



NEWSLETTER

Carb Heat

Hot Air and Flying Rumours

Published by EAA Chapter 245 (Ottawa) P.O. Box 2412 Main Terminal, Ottawa, Ontario, Canada, K1G 3H8

JUNE 1989

NEXT MEETING -June 16 at 7:30 in the chapter clubhouse
at the Carp airport.

TOPICS -Oshkosh Night- A gala display of videos
and slides and a discussion of the joys
and procedures of flying into the Big Show.

Awards Night -Presentation of plaques to those
intrepid members who have finished their
projects this year.

Note We are still looking for a knowledgeable presenter
for a forum on Auto Engine Conversions for a
future meeting.

HELP! The Chapter is looking for IDEAS, Contributions
and ASSISTANCE, for our participation in the
Carp Airshow in July. Peter Talgoy would
appreciate any assistance. See Peter at the
June meeting.

President - Doug Richardson	592-5080	Hangars - Dave Murray	592-8102
Vice President - Roger Fowler	225-6070	Aircraft Operations - Dick Moore	836-5554
Secretary - Andy Douma	591-3801	Special Events - Gord Standing	224-2879
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CHAPTER MINUTES MAY 19, 1989

President Doug Richardson called the meeting to order at 7:56 and welcomed our guests. The front of the new hangar has been seeded and members are asked to refrain from taxiing, driving, etc. in the area. A more obvious horticultural improvement is the cedar shrubs (thanks to the Petersens) near the generator shed. Speaking of things growing, Doug reminded us that grass-cutting duties should be shared and not left for Laurent. Check rides on the lawnmower are free and only take about 2 minutes. A great way to build up taxi time while sun-tanning (but don't forget the sunscreen).

Our main speakers for the evening were Glen Lockhart, an airworthiness inspector from General Aviation Inspection, Airworthiness Branch, and James Laven, an AMSOIL dealer (613-839-3471).

James Laven is a heavy equipment technician with Caterpillar (also a Class A mechanic with diesel and propane endorsements). He brought along an insulated box containing dry ice which super-cooled various oils in cans. Stir sticks allowed the the curious to test the viscosities of the different oils, some of which were like the proverbial molasses in January. He also showed two videos, one on the production and properties of oil (by BP), and another (a promo by AMSOIL) which featured some very interesting internal footage of the workings of an engine. Initially, crude oil is refined into mineral oil as the base to which a complicated variety of additives are joined to improve such things as viscosity range, detergent properties, adhesiveness to metal, but also to combat tendencies such as foaming, oxidization at high temperatures, and the production of impurities through chemical processes. AMSOIL's claim is that its synthetic oil is formulated such that it does not need viscosity index improvers which break down due to heat, high rpm, and oxidation. The result is easier cold weather starts, faster oil circulation and hence reduced wear especially in the critical phase of start-up where a disproportionate amount of wear occurs, extended time between oil changes (since the oil stays cleaner longer and doesn't break down), less oil consumption, better performance due to reduced friction, and a cleaner engine which won't be plagued with sticking rings, oil deposits in the form of sludge, etc. As part of its extensive product line, AMSOIL makes a 100% synthetic aviation oil, but James cautioned against using it on either new/overhauled engines because its superior lubricating properties greatly extend the break-in period, or on high-time engines because AMSOIL oil will clean out the deposits (mineral oil is especially

prone to sludge build-up) with attendant risks of blocked oil passages. For new engines, the owner should wait until the manufacturer's break-in procedure has been carefully followed, and with an overhauled engine, he should wait until oil consumption has stabilized. High-time engines should receive a gradual transition, going first to a high-quality 50% natural and 50% synthetic oil with reduced intervals between oil changes until the drained oil is clean enough to warrant moving to a completely synthetic oil. AMSOIL aviation oils are specifically formulated to contend with the special conditions of high temperatures, long periods of infrequent use, etc. which characterize flying. On the question of comparisons with Microlon and Slick 50, commercial additives which claim to reduce friction by coating metal surfaces with teflon, James merely remarked that he remains skeptical. By contrast, he noted that his experience in the field, especially with heavy duty equipment, has convinced him of the superiority of AMSOIL over conventional oils. In closing, he pointed out that the product has to overcome deep-seated suspicion and conservatism, especially in flying circles. The long-term savings in fuel, maintenance, lengthier intervals between changes, reduced oil consumption, greater power, etc. must be included to put things in perspective.

