BRAZOS AREA RECREATIONAL FLYERS BRAGGING AND GOSSIP

EAA Chapter 983 Newsletter
December 2003

EAA Chapter 983, P.O. Box 5191, Granbury, Tx. 76049
Website http://www.eaa983.org

Chapter 983 meets on the second Saturday of each month at 10:00 AM. in Ken houseman's hangar. N.E. corner of Pecan Plantation Airpark.

Air Salvage of Dallas <--Click!

December Program: Christmas Party, Pecan Clubhouse

January Program: Sam Tilleman, Saber Manufacturing, Do's and Don'ts of Props & Extensions

New Officers:

Dick Jones, President; Dave Christman, Vice President; Steve "Nine-Finger" Wilson, Treasurer; Bill Steppling, Secretary were nominated and voted in by acclamation..

November Minutes

Prez Gary Bricker welcomed new members and visitors:

Brian Jones, V.P. Dicks Jones' son, up from Houston. Brian has an RV8 that he races in X-C races. Julie and Bruce Jackson and Ridge Dickey, who is building a Lancair with the help of Larry Henney.

Treasurer Karen Jensen

reported the Chapter funds at $4609 with the only upcoming expenditure being $750 for the Christmas Party band.

Some late Fall Fly-In notes.

Thanks to Secretary Jackie Bricker for doing such a fine job running Kidsville. There apparently was an injury to Chef John Bunn which had something to do with a blonde visitor.. Anyone with particulars (her name, address, etc.) should forward them to me and I will begin an in-depth investigation. We simply cannot have our cooks standing around with goofy looks on their faces and drooling over the grill. It's a health code thing!

Several members said that a hand held bullhorn or P.A. system for the fly-in is becoming necessary..

A reporter from the Dallas Morning News was at the fly-in and if anyone saw an article let Gary know. Dave C. praised Gary Bricker for his non-stop work during the fly-in, a year after heart surgery! *Dave did mention to me privately that since Gary didn't have any chest pains , he could have worked harder.*

Project Updates:

Steve Mottin is finishing up his ailerons and flaps. The fuselage kit is due in December. Ray Naspany is expecting his fuselage kit in December as well. Dick Keyt is getting ready to lay up his fiberglass cowling in the plaster cast of the original. Mack Angel has begun his restoration on his '53 Corvette which almost qualifies as an airplane. Tech counselor Jerry Althouse is about 40% finished with his gyroplane and invites everyone over to look at it. New member John Paul has his RV6 flying.. Roe Walker and Les Staples are partnering on rebuilds of a Wittman Tailwind and a Mini-Max. Doug Crumrine has been doing electrical work on his Eagle II as well as practicing for the upcoming aerobatic competition season. Rich Chiappe announced that he is offering all or half of his Starduster II for sale.

Sam Tilleman reports

that landing at Nassau Bay is a day-to-day proposition due to flooding. Call before you land there.

The Christmas party

will cost $35 per person. Call Gloria Wilson, Donna Christman or Marilyn Satterwhite for tickets. There will be a cut-off date but it's not known yet.

Steve Wilson guarantees

that the lack of a tenth digit will not hinder him in his duties as our new treasurer. Actually he's only missing a half so he'll probably be good at fractions..

The meeting was well attended

and like always the breaks were the most vibrant part of it. As I walked around I heard an endless supply of questions and answers about; riveting, fuel injection, radios, engines, etc. This is exactly what an EAA chapter is supposed to be about.

New Newsletter Editor:

It's been two years, my term is up and so this will be my last issue as the newsletter editor. The most able, Scott Correa, will be taking over. I'd like to thank all of you for being so helpful in providing articles, companionship and direction in putting this publication out. When I was asked to do this two years ago, I was quite apprehensive and wasn't sure I'd be up to the task. Writing? I hadn't done that since high school English and where the computer is concerned 'cut and paste' brought back Kindergarten memories and not

much else. Like every job in the chapter, I was helped and nurtured by the experienced ones who had gone before and soon it became easy. People like Marv Jensen, who publishes the newsletter, stepped up and made life simple. But, far and away the best part of the last two years has been the opportunity to meet so many incredibly motivated and talented people, talk to you about your projects, poke fun and in general have a good time. I don't think there is a job in the Chapter which is as rewarding and, as a byproduct , compels you to learn so much and get to know so many. It has been a privilege and an honor to have had this job and to have met all of you.

