

BREAKING THE BARRIERS



FROM WRIGHT FLIER TO THE RIGHT STUFF

WORDS AND PICS BRIAN HARTIGAN

The weather wasn't kind to the airshow this year, yet despite the multi-seasoned week, with huge winds, dust storms, high 30s to low 20s temperature variations and a few sprinklings of rain, this year's show saw record crowds pour through the gates. Sunday was particularly busy as the weather finally turned on perfect flying and viewing conditions.

And the crowds came.

Mostly they came for the flying – the romance, the spectacle, the noise, the smell and, above all, the wow-factor of one of the biggest shows on Earth.

The Australian International Airshow at Avalon is just that – international. Not only does it attract aviators and their machines from all over the world but, just as important, it attracts people from all over the world – people who for a million different reasons come to Avalon every second year to meet, greet and do business.

The show's reputation as a truly international event continues to grow also, with the two previous shows in 2003 and 2005 being voted 'best overall airshow for the year' by the world's largest aviation web site, the German-based checksix-online.com

This year, more than 30 official delegations from 22 countries were among the 40,000 trade-day visitors, while more than 650 registered media representatives covered the sights, sounds and news to come out of Avalon. Public-entry numbers from Friday afternoon through to Sunday are believed to have smashed previous records despite stiff competition from the Formula 1 and World Swimming Championships.

As a showcase, Avalon offers aviation and related industries an unparalleled opportunity to see and be seen, to keep abreast of industry trends and meet like-minded people, many of whom have big agendas and big budgets – none bigger than the Defence Materiel Organisation.

DMO has a projected budget of \$100

As two replica aircraft – the Wright Flier and Chuck Yeager's sound-barrier-breaking 'Glamorous Glennis' – held ground near the entrance to this year's International Airshow at Avalon, Victoria, the cream of the flying world took to the skies above, while the heavy-weights of defence and civil-aviation industry showcased their wares on the ground.

billion over the next 10 years with more than half of that to be spent in the aerospace, electronics and related sectors.

DMO, and the Australian Defence Force in general, had a considerable footprint on the larger-than-ever exhibition floor space at Avalon this year. It was no surprise then that many of the world's defence-focused companies, large and small, were on hand to talk up their own systems, platforms and ideas – 527 exhibiting companies to be precise.

For the second time, land systems were also showcased at Avalon at the incorporated and collocated LanDef2007 exposition, with Australia's new M1-A1 Abrams tank and a leading contender for the Army's self-propelled howitzer project, the PzH 2000, guarding the front gate. The sheer size and imposing stance of the Panzer in particular commanded so much attention that the smaller(!) Abrams directly opposite was often overlooked, even by some who specifically wished to check out our recently acquired main battle tank.

Other land-based vehicles, such as Bushmasters, Unimogs, Macks and Merlos were put through their paces on a rough-and-ready cross-country 'land-systems mobility area' demo track.

Back indoors, a 'Careers and Skills Showcase' was an important aspect of the weekend, designed to inform educators, career professionals, parents and students about the exciting career opportunities that exist in the aviation, aerospace and defence sectors and to provide useful information concerning the training and education pathways necessary for a career in these exciting sectors.

But, when all the talking is finished and all the showbags gathered, the main reason that thousands of moms, pops, kids and grandkids flock to Avalon Airport, south of Melbourne, is to see the planes. And see them they did. With 438 participating aircraft on the ground and in the air, there was plenty for everyone. On with the show...



C-27J SPARTAN – NO TRANSPORT IS SUPPOSED TO DO THIS!



A 40-SOMETHING YEAR OLD CARIBOU MAKES A QUICK PIT STOP

SUPER HORNET Australia's newest acquisition

In the hands of an expert, any weapon will perform to its full potential. In the hands of a master, however, the same implement seems to take on properties of performance that even its maker would be surprised by.

Boeing test pilot Ricardo Traven is such a master and, in his hands, the F/A-18F Super Hornet can soar to heights of performance that defy belief.

Emitting all the noise you would expect (and want) from a military jet, the Super Hornet cuts unbelievable lines through the sky.

Seeing is believing, but if you weren't there, believe me when I say Australia's new front-line strike fighter performed jaw-dropping manoeuvres normally reserved for aircraft with vectored exhausts. What I'm talking about is an ability to change direction in an unnaturally abrupt fashion – a bit like a racecar driver spinning the car end of his car through 180 degrees using the power of his engine to break traction. This kind of excess power enabled Traven to perform a routine that left anyone with the slightest understanding of aerodynamics standing, gob-smacked, on terra firma.

For me, the highlight of his awesome routine was something I'd never seen before (or even heard of) – a square loop.

