on driving collaboration and engagement between Defence Primes, the region's SME's, academia and Defence. A highlight of the conference will be the spectacular low flying aerial show from Matt Hall Racing, followed by a gala dinner.

Land Forces 2018

Date 4-6 September 2018

Location Adelaide

Website www.landforces.com.au

Presented in collaboration with the Australian Army, LAND FORCES 2018 is an international industry exposition to showcase equipment, technology and services for the armies of Australia and the Indo-Asia-Pacific.

SIA Biennial Conference

Date 7-8 November 2018

Location Canberra Rex Hotel

Website www.submarineinstitute.com/sia-conferences

Join submarine professionals and key decision makers as the ninth in the Biennial series of conferences run by the Submarine Institute of Australia returns to Canberra to explore the issues and opportunities emerging from the decision to extend the lives of the Collins class submarines.

MilCIS 2018

Date 13-15 November 2018

Location Canberra

Website www.milcis.com.au

In November each year, the Defence Chief Information Officer Group (CIOG) partners with the UNSW Canberra and the Institute of Electronic and Electrical Engineers (IEEE) to present MilCIS.

TEAM DEFENCE AUSTRALIA EVENTS

- **AUSA 2018** – 8-10 October 2018, Washington DC, US
- **Euronaval 2018** – 23-26 October 2018, Paris, France
- **Indo Defence 2018** – 7-10 November 2018, Jakarta, Indonesia

For more information go the business.gov.au TDA webpage here. TDA EOIs will open a few months prior to the event – to keep up to date register for the CDIC newsletter.