



Experimental Aircraft Association

CHAPTER 393

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CHAPTER MEETING - WEDNESDAY EVENING, 7:30 P.M.
NOVEMBER 25, 1987
(Night before Thanksgiving)

The program this month will be a presentation by Jordan Coonrad, Aerial Photographer Extraordinaire, on the art of taking pictures in the sky. I am sure you have all seen samples of his photographs taken from plane to plane, so I know you will be as interested as I am in hearing how he makes them come out so well. I'll never forget that group of Variezes. Of course, the other pilot's prop blades were out of synch with the ex-Marine's, but I guess we will never get a decision on who had the right revs., will we?

Election of new officers for the coming two years took place at the October meeting:

President:	Rich Powell	415 + 934-9396
Vice President:	Bill deProsse	415 + 827-0199
Secretary/Treasurer:	Russ Giffin	415 + 935-2887
Newsletter Editor:	Jordan Coonrad	415 + 769-9766

I am sure I speak for all of us when I say we are here to serve you, not "run the show," so please call us at any time for any reason.

Early as it may seem, plans for the 1988 BUCHANAN FIELD AIR EXPO (commonly called AIRPORT DAY), will get underway on Tuesday, Nov. 24, at 8 A.M., at the Concord Chamber of Commerce. They would like a member of the planning committee to be a representative from Chap. 393. The consensus at the November Chapter Board meeting was that it is important that we be represented. Randy Alley will be glad to attend the first meeting with our representative to make introductions. If you would like to take on this role, it would be very much appreciated. Please call Randy at home 825-1247, office 685-4959, or hangar 689-3168, to make the arrangements.

The Unpteenth Annual Christmas Dinner and Awards Banquet will be held at the Concord Elks Lodge on Friday, December 18, at 7:30 P.M. No-host cocktails are at 6:00. The price is up a bit from last year, to correspond with the inflation rate.

Ted Shulgin of Martinez Marine Hardware has his own business selling AN hardware, etc., at 815 Arnold Dr., near the airport. Phone first #228-2512. Bring your catalogues along for cross-reference to cheaper prices!!

EAA

EXPERIMENTAL AIRCRAFT ASSOCIATION

2.

CHAPTER 393

1987 CALENDAR

CHAPTER MEETINGS - The 4th Wednesday of every month - 7:30 P.M. at Buchanan Field Terminal Building
EVERYONE IS WELCOME! Bring Chairs!

BOARD MEETINGS - On the dates listed below (usually the 2nd Tuesday each month) - 7:30 P.M. at Navajo Aviation. Chapter members are welcome.

OCTOBER

Board - November 10

Chapter - November 25 - Jordan Coonrad talks about aerial photography.

Dec 18 - Chapter 393 Annual Christmas Dinner & Awards Banquet. Concord Elks Lodge. See flyer elsewhere in this pub.

Jan 23-24 - Combat Heritage Foundation Airshow, Holtville, CA. Current & vintage military air demos. 619+280-6699.

CHAPTER 393 MINI-MART

For Sale: Glasair kit. \$10,750. Norm Alumbaugh, P.O. Box 200, Pope Valley, CA 94567. 707+965-2709. 9

For Sale: Glasair RG. Much work done. Price negotiable. Tom Finckard, 415+933-0280. 9

Hangar Space: Half a 40' T hangar at Livermore Airport for sub-lease for 1 1/2 years at \$80/month. Call Lisle Knight, days: 415+524-8844, eves: 415+799-0600. 6

Service Offer: Precision welding (TIG), aluminum, stainless, 4130. Eric Schuldt, 1820 Baldwin Dr., Concord CA 94519, 415+827-0259 7

For Sale: Glasair windshield 3/16". Make offer, Steve Macica, 415+792-7510. 2

Wanted: Anyone who wants someone to share their flying expenses to any of the air events, call Andy Anderson, 415+525-1813. 3

CLASSIFIEDS FROM AROUND AND ABOUT:

Chapter 71, Bakersfield

68x66 Pacesetter prop., used 10 hrs. \$300; 68x66 Great American Prop. still in box, \$335. Jim Furgeson 805+834-3414 after 5.

Chapter 90, Modesto

Runout 65/75 hp Cont, complete, \$800. Mike Williams 209+523-2493. Maxair Duster, 2 place ARV, mint condition. Gene Berry 209+524-1822.