An aerial loop is when a pilot pulls the nose of his aircraft up, through the vertical, and around through a graceful backwards somersault until he ends up where he started. The square loop, however, is performed from straight and

level flight by pulling the nose abruptly upwards into a straight, vertical climb. At the top, he again pulls the nose abruptly over and commences an inverted straitly and level run across the top, followed by a sudden vertical dive, before finally pulling the nose into the horizontal to close the 'square'.

In the above description, when I say 'pulls the nose' – I really mean 'kicks the case' through the manoeuvre, using the huge flying tail surfaces and the inordinate power of the engines.

With the classic looks and form of its predecessor, the Super Hornet is truly 'super', no matter who flies it. Weighing in at nearly 3 tonnes heavier than its older brother, it can fly twice as far, carry a tonne more weapons and packs even more engine power than the F111 it will replace in RAAF service. On the down side, though, it comes nowhere near the fuel-carrying capacity and consequent range of the retiring 'Pig' – not without air-to-air refuelling anyway – something which will be on tap in the near future, though.

Projected program delays with the Joint Strike Fighter have cast doubt over whether the aircraft can be delivered before the F111 is forced to retire, so the Australian government has taken a sudden, recent, but not quite unexpected (see page 48 last issue) decision to bridge that gap by acquiring 24 F/A-18F Block II Super Hornets.

This program will cost approximately \$6 billion over the next 10 years and,

while the government says we can afford the expense, they also say we cannot afford not to buy it. The acquisition is seen as essential to ensuring our long-range air-defence capabilities are maintained between the retirement of the F111 and the eventual introduction of the F-35 Lightning II Joint Strike Fighter.

The F/A-18F Super Hornet is a highly capable, battle-proven, multi-role aircraft currently in service with the US Navy and projected to remain in service until 2030. The next generation Block II Super Hornets to be acquired by Australia will provide a more flexible operational capability than currently exists with the F-111.

Selecting the Super Hornet as the interim aircraft also builds on the RAAF's understanding of our current fighter and should provide the flexibility to assign crews and technical personnel across a relatively common fleet.

The F-111 has been a stalwart aircraft at the centre of Australia's strike capability for more than 30 years, but the time is fast approaching when it will no longer be economical or safe to continue operations.

Chief of Air Force Air Marshal Geoff Shepherd, a pilot with around 2500 hours in the type, says it is important for Australia to retire the F-111 at a time of our choosing, to ensure that the men and women who operate them are not endangered through the risks of an ageing platform.

F-111 is expected to retire in 2010 with the first Super Hornets to be operational in the same year.

SURPRISE PACKAGE C-27J SPARTAN

There is one aircraft capability project that has stumped the ADF for years – that to replace the ageing DHC-4A Caribou, in RAAF service since 1964.

As far back as 1997, then minister for Defence Ian McLachlan took great pleasure in announcing a shortlist of companies that had a possible solution. Shortly thereafter, two companies responded to a formal request for tender under a project that would see the Caribou bow out gracefully in 2002.

Yet, here we are in 2007, with any serious replacement project off the radar and Project Air 5190 doing its best to keep the old war horse flying to at least 2010.

As if age wasn't bad enough, the poor old Caribou is also battling a shortage of spare parts, stocks of which were allowed to dwindle in anticipation of retirement.

And yet, she flies on, still capable of delivering cargo to remote, poorly-prepared or maintained runways like no other aircraft can – or wowing crowds at Avalon with her impressive short takeoff and landing capabilities.

One of the original contenders for the Caribou replacement, the C-27J Spartan from Italian company AleniaAeronautica, was also on show at Avalon – and boy what a show that put on!

Weighing about 12 tonnes in the skinny, and roughly the same dimensions as the venerable Caribou, the Spartan can pull off stunts no cargo transport was ever meant to do. With loops, barrel rolls and negative-g pushovers on her show itinerary, Spartan seriously impressed.

CARIBOU

Length: 22.12m
Wingspan: 29.13m
Height: 9.65m
Wing area: 84.7m²
Empty weight: 8283kg
Loaded weight: 14,198kg
Engines: 2 Pratt and Whitney R-2000-7M2
 Twin Wasp 14-cylinder radials
Power: 1450hp or 1081kW each
Maximum speed: 348km/h
Range: 2103km

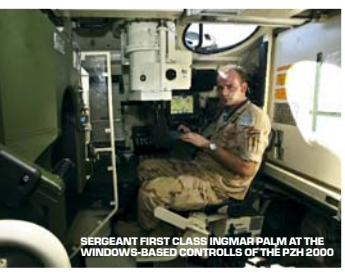
SPARTAN

Length: 22.7m
Wingspan: 28.7m
Height: 9.8m
Wing area: 82m²
Empty weight: 11,940kg
Max takeoff weight: 31,800kg
Engines: 2 General Electric T64-GE-P4D
 turboprops
Power: 3400shp or 2535kW each
Maximum speed: 540km/h
Range: 4685km



F-111 AARDVARK MEETS REPLACEMENT F/A-18F SUPER HORNET





SERGEANT FIRST CLASS INGMAR PALM AT THE WINDOWS-BASED CONTROLS OF THE PZH 2000



SIX(TY) SHOOTER

In an impeccable piece of timing, the PzH 2000 from Krauss-Maffei Wegmann (in Dutch Army guise) was on hand as a central, and immensely popular, showpiece at LanDef2007 – the land-based military exposition run in conjunction with the airshow for only the second time.

