The Cleco

Official Publication of the Experimental Aircraft Association
EAA Chapter #393 POBox 272725 Concord, CA 94527-2725

NOVEMBER 1997

CHAPTER MEETING

Meetings normally begin at 7:30 PM on the 4TH Wednesday of the month in the terminal building at the end of John Glenn Drive. Because of the Thanksgiving holiday, this month's meeting will be a week early, on Wednesday, November 19.

The subject of the presentation at Chapter 393's November meeting will be on Aviation Survival Skills. Jeff Fleming and Guy Rasmussen are both involved with the Civil Air Patrol's Search and Rescue operations. Jeff is a check pilot for the Pacific Region incorporating six western states. Guy is a Squadron Commander based in Concord. Both have extensive experience in search and rescue, and first-hand knowledge of incidences where pilots were, and were not, prepared for the emegencies they encountered.

Jeff and Guy will talk about the kinds of situations we might encounter that would lead to the need for survival skills, and discuss the equipment and knowledge we would need to survive. Plan to attend November's meeting. What you learn could just save your life.

Chapter 393 Christmas Dinner/Meeting

Our annual Christmas bash will be on Sunday, December 14, at Petar's in Lafayette. Don't forget to fill in the reservation form in the back of this newsletter and send it to Louis.

CHAPTER MEETING MINUTES

October 22, 1997. President Bruce Seguine opened the meeting at 7:30, the minutes were approved as written in the Cleco. Louis gave the treasurers report and reported that the club has $1000 more than last year at this time, thanks to the raffles which dedicated members **Pat Peters and Traey Peters** put on each month.

The speaker was Tom Richardi from Propulsion Technologies who gave a talk on the Walter Lom engine which he installed in a Glastar.

It was decided to hold the November meeting one week earlier to avoid conflict with the Thanksgiving holiday.

TREASURER'S REPORT

Income:	New Members	30.00
	Raffle	56.00
	Christmas Party	200.00
Expenses:	EAA Calendars	149.75
	Cleco	85.79
Bank Balance:	Checking	**1764.56**
	Savings	**2791.57**
		4556.13

ELECTIONS WILL BE HELD THIS MONTH

November is the month for our bi-annual elections. Nominees at this time are:

President	Ron Robinson
Vice President	Scott Achelis
Newsletter Editor	Doug Page
Treasurer	Louis Goodell

1998 EAA CALENDARS AVAILABLE

The 1998 calendars have arrived. If you signed up for one, be sure and bring $7.50 and pick yours up. Louis has a few extras for those who didn't sign up.

NEW MEMBERS

This month we welcome two more new members, **Patrick Boone** and **Vasilios Petroutsos**. We hope you all continue to attend and will soon be reporting about your projects. Bring your interested friends, too.

BOARD MEETING

Board meetings are held in Bruce Seguine's hangar at 6:30PM on the Wednesday after the chapter meeting. All members are welcome.

FLY-OUTS

A fly-out for lunch is usually held on the Saturday following the meeting. Meet at Bruce and Nancy's hangar on the West ramp around 10:30 a.m. Phone (510) 825-0766.

GOLDEN WEST FLY-IN NEWS

Ken McKenzie reported that the fly-in organization now has a signed memo of understanding from the Castle Joint Powers Authority for the use of the airport for the air show Sept. 25-27, 1998, and also for 10,000 square feet of heated ane air-conditioned office space on the field. An official budget has also been adopted. Next Saturday a work party will be held to clean up the office building and grounds.

MEMBER NEWS

Lisle Knight is still working on his Osprey II. **Charlie Adkins** is putting lots of time on his Skipper flying back and forth from Castle.

Pete & Melody Wiebens and Bruce & Nancy Seguine flew to the Copperstate fly-in. **Lyle Powell** talked about how the FAA has changed over the years, we should be aware that only a small percentage of the FAA's staff now have any aviation experience outside the FAA.

Rick Young, our former member from Arizona, says his latest Rocket may be in the air as early as Christmas. He invited everyone to stop by and visit him at Payson, AZ. His RV-6 is now for sale. **Doug Page** has finished the wiring on his RV6A. He is now looking for hangar space to share.

Harry Heckman is debugging his Lancair 290. It is flying straight now but still has some problems with taxiing which are suspected to be due to a wheel alignment problem.

Dick Rihn thanked everyone who helped him move his One-design wing down from the loft. The main spar has been drilled and the wing mated to the fuselage. He also told us about a U.S. National Champion who lost his life recently doing a roll on takeoff. He reminded us that accidents happen to the best pilots. We must be careful at all times, the main causes of aerobatic accidents are unnecessary showing off, and unrecovered spins.

