

# QUEENSLAND ULTRALIGHT ASSOCIATION DECEMBER 2009 NEWSLETTER

Watts Bridge Memorial Airfield, Silverleaves Road via Toogoolawah, Qld

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**Hello bug bashers! A happy December to all of you.**

**Firstly, that all important reminder about the Xmas party. It's a lunchtime affair, with BBQ, on Sunday November 29<sup>th</sup>, midday onwards, at the Watts Bridge clubhouse. Peter Ratcliffe and Robin Salisbury are doing the catering. If you haven't told them you are coming, do so now without delay. We are very lucky to have these good people to feed us, so don't mess up their plans by turning up unannounced.**

**Secondly, the other venue is the Jazz Club on the 13<sup>th</sup> December. Keith Broughton and I went there on November 8<sup>th</sup> to check it out. We were with another mate of Keith's and our respective spouses. We spent the night discussing the ins and outs of Rotax 503s, but the women didn't seem to mind all the aero-speak because the music was good and we had the occasional dance with them.**

**Thirdly, last week I had the very great pleasure to be invited to the beautiful two-acre hideaway property of Richard Sweetapple and his charming wife, Mary, to get the spin on the propeller-making business. Richard showed me the factory with its ingenious machines, many of them totally original, designed and made by Richard himself. The theme of this month's newsletter is indeed propellers, those precious lumps of wood without which our sport simply "woodn't" be possible. We also take a look at Richard's story. He was kind enough to answer all my questions, not only about his unusual trade, but also about his life. That feature begins on Page 3.**

**But, to begin with, let's go to another lovely hideaway home, that of Colin and Tricia Thorpe, backing onto a lush rainforest park in leafy Shailer Park. Col has a Cheetah project underway in his garage.**

**Col told me that he is making slow progress on the fuselage, partly because every now and then he has to stop what he is doing to remove a king brown snake from his back doorway.**



**Col is about to fit the rear turtle deck and will then start on the wings. Initially, he plans to fit a Jabiru 2200 but will eventually use a Suzuki Vitara 1.6 litre motor. He has just had the gears cut for a tooth belt reduction drive for the Suzuki. It's looking really good, Col. Nice work!**



**Now for the Richard Sweetapple story: Let's start at the very beginning. Richard was born in Inverell NSW in 1933. He graduated from Inverell High School with a NSW Leaving Certificate (Qld Senior Certificate equivalent) in 1950. He was conscripted in 1951 and spent 176 days at Amberley Air Force Base being trained in electronics and military defence. In 1952, he went contracting in western Queensland (earth moving, dam sinking, fence-line clearing, road making, etc). The wages were 13 pound per week.**

**He started flying in 1957 with the RQAC and got a CPL while supporting himself doing mechanical repairs. In those days, it cost five-and-a-half quid per hour to hire a Tiger Moth. In 1959, he began a career as an agricultural pilot spraying from a converted Tiger Moth but moved on to doing charter in Cessna 175, 185, 206, 210, Piper Aztec and Helio Courier aircraft. His last commercial gig was in the right-hand seat of a Bristol Freighter doing overnight produce runs from Archerfield to Sydney and/or Melbourne. He remembers the Bristol Freighter as the noisiest aircraft on the planet.**

**In the early 1970s, the family spent a lot of time at Kingscliff and Cabarita. Richard's three children wanted to learn to ski so he built them an aluminium ski boat. It was powered by a hot Holden motor and could lift up to 14 skiers out of the water at a time. To build that boat, Richard first had to build himself a MIG welder (a rare thing in those days). That welder is still working today.**

**In the mid-70s, flying jobs were hard to find, especially for older pilots, so he started a business fabricating steel for the building industry. This was in the days of high-set houses which required a considerable amount of steel for posts, beams, steps, stairs and handrails. He had four employees and Mary ran the office. They did that for about 10 years.**

**About 1980, Ron Wheeler introduced the Skycraft Scout, a rag and tube minimum aircraft powered by a single cylinder 240cc two-stroke engine. From this little aircraft, the 95.10 ANR exemption category was born.**

**Having flown many hours in all-metal aircraft, Richard decided to design and build an enclosed all-metal 95.10 aircraft. The best time to fly this new toy was at daybreak when there was frost on the ground, so he made it all enclosed with hot air coming off the cylinder heads into the cabin. He flew this plane between 1985 and 2006 when he decided he didn't have enough free time to continue using it. When he made this plane, he also made himself a propeller to go with it. This turned out to be the start of another career in which he is still very much immersed. One of his fondest memories is making the three massive four-bladed propellers (left, right and one as a spare) for the Vickers Vimy replica aircraft that, in 1994, re-enacted the Smith Brothers 1919 record making flight from England to Australia.**



