BRISBANE VALLEY FLYER

SEPTEMBER - 2017

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.

The Watts Bridge 2017 Gathering of Eagles Fly-in

See page 9.

.

Richard Faint(President)	0412 317 754	Peter Biddle (Secretary)	0402 403 469
Priscilla Smith (Treasurer)	07 3206 3548	Rob Knight (Editor)	0400 89 3632

Weight and Balance – Master it!

By Rob Knight

Last month we looked at the essentials of flying the aeroplane in a balanced state – with the Centre of Gravity within the designer's fore and aft limits. In this piece, the last in my planned serries on this topic, we will look at the actual process for establishing the Centre of Gravity of an empty aeroplane and compile a working table for easy use for future calculations

To ascertain the Centre of Gravity of an aeroplane and develop a working table for calculations we need to follow a simple process. Initially we need to find the Centre of Gravity for the empty aircraft and then to find the arms relevant to each of the weight additions we could make in operating the aeroplane.

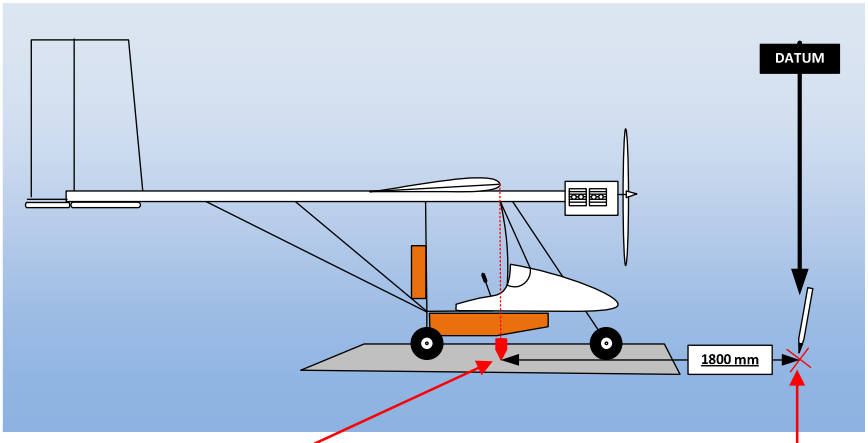
Setting up to weigh the empty aeroplane.

A set of platform scales (or similar) for each wheel will be required. For recreational aircraft, these can be bathroom scales, provided they can carry the wheel weights of the aircraft. They should also be checked for accuracy. Start by weighing a dry 20 litre water container. Record this weight and fill the container with 20 litres of water. Add the weight of the dry container to 20 kg and the test weight for the scales is known. A sample 20 litre plastic container I weighed = 1.09 kg. so, under test, each set of scales should read very close to 21.1 kg. Where I find individual scale variations, I note them and apply them to the specific scale weights indicated when weighing the aeroplane. All scales should be zeroed. The ideal floor surface is smooth, level concrete, or cement plaster.

The aeroplane must be clean. Some parts of the aeroplane such as the bilge areas gather dirt and dust and the odd nut or screw. Left in place, these will destroy the integrity if the weights and arms that we are trying to accurately establish. The aeroplane should be cleaned inside and out including the insides of any wheel spats fitted.

Useable fuel should be drained from the aeroplane. Unusable fuel is a component of the aeroplane's empty weight. The engine oil should be at the FULL level. Other fluid levels in the aeroplane such as brake fluid should also be full.

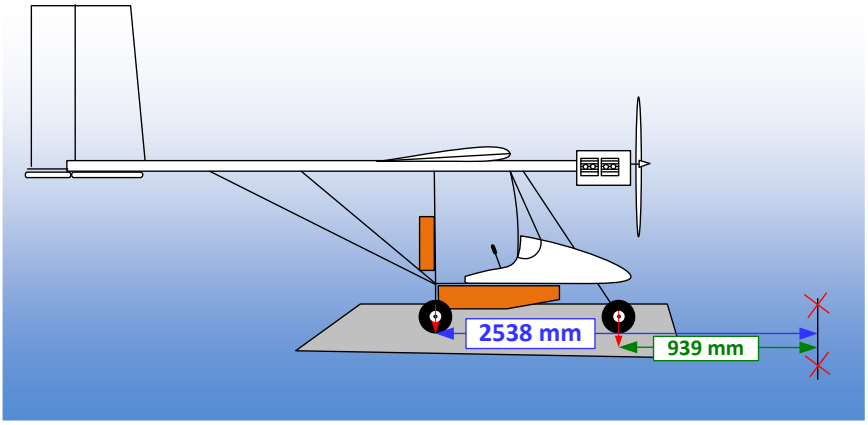
The aeroplane must be in its level flight attitude for the correct arm or distance measurements to be taken when it is being weighed. Most manufacturers indicate how to achieve this by indicating a section against which a spirit level can be applied. Then, with the machine in its level flight attitude mark the datum on the floor.