Ron Robinson now has 520 hours on his Glasair I-RG. He flew his plane down to the airshow at Moffett and found his plane mobbed by a huge crowd of interested people who didn't realize that such beautiful airplanes could be built by individuals.

Visitor **Jack McKenzie** has had a great year; he won his medical back, bought a Comanche, put over 100 hours on it, got his instrument rating, flew to Oshkosh, and now is getting serious about building. He even said he would join Chapter 393. Welcome Jack!

TECH TOPICS

Do You Need an Avionics Master Switch

by Tom Rogers, Ph.D. (trogers@avweb.com)

Almost daily I receive calls and questions about avionics master switches. Do I need one? What type should I use? Most of these questions come from owners of aircraft that didn't have a master switch when originally built, and wonder whether one should be installed now.

Prior to about 1970, few aircraft had an avionics master switch, and for good reason. For one thing, early aircraft didn't have much avionics to protect. I remember years ago when a Mark 12A and a Genave marker beacon was considered advanced electronics. Of course this is not the case today.

Another reason an avionics master was not needed in early years is because vacuum tube radios weren't subject to damage from spikes from the charging system when the aircraft was started with the radios turned on. But all that changed when tubes were replaced with silicon. Try starting the engine with your modern solid-state radios turned on and there's a good chance you will damage your avionics. The damage may not show up immediately, but nevertheless, damage has been done.

Drop-out relays

There are several type of avionics master switches in use today. Cessna's first shot at protecting avionics from engine-start transients, introduced in 1967, was a relay that automatically removed power from the avionics bus whenever you cranked the engine or applied power to the airplane's ground power receptacle. One problem with this setup is that you don't know if the circuit is working correctly or not until radios start to fail. Another disadvantage is that you can't use external power to work the radios, you must use the aircraft battery. Of course, without using an external power source, the avionics technician has a limited amount of time to troubleshoot problems until the battery is depleted.

But the biggest complaint I have with the Cessna avionics drop-out relay is that if the battery voltage is low and you try starting the engine, the relay may fail to energize (or energize only intermittently) and consequently let voltage spikes get into your expensive avionics. Incidentally, many Beech airplanes use an avionics master switch that works by means of a normally-closed avionics drop-out relay, and this system is also vulnerable to the starting-with-a-low-battery problem. Anytime our shop installs new avionics in a aircraft that has this type of avionics protection, I yank out the drop-out relay system and install a "real" avionics master switch. It doesn't cost much, and it's possibly best money you can spend when you upgrade your radios.

Why you need a switch

Your panel of state-of-the-art avionics might represent one-quarter or one-third of the total value of your aircraft. To invest this kind of money and not have proper protection doesn't make economic sense or even common sense.

You might think that you could just turn on and off the radios individually before and after starting the aircraft and wouldn't have a need for an avionics master switch, but that's only half-true. You may be able to turn on and off the navigation and communications equipment, but how about the intercom, fuel computer, glideslope receiver, marker beacon, altitude encoder, HSI, flight director...well the list goes on. None of those units normally have an on-off switch. Their designers assume that the installing agency knows what they are doing and will provide spike protection.

Avionics that have been subjected to voltage spikes often will not show a problem right away, but within time will fail.

Solid-state equipment is very sensitive to voltage spikes and static electricity. When we work on modern avionics in the shop, we have to wear grounding straps on our wrists to protect the avionics from static charges from our body...that's how sensitive this new equipment is. On the other hand, if your avionics is properly protected and the aircraft is properly bonded, you should have years of trouble-free use of the equipment. In fact, most problems related with modern avionics are caused by engine starts and stops with the avionics turned on, excessive heat, or P-Static discharges.

By the mid- to late-1970s, most aircraft manufacturers were including an avionics master switch as standard equipment. By the way, if this switch is getting hard to turn on or off, replace it now! When it fails (and it soon will), you will lose all your avionics. Not a good position to be in. The avionics master switch allows you to control the power applied to the avionics bus, which supplies power to all the avionics circuit breakers.

Switch or switch-breaker?

In some aircraft, the avionics master switch is just an ordinary switch mounted very close to the avionics bus. In other aircraft, where it's mounted further away, a switch-breaker is used. And in yet other models, the switch doesn't control avionics power directly, but instead controls a drop-out relay. (The advantage of the drop-out relay system is that if the switch fails, the relay allows the radios to remain on. The disadvantage is the problem I mentioned earlier when attempting an engine start with a low battery.)