Thanks,

Damon.

Notams

*Carol Chiappe reports: "This morning as I left for my walk at 6:45 a.m. there were several deer grazing on the mid-field western edge of the runway (Pecan) . I chased the ones in my yard but was able to walk over within ten feet of one with antlers grazing behind Sasser's. They are not scared of humans like they used to be. Three early morning pilots took off during my walk. These pilots need to be aware of the ever increasing risk of deer on the runway. I just pray a deer and airplane never meet.."

*Granbury Municipal has changed its identifier. The new three letter code is **GDJ**

*EAA AVIATION CENTER, OSHKOSH, Wis. - (Nov. 13, 2003) - The largest youth aviation initiative ever conceived has reached its lofty objective, as the Experimental Aircraft Association's (EAA's) Young Eagles Program reached its goal of giving 1 million young people a free demonstration airplane flight by the centennial of the Wright brothers' first flight on Dec. 17, 2003. Andrew Grant, a 15-year-old high school sophomore from German Valley, Ill., was registered as Young Eagle No. 1,000,000 this week, with the official announcement made by EAA President Tom Poberezny during a news conference today at the EAA AirVenture Museum. Grant was flown on Oct. 25, 2003, by pilot Rick Ellis (EAA #469164) of Freeport, Ill., who has flown more than 860 Young Eagles since 1995.

*Bill Steppling will have his Rans ready for it's first flight on December 17th, the 100th anniversary of flight . It's a bit of a delayed launch as Bill could probably fly today if he so chose.

*I have a listing of the websites of just about all the aviation museums in the country organized by state. If you would like a copy or an address just give me a call. Some of the sites are outstanding and are the next best thing to visiting the museum itself.. *Damon*

* Roe Walker is still looking for the owner of binoculars left at the Fly-In.

* Nice article in the Chapter 59 (Waco) newsletter about our fly-in. Go to www.waco-tx-eaa.org to read it and see photos of several familiar, local airplanes.

Flight Test Results, and Other Related and Unrelated Ramblings About My GlaStar, N953LC

by Lee Clements

The following is a collection of flight test data and related (and some not related) ramblings about finishing

up my GlaStar project. The purpose of this is to provide some insight and thoughts into my project, particularly flight testing, and for others to compare information.

Configuration

Tricycle gear

O-320-D1A, 160hp Lycoming, modified to accept a fixed pitch prop

74x65 Sensenich propeller

30 gallon fuel capacity, including ½ gallon in left & right header tanks

1226 lb empty weight, CG 95.75 inches, 14.4% MAC

Day/night VFR

Vacuum instruments

MicroAir VHF comm

MicroAir Transponder

Rocky Mountain Engine Monitor

Rocky Mountain Encoder

The Inspection…

The FAA (Fort Worth MIDO) inspected the airplane on May 1, 2003. The FAA was very helpful in this process. I experienced none of the horror stories about having to wait months for an inspection, nit-picky inspectors, etc. The inspection was timely and to the point. The message here is to be up front with the inspector when discussing plans on the phone, and be completely prepared for the Inspector when he arrives at the plane. Having a clean, organized shop helps makes a good first impression, as the Inspector mentioned to me more than once. A 25 hour flight test period was assigned. The flight test area was defined as a 50NM radius of Mineral Wells Airport (MWL) with takeoffs and landings restricted to home base at Hicks Airfield (T67) and MWL. The T/O and landing restriction was an interesting situation that was apparently non-negotiable. It's a kinda funny story for another time.

Preparations for First Flight…

The ability to get some stick time in another GlaStar was a huge benefit in preparing for the first flight in my plane. Local GlaStar builder and fellow EAA chapter member, Willie Bennett (N345BP), was gracious enough to let me fly with him in his plane for about 5 hours. This time was a tremendous confidence builder. It also helped convince the insurance company that I was serious about safely flying my plane. Sky Smith ended up being the best buy on insurance. They were also one of the few brokers that would give me the time of day considering my relatively low flight time which brings me to my qualifications.

