CESSNA 200 SERIES ASSOCIATION

The Newsletter of the Cessna 200 Series Association
Issue Number 4 September 2010

The President's Corner

Hello Everybody

Winter is almost over and the flying season is about to begin. As I write this article, it is a week after the General Election and we still do not have a government…

Last weekend, we had a committee meeting in Albury to tidy up a bit of club business and put the final touches on our next fly-in at Mackay. We also put together the structure of the Albury Fly-in next year, which is expected to be held around the first week of April.

Albury also looks to be a fun-packed weekend and Dave Taylor promises a fantastic get-together.

Barry Dean and Ceri have now got the Mackay weekend locked in and all the registration forms have been emailed to the members. Please fill them in quickly and return them to Annie with your fee. As you can see from the itinerary, we are going to see and do some wonderful things at Mackay including lunch at Brampton Island. Put the dates (8th-10th October) in your diary and be there!

Now to the world of General Aviation and some of its afflictions.

Over the past two years, there have been rumblings that 100LL Avgas is about to become extinct. This is because the EPA (Environmental Protection Authority) in the US has said that the production of leaded fuels has to stop.

"Wait!" I hear you cry, "100LL doesn't have much lead in it does it? That's why it's called Low Lead!" WRONG. 100LL is full of lead, vast quantities of lead. The reason for this is that aircraft engines require lead to widen the detonation margin. Detonation is extremely destructive to an engine and can destroy it in seconds. Effectively, detonation is explosive, uncontrolled combustion and we need lead in our fuels to eleviate the possibility of detonation.

So what do we do when 100LL dries up? There are some things that can be done and the Americans are hard at it.

The obvious is to invent new fuels and this is being done. The leaders in new fuel technology are GAMI's G100UL fuel (that has been flying in specific test aircraft successfully for over a year) and Swift's 100SF. Both companies are doing a great job but are now going through the bureaucratic processes with the FAA for approval. The next biggest job is licensing the production to fuel companies to manufacture it. The fuel companies may or may not want to produce it because of the relatively low volume of sales compared to motor spirit. At the end of the day, the price of these new fuels should be comparable to the existing 100LL.

Another way of avoiding the problems associated with the loss of 100LL is to invent engines that will run on unleaded high-octane fuel.

Lycoming has done just that with their new TEO-540-IE2. This is a big 350hp engine with dual turbochargers that is totally electronic and computer controlled. It has already clocked up a lot of testing hours, running on a variety of fuels, and is working well.

There is only one cockpit lever and, if the engine senses detonation is imminent, (it has knock sensors in each cylinder head), the computer automatically adjusts the timing to avoid detonation. Remarkable technology that has been around in car engines for years.

See you all at Mackay!

GARTH BARTLETT
President.

Inside Today

Cheers, **NEIL RICHARDSON** – Editor
C200news@njr.com.au

Longreach Fly-In Report - How the Secretary saw it!

Report by Secretary and Attendee – Annie Haynes

Before I start I must say a huge thank you to Cam Russell and Ralph Aikin for the organisation of this wonderful weekend. They both put a lot of work in to make it the overwhelming success that it was. Thanks you two!

A plea for photographers to put their hands up seemed to fall on deaf ears apart from Julian Lobb who knew just the man. With little more than 18 hours notice, Phil Hosking and his camera gear were ready to be picked up at Parafield by David and I.(Seems you need to take a photographer with you to discover we have a couple in the club. Both David Taylor and Robyn Shorrock are pretty handy and won't get away with it in future – you have been warned!)

Meanwhile it's the Anzac weekend and the C200 Series Association have a Fly In programmed and 20 aircraft and 43 members and friends are headed to Longreach to talk aeroplanes and discover the town and wider area including Winton and Lark Quarry where the dinosaur stampede occurred millions of years ago – I find that hard to comprehend – do you? Did I say aeroplane talk? A lot of that goes on.

A trip to Longreach from our property 'Holmwood' at Avenue Range SA requires a refueling stop and friends Andrew and Jane Hogarth from Adelaide - proud owners of a new C182 – are joining in the fun of the C200 Fly In and have chosen to leave Thursday and have an overnight/refueling stop in the outback town of Tibooburra – if you haven't seen the mural on pub walls you need to. We thought we might as well join them and I must say we were welcomed into the town as rain and road closures meant they were having a very slow start to the tourist season.

As country dwellers we enjoy fresh clean air but the clarity of the skies in the outback and the air are simply different and a delight on a crisp morning. Phil was up well before dawn to capture the 'best part of the day' on film.

