

COZY NEWSLETTER #79 Oct. 2002

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Co-Z Development Corp.

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Subscription rate: \$16.00/2 yrs., \$20.00/2 yrs. OUS

(2-year renewals save us record keeping)

Cozy Mark IV Owners Manuals - \$15

Cozy & Cozy Mark IV decals - \$5 ea. (specify color)

Subscribing to the Cozy Newsletter is a requirement for all builders. The Cozy Mark IV plans are obsolete unless updated by all changes or corrections in the newsletter. All builders must subscribe to the newsletter. First Edition plans holders need newsletters #34 to present. Second Edition plans holders need newsletters #52 to present. We have just printed the Third Edition plans, which have been updated through newsletter #75. New plans purchasers will receive an assortment of back newsletters (we no longer have copies of all back newsletters) plus a complimentary one-year subscription to start them off on the right foot. They will need to renew when that has expired. The older copies, which we can no longer supply, are available on the Unofficial Cozy Web Page. The newsletter is the principle means by which we communicate with builders and support their projects. The newsletter contains plans corrections and changes, builder hints, information and updates about our suppliers, shopping info, first flight reports, and other news of interest to builders. We answer telephone calls whenever we are home and personal letters as well, but please enclose a stamped, self-addressed envelope if you expect a reply. We encourage newsletter input from builders (letters and pictures) which would be of interest to other builders.

“Cozy” and “Cozy Mark IV” are trade names of Co-Z Development and are the names given to airplanes built according to the plans and instructions of Co-Z Development. Just because you buy a set of Cozy or Cozy Mark IV plans, does not mean you have to build your airplane exactly according to plans. It is an experimental airplane and you can, in fact, make whatever changes you desire. But then you have a new, untested design, and shouldn't register or insure your airplane as a Cozy or a Cozy Mark IV.

Co-Z Dev. and Aircraft Spruce are the only ones authorized to sell plans and construction manuals, and Co-Z Dev is the only one authorized to provide builder support for the Cozy airplanes.

AUTHORIZED SUPPLIERS

Authorized suppliers are those suppliers we selected because of their excellent reputation in the industry, whose parts and materials we proofed in our plans model and who agreed to supply the same parts and materials to our builders.

1) Basic Materials

Wicks Aircraft 410 Pine St. Highland IL 62249 (800)221-9425	Aircraft Spruce Box 4000 Corona, CA 91718 (909)372-9555	A. Spruce East Box 909 Griffin GA 30224 (800)831-2949
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2) Metal Parts

Brock Mfg. Co.
11852 Western Ave.
Stanton CA 90680
(714)898-4366

3) Fiberglass Parts

Feather Lite
1327 S State St, Arpt.
Ukiah, CA 95482
(707)462-2939
(707)462-3424

4) Canopy & Windows

Airplane Plastics Co.
9785 Julie Court
Tipp City, OH 45371
(937) 669-2677

B & C Spec.
PO Box B
Newton KS67114
(316)283-8662

5) Specialties

Custom Aircraft
14374 Olde Hwy 80
El Cajon CA 92021
(800)561-1901

6) Exhaust Systems

Performance Props
Box 486
Patagonia AZ 85624
(520)394-2059

Sensenich Props
2008 Wood Ct.
Plant City FL33567
(813)752-3711

7) Prop Hub Exten.

Saber Mfg.
3601 Nassau Ct.
Granbury TX 76049
(817) 326-6293

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 Vermeylen (609) 693-4819.

BUILDER HINTS

- 1) **Oil analysis:** The purpose of having oil analyzed at each oil change is to determine whether there is any unusual wear. If there is, the type of contaminant can very often indicate the nature and location of the problem. Contaminants will be a function of hours on the engine and hours on the oil, so the analysis is indicative of the health of your engine.
- 2) **Peel ply:** Synthetic fibers like nylon, polyester, and dacron can all be used as peel ply. It is necessary, though, that the fibers not be fuzzy, nor the weave a stretch weave. Often you can find suitable fabrics at the mill ends table of a fabric store.

Before buying a quantity however, you should take a swatch home and see how well it works.

- 3) **Color trim:** Nick Ugolini uses commercially available decal trim stripes, rather than trying to paint them on. He says see www.autotrimexpress.com/serpentinestock.htm (#28061). He says 120" was perfect, they were real easy to use, just like model airplane decals. He says it's the way Cessna does it.
- 4) **Window installation:** Tim Hedstrom says he has helped install windows on 13 Lancair IVs. What they do is fit the windows first, then drill holes very careful for screws, then lube the screws with mold release wax, and lub some area washers the same way. Then get a few key screws, place a large wedge of flox in the joint, press the window in place, and while holding insert 4 key screws with area washers on both sides. After all are in place, tighten carefully. To get a nice exterior edge where the flox seeps out, before hand, use two layers of electrical tape where the window meets the frame. After tightening the screws, wipe away the excess flox. Then just pull up the 2nd layer of tape. Leave the first layer there for protection as you sand the lip later for paint.
- 5) **Rain:** Sooner or later, everyone will park outside in the rain. And no matter how well you are covered and sealed, a little water might leak in. Rather than have to open up the inspection cover in the nose to sop it out, the sneaky thing to do is to drill a couple of holes through the bottom at the low point so the water will drain out all by itself. HmMMM!

FOR SALE

- 1) Curt Smith is one of original Cozy III builders. He is the one who invented the ratchet for the mechanical nose gear crank so it could not accidently collapse when extended, or extend when retracted. This was a very popular improvement before the advent of the electric nose lift. We were surprised to learn that he purchased David Domeier's Mark IV, and is putting his 3-place project up for sale. It sounds to us like quite a bargain: Cozy III project with all structure complete. Fill and contour started. Remaining work is to finish the fill, contour, paint, install instruments, avionics and engine. Includes 0-320 E2D Lycoming with mount and cowls. Engine is 2000 SMOH, 300 STOH, running when removed by Penn-Yan for a 280 hp Cardinal conversion. Excellent workmanship. Near St. Louis. Only \$15,000 for all. Curt Smith, (618)656-8209, csmith@siue.edu.
- 2) Cozy Mark IV project in central IL: Chapters 4 and 5 are complete and Chapter 6 is in progress. Also includes Featherlite canard cores, Michael Engineering epoxy pump, misc tools, jigs, work table, plans, newsletters and Owner's Manual. Contact Jason Haab (309)862-4324 or email: jason@haabair.com.

