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# COZY NEWSLETTER #53

## April, 1996

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### AUTHORIZED SUPPLIERS

Alexander Airplane has been purchased by Aircraft Spruce. They will continue operations in Griffin under the name of Aircraft Spruce East.

### WHAT WE HAVE BEEN DOING

We wanted to get our last newsletter written, printed and mailed prior to the Christmas holidays to wish you all a Merry Christmas and Happy New Year, and also because we were entertaining our youngest son and his new bride and his inlaws over the holidays and we planed to take our annual vacation in January. So it was sort of a continuous rush until the day finally arrived for us to leave on vacation. In the meantime, of course, our annual winter time visitor, Shirley LewisSmith, arrived to take care of our house, business, and dog Shu Shu in our absence. We had planned to spend two weeks on our favorite island, St. Martin, but hurricane Luis pretty well devastated it, so our travel agency sent us to a new resort, in the Dominican Republic. It was immaculate, in a beautiful location, and all-inclusive, meaning that food, drink, lodging, sports, and almost anything else was included, at no additional cost. We had a very enjoyable and relaxing vacation and met some very wonderful people.

On the last day we celebrated my 70th birthday. That's right, the big seven 0! (Now that I am 70, I can ski for free, but this year there wasn't any snow in the White Mountains one of life's little ironies). I couldn't help but reminisce that this was also the 52nd anniversary of my learning to fly. In my earlier days I was much more disposed to take chances than I am now. Perhaps that is why the military likes young men who think they are immortal. I can remember one incident over the Pacific which I survived only by the grace of God. As you get older, you realize that you are mortal, and are inclined to be much more cautious.

In our last newsletter we reported that we were on the verge of running out of our first edition plans. To go for a second edition, and another 500 sets of plans represented a big commitment; not only about a \$15,000 investment in printing, but also a commitment to continue the sale of plans for another 5 years and to continue to support builders for even a longer period. We believe that we have one of the best, if not the only plans built, high performance, 4-place airplane on the market, and some of the best builders any designer could hope for, and as long as our builders want us to continue, and we are able, we will. From the depth of our hearts we want to thank all of you for your very generous support, and we appreciate it!

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## UPDATE ON THE FRANKLIN

We didn't want to switch engines in our N14CZ until we had at least 2 months for flight testing and debugging before having to make a major trip to an airshow. We gave up trying to do it before Sun 'n Fun because it is now only a month away, and we were still awaiting magneto couplings and a prop hub extension. It's a good thing we did because we learned something very important in the meantime. We had already completed new cowlings and the baffling, and made drawings of all the baffling, when we heard indirectly that Velocity was testing a Franklin installation and was very disappointed with the results. We decided to give Duane Swing a call. He told us that they had made a lot of tests with different propellers and both a carburetor and fuel injection, and still weren't getting the power that they were from an IO360. He complained to Atlas Motors that there must be something defective with the engine. This prompted Pat Goodman, of Atlas, to do some independent testing. He borrowed a propeller from Velocity that turned 2600 rpm static on an IO360 (200 hp), and installed it on a Franklin mounted on the back of a pickup truck. With the short stacks he was supplying with the engines, it turned 2700-2800 rpm static (about what he expected). Then he tried a trick he learned from auto racing, extended the exhaust pipe approx. 4 ft, *and the engine turned 3100-3200 rpm static, and an honest 3200 rpm when pushing the truck at 35 mph!* RPM was measured on a digital tachometer, and he recorded the tests on video, including the tach readings and sent me a copy. This *blew my mind!* I had to watch the video about 5 times before I could believe it. It appeared that the engine was putting out significantly more than its rated power with the extended stacks. I absolutely couldn't go ahead with short stacks as I had planned. I had to figure out how to extend the stacks by 4 ft. This required changing all my beautiful baffling, running the stacks first to the firewall, then a 180 degree bend, and then running the stacks aft over the top of the engine and out through the cooling outlet of the cowl. I had to redesign the stacks and send away to have them built (don't know when they will be done), and now I will also have to alter my new cowlings. I still don't know how heavy this installation is going to be, but it looks like we shouldn't have a shortage of power. In fact, we will probably have to get a new propeller as well. We hope to get everything ready to install it after Sun 'n Fun, but Aircraft Spruce wants us to attend an airshow at Chino in May. Will keep you advised.

