experimental aircraft association

THE LEADING EDGE

NEWSLETTER OF MUROC EAA CHAPTER 1000

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http://www.eaa1000.av.org *July 1997*

Chapter 1000 meets monthly on the third Tuesday of the month in the USAF Test Pilot School Scobee Auditorium, Edwards AFB, CA at 1700 or 5:00 PM, whichever you prefer. Any changes of meeting venue will be announced in the newsletter. Offer void where prohibited. Your mileage may vary. Open to military and civilian alike.

This Month's Meeting:

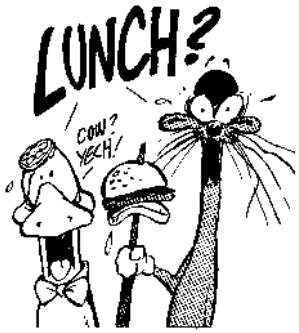
Pilot-Vehicle Interfaces
Speaker: 1Lt Ed McCormick
Tuesday, 15 July 1997
1700 hrs (5:00 PM Civilian Time)
USAF Test Pilot School Auditorium
Edwards AFB, CA

Now that you've been sittin' in your domestically fabricated go-fast aerospace vehicle makin' airplane noises (a step in the building process which is required and must be documented...), you're probably trying to figure out how to lay out your instrument panel. You know that you probably shouldn't put the altimeter over at the copilot's right hand (parallax and all), but beyond that, what makes a good instrument panel layout? Is putting in a glass cockpit really worth doubling the cost of your airplane? Or should you just copy the layout in the 1975 Cessna 150 you learned to fly in?

Our speaker this month is 1Lt **Ed McCormick**, and he is **Mike Pelletier's** OT&E human factors engineer on the B-2. He works nearly all of the pilot-vehicle interface (PVI) issues, and is quite knowledgeable about cockpit layout and how it affects the PVI of an aircraft. He is also working on his private pilot's license, so he has some experience in light aircraft avionics and instrument panel layout.

Ed will share some thoughts on how to group instruments, cockpit lighting considerations, placement of controls and displays, etc. He has a master's degree in Engineering Psychology, so he knows his stuff.

EAA Chapter 1000 Family Barbecue



That's right--plans are being finalized for an EAA Chapter 1000 Family Barbecue on **Sunday, 20 July** (that's Sunday after the meeting). The location will be Mountain Valley Airport in Tehachapi (beware the blue flu!). We may be having the folks at the Raven's Nest (the sandwich shop at the airport--if you've never been there, you need to go...shucks, you need to go even if you have been there!) cater our little shindig. Details will be finalized after the publication of this newsletter, so you need to come to the meeting and find out what's going on. You'll want to be there, and bring the wife and kids (or others as appropriate)!

Bring your checkbook too, as the Skylark North folks will be happy to take you up for some glider flights!

Last Month's Meeting

EAA Chapter 1000
Scobee Auditorium, Test Pilot School, Edwards AFB
1700; June 17, 1997
Mike Pelletier, presiding

The meeting was called to order at 5:40 pm by President **Mike Pelletier**.

Guests:

Norm Howell introduced our new member **Stu Farmer**, who flies C–141's and KC-10s for the USAF. **George Heddy** (Young Eagles Coordinator Extra-ordinaire) visited from Chapter 49. Our guest speaker **Jeff Byard** and his dad **George** were also present.

Announcements:

Young Eagles Registration Post Cards are available. (if you weren't at the meeting and would like some cards, contact Russ Erb.)

The Chapter 1000 Family Picnic will be held at Mountain Valley Airport near Tehachapi on Sunday, July 20 from 12:00 to 3:00.

Our very own **Russ Erb** (alias Erbman) will be recognized at Oshkosh '97 as **EAA's Outstanding Young Eagles Ground Crew Member**. This honor has been bestowed on Russ in recognition of his work developing the Young Eagles Certificate printing software.

Our astronaut–member **Scotty Horowitz** sent the chapter a very nice framed collection of memorabilia from his flight on STS–82.

If anyone knows the whereabouts of the television that was purchased for use at Young Eagles events, please contact a chapter officer.

Chapter members are needed to man the Chapter 1000 booth at the Edwards AFB Open House and Air Show Oct 18 – 19.

Russ Erb needs pictures of members airplanes and/or projects for the chapter Web page. He can use most any media (electronic or prints).

Contact **Scott Liefeld** if you are interested in a Pietenpol Recover Workshop using the Poly–Fiber process.

In case members may not be aware, the chapter has a library of books, videos, etc. located in the Test Pilot School. If you would like to check something out or just find out what is available, contact our librarian (you guessed it) Russ Erb.

Old Business

None.

New Business

Brian Martinez moved that the chapter donate $50 to the **Vern Saxon Memorial Fund**. Motion seconded by **Ron Applegate**. Approved by voice vote of members present.

It was brought up that a trailer is needed on which to store and transport the chapter booth. To meet budget constraints, the options are probably to buy used or build. Several members volunteered to research the problem and report at the next meeting.