FIRST FLIGHTS

The good news is that we have had a number of first flights during the quarter. We have learned of 5 first flights, and there may have been 6. Congratulations to each of these new Cozy pilots!:

- 1) Kent Ashton, June 18, 2002
- 2) John Epplin, June 30, 2002
- 3) Marc Zeitlin, August 4, 2002
- 4) Jesse Huerta, August 25, 2002

- 5) Brian DeFord, September 7, 2002
- 6) Bob Allen in England may already be flying, we haven't heard.

Kent Ashton writes:

6/18/02

Mark IV serial number 150 (N13AM) flew after about seven long but enjoyable years of building. I had to throw away one wing when I discovered a supplier had shipped me Epolite 2427 and I was using the RAE (Epolite) 2426 hardener and ratio. Bummer!

Mine weighs in at 1185 lbs. with oil in the engine. I have an 0-360, Performance prop 3-blade, dual lightspeed plasma ignitions, and Ellison throttle body. It flew well except that the pitch stability was poor. I think I'll have to increase the canard incidence. It was noticeably faster and better acceleration than my previous III/0-320. CHTs seemed a bit high, but it is a new engine and I had the nose gear down.

Lessons learned: I set it up for right seat pilot, but it just makes it harder to fly left hand patterns. Also, next time I would move the heat duct in the rear to one side and make a wide, cushy back seat. I used camlocks on the cowling. Next time I'd just use the screws; much cheaper and you sleep better, not worrying about a loose camlock in the prop. Don't let dew form on your freshly painted wings!

Thanks for the great plans and your thorough flight testing. Hope to see you at a west coast airshow this year.

Kent Ashton
Concord NC

John Epplin writes:

6/30/02

Cozy N100EP, plans #467 FLIES!!!

Yesterday we started the day out doing a new W/B, got the scales out and did the whole thing. Then we ballasted for 2 pilots and took the thing out to the 10,000 ft. 9-27 runway at MLI for a few high speed runs. Everything did good, we got a warning from the AV10 as we neared the hangar for oil temp. 230 F was the set point I had used. This was after several runs down the entire length of the runway. Quit for the day. This morning we went back out to the runway and got the canard flying. Went back to the hangar and removed the cowlings, cleaned the fuel screens, changed the ballast for 1 pilot. Pumped the gas down to 10 gal each side. The test pilot discussed his plan with me and the tower personnel, who paid us a visit at the hangar. Started out on the taxi way, returned with the right rudder disconnected! It seems the travel adjustment needed some tweaking, the spring in the cable had coil bound before the brakes had hit the limit. We replaced the nicopress and made some changes to the rigging, now the brakes and rudder worked better than ever, as good as one could hope for. Went to lunch. Returned and went over everything again.

Bernie Nits, the test pilot, headed down the taxi way again. He made one more run the length of the runway, wind was about 45 deg from the runway at 9 kts. After a brief hold for traffic, launched from runway 27. He had a plan, and followed it to the letter. Climb to an altitude level and hold airspeed, record readings, go to next altitude, etc. Went to 3600 max, kept airspeed to 120 kts. Did several shallow turns, later turns with 30 deg bank. I listened to the radio between him and the tower and watched, lost sight several times. The tower gave us excellent co-operation, there was some traffic but not a

problem. Finally landing on 27 using the speed brake. The nose gear was left extended for the entire flight, which lasted about 1.1 hours. Cylinder head temps were very good, considering it was 90+F here. Oil temp ran around 190 F, hope this will hold in a sustained climb.

For those of you that have used my wing templates, the roll trim was dead on! The wing flies very shortly after the canard lifts. This was with the cg in the center of the box. The only squawks were – need a little rudder trim and pitch trim, which is my own design and was not adequate at slow speeds. I have some adjustment here, hope to get it in range without any modifications.

We want to thank Bernie, a fellow Cozy builder and his wife Chris who participated in the event. Also the personnel at the Quad Cities tower. Special thanks to my wife Betty, who put up with a 6 year building program.

Now to get some canard time and get in the drivers seat!! Just got a fresh BFR in a Cessna so this will be a real treat.

John Epplin
Orion, IL

Marc Zeitlin writes: 8/4/02

So, at long last, after 4.5 years of building a Quickie Q2 and then 7.5 years of building the COZY, I finally got to fly one of my creations. At 8:45 am EDT on Sunday, August 3rd, I lifted Cozy Mark IV N83MZ (named “Precious Time”) off of runway 14 at FIT.

On Saturday I had fixed the backwards rudder belhorns and attached the cable thimble to the belhorns with a bolt/large washer/sleeve assembly, so that it becomes easily removable. I also mounted and wired the Garmin 195 GPS and attached a clock in the old compass hole. My EAA Flight Advisor (Willard Thorn, builder of Varieze #30 or thereabouts in the late 1970’s) spent two hours reinforcing the information in AC90-89A (whence I derived my first/second flight plan) and saying “FLY THE PLANE” to me about 752 times ~~z~~. He also let me shoot two landings in his Cessna 310 (not that it flies remotely similarly, but he wanted me to get the feel of a 120 mph approach).

I arrived at Fitchburg at 7:15 am Sunday (today) to find my friend Claude already there. I performed a pre-flight and loaded 50 lbs. of ballast into the passenger seat to put the cg at 100.5. Just about then, Ed Masterson flew in with his Varieae that he finished about 4 years ago from Lawrence airport in MA. Ed had volunteered to fly chase plane. Pete arrived, and we spent about 10 minutes going over radio procedures, emergency procedures, how to get me out of the thing if I was unconscious, and getting the phone number of the Fitchburg Fire Department to call on the cell phones. The ground crew had cameras, cell phones, a portable radio and binoculars. Ed had his VE and the radio therein.

I decided not to do a high speed taxi run to lift the nose. I had already had it up to 70 mph twice and knew what it felt like. I didn’t want to accidentally lift off and have to decide whether to try to put it back down on the second half of a 4700 ft runway.

I turned the plane around, started everything up, and then followed Ed down the taxiway to runway 14. We did our runups, and then Ed took off. He said not to worry about him. He’d be behind and to the right after I took off.

I waited until Ed was above 800 ft or so, and then took the runway. While nervous, the six takeoffs and landings in Bob and John’s Cozys had made me feel a lot better. All the nightmares ran through my mind in about 3 seconds. Had I tightened the wing bolts? Had I tightened the canard bolts? Would the elevator fall off? Would the fat that the elevator bottom surface was 1/16” to 1/8” low cause the plane to be un flyable? Would the engine croak? For some reason, the canard bolts breaking was/is the biggest concern.

