

I.A.C. Chapter 88 Southeastern Michigan

NEWSLETTER

February 2010

www.IAC88.org

President's Column

"Welcome" to our new members; Don Webber, Ben Phillips, Benjamin Pohl, & Pat Setsuda. They are an invigorating new addition to the chapter, and they are interested in participation in aerobatic contests. Our VC has already picked out jobs for them.

Thanks also to Wayne for allowing me to draft him as Co-CD with Rob. My intent is to spread the task and the experience amongst the members so we have back-ups and don't burn anyone out.

The Mid-America region has a new chapter (IAC 124) in Kokomo, IN. There is also a new North East chapter (IAC 126) in Buffalo, NY. The latter is planning to hold their first contest June 4 – 6. Participation is encouraged, both as competitors and as volunteers, to get them started.

For those interested in the Ohio (IAC 34) March 13&14 Judge's school, their info is at <http://www.iac34.com/JudgesSchool.htm>

Sandy

From the Editor

Wow! We got four with one strike!



Looks like spring is coming late (Nancy gave me the results of Punxsutawney Phil's analysis), but we already have four new members this year, flying a Citabria, a Decathlon and an S2B out of Pontiac, and a promise to compete in aerobatic contests. This will be another very interesting season filled with action. And having two seat aircraft with instructors this close might even get a lazy newsletter editor into the air.

Now just in case you are wondering why there is only one introduction in this newsletter (Phil does not count, he is only a meteorological advisor) - well, I will have to bug the other three a bit more...

If you keep on reading you will find our new 'Science Corner'. Hugo has once again stepped up and shares with us some interesting technical information on his Pitts. If you have a story that you would want to share with us, please send it to me and we will publish it here. It does not have to be of a technical nature, anything that could inform or entertain our folks is welcome.

Chapter Meeting Notes, Jan 17, Howell

Meeting was called to order by President Sandy at 1:10 p.m. at the Howell Airport Terminal.

Members present were: Wayne Buescher, Robb Butts, Mary Gowans, Sandy Langworthy, Gunter Niederbacher, Ben Phillips, Benjamin Pohl, Hugo Ritzenthaler, Brian Roedvoets, Pat, Setsuda, Don Weaver, Nancy Wright.

FAA Safety Seminar: Nancy reported that Cleary College in Livingston County is interested in having the FAA Safety Seminar at their facility. We are waiting for Gordon Penner to check his schedule for a date. FAA will send out all announcements. Our chapter will be supplying coffee, doughnuts and other goodies for snacks and other services if needed.

Secretary - No report

Treasurer - Robb reported that we are solvent.

Calendar: Check website for dates. May meeting will be Critique Day at Marine City on May 15 (rain date May 16)

June meeting will also be Critique Day - date to be decided. Watch the website for dates.

Old Business: Nancy has templates for competition flyers.

Competition Director was Robb Butts. Co-competition Directors were selected with Robb Butts and Wayne Buescher, both agreeing to share duties.

Starter will be Gunter Niederbacher.

Nancy asked Mary Gowans to work with Registrar or scorer.

Sandy asked Pat Setsuda to help Nancy as Volunteer Coordinator.

Box markers need something to hold them to the ground. Several members suggested nails, the 4?-5? nails were suggested as best.

Chapter URL: Robb Butts is doing the web. Newsletter is on the website.

Nancy is doing a members list.

Memorial Plaque: Sandy announced that Marge MacDonald was not at the Christmas Party due to another commitment. It was suggested that Virginia give it to her.

New Business: The Judges School at Bellefontaine (KEDJ), Ohio, will be March 13-14. Check website for competition dates.

Gunter Niederbacher made a motion to change the competition name to Michigan Aerobatic Open. Robb seconded. Motion passed.

Meeting was turned open to any topic for discussion.

Secretary Mary Gowans had to leave at 2:10 to attend another board meeting.

Meeting adjourned at some time.

