



THE GRAPEVINE



EAA CHAPTER 663 Livermore, California

Vol. XXVI, No. 1, January, 2007

There is a very fine line between "hobby" and "mental illness."

OFFICERS

PRESIDENT	BOB FARNAM	449-1513
VICE PRES	BRAD OLSON	866-9289
TREASURER	BARRY WEBER	454-0627
SECRETARY	SCOTT ALAIR	416-0889
PROGRAM CO-ORD	BRAD OLSON	866-9289
TECH COUNSELOR	GORDON JONES	447-1549
TECH COUNSELOR	BOB SINCLAIR	935-7465
NEWS LETTER	JOHN MEYER	455-1631
FLIGHT ADVISOR	BARRY WEBER	454-0627
FLIGHT ADVISOR	BOB FARNAM	449-1513
YOUNG EAGLES	ERIC HELMS	373-0137
LIBRARIAN	ALAN THAYER	582-7274
WEB EDITOR	RALPH CLOUD	449-1048

BOARD OF DIRECTORS

BRUCE CRUIKSHANK	510-886-6897
RALPH CLOUD	449-1048
HARRY CROSBY	485-9359
ERIC HELMS	373-0137
BILL JEPSON	408-929-1123
GEOFF RUTLEDGE	650-462-1126

MEETING AND PROGRAM

Our January meeting will take place at 7:30 P.M. on the 4th of January in the Terminal Building at the Livermore Airport. January's speaker will be Earl Minkler of Valley Machine. Earl's talk will start at the airport terminal, where he will provide helpful tips and pointers for working with aluminum. Earl will then open his machine shop near the airport for a tour! Earl has fabricated parts for many of us, and does great work for reasonable prices.

**MINUTES: GENERAL MEETING EAA
CHAPTER 663, 12-7-06 7:30 PM LVK
TERMINAL BUILDING**

Guests: Bill Spencer and Bob Beebe.

Treasurer's report: Our new treasure reported chapter funds at \$3,196.00.

Business: Ralph Cloud reported that Pay-Pal has been discontinued from our chapter web site.

Dick Jennings was awarded his private pilots license in November so he will now be able to pilot his RV-6 when he has completed construction of his bird.

There were a **flurry of first flights** reported at the December meeting: Jim Bryan made his first flight in his RV-4 in June, Mark Heidenreich flew his Rans S6 Coyote for the first time on August 23rd and Mark Goroff flew his Sparrow Hawk autogyro on its maiden flight on November 18th. Congratulations to all!

Barry Weber took a list of names for members that want an EAA 2007 calendar.

Break at 8:15

Program: Kregg Victory of Victory's dynamic propeller balancing gave an educational talk with charts and graphs showing why you need to have your prop dynamically balanced. Kregg also had a small electric motor with an out of balance prop demonstrating how at certain rpm, harmonics can really get things vibrating. Kregg is based at the Reid Hill View airport.

Meeting Adjourned for pie at 9:30.

BOARD MEETING: 12-21-06 BOB FARNAM'S PLACE

Present: Bob Farnam, Brad Olsen, Barry Weber, Scott Alair, Ralph Cloud, Bruce Cruikshank, Harry Crosby, Eric Helms and Dick Jennings.

Treasurer's report: Barry Weber reported \$3,250.00 in chapter funds; Barry and Bob Farnam went to the bank and moved the chapter checking account to a local Bank of America

branch.

Business: The board members chose the following food for the January dinner: Tri-tip Roast, Chicken Stroganoff, Caesar Salad, Vegetable tray, 3 bean Salad, Garlic mashed potatoes and Peas.

Ralph Cloud and Eric Helms volunteered to get drinks and dessert for the dinner.

The board finalized the the list of equipment needed for the January dinner.

The board decided our treasurer Barry Weber will keep a current list of paid members.

A motion was passed unanimously for **membership dues to be paid by January 31st** each year or your membership will expire.

Eric Helms is going to hang vinyl banners on the side of his hanger to advertise Young Eagles events.

The board finalized the **list of 2006 first flights** for the plaques to be given out at the January dinner.

Ralph Cloud showed the board drawings of two new gates to be built on the side of the airport to align with the new development on the south side of Jack London road.

Adjourned for pie at 9:00.

(The following is presented to stimulate thought and discussion, the author IS NOT an authority on the subject, but he's trying to learn and this is what he's learned so far. *ye Ed.*)

BUYING A PROP IS SIMPLE AND FUN!

By Neil Clayton

(Buying my prop - things I've learned.)

Here are a few things I went into this prop purchase exercise not knowing!

