BRISBANE VALLEY FLYER

December-January - 2014

BRISBANE VALLEY SPORT AVIATION CLUB INC

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

Watts Bridge Memorial Airfield, Cressbrook-Caboonbah Road, Toogoolawah, Q'ld 4313.

CHRISTMAS ISSUE

Santa re-certifying his sleigh and reindeer after mothballing for 12 months.

Wayne Petty (President)	0418-602-560	Richard Faint (Secretary)	0412 317 754
Priscilla Smith (Treasurer)	07 3206 3548	Rob Knight (Editor)	0400 89 3632

The SR71 Blackbird (by Rob Knight)

First flying in 1964, the Lockheed SR-71 "Blackbird" is still the fastest jet ever built, a machine so far ahead of its time even its own pilots thought it looked more like a spaceship than an airplane. It was and still is an engineering marvel, powered by innovative engines that operated most efficiently at Mach 3.2, its typical cruising speed. From 1966 to 1998, it operated in secrecy, flown only by a handful of the USAF's most elite pilots.

SR71's served with the 9th USAF Reconnaissance Wing based at Beale AFB in California. Such is the security at Beale AFB that no aircraft may under any normal circumstances fly in there without prior approval and clearance. The only aircraft operating from Beale were those stationed there which, at the time, included the SR71's and their supportKC-135 refuelling aircraft.

SR71s, always in stark black livery, have lines still unique in aviation annals. Always shrouded in secrecy, detailed knowledge of them was severely restricted to the aircraft developer and operators. Until withdrawn from service in 1998 its classification remained 'sight-sensitive'; service pilots could see it, but unless directly involved, couldn't walk up and touch it, or look at the cockpit. It was never available for public display and on return from missions they were taxied into the hangar before shut-down. The sensitivity of its operations was such that very few people knew anything much about it outside its own small community.

In the current vernacular, its size was awesome. Matt black, it was difficult to compare perspectives and appreciate how big they were. 107 feet long but so slender their proportions were unlike anything else. The two gigantic J-58 engines, mounted outboard from mid span on each wing, also confused observers as to the true dimensions of the total aeroplane.

Long and sleek - thoroughbred lines.

The requirements for selection as an SR71 pilot were as unusual as these most unusual aircraft. First, the pilot had to have substantial experience flying at least two high-performance aircraft. Second, the pilot had to already have considerable in-flight-refuelling experience, and third, have a perfect flight record with absolutely no medical issues and all this was checked out long before a pilot got to Beale. A normal recruitment system didn't exist - it was word of mouth passed back as a personal recommendation for a person who could pass the screening checks. A pilot didn't apply for an SR71 posting – they were by offered invitation only.

The SR71 was a mean machine from any angle. Note the size of the engines.

For those selected as SR71 pilots, as much training as possible took place in the Northrop T-38 Talon aircraft. These were flown as a kind of companion trainer since the SR-71 was so exorbitantly expensive to operate. The SR-71 flight simulators were a pilot's first real look at the aircraft's capabilities. Also whilst undergoing simulator training pilots also spent considerable time in academic study to gather the knowledge required to operate such complex aircraft where, because of their speed and operating costs, time constraints were a serious issue.

Crew members were very carefully teamed-up. There were two people to an aircraft: a pilot, and a reconnaissance systems operator (RSO). Matching backgrounds, experience, and personalities were the primary considerations in pairing crew members to minimise the chances of personality clashes. In the aircraft, the seating arrangements kept people apart; the two seats, set in tandem, allowed no physical contact, the cockpits being separated by a titanium bulkhead. Crews were set for four years together and there were six months of simulator training just to get them comfortable with each other and to operate the complex systems as an effective team.

Once the team was formed, they were given just four flights in the SR71B, the version that had a special cockpit and carried an instructor pilot – just the four flights. With any other aircraft type a trainee would get many more training flights but with the SR71, again, this was such a special aircraft with extreme operating costs that the USAF authorities traded on their hiring people who could transition into the aircraft very quickly and who already knew how to refuel in mid-air.

The SR71 flew at its minimum level flight speed whilst the KC-135 at its maximum. The overlap in speeds allowed only a very small window for such a precision manoeuvre.

