



NEWSLETTER

Carb Heat

Hot Air and Flying Rumours

Vol 35 No. 01

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January 2005

Inside:

President's Page	Page 2
Manifold Pressure	Page 3
Fly-out possibilities	Page 5
For Sale	Page 7
Membership form	Page 8

Next Meeting:

Thursday, January 20th. 8:00 PM

National Aviation Museum

BUSH Theatre

Feature Presentation

Westward Ho

Charlie & Gwen Martel fill us in on their latest flying adventure to the West Coast.

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President's Page

The New Year has greeted us with a new taste of winter and returned the picture postcard look to the Capital, this time without the freezing rain adornments. I trust we have all enjoyed an enjoyable Holiday with family & friends. Just a reminder that with retirement my new email address is gpalmer at rogers dot com.

Parr Tate: Passes away at age 79, Jan 2, 2005

Parr was one of the founding members of EAA chapter 245, and will be missed by his many friends in the chapter who remember him as a quiet, smiling, friendly gentleman at our meetings. Laurent Ruel remembers his Volmer Sportsman project. A Memorial Service will be held this Friday, January 14 at 2pm, at the West Chapel of Hulse, Playfair & McGary, 150 Woodroffe Avenue (at Richmond Road), and our condolences go to his family.

I believe Eric Taada's Guest book condolence statement gives us a special insight into Parr's life. See the Hulse, Playfair & McGary chapel (<http://www.legacy.com/CAN-Ottawa/Guestbook.asp?Page=Guestbook&PersonID=2998526>):

I met Parr in a Hull basement building a Pietenpol in the 70's. He talked about Travelling Wave Tubes and down hill skiing. We met for 500 Monday nights building that plane.

Learned a lot by listening to him. MIT PhD, hard not to. He never mentioned to me that he went to Australia to witness British fission tests. Learned that careers at Shirley's Bay don't lead to full disclosure.

Parr was a patient and meticulous craftsman. The railing in the Carp Hangar comes to mind. His active mind continued to experiment with Stereo photography and analog plotters.

My condolences go to his family and Judy.

Membership Renewals:

Just a reminder, that John Montgomery will be taking membership renewals for the 2005 season at our January meeting. Please ensure that you provide your EAA membership number and renewal date. Also check that your email address is correct.

November 18th meeting summary:

Russell Holmes described his lifelong fascination with flight that culminated in his purchase of a **Kitfox** and the subsequent conversion to amphibious floats. He also shared the many political and regulatory hurdles involved in erecting a hanger at his cottage on Mississippi Lake to house his newly amphibious bird. Russ concluded with some great aerial shots taken from the Kitfox soaring over its' new amphibious home; congratulations Russ!

Upcoming meetings/Events.

Jan 20th 2000 hrs	Westward Ho: Charlie & Gwen Martel will fill us in on their latest flying adventure to the west coast and Victoria Island. This promises to be an interesting presentation as usual from our most travelled couple (via homebuilt); see you there!
Feb 17th 1900 hrs	Wayne Juniper of Transport Canada will present a session on Aircraft Owner Responsibilities . Topics to be discussed include, An Overview of the CAR's, Elementary Work, Maintenance Schedule, Owner responsibilities/ AME responsibilities and Airworthiness Directives; and will qualify for a currency sticker for licensed pilots. Note the meeting will start an hour earlier at 7:00 PM at the Bush Theatre , running to the normal departure time of 10:00 PM
Mar 17th 2000 hrs	Claude Roy/Andre Girard: Challenger flight trip to North Shore Quebec/Labrador area.
Apr 21st	Adam Hunt / Terry Peters: Regaining Currency.

Gary

News from around the PATCH

From the COPA website: <http://www.copanational.org/>

AIP Now Available On-Line

The AIP is now available on the TC website as an Adobe Acrobat PDF document. It can be downloaded in sections or as one big document. It can be found at

<http://www.tc.gc.ca/CivilAviation/Regserv/Affairs/AIP/pdf.htm> in English and at

<http://www.tc.gc.ca/aviationcivile/Servreg/Affaires/AIP/pdf.htm> in French.

