

BRISBANE VALLEY FLYER

AUGUST 2012



**Watts Bridge
Memorial Airfield,
Silverleaves Road
via Toogoolawah,
Qld**

*www.wattsbridge.com.au
www.qva.org.au*

Yoshi Tanabe's Dragonfly



Yoshi's Dragonfly

In 2010, we had the first Temora Natfly. I flew down via Moree where I joined the bowser queue behind the two Japanese pilots, one by the name of Koji, who was in a Jabiru 200, and the other by the name of Yoshi, who was flying the strangest looking light aircraft I had ever seen. It turned out to be a Dragonfly, and the owner/pilot was Mr Yoshihiro Tanabe. Yoshi had come all the way from Osaka, Japan; however, he did the first leg of his trip as a passenger in a Boeing. Yoshi actually spends a lot of his life in Boeings. He flies them for a living. He is B747-400 captain with ANA, the second of Japan's two national carriers (the other being JAL). Yoshi is one of at least four international readers of the Brisbane Valley Flyer. He often sends me positive comments about the articles. He is also a member of RA-Aus and very interested in all matters aeronautical. He was originally trained by the Japanese Self-Defence Force but (like other people I know), didn't enjoy the military system at all. But he loves Australia, managing to make it here four or five times every year. He keeps his plane in Peter Pretorius' hangar at Caboolture.



So, what kind of plane is a Dragonfly? The best way to answer that question is with a little history from the Web. In 1979, Bob Walters, a Navy fighter pilot who was educated as an aeronautical engineer, formed Viking Aircraft Company. The Dragonfly was introduced at Oshkosh in 1980, and the prototype received the "Outstanding New Design of 1980" trophy. In 1983, Walters sold Viking to Rex Taylor, the owner of HAPI Engines, Inc. Rex, who was by then a recognized expert on VW aero conversions, immediately upgraded the Dragonfly's 1600cc engine to an 1835cc HAPI engine. The Dragonfly won the *Tom Jewett Memorial Award* for Best Fuel Efficiency in the 1983 CAFE 400 competition, carrying 400lbs of weight over a 400 mile course, getting 48mpg at 128mph. Sometime around 1990,

Rex Taylor passed Viking to his son Patrick Taylor, who tried to make a go of the company for several years, despite the fact that sales were not making the company profitable. By then, people were starting to put all kinds of engines into the airframe, and the major support for builders was beginning to shift away from Viking, now operated as a part-time venture, and more toward the builder community, the DBFN newsletter, and the annual fly-ins. In the mid 1990's, Patrick sold the rights to the Dragonfly to Mike Puhl of Slipstream. Unfortunately for the builders, Slipstream had no intentions of trying to make a profitable business out of plans and pre-fab component sales alone, and decided to throw its major support behind a snap-together form of the Dragonfly, with tricycle gear and a Jabiru engine. Finally in 2004, the rights to the Dragonfly were purchased by Dart Industries which intends to do a much better job of supporting the Dragonfly.

Here are typical specifications (American units):

- Canard, two seat, side-by-side
- Controls: Dual side sticks
- Canopy: One-piece moulded
- Cockpit Width: 43in inside (like Cessna 172)
- Construction: Fibreglass composite
- Empty Weight: 605 lbs (Yoshi's plane: 684)
- Gross Weight: 1150lbs (Yoshi's plane: 1300)
- Stall Speed: 48 mph
- Fuel Capacity: 15 gallons
- Fuel Consumption: 3.4gph (165mph TAS)
- Range: 500 miles (30min res) at 165 mph or 840 miles (30min res) at 130 mph
- Fuselage: 19ft, Wing: 22ft; Canard 20ft
- Wing: 97 sq ft for MK I or 102 sq ft for MK II/III
- Wing Loading: 8lbs/sq ft solo; 11.4 lbs/sq ft gross
- Load Limits: +4.4g, -2g working; 6g ultimate
- Engine: HAPI 1835cc, 60hp at 3200rpm;
- Takeoff: 700ft at gross; Landing (50ft obstacle): 2000ft; Glide Ratio: 14.5:1
- Rate of Climb: 1150fpm solo; 850fpm dual; Cruise Speed: 165mph TAS at 75% power at 7,500ft MSL; Ceiling: 18,500ft



Yoshi's Dragonfly is a Jabiru 2200 powered MkII version. Dragonflies come as either Mk I, Mk II or Mk III. This designation refers to the configuration of the landing gear. The original Mk I had its main wheels mounted at the tips of forward canard wing which was very drag efficient but caused problems with narrow taxiways and also had some structural problems. The MK II had the main wheels still on the canard but moved inboard to about the halfway point (there is also a MK II-H arrangement with a hoop style main gear). The MK III uses a conventional tricycle arrangement.

Yoshi's Dragonfly (continued)

Yoshi had just bought his Dragonfly when I met him on the way to Temora. I remember he was having some trouble starting the motor and commented on the lack of compression. Not long after Temora, Yoshi took the plane to Jabiru in Bundaberg to have the motor checked and was advised to donate it to a museum. They promptly sold him a new one. The original motor had only 80 hours on it.

The plane was built in Adelaide by three partners and first registered in 2005. It was sold soon after to a doctor in Coffs Harbour from whom Yoshi bought it in 2009. As already noted, it is quite a slippery aircraft.



This is fine for cruising but presents approach and landing challenges. Yoshi has often put thought into devising an airbrake system for his plane. Due to the canard configuration, the plane will not stall, but requires an approach speed of over 65kts to keep the airfield in sight over the nose. On gusty days, Yoshi uses 70kts, which makes for quite a long landing roll. However, he says that there is excellent rudder authority, so asymmetrical approaches might be an answer. Certainly, this works in other slippery aircraft without airbrakes (like Sapphires).

Yoshi said that the usable fuel in his plane is 65 litres and his cruise fuel consumption is 13.5 litres per hour.