PzH is on offer to the Australian Army to satisfy a central component of Project Land 17 (as discussed in detail in CONTACT issues #13 and #5). It is a tracked, self-propelled howitzer that offers armoured protection to its crew during all phases of operation – a key component of Land 17 selection criteria.

It is an imposing piece of equipment just sitting on display at an airshow. Most of us can only imagine what it looks and feels like in operation – but several Australian Army personnel did get a subsequent look at the beast in action when it deployed to Puckapunyal and Woomeera for live-fire trials.

At LanDef2007, the Dutch crew from the 14th Artillery Battalion, were very accommodating in showing the rest of us through the vehicle. Sergeant First Class Ingmar Palm was a man passionate about his vehicle, showing it off with obvious pride.

The inner workings of the weapon-loading system were fascinating. The circular magazine in the guts of the vehicle looked very much like an overgrown chamber from a six-shooter revolver – except in this

case, the chamber holds 60 rounds, standing vertically.

On demand from the Windows-based computer at his commander's station, Sergeant Palm demonstrated the mechanical ballet that takes place in the 'chamber', under the floor and eventually swinging up to the open breach of the gun, with the shell ultimately pushed into the breach by pneumatic pressure – completely automated. The only physical effort required being from the loader who places the firing charge into the breach behind the shell.

"We don't do shit anymore", Sergeant Palm said with glee. "It's great."

PzH 2000 is capable of firing three rounds in 10 seconds and sustained fire at 10 rounds (up to 13 dependent on barrel heating) per minute. It has successfully test fired a projectile out to 56km using base-bleed ammunition (a kind of rocket assistance), however, this shot was limited by the size of the South African firing range. With plans to fire V-LAP ammo at Woomeera, news of a new record is anticipated.

The vehicle is powered by an 181 V8 diesel engine producing nearly 1000 horsepower. It can travel at 61km/hr and has a range of 420km. It weighs 55 tonnes fully loaded or 49 tonnes for transport and can be deployed by C-17 Globemaster.

With the system deployed in support of Dutch and collocated Aussies in Tarin Kowt, southern Afghanistan, Australian soldiers have already witnessed the PzH 2000 in action on operations.

BREAKING THE BARRIERS

"Who's Chuck Yeager?" I was asked! And, in the interests of protecting the guilty (and my marriage) I won't say who asked me.

General Charles Elwood 'Chuck' Yeager was guest of honour at the 7th Australian International Airshow at Avalon – and was the first man to fly faster than the speed of sound, a barrier many believed couldn't be broken. But then, less than 45 years earlier, many thought heavier-than-air flight was a pipe dream.

On 14 October 1947, Chuck Yeager flew the rocket-powered Bell X-1 'Glamorous Glennis' into the record books.

Dropping away from a B-29 Superfortress, he accelerated away and upward. Tentatively moving controls that had never been tested at such speed before, he accelerated to an indicated Mach 0.92 before levelling out at 42,000 feet. Lighting up the third chamber of the X-1's rocket engine, he accelerated rapidly to 0.98 Mach and then, at 43,000 feet, the needle on the Machmeter jumped off the scale.

Recounting the historic event, he told enthralled crowds at Avalon how he was surprised that the meter only registered up to Mach 1.0, given that his mission was to go that fast and more.

"I guess someone wasn't real optimistic," he quipped.

General Yeager officially retired from the US Air Force in 2002 – at age 80. His last flight was in an F-15 Eagle (though he still flies a P-51 Mustang privately). When he climbed out of the cockpit that day, he had accumulated a total of 10,131.6 hours in 180 different types and models of military aircraft.



"THE FIRST TIME I EVER SAW A JET, I SHOT IT DOWN." BRIGADIER GENERAL CHUCK YEAGER



In March 2006 the Australian Government announced it would acquire four C-17 Globemaster III aircraft. Just nine months later, the first of these aircraft touched down in Canberra to much fanfare, before heading north to its new home with No 36 Squadron at RAAF Base Amberley near Brisbane.

At Avalon, our first C-17 was on hand and open to public inspection, with capacity to shelter hundreds at a time from the fierce winds on Friday afternoon or the occasional shower on Saturday. Airborne demonstrations of the aircraft's impressive handling capabilities were left to the Americans, however.