As the datum is given as being 1800 mm ahead of the leading edge of the wing, drop a plumb-line from the leading edge of the wing and mark the floor 1800 mm ahead of this line bob. Then do the same on the other side of

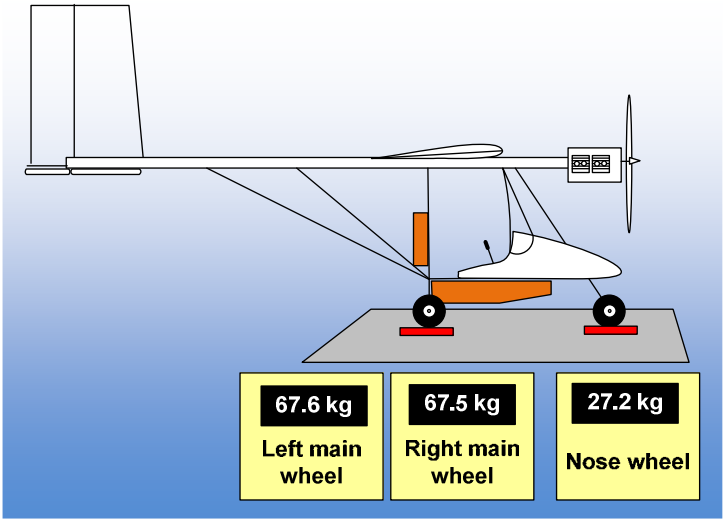
the aeroplane. With a straight-edge, draw a line that joins these two marks made. This drawn line represents the datum, marked perpendicular to the aircraft longitudinal axis.

The next step is to measure the distances from the aeroplane's axle centres to the datum. These must be measured as accurately as possible.



These measurements will make possible the calculation of the empty aeroplane Centre of Gravity, the basis for the table we are constructing. The distance between the main wheel axle centre and the datum is measured as 2538 mm, and the distance from the nose wheel axle centre and the datum is 939 mm. As the definition of an arm is the distance between a force and the datum is an arm, these two measurements represent the arms for the sum of the main wheel weights, and the nose wheel weight

With these arms to hand, it now remains to weigh each wheel of the aeroplane. At this point, by some means, the scales need to be placed beneath each wheel, and the weight indicated by each scale be recorded. It is a good idea to weigh each wheel several times to ensure an accurate weight has been recorded.



As the sketch to the left indicates, the recorded main wheel weights are 67.6 kg for the left main wheel, 67.5 kg for the right main wheel, and 27.2 kg for the nosewheel.

We need to add the two main wheel weights together to get the weight acting and their specific arm from the datum. 67.6 +67.5 +27.2 = 162.3

The moment for the empty aeroplane is now easily calculated as shown below

Total weight on wheels

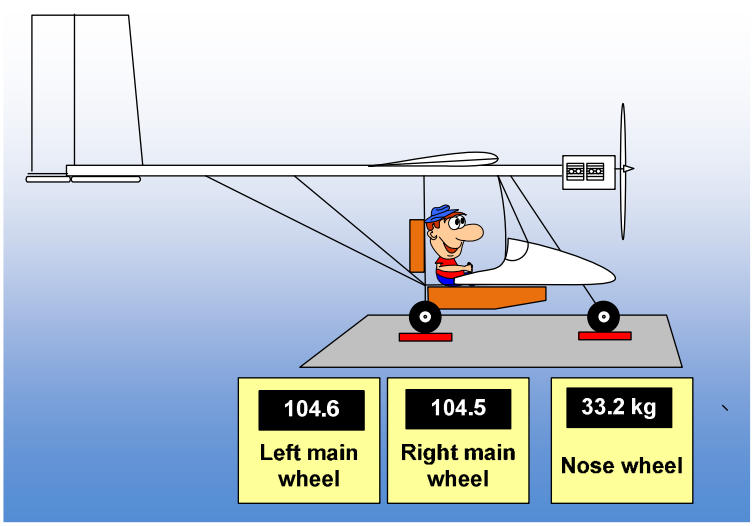
ITEM	WT	ARM	MOMENT
Mains	135.1	2538	342883.8
Nose	27.2	939	25540..8
	162.3	2270.0	**368424.6**

Total moment

The table so far:

ITEM	WT	ARM	MOMENT
Empty A/C	162.3		368424.6

We now have the empty aeroplane sussed. We have the weight of the empty aircraft and the total moment for the empty aeroplane recorded for our table. We now need to ascertain the arm for the pilot.