His cruise endurance (with no reserve) is therefore 4.8 hours (65/13.5); however, he plans on 60 litres and 15 litres per hour giving him a range of roughly 400nm. To allow for the unexpected, he never plans legs greater than 300nm. He was told by Rod Stiff (Jabiru) that the optimum altitude for the engine is 8,500 feet (density altitude), so for long distance navigation, he checks both temperature and winds to determine his best altitude. Yoshi normally flies alone, so there is no problem with luggage space. If he takes a passenger, the only available space is behind the seats and this is a limited.

Yoshi is married to Kimiko. Yoshi and Kimiko have a 35 year old son, Yoshito. Their oldest child was daughter Hiromi, who tragically died from cancer seven years ago at just thirty years of age. Yoshi told me that Hiromi loved Australia very much. She was particularly fond of Manly Beach on Sydney's north shore. When she died, Yoshi and Kimoko donated a memorial seat in Hiromi's name to Manly City Council. The seat is set on the top of a hill overlooking the beach. Hiromi was also very fond of rainbows, so Yoshi and Kimoko spread Hiromi's ashes from the Dragonfly over the water off Rainbow Beach, Queensland.

Yoshi's has a plan to fly his Dragonfly around Australia with Yoshito in the right-hand seat. He and Kimoko have a more future plan to travel around the world on a cruise ship, because this was a dream of Hiromi's.



Hiromi

FTC Decarbonising Fuel Additive

Richard Faint put me on to this. It is sold by Cost Effective Maintenance here in Sumner Park, phone 3376 6188 and their website: www.costeffective.com.au It's not cheap. A one litre bottle costs \$80.00, but it mixes 16mL per 25 litres of fuel. Richard has been running it in his L'il Tinny engine (a Rotax 503) for the last 170 hours. He made a point of saying, "I CANNOT RECOMMEND THIS PRODUCT" (his capitals), "as I have not enough history on it, (however,) I believe it is lessening the carbon deposits on the pistons and inside the head." I have decided to put a litre through the Sapphire motor as it did its first 100 hours on a synthetic oil that is notorious for carbonisation of rings and pistons. In aviation, using fuel additives is fraught with hazard, so I'm not recommending anything either. The company did say, though, that they have been selling the product for 20 years and have not had any issues with it.

Orchid Beach (South East Queensland: beautiful one day, perfect the next)

It is cheaper to go by plane. How often have you heard that? In these days of competitive airfares, those words have been said many times. However, when it comes to visiting exotic islands off the coast of South East Queensland, it can also be said that it is cheaper to take your own plane, especially if it is a basic one like mine. That is certainly true for North Stradbroke Island, and it has also turned out to be true for Fraser Island, a hundred or so nautical miles to the north of Stradbroke. The largest sand island in the world, with an area of 184,000 hectares, Fraser Island is more than 67 nautical miles in length and twelve or so at its widest point. The island has a World Heritage listing similar to Uluru, Kakadu and the Great Barrier Reef, and is described as a place of exceptional beauty, with long uninterrupted white beaches flanked by strikingly coloured sand cliffs, with over 100 freshwater lakes, some tea-coloured, others clear and blue, but all ringed by white sandy beaches. Wow! It is further described as having ancient rainforests growing in sand along the banks of fast-flowing, crystal-clear creeks. What the Fraser Island website doesn't mention, though, is that it also has several bush airstrips, including a very serviceable 670 metre grass strip, perched on a sandy cliff 50 feet above the foaming surf, at Orchid Beach.

For pilots coming up from the south wanting to visit Fraser Island, a good stopping off and refueling point is Gympie, a town with a population of eleven thousand, about 90nm north of Brisbane. Gympie airport is 80nm from Orchid Beach and boasts a 1400 metre sealed runway with an 800 metre grass cross strip. Gympie is a town with history. Originally settled for grazing purposes, the area became important when gold was discovered in 1867. Gold mining still plays a role in the area's fortunes, along with agriculture (predominantly dairy), timber and tourism.

My Irish mate (everybody has one, haven't they?), Stephen Cummins, a Gympie resident, was waiting for me outside his hangar when I arrived at Gympie Airport at 9am on 8th July. Not too long ago, Steve had the very good luck to meet up with a lovely lady by the name of Biserka, and they are now inseparable. Biserka is originally from Yugoslavia and has taken to the position of co-pilot in Stephen's Jabiru 2200 with absolute enthusiasm. Stephen is a regular at local fly-ins, particularly BVSAC events, and you will never seem him now without his elegant partner in the right-hand seat.

Steve Donald arrived shortly after me in his Savannah VG, closely followed by Peter Pretorius in his Tailwind and Yoshi Tanabe in the Dragonfly (see title page). We were soon organised and (in my case) refuelled. Peter and Yoshi had only come to Gympie to see us off (and for me to get photos of Yoshi's plane), however; and only three aircraft headed north to Fraser. We had to zigzag our way through scuddy showers for about 20nm, but soon found clear, smooth air along the main Fraser Beach. We arrived over Orchid about an hour after leaving Gympie.

The Orchid Beach airstrip is oriented 13/31 and is, as already said, perched on a sand cliff above the sea. It is protected from the sea breeze by a line of stunted trees running along the cliff edge and this makes for a very bumpy short final if the wind is up, as it was on this day. The small wheels on my Sapphire had no problem on the tufty grass and we all found the surface very acceptable. There was plenty of parking, but the tie-down situation was not ideal because of the soft sand not holding tie-down stakes very well. There is no doubt, though, that this is a most picturesque location for an airfield. The ambience of the place that day was quite stunning. We all felt very happy to be there.



