NEWSLETTER

Carb Heat

Hot Air and Flying Rumours
Vol 32 No. 06

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JUNE 2002

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Next Meeting:
Saturday, June 22, 2002 10:00 AM
Chapter Hanger at CYRP (Carp)

Oshkosh Arrival Procedure Video

Feature Presentation
First Flight Awards

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President's Page
by Gary Palmer

Fly in season in full swing.

Despite highly variable weather, the 2002 fly-in season has started with Westport, Embrun, RockCliffe, and Smiths Falls events behind us and many more yet to come. If you haven't already contacted **Curtis Hillier** to volunteer for our own event August 11th, please give it consideration.

First Flight Awards.

Stan Ironstone for his Glasair III and **Bill Argue** for his Pegasair will receive their first flight plaques at the June 22nd meeting. Recent first flights will be recognized next year, so if you fall into this category let us have the details.

Spring Cleaning a big success on Saturday May 25th

Dick Moore, despite a last minute rescheduling from Morning to Afternoon, had a good turnout of volunteers to help spruce up the chapter facilities. A special thank you to the small crew that showed up in the morning and had the initiative to repair the missing roof shingles! Until Alan Rushforth dropped by to let us know what transgressed, Dick was being accused of less than perfect vision, as no missing shingles were in sight.

A gentle reminder that **EAAers don't litter** should be more than just an Oshkosh slogan, but natural habit for all club members using the facilities. If you replace a battery at annual, or change the oil, please dispose of it yourself, don't leave it to others. If a garbage can is full to the brim, tie up the bag and take it home and put it out with your regular garbage pickup. If we all share the workload, everyone benefits with a facility we can all be proud of.

EAA Book Sale.

The annual EAA Book sale is back again. This is your opportunity to pick up classics such as the **Tony Bingelis** series for half their normal cost. Most books & videos in the EAA catalog with the exception of SportAir videos end up costing the U.S. dollar amount rounded up to the nearest dollar in Canadian funds with all shipping and taxes included. The order form is attached later in the newsletter, have your orders & cheques to **George Elliott** no later than the **June 22nd** meeting.

Canada Day celebrations at NAM.

The annual Canada Day celebrations at the NAM will **not** have EAA representation this year. After over a decade, the executive felt the small core of volunteers deserved a well-earned rest so they can celebrate July 1st with their family and friends.

Upcoming meetings/events.

Looking forward to the summer we have an interesting slate of speakers and topics planned including:

July 20th	Russ Robinson's RV-6, and Champ project open house & BBQ. Meet at chapter 10 AM, then to Russ's.
Aug10/11	EAA fly-in breakfast, setup Saturday 10th, fly-in Sunday Aug 11th, Rain or Shine. **Curtis Hillier** will be looking for volunteers; so surprise him with a phone call to offer your aid.

Thursday May 16th meeting: Composite Propeller Fabrication: Phil Johnson

Phil Johnson gave an excellent presentation on the process he followed to design and fabricate a custom 3-blade propeller to match the Subaru SVX power plant on his Cozy Mk IV. This was a thoroughly professional job that was highly educational, and we look forward to actual flight test results when Phil finally takes flight.

Saturday June 22nd meeting @ Carp Chapter Clubhouse 10:00 AM start: Oshkosh Video & Planning

The start of the summer season sees us revisiting Oshkosh flight planning and arrival procedures. I will be away on vacation, so **Russ Holmes** will handle this meeting in my absence. This is a chance to hook up with other chapter members, and coordinate travel plans, shares rides, and establish meeting places at Oshkosh.

