WINGS

WINTER 2025
VOLUME 77 NO.2

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MANAGING EDITOR'S MESSAGE

OUR WINTER EDITION reviews the Avalon Australian International Airshow (AIA), which brought together Defence, industry, the aviation and aerospace community, and the public in a six-day spectacular. A number of post-airshow articles provide insights into the outcomes and activities at the airshow.

We examine DEF129 which highlights Defence's focus on small and tactical UASs, and cover a diverse range of subjects, including hypersonics, drone regulation and how a regional cadet's passion for drone racing took flight.

In our interview, Deputy Secretary, Capability, Acquisition and Sustainment Group, Chris Deeble AO, CSC discusses his focus on streamlining processes and working with industry more efficiently to deliver capability faster.

Our series on the RAAF involvement in the Vietnam War continues with a feature on Operation Babylift, the evacuation of hundreds of orphaned babies and children 50 years ago. RAAF history is further highlighted with a look at the Moorabbin Air Museum and the story of Spitfire pilot Clive Caldwell, our greatest WWII fighter ace.

If you enjoy *Wings*, visit our website, wingsmagazine.org, to arrange a personal or gift subscription, or become a member of the Air Force Association and receive a free copy of each edition.

Rob Amos, Wings managing editor

EDITORIAL DEADLINES

Please send submissions and letters to **managing.editor@wingsmagazine.org**, including your name and details. Submissions maybe edited for length and clarity. We cannot guarantee all material will be published.

EDITION	DEADLINE
Spring 2025 (September)	21 July
Summer 2025 (December)	6 October

AIR FORCE ASSOCIATION

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MANAGING DIRECTOR'S MESSAGE

THIS IS MY FIRST managing director's message since taking over from Air Vice-Marshal Neil Smith AM MBE (Retd) at the last RAAFA Publications board meeting. I do so with some trepidation, noting that Neil has raised RAAFA Publications from just a thought to a sound, not-for-profit business producing the guides *Welcome to Amberley/Williamtown/Richmond & Glenbrook/Edinburgh* and, by external request, soon to be joined by *Welcome to RAAF Townsville*. He more recently introduced the Air Force Association's *Wings* magazine to his stable and with the support of his amazing *Wings* team raised it from a mediocre Association newsletter to arguably Australia's premier aerospace magazine.

All Air Force Association members should be grateful for Neil's indefatigable enthusiasm for the Association and his extraordinary leadership and persistence that has brought *Wings* to the enviable standard it now embodies. Neil's vision for *Wings* is that the magazine will be firmly established as an inalienable pillar of the Air Force Association mission. I believe he has comfortably achieved that goal.

Fortunately, Neil is not leaving us so we will still benefit from his experience, sage guidance and moderating influence. He will remain as a director of RAAFANSW Publications Pty Ltd and continue to oversee the further development of the Welcome guides. I very much look forward to working with our outstanding team under the mentorship of AVM Neil Smith.

Air Vice-Marshal Roxley McLennan AO (Retd)

LETTER TO EDITOR

SHADOW SHOOTING

In the summer edition (December 2024), I note with interest the article titled "Innovation and Invention", in particular the section on 'Australian ingenuity'. Shadow shooting is quite an interesting discovery, but I suggest a bit more explanation would clarify the background and process to some of the readers not across the story.

That is, Group Captain Clive Caldwell was looking to improve his shooting accuracy. On one late afternoon in the Western Desert, he noted the shadow on the ground of another aircraft in his flight next to him and fired a few shots at the shadow and missed. With practice he found the solution was to use an aiming point ahead of the aircraft allowing for movement of the target aircraft by the time the bullets arrived. For example, approaching an enemy aircraft at right angles he fired ahead of it so the enemy aircraft flew into his bullets. As well, noting the size of the shadow to ensure a positive hit using a similar size in real combat conditions. Different situations required different allowances. It was this 'shadow' position in front of the enemy aircraft that he aimed for with successful results and was described as "deflection" shooting.

***Colin Ekert** Ellenbrook WA*

Turn to page 60 to read more about Clive Caldwell

ON THE COVER

RAAF F-35A Lightning II aircraft from No 2 Operational Conversion Unit turns past the crowd at the Australian International Airshow 2025. Photo: WOFF Ricky Fuller.

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AIR FORCE ASSOCIATION

PRESIDENT'S DESK

I WISH TO CONGRATULATE all those who planned, prepared and attended this year's Avalon International Airshow, and thank all those involved with managing the Air Force Association and *Wings* stand. We received many pleasing reviews and engagements from attendees. But we were also shocked by Glenn Collins' accident during the SkyAces Formation team display. We pass on our support and best wishes for a full and speedy recovery to Glenn and his family, and our thanks to the first responders on the scene.

On the veteran's commemorative front, there are several significant events this year. These include the 80th anniversary of the end of WWII, the 75th anniversaries of Australian service in both the Korean War and Malayan Emergency, along with the 50th anniversary of Operation Babylift being the humanitarian evacuation of South Vietnamese orphans after the fall of Saigon. This will be a time of both commemoration and reflection for all those who served.

There has also been the annual awards announcements and ceremonies for both the Air Force and the Australian Air Force Cadets. Our congratulations to all the recipients, and all those who were recommended for recognition. Our country is in good hands if the calibre of Australian Air Force Cadets is anything to gauge by. It's pleasing to see these young Australians enthusiastic about military aviation.

Closer to home, the dust has now settled after the most recent federal election. The Hon Matt Keogh retains the portfolio as Minister for Veterans' Affairs and Minister for Defence Personnel. We look forward to continuing to work with the minister, the Department of Veterans' Affairs, and our partner ex-service organisations as we seek to implement the recommendations of the Royal Commission into Defence and Veterans' Suicide.

Please enjoy this edition of *Wings*. Thank you all for your ongoing support.

Joe Iervasi
National President,
Chair of the AFA Ltd
Board of Directors

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JOIN THE AIR FORCE ASSOCIATION

The Association membership is open to all former and currently serving members of the Royal Australian Air Force and other Australian Defence Force veterans and families.

We offer a range of membership options through individual membership in one of our many branches within a state/territory division, or as a member not associated with any branch.

To join the Association, visit *raafa.org.au* and follow the Membership link. For assistance, contact the Association by phone or email.

AIR FORCE ASSOCIATION

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AIR FORCE ASSOCIATION

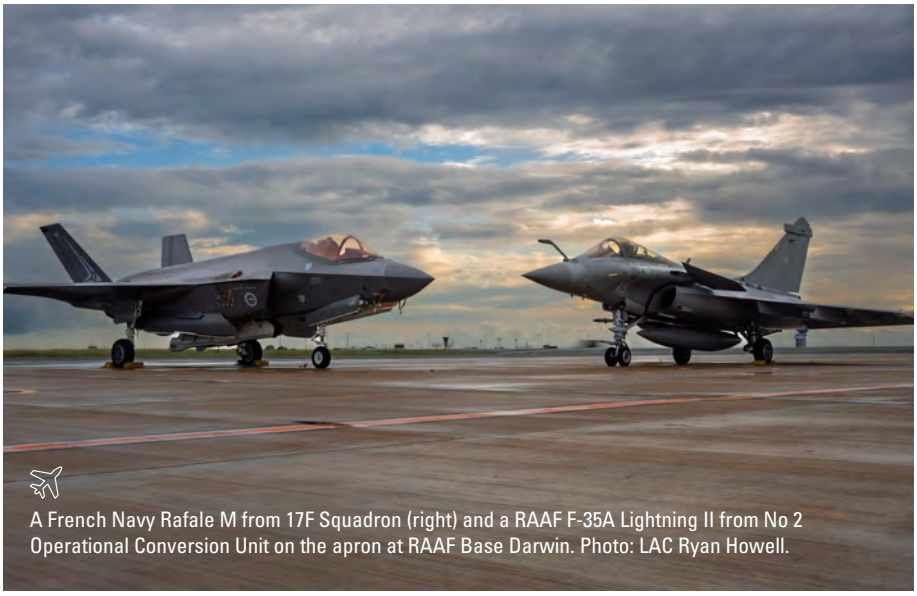
EDITED BY Bob Treloar

RAFALES IN DARWIN

THREE FRENCH NAVY RAFALE MARINE AIRCRAFT, attached to the aircraft carrier *Charles De Gaulle*, landed at RAAF Base Darwin on 19 January 2025. The aircraft were supported by other Rafale Marines which acted as 'buddy' tankers for the transit and flew to RAAF Base Darwin from *Charles De Gaulle* while the carrier was more than 1,800km away.

Charles De Gaulle and its Carrier Strike Group deployed in the Indo Pacific as part of the French Clemenceau 25 mission, to participate in Exercise Rastaban with RAAF F-35As and in several other exercises with the ADF.

Source: Australian Defence Magazine



A French Navy Rafale M from 17F Squadron (right) and a RAAF F-35A Lightning II from No 2 Operational Conversion Unit on the apron at RAAF Base Darwin. Photo: LAC Ryan Howell.

USAF F-35A CRASH

AN F-35A LIGHTNING II AIRCRAFT crashed at Eielson Air Force Base, Alaska, in January while preparing to land during a training flight. Its landing gear was extended when the in-flight emergency occurred. The pilot successfully ejected prior to the crash.

The aircraft was operated by the 354th Fighter Wing, stationed at Eielson. The US16E F-35A ejection seat is manufactured by Martin-Baker and the company noted that the incident represents the 10th successful ejection from an F-35 aircraft.

The cause of the accident has not yet been reported.

More AARGM-ER MISSILES

THE PURCHASE UP TO 160 ADVANCED ANTI-RADIATION GUIDED MISSILE - Extended Range (AARGM-ER) through the Foreign Military Sales program in January will add to Australia's 63 missiles that were purchased in February 2023, increasing the stock holding to 223, at a cost of $650 million.

F/A-18F Super Hornets and EA-18G Growler aircraft will be armed with the missiles, as will the F-35 Joint Strike Fighter, in due course.

Source: Australian Defence Magazine

PEREGRINE TRIALS

THE RAAF COMMENCED a second series of test flights for its Gulfstream MC-55A Peregrine in January. The Peregrine project, valued at $2.52 billion, was launched in March 2019 with an announcement to purchase four modified Gulfstream G550 aircraft.

The MC-55A Peregrine will enhance Australia's airborne intelligence, surveillance, reconnaissance, and electronic warfare capabilities. Modifications being made by L3Harris, formerly L3 Technologies, include advanced mission systems, secure communications infrastructure, self-protection suites, and extensive airframe improvements to support next-generation electronic warfare capabilities.

Powered by two Rolls-Royce BR710 C4-11 turbofan engines, each producing 15,385 pounds of thrust, the aircraft can cruise around 500kts (990kph), fly up to 50,000 feet, with a range of 12,500km, enabling long-duration missions without frequent refuelling.

The delivery of the first MC-55A Peregrine to the RAAF is expected in late 2025 or 2026.

Source: Global Defense News

See page 28 for more on the MC-55A Peregrine

RETURN OF THE VAMPIRE

Restored RAAF Vampire aircraft at the History and Heritage Centre, RAAF Base Amberley. Photo: Leading Aircraftman Campbell Latch.

RAAF NO 23 (CITY OF BRISBANE) SQUADRON has acquired a 1950s-era de Havilland Vampire, from the History and Heritage – Air Force (HH-AF) Restoration Support Section.

Formed in 1937, No 23 Squadron operated a variety of aircraft types, including Hawker Demon biplanes at RAAF Base Laverton, Victoria; Wirraway aircraft in Papua New Guinea during World War II; and Vampire and Gloster Meteor F8 aircraft at RAAF Base Amberley, Queensland following the war.

When the unit ceased flying operations in February 1960, a Vampire (A79-440) was mounted as a Gate Guardian near the entrance at RAAF Amberley. As the base expanded, more space was required, and the aircraft was removed and sold.

HH-AF acquired the airframe in 2020 and it was restored as a static display by a team of Restoration Support Section volunteers over an 18-month period.

DONATE TO WINGS

If you enjoyed our latest issue please consider a donation to help cover the cost of production and contribute to our work with military Veterans. Follow the Donate link at **wingsmagazine.org**

Wings is a product of the Air Force Association a charitable, ex-service organisation supporting military Veterans.

AIR FORCE ASSOCIATION

X-37B returns to Earth

IN MARCH, the U.S. Space Force X-37B mini-shuttle touched down at Vandenberg Air Force Base after completing 434 days in space on its seventh mission. The Orbital Test Vehicle-7 (OTV-7) mission was the first launch on a SpaceX Falcon Heavy Rocket, providing a much higher orbit than on previous missions. OTV-7 was also the first mission to use a highly elliptical orbit.

The elliptical high earth orbit trajectory allowed the space craft to manoeuvre when close to the earth's atmosphere to change its orbit with minimal fuel expenditure, making its location and orbit difficult to determine.

The mission was used to evaluate the Space Force's Space Surveillance Network, a collection of optical and radar sensors used to detect, track, identify and catalogue all human-made objects in orbit.

Source: The War Zone

Earth seen from the perspective of the X-37B's onboard camera. Photo: U.S. Space Force.

TANKER STRENGTH

AS PART OF EXERCISE COPE NORTH, a task force of 10 tankers, including Australian, Japanese and American refuelling aircraft joined forces to support 64 fast jet aircraft over Guam in February.

Over two weeks of large force employment operations, the RAAF KC-30A refuelled more than 100 aircraft supplying them via boom and probe and drogue with more than 300 tonnes of fuel, sustaining 240 fast-jet flying hours. That is the equivalent effort of flying a 737 from Sydney to Melbourne 80 times.

ABOVE A RAAF KC-30A Multi-Role Tanker Transport aircraft departs during Exercise Cope North 25, Andersen Air Force Base, Guam. Photo: ACW Mikaela Fernlund.

F-35 1M FLIGHT HOURS

THE GLOBAL FLEET OF F-35 LIGHTNING II FIGHTERS, now exceeding 1,100 aircraft, has surpassed one million flight hours, including combat operations conducted by all three variants of the aircraft. November 2024 was the first time the carrier-based F-35C was deployed in combat, successfully striking targets in contested airspace.

The ongoing expansion of the fleet ensures the aircraft maintains its role as a cornerstone of air superiority, working in conjunction with fourth, fifth and next-generation platforms. A key aspect of this evolution is the F-35's ability to coordinate with autonomous drone systems, including the US Air Force's upcoming fleet of Collaborative Combat Aircraft.

Source: Defence Connect

ABOVE RAAF F-35A aircraft over Port Stephens. Photo: SGT David Gibbs.

RAAF FLOOD SUPPORT

THE RAAF RESPONDED to a request from the Queensland Government in April to rapidly deploy a C-27J Spartan transport aircraft carrying 5,000 litres of aviation fuel to support the conduct of rescue operations across flood-stricken areas in Queensland. Five thousand litres of aviation fuel were transported from Longreach Airport to Windorah.

LEFT RAAF aviators load fuel stores onto a C-27J Spartan in Longreach. Photo: ACW Nell Bradbury.

USMC F-35Bs deploy to Japan

THE FIRST US MARINE CORPS F-35B AIRCRAFT deployed to Japan in March. The aircraft were from Marine Fighter Attack (VMFA) Squadron 214, based in MC Air Station Yuma, Arizona. The deployment was in support of Marine Air Group 12, 1st Marine Aircraft Wing flight operations in the Indo-Pacific.

The goal is to integrate within Marine forces, joint forces and regional allies and improve warfighting readiness as a combined force, and refine the ability to operate from austere locations. VMFA-214, also known as the Black Sheep, transitioned to the F-35B platform in March 2022 and was the first F-35 squadron to take part in rotation of Marine aviation forces in the Indo-Pacific, marking the transition from fourth to fifth generation aircraft.

Source: Australian Defence Magazine

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NGAD ANNOUNCED

Artist's rendering of the F-47. Image: US Air Force.

BOEING HAS BEEN SELECTED by the United States Air Force (USAF) to deliver the F-47 Next Generation Air Dominance (NGAD) aircraft, beating Lockheed Martin for the multi-billion-dollar, multi-year contract.

The contract award funds the engineering and manufacturing development phase, which includes maturing, integrating and testing all aspects of the F-47. This phase will produce a limited number of test aircraft for evaluation, and the contract includes competitively priced options for low-rate initial production.

In May 2024, the USAF took a strategic pause in the program to ensure it was making the right decision and worked closely with industry to aggressively mature critical technologies and fast-track innovation. By leveraging cutting-edge digital engineering techniques and government-owned architecture, the F-47 benefits from a streamlined and accelerated development timeline compared to previous fighter programs. These advancements enable rapid technology integration, ensuring the F-47 remains adaptable and upgradable to meet future mission requirements and counter emerging threats.

Source: Defence Connect

Australian nanosatellite

IN MARCH, a fully operational, Australian-made nanosatellite was launched from the United States into low-Earth orbit to support radio-frequency research. A nanosatellite weighs between one and 10kg. The satellite's objective is to collect high-frequency measurements in low-Earth orbit, improving the understanding of radio-frequency propagation through the ionosphere.

The Defence Science and Technology Group designed the payloads, integrated the satellite and ensured its space worthiness, with support from the RAAF and Space Command. South Australian company Inovor Technologies Pty Ltd built the satellite bus.

Source: Defence Mirror

Long range anti-ship MISSILE LAUNCH

THE ADF'S MARITIME strike capability received a significant capability upgrade following a successful live firing of the AGM-158C long-range anti-ship missile (LRASM) by a RAAF F/A-18F Super Hornet off the coast of California in March.

The launch was supported by an Australian E-7A Wedgetail and an EA-18G Growler aircraft, and a US Navy P-8A Poseidon.

A total of $895.5 million has been allocated for the acquisition of the LRASM, which will increase the RAAF's maritime strike range to more than 370km, beyond the reach of most shipborne air defence systems. The missile carries a 450kg penetrator and blast fragmentation warhead, specifically designed to disable or destroy large naval combatants. The LRASM will be carried by Super Hornet, Poseidon and F-35 aircraft.

Source: Contact

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SCOOTAVILLE 2025

THE SCOOTAVILLE CHARITY RIDE is hitting the road again in 2025, raising funds and awareness for veterans and their families.

Organised by the Radschool Association Inc, a registered charity formed in 1999 to represent Air Force-trained electronics operators and maintainers, Scootaville is a two-week touring holiday through regional Australia with a strong community and charitable purpose.

This year, in addition to supporting Legacy, some of the funds raised will be donated to the Air Force Association to support initiatives to assist homeless veterans.

Scootaville 2025 will feature two major rides. The Queensland Route (24 August – 13 September), will begin and end in Brisbane and visit Toowoomba, Goondiwindi, St George, Cunnamulla, Thargomindah, Quilpie, Charleville, Blackall, Barcaldine, Emerald, Biloela, Gayndah and Kingaroy. The Victoria Route (16 November – 1 December) will start and finish in Laverton and travel through Beechworth, Sale, Geelong, Ballarat and more.

The event brings together ex-service members and the broader community, offering participants a chance to share experiences, raise awareness of veterans' issues, and highlight the strength of regional Australia.

"Scootaville is all about mateship," says Trevor Benneworth, who runs the event. "It celebrates what it means to be Australian and helps shine a light on the challenges that veterans can face after their service."

For details and registration information, see scootaville.org.au.

104th ANNIVERSARY

ON 31 MARCH, Air Force Association - South Australia (AFA-SA)) marked the 104th anniversary of the formation of the RAAF with a sunset wreath laying at the Air Force Memorial, Torrens Parade Ground, followed by a ceremonial Air Force birthday cake cutting in the Officers Mess at RAAF Edinburgh. Dignitaries included Senator David Fawcett, Adrian Pederick, MP for Hammond and Shadow Minister for Veterans Affairs, and the Lord Mayor of Adelaide, the Right Honourable Jane Lomax-Smith. The guest of honour was 100-year-old World War II RAAF veteran, Bruce Townsend, who served in the Pacific Theatre in the Dutch East Indies. No 24 Squadron RAAF Chaplain Sue Page officiated, and Cadet Corporal Lucy Sampson recited the poem *High Flight*.

AIRCDRE Tim Alsop, acting Senior Air Force Representative South Australia, and Dr Robert Black (GPCAPT Retd), AFA-SA State Councilor, both laid wreaths, and two Cadets laid the Air Force birthday wreath.

After the ceremony, attendees retired to the Combined Ex-Services Mess where they shared stories with Air Force veterans and remembered those who have served.

BELOW Dr Black, left, with Bruce Townsend and AIRCDRE Tim Alsop at the wreath laying.

Veteran hearing SERVICES

AS OF 20 JANUARY 2025, implementation of the Veteran Hearing Services Framework provides a more streamlined pathway to fair and consistent funding decisions on appropriate hearing devices for veterans with service-related hearing needs.

The Department of Veteran Affairs' Veteran Hearing Services Framework comprises:

- an updated Audiology Prior Financial Authorisation Request form, co-designed with providers and audiology advisers to expedite complex hearing requests
- updated internal DVA processes to ensure requests are reviewed against the elements of the DVA Wellbeing Framework
- enhanced communication with, and information for, veterans, families and services providers through materials including information sheets and FAQs.

The Veteran Hearing Services Framework will assist veterans to better understand hearing services request processes.

For further information go to dva.gov.au/veteran-hearing-services-framework or email Hearing@dva.gov.au.

AFA TRANSITION SUPPORT

AFA-SA STATE COUNCILLORS Andrew Ormsby and Gaynor Harrison attended a recent Defence Transition Seminar in Adelaide to meet serving Air Force members considering or currently transitioning into civilian life and let them know what AFA-SA can do for them during the challenging process.

The most important aspect was to let them know that there are organisations and people out there that can support and assist them through transition, which can be complex. It can also be a period of opportunity and excitement.

The more our transitioning people connect with people who can support and assist them in the process, the easier and better the process will be. AFA-SA recognises the value of being part of that support network.

If you are a serving Air Force member transitioning, or considering transitioning, out of the Air Force, the AFA can assist you.

Veteran & family benefits reforms

THE ROYAL COMMISSION into Defence and Veteran Suicide's Interim Report recommended the urgent simplification and harmonisation of the veteran compensation and rehabilitation system. That recommendation has now been put to effect through the V*eterans' Entitlements, Treatment and Support (Simplification and Harmonisation) Act 2024*, which brings the three current systems governing veterans' entitlements under a single Act: an improved *Military Rehabilitation and Compensation Act 2004* (MRCA).

The reform will make it easier for veterans and families to understand their entitlements, simpler for advocates to support veterans making DVA claims,

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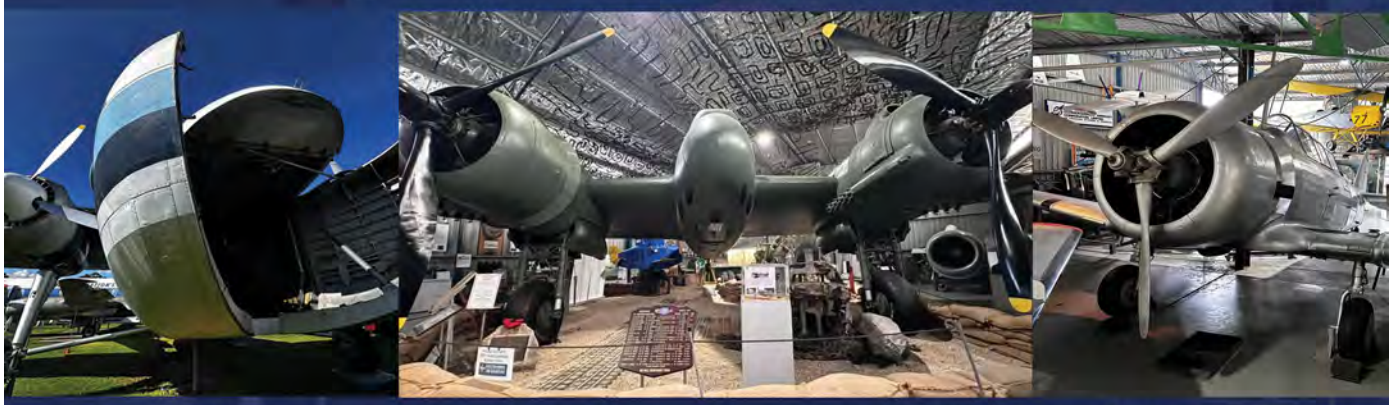

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and it will streamline claims processing within the Department of Veterans' Affairs. The changes come into effect on 1 July 2026 and no veteran will see a reduction in their current payments.

The legislation will open a pathway to a Gold Card for many veterans that were previously not eligible.

New claims made after 1 July 2026 will all come under the improved MRCA. Some current payment recipients, such as the Safety, Rehabilitation and Compensation (Defence related Claims) Act 1988 (DRCA) incapacity payment recipients, will transfer to MRCA incapacity payments on commencement, resulting in an increase in payments.

Veterans currently under the DRCA will also have access to appeal DVA decisions to the Veteran Review Board for the first time from early April 2025.

For more information, visit dva.gov.au.

A FRESH APPROACH

THE JOINT TRANSITION AUTHORITY (JTA) is enhancing the transition experience for ADF personnel, their families and support people with the launch of the ADF Transition Guide app.

The app brings together transition resources from across Defence and the transition ecosystem, providing a comprehensive overview of transition from service and into civilian life. Purpose-built, it makes finding information on transition requirements, services and supports easy and simple.