I said (to myself) “screw all that” and pushed the throttle forward smoothly. With about 120 lb of fuel, 80 lb total ballast, and 160 lb of me, the plane was only at 1515 lbs. I jumped forward, I maintained runway centerline and at about 75 mph, pulled back on the stick gently (after about 1500 ft of runway). PT did not need any wrestling or popping of the elevators to get in the air, no did the nose rotate so high that I needed to push forward. It rotated to canard on the horizon and stuck there. The main wheels couldn’t have been on the runway for another 0.1 seconds. The plane jumped into the air and I started a climb at 100 mph straight out to 1000 ft at about 1100 fpm. After a gentle 5 degree banked turn to the practice area, I climbed to 3000 ft., leaving the gear down and leveling off at 2250 rpm and 135 mph.

I flew around there for a while, gently testing the controls in all directions and building up to 20 degree bank angles. I then climbed to 5000 ft and did two practice approaches back down to 3000 ft. After climbing back up to 5500 ft, I retarded the throttle to 900 rpm and slowed down. I had decided that if I did not get a nose bob at 65 mph, I would not go any slower. Well, at exactly 65 mph, the nose started the classic bobbing up and down, with the airspeed oscillating between 62 mph and 65 mph. I tried some control inputs and gentle turns. I then increased speed back to 135 and descended toward the airport. Ed had been calling traffic and position reports for us both to lessen my load, and he let the traffic know we were on our way back in.

I set up for a left pattern to runway 14 at 100 mph on downwind and base, slowing to 90 mph on final (extending the landing brake) and 80 mph over the numbers I did a slight lift of the nose as I got closer and squeaked it on pretty close to centerline at about 70 mph. I could have turned off the runway at the 2500 ft. mark, but I let it run all the way down to save on braking.

The only two things that were not perfect about this flight were the pitch trim, which was not nearly strong enough to trim the elevator down at any speed I was at, between 62 mph and 140 mph (with the nose gear down) and the sidetone squeal in my headset when transmitting.

I parked the plane, and Claude, Ed and I went into the restaurant for some breakfast. Twenty one years of on and off plane building had culminated in an almost perfect flight. I couldn’t have asked for anything better. Marc Zeitlin

Acton MA

Editor: Marc continued to publish a report similar to this after each of his succeeding flights—too lengthy to publish here.

Jesse Huerta writes: 8/25/02

Just thought I should drop you a line to let you know that after 4-1/2 years of work, Cozy Mark IV N131FJ took to the skies on Aug. 25, 2002. Ed and Sue Richards flew chase for

me in their beautiful Mark IV. The airplane flew as expected and I've got a few glitches to clear up as usual. My thanks for all you do for us Cozy fliers. Cheers.

Jesse Huerta
Tampa, FL

Brian DeFord writes:

9/7/02

Well, after 7 years the day finally arrived to get the plane into the air! I got to the airport at 6 am this morning to do my preflight inspection and weight and balance. My wife Susan and my three girls showed up at about 6:45 just in time to help me wipe off some accumulated dust from a nice big storm that blew through Chandler last night. The remnants of the storm left the skies partly cloudy and the weather was cool (for Arizona) at about 75 degrees. Perfect for a morning flight!

Susan and I prayed together for a good and safe flight and then the girls gave me big hugs and told me they were all excited to see me fly. Emotionally, that was the hardest part of the whole experience, but it gave me a big boost of confidence too!

I climbed in and went through the flight checklist, then started the engine. It came to life quickly and sounded great. All my engine gauges were in the green and so I called Ground Control for taxi clearance. There was light traffic in the pattern already and I was given clearance to runway 4L. I did my engine runup and everything continued to look great. I called the tower and told them I was ready to depart for the airplane's first flight. They cleared me to take off and I taxied onto the runway. One final check of all the engine instruments and I pushed the throttle forward. At 80 mph I pulled the stick back and at 85 mph the airplane took to the air. The familiarization flights I took with Gene Davis were a great help as I knew exactly what to expect. I had no tendency to over control the plane and it climbed out quickly to pattern altitude. I called the tower and requested an approach in the pattern. They gave me clearance to runway 4R (all to myself) and I practiced an approach. Everything was working great so I called and asked to depart the pattern to the south practice area.

I flew south of Chandler about 20 miles to the Indian reservation where my parents have been missionaries for 20+ years. I stayed at 3000 ft for most of the flight, just enjoying the feeling and getting some sense for how the plane handled. She has a tendency to roll to the left, which will be corrected easily. Other than that the plane performed flawlessly. I circled the church on the reservation and headed back to Chandler. Since my approach was from the south, I was cleared to enter the base leg for runway 4L. I slowed the plane down to 90 mph on final, deployed the speed brake and made a somewhat less than stellar landing. After taxiing back to the hangar and shutting everything down, I had logged 35 minutes on the engine.

I want to thank a number of people who have been very supportive and helpful throughout these past 7 years. First of all my wife and kids who have been the most sacrificial of all by allowing me to spend countless hours "working on the plane". Thanks to Nat Puffer for designing the Cozy and for his builder support. Thanks to Gene Davis for the familiarization flights in his beautiful Cozy. And thanks to everyone who continued to encourage me to complete this project. It has been a dream come true and the feeling is something that I cannot express. Simply Awesome!!

Brian DeFord,
Chandler, AZ

Cozy builder/flyer David Machin writes:

9/2/02

Hi Nat and Shirley (we stayed with them),

David in good old England! I am about to issue the final signatures to Bob Allan's 4-place. All looks the best I have seen anywhere. Regards,

David Machin

David@vanpa.co.uk

WHAT WE HAVE BEEN DOING

We had an opportunity to make an interesting comparison of commercial vs private air travel. It happened in this way. We had two grandchildren graduating from high school the end of May. We wanted to make a quick trip to Rochester MN for graduation and a party, all of our family attending, so we booked a couple of seats on American several weeks ahead of time. We packed a box-lunch and left home at 5:30 am. We live about 25 miles away from Phoenix Sky Harbor airport, have to park our car off the airport, catch a shuttle, and be there at least 90 minutes ahead of time to check luggage and go through security, emptying pockets, taking off shoes, etc. (they took Shirley's nail clippers and sewing kit scissors). Then we flew to Chicago, had an hour or so layover, and then on to Rochester, MN. After waiting for luggage, we got picked up about 4:30 pm (there was a 2 hour time change). Of course we returned home on American with a similar time enroute.