TC has indicated that an HTML version will follow next year so that the AIP can be downloaded in smaller sections and that will also meet the Federal Government's accessibility requirements. More information is available at the COPA website

Planned GPS interference

20/12/2004: A GPS Interference Exercise, Northern Lights 1, is being held at CFB Petawawa between Jan. 11-20, 2005, similar to what took place last June.

The purpose of the exercise is to demonstrate potential vulnerabilities of new GPS receivers being evaluated by DND in a variety of military land vehicles and air platforms. More information is available at the COPA website. Check the NOTAMS before flying.

ELT checks

If you want to take your ELT in for it's annual checkup Canadian Airmotive Avionics has spun off from Canadian Airmotive and they have a new telephone number : 248-9361.

Feature Article submitted by Curtis Hillier

Manifold Pressure—What it Tells Us, What it Doesn't

By Thomas Turner
Published: 1/3/2005

Move up from most training airplanes into high performance aircraft and you'll confront a number of new gauges and devices. One of these, so very basic yet commonly misunderstood, is the manifold pressure gauge. Let's look at what the manifold pressure tells us—and what it doesn't.

Power Potential

“Manifold pressure” is just that—a measure of the air pressure available in the engine's intake manifold. Combustion requires a proper mixture of air and fuel, ignited by a well-timed spark. The manifold pressure gauge tells you how much air is available to be combined with fuel; if you add the proper amount of fuel power will result. Manifold pressure, then, represents the potential for power development. All the fuel flow in the world will not give you more power than what's appropriate for the air available.

Just a Barometer

The manifold pressure gauge is just an unusual barometer, directly sensing the induction manifold air pressure downstream of the throttle plate. The gauge is unusual because it displays pressure in inches of mercury (or for

many of my international friends, hectoPascals—formerly millibars, or mb), but unlike weather barometers the MP gauge is not corrected to sea level.

We learn about the atmospheric pressure lapse rate while preparing for the Private Pilot written test. In the lowest 10,000 feet or so of the atmosphere, air pressure drops at the rate of about one inch of mercury (Hg) per 1000 feet above sea level. Standard air pressure at sea level is 2.92 inches Hg, or for our purposes about 30 inches Hg. Sitting on the ramp before engine start an airplane's manifold pressure gauge reads about 30 inches, then, at a sea-level airport. In Wichita, Kansas, the same MP gauge indicates roughly 28.5 inches, or 1.5 inches below sea-level standard for the 1500 foot field elevation. At Denver, Colorado, roughly 5000 feet above sea level, the MP reading is 25 inches before engine start.

INSIDER'S TIP: 300, 180 or even 65 horsepower, the engine's manifold pressure gauge reads exactly the same for a given altitude—MP, again, shows the potential for power development, but from there it's a matter of total engine displacement and its ability to efficiently combine air with fuel.

Notice we've talked about MP readings before engine start. Once the engine is running MP is not exactly the same...but it is still quite predictable. Most light airplane engines have enough bends and turns in the induction system to reduce MP just a bit below ambient pressure; the throttle plate itself, an obstruction in the intake manifold, reduces MP some as well. Hence at full throttle a running engine tends to read about one inch below ambient air pressure. Start the engine at sea level and you'll see about 29 inches MP. At Wichita it'll run at around 27.5 inches; full throttle nets about 24 inches MP takeoff off out of Denver—five inches, or roughly 17% less power than available at sea level. No wonder it takes so much more runway for takeoff at high elevations! (Other factors, including wing and propeller efficiency, further inhibit high elevation performance).

This predictability continues in cruise flight, assuming you're at full throttle (and full propeller rpm; more on that in a moment). Of course, reduce throttle and the manifold pressure will be some value less than this altitude-derived maximum.

So What?