The app helps individuals and families understand their transition needs against the seven protective transition wellbeing factors: health, social support and connection, education and skills, employment, income and financial wellbeing, safety and respect and recognition.

AIRCDRE Kaarin Kooij, Director General JTA, said the app is a fresh approach complementing the transition support services delivered by the JTA, and importantly it identifies the supports provided by other government departments, which are available through whole of life.

"The app was designed with an understanding that every transition experience is unique and the transition supports required are likely to change as ADF personnel and their family's progress through transition," AIRCDRE Kooij said.

For more information on transition contact your local Transition Centre or visit www.defence.gov.au/adf-members-families/military-life-cycle/transition.

Scan the QR code to download the ADF Transition Guide app.

- UPCOMING COMMEMORATIVE EVENTS -

6 JUN: ANNIVERSARY OF D-DAY

The morning of 6 June 1944 saw nearly 160,000 Allied troops cross the English Channel as part of the largest amphibious invasion in military history – the first step in the liberation of France, and the rest of Europe. Approximately 3,200 Australians participated in the D-Day landings. Thousands more would serve during the Normandy campaign and beyond. Our nation's main contribution came in the air, where approximately 1,000 Australian airmen flew with RAAF squadrons, and a further 1,800 operated on attachment to the Royal Air Force. Australian pilots flew alongside their Allied counterparts, conducting bombing raids, reconnaissance missions, and aerial support operations crucial to the success of the landings.

27 JUL: KOREAN VETERANS' DAY

The anniversary of the day in 1953 when an armistice was signed to end the fighting in Korea. It is a time to remember the almost 18,000 Australians who served in the war, including some 340 who lost their lives.

15 AUG: VICTORY IN THE PACIFIC (VP) DAY

VP Day, also referred to as Victory over Japan Day, commemorates Japan's acceptance of the Allied demand for unconditional surrender on 14 August 1945. For Australians, it meant WWII was finally over.

18 AUG: VIETNAM VETERAN'S DAY

On the anniversary of the Battle of Long Tan in 1966, we remember the sacrifices of those who died and the almost 60,000 Australians who served during the 10 years of our involvement in the Vietnam War.

31 AUG: MALAYA AND BORNEO VETERANS' DAY.

Reflecting on the service and sacrifice of Australian military personnel who served in the Malayan Emergency and the Indonesian Confrontation. The Australian War Memorial Roll of Honour lists 61 Australians who lost their lives in those conflicts.

3 SEP: BATTLE FOR AUSTRALIA DAY

On the first Wednesday of September, we commemorate the Battle for Australia and reflect on the bravery of those who served on Australia's home front and to the north. Their efforts contributed substantially to the defeat of Japan. Prime Minister John Curtin used the term 'Battle for Australia' after the fall of Singapore on 15 February 1942.

14 SEP: NATIONAL PEACEKEEPERS' DAY

The anniversary of the day Australia deployed the world's first peacekeepers in the Netherlands East Indies (now Indonesia) in 1947. Since then, tens of thousands of Australians have served as members of a peacekeeping force and 16 have lost their lives.

15 SEP: BATTLE OF BRITAIN ANNIVERSARY

Battle of Britain commemorations are held annually in Tasmania to remember the successful air defence of Great Britain against unrelenting offensive counter air conducted by the Luftwaffe. It was the first military campaign fought entirely by air forces. The British officially recognise the battle as being from 10 July – 31 October 1940. The Air Force Association's national event commemorates the significant aerial battle in which many Australian pilots and ground crew fought while serving with the Royal Air Force.

Air Force Association
Supporting Veterans Nationwide

Your legacy isn't just etched in the skies – it continues with you.

The Air Force Association raises much needed funds for projects and activities that enable our Divisions and other Ex Service Organisations to deliver targeted programs and services.

From national advocacy, services and support programs to fostering partnerships and commemorating those who served, we stand with all veterans across Australia.

Join us on social media, honouring the past and championing the future.

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SCAN ME

EDITED BY John Kindler


Artist's rendering of the GCAP Tempest.

Larger, longer-range missiles FOR GCAP TEMPEST

MORE DETAILS HAVE emerged about the United Kingdom's Tempest next-generation stealth fighter, being developed under the Global Combat Air Program (GCAP). While many specifics of the aircraft are still being decided by the three partner nations – the UK, Japan and Italy – plans have been revealed to arm it with larger air-to-air missiles offering a longer range than those currently used by the three countries.

A House of Commons committee report on GCAP outlining the capabilities of the Tempest included the proviso that "the precise capabilities of the new aircraft remain to be determined".

The key requirements for the Tempest, which will drive its design, were laid out to the committee by Chief of the Air Staff, Air Chief Marshal Sir Richard Knighton. They include longer range, which is reflected in the large overall size of the fighter, at least in the concept material that has appeared so far, improved stealth and the central importance of data fusion.

Knighton also said it was "absolutely" possible that an uncrewed version of the Tempest platform could be developed in the longer term.

Meanwhile a joint US Navy and US Air Force program is jointly developing the AIM-260, a new air-to-air missile intended to offer far greater range than the current AMRAAMs in a missile with similar dimensions to the AIM-120.

Source: The War Zone

For more on GCAP, see page 30

Baby Boom goes SUPERSONIC

BOOM SUPERSONIC'S XB-1 DEMONSTRATOR has broken the sound barrier in a major milestone toward developing a larger 55-seat supersonic airliner design known as Overture.

The aircraft, also known as the Baby Boom, was flown to a speed of Mach 1.1 by former US Navy aviator and Boom test pilot Tristan Brandenburg, from the Mojave Air & Space Port, California.

Ultimately, XB-1 is expected to have a top speed of about Mach 2.2 (1,687.99 miles per hour). It is a one-third-scale technology demonstrator for the Overture, which will be 201 feet long and is planned to achieve a cruising speed of Mach 1.7 (1,304 miles per hour) and a maximum speed of Mach 2.2. The company anticipates it will have a maximum range of 4,500 nautical miles, and it is planned to carry 64-80 passengers.

The program could have significant implications for commercial aviation and the military.

Source: The War Zone

Hydrogen electric flight prepares for lift off in New Zealand

Stralis Aircraft, Fabrum and Ara Ake are collaborating to advance hydrogen-powered aviation by designing, developing and testing liquid-hydrogen storage tanks and a fuel system for Stralis aircraft. The partnership aims to enable Australasia's first liquid-hydrogen-powered flight, and support the transition toward zero-emission aviation.

Australian company Stralis Aircraft, which develops high-performance, low-operating-cost hydrogen-electric propulsion systems, will integrate Fabrum's tanks and fuel system into its aircraft. New Zealand company Fabrum, which specialises in zero-emission transition technology, will provide lightweight composite tanks and dispensing systems, essential enablers for hydrogen-powered aircraft.

The project is supported by Ara Ake, New Zealand's future energy centre, and aligns with Fabrum's recently announced hydrogen testing facility at Christchurch International Airport, NZ.

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Billions for USAF NEXT-GEN ENGINES

THE US AIR FORCE HAS DRAMATICALLY increased contracts with General Electric and Pratt & Whitney, giving each a ceiling of US$3.5 billion to continue work on prototype next-generation jet engines. To date, the Next Generation Adaptive Propulsion (NGAP) program has been focused primarily on developing new engines to power a new sixth-generation crewed stealth fighter in the works as part of the Next Generation Air Dominance (NGAD) initiative.

However, the USAF launched a deep review of its NGAD combat jet plans last year and it remains unclear how the service will proceed under the Trump administration.

While the NGAD combat jet's future is uncertain, NGAP might also feed into other advanced aviation programs.

Details about the NGAP designs from General Electric and Pratt & Whitney, known as the XA102 and XA103, respectively, remain limited. They are known to be so-called adaptive cycle designs, meaning their bypass ratios can be adjusted on demand while in flight between modes that are more fuel efficient or provide more power, depending on situational requirements.

Source: The War Zone

BELOW A notional sixth-generation stealth combat jet. Image: Collins Aerospace.

AUKUS electronic warfare contracts

CANBERRA COMPANIES Advanced Design Technology (ADT) and Penten have been awarded contracts worth a total of more than $8 million to continue developing electronic warfare (EW) technology for Defence and the AUKUS nations.

The contracts are part of the AUKUS Pillar II EW Innovation Challenge which tasked companies with using the electromagnetic spectrum to improve Defence targeting across six stages of the targeting cycle: finding, fixing, tracking, targeting, engaging and assessing.

The funding will be used to assist in the development and demonstration of EW prototypes that meet ADF requirements. They will also help demonstrate Australian capability to the US and UK.

Source: Australian Defence Magazine

Third Triton nears delivery

THE RAAF'S THIRD MQ-4C TRITON, A57-003, has finished testing at Northrop Grumman's Palmdale facility and will join the RAAF's second MQ-4C, A57-002, at Naval Air Station Patuxent River for calibration testing before both aircraft arrive in Australia later this year.

The aircraft will be tested by US Navy Air Test and Evaluation Squadron 20 and be fitted with some remaining equipment ahead of delivery.

Australia's Tritons will be operated by No 9 Squadron RAAF, flying from RAAF Tindal but controlled and monitored from RAAF Edinburgh.

While RAAF personnel at Tindal will provide taxi, landing and take-off services, all maintenance on the operational aircraft will be carried out by Northrop Grumman Australia and L3Harris Australia under an interim sustainment contract.

The 2016 Defence White Paper committed Australia to acquiring "up to" seven Tritons. However, by the time the project received second pass approval in June 2018, the scope had been reduced to "up to" six aircraft, according to the Australian National Audit Office.

Source: Australian Defence Magazine

US Navy declares IOC for F/A-18 Infrared Search and Track

THE US NAVY PLANS to deploy Infrared Search and Track (IRST) Block II equipped Super Hornets for the first time this year. It declared initial operational capability (IOC) for the F/A-18 E/F IRST Block II system in November 2024.

"Reaching IRST IOC is an important milestone in our overarching efforts to deliver advanced integrated warfighting capability to the fleet," said the Program Executive Officer for Tactical Aircraft Programs, Rear Admiral John Lemmon. "IRST provides data for our aircrew to improve reaction time and survivability while remaining unaffected by radio frequency jamming."

Australia has ordered 12 IRST Block II pods for the RAAF's fleet of 24 F/A-18F Super Hornets. The $74 million deal will see pods delivered throughout 2025.

Source: Australian Defence Magazine

$272m to CEA TECHNOLOGIES

DEFENCE HAS AWARDED CEA TECHNOLOGIES a $272 million contract to deliver up to 14 multi-mission phased array radars (MMPARs) for the Australian Army as part of Project Land 8113 Phase 2.

CEA Technologies will deliver the MMPARs to the 10th Fires Brigade at the Edinburgh Defence precinct, South Australia from 2027.

Once operational, the radars will support both of the long-range fires regiments within 10th Brigade. The first long-range fires regiment will operate Lockheed Martin-built M142 High Mobility Artillery Rocket Systems (HIMARS) while the second will use either more HIMARS or the Thales Australia/Kongsberg Strikemaster in the maritime strike role.

CEA Technologies also delivers radars and associated systems for Navy's Hunter-class frigates, Air Force's Joint Air Battle Management System, and the Project Air 5349 Phase 6 Advanced Growler.

Source: Australian Defence Magazine

Black Hawk HITS IOC

ARMY'S FLEET OF UH-60M BLACK HAWKS has achieved initial operating capability (IOC) 15 months after the first aircraft began flying in Australia.

"The acquisition of these Black Hawks is a testament to the hard work and dedication of our teams across Defence and industry who have worked tirelessly to bring this capability into service," said the Minister for Defence Industry Pat Conroy.

The IOC declaration certifies that the Black Hawk fleet can support counter-terrorism operations. It also means the Black Hawks can now perform some of the missions previously undertaken by Army's now-retired MRH-90 Taipans.

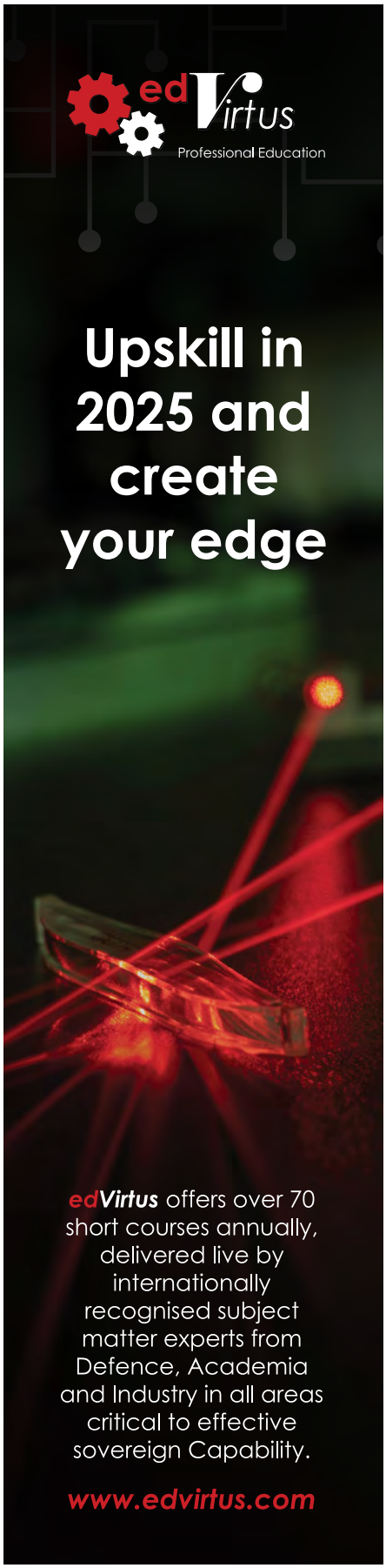
Seven more Black Hawks will arrive in-country this year, with all 40 aircraft to be delivered by 2030.

Source: Australian Defence Magazine

Germicidal lighting technologies

AUSTRALIAN GERMICIDAL LIGHTING COMPANY LINDO has joined with Airbus Helicopters to explore how the disinfection power of antimicrobial blue light technology could deliver stronger health, safety and wellbeing for aircraft operators and passengers.

Lindo develops systems using germicidal UV-C and bluelight technology to neutralise bacteria and viruses.

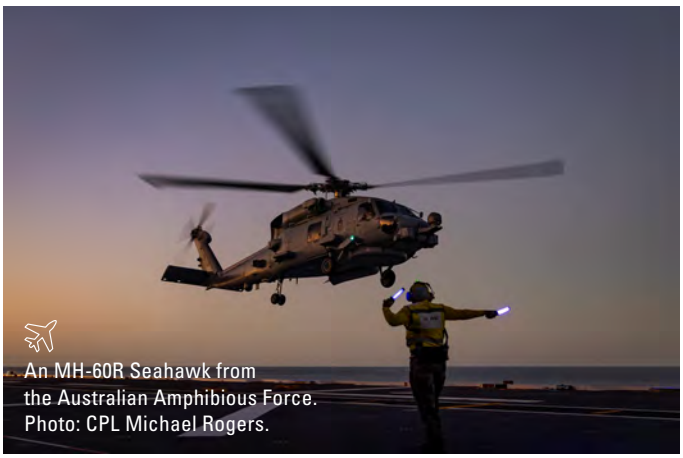


Sikorsky MH-60R CONTRACT RENEWED

UNDER A NEW $313.5 MILLION THREE-YEAR CONTRACT, Sikorsky Australia will continue to deliver sustainment services for the Royal Australian Navy's (RAN) fleet of MH-60R Seahawk maritime helicopters.

More than 75 new jobs will be created at Sikorsky Australia's Maintenance and Logistics Support facility in Nowra, NSW as part of the new contract, to support the RAN's fleet of 23 MH-60R Seahawks, which will increase to 36 aircraft by the end of 2026.

Source: Australian Defence Magazine



An MH-60R Seahawk from the Australian Amphibious Force. Photo: CPL Michael Rogers.

SPACE TECH HYPER FACTORY

FLEET SPACE TECHNOLOGIES has constructed a new global headquarters and hyper factory for next-gen space and climate technologies at Adelaide Airport.

The new facility will have advanced manufacturing and data centre technologies, enabling a larger production capacity for Fleet Space's patented smart sensors and satellites annually.

It will also form the basis for Fleet Space's exploration-focused AI supercomputer, ExoCore, which will work to make the discovery of energy transition minerals faster and more sustainable. And it will enable Fleet Space to accelerate the production of its space technologies and scale its end-to-end exploration platform, ExoSphere.

More than 40 exploration companies are expected to use the facility to help discover energy transition minerals.

Source: Australian Defence Magazine

EOS unveils new remote weapon system

ELECTRO OPTIC SYSTEMS (EOS) has launched its next-generation remote weapon system, the R500. Based on EOS' R400, the R500 has greater situational awareness and survivability. It is designed to be employed by armoured vehicles and tactical platforms and can accommodate rockets, missiles and other weapons systems.

It also features an integrated AI-driven counter-UAS radar. Additional armour up to STANAG Level 2 can also be fitted to the R500 remote weapon system.

Source: Australian Defence Magazine

Saab sovereign combat systems collaboration centre

SAAB HAS OPENED its expanded Australian headquarters and Sovereign Combat Systems Collaboration Centre (SCSCC) at Mawson Lakes, South Australia.

Saab and its partners will use the SCSCC to perform software development, systems integration, testing and prototyping – fortifying Australia's sovereign defence capability.

Through the Australian Government's Modern Manufacturing Initiative, the SCSCC is supported by a $22.6 million grant. It will aid the development of a sustainable combat systems industry, enabling the timely creation and deployment of capability to respond to emerging threats.

Source: Australian Defence Magazine

Frequentis C4i communications contract

FREQUENTIS C4I has announced it is under contract to provide multi-domain communication systems for the ADF's next-generation Air 6500 Joint Air Battle Management (JABM) system and has partnered with Lockheed Martin Australia to deliver the systems.

C4i will develop sovereign voice communication systems with a built-in intuitive human machine interface (HMI) that will connect into JABM C2 networks. The testing will occur at C4i's technology lab headquarters in Melbourne.

The AIR6500 program is key to the ADF's national security strategy to enhance capabilities across air, land, sea, cyber, and space. Frequentis C4i's technology will enable secure, real-time communications critical for joint force operations.

Source: Australian Defence Magazine

US Navy aids LIVE-FIRE TESTS

MEMBERS OF THE US Navy's Air Test and Evaluation Squadron 31 (VX-31) contributed to an important increase in live-fire testing of the secretive AIM-260A long-range air-to-air missile last year. In 2024, the 'Dust Devils' of VX-31 also contributed to the initial fielding of the AIM-174B air-launched version of the Standard Missile 6 (SM-6), in response to an "emergent Pacific Fleet requirement".

Key requirements for the AIM-260 are known to include substantially greater range than the existing AIM-120 Advanced Medium-Range Air-to-Air Missile, but in a package with the same form factor. The Joint Advanced Tactical Missile is likely to have new advanced guidance and networking capabilities.

The AIM-174B is derived from the combat-proven SM-6, a highly-capable multi-purpose missile in US service in multiple ship and ground-launched configurations.

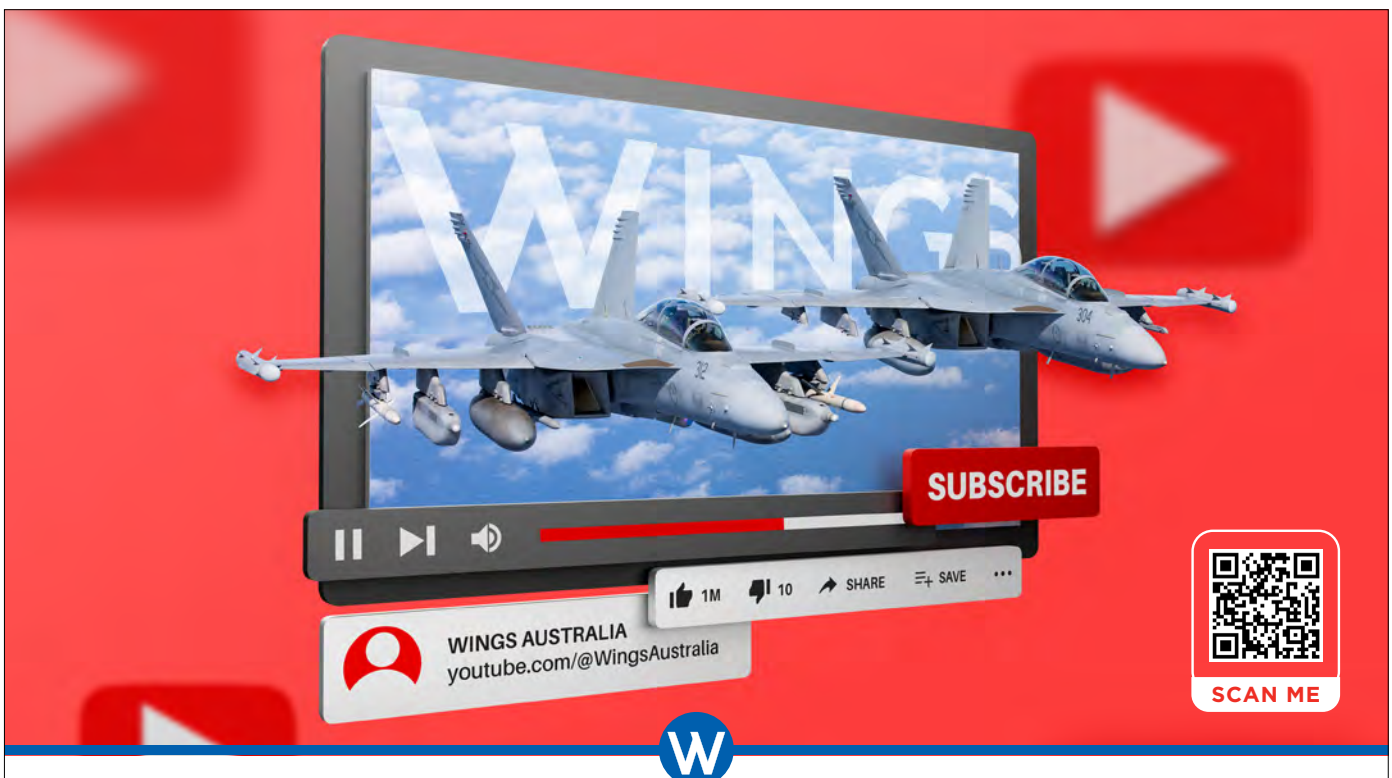
Source: The War Zone

ABOVE An F/A-18F from VX-9 carrying four AIM-174s, as well as other missiles and stores.

Boeing wins Wedgetail contract

BOEING DEFENCE AUSTRALIA (BDA) has secured a $569 million contract for the RAAF's E-7A Wedgetail surveillance aircraft. The contract will deliver enhancements to the aircraft and ground systems, and ensures this capability is upgraded and maintained over the coming decade.

Source: Australian Defence Magazine



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A BUMPER WEEK

THE 2025 AVALON AIRSHOW BROUGHT TOGETHER DEFENCE, INDUSTRY, THE AVIATION AND AEROSPACE COMMUNITY AND THE PUBLIC IN A SIX-DAY SPECTACULAR.

THE AVALON AUSTRALIAN INTERNATIONAL AIRSHOW (AIA) 2025 wrapped on Sunday 30 March after six days, with a record industry attendance, a host of major industry announcements and strong public showing for the weekend airshow.

Avalon 2025 attracted more than 200,000 attendances in total, including around 60,000 attendances across the three dedicated industry days, more than 10,000 above the 2023 industry total and more than 20,000 over the industry total for the 2019 event.

The industry days included 902 participating exhibitor companies from 28 nations, plus 291 industry, defence and academic delegations from 43 countries. That included 20 Chiefs of Air Force or equivalent and 18 international representatives.

Avalon 2025 featured more than 350 aircraft, in the air and on the ground, including 45 aerial display aircraft and 64 aircraft exhibited by aviation manufacturers from Bombardier and Dassault to Pilatus, Cessna, Cirrus and Robinson Helicopters. They ranged from homebuilt light aircraft to restored World War II warbirds, specialist aerobatic performers, the RAAF's Boeing C-17 and F-35 Lightning and US Air Force (USAF) F-16 Fighting Falcon and F-22 Raptor.

With three industry-focused days followed by a weekend public airshow, Avalon 2025 gave the RAAF a unique opportunity to engage with both industry and the public, covering everything from sustainment and acquisition to recruitment.

"With over 900 companies at Avalon '25 there's a tremendous opportunity for Defence to interface with industry," said RAAF Director General for the Avalon AIA, Air Commodore Scott Winchester. "And then the icing on the cake is the three public days, and that's an opportunity for our aviators to talk passionately about what they do. It takes a lot of work, but we've got tremendous people who are part of the Defence team and collectively we produce an outstanding show which is a world-leading event."