Respectfully submitted

Mary Gowans
Secretary

New Members

Pat Setsuda

Like many I have had the dream to be a pilot since I was a small child. The plan was to go the military route then on to the airlines. During college I enlisted with the US Marine Corps Reserve a few days after the first Gulf War started. Later I passed all of the written and physical tests to guarantee me a slot into flight school. I



attended Marine Corps Officer Candidate School but couldn't pass the vision test by the time I finished college. I served 4 years in a Marine Infantry unit where I flew on Marine helicopters but being a pilot was going to have to wait.

A few years ago I decided to pursue my Private Pilot certificate. On February 20th, 2009 I passed my check ride. In May of 2009 I learned about unusual attitude training offered at Pontiac and decided that I should pursue it to become a more confident and competent pilot. It only took me an hour or so in the Super Decathlon and I was hooked. Aerobatics was a perfect match for me. I had many hours of aerobatics logged before I received my taildragger endorsement.

Since earning my PPL 11 months ago I have flown several different high performance GA aircraft as well as an R-22 helicopter but nothing compares to the Super Decathlon or Pitts S-2B that I have been lucky enough to stumble into. Currently I am finishing up my instrument rating and also flying a Citabria until spring when the Super D comes out of hibernation.

I look forward to learning as much as I can from the club members and entering my first competition this summer.

Pat Setsuda

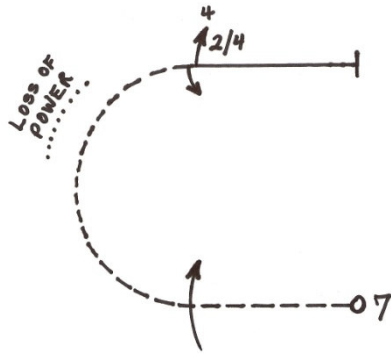
The Science Corner

Engine Oil Pressure and Prop Pitch - Sharing an Experience

By Hugo Ritzenthaler

Going through the maintenance records of my Pitts S1E (200 hp/constant speed prop) a couple weeks ago, I came across an anomaly that occurred on my Pitts in August of 2001 during one of our CAN-AM contests in Hanover, Ontario. It is such a special case that I thought I share it with all the aerobatic aircraft (and not just Pitts) pilots and owners.

As I mentioned, I was attending a contest in Hanover. Since there were no other Unlimited pilots present, I competed in the Advanced category. Part of the known sequence was an outside half loop up from inverted (fig. 7). All went well during the known sequence until I was getting to the outside loop. Pushing up, getting past the vertical, I noticed a drastic drop in engine power and change in sound of the engine.



I managed to complete the outside loop and achieve level flight at which point the engine regained full power with oil pressure in the green. I interrupted the sequence and radioed the chief judge of my intention to land. Once on the ground, I ran up the engine, cycled the prop but could not reproduce the anomaly encountered during the outside loop. The safety committee reviewed my situation and decided to let me finish the sequence. I restarted the sequence with the figure prior to the outside loop. When I got to the push-up into the half outside loop, to my surprise, at about the same point into the figure, I noticed the exact drop off in engine power which I had experienced during my previous flight. Since the power came back once I was on level flight, I finished the sequence without any further problems (there were no other outside maneuvers in this known sequence).

Since the weather turned sour later on Saturday and continued to stay that way on Sunday, there were no further flights. I had an uneventful flight back to my home base in Romeo on Monday. Once home it was time to dig deep and analyze the root cause for the anomaly I had encountered in Canada. To find out whether the condition still existed, I took my Pitts up the following weekend and pushed an outside loop. Guess what, the power loss reoccurred.

I called around, talking to many people, and then at last thought of Doug Dodge in Bay City. Doug, after listening to my problem, suggested that it might be related to oil pressure, affecting the prop pitch, which in turn could be the root cause for the loss of engine power. One needs to understand that on aerobatic engines, oil pressure forces the blades to a fine pitch. So losing oil pressure moves the blades to a coarse pitch (reduction in engine RPM).

