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COZY NEWSLETTER #75

October, 2001

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OTHER PARTS WE RECOMMEND:

We can recommend the following items:

1. Improved **Rudder pedals** for lay-down brake cylinders, adjustable both sides. Dennis Oelmann (319) 277-5996.
2. **Electric speed brake actuator kit.** Wayne Lanza (561) 664-9239.
3. **Switching and breaker panel.** Wayne Lanza (561) 664-9239.
4. **Fuel sight gages.** Vance Atkinson (817) 354-8064.
5. **Electric nose-lift.** Steve Wright (615) 373-8764.
6. **Electric nose-lift, Spring steel safety catch, and improved MKNG-6 and NG-6 Pivots** with tapered roller bearings. Jack Wilhelmson (843) 884-5061.
7. **Electric pitch trim.** Alex Strong (760) 254-3692.
8. **Voice annunciated warning system.** Richard Lewis (423) 376-1450.
9. **Rebuilt flight instruments.** Howard Francis (not a Cozy builder) (480) 820-0405.

10. **T-shirts**, etc. Bill Walsh, nogofsu@sprintmail.com. (407) 696-0942.
 11. **Antennas**. RST Jim Weir (530) 272-2203.
 12. **Teflon & Stainless Hinge Pins Replacement**. Gary Hall (954) 979-9494.
 13. **Nosegear crank ratchets**. Bill Theeringer (805) 964-5453.
 14. **Embroidered clothing**. With pictures of a Cozy, name, N number, etc. in any color. Trish Vermeyley (609) 693-4819.
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PLANS CORRECTIONS/CLARIFICATION

All previous known corrections to the Mark IV 2nd edition were summarized and published at the end of newsletter #73. Please make sure your plans have been updated.

BUILDER HINTS

1. Canopy scratches. Todd Silver says that the easiest and least expensive way to remove scratches in the canopy is to use car wax. He says to use a cotton cloth and rub in a circular motion. If that doesn't work, Novus makes a rubbing compound for plastic. One is supposed to start with Novus #3, then Novus #2, and finally Novus #1. Micromesh has a similar product.
2. Syringes (for filling bubbles). Burke Bristow suggests getting them from farm supply stores. He says they are commonly used by farmers to vaccinate their animals. Larry Schuler says he gets them at a local hobby store.
3. Exhaust. Michael Link said that when he first installed his exhaust pipes (with a 6 inch prop extension), he didn't shorten them, and he had some cosmetic damage to the paint on his prop. He then cut the pipes off at an angle so they protruded from the cowling only about an inch, and that solved the problem.
4. MKNG-6 with roller bearings. David Domeier said he just installed Jack Wilhelmson's MKNG-6 with roller bearings, and his side play is gone and the take off run tracks much better. He suggest that anyone considering this unit over the brass bushing should install it when building the nose section, because it was somewhat of a bear to install the side washers between the NG-30s and MKNG-6 once the airplane is built.
5. Fillers. Larry Capps tested the density of various fillers. The micro-fillers made with epoxies varied from 3.1 lbs/gal to 3.8 lbs/gal. Superfil (from Polyfiber), which has recently become popular, had a density of 5.0 lbs/gal. The epoxy-micro mixes he tested were those made from Alphapoxy and Aeropoxy. He didn't test the West system, which is recommended in the plans. We assume it would fall in between the two epoxies he tested. It is estimated that using Superfil might add about 10 lbs to the final empty weigh, and add to the cost, depending on how much is used.
6. Aileron Rod Ends. The XM-3 and the MM-4 are suitable replacements for the HM-4, but the XM-3 is preferred because it is a simpler substitute and less expensive.

FOR SALE

1. Cozy Mark IV 4-place aircraft. 220mph cruise on 10 gph. 150 hrs TT airframe, 150 hrs TT IO-360 Lycoming. First flight 9/8/98. Always hangared. Exceptionally nice Cozy with full instruments: KX155, Collins transponder, ELT, Stereo CD player, intercom, Audio flight engine monitor system, electric trim, electric speed brake, electric retract, 3-blade Performance prop. \$99,900. Tel (480)671-7355 or email cozy42cz@qwest.net for more info or references. Editor: This Mark IV is a real gem and would be a serious contender for Grand Champion at Oshkosh. Builder turned down a \$103,000 cash offer a year ago.
 2. Cozy Mark IV project estimated to be 80-85% complete. All major components have been built with the exception of the strakes. Construction log and photographs are available for inspection. Must see to appreciate the quality of workmanship throughout. Must sell due to the untimely death of the builder (Lowell Robinson). \$25,000. Lycoming O-320 also available for an additional \$7,000. Engine has high time on it but still has good compression. Log book is also available for inspection. Serious inquiries only. (210) 496-4751.
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WHAT WE HAVE BEEN DOING

Oshkosh 2001: As a result of my angioplasty in 1998, Big Brother is concerned that I might be a threat to the safety of the public, so it has mandated a lot of special tests for my special issuance medical each year. I passed these with flying colors this spring and sent them off to Oklahoma City (at the end of July while we were at Oshkosh, the FAA notified me that they thought I was safe to fly another year). Then I had my biennial flight review. My CFI likes to fly the Cozy and tells everyone else about it, so most of the 1 hour flight review I let him fly, and then we did a little rules review over breakfast. So we were all current when we left for up north to visit family en route to the big "O". Weather in July and August is kind of iffy in Arizona, but as soon as we got past Gallup NM it was great. Our straight line route took us through La Vita Pass (near Pueblo) and then on to McCook Nebraska for a fuel stop and then on to Duluth, to visit our youngest son, wife Stephanie, and newest grandson, Luke. It was plenty cool in Duluth, but that changed when we flew south to St. Paul. We visited daughter Kimberly and granddaughters, and then visited our other sons' families in Rochester and New Prague.

We flew to Oshkosh on July 21st to get set up several days before the show started. The weather was borderline VFR—3 miles in haze. Anyway, we were happy to get there ahead of the crowd. We set up in our usual spot, the south entrance to Exhibit Bldg. A, and had a couple of days to relax before the work started. We always like to visit Friar Tucks, on the edge of the airport, for one of their delicious Rueben sandwiches. There is a brand new Hilton hotel on the edge of the airport as well, which appears to be 100% dedicated to the EAA, at least during airshow week. The day before the show started, we were listening to all the arrivals on the radio, and we heard this from a Bonanza to the tower, "We would like to shoot a couple of landings if it is okay with you." The controller was so startled, he was lost for words.

The first couple of days we were there were miserably hot and humid (worse than Arizona), and then the rains hit. We were sitting in our camp listening to the tower just as it was starting to rain, and heard the tower talking to a Cozy. So I told Shirley I was going to drive over to the canard parking area and rescue them after they landed. I met Tim and Wendy Freeze, with their newly finished 3-place Cozy, and brought them back to our campsite to camp.

The next day David Domeier (known to the internet as dd) arrived and also set up camp with us. So all of us would go into town each night, to Callihan's, Fratellies, Robbins, or Friar Tucks for dinner.

Steve Wright brought his nose lift demo and gazebo and chairs along again, as he has done now for several years at both Sun n Fun and Oshkosh, to provide shade at our exhibit. As the week progressed, many builders stopped by to sit and chat. We also met a lot of prospective builders and sold the 3 sets of plans we brought along before the week was over.

In all, we counted 15 Cozys that were there: Let's see, Kevin and Carrie Funk, Tim & Wendy Freeze, Vance Atkinson, Rick LaCourse, Greg Richter, us, Dennis Oelmann, Tim Merrill, David Domeier, Colby Farmer, Chris Esselsten, Robert Kittler, and several more I don't remember.

