

# BRISBANE VALLEY FLYER

JUNE - 2014

**BRISBANE VALLEY**



[www.wattsbridge.com.au](http://www.wattsbridge.com.au)  
[www.bvsac.org.au](http://www.bvsac.org.au)

**SPORT AVIATION CLUB INC**

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



**Patrick Martin in his Pou de Ciel, better known as a Flying Flea.**(See page 2.)

Photo by Peter Davies

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Neil Bowden (President) 07 3200 3821  
Priscilla Smith (Treasurer) 07 3206 3548

Richard Faint (Secretary) 0412 317 754  
Rob Knight (Editor) 0400 89 3632

# - Brisbane Valley Flyer -

## Flying the Pou de Ciel



Patrick taxiing his Pou de Ciel.

I couldn't believe my eyes when, at the August 2013 Gathering of Eagles Fly-In at Watts Bridge, parked amongst the ubiquitous Piper's, Cessna's, Jabiru's, and Lightwings, there was a perfect piece of living history – an immaculate Flying Flea. Sitting in the line-up of commoners its unique profile and wing form set it aside from everything else on the field. Walking around it I touched the cowling - it was warm. Damn! It had already flown and I had missed it. However, my interest caught, I asked around for the owner's contact details.

His name was Patrick Martin and he was a medical scientist from Brisbane City. Several days later I made contact and he agreed immediately to tell me about his Flea.

Q: So what sort of Flea do you actually have?

A: (Patrick)

Officially called an Hm290, this model evolved from Henri Mignet's legendary home-built aircraft after a redesign in 1946. The plans for this version were sold as a single page of drawings with a second sheet translating the handwritten French into English. Conceptually, the Hm290 is more streamlined than the original but still retains the true formulated Mignet concept of pivoting forward wing, no ailerons, and full flying rudder.



The Flea in August 2013 at YWSG.

Q: Did you build it?

A: (Patrick)

No. Fred Byron built it; he test flew it in August 1994. Fred used his years of aeronautical engineering experience and modified the original all-flying rudder to a conventional fixed fin and moving rudder complex with no aerodynamic balance. He also increased the rear wing area to match that of the Hm 293 version of the Flea and added a Cossandey flap and Howell spoilers.



The Flea in flight – a rare and pretty sight.

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Howell spoilers on the front wing are used for crosswind approaches

Q: What is a Cossandey flap and what are Howell spoilers?

A: (Patrick)

The Cossandey flap is a large hinged surface that goes up, and only on the rear wing. The Howell spoilers are deployed electrically on each wing and help with cross wind landings.

Q: What is the Flea like to taxi?

A: (Patrick)

As with any tail wheel it responds to the usual foot pedal inputs on the ground. I flew Drifters before the Flea and went from those to the Flea

with little trouble. The Flea is more spritely, but not twitchy in any way.

Q: Is its take-off conventional for a taildragger? This doesn't have an elevator at the back – instead it has a whole wing at the front for pitch control.

A: (Patrick)

Compared to conventional taildraggers there are primarily two differences in its takeoff. This Flea has two separate directional controls: the rudder connected to the joystick so left/right stick moves the rudder left and right respectively. The tail wheel is directly connected to conventional foot pedals. With this in mind, whilst ground borne, the stick is held centrally to avoid rudder inputs and steering is through pedals and the tail wheel which remains firmly on the ground.



The Flea panel – simple but all that's necessary

The second difference is that the Flea doesn't raise its tail wheel during take-off. It can't, there's no tailplane or elevator to provide the upward tail force to do so.

A take off is begun by lining up on the centre line with full forward stick (minimum angle of attack on the front plane), held laterally central to keep the rudder straight. Then, opening the throttle, you keep straight with the pedals as they are connected to the tailwheel. At 40 to 45 knots you will feel through the stick the front plane (or wing) begin flying and gentle back pressure rotates the front plane, providing the same effect as rotating a normal aircraft, and the flea lifts off.

