BRISBANE VALLEY FLYER

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BRISBANE VALLEY SPORT AVIATION CLUB INC

www.wattsbridge.com.au
www.bvsac.org.au

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In a Cessna Skyhawk? Yeah, right!

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Flying the Diesel RedHawk

It's been almost 20 years since diesel technology began promoting itself as an alternative for light general aviation. The adoption of compression engines has taken longer and has suffered more teething pains than its proponents anticipated.

Cessna 172 Redhawk

Late in 2013, Redbird Flight Simulations introduced a new diesel-engine airplane refurbishment project it calls the RedHawk, based on an existing Cessna Skyhawk. The aeroplane was test flown late last year and the concept seems to work as well as wish-full thinking would have it in the real world. Like Agent Mulder in The X Files with his belief in alien life, we want to believe in diesels, but can we?

As you may already know, Redbird has made a name for itself with its lineup of simulators, from high-quality desktop game-level models to full-motion certified training devices. It's also a mover and shaker, no pun intended, in the flight-training game. At its Skyport FBO/laboratory in San Marcos, Texas, Redbird not only trains a lot of pilots, it also keeps track of every bit of data it can during the learning process, such as how long it takes each of its customers to reach every one of his or her milestones.

The flight school opened for business just over 18 months ago, starting out with a fleet of four brand new Cessna Skyhawks. Redbird founder and chairman Jerry Gregoire says that he loves Skyhawks as training platforms, even though they're pricey. Though the standard gas piston Skyhawk is no gas guzzler — burning well under 10 gph for most training missions — the higher fuel costs go, the bigger possibility there is of an improvement, especially on airplanes that might fly 100 hours per month.

Skyport's Skyhawks also suffered from nagging maintenance problems with their Lycoming engines. So Gregoire and his team at Redbird set out to see if they could reduce the impact of all three areas — purchase price, maintenance and fuel costs — not by finding a new airplane to rival the Skyhawk but by building an airplane of their own. The result is the RedHawk, a refurbished Skyhawk that features a 135 hp Centurion engine.

The RedHawk under test is a 2002 S-model, which is one of the new-production Skyhawks built in Independence, Kansas, after Cessna's decade-long hiatus from the piston airplane game. When it comes time to produce RedHawks for retail customers, however, Redbird won't use later production Skyhawks but instead mid '80s airplanes originally built by Cessna. Mind you - Redbird won't actually be manufacturing the airplanes in any regulatory sense. It will, instead, extensively overhaul the original, stripping, corrosion-proofing, and adding a paint job and new interior. Everything will be done via STC, meaning the cost of getting into the RedHawk project will be workable, Gregoire says.

Redbird hopes the end result will be an airplane that costs less to buy — the company is shooting for at least $100,000 less than a new Skyhawk, which goes for around $340,000 — while costing less to operate and maintain.

The RedHawk's engine, a reworked Mercedes automotive turbo-diesel with an aviation gearbox turning a three-blade composite prop, is a thing of beauty. Featuring single-lever power, advanced computerized engine control and turbocharging (which gives it excellent performance up into the low teens), the engine is in theory a potential godsend for GA.

It's hard to understate the advantages of jet-A, a fuel that costs about a buck a gallon less than 100LL. More importantly, the diesel burns very little fuel compared to a gas-piston engine, so the savings are compounded.

On the test flight with Redbird's FBO head Roger Sharp, the aircraft consumption varied from around 2.5 US gph (9.5 litres/hr) at a reduced power setting to around 7.5 gph (28.4 litres/hr) at 100 percent power. Speeds are typical of a Skyhawk or slightly better down low. As you climb, they get a lot better. We were seeing almost 130 knots true at 4,500 feet at 7.5 gph (28.4 litres/hr). The RedHawk will likely cut fuel consumption by around a third while adding in the lower-cost of jet-A compared to 100LL.

The 'sharp' end

Operators of the Centurion 2.0 rave about the fuel efficiency, while also railing against the engine's maintenance issues, most notably the need to replace the gearbox clutch plate with an overhauled unit every 300 hours or less. The plan these days is for Continental and its network of U.S.-based service centers to oversee maintenance of the engine, something that was done in Germany. The gearboxes, according to reports we've heard, will still need to be overhauled in Germany, though schools can stock spare parts to cut the airplane's downtime to a couple of days. Continental's hope, Gregoire says, is for the TBO on the gearbox to eventually go up to 2,400 hours, an interval that will make the Thielert, unknown issues aside, a lot less expensive to operate than a Lycoming. Continental has already announced it is seeking to increase the first inspection interval to 600 hours from the current 300.

