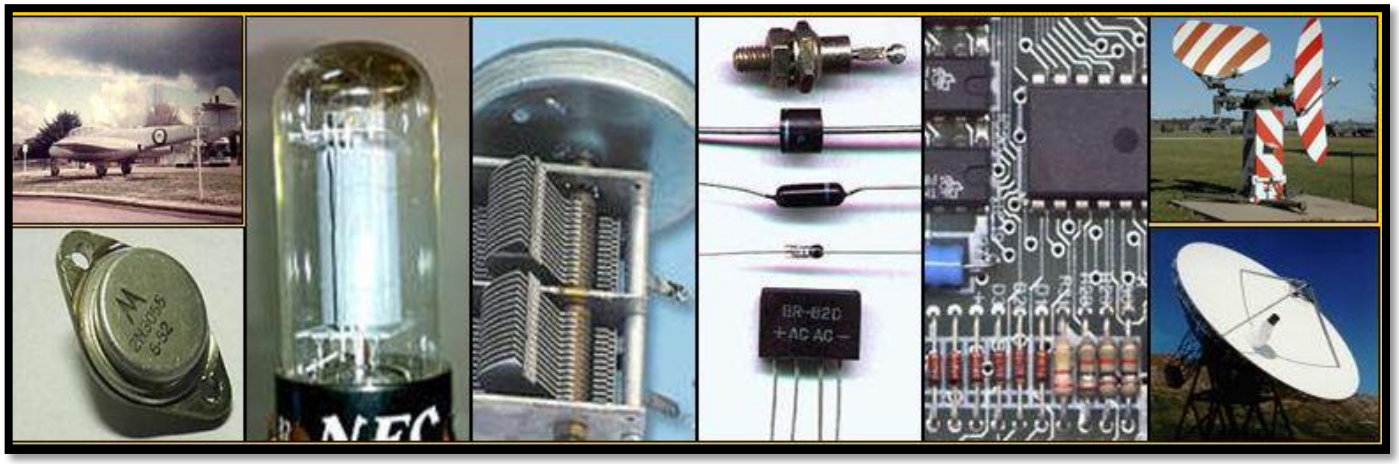

RAAF Radschool Association Magazine

(www.radschool.org.au)

Avalon Air Show Special

Mar 2013

ABN 18 477 110 847

The 12th biennial Airshow (at Avalon) was held over the week 26th Feb to the 3rd March, at the Avalon Air-port, just 20 Klms north of Geelong. The Airshow has been described as the biggest in the Southern Hemisphere and each year it just gets bigger and better.

The History.

Avalon has been involved in Airshows for many years, the first was held back in 1957 when the Government Aircraft Factory, which was building the Canberra at the time, put on a display for its employees. Normally the workers only ever saw individual parts of an aircraft, so as a PR exercise, management decided to mount a flying display at Avalon so the employees could see the final result of their work.

After that, things were quiet for quite a while, then in 1988 the members of the Schofields Flying Club (Schofields, near Rouse Hill, was built by the RAAF during WW2 as an alternate for Richmond) decided to celebrate the Australian Bicentenary by holding a major Airshow. The Club had been holding smaller Airshows at the Schofields airport but it was considered too small for a major event so negotiations were held and it was agreed to hold it at the base at Richmond.

Invitations went out and the organisers were able to entice such aircraft as the F-15 Eagle, Panavia Tornado F3, Sea Harrier, Lockheed C-5 Galaxy and the BAe Hawk to the show as well as a flypast by a Boeing B-52 Stratofortress bomber and demonstrations by the Royal New Zealand Air Force aerobatic team "Kiwi Red".

The 88 show was a success and in 1991, it was decided to hold a second show at Richmond, this time to celebrate the RAAF's 70th anniversary. It also was hugely popular with the public.

By now the Schofields Club was winding down and the Airshow events were getting too big so it was decided to create a body to exclusively run future Airshows - Airshows DownUnder (ASDU) was formed.

Richmond, being an operational Base, was not the ideal place to hold regular public events so an alternate airport was sought and it was decided to "take the show on the road" and hold it at various airports around the country. Avalon Airport, situated not far from Melbourne and only 20 Klms from Geelong which offered plenty of accommodation for participants and the public alike, was an ideal choice for the first show outside Richmond.

The first Airshow to be held at Avalon was in October in 1992, but Melbourne, being Melbourne, turned on the wettest spring in its history and it was nearly decided to cancel the event all together. But, being Melbourne, the Gods smiled on the organisers and it stopped raining just before opening day and the show went ahead and many thousands of people braved the elements and turned up over the 2 public days.

Normally the show would have been hugely successful, with 226 exhibitors from 12 countries but the adverse weather caused a financial headache for the organisers and the proposed plan to take the show “On the Road” was shelved.

The organisers decided to try again in 1995, but this time the timing was changed to March to take advantage of the dryer climate during autumn. That year the Russians stole the show with Anatoly Kvochur, arguably Russia’s best ever pilot, tossing his Su-27P "Flanker" around like it was a Pitts. On the Sunday, he flew the Flanker down the Avalon runway at approximately 15 feet AGL. Neither the RAAF nor the USAF could or would compete with him and he easily won the award for the best flying display.

In 1997 the show was held in February, but this time Melbourne turned on the hottest February ever and the organisers must have wondered who or what they had run over. 172,000 people slip, slop, slapped and made their way to Avalon to see the numerous displays and exotic aircraft from a number of countries. The RAAF’s F111 did the ‘Dump and Burn” during the night show – always a great hit with the public and 97 was the first time the Super Connie, recently restored by HARS, made its public appearance. By now the accountants had got into the picture and it was calculated that the show had brought $63 million into the Victorian economy – something that the Vic Government could not ignore and which gave the organisers a substantial bargaining chip.

In 1999 the show was starting to be noticed on the world stage and it attracted 472 exhibitors from 26 countries. The then Premier, Jeff Kennett, opened the show on the 16th February as by then it had been decided, with perhaps a little persuasion from the Vic Gov’t, that all future shows would be held at Avalon, and the timing would remain end Feb, early March.

2001 was the 100th anniversary of Federation in Australia and also the 80th anniversary of the RAAF and as the millennium bug had not ruined the whole world, it was time for a celebration. This time the USAF were determined to put on a show and over 100 USAF pilots took part, flying such diverse aircraft as the B1 bomber, F15 Eagle, F16 Falcon, B52 Bomber and the C-17 Globemaster. The Mother Country was also there in force with their Nimrod, Tornado GR1, Vickers VC10 Tanker, C130, and the Eurocopter Tiger. It was also the last public performance of the RAAF’s Machi which went into the back shed soon after.

The theme for the 2003 show "*Celebrating the Centenary of Powered Flight*", commemorating the first powered flight by the Wright brothers on 17 December 1903 at Kitty Hawk, North Carolina – about the same time that John Gleeson learnt to fly. There were 440 exhibitors from

30 countries as well as more than six hundred aircraft on the field, including replicas from the early 20th century, such as a 1910 Hanriot and 1911 Curtiss Model D.
By now themes had crept into the planning and 2005 was "*The Shape of Things to Come.*" The show was now a true global event and the aviation business world came to realise its huge potential. More than 500 exhibitors from 22 countries took part in the show with the organisers holding 11 major conferences.

The week-long event also increased Geelong's economy by $15.6 million – it could not be allowed to leave Avalon.

The theme of the 2007 air show, held between 20 and 25 March, was "*Breaking the Barriers*", as it was the 60th anniversary of the breaking of the sound barrier by Charles "Chuck" Yeager. Yeager himself was the guest of honour at the show, and a full-scale mockup of the Bell X-1 was specially constructed. Nearly 183,000 people saw the number of exhibitor companies increase to 611 from 20 countries and were able to check out 457 aircraft on the ground. 2007 was also the 60th anniversary of the forming of the USAF and they were very well represented.

The accountants reckoned the show injected $120 million into the Victorian economy.

The 2009 air show was held from 10th to 15th March. Trade sessions ran from Tuesday until 2 pm Friday, after which it was opened to the public until the close on Sunday afternoon. The theme was "*Towards Tomorrow*" and Andy Thomas, an Australian-born astronaut, was the guest of honour. It was also the 40th anniversary of the first moon landing and the Airshow 'swan song' for the mighty F111 which was retired in December 2010. That year the show attracted 170,000 people but the numbers were kept a bit low due to Melbourne's finicky weather – on the Sunday an uninvited Aeolus got into the act and several tents and temporary structures were blown away and many visiting aircraft were extensively damaged.

That year, 562 exhibitors took part and despite the weather, the attendance numbers exceeded 170,000. The accountants estimated the 2009 Airshow boosted the Victorian economy by $121 million and as a result the Vic Government agreed with the organisers to have the Airshow at Avalon until 2015.

2011 was the 90th anniversary of the RAAF and they were there in numbers. It was also the centenary of the first passenger flight in Australia. The USAF brought the F22 and a near perfect model of the F32 to the show and the C-27, the long awaited replacement for the old Caribou was also in attendance. The Gods smiled on the event, the weather was perfect and more than 195,000 people made the journey down Geelong Rd to the event (see more details on the 2011 show HERE).

The 2013 event looked like it was going to be a repeat of 1992. A flash storm came through the airfield and dumped nearly an inch of rain in an hour turning the place into Lake Avalon. Lightning struck the Control Tower putting all the airport's comms and nav aids out of action for some time. Loads of gravel were trucked in and dumped into hollows and duck boards were laid to enable people to walk around on dry land. But, when things looked dire, out came the sun, things dried up and the show went ahead as if nothing has happened.

Once again, the number of participating exhibitors was greater than in previous years, confirming the event as a major aviation business exhibition in the eyes of the world – 601 this year compared to 575 in 2011. But, unfortunately, the spectator numbers were down on the 2011 show. While a lot of soul searching will result in a just as many reasons why this is so, we feel there are two evidential reasons, firstly the 2011 event was the 80th anniversary of the RAAF and was promoted as such (the RAAF is a great crowd puller) and secondly the terrible weather on the days leading to the public days would surely have turned many away.

There were almost 168,000 people through the gates over the full 6 days, compared to 195,000 people in 2011.

Planning is already underway for Avalon 2015. This will be a very special show as it will commemorate the Anzac centenary and will pay aviation homage to a century of service by Australians in the defence of the Nation.

Now, if only they could control the weather…….

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The Airshow.

The 2013 Airshow was once again held at the Avalon Airfield which is only 20klms from Geelong on the 3 lane Geelong to Melbourne Road. As usual, the show went ahead without a hitch due solely to the enormous amount of preparation that goes into this very professional event. Being at the show a week before it started and being able to watch it "grow" was a fascinating experience. What starts out as a large open paddock is quickly transformed into a small "city". An army of people descends on the place and very quickly hundreds of star pickets are hammered into the ground, fences are strung, truck-loads of gravel are dumped to make all weather roads, transportable buildings are strategically placed then connected to generators which provide 24 hour light and power, most are air conditioned, plumbing is laid to supply fresh water and to discharge waste, toilets are plumbed, tents and huge Exhibition Halls are erected, all of which are also supplied with underground power.