The SR71B, the training version, carried a 3rd seat for an instructor in a special rear station from which its occupant could see forward. The machine could be flown from either this seat or the pilot's, but really the instructor was present to serve as a navigator and monitor/observe the operation. To many training crews this was little different to the simulator except for the raw experience of sitting inside an aircraft of that power and immensity.

During the four training operations the trainees also had to get used to wearing spacesuits. They were Gemini suits, built for sitting, and were very unwieldy. They were the same suits as worn by astronauts but the SR71 crews' suits were gold

Flying the SR71 for the first time was always a major issue. The pilot and RSO suited up and waddled out to the van for carriage to the aeroplane. Each carried a small conditioning cooler because the suits got hot inside. The crew climbed down into the seats and the ground crew attached the many cables and tubes upon which their very survival depended. They were finally strapped in and the hatch latched shut.

Start-up was as unique as the rest of the aircraft because the SR71 JP-7 fuel was hard to ignite at start-up. This characteristic was necessary because the temperatures during flight climbed to over 600°F at speed, well above the flash-point for normal jet fuel, and it would therefore self-ignite and turn the crew and aircraft into crispy critters.

Even trainees were dressed in gold.

To start the SR71's J-58 engines, a unique chemical ignition system was used. Stored in a small fuel tank the size of a grapefruit was a wicked chemical called triethylborane which explodes on contact with oxygen. To get the engines started compressed air began to turn the motor and the pilot would advance the SR71's engine throttle. At a certain RPM, the triethyborane was fed in to light the fuel and ignition occurred. As the fuel began to burn a 50 foot long green flame shot out behind the aeroplane.

When an SR71 took off it was the only thing moving on the base. It operation was so expensive that absolutely no chances for delay or confliction of any type was countenanced. After runway line-up, and with the nosewheel centred, the pilot opened up both engines to the maximum afterburner (AB) position. He now had to keep the aircraft accelerating down the centreline until he reached V_R at 180 knots. He then drew the stick back to lift the nose and about 5 eternal seconds after rotation the aircraft would break ground at about 210 knots. Airborne, the pilot continued to raise the nose (to contain the airspeed) whilst selecting 'gear-up'. As the aircraft accelerated through Mach 0.5 the surface limiter warning light lit and the pilot engaged the 'surface limiter' a device restricting flight control movements to prevent inadvertent over stressing of the aircraft. The initial climb pitch attitude was around 35 to 40° depending on the actual fuel load carried. Radio silence was total: the only identifiable trace was its transponder returns.

35000lb of fuel (half tanks) gave an aircraft gross take-off weight of 95000lb. At this weight, at a 2300 feet AMSL airfield with an OAT of 32°C, the aircraft needed 1.524 km of runway. The aircraft took-off about five minutes after the fuel tanker departed and the pilot didn't even wait to get to altitude before commencing refuelling because the aeroplane ate fuel at such prodigious rate. On a normal flight it was common to burn through 80,000 pounds of fuel in about an hour and twenty minutes (approximately 45,375 litres, or a fuel burn rate of 34000 litres per hour (600 litres per minute)) and that's a lot of gas! That was why in-flight refuelling experience was so crucial to the pilot screening process. The time available for refuelling with such a high fuel burn rate was small and the pilot had to get it right the first time. On a typical flight, three air-to-air refuels were common, but on longer missions a pilot might have to refuel six or eight times. Some operations made for long days.

After take-off and the first airborne refuel, the pilot would light the afterburner immediately and take the aircraft to full power for the next hour. That's an amazing achievement, because no other aeroplane can fly with full afterburner operating continuously. All other aircraft are limited to a limit of just a few minutes. A typical flight path at this early stage of an operation was to put the nose down just before Mach 1, and then after passing through Mach 1, lift the nose back up and punch through all the way to Mach 3 in the climb. At this point a unique phenomenon occurred - the faster the aircraft flew the more ram thrust the engines got and this burned less fuel. Yes – a pilot flew faster to burn less fuel. To fly the SR71 properly, a pilot had to unlearn almost everything they knew about flying other aircraft.