Gary

EAA 2002 Book & Video Sale Order Form

Name:				
Tel #				
Payment in full by cheque to George Elliott required no later than June 15				
Item	**Item #**	**Description**	**Unit $**	**Total $**
Qty	**Tony Bingelis series: A must have**			
	F-30140	The SportPlane Builder; Tony Bingelis	25.00	
	F-01395	SportPlane Construction Techniques; Bingelis	25.00	
	F-13950	Firewall Forward; Bingelis	25.00	
	F-15691	Tony Bingelis on Engines	25.00	
	F-15692	Tony Bingelis 4 volume set	79.00	
	Other Homebuilder books			
	F-37864	Aircraft Welding Manual	12.00	
	F-36688	Aircraft Welding Manual & Video Combo	24.50	
	F-18100	Wood/EAA Aircraft Building Techniques	12.00	
	F-11619	Wood/EAA Building Manual & Video Combo	24.50	
	F-13510	Custom Built Sport Aircraft Handbook	15.00	
	F-30157	GA Airfoils Harry Riblett	18.00	
	F-13470	CAM 107 Aircraft Power Plant Handbook	25.00	
	F-17878	Alternative Engines -Contact M. Myal	44.50	
	F-13097	Ultralight Access Handbook	20.00	
	E-11399	AeroCrafter 8th Edition incl CDROM	34.50	
	F-12989	Golden Age of Air Racing Book	29.50	
Video				
	F-12989	Golden Age of Air Racing Book+Video	32.50	
	F-10429	Building Your Own Airplane Get Started	20.50	
	F-35776	Basic Aircraft Woodworking	20.50	
	F-36029	Basic Composite Construction	20.50	
	F-36687	Build your own plane: Welding	20.50	
	F-38113	Build your own plane: Corrosion	20.50	
	F-36467	Basic Aircraft Painting	25.50	
	F-14019	First Flights in your Homebuilt	10.50	
	F-10289	First Flights in your Ultralight	10.50	
	F-36851	Getting started in Aerobatics	20.50	
	F-10433	Aerobatics: Flying the Maneuvers	20.50	
	F-82778	Flying the Sukhoi SU-26	10.50	
	F-36139	Wonderful world of floats	25.50	
	F-38019	Advanced Seaplane flying	20.50	
	F-18099	History of Seaplanes	15.50	
	F-36435	DeHavilland Beaver Country	20.50	
	F-36421	Building of the Voyageur	10.50	
	F-11636	Sportair Composite Construction 20% off	40.50	
	F-11636	Sportair A/C Fabric Covering 20% off	65.00	
	F-86963	Flying the Spirit of St. Louis	13.50	
	F-11613	Memphis Belle actual mission footage	10.50	
	F-00126	Molt Taylor's Aerocar	10.50	
	F-14029	Magnificent Desolation Apollo Astronauts	10.50	
	F-15859	Eagles, A great Run	10.50	
	F-98044	Young Eagle Cliff Robertson	10.50	
		Grand Total		

From: Ed Anderson

Subject: RV Glider

Hi Folks,

Just got back from the Memphis, TN rotary gathering which was a great couple of days. Tracy Crook, myself and a number of you folks with projects were there. Well, this is not a reporting on the gathering, this is another of Uncle Ed's unusual and strange happenings (or perhaps not so) while in Rotary flight.

I now probably hold the world record for the longest engine-out glide and an RV-6 aircraft to a successful deadstick landing at Winchester, TN. It was a 14 minute, 12 mile engine-out glide which was probably the quietest 14 minutes I have had in a long time. First, let me reassure you, the problem was NOT with the engine or even the auxiliary equipment. It was err... a fuel management problem. The engine began sputtering about 1 hour after taking off from Memphis. The fuel gauge (calibrated) and my fuel totalizer (quite accurate) both stated I had 3-5 gallons left in the tank. So I did not waste my time considering fuel starvation. To make a long story short, it turns out I did indeed have three gallons left in the tank. Later analysis indicates that the "flop" tube I have in the tank for acrobatics hung up on a fitting which kept the tube and fuel intake above the last three gallons of fuel. I know, I know - my instructor taught me that the first thing you do is switch tanks but I knew I had fuel in the tank so that could not be the problem. It was there, OK, but the engine could not get it so for all practical purposes it could have been half full and I still should have switched tanks. I have read for years about this happening to folks and though it would never happen to me. Well, it did and while as you can imagine, it is somewhat embarrassing to reveal it when I could simply keep my mouth shut. I have promised you guys to reveal my mistakes (no matter how stupid) just so you won't make the same ones. The RV performed flawlessly in what was certainly an adrenaline filled 14 minutes. My Garmin 195 GPS earned its price several times over as 15 airfield came up when I punched "nrst". But, it was rather dismaying to see that the closest was 12 miles away. Fortunately I was up at 9500 MSL and made the field with about 2000 field of altitude left. I had to punch though a broken cloud layer at 7500 MSL and fortunately had the presence of mind to realize that my AI would not be of any use in the clouds as there was no vacuum to drive it with the engine stopped. So I kept the wings level with the turn coordinator as I punched through about 500 ft of cloud coming out at 7000MSL overlooking nothing but treed ridge lines. GPS took me right up to the airfield and a successful landing was made. Best glide speed of 87 mph gave me a rate of descent of 750 fpm with the prop stopped. I did dive a bit once to see that the prop started turning over at 110 mph indicated airspeed. Prop is 68x72. I spent the night there at Winchester, TN and refueled (after determining that fuel starvation from the right tank was the only problem) and flew home to relax. Its an even that I am both somewhat pleased and embarrassed. Forwarded for your consideration.