Other people source and sort uniforms, allocate display space for exhibitors, erect road signage, mark out car parking areas, arrange accommodation and meals, handle documentation and allocate aircraft arrival times and parking facilities and while this is being accomplished, others provide food and drink for the "workers". A truly momentous undertaking and one of which the organisers can be rightly proud.

Most of this "work" is done by volunteers, people who gladly give of their time to be part of the event but finding, handling and allocating all these people to relative "jobs" is a huge task in itself, a job that is handled by the very capable and very charming Karen Scott. Karen has been involved with several Airshows and is a "Permanent" – she is already working on the 2015 show.

The pic below, which was taken in 2011, is practically an exact copy of the 2013 show – if you've still got the aeroplane buzz running through your veins, and you've never been to a show, think about volunteering, mark March 2015 in your calendar, you will enjoy it immensely and Karen would love to see you.

Prior to each show, AirServices Australia, the mob that used to be called DCA, (back in the days when you could understand things – and before a VFR helicopter pilot …..), issued a supplement to the Aeronautical Information Publication (AIP) which states, among other things, that prior to entry to Avalon, all aircraft operators must obtain prior permission from Airshows Downunder. They do this by filling in an application on line which eventually goes to the lovely Laura Dillon (left). Laura checks the hundreds of applications to ensure they have been filled in correctly, then when satisfied that all is OK, she sends them off to the effervescent and gregarious Erin Muscat at Air Movements who allocates a landing and departure time for each aircraft. We wondered about that bunch of flowers in Laura's office and the scuttlebutt was she received them from a grateful pilot who she managed to squeeze in. We also see that the Phantom Blue Roo Depositor (PBRD) had paid a visit to Laura's office.

Laura and Erin – at the busy Air Movements desk.

Once the aircraft have been accepted and allocated an arrival and departure time, they must be found a parking space on the airport. As can be seen from the airport pic above, most of the taxiway it used as parking area for aircraft and viewing area for the thousands of

spectators so it is important that aircraft must be carefully and selectively parked from the middle out, as once you're in there is usually no way out until the aircraft beside you is moved.

This job is handled by Rudi De Graaff who must place every aircraft on the airfield. Rudi has two criteria, aircraft of different type and/or size are parked together, it would not be suitable to park a C130 amongst a bunch of ultra-lights for example and aircraft that intend to stay longer must be parked "in the middle" so others don't have to be moved to get them out.

Rudi has been doing this job for some years and he's pretty good at it. Of the 285 aircraft on display, he can tell you exactly where each one is. Some say this is because he spends all day out there and not in his office – but that's a bit unkind!!

The photo below, overlooking the RAAF display area, shows where some of the aircraft were parked.

And the show was not just for grownups, there were lots of interesting things for the little (and not so little) ones to enjoy.

During Trade days, car parking was not a huge problem but during the 2½ public days, if you weren't there early you could have a substantial walk before you got to the gates.

This was obviously considered by management who provided a sensible alternative.

The smart way to get to the show was to catch the train to Lara Station and then hop on one of the fleet of shuttle buses. The buses, which ran continuously during the day, delivered commuters right to the gate then took them back to Lara at the end of the day. No parking problems, no long walk – very smart indeed!

How it looked prior to opening.

This is how it looked on the Sunday.

And who in the crowd could resist buying a program from these two lovely girls???

L-R: Sabina Stellmaker and Julie-Ann Johnson

Three large interconnecting Exhibition Halls had been erected and were filled by 601 different exciting hi-tech exhibitors, a near record number.

Inside the Exhibition Halls.

One such exhibitor was Russian Helicopters. This company is a leading player in the global helicopter industry and is now the sole Russian rotorcraft designer and manufacturer. Russian Helicopters manufactures a wide range of civil and military helicopters ranging from light personal transporters to heavy lifters to fast attack military aircraft.

Headquartered in Moscow, the Company states it occupies a leading position in the fast-growing markets of India and China and is rapidly expanding its sales footprint in South and Central America, the Middle East and Africa.

Another group that needs no introduction to anyone associated with the ADF is the Thales Group. This France based Company in involved in the different fields of defence, security, space, aerospace and ground transportation and has 67,000 employees in 56 different countries.

Thales is one of Australia's largest defence partners, is a major provider of air traffic management systems in the Asia-Pacific region and is a growing force in the commercial sector.

Better known, perhaps, for their manufacture of the Army's Bushmaster vehicle, they are also involved in a wide spectrum of high technology products and services which include command and control systems, communications and mission management systems, electronic warfare, sonar and underwater systems, training simulators, avionics, air traffic management, soldier systems, munitions and protected mobility vehicles.

Thales has made a strategic investment in Australia over the past 20 years and is now a nationwide company with 3,500 employees at over 35 sites.

In Australia, perhaps better known for their cars than for anything else, the Swedish SAAB company (Svenska Aeroplan AB, which translates to "Swedish Aeroplane Limited") has long been involved in Military Defence and Civil security. SAAB has divided its operations into six

business areas: Aeronautics, Dynamics, Electronic Defence Systems, Security and Defence Solutions, Support and Services and the independent subsidiary Combitech. With annual sales of 24 billion Swedish Krona (about US$ 3.7 Billion) it is definitely a large player in the field.

SAAB has been in the aircraft manufacturing business since the 1930s. Its latest fighter aircraft is the Gripen which it has manufactured since 1997 and which is still in service with the Swedish Air Force. To date, 329 have been built. It also built the SAAB 340 and SAAB 2000 mid-range turboprop-powered passenger aircraft.

Anyone involved in aviation in Australia knows CASA – the Civil Aviation Safety Authority. CASA is the all powerful, all regulatory, all everything body that looks after all things aeronautical. If you have any sort of aircraft from a hot air balloon to an Airbus A380 and you want to do something with it – you have to see CASA. If you have just started to learn to fly or if you are an airline captain, CASA is the body that tells you what you should and must do.

CASA, which in June 2009 had 675 employees and whose mission statement says "*To enhance and promote aviation safety through effective regulation and by encouraging the wider aviation community to embrace and deliver higher standards of safety,*" is the regulatory body that ensures compliance with the Civil Aviation Act 1988.

Airbus Industries were there, keen to show off their A400 multi-national four-engine turboprop military transport aircraft. Designed by Airbus Military as a tactical airlifter with strategic capabilities, it first took to the air in December 2009 and is still undergoing flight testing. To date Airbus has received provisional orders for 174 aircraft from eight nations and was expected to start delivery later this year (2013) however, the project run into some problems. Initially there were weight problems then financial problems but those problems seem have been sorted and delivery is still hoped for this year although some orders have been cancelled or reduced.

Designed to slot somewhere between the Herc and the C17, the A400 can lift up to 37 tonnes in a cargo compartment that is 17.7 metres long (excluding ramp), 4.0 metres wide, and 3.85 metres high compared to the C130J which can lift 19 tonnes in a cargo compartment that is 12.5 metres long, 2.75 metres high and 3.05 metres wide.

On the A400, the pair of propellers on each wing turn in opposite directions, with the tips of the propellers advancing from above towards the midpoint between the two engines. The counter-rotation is achieved by the use of a gearbox fitted to two of the engines, and only the propeller turns in the opposite direction.

All four engines are identical and turn in the same direction which eliminates the need to have two different "handed" engines on stock for the same aircraft. This simplifies maintenance and supply costs though it does mean you need two sets of propellers. This configuration, dubbed DBE (Down Between Engines), allows the aircraft to produce more lift and lessens the torque and prop wash on each wing. It also reduces yaw in the event of an outboard engine failure.

Another company that preferred to show a model of its aircraft rather than the real thing was Alenia Aermacchi which has recently signed an agreement with the RAAF to provide ten C27 Spartan aircraft as replacements for the old Caribou.

The RAAF is expected to take delivery of its first aircraft in 2015 and have them fully operational by 2016. They will be based at Richmond, where the RAAF's Caribous started out and they will fly under the 35 Squadron banner.

We were also told there was an exhibitor which makes possibly the world's best microphones, ear-phones and head sets. This company is called Sennheiser and is a family owned international organisation based in Wennebostel (Wedemark), near the German town of Hannover. It employs approx. 2100 employees in 90 countries and has an annual turnover of just under 470 million Euros. Sennheiser has been in operation for more than 60 years.

The beautiful Sennheiser girls L-R: Nikki Pratt, Courtney Summers, Katie Nicol and Jill Sloan.

Not all exhibitors were inside the big Exhibition Halls, some were outside in smaller tents or in structures they brought with them.

This one looked good, though for some reason it didn't seem to attract a lot of interested onlookers.

Every Airshow has a number of spectacular events for the patrons to watch, one of which is usually quite outstanding. We feel Airshow 2013 had two such events, one was the unbelievable F22 aircraft, the other was the Breitling Aerobatic Formation Wing-Walker Team.

This amazing display consists of two 1940s open-cockpit Boeing Stearman aircraft, two pilots and three very lovely, very fit and very brave girls (one girl gets a bye each flight). These petite yet fearless young ladies spend most of their working lives perched on the top wing of the Stearman, up to 500ft above ground, while the pilot tosses the aircraft through all sorts of aerobatic manoeuvres at over 150 mph with the girls experiencing 'G' forces of up to 4G!. Just being in the aircraft itself would be scary enough, but to be bolted to the top wing, doing all sorts of gymnastical movements would be downright terrifying.

Based in the UK, the team, which is the only aerobatic wingwalking "show" in the world, has been wowing audiences for over 27 years. The girls perform a breathtaking sequence of acrobatic manoeuvres and handstands while the pilots fly the aircraft through a well rehearsed

energetic routine of dazzling aerobatics and close formation flypasts including loops, rolls, stall turns and even inverted flight!

I went down to have a close look at the aircraft and a chat with the pilots but was immediately captured by the girls who insisted on having their photo taken with me – well, you can't refuse a lady, let alone three of them.

The Wing Walker girls, L-R: Daniele Hughes, has been competing for 7 years, Sarah Tanner, 8 years and Freya Paterson, 1 year.

Someone told us there were blokes in the team too, pilots they said, blokes who flew the aircraft, as hard as I looked I couldn't find one.

Eventually we did get around to checking out the aircraft and had a look at the safety mechanism the girls use to get from the front seat to the top of the wing, all the time being buffeted by the airflow and the wash from the propeller.

There is a stout metal strut protruding from the top of the wing which has a rotating harness fitted to it. A securing cable has one end attached at the top of the strut and the other end to the rear of the front seat. The girls wear a harness belt and before leaving the seat, use a sliding clip to hook a cable attached to their harness belt to the security cable. They then grab the handles built into the trailing edge of the

upper wing and climb out. When up on the wing, they attach themselves to the rotating harness and then it's on with the show.

I couldn't or wouldn't do it even with the aircraft still on the ground!!!