Q: Is it as hard to keep straight in the climb using sideways stick movement as my imagination tells me that it would be?

A: (Patrick)

Once airborne your feet are useless: you can do what you like with them, so, yes, it does feel a little different at the first attempts at steering with the stick. However, the strangeness soon passes. I climb the Flea at 55-60 knots and at this speed controllability about all axes is comfortable. The only difference is the control inputs to manage movement about the axes.

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Q: So you turn by just pressing the stick sideways?

A: (Patrick)

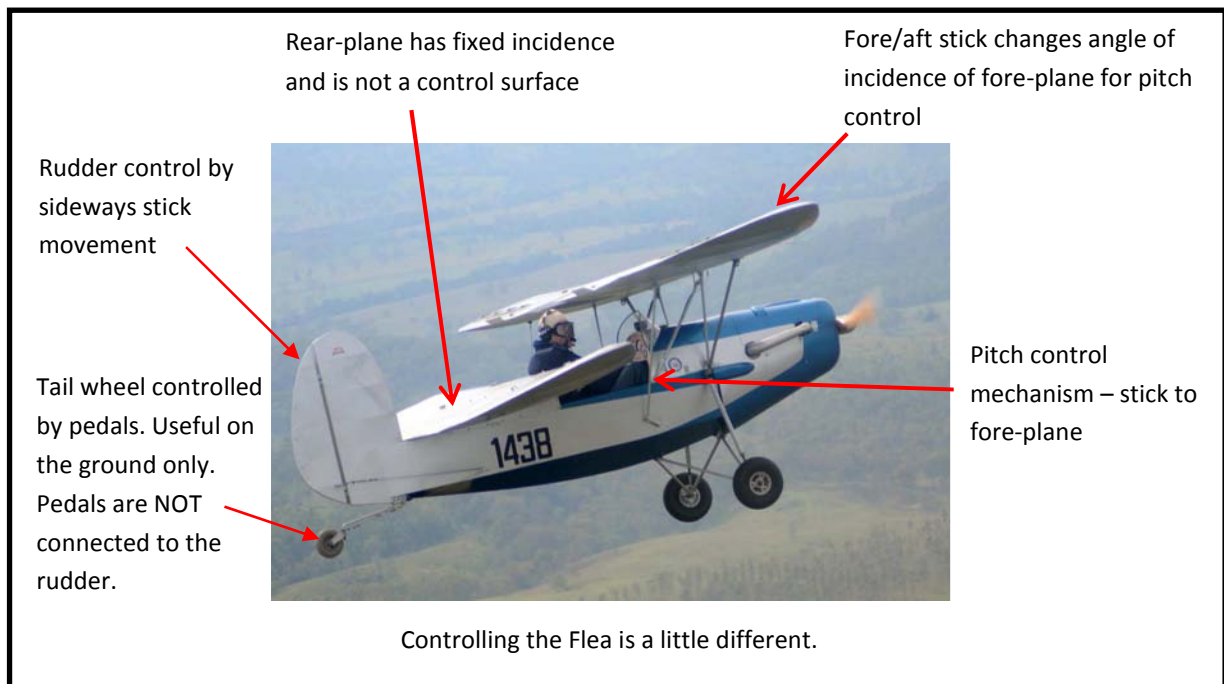
Absolutely. Turning is achieved simply by moving the stick either left or right as you wish, and adding any gentle back pressure necessary to maintain height. Centre the stick and the Flea will return to straight and level. The significant difference here is that the stick causes yaw, and roll is only achieved as the secondary effect of that yaw. The very low aspect ratio of the twin-wing arrangement really heightens this effect. This is why the Flea is a 2 axis aeroplane.

Pilots will also notice that the stick has to be held over to maintain the turn because, without the stick held sideways, there is no yaw to promote the roll and the aircraft will return to wings level flight. Rapid left/right stick movements amplify the yaw before roll, so gentle movements are easiest.

Q: So how would you describe the Flea's handling in cruise?