After breakfast at the local café we were deposited at the airport, loaded up and took off in the direction of Longreach. Andrew was keen for Phil to get some aerial shots of his aircraft and so we were happily flying parallel, David opening and closing the window for Phil to take uninterrupted shots. All going along swimmingly when David opened the window one more time and whoooosh, away it went – the window that is! Bother I thought it's going to be a bit chilly for the next couple of hours! More importantly where do we get a replacement window for a 1982 C210N? Well a quick text to John Tilley was the obvious answer as he has had more 210's than the average person and bingo if he hasn't located one in Alice Springs within 5 minutes of my request – not bad half an hour out of Tibboburra at 7,500 feet (Can't thank you enough Tills.) Fortunately the heater in OAT is most efficient and saved us from freezing but keen to get those noise cancelling headphones.

We landed with no further ado in Longreach where we met up with others who had come from Sydney, Sunshine Coast, Gold Coast, Mackay, Townsville, Toowoomba and of course other South Australians. After the initial catch up we crossed the road and settled into the Jumbuck Motel.

The First event of the weekend was dinner at the Hall of Fame where we enjoyed hearing a local bush poet with a bullock team reciting the works of some of our famous Australian poets. Some of our more city based members had not experienced the likes of a poet with a bullock team on the 'front lawn' so this was an immediate hit. Dinner was a real catch up and a great night was had by all.

Our Treasurer was on his own hunt for treasure in the form of a new window so he headed off early with Andrew H to Alice Springs – 3 hours away – so they missed out a bit on the meeting and other activities of the day but at least it was going to be quieter on the way home.

For the rest of us we attended the meeting, had a delicious lunch at the Art Gallery at the Hall of Fame followed by a tour of the Qantas Founders Museum including the 747 and Boeing 707. The displays are interesting, fun and superbly done. Our guide suggested he was a bit nervous addressing a group of pilots –but he clearly knew his stuff and relaxed into the task.

Longreach is a delightful rural city offering the old and the new. It's always interesting to see where others live and the facilities they have available. To find a river the size of the Thompson in Longreach, the middle of Australia, is a highlight and we enjoyed a delightful sunset cruise before heading out to dinner, which we didn't really need after the huge selection of nibbles we'd had on board the boat.

On Sunday we flew to Winton to see the renowned Waltzing Mathilda Centre. Sunday

CONTINUED NEXT PAGE

of course was Anzac day, and the locals had asked Cam if there was a chance the aeroplanes could do a fly over in conjunction with their Anzac Parade. Our chaps were delighted to oblige. This proved to be a great success and we mingled with the locals over breakfast before doing a tour of the centre and then on to Lark Quarry to see the dinosaur prints. The trip to Lark Quarry was interesting for the pilots as the air strip is not an easy one to locate but our talented group didn't seem to have a problem finding it. The interpretation and exhibit is excellent and most interesting– deemed to be the largest stampede known in the world.– I personally find it challenging to imagine millions of years ago – and worse than that my grandchildren think I grew up in those times!

Naturally when you get a bunch of pilots together there is much aeronautical chit chat and that's a big part of our Fly Ins.

Those with other interests – mainly the girls - had a good time too checking out the town, the shops and coffee locations. The 'target twins' -aka petite lasses Annie and Susie T - made quite a splash back at the pool. They'd both come without their swimmers and managed to purchase matching togs from the cost effective chain store. Many laughs and lots of fun generally completed a fabulous weekend.

Cessna 200 Series Website Updated

www.c200series.com.au Keep checking up on the website for upcoming events and other happenings of the club. Thanks to Annie Haynes for her hard work and also to John Tilley for his donation towards the setup costs.

Mackay Fly-In: 8-10 October 2010

See pages 9-12 for all the Mackay Fly-In information including the Itinerary and Registration Form.
Please contact Annie for further information.
Hoping to see you all in Mackay for a great weekend in a lovely part of the world!

Our many thanks to John Weston of Westonprint, Kiama for the final layout of this Newsletter and its superb reproduction.

My Aircraft.... By David Taylor – VH-DTG

The rego is DTG, but I often call her TWB C210 (The World's Best Cessna T210N).

DTG (TWB C210) is a working aircraft and has been a faithful workhorse for over 6 years now. She started her career with me at Pooginook. My family used to own Pooginook, a leading merino stud in Australia, where we bred merino genetics. We had over 300 clients, who were based in WA, QLD, NSW and VIC. DTG was just the aircraft for getting me around the large distances involved. I used to fly at least 110 hours a year visiting our clients around the country.

Our family sold Pooginook to the Macquarie Bank in 2007 but this wasn't the end of DTG's career or mine. I took on the role as an independent Director of Paraway Pastoral Company, a division of the Macquarie Bank. This involved the acquisition of properties around Australia and thus DTG was employed to fly me to various properties around the country for inspections and negotiations.

By 2009, DTG had certainly earned a reward, so I gave her a thorough overhaul and a state of the art avionics package, including an AuRACLE Engine Management System and a Garmin stack consisting of a G530, Audio Panel, Transponder and 495 GPS. A thorough work over in the engine compartment meant her innards were working well, new interior meant she was also looking fantastic, and the new avionics brought my level of understanding of DTG to new heights

This year, I resigned as a director of Paraway Pastoral Company, but this didn't mean the end of flying for DTG. Far from it. I now fly more than ever (approx 140 hours per year) as a consultant in property and management operations, flying from southern NSW all the way up to the Gulf of Carpentaria.