One of the most popular exhibits was Greg Richter's EFIS (Electronic Flight Instrument System), which not only had all the instruments on one half of a 10 x 8 flat screen, but also a colored moving-map-sectional (or WAC) on the other half. Rumor had it that no less than Burt Rutan was interested in making a "deal".

Our forum was well attended on Friday afternoon, and so was the dinner in the evening. About 65 builders came to the dinner at Robbins.

Kevin Funk pleased everyone with a Cozy Mark IV fly-by one afternoon.

Cirrus announced that the new SR22 had sidesticks and had broken the 200 mph barrier (we didn't know there was one).

Exhibitors are supposed to stay until after the airshow on the last day, but they always want us to move our airplane away from the exhibit building a little early so all the trucks can move in as soon as the show ends. The weather looked good for traveling, so we not only moved our airplane out, but took off just before they closed the field for the airshow. Even though it was nice sunshine and puffy clouds, we had a 40 knot headwind, and couldn't make it to Pueblo Colorado, as we had planned, so we set down at McCook Nebraska to refuel. We had a cross-wind gusting at 30 knots, which made landing interesting to say the least. I think I heard Shirley say a prayer while I was fighting to keep things straight and level. Flight service said there were thunderstorms at Pueblo, so we decided to stay put at McCook. The FBO loaned us a courtesy car—a former police car, which was white and still had a blue stripe down the side saying "McCook Police". That made everyone in town be real nice to us.

The Best Western gave us free breakfast tickets to the Country Kitchen next door. In the morning it was still very windy (always seems to be in Nebraska and Kansas) and still a strong head wind so we couldn't make it the rest of the way without stopping again for fuel, so we stopped at Pueblo. There can be a lot of build-ups over the high country in Arizona in mid day, so our last hour of flight was real impressive, wending our way between the clouds.

Another trip to Oshkosh with a successful ending!

Shirley's paintings: A couple of months ago Shirley was asked to loan some of her water color paintings to the Arizona Supreme Court for display on their walls. They set up a special web page for her. The easiest way to see it is to call up: Cozyaircraft.com, then click on "Shirley's corner", and then at the bottom of the page, click on "To see more of Shirley's paintings". Thank you, John Slade, for providing the link.

Constellation cruise: The U.S.Navy has a PR program in peacetime to allow friends and family members (no spouses) to meet ships, returning from deployment, in Hawaii and sail with crew members from Hawaii to San Diego. It had been 55 years since I was last on a carrier, so I was very anxious to get in on this cruise. Through the good auspices of Alex Strong (whom you know), and his son-in-law, LCDR Randell Livingood, Chaplain on the Constellation and also a Cozy builder, I was invited along on the flagship carrier USS Constellation (CV-64), which was the center of a battle group, consisting of a cruiser, a destroyer, a frigate, a tanker, and 2 submarines, returning from deployment in the Persian Gulf.

Alex and I flew on a charter flight from San Diego to Hawaii on September 7th. We attended a memorial service at the Arizona Memorial in Pearl Harbor, and then boarded the carrier. It was huge! Impressive! Amazing! We sailed on Sunday, September 9th. There were many activities planned. We got to watch refueling operations at sea. We toured the carrier from the engine room to the bridge, and observed flight operations on the flight deck. There were over 70 airplanes on board and an equivalent number of pilots. They were supported by a couple of thousand in the air-wing and a couple thousand in the carrier crew. An air-show was put on for our benefit. This included watching the catapult launching of aircraft, and landing (trapping them with arresting wires), an F-18 breaking the sound barrier abeam the carrier (which was really an amazing sight, to see the cloud that surrounded the airplane at that instant), a demonstration of air-sea rescue with helicopters, air-to-air refueling, etc. We toured all 8 squadron ready rooms and listened to presentations on their individual missions. We were told that the most important difference between our forces and those of other countries is the training. Our pilots train every day. Most countries can only afford to have their pilots fly once a month, if that often. There were a variety of airplanes on board: the F-14 Super Tomcats, the F-18 Hornets, the S-3 Vikings, the EA-6 Prowlers, the C-2 Greyhounds, the E-2 Hawkeye, and the SH-60 Seahawks (see pictures).

On September 11, when the attack on New York occurred, Captain Miller put the carrier on alert, suspended some of the planned activities, and proceeded at flank speed the rest of the way to San Diego.

I was very much impressed with the patriotism, the professionalism and the capability of the crew, the pilots, and the entire organization up to and including the captain, and I think we can be very proud of our military. For me, this was the experience of a lifetime!

The last night, on board the carrier, I spent several hours on the catwalk looking at the lights in San Diego, reminising about the cruise, and reflecting on how wonderful a country we live in, and how God has blessed us.

Shirley's ankle. A week before I left for the cruise, Shirley had a bad fall and broke her ankle. She was pretty near helpless. I was really torn between my desire to stay home to take care of her and my desire to go on the cruise. She wanted me to go on the cruise, so we arranged with Lutheran Social Services for

someone to be here with her every day. She is now getting along quite well.

COZY COPPERSTATE – CALLED OFF

That's right guys, we had to call off the fly-in we hoped to put on for two reasons. First, because of Shirley's accident. The outlook was that it would take at least 6 weeks to heal, and then the therapy will start. She wouldn't be up to full speed by the second week of October, and I didn't think I could do it alone without her help. Then, after the attack on New York City, all VFR flights were curtailed with no prediction of when they might be possible again, so that really settled it. We are very sorry, because we were looking forward to entertaining our builder friends at our house.

WE SHALL REMEMBER

Tim Merrill, winner of the Grand Champion Award at Oshkosh with his Cozy Mark IV in 1996, succumbed to cancer shortly after Oshkosh this year. Dennis Oelmann had accompanied him on his last Oshkosh visit. We shall remember him.

FIRST FLIGHTS

We learned of 3 in the last 3 months:

1. On 6/26/01 we got a call from Dan Cruger, in Mobile AL, advising us that his first flight of N197DL was on 5/2/01. He said he had an oil cooling problem with his IO-360 that he was working on solving.
 2. We keep bumping into people who are flying their Cozys who have never sent us notice of their first flights, so we never knew they had completed their projects. So it was with Wendy and Tim Freeze, who camped with us at Oshkosh. They already had about 60 hours on their airplane, but we hadn't heard from them for over 3 years. That is one reason it is hard for us to know how many Cozys are flying.
 3. Another builder we haven't heard from for 3 years is Paul Stowitts. He has been flying for 6 months and we published a long letter from him that he posted on the net.
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\$100 AWARDS

Both Sport Aviation and Kitplanes are requesting all designers to have their builders send in pictures of their completed projects, with short write-ups, because that is one of the most interesting features for their readers. Kitplanes even offers the incentive of entering the builders in a drawing for a free hand-held GPS. We have found that these pictures and write ups are more impressive with prospective builders than an equivalent sized picture ad. That is why we award each builder \$100 for their entry in either or both magazines, or an Alex Strong pitch trim, which would otherwise sell for \$175. We were pleased to see 3 entries so far this year, and have awarded each \$100 or a Strong pitch trim:

1. David Jones, Sport Aviation August 2001.
2. Ed Richards, Kitplanes October 2001.
3. Gaeton Roy, Kitplanes October 2001.

Thanks guys, and the rest of you, Send in your pictures!!!!