Industry announcements flowed from day one, with the following giving a taste of the variety of activity:

- The Australian Government took delivery of the first two of 42 ordered High Mobility Artillery Rocket System (HIMARS) units, which will give the Army the ability to strike targets at a range of more than 500km. Prime contractor Lockheed Martin is proposing an in-country HIMARS sustainment centre and local production of guided Multiple Rocket Launch Systems.
- The Australian National University launched its bid for a Future of Space Cooperative Research Centre, seeding 2027 funding to drive innovation in microgravity manufacturing, semiconductor technology, and sustainable space operations.
- The Anduril Fury, one of the aircraft competing to be the USAF's first uncrewed fighter jet, made its overseas debut as a full-scale model.
- Dovetail Electric Aviation, an Australian company planning to retrofit aircraft with zero-emission electric powertrains, unveiled its proprietary DovePower integrated electric propulsion system and DovePack battery technology. Dovetail offers a modular approach that allows for both battery-only and hydrogen-electric configurations.
- Global training and critical operations provider CAE announced it has been awarded a contract to deliver through-life support for the Royal New Zealand Air Force's Lockheed Martin C-130J Weapons Trainer Simulator.
- Bombardier Defense announced the sale of two Bombardier Challenger 650 aircraft to Principle Finance, a leading provider of customised aircraft leasing in Australia. These aircraft will be outfitted for intelligence, surveillance and reconnaissance missions, with delivery scheduled for 2026.

OPPOSITE
USAF F-22 Raptor during a flying display at Avalon AIA 2025.

LEFT
Defence and Industry participants in Exhibition Hall 1 near the Anduril Fury model.

LEFT
The public enjoying the aircraft displays, including the RAAF's Boeing C-17.

- Swinburne University high-tech spinout EntroMat announced it will produce Australian-made high-performance, high-entropy material powders, developed from recycled industrial feedstocks, for advanced manufacturing and 3D printing facilities.
- Australian aerospace start-up Drone Forge and Airbus signed a letter of intent to collaborate on the deployment and operational integration of the Flexrotor uncrewed aerial system, a 25kg vertical takeoff and landing uncrewed aircraft designed for intelligence, surveillance, target acquisition and reconnaissance missions.
- Hydrogen-electric aircraft developer Stralis Aircraft announced a collaboration with New Zealand's Fabrum and Ara Ake to develop and test liquid hydrogen storage tanks and a fuel system for the Stralis aircraft.
- Airbus Helicopters announced local sales of five helicopters, including four twin-engined H145s for New Zealand Search and Rescue Services and a single-engine H125 for Melbourne-based Microflite.
- Boeing displayed its AH-64E Apache attack helicopter, announcing that the first of 29 ordered by the Australian Army has entered final assembly, with four deliveries expected in 2025.

Avalon 2025 also promoted Australian innovation, presenting a total of $130,000 to four Innovation Pitchfest and Awards winners, who were among 23 finalists delivering a three-minute pitch to an audience of potential investors and customers. The winners were:

Innovation Award: Herve Aster, Neumann Space, for the company's electric propulsion drive for satellites.

Young Innovator Award: Edward Robinson, Robinson Aerospace, for his RASCube Educational Satellite Kit, which sees students assemble a realistic replica CubeSat, complete with internal electronics.

Emerging Technology Award: Nishq Ravindranath, Akula Tech Pty Ltd, for the company's Space-Ready AI Model Optimiser, which offers faster onboard data processing and reduces onboard power and resource demands for various platforms including uncrewed vehicles, robotics and space vehicles.

Blue Sky Thinking Innovation Award: Clem Newton-Brown, Skyportz, for the company's patented modular vertipad, designed to make Advanced Air Mobility (AAM) air taxi operations safer by ameliorating various issues including downwash and outwash from AAM vehicle rotors.

Justin Giddings, CEO of AMDA Foundation which organised the AIA, said Avalon is all about engagement between industry, Defence, the aviation and aerospace community and the public. "Feedback from our exhibitors and Air Force is that once again the airshow achieved this with flying colours, including the largest industry presence we have ever had at the event," he said.

Avalon 2025 also featured what may have been the largest single aviation industry careers and skills day ever held in Australia, with more than 6,000 secondary and tertiary students participating in a program that included hearing from industry, Defence and two astronauts – former NASA astronaut and Shuttle Commander Mike Bloomfield, and Australia's first Australian-flagged astronaut, Katherine Bennell-Pegg.

The program included a "Sky's The Limit" speaking program, with industry experts sharing insights and experience of careers in aviation, aerospace, defence and security. The "Drone Zone" saw live demonstrations from professionals in drone racing and autonomous tech, while the STEM Interactive Hub offered hands-on flight simulators, and the Questacon Professional Development Day connected educators and career practitioners with industry experts to highlight future opportunities in the defence and aerospace sectors.

"In aviation and aerospace we are always trying to attract the next generation of innovators, and one of the great experiences of this event was seeing thousands of students learning about how aviation and aerospace can offer exciting and rewarding careers," Giddings said. "We look forward to returning in 2027, to again deliver one of the world's great airshows, for industry and the Australian public."

Philip Smart, AMDA Foundation

RIGHT
RAAF No 36 Squadron C-17A Globemaster III performs a low-level fly-by. Photo: LAC Campbell Latch.

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HONEYWELL B757 TESTBED

WINGS TOOK A FLIGHT ON HONEYWELL'S B757 TEST BED TO OBSERVE ITS LATEST MULTI-BAND DATA AND DIGITAL COMMUNICATIONS NETWORKING SYSTEMS.

HONEYWELL AEROSPACE TECHNOLOGIES is an established aerospace company renowned for its expertise in avionics, particularly digital displays and crew situational awareness systems and communications. Unheralded in Australia, Honeywell also designs and manufactures a series of successful turboprop and turbojet engines primarily for the regional and business jet market.

Honeywell operates a company-owned Boeing 757 aircraft as a research and development testbed, specifically to evaluate and qualify it's avionic and engine products. The B757-200 was the fifth off the Renton, Washington assembly line in 1982 and was purchased by Honeywell in 2005.

The company deployed the aircraft to AIA and invited *Wings* on a local flight to observe their latest development of multi-band data and digital communications networking systems. The crew also demonstrated a suite of situation awareness features the company has developed and fielded to alert pilots to potentially hazardous conditions in ground operations, during take-off and landing, and in cruise flight.

As a relatively large airframe, the Honeywell B757 provides ample space to comfortably accommodate a crew of specialist technicians and to install a significant array of racks to house equipment to test and support the instrumentation systems needed to monitor and record test article characteristics and performance.

As can be imagined, communications and data systems involve a broad range of variables that affect performance and utility, such as signal strength, attenuation due to aircraft orientation or atmospherics, system architecture and quality, latency i.e. transmission delay and data/transmission integrity and fidelity. At the development stage, those parameters need to be measured and evaluated to eliminate degradation due to design or manufacture. The Honeywell test bed provides the facility to capture those parameters in an operational, real-world environment as opposed to a laboratory environment.

During the demonstration flight, Honeywell technicians demonstrated the agility of their latest satellite communications equipment to seamlessly switch between available commercial and military satellite networks, different frequency bands, and provide continuous, high-rate, high-fidelity data connectivity.

Flight crew situational awareness functions Honeywell has developed include:

- Traffic Collision and Avoidance System – a sophisticated, cooperative transponder encoding process that calculates conflicting aircraft trajectories and provides aural and graphic deconfliction guidance.
- Smart Runway and Smart Landing algorithms that provide aural and display alerts to flight crew, warning of potential runway incursion or excursion dynamics and orientation situations.
- Hazardous weather avoidance. Airline operations are subject to a number of weather-related threats that need to be avoided such as wind shear, convective/mechanical turbulence and

clear air turbulence. The Honeywell weather radar incorporates functions to aurally and graphically alert flight crew to potential weather hazards.

The Honeywell B757 testbed provides an ideal platform to develop, qualify and refine each of those valuable capabilities.

The testbed is also used as a platform to test and qualify turbo-prop and turbo-jet engines. As a consequence, it has been structurally modified to support an engine pylon mounted to a set of reinforced fuselage frames, projecting out of the fuselage just ahead of the right wing root. The airframe modification is significant and rather rudimentary, but as a workhorse, aesthetics are a secondary concern.

Honeywell, also 'borrowed' from the KC-135 program a large wheel that enables the aircraft to deploy a free-stream pitot/static sensor on a long cable, clear of airframe influences to measure atmospheric and speed truth data (see photo right). Unfortunately, that system was not exercised during our brief flight.

Wings experienced a great opportunity to engage with the people behind the impressive aerospace evolution that has made commercial air transport as safe and efficient as it is today.

As an aside, Honeywell has been awarded a contract by BlueForge Alliance, on behalf of the AUKUS Acquisition and Integration Office of the US Navy, to deliver the AUKUS Submarine Industrial Base (SIB) pilot program. Honeywell will support the AUKUS SIB team by establishing a secure network of suppliers and partners to contribute to production and operation of the submarine fleet. The network of suppliers and partners will be powered by a local workforce of more than 30,000 people in Australia and 100,000 in the US.

Ron Haack and Roxley McLennan

ABOVE RIGHT Reinforced fuselage frames.

RIGHT Pitot/static sensor at the end of the 50m reeling cable.

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- AP-3C Orion (A9-753)
- CAC CA-27 Sabre (A94-901)
- P2V-7 Neptune (A89-273)
- Douglas C-47 (A65-94, A65-95, A65-90 - now N2-90)
- CA-25 Winjeel (A85-435)
- English Electric Canberra (A84-502)
- DH-115 Vampire T-35 (A79-637, A79-665)
- Mirage IIIO (A3-42)

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Image: © Hars Aviation Museum

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PEREGRINE DUE TO LAND

AUSTRALIA'S DELAYED EW AIRCRAFT IS DUE TO ARRIVE IN THE NEXT 12 MONTHS.

THE RAAF'S DELAYED MC-55A Peregrine electronic warfare and intelligence, surveillance and reconnaissance aircraft will arrive within the next year, service officials said on 24 March.

The MC-55A Peregrine is a modified version of the Gulfstream G550 business jet featuring advanced electronic warfare capabilities. Australia announced in 2019 it would acquire four MC-55As, with L3Harris serving as the prime contractor.

However, in its *2023-24 Major Programs Report* published in December 2024, the Australian National Audit Office said the program's delivery schedule had been impacted by engineering risks, workforce challenges, global supply issues and flight testing.

"The program has significant engineering, integration and flight-test activities yet to be completed, which have the potential to result in further schedule delays," the report said.

Air Vice-Marshal Graham Edwards, head of the aerospace systems division in the ADF's Capability Acquisition and Sustainment Group, said the aircraft has entered flight testing, adding that he is "looking forward to seeing them arrive… in the short to medium term."

Air Vice-Marshal Nicholas Hogan, head of Air force capability, said the plan is for the aircraft to arrive sometime within the next 12 months. "We've built the facilities. We're training the crews. Everything is moving along… so that when the aircraft turns up, we can go into what we would call operational test and evaluation, which is acceptance in the service, and then we would go from there," Hogan said during a media roundtable ahead of the Avalon Australian International Airshow.

With all of the modifications for Air Force missions, there is a "significant difference in terms of the aerodynamics" between the MC-55A and the Gulfstream G550 aircraft it is based on, he said, which has required a lot of experimental testing and Federal Aviation Administration certification the program has had to work through. But the Peregrine represents a "generational step forward in capability", and getting the system into flight testing is a "great step forward", he added.

Once operational, the aircraft will be integrated into Australia's joint warfighting networks, providing a critical link between platforms like the F-35A Joint Strike Fighter, E-7A Wedgetail, EA-18G Growler, naval surface combatants and amphibious assault ships and ground assets, according to the L3Harris website.

The MC-55A will also work alongside the country's MQ-4C Triton remotely piloted aircraft system, which is currently undergoing operational test and evaluation and is expected to become operational within the next 12 months, Hogan said.

There are "different roles for the different aircraft types", he said. In addition to the differences between operating a crewed aircraft and an uncrewed platform, "some of them are more sensitive than others, and they have different roles in terms of the sensors that they have onboard".

Edwards said: "Triton is that high-altitude, long-endurance, primarily maritime" system that can complement Australia's existing fleet of P-8A Poseidon maritime patrol aircraft, "and then MC-55 adds on top of that" to provide Australia comprehensive air intelligence, surveillance and reconnaissance.

Australia is "well situated for the future" as it prepares for the integration of the MC-55A into its overall defence network and the supporting infrastructure, he said.

Josh Luckenbaugh
National Defense Magazine, 24 March 2025

10 YEARS OF INNOVATION

RAAF IS CELEBRATING 10 YEARS of innovation under Plan Jericho. The milestone brought together inaugural co-directors, Vice-Chief of the Defence Force, Air Marshal Robert Chipman and Air Commodore (Retd) Andrew 'Jake' Campbell, at AIA.

Plan Jericho was challenged to integrate, technologically and culturally, the new fifth-generation capabilities introduced into service in 2015.

"Jericho has continued to be a brand that's useful as a centre point for innovation in the Air Force, it's really pleasing to see the results today," Air Marshal Chipman said. "It hasn't been just about improving joint operations, but it has also improved Air Force's relationship with the industry, with academia, and with our partners around the world.

"What's been pleasing to me is to see that the engagement with the industry has continued over the 10 years of Jericho."

As crowds thronged around the Air Force Innovation Stall at the air show, Group Captain Jesse Laroche, Director of Jericho, said Jericho had been extremely successful in adapting to the needs of the Air Force

"Jericho, now known as Jericho Disruptive Innovation, is focused on answering the challenges of the National Defence Strategy and we're doing that through our lines of effort," he said. "One of them is working on digital enhancement and integrating AI technology.

"Now, as we look to the future, we have an integrated and focused force. The appetite within the country for innovation has never been higher, and I think we have an incredibly important role to play for the next 10 years and beyond."

Flying Officer Abi Lahon

ABOVE Air Marshal Robert Chipman marking 10 years of Jericho during the AIA. Photo: Aircraftwoman Halley Van Essen.

Artist's rendering of the GCAP sixth-generation fighter.

SIXTH-GEN BRIEF

AUSTRALIA RECEIVED AN update on the United Kingdom, Italy and Japan's joint project to build a sixth-generation fighter during the Avalon Australian International Airshow, a RAAF official said on 27 March.

The Global Combat Air Program (GCAP), aims to deliver a sixth-generation fighter by 2035. Officials involved with the program have previously stated that other countries beyond the three founding members could become partners in the project.

Air Vice-Marshal Nicholas Hogan, head of Air Force capability for the RAAF, said the UK, Italy and Japan briefed Australia on the program in the week of the airshow. "It was an informational briefing, and we have asked for some more information," Hogan said during a media roundtable at the airshow. The briefing was primarily to give Australia "an understanding of how we might have to operate with that aircraft as part of a combined international operation if required," he added.

Along with GCAP, the United States announced that Boeing will build the US Air Force's sixth-generation fighter, the F-47, and an announcement is expected soon on the winner of the Navy's F/A-XX program.

In addition to these crewed aircraft projects, autonomous collaborative combat aircraft are "starting to mature" as well, said Malcolm Davis, a senior analyst at the Australian Strategic Policy Institute.

"We're looking, I think, at a quite important inflection point in air power capability", as "there's a bunch of next-generation capabilities starting to mature", while Australia's fleet of F/A-18F Super Hornets and EA-18G Growlers are "steadily getting older", Davis said during a panel at the airshow.

Air Vice-Marshal John Haly, head of military strategic plans, said during the panel that the decision to reevaluate Australia's aircraft fleet mix and "partner in or acquire technologies developed overseas" will be made by the Australian Government, but the Air Force will make recommendations to inform that decision.

Hogan said GCAP is "exciting, but I think there's a lot of unknowns… so many unknowns that it wouldn't be possible to" present the government options regarding the aircraft "at this stage".

"But, on paper, it's a nice-looking aircraft," he said.

Josh Luckenbaugh
National Defense Magazine, 27 March 2025

LEADING-EDGE AIRCRAFT

THE USAF F-22 RAPTOR WAS A STAR PERFORMER AT THE AVALON AIR SHOW.

Squadron Leader Anderton with Captain LeTourneau in front of the F-35A Lightning II static display at the AIA. Photo: Squadron Leader Marina Power.

SPECTATORS AT THE AIA were treated to a rare glimpse of fifth-generation fighter jets in action, enjoying flying displays both from a US Air Force F-22 Raptor and the RAAF F-35A Lightning II.

Captain Nick 'Laz' Le Tourneau, commander and pilot of the F-22 Raptor Aerial Demonstration Team, said that he was glad to fly the F-22 at the airshow.

"It's great to demonstrate not just the capability of the jet, but the interoperability between the United States and Australia, why we are such good partners, and what we can achieve working together," he said. "For me, the team comes first. We only take 10 people on the road with us at a time, so the support we receive from our Australian friends when we're here is incredibly important.

"This jet, just like any jet, takes a village to get airborne, and everyone supporting us plays a crucial role, from maintainers, right through to the planners who make the displays at events like this possible."

Among the spectators, Squadron Leader Paul 'Ando' Anderton, an F-35A Lightning pilot from the RAAF's 2 Operational Conversion Unit, said it was always good to welcome the F-22 Raptor back to Australia.

"Seeing the F-22 brings a tear to my eye," Squadron Leader Anderton said. "I was fortunate enough back in 2017 to be selected for an exchange program with the United States Air Force and took my family over to Anchorage, Alaska for three years.

"There I trained on the F-22 and flew with the 90th Fighter Squadron, learning initially and then teaching tactics on the Raptor for the US Air Force. It was a dream come true."

Squadron Leader Anderton said that the F-22 participating in the AIA showcased the integration between the RAAF and the US Air Force as our strongest and probably longest ally, providing air dominance and air security for global stability.

"I think it really shows how important the relationship is between the United States and Australia, in that they are willing and keen at every opportunity to bring their premier air dominance fighter, the F-22 to Australia," he said.

Having flown both the F-22 and F-35A, Squadron Leader Anderton had a unique perspective on the differences and similarities between the two aircraft.

"In my opinion, the two jets are built for two different mission sets," he said. "The F-22 is the most lethal aircraft for air dominance and the F-35A is a superb out-of-surface platform, capable of both air-to-air and air-to-ground missions. Both aircraft do both roles, but are optimised for different purposes. And both the F-22 and F-35 are leading-edge aircraft."

Squadron Leader Marina Power

INCREASED FORCE PROTECTION

WORDS Gregor Ferguson

A soldier from 20th Regiment, Royal Australian Artillery removes the Integrator tactical UAS from the skyhook at Shoalwater Bay, Qld Photo: SGT Carly Box

THE MERGER OF PROJECT LAND129 AND THE NAVY'S PROJECT SEA129 PH.5 INTO PROJECT DEF129 HAS SEEN DEFENCE FOCUS IN ON SMALL AND TACTICAL UASs.

THERE IS NO PROJECT LAND129 ANYMORE. Under last year's National Defence Strategy and Integrated Investment Program, it was merged with the Royal Australian Navy's (RAN's) Project SEA129 Ph.5 and has become Project DEF129.

"This amalgamation seeks to enhance interoperability and efficiencies across the integrated force," according to a Defence spokesperson.

DEF129 will deliver enhanced situational awareness and increased force protection through the acquisition and sustainment of small and tactical uncrewed aerial systems (UASs) capable of operating across the spectrum of maritime and land force operations, the spokesperson added. "Small and tactical UASs" generally means Group 3 or lower – less than 600kg in weight and 250kts; Group 2 is less than 20kg and Group 1 is less than 10kg and 100kts.

Interestingly, in January Defence released a request for tenders for Project LAND156 which is designed to detect and interdict hostile Group 2 UASs.

Defence has spent roughly $790million so far on DEF129 and its legacy projects. Where DEF129 will go in the future, on land and at sea, hasn't been disclosed as yet. Meanwhile, its creation has resulted in some rationalisation of the ADF's purchase of small UASs (S-UAS) and smashing together two separate programs has caused some short-term pain, both to industry and the ADF.

The RAN's contract with Schiebel to operate a force of the Austrian firm's S-100 Camcopter VTOL (vertical take-off and landing) UASs under Project SEA129 Ph.5 was cancelled in late-2023 before any deliveries were made. The RAN was already operating half a dozen S-100s, simply to become acquainted with the capability and the challenges of operating such a system off a mix of large and small flight decks.

As part of the DEF 129 scope, Navy will seek to acquire UAS for use in the maritime domain based on a common system and the RAN's experimental unit, 822X Naval Air Squadron, continues to trial the Insitu RQ-21A Integrator (known as Blackjack in the USA) which is now in Army service.

However, in late-2024 the RAN acquired 12 Edge 130 Blue tri-rotor VTOL UASs from Puerto Rican company Red Cat Holdings, apparently outside DEF129. The Edge 130 Blue weighs just 1.2kg and cruises at up to 100kph with an endurance of up to 60 minutes. Its maximum range using a directional antenna is 8km and using an omnidirectional antenna is just 2km.

The RAN is now experimenting with this new combination of VTOL and extended-range UASs and the communications and command and control (C2) implications of a variety of electro-optic and infrared (EO/IR) and intelligence, surveillance and reconnaissance (ISR) payloads.

Project DEF129 has seen some notable land-related developments. The Army's ageing Textron Systems RQ-7B Shadow 200 UAS has been replaced by 24 Insitu Pacific RQ-21A Integrator UASs under a $650 million investment in then-project LAND129 Ph.4 announced in 2022; they started flying operations in December. At 75kg, the Integrator is about one third of the maximum weight of the aircraft it replaces, has a payload capacity of 18kg (also much less), cruises at 55kts and has a maximum endurance of more than 24 hours – about three times that of the Shadow 200. Its extended-range variant uses satellite communications for beyond visual line-of-sight operations and offers 19 hours on station at a range of 200nm.

Similarly, the Army's General Atomics RQ-12A Wasp AE hand-launched UAS is now being replaced by the Australian-made Sypaq Systems CorvoX and the German/Australian Quantum Systems Vector UAS in contracts worth $140 million. Both are man-packable VTOL UASs with wings and achieve range and endurance by transitioning to forward flight once airborne.

The 1.4kg, 820mm wingspan CorvoX is an electric twin-engine tilt-rotor with a 5km range and 50 minutes' endurance. Its low-size, weight and power sensor suite includes stabilised EO and long-wave IR sensors and moving target detection and tracking. It operates with another Australian system, the Codan Communications Sentry Mesh 6161 radio system, which will provide a secure communications link to and between the UASs.

At 9.5kg and with a 2.8m wingspan, the Quantum Systems Vector UAS is substantially bigger and has a range of more than 60km and an endurance of more than 180 minutes. Like CorvoX it uses a range of sensors and also uses terrain-referenced navigation, enabled by AI, for ongoing effectiveness in a GPS-denied environment.

Both UASs are designed to operate from confined areas including small boats and urban environments, which means they

Integrator in flight.

can support the Army's emerging littoral capabilities and the RAAF's airfield defence guards as well as operate off frigates and landing helicopter docks. These UASs were selected in 2024 following a trial of 10 different UAS designs in April 2024 by Defence's Advanced Strategic Capabilities Accelerator, which earlier this year was transferred from the Defence Science and Technology Group to the Vice Chief of the Defence Force Group.

NEW CAPABILITIES

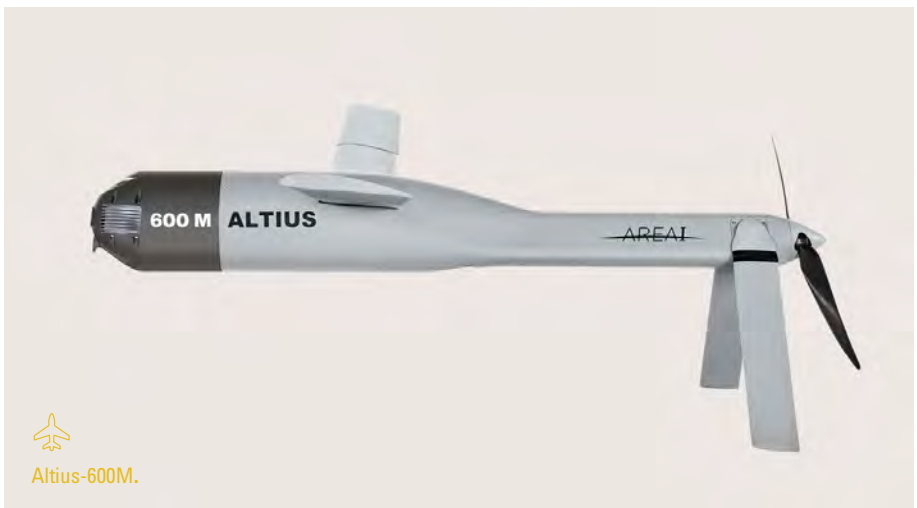
What's interesting observers is the possibility of the ADF acquiring a range of other new S-UASs under DEF129, especially Group 3 or even bigger, for maritime use.

It's important to distinguish between ISR platforms, which are generally recoverable and designed to feed situational awareness (SA) and ISR data back into a unit's C2 system, and so-called loitering munitions which are designed mostly as one-way strike weapons. The former could task the latter or at least provide targeting data to the C2 system and unit commanders, but the latter aren't part of DEF129.

However, we're now starting to see a level of SA and ISR capability in loitering munitions as well as a growing number of kinetic attack UASs that are recoverable and so much more economical, so the distinction is getting blurred.

At the Avalon Airshow in 2023, BAE Systems Australia made an important announcement: it had developed the STRIX VTOL UAS in partnership with Perth-based SME Innovaero. It is a highly innovative, hybrid 960kg UAS designed to carry a 160kg ISR or kinetic payload up to 800km

BAE Systems Razer precision guided munition on STRIX.



Altius-600M.