But DTG hasn't just been my work companion for the last six years; she has also been involved in my personal interests too. Four years ago, on a trip to the Kimberly, I took some photos out of the window of DTG. When I got home I realised the photos looked unique and thought I'd follow this pursuit a little further.

Then In 2009, Andrew Harper, from Australian Desert Expeditions and I, flew over the Lake Eyre Basin so he could see where he would be able to lead his camel tours. The unseasonal rains around Lake Eyre provided some spectacular scenery and colours. Spectacular scenery, a good camera, and my faithful DTG is a combination that has now led to me having a photographic exhibition.

So DTG has been part of my work and hobby for the last six years. I take care of her and she takes care of me. DTG – The World's Best Cessna T210.

My Exhibition of aerial photography "Images of a Timeless Land" is at Gigs Fine Art Gallery in Albury until 31st August. My photography can lso be seen on my website: www.dtaylorphotos.com

David Taylor.

GROUP INSURANCE

Insurance Offer
Benefit from a Group Scheme

Remember that the Cessna 200 Series Association Insurance Scheme is up and running .

Please try and support the insurance scheme if possible as the more we have under the scheme, the larger the benefits and savings for all participating members.

Members can access quotations by contacting Ralph Aikin at Kenney Aikin Aircraft Insurance Brokers.

Ralph will be the sole broker for the scheme and QBE Aviation has agreed to support it for the first 12 months

Cessna 200 Series Merchandise

A great range of merchandise has been arranged and photos and details are as follows:

CAPS $15.00: Caps are all ecru and one size fits all .

POLO'S $30.00: Polo's are available in men's L, XL, XXL, XXXL or women's 12,14,16,18,20 – colours: black/white trim: white/red trim: or sky blue/navy trim:

CHAMBRAYS $40.00 – long and short sleeve, available in men's and women's same sizing as polos.

Email me with requirements - sizes and colours.

Cheers,

Annie – a.haynes@bigpond.com

The Highest '210 ever...

"On Tuesday 11 January 1966, Walter (Cable) set the single-engine altitude record of 39,334 feet using a stock 1966 Cessna turbo 210 Centurion.

He broke the previous record of 35,070 feet set three months earlier by Marvin Smith of Long Beach in a modified 210.

Walter took off from Cable Airport a little after ten and his brother, Roger, was flying a twin engine Aero Commander chase plane.

Walter circled Cable Airport and then over Ontario as he continued to climb.

When he received clearance from Los Angeles control he headed for Catalina Island and shuttled between Catalina and Long Beach as he continued to climb.

Roger stayed at 22,000 feet and acted as a communications link between Walter and the various ground stations.

As he passed through 25,000 feet the windows frosted over and he had to fly on instruments.

As he climbed higher some of these instruments became inoperable due to the altitude and eventually he was left with only the turn and bank indicator to maintain level flight.

Walter stayed above 39,000 feet for 45 minutes and maintained the peak level for about eighteen minutes.

Running low on fuel he started his descent and landed at Cable at 1:30 pm, 3 hours and 9 minutes after he had left.

The following year, on Saturday May 13, he shattered his own record by flying to a height of 43,699 feet.

This time flying a 1967 TurboSystem Cessna 210 Centurion, powered by a 285-hp Continental Airesearch turbocharged engine.

Roger again flew chase plane duty, but this time he flew a twin-engine Cessna Skymaster.

In addition to serving as Walters communications link to various ground stations he broadcast live to the listening audience of KKAR radio.

Walter was still climbing 100 feet per minute as he passed through 40,000 feet.

By the time the plane reached its maximum altitude, it was in such a steep attitude that he was literally "hanging on the prop" clawing for every foot of height.

The outside temperature was 60 degrees below zero and the cabin heater going full blast gave little relief.

One hour and forty-five minutes after takeoff, Walter had reached 43,699 feet setting a new world Class-I.c altitude record for light aircraft, which still stands today."

TECHNICAL TALK

GARTH HAS SPOKEN WITH THE CPA WHO HAVE KINDLY ALLOWED US TO REPRODUCE IN FULL AN ARTICLE ON VALVE FAILURES PREPARED BY MIKE BUSCH. THANKS TO ALL PARTIES INVOLVED FOR ALLOWING US TO INCLUDE THIS IN OUR NEWSLETTER.

by Mike Busch

EXHAUST VALVE FAILURES—PART 1

Exhaust valves are the most heat-stressed components in your piston aircraft engine, and the most likely to fail prior to TBO. Here's what you need to know about them.

I suffered my first in-flight exhaust valve failure about twenty years ago. The engine started running very rough (as you might expect of a six-cylinder engine that was only running on five cylinders). After I landed, I noticed that the manifold pressure at idle was several inches higher than normal, confirming that something was definitely wrong with the engine.