Treasurer's Report

Checking Account:	925.61
Un–deposited cash:	677.00
Savings Account:	25.00
Total:	1627.61
Fly–In Report	
Expenses:	153.58
Gross Proceeds:	541.50
Profit:	387.92

Program

Our guest speaker was **Jeff Byard** of San Luis Obispo, who's vocation is flying for USAir. His avocation is collecting and restoring vintage sailplanes. Jeff commented that one of the things that most appreciates about his hobby is the old–world craftsmanship evident in the wood, fabric, steel, and sheet metal not evident in today's molded fiberglass designs. Jeff began his slide presentation with some examples of his favorite vintage sailplanes, such as the Slingsby Falcon I . The Falcon is a British design which was originally a flying wing.. The design is very stable, and is thus used for training. Another of Jeff's favorites is the Bowlus Baby Albatross (*see Picture Pages this newsletter*). The aircraft was offered as a kit: around 90 were sold, 50 or so completed and flown. Jeff owns one of only three known to exist today in flying condition. Other examples include the Slingsby T-21B side–by–side used by the RAF for training pilots during WWII, the Slingsby Kite 1, and the Slingsby Type T-38 Grasshopper, a single place, bungee–launched trainer designed to only fly straight ahead, allowing the student to concentrate on his landings. The centerpiece of Jeff's presentation was the discovery, acquisition, and 8–1/2 year restoration of his award–winning 1937 Schweizer TG–2. Jeff has written an article detailing the history of the TG–2 in general and the history of his particular aircraft. Look it up on the Web at http://www.iac.net/~feguy/VSA/.

Adjournment:

7:02 to Burger King where those who attended managed to solve some of aviation's most pressing problems (if we could only remember what they were).

- Miles Bowen

Trailer Needed For Chapter Booth

The chapter booth made it's first appearance at the 6th Annual Scotty Horowitz Going Away and .... While **Charlie Wagner** has done a wonderful job of engineering the booth for most contingencies, transporting it is still less than optimal. The current technique for transporting the booth is to take all of the parts off of the A-frame rack, place the rack in a full-size pickup bed, then reload the parts on the A-frame rack. The process is reversed to store the booth. The Chapter is looking for a 4' x 8' trailer that the A-frame rack could be permanently attached to, thus making pickup and storage significantly simpler. Additionally, the booth could then be transported by other vehicles, such as a small pickup truck or even the ***Project Police Paddywagon***. The trailer should preferably be low profile (i.e. not very high) such that the overall assembly does not get too high, again for ease of storage. The trailer needs to be able to carry a load of about 800 lbs minimum to support the booth.

Chapter TV Missing In Action (MIA)

Back in early 1996, our chapter bought a television with integral video player for use at Young Eagles rallies, airshows, etc. **Nobody currently seems to know where it is!** Everybody suspected to have had it has either said

Project Police Picture Pages Phor Pilots...

Celebrating the 22 March 1997 Young Eagles Rally

(See these pictures in color at **http://www.eaa1000.av.org/pix/pix.htm**)

John Bush gives 8-year old Brittany Pullen of Palmdale a ride in his 1949 Cessna 140, and she sure enjoyed it!

Bryan Duke of EAA Chapter 49 takes time off from his job at NASA-Dryden to provide Robert Pullen of Palmdale a Young Eagles flight in his Varieze.

Scott Liefeld points out features of the Palmdale Learning Plaza Kitfox to Marc Perry of Lancaster while Marc's Dad looks on.

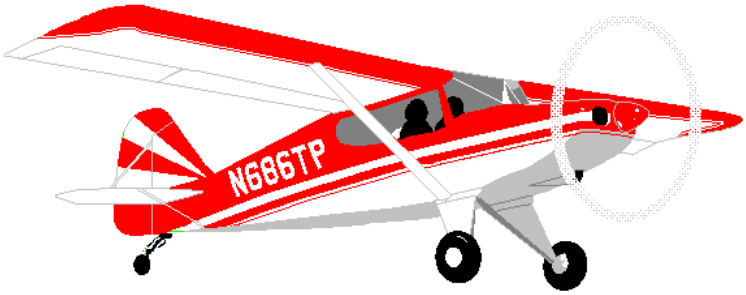
EAA Chapter 1000 member Gary Aldrich with his happy Young Eagles Ryan Harband of Palmdale and James Howell of Lancaster in Gary's gorgeous Cessna 180.

Gretchen Lund says Dave Hector of Palmdale is a natural pilot! Thumbs up!

EAA Chapter 1000 Young Eagles Flight Leader Bob Waldmiller congratulates Nicole Richard of Lancaster. Bob has over 100 Young Eagles flights to his credit.

Hardworking volunteers Russ Erb, Connie Trippensee, and Victoria Rosales work the admin desk during yet another Young Eagles rally.

And for all of you who have been wondering what the Kollman Raptor looks like, here it is. This is just one of the many projects going on at Bailets Composites.



Chapter TV MIA Continued...

they passed it on to someone else (whom then claim they never had it) or claim they never had it. I personally last saw it at last November's Air Races. If you have any idea where the TV is, please notify **Russ Erb** or **Norm Howell**. It's not currently doing the chapter any good if we don't know where it is. Lest there be any confusion, the TV is a **Chapter 1000 asset**, not a "Young Eagles" asset, even if it is used for that purpose frequently.

President's Zero Cents

(*P4 (**Project Police and President Pelletier**) did not see fit to submit a column this month. When pressed the day after the deadline, he whined something about being busy finishing up the B-2 Test Program, getting ready to move to Tucson AZ, and that his hands were greasy and Michele wouldn't let him near the computer because he was in the middle of changing the rear axle on the Mustang. Yea, sure. We've heard all of that before. I could further assassinate Mike's character here, but precedent prevents. Besides, I'm to busy finishing this newsletter...*

Remember, Mike's departure opens up a chance for you to try your hand at leadership as President of the best chapter in EAA.)

Young Eagles Update

This month's Young Eagles rally was held June 14 at Fox Field, Lancaster CA (International Young Eagles Day). We had 8 pilots and 9 ground crew volunteers, and we flew 33 Young Eagles. The weather was intimidating, cloudy, cold and breezy - not a typical June day in the valley. The Young Eagles trickled in, a nice change from the usual overwhelming crowds we are used to. **George Heddy** had invited about 30 kids this month, but we think the weather may have held back most of the crowd.