Pilots found the aeroplane was actually great to fly. The controls had 'feel', albeit artificial, that was realistic. And the pilot felt a part of the mass of the aircraft, on the ground as well as in flight. Controls were firm but effective, the engineered design adding input to keep things 'feeling' right considering the vast variations in airspeed of which the aircraft was capable. It had a conventional stick, just like a fighter, that operated two elevons on each side along the trailing edge of the delta wing, as well as normal rudder pedals. Controls were hydraulic with special "feel" springs to provide stick resistance proportional to pilot control input. When flying it subsonic it was actually a pretty honest aeroplane. The aircraft had massive power, and was light weight (relatively) when low on fuel and ready to land at which time it was a thrill to fly. When the pilot pushed those throttles forward it could accelerate faster than the throttles moved and they had to keep up with it to stay in control both physically as well as mentally. At high speed, at Mach 3.2 and depending on air density the aircraft could be covering 42 nautical miles per minute and this required a massive change in a pilot's spatial thinking to keep track of his position. When supersonic, the crew were just in a vector, sitting on the pointy edge of it and trying to maintain control. The aircraft was solid, reliable, and the crews had great confidence in it: there were never doubts about it getting back. Pilots reported its only drawback as being its extremely poor visibility but pilots could yank it, bank it, throw it around and fly it with precision, even after an eight hour sortie.

The SR71 cockpit, a symphony in practicality.

At the end of each sortie the crew, working for hours at consistently high intellectual levels, were understandably drained but they still faced the landing phase of the operation. This was challenging as the visibility from the tiny, low set cockpit with very small windows was designed for speed and not visibility. The aircraft had very large chines around its fuselage that blocked out much of the pilot's view downwards. This was compounded by the aircraft's high nose attitude in the descent and when landing, a factor inherited from its delta wing design. To compensate, the pilots just had to look to the side and go by sight. Then, when the wheels were on the runway, it just remained to pop the big chute, and feel the drag pull the last of the airspeed off the aircraft.


The sharp end of a sharp aeroplane

Every operational sortie had the opportunity for disaster. To quote just one incident, an SR71 was heading north out of an English base in January so it was dark almost 24/24. The aircraft had just refuelled off the coast of Norway and the pilot was climbing through 72,000 feet in his second climb when he had an engine fire. With just seconds before the fire became catastrophic, he shut the engine down, turned the aircraft around, and started dumping all that recently loaded fuel. He had to get the aircraft down to its maximum landing weight for an emergency arrival at the pre-planned Norwegian airfield. However, on declaring his intentions the pilot was advised that the airbase was closed due weather. Now a scramble commenced for an alternate and the closest turned out to be another Norwegian runway, but snow-packed this time. This made it a single engined instrument approach onto a snow-packed runway at night. The airplane had never been landed under those conditions and there was considerable anxiety regarding a successful outcome. However, in line with the high recruitment requirements selecting only the best pilots on offer, the aircraft was safely set up for the emergency approach and duly arrived onto the snow. The pilot later commented that he had no idea how it would respond in the landing phase, but the chute slowed it down just fine. He later reported that the CO of the base came and asked "What do you need?" The CO was told, "A telephone and a beer."

Happy Flying

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SW51 – the NEW Mustang for everyone

New P-51 Mustang Look-alike Takes Off

The North American P-51 Mustang is possibly the most highly revered airplane ever created, and several companies have released look-alikes of the classic warbird. The most recent addition to the Mustang stable comes from FK-Lightplanes — a Polish company that produces LSAs and aerobatic airplanes. Its SW51 recently took to the skies for the first time and serial number three, which will be flying under an experimental exhibition airworthiness certificate, is expected to land in the U.S. by the year-end.

According to Ron Hansen, the vice president of Hansen Air Group — the North American dealer for FK-Lightplanes, the SW51 is a 70-percent scale imitation of the North American P-51 made of a proprietary material that is both lighter and stronger than carbon fibre. The material is stained to look like aluminium.

Unlike the original warbird, which has nearly 1,500 horsepower and flies at about 435 knots, the SW51 is powered by a 100-hp Rotax 912 ULS engine driving a fixed-pitch carbon fibre three-blade DUC propeller and is expected to cruise at around 150 knots. The new airplane will be able to withstand aerobatic manoeuvres within +8 and -4 G.

Hansen said FK-Lightplanes can produce the airplane in one week and his company expects to receive its SW51 in mid-December. FK-Lightplanes plans to certify the SW51 under the light sport aircraft category.