Finally, Doug pointed to the O-Ring, which is assembled to the sump plug at the far end of the finger screen (**Fig 1**).

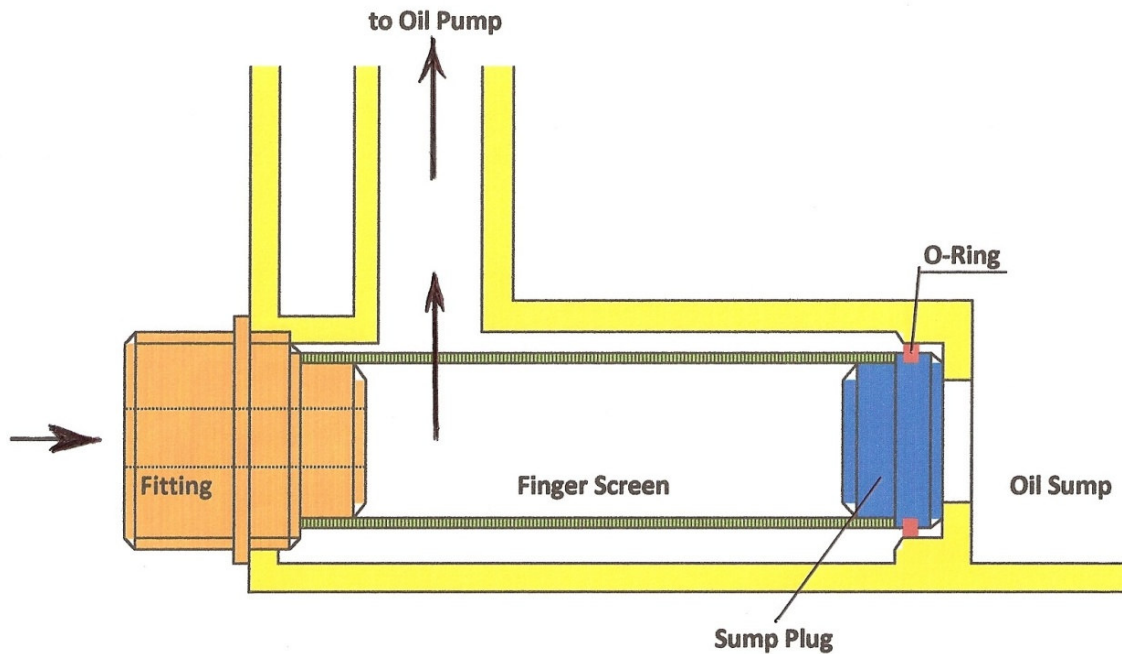


Fig 1 - Sump Plug held in place by oil screen - correct screen length

So off I went, draining the engine oil and removing the fitting to the cavity in which the finger screen was to be located. After carefully removing the screen, I pointed the flash light into the cavity and found the sump plug, with the O-Ring in place, loosely positioned in the finger screen cavity. Well, I thought, this is easy, just put the plug back into its place and the problem should be taken care of. At that time I had no idea how all these parts were suppose to fit and interact with one another. So I carefully repositioned the plug, reassembled the screen and readied the Pitts for a test flight. Once up in the air, I repeated the outside loop push-up and got around without any problem. Too good to be true, so let's try another one. Got half way around and guess what, the anomaly reoccurred.

Back on the ground, removing fitting and screen, I re-inspected the position of the sump plug. To my surprise, the plug was again loosely positioned in the finger screen cavity. Something must have allowed the sump plug to move out of its place, the only way the oil could by-pass the channel to the oil pump (**Fig 2**). Oil by-passing the oil pump or leaking directly into the oil sump would certainly lead to a loss of oil pressure and subsequent drop in Engine RPM.