So what's the big deal about predicting MP at high elevations? Mainly, it allows you to predict where the MP should read during takeoff, to prevent that “nagging feeling” something's wrong if this is the first time you've seen such a low MP at full throttle. It helps you detect a throttle or obstruction problem if the expected value isn't reached. Knowing the expected takeoff MP also helps you anticipate the amount of mixture leaning required to achieve optimal takeoff performance.

Other Characteristics

Manifold pressure varies with propeller speed. Think of your engine as a big air pump. The faster the pump turns, the more rapidly air flows through it. As air speeds up its pressure drops (remember Bernoulli?), so the faster the engine is turning the lower its MP. As you reduce prop speed air “backs up” in the engine and the MP increases. Advance the prop and the MP drops.

This is why a given percentage of power can be obtained at a variety of MP/RPM combinations (for a given mixture leaning technique)—for instance, roughly 65% power comes at 23 inches/2300 rpm or 25 inches/2100 rpm in many airplanes.

As you reduce throttle setting the MP of course drops, but since most MP gauge-equipped airplanes have constant-speed propellers, the RPM will not change as a result. Eventually you'll get to low enough a throttle

setting that the propeller is below its governing range and from there throttle controls RPM as well as MP...but that's a function of prop mechanics and not the physics of manifold pressure.

Engine Failure

Here's a key concept in understanding MP: What happens to MP if the engine quits? Initially, nothing The propeller will at least for a while windmill at its pre-failure rpm and, since rpm and physical characteristics of altitude, the throttle plate and the induction system determine the MP, no change in the variables means no change in the indicated manifold pressure. Eventually the propeller begins to spin slower, and the airplane loses altitude (assuming a single-engine airplane)—both these variables cause an increase in manifold pressure. The MP gauge will show no change initially when an engine dies, and the indication will gradually increase during the emergency!

INSIDER'S TIP #2: Info for another day's discussion: exhaust gas temperature (EGT), if you have such a gauge on board, is your best indicator of engine operation in flight.

Turbo Supercharging

Through the years some piston engines have enjoyed several mechanical means of artificially boosting manifold pressure. The most common form of "supercharging," today, i.e., increasing MP above natural levels to provide the potential for more power, involves spinning a turbine in engine exhaust which in turn spins a compressor in the induction manifold. With the exception that MP will increase to a predictable, albeit boosted level for a given throttle position, and except at very high altitudes MP may automatically maintain a set level with a change in propeller rpm, most else holds true with these "altitude engines" as well. In a total engine failure, MP will drop to ambient pressure (minus throttle and obstruction-driven reductions) and again increase as the prop slows and altitude is lost.

BOTTOM LINE: One of the big differences we encounter when moving up to "high performance" airplanes is the manifold pressure gauge. We often spend far too little time in these checkouts, however, becoming familiar with what MP tells us...and what it doesn't.

Mark your Calendars:

Some items have been copied from the COPA Flight and the RAA website.

Thursday January 20th 8:00 PM National Aviation Museum: "Westward Ho". Charlie & Gwen Martel will fill us in on their latest flying adventure to the west coast and Victoria Island. This promises to be an interesting presentation as usual from our most travelled couple (via homebuilt); see you there!

January 29-30, MONTEBELLO, QUEBEC: The 15th Annual Winter Weekend Rendez-Vous at Château Montebello. Organized by the Canadian Branch of the International Challenger Owners Association (ICOA), this premier winter event is for all ski-equipped airplanes to gather in an ideal winter setting for the whole family to enjoy. For more information, call Claude Roy, Director, ICOA Canada, at Tel.: 613-836-7243 or by E-mail at arm-roy@cyberus.ca.