I was hoping to get better press coverage than we did, but I would like to thank the Valley Press for once again covering our Young Eagles rally. **Russ Erb** was on had with his handy-dandy computer and printer to produce very nice certificates. Thanks also to **Chandra Steigerwalt**, (a potential new member?) who helped us with our preflight registrations. Once again, thanks for the large volunteer turnout!!!!

Upcoming Young Eagles Rallies:

July 19, 7am at Fox Field
No rally in August
Sept 13, 8am at Fox Field
Oct 11, 8am at Fox Field

Flight Crew:

Pilots	***Equipment***	***# YE***
John Bush	C-140	1
Herb Carlson	C-172	8
Tony Ginn	T-18	1
Mike Hartenstine	C-170	5
Gretchen Lund	M20J	4
Ed McKinnon	M20K	7
Concha Trippensee	AA5B	5
Bob Waldmiller	Cherokee 140	2

Ground Crew:

Pre-Flight Participant Registration

Russ Erb **Victoria Rosales**
Chandra Steigerwalt

Post-Flight Certificate Presentations

Chuck Firth **Mike Pelletier**
Don Robinson **Paul Rosales**
Dave Webber

Tower Tours

Mike List

Young Eagles Flown this Rally: 33
Young Eagles Flown this Year: 251
Young Eagles Overall Total: 1683

Pilot Operations:
George Heddy
948-4431

Ground Operations:
David McAllister
David.McAllister@dfrc.nasa.gov
256-4829

- David McAllister

CORROSION CONTROL - Sealants and / versus Primers

Introduction

You will have to make your own design decision on what sealant or primer you use. The information here is to give you an idea what is "out there" so that you can frame your questions to test sales persons.

What is a sealant and what is a primer gets pretty intertwined. You sometimes have to "go with what you can get." I try to make a distinction based on the purpose. If it is primarily to seal, it is a sealant. If the material is used to improve painting, it is a primer.

The grouping of various purposes is listed below. This is a portion of data sheet Table of Contents from Courtauld Aerospace publications. At least at my company, the perception is that if they don't have a sealant or a primer for a given purpose, then no one does. (Each Category may have 25 or more specific formulations for sale.)

Sealants

Fuel Tank, Pressurized Cabin
Corrosion Inhibitive
Cabin Pressurization, Aerodynamic
Windshield
High Temp, Firewall
Fuel Tank Coating
Adhesion Promoters and Primers
Electrically Conductive

Primers

Epoxy Primers
- General Purpose, Commercial
- Non-Chromate and Lead Free
- Military Specification
- Urethane Compatible

Polyurethane Primers
- Elastomers

Flexibility

Either sealant, primer, or paint on sheet metal structures must have flexibility because the structure "breathes." Especially around fasteners and latches there are local stresses.

Epoxies were a big boon in industry over Zinc Chromate when they became readily available. Then the EPA was formed and they were really needed. Polyurethanes are even better and their cost is less of a factor now.

Classes of Sealants

There are three classes of sealants:
- Class A - Brush Grade
- Class B - Fillet Grade
- Class C - Faying Surface Grade

I think they are self-descriptive. Paint primers, I believe, fit in Class C. Not all formulations will have all three Classes.

Problems

In my mind, the biggest problem for the Homebuilder using sealants is the sealants have a relatively short shelf life. One is as short as 2 months from manufacture. Obviously those would not be used. Six months shelf life for a small amount is not too bad. Expense and availability may also be opportunities for solutions.

Selection

I said before, "It your choice." If I were trying to do an excellent control of corrosion at the least cost and simple application, I would choose a "good ole" MIL-S-8802 for faying and filleting aluminum structures of the homebuilt category. In areas of EMI, static electricity, and lightning protection, I would go with a corrosion inhibitive, electrical conductive sealant for faying surfaces. This type can get expensive.

For a primer, I would go with a urethane compatible epoxy. At least with a low VOC epoxy primer. I don't know how this fits in with the Stits Process but I bet someone else can tell you.

Don't do like one of my idols, Steve Whitman, and fall into the "I have always done it this way" trap. I will always remember Steve Whitman for his accomplishments and how he help me dream aviation, but I am sure that he will have saved countless peoples' lives at the expense of his and his wife's by his one "mistake."

Steel and Dissimilar Metals

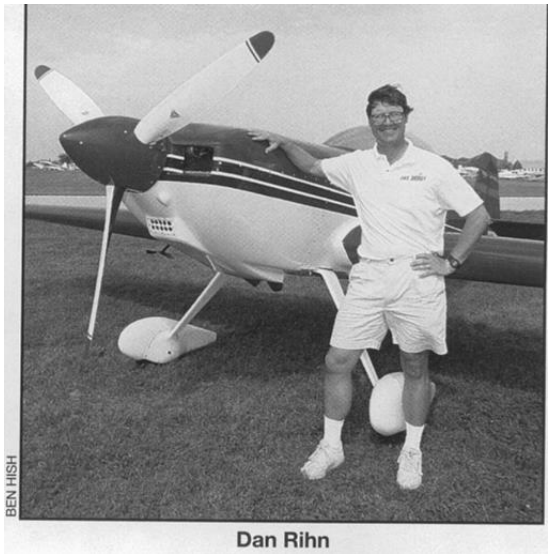
One of these times we will get into corrosion control and sealing of steel and dissimilar metals. There have been many changes and new approaches since I was actively involved.