Glen Lockhart then showed an FAA video on "How to Save Money on Your Annual Inspection." While obviously geared to the American flyer, the film contained a great deal of helpful and relevant information since, as Glen pointed out, there is a considerable agreement in the corresponding American/Canadian regulations. The maintenance which the owner may perform and the items which he may service are too numerous to list, but Glen provided hand-outs detailing precisely what these were. The information is available in the Airworthiness Manual, Chapter 575, Appendix A, Elementary Maintenance--Small Private Aeroplanes and Balloons, and Chapter 571, Maintenance of Aeronautical Products, Subchapter B--Scheduled Maintenance.

Respectfully submitted,
Roger Fowler

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Flight Lines

by Olav Peterson. June, 1989.
EAA 33135

Called up Shell HELP center -- an 800-number direct line to Shell Customer Service.

Each spring the sump on the Lycoming of our Cessna gets drained of the 2F inhibiting winter oil to make room for 7 liters of Aeroshell, single grade, 80W. I have been doing this for years yet never taking the time to find out if the new multigrade oils would be more effective lubricants. The information which I received hasn't convinced me that for the type of flying we do -- spring-summer-fall -- where the oil temperature at start will not wander beyond -5 to +35 C, there are any benefits in switching to the more expensive synthetics.

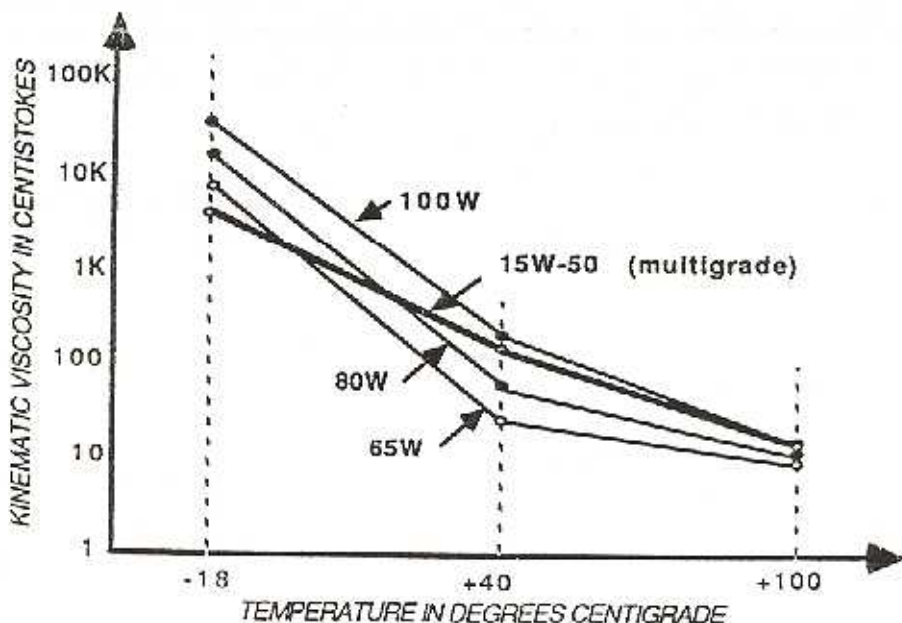
Basically, a static lubricant film cannot sustain a load. In a system of two sliding surfaces completely separated by a layer of lubricant, but with sufficient relative speed, oil is drawn, due to viscosity pump action, between the surfaces which floats the shaft within the bearing. No metal-to-metal contact is present between the sliding surfaces and wear is minimized.