A sample of Richard's pattern blades



Richard's supply of Mountain Ash



Richard has orders through to next April



Richard made this bandsaw himself



**Why wooden propellers? Well, unlike plastic and alloy propellers, wooden props don't have fatigue lives. They are very suited to direct-drive motors (motors without pulse absorption). CASA approves only a few types of timber for use in aircraft propellers. Richard uses Mountain Ash for most of his props. Very rarely he uses Hoop Pine. He buys his wood in 25mm thick planks. The first thing he does is slice those 25mm planks into two pieces about 11.5mm thick (after you take out the width of the saw blade), then turn one around and glue the two pieces back together. He does this so the density variation along the length of the plank is cancelled out. A very simple but brilliant idea.**



Propellers waiting to be picked up



Richard and Mary's beautiful backyard



**Propellers: how many blades?** Richard told me that the less the number of blades on a propeller, the better the efficiency. The best efficiency is obtained when there is just ONE! But a one-bladed propeller has two major problems. Firstly, the counterweight to balance the blade has to be as close to the hub as possible or it will interfere noticeably with the airflow. This means it will be somewhat heavier than if the propeller had two blades. The other significant problem is balance. If the prop blade is wooden and the counterweight is metal, changing humidity can create an imbalance between the two.

Richard believes that the two-bladed propeller is the optimum arrangement for most applications. He told me that **three was for show but two was for go!** So, I asked him why, if a propeller functions most efficiently when it has the least number of blades, do some planes use propellers with three or more? Richard explained that adding blades to a propeller allows its diameter to be reduced whilst providing almost the same amount of thrust. It also reduces tip speed which in turn reduces noise. Adding more blades to a propeller will always result in less thrust for a given power input, but there are many applications where noise and/or clearance limits don't allow a more efficient alternative.

**Prop Pitch Table (zero slip):** Top line = pitch (inches). Left-hand column = RPM. Table = TAS (knots).

	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66
1000	16	18	20	21	23	25	26	28	30	31	33	35	36	38	40	41	43	44	46	48	49	51	53	54
1100	18	20	22	24	25	27	29	31	33	34	36	38	40	42	44	45	47	49	51	53	54	56	58	60
1200	20	22	24	26	28	30	32	34	36	38	40	42	44	45	47	49	51	53	55	57	59	61	63	65
1300	21	24	26	28	30	32	34	36	39	41	43	45	47	49	51	54	56	58	60	62	64	66	69	71
1400	23	25	28	30	32	35	37	39	42	44	46	48	51	53	55	58	60	62	65	67	69	72	74	76
1500	25	27	30	32	35	37	40	42	44	47	49	52	54	57	59	62	64	67	69	72	74	77	79	82
1600	26	29	32	34	37	40	42	45	47	50	53	55	58	61	63	66	69	71	74	76	79	82	84	87
1700	28	31	34	36	39	42	45	48	50	53	56	59	62	64	67	70	73	76	78	81	84	87	90	92
1800	30	33	36	39	42	44	47	50	53	56	59	62	65	68	71	74	77	80	83	86	89	92	95	98
1900	31	34	38	41	44	47	50	53	56	59	63	66	69	72	75	78	81	85	88	91	94	97	100	103
2000	33	36	40	43	46	49	53	56	59	63	66	69	73	76	79	82	86	89	92	96	99	102	105	109
2100	35	38	42	45	48	52	55	59	62	66	69	73	76	80	83	87	90	93	97	100	104	107	111	114
2200	36	40	44	47	51	54	58	62	65	69	72	76	80	83	87	91	94	98	102	105	109	112	116	120
2300	38	42	45	49	53	57	61	64	68	72	76	80	83	87	91	95	99	102	106	110	114	117	121	125
2400	40	44	47	51	55	59	63	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123	127	131
2500	41	45	49	54	58	62	66	70	74	78	82	87	91	95	99	103	107	111	115	119	124	128	132	136
2600	43	47	51	56	60	64	69	73	77	81	86	90	94	99	103	107	111	116	120	124	129	133	137	141
2700	44	49	53	58	62	67	71	76	80	85	89	93	98	102	107	111	116	120	125	129	133	138	142	147
2800	46	51	55	60	65	69	74	78	83	88	92	97	102	106	111	115	120	125	129	134	138	143	148	152
2900	48	53	57	62	67	72	76	81	86	91	96	100	105	110	115	119	124	129	134	139	143	148	153	158
3000	49	54	59	64	69	74	79	84	89	94	99	104	109	114	119	124	129	133	138	143	148	153	158	163
3100	51	56	61	66	72	77	82	87	92	97	102	107	112	117	123	128	133	138	143	148	153	158	163	169
3200	53	58	63	69	74	79	84	90	95	100	105	111	116	121	127	132	137	142	148	153	158	163	169	174
	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66

**Now, have a close look at this beauty. Is that one of Richard's propellers? This magnificent aircraft is Steve Donald's Aeropup. Very, very neat indeed!**



**News from Ian Walker, our Flying Tigers correspondent in Boonah:**

Hi Arthur – All is well here. We won't make it to Mt Perry - it's a bit far for us for a weekend trip in our drifters, as both Kiwi and I need to be back for work on Mondays, and Grummo has been having problems starting his Jabiru. At present we haven't got anything definite planned before the Great Eastern Fly-in at new year, but we have a few possibilities if we get around to organising something. We are definitely going to Temora next Easter for Natfly - we're planning on taking a week off before and after and turning it into a bit of a leisurely safari - no particular destinations, just whatever seems a good idea at the time.