When installing an avionics master switch of the switch-breaker variety, we recommend the switch-breaker be rated about 25% greater than the maximum load the avionics could draw. This allows plenty of protection should the wire from the avionics master switch to, the avionics buss short, and would let you add a few small items in the future to the avionics buss without changing the avionics master switch. Keep in mind that each individual piece of avionics is protected by a smaller circuit breaker (or fuse) which should "pop" if a problem should arise with a particular item of avionics. The purpose of using a switch-breaker as an avionics master switch is to protect the wire going from the switch to the avionics bus, not to protect the avionics themselves.

If one is good, is two better?

Some have asked if it's a good idea to install two avionics master switches in parallel, just in case one fails, so that a switch failure won't knock out all the radios. To be honest, I've never seen an avionics master switch of the switch-breaker variety fail, but I've talked to others who tell me that they have had a failure of this type of switch. I'd say the odds of failure are pretty low, but if you are uncomfortable with only one avionics master then by all means have the shop install a second one. If there's room on the panel (and the second switch can really go anywhere, even in the glove box), the price shouldn't be too expensive. The average avionics master switch-breaker sells for around $60.00 plus installation.

If you have modern solid-state avionics (nav/comms, DME, GPS, fuel flow computer, etc.) then in my opinion an avionics master switch is a must. The few dollars you try to save by not installing one will return to haunt you in repair bills, guaranteed.

Suggestions On Engine Starts

from the "Lycoming Flyer"

An important part of the engine starting procedure is the priming technique involved. Of course, the pilot's operating handbook will specify the steps in starting a specific model engine. However, some of the pilot handbooks may not explain why certain procedures are used in the starting process.

Priming can be best accomplished with an engine priming system, as opposed to use of the throttle. The primer pumps extra fuel directly into the cylinder intake port induction system. Some float-type and pressure carburetors also provide a supplemental source of priming. Lycoming engines of more than 118 HP have a throttle pump which can be used for priming under moderate ambient temperature conditions while turning the engine with the starter.

Pilots should, however, be advised that excessive throttle priming can cause flooding of the carburetor and air box, and result in a fire in the induction system or on the outside where the fuel drains overboard. If the operator floods the engine by pumping the throttle and has a fire, it is possible to handle such a fire in the early stages by continuing to turn the engine with the starter, thereby sucking the fire back into the engine. Furthermore, if there is any fire on the outside of the engine, if the engine starts there is a good chance it will blow out the external fire.

Flooding of the engine without a fire, the operator should open the throttle full and close the mixture; (see Operator's Handbook on mixture) and turn the engine over several times with the starter to clear it; then begin again with a normal start routine.

Most Lycoming fuel injected engines are simply primed by turning the fuel boost pump on, opening the mixture briefly to full rich, and cracking the throttle. Any pumping of the throttle is ineffective until the engine begins to fire.

FROM THE NTSB FILES

NTSB Identification: FTW97LA371

Accident occurred SEP-30-97 at SANTA ROSA, NM

Aircraft: Siai-Marchetti F.260, registration: N260MT

Injuries: 1 Minor.

On September 30, 1997, at 1530 mountain daylight time, a Siai-Marchetti F.260 airplane, N260MT, owned and operated by the pilot, was substantially damage during a forced landing following a loss of engine power near Santa Rosa, New Mexico. Visual meteorological conditions prevailed, and a VFR flight plan was filed for the Title 14

CFR Part 91 personal cross country flight. The commercial pilot, sole occupant of the airplane, sustained minor injuries. The flight originated from Palm Springs, California, about 3 hours 45 minutes prior to the accident. The pilot reported to the FAA inspector that he fueled the airplane prior to departing Palm Springs, California, and he planned to stop at Santa Rosa, New Mexico, for fuel. Approximately 10 nautical miles prior to the Santa Rosa Municipal Airport, the airplane's engine lost power. The pilot initiated a forced landing to a dirt road, which was located approximately 1/2 mile south of Interstate 40. During landing roll the aircraft nosed over and came to rest inverted. Examination of the aircraft wreckage by the FAA inspector revealed that the vertical stabilizer's aft spar was fractured. The right wing's spar was buckled and cracked two feet from the wing tip. The left and right wing tip tanks were damaged, and the fuselage was wrinkled. The nose landing gear was separated at the fork, and the right main landing gear was collapsed. Examination of the aircraft's fuel system revealed approximately 0.5 ounce of fuel in the carburetor. There was no fuel in any of the fuel tanks. There was no fuel in the fuel line from the fuel tanks to the firewall; however, the fuel line from the firewall to the gascolator was full of fuel. The line from the gascolator to the carburetor did not have any fuel. Examination of the accident site revealed no evidence of fuel spillage.