During one of the early days of the show, one of the aircraft suffered an engine fault and had to

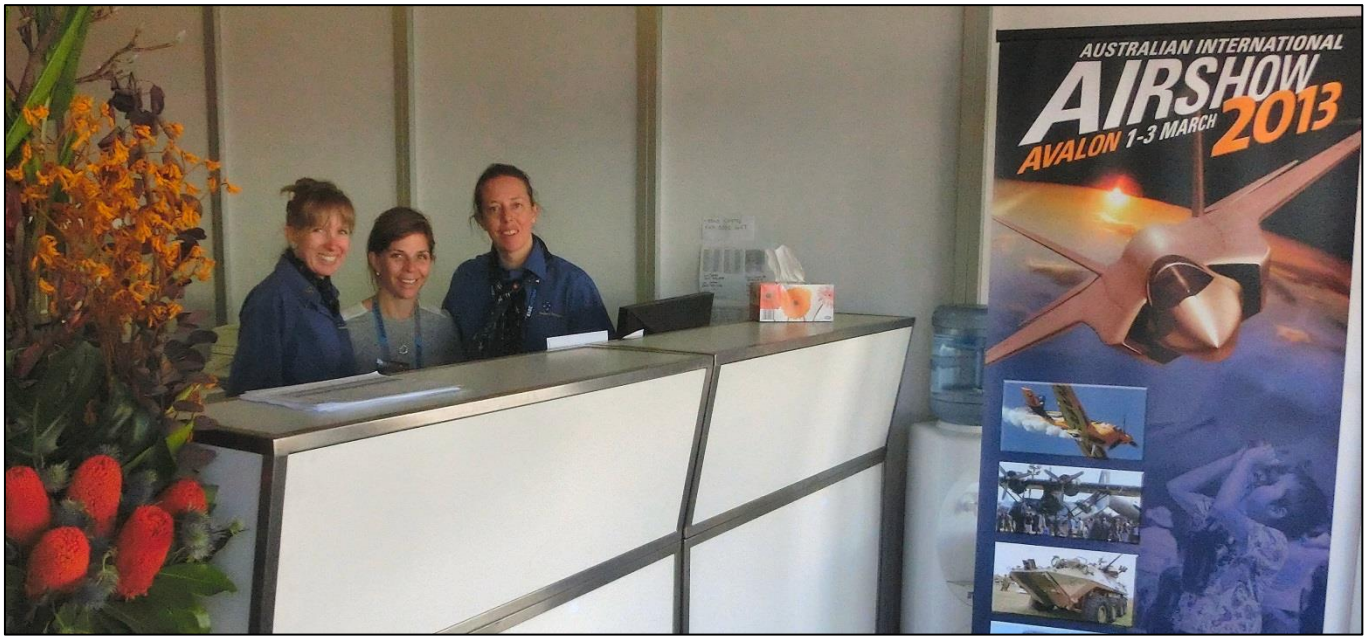
perform an emergency landing on the grass on the western side of the airfield. One of the girls, Freya Paterson, was out on the wing at the time and as this manoeuvre has been practiced many many times, she was able to get back to her seat in the front of the aircraft in no time flat before the aircraft was safely landed.

Unfortunately, this reduced the show to one aircraft, but to our eyes it was still outstanding.

If you weren't there, have a look at this video to see what you missed.

A show like this relies a lot on the media to spread the word prior to the event and to report on it afterwards and the organisers set aside an exclusive area for media people to meet, rest and compose their stories.

Specialised facilities and specialist staff are employed to cater for the electronic and written media and to answer their many questions, to hand out information brochures and just to make everyone feel welcome.



Three such lovely girls who worked in the Media Centre are -
(L-R:) Karen d'Altera, Peta Richards (Manager Program Services Support) and Olivia Kipman.

Words with two meanings - VULNERABLE (vul-ne-ra-bel) adj.

Female:	Fully opening up one's self emotionally to another.
Male:	Playing cricket without a box.

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Civilian Aircraft.

Avalon 2013 attracted many aircraft manufacturers, all keen to take orders for their wonderful aircraft. Some produced super luxury machines, some work horses, some small commuters and although most were fixed wing, the rotary wing boys were there too, all hopeful of a sale. There were also aircraft that were there just to be seen, some used to serve in the defence of the country, others that were once state of the art transporters and some that were so small that one wondered who would venture into the wild blue in such a contraption.

And as diverse as they were, they all drew huge crowds because they were aircraft – from the days of Orville and Wilbur, the public has held aircraft and those that make and fly them, in awe. They still do!

Here are just a few of those machines.

Embraer Lineage 1000.

One aircraft that fitted the luxury tag with ease was the Brazilian Embraer Lineage 1000. The Lineage is an ultra-large executive jet based on the Embraer 190 regional jet airliner which is flown in Australia by Virgin Blue. Costing about $43 million, it supposedly surpasses equivalent aircraft in range, cabin size, baggage space, and the ability to indulge.

The Lineage's cabin is double the size of any aircraft with comparable range which is a very useful 4,200 nautical miles. Depending on the seating configuration, the five-zone cabin can carry 13 to 19 passengers and 2 or 3 cabin crew. With a stand-up height of 2 metres, a width of 2.7 metres and a length of 27.5 metres it is a very comfortable aircraft.

Depending on a purchasers' taste, needs, use and size of pocket, there are hundreds of ways to customize the configuration for the ultimate accommodating environment. The cabin is split into five distinctive privacy zones and includes complete audio and entertainment systems, as

well as a fully equipped wet galley as standard. Plenty of swanky options are available including three toilets and a stand-up shower; a queen-size bed and of course high-speed internet connection to accommodate the on-board business executives.

It will cruise at 470 kts, needs 6,660 feet to become airborne with a maximum take-off weight (MTOW) of 120,150 lbs and has a ceiling of 41,000 feet. Embraer chose the whopping General Electric CF34-10E7-B high-bypass engines to propel the Lineage, each of which produces 18,000 lbs of thrust.

Embraer's toe-dip into the business jet market has proved to be a flying success, evidenced by the Phenom (seen at Avalon 2011) and Legacy series, and now the Lineage.

Gulfstream G650

Another aircraft that deserves the luxury tag is the Gulfstream G650. Built by Gulfstream Aerospace in the USA, the G650, which first flew in 2009, will carry from 11 to 18 pax, cruise at 485 kts for 14.5 hours and cover 7,000 nautical miles. Its max ceiling is 51,000ft.

It can be ordered with a full kitchen and bar and a variety of entertainment features including satellite phones and wireless Internet and is powered by the new Rolls-Royce BR725 engines, each producing a maximum thrust of 16,900 pounds.

The G650's cabin is 1.96 metres high and 2.59 m wide and to keep the weight down, uses composite materials in the empennage, winglets, rear pressure bulkhead, engine cowlings, cabin floor structure and many fairings.

As is becoming the norm these days, the aircraft controls are completely fly-by-wire. There are no mechanical control cables between pilot and the flight surfaces which are moved by a dual hydraulic system.

The GA8 Airvan.

The GippsAero GA8 Airvan is an important Australian designed and manufactured high wing, 8 seat, utility aircraft specifically engineered to meet demands of remote operations from unimproved strips.

No other aircraft in its class measures up to the stringent safety, design and airworthiness requirements to which the Airvan is certified. No other aircraft in its class can match the load carrying capacity or its flight handling characteristics.

The easily operated sliding door allows clear access to the cabin with the flaps either up or down and the floor height is perfect to allow for easy loading and unloading from a ute or four wheel drive. The large door, which can be opened in flight, allows the GA8 to be used in a number of roles such as skydiving, supply dropping or other military and/or law enforcement tasks. It also makes loading items as large as 1m x 1m x 1.2m a breeze. The main landing gear is located further aft than on many comparable aircraft meaning that the floor angle remains constant during loading and unloading with no tendency to tip onto its tail. The aircraft can be ordered with or without the cargo pod.

The owners planned the normally aspirated piston-engined GA8 to fill the gap between the Cessna 206 (one of the world's best workhorses) and the turbo Cessna 208, improving an owners' profitability without going to the expense of purchasing a turbine powered aircraft.

In October 2006, they announced that a turbocharged version of the aircraft had commenced flight testing. This aircraft, to be named the GA10, has been stretched to seat 10 people and will carry an increased payload. In June 2008, they said they were giving serious consideration to re-building the little 18 seat Nomad, to be named the GA18, though with different engines, propellers, and a glass cockpit.

All this activity required additional funding and in Dec 2009, Mahindra Aerospace, part of the giant Mahindra Group of India acquired a 75.1% majority stake in the Company. Although the GippsAero company's future now seems assured, let's hope it stays in Australia.

Performance:

	Normally aspirated	Turbo Charged
MTOW	1,905 kg	1,905 kg
Max useful load	783 kg	828 kg
Take off ground roll	420 metres	244 metres
Landing ground roll	150 metres	147 metres
Cruise fuel consumption	57 lt/hour	68 lt/hour
Endurance (no reserve)	8.5 hours	8.2 hours
Range	546 nm	567 nm
Rate of climb (MTOW)	731 ft/min	905 ft/min
Stall speed, full flap	57 kt	57 kt
Ceiling	15,500 ft	20,000 ft

Cessna 182

One little aircraft that needs no introduction is the Cessna 182. This little 4 seater aeroplane, which when first produced back in 1956, was really a C180 with a nose wheel. Over the years it has undergone many improvements, such as a wider fuselage, swept vertical fin, bigger back window, more luggage room, higher gross weight and improvements to the landing gear.

In 1985, Cessna became a subsidiary of the General Dynamics Corporation and very soon after stopped producing single piston-engined aircraft due to concerns over product liability. Then in 1992, Textron, Inc. acquired Cessna Aircraft and as liability laws had changed in the US, soon resumed producing light aircraft. The C182 was back in production. In 1996 considerable changes were made to the aircraft, a new engine was fitted as was new seating and then the Garmin G1000 glass cockpit was added. Later this year (2013) Cessna intends to fit the C182 with the French SMA SR305-230 diesel engine which will run on Avtur and will burn 42 litres per hour.

The C182 is Cessna's second most popular aircraft, after the C172. Cessna has to date sold 23,237 of them and counting, (against 43,000 C172's)

DH-4 Caribou

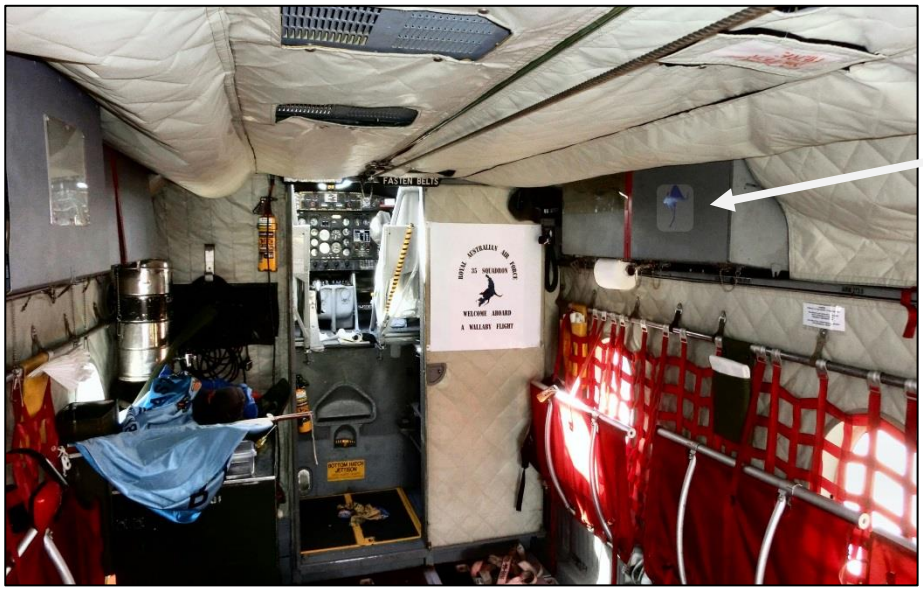
The old Caribou might have left the RAAF, but a couple of them, both ex-Vietnam aircraft, still fly, thanks to the Historical Aircraft Restoration Society (HARS) of Albion Park, NSW. Registered now on the civvy register (as VBA and VBB) both were at the 2013 show, one on static display out the front of Australian Aerospace and another on the "keyhole" ready to put on a flying display as only a Caribou can. Bob St John, who has been around Caribous as long as anyone, was on A4-210 (VBA), the aircraft that was designated to do the display but 210 being 210 had other ideas and decided to dump copious quantities of high octane fuel onto the ground from its port wing tank.