## **PUBLICITY**

We haven't seen any pictures in Sport Aviation or Kitplanes lately. Hope we haven't missed any. We need more of you to send in writeups and pictures of your finished Cozy to both Kitplanes and Sport Aviation. It doesn't matter if you have just finished, or have been flying for a few years.

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## **FIRST FLIGHTS**

There has been a dearth of completions and first flights for almost a year, but this may be about to change. Frank Bibbee, in Bedford TX, is flying his Mark IV now, we heard that Bruce Elkind, in Camarillo CA, is doing taxi tests, and we think there are a number more that are almost ready to fly. Frank Bibbee writes:

Dear Nat and Shirley,

Well, I am happy to report that on February 21, 1996 our Cozy MK IV N68TF flew for the first time. All went well, the weather was perfect and I was fortunate to have my wife Terri and Vance Atkinson present to help and witness. Liftoff occurred at 70k and I flew at 100k to 110k, gear down for 15 minutes. The airplane exhibited no tendency to roll or pitch and was basically hands off in the first flight cg envelope. What is most amazing, and I'm so thankful for is that all engine temperatures, oil and cylinders were excellent. There will be no need to change baffling or oil cooling. Having spent almost an entire year trying to cool our previous VariEZE, I can say that this discovery was a blessing. After three days of testing we have almost 10 hours flight time so should have no problem making Sun 'n Fun. Thanks for a great airplane; we are so happy!

Frank Bibbee  
Bedford, TX

*Editor: Frank Bibbee purchased his Mark IV plans at Oshkosh '94, and built his Mark IV in 18 months! See, it can be done!*

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## **ACCIDENTS/INCIDENTS**

The aviation world was shocked a year ago to learn that air racing legend Steve Wittman and his wife, Paula, were killed when their airplane, the O & O Special, came apart in the air on their way back from Orlando to Oshkosh. Steve was 91 and was probably the world's oldest living pilot. His pilot's license reportedly was signed by Orville Wright. He was a prolific designerbuilder, and won many races in planes like the Bonzo he had designed and built himself. The NTSB, who investigated the accident along with Paul Poberezney, concluded that the wings came off due to aileronwing flutter caused by the covering peeling off the wing. It seems that Steve, who had built many airplanes and covered them with

cotton and linen, using nitrate dope to adhere the fabric to the wings, had substituted Dacron (which we use as peel ply), but didn't change the bonding method. After over 200 hours of flying the O & O Special, the bonding of the Dacron failed, with tragic results.

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## PROPELLOR BLADE FAILURES

There were two reported instances of wood propeller blade failures recently (on Long EZs) which are under current investigation and discussed in the Canard Pusher and Central States Newsletters. Fortunately, neither resulted in a damaged airplane or injured occupants. The preliminary analysis is that excessive moisture content in the wood, combined with excessive heating from the exhaust or from fluttering in flight can crystallize the wood, making it brittle. This condition in wood is known as depolymeration, and creates a small amount of acetic acid (vinegar), which has a distinct smell. In view of the number of wood props functioning normally on many hundreds of homebuilts, this is not thought to be a widespread problem. Nevertheless, it would be wise to observe the following:

1. If there is any evidence of overheating (charring) of either or both blades from the hot exhaust, rotate you prop one bolt hole. If a twobladed prop is installed at approx. the 1 o'clock / 7 o'clock position, with the #1 cylinder at top dead center on the compression stroke, overheating from the exhaust will be eliminated. You may see gray exhaust deposits on the blades, but they will remain below 150 degrees F at all times.
  2. Seal the inside of the center hole in the prop with epoxy to minimize moisture pickup of the wood.
  3. Always leave prop in horizontal position when parked, to prevent moisture migrating into the lowest blade by gravity.
  4. Repair any damage to the finish of a wood prop immediately, and refinish and check the balance once a year or as required.
  5. Inspect your prop carefully and often for signs of blistering and/or checking or cracking on the surface, especially on the forward face.
  6. Be vigilant about flutter. If you feel a sudden unexplained vibration or as you bring the power up to do a mag check, or in flight, reduce power, land and inspect for evidence of flutter. This may be in the form of a darker color in the wood especially near the trailing edges, or at the 2/3 blade station which is the hardest working area of the prop. Flutter is a harsh roughness or vibration that comes on rather suddenly. Any prop that exhibits a tendency to flutter should be discarded and not flown.
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## CLARIFICATION TAKEOFF & LANDING WTS.