I put the airplane in the hangar, removed the top cowling and the top spark plugs, and performed a differential compression test. Five of the cylinders measured just fine, but one measured 0/80 with a hurricane of air blowing out the exhaust pipe. It was pretty obvious that this jug was going to have to come off.

Once I wrestled the cylinder off the engine and looked at the exhaust valve, it was pretty obvious that something was missing (see Fig. 1).

A fragment of the exhaust valve face had broken off and departed the premises for parts unknown. Luckily, it opted to depart through the wastegate and to spare the turbocharger turbine wheel from destruction.

I sent the jug out for repair. It came back with a new exhaust valve and guide, and with some dressing to the valve seat. I installed the cylinder back on the engine, where it is happily operating to this day, nearly 20 years and 3,000 hours later.

Figure 1—This exhaust valve failed in-flight, shutting down the cylinder.

HOT, HOT, HOT!

Exhaust valves are the most heat-stressed components in your engine. They live their lives exposed to hideously high temperatures, while oscillating back and forth through a valve guide largely without benefit of lubrication (since they're too hot for engine oil to tolerate without coking). Frankly, it's astonishing that they last as long as they do.

During the peak pressure and temperature portion of each combustion event, gas temperatures in the combustion chamber approach 4,000°F, far hotter than the exhaust valve could withstand. Fortunately, the valve is closed during this time, so the heat energy absorbed by the valve face is quickly transferred through the valve seat to the cylinder head, where it is absorbed by the head's large thermal mass and dissipated its cooling fins (see Fig. 2). This "heat sink" arrangement is absolutely essential to the survival of the valve. Without it, the valve face would overheat and self-destruct quite rapidly.

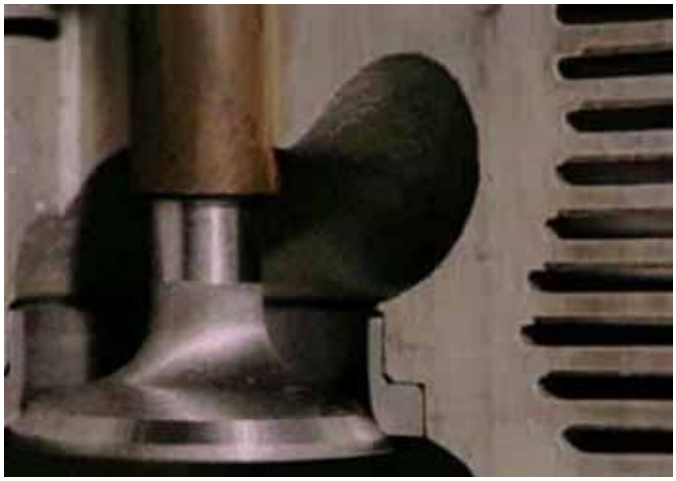

Figure 2—Cutaway of a cylinder's exhaust port, showing the exhaust valve, seat, guide, and cylinder head.

As the combustion event subsides, the exhaust valve opens. By this time, the gas temperature in the combustion chamber has transferred much of its heat energy to the piston (converting it to mechanical energy), so the exhaust gas that flows past the valve and out the exhaust port starts out at less than 2,000°F and cools very rapidly as the combustion chamber pressure drops. This is a good thing, because when the exhaust valve is open it loses its primary heat sink (the valve seat), and the only way the valve can dissipate heat is through the valve stem to the valve guide. This secondary heat path is a bit more effective in Lycoming engines (with their sodium-filled valve stems) than it is in TCM engines (with their solid valve stems).

At the end of the exhaust stroke, the exhaust valve closes, once more making firm contact with the valve seat and establishing the primary heat sink arrangement in preparation for the thermal assault of the next combustion event.

HOW EXHAUST VALVES FAIL

Exhaust valve problems often cause aircraft owners to suffer from pangs of guilt. "Why did the valve burn? What did I do wrong?" Mechanics often contribute to such guilty feelings by telling owners that their exhaust valve burned because the engine was leaned too aggressively. This is almost always wrong.

The overwhelming majority of exhaust valve problems are caused by excessive valve guide wear. Some guide wear is normal and inevitable, given that the guide is softer than the chrome-plated valve stem that passes through it, and that the two are in constant relative motion without benefit of lubrication. But if the guide wears excessively, it cannot hold the valve face perfectly centered in the valve seat. That's when problems begin.

If the valve face and seat are not perfectly concentric, then one spot on the valve face will not seal properly against the seat when the valve is closed during the combustion event. This causes two bad things to happen. First, the heat path from the valve face through the seat and head is disrupted, interfering with the ability of that spot on the valve face to shed heat. Second, tiny amounts of extremely hot combustion gas leak past the spot that isn't sealing properly. The result is a "hot spot" on the valve face.

Figure 3—A badly burned exhaust valve. Note the hot spot (left panel, 2-4 o'clock), the warping (top-right panel), and metal erosion (bottom-right panel). This valve was only hours from complete failure.