This of course caused a bit of a stir. The Fireys, who thought dumping buckets of highly flammable fuel on the ground so close to millions of dollars of hi-tech aircraft was not on, were a bit upset about it. They brought in their big yellow trucks and ropes and

poles and ordered everyone away from the aircraft. Out came the engine stands, off came the cowls, sumpies and framies swarmed all over the aircraft and you could be forgiven for thinking you were back on the PSP at Vungers. At first it was thought one of the rubber fuel cells had ruptured (you don't just buy a new one from Bunnings either) but on further investigation it was found (luckily) it was only a flange that had let go. The little Clarktor hooked up to the nose gear and 210 was banished to the naughty corner, a spot far from other aircraft (and Mr and Mrs Public), where it was eventually repaired.

A4-234 (VBB) was withdrawn from the Australian Aerospace stand, replaced the sick 210 and put on a show for the people.

Prior to all this happening, the PBRD struck and branded the old Boo.



A4-210 (right) in the naughty corner, with a few 44's under the wing to catch any drips.

Australian Aerospace, which did the major servicing on the Caribou when they were flown by the RAAF, announced, at the show, that they had reached agreement with HARS and would support two aircraft and provide funding towards their upkeep.

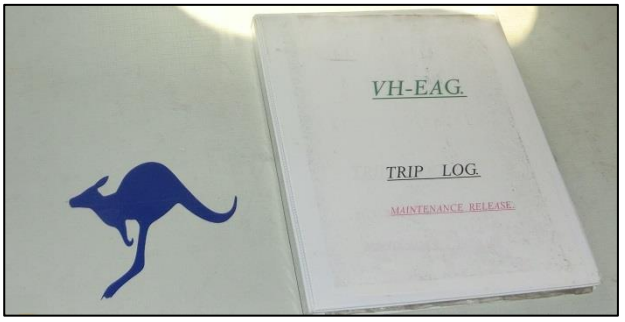
Announcing the deal, Jens Goennemann, said: “These are just two of the few surviving flying examples of the Caribou, and their importance to Australia’s history and heritage cannot be overstated. Their legacy is worth preserving, and I’ve no doubt these aircraft will prove a popular tourist attraction and a valuable historical example, particularly for younger generations and new settlers, on the important contribution the Caribou made to Australia in times of both peace and war.”

Speaking proudly of the Caribous and the AusAero partnership, Mr Bob De La Hunty OAM, President of HARS, said: “HARS welcomes the addition of these two Caribous to our significant collection of Australian military aircraft in flying condition. These fit in with our charter which is to preserve and maintain aeroplanes in an operational state. As an all-volunteer organisation, we can only do this with the assistance of companies such as Australian Aerospace. For this, we are very grateful. We see ourselves as custodians of Australian aviation heritage and are very proud of what we’ve achieved.”

L-R: Jens Goennemann (Australian Aerospace), Bob De La Hunty (HARS), Doug Haywood (HARS).

Connie

Another aircraft that is immediately recognisable is the Lockheed L-1049 Super Constellation, also owned by the HARS organisation. Lockheed built 579 of these wonderful aircraft, most of which were used by various militaries. First flown in July 1951, it started service in December 1951 and was built until 1959 when the Boeing 707 was introduced and banished piston aircraft to the back seat.



The PBRD struck the Connie also.

In the days of the Connie, flying was a luxury, people “dressed up” the seats were large and comfortable, there was plenty of room, service and facilities were first class. The jet age did away with all this, from then on operators wanted bums on seats, as many as possible. Where the 113ft long Connie would carry about 60 pax in relaxed comfort, the 145ft long B707 would jam in about 200.

Piper Seneca.

Piper's 6 seater light twin has been around for a while now. First seen in 1971, the Seneca was derived from the single engine Cherokee six. The prototype Seneca had three engines, retaining the original engine in the nose from the Cherokee six but that engine was discarded and the aircraft was produced with the two engines in wing. Early models had a few handling problems which were quickly fixed, the propellers were counter-rotated and eventually a T tail was fitted. The Seneca is popular with air charter companies and small feeder airlines and is operated by private individuals and companies.

It will cruise at 200 kts, has a service ceiling of 25,000ft (16,500ft on one engine) and has a useable load of 624 kg.

Cessna 208 Caravan.

First flown in 1982, the Caravan continues to go from strength to strength.

Powered by a Pratt & Whitney PT6A-140 turboprop engine producing 850 shp, the aircraft will carry a total of 14 persons over 1,000 nm at a speed of 190 kts.

To date there has been over 2,000 built. Recently Cessna signed a JV with the government-owned China Aviation Industry General Aircraft Company and all future aircraft destined for the Chinese market will be built in China

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Socata TBM 850

The French built Socata TBM was first flown in 1988 and introduced into service in 1990. In 1985, Socata bought the US aircraft manufacturer Mooney, better known for their light single engine aircraft with the back to front tail fin.

Mooney had been working on a six-seat pressurised light aircraft powered by a single 360 hp (268 kW) piston engine and when Socata started to pay the bills, they decided to fit the aircraft with a turbo prop engine.

The TBM has retractable tricycle landing gear and is powered by the Pratt & Whitney PT6A-66D, 850 shp engine giving a usable range of 1,520 nautical miles.

Bombardier Learjet 35A.

Learjet was founded by William Lear when in 1963 he built and flew the first all jet personal aircraft. In 1967, he sold his stake in the company (approximately 60%) to the Gates Rubber Company of Denver, Colorado for US$27,000,000 and in 1969 the company was renamed the Gates Learjet Corporation. In 1990, Bombardier Aerospace purchased the Learjet Corporation and aircraft were marketed as from the "Bombardier Learjet Family".

The 35A will carry 8 pax over 2000 nm at 430 kts.

This particular aircraft is owned and operated by Air Affairs Australia who use it to tow targets for the defence forces.

CT/4

The CT/4 is an aircraft that has been derived from the original Victa Airtourer which was built and first flown in Australia in 1959.

In 1966, the Australian Government under Harold Holt, rejected Victa's appeals for tariff protection assistance and for funding assistance to keep their production lines open. The company had no choice other than to close down its Aviation Division in February 1966, by which time it had built 168 aircraft.

The manufacturing rights to the Airtourer were purchased the following year by the maintenance firm Aero Engine Services Ltd in New Zealand where further production took place until 1971.

Ironically, one of its largest offshore orders came from the RAAF which purchased fifty-one uprated Airtourers (the CT4) between 1975 and 1982. These remained in service as the RAAF's ab initio trainer until 1993 and indeed, the CT4 is still being used (in Tamworth) as the basic trainer for all Australian military pilot training.

Winjeel.

Another aircraft that is immediately recognisable is the CAC Winjeel. The Winjeel (aboriginal for young eagle) entered service with the RAAF in 1955 as an ab-initio to advanced training aircraft.

It was developed by the Commonwealth Aircraft Corporation at Fishermans Bend to satisfy the RAAF's requirement for a training aircraft and a total of 62 were built and given the fleet serials A85-401 to A85-462.

They entered service with No.1 Basic Flight Training School (BFTS), originally at Uranquinty, (near Wagga), but were moved down to Pt Cook when Uranquinty closed in 1958. For most of its service life, the Winjeel was used as a basic-training aircraft but a few were used in the Forward Air Control (FAC) role from 1977 until 1994.

The Winjeel would cruise at 135 kts, had a range of 475 nm and had a ceiling of 15,800 ft and was a Rad Techs dream.

Cessna 305D Bird Dog.

The Cessna 305D (Bird Dog), a development of the Cessna 170, was a liaison and observation aircraft and was the first all-metal fixed-wing aircraft ordered for and by the United States Army since the U.S. Army Air Forces separated from the Army in 1947, becoming the U.S. Air Force. The Bird Dog had a lengthy career in the U.S. military, as well as in other countries.

The greatest difference between the C170 and the C305 was the C305 had only two seats, in tandem, with angled side windows to improve ground observation. First flown in 1949, deliveries began in 1950 just in time to be shipped off to Korea. Cessna produced 3,431 of the aircraft, 3,200 of which went to the US Military between 1950 and 1959. In 1962 it was shipped off to its second war, in Vietnam, where it was seen everywhere. The last U.S. Army Bird Dog was officially retired in 1974.

Two Bird Dogs were used by the Australian Army's 161 Reconnaissance Flight operating out of Nui Dat. One was lost to ground fire in May 1968, killing 161's Officer Commanding. Another was built by 161's maintenance crew, using aircraft sections salvaged from dumps around Vietnam. It was test flown and later smuggled back to Australia in pieces, contained in crates marked as "aircraft spares". This aircraft now lives in the Museum of Army Flying at the Army Aviation Center at Oakey, Queensland.

The little bus cruises at 110 kt and has a range of 460 nm.

DH 94 Tiger Moth

What would an Air Show be without a Tiger Moth??

In the early 1930's, the RAF were looking for an aircraft in which they could train their pilots. Geoffrey de Havilland submitted a proposal which he called the DH82. The RAF liked the design and in 1932 placed an initial order for 50 of the aircraft. Later in the 1930's, as things started to look bad in Europe, the RAF ordered more and when war broke out, the RAF had 300 in service and orders were placed for more.

By war's end, the RAF had ordered 4005, most of which had been built by the Morris motor company. Today it remains in widespread use in many countries as a recreational aircraft.

The Tiger was used by many nations, but the biggest users were the RAF, Royal Canadian Air Force, the RAAF and the RNZAF and in all, from 1931 to 1944, 8,868 of them were built.

The little Moth would cruise at 60 kts (about 110 klm/h) and had a range of 250nm.

The Beechcraft Baron.

Another light twin that has been around for ever is the mighty Baron. Actually a Bonanza with two engines, the current Baron will carry 6 people over 942 nm at a speed of 200 kts. First flown in 1961, the Baron is a light, twin-engined piston aircraft, originally developed by Beech Aircraft Corporation and currently manufactured by the Hawker Beechcraft Corporation.

In 1969, the fuselage was lengthened, a more powerful engine fitted, seating was improved, luggage space was increased and the aircraft was renamed the Baron 58. Since then the aircraft has been continuously improved

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Lake Buccaneer.