Thatcher CX5 Makes First Flight

A new experimental airplane, the two-tandem-seat Thatcher CX5, has taken its maiden flight. Glen Bradley, who helped build and design the airplane together with the main designer, Dave Thatcher, was at the controls when the CX5 took off from the Jack Edwards Airport near Gulf Shores, Alabama.

Bradley used one word to describe the visibility, the handling of the airplane and the operation of the engine — "Great!" He added after the flight, "All of us know that Dave hit a homerun with the CX4, and I told him today he has now hit two clean out of the park."

The Thatcher CX5

The builder and pilot claims the CX5 can be built for less than $25,000, which includes a factory-assembled 85 hp Revmaster VW engine and basic VFR instrumentation. While some parts, such as the spar and tail assembly, may eventually be available to purchase as a kit from other builders, as is the case with the CX4, the airplane is a complete homebuilt. It was, however, purposely designed to be built with basic tools.

The airplane has 589 pounds (267 kg) of useful load and 20 gallons (75 L) of useable fuel. Stall speed is estimated at 39 knots and cruise at 108 knots based on first flight data.

Bradley expects to have flown the required 40 hours by Sun 'n Fun and plans to display the airplane at the Lakeland, Florida, show in April. He also expects the CX5 plans will be available for sale by that time. Nearly 600 CX4 plans have been sold to date to customers all around the globe, Bradley said.

Rob Knight
Happy flying

Move over – The Lancair is Comin' In!
(At the top end of the homebuilt line-up)

Lancair's latest turboprop kit will cost from $750,000 to $1 million to complete depending on engine (new or used) and avionics choices. The basic kit sans engine, prop and avionics runs $250,000 and takes less than 1000 hours to build--so they say. The carbon fibre, four-seat speedster will cruise at 338 knots at 25,000 feet on just 35 gallons-per-hour. Fuel capacity is 140 gallons. That makes it faster than some Very Light Jets with a lower fuel burn.

Customers can choose from a wide menu of avionics by either Chelton or Garmin. The aircraft can also be fitted with a ballistic recovery systems (BRS) parachute, which can lower the entire aircraft to the ground safely in an emergency. Customers complete a two-week training course and then the kit is shipped to an authorized builder assistance centre, where customers are expected to contribute at least 51% of the labour to qualify the aircraft for certification under the "amateur built" rule (wink-wink, nod-nod).

High-end kit planes that include a lot of "builder assistance" are driving the FAA to propose substantially tightening the rules and may force some manufacturers to redesign their kits.

I wonder if RA Aus would let me register one as a 95.10 if I took out 3 seats.

What's in a Question?

The following is an actual question given on a University of Washington chemistry mid-term. The answer by one student was so "profound" that the professor shared it with colleagues, via the Internet, which is, of course, why we now have the pleasure of enjoying it as well.

Bonus Question: **Is Hell exothermic (gives off heat) or endothermic (absorbs heat)?**

Most of the students wrote proofs of their beliefs using Boyle's Law (gas cools off when it expands and heats up when it is compressed) or some variant. One student, however, wrote the following:

"First, we need to know how the mass of Hell is changing in time. So we need to know the rate that souls are moving into Hell and the rate they are leaving. I think that we can safely assume that once a soul gets to Hell, it will not leave. Therefore, no souls are leaving.

As for how many souls are entering Hell, let's look at the different religions that exist in the world today. Most of these religions state that if you are not a member of their religion, you will go to Hell. Since there is more than one of these religions and since people do not belong to more than one religion, we can project that all souls go to Hell.

With birth and death rates as they are, we can expect the number of souls in Hell to increase exponentially. Now, we look at the rate of change of the volume in Hell because Boyle's Law states that in order for the temperature and pressure in Hell to stay the same, the volume of Hell has to expand proportionately as souls are added. This gives two possibilities:

1) If Hell is expanding at a slower rate than the rate at which souls enter Hell, then the temperature and pressure in Hell will increase until all Hell breaks loose.