Our Owners Manual says that the maximum gross weight of 2050 lbs is for takeoff only, that maximum landing weight is 1900 lbs, and routine operations above 1800 Lbs are not recommended. The logic in selecting these numbers is as follows: All airplanes weigh less when they land than when they take off, because of burned fuel. The max gross of 2050 lbs assumes full tanks, i.e. ~52 gal or 312 lbs of fuel, which is enough for 4 to 5 hours flying and close to 1000 miles. If you did fly this long and this far, and if you were at max gross for takeoff, you would be landing at about 1750 lbs gross, well under the max landing weight of 1900 lbs. We do not recommend putting on board more fuel than enough to get you to

your destination with a reasonable reserve because this airplane, and all airplanes for that matter, fly better lightly loaded than heavily loaded. We understand that the average 4 place airplane is flown 95% of the time with no more than 2 people, and most of the flights are less than 1000 miles, so we would expect that routine operations would be considerably less than max gross weight. We would expect, whether stated or not, the same logic applies to all 4 place airplanes, including factory builds.

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## ..... CUSTOM SHOPS

*<Much text deleted from original text per Nat Puffer>*

We wish to remind you again that our "authorized" suppliers support our design, that the only supplier we have "authorized" to make fiberglass parts for the Cozy and Cozy Mark IV is Feather Lite, that theirs are the only parts we have tested and approved and that they support our design. We hope you will support our authorized suppliers.

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## SUN 'N FUN '96

We are looking forward to seeing as many of you as possible at Sun 'n Fun '96. We were finally able to get an exhibit space inside of the fence, and we will be with our airplane just North of the FAA building. We expect there will be at least 4 Cozy Mark IVs there, and hopefully, a lot more 3 places.

[Bill Walsh](#) has arranged for a Cozy Banquet again this year at Farmer Jones' Red Barn on Sunday, April 14th at 6:00 pm. A private room for at least 80 has been reserved, and all Cozy builders, prospective builders, their guests, and Cozy supporters are invited and welcome. The steaks are very good, and Cozy people are not only cozy, but very friendly. Bill would like to have you call if you intend to attend (407) 695-3543. See you there!

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## OSHKOSH '96

We hope to have our airplane in a display area at the SE corner of the new North Exhibition Bldg., same as last year. We have a Cozy Builder's Forum scheduled on Friday, August 2, in Tent 3 at 1:00pm. We also expect that the Pershings have made arrangements for a Cozy banquet at Robbins on Saturday, August 3, at 6:00 pm. We would be pleased to host an Internet meeting at our airplane, same as last year, for Internet subscribers to meet each other, to ask questions, to critique this media, and make suggestions for its improvement. Hopefully, we may even have the Franklin installed and have a recommendation to make.