\$50 AWARDS

Our best advertising is enthusiastic builders who invite others to see their projects or take them for a ride in their Cozys. To show our appreciation, we still are sending a check for \$50 if their referrals result in a new Cozy builder.

IMPROVED FUEL SIGHT GAUGES

8/4/01

Nat,

Would you please inform some of your more anxious readers that they can now have lighted fuel sight gauges and after my current tests are completed, FLOATING BALLS to better delineate their precious fuel level! Jezzzzzzz!

After several years of resisting a lighting system for my fuel gauges I have finally addressed and solved the problem with a little help from my friends. Although I do very little night flying in my Cozy (about 10 in 1500 hours) others do a fair amount. Over the years requests for lighting have fallen on my deaf ears. Partly because it is not an easy problem to solve and partly because I didn't really think you needed internal lighting. With the help of an electronic friend, I now have a solution at hand.

Internally lit gauges are now available and a retro fit kit is available for all the gauges that are in the field. If you already are using my fuel gauges, you can fit the kit, internally, to both sides easily in 2

hours.

The kits consist of two extremely high output light emitting diodes that last over 100,000 hours of operation, produce no heat, have less than a 15 miliamp draw each, a protection circuit for reversed polarity screw ups (without this protection you will instantly destroy the LED if you reverse the leads), a high speed Dremel cutter bit, and two pages of drawings and instructions to show you what to do. These are very high quality componenets, if you feel you must have lighting for your sight guages. At night, the sight gauge looks like a lava lamp.....very EZ to read! The retro kits cost \$30.00.

If you're ordering a set of gauges for the first time, the price for internally lighted gauges (a set of two) will be \$75.00, including postage and if you live out of the country, add \$5.00 for international postage. Contact me at (817) 354 8064, or 3604 Willomet Ct., Bedford TX 76021. We do not accept credit cards, so send a check.

Anticipating completion of favorable testing, about the time this newsletter comes out, the sight gauges will have one or two floating spheres in each gauge. The new ones will come with them and all of you who have bought gauges in the past will receive them free.....and the catch is, you will have to send me a self addressed and stamped envelope so I can send them to you!!! Instructions will be provided to retrofit the balls!

Vance Atkinson
Bedford,TX

WHY BUILD A COZY?

Wayne Hicks sent us a copy of the dialog he had with a potential Cozy Mark IV builder, Chris Hofman:
Chris: Hi Wayne, Thanks for the timely response.

Wayne: No problem. This group is pretty good about timely responses. This builders group is one of the main reasons I'm building the Cozy. The other reasons are the fantastic designer support, I can start the project for under \$1K, and I didn't have to have \$20K to buy a kit, and I didn't need huge storage spaces for the kit.

Chris: I'm afraid with all the running around I do with the kids and wife it would take me about 8 yrs to finish a project from scratch.

Wayne: I gave myself 4 years realistically to finish the plane. I was right on target with that until I started splitting time between the East Coast and the West Coast. Still, I should finish the plane in 5 years. Can't wait!

Chris: I also wanted to make sure the Cozy is the right design for me. If you don't mind, can I ask you why you chose the Cozy over the other models out there?

Wayne: I'll tell you right up front that the Cozy is a hard sell...until you really look at one and do some cost analyses. Then when you start building and learn about the robustness and cleverness of the design, you absolutely start falling in love with the plane. First things first---It is absolutely the most inexpensive way to get into a 4-seat, 200mph airplane. But here was my thinking:

1. I originally wanted a Lancair or a Glassair. Okay, they were only two seats and we have a

German Shepherd. I don't personally think that a Cozy is a true 4-adult airplane for long trips, but it makes a fine 2-adult, 2-kid plane. I got it because you have LOTS of room for storage if you use the two back seats.

2. I could get started on the plane for minimal investment. I didn't have lots of startup cash lying around. It would have taken me several years to raise the \$\$\$ to get a kit for a Lancair or Glasair. With the Cozy, I could get started for less than \$1K, the price of the plans plus \$500 for the first three chapter kits. So a thousand dollars got me through the first 4 months of building.
3. I didn't want to finance a kit either. I didn't have enough money for a down payment and I didn't want to have to pay that monthly bill! With the Cozy, it literally is "pay as you go"! You build each major component of the airplane "by chapter". It starts out small by first building the fuselage bulkheads (Chapter 4), then the fuselage sides (5), then you put the sides and the bulkheads together to form the fuselage (6), then make and install the bottom (7), etc. What I like about the "pay as you go" you simply purchase the raw supplies in each chapter kit from the suppliers as you need them. So if you must stop building for a while because of your job or family, you stop spending cash too! You don't have that monthly kit payment to worry about!!
4. The plane starts out small and you can easily build the entire fuselage and wings in a one-car garage. You can't do that with a kit. With a kit, the whole damned plane arrives in a big crate. So you must have adequate storage space to house that sucker! I watched a buddy of mine store his fuselage halves in his roof rafters. They stayed there for 4 years!
5. If I had to sell the plane, I could double my money. The Cozy is a safe investment. Most builders are finishing very nice Cozys for under \$50K, but the resale value is \$75K to \$100K. That's good value. Look in Trade-a-Plane and you won't find a one! The builders hang on to 'em, and if one is for sale, they sell quickly.
6. Nat Puffer's support is great, unrivaled except perhaps by RV Van. The Cozy Builders group is great too. Ask a question and responses are sure to follow (some better than others....) There are a lot more intangibles, but for me, it was pure economics vs performance more than anything else. I didn't have to have a canard, but they sure are sweet designs. They fly well and are typically quieter than airplanes with engines up front. The visibility is SUPERB! Working with fiberglass is a joy too! Any mistake can be easily fixed. If you dent the metal skin on a metal airplane, that piece gets trashed and you spend more money buying parts. Believe it or not, the Cozy actually takes less time to build than some kits! Nat posts a 2500 hr build time. That's mostly accurate if you stick to the plans and not make any personal preference modifications. One other important thing...when you eventually see one, your initial impression (and most likely your wife's too) will be "look at how small the cockpit is". That is the most deceiving part! Sit in one for awhile and you'll be impressed. Two grown adults can sit side by side in the front seats without touching shoulders. Now I won't kid you, it's no station wagon as far as room is concerned. But once you get into the plane, you'll fall in love with how ergonomic it is. It is so easy to fly with just wrist motion. The inclined seating is very comfortable. Your arms simply rest comfortably on the armrests. I've flown for 5 hours in my buddy's Long EZ and never, never got uncomfortable. I can also get in and out of the Cozy faster than any other airplane. I could go on and on (I think I have...). I had my reservations about starting this Cozy. When I bought the plans, I kept saying to myself, "Am I doing the right thing?" Now all I can say is "Can't wait until I can fly this thing!" Try it, you'll like it! Write back any time should you have more questions. I researched the Cozy and participated on the mailing list for almost 9 months before I started building. If I hadn't done that, my plane might be finished by now!

Wayne Hicks
Cozy MK-IV #678

OTHER Q & A s

On August 17, prospective Cozy builder Jeffrey Osier-Mixon posted the following question to the internet chat group:

"How did you decide to build a Cozy? I'm only asking because it's a hell of a lot of time, energy, and money to spend if you're not certain, so how did you get certain enough to commit?"

Dave Wilenius replies:

"From your post, you've probably got an idea of some of the things you want your aircraft to do/not do. Make yourself a list of the criteria by which you'll evaluate the hundreds of aircraft on the market. If you identify these as MUST, WANT, and WOULD BE NICE, it makes things go faster. Once you have that down you need to decide what aircraft fit that criteria.

