

QUEENSLAND ULTRALIGHT ASSOCIATION NOVEMBER 2010 NEWSLETTER

Watts Bridge Memorial Airfield, Silverleaves Road via Toogoolawah, Qld

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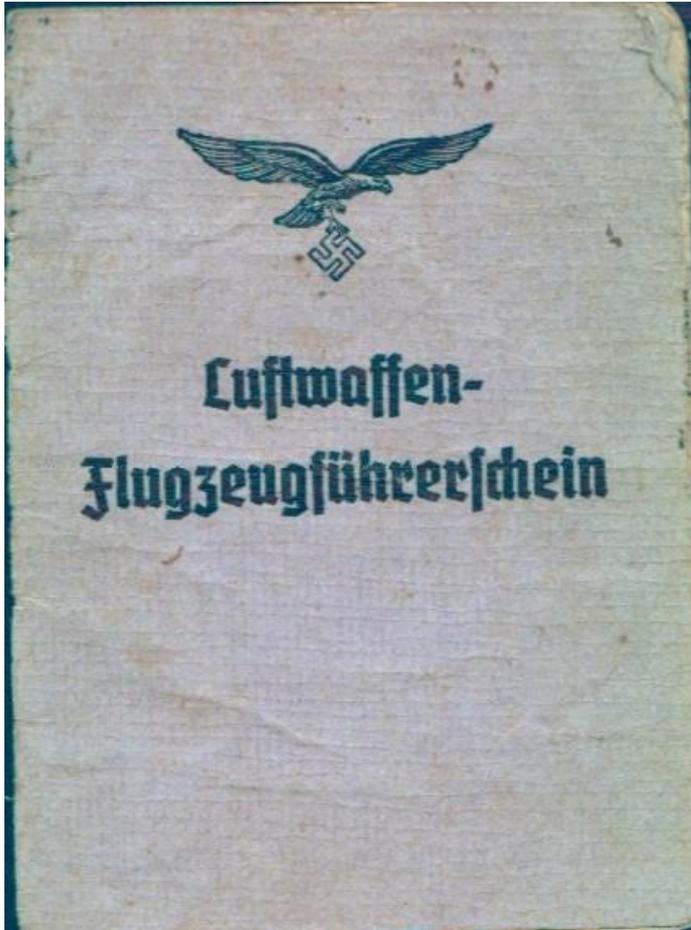
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We hear from new member and ex-Luftwaffe fighter pilot, Olaf Weedbrook, and learn why he is still coming to terms with WW2.



Olaf Weedbrook



Last month, we had the pleasure of hearing from Werner Leist. You may remember me saying that the QUA actually has two new members who are ex-Luftwaffe WWII fighter pilots. The other is Olaf Weedbrook. This month, I spoke to Olaf. I asked him to tell us the tale of his wartime life in the Luftwaffe. Unfortunately (but understandably), I didn't have too much luck. He told me that, even after such a long time, the impact of those twelve years of noxious German government, particularly the five years that saw the country (and most of the world) involved in such an horrendous war are still too much for him to come to terms with.

He spent two and a half of those years in battle training and the active defense of his homeland. He said that reams of paper have been filled with facts, stories, and documents to satisfy anyone trying to make sense of the slaughter. He said that, when only eighteen years old, he went through the same training and flew the same planes that Erich Hartmann did two years before him (Hartmann was, and still is, the world's highest decorated 'Jagdflieger' with 352 shot-down enemy planes). Olaf said that he has for many years counted his blessings that Germany ran out of aviation fuel at the beginning of 1945. He said that his Wing's (Jagdgeschwader 52) list of killed young German pilots goes on into the hundreds. In May 1945, JG 52 survivors surrendered to the American forces and were then handed over to the Russians. Erich Hartmann spent 10 years in Siberia as a prisoner and was only released through the later intervention (money changing) of the then German Chancellor Adenauer. Olaf said that he finished 1945 in far away France, after surrendering to the US Army on the eastern front. He was handed over to the French and did three years in a labour camp.