Once the exhaust valve develops a hot spot, things can deteriorate rather quickly. Metal starts eroding from the hot spot, causing its seal against the valve seat to get worse, interfering with the heat path even more, and allowing increasing amounts of leakage during the hottest part of the combustion event. When the hot spot gets hot enough, the valve face will start to warp, further degrading the seal and increasing the leakage. Deterioration progresses at an ever-increasing pace until the hot spot gets so hot that the valve ultimately sheds a chunk of metal, at which point compression goes to zero and the cylinder shuts down. (Colloquially, we say the engine "swallowed a valve.")

Bottom line: Once the hot spot develops, the valve is doomed—it's not a question of whether it will fail, only when.

WHY THEY FAIL PREMATURELY

Any exhaust valve will fail if it remains in service long enough. In a perfect world, the valve, guide and seat will survive to TBO or beyond. In the real world, that isn't always the case.

There are a number of factors that can contribute to premature exhaust valve failure. If the guide is not properly machined (reamed) during cylinder manufacture, overhaul or repair to hold the valve perfectly concentric with the seat, then a hot spot can develop relatively quickly. For example, there is considerable evidence that TCM had some valve concentricity issues on cylinders they manufactured during the late 1990s and early 2000s, resulting in an epidemic of burned exhaust valves at 500 to 700 hours. TCM changed its manufacturing procedures and these problems seem to have gone away.

Another factor involves how the valve seat is ground, and how wide the contact area is between the valve and the seat. If the contact area is too wide, then may not be enough pressure between the valve and seat to cut through carbon deposits that form on the valve seat (particularly when the engine is operated at low power and/or rich mixture). If the

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contact area is too narrow, then the heat transfer path from the valve to the seat is compromised and the valve runs too hot (particularly at high power settings and lean mixtures). Grinding the seat to obtain the optimal contact area can be more of an art than a science.

If the engine is operated with a rich mixture (particularly during taxi and other ground operations), lead, carbon, and other unburned combustion byproducts can build up on the portion of the exhaust valve stem that projects into the exhaust port when the exhaust valve is open. When the valve closes, this deposit build-up is dragged into the lower portion of the valve guide, and often causes accelerated guide wear ("bellmouthing"), particularly in TCM engines that use relatively soft valve guides. As we've seen, accelerated valve guide wear generally leads to valve hot spots ("burned valves") and ultimately to valve failure ("swallowed valves").

In most Lycoming and some TCM engines that use relatively hard valve guides, the deposit build-up on the valve stem makes it difficult for the valve to close fully. This can also cause leakage past the valve, resulting in hot-spotting and ultimately valve failure. If the situation gets bad enough, the result in a stuck valve that won't close. (The same problem can be caused by valve guide corrosion in engines that sit unflown for long stretches of time.) The first symptoms of this condition is usually "morning sickness" where the engine runs very rough when first started but smoothes out as the CHTs come up to operating temperature. If the problem isn't addressed promptly, it can lead to an in-flight stuck valve that can have quite serious consequences: bent pushrod, damaged cam, even snapping the head right off the valve if the piston strikes the head of the stuck-open valve. Stuck valves are quite common in Lycomings and TCM O-200/O-300 engines; they are quite rare in big-bore TCM engines.

So contrary to popular belief, to the limited extent that pilot leaning procedure contributes to burned, stuck, and swallowed exhaust valves, such issues are far more likely to be caused by excessively rich mixtures (particularly during ground operations) than by lean mixtures. I operate my engines brutally lean during ground ops, and lean-of-peak EGT (LOP) during all phases of flight other than takeoff and initial climb. This assures the cleanest and coolest operation, which is the optimum prescription for long valve life.

During the late 1980s and early 1990s, TCM switched to a new, ultra-hard "nitralloy" exhaust valve guide in an attempt to reduce guide wear. Unfortunately, some of these guides weren't properly chamfered and developed a sharp edge that chiseled the chrome plating from the valve stems and allowed the valves to wobble, burn, and ultimately fail. That was the reason for my exhaust valve failure nearly 20 years ago. As is true more often than not, my valve failure was not caused by pilot error but by manufacturing error.

Next month, in Part 2 of this article, we'll examine how we can monitor exhaust valve condition—using borescope inspections, engine monitor data, and oil analysis—detect incipient valve problems, and deal with them before in-flight failure occurs.

Tech Topics is a monthly column written by Mike Busch of CPA's technical staff. Mike is a longtime CPA Magazine columnist, co-founder of AVweb and teaches Savvy Seminars, www.savvyaviator.com, for aircraft owners and mechanics. Mike is the National AMT of the year for 2008. Mike owns, fliesand maintains a 1979 Cessna T310R based in Santa Ma-ria, California.