A: (Patrick)

Other than getting used to the lack of ailerons for roll control normal flight is uneventful. At its typical cruise of 60-65 KIAS the Flea is quite stable although the results of turbulence, normally countered with stick and rudder are now done with stick alone. This results in some initial wing rocking, but after some initial discomfort and with understanding it is easily controlled and becomes "normal".



Q: With no elevator control as such, how do you make it stall?

A: (Patrick)

While a stall in the Flea is dull to say the least, past claims that it can't stall in the true sense of the word are quite incorrect. The slot effect between the front and rear wings creates a situation where the Flea gently bobs its nose in a steady oscillation which allows full control with the power off and stick full back. A lesser known design feature of this plane is the noticeable effect of the airspeed and slipstream pressures causing the stick to move back as power is reduced and move forward with a power increase. I have never spun the Flea, it is impossible because the aircraft is too stable.



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Q: With such low aspect ratio wings how well does it glide?

A: (Patrick)

This is no soarer. Of course, it does glide but glide endurance is not a specialty. While not as quick as a brick, it's not a helluva lot better. I would guess at a glide ratio of around maybe 7:1.

Q: Do you prefer a powered or glide approach type?

A: (Patrick)

I like to do a powered approach, maintaining good airflow across the front wing. I have done glide approaches and these are naturally steeper.

For my "normal" approach I reduce power to about 4000 rpm and maintain 55-60 kts indicated. On finals I have a special cockpit check - that both feet are on the pedals and centred. With no connection between the rudder and the tailwheel, directional control with the rudder is zilch on the ground. As already said, wings are maintained level with gentle sideways stick movement. Over the threshold, I close the throttle, the stick eases back automatically as described earlier and the plane settles on the ground in the three point attitude without to much trouble. Once on the ground positive foot/tailwheel control provides total directional control like any other tail dragger.

Q: What made you buy a Flea?

A: (Patrick)

The Flea is different to fly and tremendous fun. This particular Flea has been flight tested in and out of the normal flight envelope with medium to big pilots and has never displayed any of its predecessors' issues. It always gets a good crowd at a fly in. I thoroughly enjoy being a part of its life and love being up in the air, out in the open in this great little plane.



The Pou de Ciel is really a tail-less biplane with super staggered wings.

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Specs of the Hm290:

Length:	3.9M	Span main wing:	6.1 M
Span rear wing	4.2 M	Span wings folded:	2.4M
Height:	1.65M	Empty weight:	161 kg
MTOW:	300 kg	Cruise:	65 Kts
VNE:	95 Kts	Stall:	32 Kts
Power Plant:	Rotax 503 SCSi	Fuel Capacity:	34 L

## Concreting the hangar floor

At last it's done. With sweaty brows wiped and a few calluses re-visited, the hangar floor now has a helipad on it. Gone are the old days and the new, dustless times have begun. The photos say it all.



The original carefully rolled and manicured pure dirt floor.



Kevin Werner digging out the bed for the floor reinforcement



Still digging. It was proved that there was no oil here – it's a dry well.



Levelling the excavation.

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Reinforcing is down, now where's the concrete truck?



The pump truck cleans up.



I need a helicopter license to drive this?



More autorotation practice in the helicopter. Much more of this and there won't be any floor



The last job – cutting the stress grooves

All photographs courtesy of Peter Freeman  
Cost of work approx \$20,000.  
Contractors: Kevin Werner and Hulby's Concreting  
Work carried out 28/04/2014 to 02/05/14  
Mike Smith and Peter Freeman were the "shakers and movers" that made this happen

A good job – well done.