The Lake Buccaneer is an American four-seat light amphibious aircraft, originally developed as the Colonial C-2 Skimmer, itself a development of the earlier Colonial C-1 Skimmer which first flew in 1948. Lake Aircraft purchased the manufacturing and design rights of the Skimmer in October 1959 then developed the design and produced the LA4 Buccaneer in November 1959. The original LA4 remained in production until 1972 when it was replaced by the improved LA4200 Buccaneer which had a more powerful engine, extra fuel capacity and higher weights.

The Lake will cruise at 130 kts, has a range of 710 nm and a ceiling of 14,700 ft

DC3

Another aircraft that is immediately recognisable all over the world is the indestructible Douglas DC3. Like all serviceable DC3's, this particular aircraft has a checkered and interesting history. It started life back in 1942 as a C-47 and was used as a troop carrier by the

US Army during WW2. In 1944 it was sold to the then Australian Department of Civil Aviation and was entered into the register as VH-AES when it was operated by ANA for a short period as a freighter. In 1946 it was sold to TAA and renamed Hawdon and flew the inaugural Melbourne (Laverton) to Sydney route.

In 1960 it was sent to Lae in PNG, re-registered as VH-SBA and operated TAA's services up there before being withdrawn from service in 1970. It was then repainted to its original TAA colours, and re-registered as VH-AES to commemorate TAA's 25th anniversary. Then in Oct 1971, it was re-registered again to VH-SBA, flown to Melbourne and placed into storage and in 1974 it was de-registered.

In 1979, it was restored to its original TAA livery, renamed "Howdon" and placed on display at Tullamarine airport where it stayed until 1987 after which it was taken down, delivered to the TAA maintenance hangar and restored to flying condition. Once again it was registered as VH-AES.

It flew again in Sept 1988 and since then has become a welcome attraction at airshows and events around the country. Currently, Qantas help with the maintenance and expense in flying the aircraft and it is intended that it will remain in service as long as possible and will ultimately become part of an iconic collection.

Pilatus PC-12.

The Pilatus PC-12 is a pressurised single-engine passenger aircraft manufactured by Pilatus Aircraft of Switzerland.

Pilatus announced the development of the PC-12 in 1989 and the first flight took place in 1991 with certification being completed in 1994. Since then Pilatus have built and sold in excess of 1,000 aircraft. It is powered by a single Pratt & Whitney PT6 turboprop engine driving a four bladed variable pitch prop and is certified for single-pilot IFR operations, though many operators choose to utilize a second flight crew member. At the moment it is offered only as a nine-seat airliner but a pure freight model is under consideration.

One little aircraft that has a star following on the internet and which has been seen by millions of people, is the little Cub. This light-sport aircraft, which is based on the Piper Cub, an aircraft that has been around for about 50 years, is a modernized aircraft with light-weight carbon fiber components and a 180 hp engine. This little aircraft carries two, will cruise at 105kts, stalls at 27kts and will climb out at 2,100 f/min.

You can see video of the aircraft HERE and HERE.

Another light aircraft that is quite outstanding in its way is the Cirrus SR20. First flown in 1955, it is noted for being the first production general aviation aircraft equipped with a parachute designed to lower the aircraft safely to the ground after loss of control or structural failure.

A little 4 seater, the SR20 will cruise at 155 kts, stalls at 56 kts (flaps down) and has a range of 785 nm. 25 have been ordered by the US Air Force Academy.

Models.

VICTORIAN MODEL AERONAUTICAL ASSOCIATION

Members of the Victorian Model Aeronautical Association (VMAA) were there in force with many of their wonderful models. Looking at these perfectly scaled aircraft, you wonder at the thousands of hours spent by the modellers on each of them. How they are valued is anyone's guess, if the hours were counted they would be invaluable but the consensus has them valued somewhere between $400 for the smaller ones to over $10,000 for the larger more detailed ones. One aircraft that was flown at the show is valued at just under $20,000 – so it definitely requires a steady hand at the controls.

These aircraft are radio controlled with the controllers operating in the 27, 29 36 and/or 40 MHz bands. 36 MHz is the band of choice.

Everyone would love to own one of these aircraft – but not everyone has the skill or the patience to be able to build one – and if you did own one, who would be game enough to fly it????

Gyro Copters.

There were quite a few gyro copters on display but the one that caught our eye was the Magni Orion 24. This little aircraft is a fully enclosed, side by side two seat, dual control machine, specially designed for those who do not want to go without comfort, even when having fun and if we were ever persuaded (or our life depended on it) to venture forth in one, this is probably the one in which we'd go. The Orion carries 82 litres of fuel which equates to 4 hours flying at a cruise speed of about 75 knots – that's about 14.5 litres per 100 kilometres.

If you are looking for a cheap, comfortable and easy to operate aircraft, this could be just what you are looking for!!

Everyone has seen these little machines, but how do they work??

When the aircraft is pushed through the air by the little pusher (or puller) engine, air passes upward through the rotor causing it to rotate. Whereas a helicopter works by forcing the rotor blades through the air, pushing air downwards, the autogyro rotor blade generates lift in the same way as a glider's wing by changing the angle of the air as it moves upwards and backwards relative to the rotor blade. The rotor blades are angled so that they not only give lift, but the angle of the blades causes the lift to accelerate the blades' rotation rate until the rotor turns at a stable speed with the drag and thrust forces in balance.

Logically, we reckon they shouldn't work at all!!!

Although not enclosed, the Arrow Copter is also a fine little machine.

Nostalgia isn't what it used to be.

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Military Aircraft.

There were a number of overseas military aircraft at the Airshow, but undoubtedly, the US of A stole the show with its amazing Lockheed Martin/Boeing F-22 Raptor.

The F22 is a single-seat, twin-engine fifth-generation super-manoeuvrable fighter aircraft that uses stealth technology. (Someone said, you might not be able to see it, but you can certainly hear it). It was designed primarily as an air superiority fighter, but has additional capabilities that include ground attack, electronic warfare, and signals intelligence roles. It is made by a consortium of companies of which Lockheed Martin Aeronautics is the prime contractor and is responsible for the majority of the airframe, weapon systems and final assembly. Boeing Defense, Space and Security provides the wings, aft fuselage, avionics integration, and training systems.

Pic by Erin Muscat

The aircraft entered service with the USAF in December 2005 which now considers the F-22 a critical component of U.S. tactical air power and claims that the aircraft is unmatched by any known or projected fighter.

The USAF originally planned to order 750 aircraft at a cost of $26.2 billion ($35M each), but in 1990 Dick Cheney altered the plan to 648. The goal changed again in 1994, when it became 438 aircraft and then in 1997 it was further reduced to 339. In 2003, the USAF said that the

existing congressional cost cap limited the purchase to 277. Then in December 2004, the Department of Defence reduced the number further to only 183 aircraft. By 2006 the cost had blown out to $361M per aircraft. The final F-22 rolled off the assembly line on 13 December 2011

Currently US Federal Law prohibits export of the aircraft which has limited its production and as a consequence, increased its per item cost. Several nations (Japan and Israel for two) have indicated they would buy the aircraft now if allowed, but in 2006 the US Congress confirmed the ban. Instead the US is exporting the Boeing F/A-18E/F Super Hornet and nations are waiting for the (supposed) cheaper and more flexible F35 Lightning. The F35 will not be as agile as the F-22 or fly as high or as fast, but its radar and avionics will be more advanced.

A while back, some Australian politicians and defence commentators proposed that Australia should have purchased the F-22s instead of the F-35 as the F-22 was a proven, highly capable aircraft, while the F-35 was (and is) still under development. The Rudd Government ordered a review of Defence procurement plans and in February 2008, the U.S. Defence Secretary Robert Gates said he had no objection to supplying the F-22 to Australia and Australia would not be barred from buying the F22 should it wish to so do. However the RAAF found that the F-22 could not perform the strike or close air support roles planned for the JSF so that plan was canned and it was decided to go with the F35. Let's hope they were right!

The PBRD was not game!!

The USAF also brought in their trusty old B52, an aircraft that has flown with the USAF since 1955. Like the woodman's axe which has had two handles and three heads, but is still a damn good axe, the B52 has, over its 58 year history, undergone many many changes too, but it's still a B52. Beginning with the successful contract bid in June 1946, the B-52 design evolved from a straight-wing aircraft powered by six turboprop engines to the eight turbojet engined, swept

wing airframe it is today. It took its maiden flight back in April 1952 and was built to carry nuclear weapons for Cold War-era deterrence missions.

A veteran of several wars, the B52 is fondly referred to as the *BUFF* (Big Ugly Fat/Flying Fu**er/Fellow). Of the 744 that were built, 85 remain in active service with the new Air Force Global Strike Command (AFGSC) with a further 9 in reserve.

Superior performance at high subsonic speeds and relatively low operating costs have kept the B-52 in service despite the advent of later more advanced aircraft. The B-52 marked its 50th anniversary of continuous service with its original operator in 2005 and after being upgraded between 2013 and 2015 it will serve into the 2040s.

Somehow the PBRD snuk on board the B52 and left a memento of the BUFF's trip to Avalon.

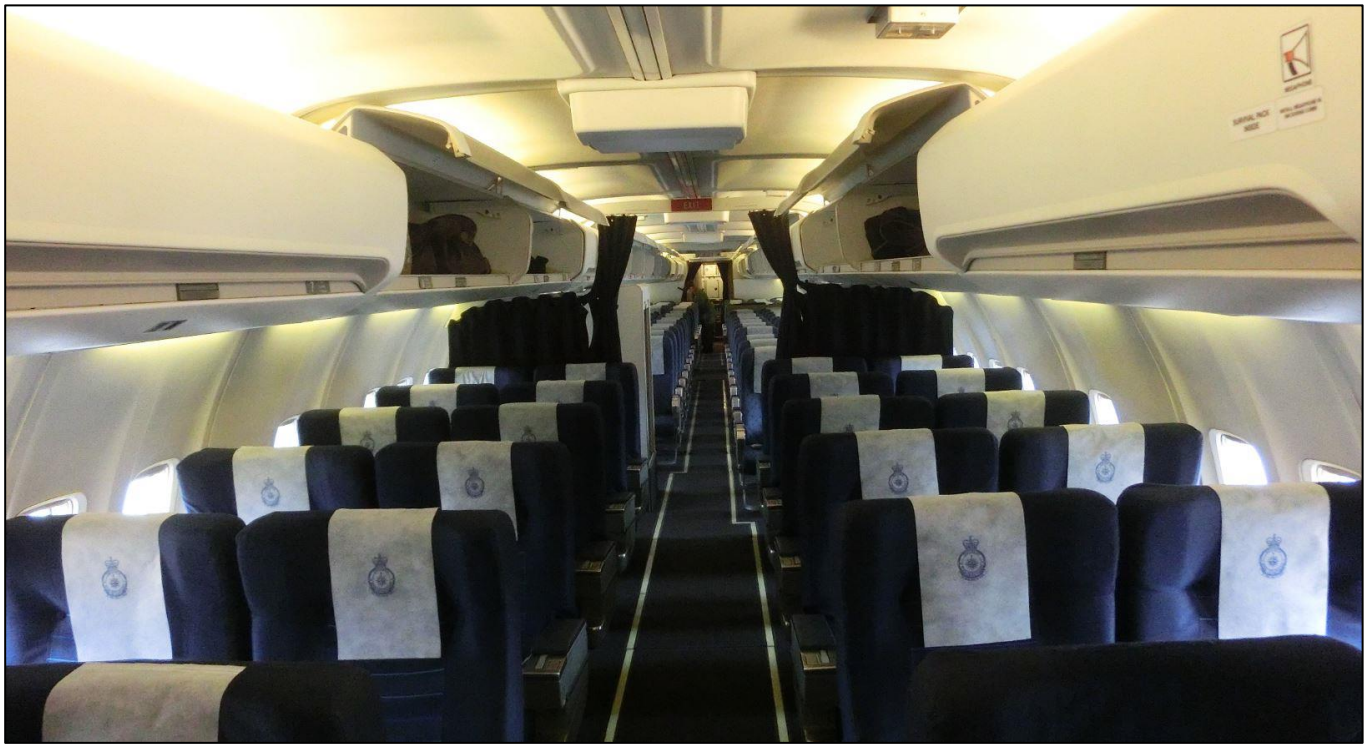
Another USAF aircraft that has been around for a long long time is the Boeing KC-135 Stratotanker. Built on the Boeing 717 airframe, not, as is often thought, from the different 707 airframe, the KC-135 first flew in 1956 and entered service with the USAF in June 1957. Despite increased maintenance costs, it is thought many of the original 803 aircraft could be flown until 2040. The aircraft will eventually be replaced by the Boeing KC-46 which is based on the Boeing 767. The early aircraft were equipped with Pratt & Whitney J-57-P-59W turbojet engines which produced approximately 58 kN of thrust wet. Wet thrust is achieved through the use of water injection on take-off. 2,500 Litres of water are injected into the engines over the course of two and a half minutes. The water turns to steam and is ejected out the rear of the engine, increasing the exhaust mass and increasing thrust. It results in the engine running somewhat hotter, with more engine noise.