Despite my best efforts, Olaf didn't want to think too closely about those terrible days. As I said, this is perfectly understandable. He doesn't want it to well up again. He still, however, has the urge to fly, and today's technology makes it possible. On his Flight Simulator he can still sit behind the panel of his Messerschmitt Bf 109G, or a Junkers W33 or 34, a He 46, a Buecker 131 or 133 or an Arado 96, with his feet on the rudder pedals and his force feedback joy stick between his legs. He also has some ultralight experience from the 1970s and is now looking forward to safely dangling his feet below a para-glider at Rainbow Beach sometime in 2011. Welcome to the QUA, Olaf Weedbrook!

Erich Alfred Hartmann (from Wikipedia)



Erich Alfred Hartmann (19 April 1922 – 20 September 1993), nicknamed "**Bubi**" by his comrades and "**The Black Devil**" by his Soviet enemies, was a German World War II fighter pilot and is the highest-scoring fighter ace in the history of aerial warfare. He claimed 352 aerial victories (of which 345 were won against the Soviet Air Force, and 260 of which were fighters) in 1,404 combat missions. He engaged in aerial combat 825 times while serving with the *Luftwaffe*. During the course of his career, Hartmann was forced to crash-land his damaged fighter 14 times. This was due to damage received from parts of enemy aircraft he had just shot down or mechanical failure. Hartmann was never shot down or forced to land due to fire from enemy aircraft.

Hartmann, a pre-war glider pilot, joined the *Luftwaffe* in 1940 and completed his fighter pilot training in 1942. He was posted to *Jagdgeschwader 52* (JG 52) on the Eastern front and was fortunate to be placed under the supervision of some of the *Luftwaffe*'s most experienced fighter pilots. Under their guidance, Hartmann steadily developed his tactics, which earned him the coveted *Ritterkreuz mit Eichenlaub, Schwertern und Brillanten* (Knight's Cross of the Iron Cross with Oak Leaves, Swords and Diamonds) on 25 August 1944 for claiming 301 aerial victories.

He scored his 352nd and last aerial victory on 8 May 1945. He and the remainder of JG 52 surrendered to United States Army forces and were turned over to the Red Army. In an attempt to pressure him into service with the Soviet-friendly East German *Volksarmee*, he was convicted of false/unjustifiable war crimes, a conviction posthumously voided by a Russian court as a malicious prosecution. Hartmann was sentenced to 25 years of hard labour and spent 10 years in various Soviet prison camps and gulags until he was released in 1955.

In 1956, Hartmann joined the newly established West German *Luftwaffe* and became the first *Geschwaderkommodore* of *Jagdgeschwader 71* "Richthofen". Hartmann resigned early from the *Bundeswehr* in 1970, largely due to his opposition to the F-104 Starfighter deployment in the *Bundesluftwaffe* and the resulting clashes with his superiors over this issue. He was later involved in flight training. He died in 1993.



Belleville Washers

In the latest safety supplement from RAAus, there was a paragraph about periodically tightening the retaining bolts on wooden propellers. It is definitely something that pilots should be reminded about, but not necessarily good advice to always tighten them. True, wooden propellers expand and contract by as much as half a millimetre in thickness in response to changes in humidity. As a consequence, the bolts loosen in dry weather. But if they are tightened the result will be a crushed propeller when it gets humid again (personal experience). If they stay loose, though, the torque is delivered via the propeller's bolt holes and this is not good either (ideally, propeller torque is delivered by hub friction).

The answer is to use Belleville washers. These are dome washers, two millimetres in thickness with a half millimetre dome. Theoretically, two washers provide one millimetre of expansion, however, I have found that they don't quite return to their full extension if flattened completely. They can be turned inward (concave to concave) or outward (convex to convex), but the latter arrangement requires a flat washer at either end, firstly to prevent the Belleville washers indenting the flange plate and secondly to prevent them from catching on the bolt heads.

I initially tried to set the bolts by gauging the washer compression but found this unreliable. I consulted Professor Sweetapple's torque chart and for my gearbox I had to apply a torque of 6ft/lbs. Because I had already compressed the wood and repaired it with epoxy, I actually went to 10ft/lbs. This has proven satisfactory because the bolt torque has remained stable no matter what the weather.