I involved mywife in the criteria portion and then started collecting data. We talked about how various choices met our criteria and buying a production airplane or kit was certainly a better option on some of the criteria. In the end, we decided on the Cozy because it had the best fit for our needs. BTW, some of the criteria got added along the way once we started looking at alternatives – nothing forces you to really examine your needs like drawing close to a major decision.

I like the structured approach and I'm happy with the decision. I always think about whether I made the right decision. So far so good. About becoming certain....I'd characterized it as being excited."

Larry Capps replies:

"Below is a reprint from Cozy Newsletter #71. This should be of great interest to all Cozy builders, and potential builders" Larry quoted the comparison that was made of the Cozy Mark IV to high performance, 4-place factory built in horsepower, speed and cost, which showed that the Cozy Mark IV was faster on less horsepower than 8 factory built costing from \$171,000 to \$500,000

Todd Silver replies:

"I owned a 1962 Mooney for eight years. I liked the Mooney because burning 10 gph I could cruise 150 mph. Solo and half fuel I could climb 1000 fpm. For a 4-place complex aircraft, it was inexpensive to maintain.

Some of the reasons I'm building a Cozy Mk IV: Burning 10 gph I will be able to cruise 40 to 50 mph faster. It outclimbs the Mooney. It is less expensive to maintain. I used to pay about \$400 a year just to have my logbook looked at. If the airplane needed anything (which it always did) the price went up from there.

To appreciate having a fixed prop that will push you along at 200 mph, I think you will have to pay to have a constant speed prop overhauled. I sold my Mooney out of annual for parts. Corrosion was discovered between the aft spar and the top skin. It is not possible to discover anything like that in a Cozy.

Every time the prop swang around in my old Mooney, it would send a shock pulse through the windshield and hit me. Flying up to two hours non-stop, this would be tolerable. If I flew over three hours, the vibration and noise would start to drive me crazy. I would stop thinking that flying was a blessed event and want to just land and get out of the airplane. A Cozy is pushed through clean air. That has got to be more comfortable.

Several years ago my mission at Sun-n-Fun was to decide what airplane to build. One of the kits I was considering arrived at Sun-n-Fun on a trailer. The Cozy was flown from Arizona by the designer and his wife. Later, when I called to ask about the plans, the designer picked up the phone. I was convinced there would be excellent builder support.

As you build your Cozy, you may choose to keep in contact by joining the Cozy internet group with other builders from all over the world. You will probably find yourself winning friends and influencing people. I started building bulkheads before I had a shop. I started by ordering \$400 worth of supplies. If you want to spend more money and take less time building, there are companies that make parts for the Cozy. Cozy Mk IV = a lot of bang for the buck."

Brent A. Carey replies:

"For me, it was a no-brainer. It's like this. First, I had to ask myself whether I wanted to build an airplane. If you don't want to build an airplane, then it really doesn't matter which plane you pick. Having decided to build an airplane, number of seats was important. I have a wife and son, and if I wanted to have family support for the project, it had to be big enough to take us all. So right away, the options are narrowed.

Since I wasn't about to design my own plane, I just had to narrow down the limited selection of 3-4 seaters. For a short time I was torn between a long-distance family trip plane, and a STOL back-country camping plane. I couldn't find a plane that really satisfied me in both areas (although this would have been ideal). Since we are more likely to use the plane to travel long distances, we went that direction.

So, we measured out the most common distances and found them to be 250-800 miles for the most part. I thought that I would like to have a range that approached 1000 miles, but determined cruising speed was more important. I wanted something significantly faster than the C-172 I'm used to flying – let's say something in the range of 160mph+.

So, a 4-seater that can travel at that speed for that distance – well, there aren't many. Finally, I came back to the point that I wanted to build a plane. I don't really like to do anything half-way. If I'm going to build, I might as well BUILD, not just assemble. So, we're looking at a plans-built plane with the aforementioned constraints. I think there are probably fewer than 5 that fit the bill.

At this point, it pretty well came down to aesthetics. I fell in love with the canard look when I passed over one in flight near Colorado Springs. So, really I never struggled with the question. It was just the natural progression of things.

Here's the funny/insane part. Not only have I never flown one, I've never even seen one except at a good distance. I intend to, but I just haven't had the opportunity yet, but I'm trying. My justification for starting to build a plane I have never even seen is this. If I don't enjoy building it, I won't know that from looking at it ahead of time – only by doing it. If I enjoy building it, but later find out that I can't stand one aspect or another, I still win. There has to be that distinction – to build for love of building, to

fly for love of flying. Once you blur the line, you'd better make sure you're building the right airplane.

The way I look at it is that I have a very expensive hobby – I'm building an airplane. At the end of this project, I will get a free airplane. If it turns out that I don't like the plane – no loss."

Kerry Kelly replies:

I have one suggestion, research! Personally, I did months worth. There is a lot to like about the Cozy. It is visually very appealing, a 4-place, OK, 2 adults and luggage or, 2 adults and a couple of kids but, there is still a nice bit of room. Good speed, range, climb, landing is a little quick, but that's typical for canard designs. It is a very pilot friendly, real forgiving, design. The 350+ flying today flew initially with little or no need for significant changes and flew hands off flat, level and straight. Many of these builders didn't, and don't, have significant building experience, other than their Cozy project. This speaks volumes for the core design. Rutan's Long EZ, and the work that Nat did, and continues to do, to create the Cozy aircraft. The benefits of this builders group has to be part of your decision process. You're in the company of a wonderful group of folks that are not only willing to help but, will do whatever is in their power to help a fellow builder succeed.

Yes, it is a hell of a lot of time, energy, and money to spend if you're not certain, but, IMHO the Cozy is head and shoulders above anything else I've looked at, before or after committing. And the only thing that wakes me up at night, is thinking about the day that she takes to the sky for the first time. I can not wait. I hope this helps!"

Kenneth Friberg replies:

"Well, here's how it worked for me. I started with a definition of my mission. Long cross country trips were high on my priority list. Usually I will be traveling alone, but when I'm with others, having two passengers is actually more likely than having only one, so a 4-seater was desirable. Then I looked at finances.

The speed and financial concerns led me to the Cozy or the RV. The RV is a fantastic airplane (am I allowed to say that?), but I think that I need the extra seats a lot more than the short-field and acrobatic capability. Also, the economics of plans building are a lot less painful.

The clincher was that there are quite a few others where I work that are building, or considering, the Cozy. That will be a big help along the way."

Keith Scull replies from the UK:

I made the jump to a Cozy because I wanted a composite aircraft with good stats and good design backup. To date I have been pleased with the whole package, especially the support of Nat and other builders. Is it worth it? Well, every day you think it is and then you think it isn't, but that's life! No doubt when it's flying, I will remember only the good things.

ENGINES

The XP-360: This is the engine utilizing all new parts from Superior. It can be purchased either in kit form or completely assembled from Teledyne Mattituck Services Inc., in Mattituck NY (631-298-8330). They had an exhibit at Oshkosh in Bldg. A, just inside of our location. According to Kitplanes, the kit without accessories is \$15,945; with light weight accessories (carburetor) is \$17,495; and the engine assembled is around \$22,000. There are some interesting claims for this engine. Even though it has a compression ratio of only 8.51:1 (the Lycoming is 8.7:1) it puts out more than 180 hp. The reason given for this is less pressure drop through the intake manifolds, and a better configuration of the camshaft lobes, which were optimized for the 2400 to 2500 rpm range. It is reported that the oil circulation inside the engine has been improved to give better lubrication, and has resulted in better cooling. To run the oil temperature up to the 245F that the FAA requires for testing, they not only had to remove the oil cooler, but they had to insulate the sump. The engine is approved for high octane auto fuel, has a dry weight of 287 lbs (6 lbs less than the equivalent Lycoming) and supposedly runs smoother because of better balancing. The assembled engine comes with new Slick impulse mags, Slick harness, Champion spark plugs, a lite weight starter, fuel pump, carburetor, and oil filter. Don't know if it is available with electronic ignition and an Ellison. Very interesting!!