Orchid Beach (continued)

Standing directly behind the airfield is the Orchid Beach Trading Post. The proprietor of this general store is Don McKay. He has been living on Fraser since 1985. He started the Trading Post in 1991. He told me that the building was originally part of a resort that had been closed by the Queensland Government at that time for environmental reasons. Don said it took him about ten years to get leased approval for his operation. He likes the island lifestyle and plans to stay there. Further up the hill from the Trading Post is Orchid Beach village with about 140 blocks. These are mainly holiday rentals with only 30 regular residents. Don said that, on average, there are two or three arrivals per week at the strip, with Air Fraser sometimes doing charter flights. Landing fees are \$20 per aircraft. I forgot to ask whether under-wing camping is allowed at YORC, but I believe it is. Bill Molliner is the man responsible for mowing of the grass. It is advisable to check with Bill on 07 4127 9441 before going, to ascertain when it was last cut.



We spent about two hours there. We didn't descend the cliff to the surf as it looked quite precarious. Mostly we sat at the edge of the airfield, ate our lunch and planned our next flying excursion. We would have liked to have been sitting in the shade up at the shop; however, we had been hunted away from there. Even though we had paid \$60 between us for landing fees, even though I had gone there with the professed intention of giving the place national coverage in Australia's highest circulating aviation magazine, and even though, at that time, we were the only visitors, we weren't permitted to sit on the benches in front of the Orchid Beach Trading Post to eat our sandwiches because we hadn't bought them at the store! Hard to believe, but true. Actually, I have encountered this "no free picnicking" attitude quite a few times in Australia before and regard it

as stupidly short sighted because, firstly, visitors often buy other stuff, like drinks and ice cream, etc, (Steve had already bought himself a coffee actually), and also, people sitting at benches attract other people. More pointedly, it might be an OK attitude in the city where people have plenty of alternatives, but in remote places where visitors have to make such an effort to go, I don't think it is an acceptable attitude at all.

A convoy of four-wheel drives arrived just before our departure and we had quite an audience as we took off. The trip home was back along the eastern shore. This time, I had woken up to the presence of a ridge wave caused by the strong sea breeze curving upwards over the steep coastal incline. The lift was smooth and powerful and, at 500 feet above the beach with only half power on the Rotax, I sat on Vne for the full length of the island. It was absolutely exhilarating and definitely the highlight of my trip. There was even one magic moment when I was formatted on by a hefty, white and grey sea eagle, but he quickly broke away, unable to keep up. I also saw another aircraft that had landed on the beach near an old wrecked ship along with numerous bush vehicles taking advantage of low tide to use the sand as a highway to reach their camping sites. We met up again at Gympie and said our goodbyes. I made it home to Forest Hill about half an hour before sunset. It was a trip I would definitely like to do again.



From John Higgs in WA

Hi, Arthur. I continue to enjoy reading the Brisbane Valley Flyer, and feel very envious of your club and the environment you fly in. We just don't seem to have anything like it here. (The Flyer) appears to facilitate a great community feeling and support network. My experience here is that flying is a much more individual and almost lonely experience. When I go out to Jandakot to fly, I see no one else and only occasionally even talk to anyone in the same aviation niche. Of course, there is a lot going on out here, but almost all of it is commercial activity, flying schools, big prop jobs and jets! So, keep up the good work. Regards, John Higgs

New ain't always the latest!

BVSAC President and Board member-elect for Southern Queensland, Mike Smith, bought a new six cylinder Jabiru motor with his J230 kit last year. Jabiru have introduced many upgraded features to their motors over recent years and Mike expected his motor to have all of them. However, this was not the case. The strengthened crankcase through-bolt modification was not installed. Mike enquired why not and was told that his motor had come from stock and had been produced before that modification was introduced. So, the moral of the story is that anyone contemplating the purchase of a Jabiru motor should carefully check that all updates have been installed before handing over their money.

Also, Mike has just bought a Garmin 695 GPS for the panel of his Jabiru J230. He paid more than \$2000 for it, but was dismayed to find that it didn't come with maps (it only had the base map, which is so out-of-date that it doesn't even show Lake Wivenhoe). His previous GPS, a Skyforce (now King) had come out of the box with the latest of everything already installed. Mike also commented on the Flyer and Sport Pilot GPS navigation articles:

Arthur, let me say that I think your article on navigation methods was very well thought out and well presented. There are definitely many RA-Aus pilots flying with nothing more than a GPS – and I mean nothing more, much to my horror! I hope a lot of people take notice of the story, with particular reference to the flight plan. I feel it is very important to have some sort of plan to pre-program the brain as to what will be required during the trip. Personally, I like to have the entire route mapped out on the paper charts, so I can soak up the big picture before I leave. After takeoff, in reality, the GPS becomes the primary navigation tool, because as you say, it is so easy. However, I still make pencil marks on the map as I go. (I am talking about significant trips of course. I wouldn't flight plan from Watts to Gatton, for instance.)

Birdsville: At this stage there are four possible starters for Birdsville at the end of August, these being Steve Donald (with spouse), Mark Gray, Ken Hulse (soon taking delivery of his Nynja) and myself. Mike had some great advice for us:

At the last meeting, I forgot to ask about the people interested in Birdsville. This year is not good for us but I've flown there a number of times in the past and it can be a great trip. I have been harbouring thoughts about Birdsville; maybe next year when we should have quite a few club aircraft able to go. I generally do a round trip: Day 1 to St. George (fuel if required); then to Cunnamulla (fuel if required); then over Thargomindah to stay at the Noccundra Hotel, a unique outback pub (fuel available). Day 2 to the Burke & Wills Dig Tree (an historical site of considerable significance); then to Innaminka and on to Birdsville. Day 3 at Birdsville. Day 4 to Windorah (food & fuel if required) and on to Longreach (Hall of fame, Qantas museum, etc.), with alternative accommodation at the great old pub at Isisford. Finally, Day 5 (perhaps Day 6 for most aircraft) brings me home via Blackall, Charleville and Chinchilla.