The washers are only available from White Industries. They have a travelling sales representative here in Brisbane but their office is in Sydney. The washers come in plain steel or zinc plated. I used the latter. Unfortunately, they are only sold by the box (and that's a lot of washers). I was lucky enough to get a free sample from the sales representative but he said that was a one off. We would be best to get together in a group for the next lot.

Crushed (over-tightened) propeller



After epoxy repair



Belleville washers (zinc plated)



Two washers provide 1mm of compression



Weight and Balance Spreadsheet

Col Hooker is a smart cookie. When he's not building aircraft, or trying to crack Lotto, he's doing interesting things on his computer. He was clever enough to write the original MS Excel program for this W & B spreadsheet. I have reorganised the layout and tailored it for a Sapphire LSA 2. On the right is a snapshot of the main page. The program can be modified for any tail or nose wheel aircraft. Extra load points can be added, the datum point changed, etc. You get immediate feedback. Contact me if you want a copy.

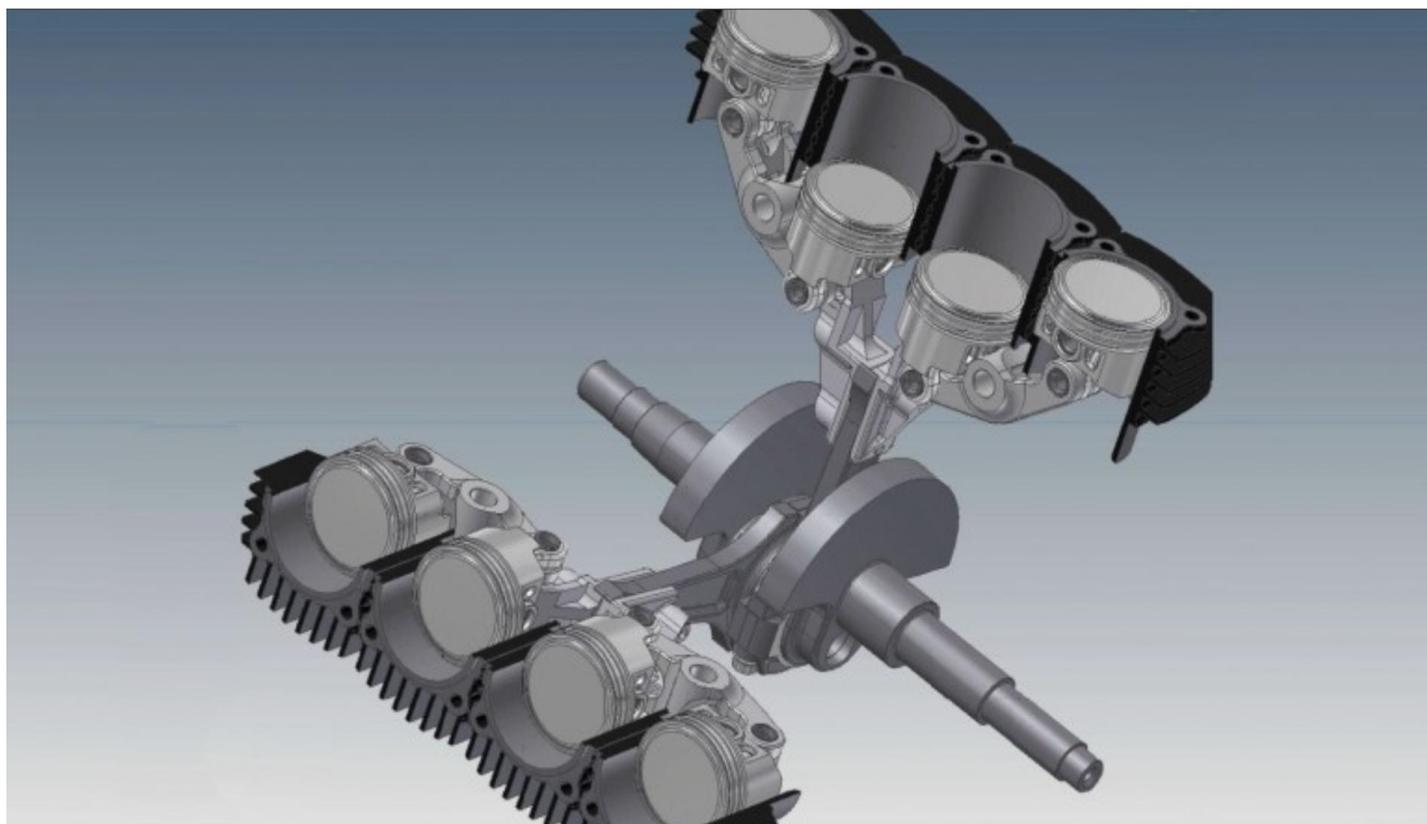
To measure your aircraft, use an 8 metre tape measure along the ground parallel to the fuselage. You also need a plumb bob. For internal measurements, you need to know the difference between the external datum point and the inner one (in the case of the Sapphire, this is the thickness of the nose cone).