US DEPARTMENT OF DEFENSE UAS CLASSIFICATIONS

Group	Maximum take-off weight (kg)	Nominal operating altitude (ft)	Speed (kt)	Examples
1	0-10	< 1,200	100	RQ-12A Wasp AE, CorvoX, Quantum Systems Vector
2	10-20	< 3,500	< 250	Anduril Altius-600
3	< 600	< 18,000	< 250	Shield AI V-BAT, RQ-7B Shadow 200, RQ-21A Integrator (aka Blackjack)
4	> 600	< 18,000	Any	BAE Systems Strix, MQ-1 Predator
5	> 600	> 18,000	Any	MQ-4C Triton, MQ-28A Ghost Bat, MQ-9 Reaper

NOTE: No weight has ever been disclosed for the Innovaero OWL family of UAVs but the largest variants are believed to be a Group 2 or Group 3 UAV.

ADF IN-SERVICE ISR UNCREWED AIR SYSTEMS

Type	Range	Endurance	Category
Northrop Grumman MQ-4C Triton - USA	Undisclosed	24+ hours	Group 5
Boeing Defence Australia MQ-28A Ghost Bat - Australia	Undisclosed	Undisclosed	Group 5
Insitu RQ-21A Integrator – USA/Australia	Undisclosed	27 hours	Group 3
SYPAQ CorvoX – Australia	5km	50 minutes	Group 1
Quantum Systems Vector/ Scorpion 2-in-1 - Australia	60km (C2 range)	180 minutes	Group 1
AeroVironment RQ-20 Puma AE - USA	20km	3 hours	Group 1
Teledyne FLIR Black Hornet - USA	Undisclosed	30+ minutes	Group 1
AeroVironment RQ-12A Wasp AE - USA	5km (line of sight)	50 minutes	Group 1
Teledyne FLIR R70 Sky Ranger - USA	Undisclosed (usually operated tethered)	40 minutes	Group 1
Red Cat Edge 130 Blue - USA	Undisclosed	125 minutes	Group 1

– or a 50kg payload 1,500km. While it may be on the heavy side for DEF129, it is versatile and has a very long range. It also has the advantage of an autonomous vehicle management system that is already in use aboard the Boeing MQ-28A Ghost Bat, the Army's optionally manned M113 APC and on parent company UAS projects such as Taranis and Mantis.

STRIX can act as a 'loyal wingman' to helicopters, increasing their reach and role and can be controlled from platforms such as the Black Hawk and Apache. Importantly STRIX can return from a successful ISR mission or from a targetless kinetic mission to be refuelled, recharged and prepared for another flight. It is designed to operate from confined areas as well as small ship flight decks.

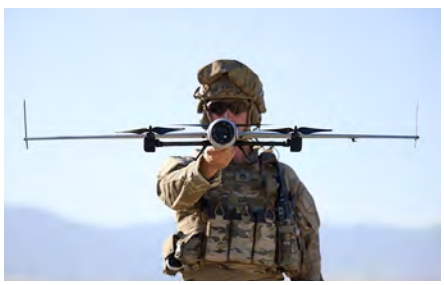
In 2023, Californian company Anduril Industries demonstrated its Lattice for Mission Autonomy operating system, operating a swarm of UASs to locate, identify and then destroy a hostile surface-air missile site. The trial used ISR and kinetic variants of the company's own Altius-600M UAS and one Australian-made recoverable Textron Aerosonde 4.

The one-way-trip Altius-600 can be configured as an ISR asset or as a kinetic strike weapon. The demonstration also saw a crewed UH-60 Black Hawk helicopter take tactical control of the ISR variant of the Altius-600. Anduril has declined to comment at this point on its aspirations for DEF129, or something like it, but hasn't denied that it has some.

The VTOL Textron Aerosonde 4.8 has more than 40 ISR payloads already integrated with it and can carry up to six in a single flight. It weighs more than 90kg, can take-off and land vertically, has a 22.7kg payload capacity and an endurance of up to 14 hours. It uses a heavy fuel engine.

Another contender for a DEF129-type capability is Shield AI whose MQ-35A V-BAT UAS incorporates the AI-enabled ViDAR imagery analysis system for EO/IR sensors developed by Sentient Vision Systems of Port Melbourne (which it acquired last year). This enables the equivalent of finding a needle in a haystack in real time: hard to detect targets in a very cluttered environment, especially at sea.

The V-BAT is another VTOL UAS with wings. It takes off and lands autonomously from confined 4.6m by 4.6m landing sites and ship's flight decks. It has a maximum weight of 73kg, up to 13 hours' endurance, can carry an 18.1kg ISR or kinetic payload and has a maximum range – using a C-band satellite communications (SATCOM) link – of about 180km.



TOP Sypaq Systems CorvoX.

MIDDLE Shield AI MQ-35A V-BAT.

ABOVE Red Cat Edge 130 Blue.

The Army is also engaged with Australian small and medium businesses to develop sovereign loitering munitions, says a Defence spokesperson. However, this capability is understood to be separate from Project DEF129.

The unmentioned factors in all this are, firstly, the communications links between the operator and the UASs and between the UASs; for long range a SATCOM capability will be essential. And, secondly, how the UASs manage a global navigation satellite system-denied capability.

That's the secret sauce that makes UASs worthwhile: they need to be reliable, accurate and secure across everything from a combat net radio to a satellite link, even before they start work. That's a different challenge but no less important.

'NEARLY IMPOSSIBLE' MEETS 'ABSOLUTELY NECESSARY': DEVELOPING AUSTRALIAN HYPERSONIC CAPABILITIES HAS BECOME A KEY DEFENCE PRIORITY.

HOME-GROWN HYPERSONIC

IN THE SUMMER OF 2021, China tested a nuclear-capable hypersonic missile demonstrating a number of advanced capabilities that captured the attention of the US intelligence community. The test missile flew through space on a fractional orbital trajectory before releasing a hypersonic vehicle that glided for more than 10,000km. Following this 'first', Russia employed hypersonic weapons on the Ukrainian battlefield, employing the air-launched Kinzhal hypersonic missile to strike ground targets.

A new arms race is stirring. As China, Russia and the US demonstrate and test increasingly advanced hypersonic weapons, Australia is primed to pursue our own advanced hypersonic weapons.

In January 2022, the Australian Defence Minister opened the Australian Hypersonic Research Precinct in Eagle Farm, Brisbane. The facility was designed to support collaboration between Defence, industry, academia and international partners to advance the development of hypersonic technology. Within the precinct, a small team of ADF staff, backed by a Defence Science & Technology (DST) Group technical workforce, is quietly exploring the potential for an Australian designed and built hypersonic vehicle that could be manufactured within the current Australian industrial landscape.

The minister stated that the technology developed in Eagle Farm "will also give us the ability to strike potential adversaries from a distance and deter aggression against Australia's national interests".

The 2024 National Defence Strategy (NDS) added further weight to the hypersonic prototyping effort, identifying hypersonic capabilities as a key Defence priority. The NDS described hypersonic weapons as having the ability to "hold time-critical and heavily defended targets at risk from increased ranges, enhancing the survivability of the Australian Defence Force against potential threats."

Australia has a rich, 60-year history in the field of hypersonic flight research, tracing back to the Australian National University physics department in 1962. From that beginning, numerous academic Institutions began studying the characteristics of hypersonic flight, being movement at speeds faster than Mach 5.0 for greater than 50 percent of the flight time: a key distinction that separates hypersonic flight from out of atmosphere vehicles and ballistic missile trajectories.

Defence's involvement in this research was led by the then DST Organisation (now DST Group). Australia's military science and technology arm conducted the research under the Hypersonic International Flight Research Experimentation program. Australia stands poised to capitalise on this extensive body of work as the world eyes the emergence of a new class of technologically advanced weapons.

Innovation occurs at the intersection of 'nearly impossible' and 'absolutely

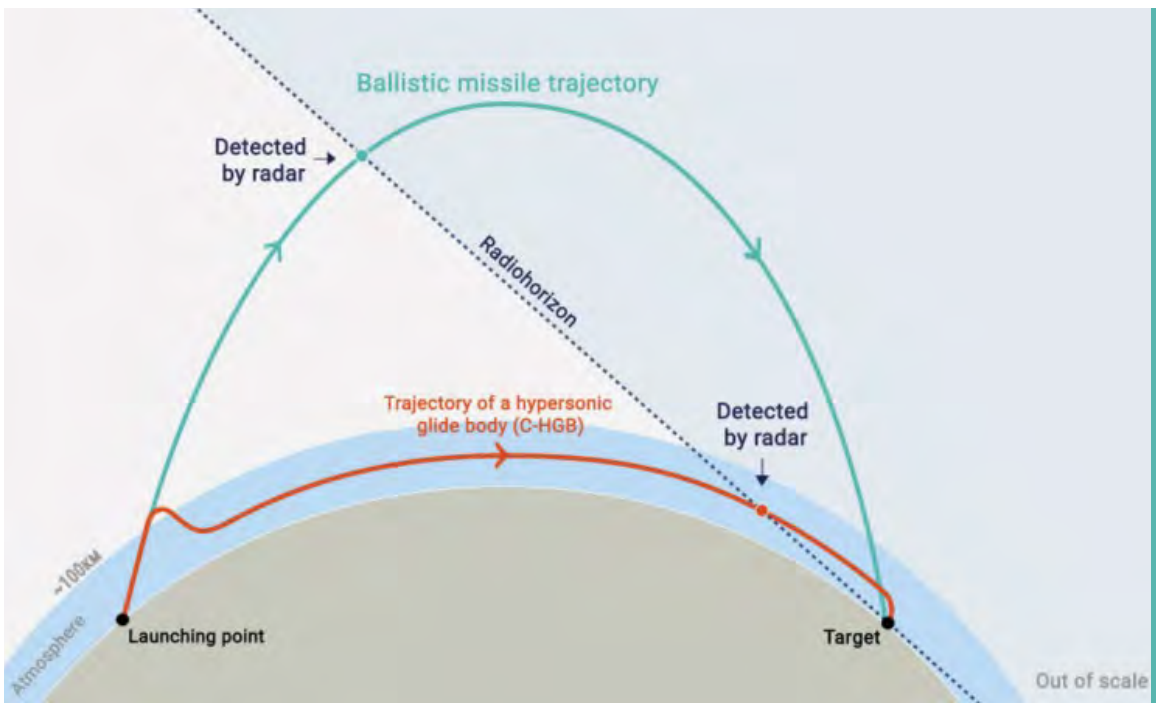
necessary'. Both conditions are required and can be left to chance, or external factors; skilled innovation teams don't wait for external drivers, rather they take control of one or both innovation conditions and generate a suitable sandbox. This is a delicate act, too rough a hand on 'absolutely necessary' and aggressive timelines create workforce burnout. Too much 'nearly impossible' and resignation sets in. Innovation is a human endeavour closely related to survival, a characteristic central to warfare.

Hypersonic vehicles are large and complex systems requiring unique and sophisticated manufacturing techniques. To fly and operate at speeds above Mach 5 Australia will need to realise a number of 'absolutely necessary' technologies. Among the many technical challenges, the central problem to sustained hypersonic flight is the management of the enormous heat loads generated during flight. Temperatures as high as 2,000°C are commonplace at the nose and leading edges of the wings and fins. Advanced materials, such as ceramics and carbon matrix compounds, are key to dealing with these heat loads.

New onshore manufacturing pathways capable of producing heat-resistant materials at scale will have to be designed. Innovative solutions that blend Defence specific requirements with adjacent commercial-sector needs may be the quickest pathway. For example, Defence purchasing the key machinery and equipment to underpin a collaborative industry workspace, similar to the Australian National Fabrication Facilities model. These future advanced physical workspaces would permit Australian industry access to expensive research and development (R&D) lines beyond the reach of any individual business, accelerating the development of advanced materials for Defence and adjacent applications. Such multi-use facilities could be used to stimulate manufacturing in bio-medical, additive manufacturing and commercial rocket manufacture beyond the hypersonic prototyping needs.

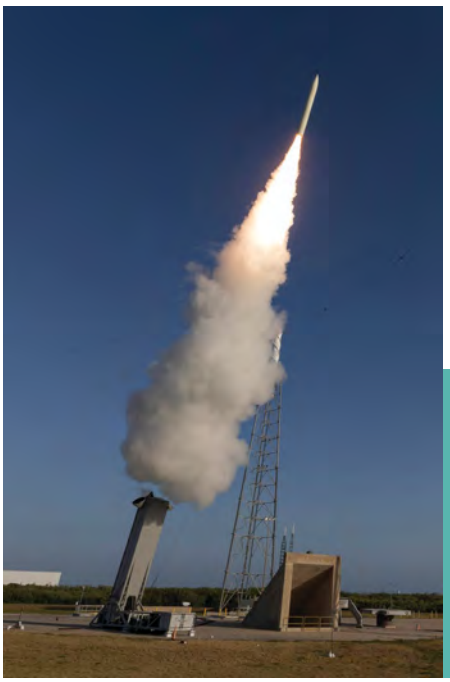
Propelling a hypersonic vehicle thousands of kilometres requires a lot of energy. Accelerating from a ground level launch pad on a trajectory that remains in atmosphere is the job of the rocket booster system. Essentially a pressure vessel, the rocket booster harnesses the controlled release of energy from the combustion of stored fuel exiting through a nozzle to generate thrust accelerating a payload.

Future work will need to be done to match Australian-built rocket boosters to the Australian-designed hypersonic vehicles that might fly on them. In straight forward terms, Australia will have to create the capacity to manufacture very large rocket boosters. Australia, unlike the other countries investigating the potential



OPPOSITE
Artist's rendering of a hypersonic missile.

LEFT
Comparing hypersonic flight from out of atmosphere vehicles and ballistic missile trajectories.



ABOVE A Russian Kh-47M2 Kinzhal missile carried by a Mikoyan MiG-31K interceptor.

LEFT US Navy's Strategic Systems Programs flight test of a conventional hypersonic missile from the Cape Canaveral Space Force Station, Florida. Photo: USN.

development of hypersonic weapons, lacks the foundational industrial sectors that produce very large rockets. This means Australia either purchases the boosters or starts from the beginning of the rocket R&D journey.

The Australian Rocket Motor Technology Development Program is a DSTG initiative centred on the formation, upskilling and demonstration of an exemplar Australian industry network able to produce advanced, military-relevant rocket motors. This effort leverages more than a decade's worth of science and technology conducted between DSTG and a cohort of Australian industry small-to-medium enterprises to develop advanced rocket motor material technologies, forming the basis of an industry network led by Thales Australia. Lessons learnt through the program could be scaled to deliver the large multi-tonne rocket boosters needed for hypersonic flight.

In parallel to industry uplift to deliver advanced materials and a suitable rocket booster solution would be the creation of a suitable hypersonic vehicle. These designs would be able to stand on the shoulders of the multi-decade DSTG hypersonic R&D efforts, by rapidly repurposed systems and components from a number of historical vehicles. This repurposing through iterative prototyping will permit a very fast design process, driven by internal Defence requirements as much as the external global competition and conflict drivers (as described in the NDS).

Beyond the major sub-systems – a hypersonic manoeuvring payload constructed of exotic materials riding on a huge rocket motor – there are a myriad interconnected elements that must also be designed, iteratively developed and prototyped to arrive at an initial operating capability (the point at which the ADF declares the capability ready for use).

In no particular order, here is a non-exhaustive list of those elements:

- The design and manufacture of the 'life-support' systems, specifically the hardware that stores and protects the system from the environment and adversaries while being ready for use within timeframes responsive to the ADF targeting enterprise.
- The planning software that enables the ADF workforce to plan, integrate, command and control these new hypersonic vehicles across the spectrum of competition to conflict.
- A new hypersonic rocket workforce, comprising teams that can plan, employ, maintain and repair the weapons throughout the life of the system.
- The development of new educational pathways that deliver vocational and university courses to underpin as yet undefined or unknown manufacturing and industrial capabilities.
- New test infrastructure (due to flight tests being expensive undertakings), comprising of hypersonic wind tunnels and high-power computing, to support both military, civilian and academic initiatives.
- Sharing and collaboration with allied hypersonics programs, ensuring the Australian design is compatible with coalition systems and hardware.

To realise the possibility of a future ADF hypersonic weapons program will require a very high 'nearly impossible' bar to be set. Such an aggressive schedule coupled with a sophisticated technical goal will demand a different approach to traditional weapons programs. A new examination of the Australian industry base, hunting for the innovation inflection points that leap-frog incremental development steps will be essential. Simultaneous examination across all sub-systems will have to be conducted from pressure vessel manufacture, rocket fuel development and production, structural elements and nozzle and throat design in high temperature materials to name a few.

All this work would require new infrastructure; buildings and factories that house the machinery and workforces. Construction takes time and will need to be scheduled into any such future program to ensure that transition from prototyping to industrial manufacture is not delayed waiting for the concrete to cure. In parallel with readying the industrial landscape will be securing the delivery of the required raw materials and precursors that feed the machinery.

Beyond the introduction of a potentially ground-breaking new weapon class, research into hypersonic vehicle prototyping is re-investing in Australian sovereign industrial and manufacturing sectors via mobilisation of national resources and skilled workforces. Multi-use and collaboration across commercial and Defence enterprises will deliver the maximum return.

The 'absolutely necessary' imperatives of our current geostrategic circumstances could and should impel the 'nearly impossible' through the exploration of a first-of-class, incredibly fast and very long-range sovereign hypersonic prototype addition to the ADF force mix.

Daryl Milton contributed this article to Wings *magazine in his personal capacity. The views expressed are his own and do not necessarily represent or reflect the views of the RAAF or the Australian Government.*

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HAWKER SEA FURY

WINGS VOLUME 77 NO.2

Paul Bennet Hawker Sea Fury at Avalon AIA 2025.
Photo: Dean Swan, via Avalon Australian International Airshow.

influence on the business of delivery management, acquiring and sustaining capability. It describes the sovereign defence industry base that we must sustain. And inherent in that sovereign defence industry base is the sovereign defence industry priorities that must be aligned appropriately to create a secure and resilient supply chain within Australia to be able to acquire the capability in a timely fashion.

The sovereign defence industry priorities help us better focus on what must be done in Australia to make us more resilient, particularly as we look to a conflict. What must be done in Australia and what must be sustained in Australia is going to be critical. To support this, the DIDS also talks about growing the Tier 2 industrial base; growing SMEs to scale their business to operate in that mid-tier layer. That leverages our primes where we work appropriately to help build that tier-two layer, and will become important as we're moving forward and drive speed to capability, as clearly the NDS said the way in which we acquire and sustain capability is not fit for purpose. All the work we're doing in acquisition, sustainment and procurement reform is about doing business far more efficiently and effectively. Avoiding unnecessary time and cost for industry and Defence, better focusing money and productivity on delivering operational outcomes rather than delivering process which doesn't solve the war fighter problems.

The Boeing MQ-28 Ghost Bat is an example of the challenges of developing procedures in support of emerging capability and in Defence and industry sharing resources. What has CASG learnt from the approach taken in working with industry to date?

I think the key thing with MQ-28 is it's been a long while since we've done a developmental program and there is a gestation period as you look at the overlapping Venn diagram of what's important for industry and what's important for Defence in growing these innovative capabilities. You have to make sure the business case, what sits in the middle of that Venn diagram, means something for both. That's the alignment in the strategic context and it's clear as we went through the evolution of the MQ-28, there were often times when that centre ground was not clear. As Australia hasn't done developmental programs in an industrial context for many years, we initially struggled to understand those key steps; getting to a prototype, the industrialisation and production inputs to get to scale, how we pull through to capability, and how we shape an export strategy for longevity of production.

We're now far more sophisticated with respect to MQ-28. We've gone through that gestation period working between Air Force and Boeing and understanding what the operational need is and creating the imperatives of understanding what that then meant to productionise and create scale. We've also clearly got a better understanding of what it takes to pull through to capability, working between Air Force, Boeing and CASG to pull through to capability with accreditation, safety criticality and other requirements. A business case for innovation can't just end at prototype, that's where the 'valley of death' is. It must be looked at holistically from the start to consider scaling and the underlying cost of scaling to pull through to capability and integrate into a broader system.

I think we've now got a very good example of continuous capability development and delivery and that starts with strong innovation. If you look at where we are today with the MQ-28, it is one of the most advanced CCA (cooperative combat aircraft) in the world. We've made it to a price point, we know its characteristics are the right characteristics, and we've aligned the mission to the outcome we're delivering. This has given us a clear view of where we're going to take this forward as an export opportunity and we know through things like the Australian Defence Strategic Sales Office will help us work together in unison to create those export opportunities.

What is the future focus of CASG?

The future focus of CASG is to be a world-class acquisition and sustainment organisation. I want to be the organisation that everyone looks to and says "how and why are they doing business that way and how can we do the same?". I want to be an exemplar on agile delivery on capability and an exemplar on the way in which we engage with industry. I want to drive defence industry policy to do business differently – and the measure will be a resilient industrial base here in Australia where we have built a strong mid-tier layer, where the relationships from prime to the mid-tier through to SME are clear.

We need to be careful that we don't try to solve every industry problem. We have to be very focused on the industry base that delivers the Defence capability and that's why the DIDS is a critical guide to considering the NDS as it shapes the priorities of our industrial base to be able to meet that demand required by the NDS and IIP. Underpinning what sits within the DIDS is acquisition reform, a focus on export opportunities, communication with industry and uplifting security. All of these are critical elements fundamental to being a nation that has the right industrial base to deliver the right capability in the right time frame to meet the strategic imperative articulated in the NDS.

BASE PROTECTION

OBSERVE, ORIENT, DECIDE, ACT: AIR-BASE DEFENCE IN THE DRONE ERA.

AIR BASES HAVE LONG BEEN A VALUABLE TARGET, where our most potent assets are static, concentrated, and at their most vulnerable. Defence's investment of $2 billion for critical air bases, in response to the Defence Strategic Review, recognises that risk and includes providing more hardened shelters for aircraft and security upgrades to bases across Australia's north. That investment is focused mainly on the threat from air or missile attack.

DroneShield's experience in Ukraine, where more than 1,000 of its systems are deployed, shows an emerging and increasing threat. Both Russians and Ukrainians have attacked air bases with unmanned aerial systems (UAS), or drones, and their success shows the need to respond to this growing challenge.

Drone activity above US airbases in the UK late last year shows that the threat also includes surveillance, intelligence gathering and disruption. UAS are asymmetric, posing a high level of risk at a relatively low cost to advanced platforms such as the F-35 and Wedgetail – where many billions of dollars of aircraft can be on a flight line. They can disrupt air operations and force closures of airbases with relative ease. It is a challenge the RAAF cannot ignore.

To effectively address the evolving threat, DroneShield advocates a C2 Mission System that follows Boyd's OODA (observe, orient, decide, act) loop, a proven decision-making cycle that underpins critical defence operations. DroneShield's DroneSentry-C2 Mission System provides a modular open systems architecture that enables effective countering of small UAS at the speed of relevance and the speed of evolving threat.

Observe. Early warning of approaching UAS, in the vicinity of four to 10km from key assets, gives the optimum time to assess threats and make proactive decisions. DroneShield's platforms allow alert zones to be set, providing automated notifications as threats approach key assets such as aircraft or fuel installations. Friendly UAS activity can be tagged to reduce confusion and improve operational clarity.

Orientate. Understanding drone behaviour is as important as detecting their presence. DroneShield's platforms use advanced AI and machine learning to analyse patterns in drone activity, including flight paths, loiter times and swarm behaviour, to enhance early threat recognition and prediction. This allows operators to move beyond reactive defence and start shaping proactive, intelligence-led responses. AI-enhanced behaviour profiling helps distinguish between friendly or hostile UAS, sharpening the effectiveness of both soft and hard-kill responses while reducing false alarms.

Decide. A layered approach to base defence provides the best chances of success. With technology developing so rapidly, no system is 100 percent effective against 100 percent of UAS threats. Much like a physical security system of fences, guards and cameras, a layered approach offers the best chance for success. Alongside integrated sensors, DroneShield's C2 enables decision-makers to identify and respond to threats. This picture should be held at the appropriate classification – in Base Operations Centres – to allow decision-making and threat assessment to be synchronised with activities such as air traffic control and help maintain a common operating picture for the entire air base.

Act. A choice of soft and hard-kill responses such as radio-frequency jamming and laser systems, through to microwave directed energy, provide flexibility and gives the best chance of success. Responses need to consider rules of engagement and collateral damage, particularly at bases near civilian populations.

Oleg Vornik, CEO & MD, DroneShield

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AS DEPUTY SECRETARY OF THE CAPABILITY ACQUISITION AND SUSTAINMENT GROUP (CASG), **CHRIS DEEBLE AO, CSC** IS FOCUSED ON STREAMLINING PROCESSES AND WORKING WITH INDUSTRY MORE EFFICIENTLY TO DELIVER CAPABILITY FASTER.

RISING TO THE CHALLENGE

You have extensive experience spanning the defence industry and commercial sectors and working with government. You've also served for 37 years in the ADF, most notably as an Air Vice-Marshal. To what extent has your Air Force career prepared you for your current responsibilities as DEPSEC CASG?

I've been very privileged in my career, having served in Air Force for 37 years and I think that's what's given me operational focus. The first half of my career involved flying the F-111 and having that operational focus enabled me to have a keen understanding of why this capability is important. If we look at the F-111, this was a significant deterrent globally at the time in terms of the European theatre, and particularly for South-East Asia, and the range of the capability that it offered.

