

QUEENSLAND ULTRALIGHT ASSOCIATION APRIL 2010 NEWSLETTER

Watts Bridge Memorial Airfield, Silverleaves Road via Toogoolawah, Qld

Proudly Sponsored by

**ACOUSTIC TECHNOLOGIES
EXCELLENCE IN PROFESSIONAL AUDIO (07) 33764122**

www.atprofessional.com.au

Yes, you're right. That is definitely not an ultralight. But it has a certain style all the same. The photo was taken at Caboolture one day while waiting to take off.



Firstly, let's hear from Jim Gollagher with the latest on his Karatoo motor:

Hi guys. This is the third part of the story of the development of the power plant for my plane.

After writing the previous part of the story, I lowered the compression ratio to 8.3:1 and lost an unacceptable amount of power. So I decided, after a further study of engine dynamics, to use another cam design, one which would achieve longer inlet and exhaust times. This would allow the engine to breathe better at the target rpm, or at least this was one of the parameters to test to see if that was what the engine wanted. The test cam was a step larger than the previous two designs and much larger than my favoured cam (the Wade 240 I had used on other successful Subaru projects). So I had some reservations, but I figured the results would help paint a picture of what was going on.

I ran it up to operating temperature. The first noticeable thing was the extra amount of throttle needed to achieve a reasonable cruise-power setting, not good a good sign. Next, I did some full power runs, tweaking the mixture and timing to get maximum power. To my complete surprise, the engine failed to deliver any measurable gain and, as the revs climbed past the target 5400 rpm, the drop off was almost identical to the previous cams. I couldn't even say that the motor was suffering from big cam-itis because the numbers just didn't show it. It was a complete dud!

There was a clear message here. That cam made no difference to the performance so there had to be something else holding the motor back. It was time to think again about the intake and exhaust systems. I had considered the inlet side to be OK because, in all the previous tests, I had noted that the increase from 75% throttle to full throttle produced little extra power, only more induction noise. This indicated a margin of unused carby. So I took another look at the exhaust side. The dyno pipes I had made were a type of two-into-one performance type with a merge collector and absorption-style muffler. This was fairly typical of most of our racing stuff except for the Siamesed exhaust port (two cylinders exiting through one pipe).

I thought about redesigning the header pipe system to allow more for the Siamesed port and also for the fact that the motor was not revving so hard. The problem, however, was that modern books on exhaust design for performance tend to gloss over the question of Siamesed exhaust ports and when they do offer a formula, it is generally aimed at BMC engines. BMC engines have the two Siamesed cylinders at 360 degs of crank rotation apart while the Subaru has them at 180 degs apart. This means the BMC has more time for each cylinder to exhaust. The Subaru more or less has them blowing together out of the same pipe. Really, the only way it was going to work was to have a pipe much larger than the theoretical size for one cylinder.

So the testing continued. I came up with a design for larger pipes incorporating an AR cone (an anti-reversion cone designed to limit back flow at low rpm). I knocked these up over Easter, with enough time to have a couple of runs on the following Sunday afternoon. I saw straight away that I was getting somewhere. The new dyno pipe unlocked the engine! I got the power I was after, 98.6hp at 5800rpm.

A pattern was starting to emerge. The lower compression needed a larger cam to help the VE to make the power. The downside was that it had to turn at a higher rpm to get it. That might not be such a problem for full power, but for cruise (60hp at 4600 rpm), I now needed 21mm of throttle travel compared to the original 14.6mm. This was definitely a case of big cam-itis and would be throwing a lot of unburnt fuel out the exhaust, producing very poor economy.

So it is now time for me to find a compromise and to hopefully achieve my final goal. I feel I'm on the home straight now. I'm going to put the compression up to 9.3 to 1 and run only premium unleaded. I'll go back to the original test cam because I believe it will work better with the new pipes. This time I think I will ceramic coat the chambers while the heads are off. I'll then give it another run (hopefully its final run) in a few weeks. I certainly hope so. I set up my dyno at Christmas and had hoped to be finished testing at the end of February. Now it's April and I'm keen to get back to working on my airframe. Bye for now, Jim. (Editor: The final part of Jim's motor development story next month).

Remember the Miracle Airwhip Antenna?