Interview from Oshkosh by Ceri Bartlett

This August Garth and I went to Oshkosh and while we had a lot of friends to catch up with, there was also time to check out some of the toys at the show…

One product that took my interest was the SAC 7-35 Air Data Computer by Sandia Aerospace. Needing to know what an Air Data Computer could do for me, I asked Barry LeBlanc (Regional Sales Manager) a few questions.

CB: Barry, What is an Air Data Computer?

BLeB: This Airdata unit links aircraft systems to your GPS receiver, automatically calculating fuel used, TAS, OAT, density altitude, and wind aloft without manual data entry. This information is totally dynamic in that it provides real-time winds aloft and fuel flow.

CB: And all this information shows up on my Garmin 430?

BLeB: Yes. With advanced technology Airdata computers have created a link to your GPS with advanced capabilities at an affordable price. Air Data Computer Systems provide the pilot with a wealth of useful information based on real time measurements of airspeed, altitude, temperature, fuel flow, heading, ground speed and track. Airdata computers reveal many of the previously hidden data pages in the Garmin 400/500 series and also in the King KLN94. In addition to in flight advisory function, it can also serve as a backup altimeter, airspeed indicator or fuel flow meter. Back up if you're in the bush and need to get home.

CB: So why do I need all this information?

{This is the point when the roles reverse and Barry starts asking me questions!}

BLeB: Would you like to save fuel?

CB: Of course.

BLeB: Would you like a smooth flight?

CB: Deerrrr

BLeB: With the SAC 7-35 you have a winds aloft display that shows wind direction and velocity in real time. With just a glance you can select a flight level that optimizes fuel consumption and comfort. Coupled with your compass system the SAC 7-35 will populate the Garmin wind vector page. Get that bump out of your flight.

CB: Sounds good. But what about all the other features you mentioned?

BLeB: Well, all your Pilot Operating Handbooking performance figures refer to True Air Speed (TAS), but your gauge shows Indicated Air Speed (IAS).

CB: Yes, I get my handheld E6B flight calculator out to work out TAS – but the print is so small...!

BLeB: Ok let's put the flight calculator away. To do this one, we can simply call a page up on the GPS unit. The data required for True Airspeed are: Outside air temperature (OAT), Pressure altitude and IAS. An Air Data Computer such as Sandia SAC 7-35 can perform this calculation in real time and display the TAS reading directly on the GPS. This is real handy in seeing if your aircraft TAS is over or under the Pilot Operating Handbook figures.

CB: I also use my E6B flight calculator to work out Density Altitude as part of my planning for Take of Distance and performance.

BLeB: The Sandia SAC 7-35 can help you here too. Most aircraft accidents occur during the take off and landing phase of the flight. Collisions with obstacles during climb out, runway overruns on landing occur every now and then. What does Density Altitude (DA) and Baro-corrected Altitude (BA) play on these events. A LOT! The factors of altitude and outside air temperature influence the air density. A higher altitude, low pressure area and higher temperature all have one result: they lower the density of the air. And as a result of that they lower aircraft performance. You can pull out your pilots operating hand book and reviewing all the performance charts and do the calculations manually…or let your GPS and SAC 7-35 handle that task for you.

CB: You mentioned fuel savings before. Is the SAC 7-35 also a Fuel Data Computer?

BLeB: The Sandia SAC 7-35 couples fuel flow transducer signals to the on board GPS to display fuel flow rate and fuel remaining. The fuel flow data can aid in diagnosing potential engine problems as well as keep you informed of current and remaining fuel.

BLeB: But you haven't asked about one of the most exciting features…

CB: Please enlighten me.

BLeB: The Sandia SAC 7-35 provides high-resolution, altitude management in ten-foot increments to 35,000 feet to drive the vertical NAV feature of new generation GPS receivers for approaches. In addition, Sandia SAC7-35 pressure altitude data is automatically used by the Garmin and KLN 94 to substitute for the fourth satellite if it is not in range to compute three-dimensional position. This provides 24-hour, 3D position accuracy with only three satellites, without manual entry of altitude.

CB: Sounds like a powerful piece of equipment.

BLeB: As we say here at Sandia "Put the Power in Your Navigation System" by putting in a Airdata Computer!

CB: Thanks Barry.

BLeB: You're welcome.

Sandia Aerospace located in Albuquerque New Mexico manufactures high quality avionics and I am the Regional Sales Manager for Australia so if you have any further questions – just let me know