The SW designation is due to FK-Lightplanes' partnership with Scale Wings, which helped design the airplane. The SW51 took more than 40,000 man-hours to develop.

Christmas Message from the President

I would like to wish all members a safe and healthy Christmas and new year.

I would also like to invite more members along for the monthly meetings and following BBQ lunch. It is a great opportunity to get together, to hear others' experiences, their new ideas and just enjoy the company.

Thanks
Wayne

FLY-INS Looming

07 December	Gympie	Gympie Monthly Brekky Fly-in
12 December	Hervey Bay	Christmas Party
13 December	Angelfield	Brekkie Fly-in Murgon
20 December	Dunwich	Straddie Fly-in Breakfast
11 January 2015	Angelfield	Brekkie Fly-in Murgon
17 January	Dunwich	Straddie Fly-in Breakfast
14 February	Angelfield	Brekkie Fly-in Murgon
21 February	Dunwich	Straddie Fly-in Breakfast

Note:

The next BVSAC Flyer will be Issue 22, - the February Issue.

Jabiru's Engine Issues Explode onto the News Scene

On 13November 2014, CASA promulgated Consultation Draft CD1425SS which provided an instrument that would legislate limits on the operational use of all aircraft fitted with Jabiru engines. The stated concern the proposal attempts to address is the on-going issue relating to the reliability of the Jabiru engines in all the various marks and models, and public safety in the form of passengers carried or student pilot operation of aircraft with these engines.

This proposed instrument expresses the intent to impose operating limitations on Jabiru powered aircraft that are issued with a CASR Part 21 authorisation by way of conditions under CASR 11.068.

It will also impose the same operating limitations on Jabiru powered aircraft that operate under the exemptions in CAO 95.55, by way of a direction under CASR 11.245.

The proposed instrument will:

1. *only permit operations by day under the visual flight rule, unless approved by CASA;*
2. *Require that Jabiru powered aircraft are operated in a manner that minimises the risk of a forced landing into a populous areas;*
3. *Define 'populous area' by reference to whether an area is populous at the time of the operation, meaning that (for example) a sports field would generally be a populous area at a time when that field is in use;*
4. *Prohibit the carriage of passengers;*
5. *Prohibit the use of Jabiru powered aircraft for solo operations by student pilots, who generally are less able to respond effectively to an engine failure event;*
6. *require that a notice be located in each Jabiru powered aircraft, conspicuous to each occupant of the aircraft, that states the limitations in paragraphs (4) and (5) above and notes that the occupants fly at their own risk.*

CASA has considered whether to impose further limitations to better protect pilots. On balance, CASA considers that pilots are in a position to make their own assessment of whether to fly in a Jabiru powered aircraft, and to determine their ability to deal with an engine failure event. The proposed instrument therefore does not affect solo operations by qualified pilots, or flying training type activities involving an instructor and a student (including flight reviews and other recurrent checks).

Impact on industry

The instrument will impact on private passenger operations and flying training operations involving solo student flights. The impact is unavoidable in circumstances where CASA is responding to urgent safety risks. However, CASA has formulated the limitations to be no more burdensome than the requirements of safety demand.

The limitations will be lifted, progressively if appropriate, when appropriate corrective actions have been identified and implemented.

Closing date for comment

CASA will consider all comments received as part of this consultation process when determining the final terms of the instrument. Comments must be forwarded to the Project Leader, Lee Ungermann, at sport@casa.gov.au, by close of business on Thursday 20 November 2014.

RA-AUS provided an reply/update

Jabiru met with RA-Aus and the CASA in Canberra today in a lengthy and fruitful meeting.

For the present, the CASA consultative instrument is not applicable.

Jabiru expressed its concern about its publication of the proposal which you probably know was issued yesterday, 13th November, about 18 hours before our scheduled meeting started. RA-Aus was also concerned about this super short notice with limited time to respond.

We are very pleased to report that we and CASA have reached an agreement on a pathway forward. That proposed limitations may not come to fruition, however Jabiru has much work to do. Jabiru has already put in place a range of reforms and is demonstrating to the CASA clear willingness to improve engine reliability.

What all parties in the meeting agreed was the need for improvement in the flow and accuracy of information about engines and incidents. This needs the full co-operation of all aircraft owners and operators.