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## FLY-INS Looming

Jun 14	Murgon (Angelfield), QLD	<a href="#">Angelfield Brekkie Fly-in Murgon</a>   <a href="#">google calendar</a>
Jun 20	Sunshine Coast, QLD	<a href="#">SCAC Friday Clubhouse BBQ &amp; Bar</a>   <a href="#">google calendar</a>
Jun 21	Dunwich / Stradbroke Island, QLD	<a href="#">Straddie Fly-in Breakfast</a>   <a href="#">google calendar</a>
Jun 27-6	Winton, QLD	<a href="#">Vision Splendid Outback Film Festival</a>   <a href="#">google calendar</a>

## Mystery Aircraft (June Issue)

What's this?



Congratulations to Richard Faint for being the first to identify the May mystery aircraft. A close runner-up was Paul Escot.

## Mystery Aircraft (May Issue)

Miles M39B, Libellula, a tandem-winged and twin-engined British experimental plane which gave the pilot an excellent view for landing on aircraft carriers (1945).

## Aircraft For Sale:

Micro Aviation Bantam B22M.

In good condition. Airframe 1900 hours, engine, Rotax 582 Blue Top, 350 hours. View by arrangement at Boonah. Comes complete with ICOM hand-held VHF radio  
Call Wayne on L/L: (07) 3804 0710 or mobile 0416 3670 16

**\$10,000**





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

1. When gliding at the best L/D, glide range when flying downwind is increased because:
  - A. The L/D is better flying downwind than upwind.
  - B. The groundspeed is greater.
  - C. There is less form drag when flying with a tailwind.
  - D. The aircraft endurance is increased when flying downwind.
  
2. The worst take-off performance is likely under which set of the following sets of conditions?
  - A. High elevation airfield, high ambient air temperature, low QNH.
  - B. Low airfield elevation, light tailwind, high ambient air temperature.
  - C. High elevation airfield, light headwind, high ambient air temperatures.
  - D. Low ambient air temperatures, high QNH, airfield at sea-level.
  
3. Select from the following the most correct statement:
  - A. The further effect of roll is pitch.
  - B. Frise ailerons improve roll control.
  - C. As the angle of attack increases on an aerofoil, the moment arm of the lift/weight couple reduces.
  - D. An aeroplane's angle of climb depends on its surplus horsepower.
  
4. Aspect ratio is:
  - A. A major design factor affecting profile drag.
  - B. Determines the angle of rise in the up-wash in the air ahead of a subsonic aerofoil in flight.
  - C. Wing span divided by the length of the mean chord.
  - D. All of the above.
  
5. An aircraft takes off with its single static vent blocked.
  - A. The ASI will read zero knots when airborne.
  - B. The VSI and altimeter will indicate correctly but the ASI is unreliable.
  - C. No pressure instruments will indicate accurately.
  - D. A and B are both correct.

ANSWERS: 1. B, 2. A, 3. C, 4. D, 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 03.05.2014 GENERAL MEETING