The aircraft needs to be in its cruise position pitch-wise relative to the horizontal for both measurement and weighing. If this requires putting the tail on a trestle, be careful to set the park brake or the tail may come off the trestle and damage the tailplane (personal experience – I am currently awaiting the delivery of a fabric repair kit from Aviaquip – not having much luck lately).

| | A | B | C | E | F | G | H | |
|----|---|-------|----------|----------|---|------------|--|--|
| 2 | Safe C of G range: 29 to 32% MAC | | | | | | Sapphire LSA 2 Weight & Balance | |
| 3 | Enter data in the Blue boxes only. | | | | | | | |
| 4 | The datum point is the aircraft nose | | | | | | | |
| 5 | (all numbers positive). If weighing with | | | | | | | |
| 6 | pilot and fuel, use only the Empty | | | | | | | |
| 7 | Weight section (7 degree boom angle | | | | | | | |
| 8 | required). The Sapphire's leading edge | | | | | | | |
| 9 | sweep (60mm) has been factored in. | | | | | | | |
| 10 | The What if section accepts positive | | | | | | | |
| 11 | or negative input. Comments to Arthur | | | | | | | |
| 12 | Marcel. Email: a.marcel@out.edu.au | | | | | | | |
| 4 | Certified MTOW | 350 | Kgs | | | | | |
| 5 | Aircraft Wing Area | 9.13 | Sq M | | | | | |
| 6 | Wing Loading | 38.00 | Kg/Sq M | | | | | |
| 7 | Datum to Leading Edge | 1230 | mm | | | | | |
| 8 | Mean Aerodyn. Chord | 1080 | mm | | | | | |
| 9 | Right Wheel | 1425 | mm | | | | | |
| 10 | Left Wheel | 1425 | mm | | | | | |
| 11 | Tail Wheel | 4735 | mm | | | | | |
| 12 | Forward Ballast | 185 | mm (arm) | | | | | |
| 13 | Forward Toolkit | 500 | mm (arm) | | | | | |
| 14 | Seat Back Baggage | 1500 | mm (arm) | | | | | |
| 15 | Rear Pod Baggage | 1880 | mm (arm) | | | | | |
| 16 | Pilot (& Parachute) | 1150 | mm (arm) | | | | | |
| 17 | Left Wing Fuel Tank | 1430 | mm (arm) | | | | | |
| 18 | Right Wing Fuel Tank | 1430 | mm (arm) | | | | | |
| 19 | | | | | | | | |
| 20 | Empty Weight | | | | | | | |
| 21 | Right Wheel | 96.5 | Kg | 137512.5 | | 222.1 | Kgs | |
| 22 | Left Wheel | 100.4 | Kg | 143070.0 | | 1800.6 | | |
| 23 | Tail Wheel | 25.2 | Kg | 119322.0 | | 570.6 | 52.8% | |
| 24 | | | | | | | | |
| 25 | Pilot (No Fuel) | | | | | | | |
| 26 | Forward Ballast | 14 | Kg | 2590.0 | | | | |
| 27 | Forward Toolkit | 2 | Kg | 1000.0 | | 496494.5 | | |
| 28 | Seat Back Baggage | 0 | Kg | 0.0 | | 318.1 | Kgs | |
| 29 | Rear Pod Baggage | 0 | Kg | 0.0 | | 1557.7 | | |
| 30 | Pilot (& Parachute) | 80 | Kg | 92000.0 | | 327.7 | 30.3% | |
| 31 | | | | | | | | |
| 32 | Pilot & Fuel | | | | | | | |
| 33 | Left Wing Tank | 14.4 | Kg | 20592.0 | | 346.9 | Kgs | |
| 34 | Right Wing Tank | 14.4 | Kg | 20592.0 | | 1547.1 | | |
| 35 | | | | | | 317.1 | 29.4% | |
| 36 | What if? | | | | | | | |
| 37 | Arm | 0 | mm | 0.0 | | T/O Weight | 346.9 | |
| 38 | Weight | 0 | Kg | | | | | |