We seat the pilot in the aeroplane and re-weigh the machine. Note that it must still be level. The new weights are as follow: Left main = 104.6, right main = 104.5, nosewheel = 33.2 kg.

If we re-calculate the weights and moments, and compare them with the last calculation, we can find the difference in weights and total moments. As the table below shows the weight has increased by 80 kg and the total moment by 193446.0

ITEM	WT	ARM	MOMENT
Mains	209.1	2538	530695.8
Nose	33.2	939	31174.8
	242.3	2318.9	561870.6

The new weight and moment = 242.3, and 561870.6 respectively.
Minus the first weight and moment = 163.2 and 368424.6 respectively.
Gives a weight change = 80 kg, and moment change = 193446.0
As the weight increase is specific to the pilot, as is the moment change, then dividing the moment change by the weight change will give the arm for the pilot.

80.0	2418.04	193443.5

The table now looks like this:

ITEM	WT	ARM	MOMENT
Empty A/C	162.3		368424.6
Pilot		2418.04	

The next item to identify is the fuel arm and for this we follow the same process.

Let's add sufficient fuel to fill the tank: that's 40 litres. As the relative density of petrol is 0.72 we multiply 40 by 0.72 and get a weight of 28.8 kg. Then we will re-weight the three wheels on the aeroplane.

ITEM	WT	ARM	MOMENT
Mains	155.8	2538	395420.4
Nose	35.93	939	33146.7
	191.1		**428567.1**

The new weight and moment values = 191.1, and 428567.1respectively.

Minus the first weight and moment values = 162.3 and 368424.6 respectively.

Gives a weight change = 28.8 kg, and moment change = 60142.5

As the weight increase is now specific to the fuel, as is the moment change, then dividing the moment change by the weight change will give the arm for the fuel.

	28.8	2088.28	60142.5

With the fuel arm now available, the table looks like this:

ITEM	WT	ARM	MOMENT
Empty A/C	162.3		368424.6
Pilot (kg)		2418.04	
Fuel (kg)		2088.28	

The next item to identify is the Baggage arm, and we will do this in exactly the same fashion. We will add 5 kg to the baggage area and we-weigh the aeroplane. We get the following results

ITEM	WT	ARM	MOMENT
Mains	140.2	2538	355827.6
Nose	27.1	939	25446.9
	167.3		**381274.5**

The new weight and moment values = 167.3, and 381274.5 respectively.

Minus the first weight and moment values = 162.3 and 368424.6 respectively.

Gives a weight change = 5.0 kg, and moment change = 368423.6

As the weight increase is now specific to the fuel, as is the moment change, then dividing the moment change by the weight change will give the arm for the baggage.

	5	2569.98	12849.9

With the fuel arm now available, the completed table appears thus:

ITEM	WT	ARM	MOMENT
Empty A/C	162.3		368424.6
Pilot (kg)		2418.04	
Fuel (kg)		2088.28	
Bags (kg)		2569.98	

To use such a table that you have compiled, enter the actual weights for the various items into their respective boxes and multiply these weights by their arms. Enter the resulting moments into their boxes and add the moments together, remembering to include the empty aeroplane moment. Then add the weights including the empty aircraft weight. The first check is that the calculated total weight of the aeroplane does not exceed the maximum take-off weight in the flight manual. If the weight is outside the stated limits, then one or more of the weights must be reduced until the maximum weight limit is no longer exceeded. With the calculated weight confirmed to be within the flight manual limits, then dividing the total moment by this total weight will provide the arm (Centre of Gravity position) for the whole aeroplane in this load condition. Confirming that the calculated arm (Centre of Gravity position) does not exceed the limits specified in the Flight Manual will confirm that the aeroplane is within its load limit envelope and is therefore safe for flight in this respect. If the results are outside the stated limits, check your life insurance is paid up before your flight - your dependants may depend on it……

There are only three things to know:

1. **Moment = weight x arm.**
2. **Arm = moment / weight.**
3. **Weight = moment / arm.**

Happy Flying

Brekkie @ Murgon

Mal McKenzie had been encouraging me to accompany him up to the Murgon Breakfast Fly-in at Angelfield for some time. Scheduled on a bi-monthly calendar, the Burnett Flyers have a reputation for hospitality and friendship so I was keen to find out for myself if the stories were accurate.