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## BUILDER HINTS

1. We have electric gyros in our plans model, but it occurred to me that if you install vacuum gyros, the engine driven vacuum pump will have to work harder (and fail sooner) if it exhausts in the pressurized area of the cowling. It would be better to exhaust it through the baffling into the low pressure area.
2. Wicks Aircraft will be stocking the original RAE epoxy system on a trial basis to see if there is sufficient demand for them to stock it. It is a good system. We hope there will be sufficient demand to insure its continued availability.
3. The Epolite 2427 catalyst can degrade if exposed to CO<sub>2</sub> in the atmosphere, causing it to become milky and lower its physical properties. Keep containers sealed.
4. Don't discard scraps of PVC foam; its expensive! Instead, trim and glue the scraps together with 5min into sheets large enough to make parts from, rather than ordering more.
5. The ramair filter box we show on M35 and Feather Lite supplies in kit form uses a Fram element CA 3647 which is 2 1/2" thick. If this interferes with the cowling (on the 3place or Long EZ) Mr. Gasket 1487/1488 or Datona 5241/5251 elements, which are only 2" thick, may be substituted.
6. Check your plans and construction manuals to make sure there are no missing pages. They were collated by automatic equipment which, we discovered, is not infallible.
7. Some builders are still having trouble with the trailing edge of their canard being too low, such that the airfoil dips down and they have to mount the elevators lower than desired to get the required 15 degrees of trailing edge up travel. We suggest that you remove 1/16th inch (no more) from underneath the fishtail on the templates before cutting the foam cores, or from the foam after cutting to avoid this problem. We have made this suggestion to Feather Lite as well to do on their precut cores.
8. We have some tall builders out there (taller than 6'2"), and we would like to keep in touch with them as regards to changes they might wish to make for more headroom.
9. For 1st Edition builders. If you shorten the canard cores before building the canard, you will also have to shorten the spacing of the outboard jig, to support the canard tips. One builder suggested we mention this.
10. There is a discontinuity (dip) in the top surface of the wing at B.L. 67.5 (see Chap. 19, p. 10). This is intentional. You have not made a mistake!
11. The fuel caps specified as FC100-002 are Wicks numbers for UD2F (flat) or UD2C (curved) caps. Specify the UD2F (flat).
12. Cozy builder Jim White suggests a different technique for building the turtleback. He ran the foam strips front to back instead of side to side. By arranging the foam joints to occur at the center of the wood strips, he did not have to use aluminum strips to back up the joints. He installed the center strip first, and worked his way to the outside, gluing each strip with small dabs of 5min epoxy as he installed them. He rotated the jig and placed weights on each strip to hold it in place until the 5 min cured.
13. Cozy builder Jim White has designed a very nice alternate master brake cylinder installation using acrobatic cylinders. For more information, send him a SASE at 4845 NW Kahneeta, Portland OR 97229.
14. Sometimes we make a mistake in updating our files, or the Post Office mutilates an address, so you don't get your newsletter. Please let us know and we will be pleased to correct our files or send you a replacement.
15. We welcome your calls during waking hours, but dislike being awakened from a sound sleep, so we will let our answering machine pick up calls during the night (mostly foreign calls).



## MARK IV CHANGES/CORRECTIONS

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### WANTED

Greg Martin, Bakersville CA 805-872-8781 wishes to know if anyone has a partly finished Cozy to sell.

Ronny C Kirkland, Conyers GA (770) 860-0715 wishes to buy a completed Cozy.

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### FOR SALE

1. Nearly complete 3-place Cozy. Left are wiring, instruments, paint and upholstery. Includes Kevlar cowlings and wheel pants. Built by experienced composite builder who has decided to switch to a Cozy Mark IV. \$16,800 OBO. Alan McPherson, Box 195, Stewarts Pt. CA 95480 (707) 785-2947.
  2. Cleveland chrome brake discs for VariEZE (also Cozy?), new, unused, \$85 OBO (707) 785-2947.
  3. Cozy builder, [Bill Walsh](#), has arranged a source of tee shirts (sweatshirts available on request) which come in venous colors but only adult sizes. They have a detailed picture of the Cozy or Cozy MK IV. The Cozy name is printed above. Bill is also working on other Cozy items, such as jackets, caps, pins, and cups. The shirts are available at \$9.95 plus \$1.50 shipping and handling. Orders for 2 or more are sent 2-day priority. Make checks out to Linda Walsh, PO Box 160884, Altamonte Springs FL 32716. (407) 695-3543.
  4. [Wayne Lanza](#) makes a number of very nice goodies for the 3 and 4-place Cozys. He has an electric speed break actuator kit with all the parts needed for installation, with instructions for \$275. His latest creation is a switching and breaker panel for the Mark IV. It is similar, but not identical to the one we had made for our plans model. It is located at the top of the panel, which is the best location for appearance and access to the electrical system. Wayne is using the highest quality DC switches (they are hard to locate) and circuit breakers, and pre-wires the panels, making the rest of the electric system installation very EZ. Cost is \$425. We really appreciate Wayne's contribution, and heartily recommend his products to you. Contact him at: 9425 Honeysuckle Dr., Sebastian, FL 32976 (407) 664-9239.
  5. We believe that the 4 pipe stainless steel exhaust system we designed and is being manufactured by Custom Aircraft Parts (see Authorized Suppliers) is far superior to anything else available or advertised for the 3 and 4 place Cozy (or Long EZ, or any other pusher, for that matter). Cost is \$500, which includes shipping and handling.
  6. Rebuilt 0-360 Lycoming engines at a reasonable price. Contact: Dan Brown, (918) 834-0791.
  7. New, improved fuel sight gauges. Clear bubble with white background. \$35 per set. Vance Atkinson, 3604 Willomet CT., Bedford, TX 67021-2431 (817) 354-8064.
  8. [Dr. Curtis Smith](#)'s nosegear ratchet (which we recommend) is now priced at \$40. Dr. Smith's new address is 204 Woodland Dr., Edwardsville, IL 62025, (618) 656-8209.
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### LETTERS FROM BUILDERS