ACCIDENT REPORTS

Aircraft: '68 Cessna 177 Cardinal

Location: Benton, IL.

Injuries: 3 fatal

Aircraft damage: Destroyed.

What reportedly happened: Aircraft crashed on Sunday, July 22 on the way to OSH AirVenture. Cozy Mark IV builder Lowell Robinson, a passenger, from San Antonio, TX was fatally injured in the crash. He will be sorely missed by all of his friends. No other details are known at this time.

* * *

Aircraft: Kitfox

Location: Carmangay, Alberta

Injuries: 1 Fatal

Aircraft damage: Destroyed

What reportedly happened: On August 14th, Cozy Mark IV builder, Ray Volk, from Phoenix, was returning from a trip to Alaska in his Kitfox. He had relatives in Carmangay, where he was born and raised. He flew over his brother's house to attract his attention so he would come over to an open field to pick him up. As his brother went to get his car, he saw a column of smoke. It was a bad crash. There were no witnesses, so the cause may never be known, but a base-to-final-turn stall is suspected. Ray was a personal friend of ours, and he will be sorely missed.

* * *

Aircraft: Cozy III

Location: Montauban, France.

Injuries: 2 Fatal

Aircraft damage: Destroyed.

What reportedly happened: It was raining in Montauban with cross wind gusts from the left and thunderstorms in the vicinity when the Cozy took off. The pilot had waited a bit for the rain to slow down before he decided to take off. During the wait he had partially opened the canopy twice. It is speculated that this might have been to clear up fog that was collecting inside the canopy. He then lined up on the runway which was wet. The Cozy accelerated down the runway. It is not known whether or not the canopy was being held open during the takeoff roll. The airplane rotated, and then the nosewheel bounced back on the runway and the airplane rotated the second time. At or about the same time, the canopy was seen to open all the way, and one of the occupants was seen to stand up to grab the canopy. A witness reported seeing a seat cushion fly out of the airplane and go through the propellor. Shortly thereafter, the aircraft crashed into the side of an unoccupied restaurant, at the second floor level, 80 meters to the right of the runway centerline. Parts found in the field between the end of the runway and the crash site indicated that a propellor failure most probably occurred. Cozy builder Andre Soria was fatally injured in this crash.

Probable cause: Failure to close and lock the canopy prior to takeoff, and failure to fly the airplane.

* * *

CANOPY LATCH, ALARM & SAFETY CATCH

When the above accident report was published on the internet, there was a lively discussion about the canopy latch, the warning system and the safety catch. The question discussed was whether the design could be improved, although there was no evidence that a redesign would have prevented the above accident.

The canopy latch system in the Cozy III and Mark IV is the same system designed by Burt Rutan for the Varieze and the Long EZ. It is a positive locking system consisting of 3 dogs which engage and hold the canopy down in 3 places. The Cozy plans also call for an alarm system which will sound a warning horn if the throttle is advanced past idle without the canopy being down and locked. There is in addition a stainless steel safety catch (like on the hood of an automobile), supplied by Brock Mfg., to prevent the canopy from being opened more than 2 inches even if it is not locked down. The plans also specify a gas spring which prevents the canopy from flying open unrestrained, and limits the degree it can open to less than 90 degrees. It has been demonstrated that the Cozy can be flown safely with the canopy not latched but held by the safety catch, and it has been demonstrated that both the Cozy III and the Cozy Mark IV can be flown safely with the canopy open and restrained by the air cylinder. However, having a canopy raise up, restrained only by the safety catch, or opening and restrained by the gas spring in flight can be more than a major distraction, so the adage applies, "Fly the airplane!"

On the ground, before entering the airplane or before exiting the airplane, it is necessary to push (from the outside) or pull (from the inside) the safety catch away from the restraining bolt to open the canopy. An unknowledgeable person can push or pull the safety catch far enough to put a permanent bend in it so it may no longer function as intended. We have learned this at airshows where many people want to sit in our airplane and close the canopy. Occasionally someone will put a permanent bend in our safety catch by pulling on it too hard, so we have learned to tell everyone not to bend the safety catch, sometimes have to bend it back after someone has bent it, and this is a preflight item we check regularly.

Recently Jack Wilhelmson sent us a spring steel safety catch like the one he had made for his own airplane. We have installed it in our plans model and like it very much. Jack says that the spring steel he used (SAE C1095) has a yield strength of 65-100K psi, as compared to a low yield of only 30K psi for stainless, so it is very difficult to put a permanent bend in it even if it is pulled back much farther than necessary to open the canopy. We think this is an additional safety feature which we will recommend to our builders. Jack will supply this part for \$15.00 (it is difficult to make). You can contact him at (843) 884-5016 or 868 Pelyer Drive, Mt. Pleasant SC 29464.

OTHER FLIGHT DISTRACTIONS

Quite by coincidence, in the September AOPA pilot, Thomas Haines discusses an accident in which a Beech Bonanza pilot and his passenger were killed in a crash shortly after takeoff. He said the NTSB report suggested that an open cowl door contributed to the accident, by distracting the pilot. Thomas goes on to explain that on several occasions he has had cockpit doors pop open on both Bonanzas and Saratogas. He says that it creates a lot of noise, and sends any loose charts to the wild blue yonder, but it doesn't affect the flying qualities of the airplane. He advises to not attempt to close the door in flight, because it's nearly impossible. Instead, fly the airplane in a normal pattern at normal speeds, land, and close the door.

This reminded us that several years ago a lady pilot crashed in Phoenix when the door came open on her Mooney, and she was distracted by trying to close it in flight. We are reminded over and over again, to "fly the airplane!"

OIL PRESSURE LOSS

1. Cozy builder/flyer Marc Parmelee writes on May 20,2001:

"Yesterday afternoon my wife and I left Carson City Airport (NV) in our Cozy Mk IV and we climbed to 10,500' over Lake Tahoe to fly over the Sierras. Over Lake Tahoe I noticed the oil pressure was at 49 psi and dropping. I did a quick 180 dash back to Carson as the pressure continued to drop. About half way back, the Rocky Mountain instrument warning alarm (which was set at 30 psi) went off. We did a high-speed glide all the way back and had 6 psi oil pressure on final. Rollout brought us down to 4 psi. When we stopped, oil poured out the back. We just about kissed the ground. It looks like the crankshaft oil seal blew and oil was pouring out of the center of the hub. That was a close call. The area west of Lake Tahoe is a mountainous waste land with very few reasonable landing areas. Watch them gauges!

The plan is to open the oil filter and check for metal, then have the plug (seal?) replaced, add oil and a new filter, run the engine for 15-20 minutes, analyze the oil and the new filter, and then go

from there."

