EAA Mile High Chapter 43

Founded 1957

Mile High Flyer

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2002 Calendar

Chapter Meetings:

Feb 9, Jim Loyd - successfully surviving the transition from a pilot to back country survivalist.
Mar 9,
Apr 13,
May 11,
Jun 8,

Local Events:

Regional Events:

Apr 7-13, Sun-N-Fun, Lakeland, FL
Jun 29-30 Rocky Mountain Regional Fly-In, Longmont, CO
Jul 23-29 AirVenture, OshKosh, WI

Sport Pilot NPRM Likely Next Week

Update-January 11, 2002-On January 4, EAA reported that publication of the long-anticipated sport pilot/light-sport aircraft notice of proposed rulemaking (NPRM) was imminent and likely to occur this past week. Mid week, EAA President Tom Poberezny spoke with FAA Administrator Jane Garvey. Following that conversation, EAA now expects the NPRM to be published in the *Federal Register* early next week, with a 90-day public comment period to follow.

20 year contractor would like to trade re-modeling / building skills for an incomplete project and currency flight training. Contact: Doug Dahl 303-915-5011	For Sale: 1950 Cessna 170A, 2939 TT, 200 SMOH, Fresh Annual, $45k nego. Email: jayhurd@aol.com

February meeting: Saturday Feb. 9, 7:00 P.M. Tri-County Airport

The February meeting will be held at **Tri-County Airport at Blue Grassfield's Mad Eagle Aeronautical Hangar.** Take CO highway 7 to Weld county road 1 on the west side of the airport. Go north about .5 mile and bear right on the road that leads to the big dark green hangar. Turn right at the gate and follow the drive to parking. **Jim Loyd** will host an informal program on **successfully surviving the unwelcome transition from an aircraft pilot to back country survivalist.**

JANUARY MEETING MINUTES/BANQUET

The January meeting was our annual winter banquet held at the Runway Grill at Jeffco Airport. The dinner started at 2:00 PM, was attended by 86 adults and 2 kids, followed by a short business meeting, which was called to order at 3:30 PM by president Roger Standard.
A call for guests revealed Tom McQuaid of Golden in our presence. Tom has a Cessna 150 and is designing an ultra-light amphibian. Also present were many spouses of members.

Roger thanked all those who volunteered their time and assistance during the year at all of the Chapter events, and gave a special thanks to Patty Begnaud for her fine work in making the EAA B-17 visit such a financial success for the Chapter.

Treasurer's report: Bob Wilson reported a balance of $11,250 in the Chapter account.
Roger asked for a motion to accept the minutes as published in the January newsletter. The motion was made, seconded and passed.

Roger brought up the subject of our present meeting location being in peril due to the possibility of it's being sold soon. He encouraged the membership to research a new meeting spot, hopefully a permanent one. Roger called for the formation of a committee to look into the feasibility of building or buying a Chapter 43 hangar. Committee volunteers include Jim Oakley, Kelly Koop, Pete Kelley, and Gene Horsman.

Air Academy nominees are needed soon. Roger asked the membership to submit names of kids to him in the next month or so.

The EAA B-17 is slated for a return visit in the summer of 2002. EAA was elated over their tour here last summer and can't wait to come back for another go. This will be a major fund raiser for our chapter as well, and volunteers will again be asked to help make this year's event as successful a last year's.

Gene Horsman was honored as this year's Lifetime Achievement Award winner. He was presented with a nice plaque and will receive his membership in the Chapter for free for life. Gene has been a tireless volunteer for our chapter for years serving variously as an officer, board member, newsletter editor, Regional Fly-in volunteer and board member, as well as our informal government affairs watchdog. Gene also read a number of humorous aviation articles to entertain our group at the banquet. Congratulations, Gene!

Awards were presented to this year's chapter officers and volunteers for their service, and door prizes in the form of Micro Soft Flight Simulator software were presented to John Evens and Jerry Knevil.

Kelly Koop alerted the Chapter to a nationwide Young Eagles rally coming up on February 2nd. Our Chapter will sponsor a rally at Jeffco that Saturday morning, so come early if you can fly kids or help the ground crew.
Dean Cochran made his motion to adjourn, it was made, seconded and passed.

The editor would like to thank Dave Biesemeier for recording and typing the minutes from the holiday meeting. Thank you, Dave!!

A BIG THANK YOU!!