Then in July (we always leave early for Oshkosh to spend some time visiting family), we also left home at 5:30 am, drove to Falcon Field, about 5 minutes away, rolled out N14CZ, packed it up, parked our car in the hangar (free), and were off the ground a little after 6 am. Since we were careful about not drinking too much liquids or having any breakfast, we flew for about 4.5 hours (or was it 5?) and landed at McCook KS (our favorite stop) for fuel, personal reasons, and coffee. Back in the air, we headed straight-line to Duluth (Duluth is probably around 300 miles farther than our previous destination at Rochester). We arrived there about 3 pm (1-1/2 hours earlier, even though 300 miles farther), unpacked our luggage, tied down, covered up, and were picked up. By 3:30 pm we were having cocktails and hors d'oeuvres.

On our commercial trip we were involved in heavy traffic on the way to the airport, had to stand in lines to check luggage, go through security, get on the plane, with a repeat at Chicago, and were involved with all kinds of airplane traffic, landing and taking off. On our private flight, the airports were almost deserted, there were no planes waiting to take off, didn't see any in the air, and no planes in the pattern at either McCook or Duluth.

Our cost for the commercial trip for tickets, parking, shuttle, tip, and airport tax was \$740. Our cost for the private trip to Duluth was about \$150 for fuel. Multiply that by 2 (for comparison purposes if we had gone straight back) was \$300. Oh yes, I bought a couple of quarts of oil and parking on the ramp at Duluth was \$2/day. For the difference in cost (\$440), we could have parked there through the winter! Not bad, wouldn't you say? And that isn't all—when we flew our own airplane, we could actually see where we were going!

OSHKOSH 2002 (AIR VENTURE)

We always try to arrive at Oshkosh a couple of days early, to avoid the heavy traffic and special arrival procedures, and to get

our Mark IV into our exhibit space before all the big semi trucks pull in and start unloading at Hangar A. This year was no exception, except we did have to wait in the twin cities until afternoon for bad weather to clear.

We got set up and the customer traffic started even before the first day of the show. We brought 4 sets of plans along, and they were all gone on the second day. After that we had to call home to get them sent out from there.

Some old Cozy friends (actually they are young), Tim and Wendy Freeze, who camped with us a year ago, stopped by. They were quite excited. They had entered the "Air Venture Cup" from Kitty Hawk. They said it was a pretty good deal. I don't remember the entry fee, but they said that the EAA paid their fuel, and their meals (there was an overnight stop half-way) and their passes for a week, and there were 3 prizes for every class. Since they had the only Cozy, they were a part of another class (I think they took second). Their goal for next year was to get 2 other Cozys to enter, so each one would get a prize. OK you guys that live out east, there is your opportunity to see how you plane stacks up! You could all fly in formation and split first, second and third prizes!

We had our forum on Friday, as usual. It was well-attended. The topic was builder support, and we reviewed all of the forms that were available—contacting us by US mail, email, telephone, Marc's Unofficial Cozy email group, our newsletters, our web page with links to other builders, and the newest support venue, the Canard Community Forum, which is accessed from our web page (www.cozyaircraft.com). This was Cozy builder Nick Ugolini's idea, and he set it up with the assistance of John Slade. It is attached to our web page so it doesn't have to be hosted separately, but it is available to all canard designs. Nick was at the forum to explain his brain-child. He is hoping for active participation. There are a number of advantages to the forum. Instead of broadcasting to an e-mail list of addresses, you post (or reply to) a subject on a bulletin board. Others can read what is posted, and comment or add to it. But these messages are displayed, not sent out to an email list. Your email address, if you register, is hidden, so it is not available to be sold to a spam list. You are notified privately if someone has answered your post. The obvious advantage is that it avoids spam, viruses, and unwanted e-mail. We suggest you give it a look-see, register, and participate.

Our dinner was on Saturday nite at Robbins. We had about 70 people attend. It was a very impressive buffet, with a salad bar, sea-food bar, prime ribs and other meat and hot food, and desert. A good chance to meet other builders. We even had door prizes! Thank you Daryl and Kim Lueck for making all these arrangements again.

Many builders came and went, and we did not have a chance to count how many Cozys were there. Dr. Kevin Funk was very popular because he was giving rides to everyone who asked, and was interviewed on national TV. He has been one of our most enthusiastic boosters. Thanks, Kevin.

We were able to get away at noon on the last day. Normally they don't like to have you leave early, but in our location, they appreciate having the extra room for semi trucks to start loading. After getting out of Wisconsin, the weather was good all the way. We stopped again at our favorite McCook, KS for fuel, and stayed there overnight, because we don't like to cross the mountains in the afternoon. But the next morning it was clear and we sailed home with a bit of a tail wind and landed with about 15 gallons of

fuel left, after only one stop. How's that? Another successful Oshkosh (Air Venture, as it is now called).

\$50 AWARDS

Our best advertising is enthusiastic builders (like Dr. Kevin Funk) who invite others to see their projects or take them for a ride in their Cozys. We prefer to spend some of our advertising allowance by rewarding those who influence others to start building, so, to show our appreciation, we still are sending a check for \$50 to builders whose referrals result in a new Cozy builder. It is good advertising to have satisfied customers!

\$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. 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.

When Mark Beduhn wrote to me and asked whether I had seen his article on the Cozy in the June 2002 Kitplanes magazine, I realized that I was no longer getting the complimentary copies that I have been receiving as an advertiser. I guess Kitplanes was trying to save money. So I sent in a subscription and asked them to send me the copies I was missing. In the meantime, I emailed Dave Martin and asked if I had missed any Cozys that were published in their "Completions" section. Here is his reply:

Nat,

9/5/02

It seems that none of your customers has taken you up on encouraging them to supply Cozy stories for our "Completions" column. Nine minutes of research this morning determined that none of the January through October issues of Kitplanes has a Cozy item, and none of the 45 "Completions" items currently backlogged includes a Cozy input. Maybe they would rather have a Cozy T-shirt or a hat than \$100. Don't give up! We print 'em in the order received.

Best regards,

Dave Martin

Editor: If I can in fact confirm that Mark Beduhn had an article published in June (I would love to read a copy), he will get his \$100.

INSURANCE

Cozy builder Robert Kittler said that it was announced on 7/22/02 that the EAA and Avemco were parting company, but the split would not affect existing policies. At the same time Avemco announced premium credits for those who take additional safety and proficiency training. Bob said he called Avemco and was told that Cozy aircraft are now distinguished from other canard aircraft for establishing premium rates. He said this worked out to a 17% reduction in his premium for next year.

Also on 7/22/02, the EAA and Falcon Insurance Agency signed an agreement for Falcon to administer the EAA Aircraft

Insurance Plan. This Plan will cover homebuilt aircraft, including construction and first-flight coverage. Falcon can be reached at PO Box 92409, Austin, TX 78709 (512)891-8473. Further information is also available at (866)647-4322.