As loads and speeds increase, the temperature of the lubricant rises and reduces the viscosity. With diminishing viscosity the film will become thinner due to the loss of viscosity pump action and the intermetallic contact also diminishes -- and up goes the surface wear due to friction.

Ideal oil would have the same dynamic viscosity at all temperatures -- unfortunately, it has yet to be formulated.

The rate of decrease of the dynamic viscosity with temperature, ie. always a negative temperature coefficient, is different for different lubricants. I have extracted and rearranged some of the data from the technical information bulletin, "Lube Report", from Shell Canada, to illustrate the strong performance of Shell 15W-50 synthetic oil at low temperatures, yet providing no significantly better lubrication properties over the single grades above 40 degrees.

If we ever start flying in Ottawa's -30 C winters where one would benefit from the cold start viscosity of the 15W-50, the switch is definitely justified; for now the 80W should do quite nicely.



There are pilot/owners amongst us who have an aversion for getting oil and grease under their fingernails, who have no interest in knowing or finding out what makes the plane tick but who have talents and inclinations in other endeavors or perhaps have been lucky enough to have found access to heaps of wampum and thus would rather entrust a mechanic to maintain his airplane.

There are also pilot/owners who are born all thumbs or possess the finesse of a sledgehammer when it comes to mechanical things. These people should never be allowed to remove a cowling.

Yet there are also pilot/owners who breath aviation, know intimately every nut and bolt on their airplane and who may not even take very kindly to all the poking around by an AME during the annual.

With such a wide spectrum of individuals the government always takes the easy way out and bases its regulations on the lowest common denominator, ie. the least motivated, the most ignorant,...

Thus, DOT has set up regulations which require that at least once a year an airplane be inspected and released into service only by government certified personnel. Not altogether such a bad scheme as far as attempting to maintain some semblance to a uniform standard for protecting the unwary public is concerned. However, what a putdown this is for a pilot/owner who knows his airplane much better than some roving mechanic.

Why such draconian regulations for small plane private pilots? You don't see the more lethal driver/owner of cars subjugated to such restrictions.

In the DOT rule book it is the pilot/owner who is solely responsible for maintaining his a/c in airworthy condition. Herein lies the rub: you may have the rooms of your house wall-papered with diplomas in aeronautical, mechanical or electrical engineering, yet the work on your plane may be carried out only by the DOT-trained chap. And he is allowed to refuse signing off work and installations if he so chooses for personal reasons!

.....
If the current explosion of building "kit" planes continues, EAA chapters will evolve into craftsmans' groups, technicians devoid of any ability to innovate technically.

Screwing and gluing together these slick prefabs requires fewer skills and the mental agility of a couch potato.

The previous "plans-built" approach afforded the builder to at least improvise and add his personal "improvements", within limits, of course, but it did not remove completely the opportunity to practice his innate creativity.

I can't knock the calibre or the performance of present day high-tech kits and one can only admire and commend the creators for their fine accomplishments, but it doesn't seem to promote the spirit of EAA in the long run and it actually smacks of commercialism to develop kits for profit.

These days one need not be an aeronautical engineer like Jim Bede or Burt Rutan, to give birth to radically novel designs - at least at the homebuilt level. I think that the time is ripe for EAA'ers to tackle original design.

There are fairly sophisticated software tools available for PC AT's, accessible after-hours at most workplaces, capable of gener-

ating 3D images interactively for initial conceptualizing and performing stress, fatigue and fracture analysis for shape optimization to achieve structural integrity. The whole approach would allow a homebuilder to design with non-destructive testing -- all from a keyboard.

Praises go out to Bill Laundry for his monthly column in COPA's GAN, trying to inject some technical content back into homebuilding and resurrecting the true purpose of the organization - EXPERIMENTAL AIRCRAFT. The only criticism that I would have is that these articles could be longer, much longer!