Mackay Fly-in
8th – 10th October 2010
Itinerary

Friday	- Afternoon	Registration, Meet and Greet Shuttle to Quest Hotel
	- Evening	Short walk to Sorbello's restaurant for dinner
Saturday	- Morning	Meet in hotel lobby for coach tour to a working Sugar Mill (includes morning tea) *Mackay produces one third of Australia's sugar and from July to November the mills purr into action during sugar cane crushing season. Farleigh Sugar Mill, 10 minutes north of Mackay city, opens its doors to show you during a two hour guided tour the process of turning cane into sugar and molasses within a working mill.*
	- Lunch	Eimeo Hotel – with great coastal and island views. Simply Stunning. *www.eimeohotel.com.au*
	- Afternoon	Coach tour continues to the Dalrymple Bay - Hay Point Coal Terminal – one of the largest coal export ports in the world. *Info attached.*
	- Evening	Meet at the hotel for the bus to the Aero Club for dinner, raffle, and guest speaker (to be confirmed)
Sunday	- Morning	Meet at the hotel for the shuttle to the airport with bags. Two options: - AGM held in the Tiger Moth hangar - Remain on the bus for a guided city tour
	- Departures	After the AGM – depart for home or…….
	- Optional	Fly to Brampton Island Resort for a gourmet buffet lunch. Depart after lunch or stay on this luxurious island to relax after a busy weekend! http://www.bramptonisland.net/

Exact times and details will be provided in the Run Sheet at registration.

Accommodation: **Quest Mackay** 38 Macalister St, Mackay Ph: 07 4829 5300 www.questmackay.com.au questmackay@questapartments.com.au

Book early - We have 15 studio apartments @$160.00 per night and 15x 1 bedroom apartments @ $190.00 per night on hold but ***only until 1st September.*** Don't forget to mention 'Cessna 200'.

STOP PRESS

The Guest Speaker for our Saturday Dinner at Mackay has been Confirmed: Mr Brian Bigg!

Mr Brian Bigg is best known to most of us as the Editor of Australian Pilot, the magazine received by all AOPA members. But Brian is much more than that: He is also a Supervising Producer for Network Ten News, the Producer for Seven Network's "Destroyed in Seconds", and Editor of "Better Piloting" for the Guild of Airline Pilots and Navigators.

This sounds like an interesting life as is. However, if you start delving into Brian's past, you see Brian has had an interesting life.

Brian started his career as a Cadet Journalist in Narrandera, NSW. He quickly moved through a series of positions with the ABC, Network 9, Grundy Network and Network 10 as Producer or Executive Producer on shows such as "Sydney with Mike Gibson", Network 10 coverage of the Gulf War, and "Australia's Most Wanted" to list just a few.

In 1995 he moved to The Netherlands where he was an early shareholder in Endemol Entertainment. Here he was responsible for the development, production and supervision of more than 300 program/show formats in 18 eighteen countries, including "Big Brother" and "Who Wants to be a Millionaire".

Brian now enjoys the ability to pick and choose production jobs, which gives him time to spend on the things he enjoys doing, including lecturing at Bond University, editing, writing, golf, and spending time with his wife and three children. Oh yes and flying… Brian has be been flying since 1987 and flies a Piper Archer and an ATEC Zephyr ultralight.

Dalrymple Bay and Hay Point Coal Terminal

The Port of Hay Point, 30 kilometres south of Mackay, is one of the biggest and most efficient coal ports in the world. The Port Administration building features a public viewing gallery offering fantastic views of the two coal terminals. From the viewing area you will see two separate coal terminals -the Dalrymple Bay Coal Terminal and the Hay Point Services Coal Terminal. The terminals are operated independently, each one comprises rail unloading equipment, stockpiles with stacking and reclaiming equipment, conveyors and ship loaders on off-shore wharves.

The two wharves at Hay Point (1.5 kilometres Hay Point Services and 3.8 kilometres Dalrymple Bay Coal Terminal) stretch out into the Pacific and fill massive bulk carriers with coking coal bound for every corner of the globe. Coal trains, which can be over two kilometres long, and are drawn by four electric locomotives, arrive at the Port constantly with loads of up to 8,500 tonnes.

Dalrymple Bay Coal Terminal has a throughput capacity of about 44 million tonnes per annum (mtpa). Mines supplying Dalrymple Bay Coal Terminal are Blair Athol, Goonyella -Riverside, German Creek, Oaky Creek, North Goonyella, Burton, Moranbah North, Foxleigh and Coppabella. Mines supplying Hay Point Services are Goonyella - Riverside, Peak Downs, Saraji, Gregory, Norwich Park and South Walker. Hay Point Coal Terminal has a throughput capacity of over 30 mtpa.

Together the two terminals serve the mines of Central Queensland. The mines are linked to the port terminals through an integrated rail-port network. Both terminals have purpose-built in-loading facilities, on-shore stockpile yards and off-shore wharves.

Loading takes place on a 24 hours per day, 365 days per year basis -over 5,000 ships have departed Dalrymple Bay since the terminal was opened in 1983 and over 7,300 ships from Hay Point since it's opening in 1970.

Brampton Island Resort

Optional Add-on. Sunday 1130 hrs - Just 10 min flying from Mackay.

"This resort has been closed to day visitors for many years and has just been taken over by new owners. I lived there for 25 years and it is still my favourite island in the Whitsunday's." Barry Dean, Host organiser, Mackay Fly-in.