Best Regards

Ed Anderson (RV Glider pilot)

Our chapter is now receiving Chapter 679's (Vancouver Island) newsletter. It will be available (in colour!) in the chapter binder in our chapter lounge. Feel free to review the news from the west coast! If you are connected visit them and sign their guest book at www.angelfire.com/bc2/chapter679

CANARDS

This is an interesting critique of Canard's from Martin Hollmann Aircraft Designs Inc. One of the leading engineering firms. Call 831-649-6212 for engineering help, books, classes or visit www.aircraftdesigns.com <http://www.aircraftdesigns.com>

Canard Aircraft Designs by Martin Hollmann

In the May issue of Custom Planes I wrote an article on FLYING WINGS, CANARDS or BIPLANES? In this report I wrote what I know about John Denver's death in a Long EZ. I only wrote a part of what I know. Here is a little more. Under no circumstances is the following an assault on Long EZ pilots or Mr. Burt Rutan who, beside myself, is one of the most prolific aircraft designers in the world today.

In the early 1980's my good friend and aerodynamicist, Rick McWilliams, started building a Long EZ and he asked his good friend, famous aerodynamicist, Dr. R.T. Jones* "What is the best aircraft configuration?" R.T. replied, "I do not know." Rick spent a year researching this topic to find out that certain characteristics could be improved on with this aircraft. One such item was the GU25 airfoil used on the canard (the front wing) of the early Long EZ's. This airfoil has 70% laminar flow on top and 70% laminar flow on the bottom which gives it very low drag but also givesit a bad stall characteristic especially if it becomes contaminated by small specs or bugs or rain on the leading edge. When that happens and the canard is stalled, it may take a long time to recover. According to R.T. the canard airfoil should use a rubbust airfoil such as the NACA 101 or the Goettingen 387 which allows a quick recovery after stalling even when contaminated. R.T. also stated that the GU25 airfoil could be dangerous since the nose of the Long EZ could drop (called a deep stall) and the aircraft loose a substantial amount of altitude before the pilot recovers. As such, in 1986, I put a note on page 40 in my book "Modern Aircraft Design, Vol. 1" that this airfoil is "No good." I did not elaborate further. In retrospect and from the accidents that have happened, I should have.

A number (3) of fatal accidents had also occurred in Florida in which Long EZ's had dove in. A number of lawsuits followed.

After Denver's accident in 1997, I talked to one of my Stallion builders, Jon, in Florida. He built the first plans built Long EZ and he told me that he had heard of the problem with GU25 airfoil. When talking to him I had not mentioned anything of what I knew of the problem with the GU25 airfoil.

He had found out that a John Murphy at Merritt Island was working on a fix. He visited Murphy who told him that, "he was not allowed to talk about the problem but that Jon should look on his drawing board." The large cusp ontop of the trailing edge of the GU25 airfoil was filled in with a straight line. Jon modified his airfoil accordingly.

Because of these problems another aerodynamicist, John Roncz, was hired in the early 1980's to design a new rain canard called the Roncz 1145 airfoil for the Long EZ. Some GU25 Long EZ pilots have also modified their canard by locating vortex generators just ahead of the cusp.

Denver's Long EZ was serial no. 54. It was one of the early canards. George Peterson of the NTSB who investigated Denver's accident claimed that the Roncz airfoil was used. He gave me a name and phone number of the person that told him that. I called that person and he denied it.