Mike is right about club aircraft. Next year we should have more viable cross-country aircraft in the club than ever before. I have made a quick list off the top of my head. I know I have missed people, so please forgive me:

Richard and Glenda Faint (Jabiru SP500); Mal & Gail McKenzie (Skyranger Swift); Steve Donald and spouse (Savannah VG); Mark Gray (Savannah S); Mike & Priscilla Smith (Jabiru J230); The Ratcliffes (Zenith 750 & 650); Vern Grayson (Zenith 601); Ron Dunn & Kerry Burns (CT-4); Ivor Parsons (Zenith 601); Scott & Chris Hendry (Skyranger Nynja); Greg Robertson (Skyranger Nynja); Rob Knight & Peter Davies (Lightwing GR912); Gavin McGrath (Zenith 701); Ivan Scott (RANS Coyote); Bob & Robyn Dennis (RV9a); Frank & Cheryl Francis (Piper Sport); Ken & Debbie Hulse (Skyranger Nynja); Peter & Julie Freeman (Cessna 182 or Lightwing); Bill Oates (Lightwing PR); John Innes (Raven Highwing); Jim Gollagher may have his Terrier or his Karatoo flying by then; Col Thorpe may have his Cheetah going as well; Arthur Marcel (Sapphire); also quite a few non-members who may be keen to join us, such as Cyril Brock (Minicab); Peter Pretorius (Tailwind); Stephen Cummins (Jabiru); Yoshi Tanabe (Dragonfly); Marty Hone (Spacewalker II RR); etc.

Steve Donald goes skydiving!

Most of us get ever more conservative and careful as we grow older, but that is not always the case. On 7th July, BVSAC member Steve Donald jumped out the door of a perfectly good aircraft when it was more than a mile up in the air!

Also from Western Australia

BVSAC member Paul Poulsen is currently in doing the Sandgroper thing for his company, but is looking forward to returning to Queensland. An irrepressible aviation enthusiast, Paul takes after our much loved Webmaster, Will Miller, with his passion for searching out old aircraft wrecks with the intention of one day rebuilding them. Paul has recently come across the remains of a Quickie 2 and a BD-5. He sent me some photos and asked for my advice. I pointed out that there are people who want to fly planes and those who want to (re)build them. The first question to ask yourself is which one am I?



CX4 Plans for sale

BVSAC member Ken Edwards has decided not to go ahead with his CX4 project. He is turning his mind towards a Super Cub renovation instead. He recently bought a full CX4 plan set and is hoping to get his money back for them (\$350). Anyone wanting to fly formation with Kevin Osborne is therefore advised to contact Ken at kenedwardss7@yahoo.com

Aircraft transport/recovery trailer (BVSAC member responses)

Scott Hendry: *Arthur, I was thinking that a flatbed trailer would be the most flexible. Preferably, the bed should tilt, which does away with the need for ramps. The difficulty that I can see arising is how to accommodate both tricycle and tail wheel aircraft. For tail draggers, the trailer will need to be wide further forward. I was thinking of something that was rectangular and had a platform that extended up over the tongue for the nose wheel. We should probably measure the stance of a few aircraft to get some ideas of the width and length that would be useful. I'm thinking that it would need to be at least 2 metres wide and probably about 6 metres from tow hitch to the back end. BTW, making a trailer tilt is a really simple matter and far easier than building ramps and adding some kind of storage on the trailer for them. Scott.*

Ivan Scott: *Hi Arthur. I just read the latest newsletter and I'm keen if the club does go ahead and gets a recovery trailer. I'm happy to help but my time is pretty limited. I'm in Everton Park and have the Yellow Coyote that I haven't had a chance to get airborne yet. Regards, Ivan.*

The thought has occurred to me that, with so many viable cross-country aircraft in our club now, an aircraft transport/recovery trailer would be a good investment for the club per se.

Follow up from Rotec

I have had some questions re Rotec's Liquid Cooled Heads for Jabirus. For information about coolant pumps, radiators and other things, there are two very good videos on Rotec's website:

<http://www.rotecaerosport.com/products/lch/>

However, I asked Paul Chernikeeff about valve seats and what changes Rotec make to the Jabiru rocker gear:

Hi Arthur. Yes, we use original Jab valves, rockers, springs, etc, but we use our own Rotec guides and valve seats. We also make our own rocker shafts, which are case hardened and ground, and far superior to what Jabiru use.

Here at Rotec, we press the valve seats into the heads the same way Jabiru or any other head manufacture would. The press we use is the same we have been using on our radial heads for over 13 years and, while we have done around 8,000 heads, we have never had a valve seat fall out! We use around a 0.15mm interference fit between the valve seat and the head. But the press fit has nothing to do with why the air-cooled Jabiru valve seats fall out of their heads. The reason they fall out is because the stock air-cooled aluminium heads simply get too hot and expand at a greater rate than the steel valve seat. This gets to the point where the interference between the seat and the head disappears and thus the seat falls out. This cannot happen with our liquid cooled heads as the temperature we operate at is way too low to get this differential in expansion. Our liquid cooled heads run at about the same temperature as a modern water-cooled car engine does, and that is 80 to 90 degrees Celsius.

Regarding our move to Tyabb, Rotec are in a temporary workshop while we all eagerly wait for our new workshop to get built. I have had the land levelled and we are still waiting for the concrete to get poured. That should be in about the next two weeks. The weather has been crap and this has not helped at all. It will be a few months away yet. I expect come summer we will be settled in nicely. Once we are in we will be able to do full-on airplane LCH conversions and, yes, all our customers' planes will stay under cover safely in my work shop.

I'm off to EAA Oshkosh in two weeks. Last year, we sold lots of head kits, so I hope to do even better this year. See how we go! Best regards, Paul (Paul Chernikeeff, Technical Director, Rotec Aerosport).