ACCELERATED STALLS

When Marc Zeitlin announced that he was going to do accelerated stalls, I reminded him that in newsletter #56, after Pat Young's accident, I had deleted accelerated stalls as an approved maneuver. This prompted considerable discussion on the internet. It turns out that my definition of accelerated stalls differed from what is now commonly accepted.

What I intended to disapprove was the sudden pulling back on the stick while in wings-level flight as one would do to enter a snap roll (which usually also requires rudder and aileron input). Or pulling up into the vertical, as in starting a loop. Both of which are considered aerobatic maneuvers. Maybe a more appropriate term would have been a "whip" stall.

But I learned that the now accepted definition of an accelerated stall is to pull a lot of gs in a level but highly banked turn, such that a conventional airplane will have a high-speed stall and flip over the top, as in a snap roll.

I don't believe one can get a properly built Mark IV to stall the main wing and cause the airplane to flip in a level, banked, high g turn. I believe all that will happen is that the nose will bob. This assumes that the Mark IV is built according to plans, with a shortened canard, lower winglets, and operated within the approved c.g. range.

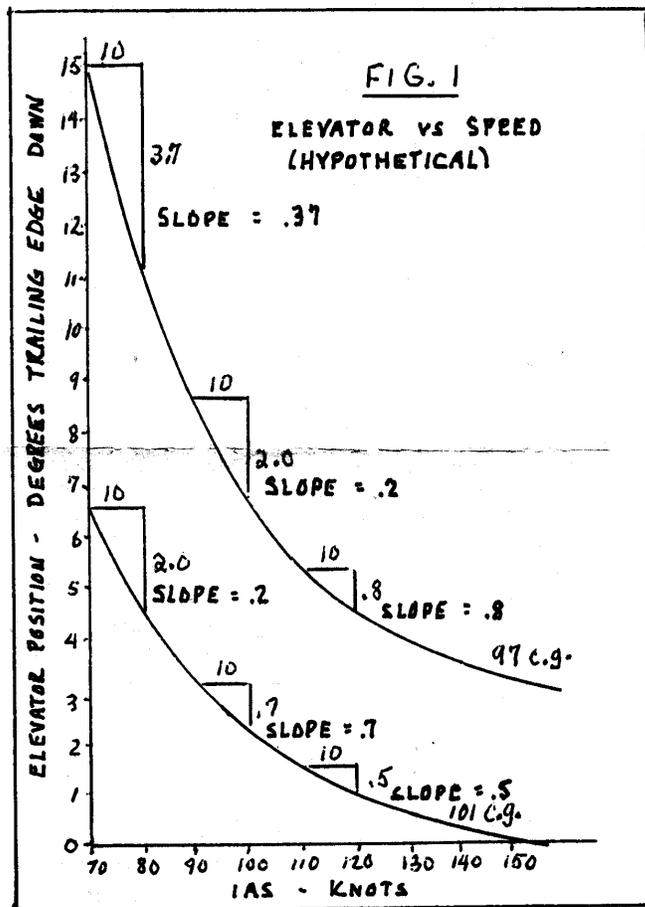
Jim Patton was able to get our Mark IV to depart from controlled flight in a level, banked turn, at aft c.g. before the canard was shortened and lower winglets added. It flipped over the top and he lost considerable altitude before he was able to regain control. The bottom line is that if you can't induce a main wing stall in level flight, you should not be able to induce it in a high-g banked turn.

PITCH STABILITY

Pitch stability refers to what an airplane does if it is trimmed for level flight, the pilot takes his hand off the stick, and the nose of the airplane is nudged up or down by turbulence. If the airplane returns to level flight (after a few oscillations), it is said to be positively stable. If it takes a new course, up or down, and is steady in that course, it is said to have neutral stability, and if the divergence from level flight increases, it is said to have negative stability. The original Wright bros. canard airplane was reported as having negative stability, that is, if they took their hands off the controls, it would diverge from level flight.

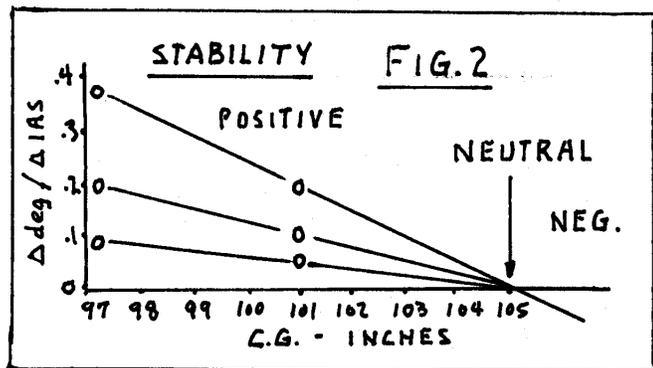
There is a way to determine experimentally from actual flight data whether your airplane has positive stability, and the c.g. where the stability is neutral, and beyond that, negative. You will need to record elevator position at constant power, but different c.g.s and speeds. You will need accurate data, so you will need to make a template similar to template G, on M-18, and attach it to the tip of your canard, preferably the right tip, so you can read elevator position accurately. The template will have to be strong, and well attached. Then ballast your airplane for a forward c.g., say 97.0, go up to 10,000 ft, set

power at a constant setting, say 2500 rpm, and then record elevator position at different constant speeds. Obviously, to get the slowest speed at 2500 rpm, you will be climbing at a very nose-high attitude. Shoot for a constant speed of 70 kts, and record the elevator position. Then for every additional 10 kts constant speed, record elevator position. If your data is accurate, it should plot in a smooth curve of elevator position vs speed (fig. 1).



Now, you will need another set of data at the same altitude, same gross weight, but at an aft c.g. No need to press your luck at a c.g. of 102, so ballast for 101.0. From this data, you should also get a smooth curve, but displaced from the first (fig. 1).

Now, if you measure (calculate) the slope of both curves at several different speeds, you can make a separate plot of slope vs c.g. for those different speeds. If you connect the points for the same speed together in a straight line, the line should intersect the abscissa (horizontal line representing zero slope) at the c.g. of neutral stability (fig. 2). If you plot lines at more than one constant speed, those lines should all intersect the abscissa at the same point, that is, the c.g. of neutral stability (fig. 2). And beyond that point (a c.g. farther aft) will be negative stability (fig. 2).



Hopefully the point of neutral stability will be aft of your c.g. range, as it is in our airplane. You should not fly your airplane at a c.g. where the stability is negative, so if the point of neutral stability turns out to be forward of 102.0, you must either restrict your aft c.g. range, or increase the incidence of your canard. That is the bottom line.