August 12 dawned hopeful, weatherwise, and shortly after daylight we had finished the pre-flight requirements. A cruise climb northwest from Forest Hill, and a further uneventful hour and fifteen minute flight, saw us on short finals for runway 30 at Angelfield.

A few visitors had already arrived as the line-up beside the runway 30 indicated. We parked at the back, beside Peter Davies GA Lightwing, where a second row of aeroplanes was forming, and made our way to the clubrooms for our bacon and eggs. Deb and Ralph Percy had everything under control and the food warmers were filled with mouth-watering bacon, eggs, beans etc, and toast. It was a memorable breakfast.

At around 10:30 the wind socks started standing up and looking around a bit, and pilots in their aeroplanes started drifting away. We left for YFRH just after 12 for an equally uneventful flight home.

This really was a great adventure. The meal was excellent and the Burnett Flyers reputation as a great Brekkie Fly-in venue was retained. If you have a spare Saturday morning, I would greatly recommend it.

Watching the upper-air trough as we headed north west.

Beaten to breakfast.

Happily breakfasting in the warm morning sun.

Michael Sheppard's classic 1948 Cessna 140 and Peter Davies GA Lightwing.

A Flying Flea – not a common sight

A Slepcev Storch – the STOLest aircraft on the field (not to denigrate Savannahs).

The Storch panel

A sleek BRM Aero Bristell rests in the grass.

A Tecnam

The Italian Alpi, lovely aircraft.

My compliments must go to Deb and Ralph Percy for their unstinting efforts to make the Burnett Flyers a success. It was a great morning and I'll be back for a re-run in the near future. By the way – your coffee was GREAT! What's your secret?

Gathering of Eagles - 2017

Photographs by Richard Faint

The Weather Gods were fickle on the weekend of the 19th-20th of August when the planned Watts Bridge Gathering of Eagles Fly-in was held. Saturday blew so hard the crows were flying backwards and the airfield was naturally a bit quiet. But this was made up for on Sunday when there were so many pilots and drive-in visitors the club sold out of hamburgers and moved a lot of cold drinks. If only that happened on every occasion…….

A Trojan – one of the many

A mechanical means of flying without leaving the ground.

The line-up developing with the usual mix of types and classifications

Cameron Rolf-Smith flying Brad Bishopp's North American P51 Mustang

Yak 3U, VH-YOV

Yak 3U, VH-YOV, smoking past the camera, James Crocket at the controls.

Non-airworthy but VERY roadworthy FC Holden

Tecnam twin – P2006T, VH-OIR.

Bill Finlen's vintage DH60 Moth.

Yet another T28 Trojan Warbird.

VH-RQH, T5 Airtourer from Caboolture

A Beechcraft Mentor, a CT4 Airtrainer, and two Trojans – a typical line-up

Next year is the Brisbane Valley Airshow again. The last one was fantastic and they do say that history repeats itself.

FLY-INS Looming

September 3	Gympie	Gympie Brekkie Fly-in
September 9	Warwick, QLD	Wings Over Warwick 2017
September 9/10	Goondiwindi	Goondiwindi Fly-In
September 16	North Stradbroke Island	Straddie Fly-in and Grand Breakfast
September 17	Toowoomba	Darling Downs Aero Club Ladies Day Brunch Fly-in
September 24	Redcliffe	Redcliffe Aero Club Open Day Fly-in BBQ

Mystery Aircraft (September Issue)

What's this?

Mystery Aircraft (Last Issue)

Bouton Paul Overstrand, bomber, first flew 1933.
Congratulations to Mal McKenzie for identifying this rare aircraft.

Have you tried the new Watts Weather Station yet? Why ever not? It's great, informative and an excellent safety tool.

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

1. Which of the following correctly identifies the accepted relative density of petrol?
   A. 0.462.
   B. 0.6.
   C. 0.72.
   D. 0.9.