NTSB Identification: LAX98LA025

Accident occurred OCT-11-97 at DESERT CENTER, CA

Aircraft: Ciernia GLASAIR-4, registration: N1535C

Injuries: 1 Uninjured.

On October 11, 1997, at 1315 hours Pacific daylight time, an experimental Glasair III, N153JC, made a forced landing near Desert Center, California. The aircraft sustained substantial damage; however, the pilot, the sole occupant, was not injured. The aircraft was being operated as a personal flight by the pilot/owner when the accident occurred. The flight originated in Gilbert, Arizona, at 1130. Visual meteorological conditions prevailed and no flight plan was filed. The pilot reported that he was cruising at 10,500 feet msl, when he experienced an electrical failure. He executed a forced landing on a dirt road about 7 miles northwest of Desert Center. An inspection of the aircraft revealed that it was equipped with a dual electronic ignition system that did not utilize magnetos.

CHAPTER 393 VIDEO LIBRARY

We have recently acquired the ESPN production covering EAA '95. This video will be in the library for the June meeting. The complete list of titles is listed on the box which is brought to each of our meetings. Check out the offerings and, if something interests you, CHECK IT OUT. The rules for the library are very simple. It is run on the honor system. You sign out for the tapes you borrow; and you return them at the next meeting so they are available for others.

NEWSLETTER SUBMISSIONS

All contributions for the newsletter are welcome! If you have something to say or share with the rest of the club members, do it here! Please submit any articles and/or photographs you think others will enjoy and learn from. Submissions should be done in writing and mailed directly to the newsletter editor. Submissions may be **e-mailed**, hand written, typed, or on any IBM diskette (in ASCII or MS Word). The deadline for submissions to the editor is the 14th of every month (newsletter is produced and mailed by the 17th). The editor's e-mail address is: **rab@netcom.com**.

EVENT CALENDAR

Nov16 **PANCAKE BREAKFAST**
9:00 a.m. to Noon
Everyone is Welcome!!
Fly-In or Drive Over!
Sponsored by the Mt. Diablo Pilot's Association MDPA Club House, Buchanan Field Airport (CCR), West Side, 200 Sally Ride Drive (510) 685-7073
Pancakes, Sausage, Juice, and Coffee $4.00 (members and non-members) Bring your family and friends!! Fly-in and park right in front of the Club House in our spacious, paved tie-down area. Just ask the tower to taxi to MDPA for breakfast!

Dec 14 **Chapter 393 Annual Christmas party at Petar's.**

CLASSIFIED ADVERTISING

Items for sale by club members may be placed in this newsletter for **FREE**! *Please submit your **FOR SALE** items to me in writing no later than the 14th of the month. Normally, your ad will run for two issues, unless you request more or tell me that the item is no longer for sale.*

Wheeler Express Kit

4 place, fixed gear, approximately 200MPH cruise, uses engine up to IO540, Cost $20k originally, asking $10k. This kit was donated to Solano Community College. eontact Paul E O'Hara, 707-864-7154.

EAA Christmas Dinner

All members, Spouses, Companions, Guests, and Others welcome
Sunday, December 14, 1997
No Host at: Petar's
32 Lafayette Circle
Lafayette , CA

Friendship Hour: 1730 - 1830 hours

Menu: Prime Rib, Chicken or Salmon, with salad, vegetables, rice and Dessert. $20.00 per person.

Mail your check and this order form to :

EAA Chapter 393
P.O. Box 272725
Concord, CA ~~94547-2725~~ 94527-2725

All reservations must be received by December 5 **(but reserve early so that you are at the top of the list).**

If you have any questions, Please call Louis Goodell @ 682-4198

Menu Item	Number	Price	Cost (# times price)
Prime Rib		$20.00	
Chicken		$20.00	
Salmon		$20.00	
Total Enclosed			

Name(s) of attendee(s)
NOTE: Please enter the full name of each attendee as you would like it printed on his/her name tag .

_____
_____
_____
_____

THE EXPERIMENTAL AIRCRAFT ASSOCIATION
CHAPTER #393 NEWSLETTER, NOVEMBER 1997

President:	Bruce Seguine	671-4943
Vice President	Bruce Hobbs	757-0618
Secretary/Treasurer	Louis Goodell	682-4198
Newsletter Editor	Bob Belshe	376-7677

EAA Chapter #393
Newsletter Editor
122 Fairfield Place
Moraga, CA 94556

(46) Dues paid to 4/28/98

Harvard H. Holmes
946 Shattuck Ave.
Berkeley,CA 94707

Next meeting Wednesday November 19, 1997