The aircraft have undergone two engine upgrades since 1957 and future mods are planned for the refuelling system.

And because it was there, the PBRD branded the tanker too.

The Kiwis also came to the party with one of their two Boeing 757-200 people movers. Operated by 40 Squadron RNZAF, the fleet, which started work in the Shaky Isles in 2003, undertakes operations to many points around the globe and flies a varied mission profile. They are also fitted with an upper deck cargo door that can handle 11 cargo pallets.

The interior of the people mover, no red webbing seats here….



The PBRD welcomed the Kiwis to Avalon too.

The RAN's 816 Squadron operates 16 Sikorsky S-70B-2 Seahawk helicopters whose primary role is to provide anti-submarine warfare and anti-surface surveillance from the Navy's Frigates. With its electronic equipment and integrated weapons systems, the Seahawk can find and destroy surface or submarine targets either independently or in conjunction with other forces. A typical Seahawk mission involves up to four hours of low-level operations over the sea, by day or night, in all weather and returning and landing on a ship that can pitch and roll dramatically in heavy seas.

The Seahawk's main weapon is the MK 46 torpedo and it can also be fitted with a 7.62 mm door mounted general purpose machine gun. It is also used in search and rescue, troop lift and tactical insertion, utility operations (winching and external load lift) and fire bombing.

816 Sqn used to operate the Grumman Trackers which were all destroyed in a fire in Dec 1976. As a result of this, in 1982, the Sqn was disbanded then re-activated again in 1984 to operate the Wessex Helicopter. Then in 1988, the RAN began to introduce the Seahawks and they were officially introduced to 816 Sqn in 1992, the delay being caused by the first Gulf War.

The 816 Squadron Crest depicts the head of a Bengal tiger on a black field and its motto is 'Imitate the Action of the Tiger'. You can read more on 816 Sqn HERE.

The Republic of Singapore Air Force had two of their Super Puma helicopters on deck. This particular aircraft, flown by RSAF's 125 Sqn, has proved immensely successful, chosen by 37 military forces around the world, and some 1,000 civil operators. The first prototype of the full Super Puma made its maiden flight in September 1978, followed quickly by five further prototypes, each of which contained many improvements, until the current aircraft was accepted and went into production. A wide variety of specialised military variants are in use,

including dedicated Search and rescue (SAR) and Anti-submarine warfare (ASW) versions. Since 1990, military Super Pumas have been marketed as the AS532 Cougar.

Formed in February 1985, 125 Squadron is the RSAF's third helicopter squadron, after 120 Sqn (with the AH-64D Apache Longbow) and 123 Sqn (Sikorsky S-70B Seahawk).

The first Super Puma made its way to Singapore in July 1985 and the Squadron was officially inaugurated on 4 October 1985. Three of the Squadron's Super Pumas are permanently painted in red and white paint scheme for conducting Search and rescue (SAR) work, taking over the duty of SAR-configured Bell 212 Twin Huey helicopters from 120 Sqn, which were retired the same year, the motto of the SAR detachment is *"That others may live"*.

The French Air Force had one of their versatile CASA C-295 aircraft at the Airshow. This is the aircraft that EADS, a section of Airbus Industries were pitching to the RAAF as a replacement for the Caribou but which eventually lost out to the C27. The C-295 is manufactured and assembled in the Airbus Military facilities in Seville, Spain.

It is a development of the commercially successful Spanish - Indonesian transport aircraft CASA/IPTN CN-235, but with a stretched fuselage, 50% more payload capability and new PW127G turboprop engines. The C-295 made its maiden flight in 1998.

In 2012, EADS announced several enhancements to the design, including winglets, and an ability to carry the Marte anti-ship missile. An airborne early warning and control version is also planned.

The C-295 is in service with the Armed Forces of 15 countries. By January 2013, a total of 121 C295s have been contracted and 93 are in service, two were lost in accidents.

Words with two meanings - **ENTERTAINMENT (en-ter-tayn-ment) n.**

Female:	A good movie, concert, play or book.
Male:	Anything that can be done while drinking beer.

RAAF.

Being an Airshow, the RAAF were there in numbers in both personnel and equipment. The first group to arrive was Number 1 Airfield Operations Support Squadron (1AOSS) and they erected and fitted out numerous buildings and tents in readiness for the main group to move in.

Above L-R: Jordan Augustin, a plant operator, based at Townsville and David Walsh, a plumber, based at Richmond.

They brought in trucks, containers, machinery and specialist equipment and in no time had the airfield looking like a forward base. Their plumber's truck (right) would certainly be the envy of an old retired plumber we know who was in Vietnam with 17th Construction Squadron (Army) back in 1965/66.

1AOSS is Headquartered at the base at Townsville and has detachments at each of the major RAAF Bases around Australia. It is responsible for providing fixed-base and expeditionary Air Movements support, Explosive Ordnance Disposal (EOD) functions, Airfield Engineering, including vertical and horizontal construction capabilities and 3rd line logistics support to the RAAF's Expeditionary Combat Support Squadrons. It was originally formed in 1966 as No. 1 Operational Support Unit (1OSU)

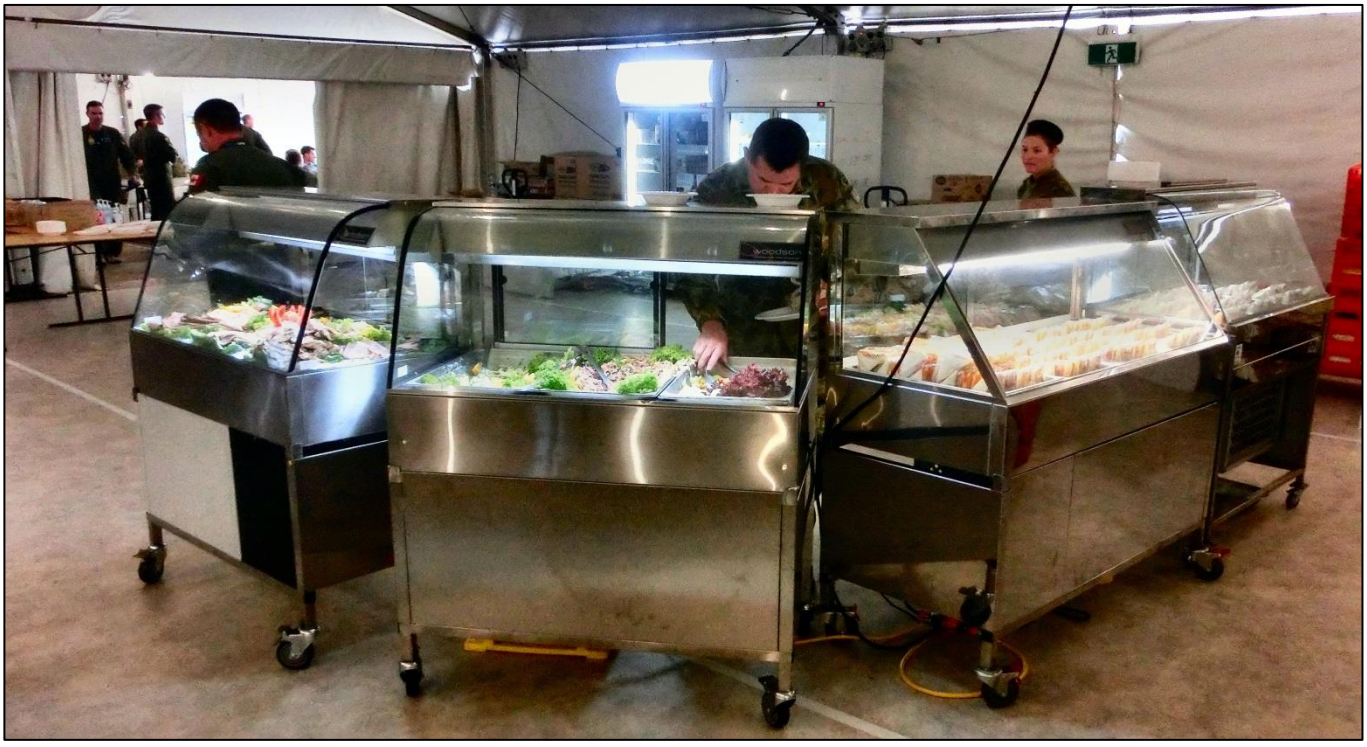
at Fairbairn and was immediately deployed to Vung Tau in Vietnam where it operated in direct support to Number 35 Squadron (and where it was good-naturedly called 10 Sewerage Unit). On return to Australia in 1972 the unit was disbanded only to be reformed 12 years later at Richmond, then relocated to share facilities with No. 7 Stores Depot in Toowoomba, before eventually relocating in 1992 to new facilities at Townsville. Not long after it was renamed No. 1 Combat Logistics Squadron.

On 1 January 2007 the unit merged with No. 1 Air Terminal Squadron to form into the unit it is today. 1AOSS is currently the most diverse and dispersed unit in the RAAF, with an approximate staff of 470 permanent, reserve and civilian personnel serving at 9 permanent detachments at bases all around Australia.

And speaking of bridges, how many 1AOSS personnel does it take to build a little wooden bridge over a little grassed ditch??.