My Pilot Qualifications…

Private Pilot, SEL, Glider

I think my flying experience is important to note because it goes to show that a low time, less than proficient (current) pilot, that takes the time to do things properly can safely and confidently fly this airplane. I hope others short on flying experience find this encouraging.

Total time at first flight was around 200 hours, but over 23 years. Time in the last 12 months was limited to a biannual flight review in a C172, a few hours in the right seat of my neighbor's A-36 Bonanza on few business trips (not exactly comparable to the GlaStar, but fun!), and the 5 hours in Willie's GlaStar.

The First Flight…

First flight took place on May 23, 2003 at Hicks Airfield (T67). The flight lasted about 35 minutes. All went smoothly and according to plan. A flight test plan was put together with the help of EAA Flight Advisor and chapter member, Don Saint. The plan was well coordinated ahead of time and was probably the main reason things went so smoothly and with the lowest possible level of anxiety. The plane was parked after the 1st flight with literally no squawks. Inspection found a couple of leaky valve cover gaskets and a blown out engine baffle seal. The plane flew straight and level with no hint of a heavy left wing that many before me have commented on.

The Second Flight…

The second flight two days later is where the anxiety hit me. On the first flight, I had a small group of experienced helpers following me around on the ground and in the chase plane making sure everything was right and coaching when needed. I was by myself on the second flight. No one was there coaching me and it was lonely job to make sure the plane and I were ready to go. All went well. Wheew!

Flight Test Results and Performance Numbers…

The twenty-five hour Phase 1 flight test period was satisfied on September 20, 2003.

My main objectives during the 25 hour period were:

1. Learn to fly the airplane and become comfortable with it.
2. Validate the airspeeds published in the flight manual.
3. Confirm controllability and handling characteristics throughout the CG range.
4. Begin to collect cruise performance figures.

Note: Data collection on airspeeds refers to indicated airspeed in MPH unless noted otherwise. All data collection was done single handedly and repeated several times to confirm repeatability. This was not an easy task. A voice recorder would have been a good investment!

- Normal liftoff speed is 55-60 MPH
- Vy = 90 MPH
- Vx = 78 MPH
- Rate of Climb at Vy = 1250 ft/min solo and ~1600 pounds
- Stall, no flaps = 56MPH at ~1600 pounds
- Stall, ½ flaps = 50 MPH
- Stall full flaps = 47 MPH
- Best glide = 80 MPH

    1. altitude lost in 180 turn, 30° bank = 300 feet

    2. altitude lost in 180 turn, 45° bank = 375 feet

3. horizontal distance covered in 1000 feet descent = ~3.3 statute miles (need to repeat these tests to validate, plus I recently stumbled onto a GPS derived glide ratio capability in my Garmin 196, but haven't had the chance to explore.)

- CHT = 190° C in cruise at mid to high 90° F ambient temperature. #3 cylinder was consistently 10-20° C higher than the other three cylinders for the first few flights. #3 CHT approached max limit during climb on hot (97° F+)days. All CHTs came down by about 15° C after 15 hours of flying than what was experienced during the first few flights on the factory new engine. The cowl flap was opened another 1/4" with no noticeable change in CHTs or airspeed.
- EGT - #2 cylinder peaks first
- Aux Temp Probe at gascolator = 60° C (ambient temps in high 90s)
- Fuel consumption = ~7.0 GPH at 65% power. (still tweaking flow sensor)
- Cruise performance at 2350 RPM (~65% power), 7,000 ft MSL = 137 MPH true, 121 indicated, 6.9 GPH
- Cruise performance at 2450 RPM (~75% power), 7,000ft MSL = 143 MPH true, 127 indicated, 7.3 GPH

Note: Power settings are probably less than shown. I do not have a manifold pressure gauge to aid in calculating power at altitude.

- Full throttle speed at 2700RPM 7,000ft MSL = 166 MPH true, 148 indicated, 10.6 GPH

Note: RPM will sneak past 2700 limit, 2750 RPM is the highest seen before retarding throttle slightly, probably will not exceed 2800 ROM.

- Take-off roll (~1600 lbs, solo, hard surface runway, ~80° F)

1. ½ flaps (std. takeoff configuration) = 400ft

- No trim tabs, control surface rigging changes needed.
- Ailerons are on the heavy side, as others have experienced

1. Loosened aileron crossover cable turnbuckle by ½ turn. This improved aileron feel somewhat. Might try another ½ turn soon. Will probably install the NG aileron servo tabs when available. Pitch vs roll forces felt in the stick are not in harmony.