February 5, 2005, ST ANDREWS (MUD) LAKE located 1/3 mile directly East of the Penetang Water tower and 1/2 mile South of the Super Jail/Hospital. Annual Midland/Penetang Ski Fly-in. Fly-in date is tentative and will be moved from Saturday to Sunday if necessary due to bad weather or ice conditions. Contact Wayne O'Shea 705-527-1124 or Bruce Tinney 705-526-6019 email oifa@irishfield.on.ca

February 12, WESTPORT (CRL2), ONTARIO (RIDEAU LAKES FLYING CLUB) : Ski Fly Sand Lake

conditions are unpredictable due to construction on the Dam. Please use the Aerodrome subject to conditions. **Chilifest** at the field from 10:00 am till 2:00 pm. Communications on 123.2 for advisory. Call Jim at 613 273 5201 or Mendal at 613 273 2682 for a surface condition report.

February 26, OUTAOUAIS AREA, QUEBEC: Moe's February Fly-In from 10am, Ottawa River, 8km north/west from Aylmer, on the Quebec side near VOR - across from Pennie's Point. Coordinates: 45 26-57N; 75 55-48W. Host Maurice Prud'homme. Important Note: Landing on skis weather permitting. One (1) way will be ploughed. LANDING AT YOUR OWN RISK. Contact Maurice Prud'homme on frequency 122-75 or by telephone at 819-682-5273 for additional information including last minute weather reports and landing on wheels. Come down, enjoy and most importantly, come meet the pilots!

February 12, 26 and 27, ST-LAZARE, QUEBEC: Aero Propulsion Technologies announces Rotax 2 and 4 stroke Aircraft Engine maintenance training. The authorized Rotax Aircraft Engines Service Center for Eastern Canada invites recreational aircraft pilots to familiarize themselves with the operation, maintenance, repair and adjustment of their engines. Cost is CAN\$180+tax for each day and includes a meal and all documentation. Pilots from Eastern Canada and the North-eastern US are welcome. For more information, visit www.rotaxservice.com/training, email training@rotaxservice.com or call (450) 510-1551.

March 5, KARS ONTARIO (Kars Rideau Valley Airpark), RAA chapter 4928 4th annual Ski fly-in on, Fly drive or walk in. Excellent food for a small donation. Dilworth Road off Highway 416. An all day event, food served from 11 am to 3 pm. This is not an airshow. Contact Dave Stroud (613) 226-7889 for more information.

Smith Falls anytime!

JUST A QUICK NOTE TO ADVISE YOU THAT WE NOW HAVE SELF SERVE PUMPS AT **SMITHS FALLS - CYSH**. CURRENTLY THE MACHINE CAN HANDLE VISA AND MASTERCARD AND WE ARE PLANNING TO ADD AMEX IN THE FUTURE IF DEMAND WARRANTS.

So tell your friends and stop into Smiths Falls, night or day for the lowest prices and best service. Come and see our installation. Most of the work was done ourselves by our dedicated volunteers with help from the local municipalities and of course our wives.

Floyd Graham
Smiths Falls Flying Club
613-283-1148

Newsletter Deadlines

Deadlines for articles and for sale/wanted ads will normally be 2 weeks before the next meeting. A short example follows:

December shifted to January 2005

January – Jan 6th

February – Feb 3rd

March – Mar 3rd

April – Apr 7th

May – May 5th

June – Jun 2nd

July – Jul 7th

August – No newsletter

September – 1st

October – 6th

November – 3rd

December – Jan

FOR SALE

Place your ads by phone with Bill Reed 613-831-8762 or e-mail to bill@ncf.ca
 Deadline is first of the month. Ads will run for three months. You may request a two-month extension. Please let me know if any of the articles have been sold. The space is becoming crowded

For Sale:	Price
Volkswagen 1600cc "Beetle" engine completely rebuilt	\$1,000.
Volkswagen 1600cc "Beetle" engine partially rebuilt	\$275.
Larger (6-cyl) Continental Oil Cooler (8"x9")	\$50.
Lycoming accessory case dual take-off adapter (ie hydraulic and vacuum pump)	\$150.
Piston Ring Set for E-185/0-470 Continental series	\$100.
Continental C-85/0-200 ring set and rocker pins	
Lycoming dynafocal engine mount	\$75.
Two shoulder harness inertia reels \$	\$10. ea
Four seat belts metal to metal like new	\$20. ea
Two fuel pumps, hand-operated (wobble-type)	\$20 ea
Two Scott parking brake valves (new value \$150 U. S)	
Pair Goodyear 600x6 wheels and brakes	\$150.
Pair wheel pants for amateur-built a/c	\$50.
Vista (cockpit fresh air) Vent	\$15.
Lightweight automotive starter and bracket for Lycoming	\$150.
Parachute seat pack – condition unknown	\$50.
Miscellaneous older instruments	
Piper trim wheel and cables -	\$15.
06/04 Garry Fancy (613) 836-2829	