I would like to offer the Chapter 43 my sincere thanks for the award given to me at the annual dinner on Jaunuary 12.

It is nice to be recognized by your peers and I sincerely appreciate it.

The plaque already has a place of honor on my den wall.

Thanks again,

Gene Horsman

New Member:

Tom McQuade, 26 S. Holman Way 3B; Golden, CO 80401. 303-279-5189. Designing/ building an ultralight amphibian. A one of a kind.

Welcome Tom!!

LYCOMING ENGINE MAJOR OVERHAUL

By Dave Biesemeier

Almost exactly one year ago (January 2001) I decided that my Lyc. O-320 engine in our Sidewinder was in need of a major overhaul. This is a not-so-brief account of what, how, and why I did the things I did. With 2800 plus hours on the engine, I decided the time was right even though the compression was still OK at 70 over 80 on average, and the oil consumption was hovering at about 4 hours to the quart. There were several AD's out on the four-banger Lycs. that I had been putting off, most notably those on the oil pump gears, and inspection and coating of the inside of the crankshaft at the prop flange. I arranged with Ron Denight to assist me in determining what needed to be sent out for inspection and rework, and what parts would need to be purchased outright. Ron Denight was an invaluable resource with his knowledge of engine overhauls.

There were several upgrades that I wanted to incorporate to increase the performance and reliability of the engine. These added expense extras that normal overhauls wouldn't incur included new Millennium cylinders from Superior Airparts, 9:1 compression pistons, longer cylinder base studs to accommodate reinforcing plates on the narrow deck cylinder bases to handle the increased compression, and internal moly-teflon and ceramic coatings to reduce friction, wear and engine temperatures.

The engine was removed from the Sidewinder after draining the oil and removing all of the accessories and then trucked home for disassembly. I had prepared my one-room workshop in the basement by setting up a large workbench consisting of a door laid across a couple of sawhorses. The workbench was covered with brown paper and plastic to prevent oil absorption into the wood. The engine was mounted vertically by the prop flange on an engine stand and disassembled. As parts were removed, they were labeled and laid out in a logical order on the bench. They were then cleaned and prepared for inspection, measurement or shipment for rework at various repair facilities.

The crankshaft, camshaft, hydraulic lifters and tappets, rocker arms, connecting rods, crank end gear, and cam gear were all shipped to Aircraft Specialties Services in Tulsa, OK. The crankshaft was magnafluxed for cracks, measured for wear, and then reworked. The journals were ground, polished and re-nitrided, and new sludge tubes installed. Service bulletin S.B. 475B was complied with which included inspecting the flange I.D. for corrosion, and applying a corrosion resistant coating, and re-plating the prop flange and exposed hub area where the oil seal contacts. The con-rods were magnafluxed and checked for straightness and alignment, and re-bushed. The hydraulic lifters and tappets were rejected, as they were obsolete by Lycoming. Serviceable lifters and tappets were purchased from A/C Specialties.

The cam and crank gears were magnaflux inspected and repaired. The rocker arms were re-bushed and the faces that contact the valve stems were reground. The camshaft was re-ground and polished.

The crankcase was shipped to DivCo, Inc. in Tulsa, OK, which is right next door to Aircraft Specialties Services. DivCo specializes in crankcase repair and came highly recommended by Ron, as did A/C Specialties. The crankcase was thoroughly cleaned, and inspected for cracks. The mating surfaces machined, and the cylinder locating bores resized to factory limits. All through bolts and studs were replaced as previously noted. The case was then anodized to a beautiful gold color, which is ready for painting.

Darus Zehrbach at LPE CORP. in West Virginia applied the internal coatings. Darus had sponsored several of the racers in the Kitty Hawk-Oshkosh races and won my business as well. The intake and exhaust tracts in the cylinder heads and the exhaust valve heads and piston crowns were ceramic coated, valve stems and piston skirts were Teflon coated, and the cam lobes and followers were Teflon/moly coated.

All rotating mass parts were dynamically balanced, including the crank, rods, pistons (with pins and rings installed), prop extension and starter flywheel, by Doug's Balancing of Denver.

While waiting for the major components to be returned, Ron helped me locate the rest of the parts needed to complete the overhaul. These parts included a gasket set, main and rod bearings, a new oil pump to comply with the AD, intake hoses, engine mount bushings, spark plugs, and magneto harness. I also purchased a new lightweight starter from Air-Tech in Florida, and a new alternator from Mark Landol in Kansas. A new throttle cable was purchased and installed. My Ellison throttle body carburetor/injector had less than a hundred hours since it had been overhauled, so it, too, was only cleaned and reinstalled.