- Overall conclusion is the plane meets the performance in the POH. Ailerons are a bit heavy. Fuel tank vents with full fuel are a pain on the ground.

Yet to be explored:

- Service ceiling
- Full aft CG
- Gross weight

What I Learned During Flight Test…

I learned four important things during the Phase 1 flight test. Number one, it took about the first five hours to convince myself that none of the big pieces would fall off in flight. Number two, it took about the first ten

hours to convince myself that the engine wouldn't quit or run badly and I really could fly away from the airport with confidence and expect to return. I also learned that it takes about ten hours to just get comfortable in a new airplane. Finally, complete flight testing will take more than 25 hours.

If I Had To Do It Over Again…

There are a couple of things I would have changed on my airplane if I had to build it over again. First, I would have added the optional aux fuel tanks in the wing tips. Even though, my typical mission doesn't require the additional fuel, the tanks would provide an extra margin of comfort in some cases. The tanks are retrofittable and I may still add them as a future upgrade. Second, I probably would have gone to an all electric panel and done away with the vacuum system were I to build again. The instrument panel was probably the area where I gained the most education during this project. I was a little afraid of getting too "exotic" with the panel due to my lack of knowledge in such things, but that turned out to be not much of a problem. Available funds were also a consideration in the panel design (panel stuff is expensive!). When asking others for panel advice, the responses were always interesting and sometimes entertaining. I learned panels are very personal to their builders/owners and strongly defended. I like my VFR panel, but one change I would likely make if I had to do it again is I would seriously consider changing to a different engine monitor. Don't get me wrong, there is absolutely nothing wrong with the Rocky Mountain Instruments engine monitor that I built. It is a very capable and easy to use unit (more so than a lot of units). My only complaint is that it only reads temperature in Centigrade which I didn't realize when I bought it. I still need to look at a conversion scale to see if I'm hot or cold!

What I Really Liked About My GlaStar Experience…

I thoroughly enjoyed the building process. I found it quit relaxing. I believe much of the relaxation can be attributed to two promises I made to myself and family at the beginning. First, no completion schedule. It's going to take what it takes. Second, no borrowed money. This is a pay as you go proposition.

The Kit Company…

The kit company, originally Stoddard Hamilton, was easy to deal with, although, they also created the biggest let down along the way (see Surprises below). The lesson here is to know your kit company well, look into their operation, visit them (unannounced, if possible), get to know their management style. I found personalities have a lot to do with how a company is perceived and are not necessarily an indicator on how well it is run. Don't discount first impressions.

Overall, the quality of the kit was very high and very complete. The only real technical issue I experienced occurred well into the project when I discovered that a flap pulley bracket was factory welded to the cage way out of alignment. The weld was of high quality, it was just in the wrong place. I didn't get the chance to pursue this with the kit company because of the bankruptcy. A solution was copied from Werner Schneider, a Swedish GlaStar builder who had the same problem. The assembly manuals are probably the best in the business and, I believe, go a long way to increasing the odds a builder will actually complete the project. They are not perfect, however. That's were GlaStarNet comes in.

The Most Bang for the Project Buck…

This project's most bang for the buck award goes to the GlaStarNet and GlaStar site on the Internet. Huge volumes of ideas, tips, experiences in building and flying GlaStars are shared willingly. It was also the unofficial conduit for reliable bankruptcy information (and opinions) in the dark days. This service was started by Sid Lloyd who at the time was building one of the very first GlaStars kits near Houston. I like to think I contributed a least a little info in the early days when Sid was searching hard for content. I was soon

passed by in building progress by others and began using more information than I could contribute. Sid has since turned over the reins to the very capable Dave Prizio.