For Sale:	Price
1993 Hatz biplane, TTSN 240 hrs, Engine lyc 0290-d2 135hp SMOH 415. king radio, elt ,Recent refurbish, asking	\$49,000.
06/04 Rick Rickards @ 905-765-6403 rickr@mountaincable.net	

Articles wanted

I am always interested in receiving submissions for this, your Newsletter. You may bring articles to the monthly meetings, or mail information to the post office box, or email bill@ncf.ca

For Sale:	Price
Mazda RX7 engine, new still in box	\$3,600.
Reconditioned starter motor	
4 x LS1 coils Many other extras.	
01/05 Paul @ 613-253-1314 email[vrydag007@yahoo.com]	

For Sale:	Price
Engine mount for a Rotax 503 (inverted) bulkhead mount	\$100.
Engine mount for a Rotax 582 (upright) bulkhead mount	\$200.
180 deg exhaust system for a Rotax 582	\$150.
Composite cowl for a Pelican club	\$350
Warp drive prop- 3 blade 68" dia.	\$500
Parts for Rotax 582 including a Ducatti ignition system and many carb parts.	negotiable.
06/04 Grantley Este 613-832-1797 este@compmore.net	

For Sale:	Price
Trimble Flightmate GPS in leather case with all attachments & manual.	\$100.
ICOM-IC-A20 handheld nav/com in leather case with charger.	\$150.
09/04 Bill Wilton 613-259-2605	

For Sale:	Price
SKY-Tec lite weight starter model 122-12 approved for most Lycoming 4 cylinder engines "NEW in the box" cost \$496 CDN tax incl.	\$400.
Cleveland Brake discs (two) model 164-17 for 500-5 main wheel assemblies "NEW in the box" cost \$304 CDN tax incl.	\$250.
INFINITY (right hand) military style pistol grip (3/4 size copy of that used in F-16) Pre-wired and shielded with 4-way hat switch, PTT trigger switch, plus 3 other push button switches. Can handle 8 functions as wired, but can handle 13 functions with switch changes. "NEW" Cost \$235 CDN tax incl.	\$185.
11/04 Stan Ironstone 613-293-2495 stan.ironstone@sympatico.ca	



EAA Chapter 245 Membership Application

NEW: ___ RENEWAL: ___ DATE: _/ _/ _
 EAA NUMBER:.....
 EXP Date: _/ _/ _
 NAME:.....
 ADDRESS:.....
 CITY/TOWN:.....
 PROV:.....PC:.....
 PHONE:(.....).....H (.....).....W
 EMAIL:.....
 DISTRIBUTION Preference: email..... post.....
 AIRCRAFT & REGISTRATION:.....

OTHER AVIATION AFFILIATIONS:
 COPA: ___ RAA: ___
 OTHER: _____

Annual Dues: January 1st to December 31st. (porated after March31st for new members/subscribers).
 Associate Member ___: \$30.00 Newsletter plus Chapter facilities
 Full Member: ___: \$55.00 Newsletter, hangar, workshop, tiedowns.
 (Note: there is a one time \$200 initiation fee when you become a Full Member)
 Newsletter subscriber ___: \$30.00 Newsletter
 Note Associate and full members must also be members of EAA's parent body in Oshkosh WI, USA

Make cheque payable to:
EAA Chapter 245 (Ottawa)
 Mail to - P.O. Box 24149, Hazeldean R.P.O., Kanata, Ontario,
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