One Long EZ pilot writes, "When I purchased my Long EZ in 1989, I flight tested it completely according to the Owners Manual. In addition, I flew into rain showers to check reaction of the original canard and loss of lift problem when wet. The first test was a sudden loss of 500 feet of altitude as the stick pulled out of my hand." He also states that he has 1,000 hrs of trouble free flying in Long EZ's since then. By-the-way, John Denver was flying at 400 feet.

Yes, many Long EZ's are flying safely with the GU25 airfoil but accidents still occur. Following is a tragedy that occured in March 1999, one and a half years after Denver's accident. It was reported by John McAvoy in EAA Chapter 62's newsletter on April 1999. John and several other Long EZ pilots flew to Baja, Mexico from CA in Long Ez's. The accident pilot's name was Gus and the aircraft a Long EZ. They lost track of Gus and found his wreck several days later in the ocean. After the Long EZ wreck was recovered, McAvoy inspected the wreck. In McAvoy's words, "We were also met by another EZ builder who was accompanying a representative of the news media. Both he and I made a thorough visual inspection of debris and we both came to the same conclusion; the impact was not survivable. Our basic agreement is the aircraft hit the water inverted. The failures and stresses indicate the pilot restraint failed due to very high G loading. The pilot was ejected through the canopy. " Was this accident caused by a deep stall of the canard? You be the judge. There are many other similar accidents!

THE SOLITAIRE

There is more to canards than meets the eye. At the 1982 Homebuilt Sailplane Association meeting at Tehachapi, CA, two pilots Einar Enevoldson, famous NASA test pilot, and Walt Moonie evaluated the canard Solitaire. One pilot would fly the Solitaire and the other a Schweizer I-36. Performance between the aircraft was similar at low g's but when the pilots landed the one in the

Solitaire claimed it was really rough. The I-36 pilot claimed it was smooth. The pilots traded places and the same thing happened with the canard pilot claiming rough air. As Walt Mooney explained it to me, "the canard enters the gust first causing the nose to pitch up and then the wing to push the aircraft up." With a conventional aircraft, the aircraft only translates up and down since the tail keeps it level. Furthermore, when making high banked turns in the Solitaire the sink rate would increase greatly as shown in the Pilot Report "The Rutan Solitaire" in November, 1982 Soaring by famous NASA test pilot Einar Enevoldson and Marta Bohn-Meyer, famous NASA aeronauticalflight test engineer.

THE CM-44

In the fall of 1987, California Microwave Inc. (CMI) came to me and asked me to fix a problem on their CM-44 designed by Rutan. The CM-44 was a canard aircraft and at 95 knots it would yaw 45 degrees opposite to the direction of the turn which was very uncomfortable to the pilot. No one knew what the problem was but I felt I could solve it with the help of my friends; Dr. R.T. Jones, Rick McWilliams, Jim Phillips from NASA, Dr. Ilan Kroo from Stanford. I agreed to help. Dr. Kroo set up a lattice vortex model of the existing CM-44 and showed that (during a turn) the downward moving winglet was stalling causing the upward moving winglet to push the nose in the opposite direction of the turn. Figure 1, not shown, shows the Cl distribution on the wing, canard, and winglet. John Roncz designed a new canard airfoil. Using the lattice vortex program we resized the aircraft, designed and built new wings, winglets and a canard and the aircraft, now called the CM-44A, was test flown. As CMI reports "We have a winner." Not only was the yaw problem solved, but the take off distance was shortened to about half. The wing taper ratio had been the culprit and reducing it kept the wing tip and the winglet from stalling. We could now use a larger canard area which allowed the aircraft to fly slower. I sent a list of items to CMI that needed corrections to the CM-44 prior to getting a contract to design and build the CM-44A. These items include ;

The wing is only twisted 2.5 degrees. I should be washed out 6 to 7degrees.

- The winglet is aligned with the wing leading edge so that the pressure peaks coincide. The winglet should be moved aft as far as possible to keep the pressure peaks from aligning.
- The airfoil of the wing tip and winglet should be non laminar flow, high lift airfoils which will no stall at high angles of attack.