An important context of this role is understanding those operational capabilities and challenges which help make sure you can deliver the right capability to the war fighter. During my time in uniform with Air Force, I had the privilege of running many big programs. These included the Wedgetail, which is now one of the best Airborne Early Warning and Control aircraft in the world. I ran the Collins Submarine Program, which was extremely interesting to work on, as at the time it was the best conventional submarine in the world, albeit it had problems, but we improved that capability. There was the Multirole Tanker Transport, which again went through some problems in its gestation, but now is the best tanker in the world. Finally, there was the Joint Strike Fighter program – significant in its capability and now in service with Australia. It will serve us well given the threats we are facing.

Additionally, having worked on capabilities like the OneSKY Program, a Civil Military Air Traffic Control capability, all of these experiences I have, from an operational perspective, were bought to bare in focusing on how I deliver the best capability to the war fighter, and that still drives me in my role as DEPSEC CASG.

As we look to the challenges we now face, it's not just about delivering capability and taking 10 years to do so, we have to work with speed to capability in our front of mind. I understand that operational is imperative, I understand the requirement to meet that war fighter's need and that of course is driving the way I am thinking about acquisition and procurement reform for CASG.

What are the challenges facing CASG at present?

The significant challenges we're facing is the operational environment, the context that we're facing within the Indo-Pacific which was picked up in the Defence Strategic Review and then encapsulated in the National Defence Strategy (NDS) 2024, and underpinned by the Integrated Investment Program (IIP) which outlined those capabilities required to meet the challenges within the Indo-Pacific. This means that we've got to do a couple of things. We have to deliver capability faster; the speed to capability impacts the way in which CASG acquires and sustains capability. There is also a significant challenge associated with making sure that our people are experienced, are professional, and that we have the right processes and procedures that we can deliver at speed. That speaks to procurement reform as we look to drive faster procurements and professionalise our people so they can meet that challenge.

So, in making CASG fit for purpose into the future, we need to be able to meet that evolving threat within the Indo-Pacific, and globally, making sure that we can deliver capability faster to the war fighter through minimal viable capability. We need to streamline our processes, ensuring that we work with industry in a far more efficient and effective way. We need to look at digital engineering and the digitisation of how we work, and we need to look at the professionalisation of our people.

Chris Deeble. Photo: © Defence.

The Washington office and London office for the Australian Embassy and High Commission respectively are the focal points for defence industry engagement providing support for procurement, foreign military sales (FMS), capability acquisition and sustainment policy and freight forwarding. What are the principle demands on the offices at present?

I think those offices and the roles of those offices is changing as we've seen a change in the political landscape both in the UK and in the US. As you look to the US, there are some fundamental changes in the way in which they're considering defence and their own national defence strategy, and we know that the UK is going through a strategic defence review of their own. Ensuring that we're aligned strategically will be critical. Underpinning this is AUKUS, which has two pillars. Pillar 1, where we're delivering a conventionally nuclear-powered submarine, is one serious piece of work that requires alignment across the three nations to be able to deliver that outcome. AUKUS Pillar 2 is where we're looking to work together differently across those three nations to deliver best-of-breed advanced capabilities, integrated across our three militaries into the future.

The way we do business through things like FMS with the US will continue. We've done a lot of work looking at cooperative programs equally. We now have a licence-free environment established which will evolve as we're moving forward to better facilitate how we do business. While much will stay the same, there will be some changes in how we look for more efficient and effective ways of being able to integrate our industrial bases. This means there will be a large focus on the way we're working collaboratively with the US and the UK. That will bring some challenges that will change some of the paradigms, and it will also change some of the priorities for how we best work together.

I think it will add a real dimension of 'whole-of-government' approach. So, when we look at an embassy in Washington or a high commission in the UK, working closely across the various elements that represent Defence in those environments (CASG, Strategy, Policy and Industry Group, Australian Submarine Agency, Guided Weapons and Explosive Ordnance etc.), and equally working with the Department of Foreign Affairs and Trade and other government agencies to ensure alignment. I think it's also important to note

that we're going to have a different focus on exports, working with the US and the UK to achieve the complementarity and integration of our industrial bases. Equally, it will be important to think about Europe more broadly, and non-traditional areas of doing business, to create export opportunity for our industrial base moving forward. The High Commission in the UK will be supporting our effort with the European Union, NATO and other opportunities.

Defence industry would often opine that both the cost and risk of doing business with Defence is high. What is CASG doing to reduce the cost of tendering and tighten the timeliness of the procurement decision process?

We're doing a number of things under our acquisition sustainment and procurement reform. Having been in industry, it is very clear that Defence drives a lot of paperwork which requires a lot of time. Under acquisition and procurement reform, we are aiming on being able to go to industry in a much more timely fashion, engaging with industry pre-gate. That pre-gate 0 strategy phase in the One Defence Capability System is an area that we're trying to streamline for greater engagement, so industry is prepared and ready for when the RFT [request for tender] hits the street. To that end, we're developing a Defence industrial intelligence capability which will allow us to better understand the marketplace and guide our initial strategy, helping avoid industry having to respond multiple times to the same sorts of questions from Defence. This will have an artificial intelligence (AI) element to analyse open-source data to be able to do that. But of course using AI in its own right is not enough, so we will add human intelligence, about what the market means in Australia and globally.

Our Australian Defence contracting framework (ASDEFCON) is a very complex environment and we've already started by reducing our demands on industry in responding to RFT's. We've reduced documentation by some 45 percent and the page count by a similar amount. What we found is when we looked at what we were asking industry for, often we did that thinking we were managing long-term risks. But, in fact we weren't, and we're now asking for only what's really required for industry to be able to respond and demonstrate why they should be selected in a much more succinct and appropriate way.

The next layer beyond rationalising ASDEFCON is rationalising the statements of work that are made up in those contracts. Thinking differently about how we go to market for our engineering and technical needs, balancing the demands in terms of documentation and reviews that need to be conducted whilst understanding programmatically how we tie that together to get an executable program.

The other thing we are looking at doing is digitising that contracting framework, adopting AI clause banks as is normally done in legal firms for commercial purposes. We're not going to throw the clauses out, but rather, get smarter at applying the right contract with the right context and level of complexity. These contracting frameworks will support more agile delivery, enabling continuous capability development and delivery. This will force us to think about how we better harmonise the transfer of acquisition into sustainment, how we think beyond IOC [initial operating capability] and FOC [final operating capability] to capability target states, and how we can deliver in a more agile way to get to minimal viable capability into the field more rapidly.

ABOVE Chief Defence Scientist Professor Tanya Monro, Chris Deeble and Chief Guided Weapons and Explosive Ordinance Group Air Marshal Leon Phillips on a tour of the CEA Integration Lab. Photo: Kym Smith/Defence.

The NDS is focused on transforming the ADF into an integrated focus force with a strategy of denial as the cornerstone of Defence planning. What is the impact of the NDS on CASG?

The NDS sets the priorities for Defence and clearly focuses in on what the force is and what are the requirements to be able to conduct our operations within the Indo-Pacific. The IIP then underpins that, articulating the projects and programs of work that will help deliver on the NDS. The next critical document is the Defence Industry Development Strategy (DIDS). The DIDS lays out the priorities for industry engagement to help deliver on those priority capabilities within the IIP. That is a significant

ENGINES PRIMED

PACIFIC AIRSHOW GOLD COAST IS SET TO THUNDER BACK TO SURFERS PARADISE FROM 15 TO 17 AUGUST 2025.

FOLLOWING A SUCCESSFUL 2024 EVENT that attracted more than 270,000 attendees and generated a $33 million economic boost, the Pacific Airshow Gold Coast has established itself as a fixture in Australia's aviation landscape. This year's theme, Bigger, Faster, Louder, foreshadows an ambitious 2025 program.

The 2024 event, the second iteration of the spectacle, demonstrated a compelling integration of military and civilian aviation. The RAAF delivered commanding performances, with the F-35A Lightning II exhibiting its stealth capabilities against the silhouette of Surfers Paradise's high-rise buildings, and Squadron Leader Scott 'Woody' Wood conducting a comprehensive demonstration of the F/A-18F Super Hornet's agility.

Contributions from allied forces included the USAF's F-22 Raptor, highlighting fifth-generation technology and the C-17 Globemaster, showcasing its heavy-lift capacity. A notable debut was the RAAF's 100 Squadron Canberra Bomber, a heritage aircraft flown by Air Chief Marshal (Retd) Mark Binskin. Restored after 12 years of inactivity and adorned in No 2 Squadron's Vietnam War livery, it flew low and fast.

"People often ask me what it's like to transition from fighters to a bomber," said Binskin. "I tell them it's actually quite fun. It's not as manoeuvrable as a fighter, but it's got a lot of power, especially when you're flying at 250 to 300 knots at low level. It's a beautiful experience, and when you start to push it faster, it's like a Harley-Davidson – you've got to be sure it's pointed in the right direction because that's where you're going to go."

Organisers are hopeful for continued ADF participation in 2025.

Civilian aviators provided equally impressive displays. Jeff Boerboon's Yak 110 executed precise aerobatic sequences, while Matt Hall, leveraging his Red Bull World Championship experience, performed intricate manoeuvres in his Extra 330LX above the beachfront. Greg Colyer's T-33 Shooting Star, a Cold War-era jet, made its Australian debut, its distinctive sound recalling aviation's early jet age.

The RAF Falcons and US Navy Leap Frogs parachute teams concluded the aerial program with disciplined descents.

In both 2023 and 2024, the event transformed Surfers Paradise into a vibrant viewing arena with spectators lounging on the sand or in prime positions in hotel suites and apartment balconies for views of the aerial action. Music pulsed from beachside cafes and sharp-witted commentators, especially world-renowned voice of Pacific Airshow Matt Jolley, delivered lively, insightful narration over the loudspeakers.

The 2024 event saw a 20 percent increase in ticketed attendance, filled local hotels to capacity and boosted commerce from Coolangatta to Noosa.

Aviation Alley engaged younger audiences with technological exhibits, while partnerships with the Westpac Lifesaver Rescue Helicopter Service and Surfers Paradise Surf Life Saving Club – confirmed through 2027 – supported coastal safety.

Pacific Airshow director Kevin Elliott expects an even greater turnout in 2025 and urged attendees to book in early. "I encourage everyone to lock plans in to ensure you're front and centre for what is anticipated to be another spectacular weekend," he says. "In 2025 one of the largest events in Queensland is going bigger, faster and louder and will unveil some exciting enhancements."

Gold Coast Mayor Tom Tate is enthusiastic about the event. "More than 270,000 people turned out across the three-day event in 2024, with the Gold Coast turning on its famous winter sunshine just in time for the non-stop aerial action and entertainment."

As we went to print, the 2025 Pacific Airshow Gold Coast was cancelled, see pacificairshow.com for updates.

REIGNITING THE PASSION FOR LEARNING

FLIGHT LIEUTENANT SKYE EMSLEY'S DEDICATION TO IMPACTFUL TRAINING EARNED HER THE CHIEF OF AIR FORCE INSTRUCTOR OF THE YEAR AWARD.

ABOVE Air Marshal Chappell, left, and Warrant Officer of the Air Force Ralph Clifton, right, present the Chief of Air Force Instructor of the Year award to Flight Lieutenant Emsley. Photo: Leading Aircraftwoman Paris Rigney.

FOR FLIGHT LIEUTENANT SKYE EMSLEY, a career as a pilot was always calling. Her journey from the small Yorke Peninsula town of Minlaton, South Australia to the Air Force was shaped by a deep respect for service, instilled by her Opa and Pa's naval careers. Their passion, coupled with the mentorship of a family friend and Air Force pilot, solidified her desire to serve.

"I joined the RAAF to fly the C-17, drawn by its unparalleled versatility and its crucial role in delivering humanitarian aid," Flight Lieutenant Emsley says.

In becoming an aviation physiology training officer at the Institute of Aviation Medicine in Adelaide, she discovered a deep satisfaction in instructing.

"I love reigniting the passion for learning, reminding students why and for whom we do this work," she says.

Her dedication to impactful training earned her the Chief of Air Force Instructor of the Year award, which recognised her pivotal role in equipping Air Force personnel with essential aerospace medicine knowledge for safe and effective operations.

"Joining the ADF was about protecting, serving and assisting, both at home and abroad," she says. "Now, I empower high-performing aviators to survive and thrive. Seeing the impact of my instruction in their world is incredibly rewarding.

"I strive to carry forward the legacy of my own inspiring Air Force instructor, WOFF Brenden 'Bear' Reilly. Importantly, as a mother of a young family, inspiring the next generation holds a special significance for me and I couldn't achieve this without their unwavering support."

Chief of Air Force Air Marshal Stephen Chappell presented Flight Lieutenant Emsley with her award.

"You should be justly proud of your actions as they are in keeping with the finest traditions of the Royal Australian Air Force and the Australian Defence Force," Air Marshal Chappell said.

Flight Lieutenant Emsley's commitment to inspiring future Air Force personnel is a thread that runs through her career. At her previous posting with 36 Squadron, she enthusiastically discussed her role on the C-17A Globemaster transport aircraft with Defence work experience participants.

"My involvement in the Aviation Program for Women and the Defence Work Experience Program has been a gateway into instructing," she says. "I love inspiring the next generation."

Flight Lieutenant Jessica Winnall

• To learn more about a career in the ADF, go to adfcareers.gov.au

EDITED BY Bob Treloar

The Airlander 10 hybrid airship on its maiden flight in 2016. Photo: HAV.

HYBRID AIRLINER

AFTER NUMEROUS SETBACKS, the Airlander 10, an aeroplane-airship hybrid designed by UK company Hybrid Air Vehicles (HAV) to be the world's most efficient large aircraft, could be in service by 2029.

A low-emission aircraft with more than 100 seats, the Airlander can remain airborne for five days, carry more than 100 tonnes of freight and does not require an airport for its operations. With a top speed of 130kph, it relies on a combination of aerodynamic lift and engine power for take-off and landing (like a plane), and buoyant lift provided by helium (like an airship).

Its uses could include regional air travel in Europe and tourism expeditions in the Arctic. HAV has begun work on a production site in South Yorkshire, with the aim of building 24 Airlanders a year, at a cost of about £140 million (A$275 million) each.

RAAF EXTENDS NSW RFS BASE ACCESS

DEFENCE HAS PROVIDED the New South Wales Rural Fire Service (NSW RFS) access to RAAF Bases Richmond and Williamtown and HMAS Albatross through to 2029 under an extension to the current access agreement.

NSW RFS is the world's largest volunteer fire service, providing fire and emergency services to approximately 95 percent of NSW. The extended access agreement will bolster its ability to respond to natural disasters.

Meanwhile, two ex-Army Black Hawk helicopters handed over to the NSW RFS in 2023 are yet to become operational. A NSW RFS spokesperson says the project to operationalise the gifted Black Hawks is progressing well. The first step, registering the aircraft on the civilian register, is expected to be completed shortly, allowing the RFS to move forward with using the helicopters for firebombing.

The Black Hawks have not been approved by CASA to carry non-military passengers, as they do not currently meet safety standards for civilian passengers.

Source: Defence Connect

LEFT One of two ex-Army S-70A Black Hawks gifted to the NSW RFS, repainted in RFS colours. Photo: NSW RFS.

TOLL TEAMS WITH SA GOVERNMENT

THE SOUTH AUSTRALIAN GOVERNMENT has contracted Toll Group to provide aircraft to support police, ambulance and rescue aviation services. The 15-year contract includes the provision of eight aircraft.

Two Bell 429 helicopters, a Pilatus PC12 NG and a Cessna C208B EX will be deployed to the SA Police Force, configured to support airborne law-enforcement missions. The PC12 NG is a long range, high-performance, pressurised aircraft and the C208B EX is a versatile aircraft capable of landing on sealed and unsealed surfaces.

Three Leonardo AW139 helicopters will be deployed to the SA Ambulance Service for search and rescue and emergency medical retrieval operations, and a PC12 NG aircraft for emergency aeromedical retrieval.

Toll Group, in partnership with the Royal Flying Doctor Service, will deliver specialised training for SA Ambulance Service, SA Police Service and Gunggandji Aerospace teams using high-fidelity flight simulators for pilots and crew, cabin trainers and XR Crew Procedural Trainers to prepare crews for emergency scenarios, and advanced mission systems for surveillance, search and rescue, and medical transport.

Initial operational capability for fixed-wing services is required by November 2026, with full operational capability for rotary-wing services in October 2027.

DEVELOPING DEFENCE DRONES

A NEW DRONE delivery project is being led by the North Australia Centre for Autonomous Systems (NACAS) at Charles Darwin University. Supported by the Queensland Defence Science Alliance, it will focus on solving the technical, logistical and regulatory challenges of integrating large, heavy-fuel cargo drones into the battlefield operating system.

NACAS will work with Queensland uncrewed aerial systems manufacturer SAIDYNAMICS to adapt a hybrid two-stroke engine drone for long-range, cold-chain cargo operations.

Source: Australian Defence Magazine

IMAGES FROM SPACE

A SOUTH AUSTRALIAN SATELLITE has delivered its first images from space. Deployed on SpaceX's Transporter-11 mission last August, the Kanyini satellite is in low Earth orbit and has been closely monitored by the mission control team at Inovor Technologies, based in Adelaide's Lot Fourteen innovation district.

The Kanyini mission is Australia's first state-owned satellite and is a joint initiative between the SA Government, SmartSat CRC, Inovor Technologies and Myriota. Since launch, the team has been working through the commissioning of the satellite's systems, confirming that the solar panels and batteries are functional and X-band radio communications are operational.

Source: Australian Defence Magazine

ABOVE The Coorong, SA from Kanyini.

INVESTING IN DECARBONISATION TECHNOLOGIES

IN APRIL, Qantas and Airbus jointly committed to invest $15 million in Climate Tech Partners (CTP), a climate-focused venture capital fund, to accelerate the development of sustainable aviation fuel (SAF) and other aviation decarbonisation technologies. The investment will be made from Qantas and Airbus' US$200 million (A$313m) partnership, which was established in 2022 to help accelerate SAF production.

The initiative aims to help bridge the gap Qantas and Airbus have identified between early-stage climate technologies and at-scale commercial production in Australia. It will focus on technologies for SAF production, feedstock development and other value-chain innovations and will leverage the diverse skills of its 12 partners, which include industries ranging from energy generation to infrastructure.

AIR NEW ZEALAND DREAMLINER REFIT

AIR NEW ZEALAND received the first of its retrofitted 787-9 Dreamliners in April after a six-month stay in Singapore. ZK-NZH was the first 787-9 Dreamliner in the world to undergo a full nose-to-tail refit, with redesigned economy and premium economy seats and an updated business cabin with the new Business Premier Luxe product.

The refitted plane entered service in mid-May following testing of the new inflight entertainment system and a full crew ground trial to rehearse onboard service.

The airline was the launch customer for the 787-9 in 2014. Air New Zealand says retrofits of its 14 Dreamliners are expected to be completed by the end of 2026.

ABOVE New Business Premier Luxe.

MANAGING THE DRONE AGE

AUSTRALIA IS PROVIDING UNIQUE AND USEFUL TESTING ENVIRONMENTS FOR COMMERCIAL DRONE USE, BUT NOT WITHOUT SOME CHALLENGES.

WORDS Noel Forsyth

AIRBORNE DRONES or unmanned aerial vehicles (UAVs) are a versatile technology, with new applications emerging across a variety of sectors. Construction, mining, energy and agriculture are using drones to improve accuracy and save on the time and cost of data collection.

While not yet among the primary global players, such as the US, China and Israel, Australia has embraced the technology. Vast open landscapes and some unique operational challenges make it an ideal testing ground for drone technology in areas such as mining, agriculture, remote infrastructure inspection, policing and emergency response.

Managed by the Civil Aviation Safety Authority (CASA), Australia's progressive regulatory framework for drones has aided the development of commercial applications. We are one of the few countries that have allowed beyond visual line of sight (BVLOS) drone operations, which is essential for wide-ranging commercial drone usage.

There are now about 1.5 million drone flights a year in Australia, according to Airservices Australia, the federal agency responsible for managing local airspace.

INFRASTRUCTURE MAINTENANCE

Drones are increasingly being used for remote visual inspections and maintenance of large infrastructure, enabling workers to avoid potentially hazardous environments. Drones can operate in isolated areas, providing real-time situational awareness by streaming live video to operators at remote control centres. They have been used in the maintenance of major infrastructure projects such as solar and wind farms, multi-storey complexes, mobile towers, substations, tracks, bridges and maritime beacons. The footage and information they collect is used to determine the need for basic maintenance, preventative planning and future remedial action. Sydney's Harbour Bridge is now surveyed and maintained using artificial intelligence (AI)-equipped drones, with the technology to be rolled-out for more bridges across NSW.

Equipping drones with AI so they can fly themselves rules out human error, potentially raising the safety bar. With AI control, drones can fly within 10cm of an obstacle and assess which areas it can and cannot fly in. The latest drone technology can render a three-dimensional map of bridge components to make it easier to identify specific areas that require maintenance. So far, 21 drone pilots have been trained to operate the Sydney Harbour Bridge maintenance system, resulting in a reduction in inspection costs and improved safety for bridge maintenance staff.

MINING & AGRICULTURE

Drones have become an essential tool for the mining industry, from surveying to monitoring production and providing intelligence in safety incidents and emergencies. Drone data is being used to provide accurate estimates of mineral reserves and stockpile volumes, improve precision placement of drilling and blasting operations and improving the overall efficiency, safety and productivity of mine operations.

Agricultural drones are designed to carry

equipment such as sensors, sprayers and cameras for crop monitoring, pest control and mapping. Their payload capacities typically range from 2kg up to 30kg.

While spray application by drone currently costs roughly three times more by weight than conventional methods, highly targeted application reduces waste. Drones can map water flow for optimal dam placement and survey crops to identify areas of low yield.

POLICING, SEARCH & RESCUE

Police forces use UAVs to improve situational awareness. At an active crime scene, autonomous drones help police make informed decisions and can be sent into dangerous situations ahead of officers on the ground.

In searching for missing persons or criminals, airborne drones can cover larger areas with fewer personnel, making for more efficient patrols and faster response times. Capturing aerial footage of a crime scene provides investigators with a comprehensive overview, which is helpful in piecing together events and evidence collection. Drones can search wide areas using thermal imaging, helping to find missing persons in remote and inaccessible areas.

In natural disasters, drones can fly over affected areas to capture high-quality images and videos, speeding up the assessment of the disaster's extent and severity. This assists in prioritising where help is needed most urgently so resources can be allocated efficiently for a faster, more targeted response. Drones can reach areas that are dangerous or hard to access, such as unstable structures, flying at low altitudes and through tight spaces to provide up-to-date information without putting lives at risk. Real-time images help response teams locate survivors in disaster-impacted areas.

For ocean search and rescue, drones can transmit live data to control centers, detect sharks, drop sea-marker dye to track objects or people in the water, and broadcast alerts to swimmers who may be in danger.

RETAIL DELIVERIES

The biggest retail and food drone delivery service in Australia is operated by Wing Aviation, a subsidiary of Google's parent company, Alphabet. It launched its first trials in 2018 before starting more commercial flights the following year in Canberra and the Gold Coast.

The company is based in South-East Queensland, where it operates more than 60 delivery drones. Wing claims drone delivery is cheaper than road delivery and reduces carbon emissions. It predicts drones could eventually deliver more than 25 percent of take-away food orders.

In several trial areas, Wing has drone fleets based on the rooftop of shopping centres where a single operator can be responsible for flying up to 50 drones at a time. As the drones are highly automated, the focus isn't on piloting individual drones, but more about overseeing the regional delivery map.

In July 2024, Wing began operating a drone delivery service from the Eastland Shopping Centre in Melbourne, allowing nearby residents to order products from 20 individual stores using the DoorDash smartphone app.

Since November 2024, customers in several Gold Coast suburbs have been able to receive drone deliveries of select grocery items from a local Coles supermarket. Wing says it intends to gradually expand the Coles partnership.

The other operator with current CASA approval is Swoop Aero, which is using drones to deliver pharmaceutical products to regional areas. However, poor or non-existent internet reception in remote areas is proving a barrier for delivering to rural communities where it would be most beneficial.

COMMUNITY RESISTANCE

Julia Powles from the University of Western Australia has been studying drone delivery tests since 2018. She believes community resistance to increasing drone use is likely to be a barrier for the expansion of drone delivery companies.

In late 2019, more than a thousand Canberrans sent a petition to the ACT's Legislative Assembly demanding an end to

OPPOSITE
A drone with a camera mounted for search and rescue.

BELOW
Doordash parcel delivery.

DRONE WEIGHT CLASSIFICATIONS

Depending on the weight of your drone, you may need to have a qualification or accreditation. Anyone can apply for a remote pilot licence (RePL), but you only need one if you want to be a remote pilot for an individual or business that holds a remotely piloted aircraft operator's certificate (ReOC). In all cases, drone operators should register their drone with CASA and download a CASA digital remotely piloted aircraft (RPA) accreditation for the wallet on their smartphone. If you fly without the appropriate operator accreditation or an unregistered RPA, penalties will apply.

MICRO (250g or less) & VERY SMALL (250g-2kg) – can be flown for business or as part of your job without a RePL or ReOC.

SMALL (2-25 kg) – can be flown over your own land for business or as part of your job, provided you do not accept any type of payment for the services without a RePL or ReOC.

MEDIUM (25-150kg) – can be flown over your own land for business or as part of your job, provided you do not accept any type of payment for the services. However, you must have an RePL for your drone type and model.