- Lee H. Erb
EAA Chap 1000 Det 5, Arlington TX; EAA Chap 34
LeeErb@compuserve.com or (817) 275-8768

(*The folks at Poly Fiber have a wide variety of primers available for your use. Stits primers are used exclusively at the Flying Snake Ranch. Poly Fiber has also developed a 4-step Composite Finishing Process that is completely NON-HAZMAT. It sounds really good for you plastic airplane buffs.* ***George Gennuso*** *owes* ***The Leading Edge*** *a report on his experiences with this system. Rumor has it that Poly Fiber will soon be releasing a NON-HAZMAT primer and fabric finishing system, but we won't see it until it has been sufficiently beta tested. Check it all out at http://www.polyfiber.com or call them at 800-362-3490 and ask for the free info pack. Or shucks, just cruise down to Flabob and visit them at the plant. You might want to call and warn them first. Wear your distinctive Chapter 1000* ***Project Police Tactical Assault Force*** *T-shirt for extra brownie points. -- ed*)

Life In The Fast Lane

I think it was **Norman Howell** who once told me "when flying, Charleen, always remember to keep the pointy end forward." Well, even though the pointy end wasn't forward for most of this ride, I still felt safe and snugly and secure, AND it was the most thrilling ride I've ever taken in an airplane...or any other vehicle, for that matter! What was this 400 degree per second thrill-a-moment, and you-can-build-it-in-the-garage-yourself kitplane, you ask? It was Dan Rihn's new and improved DR-109, the 2-place aerobatic, stretched-out version of his very successful One Design.



Dan Rihn

(*adapted from Sport Aviation Feb 1997)*

Dan e-mailed me several weeks ago offering me a ride in his rocketship. I've read lots and lots of press on it, I answer dozens of phone inquiries and e-mails and we've

sent out tons of info packages about Dan's planes, so it didn't take me long to say "How do I sign up?" One week earlier two of our sales reps (at Aircraft Spruce) had been approached by Dan to fly the plane as well. Their reviews of the experience were pretty hair-raising (they both had to ask Dan to STOP flying NOW), so myself and other female co-workers thought we could rise to the challenge and became Dan's next victims (oh, I mean passengers). And whutta rollercoaster ride it was! I kept thinking "how do aerobatic pilots do this for 20 or 30 minutes without getting completely disoriented?" I still do not know, but really didn't care--I was having too much fun trying to think up new and unusual attitudes to get goofed up in. Loops, rolls, hammerheads, spins, humpety-bumps, lazy eights, rolling 360's. One moment I'd look up and there the ground would be, then the next moment, I'd look up and it would be the sea or the sky above me.

And talk about climb rate. Whew!!! Right before I met Dan at his hangar, I had just finished flying a Great Lakes with a snail's pace climb rate (do snails climb?), so when we were at 4,000 feet in less time than it took my little Great Lakes to climb to 1,000 feet, well, it was really, really fast...Dan had to keep telling me to pull back on the stick--I thought the wing would slow down it's climb, but it just kept screaming up and up and up.

So, if you're contemplating building a two-place aerobatic aircraft or you're just a looking for a ship to GOFAST and INVERTED, you might want to consider the DR-109. As far as I know the only other homebuilt competing in this market niche is the Akrotech G-202. I hear the handling characteristics and performance are similar (*but the construction methods are very different*), but so far, **Howard Judd**, if you are reading this right now, I haven't flown one yet, and until I do, well, just ask me how truly awesome this experience of a lifetime was....

'Till next time,
- Charleen Beam

I'd Be Happy With Just One Award Winning Airplane...

Ross Briegleb, cool guy, aviation expert and former National Soaring Champion, has just completed TWO trophy winning aircraft SIMULTANEOUSLY! At the Camarillo fly-in last weekend, his Glasair 3 and RV-4 were christened and unveiled, and won Best Composite and People's Choice respectively. They were built side by side in Ross' shop over the last several years, representing excellence in the opposite ends of the spectrum in materials and technology. This is a stellar accomplishment, as you are no doubt aware that building one flyable airplane is a hard enough task, much less two show winners.

I am sure that this deserves mention in the newsletter, and also of note is that he is available for customer projects for the most discriminating airplane owner. He can work well in glass, wood, metal, fabric, new or antique aircraft. Please see if you can put a blurb into the newsletter, or just download the blurb I put in the rec.aviation.homebuilt group and drop it in.

I have no idea if he is willing, but his experiences are potentially the making for a chapter presentation. He has a high tech paint booth, separate painting, building, fabrication and assembly rooms, and a large storage area. Ross' shop is certainly worthy of a brutal and constitutionally questionable ***Project Police*** raid....

- Bill Berle

How About An *Engine* Kit?

Submitted by Brian Martinez from the Defiant Enthusiast's Newsletter:

"On an internet E-mail discussion group, I saw a discussion that Superior Air Parts will soon be selling an O-360-A1A engine in a box kit. Here is a quote from the RV web: "For all you folks keeping your eye on alternative engines, today I got an update from Gary Greenwood, Technical Rep at Superior Air Parts (manufacturer of the Millenium cylinders and other PMA parts). As you may be aware, they are working on a "copy" of the Lycoming O-360-A1A which they would sell as a kit - a box of new, certified parts that the customer and/or his A&P assembles.

At Oshkosh 96 they displayed a raw crankshaft forging and crankcase casting. They told me then they planned to test run the engine for certification by the end of 96 and sell the kits by mid - 97. Gary told me today this has been pushed back and they now expect to run the certification tests this summer and should be selling kits by Nov/Dec 97. Most of the parts are already approved and are available. I believe the crank and case are the only remaining hurdles.