At one stage during the week, a Qantas Boeing 747 was parked in close proximity to the hulking Globemaster, providing an interesting size comparison – the difference negligible, to my eye.

Globemaster will give the ADF a capacity it has never had before. Capable of carrying almost four times the load of a C130 Hercules the C-17 can carry it twice as far.

Each C-17 is capable of carrying five Bushmaster infantry mobility vehicles, or three Tiger helicopters, or up to 75 tonnes of equipment and supplies for emergency relief or operational sustainment.

It can also deliver an Abrams M1A1 main battle tank almost to the front line, capable as it is of landing on relatively short, unsealed runways. The gravel strip at Tarin Kowt, in southern Afghanistan, for example, would not pose a problem for Globemaster.

As well as enhancing the responsiveness of the Australian Defence Force, the C-17 will increase Australia's independence, freeing us from the need to rely on leased aircraft or to wait in queues for American heavy-lift support.

Our first Globemaster – tail number A41-206 – has already completed a number of long-haul overseas assignments, returning twice to the USA this year in support of RAAF F-111s on deployment in Nevada for Exercise Red Flag.



C-17 GLOBEMASTER III DELIVERING BIG



DCAF AVIM JOHN BLACKBURN AND OFFICER CADETS CHRIS KOURLOUFAS AND MATTHEW GILL CHECK OUT 'SUPREME AIR COMBAT'

RAAF TAKES COMBAT ON-LINE

Deputy Chief of Air Force Air Vice Marshal John Blackburn was on hand at the Defence Recruiting stand at Avalon to officially launch an innovative new on-line video game for the RAAF.

Called Supreme Air Combat, the game is played through MSN Messenger, a place where the youth of today 'hang out'. Air Vice Marshal Blackburn says it makes a lot of sense to take the game and the Air Force message to where young people are, rather than expecting them to always hear the message delivered through more main-stream means.

A turn-based game, Supreme Air Combat is a multi-player, fast-paced, decision-making game played over the Internet.

Officer Cadet Matthew Gill, a future RAAF logistics officer, says the game is kind of like the old 'Battleship' where players have to maneuver to take out an opponent. But with four F/A-18s to command, turns limited to about 20 seconds and not being able to see what move an opponent is about to make, he says it also has a feel of chess about it.



BEST OF BRITISH

"One of the best-kept secrets in the British Army". That's how the officer in charge of the Export Support Team contingent at Avalon describes the unit he works for.

They're a team of 10 regular-army soldiers (from a unit of 31), all trained instructors and all with operational experience, whose job it is to attend military trade shows around the world to promote British-made products.

Maintaining market share as the second largest defence industry in the world is obviously very important to the British government so, in what we Australians might call a whole-of-government solution, the army gets involved as subject-matter experts, talking up the value of buying British.



SERGEANT JAMIE WORGAN DEMONSTRATES A MAN-PORTABLE SATELLITE COMMUNICATIONS TERMINAL

"We act more or less as a shop window, if you like," Captain Dick Taylor says, "and, when a potential customer shows an interest in what we show him, then we hand over to a company representative to make the sale."

The unique initiative is not always about guns and tanks and sharp-end stuff (though the soldiers can expertly talk on those subjects equally). At Avalon, it was all about the little things we see every day, but pay little attention to – ergonomic shovels and brooms, for those 'rock-painting' days around barracks; HESCO Bastion Concertainer – when you want to build a new barracks on the front line; i-storm – powerful floodlighting in a suitcase; Manpack – military man-portable satellite communications terminal; Blighter – man-portable ground defence radar; and, a host of other 'everyday' items used by men and women in uniform.

For the soldiers involved, it's hard work – not! World travel (business class, of course) and five-star hotels. But, do they like it? Is it a sought-after posting? Well, given that some of the soldiers at Avalon were in their third or fourth years in a two-year posting, I'm guessing they do!



HAVE YOU EVER DREAMT OF OWNING YOUR OWN JET? WELL NOW YOU CAN.



JET DREAMS

Javelin from ATG, at less than US\$3million, may not be as out-of-reach as most serious pilots might have thought.

Capable of high-speed cruise at 500 knots, with 1000 nautical mile range and rated to +6/-3g, it is quite a capable machine.

With two seats and capacity for 90kg of luggage/cargo it is not an impractical machine either.

Think of the fun you could have – not to mention the bragging rights!

While most of us don't have a spare \$3million to splash out, here's your chance to win your very own Javelin – or at least an executive model of one to stand on your boardroom table! Tell us in 50 words or less how jet ownership might change your life and you could win a cool, scaled model, courtesy of Damair Aviation, your authorised Javelin dealer in Australia (visit www.damair.com.au for sales enquiries). Send entries to editor@militarycontact.com – remembering, Ed likes wit. Entries close 15 Oct '07.