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How many times in any four week period have you been monitoring weather forecasts only to have to cancel your plans because when the weekend arrived, the forecast had gone completely haywire.

It has happened to us twice in the past month - a fairly poor record by any standards!

In spite of great strides technologically, weather prediction still appears to be an art -- but understandably so; the life cycle of thunderstorms, frontal movements and convective activity is quite brief - one may die but new ones will pop up elsewhere and the picture is constantly changing. Predictions can be made only if reliable data of past observations is available, information with high degree of confidence for reoccurrence. Unfortunately, our environment is undergoing a forced change due to man-made causes and gathering data in an unstable system may not be very fruitful.

For the pilot, weather briefings, as we have become to know them -- the weather office with a counter and a friendly weatherman -- are being phased out, yet the importance of knowing the enroute conditions on your cross-country hasn't diminished in importance.

The summer months with strong convective activity are just ahead. Don't increase your chances of stumbling headlong into a severe storm by not availing yourself of all the most recent weather info. The list below is fairly exhaustive for the Ottawa area:

1. AM WEATHER, Channel 4 (Watertown) at 6:45 to 7:00AM; sponsored by FAA, AOPA, oil companies, aviation insurance, etc. Radar summaries, satellite photos; covers US and Canada. EXCELLENT.
 2. VHF radio channel, 162.4MHz; continuous broadcast in English and French; updated hourly; local weather from Environment Canada.
 3. TWB (transcribed weather briefing) (819)643-4753.
Terminal aviation weather; menu selectable:
 1. General
 2. Hourly conditions
 3. Terminal Forecasts
 4. Upper winds
 5. Icing/turbulence
 6. Sigmets/Radar
 4. Public, telephone, local weather forecast on 998-3439.
 5. UHF TV, Channel 68 (Channel 25 with VCR converter); continuous.
 6. Gatineau FSS, 643-2026 or 998-3269.
here you actually get to talk to a human.
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HOW TO TELL YOU'RE GETTING OLD

Everything hurts. What doesn't hurt, doesn't work.

The gleam in your eyes is from the sun hitting your bifocals.

You feel like the morning after, and you haven't had a night before.

Your little black book contains only names ending in M.D.

Your children begin to look middle aged.

You finally reach the top of the ladder and find it leaning against the wrong wall.

Your mind makes contracts your body can't meet.

You look forward to a dull evening.

Your favorite part of the newspaper is "20 Years Ago Today."

You turn out the lights for economic rather than romantic reasons.

You sit in a rocking chair and can't get it going.

Your knees buckle, and your belt won't.

You regret all those mistakes you made resisting temptation.

You're 17 around the neck, 42 around the waist and 96 around the golf course.

Your back goes out more than you do.

Your pacemaker makes the garage door go up when you see a pretty girl.

The little old gray-haired lady you help across the street is your wife.

You sink your teeth into a steak, and they stay there.

You have too much room in the house and not enough room in the medicine cabinet.

You get your exercise acting as a pallbearer for your friends who exercise.

You know all the answers, but nobody asks you the questions.

Editor's Note I realize that this does not apply to other members, but I have spent most of the day lying on my back in the front seat of my aerodyne with my head and arms under the instrument panel. It certainly sums up my feelings tonight!

1964 Beech Musketeer, 165 hp Cont ID 346, 2080 TT, 1040 SMOH, Narco Comm 11A, Terra 720 ch N/C, Genave ADF, Mkr Bcn Rec, 4 ch v/a IC, strobe, 4 ch EGT. Asking \$17,900. Gary Palmer (613)596-2172.

Piper Pawnee, 150 hp, \$17,000.

Mike Sacoutis 729-3774.

Minicoupe project, partially completed. Unable to continue due to discontinued kits. All offers considered. Call Richard Taylor 596-6913 after 7 pm.

Davis D2A plans. Call Russ Robinson, 831-2485.