What's new with Gentleman Jim?

Hi Arthur! Yeah, it has been awhile, hasn't it? To answer your question, I've found instructing to be both challenging and rewarding, definitely NOT easy or for the faint hearted. Judging when to turn up on the controls or to allow students to make their mistakes and therefore learn from them is by far the toughest thing to get a feel for. I'm now back instructing for Kev (Walters) most Saturdays after having had six weeks off to work with Terry (Kronk), Barry (Rodgers) and Martin (Hone), getting ready for the Emu Gully Air and Land Show.

Because I had so much to do (Mustang engine job, etc) leading up the show, I didn't get enough time to be confident flying the Neiuport N17, so we had to ask Kev to fly her in the show. I won't miss next year though, because I'll have all twelve months to get sorted and to get some hours up in it.

The Karatoo is on hold until I have the Terrier going. The Terrier was on hold while I was working toward the Emu Gully show, but now I can refocus on it and should hopefully have it flying in a couple of months. It will most likely eventually be kept in Bob and Robyn's hanger at Watts. I'd like to get it in somewhere at Caboolture so I can put an end to all this driving, but that doesn't seem likely (but fingers crossed anyway). Cheers, Jim (Gollagher).

Club house ceiling painted

BVSAC members Peter and David Ratcliffe have finished painting the clubhouse ceiling and have done a great job of it too. Also, Peter Freeman has made a cover for the clubhouse gas cylinders. Many thanks to the Rats and to Peter!

Hard working BVSAC members Mal and Bryan

Most of us are working on our aircraft, our hangars or on our personal equipment; but some BVSAC members work pretty tirelessly for the common good of all club members. Two of these people are Mal McKenzie and Bryan Schollum, who have recently completed the construction of a couple of robust wooden picnic benches for the Watts Bridge clubhouse. On Poker Run day, these benches were used for the first time, and they were found to be excellent. These photos were taken as the last coats of paint were being applied. Well done, Mal and Bryan. Many thanks for your efforts from all of us!



Skyrangers breeding like rabbits in them thar hills at Watts Bridge!



If you think this cute little Skyranger is Scott Hendry's "Spirit of Kittyhawk", then think again. It is Ken and Debbie Hulse's brand new Nynja 19-8145! They are buying the unfinished project through Greg Robertson (who else?), who is completing it for them and will then fly off the test hours before transferring ownership. Ken is keen to fly this plane to Birdsville at the end of the month (if he takes delivery on time). He also plans to hang on to the Drifter. In other words, he hasn't completely gone over to the dark side (the more civilized, enclosed cockpit (plus trainer wheel) side of life).

Fred Moreno's Lancair IV: definitely not your everyday homebuilt

It's good to get mail from readers. Sometimes it comes from far afield. Our most distant correspondent so far has been Kirk Sutton, who lives in England and flies a 95.10 Sapphire. Kirk found us on the Web. Actually, it's about time we caught up with Kirk again. He was doing extensive modifications to his plane last time we spoke.

This month, we have mail from John Higgs (see page 5) in Perth, and we also heard from Paul Poulsen (see page 6). Now, we have the very good fortune to hear from Fred Moreno, who also lives in WA; in Denmark to be precise. Like John (I believe) and definitely like Paul, Fred is also an imported Sandgroper, coming originally from California. Fred got his copy of the Flyer from Marty Hone (a relationship which will soon become apparent), and straightaway asked if he could be put on our regular mailing list. That, of course, was not a problem, but, in return, I asked Fred for his story. As it turns out, Fred flies a homebuilt aircraft, but definitely not your everyday variety!

Fred told me that he took his first flying lesson in his father's Cessna 172 at the age of twelve and soloed at sixteen. That was 50 years ago. Engineering school, marriage, and lack of disposable income meant no flying until the early 70's when he finally got his license and bought a Cessna 182 in partnership with a fellow engineer. This led to a new Turbo182RG in 1979, which he flew until 1999 during a career in defense, aerospace, energy, and finally semiconductor manufacturing in Silicon Valley south of San Francisco.

Fred recalled to me that all this time he had had the urge to build something, an itch he finally scratched in 1992 when he ordered an early Lancair IV "ultra slow build" kit. As is the case with quite a few homebuilders (if you have ever visited Col Hooker you will know what I mean), construction started in the family room, where the wings were finished and fuselage was about half completed. Then, fate intervened. The company Fred had been running was sold. Decades of 60 to 80 hour weeks had taken their toll, so he called it quits and opted for early retirement.

Sometime later, Fred's wife flew to Perth to visit an Internet friend. A tour to the southwest corner of WA led to a phone call back to Fred, the first words of which were, "I want to move to Denmark, Western Australia!" Always wanting to please his better half, Fred did his research and found the town and climate to be much like the small town they had grown up in, but without the craziness, the cost, and the congestion of California. So they bought 120 acres on the shoreline of Wilson Inlet. A year later, they arrived in Australia, the Lancair carefully packed in a shipping container awaiting attention. The big move, building the house (with a six by ten metre work shop wing, naturally), furniture, garden, hangar and the like consumed a few years before the project could restart.

Fred's hangar was actually the first to be built at the Denmark airstrip, 50 km west of regional airport, Albany. Over the last ten years, Fred and his mates, working with the local Shire Council, have obtained grants from the state to lengthen it, pave it, add runway lights, and some taxiway work as well. There are now about a dozen aircraft based there, and an average of about two per year are being added. A little known fact about the Albany-Denmark area is that it has the highest per capita density of RVs in the world, and probably has the highest per capita density of homebuilt aircraft in the world. There are about 30 flying homebuilts for a small total population, and SAAA Chapter 13, the local chapter, did a survey and found 18 more under construction and nearing completion.