The kit would include everything needed to assemble a "Lycoming" O-360-A1A except the oil sump, accessory housing, and connecting rods. They aren't making those parts, he said, because they are readily available from other sources at reasonable prices. I didn't ask, but I assume they also won't supply accessories like starter, carb, etc. The price is expected to be about $9,500. Van's current price for a Lyc O-360-A1A is $19,300."

Let's see.....$1000 for a carb, $1000 for mags, $800 for a starter and alternator. Maybe $2000 for the non supplied parts. Wow....$15,000 for a NEW O-360 engine. Engine build up can be done in a day with experienced help (the only kind acceptable). I will keep my eyes out for details on this, due out about mid summer.

- John Steichen"

Hope this answers some of the who's and hows questions that people have been talking since I mentioned it to Mike. Whatever is going on, Chapter 1000 needs to get on top of it so that we can streamline the process for builders in our locality that may be using this motor. Remember, we have a chapter discount with Superior Parts. What can make this a valuable effort is to baseline the other parts and accessories that are not included alone with good local supervision...in a manner designed to give a potential builder the best break on the other accessories (i.e., keep that cost more toward the $10,000 than the

$15,000). Within safety and reason, I think you know what I am getting at. In short, a builders formula. We want to aim at knocking 5 - 10 grand off the cost of that RV-6, Berkut, Velocity, Kiss Cruiser, etc.

- Brian Martinez

Design Group - Winglets

(*Long absent from our newsletter, this feature returns courtesy of Brian Martinez as Brian responds to a "simple" question posed in an e-mail list he subscribes too*)

Here is another question that came to mind the other day. What would Winglets do to a Quickie 200??? Besides the fact that it would look pretty cool, Would it add or subtract from the performance??? Has anyone done this to any Quickies out there??? Thanks for your time.

Rob Holland & Craig Ewing

Craig:

Winglets would probably cause you a lot of problems. The aerodynamic reason for the addition of winglets is to effectively increase the span of the wing without a length wise increase in the span. What I am telling you is that everything you get by installing winglets (except a little more directional stability) can be done by increasing the span. So let's see; you put on your winglets and you get more lift on the back wing than is necessary and then you don't have enough elevator authority off the front wing and so you have a problem. You also get more surface area and a resultant increase in drag; and then you get some possible stability effects that you don't understand and you go round and round because it all was going to look so cool. And then, maybe you over stress the wing and fail it because it was not originally set up for the loading that it might just see with the new stylish change that it probably would have worked just great without.

Aside from the component problems (e.g., brakes, tailwheels, access panels, etc.), build the plane per plan!!!! If you want to never finish the aircraft, have an accident, or go in any number of do-loops just go off and change something. Quickie Aircraft and Burt Rutan spent a lot of time and flight test hours perfecting these types of configurations (i.e., Quickie/Q-2/Q-200/Amsoil Racer) and they work well...on design. These are point design aircraft. They are high efficiency designs and are safe when kept on design. They are not automobiles where you can stick whatever styling you want (because it looks cool). Aircraft depend on Aerodynamics for safe flight. In the flight test business.....If you want to play you had better be prepared to pay!!! And nature always sides with the hidden flaw. Think about it...then build per plan.

- Brian Martinez

Q-200 Flight Test Update

More updates on Brian Martinez's "I love my airplane/I hate my airplane" Q-200 Flight Test Program. We've had these for a while, and there will be more as space permits. Brian has been noted by the Flight Advisor community for running an exemplary and professional flight test of his Q-200. For the beginning of the story, see the December 1995 ***The Leading Edge*** *or our chapter web site.*

FLIGHT 09
DATE: 10 FEB 96
TAKEOFF TIME (local): 1120
Mission Elapsed Time (MET)=.3

Inflight engine evaluation with Marvel Schebler carburetor substituted for Ellison TBI. During the December 1995 Holiday period, I removed and replaced the TBI with the Marvel and performed a full power engine run. The propeller remained the PROPS Inc. Type previously used for flight testing. Results for the ground test were as follows:

RPM	MANIFOLD PRESS	IAS(MPH)
0	27.5	Static
1000	10	Static
1300	12	Static
1400	13.8	Static
1600	17	Static
1700	18	Static
2230	27	Static

This indicated an increase of 2 inches of mercury in manifold pressure. Maximum RPM was still 2300 when the carb was properly leaned.

Flight testing of the aircraft was delayed completing cowling mods required to accommodate the Marvel and associated linkage modifications. Runup was normal. During takeoff, the engine would not exceed 2300 RPM and again seemed to hit an invisible stop. Climb was approximately 90 MPH IAS with about 1500 FPM climb. Level speed did not exceed 121 MPH IAS. The takeoff was straight out from runway 30 at Mojave. I elected to turn the aircraft around and re-sequence into the landing pattern for 30 due to my disappointment with the flight performance. Landing was uneventful.

The aircraft was postflighted with no anomalies found by me. Mr. Jon Sharp subsequently checked mag timing and noted that it was normal at about 25. Mr. Sharp noted a loose AIRQUIP fitting on the intake spider for the manifold pressure tap. During a subsequent ground runup, Mr. Sharp could identify nothing out of the ordinary, but once again examined the tip flexibility of the mahogany prop...wondering if it is not permitting higher speed flight and is absorbing engine power. Mr. Sharp's conclusion was that the next step is to try a different prop. A Prince prop is on order and expected in the next two weeks.