Installation was as easy as they said it would be. The whole thing took about two hours but that was only because the radio is mounted on the side of the cockpit and the lead needed to emerge from the panel in an aesthetically pleasing way. Receive performance was straightaway impressive with Brisbane Approach coming in loud and clear on the ground at Forest Hill. There was a problem at first with push-to-talk noise and this wasn't related to the engine because it was about the same with the engine off. It has since mysteriously sorted itself out, however. The only thing that could have fixed it was putting a small tool box (sparkplug wrench and a couple of plugs) in the shelf pocket through which the lead runs.

You may remember that there was a problem with the Spruce catalogue when I ordered the antenna. I had a similar problem with a recent enquiry about a helmet. On both occasions I emailed the boss and the response was quick, courteous and effective:

We appreciate your business very much and certainly don't want you to feel you need to turn to other suppliers. If you need any other assistance or information, please feel free to contact me directly at jimirwin@aircraftspruce.com. Thanks for bringing this to my attention.

Best Regards,

Jim Irwin
President
Aircraft Spruce

Kneeboards

The Mk 2 military kneeboard has been around for a long time. They must have been made in their millions because the same kneeboard is still for sale and is still as tinny as it always was. At \$US32.95 plus postage it's definitely overpriced. I bought this one from Aircraft Spruce, thinking it might have been a newer, better model but no such luck. The only thing that seems to be different is that the buckles are now quick-release plastic ones. The board required reinforcement under the writing surface where the top clip makes contact before it would hold the flight plan properly. An extra piece of aluminium angle on the top clip also helps to open it. The bottom clip opens OK as supplied.

In these days of GPS navigation, a kneeboard like this is probably not a great deal of use.



What's in a name?

About twelve people responded to the mail out on the topic of changing the club's name. About half expressed a strong desire to keep the existing name while the other half were ambivalent. No one supported the idea, though one person, Roger, from the volcano-besieged UK, admitted to having had similar heretical thoughts to mine two years ago. So it seems clear that the QUA will remain the QUA for the foreseeable future.

It was a great demonstration of the use of the mailing list to discuss and resolve a topical issue. Only one rule applies to this kind of forum and that is to play the issue, not the man – or as we used to say, no bodyline bowling.

Lukim Yu, Vanuatu



Hi Arthur. Yes, I am receiving all your very interesting newsletters. Sorry I've been a bit slack. We have been embroiled in obtaining a 167 hectares piece of land next to the farm we are living on and it has a nice piece of "AIRSTRIP" land. The contract should be signed this week. Plane-wise, I have the ex-Air Club Vila Cessna 172 partly stripped down in my farm shed. This has to be out in the next 2 or 3 months as I have a new LSA SeaRey amphibian coming out of the factory in Orlando, Florida in the next week or two. Apart from all this, I am still flying the AirVan 737-800 and organising local farm workers on our two properties. This is the old Cessna 172 from Air Club Vila which was loaded onto a trailer for its journey up to my farm so that we can refurbish it at our leisure. One of the problems we had at the airport was having to have security cards issued for all who came to look or help. We also needed passes for vehicles. I was going to get a photo yesterday of the paddock where I hope to put the new airstrip, however the heavens opened with a mighty thunderstorm and three earthquakes followed! Not sure if they are connected in any way though! When this Cessna is flying, my attention will be on the new SeaRey. **Lukim Yu, Bob.**

I hope Bob sends us a picture of that SeaRey. I got these from the Web:



For Sale: QUA Inc stick on labels. They look great on your aircraft or car. Cost is \$2.50 each. Contact Mal McKenzie on 0414723049 to purchase.



The Caboolture Gliding Club is returning to Watts Bridge on the 1st, 2nd and 3rd of May for a weekend of gliding fun.

And another local fly-in:

Gympie Aero Club would like to extend an invitation to your club members to Gympie Aerodrome on Sunday 16th May for an inter-club competition day, complete with trash and treasure market. All aviators and members of the public are most welcome. Come along and for a small donation convert your trash to someone else's treasure. While you're there, check out the static display of aeroplanes and cars (yet to be confirmed). Watch the flying competitions and/or compete yourself. Why not represent your club? The fun commences at 9.30am with a pilots' briefing. There will be spot landings, flour bombing and much more. There will be a small entry fee of \$15 per competitor. BBQ and cool drinks will be available.