Brakes and wheels, Rosenhan. Suitable for Vari-Eze, Davis, etc. Offers welcome. Eric Taada 749-4264.

CLASSIFIED SECTION

Contact Mike Sacoutis at 729-3774 for the following parts:

- Propellers - 0 time constant speed
 - Wood pusher prop.
 - Zenair wood 68x46

Hanlon Wilson mufflers.

Mooney Parts - Complete retract gear with 6.00x6 main wheels, 5.00x5 nose wheel. Also seats, fuel tanks, gauges, gyros, and control surface pushrods.

Forged VW crankshaft and propeller hub. For details, call Richard Taylor at 596-6913 after 7 pm.

WANTED: One set of Cleveland wheels and brakes 5.00x5. James Oliff. Work 722-9115. Home 596-1949.

CLUB NEEDS

Hot Plate for top of 4-burner stove. Needed for Fly-In Breakfast Platform weigh scale like type to weigh farm animals. We have one, need a second one.

Gas-powered snowblower needed.

KIT SHOP

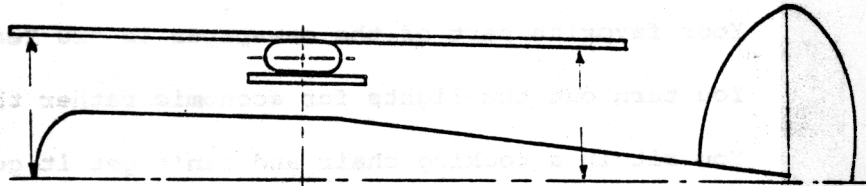
Ch 245 golf shirts with logo available in white, light blue, dark blue \$16. See Andy Douma or call 225-1559. Classified Editor: Lars Eif 837-6600.

WHEEL ALIGNMENT

From Technical Counselor Red Beitel-shees of Boulder, Colorado

ALIGNMENT—

Landing a tail dragger plane whose wheels do not line up can give you a thrill. Checking wheel alignment can be done in several ways, but the idea is to check the direction of each wheel travel with the center line of the fuselage. One method is to use a long straight edge board or a string stretched tight along the side of the tire back to the horizontal stabilizer, measure the distance to the center line of the fuselage. Then make the same measurement on the opposite side. These distances should be equal and their sum should equal the distance measured to the outside of the main tires and on the forward part of the tires, for zero toe-in. The figure to the right shows the wheel alignment measurement.

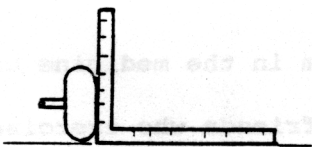


X = X for 0-0 Alignment

Adjustment for toe-in and camber are made differently on different airplanes. Some have screws, others use washers or shims, while on some of the smaller planes, you must bend the axle. The Champ is an example of one which must be bent to adjust. A suggestion on adjustment by bending is to use a heavy beam, I use a railroad rail, a hydraulic jack, two pieces of chain and some padding, such as old carpet, to protect the axle tubing from the chain. Use a piece of wood to protect from damage by the jack. Also, a heavy metal bar such as an auto axle which will go into the axle tube will be needed. The following diagrams show the use of the bending equipment. Use caution, bend a little at

a time, and make frequent measurements.

The manufacturer's manual gives the recommended toe-in, which is usually small if any. Generally, toe-in is measured by comparing the distances measured between corresponding spots on the right and left tires at axle height and at the front and rear of the tires. Toe-in is where the forward measurement is less than the rearward measurement. The tire ribs may be used to measure from if they rotate true. If not, a line may be chalked on each tire as it is rotated. Note that this measurement shows nothing about how well the wheels travel relative to the fuselage center line.



Camber is measured with the use of a 2 foot carpenter's square with the plane sitting on a flat and level floor.

EDITOR'S NOTE:

Here at the EAA, we build homebuilt aircraft with 0 degrees toe-in or toe-out, and 0 degrees camber with normal weight sitting on the wheels.