2. Compared to a high aspect ratio wing, a low aspect ratio wing will:
   A. Stall at a higher nose attitude.
   B. Stall at a higher angle of attack.
   C. Suffer higher induced drag.
   D. Suffer increased form drag.
   E. A & C are both correct.

3. If your heading is greater than your track (e.g. heading 149, track 139M…….)
   A. You are flying into reducing QNH.
   B. You have port drift.
   C. You are likely to be flying into deteorating weather.
   D. All the above are correct.

4. The angle of incidence is best defined by which of the following options?
   A. The angle between the chord line and the longitudinal axis of the aeroplane.
   B. The angle between the chord lines of the tail plane and the main plane.
   C. The varying angle between the chord line of the flap in its various lowered settings and the chord line of the rest of the aerofoil.
   D. The angle between the pilot's line of vision directly ahead through the windscreen and the upper surface of the cowling.

5. How long will it take the sun to move across an arc of 15 degrees?
   A. 30 minutes.
   B. 60 minutes.
   C. 75 minutes.
   D. 120 minutes.

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

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

BRISBANE VALLEY SPORT AVIATION CLUB Inc

MINUTES OF THE AUGUST 2017 GENERAL MEETING

MEETING LOCATION: Watts Bridge Memorial Airfield – BVSAC Clubrooms

MEETING DATE: 5 August 2017

MEETING OPENED: 1004hrs

MEMBERS PRESENT: 12

APOLOGIES: Ian Ratcliffe, Liz Cook, Ken Hulse, Glenda Faint

VISITORS: Bert Purcell

NEW MEMBERS: Nil

MINUTES:

June meeting of the BVSAC Inc. Proposed: Mike Smith. Seconded: David Ratcliffe. Acceptance motion carried.

BUSINESS ARISING:

- Hangar doors have been fixed.

PRESIDENT'S REPORT:

Poker Run

- Great success with 39 people participating. The winner was John Hilton from Caboolture flying a VictaAirtourer.
- Was good to have a new field to fly to (Forrest Hill)

Gathering of Eagles

- Two day **fly-in** to be held on 19/20 August.
- Short air display to be held from 1600hrs Saturday
- BVSAC will be contributing to the evening catering on Saturday evening, along with the QWVAA and AAC. Need volunteers to assist with drink sales etc. Please contact the secretary if you can help, even if only for a short period.
- Ken Hulse will be managing the bar.
- WBMA still require volunteers to assist with general tasks on the day.

Weather Station

- Weather system including cameras is up and running.

Changes to circuit patterns at Watts Bridge

- From 17 August 2017 contra circuits will be in operation on the parallel 12/30 runways. All circuits on 12R/30R will be right hand circuits. 12L/30L will be left hand circuits. 03/21 remain as left hand circuits. NOTE: with contra circuits there is no dead side.

- For more information see the Watts Bridge website or the Airservices Australia website. (Note: a new version of ERSA is current from 17 August).

WBMA loan repayment

- Have received a further $6,000 from WBMA as further repayment for loans associated with the airfield purchase**.**

Annual General meeting

The 2017 AGM will be held on Saturday 2 September 2017

SECRETARY'S REPORT:

Correspondence in –

Date	From	Subject
24/6/17	Watts Bridge BoM	Minutes of BoM meeting for June
24/6/17	M.McKenzie	Will not be renewing membership
10/07/17	Airfield Council Leaseholder representative	Membership proposal
12/07/17	Watts Bridge BoM	WBMA Infrastructure plan
14/07/17	Watts Bridge BoM	• Revised draft constitution • Minutes of May 24 General meeting
16/07/17	Airfield Council Leaseholder representative	Comments on membership proposal
26/07/17	Forrest Hill	Forrest Hill breakfast on 29 July
26/07/17	QLD Govt	Annual Return of Association

TREASURER'S REPORT:

The President read the Treasurers report for May 2017.

- BVSAC ING account - $568.62
- BVSAC NAB account - $12,298.55

.

GENERAL BUSINESS:
Scott Merideth – Ernie Clark passed away recently and has donated a propeller/clock to the club. To be mounted on clubhouse wall. Ernie has also provided a collection of DVDs/books for the club library.

NEXT MEETING: The next meeting will be on 2 September 2017 in the BVSAC Clubrooms at Watts Bridge immediately following the Annual General Meeting. A BBQ lunch will follow the meeting.

MEETING CLOSED: There being no further business, the meeting was declared closed at 1030 hrs.