Surprises Along the Way…

Without question, the biggest surprise on this journey was the bankruptcy of Stoddard Hamilton. I thoroughly did my research before selecting this plane and felt more than comfortable in building their product. After all, how could one go wrong with one of the (then) oldest and most reputable kit companies in the business? I was very fortunate that I was not harmed financially. However, the experience taught me more than I care to know about US bankruptcy law, particularly that the "little guy" doesn't stand much of a chance. The bankruptcy did create some parts problems for me, but I was able to work around them thanks to Van's Aircraft (I have one of the few GlaStars with a RV air induction system) and part supplier leads on the Internet. Hindsight being what it is, there were definitely a couple of red flags (one personal observation and one odd money related event, both didn't mean much at the time), but they didn't appear until I was already well committed to the project. Fortunately, the GlaStar and Glasair lines are available again and supported through a new company. I have had minimal exposure to New GlaStar LLC, but all indications are that things are back on track with kits, support, new products, etc..

The Quickest way to Irritate a GlaStar Owner/Pilot…

Compare it to a Cessna, e.g. "It's just a C150 with a big engine", or, "It's just like a homebuilt C172", or "It's just a cleaned up Cessna." I can now speak from experience, "This is not your father's Cessna!" The GlaStar climbs better than a Cessna, it cruises better than a Cessna, it uses less fuel than a Cessna, it for sure doesn't slow down like a Cessna", and "replacement parts don't cost as much as a Cessna." Ok, I'll give you that it is easy to learn to fly like a Cessna. People sometimes 'accuse' me of not building my plane since the GlaStar kit airplane looks like its European production cousin, the OMF Symphony. Aargh! I'll have to admit, though, seldom does a top off at the pumps go by without someone offering a favorable or complimentary comment about my plane.

Special Thanks and Appreciation…

- Thanks go to fellow local GlaStar builder, Willie Bennett, for allowing me to fly his plane to help prepare for my first flight and borrow his custom GlaStar trailer to move mine from home to paint shop to airport. Thanks!!

- Thanks to EAA Chapter 983 Technical Counselors Kevin Ross and Gary Green for driving out to my home and airport for progress reviews. Thanks!!

- Thanks to EAA Chapter 983 Flight Advisor, Don Saint. His questions make one think about other possibilities and avenues. His sensible approach to flying adds to the confidence to see such a project through to flight. (You really doused me good after first flight, Don!!) Thanks!!
- Thanks to Sid Lloyd for starting and Dave Prizio for maintaining the GlaStar Net and GlaStar web sites. Thanks to all the contributors for keeping it active!

- Special thanks go to my wife, Donna, for putting up with this project over the years. I told you I wouldn't break the bank!!

What's Next…

Flying activity has slowed dramatically in the last few weeks with the shorter fall days and the unrelenting fall winds. There's still more interior finishing work to be done. But then my 3-bay garage looks awfully empty now with only two cars and a lawn mower in it. I still have the large work table and, of course, all of

the tools. Hmmm…

Program: Bud Judy on the IAC and Sport Aerobatics

Friend and Nassau Bay neighbor Bud Judy came by and talked about the IAC, his participation in competition aerobatics and what's involved in participating yourself.. The International Aerobatic Club is a part of the EAA as well as an organization unto itself with chapters all over the country. It came into being in the late 60's to help promote grassroots aerobatic competition.

Buds' participation goes back many years to when he had lots of hair and it had lots of color. He started by rebuilding a Luscombe and buying a copy of Duane Coles' "Roll Around a Point". While it got him started he is adamant that training from an experienced instructor is the best and quickest way to get started on your aerobatic journey. After the Luscombe came several clip wing T-Crafts, leading to his present ship which began life as Stevens Akro plans and ended up being a Judy creation, in a constant condition of improvement. Carbon fiber spar caps and ailerons are in the works at present.

The IAC competitions are all about precision aerobatics and offer categories starting with the entry level, Primary, where the required maneuvers are: a loop, spin, roll and steep turn to the Unlimited which calls for anything you can imagine.

The aircraft that participate can be simple and inexpensive aircraft (RV, Rans, Citabria) capable of Primary maneuvers to the $500,000 brutes capable of causing brain damage.

The most visible are the Unlimiteds and the World Champs this year were the Russians, flying in **borrowed U.S. airplanes.** Europeans who are interested in competition, form clubs and are able to make flying high performance aircraft affordable and available.. The "club" idea has yet to take hold here.

Bud talked about the aerobatic "Box", a three-dimensional block of airspace within which the entire performance must remain. If a competitor drifts outside of it he is penalized. If he goes below the floor, that's a safety error and his entire program is disqualified. The IAC is very proud of its safety record and takes no chances.