2) If Hell is expanding at a rate faster than the increase of souls in Hell, then the temperature and pressure will drop until Hell freezes over. So which is it?

If we accept the postulate given to me by Teresa during my Freshman year, "...that it will be a cold day in Hell before I sleep with you", and take into account the fact that I still have not succeeded in having an affair with her, then #2 above cannot be true, and thus I am sure that Hell is exothermic and will not freeze over."

THIS STUDENT RECEIVED THE ONLY "A".

FLY-INS Looming

Feb 8	Murgon (Angelfield), QLD	Angelfield Brekkie Fly-in Murgon
Feb 15	Dunwich / Stradbroke Island, QLD	Straddie Fly-in Breakfast
Feb 21	Sunshine Coast, QLD	SCAC Friday Clubhouse BBQ & Bar

RAAF Amberley Airspace Safety – Hazards

Dec 2013

452SQN AMBERLEY FLIGHT - ATC

Unit Aviation Safety Officer (UASO): FLTLT Straun de Kretser (07) 536 13542 or 13349
General Aviation Liaison Officer (GALO): FLTLT Andy McWatters (07) 536 13542 or 13349

Hazards in RAAF Amberley Airspace:
This poster provides a quick visual guide to just some of the hazards to aviation that can be found within the RAAF Amberley Airspace, comprising the CTR, R620A-E.

Pilots must clearly identify on their charts which Restricted Airspace areas are active and the base of each of these areas to ensure they either avoid controlled airspace adequately or give themselves plenty of time to receive a clearance from AMB ACD Frequency 134.6