After the meeting the Rob Knight facilitated a question/answer session on general flying knowledge.

--ooOOoo--

Dear BVSAC members

The 2017 Annual General Meeting will be held on Saturday 2 September in the BVSAC clubhouse at Watts Bridge airfield commencing at 1000 hrs.

The agenda is attached immediately following this notice as are the minutes from the 2016 Annual General Meeting for your perusal.

Nominations are invited for the office bearer positions

- President
- Vice President
- Secretary
- Treasurer
- WBMA Airfield Council representative

Nominations should be provided to the secretary prior to the meeting. However nominations will also be taken from the floor during the meeting.

Regards

Peter Biddle (BVSAC Secretary)

AGENDA

2017 ANNUAL GENERAL MEETING

10.00 am Saturday 2 September 2017

Venue –BVSAC Clubhouse Watts Bridge Memorial Airfield

Welcome:

- Proxies
- Apologies

Business:

- Minutes of 2016 Annual General Meeting:
- Reports:
    - President's report
    - Treasurers report - Presentation of Balance Sheet and Profit and Loss Statement for 2016/17
- Election of office bearers
    - President
    - Vice President
    - Secretary
    - Treasurer
    - WBMA Airfield Council representative

BRISBANE VALLEY SPORT AVIATION CLUB Inc.

Minutes of the BVSAC Annual General Meeting held on the 5th November 2016.

Location: Watts Bridge Memorial Airfield – BVSAC Clubrooms.

Meeting Opened:	10:23AM
Members Present:	11
Apologies:	Peter Ratcliffe, Ian Ratcliffe, David Ratcliffe, Mal McKenzie, Ken Hulse.
Visitors:	0
Minutes:	Minutes of the 2015 AGM were voted as a true and correct record. Moved: Richard Faint, Seconded: Mike Smith. Carried.
Business Arising:	Nil.

President's Report:

Wayne Petty thanked his fellow committee members Richard Faint and Priscilla Smith for their support throughout the year and the editor of the club's newsletter, Rob Knight for a great effort with the newsletter.

Wayne also thanked the Watts Bridge Memorial Airfield Board of Management for professional management of the airfield. Special thanks was given to the sub-committee that organised the Brisbane Valley Airshow, which provided a great opportunity for the club to derive additional income.

Wayne announced that he would not be standing for re-lection and thanked all club members for the support shown to him as President over the last two years.

Secretary's Report:

Richard Faint thanked Wayne for his exceptional efforts as President over the last two years, showing excellent leadership, initiative and drive which resulted in the clubroom extensions. The members present thanked Wayne by acclimation.

Richard also thanked the Watts Bridge Memorial Airfield Board of Management and the Brisbane Valley Airshow sub-committee, noting that in his opinion the airshow was the most successful event ever held at Watts Bridge. Richard also mentioned the purchase of the land upon which Watts Bridge is situated was a pivotal moment in the history of the airfield, ensuring tenure in the years to come.

Richard announced that he would not be standing for re-election as Secretary or as the BVSAC Airfield Council Representative, noting that he had held the Secretary position for the last 5 years and the Airfield Council Representative position for many years. He was of the opinion that it was now time for new blood on the BVSAC Committee and also within the Airfield Council.

The members present thanked Richard by acclimation.

Treasurer's Report: Priscilla Smith tabled the audited financial statements and reported:

The club has had a great year financially, with us an end of year Surplus of $10,479. This is a 174% increase on last year's result, however if you ignore the $6000 in donations which were passed on to Watts Bridge Memorial Airfield the real increase is 17.4%.

Our surplus was put to good use, extending our club house patio and starting the canteen/ storeroom extension. A big thanks to Wayne for his huge contribution in building the patio and canteen. Members will benefit from his tireless efforts for many years to come.

As a home based group we were all very excited that Watts Bridge Memorial Airfield Inc. was given the opportunity to purchase the airfield from SEQ Water and proud to be able to assist them financially. As well as passing on loans and donations from our members to Watts Bridge Memorial Airfield, to contribute to the purchase of the airfield, BVSAC also lent Watts Bridge Memorial Airfield $2,500 from club funds, bringing the total loan to $30,000. The airfield's future is looking bright and it is great that we are part of the progress.

Hangar income was up 11% from last year, and memberships were up 11.5%. No solar credits are shown in the report as I didn't request a payment last year, however we did have a credit of $676 with Origin as at 26th August 2016, which is an improvement on the previous year.