The present CM-44 airfoils have poor stall characteristics

- The wing taper ratio on the CM-44 is too high. The tip chord is too low in comparison to the root chord.
- The angle of incidence of the winglets must also be properly selected.10

BEECH STARSHIP

When the canard configured Beech Starship was concepted my friends and I were surprised that flaps and a variable canard were going to be used. When Rich McWilliams and I held technical design classes at Beechcraft in the early days I told Rick not to say anything negative about canard aircraft. When we had lunch with our clients and students we were surprised that they knew what we knew. Despite of them not convincing their management to make changes, they did a fantastic job in designing and certifying the structure of the Starship. We all knew that using flaps on the Starship would not reduce the stall speed by any significant amount since the lift coefficient and lift of the canard dictates the stall speed of the aircraft. The added pitching moment of the wing from the flaps cause the lift load on the canard to increase and the canard to stall a bit earlier. Many years later, I talked to my good friend, Ed Hooper, the project manager of the Starship at Beechcraft. Ed had flown the Starship 200 times and he stated the stall speed on the Starship stayed the same, 69 knots, with or without flaps down. We were not much surprised. Again I want to reiterate that I am not trying to reflect a poor image on Mr. Burt Rutan. On the contrary, I consider Mr. Rutan an ambitious and prolific aircraft designer willing to take risks to explore new designs. Such people must be encouraged and supported if we are going to advance the state of the art. If I did not feel that way, I would not have turned down an offer from attorneys to work on behalf of the plaintiffs in a lawsuit against Mr. Rutan in the canard Microlight aircraft accident in which the owner and test pilot of this aircraft were killed.

CONCLUSION

It is important to recognize mistakes so we or others do not make them again. After all, the life we save might be mine or maybe even yours. Saving someone's life would certainly not be the first time that I have done that.

Place your ads by phone with Rodney Stead @ 836-1410 or e-mail to stitstmp@sympatico.ca
Deadline is first of the month. Ads will run for three months with a renewal option of two more months.

T Hanger stand alone unit at Carp north end of field.
New, RV6 landing gear in the box
New, 3 blade propeller in the box
Nearly new, Tig welder Lincoln 175
Subaru engine
Contact Amie @831-9079 05/02

Homebuilt PA 12, Bill Whaley's Project. Inspected ready for cover, Mazda Rotary, @ EDO 2000 floats many extras
Contact Jeff h 836-7048 w 596-2400 x295 05/02

For Sale: 500 Watt Toro Generator, as new condition
$200 firm call Ken Mackenzie @ 613-839-2861 01/02

Airspeed indicator by Aerosonic Corp., U.S., 20 - 250 kts, MS28021-4, manufactured in 1988, last calibrated in 1996. For RV series of aircraft and others. Best offer
Wolfgang Weichert 836-1318 09/2001

For Sale: brand new battery G-25
1972 Bellanca Citabria –7GCBC 40 hour on airframe since rebuild Lycoming O-320 (160 hp) Zero time
T Hanger at Carp
call Uwe Stickel @ 266-6686
email; ustickel@sympatico.ca 01/02

For Sale:
_Cessna Main Gear wheel Pants
–McCauley Prop for 65 HP
–McCauley Prop for O320
–McCauley Prop 8 bolt 73-57
Jim Robinson 830-4317 10/01

SUBARO ENGINE FOR SALE
1731 CM3 displacement engine suitable for homebuilt power plant
$1000 obo
contact David or Pauline @ 225-7381 11/2001

Articles Wanted

I am always interested in receiving submissions for this, your Newsletter. You may bring articles to the monthly meetings, or mail information to the post office box, or

e-mail stitstmp@sympatico.ca

EAA Chapter 245 Membership Application

NEW:___ RENEWAL:___ DATE:__/__/__
EAA NUMBER:.....
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Annual Dues: January 1st to December 31st. (porated after March31st for new members/subscribers).
Associate Member ____: $30.00 Newsletter plus Chapter facilities
Full Member: ____: $55.00 Newsletter, hangar, workshop, tiedowns. (Note: there is a one time $200 initiation fee when you become a Full Member)
Newsletter subscriber ____: $30.00 Newsletter
Note Associate and full members must also be members of EAA's parent body in Oshkosh WI, USA

Make cheque payable to:
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