Finally, the day every aircraft builder dreams about came for Fred. In April 2008, after 6000 hours and fifteen years of hard work, the first flight was made from the Denmark strip with Qantas Captain and Lancair IV builder Gary Burns at the controls. Since then the aircraft has travelled widely, hitting all capital cities except Brisbane, and many airports in between. Not only that, those long hours of construction were truly rewarded when it earned Best Composite Aircraft Award and Concours d'Elegance Aircraft Award at the SAAA 2009 Cowra convention, and Best Homebuilt at the SAAA WA regional fly-in in 2010.

Originally trained as a mechanical engineer with a specialty in design, Fred described how he made many improvements to the original specifications, including custom hydraulically-operated speed brakes, extensive engine cooling modifications including servo-operated cowl flaps to reduce cooling drag, built many new carbon/epoxy parts including nose landing gear doors and a retractable passenger step, and applied meticulous attention to detail in order to reduce drag and improve efficiency. Being an all-electric aircraft, redundancy is provided by dual batteries, dual alternators, and four electrical busses with automatic transfer capability.

Fred Moreno's Lancair IV (continued)

I asked Fred exactly what he meant when he described the Lancair as an "all electric" aircraft. He explained that the flaps, undercarriage, and speed brakes are all hydraulically operated and powered by an electrically driven hydraulic pump, a common design in all Lancair IVs. The speed brakes are of Fred's own design and construction. There are no vacuum instruments or vacuum pump. The backup gyro is electric. (Fred told me that he hated vacuum pumps, these being the least reliable part of his previous aircraft.) Also, the Lancair has one magneto and one electronic ignition, which means it needs the electrical system to keep both ignition systems working. Also, it has electric three-axis trim, a feature common to most Lancair IV's. The only mechanical system is the engine driven fuel injection pump, although it has a back up electrical pump adequate to maintain cruise power. Fred said that he built in all the redundancy when he was younger and braver, and was contemplating long over water flights (trans-Pacific, for example). Actually, he still is planning a trip across the Tasman to NZ.



While most Lancair IV aircraft were built with turbochargers and pressurization, Fred wanted to keep his aeroplane light and so opted for no pressurization, thereby saving hundreds of pounds. He installed a 310 HP IO-550 engine. He had previously owned a turbo airplane (for twenty years), and while they are great for flying in the Sierra Nevada and Rocky Mountains to airports above 9000 feet, Fred thinks that turbos are a major expense waiting to happen. Australia is flat and flying high is boring anyway, so it was good-bye to turbochargers.

Fred told me that learning to master the Lancair IV was a challenge. He said rather amusingly that "it is not your mother's 182". If you consider that the gross weight is 3300 pounds and all that is held aloft on 98 square feet of wing area, it is easy to see his point. Just compare that ratio to an RV-6, which supports 1600 pounds on 110 square feet of wing. Fred said that such high wing loading requires careful handling when you get slow, as induced drag builds up rapidly as speed decays. The danger is accentuated due to the low drag to weight ratio taking you "behind the drag curve" rather slowly and imperceptibly if you are not paying particular attention.

Fred quoted me some impressive statistics on the plane's aerodynamics. For instance, the "flat plate" drag area of a Cessna 182 is roughly six square feet, while that of a V tail Bonanza is roughly four square feet. The published figure for the Lancair IV is 2.12 square feet, while the value for Fred's Lancair IV is 1.85 square feet due to his extensive drag reduction work! Fred says that this is a "fly the numbers" aeroplane, which means paying close attention when you transition to slow flight. In a Lancair, "slow" means below 120 knots.

Fred Moreno's Lancair IV (continued)

A typical mid-weight flight begins with rotation at 85 knots, lift-off at 95, gear and flaps up by 120. Best rate of climb arrives at 135 which yields 2200 ft/min at sea level, dropping to 1100 ft/min at 10,000 feet. Climbing through 1000 feet, Fred says he normally accelerates to cruise climb at 160 knots, then powers back to 75%, and starts leaning the mixture. Cruise at 8500ft is with cowl flaps fully closed, 65% power and mixture set to 50F lean of peak, to produce 220 knots at 51 litres/hour. This aircraft is not your normal home-built!

With 340 litres on board, the plane has six hours of endurance or about 1320 nautical miles range. That translates into Perth to Adelaide around the Bight non-stop, or Perth to Sydney in about nine hours with one stop. Fred says that pilot-required pit stops require more frequent landings, however.



Descents need to be well planned. Power is cut to about 45%, and the nose is lowered to produce about 200 knots IAS and 1000 ft/min descent rate, levelling at about ten miles from the airport, where power is further reduced to 35% to eventually yield 160 knots overhead. If the arrival ends up hot or high, the speed brakes come out to slow the plane. Ten degrees of flap soon has the aircraft down to 140 knots, which allows gear extension. Power then comes up to hold 120 knots to base where full flaps come out to allow further descent. Final is flown using an angle of attack indicator, because, depending on weight, the final approach speed can vary from 92 to 110 knots. Touchdown and roll-out with a lot of braking takes up 600 metres, making 800 metre strips acceptable as long as it is not too hot, nor the aircraft too heavy.

Fred further emphasized the “fly the numbers” nature of this aeroplane by pointing out that there is little tactile feedback to the pilot. If the instruments are not properly monitored, the airspeed can bleed off un-noticed until induced drag starts to build rapidly and put both plane and pilot into a very bad place. However, as an intellectual exercise for an engineer undaunted by the need to carefully manage many systems simultaneously and to constantly monitor the aircraft's energy state, flying this plane cross country is an unsurpassed experience. The Lancair can carry four people and baggage at 220 knots, while burning 12 litres per 100 km, about the same as Fred's four-door car.