Donations for the use of our bathroom facilities were more than double the previous year, at $250.

Net income from food and drink was down 22.6%, which in part was due a substantial increase in our stocks held of soft drinks, which is not reflected in these reports. I am confident the true result would be similar to the previous year, as we have had great success selling drinks at airfield events during the year. Thanks to all who helped with drink sales.

General expenses for the year were down 5%.

As shown in the Auditor's report (which has been distributed around the room); starting from the top, you will see net income from:

- Memberships $2,900.00
- Hangar $3,087.71
- Food & Drinks $1,380.96
- Other fundraising $ 175.00
- Donations $6,250.00
- Interest $ 12.83

Giving us a gross surplus of $13,806.50

Operating expenses were made up of:

- Clubhouse expenses $2,985.55
- Bank fees $ 4.00
- Memberships paid $ 222.00
- Postage $ 23.80
- Fees & charges $ 91.55

Giving us a net surplus of $10,479.6

As at 30th June, Cash on hand was $2,407.28 and the total of the association's assets had increased by $31,979.60 to $144,489.19 and new loans payable to members totalled $21,500.

I congratulate everyone for contributing to the continued progress of our club and its facilities.

In conclusion, I would like to thank Melissa Ratcliffe for auditing our financials promptly and free of charge.

Melissa Ratcliffe was appointed as auditor for Financial Year 2016 – 2017.

Election of Office Bearers

All executive positions were declared vacant.

Richard Faint was elected unopposed to the position of President.
Nominated: Wayne Petty Seconded: Mike Smith

Peter Biddle was elected unopposed to the position of Secretary.
Nominated: Peter Freeman Seconded: Mike Smith

Priscilla Smith was re-elected unopposed to the position of Treasurer.
Nominated: Liz Cooke Seconded: Bill Oates

Mike Smith was elected unopposed to the position of WBMA Delegate.
Nominated: Sandy Walker Seconded: Scott Meredith

Meeting Closed: There being no further business, the BVSAC AGM for 2015 was declared closed at 10:43AM.

HANGARAGE

A single place hangarage space is available at Forest Hill airfield (YFRH). The airfield gate and hangar are both kept locked to all except key-holders.

Contact Rob Knight on 0400 89 3632

¼ Share for sale - $4500
A share in a WB Drifter 582 is being offered. The aircraft is based at Lynfield west of Brisbane.
¼ share price of $4500 (includes hangarage
Contact Kev Walters Tel 0488 488 104

Aircraft for Sale

Quicksilver GT500 Tandem 2 Seater 582 Pusher in Good Condition. Tri Gear. Enclosed Skin Removable Doors. Analogue Gauges, Icom-A200 VHF Radio. Manual Flaps, Full Elevator Trim. Climbs 1000 fpm at 55kts. 70ltrs carry 3+ hours endurance. Removable Auxiliary 50ltr Tank Customised to fit rear seat. Trimmed up at 5300rpm can cruise 70kts. To steal a quote - "Like a Drifter on Steroids" Engine - 582 Silver Top. TTIS - 382hrs (rebuilt at 292hrs). Also see advertisement on Recreational Flying website.

$16,000.00

Call Mike Cosgrove on 0414 517 856 or visit www.cypresslodge.com.au

Aircraft Offered for Reluctant Sale

A Colby-503, a single-seat, one-off aircraft, based on the highly successful American Pioneer Flightstar. Currently flying most weekends, it has around 200 hours airframe total time and under 30 hours on a rebuilt Rotax 503 power plant. STOL, this aircraft cruises at anything between 45 and 60 knots, depending on the power setting and can comfortably exceed its VNE in a climb. It holds 40 litres in a belly tank and a further 10 behind the seat. A 95-10 aircraft, its rego is 10-1918, valid until July 30 2018.
A sale would include a purpose-built trailer (uncovered and unregistered), a spare 503 engine (disassembled), and a ground handling tow bar. There are some other assorted spare parts such as a strut, control surface tubing, fuel pump, spark plugs etc.
I currently use a hand-held radio mounted in the cockpit with a head set and PPT fitted on the side-mounted stick.

I am putting my aeroplane up for sale only on the advice of my health professional.

$5,800.00

So, if you fancy owning and flying a totally unique aircraft, the ONLY one of its type in the world, contact Rob Knight, on 0400 89 3632, or email me at kni.rob@bigpond.com.