FLIGHT 10
DATE: 8 MAR 96
TAKEOFF TIME (local): 1017
MET=.5

Flight Test Point - **Checkout of reconfigured tank venting**. Prior to flight, vinyl connection tubing from total pressure vent tube to header tank vent tube was removed and replaced with Nylon Poly Flow tubing. The vinyl tubing was installed during final construction of the aircraft over a year ago. Recent inspection showed this tubing to be swollen at the ends and somewhat pinched in the middle of the tube length. The main tank cap (which had a 1/16 hole drilled per plans) was also replaced with a cap having no hole. *I was told to checkout the vent system by Paul Fisher in a series of E-Mail exchanges. The theory in this case was that the tank vent line was partially blocked causing improper tank pressurization compounded by the vacuum pressure generated by the hole in the tank cap on the side of the fuselage. This resulted in a leaning effect as velocity increased.*

Extended ground run was performed to gain confidence that tank venting was OK for flight. Takeoff was from runway 30 with a slight quartering tail wind from the right. This runway was used due to the closure of 08 for installation of new lighting. Max throttle RPM during takeoff was 2300 with the same Props, Inc. propeller as used before. This propeller was used for a data point in spite of the arrival of the new Prince unit. On this flight, however, the RPM did not roll off 50-100 RPM. Ambient MP reading was 27.5 in. Hg. During takeoff, 27 in. Hg MP indication was observed for the first 2000 feet or so of climb. During push over RPM climbed to 2450 or more and 150-155 MPH IAS was observed. The temperature at altitude was approximately 16°C for approximately 176 MPH true. This was the first indication of "in the ball park" performance with this aircraft. Props, Inc. Propeller does work all right. I will repeat this effort on the next flight with extended performance runs to take a good look at the engine. Flight was discontinued due to low fuel. The first approach was not successful due to the quartering tail wind to runway 30 and resulting in difficulty maintaining airspeed control to ground handling. Normal landing was made to runway 12. I am continuing to observe the sashay when transitioning to the ground; with an apparent momentary control loss. Discussions with Gene Sheehan afterwards underscored observations made in post test videos of rudder control loss with weight on the tailspring. Gene Sheehan recommends cutting the tailspring to lower the angle of the rudder control wires to the tailwheel bellcrank as the big tailwheel now absorbs all of the tail shocks. *I am, however, inclined to install Maule springs in the present configuration as shortening the tailspring will change the ground angle of attack of the aircraft.*

Notes: Fix control play in ailerons and mount new Prince prop for next flight. Install and taxi test tailwheel assembly with Maule springs. Barry Weber stopped by and suggested that I get rid of the gascolator and that I take a good look at my fuel flow rate from the header tank (with the check valve and gascolator installed and think about how the boost pump might save me).

FLIGHT 11
DATE: 16 MAR 96
TAKEOFF TIME (local): 1125
MET=1.2

Flight Test of Prince propeller. Preflight testing of the Prince 58", 68" Pitch propeller indicated a maximum static RPM of 2300. This was consistent with previous propeller performance and was somewhat disappointing. Prior to flight testing, Maule springs were installed between the tailwheel bell crank and the rudder bell crank in order to prevent rudder flutter when weight is on the tailwheel. Right aileron play was also isolated to the aileron torque tube attach bolt. This bolt was tightened effectively eliminating the problem.

Takeoff was normal from runway 12. Wind was nominally 8 kt from the north. This flight was unstructured. Directional control was better with the new spring arrangement as no sashay motion was noted at high ground speeds. Better control was also noted on the landing rollout. Climbout performance was as noted in flight 10 with 2450 observed in the climb. Climb was maintained with a right turn toward Cal City and continuing to 6500 ft MSL. Upon reaching 7000 ft MSL a pushover was initiated which resulted in increased speed. RPM remained at 2500 to 2550 for over 2 minutes and through a turn to the south. After a resonant change, I noted that the RPM went to 2650-2700. After throttling back to check the condition, I resumed the max throttle position and approximately 2700 RPM. Flight from Cal City to the West Antelope Valley and aqueduct showed indicated airspeeds of 148 to 155 MPH at 8100 ft MSL and groundspeeds from GPS of 169 kt with a tailwind. True airspeed was estimated to be 174 MPH assuming an OAT of 60 deg.

Flight was made to the Tehachapi area and back to Mojave. This was followed by a racetrack course from Mojave to the West Antelope Valley again and return. One attempt at landing on runway 04 was made due to the winds. The aircraft was recovered on runway 12 with more than normal braking required to slow the aircraft down.

FLIGHT 12
DATE: 24 MAR 96
TAKEOFF TIME (local): 0915
MET=.8

Flight Test of Prince propeller. Attempted repeat of flight 11. Winds delayed an ambitious schedule of flying for the weekend. Sunday morning conditions were good locally with calm winds reported at Mojave. The windmills on the mountains toward Tehachapi were turning fast, however. Takeoff was from runway 04 with climbout at 100 MPH and varying climbs of from 500 to 1000 fpm. Doug Shane took off behind me and joined up for the trip to the West Antelope Valley. Mr. Shane RTB'd over Rosamond after confirming my airspeeds. Maximum IAS was 155 mph with the VSI showing zero. Measured outside air temp was 60 degrees F. TAS was estimated to be 178 mph. Some engine roughness was perceived possibly due to improper leaning. Planned flight time was 2 hours, but due to engine questions, local gusts in the vicinity of rough terrain, and fuel transfer questions, I expedited return the local Mojave area and landed.

During fuel transfer operations...a fine stream of bubbles was observed in the header tank sight gauge. Landing was to runway 08 from a standard left hand traffic approach. Several bounces and some gusting crosswinds down low. The whole pattern was over the field and the ground came up real fast going base to final. This was a "Dick Rutan Big Blue Approach" and I would like to keep mine a little more relaxed; Nuff said!