Buffet lunch: Cost $43.00 per person.
If you would like to stay over night or longer the price to us is $275.00 per room for two persons. Bookings: Kiera Weisse at Harvey World Travel Mackay. Telephone 07 4969 3600. Fax 07 4957 3213. E-mail: keira.mackay@harveyworld.com.au

Tourist Information:

"Situated in the Whitsunday Island Passage, Brampton Island is the ideal haven for couples seeking a romantic escape. With 12 white sandy beaches where a secluded romantic picnic can be organized, coral gardens to explore and a number of National Park walking and jogging tracks, Brampton Island offers the ideal getaway.

With only 107 rooms, Brampton Island is an intimate retreat offering a range of island accommodation from the Premium Ocean View rooms which afford magnificent views to the Carlisle rooms in a garden setting and best of all you don't have to share your piece of paradise with day trippers.

Brampton Island offers a range of activities for those who want a more active holiday including tennis, catamaran sailing, sailboarding, chip and putt golf, bushwalking, snorkelling, archery, and many more. Or just treat yourself to a rejuvenating massage, facial, or body wrap in The Sea Spa."

Mackay Fly-in

Fri 8th - Sun 10th October 2009

Registration Form

Name	
Postal address	
Phone	Mobile
Email address	

Attendees	
Pilot	Passenger 3
Passenger 1	Passenger 4
Passenger 2	Passenger 5
Aircraft type	Aircraft registration

ETA Date: Time:	Quest Hotel booked? ☐ Other? _____

Registration numbers (Please indicate the number of people from your party attending each event)

Activity	Number of people	Price	Total
Registration		$180 pp	
Friday night dinner		$40 pp	
Saturday tour and lunch		Included in registration	
Saturday evening dinner		Included in registration	
Sunday Morning AGM ***OR***		Included in registration	
Sunday Morning City Tour		Included in registration	
Sunday take-away sandwich (If not going to Brampton Is)		Included in registration	
Sunday Brampton Island Buffet		$43 pp	

Payment by cheque (Cessna 200 Series Association) ☐ **or** Payment by EFT (BSB 633 000Acc No 135455806) ☐ **Please quote member name on EFT or back of cheque**	**TOTAL**	

(Concession rates available for children – please contact the secretary (0418 853 635)

Special requests – dietary requirements etc

Indemnity

I, the undersigned, do hereby indemnify the Cessna 200 Series Association and the members, officers and agents thereof associated with arranging functions and associated activities from all liability of any kind arising out of any function or activity arranged by or on behalf of any such person or body, or travel to and from same, and as agents for the persons or body named above, whose express permission I declare that I have obtained to do so. I do hereby indemnify each person or body arranging or associated with such functions, activity or travel from all liability.

Signature:_____ Date:_____

Name:_____

Refund Policy:

Refunds can not be guaranteed for late cancellations

Please send completed forms to

Mail Secretary, Cessna 200 Series Association, PO Box 297, Lucindale SA 5272
Fax 08 8766 0045
Email annie@c200series.com.au

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Membership Application Form

On behalf of the committee of the newly formed Cessna 200 Series Association Incorporated, I extend an invitation to you to join this exciting new Association.

The purpose of the formation of the C200 Series Association is for likeminded aviation enthusiasts to meet several times a year in different locations within Australia to promote and enjoy safe flying and to further their technical knowledge in an enthusiastic atmosphere.

The inaugural committee anticipates 2 fly-ins per year to a chosen destination within Australia plus 2 extra committee meetings to be held at a destination agreed by those on the committee.

Membership has been set for the first year @ $100.00 per member and is open to anyone with an interest in things aviation and particularly if they are an owner and or operator of a Cessna 200 series.

Please find attached an Application for Membership form.

Please send to PO BOX 297 Lucindale SA 5272 or email to annie@c200series.com.au if you would like further information.

We look forward to meeting you soon and to many happy fly-ins.

Cheers
Annie Haynes
Secretary C200 Series Association

Interesting Aviation Videos

We hope to be able to include some links to interesting and relevant videos in the newsletter. Feel free to send any links for future newsletter issues.

http://www.youtube.com/watch?v=_Uwyh5Vsz4k

**The Cessna 200 Series Association does not support any unsafe or illegal flying procedures and this video has been included for interest only*

C200

CESSNA 200 SERIES ASSOCIATION

CESSNA 200 SERIES ASSOCIATION

Application for Membership

Name:	
Address: (For Mailing)	
Home Phone No:	( )
Business Phone No:	( )
Mobile No:	
Fax No	( )
Email Address:	
Aircraft Call Sign:	
Aircraft Type: Model, mods, etc)	
Signature:	

Initial Subscription: **$100.00**

Cheque ☐ (Payable to C200 Series Association)

Cash ☐ Direct Deposit ☐ BSB 633 000 A/C 135455806
Name OR call sign as description

Completed forms should be mailed to: **PO Box 297 Lucindale SA 5272**

ADMIN ONLY:

Date received		Receipt No:		Member No:	