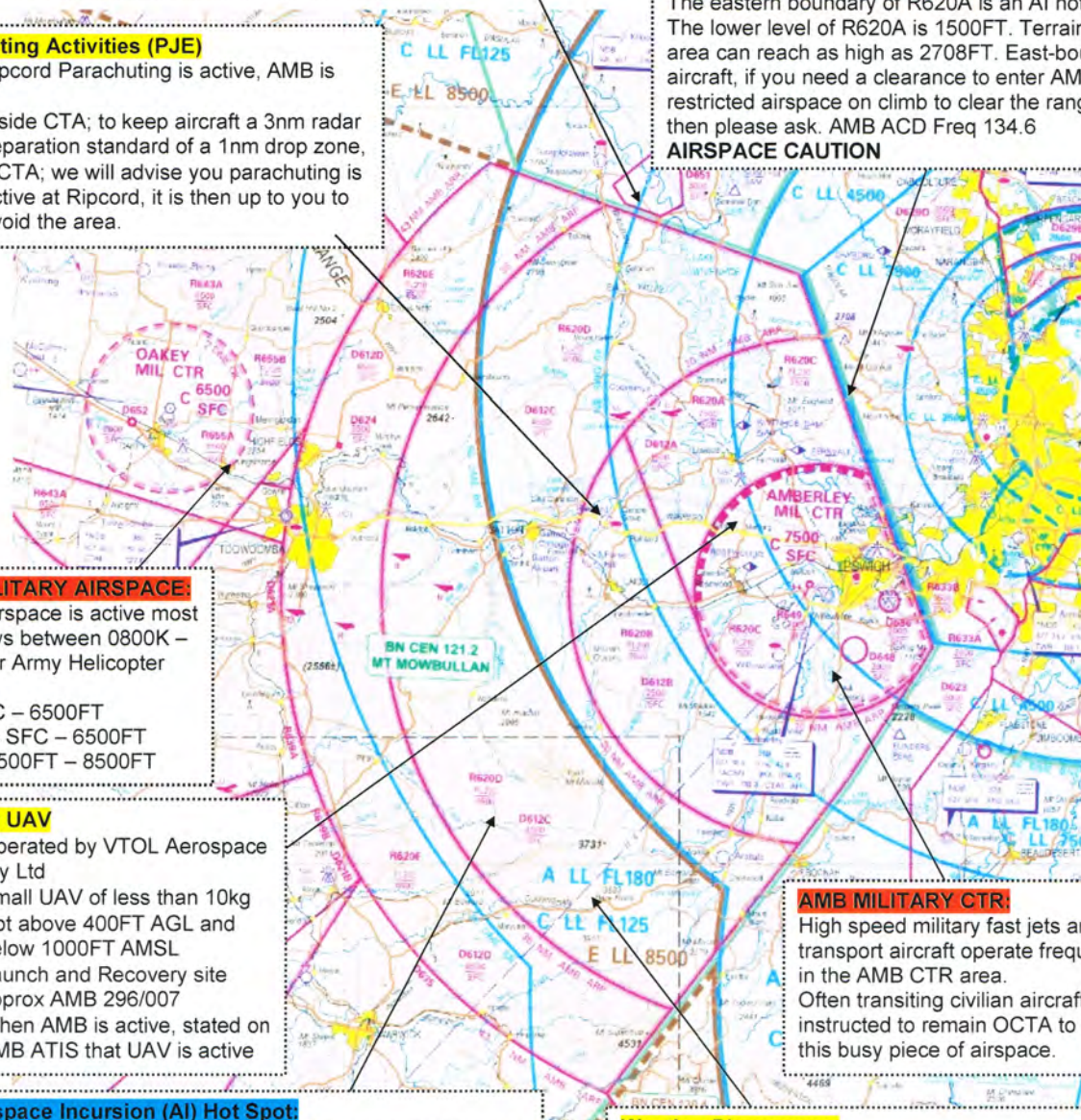
Watts Bridge UAV

- Operated by Insitu Pacific
- Scan Eagle is 18kg weight, wingspan of 3.1m and speed @40kts, transponder equipped.
- The aircraft markings include high visibility day-glow yellow/orange and will be displaying NAV lights and Strobe lights.
- The Operators (Pilots) are be based at Watts Bridge Airfield and will broadcast on the appropriate FIS frequency every 15mins announcing position, altitude and intent of the UAV. Not above 4500FT AMSL.
- This activity will be NOTAM'd by the operators each time

Airspace Incursion (AI) Hot Spot:
The eastern boundary of R620A is an AI hotspot. The lower level of R620A is 1500FT. Terrain in this area can reach as high as 2708FT. East-bound aircraft, if you need a clearance to enter AMB's restricted airspace on climb to clear the ranges, then please ask. AMB ACD Freq 134.6
AIRSPACE CAUTION

Parachuting Activities (PJE)
When Ripcord Parachuting is active, AMB is required:

- Inside CTA; to keep aircraft a 3nm radar separation standard of a 1nm drop zone,
- OCTA; we will advise you parachuting is active at Ripcord, it is then up to you to avoid the area.



OAK MILITARY AIRSPACE:
Oakey airspace is active most week days between 0800K – 2100K for Army Helicopter training.
CTR SFC – 6500FT
R643A is SFC – 6500FT
R655A 6500FT – 8500FT

Marburg UAV

- Operated by VTOL Aerospace Pty Ltd
- Small UAV of less than 10kg
- Not above 400FT AGL and below 1000FT AMSL
- Launch and Recovery site approx AMB 296/007
- When AMB is active, stated on AMB ATIS that UAV is active

AMB MILITARY CTR:
High speed military fast jets and large transport aircraft operate frequently in the AMB CTR area.
Often transiting civilian aircraft will be instructed to remain OCTA to avoid this busy piece of airspace.

Airspace Incursion (AI) Hot Spot:
The ranges to the south west of AMB are on average over 3000FT high, peaking at 4531FT Mt Superbus. The base of R620D is 4500FT and R620E is 6500FT. Pilots must use caution when flying through this area. West-bound aircraft, if you need a clearance to re-enter AMB's restricted airspace on climb to clear the ranges, then please ask. AMB ACD Freq 134.6 **AIRSPACE CAUTION**

Weather Phenomena:
Most of AMB's worst storm weather arrives from the west and south west. Storms that build up on the Darling Downs predominantly travel east, building in size as they pass across the ranges and towards Brisbane and Ipswich.
Gust fronts ahead of the storms can see winds swing rapidly from light north-easterly winds to south-westerly winds of 30kts plus.
Turbulence is often encountered when light aircraft cross the ranges below 8500FT on warm summer days.

Created by FLTLT A. McWatters
Correct as at: 1530K 18th December 2013

Airspace Safety Brief

How well do you know the local airspace?