Details will be updated on the club website: www.gympieaeroclub.com.au, the email contact is admin@gympieaeroclub.com.au or you can phone the Club President, Graeme Alexander on 0408 864 584. Please let us know if any of your club members are interested in taking part.

Kind regards, Deb (Deb Wagner, Secretary, Gympie Aero Club)

Here are other events you can go to if you've got the time:

Mar 20-May 13 Bendigo, VIC, Millions Against Malaria
Apr 17-26 Dinner Plain, VIC, 2010 North East Victorian Safari
Apr 17-27 Fort Lauderdale and Caribbean islands, Oth, Caribbean Air Challenge
Apr 19-22 Novotel Brighton Beach, Sydney, NSW, 9th International Symposium of the AAvPA 2010
Apr 23-25 Griffith, NSW, AAAA National Fly-in
Apr 23-26 Longreach, QLD, Cessna 200 Series Association 3rd Fly-In
Apr 24-25 Griffith, NSW, Griffith Aero Club Open Day
Apr 24-26 Tumut, NSW, AYA Grumman-American Pilots Assoc
Apr 25-26 Durien Bay, WA, Durien Bay Fly-In
May 1 Mudgee, NSW, Wings Wheels and Wine 2010
May 1 Luskintyre, NSW, LAFM Lunch with the Tiger Moths
May 1 Mudgee, NSW, Wings Wheels and Wine
May 1-2 Adaminaby, NSW, Snowy River Aviators Air Rally 2010
May 1-2 Bankstown, NSW, Sydney Aviation Model Show
May 1-2 Toowoomba, QLD, David Hack Classic Aircraft and Vehicle Meet
May 1-2 Toowoomba, QLD, Gathering of the Harvards & Wirraways
May 1-2 Boort, VIC, Boort Aviation Group Fly-In
May 1-2 Corryong, VIC, Stockman's Muster Fly-in
May 2 Wagga Wagga, NSW, BBQ Lunch Fly-In
May 3-8 Mildura to Woomera Return, VIC, Variety FunFlight Airbash
May 5-23 Bundaberg, QLD, There and Back 2010
May 7-9 Birdsville, QLD, Australian Bronco Branding Championships
May 8-9 Loxton, SA, Loxton Hangar Dinner
May 9 Moruya, NSW, Moruya Aero Club Open Day
May 15 Dunwich, North Stradbroke Island, QLD, Straddie Breakfast Fly-In
May 15-16 Cowra, NSW, Aerobatic Training
May 16 Gympie, QLD, Inter-club comp day & trash and treasure market
May 16 Childers, QLD, Breakfast
May 22 Kyneton, VIC, Biggest Morning Tea
May 22-23 Watts Bridge, QLD, AAC QLD Practice in the Box Weekend
May 23-29 Yarrawonga, VIC, Megafauna Flyers Fly-Away

For Sale: As far as I know, that beautifully constructed Hi Max of Mal's is still not sold. It appears to be a really well-made little aeroplane and is very clean inside and out. It's just the plane for anyone who wants to get aloft without much expense.

Rotax Discover the North Burnett Rally and Monto Forums

During the weekend of the Queen's Birthday Monto Fly-In, Recreational Aviation Australia will be holding the "Rotax Discover North Burnett Rally" on Saturday 12th June. This event, being a poker rally, will involve flying to five airfields in North Burnett Regional Council's area and picking up a playing card at each location, with a prize going to the winning hand. The airfields are Biggenden, Gayndah, Mundubbera, Eidsvold and ending up at Monto, with local community service clubs and organisations dealing out the cards at each location. Tea, coffee and soft drinks will also be available along the way from Lions Clubs and the SES.

The monthly Biggenden Markets are on this day and, also, the Gayndah Jockey Club, which operates from the oldest course still in use in Queensland, will be running their main annual event. For those interested in dropping in at a country race meeting on the way to Monto, the Jockey Club have kindly offered to provide a free pick up and return service from the airport to the meet. The dress standards are relaxed and for contact details and further information visit this website:

www.queenslandracing.com.au/raceclubs/show.asp?id=51532 .