The RAAF has always enjoyed the reputation of looking after their men and women much better than the other "junior" services. The RAAF's messes have always been way up there and the ground and naval people have always enjoyed a few days at a RAAF base – just to experience good food as well as solid buildings that don't flap, soft beds that don't sway and nice clean sheets.

The RAAF wasn't going to allow a small thing like an Airshow ruin their reputation so 1AOSS got to work and in the wink of an eye had a full kitchen and mess facility up and running – at the envy of all on the airfield.



The RAAF's cooks (fondly called bait layers) excelled and provided 5 star meals for the troops.

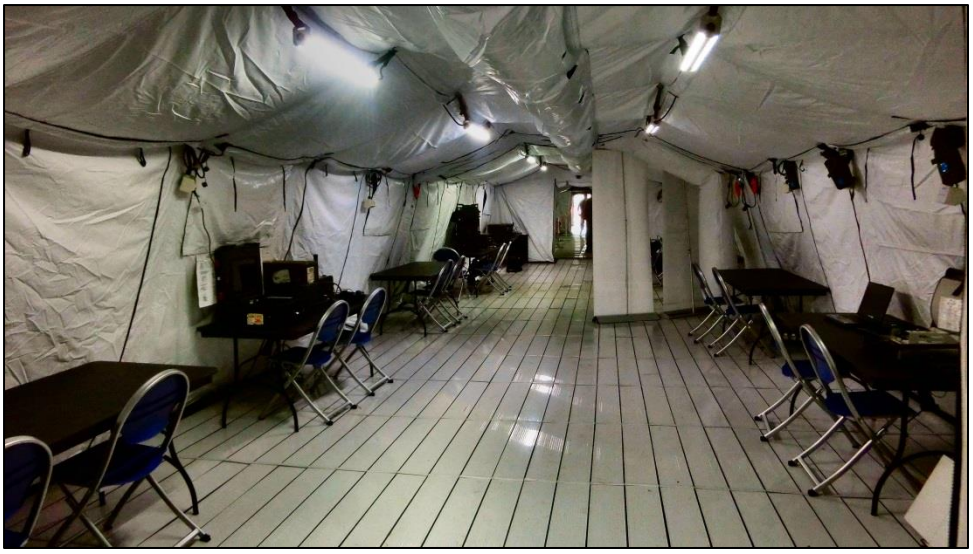
We looked in, saw there were plenty of spare seats and lots of food so we tried to sneak a meal but we were very quickly discovered and politely asked to leave – sob!!

One group that works with 1AOSS is Anitcom. Anitcom is a network solutions provider, based in Canberra, which specialises in the design, development and installation of secure network solutions to meet either a fixed or expeditionary requirement.

Solange Leiva, above, is the project manager with Anitcom.

Anitcom provided and installed the lined, powered and air conditioned display tent facility that the RAAF use as a mobile aid centre, operations centre, comm centre or even rest area.

Inside the Anitcom tent facility – I can just imagine one of these up at Fraser!!.



292 Sqn, arrived with one of their P3 Orions.

292Sqn was formed on the 1st January 1977 at Edinburgh as the Maritime Analysis Training School and was then renamed 292 Squadron in October 1980.

It is the RAAF's training squadron for crews posted to one of the maritime squadrons.

Aircrew do their conversion to the aircraft at 292, not at an operational squadron and once completed are posted to either 10Sqn or 11Sqn.

The aircraft was on display for the duration of the show but due to the sensitive equipment inside, the public had to be contented with an external view only.

The PBRD snuck in and popped one on the missile.

36 Squadron were there in numbers, at one stage they had 4 of their wonderful C17's on the ground. The Duty Crew blokes/blokettes at Amberley would have loved it – there is nothing better than a Squadron with no aircraft – peace!!!

The USAF had one of their C17's there too and both countries provided an airborne display, tossing their massive aircraft through the air as though they were Cessna 152s.

We reckon the Oz display was definitely the best though.

The RAAF also had their work-horse on display – the trusty old Herc. Nearly every Air Force in the world flies these things, there is nothing secret about the Herc – so the public were invited to look inside. Judging by the length of the line of people waiting to get in, we thought the loady must have been handing out $100 notes.

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First flown in 1954, you could be forgiven for thinking that everyone has seen the insides of a Herc at one time or another but obviously not. The amount of interest in the old girl that has been around for ages, in one form or another, seems to never end.

The RAAF's modified Airbus A330-200 aircraft, known as the KC-30A, is a dual-role air-to-air refuelling and transport aircraft. Operated by 33 Sqn at Amberley, it is equipped with both an Aerial Refuelling Boom System (ARBS) and two Cobham 905E under-wing refuelling pods.

The aircraft were ordered by the RAAF back in 2005 but delays in development of the boom system held up delivery and the 5th (and last) aircraft was delivered to Amberley in December 2012.

The RAAF has gone for a 2 x 4 x 2 seating arrangement in the “tourist” section and 2 x 3 x 2 in the “business” section of the MRTT (Multi Role Tanker Transport).

The RAAF Museum at Pt Cook had an interesting display, celebrating the 100th anniversary of the formation of Australia’s first military flying unit, the Central Flying School, which was established at Point Cook back on the 7th March 1913.

Recognising the potential of the newly invented aeroplane, as an instrument of war, the Australian Department of Defence began steps to form an aerial force as early as 1909. Australian Army Order No 132/1912, in September 1912, approved the establishment of an aviation flight, soon to become the Central Flying School with Deperdussin (below), BE2a and Bristol Boxkite aircraft being ordered later that year.

After extensive surveys, a 734 acre site at Point Cook, west of Melbourne, was selected as the site for the new school and by February 1914, tents and hangars were in place at the new airfield. On 1 March 1914, Lieutenant Eric Harrison made the first military flight in Australia aboard a Bristol Boxkite CFS-3 then after a period of flight testing, the first flying course at CFS commenced on 17 August 1914 with four students graduating from the 14 week course.

From 1914 until 1918, a further 11 courses were conducted at CFS, Point Cook with a total of 152 pilots graduating from the school. When World War 1 ended, the Australian Flying Corps was disbanded and all flying training ceased. Upon the formation of the RAAF as a separate service in 1921, CFS was renamed Flying Training School and this initial era in the history of the Central Flying School came to a close.

Naome Miles, Merchandising Manager Pt Cook Museum and Adrian Heinrich, ex 1RMT, now a volunteer at the Museum.

No 5 Flight, part of 82 Wing, based at Amberley, brought their little Heron to the show and each night they towed it away and locked it up then brought it out again in the morning. No. 5 Flight was formed in January 2010 and is responsible for training ADF personnel to operate the detachment of two Herons which are currently based at Kandahar in Afghanistan. They recently acquired a third vehicle which they use as a training aircraft. Prior to acquiring this third aircraft, operators were trained in Canada.

The Heron is a medium-altitude long-endurance unmanned aerial vehicle (UAV) developed by the Malat (UAV) division of Israel Aerospace Industries. It is capable of Medium Altitude Long Endurance (MALE) operations of up to 52 hours' duration at up to 35,000 feet although the effective operational maximal flight duration is less, due to payload and flight profile.

It navigates using an internal GPS receiver and either a pre-programmed flight profile (in which case the system is fully autonomous from takeoff to landing), manual override from a ground control station, or a combination of both. It can also autonomously return to base and land in case of lost communication with the ground station.

The Heron can carry an array of sensors, including infra-red and visible-light surveillance, intelligence systems and various radar systems, totaling up to 250 kg. Heron is also capable of target acquisition and artillery adjustment.

Australia is leasing the Herons as part of a multi-million dollar deal to operate the vehicles in Afghanistan and they are manually operated from a transportable container.

Opera is when a guy gets stabbed in the back and, instead of bleeding, he sings.

An event like the Avalon Airshow, which needs a large workforce for no longer than 2 weeks every 2 years, could not operate efficiently and successfully without a large number of volunteers. Volunteering gives the Airshow organisers a substantial dedicated workforce that is 'affordable' and gives the volunteers a chance to be part of and participate in a special event, an event built around an activity about which they are passionate. In this situation, everyone wins.

Every two years, several months prior to the show date, volunteers are asked to submit their intention to participate and to nominate in which "job" they would like to participate. There's a job for everyone, and if you like being around aircraft, like getting together with a bunch of like-minded people, like making new friends and want a wonderful week in the Geelong area, then you too should volunteer.

These are some of the jobs available.

Aircraft services	
Aircraft and Aircrew reception	Co-ordination centre
Aircraft Ground Operations	Flight Planning
Air Movements, flow control	Operations and weather
Airfield Preparation	
Event Services	
Exhibition Operations	Site operations
Customer Services	Car parking
Finance, Admin & Commercial Services	
Admissions	Event Transport
Car Park Fee Collection	Public Services
Programs, Production & Promotion	
Entertainment Displays	Protocol and Delegations
Event Personnel	Pyrotechnics and fireworks
Ground Displays	Site Decoration
Media and Publicity	
Safety, Security & Emergency Services	
Security & Emergency Services	Public and Staff Welfare

Volunteers are very well looked after too, here are some of the benefits.

- Free Airshow Family Pass.
- Free access to Airshow campsite (if required).
- Free car parking in designated personnel car park.
- Free Meals provided as per roster.
- Uniform Provided.
- Post Event Recognition.
- Post Event Party.

In 2013, there were about 600 volunteers and 100 persons in managerial

positions, all of whom were ‘organised’ by the lovely Karen Scott. If you think it is for you, we’ll remind you again late in 2014 so you can get your name in for the 2015 show.

Tony Harley (below) was there in March, he worked on the tarmac, met up with some old mates and made a few more, met lots of aircrew from lots of places and says he had a ball. Tony made use of the camping facilities provided by the Airshow and pitched his tent on the Lara Sports-ground along with many many others.

Everything was fine until the storm came through and moistened things a bit, but no-one cared, it soon cleared, and being a footy ground everything dried out quickly and everyone was happy.

Others stayed in various accommodation sites, some with family or friends, some in caravans, some in motels. Along with a lot of others, we stayed at the Best Western Motel in Geelong and were looked after by Mark and Linda Vaughan like we were the best of friends.

If motels are your style - we can definitely recommend the Best Western.

Tony – being the considerate and chivalrous sort of bloke that he is, made sure the Breitling Wing-Walker girls were well looked after and wanted for nothing.

After work, most of the Volunteers who were camped on the sports-ground would meet at the Lara Hotel for dinner, (provided of course), a cold beer, a yarn about the day's activities and just a good old social get together.

Ray (left) and Gus (right) showing Andrea how to operate the two-way radio.

(Sorry – no surnames)

To co-ordinate all the aircraft movements, an Aircraft Operations Centre was set up. This area provided Flight Planning and Pilot Briefing, Aircraft Ground Operations, Air Movements, FOC and Administration.

The AIP, that was published by Airservices Aust, made some changes to the airspace and procedures at Avalon Airport during the period 20th Feb to 5th March. Normally Avalon Tower has control of the airspace from ground level to only 700ft, while Melbourne ATC look after the rest. The AIP activated the 3 Restricted Areas above the airport, giving Avalon Tower control from ground up to 25,000ft inside the areas. The Airshow then established a Flight Operations Centre (FOC) [above] to provide a Service Movement (SMC) service.