11/29/95

Dear Nat,

I am taking one of those epic decisions that life has us take sometimes. I am offering my plane for sale. It's a tough decision, and made all the harder by all the good friends and memories that have come through Cozy fellowship. I will probably have my airplane at Lakeland.

I don't know what to ask for my airplane. If you remember, it has very clean lines. It weights 981 lbs and is VFR equipped with nav and strobes, Terra radio and transponder, Fly buddy panel mount GPS, full CHT and EGT computer engine monitor w fuel flow and totalizer. I used this instrument to tune the fuel injector nozzles in each cylinder, and the CHT span in cruise is 16-25 deg. F, from the hottest to the coolest. My engine is very smooth. I have a vertical card compass, all normal flight inst., including an electric turn coordinator, but without a vacuum system or artificial horizon. Engine is a Lycoming O-320 w high compression pistons, 250 hours since major. It uses about 1/2 qt of oil each 15 hours. It has one new Slick mag and one electronic ignition by Jeff Rose. I have a 3-bladed Performance prop which turns 2475 static and 2850 top end. I have never had a cooling problem and have recorded 221 IAS in level flight. I make no claims on the accuracy, but it is fast! I have been extremely pleased with my Cozy and am loath to sell. I would appreciate suggestions from your readers on what to ask.

Robin du Bois  
Mabou NS  
(902) 945-2921

2/20/96

Dear Nat and Shirley,

It was great to meet you a Copper State. Diana and I had a great time and plan to make it back next year. We really enjoyed meeting all of the other Cozy builders as well. Work is progressing on #421, although we take a lot of time to travel. Over Christmas we took a safari to Kenya and a cruise in the Indian Ocean. I'm up to the middle of Chap. 6 and things are coming together well. I'm surprised sometimes at how well things fit. Thanks for a great design.

Drew & Diana Upshaw  
San Antonio TX

1/15/96

Dear Nat,

Last spring I lost a mag over the heart of the Catskill Mountains and I immediately became very interested in the glide distance of my Cozy. Whenever possible I usually cruise at either 9,500 or 10,500 ft. I wanted to know how long to touch down from 9,500 ft. if everything got quiet. So one beautiful cloudless day last summer I went up to 11,000 ft. and slowly pulled the throttle back to avoid shock cooling. Eventually I had the stick all the way back and I was at my min. speed of 75 mph where the plane just hangs there nose up until it gradually begins to descend in that position at about 700 fpm. At 850 rpm I did a descent rate check at selected speeds, first with the gear up and then with the gear down. The amazing thing to me was that I got better glide performance with the gear down than with the gear up. This did not make any sense to me so I tried it again to verify the numbers. Sure enough I still got



better glide numbers with the gear down. I was showing a glide at idle that would take me 32 miles from 9,500 ft. at 100 mph.

Someone pointed out that the fairing I have on my nose gear leg could be giving extra lift with the gear down. It seemed at the time that this was an extra safety measure if your engine quit. You could make lowering the gear part of your restart routine, assuring optimum glide performance. At the Oshkosh hot dog roast we debated whether I was getting thrust from the idling prop or drag. We decided the only way to tell was to go up and redo the test with the engine OFF.