But while capable, interesting, challenging and efficient, Fred has concluded that, ultimately, the Lancair is not a “fun” airplane. While it certainly works the intellect and has amazing performance, with no “wind in the wires,” it does not scratch his tactile and emotional sides very much. He has been left with a persistent urge for a new project, one that will stir his emotions with a little more vigour, not to mention titillate his sense of nostalgia. This yearning was lately amplified when he saw the SAAA magazine article about Martin Hone's Spacewalker II RR (with the Rotec Radial engine). That magazine lay open to the picture of Martin's airplane for weeks until, one day, his wife finally said “That looks like a fun airplane. Why don't you build one?” (Fred believes that he is married to one terrific woman.)



So the research began, visits were made, a Web group joined, pictures studied, plans ordered and a comprehensive parts and materials list produced. In July, a very big box should ship from Aircraft Spruce and head for Fremantle. Fred has purchased a nice TIG welder for the fuselage build. He told me that he worked his way through engineering school in the university machine shop as a machinist and welder. He figures he can re-learn welding as well as learn how to work fabric and build wooden wings. Fred believes that everything you need to know you can get from books, DVDs, fellow aviators, and a lot of patience and practice.

At the moment, Fred's workshop is being cleared of the 1963 Corvette roadster which he brought from California. That restoration is nearly complete, and the car will go on the block to pay for the Spacewalker. A leather helmet, goggles, and a white scarf lie in wait. Even though we were only emailing each other, I'm sure that Fred had a gleam in his eye when he told me that he wants to do some REAL flying....”





Gathering of Eagles Australia

SATURDAY 25TH AUGUST 2012

Open invitation to ALL Aviators
Enjoy the Freedom of Flight at
Picturesque Watts Bridge

Food and drink

No Landing Fees

Avgas



**WATTS
BRIDGE
MEMORIAL AIRFIELD INC.**

CONTACT John 0417 643 610 Ron 0428 747 737 www.wattsbridge.com.au

Two local
events not
to be
missed:

The 2012
Watts
Bridge
Gathering
of Eagles

&

The 2012
Gympie
Aero Club
Fly-in
Dine-out!

Invitation to join Gympie Aero Club 2012 Fly-in Dine-out



on Sunday August 26

Join us for Breakfast at Hervey Bay
between 8:30 & 9:30
and then fly to Greenfields
at Boreen Point for a Yummy lunch from 1pm

We finish the day at Gympie Aero Club
with afternoon tea and cakes

You might win a prize in our club raffle drawn at
Gympie Aero Club at the conclusion of the day

Also... Win an exiting Jet ride in an
L39 Albatross at Gympie.
Tickets will be on sale for \$25

The cost for breakfast, lunch & afternoon tea is \$35

This will be a fun event that has been well received in the
past few years and this year will be better than ever!

Don't miss out, bring along a friend and have a great day!

Reservations a must this year, book with an email to
gympieaeroclub@gmail.com

GPS Accuracy

Without doubt, RA-Aus has a great operations team in Zane Tully and Jill Bailey. In July's Sport Pilot, Zane wrote a very informative column about Military Restricted Airspace. In the last paragraph, however, he said that the accuracy of GPS is questionable because of the use of "different aerodrome reference points". I wrote to him asking exactly what he meant:

Hi, Arthur. Any electronic device that has not been TSO'd for use in aircraft cannot be used for primary navigational reference. Maps on the other hand are provided to pilots for precise situational awareness. Effectively, a map meets TSO requirements, an off the shelf (non-TSO) GPS and other electronic device does not. There will be more on this subject in the August Magazine. Zane Tully

According to Wikipedia, a **Technical Standard Order (TSO)** is a minimum performance standard issued by the [United States Federal Aviation Administration](#) for specified materials, parts, processes, and appliances used on [civil aircraft](#).

Looking on the Internet, it can be seen that TSO'd GPS equipment is considerably more expensive than non-TSO'd equipment. Marty Hone told me that with aero engines a TSO'd model is basically the same as a non-TSO'd one, the difference being that the TSO'd model has done more test hours before sale. With GPS then, is the difference one of reliability and not accuracy? I am currently doing an Internet literature review on GPS accuracy for next month's Flyer.



For Sale: You may have seen this neat, blue and white, Jabiru LSA in last month's Sport Pilot. It was built in 1998 by LAME 2 Rob Dawson from Yepoon, and has been owned, maintained and flown by him ever since. Rob is only selling because he thinks he is getting too old for the game. He is ready to part with this little beauty for \$38,000 ono. The plane has 625 hours TT, but the solid-lifter motor has just 162 hours TT. You can contact Rob on 07 4939 8431 or email him: rda6587@bigpond.com

For good friendly service and great deals on radios, GPS and/or aircraft batteries, talk to Jeff, Miles or Lyn at Aircraft Radio, on Beatty Road at Archerfield Airport:



GPS & Radio Wholesalers Australia

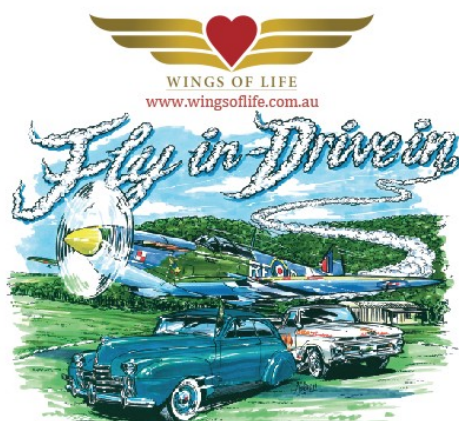
A Division of Aircraft Radio Pty Ltd

Your Specialists in Radio and Navigation Equipment for use on Land, Sea or Air

Distributors of:



Two other Queensland fly-ins (not to be missed):



Saturday 25th – Sunday 26th of August
Gates open - 9am Saturday - Gates close - 3pm Sunday

Archer Falls Airfield - 1253 Neurum Road, Mount Archer, Qld

Displays and Activities

- Extreme low-level Aerobatics • Replica Warbirds
- Aircraft Introductory Flights • Helicopter Flights
- Model Aircraft • Australian Light Horse Association
- Art Exhibition • Kid's Activities • Live Music

Fully Catered

- Coffee Shop • BBQ • Saturday Night Dinner \$25pp
- Sunday Breakfast

Daily Entry & Camping

- \$10/adult (18 and over) • \$5/child (3 and over) • \$30 family (2 adults - no limit on children)
- \$15 per tent/caravan (Sunday entry included)

Fly in Pilots

- Free entry and camping!
- Visit www.archerfalls.com.au for current airfield information.