PRESETNED BY...
452SON AMB FLIGHT (ATC)

Key Topics:

- Amberley & Oakey ATC
- Amberley & Oakey Airspace
- VFR procedures
- Flight / Airspace Planning
- RA Airspace
- Airspace Incursions
- Safety Trends / Issues
- Future Procedures/Airspace

Where/When:

- Australian Aerobatic Club – Watts Bridge Afld
- Sat 8th Feb 0900-1100

Presentation will be given by:

Flight Lieutenant Andy McWatters (GALO)

&

Flight Lieutenant Chris Loadsman (UASO)

Mystery Aircraft (February Issue)

What's this?

CONGRATULATIONS
To Ben Hogg in Auckland, New Zealand, for providing the only correct answer for this month.

Mystery Aircraft (December Issue)

The mystery aircraft in the December 2013 Issue was the **C.H.3 Series 4 Skyjeep**, first flown in the UK in August, 1949. The Skyjeep had a tailwheel landing gear, a conventional control stick instead of the wheel and ball that had caused so much controversy on previous models. It was powered by a 155 hp Blackburn Cirrus Major 3 engine.

Only three Skyjeeps were built. They were sold in Uruguay, Indochina and Australia. The Australian machine flew here with a 200 hp de Havilland Gipsy Six engine for a time, but has since been refitted with the Cirrus and is now flying in the UK.[1]

If they breed do you get a Cesspip?

Jokes for the Month

Quotes (or, "There's wisdom in the air):

1. Why does the Pope kiss the ground each time that he lands?
   Did you ever fly with Alitalia?

2. Speed is life, altitude is life insurance. No one has ever collided with the sky.

3. Remember, you're always a student in an airplane.

BirdsiPhotography

Want an air-to-air or ground shot of you and your dream machine? It's easy to arrange and will cost less than you might think. Grab the phone and contact Peter Davies or Rob Knight on 0400 89 3632, or email kni.rob@bigpond.com

Keeping up with the Play *(Test yourself – how good are you, really?)*

1. Longitudinal stability is stability about the:
   - ☐ A. Longitudinal axis.
   - ☐ B. Normal axis.
   - ☐ C. Radius of action.
   - ☐ D. Lateral axis.

2. Which of the following instrument/s will suffer erroneous readings should the pitot tube become blocked in the descent?
   - ☐ A. Altimeter and it will under read).
   - ☐ B. Airspeed indicator (and it will under read).
   - ☐ C. Altimeter and it will over-read.
   - ☐ D. Airspeed Indicator and it will over-read.

3. The area of a propeller disc that is covered by propeller blade is called the:
   - ☐ A. Disc percentage covered.
   - ☐ B. Propeller solidity.
   - ☐ C. Blade to disc ratio.
   - ☐ D. Proportion of fill.

4. An aeroplane is gliding after an engine failure. If the pilot throws out excess weight, will the aeroplane's glide range be improved?.
   - ☐ A. No, because its glide range is fixed.
   - ☐ B. Yes, if the weight removed is equal to at least 30% of the payload.
   - ☐ C. Yes, if the aircraft's airspeed is decreased appropriately.
   - ☐ D. Yes, provided no change is made to any other factor.

5. A light aircraft is on approach to land at 50 knots IAS. If it was is struck by a gust of wind of 50 knots, during the period of the gust the aircraft drag will increase by which of the following?
   - ☐ A. A factor of one.
   - ☐ B. Double.
   - ☐ C. Triple.
   - ☐ D. Quadruple.

ANSWERS: 1. D, 2. D, 3. B, 4. C, 5. D.

If you have any problems with these questions, call me (in the evenings) and let's discuss it! Ed.

--ooOOoo—

SUNSHINE COAST AERO CLUB

CHARITY FLY-IN BBQ
1st February

Sunshine Coast Aero Club invites Pilots and their passengers to join us for a Charity BBQ to raise funds for RACQ CareFlight Rescue

The urn will be on, the bar will be stocked with a good variety of drinks and plenty of aircraft parking available.

Check out the clubs website
www.sunshinecoastaeroclub.com.au

or visit us on

Facebook @ www.facebook.com/sunshinecoastaeroclub

Join us from 11:00, lunch served 12:00, $5 donation appreciated

Clubhouse open until last VFR departure.

WWW.SUNSHINECOASTAEROCLUB.COM.AU