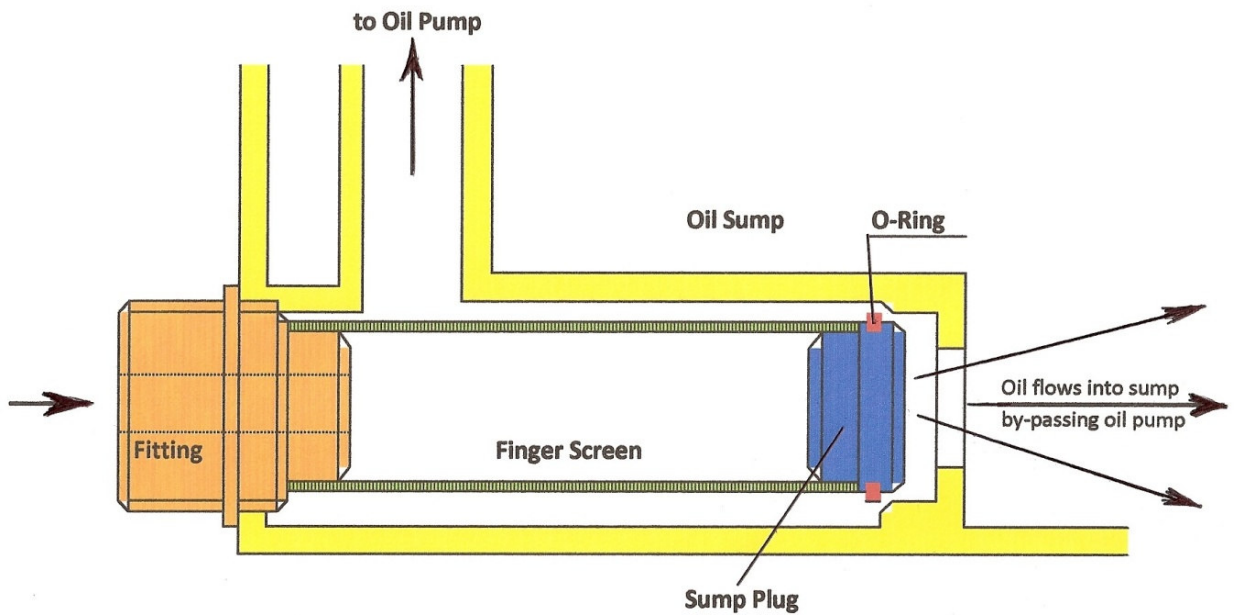
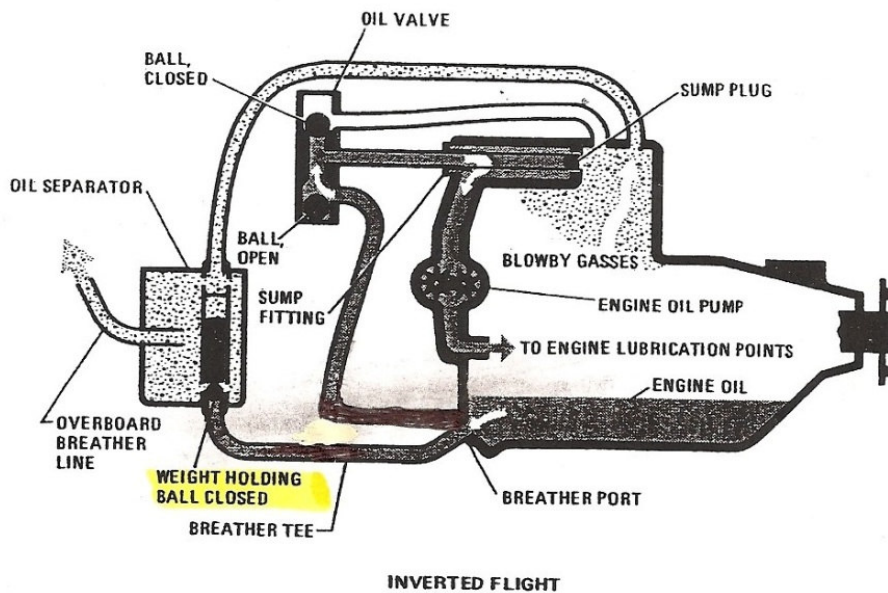
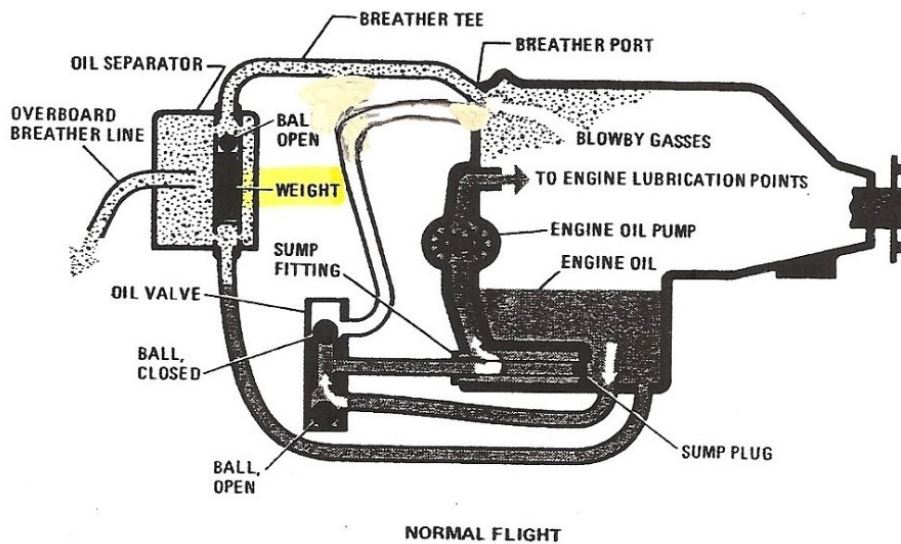