Source: casa.gov.au

the Project Wing Drone Delivery Trial, along with any future drone delivery trials in the ACT. Petitioners cited the limited public feedback process, lack of transparency, potential risks to pets and wildlife, and a compromised "right to peace, privacy and quality of life". Locals complained about the noise, which they compared to that of a lawnmower, stating that properties surrounding those receiving deliveries would be subjected to drone noise of about 55 decibels.

Although there were no injuries or property damage recorded during the trial, one drone did attempt to deliver a package onto a car that was parked in a usually clear space. Several drones also had to make unscheduled landings due to high winds.

In 2021, Wing's drone deliveries were suspended over the spring months because nesting crows were disrupting their deliveries.

COMMUNICATION BLACK SPOTS

Losing communication with a large commercial drone would be disastrous.

RULES FOR RECREATIONAL DRONE OPERATORS

- You must not fly your drone higher than 120m above ground level.
- You must keep your drone at least 30m away from other people and never fly it over another person.
- You must only fly one drone at a time.
- You must not fly in populous areas, such as beaches, parks, events or sport ovals during games.
- You must not fly your drone in a way that creates a hazard to another aircraft, person or property.
- Keep your drone within visual line-of-sight. This means you must always be able to see it with your own eyes. Don't fly through cloud, fog or smoke.
- You must not fly your drone over or near emergency operations including ambulance, police, search and rescue, or firefighting efforts.
- If your drone weighs more than 250g, you must not fly within 5.5km of a controlled airport.
- You must not fly your drone within 1.4km of a helicopter landing site.
- If you fly your drone commercially, extra rules apply. Your drone must be registered and you must get a license or accreditation.

Source: casa.gov.au

In an effort to overcome that issue, Israeli company, Elsight has developed the AI-powered Halo communication system to automatically switch connection between a range of internet providers including Telstra, Optus and even via satellite, such as Elon Musk's Starlink system. The Halo system is now in use to direct Walmart's drone delivery services in the US. By using a combination of overlapping networks, drone operators avoid dropouts, even over long distances. The Halo system is also used by Sphere Drones, which works with agricultural and mining operations. A major Optus outage in November 2023 caused outages in critical services across the country, but Sphere's drones flying above a mine in the Hunter Valley stayed in the air by automatically switching to a functioning network.

LEFT Drone Inspections WA uses ground-penetrating radar technology to inspect mining sites across the Pilbara region.

BELOW Crop spraying.

REGULATION & OVERSIGHT

Governments and aviation authorities are grappling with the need to strike a balance between fostering innovation and ensuring safety and privacy, but the goalposts are moving as quickly as the new technology and its applications.

Drones were first legalised in the US for commercial use in 2016. Since then, drone technology and capabilities have quickly outpaced the regulatory frameworks that govern them. In Australia, CASA conducts safety checks for drones in much the same way as for local airlines. Wing's approval was granted after a rigorous safety assessment by CASA, which confirmed its operations met all local aviation safety requirements. The approval was granted with strict conditions including daylight operating hours only, a ban on crossing over major roads and a minimum distance the drone must maintain from people on the ground.

RESEARCH & DEVELOPMENT

Australian universities and research institutions including University of Sydney, Monash University and Queensland University of Technology are engaged in leading-edge research on drone technology with focuses on autonomy, incorporation of AI, and new industrial applications.

Australia's relatively small population and vast size poses challenges for drone deployment on a national scale. However, our unique environment also presents opportunities, as drones can be used for remote-area monitoring and service delivery in ways that would be less workable in the skies above densely populated areas.

Aerial drone technology in Australia is poised to revolutionise several key industries as drones offer enhanced safety, efficiency and cost-effectiveness. As regulatory frameworks evolve and technological capabilities expand, the future of drones in Australia looks promising, paving the way for more precision, data-driven solutions across diverse sectors.

BATTLE OF BRITAIN COMMEMORATION

HOBART, TASMANIA

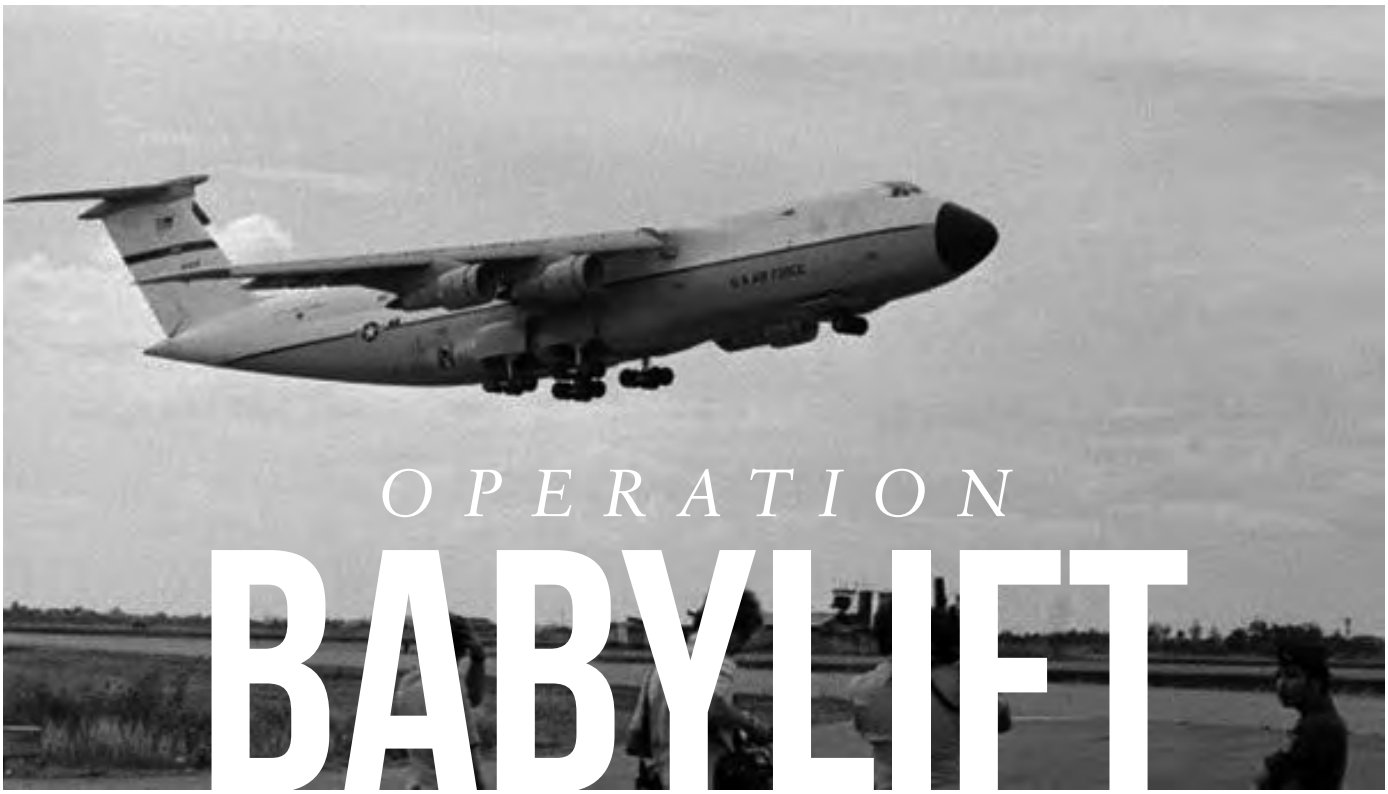
• 12-14 SEPTEMBER 2025 •

The RAAF Association, Tasmania Division extends to all Air Force members, past and present, and their partners and guests an invitation to participate in the 85th Anniversary of the Battle of Britain.

There will be several events over the weekend, including a formal dinner on Saturday 13 September.

For more information visit the website: www.raafatas.org.au or email: events@raafatas.org.au

To book go to: https://events.humanitix.com/battle-of-britain-commemoration-2025



OPERATION BABYLIFT

AT THE END OF THE WAR IN VIETNAM, THE RAAF HELPED TO EVACUATE HUNDREDS OF ORPHANED BABIES AND CHILDREN, ALONG WITH OTHER REFUGEES.

THE RAAF PLAYED A SIGNIFICANT HUMANITARIAN ROLE during the final days of the Vietnam War in 1975. As the situation in South Vietnam rapidly deteriorated, with the North Vietnamese Army advancing towards Saigon, South Vietnam's population was moving all at once, fleeing the approaching enemy and seeking safety to the south, hoping for a way out.

The South Vietnamese ambassador to the United Nations asked United States-led forces for help in relocating thousands of orphans, many of them bi-racial, who had been brought to Saigon.

Among hundreds of thousands of refugees, Saigon was crowded with abandoned and orphaned children. Very few doctors were available, most having been seconded to war work, and the mortality rate for children, particularly orphans, was extremely high. There was a fear that a bloodbath would ensue when the communists took over, particularly for children born of American soldiers and Vietnamese women. The US Government was keen to be seen to be doing something good for the South Vietnamese. As a last gesture of support and friendship for the South Vietnamese, it committed to the evacuation of 3,000 orphans from Saigon.

The Australian Government formed RAAF Detachment S (S for Saigon) committing C-130 Hercules and C-47 Dakota aircraft to operate from Saigon, later Bangkok, and Butterworth, Malaysia, initially providing aid to refugees around South Vietnam.

The first Babylift operation for the RAAF took place on 4 April from Tan Son Nhut airfield, Saigon. Children in reasonable health, who could endure a long air journey, were taken on a US Air Force C-5A Galaxy to the US. Those in more fragile health would undertake the shorter journey to Australia and more than 200 children, babies and their escorts were on the first C-130 air lift from Saigon.

Tragically, soon after the Galaxy took off, it experienced a loading ramp lock failure and catastrophic decompression at 23,000 feet, resulting in a crash that claimed the lives of 138 people, including babies, young children and two Australian women, Lee Makk and Margaret Moses, who had volunteered to help with the children.

It wasn't clear what had caused the crash, so the crew of the RAAF Hercules took off with some trepidation. Their aircraft was loaded with 107 babies. The smallest were placed in cardboard boxes serving as improvised cots, packed side by side on the floor with the loadmaster securing each row of boxes with a tie-down strap.

A few hours later, the two Hercules

TOP The first USAF C-5A Galaxy departing Tan Son Nhut Air Base, Saigon with orphans bound for America, before it tragically crashed.

arrived at Bangkok safely and disembarked 194 children and the three doctors and 20 nurses who had tended the infants. Other RAAF Hercules brought some 80 Australian civilians, mostly embassy officials and their families, from Saigon. The children were later flown to Australia aboard a chartered Qantas B-747 under medical evacuation conditions. They were collected by adoptive parents who had been previously approved by state and territory adoption authorities.

On 14 April, enemy artillery fire ignited the bomb storage area at Bien Hoa airbase in a massive explosion, just 30km from Saigon. No longer safe in South Vietnam's capital, the Australians decamped for Don Muang Airport near Bangkok, Thailand, where they took up residence, flying into Tan Son Nhut each day to carry out operations and returning to Bangkok each evening.

Don Muang Airport, a combined civilian-military airport north of Bangkok, was a hive of activity as humanitarian agencies stockpiled relief supplies for transport to Saigon. Working on the civilian side of the airport in the sweltering cargo bays of their aircraft in stifling Bangkok heat, the Australian crews started exhibiting signs of heat exhaustion and were moved to the military side of the airport, where better facilities eased their task a little.

The second RAAF Babylift sortie was conducted on 17 April, with the support of a team of nurses flown from Australia on a Qantas B-747 to Thailand to assist with the carriage of the orphans to Australia. The nurses split into two teams, one flew on a RAAF C-130 to Saigon to

ABOVE RAAF aircrew comfort babies with bottles before take-off during the second airlift of orphans. From left, FLTLT Ian Frame, FLTLT Hugh Howell and FLGOFF Ian Scott. Photo: AWM.

LEFT
A RAAF C-130E Hercules on the tarmac at Tan Son Nhut, Saigon on 4 April 1975 – the second of the two RAAF Hercules that participated in Operation Babylift that day.

LEFT
Operation Babylift.

BELOW
South Vietnamese refugees crowd the cargo compartment of a RAAF Detachment S Hercules in April 1975. Photo: Australian War Memorial (AWM).

meet and sort the babies into categories of age and level of care required. The second team stayed in Bangkok, assisting with the reconfiguration of the B-747 for the evacuation flight to Australia.

Ending that part of the operation, the Australian airmen remained to carry out airlifts coordinated by the United States Aid Organisation. The Australians were joined by a detachment of Royal New Zealand Air Force personnel flying Bristol Freighters and later C-130s. Together, as they flew emergency food, medical and other relief supplies to some 40,000 refugees now crowded into a former POW camp at An Thoi on Phu Quoc Island, near the South Vietnamese/Cambodian border, they witnessed the Vietnam War's dying days in all its bloody confusion.

On Anzac Day 1975, the last three RAAF flights landed in Saigon. The war was entering its final days. Just before 7pm, the Australian Ambassador Geoffrey Price and the last 10 of his Australian staff members were flown from South Vietnam, along with 15 Vietnamese refugees and nine Australian journalists. Earlier flights carried a small group of orphans and 34 Vietnamese nuns.

Left behind were some 130 Vietnamese who had approval to be flown out, along with another 30 former employees of the Australian Embassy. Loyal staff who had served Australia for years were left to their fate.

More than 200 people – air and ground crew, equipment and administration personnel, nurses and other medical staff – flew on operations during the RAAF's final involvement in the Vietnam War. Some flew into the Laotian capital, Vientiane. Like Cambodia, Laos had been dragged into the war only to share in a crushing defeat.

By the end of April 1975, the three countries which had comprised the territory of the former French Indochina – Vietnam, Laos and Cambodia – were under communist control. Despite this outcome and while facing significant risks, the RAAF personnel involved in these humanitarian efforts worked tirelessly to ensure that as many people as possible were evacuated safely.

With acknowledgement to RAAF Radschool Association Magazine Vol 80, Pg 13 (November 2023), RAAF Association Victoria, the Australian War Memorial and Department of Veterans' Affairs.

RAAF'S HUMANITARIAN AIRLIFT

For the US and its allies, the Vietnam war ended on 27 January 1973 with the Paris Peace Agreement and resulted in the withdrawal of their forces from South Vietnam. However, for the Vietnamese, the war continued until the South Vietnam Government surrendered on 30 April 1975.

A day before the surrender, on 29 March 1975, the South Vietnamese Government advised the Australian Government that refugees were pouring into Danang following increasing attacks by North Vietnamese forces and requested assistance.

Headquarters Richmond Detachment S had been formed, comprising Nos 36 and 37 Squadrons flying C-130 Hercules aircraft from RAAF Richmond and C-47 Dakota aircraft of Transport Support Flight from Butterworth, Malaysia. Initially, the detachment comprised two C-130 Hercules from each squadron and two C-47 Dakotas, but within a fortnight it had expanded to include six more C-130 aircraft.

In response to the request, Hercules aircraft from both squadrons were despatched the same day, initially to Butterworth and then to Saigon, to conduct humanitarian operations.

Detachment S was tasked to transport civilian refugees from the front lines to safety. To maximise the number of passengers, no seats were fitted and over several days in April 1975, the RAAF detachment evacuated more than a thousand civilians from Phan Rang to the safer southern town of Can Tho. While on the tarmac at Can Tho, one of the aircraft was mobbed when a salvo of rockets landed a few hundred metres away and a guard, firing into the air to try to control the crowd, put his bullets through the Hercules' tail.

The humanitarian airlift concluded with a last scheduled flight from Saigon on 25 April 1975, when the Australian Ambassador and staff were flown out. A subsequent flight on the same day was flown to Saigon to pick up four Airfield Defence Guards remaining at the airport.

The RAAF's conduct of the operation demonstrated the vital role military forces can play in providing humanitarian assistance during times of crisis and the chaos of war.

In 1997, the Department of Veterans Affairs published the Nominal Roll of Vietnam Veterans without including the RAAF personnel who conducted the humanitarian operation in 1975. In 2002, the nominal roll was extended to include Detachment S participants.

While some memorials around Australia, including the Shrine of Remembrance in Melbourne, and the Veterans Commemorative Walk in Seymour, have amended reference dates for Australian participation in the Vietnam War to '1962 – 1975', veterans of the airlift continue to seek recognition of Detachment S with the addition of '1975' to the dates on the Australian Forces National Memorial in Canberra.

No 37 Squadron Association will commemorate the 50th anniversary of the airlift at the Australian War Memorial on 23 July 2025.

Source: AFA Contact Newsletter (Volume 80 Issue 1). With acknowledgement to Geoff Rose and the Vietnam Veterans Branch, the Australian Way Memorial and Department of Veterans' Affairs web sites, and the Air Force Association – Victoria.

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OUR GREATEST FIGHTER ACE

A PERSONAL ACCOUNT OF WWII SPITFIRE PILOT GPCAPT CLIVE CALDWELL, DELIVERED BY **PETER COLLINS AM, RFD, KC.**

IN 1943 MY LATE FATHER, RON COLLINS, had his own war going: with bureaucracy. Ron was determined to join the RAAF but had to be released from a vital wartime industry; making metal folding beds. His sister Grace was part of our rapidly expanding military aircraft production, and he was keen to catch up.

After the personal intervention of the Minister for Labour and National Service, Ron Collins was selected for aircrew training. He always told me his proficiency at mathematics preselected him for navigator training; he also qualified as a wireless operator and air gunner, and that combination put him in the backseat of an Australian-made Bristol Beaufighter destined for the South West Pacific Area with No 22 (City of Sydney) Squadron.

At the time, mid 1942, the Beaufighter was "the most heavily armed fighter in the world" (Lex McAulay, *The Battle of the Bismarck Sea*, Banner Books, 2008). Equipped with four 20mm cannon under the nose, six .303 inch (7.7mm) machine guns in the wings and capable of carrying bombs and rockets on underwing pylons, it could deliver formidable firepower. It was fast, robust and relatively long range.

In its day, the Beaufighter was very much the equivalent of today's Super Hornet with two crew, two engines and a tough reputation. It was soon known as the Whispering Death to Japanese forces, especially those at sea on troop transports. No 22 Squadron, together with 30SQN, formed a hard-hitting low-level attack force as part of the First Tactical Air Force (TAF) under the leadership of

Air Vice Marshal William Bostock whose extraordinary career spanned landing on the original Anzac Day in 1914; the Australian Army's mounted Division; and the Royal Flying Corps on the Western Front in 1917 – all in just two years.

The Beaufighters shared parallel runways with the Spitfire Wing based at Morotai which became a massive strategically placed staging point for the island-hopping campaign which would wind back Japanese victories (including the earlier American defeat in the Philippines). The Spitfire Wing was led by Group Captain Clive Caldwell DFC, known famously as 'Killer' Caldwell, a title earned by destroying 27.5 enemy aircraft, but a title he wore uncomfortably.

My father never met Caldwell, but every Australian knew exactly who he was: our greatest hero of the air, the stuff of legend, of headlines and magazine covers. A fighter pilot's role model. As a child of the Baby Boom, I was made aware of Clive Caldwell well before I went to school.

My working life has been a very public one – the media, the law, politics and finance – and I have made a point of meeting and studying leaders. In addition to my Waverley classmate General Sir Peter Cosgrove, three stand out: my Commando CO Harry Smith; Sir John Collins – father of the modern Australian Navy; and Clive Caldwell, our top scoring fighter ace.

I made a point of meeting Killer Caldwell just before I became treasurer of NSW, inviting him to lunch at Parliament House. That would be the first of several meetings, and we struck a rapport which lasted until his death in August 1994. I won his trust sufficiently to get permission to write his life story. Managing the state's finances as treasurer 1993-95 prevented me from writing his story, but I did gain a deep personal insight from our discussions and unparalleled access to his personal collection. Two other writers did complete books on him at that time; Geoffrey Watson and Kristen Alexander.

Caldwell was from a well-off background. He attended Sydney Grammar School and Trinity Grammar, was a NSW Athletics champion, and married well – for life – in Jean Main from a grazing property in the Central West. He was as Sydney as our other fighter hero, Bluey Truscott, was Melbourne – both athletes, both feted, both leaders their pilots would follow anywhere.

When I asked Clive whether they had ever met, I received a very considered reply. Indeed, they had. The higher scoring Caldwell met Truscott with his pilots during a brief lull in operations in New Guinea. Caldwell was then the chief advocate of shadow shooting, which he had fine-tuned above the Western Desert. Aerial gunnery was practised on the shadow cast on the ground by an aircraft flying ahead. The technique worked well in clear conditions but obviously not in poor light, rain or misty conditions when a pilot could easily lose reference to the horizon. Four decades later, Clive still remembered Bluey's rather dismissive attitude. Truscott and his men were holding back superior Japanese aircraft in the treacherous and ever-changing skies of New Guinea. Bluey gave the technique a try, but within weeks a number of aircraft had crashed into the ocean while shadow shooting in very grey conditions.

By the time Caldwell came back to Australia from North Africa and the Middle East, he had 20.5 kills (post war another was added) and was the highest scoring P-40 ace of WWII. With Australia's north under direct Japanese attack in early 1942, he was recalled to lead the fighter defence of Darwin commanding No 1 (Fighter) Wing comprising three squadrons of newly arrived Spitfires (452SQN and 457SQN RAAF; and 54SQN RAF).

On his first interception from Darwin, he downed two Japanese aircraft (and would later add another five). However, the Spitfire Vc (Mk.5 with 'C-Type' or universal wing) didn't quite live up to operational expectations in the tropics – they tended to overheat and were under-gunned against the surprisingly superior Japanese Zero fighter.

Never one to hold back, Caldwell set out to fix the problem. In North Africa, he had test flown the P-40 fitted to carry a bomb thus creating a fighter bomber – in the field of operations. So, in Darwin, he approached the US Air Force which supplied a quantity of .50 calibre machine guns to replace the .303 guns that armed the Spitfire. Of course, he had his own aircraft fitted first to test the upgrade and see if there were any problems before ordering modifications to his fighter wing.

When then Chief of Air Staff, AVM George Jones learnt of the unauthorised changes, he summoned Caldwell to explain. Jones apparently felt the mere fact that Darwin and Broome were being bombed – with over 400 killed – should not serve as an excuse for breaching departmental procedures. From the comfort and serenity of his headquarters in leafy St Kilda Road, Melbourne, the Chief ordered Caldwell to report to his office "forthwith".

As soon as his personal aircraft could be readied, Caldwell strapped into his

ABOVE Caldwell (far left) and members of No 112 Squadron with one of the unit's Kittyhawks, January 1942. Photo: Australian War Memorial.

Spitfire and flew south down the middle of the continent, refuelling along the way, flying over Victoria's Western Districts, getting into Melbourne to be seated outside Jones's office before the Chief's morning arrival. At a civilised hour, Jones was somewhat startled to find his Darwin fighter boss already there. "Caldwell, what are you doing here?" "Sir, you told me to report forthwith". It was never going to be a warm relationship.

In just two years, after joining the RAAF in May 1940, Caldwell had become the highest scoring Allied ace in North Africa and was now commanding a fighter wing providing the air defence of Australia. Whereas Jones, a WWI pilot was a career officer, who would head the RAAF throughout WWII taking it from a scandalously under-resourced force to end as the fourth largest air force in the world (only to be quickly disassembled after the war).

Caldwell told me that the time he enjoyed most was in North Africa and that he worked very well with the RAF, where he rose to command 112SQN (with the iconic Shark's Mouth P-40s). He was acclaimed by RAF Air Commander, AVM Arthur Tedder as "an excellent leader and a first-class shot".

Caldwell also worked exceptionally well with the Americans led in Australia by MAJGEN George Kenny who commanded the Fifth Air Force (and was later first to head USAF Strategic Air Command). They spoke the same language. Kenny appreciated that the Spitfire struggled in the tropics.

When the threat against Australia eased, Caldwell was asked to visit the United States where he and his wife Jean spent a short time in Hollywood before visiting New York to attend a "rock star" reception at the Curtiss-Wright factory in Buffalo – home of the P-40. The visit by the top scoring P-40 ace of any air force had the allure of a political rally for a presidential hopeful.

After a spell, in 1943, commanding Operational Training Unit Mildura, Caldwell returned to Darwin to lead No 80 (Fighter) Wing, with the much-improved Spitfire VIII, which moved north with the Allied capture of Morotai. The world was changing quickly, and very much so for Caldwell and his pilots. Unknown to Caldwell, he had already claimed his

ABOVE Group Captain Caldwell at Morotai. A scoreboard on his Spitfire records the number of enemy aircraft he destroyed. Photo: Australian War Memorial.

LEFT Flight-Lieutenant Caldwell of No 250 Squadron RAF, Libya, late 1941. Photo: Australian War Memorial.

last kill, a Japanese DINAH bomber over Darwin on 17 August 1943.

The might of US air power, including new B-29 bombers (which would end the war at Hiroshima and Nagasaki), operated from Morotai before deploying north. General Kenny had great respect for the effective fighting force which the 1st TAF had become under RAAF Commander Bostock – but Bostock was being undermined by AVM Jones at every turn. (Kenny recommended Bostock for the first ever Medal of Freedom for an Australian).

Bostock always saw his TAF moving forward with the US Fifth AF to conquer Japan. So did Kenny. But Jones forbade it, and so relegated the most powerful and operationally experienced element of the RAAF to mopping up operations against remnant, determined and dangerous pockets of Japanese forces still capable of destroying RAAF aircraft, but of no strategic value or effect. The RAAF losses sustained achieved nothing in prosecution of the war.