<b>MEETING LOCATION:</b>	Watts Bridge Memorial Airfield – BVSAC Clubrooms
<b>MEETING DATE:</b>	3 <sup>rd</sup> May 2014
<b>MEETING OPENED:</b>	10:15AM
<b>MEMBERS PRESENT:</b>	21
<b>APOLOGIES:</b>	Terry Clarke, Ron Dunn, John Innes, Liz Cook, Bruce Clarke
<b>VISITORS:</b>	Nil
<b>NEW MEMBERS:</b>	Terry Clarke and Allan Yeomans who was signed up following the meeting.
<b>MINUTES:</b>	April 2014 meeting of the BVSAC Inc. Proposed: Wayne Petty    Seconded: Sandy Walker    Acceptance motion carried.
<b>PRESIDENT'S REPORT:</b>	No Report.
<b>SECRETARY'S REPORT:</b>	Richard commented on BVSAC correspondence including: Emails from Caboolture Gliding Club using the clubrooms, changes to "Little Amberley" Controlled Air Space, Insitu Pacific operations at Watts Bridge, Watts Bridge noise complaints and Liz Cook regarding flying events. Emails to BVSAC Membership regarding the concreting of the hangar floor and the newsletter. Resolved an issue with Paul Escott's membership. Acceptance of Terry Clarke's membership. Promotional Flyers for SEQSAC at Kilcoy and David Hack at Toowoomba. A vote of thanks was moved thanking those involved with the concreting of the hangar floor, particularly Mike Smith and Peter Freeman which was carried by acclamation
<b>TREASURER'S REPORT:</b>	Priscilla provided a financial statement advising that the BVSAC ING Account Balance is \$9834.97 and the NAB Account Balance is 97.50. There is an outstanding cheque on the ING Account for the balance of the concreting.
<b>WBMA REPORT:</b>	Peter Freeman provided information regarding activities at Watts Bridge including: Runway Markers, Piano Keys and Taxiway Markers. Nick Potter has been keeping the mowing of the field in check. The 12/30 parallel runway is serviceable. The updated Fly Neighbourly Chart was noted. Peter thanked those who assisted with the Vetiver Grass.
<b>BUSINESS ARISING:</b>	Nil
<b>GENERAL BUSINESS:</b>	Wayne Petty advised that he had sprayed the building for spiders and the cupboard installation in the clubrooms was well underway. The All-In Fly-In 2014 was discussed and it was noted that the club could do well selling soft drinks. Richard Faint is to ensure sufficient supplies. Marshals are required for the fly-in. Mal McKenzie, Ken Hulse, Peter Ratcliffe, Scott Meredith and Terry Clarke have volunteered their services. Peter Biddle will be advised and will make contact with the volunteers. Ian Ratcliffe & Danny Fowler are to repair or condemn the clubroom's gas fired hot water system. Several of the Questions and Answers in the newsletter were discussed. Everyone agreed the newsletter is a "good read" and the editor's efforts are greatly appreciated.
<b>NEXT MEETING:</b>	The next meeting will be 14 <sup>th</sup> June 2014 in the BVSAC Clubrooms Watts Bridge at 10:00AM A BBQ lunch will follow the meeting.
<b>MEETING CLOSED:</b>	There being no further business, the meeting was declared closed at 11:05AM Aircraft hangared in the BVSAC Hangar were returned to the hangar following the concreting. A BBQ lunch was held after the meeting.

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# B.V.S.A.C. FUN FLY POKER RUN 2014



## THE EVENT

The Brisbane Valley Sport Aviation Club's Fun Fly Poker Run will be held on Saturday 5th July 2014.

Starting time is 9:00am and finishing at 2:00pm.

It doesn't matter what you fly— Recreational, Homebuilt, General Aviation, Gyroplanes – we would love to have you join in the fun !!

## THE GAME

Fly to any three of the participating airfields, Bradfield, Kilcoy, Gatton Airpark or Mc Carron's Field and collect an envelope which contains a playing card from underneath the primary windsock.

**DO NOT OPEN ANY ENVELOPES UNTIL REGISTERING AT THE BVSAC CLUBHOUSE – WATTS BRIDGE**

You can start anywhere you like and go to the airfields of your choice in any order that suits you.

Then just fly on to Watts Bridge Memorial Airfield where you pay your entrance fee of \$5.00 and register your hand.

BBQ Snacks & Drinks will be available all day long.

## THE WINNER

The organizers will have drawn two cards at random prior to the start of the game. These cards will complete the five card hands for all players.

The best Poker Hand wins the Trophy for 2014.

**THIS IS FUN FLYING AT ITS BEST  
SO COME ON AND GIVE IT A GO !!**

## AIRFIELD LOCATIONS

BRADFIELD	S 27° 25.1' E 152° 24.1'	KILCOY	S 26° 58.2' E 152° 34.0'
GATTON AIRPARK	S 27° 35.4' E 152° 15.4'	MC CARRON'S FIELD	S 27° 05.9' E 152° 36.2'
WATTS BRIDGE	S 27° 05.9' E 152° 27.6'		

If you have any questions :  
please contact :



**Richard Faint**

Phone: (07) 5427-0816

Mobile: 0412-317-754

Email: richard@auav.org