ENGINE SELECTION

Later in the newsletter, in the section, **LETTERS FROM BUILDERS**, there is a letter from Kevin Funk, giving data on his Cozy Mark IV performance with an O-320 engine. It is worth studying. When I flew with him at Copperstate, and saw all the load he brought with him to Oshkosh, I was amazed at the performance of his Mark IV. In my Mark IV, with a 180 hp O-360, at 1,390 elevation, when I take off at full throttle with my 3-blade Performance prop and climb out, I turn 2380 rpm. According to my Lycoming engine handbook, I am getting 155 hp. Then at 8,000 ft altitude if I cruise at 2450 rpm, I am getting 125 hp, and if I cruise at 14,000 ft at 2450 rpm, I am getting 100 hp. So here is the \$64,000 question. Suppose I had a 160 hp Lycoming with a climb prop that gave me 2700 rpm for takeoff. Because I wouldn't be at sea level, I wouldn't get 160 hp, but wouldn't I get 155 hp, same as I am getting now? Then at 8,000 ft, with a 160 hp engine turning 2700 rpm, shouldn't I get 75% power, or 120 hp, almost the same as I am getting now? My understanding is that the O-320 Lycoming is a very rugged engine that you can run forever at 2700 rpm, that it is much more plentiful, much less expensive, and 20 lbs lighter. And wouldn't the lighter weight enhance climb and cruise? So the \$64,000 question is, "Why don't more Cozy Mark IV builders buy and install 160 hp O-320 engines?" Someone please start this thread on the forum, and volunteer your comments.

Bill Walsh says, "I flew in it (Kevin's Mark IV) last year and we did some pretty amazing stuff. We climbed at about 2000 fpm and we got the airspeed close to 200 mph."

Wayne Lanza says, "For what it's worth, back in the late 80's, Velocity designer Dan Maher built N44Q with an O-320 and used a fixed pitch wood prop. I flew in that airplane and remember getting 1200+ fpm with full fuel plus Dan and me. Empty aircraft weight was about 1,200 lbs, add 300 lbs of fuel and about 400 lbs of meat. We used about 1,800 ft of runway and hit about 170 kts airspeed."

T S Parker says, "An option I am considering is a spiced up IO-320. Lycon in Visalia, CA adds some high compression heads and porting and gets the engines to dyno at up to 195 hp. Two RV-6As in town have them and they really perform."

Bob Bittner says, "Well, even though the 320 is probably a fine engine, today (Aug. 1) I bought an XP-360. There are enough good things about it, especially the \$2,500 Oshkosh discount, to convince me it was the best choice. I'm guessing that if you're close to needing an engine and can swing the cash in the next day or 2, you can latch onto the same deal. For \$17,600 I got an assembled new engine minus one mag & harness, carburetor, and alternator. This is a C/S capable engine."

EPOXY RESINS

One Cozy builder reported that he developed an allergy to Aeropoxy, so he solved his problem by switching to MGS 335, which seems to be the resin of choice nowadays. Then others commented about resin cost. So our resin expert, Gary Hunter entered the fray. He wrote on 9/4/02:

WOW, all this commotion in one evening. There is nothing wrong with Aeropoxy. The only bone of contention I have is their claim to develop a high service temperature with just a room temperature cure. It just isn't so. You have all read my bit on that before, so I will not rant any further.

COST – In my world, epoxies and curing agents are sold separately by the POUND. The cost of a resin and curing agent can be vastly different. To get a real picture of what a certain resin/curing agent selection costs, you must figure the cost on a system basis, i.e. the cost of the resin and the curing agent combined in their normal proportions. According to the 2002 Wicks catalog, the various epoxies available have the following system costs (per pound) not including shipping and handling:

Aeropoxy \$5.36/lb.
 MGS 285/H235F \$7.40/lb.
 MGS 285/H287S \$7.88/lb.
 MGS 335/H335F \$5.99/lb.
 MGS 335/H340S \$5.87/lb.
 EZ Poxo \$5.77/lb.
 Pro Set 125/229 \$8.48/lb.
 CPD4425 \$5.36/lb.

SAFETY – They are ALL skin and eye irritants, skin sensitizers and corrosive. So, you must keep the stuff off of you to avoid problems. Nitrile or butyl gloves are by far the best protection for the hands. Gels and barrier creams work best on the forearms above the gloves – for that occasional splash.

I think I have developed an allergy to aluminum. A couple of weeks ago I was working on a metal airplane. By the end of the day, my hands were bleeding all over the place. They eventually healed up, but... maybe I should have been wearing GLOVES. Gary Hunter

Editor: Gary didn't comment on the efficiency of these various resins, or what weight of resin is required for a given layup. MGS has a nice low viscosity, so it gives the impression of resulting in a lighter layup.

COPPERSTATE 2002

Last year there was no Copperstate Regional Fly-in, because Williams Gateway Airport had other ideas, and there wasn't a good alternate location. But now there is. A new airport has been constructed, Phoenix Regional Grande Airport, and it will be the

permanent home for the Copperstate Fly-in, which will be held October 10th – 13th. The airport is located about 40 miles south of Phoenix and 5 miles west of Casa Grande. It may not even be on the charts yet. We will be exhibiting there. We can provide lodging and ground transportation for up to 3 couples who fly in (how is that for an incentive?), on a first come, first serve basis. Alex and Norma Strong have already made a reservation.

LETTERS FROM BUILDERS (some from the net)

Hi Nat,

9/3/02

Enclosed please find my license agreement. My wife Nancy and I are both anxious to get construction underway. I've got one leg of the workbench done so far. Getting the garage properly prepared did take a little while, and I wanted to get something done on the workbench before calling it a day yesterday.

Before deciding on the Cozy, I did some pretty extensive research on the web for different plans and kits. What really attracted me to the Cozy (apart from the performance, efficiency, and beauty of the design of course) is the builder community support that's out there.

About a month ago, I was sitting with my brother in his backyard, and we were discussing the construction of the Cozy. While we were discussing this, C-GESK flew overhead. This one is normally parked over at St. Hubert airport, a couple miles from home. I'd never seen or heard a Cozy airborne before: beautiful sight and unique sound.

Thanks for all your work and support for builders. We're just getting started, and really looking forward to this adventure.

Doug Friend

St. Bruno QC

Nat,

9/3/02

Thanks again for the opportunity to speak and fly with you last week. As I had indicated to you after the flight, I have made the right selection for my future airplane. Your Cozy and dedication to the customers is something you should be very proud of and your following appreciates this support. If you are ever in my part of the country, our home is open to you and Shirley while you are in the area. I hope we will meet again at next years Oshkosh fly-in.