1) Two props from different manufacturers, but both called 70 x 87 for instance, will behave quite differently because diameter and

pitch are only two of many variables that affect total prop performance. Among other variables are airfoil cross section, tip architecture, chord, laminar vs turbulent flow, surface finish, leading edge condition, entry air characteristics, spinner recovery efficiency, aircraft on which the prop is mounted, bolt torque, blade taper and lift distribution.

2) Different manufacturers measure prop pitch differently. Some measure prop progress-per-rev in still air without slippage, others put a slip factor in their equation. There's no one agreed-upon equation across the industry. So "87" pitch props from two different manufacturers are not directly comparable.

3) Wooden props have much more margin for manufacturing errors than metal props. An 87" pitch prop at the high end of it's error tolerance range, might actually overlap dimensionally with an 88 prop at the low end of it's tolerance range.

4) Three blades create higher drag losses than two blades for the same power consumption. (But, subjectively, they are smoother in flight, particularly in pusher configurations. *ye Ed.*)

5) Three blades are generally heavier than two blades, but that might be an advantage in increasing flywheel effect to tolerate torsional vibration.

6) Two blades will convert engine output into thrust more efficiently than 3 blades.

7) At any one moment the firing cylinder is producing more than 50 HP assuming 200 HP/4 cylinders because the other 3 cylinders are net absorbers of energy at that instant, as well as the prop. So the torsional pulses on the crank are HUGE! These torsional pulses are transferred to the prop. A wooden prop can absorb torsional shocks "better" than an

equivalent metal prop where fatigue will be more of factor.

8) There's a lot of "art" associated with prop design and manufacture, where experience counts proportionally more than in other industries. Also the science is so fuzzy, that evidence to support any opinion can be found. I discovered prop selection is very subjective.

9) Different manufacturers use a wide range of surface finishes making a prop more or less tolerant to changing seasons and ambient weather conditions. Even the humidity on the day of manufacture counts.

10) The same prop on two examples of the same plane will behave differently.

11) A wooden prop with poorly torqued bolts will fail by burning at the hub. The torsional pulses cause movement between the driving plate and the prop, and the resulting friction causes burning.

12) Wooden props need to be re-torqued seasonally. (At least! ye ed)

13) Over torquing prop bolts can crush the hub. A crushed hub is not necessarily a write-off. The crushed material can sometimes be rebuilt at the factory to original hub dimensions.

14) Wooden props have been known to last 30+ years if properly cared for.

15) Hot exhaust gas impingement is rarely a cause of failure. (This is a factor on pusher A/C, not on RVs and the like.)

16) Props are statically balanced, but NOT generally dynamically balanced, since dynamic balancing is intrinsically linked with the final rotating assembly, including prop extension, bolts, crush plate, spinner, etc.

17) Saber Manufacturing is commonly held in very high regard across prop manufacturers.

18) Pressure recovery spinners (like the "Hershey's Kiss" shape) can add 6-7 MPH top end performance on canard aircraft. (Note that Gary Hertzler said his was only 1 or 2 MPH !!! It must depend on the design of the blade root.

19) The number of laminations that go into the thickness of a prop is directly related to the blade stiffness. Lower stiffness (fewer laminations) is desirable in a wooden prop to aid in vibrational tolerance. So while many layers might result in a cool looking final product, fewer layers are better for engineering considerations. (You could probably get a rip-roaring debate going on this subject. ye Ed)

20) No manufacturer I spoke to or visited was concerned about primary resonant frequencies in the prop extension in the operating speed range.

21) Far from being a dying industry, wooden props are used by the military for some of the latest UAV's.

22) UV has an effect on prop life. Props not hangared should be protected from sunlight.

23) Props with damaged leading edges can be repaired by re-pouring the epoxy-like leading edge material.

Just because it's an EXPERIMENTAL, doesn't mean the laws of physics don't apply.

HOLIDAY DINNER, OTHER CHAPTERS TAKE NOTE!

THE BOARD DECIDED TO **ALLOW NON-CHAPTER MEMBERS** TO COME TO THE JANUARY 20TH CHAPTER DINNER TO HEAR

OUR GUEST SPEAKER, **CLAY LACY**. THE COST OF THE DINNER IS \$25.00 PER PERSON AND WILL BE LIMITED TO THE FIRST 100 PEOPLE WHO PAY THE TREASURER, DUE TO THE SIZE OF THE ROOM AT THE ROBERT LIVERMORE CENTER. THE LAST DAY TO PAY FOR YOUR DINNER IS JANUARY 13TH IN ORDER TO GIVE THE CATERER A HEAD COUNT FOR THE FOOD.