Squawks:

(1) ***Brakes would not hold aircraft at 1700 RPM for runup****. Disposition - Bleed brake system before next flight.*
(2) ***COM Radio is still difficult to read...volume is part of the issue****. Disposition - OK for flight, but I can foresee replacement of the VAL COM 760 with a King or ICOM by the fall.*
(3) ***Fuel transfer from the main to the header was less than spectacular****. I am still not sure that the current Facet pump has the juice to perform reliable transfers and top off of the header with the engine running. Disposition - (A) Cleaned the in line filter during the post flight. (B) Determine the gallon per minute rating for the installed Facet pump and see if we can do better.*
(4) ***Holding nose up trim at max power and 8000 ft MSL requires me to push my knee up to the trim wheel****. Disposition - re-adjust the spring tension.*
(5) ***Currently at maximum aileron trailing edge up reflexor position****...in order to maintain straight and level trim. Neutral reflex causes steady descent. Disposition - After flight initial flight testing, cut outboard aft wing panels and reflex them x degrees trailing edge up.*

FLIGHT 13
DATE: 30 MAR 96
TAKEOFF TIME (local): 1335
MET=1.0

Flight to test ground handling and braking. Preflight activity was to fill and bleed brake system after unsatisfactory braking noted on flights 10 through 12. Brake system maintenance resulted in adequate breaking. Took off later in the day than normal with winds becoming stronger than desired. Moderate turbulence experienced in the vicinity of rough terrain. Performed Cal City to West Antelope Valley leg with area maneuvering. RTB due to fuel exhaustion in main tank. Landed on runway 12 after two attempts on runway 08 with strange winds.

FLIGHT 14
DATE: 31 MAR 96
TAKEOFF TIME (local): 1000
MET=1.4

Routine unstructured flight test - Triangle Route. Takeoff was from runway 08. Takeoff was with full fuel. Normal climb to 7000 ft over Cal City, turning south at the test track. Flight legs were test track to the California Aqueduct to Tehachapi to the test track. Noted smooth engine operation when properly leaned. Noted resonance in prop after reducing power from 2800 to 2500 at 8000 ft MSL, 178 MPH TAS. Need to exercise caution with resonance in the future and do some exploration of this condition (Is it spinner related?). Resolve to "S" turn to burn off speed prior to power reduction. Resolve to keep RPM at 2000 during descents with Carb Heat. Landed on runway 08 very smoothly.

FLIGHT 15
DATE: 06 APR 96
TAKEOFF TIME (local): 1030
MET=2.1

Routine unstructured flight test - Endurance Buildup. After fuel top off, noted fuel dribble from main tank sender terminal. This required 45 minutes of cleanup and seals the deal for expediting replacement of the automotive type tank sender with the capacitance device. Takeoff was from runway 08. Ran Koehn Lake to Fairmont/Aqueduct dogbone. Altitudes varied in cruise from 7000 MSL to 9500 MSL. Speeds were a little off. This was believed to be due to leaning difficulties as a result of the flexing of the mixture cable in the cockpit. *We will have to seriously think about reinstalling the Ellison at some future time. This may yet give us better Economy and venting may have caused the Ellison much greater problems on those early flights than it would a Marvel Float Bowl Carb. That might have accounted for the Manifold Pressure dispersions between the two also. Sorry, Ellison, its all inconclusive, but it probably wasn't you.* Had to land to relieve myself otherwise this would have been a longer flight. Good landing on runway 08. Trouble braking to the first exit.

FLIGHT 16
DATE: 26 APR 96
TAKEOFF TIME (local): 0925
MET=1.8

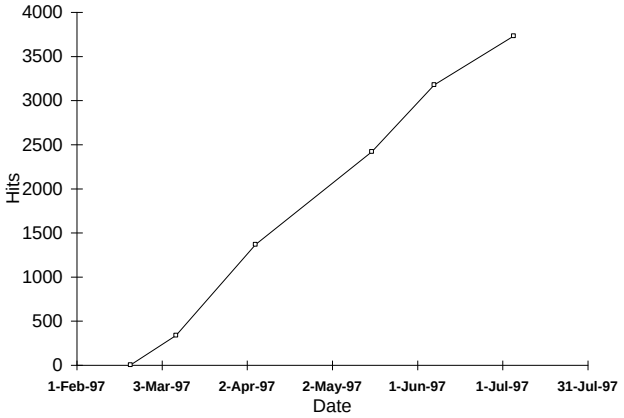
Cruise condition & test of Capacitance Fuel Sender. Flew Koehn Lake - Fairmont/Aqueduct Dogbone. Takeoff from runway 08. Takeoffs are a breeze every time. Called up Joshua Approach for a Mode C check on the KT-76A installation. The light is blinking like its getting hits, but Joshua couldn't identify me with the squawk they gave. Possibly I did not go to the proper squawk as reception was poor (even within 15 nm of Edwards and within the line of sight). Will have to do this check over on a better day.

Lots of oil on bottom of fuselage bleeding from the lower engine cowling. Still coming from the two case bolt locations on top edge of engine case (Note: to try resealing with Permatex versus RTV). Will have to reseal and clean. New fuel sender is excellent; working well, though probably needs some adjusting for precision. Had some paint flake off on the bottom of the fuselage. Paint as well as primer slid off an area as big as my hand. I think maybe the surface finish did not offer enough tooth to hold on to. Will have to degrease, rough up, and re-prime. Landing was smooth. Beginning to note that on my landings I am finding myself imaging that the main wheels are wide extensions of my legs. I am imagining that the mains are 5 feet out in front of their real location when I

gently rock it back toward the tailwheel and ease the mains to the runway. This seems to work for me.