New innovative V8 motor from Ducati

Although the name Ducati is more associated with motorbikes, they are also involved in recreational aviation. For instance, they supply the ignition systems for some Rotax motors. Our club technical officer, Jorge Perez, has brought my attention to an innovative V8 design by Ducati in which there appears to be significant savings of weight by having a shorter crankshaft and only two big end bearings (and therefore only two connecting rods). This feat is accomplished by having the pistons linked to each other in a kind of seesaw arrangement as shown in the following diagram.



The Firth F23 50 HP air cooled aero motor

The Rotax 503 is no longer available and this might present problems for some aircraft builders and/or restorers. A couple of newsletters ago, we discussed the possibility of replacing a Rotax 503 with an electric motor. However, that technology is not quite viable for the average operator at this point in time. There does appear to be, though, a perfectly viable two stroke replacement for the 503 that is actually six or seven kilos lighter. The Hirth F23 50hp is a purpose designed and built aero motor, not a modified snow mobile motor as in the case of the Rotax. It is a horizontally opposed twin cylinder design and, because of special materials used in the construction of its cylinders, does not require a cooling fan. The time between overhauls is an impressive 1000 hours (with the tops done at 500). In every respect it looks like a great engine:

| | | | |
|---------------|------------------------------------|------------------|---|
| Model: | F-23 | Carburation: | Dual 34mm slide or optional diaphragm carbs or optional electronic fuel injection |
| Engine Type: | Opposed - 2 cycle, two cylinder | Fuel Pump: | Optional auxiliary external pneumatic |
| Bore: | 72mm | Lubrication: | Fuel mixed with oil @ 50:1 |
| Stroke: | 64mm | Rotation: | Counter clockwise, viewed from output end |
| Displacement: | 521cc | Starter: | 12 volt electric, optional recoil |
| Compression: | 9.5:1 | Alternator: | 250 watt/20 amp alternator standard |
| HP Output: | 50hp @ 6150rpm | Weight: | 84lbs, including reduction unit, full exhaust, and electric start |
| Torque: | 42ft.lbs @ 6150rpm | Reduction Units: | 5 V belt drive - 1.8:1, 2.2:1 and 2.5:1 ratios available |
| Ignition: | Dual CDI (Capacitive digital Ign.) | | |

Horizontally opposed motors require lighter crankcase construction due to the opposing piston travel cancelling out vibration. I can't understand, however, how a two cylinder, two stroke horizontally opposed motor would work without having both cylinders firing together? If anyone has the answer to this question, please let me know.



HAVE A HEART DAY

YOU COULD BE NEXT???



HEAR HOW TO PREVENT A HEART ATTACK.

COME ALONG AND LISTEN TO A TALK BY GRAHAM MILLER FROM

THE HEART FOUNDATION

TOPIC: GENERAL HEART HEALTH, NUTRITION AND EXERCISE

&

DR. MAU WHO IS A CARDIAC THORACIC SURGEON.