Well, I have never been checked out in a COZY glider but my home field is 75 ft. MSL with crossing runways of 5,700 and 4,000 ft. So on another beautiful day I decided to take my mighty steed up into its natural environment and do the test. The OAT was 20 deg. C and there were very few planes flying at the airport. I took it to 11,000 again, reduced power, and once the CHTs cooled down, I shut off the electrical power and pulled back on the idle cutoff (it took both hands to pull the power on a perfectly good engine). Man did it get QUIET! I held the nose up until the prop stopped to eliminate the drag from the turning prop. After the first test (gear down) I planned to restart at 6,000 ft. I tried a restart, but my engine, which always starts immediately on the ground, took about 3 cranks before it fired. The pucker meter was bending the peg. After running the tests with the gear down, I repeated the process with the gear up. Because of my 6,000 ft. limit for restart that I had set myself, I got my descent numbers as quickly as possible and never really stabilized the plane for very long at any one speed setting. While I felt that the numbers were not precise, I had the data necessary to answer the initial questions, such as the power/no power controversy, and also I had enough information to indicate a direction for further study. The following is the result of the tests with engine off, first with the gear down and then with the gear up:

Gear Down From 9,500 ft.

Speed(mph)	Descent(fpm)	Min to Grnd	Miles to Touch
75	700	13.57	16.96
80	600	15.83	21.11
90	600	15.83	23.75
100	750	12.67	21.12

Gear Up From 9,500 ft.

Speed(mph)	Descent(fpm)	Min to Grnd	Miles to Touch
75	700	13.57	16.96
80	650	14.62	19.49
90	600	15.83	23.75
100	625	15.20	25.33

I will be doing this test again in the near future. This time I will leave the electric power on so that I can use my wing leveler. I will be better able to tweak the pitch with the wing leveler holding the wings steady. Also I will check the speeds 95,100,105, and 110.

Besides the dramatic change due to loss of thrust from the idling engine, the 90 mph check was exactly

the same for gear up or gear down. I think that if things ever get QUIET, and the first restart doesn't work, I will drop the nose gear and maintain about 9095 mph while looking for something about 15 miles out to land.

### Ken & Janie Brimmer

Bowie, MD

12/18/95

Dear Nat,

I have admired the pictures of your Cozy Mark IV (from the info pak) which have been hanging on the walls in my office for over three years now. I decided to finish my engineering degree at the U of Col. before I started work on my own Cozy. I've had the opportunity to see many experimental airplanes such as the RV4, RV6, Kitfox, and Velocity, and have talked to their builders. I was, however, extremely impressed by your Cozy Mark IV and the plans from which it is built. I have gotten to know several builders on the Internet, and visited with a Cozy builder, Lee, in Greely. His answers to my questions was the icing on the cake.

I have also read the comments about you on the Internet. After reading your letter I have to say that I agree with and respect you for your frankness. Without reservations I have enclosed a check for \$500, please send me a set of plans. I've found the best in design and support of any airplane, and now I want to get started. Merry Christmas and Happy New Year!

### Roy H Grossinger

Frederick, CO

12/15/95

Dear Nat,

It was great to talk to the many builders at the Cozy dinner in Oshkosh. This was my first dinner and it was extremely motivating to hear other builders talk about their projects. The speaker was fantastic! Thanks to the Pershings for all their work.

I've just finished Chap. 3. The arrival of our first child, setting up a shop, remodeling the basement, and all other kinds of interruptions have seen one year pass without much visible progress. As I'm sure you know, time is a very precious and nonrenewable resource most of us don't seem to have enough of.

I've purchased several parts from Jeff and had Dennis Oelmann build several components also. Dennis has been a tremendous source of knowledge as well as enthusiasm. If you ever need a salesman, Dennis is your man! Have a good Christmas and hope to see you again at Oshkosh '96.

Kurt Van Hulzen  
Sac City Iowa

12/18/95

Dear Mr. Puffer,

My wife Valerie and I run a shop that buys, rebuilds, and sells Long EZs and Cozys. I am an A & P with a DAR certificate and can issue airworthiness certificates for amateur-built aircraft and give ferry permits. Valerie is working on her A & P certificate.