Henry Stauffenberg

Bettendorf, IA

Builders,

8/4/02

I guess that my Cozy Mark IV and I can now be considered a national celebrity. I was interviewed while at Oshkosh this year by a news crew who informed me, at the end, that they were from CBS Sunday Morning news show and that they were doing an Oshkosh segment for Sunday 8/4/02. There were 3 other builders with me at the plane that day and they interviewed Glen Whittaker from St. Louis the most (he had the better personality). They filmed the plane from all angles, especially when Glen climbed in, closed the canopy and tried the electric nose lift.

This morning, the piece aired as "Wheels up!" and I was shown right after Chuck Yaeger. I have it taped and will be making copies of the tape for family and for Nat Puffer since I got to mention in the piece that he was the designer. I will try to show the tape at our next EAA meeting. I received my first congratulations telephone call during the commercial after the piece aired just this morning.

There have been a lot of questions coming my way about my Cozy Mark IV with an 0-320 160 hp Lycoming for performance data. I have never done a thorough analysis like I planned. There

has been too much wind and turbulence in Lubbock and I prefer to fly places everytime that I fly.

Basics: Nearly exact to plans built. Cut off 3" each side of the canard after completion with micro fill prepaint. Wheel pants (my own construction). Clark Lydick Performance prop 68 or 69 inches, his determination of pitch that would be needed for 160 hp Cozy. 1150 lbs originally, probably 50 pounds more by now. Unpainted or finished nose after gear up landing at 6 hours of flight testing I got the infamous gear up landing out of the way early, no big deal. One year of flying with Jack Wilhelmson nose lift. Ellison throttle body. B&C starter and alternator. Alex Strong pitch trim. Full IFR panel.

Usual Cruise: 6,000 – 10,000 ft at 2600 pm, 8.0 gph (peaked per VM 1000 engine monitor. 155-160 kts at 50 gallons, 2 adults, 2 big kids, 50 lbs baggage stowed in all areas. 13,500 ft, 150 kts at 7.3 gph, 2600 rpm. I usually gt 165 kts at 2700 rpm. At 4500 ft, I maintained 2840 rpm for 45 minutes and held 171 kts. My prop is under pitched for cruise. My longest leg was after leaving Oshkosh this year. We did 4.7 hours on ¾ of a tank of fuel at 150 kts ground speed from Peoria IL to Grand Prairie, TX (Dallas) with 2-15 kts headwind and a detour to see the St. Louis Arch (very cool).

Takeoff in 1500-2000 ft at 3280 elevation and 90 deg F (no wind, rare for here in Lubbock). Ground rpm is 2300 and take off rpm is 2320 rpm. Flying at front edge of dg envelope and as much as 1.5 inches forward of forward limit on some flights. Shortest takeoff was with 5-10 kts headwind, ½ fuel, 200 pound pilot at sealevel and I estimated 700 feet with a 1500 fpm climb out at 100 mph.

Climb out: 700 fpm at 80 mph, 1200 fpm at 105mph 12.5 gph fuel flow. At fully loaded weight. Heavy weight flight testing done with suitcases filled with every book and heavy thing in the house. It was interesting when one shifted onto the co-pilot stick and rolled the plane.

Landing: Light weight, 100 mph downwind, 90 base, 80 final, touchdown at 70. Canard stall with power at 63mph, without power at 68 mph. Overloaded front seat, 110 downwind, 100 base, 90 final, touchdown at 85 mph. Usually roll with mild braking for second half, 1500-2000 ft. Able to stop with light load in 1200 ft and no wind. I love to roll on the mains for 500 ft til below 65 mph before nose wheel touch down, just for fun. Speed brake is handy for final and roll out. I deploy the speed brake at ½ mile final.

At Oshkosh this year, I noticed that the climb out was only 500-600 fpm and the takeoff roll was at 2000 ft at high weight and forward limit c.g. I then realized that I had left my nose ballast of 3 coke cans filled with molten lead at 8.2 pounds each for 24.6 pound total. I am afraid to do the calculations on c.g. from that screw up. The cans went home in a car. The ballast was perfect for my solo flight home from Florida last month with 4 stops in Oklahoma to visit relatives. All of that flight was done at 2500 rpm to conserve gas and at 1000 to 2000 agl for fun.

Comparing to Nat's plane at Copperstate 2 years ago, his is quieter and has less vibration. The intercom system is professional vs my RST homebuilt. The 3 blade prop made a difference. The take off was more hardy, and climb out was faster. It would be much nicer for long cross country flights than mine, but I wouldn't give up on my plane. I hope that this helps with engine decisions. I love my 0-320 but like most men, I would love to have even more power.

Kevin Funk MD

Lubbock, TX

Editor: See comments earlier on engine selection.

Builders, 8/26/02

There are similarities flying a Cozy and a single engine fighter, especially for an old geezer who still loves it all.

When I graduated from USAF Flight School many years back, we received our advanced training assignment based on class standing. The top half usually went single engine, the rest ended up in SAC in a B-47, or MATS in a C-124. At that time the F-100 was known as the "Lead Sled". As assignments went, everyone chose the F-86 before the F-100 because they had made a "Bomber" out of the F-100. It was very heavy and managed to kill lots of pilots in low level bomber training, including a guy I knew in the class just ahead of ours. He hit a hill going about 600 mph and the biggest piece they found was quite small. The F-100 guys later found themselves in F-105 "bomber" and many did not survive the Stupid War in Southeast Asia.

I was lucky enough to have flown the F-86 for about 90 hours before SAC took our entire class due to an acute shortage of multi engine pilots. What a let down! I found myself in the right seat of a KC-97G ordering crew lunches for the rest of the crew. What a horrible place for any pilot! The flight engineer managed everything and was the only crew member who knew anything about the 4 P&W 4360's and their 56 spark plugs each.

The F-86 was a pilot's airplane and I was lucky to have flown it if just to complete the school. Bob Hoover once said it was the finest airplane he ever flew. There were no 2-seat F-86's, so the first flight was preceded with lots of briefings, an ancient simulator check out and off you went with an instructor on your tail chewing the entire flight. What a blast for a 21 year old kid. Marc's flight report brought back memories. Thanks.

David Domeier
Chesterfield, MO
8/13/02

Hey Nat,

Just to let you know, the Cozy is becoming more and more of the correct decision to build and fly. My initial rationale for choosing the Cozy was that I could own the airplane in 8 years for what I'd spend in rental fees.

Well, make that 6 years. I walked into my flight school this past weekend and just about fell over backwards when I saw the fifteen dollar, across the board rate increases on all the planes. I love flying their Arrow, but not at \$100/hr, even if it does have a new Garmin GNS 430.