Web Site Update...

As of 5 July 1997, we have **3728** hits on our Web Site! See the graph of the activity below.



Usage History on http://www.eaa1000.av.org

E-mails continue to trickle in from various chapters around the country and world. A couple of examples:

"Nice website!!! I do the newsletter for EAA Chapter 952, the Sunbirds of Verde Valley Arizona. Bette Bach Fineman."

"I really like your webpage. I am the Secretary/ Treasurer of EAA Chapter 12 (Greater Houston, TX area) and am in the process of constructing a page for our chapter...Terry Ford"

If you haven't done so already, get to your nearest Internet On-Ramp and check out the ***Project Police* Picture Pages Phor Pilots**. This is our virtual scrapbook for the chapter. You may notice that probably isn't a picture of you and your project shown. It's not that we have anything against you (*au contraire!*), it's just that you **haven't given a picture to Russ Erb yet!** Get those pictures in and leave the scanning to us. You can even get your picture back when we're done!

We did research a "member's only" section which could house things such as current newsletters and member rosters. While it was possible to do, it wasn't simple and required getting the folks at Qnet on the server side involved. An e-mail poll of the chapter (if you didn't get polled, I don't have your e-mail address) ranged mostly from lukewarm recommendations for ("that might be nice to have") to direct recommendations against ("don't bother"). A few people liked the idea, but not really enough to justify the effort required. Another interesting comment was that the best chapter web site in EAA should be as *inclusive* as possible (*okay, so I paraphrased it a little, but that's what Norm calls it*). As a result, that idea was shelved. Many of our members still prefer getting their newsletter on paper. Besides, the page layout is much better.

Everyone is encouraged to do as **Norm** does: Tell every EAAer you meet to check out our web site!

Just a reminder that the EAA Chapter 1000 Web Site is hosted courtesy of Quantum Networking Solutions, Inc. You can find out more about Qnet at http://www.qnet.com or at 805-538-2028.

Chapter 1000 Calendar

Jul 12: Flyout: Fresno (805) 256-8433

Jul 15: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (805) 258-8134

Jul 19: Chapter 1000/49 Young Eagles Flight Rally. 7:00 a.m., Fox Field (WJF), Lancaster CA. (805) 948-4431

Jul 30 - Aug 5: 45th Annual EAA Fly-In and Sport Aviation Convention. Wittman Regional Airport. Oshkosh, WI (414) 426-4800

Aug 6: EAA Chapter 49 Monthly Meeting, 7:30 p.m., Sunnydale School. 1233 W. Ave. J-8, Lancaster, CA. (805) 942-7149

Aug 12: EAA Chapter 1000 Board of Directors Meeting, 5:00 p.m., Edwards AFB. Test Pilot School, MOL Room (805) 258-8134

Aug 19: EAA Chapter 1000 Monthly Meeting, 5:00 p.m., Edwards AFB. USAF Test Pilot School, Scobee Auditorium. (805) 258-8134

Oct 9 - 12: Copperstate EAA Regional Fly-In, Williams Gateway Airport, Mesa AZ. (520) 228-5480

Oct 18 - 19: Edwards AFB Open House and Air Show. Homebuilts on display in Hangar 1600.

Oct 31 - Nov 2: 1997 Fox Field National Air Races. Fox Field (WJF), Lancaster CA.

A Visitor From Down Under

Graham Byass of Perth, Australia found Chapter 1000 via our web site and liked it so much he's going to come visit us! Okay, so he happens to be on his way to Oshkosh. He arrives at LAX on 25 July and departs LAX on 29 July. In between, he wants to visit Edwards and do some ***Project Policing*** as well. If your not already off to Oshkosh and would like to open up your project to international scrutiny by someone who currently thinks it is winter, or just to meet a fellow EAAer from Australia, just let **Russ Erb** know.

For Sale:

Sonerai IIL project. Fuselage and wings 95% complete. Modified for A65 engine. Engine torn down for overhaul but complete with a great many spare engine parts. Includes instruments. Hydraulic brakes. All excellent work. Call Mike Pelletier. 805-258-8134

RV-6 project estate sale. "Turnkey"--Includes everything! (tools, videos, plans, all kits through finish). 180hp Lyc. O-360-A3A with all accessories. Wings, tail, controls done. Fuselage 70%. Excellent workmanship. $15K. FMI: EAA Chapter 125 - El Paso, TX (915)859-7272 x18 or (915)852-3554.

To join Chapter 1000, send your name, address, EAA number, and $15 dues to: EAA Chapter 1000 Treasurer, Mike Meyer, 6809 Spaatz Dr, Edwards CA 93523. Membership in National EAA ($35, 1-800-843-3612) is required.

Contact our officers by e-mail:
Mike Pelletier: mpcubed@ptw.com
Gary Aldrich: gary_aldrich@pobox.com
Miles Bowen: bowenfam@tminet.com
Mike Meyer: aerosong@ptw.com

Inputs for the newsletter or any comments can be sent to Russ Erb, 805-258-6335, by e-mail to erbman@compuserve.com

THE LEADING EDGE
MUROC EAA CHAPTER 1000 NEWSLETTER
C/O Russ Erb
6708 Doolittle Dr
Edwards CA 93523-2106
http://www.eaa1000.av.org

THIS MONTH'S HIGHLIGHTS:
REGULAR MEETING 15 JULY AT TPS
FAMILY PICNIC 20 JULY
MORE ON SEALANTS AND PRIMERS
PROJECT POLICE PICTURE PAGES