Fig 2 - Oil screen too short, Sump plug able to unseat

The hydraulic schematic of the engine in inverted flight provides a good picture of why there is little or no oil going to the oil pump if the sump plug were leaking.



Any leakage at the sump plug would not affect oil pressure in normal upright flight as the oil pick-up is immersed in oil.



So why would the plug not stay in its position? After studying the design of the cavity, finger screen and sump plug, I started measuring all those components. It did not take long to realize that the finger screen was too short by about 5 mm (**Fig 3**). This discrepancy in length of the finger screen allowed the sump plug to move out of its cavity, rendering the O-Ring ineffective. This bleeding of oil directly into the sump reduced or completely stopped oil going to the oil pump to produce the necessary pressure to properly pitch the prop (move the prop to a fine pitch).

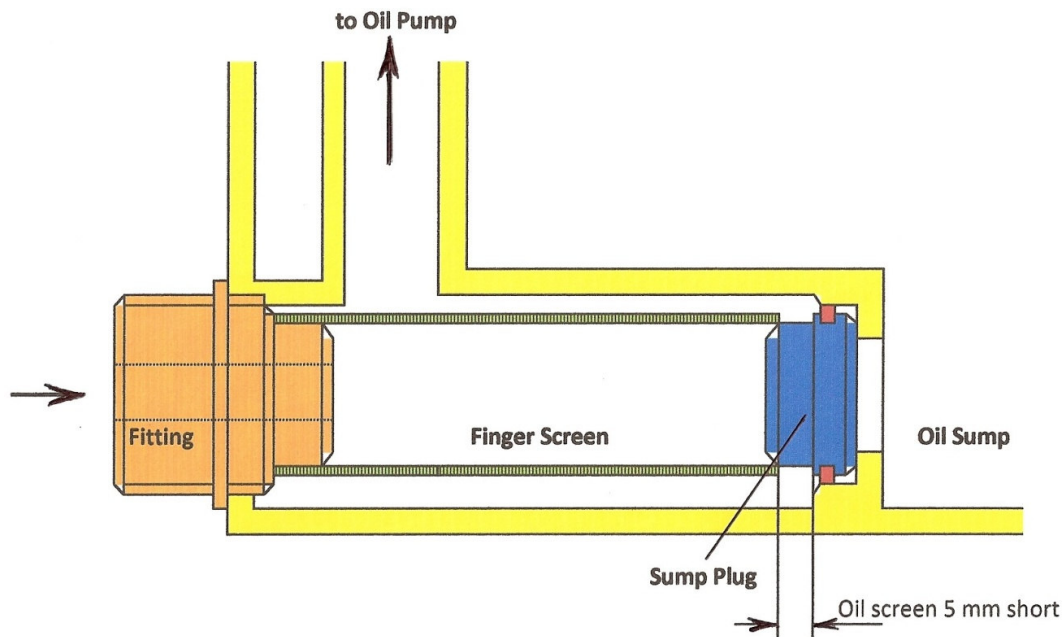


Fig 3 - Oil screen short by 5 mm

Once I understood the root cause, the problem was easily fixed. I got myself a longer finger screen, cut to length and reassembled plug, screen and fittings. The following test flight, during which many outside push-ups were flown, did verify that the corrective measure was

effective in correcting the hydraulic flow of the oil in the inverted engine position. I have flown my Pitts since for 9 years without ever experiencing another oil pressure drop in the inverted flight push-up attitude.

There was of course one question that remained still unanswered at the time the corrective measure was put in place. If the screen was too short when it was installed at the time the engine was put together many years before 2001, why did it take all those years for the sump plug to work itself out of position? The answer may lie with the O-Ring. When the engine was assembled, I assume the O-Ring was new. Over years the O-Ring must have taken a set in its O.D. reducing