THE MENU

Beverages:

Assorted wines, soft drinks and others

Hors D'oeuvres:

Swedish Meatballs & Tortilla Pinwheels

Entrees:

Tri-tip Roast & Chicken Stroganoff

Salads:

3 Bean Salad, Caesar Salad & Veggie tray,

Side Dishes:

Garlic mashed potatoes & Peas.

Desserts:

Assorted pies

Nonmembers wanting to attend should contact Barry Weber at (925)-454-0627 and make their reservation. Members wanting to bring guests should also contact Barry.

THE DIRECTIONS to the Robert Livermore Center, 4444 East Ave, Livermore, CA:

From I-580/Airport Blvd, on I-580 EAST - go 2.3 mi. East,

Take the N LIVERMORE AVE exit - go South 1.8 mi, Bear LEFT on EAST AVE - go 1.3 mi East Arrive at 4444 EAST AVE, LIVERMORE, on the LEFT. Park in the lot.

In case you forgot to read last month's newsletter, here's the scoop on Clay Lacy:

CLAY LACY

Clay Lacy is a native of Wichita, Kansas. He started flying at the age of twelve, and in January 1952, at age 19, he left Wichita to join United Airlines as a copilot on DC-3 aircraft. In January 1954 Clay took military leave from United Airlines to attend Air Force Pilot Training. After completing F-86 Gunnery School in August 1955, he returned to United Airlines and continued flying military fighters and other aircraft with the California Air

National Guard.

One of the first pilots to receive a Learjet Type Rating in November 1964, Clay was the Manager of Learjet Sales for California Airmotive, the Learjet distributor in the seven Western United States.

With his exclusive Astrovision equipped Learjets, Clay does almost every airline commercial filmed, and most Hollywood aerial filming. A few of the films that Clay provided all the aerial sequences are, "Top Gun" "Flight of the Intruder" and "The Great Santini", and much of the photo work for the aircraft industry and military.

With over 50,000 hours as a pilot, Clay holds an Airline Transport License with thirty (30) type ratings, helicopter, seaplane, flight instructor and flight engineer. He retired, Seniority Number One, from United Airlines on August 31, 1992 after 40 years and 7 months. At the time of his retirement, Clay was flying the Boeing 747-400 Los Angeles to the Orient.

On January 28, 1988, Clay flew a Boeing 747SP around the world in 36 hours 54 minutes, establishing a New Around The World Speed Record and in so doing, raised over \$500,000 for children's charities.

In addition, Clay has done test flying, making first flights on the original Pregnant Guppy, the STOLIFTER, the GENIE and the TRI - DC 3.

The man who once said, "I have seldom met an airplane I didn't like", was singled out by *Professional Pilot* magazine as the ideal person to evaluate the latest and the best contributions by the Aviation Industry. *Professional Pilot* engaged Clay as an experienced advocate for both pilots and operators, and arranged to have him flight check and editorialize about the many new aircraft in this exciting marketplace, over 40 to date, Clay began writing his editorials and commentary for *Professional Pilot* in May of 1997, and after dozens of byline articles, has been repeatedly voted the most popular writer, year after year.

Clay Lacy Aviation is one of the oldest Jet Charter Companies in the U.S., operating over 40 Jet Aircraft from Lear 24s, 25, 35, 55, Hawker, Challenger, Gulfstream II,III,IV,V, Boeing 727s, and a BBJ.



SEEN RECENTLY AT PAINE FIELD, WA.

EAA CHAPTER 663 MEMBERSHIP APPLICATION/RENEWAL FORM

NAME _____ NEW () RENEWAL () DATE _____

ADDRESS _____ CITY _____ STATE _____ ZIP _____

E-MAIL ADDRESS _____ HOME PHONE _____ WORK PHONE _____

FAX# _____ WORK FAX# _____ EAA# _____ RATINGS _____

PROJECT _____ FLYING? _____ HOURS _____ E-MAIL _____

SKILLS, PROGRAMS, I CAN GIVE, ETC. _____

NEED A NAME TAG YES () NO () NAME TAG INFO _____

HANGAR No. _____ SPOUSE'S NAME _____

Please give or send this completed form with a \$30 check (**No cash**, please) to:

Barry Weber
4136 Guilford Avenue
Livermore, CA 94550



Meet Clay Lacy in person at our holiday party, January 20, 2007!



EAA CHAPTER 663
11700 Tesla Road
Livermore, CA 94550
JMeyerEZ@ewnet.net
eaa663.org