SEE A DISPLAY FROM THE ST. ANDREWS REHABILITATION TEAM.

WHERE: AT BANGES AIRFIELD, CLIFTON

WHEN: DECEMBER 4TH, 10AM SHARP

BBQ & REFRESHMENTS WILL BE AVAILABLE

DONATION BOX FOR THE HEART FOUNDATION



FOR FUTHER DETAILS CONTACT
CHES PRIEBBENOW 0407133621



Jorge goes to Grafton



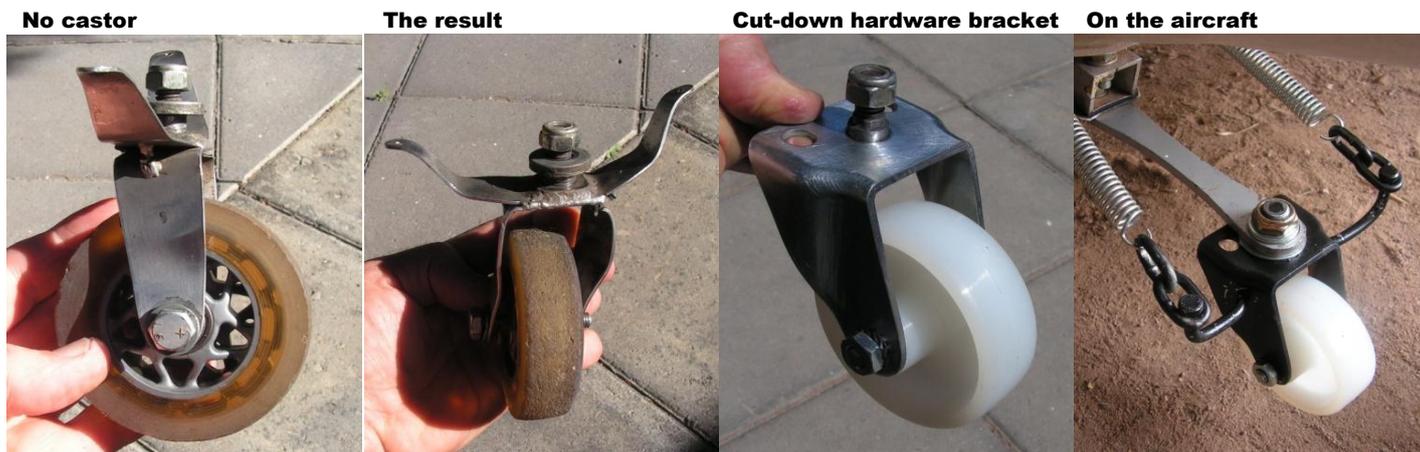
The QUA Xmas Party. You've all seen the menu. It's a work of art. The actual food will be even better. It's getting a little late if you haven't already booked, but you could try your luck. The date is this Sunday, 28th November, at Watts Bridge. Without a doubt, this will be one of Queensland's best ever Xmas parties.

Aviation Events

Nov 27 Luskintyre, NSW, AAAA (NSW) Toy Run and LAFM Luskintyre Christmas Party
Nov 27 Bendigo, VIC, Zenair Australia Open Hangar Day
Nov 27-28 Watts Bridge, QLD, AAC QLD MINI COMP, Practice in the Box, XMAS Party
Nov 28 Caboolture, QLD, AAAA (Qld) Toy Run
Nov 28 The Gold Coast, QLD, Get Ready to Get Hired! Flying Students Day
Nov 28 Truro Flats, SA, AAAA (SA) Toy Run
Dec 4 Luskintyre, NSW, LAFM Lunch with the Tiger Moths ****CANCELLED****
Dec 4 Temora, NSW, Aircraft Showcase - Jet Fighters
Dec 4 Toogoolawah, QLD, QVAG Christmas Party
Dec 4 Yarrawonga, VIC, Aerodrome Terminal Opening
Dec 4-5 Tumbarumba, NSW, Tumbarumba Fly-In
Dec 5 Wagga Wagga, NSW, Monthly BBQ Lunch
Dec 5 Ballarat, VIC, AAAA (VIC) Toy Run
Dec 12 Yarrawonga, VIC, YFT Christmas BBQ
Dec 18 Temora, NSW, Aircraft Showcase - Pacific