Looking forward to having my Cozy airborne! Wayne Hicks
Carrollton, VA
8/5/02

I just want to thank in public N711CZ for giving my wife and me an excellent fly-by the Florence (FLO) tower. I was working on position when I saw a strip print out for a Cozy, looked on the radar scope and he was 8 miles south. I thought maybe this guy wouldn't mind turning around and giving me a fly-by. I had approach ask him and sure enough....here he comes! I don't know what my wife was doing (she is a controller too) in the tracon cause I couldn't get her to call the tower so I yelled over the intercom to run out side and look. Everyone else not on position came out also.

What a show! I had the best seats in the house! I'm so glad everyone got to see because I was getting tired trying to explain what a Cozy looks like. Now my wife is pushing me to get the plane done, and I just started 6 months ago! I hope this keeps up!

Thanks again, N711CZ! If anyone else is near Florence, SC and won't mind giving the tower a fly-by, please come on over! We'd love to see ya!

Ted Hedstrom
Air Traffic Controller FLO
7/22/02

Builders,

Arlington was my first EAA fly-in. I could only make it up for one day but it was great to be there and meet/see some other Cozy builders. Colby and Eric both have beautiful planes. Of course, all I have is a green tub – so just about everything is beautiful!! No really, their planes are great. Some day I too hope to be in that line-up at a fly-in. Just don't look too close at mine!

Joe hull
Bellevue, WA
7/20/02

Hi Guys,

We just returned from a great trip to Arlington, WA via Jackpot, NV. Our little jaunt involved flying 3800 NM while logging 24 hours.

Departed Owensboro on the 4th, and after an overnight in Rawlins WY, it was on to Jackpot for EZ watching and gambling. After winning all the loot I thought the Cozy would carry, it was a 3 hour trip to Arlington. There were plenty of friendly builders on hand for the fly-in, and 5 Cozys were counted on the ramp. Eric Westland hosted the Cozy dinner and a good time was had by all at the Scuttlebutt.

Departed Arlington on the 13th IFR with 2000 ft ceiling and 5000 ft tops. Mt. Rainier made a beautiful sight when we broke on top. After an overnight in Cheyenne WY, it was home for a well deserved rest.

There is always something to be learned on any long cross country, and this one was no exception: 1) the "Cat's Meow" is a great cross country airplane (I already knew that). 2) There is no cell service in Jackpot. 3) It doesn't rain everyday in Seattle, only 2 out of 8. 4) If you stop in Cheyenne, don't stay at the holiday Inn. 5) The tail wind gods do not ride with me (I only had a tail wind on one leg of the whole trip). And 6) Trips like this one makes all that hard work building worth while.

Colby Farmer
7/26/02

People,

I just wanted to write a public note of thanks to Bob Misterka. Yesterday Bob flew his COZY III up to Fitchburg airport to give me a familiarization flight. Although Bob did not feel comfortable putting me in the left seat, he did let me fly 1.5 hours and 3 takeoffs and landings from the right seat.

I flew three approaches and landings, and two of them were decent. On the second one, I let the speed decay a bit much and we hit a little hard. I was impressed (on all three landings) how little bounce there was, no matter how hard we hit. The plane sticks to the runway.

Anyway, I want to thank Bob for giving me the time in his aircraft (from which I also got a list of things to do this weekend before the FAA inspection) as well as taking the time to look my plane over and give me a few suggestions.

Marc Zeitlin
Acton, MA

People,

8/2/02

I had the FAA inspection yesterday, and I now have the pink card and a legal aircraft. The inspector and his boss (who was checking him out) seemed impressed with the airplane and the paperwork. They took a lot of pictures, and signed everything off.

I asked for a pretty large restricted area, so I won't have to fly in circles.

John Vermeylen flew up from NJ around noon to give me another familiarization flight in his MKIV, and to give my plane the once over. I am glad he did, because he was the only one to notice that I had the rudder bellhorns reversed. I will be switching them tomorrow.

I just wanted to thank John publicly for all his help. He flew up from NJ (1.5 hours), checked out my plane, gave me a 1 hour flight in the LEFT SEAT of his plane and didn't touch the stick or the pedals the whole time, although there was a reasonably constant stream of advice coming through the headset, which I greatly appreciated, and then flew back to NJ. John took nothing for all this other than a free lunch, although I offered to pay for the time (it's now legal to rent homebuilts for the purpose of a checkout), or at least his gas. Plus, he gave me a nice hat that his wife had embroidered.

We did some slow flight, bobbed along at 62 kts., and then did three full stop landings. It was excellent, and gave me a lot of confidence for the first flight, which I'm now planning for this Sunday, early in the morning.

Marc Zeitlin
Acton, MA

WHERE WERE YOU?

Where were you when our country was attacked? I will never forget. I was with Alex Strong, aboard the flagship carrier CV64 Constellation, returning with its battle group from a six-month deployment in the Gulf. We were hosted by the US Navy and Alex's son-in-law and Cozy builder Lt Cmdr Randell Livingood. We were part of the "Tiger Cruise", friends and family members of the crew, who boarded the carrier at Pearl Harbor. We had visited the Arizona Memorial of the attack on Pearl Harbor before we boarded ship, and we were 2 days at sea, between Pearl Harbor and San Diego, when the horrific event occurred. We watched the ships TV in disbelief and horror as the two planes crashed into the towers of the WTC. By a strange coincidence, a third plane demolished the Office of Naval Intelligence in the Pentagon. What did all this mean? Who was the enemy? Where would he strike next?

Co-Z Development Corp.

**2046 N. 63rd Place
Mesa, Arizona 85215**

TO:

NEWSLETTER #79

The number appearing after your name on the address label is the last newsletter you will receive until after you renew your subscription.

Instead of sailing into the harbor at San Diego on Saturday morning as planned, with almost 5,000 crew members lining the deck, dressed in their dress whites, we sailed in under the cover of darkness on Friday night. What would have been a joyous homecoming was filled with forbidding. The world was changed forever!

THE LADY

I wonder what she thought
As she stood there, strong and tall.
She couldn't turn away,
She was forced to watch it all.

Did she long to offer comfort
As her country bled?
With her arm forever frozen
High above her head.

She could not shield her eyes
She could not hide her face
She just stared across the water
Keeping Freedom's place.

The smell of smoke and terror
Somehow reduced her size
So small within the harbor
But still we recognized....

How dignified and beautiful
On a day so many died
I wonder what she thought,
And I know she must have cried.

Thank you, Norman Doty.