Thanks for the newsletter. I'll print it and take it out to the club. I noted the comment on the mandatory radio at all licenced aerodromes. I think it's probably a counter-productive move by CASA. It encourages pilots to rely on the radio rather than see and avoid. We've had a few incidents at Boonah where an aircraft has been on the incorrect frequency or with a flat battery (as happens occasionally with gliders), and another aircraft has had a bit of a fright because they were not expecting the aircraft to be there as they'd heard no radio call. Also, from what I've been told (by those who should know) it's not unknown for RPT's to be on the wrong frequency and have a conflict with another aircraft as a result. Our local board member (John McKeown) has passed on our views. Anyway, enough of the soapbox.... We'll catch up with you soon.

Ian

### **Some coming aviation event dates:**

Nov 28 Luskintyre, NSW, LAFM Luskintyre Christmas Party  
Nov 28-29 Temora, NSW, Temora Aviation Museum Flying Weekend  
Nov 29 Caboolture, QLD, Antique Aeroplane Assoc of Aust - QLD Toy Run  
Nov 29 Truro Flats, SA, Antique Aeroplane Assoc of Aust - SA Toy Run  
Nov 29 Wyalkatchem, WA, Human Factors Course (RAA)  
Dec 5 Luskintyre, NSW, LAFM Lunch with the Tiger Moths  
Dec 5 Luskintyre, NSW, Antique Aeroplane Assoc Aust - NSW Toy Run  
Dec 5 Kempsey, NSW, Kempsey Save our Airport Fly-In  
Dec 5 Noosa Heads, QLD, Dinner with John Mc Cormick, CASA C.E.O.  
Dec 5-6 Temora, NSW, RV Builders Workshop  
Dec 5-6 Numurkah, VIC, Show Us Ya Wheels.... with Matt Hall  
Dec 6 Lethbridge, VIC, Antique Aeroplane Assoc of Aust - VIC Toy Run  
Dec 13 Warwick, QLD, Christmas Flyin for Starlight Childrens Foundation  
Dec 13 Yarrawonga, VIC, YFT BBQ Lunch  
Dec 20 Maitland, NSW, Club Day & Christmas Party

**There is no QUA meeting this month due to the Xmas Party**

**QUA INC - 45 MEMBERS AND STILL GROWING - JOIN US**

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

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**QUA Inc TECHNICAL DIRECTOR: George Perez 0423536380**

The minutes of the November meeting are on the next page.

## MINUTES OF NOVEMBER 2009 GENERAL MEETING

MEETING OPENED 08.00 pm

APOLOGIES Danny Fowler

MEMBERS PRESENT Fifteen.

PRESIDENT'S REPORT Clubhouse shower water proofing is done. Tiling to be started next week. Council building permit expires in December, 2009. Final building and plumbing inspections are needed or a permit extension will be required. Plans and building application are required for the pergola kit. The final Certificate of Classification, when available, will need to be submitted to WBMA.  
QUA webpage is very good. A DVD showing short video clips on building metal aircraft is available that may be used on the web page.

TREASURERS REPORT

Opening Balance	\$6,758.30
Plus deposits	\$ 165.00
Less withdrawals	\$ 215.70
Closing Balance	\$6,868.60

SECRETARIES REPORT Flurry of emails this month. Most relating to the QUA webpage and forum with a few from WBMA.  
Suggest we look at having a QUA logo sticker made, that can be put on our member's aircraft or cars to promote the QUA Inc.

WBMA REPORT SRC Health Inspector has inspected and approved the fuel depot. WBMA AGM proxy vote at one per member needs to be submitted. Fuel depot cut off timer needs to be reset at less than three minutes. Rod is having some body maintenance so not much is happening. QVAG power cables are being run overhead from the power pole. The new chalet is progressing well.

SOCIAL REPORT QVAG practice day for formation flying is planned for next weekend. BBQ planned next Saturday at the QUA Clubhouse. Need to let Robin know if you plan to attend the QUA Christmas Party.

GENERAL BUSINESS A request for QUA Forum email list was made. Send Arthur an email if you do not wish to receive the emails from the QUA Forum. An alternative venue for the QUA meetings at Archerfield needs to be considered. Suggestions were asked of the members. Danny and Peter's CH701 has now been flown by John. More work is continuing on the computer and engine timing calibrations to increase the power output. The overheating was cured by adjusting the airflow.

THANKS To Robin for supplying supper again

MEETING CLOSED 08.43 pm.