During the period of the show, when an aircraft landed at Avalon, Tower would hand it over to the FOC which would then control it while on the ground. Looking at the number of people in the FOC the day this photo was taken there must have been a bunch of beautiful girls sitting nearby or there was a spectacular aerial display in progress – we think probably the former.

These three lovely girls, (**L-R:**) Sandra Peters, Debbie Yole and Sandra Peters run the Admin Centre at the Ops building. They look after the welfare of about 200 people who in turn look after tarmac control, crowd control, refuelling and aircraft escorting (follow me jeep).

Liz has been to 3 previous shows, Sandra 4 and Debbie 10.

L-R: Stuart Whiteley , Mike Jennings, Erin Muscat (boss), Rudi De Graaff, Glyn Butchard and John Varley.

The Air Movements section allocates arrival and departure times, parking spots and keeps a record of all aircraft movements.

Nigel Pittway, who heads up the records section, gave us the following stats from the 2013 show. You have to feel a little sorry for the ATC blokes who normally fight each other to be able to talk to an aircraft – their daily work load goes from 5 Jetstar movements per day (with the odd lighty) to that below.

Number of aircraft on display on the ground.	285
Aircraft movements during the show period, excluding RPT and helicopters.	614
Helicopters in/out to the show.	50
Aircraft using grass strip to the east.	165

With the large number of visiting aircraft, and with parking at a premium, most aircraft need to be parked some considerable distance from the Ops Centre, so a dedicated reception section was set up to meet these aircraft, welcome the crews and bring them back to the reception centre where they could arrange fuel, accommodation, meals, etc.

L-R: Carolyn Byrnes (who has been to 3 previous shows), Diane Holcroft (8 shows), Amy Tippett (first show) and Rae Cauchi (8 shows).

These 4 lovely girls were part of the Aircrew Reception section, undoubtedly they would make anyone feel welcome.

The girls had the use of little golf buggies in which to get around the large airfield to pick up the aircrews.

Most sections also had the use of one, handy for scooting out to check out an aircraft or for important jobs, like picking up lunch.

Alix Searancke, Carol Joyce and Karren Melhuish – from Aircrew Reception

These three girls, who were also from Aircrew reception, had taken a break and gone to have a look at the aircraft. Lindsay Hill reckons they had just gone to check out the blokes in uniform – could be!!

The large number of RAAF and other nations' Air Forces' aircraft, although handled by the Air Movements section, was done so in conjunction with the RAAF who had a co-ordinator on staff at all times. Flt Lt Ben Fraser, from RAAF Williams (we used to call it Laverton) earned his stripes working from sun up to sun down - but we reckon it was just a way to build up many hours leave in lieu.

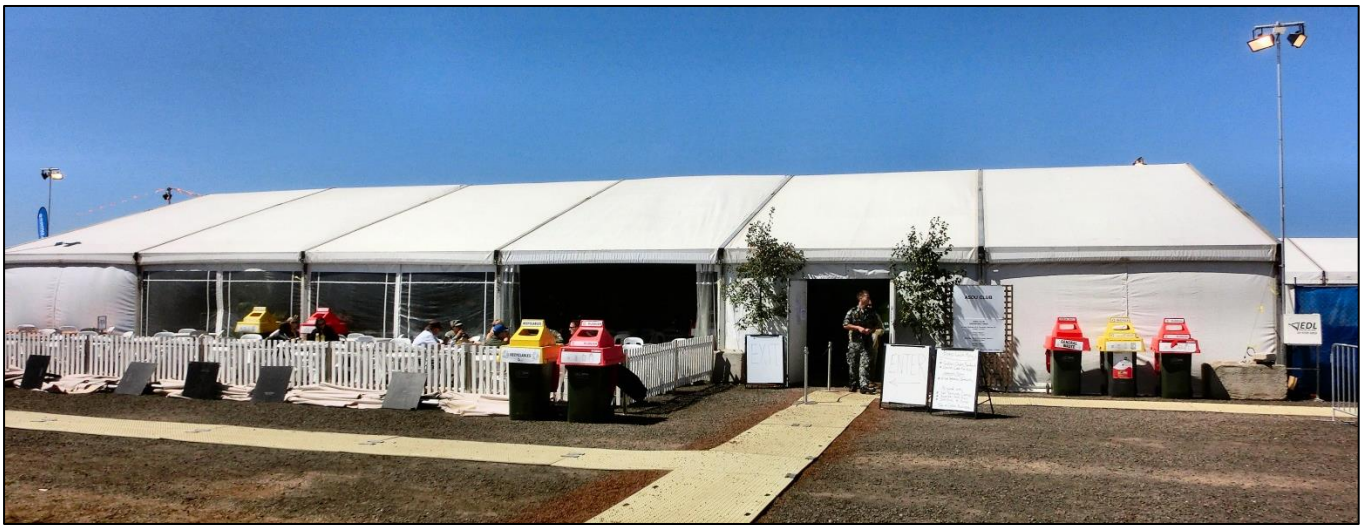
We had a chat with Ben about conditions in the RAAF today, seems things have definitely changed, for starters, Ben didn't have a clue what a Panic was, or subsistence allowance, or bed rolls, or guard duty, or even spit polish!!

When he was out we snuck a look at his boots which Mr RAAF had provided him with, these days they come already spit polished, RAAF's spoiling them these days!!

The organisers provided Airshow Volunteers and staff, apart from Ben who had the use of the Taj Mahal, with the Dubbo Club which provided meals and drinks and a place in which to eat, relax and/or just socialise should one wish

Ben Fraser with his lovely wife Kate.

Actually called the ASDU club, the Dubbo bit comes from days gone by when Australia was an "A" and not a "Y" and before that VFR helicopter pilot ……

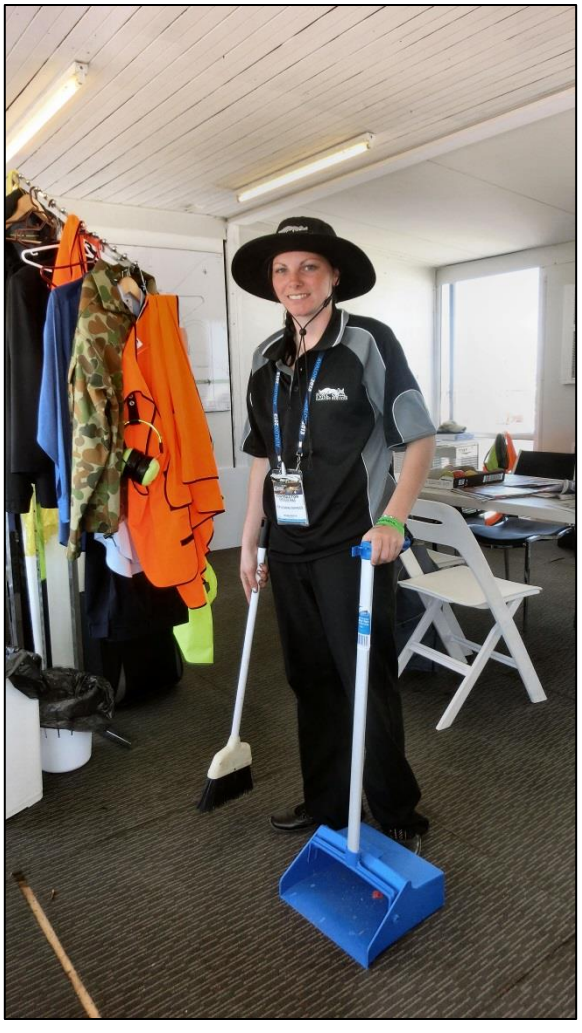


Ellen Sharpe, below left, lives in Tassie and takes leave and flies over to volunteer for the show as does Libby Bate who lives locally. Both work in the Dubbo Club and were on hand every day to provide the meals, always with a happy outlook and a big smile.

And what do they say? "The job's not done until the paperwork is finished"…

Faye Argento, who is a Team Leader in the Dubbo Club, tallies up the register after each meal break. She says normally they provide lunches for between 750 and 1000 people.

Fay lives in Canberra and each show she and a friend pack their car, drive down to Geelong, pitch a tent at the sports ground in Lara and spend the 10 or so days having a great time, meeting lots of people, making new friends and promising to be back for the next one. Fay has been to 4 previous shows and says she will definitely be back for more..



And with all these people in all these offices, there is surely to be a mess.

That is where important people like Christie Rule come in, Christie and her work mates kept the work places clean and tidy, for some reason, something that a bunch of blokes can't do themselves.

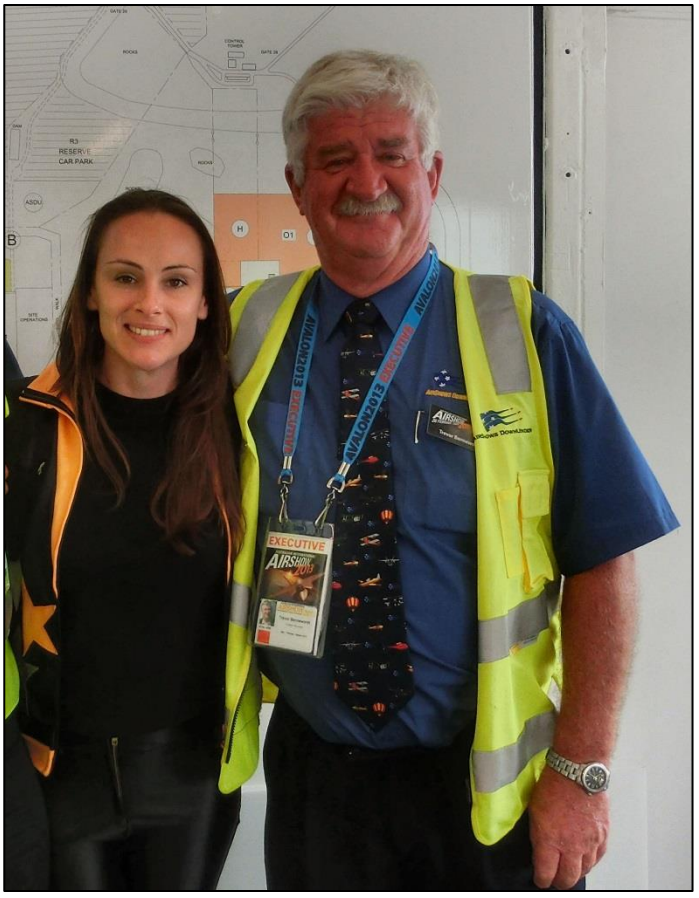
Blokes don't seem to be able to see a mess like girls can, for most blokes a mess is just a by-product of activity, it just blends in with the background, accepted - funny that!!

The next Airshow will be in 2015 – and if you want to enjoy yourself, think seriously about volunteering. Have a look at these photos, everyone is smiling, everyone one loves the experience, loves the work, loves the atmosphere, loves the camaraderie – and you will too.

If you've never been there before, Geelong is a great town, it has a population of about 215,000, it's right on the water, there's lots to see and lots to do.

And just before the show finished, Sarah Tanner from the Wingwalkers came up to Air Movements for one last photo….

But then, you can't really blame her!!



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