Chapter 124, Santa Rosa

Q2 kit with Revmaster R2100DQ engine, prop., insts., jigs, epoxy pump and back issues of Quickie Builders Assn letters. Bulkheads built, fueslage half done, quality work, asking \$7,500. Jim Horn, work 707+794-3130, home 707+762-9633.

Chapter 338, San Jose
 Seahawk kit, less engine, radio & insts. \$11,000. 408+353-2549.
 Lyc. 0-290-G 125 HP, disassembled, new parts ready, \$1,800, 408+226-9515.
 Starduster Too, Lyc 0-360-A1A, 170 TTSN. 415+948-5812.
 Thorp T-18, 48 hrs. TT, I0360A1A 348 hrs. TT, Genave radio. \$15,000 now,
 or \$17,957 after I fly off & get certified. Gary Niva 408+395-9375.

Chapter 526, Roseville
 C-150, 1970, 760 SMOH, many avionics + hand held, \$9,500. John Croft
 916+791-4835 or Don Heldt 916+791-0770.
 76" Sensenich from Cherokee 180, \$250. Lowell Smith, 916+721-1027.

Join the California Aviation Council. Their motto "Preserving California Aviation", speaks for itself. They can be reached at 1-800-533-1949.

WHAT YOUR ENGINE INSTRUMENTS ARE TRYING TO TELL YOU

Pilots spend a lot of time observing engine instruments both on the ground and in flight. We expect the readings to be normal or in the green range; knowing what the instruments are telling you when abnormal readings occur, can help you to make sound inflight decisions and save maintenance dollars on the ground. Test yourself on the following true/false questions. (Answers appear on the back page.)

1. On the ground with the engine idling at 1000 RPM, when the mixture control is moved from rich to idle cut-off, a drop in RPM occurs without a preceding rise. The idle mixture is adjusted too rich. T. F.
2. During cruise, the EGT indication of one cylinder rises suddenly. This could indicate a fouled plug in that cylinder. T. F.
3. Oscillation of the pointer of a mechanical tachometer probably indicates a malfunctioning propeller governor. T. F.
4. In flight, you note a rise in EGT on one cylinder and abnormally high fuel flow. This could be caused by a partially plugged fuel injector nozzle. T. F.
5. One hundred percent on a turbine-engine tachometer is the maximum RPM the turbine can turn. T. F.
6. Excessively low manifold pressure at idle RPM could indicate an induction system leak. T. F.
7. Fuel pressure gauge fluctuations may be caused by air in the line between the pump and the indicator. T. F.
8. A faulty EGT gauge would cause an increase in the EGT indication of all cylinders. T. F.

- ANSWERS TO THE QUIZ**
1. False - The lack of a preceding rise indicates that the idle mixture is too lean.
 2. True - If a spark plug fouls, the combustion is started on one side of the cylinder only, and some of the gases are still burning when they are forced out past the exhaust valve on the exhaust stroke.
 3. False - It could indicate a malfunctioning propeller governor, but check for the simplest things first. Look for kinks in the tachometer cable.
 4. True - Since the fuel flow indicator for a fuel-injected engine is a pressure gauge reading the pressure drop across the nozzles, a plugged nozzle will give a high reading. The lean mixture caused by a partially plugged nozzle will cause an increase in the EGT for that cylinder.
 5. False - One hundred percent is the rated takeoff RPM for the engine. It is possible for the turbine to exceed this.
 6. False - An induction leak would be indicated by a high manifold pressure at idling. The leak allows the manifold pressure to be more nearly equal to the outside air pressure.
 7. True - Fuel pressure fluctuations may often be cured by bleeding the air from the gauge line.
 8. False - An exhaust gas temperature gauge is a thermocouple-type instrument and is driven by the electricity generated by the thermocouples in the exhaust stack. Any fault in the indicator will cause a low, not a high indication.



THE BORN LOSER

MANIFOLD PRESSURE GAUGES

From Rollin Caler, Technical Counselor #1277.

You may consider adding a manifold pressure gauge to your homebuilt even though it doesn't have a supercharger or a controllable propeller. Some of the advantages are as follows:

1. POWER AVAILABLE FOR TAKE-OFF: Just glancing at the manifold pressure gauge on preflight can give you a very good idea of the power available for take-off. Engine power and aircraft performance are rated at sea level atmospheric pressure (29.92" Hg). This pressure decreases about one inch of mercury per thousand feet. The manifold pressure gauge is an aneroid barometer like the altimeter but measures the pressure in the intake manifold. If your gauge reads 24" Hg sitting on the ramp at an airport of higher elevation, your pressure altitude will be around 6,000 feet.