2. Cozy builder/flyer Michael Link writes on August 05,2001:

"After a normal preflight, I departed my home base (MQY). Even though this was to be a local flight, I intended to climb to at least 5500 MSL (5000 AGL), as I believe in the old adage that 'altitude is your friend'. During climb out I did another routine scan and saw the oil pressure at 50 psi. Without hesitation, I turned back toward the airport figuring that I could sort out what was going on while I was heading toward the safety of the airport. At this time the engine sounded normal and it could have just been an instrument problem. **HAD I NOT TURNED BACK IMMEDIATELY, I WOULD NOT HAVE REACHED THE AIRPORT.**

"After executing the 180 degree turn, the oil pressure was down to 20 psi and then in a matter of seconds, dropped to zero. I reduced power to 1500 RPM and began the approx. 7 mile return trip. By the time I looked at my altitude, I was at 3000 MSL (2500 AGL).

"In an emergency you don't have time to calculate whether you have enough glide distance to the airport. I had to rely on muscle memory gained through practice and training. I decided that I was too far out to get to the airport without some help from the engine, which by this time was beginning to make sounds that confirmed that I really was in trouble. I continued toward the airport knowing that I was trashing my 250 hour new Lycoming engine.....Better it than me and the Mark IV. About 2 miles out I had to add power to maintain enough altitude to make the field. By this time, the engine was about to quit, and this burst of power was its last.

"I touched down very near the end of the runway, and made a normal landing. I was one lucky aviator. The airframe and I sustained no damage (but my shorts and seat cushion are beyond repair).

"Upon examination of the engine, the crankshaft seal was found to be partially blown out. This, in turn was found to be caused by a kink in the breather line which restricted flow enough that backpressure sufficient to blow the seal developed during the high power required during takeoff/ climbout.

"**WHAT I LEARNED (flying):** 1) Statistics show that engine failure is most likely during takeoff, so you should scan your instruments often. 2) You should turn back toward the airport at the first sign that something is not right, and you shouldn't be afraid to declare an emergency, and 3) Above all, **FLY THE AIRPLANE.**

"**WHAT I LEARNED (systems):** 1) No matter what breather scheme you use, a "Whistle Slot" should be cut into the top of your breather line very close to where it comes off the engine. This is merely a slot cut with a Dremel tool about an inch long. It will greatly reduce the chance of pack pressure developing, and 2) I strongly recommend that a seal retainer be installed in your aircraft. When I looked at the seal, I couldn't believe how easily it could pop out. I know of no other equipment that has an oil seal without some type of retainer. I urge you to make these changes ASAP if your aircraft is not so equipped.

Fly Safely,
Michael Link

Cozy MK-IV N-171-ML

Editor: Some have argued that if the breather line becomes plugged, the oil will be forced out somewhere, even if a seal retainer has been installed. We know from personal experience that if the breather line is correctly installed and kept open, oil loss will not occur even if the seal is missing. We have recommended many times not to install an oil separator, back pressure valve, or anything in the breather line which might increase the resistance and/or plug up, but to run the line straight down from the accessory case and terminate it with a 45 degree cut. A little oil stain on the bottom of the cowling is nothing compared to a frozen engine and off-field landing or crash. These builders were lucky in that they both made it back to an airport. Years ago Uli Wolter wasn't so lucky; he not only trashed his engine but also his airplane.

LETTERS FROM BUILDERS (some from the net)

Dear Nat,

I think I finally solved my right wing heavy trim problem. Which of these solved the problem I could not say, but I only have a slight correctable problem now. What I did was take a straight edge and checked the under side of the wing. I found that:

1. The leading edge of the ailerons were not in line with the bottom of the wing. They were slightly below the wing, thus directly in the slip stream.
2. One wing had more than the 1/8 in. gap between the wing and the aileron.
3. Finally, I found that there was a cusp (indentation) between the aileron and the winglet, between the winglet layup area and the trailing edge. It was only about 1/8" deep on both wings.

I corrected all of the above and got an extra 5 mph in addition to correcting for the right roll tendency. I think I am as happy about the extra 5 mph as I am about the roll correction. I now get 210 mph, at 10,000 ft. full throttle turning 2740. Considering I still fly with the vortex generators (I like the slower landing speeds), I am really pleased.

By the way, I have done a lot of testing of the plane lately, in addition to the glide tests that I sent you, I also did some lean of peak testing and some airspeed testing. I found that below 75% power and above 7,500 ft, I can pull back the mixture to 7.2 gph on my IO-320 and still cruise above 190 mph fully loaded. I also found by flying a triangular course that at 2600 rpm my airspeed indicator is only being kind to me by 3 mph.

I guess that what I am saying is that after 8 years I am still having a ball with the plane. You have given a lot of people a lot of pleasure. Janie joins me in sending our love to you and Shirley.

Ken Brimmer
Bowie, MD

8/18/01

Nat,

VH-COZ, Sunday August 12th, Canberra to Mount Isa: 1012 nm, 6 hr 10 min, 65% power, FL 125. 166 KTAS @ 1600 lbs, 43 USG.

Mt Isa to Darwin: 701 nm, 4 hr 18 min, 65%, 8500 ft. 161 KTAS @ 1600 lbs, 31 USG.

Coming home, I looked at all the weather information and thought I might get some good 50 Kt tail winds via Alice Springs, but I was wrong. – perhaps avg =8 kts! So here are the figures:

Saturday August 18th: Darwin to Alice Springs: 700 nm, 4 hr 12 min, 65% power, FL 135. 162 KTAS @ 1600 lbs. 35 USG.

Alice Springs to Canberra: 1054 nm 6 hr 25 min, 60% at FL135 for 2 hrs, then 54% at FL155. 54% = 159 KTAS at 1600 lbs. FL155 = full throttle and 2400 rpm and 42 USG used.

Yep, I had to slow down on this last leg because having left Darwin before dawn with 30 deg C (86F), I arrived home in Canberra having to carry IFR alternate and reserves due to low freezing level, low clouds and blowing snow at about 6 C (or 43 F). The remaining 12.5 USG would have been good for about 2.3 hours at 54% which down low translates to about 140 KTAS, enough to go to Sydney via Wollongong with an approach at each place and 45 minutes to spare. It's a great feeling to be that fat with fuel. You can do well over a 1000 mn and still have that kind of reserve without really slowing right down to best range and sweating over every drop used.

Most everything is working fine except that dam heater still isn't. Gotta fix that. So Nat, I am still having fun – thanks again!

Tony Rothwell
Canberra Australia

8/21/01

Builders,

Just returned from our "Black Hills Adventure!" Below are the highlights:

Left Oshkosh on Friday morning, got fuel at Pipestone MN, then went on to Spearfish SD (north side of the black Hills). When we arrived a guy was frantically waving for us to park the plane by him, so we did. After we shut down, he came up to us and said, "Hey, you guys are a little early, aren't you?" Kent (my traveling buddy) and I looked at each other, shrugged and said something very profound to him, like "Huh?" He said, "You're here for tomorrows fly-in, aren't you?" "No, we just came to do some fishing in the black hills." "Oh really? I saw your plane and I just knew that you were coming to our annual fly-in. It's going to be really great, and lots of planes are coming. Oh well, you just go ahead and park here anyway, and if you have time, come back for dinner tonight, we're having a cookout."

Although that sounded interesting, the trout were calling, so Kent and I loaded up the car, put the cover on the plane, and left for the hills. We fished for three days in different remote locations (caught 40+

trout), then went to Custer state park to see the buffalo herds (we had to wait ½ hour while the entire herd crossed the road). On Monday, we went to Mount Rushmore (awesome). The plan was to pack up the plane and leave by 2pm. However, it was 95 degrees outside, which translated to a 7,900 ft density altitude. Since the plane was nearly max gross, the runway was only 5400 ft, and I didn't have a takeoff computer to confirm how much runway I needed, we decided to pack the plane, go to a hotel for the night and then takeoff in the cool morning air.