Please keep information flowing to Jabiru, the RA-Aus or the CASA in response to the CASA website request. It greatly assists air safety.

We thank RA-Aus President Michael Monck and CEO Michael Linke for their thoughtful and positive assistance and for putting RA-Aus' position forward.

In the meantime Jabiru once again encourages all affected stakeholders to contact CASA with their views on the proposed restrictions and to engage with other appropriate parties to escalate their concerns if they wish to. As per our earlier advice the relevant contacts are: The Minister for Transport, the Hon Warren Truss, W.Truss.MP@aph.gov.au Your local federal member details can be found at www.aph.gov.au with state and local details available at the relevant government website. Lee Ungermann of the SASAO office within CASA can be contacted at lee.ungermann@casa.gov.au Please include admin@raa.asn.au on all correspondence to CASA and members of parliament.

Open letter to BVSAC members from Richard (BVSAC Secretary) and Glenda Faint:

As many would be aware, CASA have proposed major restrictions on the operation of aircraft fitted with Jabiru engines. Follow the link below for more details.

There have been meetings between Jabiru, RA Aus, and CASA with a plan of action apparently put in place to the satisfaction of all parties.

However: If you have misgivings about the proposed restrictions, or the manner in which CASA handled the situation, I would encourage you to at a minimum sign the on-line petition.

Richard & Glenda Faint

What's all the fuss about?

RA-AUS, at the end of their reply, provided some statistics:

Reported data for 2014 year to date *January through October)

Hours Flown	Jabiru	Rotax	All (Includes other engine types)
Hours flown	41834	71626	131227
Engine failures (full or partial	28	16	51

Taking these figure, simple arithmetic has allowed me to compile the comparitive table of operating hours versus failure occurrances.

Hours per failures	1494.0714	4475.625	2573.0784

This indicates that, statistically, every Jabiru engine can be expected to fail before it has completed 2000 hours operating.

> Note: The Rotax figures include failures experienced in engines in their 2 stroke range which are considered by some to be notoriously unreliable. As Jabiru does not manufacture 2 stroke engines, this must further indicate the divide between these two engine manufacturers in terms of their product reliability or otherwise.

Editor's comment:

In my opinion, a revision of Jabiru engines to address their lack of reliability is long overdue. However, this is not the way to carry out such an exercise with economics and sound management practices in mind. Jabiru should have been taken aside and forced to remedy the unreliability issues of their engines long ago, and it is a serious indictment against both CASA and RA-Aus that this has not been done before. Such a knee-jerk reaction as this indicates a disasterous lack of management acumen in the people who oversee these safety issues, and CASA as the primary safety authority and legislation administrator, is the most responsible. It also beggars belief that CASA would only offer a single week to reply or comment to this Consultation Draft. In fact, in view of the seriouslness of its contents, the word "consultation" is almost an insult.

Those wishing to add their voice to the discussion might consider adding their details to the petition below. Use the HTTPS: link provided.

Cancel CASA's proposed restrictions

CASA have not provided any detail or reason for the proposed heavy restriction of all Jabiru aircraft engines. The effect of such a restriction will be detrimental to many areas of general aviation in Australia, where the engine has been developed and manufactured, as well as many export locations worldwide.

CASA released the Consultation Draft – CD1425SS on 13th November 2014 and has only given 7 days for comment.

Along with signing this petition (link below), please submit your comments to the Team Leader, Lee Ungermann at sport@casa.gov.au or lee.ungermann@casa.gov.au

https://www.change.org/p/the-hon-warren-truss-mp-cancel-casa-s-proposed-restrictions-on-jabiru-aircraft-engines

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Mystery Aircraft (December Issue)

What's this?

Mystery Aircraft (November Issue)

Moss M. A. 1. Flew 1937

Designed by company founder William H. Moss, the Moss M. A. 1 first flew in 1937. The firm advertised the M.A.1 in the aeronautical press, including "Flight" magazine where the aircraft was offered for sale to private owners for £750, equipped with a 95 hp Pobjoy Niagara III engine. The aircraft's maximum speed was given as 132 mph, with a landing speed with flaps down of 38 mph.[2] However, no orders were received and the prototype was destroyed in a crash in June 1950 which resulted in the death of William H. Moss.[3]

Joke for the Month

That's the last time I'll taxi behind a MiG-29

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

1. Propeller thrust is the force exerted:
   - A. Parallel to the relative airflow.
   - B. Perpendicular to the relative airflow.
   - C. Parallel to the plane of rotation.
   - D. Perpendicular to the plane of rotation.