After all of the parts had been returned, the cases were painted and Ron and I assembled the "lower end" of the engine (case halves, crankshaft and cam and tappets) at Tri-County. Care must be taken to ensure that all of the main and rod bearings match the journal sizes on the crankshaft. We used Lock-tite Gasket Eliminator #51031 and silk thread on the case mating flanges and engine assembly lube on all bearing surfaces. The crank seal is glued into place and care must be used to lube the crank seal lip so that it doesn't seize on the crank and cause the seal to spin in the case. The camshaft lobes and tappets get coated with special high-pressure moly type grease.

The rest of the engine was assembled in my basement at home. The piston ring gaps were set to spec. minimum by using rings for .010" over cylinders and filing to the specified gap. After all of the above modifications, my Lyc. O-320 (with no dash numbers of letters) has essentially become an O-320 D2B, with 160 plus horsepower, except that it is exclusively an experimental engine.

The engine was hauled back to the airport and reinstalled in the Sidewinder. All of the accessories were installed and everything double-checked for security and proper installation. Next month I'll go over the engine break-in details and how the new engine performs, including my opinion of the Millennium cylinders, and the extra expense items that I incorporated in the overhaul.

From the EAA weekly online newsletter: **Q & A: Question of the Week**

Question For EAA Government and Industry Relations - I have seen in the pilot magazines that the switch to unleaded fuel in the GA fleet is possible and will be coming. How soon in the future is this? I am on our local airport commission and this will, of course, impact on us. Especially with our almost non-existent budget and continued threat by city council members that the airport is just a drain on the city budget, we need to be able to plan for this and figure out how this will be implemented. I would assume when we need to do the switch, we will have to pump out the unusable fuel {that fuel that always sits at the bottom of the tank} and clean out the tank well before filling with this new fuel. What information do you have on it, or can refer me to?

Answer: No one really knows when we will make the shift to an unleaded fuel, best guess is between 2005 and 2010. The good news is, as long as the 100LL replacement is a petroleum product, and EAA does expect the replacement to be so, there will be no need to drain or change any of your fuel tanks.

There are currently three candidates to replace 100LL from three different petroleum companies all three are fully compatible with 100LL and can be mixed in any percentage. One of the requirements from the general aviation industry has been that any new unleaded replacement be fully compatible with the existing 100LL because we do expect a transition period when aircraft would be using both fuels. For example 100LL may be available in Florida and then you fly to Wisconsin and only the unleaded fuel is available there. This is one of the many reasons that EAA does not support any of the touted alcohol based replacements for 100LL as alcohol would require changes to the aircraft and it is not compatible with 100LL.

The replacements being developed by the petroleum industry would only require a small percentage of piston aircraft, (no more than 5%) if any, to be modified to use the new fuel the remainder of the fleet, the aircraft operators and the FBOs will not have to make any changes.

Some of the adverse effects that may occur, AND I MUST STRESS THE MAY, are new or specific engine oils may need to be used in engines using unleaded fuel, additives for engine or new cylinder break-in may be needed, valve ware may increase for some older no longer in production engines that do not have hardened valve seats available.

Question: What are the aircraft type designators for experimental aircraft?

Answer: The answer lies in Appendix C of the *Air Traffic Control Handbook* (FAA Order 7110.65M). There are three designators for experimental aircraft. For aircraft with indicated airspeeds of 100 knots or less, the designator is HXA. HXB is used for aircraft with indicated airspeeds of greater than 100 knots, up to and including 200 knots. For aircraft with indicated airspeeds greater than 200 knots, use HXC.
From AOPA online weekly newsletter.

BULLETIN:

DEAN COCHRAN underwent emergency surgery on January 23rd for a perforated small intestine. As of the 28th, he was still recovering at the Avista Hospital, but due to go home on the 30th. His wife, Annie, said he is doing OK, but I'll bet he'd like to hear from his EAA pals: Dean 's address is 255 Hemlock Street, Broomfield CO 80020-6034.

EAA Mile High Chapter 43

Chapter Officers

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Vice President: Patti Begnaud	303-604-9702
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FIRST CLASS

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THIS MONTH'S MEETING:

Saturday, February 9th at 7 P.M., Tri-County Airport, Erie, CO