When we got to the plane, Kent's job was to unpack the car while I got fuel. I took off the reflective cover and surprisingly found a note taped to my canopy. "Hey Kent! Look at this! Someone taped a note to my plane!" Kent laughed and said, "Ha! that's what you get for not showing up for the fly-in..they gave you a parking ticket!" However, when we read the note, it said that my Cozy was the best homebuilt aircraft at the fly-in, and that we won first prize! You've got to be kidding, I thought. The note went on to say that we should go into the FBO to pick up our prize. Sure enough, when we went into the FBO, we were greeted with a smile and given an engraved plaque shaped like South Dakota, which said "Spearfish, SD Fly-in, EAA Chapter 806, Best Composite Homebuilt Aircraft!" Cool!!

After packing the plane, we went to the store, bought some snacks, and went to the hotel to watch the Packers play Monday night football. Great game except for the second quarter when they played pretty lousy. After the game, we watched the weather channel and got a little worried about a weather system causing some severe weather between us and home. Oh, well, we will just have to see what it looks like in the morning...

The next day (this morning) after watching the weather again (and still a little worried), I called for a preflight briefing. The briefer said that most of WI was IFR, but by the time we get there it should be OK. He suggested that we stop half way to confirm the weather conditions. With that information, we took off at 5:30am. The flight was smooth and we only had some minor deviations due to weather. 4.3 hours later we landed at OSH! The end of another short Cozy adventure!!

That's the kind of fun you can have after your Cozy is completed and flying! Good luck, and keep building.

Mark Beduhn
Menasha, WI

Editor: Mark made a good decision. The OM says that at 7,900' density altitude and gross weight, you need about 4,800 ft.

8/25/01
Builders,

On the subject of gull-wing doors, for those of you who don't know, I helped build 13 Lancair IVs, both pressurized and non-pressurized. I'm sure that most of you know that they use a gull-wing door. What a pain in the pattotie! First getting the skin to fit well to the fuselage, then getting the inner skin to fit well to the door skin while it is still fitting nicely to the fuselage. With all that done, trying to hy-sol the stuff together! Lancair has a very complicated latch as well on the pressurized models. There are 9 latches on the door that all have to work in sink, 3 with one lever and 6 with the other. These are linked with small bike chains and have flexible torque cables to move them all at once. Not easy when you have to adjust them all and still be able to open and close the door. Of course this outrageous latch system is only on

the pressurized models, the non-pressurized get a much simpler 2 latch setup.

The Lancair also carries all of the structural loads through the skin of the fuselage. In some places the skin is over an inch thick of autoclaved carbon! Usually the skin is about 1/89 in. thick. The Cozy is not designed in this way. We have foam and longerons that make up the fuselage. The Lancair is also designed to take other stresses from pressurizing... You should see one during a pressure check. You can count each chicken block that keeps the rear pressure bulkhead from delaminating from the outside of the plane. It is truly amazing that they don't pop. Guess it's a good thing that composites don't experience fatigue.

My point of saying all this is to turn anyone who is thinking of a gull-wing door away from the idea. It will seriously add a ton of time to your building. It took me about 200 hours to install the Lancair door and that is with skins and all the hardware and not to mention some kick-butt instructions. The other down side is weight. The door on the Lancair was at least 50 lbs. Keep in mind that it is made out of carbon fiber, hy-sol and floc, plexiglass window, and the latching mechanisms.

I hope this helps shy anyone considering a gull-wing door away from the idea. Keep it simple and keep it light-weight.

Tim & April Hedstrom
Daytona Beach, FL

8/27/01
Builders,

Gull-wing doors are not a good idea. They are not a good idea on the Velocity either. I have heard Danny Maher (original Velocity designer) criticize the doors. To create the gull-wing doors, the upper longerons have to be cut. This destroys the torsional and bending moment path from the main wing to the canard. The effect is the main wing "leads" the canard in a turn. The torsional and bending stiffness cannot be replaced because the stiffness is a cubic function which depends on the distance from the outer most skins. A center trunion like in the Velocity can help, but cannot make up for the loss. IMHO, because of the overall differences between a Cozy and a Velocity, gull-wing doors on a Cozy would be dangerous. The entry/exit can be made comfortably with the powered nose lift.

Paul Krasa
Long EZ

8/29/01
Builders,

As if anyone really needed another reason to build from plans instead of a kit, check out: <http://www.ljworld.com/section/business/story/63968>. (This is the report of Dreamwings LLC going bankrupt after spending \$3,000,000 in 4 years on engineering, testing, and production of the Valkyrie prototype, a canard pusher design. John Hunter admits his business isn't worth a dime. 145 customers are out \$1,300,000 in deposits. The court dismissed the bankruptcy case saying it lacked a reasonable likelihood of rehabilitation.) Once you spend the money and don't get all the parts you need, all you have is a real expensive waste of time. A shame too; it looked pretty cool.

Rob Tester
West Chester, OH

6/25/01
Dear Nat,

I just wanted to tell you David Domeier took me for a ride yesterday. It was wonderful! I can tell that I am going to enjoy flying our Cozy immensely.

We went to the EAA Chapter 32 meeting and both (Randi and I) joined up. Randi got a long ride in an Aircoupe, a first for her and she had a blast, so both of us came back all jazzed and excited to get going further...so much so that we were up until 5 am this morning laying up the fuselage sides and got them done. This is getting obsessive....a good thing I hope.

We both came away from yesterday feeling that the club is really a great bunch of guys and deservedly so when you think that they are a small and unique cross section of the population that choose to build and fly their own aircraft. I hope we can get involved and make a contribution to the group ourselves.

Christine Bush
St. Charles, MO

9/10/01
Builders,

It's been almost 6 months since Cozy Mark IV N166PT took its first flight. Yesterday I put 2.3 hours on the Hobbs and made nine landings. She flew without a hitch. The total time is now 11.5 hours on the engine and 9.5 on the airframe.

The FAA allows us to build our own experimental aircraft for pleasure and education. The emphasis is on education because I have learned a great deal about aircraft systems and engines since my first flight. Up to this point, I have found and corrected a number of problems with my bird. I will briefly describe these items here to hopefully help others.

The initial canard incidence was set too low (this has been discussed a number of times). After adjusting it twice, I am now on the high side of the tolerance limits of 0 to +0.6 degrees.

My engine had a complete overhaul prior to being installed in my plane. As has been discussed before, breaking in a new engine and flight testing a new aircraft don't go together well. If you have a choice, don't use a new engine in a new plane.

I have the Airflow Performance fuel injection unit. It seems that at the time of installation, Spruce did not have a high pressure gascolator so I didn't install one. Big mistake. The gascolator not only catches water, but all other sorts of things that the injection system doesn't like. I was very good about keeping my tanks clean. I had a very good filter and, what with having the fuel pickup in the sump well above the bottom, I figured that water and dirt wouldn't be a problem. I had three injectors clog on different occasions. We caught the problem when the engine ran rough and a CHT was low. After the gascolator was installed, that problem went away.