2. Why does a propeller blade have a smaller blade angle at the tip than at the propeller hub?
   - A. Because the blade tip travels faster than the blade hub, so the blade angle must reduce to maintain a constant angle of attack all along the blade.
   - B. Because the hub is much stronger and can absorb much more force than the tips, so the blade angle is reduced to keep the more powerful thrust closer to the centre of the propeller disc.
   - C. Because the propeller tips rotate at a higher RPM than the hub and this affects the blade angle so it is reduced near the tips.
   - D. Affect the trim in level flight at cruise power and on approach at reduced speed.

3. Flaps are provided to increase lift. Why, then, does raising flaps *increase* the Lift/Drag ratio?
   - A. Because the C_D decreases.
   - B. Because the decrease in lift experienced at flap retraction is not as great as the decrease in drag.
   - C. Because the rise in drag as the flaps retract is greater than the rise in lift produced.
   - D. Because total drag falls with the decrease in form drag as the flaps retract.

4. Which of the following changes provides recovery from a stall?
   - A. Nose attitude.
   - B. Power.
   - C. Angle of attack.
   - D. Airspeed.

5. What causes the increase in stall speed on an aircraft in a turn:
   - A. The increase in angle of attack necessary to maintain height.
   - B. Backpressure on the stick necessary to maintain height.
   - C. Loading.
   - D. Decaying airspeed.

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

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

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BRISBANE VALLEY SPORT AVIATION CLUB Inc

MINUTES OF THE 01.11.2014 GENERAL MEETING

MEETING LOCATION: Watts Bridge Memorial Airfield – BVSAC Clubrooms
MEETING DATE: 1st November 2014
MEETING OPENED: 10:11AM

MEMBERS PRESENT: 13
APOLOGIES: Ian Ratcliffe, Danny Fowler, Mary Clarke, Neil Bowden, Liz Cook
VISITORS: 2
NEW MEMBERS: Nil
MINUTES: October 2014 meeting of the BVSAC Inc.
Proposed: Mike Smith Seconded: Mal McKenzie Acceptance motion carried.

PRESIDENT'S REPORT: Wayne thanked Peter Freeman and Glenda Faint for attending to the trees and shrubs around the BVSAC Clubhouse. He also thanked Mike Smith for installing the TV Antenna and cleaning up around the hangar.

SECRETARY'S REPORT: Richard reported that the Annual Return had been submitted to the Department of Fair Trading. Other than that there had been had been very little incoming or outgoing correspondence during the month. Richard reported that the BVSAC Membership stands at 56 members. Those who have not renewed will be receiving an invitation to rejoin email/letter.

TREASURER'S REPORT: Priscilla provided a financial statement summary and advised that the BVSAC ING account balance is $536.45 and that the BVSAC NAB account balance is $1312.58
Priscilla tabled financial documents for those members requiring additional details.

WBMA REPORT: WBMA President Bruce Clarke commented on how the prolonged dry season has affected the runways at Watts Bridge. He also advised that the Watts Bridge AGM was to be held during November and encouraged everyone to attend.

BUSINESS ARISING: Richard Faint advised the meeting that 2 watering hoses had been purchased as requested.

GENERAL BUSINESS: Wayne Petty discussed the flooring options he had been investigating for the clubrooms. The options included free laid vinyl, glued vinyl, vinyl tiles, paint finish and carpet tiles. Following the discussion, which tended to favour free laid vinyl, it was agreed to hold off making a final decision until the club has sufficient funds to proceed.
The Christmas Party was discussed briefly. It was decided that the committee would organize the event by emails.
The quiz questions in the newsletter were discussed in some detail.

NEXT MEETING: The Christmas Party is to be held on the 29th November 2014 starting at 10:00am
The next Monthly Meeting will be held on the 7th February 2015 in the BVSAC Clubrooms, Watts Bridge starting at 10:00AM A BBQ lunch will follow the meeting.

MEETING CLOSED: There being no further business, the meeting was declared closed at 10:36AM

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