Bud invited everyone to come to the meets. They are free and allow a close up look at the airplanes and pilots in their most intense moments. You'll also get to witness the ritual of the "Aresti Dance" on the ramp, where the waiting pilots walk, turn, spin and reverse their path, all the while waving extended arms with twisting hands intent on burning into their memories the upcoming program. Seeing a half dozen of those creatures brings to mind any number of National Geographic Nature specials and shouldn't be missed!

Questions for Monty Barrett, Barrett Performance Aircraft

"When you 'balance' an engine, what are you actually balancing and is it primarily for longevity or smoothness in the cockpit?

Part II

In most cases the rods are moved within the engine so that the opposing rods are matched. Sometimes this is not possible and material is removed from the heavy point. This is a very gray area with respect to the FAR's and should only be done by those with considerable experience who know the structure and forces acting on the rod. Pistons are done the same way; i.e. a heavy piston is paired with a light little rod end to achieve EQUAL reciprocating weights within the engine.

Crankshafts are dynamically balanced in machines that are designed to detect an out-of-balance condition and locate it referenced to a key position. The key position can be any prominent feature of the crank, such as, #1 crankpin, or a flange dowel. With an aircraft engine crank of the horizontal type, material is removed from the heavy spot of the crank, so that the residual unbalance falls within a spec. called ANSI Grades. A.N.S.I., by agreement with ISO and other engineering organizations have agreed on the grade levels. The ANSI grades are based on the rotor weight, service speed, and other factors such as device configuration. Aircraft cranks are normally balanced in ANSI Grades 6.3. Compare this to a gyroscope rotor, which is usually balanced in ANSI Grade **0.4**. For our Lycoming 0-320 crankshaft, this means the residual Unbalance will be 5 Gram inches per end or less.

It is important to understand that the crankshaft is subjected to a lot of other forces which are not addressed by this procedure. This procedure does not alter, correct or anything else to the TORSIONAL INPUTS or the BENDING MOMENTS. Dynamic balancing ONLY deals with the fundamental 1 per rev. vibratory mode.

The location and method with which material is removed from a crankshaft is very critical to the strength of the crankshaft. Do not, under any circumstances, take a crankshaft to the local 'Speed Shop' for balancing. Most crankshafts are Nitrided, most auto engine cranks are not. It is very easy to generate a crack in a Nitrided crank and most auto people do not have the equipment or knowledge to deal with an aircraft crankshaft.

Hope this helps,

Monty Barrett

Chapter Projects

Dick Jones	**RV-9A**	Gary Green	Thorp T-18
Lee Clements	**Glastar**	**Ray Stewart/Charles Williams**	**RV-6**
Bill Orcutt/Jim Erskine	**RV-7A**	Gary Bricker /Jim Matlock	RV-7A

Dick Keyt	Thorp T-18	Jim Erskine	RV-9A
Marv Jensen	Lancair 4	William Bird	RV-6
Bill Steppling	Rans S-7	Mike Monninger	Shoestring
Eddie Meier	F-1 Racer	Tom Lewis	RV-6
Jimmie Cash	RV-6 & T-18	Nathan Capps	Seawind
Gary & Susan Brandon	RV-6	Gary Cotner	CUBY
John Darby/Arnie Schect	Waco UBF-2	Jay Pratt	North Star
Wes & Millie Ragle	**RV-6A**	Andy Shane	Republic RC3
Les Staples	BD 4	Sid Tucker	DHC-1
Roe Walker	Tailwind, Mini-Max	Barbara Wilson	Swift
Tom Wood	Helicopter	Bill Scanlon	RV-7
Gene Chiappe	Aeronca Chief	Ray Naspany	RV-8
Gwen & Jason Hutchinson	RV-6	Jim Matlock	RV-4
Steve Mottin	RV-9A	Ron Schuster	Mustang II
Brian Sowell	RV-9A	Dave Christman	RV-8
Damon Berry	Clip'd T-Craft		

Call me and I'll add your project to this list. Experimental or not. ***Bold*** *letters mean completed projects.*

Classifieds

Schedule of Chapter 983 Events

Chapter 983 Officers and Contacts