I have a Lightspeed electronic ignition unit. I installed it (or so I thought) as illustrated in the manual. Upon checking the timing, I found one side working perfectly. The other side, however, was missing occasionally and I could see my prop in two different positions with the timing light. The missing was caused by a poor crimp on one of the spark plug wires at the spark plug. The other cause was from the magneto wire in the same bundle as the CDI trigger coil wires. Separating the wires cured that problem. I had been given an ignition switch, so I used it. If you are going to use electronic ignition, use toggle switches. My engine would cut out when I switched between Left and Right. Toggles eliminate the problem and are cheaper and lighter.

Oil temperatures were very high initially. I had the plans cooler up on the firewall but I had offset the air outlet to help keep rain out of the engine compartment. I enlarged the outlet after the second flight and ducted air up to the cooler with scat tubing. That brought the oil temps down but as the weather got warmer, so did the oil temps. I have now removed the cooler and have installed a larger Positech cooler to the recommended location. The oil temp was much better even on a 92 deg day out in the desert. It also helped the CHTs.

In level flight, I had to adjust the aileron trim to keep the plane from turning to the left. I adjusted the right wing down by one thin washer, but it wasn't enough, so I brought the left one up by a thin washer as well. Now she flies straight and level without a problem. Fairing the wings into the strakes was easy.

I utilized many talented people in my EAA chapter and in the EZ community to help find and correct these issues. For that I am indebted (and they are not letting me forget it). For a low time pilot like myself who has been building for 8 years, taking the time to get things right has helped me transition from being a builder to being a pilot.

Keep at it guys for once you've made it up there, you know it was worth the effort.

Paul Stowitts
San Dimas, CA

6/21/01
Builders,

I recently made my first international flight to Canada in my Cozy and wanted to share the experience.

My Wyoming college buddy from Iowa and I loaded the Cozy with our fishing gear and full load of fuel. We were right at 2150 lbs but there was no hesitation whatsoever by the plane to fly in the cool morning air. We were nose gear up on the first leg of the flight at 6:42 am on June 8th out of Sioux City, IA, filed direct to Minot ND. We had a stiff headwind, good VFR all the way and it took us almost 3 hrs to cover the 460 nautical mile leg. We were turning 2550 rpm and showing 182 kts TAS. At Minot we hit the head, gassed and stopped in US Customs to get acquainted, show our paperwork, and let them know our return date. Yep, everything was okay. We had the FCC license, 12" letters, US Customs sticker, registration for both federal and state, airworthiness certificate, passports, operators manual, log books, pilot license, insurance card, and weight & balance data. The customs folks in Minot were really nice to work with. Very accomodating and helpful. The lady even said she would let the person working the shift on our return trip know when we were coming back. She said "cute little plane". Canada changed last year and you no longer need prior approval to fly experimental into Canada as long as you

have all the required paper work. I called 1-800-CANPASS. They asked where we were going, how long we would be there, how many people, birth dates, whether US Citizens, make of the plane, pilot certificate number, and time of arrival. We filed IFR direct to Saskatoon at 10,000 ft. Picked up our IFR and blasted off. The hand off from Minneapolis Center to Winnipeg was easy. Still had the headwind and this 340 nautical leg took about 2 hrs., but the drive time to Saskatoon would have been almost 24 hrs if we had not flown. WOW! Are we spoiled or what? The landing at Saskatoon was uneventful. Saskatoon is quite a large city. We were directed to Customs. All we needed to do was call back to 1-800-CANPASS and they gave us a port number. We discovered that Saskatchewan is just like Arizona and doesn't change to Daylight time, which put us well outside the ½ hr limit, but they said "no problem". Is that simple or what? In Saskatoon, 4 more college buddies from Wyoming picked us up (they had driven the 24 hours) and we drove to Buffalo Narrows to get on a float plane to Complex Lake. I opted not to fly to Buffalo Narrows even though they have a nice airport there, because to legally fly in the 'sparsely settled area' we would have to have loaded up additional survival gear, per Canada regulations. Besides, this gave us time to tell old stories with our friends. We got on the Otter at Buffalo Narrows and I got to ride right seat. Looked to me like the only difference between the Otter and the Cozy is the Otter flies 100 mph slower than the Cozy and you rock the heck out of it to get it to fly. Fishing was spectacular. The Wyoming guys were fishing Northern Pike on fly rods and caught lots of nice ones and a couple up to 37" and 18 lbs. My Iowa buddy and I mostly fished Walleye (excellent eating) with our much ridiculed spinning gear from the Wyoming buddies. We caught all the 2-5 lb Walleyes that we wanted. Somebody had to feed us. On our departure day, it was fun to watch the Otter land early morning on June 13th. My buddy from Iowa is also a pilot (spam can) and he flew right seat on the way out. The pilot even let him fly for awhile so he could have a smoke and a nap. After landing at Buffalo Narrows and repacking we got back to Saskatoon about 5 pm. Checked weather. I told them this was my first flight in and out of Canada and requested their patience, which I got. Oh oh! IFR and rain! We filed IFR direct to Minot. We gassed up and picked up our IFR and blasted off about 6:30 pm. Flew through quite a bit of rain and hard IFR most of the way to Minot. Shot a VOR approach into Minot since they're working on the main runways and the ILS was not available and ceiling was 400 ft broken so the circle to land was not an option. Hadn't shot a VOR approach for awhile and was rusty. Made it down okay and didn't even have to go missed approach. Nasty 18 gusting to 28, 90 degree crosswind. US Customs was waiting for us. What a snap. We filled out the forms and that was it. Checked weather again back to Sioux City. Didn't look good there because of severe thunderstorms so we filed IFR to Sioux Falls and would check weather again down the road for Sioux City. Gassed up, picked up our IFR and blasted off. This last leg was also hard IFR most of the way. Finally we got to FSD about 11:30 pm, weather at SUX still bad so we rented a car and drove the last 70 miles home. Returned the car and flew home the next day.

This being my first International flight, I really did my homework. The international operations portfolio I got from AOPA was quite helpful. I was quite anxious and ended up being way more prepared than was necessary. You know, measure 10 times and cut once just like the first flight. I'll definitely do this again. Maybe even Mexico or the Bahamas.

Timothy Jones
South Dakota

4/28/01
Hi Nat,

I have purchased Steve Overly's Cozy III project. I have been steadily working on the airplane since

August 2000. I have installed main gear, nose gear, lower nose bowl, built and installed the rudder pedals, firewall, canard, elevators, all controls to firewall, both wings, center section spar, turtle deck and wheels and brakes. A lot is done, a lot more to go. I have built a Varieze and have over 500 hrs on it. My wife and I are looking forward to the great airplane that the Cozy is and some of the creature comforts that the Varieze cannot afford us. With any luck, my previous experience will keep me from having to bug you too much with dumb questions. I have been following the Cozy e-mail list for the last 6 months and I am very impressed with your patience and wisdom in dealing with a bunch of shall we say "difficult" people that experimental builders tend to be.

Burrall L Sanders
Falcon, CO

5/28/01

Dear Nat and Shirley,

Colby and I have just returned from Duluth this afternoon and have an "it's a small world" story for you. We had a rainy, foggy to the minimums (rolled in off the lake) trip to Duluth on Saturday. After drying off and warmin up from their lovely spring weather, I realized I had forgotten to bring Duncan's and Stephanie's phone number off the computer. When I told my friend, she said, "you mean Duncan Puffer, the oral surgeon whose wife Stephanie just had a baby?" It seems that my friend Libby Welsh, nurse practitioner, knows them well. She said Duncan had been off turkey hunting and she would say hi for us when she visited with the baby this week. The fog finally lifted yesterday afternoon and we had a grand time. Return flight was lovely. Hope you all are both doing well.

Elise and Colby

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