Bookings required for dinner and camping by 20th July

Alayne Olson • bookingswol@gmail.com
or 0404 602 648

Proudly supporting



* Event subject to weather conditions

Queensland Recreational Aircraft Assoc incorporating
Warwick Aero Club invites you to

'Wings Over Warwick'

War Birds, Recreational & General Aviation

From 8.00am, Saturday
8th September 2012



GA, Experimental, Recreational (anything that flies) is invited to attend our annual Fly-In at Warwick (YWCK) the Rose and Rodeo City

Food and drinks available from 8.00am to 2.00pm

- Trial Introductory Flights in a Jabiru Aircraft
- Bike, car and model aircraft displays
- Additional Information: 0402705877 or 0427377603
- Email for information: qraaql@gmail.com
- Details at: www.qraa.info

Royal Flying Doctor Service is the charity to benefit

ANYONE INTERESTED IN AIRCRAFT IS WELCOME

(Aerodrome is 12km North of Warwick, turn off the back road to Allora)

Other Aviation Events for August

Aug 5	Wagga Wagga, NSW	Wagga City Aero Club monthly BBQ Lunch	Wagga Wagga
Aug 18-19	Watts Bridge Airfield, QLD	Aust Aerobatic Club QLD - Practice Weekend	Watts Bridge
Aug 18-26	Northern Queensland, QLD	QRAA Northern Tour	Adels Grove
Aug 19	Gympie, QLD	QVAG AFM Gympie Gathering Fly-In	Gympie
Aug 25	Betoota, QLD	Betoota Races	Betoota
Aug 25-26	Tumut, NSW	Tumut Aero Club's Tumut Valley Fly-in	Tumut
Aug 26	Deniliquin, NSW	Deniliquin Aero Club AGM	Deniliquin
Aug 26-Sep 8	Ceduna, SA	Outback Air Race 2012	Ceduna
Aug 30-Sep 1	Birdsville, QLD	Birdsville Races	Birdsville

BVSAC Poker Run

Bastille Day weather for 2012 was overcast but perfectly OK for flying. Unfortunately, though, the rain of the preceding week had put some of the chosen airfields in doubt. Not wanting to take any unnecessary chances, BVSAC convenor, Richard Faint called off the flying part of the event on the Friday afternoon (the preceding day). The social side, however, was a great success with more than thirty club members turning up on Saturday morning for the BBQ, with many staying on (and many more arriving later in the day) for the Xmas in July dinner that night. Two aircraft did actually arrive at Watts from Gatton Airpark, so the winner of the inaugural BVSAC Poker Run trophy (not to be confused with those fantastic QUA Poker Run trophies of a bygone era) was decided by a 3 draw penalty shoot-out in the clubhouse. The last man standing turned out to be a very happy hitch-hiker from Forest Hill (via Gatton).



BRISBANE VALLEY SPORT AVIATION CLUB Inc

MINUTES OF THE JULY 02nd 2012 GENERAL MEETING

MEETING LOCATION:	Terminal Building – Archerfield Airport
MEETING DATE:	2 nd July 2012
MEETING OPENED:	8:02PM
MEMBERS PRESENT:	11
APOLOGIES:	Ian Ratcliffe, Bruce Clarke, Neil Bowden
VISITORS:	Nil
NEW MEMBERS:	Mark Gray
MINUTES:	June meeting of the BVSAC Proposed: Mal McKenzie. Seconded: Peter Ratcliffe Motion carried.
PRESIDENT'S REPORT:	No Report.
SECRETARY'S REPORT:	The Secretary tabled the Correspondence Register for the month. Noted an email from WBMA Secretary for discussion in Watts Bridge Report.
TREASURER'S REPORT:	No report.
WBMA REPORT:	<p>An email from the WBMA Secretary drawing attention to the on-going problems with inappropriate products being introduced into the airfield's sewerage system was discussed. These products cause serious (and expensive) damage to the system's pumps if not trapped prior to the pumps. Currently filters are in place, but if they clog the system fails. The filters have to be regularly checked and cleaned out as required – a particularly distasteful job.</p> <p>The meeting concluded that though signage in the homebase clubrooms may help the situation, in the end these products were inevitably going to be used in the system. It is felt the only long term solution would be to incorporate a septic / holding tank into the system prior to the pumps which could be pumped out as required.</p> <p>The Secretary is to convey these thoughts to the WBMA BOM.</p>
BUSINESS ARISING:	Nil
GENERAL BUSINESS:	<p>Planning of catering for the BVSAC Fun Fly Poker Run was finalized.</p> <p>A thoughtful discussion on the use of GPS devices, dead reckoning and flight planning was moderated by Arthur Marcel</p>
NEXT MEETING:	04 th August at the BVSAC Clubrooms Watts Bridge at 10AM.
CATERING:	A vote of thanks was moved for Priscilla & Mike Smith for providing the supper refreshments.
MEETING CLOSED:	There being no further business, the meeting was declared closed at 9:12PM Supper was held after the meeting.

**Next meeting: 10.00am, Saturday August 4th at
the Watts bridge Clubhouse (BBQ to follow).**

**PRESIDENT: Mike Smith 0418 735 785 TREASURER: Ian Ratcliffe
0418728238**

SECRETARY: Richard Faint 0412317754 Email richard@auav.org

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