Caldwell and several senior officers brought the demoralising abuse of their combat capability into sharp focus by announcing they would basically resign and return to Australia if they were no longer required for war fighting. Kenny had no time for Jones, but was powerless – it was an Australian call. While Caldwell survived the so-called Morotai Mutiny, Jones was fed up with him and wanted him brought down to size and Jones had the support of his minister throughout the war.

Caldwell was charged with trafficking liquor – a relatively modest quantity but as Clive put it to me, about "as many bottles of spirits as the number of enemy planes I shot down". He readily admitted to me that alcohol was a currency to repay favours, trade for better American equipment or goods – it was a pretty universal practice. However, the Commission of Inquiry by Barry KC officially knee-capped a national hero and busted him from Group Captain to Flight Lieutenant (in US terms 0-6 down to 0-3). It was a calculated humiliation that shocked Australians. His case made the lead news story in January 1946 as the world demobilised, my father included.

No-one objected. Jones got a knighthood, and the RAAF applied an airbrush to downplay the achievement of Caldwell. No airbase is named after him in Australia's north where he led the air defence. I would hope that eventually that happens and that his "conviction" is set aside. Clive Robertson Caldwell deserves that and more. Determined, single minded, ruthlessly good at his martial art, he embodied the Australian fighting spirit in the air. A man of iron.

When my father was demobilised at Bradfield Park in Sydney in early 1946 as a flying officer, he remembered a crowded makeshift officers mess where young men shared a final drink together. Sitting by themselves on one table was a group of Permanent Air Force officers – one of them a Kingsford Smith relative – who dismissively handed back a proffered drink tray saying "There you go, you lot are the Tin Ring. We are the Iron Ring".

They were the bureaucrats: aircraft in; aircraft out. Airmen in; airmen out and the cadre of young warriors honed by leaders such as Caldwell were discarded and left to their own devices.

Caldwell showed us that Australians can be the best there is, that ordinary Australians can step up and do extraordinary things. What a privilege to know that man.

I know, too, that spirit lives on today in this room. You are the descendants of Caldwell and have the fearless qualities he embodied. You have been – like him – at the tip of the spear where it can go either way in the blink of an eye; making decisions alone and instinctively. Putting it on the line.

An edited transcript of A Personal Anecdote speech by The Hon Peter Collins AM, RFD, KC to the Fighter Squadrons' Branch ANZAC Day lunch, Sydney 2024

PETER COLLINS

PETER COLLINS, the son of 22SQN navigator Ron Collins, was brought up with RAAF history: his Dad's WWII Beaufighter experience in PNG, 23SQN Mustangs at Archerfield and early Sabre and Canberra jets at Amberley.

Peter served in Sydney University Regiment while studying Arts then Law. He transferred to 1 Commando Company after being commissioned and qualified as a military parachutist.

As an ABC-TV journalist, he covered Defence and was the first journalist to fly in the F-111 in Australia; as well as the RAN's A-4 and S-2 aircraft operated from HMAS *Melbourne*.

Peter joined the RAN Reserve as a lieutenant in 1975 and went on to serve for 37 years in Public Relations and Maritime Control of Shipping portfolios, Naval Intelligence, and Legal services.

He was the first Reservist to serve as Fleet Legal Officer of the RAN.

From 1995-2000, he was also appointed Honorary Colonel of 1 Commando Regiment – the only naval officer to be so honoured. He wrote the Commando history *Strike Swiftly* published in 2005 when standing by to deploy to the Gulf.

Peter left the Navy as a captain in 2012.

Peter served in the NSW Parliament for 22 years; was a minister for seven years including Health, Attorney General and Treasurer; also Deputy Leader and later Leader of the Opposition.

Following politics, Peter spent 18 years as a director of super fund HOSTPLUS and as chairman of Industry Super Australia. He has served on many boards in both public and private sectors.

He is an avid student of modern military history and military aviation.

A GROWING COLLECTION

A SHORT HISTORY OF THE MOORABBIN AIR MUSEUM.

IN MARCH 1962, a small group of interested people composed mostly of Australian Historical Aircraft Society (AHAS) members, travelled to the Melbourne Lord Mayor's children's camp at Portsea to inspect a Bristol Beaufighter (A8-328) that was to be sold for scrap. The group was informed consideration would be given to donating the aircraft, which was in very poor condition, to a constituted body such as the AHAS, that was known to have no interest in collections.

That spurred the group to form the Australian Aircraft Restoration Group (AARG), which was subsequently inaugurated on 13 March 1962, with the aim of preserving Beaufighter A8-328 and other aircraft. The acquisition of A8-328 was pursued and the aircraft was moved to AARG's initial scene of operations at a member's property at Wandin, north-east of Melbourne in August 1962.

Operation of the AARG Museum was shifted twice before a display site was leased from the Department of Civil Aviation at Moorabbin airport in 1965. During that interim period, a CA-1 Wirraway, CA-6 Wackett Trainer, DH60 Gipsy Moth, Percival Proctor and DH-82a Tiger Moth were donated, while an Avro Anson and Gloster Meteor TMk7 were acquired.

In the following years, more aircraft came into the collection. The most spectacular arrival was an ex-Royal Australian Navy Fleet Air Arm Fairey Firefly that was flown in during February 1967. AARG decided every aircraft or artefact acquired had to be relevant to Australian aviation history, and that became the collection policy and gave the museum a sense of purpose.

By the early 1980s, the collection had grown to 30 aircraft, but as the museum was an open-air display, weather was starting to play havoc with the condition of the aircraft. As there was no action on the touted National Aviation Museum in Victoria during the late 1970s and early 1980s, the museum directors realised positive steps were needed to ensure the long-term well-being of the collection. By 1988, with all surplus museum assets sold, an 8,000 square foot hangar was erected, followed by an extension to 12,000 square feet. Other amenities including a workshop, library and store, together with an entry building and shop, had also been built.

At that time, the museum was a founding partner with the Justice Department of Victoria's community-based orders program, giving individuals the opportunity to complete community work in lieu of incarceration.

The collection increased at the rate of one airframe annually until by the early 2000s it amounted to 66 airframes of which 35 are on display with the other 31 in storage, on loan or in restoration.

TODAY'S COLLECTION

Significant Australian-produced aircraft in the museum include the following.

Commonwealth Aircraft Corporation: CA-1 Wirraway, CA-6 Wackett, CA-17 P51 Mustang, CA-25 Winjeel, CA-27 Sabre, CA-28 Ceres agriculture aircraft, CA-30 Macchi, CA-31 fast jet trainer, CA-32 Kiowa helicopter and CA-36 Pazmany being the

last aircraft to bear the CA designation, designed and built by apprentices.

DAP/Government Aircraft Factory: Bristol Beaufighter and Beaufort, Canberra, Jindavik, Mirage and Nomad.

de Havilland Australia: DHA-3 Drover.

Others: DH82a Tiger Moth, Duigan replica, Victa Airtourer and the Yoeman Cropmaster Y1.

Significant imported aircraft include:Boeing B737-200, complete forward fuselage half; Bristol B170 Freighter; Consolidated Catalina; Curtis P40 Kittyhawk; DH112 Sea Venom; DH114 Heron (prototype); DH115 Vampire; Douglas DC2 and DC3; Fairey Firefly and Gannet; General Dynamics F-111C escape module and Vickers Viscount 800 series.

The collection also includes 36 aircraft engines covering radial piston, V8 and V12 piston, gas turbine including Junkers Jumo, turbo prop and ultra-light. There is also a JAP V4 believed to be the oldest example of a dedicated aircraft engine, that was used by Victorian Laurie Marshall in his 1909 attempt to be the first Australian to design and build an aircraft. The engine itself was positively identified by Laurie Marshall junior in the 1980s.

Other ancillary features on display are an interactive Douglas DC-9/30 flight simulator; two Link Trainers and an authentic set of original BE2 wings still with original paintwork discernible.

A number of the display aircraft are accessible to visitors, to not only walk up to and touch, but also to sit in cockpits and/or cabins. These include the Bristol Beaufighter and Freighter; Boeing B737-200; CA27 Sabre; DH112 Sea Venom; Fairey Firefly; GAF Canberra; General Dynamics F-111C Escape Module; Gloster Meteor; Vickers Viscount; and Aerospatiale Dauphin and Kiowa helicopters.

Several annual events staged by the museum are open to the public, including an Open Cockpit Day, Wings and Wheels Day and a Modeller's Show.

The museum participates in the Avalon Air Show with a display presenting an overview of its activities that includes an aircraft, engines, artefacts, aviation art and literature. The 2023 effort won the Best of Show award.

The museum maintains support of youth programs with the Museum's Winjeel Group, Scouts and Australian Air League, together with the staging of an annual Aviation Careers Day and an annual 'Engineering the Skies' day for schoolgirls interested in aviation.

LEFT Early days

BOTTOM Restored Beaufighter A8-328.

Over the years, the museum has been recognised with awards, the most prestigious being the Museums Australia 1985 Museum of the Year Award.

The museum has approximately 800 members and attracts about 40,000 visitors annually, It has a dedicated YouTube channel that, together with the quarterly *Insight* magazine, keeps the membership updated on museum activities. A dedicated team of volunteers keeps the museum ticking with ongoing restoration work, maintaining the archives and manning the reception desk and store.

The museum is on the verge of embarking on a major up-grade. Stage 1 will consist of a new museum building on 4,000 square metres of land over the road from the existing site. This will house a Civilian Collection Gallery and means that for the first time all of the collection's aircraft and artefacts will be under cover. It will also include a comprehensive archive, and research and library centre. Stage 2 will be the future re-development of the existing museum site.

The museum was known as the Australian National Aviation Museum for years, an entity that had no geographic location. To identifying the location of the museum, it was decided to officially use the name that had been in use for ages, the Moorabbin Air Museum. This became official in October 2021.

Al Craigie, Curator of the Moorabbin Air Museum

WHAT'S IN A NAME?

A BRIEF EXPLANATION OF THE SOMEWHAT CONFUSING PROFESSIONAL DESCRIPTORS IN THE WORLD OF ACCOUNTING AND TAX.

MANY PEOPLE SEEK THE SERVICES OF AN ACCOUNTANT, principally for the preparation of tax returns and obtaining related tax advice. These service providers use all manner of descriptors, including chartered accountant, certified practising accountant, public accountant, tax accountant, registered tax agent or just plain accountant.

The obvious question is what the descriptors mean and whether the services on offer differ in important ways that might benefit or detrimentally impact their clients. This article seeks to explain and demystify them.

At the outset, you should note that there are no clear boundaries or widely adopted conventions in the accounting and tax advisory professions about the use of designations and descriptors. Nevertheless, armed with the information that follows, you should be in a better position to make informed choices when it comes to identifying a suitable accountant who is willing and able to be your tax return preparer/adviser.

Comedian John Cleese of *Fawlty Towers* and *Monty Python* fame was in no doubt about his thoughts on accountants. He offered the world an enduring, entertaining and, some might say accurate, description of the subset of accountants known as chartered accountants. He described them as "appallingly dull fellows, unimaginative, timid, lacking in initiative, spineless, easily dominated, no sense of humour, tedious company, irrepressibly drab and awful; and whereas in most professions these would be considerable drawbacks, in chartered accountancy they are a positive boon."

The genius of his humorous description is that it distils the essence of what many people think (accurately or not) about accountants. Given this pretty ordinary and commonly held public image, why do people still consult them about financial matters? The answer appears to lie in the public perception that (most) accountants can be trusted to act and advise in their clients' best interests, even though trust has been severely tested in recent decades, given the involvement of some members of that profession in major financial scandals.

Whatever your reaction to Cleese's irreverent opinion, it's helpful to have an understanding about the qualifications and background of any person from whom you're seeking tax advice and to have educational information that can help you to form an opinion about the extent to which they can be trusted to advise you in your best interests. So let's go through the short list of descriptors outlined above.

QUALIFIED ACCOUNTANTS

An individual calling themself chartered accountant, CPA or public accountant should be a member of a professional association that allows them to use those words. The relevant associations are Chartered Accountants Australia New Zealand (charteredaccountantsanz.com), CPA Australia (cpaaustralia.com.au) and the Institute of Public Accountants (https://www.publicaccountants.org.au) respectively. Entry to the accounting profession via these associations requires considerable tertiary study (typically via an undergraduate university degree and postgraduate study), ongoing professional development and adherence to a code of ethics.

These individuals, provided they or their firms are also a registered tax agent/s (more on this below), will offer tax return preparation services and related tax advice. Usually, they will also offer a wider range of financial services, including complex tax advice, corporate/business strategic advice, management consulting

but it's a common enough problem of which you should be aware (and enquire about) when seeking out the services of a qualified accountant.

TAX ACCOUNTANTS

Tax accountant is a general or shorthand term often used to describe a person or firm that prepares tax returns. It is not a professional qualification given by a professional body and there is no professional designation attached to it. That doesn't necessarily suggest that a person who uses the term tax accountant is unqualified or unsuitable to look after your tax affairs. However, it's wise to ask such a service provider about their qualifications, business model and the types of tax advisory service they offer.

REGISTERED TAX AGENTS

Service providers who use the term registered tax agent (RTA) are licensed by a federal government agency. They must have undertaken rigorous training in taxation law, must undertake ongoing professional education and are bound by a code of professional conduct. You can find more about these requirements at the Tax Practitioners Board website (tpb.gov.au), including a complete list of RTAs.

It's important to note that registration as a tax agent is required at all levels of the accounting profession where tax returns are prepared/lodged and tax advice is offered.

> "Get in writing the scope of the service you require and the fees you will be charged...

and estate planning services which are typically not offered by businesses that are simply promoting themselves as registered tax agents.

The potential downside here is that if your financial and tax affairs are simple, they may not be a good fit for highly qualified accounting firms whose business models and fees are often designed to service high-net-worth individuals, wealthy families or businesses with complex problems. As a result, it may be that you'll be a rather unimportant client paying an unnecessarily hefty fee for the preparation of a simple tax return.

Of course, that is not always the case, however, it's likely that where a provider describes their service offering as a registered tax agent, they will be offering more of a volume or process-driven tax return preparation service (with some advice) for clients with simpler financial affairs who are conscious of not paying high levels of fees.

ACCOUNTANT

On rare occasions, because the word accountant is not a legislatively recognised (or reserved) term, it is used by service providers who have no accounting qualifications at all. Therefore, it's wise to check the qualifications of anyone who claims to be a mere accountant. However, as a general rule, like the term tax accountant, "my accountant" is widely used by members of the public when referring to the person or firm who looks after their tax affairs.

The key point (as always) is to take your time, ask questions, get in writing the scope of the service you require and the fees you will be charged. Even ask a friend or colleague for a referral to a service provider they have come to trust. But never stop being a sceptical consumer of professional services because no one will take your taxation obligations more seriously than you.

FINANCIAL ADVICE/ PLANNING

Just to complete a rather complex picture…Many people are unsure about how to identify a licensed financial adviser (aka planner). Adding to the complexity, some qualified accountants and RTAs offer personal financial advice under their own Australian Financial Services Licence or under the licence of a third party, in addition to tax return preparation and related tax advisory services. And some licensed financial advisers/ planners offer a wider accounting service within an integrated service offering, or at least have a commercial or referral relationship with a qualified accountant/s.

The main thing is to understand in whose interests the various services are being offered. Sometimes (more often than occasionally), the tax/ accounting service is used to promote financial products, real estate and mortgages being marketed by an integrated service provider of which they are a part. This is not illegal, but it will be important for you to understand how the various parties work together, whose interests are being served, how the various parties are remunerated and by whom.

Air Commodore Robert M C Brown AM FCA (Retd).

BACK TO SPACE CAMP

ONE GIANT LEAP HAS RESUMED ITS ANNUAL SPACE TOUR USA.

IN LATE 2024, a group of enthusiastic young space explorers embarked on an incredible journey from Australia to the United States with One Giant Leap Australia's (OGL) Space Tour USA, where students immersed themselves in a series of educational and entertaining experiences.

It was the first OGL USA tour since the annual tours were put on hold due to Covid. Previously, trips to Space Camp USA were a staple for OGL; they were the impetus for the creation of the organisation. "These tours are life changing experiences for students, we knew we wanted to take them back again," says OGL Education and Outreach Manager, Jenna McCarthy.

For the students, it was worth the wait. Finn, 16, said it was "genuinely the most amazing experience of my life… just better than I could ever imagine".

Students from public, private and independent schools across Australia joined the tour which began in Sydney. Some were air cadets, others were looking into becoming bioengineers. For 16-year-old Eve, a space career is the ultimate goal. "I'm going into my senior years next year and will be working very, very hard and studying a lot to get into university in the United States. My whole career goal is to be an astronaut."

The group visited the California Science Center, beginning with an educational workshop and then a tour the facility, including viewing the space shuttle *Endeavour*.

Day three featured a guided tour of the La Brea Tar Pits and Museum, one of the world's renowned paleontological research sites, where the bones of various animals have been preserved in the tar.

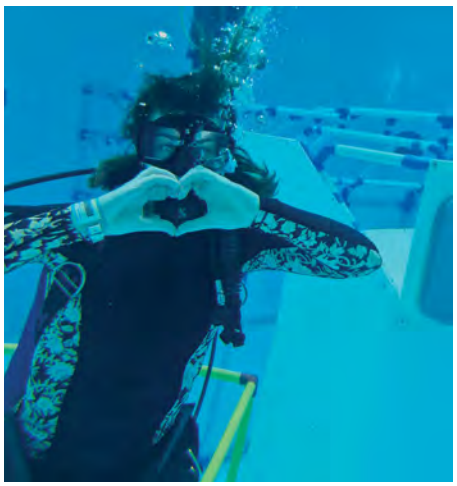
At the Griffith Observatory, they were treated to spectacular views of Los Angeles, while engaging with fascinating exhibits and looking through powerful telescopes. The day included live shows at the Samuel Oschin Planetarium. "Everyone in the group got excited when we arrived at the observatory and we found out while we were at one of the telescopes that a solar flare was visible," says Jenna.

An international collaboration with Serrano High School gave the students the opportunity to experience a day in the life of an American student.

There was also plenty of fun, including a day at Disneyland to enjoy exciting rides, including piloting the Millennium Falcon at Disney's Galaxies Edge. Meeting beloved Star Wars characters such as R2-D2 and Chewbacca added to the intergalactic experience.

The students were becoming a cohesive team by this stage. "Collaboration is so important for the aerospace industry", says Jackie Carpenter, Director of One Giant Leap Australia. "It is something we really focus on in all our programs. Without collaboration and communication, there is no teamwork and systems break down."

The next stop was Huntsville, Alabama for the five-day Space Camp. "Seeing the students working together as a team on their missions at Space Camp was a joy", says Jenna. "I honestly could have spent hours just watching them discuss their roles at Mission Control, who would fly



OPPOSITE
Space Camp USA. Photo: John Bigelow.

FAR LEFT
Astronaut training underwater at Space Camp.

LEFT
Visiting Galaxy's Edge at Disneyland.

LEFT
Australian students learn about all aspects of aerospace at Space Camp USA.

RIGHT
Mission Control at Space Camp.

the shuttle and so on. It's fantastic to see the students so immersed in their activities and focused on the best way to complete their missions."

Space Camp is an immersive experience that fosters teamwork, confidence and deep learning about space exploration. Participants learnt about complex topics such as the technology behind the James Webb Space Telescope and the various roles played by professionals in Mission Control. Intricate concepts became a collective challenge for the students to tackle together. Engaging with one another, their discussions focused on ensuring each mission was completed as efficiently as possible. In this environment, the students not only gained knowledge about space, collaboration and leadership, but also insight about themselves.

"The significance of programs like these for young people cannot be overstated", says Jackie. "Successful students also had the cost of their trip substantially reduced thanks to Electro Optic Systems (EOS), and will do so again this year."

Executive Vice President of EOS Space Systems, Dr James Bennett says EOS is dedicated to nurturing the next generation of Australian space engineers and scientists. "We actively support STEM education through various initiatives including internships, scholarships and contributions to scholarship programs.

"We are proud to have supported One Giant Leap and their Space Tour initiative. Providing students with experiences that spark their imaginations and inspire them to consider future careers in the space industry helps shape the future of technology and exploration."

Students have already been selected for the next EOS scholarship for Space Tour USA 2025. Later this year, students including Angus from Tasmania and Kyra from Victoria, will have the opportunity to join Space Camp.

Angus says: "I feel very proud of myself to win the scholarship. It feels very good to accomplish something I worked very hard for. I believe this opportunity could help me achieve great things one day."

Kyra is equally excited. "I feel so privileged to have been selected for this incredible opportunity. Attending Space Camp has been a dream of mine… it's not just helping me get to camp, it's helping me take a huge step towards my future in space."

Jenna McCarthy was impressed by the evolution and development of the students as individuals and as a team.

"Initially, students were apprehensive and nervous but they knew this was a fantastic opportunity to learn new things and to just be themselves," she says.

"When the students returned to Australia, parents were overwhelmed at the students' newfound enthusiasm. They really have gone through a shared experience, and no-one else can know what that is like, the experience is truly life changing."

To find out more about One Giant Leap Australia's Space USA tours visit onegiantleapaustralia.com and spacecampaustralia.com.au.

SELF-TAUGHT DRONE RACER

HOW A REGOINAL CADET'S PASSION FOR DRONE RACING TOOK FLIGHT.

FOR CADET FLIGHT SERGEANT CONNOR SCOBIE, standing on the competition line at Avalon 2025, drone controller in hand, was the realisation of a dream that began two years earlier. Encountering with the world of drone racing at Avalon 2023 sparked a passion that is now shaping the young Australian Air Force Cadet's life.

Connor began researching everything he could about drones. His parents supplied a starter drone, but it wasn't long before he was ready for more. He downloaded a drone racing simulator and began self-learning freestyle tricks.

Living in Ballarat, in regional Victoria, meant drone racing was not very accessible, so Connor had to be creative. With limited local racing clubs or mentors nearby, he searched online forums and Facebook groups and tracked down drone racing communities in Melbourne, often travelling for hours with his family for the chance to race alongside others.

He found a group of welcoming drone racers who were quick to offer support and guidance. One experienced flyer took him under his wing, offering advice, spare parts and encouragement, shaping Connor's technical ability.

In two years, Connor went from a curious newcomer to a self-taught, highly proficient drone racer. He spent hours behind a drone simulator, took long drives to Melbourne, and employed plenty of hands-on trial and error, soldering, tinkering and rebuilding after every crash. All that dedication led him to the Avalon 2025 drone racing display as a competitor, thanks to the connections he had developed with the Australian Army Cadet Drone Racing team. Against many seasoned flyers, Defence personnel and fellow cadets, Connor, AKA MadDog, delivered outstanding performances. He secured second place in the cadet-only category, and clinched third in the military category, outpacing highly trained Defence pilots.

Throughout the event, Connor spent as much time helping others as preparing for his own races. He supported a friend and fellow cadet, ensuring she had spare parts, and cheering her and fellow team mates on as they navigated the challenges of the competition.

"All I wanted to do was go there as a cadet and fly," Connor says. "I had no expectations about what I was going to achieve, just being there was the dream. Winning trophies was an amazing bonus."

Since his success, Connor's opportunities have multiplied. He's preparing for new challenges, including qualifying for national-level races, and a trip to Western Australia.

Back at his local Australian Air Force Cadet (AAFC) squadron with 4 Wing and

school, Connor is determined to share all he has learnt. He's founded a school drone club, introducing classmates to the world of drone racing and drone technology, sparking a new wave of STEM enthusiasm among his peers and encouraging other young people to give it a go.

He is especially excited about the future of drone racing within the AAFC and is eager to watch the developing Remotely Piloted Aircraft Training School program grow. Looking ahead, he hopes to help establish an AAFC drone racing team.

CUO Aashini Rastogi,
4WG Headquarters, AAFC

RIGHT Connor being presented with a trophy by Air Vice-Marshal Nicholas Hogan CSC, Head of Air Capability

BELOW LEFT Connor with fellow drone racers.

Proudly Supported by the Fighter Squadrons Branch, AFA NSW Division.

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woundedheroes.org.au

Community Group of the Year 2025
Wounded Heroes Australia

WORDS by Brian Grinter AAL

AUTUMN CAMPS

RIGHT Cpl Jesse Hooper of Marrickville Squadron achieving his first solo flight.

ABOVE The Victoria Group's April Gliding Camp saw 10 cadets undertake flight training at Bacchus Marsh Airfield.

IN THE APRIL SCHOOL HOLIDAYS, the NSW Group of the Australian Air League (AAL) held a five-day flying camp at the Air Activities Centre at Camden Airport, NSW. Twelve student pilots from squadrons across the state attended to build and consolidate on their training. They had all commenced their flying training at previous camps and this camp provided the opportunity to work on achieving the next stage of their license. They were assisted by a team of nine instructors, with ground staff to ensure the camp ran smoothly.

Cpl Jesse Hooper of Marrickville Squadron and cadet Adam Hung from Epping Squadron achieved their first solo flights, while L/Cdt Christian Laudicina of Manly Squadron and L/Cdt Michael Yousseph from Camden Squadron completed their first training area solo flights.

In total, the cadets completed 53 flights and just over 51 hours of flying during the camp and several are now working towards their Recreational Pilot Licence that will allow them to fly as pilot in command with a passenger, without supervision in the local training area.