2. POWER AVAILABLE FOR INITIAL CLIMB: With full power, the manifold pressure gauge will read one or two inches of Hg. less than when the engine is not running. This means that a ramp reading of 24" of Hg. will change to 23" or 22" on take-off and initial climb. If your aircraft has less than average rate-of-climb, you may want to make prior tests at lower elevations by taking-off with less and less power until you determine the minimum manifold reading that you feel is safe under good conditions. Less than ideal conditions, including windy weather, will require more power. Tests of this kind will make the initial forty-hour test period more meaningful.

3. HIGH ALTITUDE FLYING: If your normal cruise manifold pressure is 19" Hg, you can advance the throttle at your present altitude to see how much power is left. If it reads 22" Hg, you can then estimate about what altitude your maximum and cruise manifold pressure will meet.

4. CRUISE POWER: If your aircraft is usually flown at 19" Hg on cross country flights, it is much quicker to set that power upon leveling off after climb-out by use of the manifold pressure gauge than by using the tachometer. Fuel consumption will be fairly consistent with a particular manifold pressure.

5. SAFETY: At cruise, the tachometer reading and the manifold pressure gauge reading should read the same as on previous flights under the same conditions. Engine problems may require a higher manifold pressure for the same RPM.

6. CONCLUSION: The manifold pressure gauge will not replace the Koch chart, aircraft owners manual, computers, etc., but the reading is instantaneous and meaningful.

ENGINE PERFORMANCE LAWS

Do you get the feeling that your engine is not putting out the power it used to? Maybe age is not the problem, but that simple maintenance can correct some of the following conditions. Exhaust leaks can be checked by wrapping a rag around a vacuum cleaner outlet and insert it in the tailpipe securing it with duct tape. The connection doesn't have to be leak free. Make sure your exhaust valve is closed on the cylinder you are checking and you can use a soap-and-water mixture in a spray bottle. Leak check the entire exhaust system. The same procedure can be used for intake systems using the vacuum and soap suds method. We have to assume you have checked the obvious power robbers such as pulling the intake filter and cleaning the ignition wires. You also want to look for worn baffling and be sure that the baffling is sealing tightly, you don't have a hot engine or hot cylinder.

ENGINES - LEAD FOULING

The following are tips taken from Avco Lycoming Service Letter L192A. Copies of the complete letter are available from Information Services - EAA.

After a flooded start, slowly run the engine from high power to burn off harmful lead deposits then reduce the engine to normal power. When parked for any reason avoid closed throttle idle, set the engine at 1200 RPM. The fuel contains a lead scavenging agent that only functions with a spark plug nose core temperature of 800 degrees F. or higher. To have this high a temperature, you

must have a minimum of 1200 engine RPM. Use normal recommended leaning techniques at cruise conditions regardless of altitude and relean the mixture with application of alternate air or carburetor heat. Avoid fast, low power let down from altitude whenever possible. Descend with power when practical. Try to avoid closed throttle landing approaches whenever possible using a slight amount of power. Keep the cylinder head temperature range up by using normal power and leaning. Swap the top and bottom spark plugs every 25 to 50 hours. Top plugs scavenge better than bottom. After flight or ground operations and before shut down, go to 1800 RPM for 15 to 20 seconds, reduce to 1200 RPM then shut engine off immediately with mixture control.

OIL ANALYSIS

I have seen a note in an aviation publication that the O-360-E model engine is having some problems with the tappets and cam and that metalurgy tests on the oil have indicated metal in the oil from tappets and cams with less than 1000 hours of service in seminoles. Another good case for metalurgy tests of oil on a routine basis, particularly in new aircraft and rebuilt engines.

MECHANICAL TIP - SUPER GLUE

Forest Products Laboratory of Madison, Wisconsin doesn't recommend the use of super glue. However, we know it is being used by some as a temporary glue to hold the parts together while they are being worked on. The following tip comes from Jim Edmonds of Lake Charles, Louisiana.

He says that the gap filling thicker super glue sets up in 30 seconds when squirted with a mist of freon. As Jim says, he checked with the FAA and found they don't know how super glue will hold up over the decades. Model planes use it, but they don't usually last long in one piece! It can be used to hold almost anything in place including metal. There are solvents that will also dissolve it and the freon goes under names like "Hot Shot" and I would suggest it as a temporary vise to tack glue things in place while you are working on them and definitely not as structural glue.