Tail wheels

Tail wheels need castor. Something I hadn't notice was that my Sapphire tail wheel had none. A few weeks ago I turned a little too quickly and the result was a bent bracket. I decided to make a new one from a 120kg rated hardware bracket. It turned out quite well. Of course, weight is a critical factor in tail wheel design. The original unit weighed 305 grams. My new one weighs 390 grams, and I am planning to perhaps replace the nylon castor wheel with a rubber one, which will add another 200 grams. In all, I will have added 300 grams to the tail. This will mean an extra 900 grams in the nose.



The Woopy-fly: something different

Para-gliding is a very popular sport in Switzerland. When I was there in 2008, the sky was full of them. The Woopy-fly is a new Swiss aircraft that at first sight looks like a weight-shift vehicle with a pump up wing. It certainly takes the concept of the para-glider to a new level with the advantage of not having to lay out a chute and getting it to fill and lift. The Woopy-fly packs away very nicely into the boot of a small car. When you want to go flying, just drive to the nearest field, park the car and unpack



both containers. It's a bit like setting up a tent. It's quick and easy to assemble. What more could you want? But apparently there is much more to Woopy-fly than that. It uses a very clever new concept for control.

Recent Photos from Watts Bridge

Building an airfield is a slow process. Building a clubhouse is also a slow process. But we are getting there. These photos were taken last weekend by Mal. As can be seen, the kitchen area is coming along nicely with plastering in that corner finished. The gas hot water system has arrived also.



MINUTES OF NOVEMBER 1ST 2010 GENERAL MEETING

| | |
|----------------------|--|
| MEETING OPENED | 08.03 pm |
| APOLOGIES | Bruce Clark, Danny Fowler, |
| MEMBERS PRESENT | Twelve. |
| MINUTES OF SEPTEMBER | No business arising. Motion to accept minutes as correct. Proposed Peter Ratcliffe, Seconded Neil McNamara, Motion carried. |
| PRESIDENT'S REPORT | Not much progress on the clubhouse in the last month due to work and the wet weather. For the hangar, various roof ventilators are being considered. They need to be cyclone rated because of the strong winds |
| TREASURERS REPORT | Opening Balance \$ 7,845.01 Credits \$ 505.00 Debits \$ 177.50 Closing Balance \$ 7,478.01 |
| SECRETARIES REPORT | A log of the correspondence of the past month is available. Nineteen emails received, mostly items regarding fly ins, events etc. Some from WBMA regarding invoices, requests for hangar space, airfield conditions, & BOM Minute Reports. |
| WBMA REPORT | The airfield is still damp in places. The parallel strip and some of the taxi ways are still closed. The plumber reinstalled the pump in the clubhouse pit. Work is continuing on the shelter shed upgrades. The airfield mowing is a challenge to do at the moment. |
| SOCIAL REPORT | QUA Inc. Christmas Party is on Sunday 28 th November, 2010. Julie Walker is to arrange and organize this event. More info next time. Christmas Party RSVP to vanstar2@bigpond.com or 0424958173 Future fly ins are planned at WBMA in 2011. |
| GENERAL BUSINESS | The hangar floor and drainage require attention. Work to be done when the area dries more so heavy vehicles can access the area. The drainage from the clubhouse tanks also require attention with new downpipes to be fitted. Two fire extinguishes have been donated for the clubhouse, thanks to Neil McNamara at Chubb. |
| NEXT QUA Inc MEETING | QUA Inc Christmas Party at Watts Bridge on Sunday 28 th November. |
| THANKYOU | To David Ratcliffe for providing the supper tonight. |
| MEETING CLOSED | 08.41 pm. |

**The next QUA meeting is on Monday December 6th at 8pm
at the Archerfield Terminal Building. There will be a small
party for those who won't to make it to Watts on Sunday**

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