Head of Operations Charles Droudis said the camp was by far the most successful in recent years, with positive all-round outcomes for the students.

"Our ground staff need to be commended for their commitment in keeping the camp going. Their everyday tasks are thankless," he said. "Our flying instructors are dedicated to safety as well as their craft, in guiding these young teenagers into becoming tomorrow's aviators. As we are purely a voluntary organisation, and all staff have busy lives and careers, we are always on the lookout for the right volunteers to assist our organisation into the future."

The Air League's Air Activities Centre at Camden is owned and operated by the NSW Group of the AAL, with a fleet of training aircraft, including a Piper PA-28 Warrior, Cessna 172 and Cessna 152.

Meanwhile, at Bacchus Marsh Airfield, the Victoria Group of the Air League held a three-day gliding camp attended by 10 cadets from squadrons across Victoria, as well as an adult volunteer who also joined in as a student. Four of the cadets had attended the spring camp last October, for the other six it was their first introduction to gliding.

The first day began with a briefing and rundown of ground operations, before commencing flying operations. The experienced cadets acted as ground crew for the entire camp, launching and retrieving gliders as well as recording flight details. The new cadets also learnt how to handle gliders on the ground, conduct launch operations and retrieve gliders after their flights.

Although the second day was challenging with windy conditions, and showers of light rain interrupted the final day, the new cadets were all able to complete five instructional flights on the camp, while the other cadets were able to continue their training.

A number of theory lessons were conducted by Geelong Gliding Club instructors and Air League officers, which assisted students in starting on the Gliding Australia theory syllabus. Each participant was also able to sit the Air League's Air Activities Gliding badge assessment and a number of badges were awarded.

SHEPPARTON OFF TO A FLYING START

THE NEW SHEPPARTON SQUADRON of the AAL commenced operations in February and is off to a flying start with 11 cadets aged eight to 12 years signed up and several more undertaking a free trial before joining. In addition, three adults have stepped forward to undertake officer training and four more have volunteered to join the branch committee to assist with fundraising and supporting the squadron.

Meeting at the Goulburn Valley Aero Club at Shepparton Airport, the squadron is in an ideal location with plenty happening at the airport. It might be a visit from Air Ambulance Victoria with their Agusta-Westland AW-139 or a hands-on opportunity to inspect a light aircraft to learn about flight controls for the cadet's first education badge.

In the lead up to Anzac Day, the squadron assisted the RSL Victoria Anzac Appeal, selling badges at the local shopping centre. Over two weekends they assisted in raising $5,000.

ABOVE State Member for Shepparton Kim O'Keeffe MP meets some of the cadets from Shepparton SQN at the Anzac Day Appeal.

ABOUT THE AUSTRALIAN AIR LEAGUE

The Australian Air League is a youth group for boys and girls aged eight years and older who are interested in aviation as a career or a hobby.

In the Air League, they learn about aviation in all its forms through classes in the theory of flight, navigation, aircraft engines and a variety of subjects. The Air League also aims to enable them to achieve their full potential and become better citizens who can effectively serve the community.

With squadrons in most states, the AAL has been serving the community in Australia since 1934. It is entirely self-funding and is staffed by volunteers.

airleague.com.au; phone 1800 502 175

MELBOURNE AIRPORT VISIT

AT THE END OF 2024, Niddrie Squadron in Victoria had the privilege of an exclusive behind-the-scenes tour of Melbourne Airport, getting a unique glimpse into the bustling operations of one of Australia's busiest airports.

The day began with a tour of the control tower, where the cadets had the opportunity to see the air traffic controllers at work, managing the complex choreography of aircraft arriving and departing.

Next, the cadets were given an up-close look at the state-of-the-art firefighting equipment and learnt about the vital role airport firefighters play in ensuring airport safety. The highlight for many was the chance to ride in the fire trucks.

The final stop was a photo opportunity with a parked Emirates Airbus A380. Standing before the colossal aircraft, the cadets were filled with awe and inspiration, dreaming of the day they might take to the skies themselves.

ABOVE Cadets visited the airport firefighters.

WORDS Flight Lieutenant (AAFC) Paul A Rosenzweig OAM

AIR FORCE BIRTHDAY

SEVERAL AIR FORCE CADETS from No 6 Wing supported the RAAF Birthday Sunset Wreath Laying service at the Air Force Memorial at Torrens Parade Ground, Adelaide on 31 March, marking the 104th Anniversary of the formation of the Australian Air Force.

The ceremony was hosted by Group Captain Robert Black AM RFD (Retd), Acting President of the Air Force Association (SA Division), in the presence of the Acting Senior Air Force Representative SA, Air Commodore Tim Alsop.

The Air Force Ensign, which flew at half-mast for the service, was then raised by an Air Force Cadet. Cadets formed the Catafalque Party and Honour Guard, and individual Cadets fulfilled roles as Ensign Orderly and Wreath Layers, and reciting the poem *High Flight* by Pilot Officer John Gillespie Magee Jr.

ABOVE 6 Wing Cadets with Air Commodore Tim Alsop.

STAFF HONOURS

LATE LAST YEAR, an Officer Commanding No 6 Wing Bronze Commendation was presented to Squadron Leader (AAFC) Dennis Medlow. Dennis began his service as a civilian instructor in 2014 but, with a strong background in gliding, he soon became involved with AAFC gliding activities. The commendation recognises his early outstanding contribution to the Cadets of 6 Wing through his conduct of gliding operations.

Through his uniformed service, SQNLDR(AAFC) Medlow has continued as an aviation instructor with 604 Squadron in Adelaide, and has also served for several years as Head of Operations – Gliding with Aviation Operations Wing. He was presented with an Officer Commanding AOW Commendation in recognition of his "ongoing commitment and dedication"

RIGHT SQNLDR(AAFC) Medlow with the insignia of his OC AOW Commendation.

FAR RIGHT FSGT(AAFC) Victorsen receives the ACFSM from FLGOFF(AAFC) Tautz.

in his role as Head of Operations for Gliding.

Late last year, the Australian Cadet Forces Service Medal (ACFSM) was presented to Flight Lieutenant (AAFC) Ivor Harris by FLTLT(AAFC) John Young, the Flight Commander of Warwick Flight of the Elementary Flying Training School. Although FLTLT(AAFC) Harris has been in uniform for more than 15 years, his association with the Air Training Corps (now the AAFC) commenced at Warwick in 1974.

Another recent recipient of the ACFSM, Flight Sergeant (AAFC) Deborah Victorsen, the Personnel Officer with Amberley Flight of the Elementary Flying Training School, was presented with her medal by FLGOFF(AAFC) Jack Tautz, the Executive Officer of Amberley Flight.

ABOVE FLTLT(AAFC) Harris receives the ACFSM from FLTLT(AAFC) Young.

GLIDING TRAINING

IN JANUARY, Bathurst Glider Training Flight, NSW conducted a series of gliding training courses. The Bathurst flight is one of the three Centres of Excellence of the Gliding Training School (GTS) of the AAFC's Aviation Operations Wing. GTS delivers glider flying experiences and training using the AAFC's fleet of DG1000S gliders.

LEFT
Day One of the Bathurst Glider Training Flight January flying course.

AVIATION EVENTS 2025

JUNE

16-22

Paris Air Show, Le Bourget, France
Bringing together stakeholders from around the world, the first four-days are for trade visitors, followed by three days for the general public.
siae.fr/en

© Anthony Guerra

21-22

Dayton Air Show, Ohio, USA
Featuring the US Air Force Thunderbirds, food and fun for fans of all ages
daytonairshow.com

23

International Women in Engineering Day
Recognising the contributions women engineers make to the profession and inspiring more females to pursue a career in engineering.
engineersaustralia.org.au/learning-and-events

JULY

14-27

Exercise Talisman Sabre
Talisman Sabre is the largest bilateral combined training activity between the ADF and the United States military
defence.gov.au/defence-activities


© Defence

21-27

AirVenture 2025, Oshkosh, Wisconsin, USA
Daily air shows feature precision aerobatics, the latest innovations, rare and unique flying examples, warbirds and vintage showcases.
eaa.org/airventure

27

Korean Veterans' Day
The anniversary of the day in 1953 when an armistice was signed to end the fighting in Korea. It's a time to remember the almost 18,000 Australians who served in the war, including some 340 who lost their lives.
anzacportal.dva.gov.au/commemoration/days

AUGUST

15

Victory in the Pacific Day
Marking Japan's unconditional surrender to the Allies after more than three years of war. A time to reflect on the important role that Australians played to end the war in the Pacific region.
anzacportal.dva.gov.au/commemoration/days

© Defence

16

ADFA Open Day, Australian Defence Force Academy Campus, Campbell ACT
An oportunity for prospective Navy, Army and Air Force candidates, family and friends to learn about life and study at ADFA.
defence.gov.au/news-events/events

18

Vietnam Veteran's Day
On the anniversary of the Battle of Long Tan in 1966, we remember the sacrifices of those who died and thank almost 60,000 Australians who served during the 10 years of our involvement in the Vietnam War.
anzacportal.dva.gov.au/commemoration/days

31

Malaya and Borneo Veteran's Day
Remembering the service and sacrifice of Australian military personnel who served in the Malayan Emergency and the Indonesian Confrontation. The Australian War Memorial Roll of Honour lists the names of 61 Australians who lost their lives in those conflicts..
anzacportal.dva.gov.au/commemoration/days

SEPTEMBER

03
Battle for Australia Day
anzacportal.dva.gov.au/commemoration/days

15
Battle of Britain Anniversary and Commemoration, Hobart
raafatas.org.au/battle-of-britain

20
Temora Aviation Museum's September Aircraft Showcase, Temora, NSW
aviationmuseum.com.au/events

27-28
RAAF Base Richmond Air Show, NSW

OCTOBER

15
2025 ADM Women in Defence Awards, Canberra
admwomenindefenceawards.com.au

18
Temora Aviation Museum's October Aircraft Showcase, Temora, NSW
aviationmuseum.com.au/events

NOVEMBER

04-6
Indo Pacific International Maritime Exposition
indopacificexpo.com.au

11
Remembrance Day

18-20
MilCIS Expo & Conference, Canberra
milcis.com.au

GROUP CAPTAIN PETER GRAHAM SMITH DFC, U.S. AIR MEDAL

28 May 1938 - 24 November 2024

PETER (PETE) SMITH was born in Coffs Harbour, NSW, and attended Newcastle Boys High School. His father was a member of the RAAF during World War II, working on Wirraway aircraft, sparking Pete's desire to join the Air Force.

In 1953, aged 15, he enlisted in the RAAF and trained as an electrical apprentice on "Mango" course at RAAF Wagga. On completion of his apprenticeship, Pete was posted to No 36 Squadron to work on Dakota and then Hercules aircraft.

He applied for pilot training and was posted to No 38 Course Pilots' Course in January 1960. In April 1961, he was awarded his wings and joined No 76 Squadron for fighter training on Vampire aircraft, followed by Sabre aircraft. During that time, he was trained as a ground Forward Air Controller (FAC). After two and a half years, he was posted to No 78 Wing, Butterworth, Malaysia, flying Sabres with a secondary duty as Brigade Air Support Officer with No 28 Commonwealth Brigade.

Following a three-year tour in Malaysia, he returned to Australia to undergo Mirage conversion. Postings to Nos 76 and 3 Squadrons at RAAF Williamtown followed.

In October 1967, Pete was posted to South Vietnam in the first batch of Australian FACs. Flying 0-1 Bird Dog aircraft, he was posted to the 19th Tactical Air Support Squadron, 7th Air Force and attached to support the 3rd Brigade of the 1st U.S. Infantry Division in III Corps, where he served with distinction and was awarded a Distinguished Flying Cross and the U.S. Air Medal.

On return from South Vietnam in April 1967, Pete completed a Fighter Combat Instructors' Course, before serving in Nos 76 and 77 Squadrons. He was subsequently posted to Headquarters Operational Command at RAAF Glenbrook in 1972, where he specialised in Joint Warfare. A wing commander, he attended No 32 Staff Course at RAAF Staff College, Fairbairn, in 1976 and, on completion of the course, was posted as Commanding Officer No 38 Squadron, RAAF Richmond, flying Caribou aircraft. A posting on staff to Army Staff College followed.

He was subsequently selected as Defence Attaché in Malaysia, arriving in country in mid-1984. The handover of RAAF Butterworth to the Royal Malaysian Air Force occurred during his tour.

On return to Australia, Pete was posted as Officer Commanding RAAF Townsville, where he had the additional duties of Commander Tactical Transport Group and Commander Operational Deployment Group.

Placed on the retired list on 1 February 1990, Pete completed 36 years' service .

Following retirement, he served as a Director of Brisbane Legacy for 11 years, including two years as president. For four years he was a director of the RSL Queensland War Veterans Homes and he served as president of the North Brisbane branch of the RAAF Association.

Bob Treloar

GROUP CAPTAIN EDWARD JAMES DILWORTH

30 June 1939 - 18 January 2025

EDWARD (JIM) DILWORTH was born in Waverley, NSW, and enlisted in the RAAF on 14 February 1956 on No 10 Radio Apprentice Course at the School of Radio, Laverton.

By 1962 Jim had been promoted to corporal and was employed as a RADTECHA (Radio Technician Air) in Radio Section at No 1 Basic Flying Training School, Point Cook.

In 1963, a successful application for commissioning resulted in Jim being posted to Engineering Cadet Squadron at Frognall, Melbourne. He joined No 8 Engineer Diploma Course at the second-year stage, an experienced airman, amid direct entry cadets fresh from high school. He was noted as an obliging mentor and was appointed an Air Cadet Under Officer, reflecting his mentoring role and his previous experience as an airman.

In 1964, he organised and participated in road navigation exercises in the Dandenong Ranges for his fellow cadets, and was a member of the DCS rugby team in 1963/4.

In 1965, Jim completed No 48 Officers Initial Training Course at Point Cook, followed by No 8 Radio Familiarisation Course at the School of Radio at Laverton. He then served at Headquarters Support Command before being posted to South Vietnam.

Promoted to flight lieutenant, he completed a tour of duty with No 2 Squadron from October 1967 to October 1968 as a radio engineer maintaining Canberra aircraft.

In 1972, Jim served at the School of Radio for several years as Officer in Charge of Prac Flight before being posted to RAF Cranwell to further his studies in engineering.

He completed a tour supporting F-111 aircraft at No 482 Maintenance Squadron as Officer in Charge of the Electronic Systems Workshop in Aircraft Electronics Maintenance Section from 1977 to 1978.

He was then posted to the Defence Intelligence Organisation working in the area of technical intelligence and did excellent work in the electronic intelligence and communication field.

The 1980s saw Jim back in Headquarters Support Command for several years before he retired as a group captain from the Air Force in the mid-eighties.

He settled in Canberra, and apart from playing golf, he put his experience to good effect making electronic "gadgets" for use in youth training activities that assisted young people finding their way in life.

Bob Treloar

GROUP CAPTAIN COLIN WILLIAM SPITZKOWSKY, OBE

3 March 1936 - 29 March 2025

COL, OR SPITZ as he was known to many, was born a Novocastrian on 3 March 1936. He was schooled at Newcastle Boys High before joining BHP as a fitter and turner.

An aircraft enthusiast from an early age, he was an Air Training Corps cadet and had a private pilot license at the age of 17. When called up for national service, he was initially accepted for RAAF pilot training, but failed to pass the stringent eyesight standard for RAAF aircrew. However, Air Force and aviation remained his first love (at that time).

Returning to BHP, Col studied engineering part time before being accepted as a RAAF undergraduate engineer to finish his Bachelor of Engineering degree. By 1960, Col was an Engineer Officer at No 2 Aircraft Depot, RAAF Richmond, working on the major structural repairs to address corrosion in the wings of our C-130A aircraft.

His engineering talent was clearly recognised with his subsequent selection for duty with the F-111C Project Team as the RAAF Technical Liaison Officer at the USAF F-111 Systems Project Office (SPO) at Wright Patterson Air Force Base at Dayton, Ohio, which managed the acquisition of the F-111 for the USAF, USN, RAAF and RAF. There began his long association with the F-111 project which included postings to No 482 Squadron in Amberley, an attachment to Ubon to observe USAF operation of the F-111 in Vietnam, and staff appointments in Canberra associated with the acquisition of that revolutionary aircraft.

In December 1969, the disastrous wing failure and loss of a USAF F-111A intensified his workload with monitoring of investigations in the USA as well as defining support arrangements for the 'stopgap' lease of the F-4E aircraft. For those efforts, he received well-earned recognition with the award of Officer of the Order of the British Empire.

In 1973, Col was posted to Headquarters Support Command in Melbourne as Aircraft Engineering 1 responsible for airframe engineering aspects of in-service RAAF aircraft before completing Joint Services Staff College in December 1975. Following promotion to Group Captain in 1976, he was posted as Commanding Officer, No 478 Squadron at RAAF Base Butterworth, Malaysia, responsible for the deeper maintenance of RAAF Mirage aircraft.

In January 1979, he returned to Canberra to serve in Air Force Office, initially as Director of Maintenance Policy until mid-1981 when he became Director of Aircraft Engineering.

Throughout his career, Spitz was recognised as a highly talented and respected officer and engineer with a prodigious work ethic, setting an example to his subordinates. A private sort of bloke by nature, he was nonetheless a deep thinker who, when asked, could offer a well-considered position on just about any subject. Unfortunately for the Air Force, he took early retirement in 1982.

Neil Smith

FLIGHT LIEUTENANT ROGER BRIAN WINSPEAR AM

26 September 1920 - 26 April 2025

ONE OF THE last veterans who experienced the first WWII air raid on Darwin has died. Brian Winspear, a Hobart resident, was 104.

He enlisted in the Air Force in 1939. He said later he was sure the blue uniform of the Royal Australian Air Force would impress his girlfriends, a comment typical of a man who went through life with a sense of humour that carried him through some very dark hours. For Brian was a gunner in bombers, an extremely hazardous profession that saw the personnel of many Australian squadrons die in their hundreds. Brian kept a long list of those who died in his units, and he was later tireless in having a memorial plaque placed on Darwin's Esplanade to his fallen comrades.

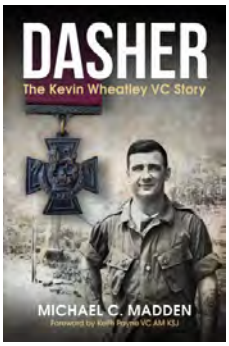
Serving in twin-engined Hudsons, Beauforts, and later in Vultee Vengeance dive bombers, returning from Kupang, Timor, in a Hudson, Brian was in one of the last aircraft to fly into Darwin on the fateful day the Imperial Japanese Navy arrived. The war that had spread to the Pacific with the Pearl Harbour raids of December 1941 was being fiercely resisted by the Allies as the Japanese war machine swept south. It was far more efficient than had been anticipated. The Allies had resisted, but were steadily pushed back, and Brian's Hudson, with him manning the machine guns in the rear turret, was packed with troops as it flew into Darwin.

One hundred and eighty-eight Zeroes, Val dive bombers and Kate vertical bombers struck Darwin at 10 on the morning of 19 February. They were excellent aircrews, experienced from China as well as Pearl Harbor, and they sunk 11 ships that day, destroyed 30 aircraft, and killed 236 people. A second raid targeted the RAAF base, and Brian saw it all from a trench with his steel helmet on. It was not his first brush with death. He had already seen many men die in aircraft accidents, and he later wrote about it all in *Tasmanians in the Air*, which he co-edited, and *My Back-Seat War*.

Following the raid, one of Brian's duties was to guard Hajime Toyoshima, a Zero pilot who had been captured by a local Aboriginal, Matthias, and handed over to the Forces. Toyoshima, the first prisoner taken on Australian soil, was soon sent south to Cowra Prisoner of War Camp, where he became one of the leaders of the massive breakout in 1944.

Brian was recommended for officer training, and to be retrained as a navigator. The rest of the war saw him flying out of New Guinea as well as on coastal anti-submarine patrols around Australia's coasts. He was demobbed in November 1945 as a flight-lieutenant.

Tom Lewis



REVIEW BY Bob Treloar

DASHER - THE KEVIN WHEATLEY VC STORY

By **MICHAEL C MADDEN**
Big Sky Publishing, Newport, NSW;
RRP $29.99

WARRANT OFFICER WHEATLEY, a member of the Australian Army Training Team Vietnam (AATTV), was killed while protecting a fellow soldier and friend against a Viet Cong attack in South Vietnam on 13 November 1965. *Dasher – The Kevin Wheatley VC Story* is the biography of this outstanding soldier.

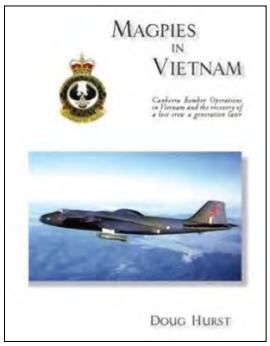
Dasher joined the Army in 1956, aged 19. Well-liked by his fellow soldiers, he became a legend on the rugby field where he earned the nick name Dasher. He served in 3RAR from 1957 to 1959 where he completed a tour of duty in Malaya during the Malayan Emergency and developed his considerable skill and expertise fighting in the jungle.

Dasher joined the AATTV in 1965 and was deployed to the Quang Tri Province where he worked alongside U.S. Army and Marine advisors assisting the 1st Division of the Army of the Republic of Vietnam. During a search and destroy mission, they were ambushed. Dasher and Warrant Officer 'Butch' Swanton became isolated from the platoon they were supporting when the platoon members withdrew from the fight.

Despite several pleas from the platoon medic, Dasher refused to leave a wounded Butch, moving him to the security of the jungle. The pair were subsequently overrun and killed.

Dasher – The Kevin Wheatley VC Story is well written and draws the reader into the action and the life of a distinguished soldier, providing an insight of a person who held service and friendship in high esteem. It provides a sobering description of the environment in which they fought.

It is well written and is the first book to recount the story of Australia's first winner of the Victoria Cross in South Vietnam.



REVIEW BY Bob Treloar

MAGPIES IN VIETNAM

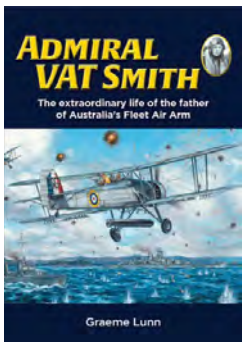
By **DOUG HURST**
Barrallier Books, Geelong, Victoria;
RRP $79.95

MAGPIES IN VIETNAM is the account of No 2 Squadron in Vietnam. It is presented in two parts: Part 1 addresses the role and activities of the squadron in the Vietnam War, while Part 2 addresses the recovery operations undertaken to find and retrieve the remains of two aircrew whose aircraft disappeared during a medium level bombing sortie over Vietnam on 3 November 1973. The book takes its title from No 2 Squadron's call sign, *Magpie*.

Part 1 addresses No 2 Squadron's deployment to Phan Rang in 1967 and subsequent operations during which the squadron lost two aircraft, the first in 1970 and the second in 1971. The two crew members of the second aircraft were successfully recovered from the jungle after their aircraft was shot down by a surface to air missile. The first aircraft disappeared without trace and despite an extensive search, neither it nor its crew were found.

Part 2 addresses the subsequent post-war search for the aircraft and the remains and recovery of Mike Herbert and Bob Carver, which were returned to Australia in 2009 and buried with full military honours. It is a poignant story that will cause the reader to pause and consider the sacrifices of servicemen and women, and the distress their loss causes to family, friends and to many beyond the service.

Magpies in Vietnam is very well researched and Doug Hurst has an eloquent writing style, acknowledging the support of the many veterans who made the book possible. It will appeal particularly to veterans and those interested in Australian military history. There are beautifully presented colour photographs throughout the book and it contains a nominal roll of those who served in No 2 Squadron in Vietnam.



REVIEW BY Bob Treloar

ADMIRAL VAT SMITH – THE EXTRAORDINARY LIFE OF THE FATHER OF AUSTRALIA'S FLEET AIR ARM

By **GRAEME LUNN**
Avonmore Books, Kent Town, SA;
RRP $49.95

OFTEN DESCRIBED AS the "father of the Fleet Air Arm", Admiral Sir Victor Smith had a lengthy and distinguished career in the Navy: he was shot down twice and sunk twice and carried out many a hair-raising attack on his country's enemies.

Smith oversaw many changes in the Navy, not least of which was the acquisition of aircraft carriers and the transition from propeller to jet aircraft. One of the first RAN members to be promoted to full Admiral, he was known for his dedication to those serving with him and as a great man-manager through his 49 years in uniform.

When learning to become a navigator, he flew in Swordfish biplanes. When war came, he was involved in the attack on the German battlecruiser *Scharnhorst,* for which he was Mentioned in Despatches and was on board the carrier *Ark Royal* when it was torpedoed and sunk. Later, he was awarded a Distinguished Service Cross for service in 807 Squadron, the citation reading "…for outstanding zeal, patience and cheerfulness and for setting an example of wholehearted devotion to duty".

He was tasked to begin plans for a two-carrier force for Australia after the war and was part of HMAS *Sydney's* crew when they flew operations in the Korean War.

This very handsome work from Avonmore is a lengthy publication that captures all of this very interesting naval officer's life. It's copiously illustrated with almost a picture for every double page. A hardback book, it has a high attention to detail, and at 248 pages is of quite a length, but Graeme Lunn's writing style is such that the reader's attention never flags. An impressive release and highly recommended.

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