the hold in its own cavity, and with the g-forces acting on the plug itself, it simply slipped out. As of the time of this contest, I had flown hundreds of advanced and unlimited figures for many years. I suppose the O-ring on the sump plug just got loose enough that weekend to take up the slack the shorter screen provided.

Now, why it had to happen during that contest is anyone's guess.

Chapter 88 Calendar

For back issues of the newsletter, and other chapter information please go to the chapter web site.
 Note: All chapter meetings are held on the **third Sunday** of each month at **1:00pm** at the **Howell Terminal Building** Howell MI, unless stated otherwise.

January 17	Chapter Meeting	Howell, MI (KOZW)
February 21	Chapter Meeting	Howell, MI (KOZW)
March 21	Chapter Meeting	Howell, MI (KOZW)
April 10/11	http://www.iac34.com/JudgesSchool.htm	IAC CH. 34 - Bellefontaine, OH
April 13 - 18	Sun 'N Fun	Lakeland FL (KLAL)
April 17	Critique Session (Tentative)	Marine City (76G)
April 18	Chapter Meeting	Howell, MI (KOZW)
May 15 (Sunday Rain Day)	Critique Session/Chapter Meeting	Marine City (76G)
June 12 (Sunday Rain Day)	Critique Session/Chapter Meeting	Marine City (76G)
June 17 - 19	Ohio Aerobatic Open	Marysville, OH (KMRT)
July 8 - 11	2010 Michigan Aerobatic Challenge	Jackson, MI (KJXN)
July 16 - 18	Salem Regional Contest	Salem Illinois (KSLO)
July 26 - Aug 1	EAA AirVenture 2010	Oshkosh
August 13 - 15	Doug Yost Challenge	Spencer, IA (KSPW)
September 9 -11	Rebel Regional	Union City, TN (KUCY)

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I.A.C. Chapter 88 Southeastern Michigan
MEMBERSHIP INFORMATION / Renewal FORM 2010

Annual Dues are **\$20.00**. If joining after July 1, the dues are **\$10.00** for the remainder of the year.
Send to: Robb Butts, Treasurer 4464 Hunters Cir E, Canton, MI 48188.

NAME: _____ SPOUSE: _____

ADDRESS: _____ PHONE: () -- _____

CITY: _____ STATE: _____ ZIP: _____

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