If you'd like to take advantage of this service, please contact Peter Strohfeldt (details on the website) sooner rather than later, as this will assist the Jockey Club with organising this service. By the way, if you are going to have a flutter, don't forget about last light.

Forums at Monto will be held on the Sunday, with subjects including *Human Factors From A Medical Perspective* – Dr Petar Novakovic, *Operations At Non-Towered Aerodromes* – CASA AvSafety, *Operations* – Lee Ungermann, *Flight Instruction* – Steve Tizzard, and *Insurance Matters* - Peter Bugg.

Nick Sigley

Last month, the X-Air visited the old Nanango Aero Club



Question: How to put a 30.06 into a Sapphire? Answer: Take Virgin Blue instead.

Owning a Sapphire can have fringe benefits, like spending Anzac weekend deer hunting in the Victorian mountains with Sapphire business proprietor, Steve Dumesny.



Fly In
 Drive In
 Walk In

ISIS FLYING CLUB INC.

Invite you to

An Entertaining Family

BREAKFAST

At the CHILDERS airstrip
 from 0730 May 16th 2010

A Great Brekkie Menu
 plus a Bush Poet Music and More

Just \$10 a head
 (All inclusive)

R.S.V.P
29th April
 Isis Flying Club Inc.
 31 Broadhurst St Childers 4660
 Phone 07 41261420
 eMail rampgreen9@dodo.com.au

All R.S.V.P will be numbered for a lucky draw

AND DON'T FORGET OUR VERY OWN ALL-IN FLY-IN ON 22ND MAY
 9AM TO 5PM, AT WATTS BRIDGE MEMORIAL AIRFIELD.

IF IT FLIES, IT'S WELCOME AT WATTS!

**The next QUA meeting is Monday May 10th in the Archerfield
 Terminal Building at 8pm. Be there or be square!**

PRESIDENT: Peter Ratcliffe 0418159429 **TREASURER:** Ian Ratcliffe 0418728238

SECRETARY: Mal McKenzie 07 33415348 Email: mmc80789@bigpond.net.au

NEWSLETTER EDITOR: Arthur Marcel Email: a.marcel@optusnet.com.au

QUA Inc TECHNICAL DIRECTOR: George Perez 0423536

MINUTES OF APRIL 2010 GENERAL MEETING

- MEETING OPENED 08.00 pm on 12th April, 2010.
- APOLOGIES Richard & Glenda Faint, Peter Freeman,
Richard Sweetapple, Vern
- VISITORS Neil Bowden
- ATTENDENCE Fifteen.
- PRESIDENT'S REPORT We have been in contact with Henschman Tools who supply the
Brown Aviation Tools range at reasonable cost.
Delivery of orders is overnight.
A comprehensive catalogue is available on request.
See further details on www.henschman.com.au
- The Temora Fly In had perfect weather with at least six hundred
aircraft attending. The local council was very supportive. It was
well organized. Whilst the aircraft parking was spread out, there
was plenty of camping available.
- TREASURERS REPORT
- | | |
|------------------|-------------|
| Opening Balance | \$ 6,659.01 |
| Plus Deposits | \$ 150.00 |
| Less Withdrawals | \$ 226.12 |
| Closing Balance | \$ 6,582.89 |
- An investment account is being considered with Bankwest.
Purchase of a new clubhouse refrigerator is proceeding. Size
being considered is 300 to 350 litre at a cost of \$600 to \$800
- SECRETARIES REPORT QUA Inc Logo stickers are available at \$2.50 each.
One hundred were printed for members to use.
- WBMA REPORT The All In Fly In at WBMA on Saturday, 22nd May
planning is proceeding.
- GENERAL BUSINESS The QUA Inc is to sell soft drinks at the All In Fly In.
Members are asked to supply aircraft photographs suitable
for a display board at the clubhouse.
- A suggestion was put forward that the QUA Inc consider a
name change in the future to reflect on what some members
are now flying. Members have been asked to think of an
alternative name for the club.
Note : This can only be voted on at the next QUA Inc
Annual General Meeting later this year after discussion.
- The Clubhouse fitting out continues in the toilet area.
The shower needs to be completed plus the wall lining.
More materials are required so this can be done.
- Next QUA meeting is on Monday, 10th May at Archerfield.
- THANKS To Robin for providing the supper once again.
- MEETING CLOSED 09.00 pm.