We purchased a Cozy awhile back, N86LM from Merle Musson. This aircraft was in need of a total rebuild. It had a Ford V6 on it for power and the airframe was quite rough. You may have seen it at Sun 'n Fun a couple of years ago.

The first thing we did was remove the auto engine. We weighed the engine with everything aft of the firewall except the cowlings and prop. The total weight was 470 lbs. with oil and coolant drained!!!

We removed the wings, canard and canopy, cut out the instrument panel and all of the armrests, cut the fuel strakes off, and removed the main wheels, brakes, axles, plus all of the nose gear. We removed everything from the firewall, and all of the control systems. Then we started reconstruction.

We started by sanding back to the glass. We replaced the engine mount extrusions, repaired the firewall and installed new firewall material. We rebuilt the nose gear and reinstalled it, repaired the main gear strut, shortened it by 2", and reinstalled new brakes. We built a new engine mount and installed a Lycoming 0320. We installed new fuel strakes and revised the fuel system.

We installed a new metal instrument panel of .090 2024 T3. We retained the structure of the lower flange of the composite panel, but added more glass to keep the area stiff, and left 1" on the side walls. We installed an IFR Terra radio stack with new instruments.

We used Glassadour filler primer with the finish coat of Jet Glow. I have painted composite aircraft for the last twenty years. You will find nothing better than the above products.

I have around 600 hours in EZs, so the Cozy was no problem. The flight test has been uneventful. I was concerned that the new strakes might have changed the stall margin. So far I have found nothing unusual, but I have not yet tested the aft limit. I have been to 230 mph indicated with no flutter. Tell your builders to invest in (or borrow) a good parachute. It's amazing how your mind set changes when you strap on one of these. Our stall buck starts at 75 mph. Full throttle, 4000', 55F OAT gives 205 mph IAS (about 215 mph TAS).

I wanted to bring you up to date on the Cozy so it wouldn't haunt you anymore.

Happy Holidays  
Rob & Val Harris  
Memphis TN  
(901) 753-2560

*Editor.- See [NL #46 p. 10](#) for picture of N86LM before reconstruction, and picture this newsletter for appearance now.*

12/16/96  
Hi Nat & Shirley,

Hope things are going well in Arizona. Enclosed is a progress picture of my Cozy being retired now, much better progress has resulted that was until the cold weather here in Philly slowed me down. But still could have it flying some time in '96. Wishing you both a happy holiday season and good health in the new year.

Charles Danila  
Philadelphia PA

1/10/96  
Dear Nat,

My Cozy Mark IV (#80) was acquired from Lynn Heffley in 1994..... In defense of myself (wondering whether the wings were built correctly), I did not start out seeking advice on Internet instead of discussing my concerns with you. What happened was that I responded to a discussion taking place about the differences between the Cozy III and Mark IV wings that I thought was getting out of hand. Someone was saying that the wing templates were different between the two, which is not true. I happen to have both sets of plans and was able to verify this. So I explained that only the B.L.s were different because the MK IV strakes and wings were longer (12" each side). The person has since responded back to me after he did some investigating and found out that in fact it was Long EZ templates that he had and, of course, these are different from the Cozy's. I feel good that I was able to help resolve this situation for him and possibly others on the net. This all took place prior to my receiving [Issue #52](#) from you yesterday which clearly spells this all out.

*(Editor: There still seems to be confusion on this subject. The Cozy III templates are identical to those of the Long EZ, including B.L.s. All of the Mark IV templates are also the same (except for different B. Ls), except for the wing root template on the Mark IV which is different because the wing root was extended and the kink in the trailing edge was removed).*

Yes you are VERY correct in saying that information on the net is UNRELIABLE as I have already found out, but the activity in general serves a purpose by introducing hints and topics that I and others might never have thought of as well as making us aware of many issues and other's concerns. Like anything else, one has to weed through a lot of useless and unreliable CRUD sometimes to find a gem of useful information. I do not automatically take everyone for their word either on or off the Internet no matter what the subject matter. However, I do enjoy listening to accounts from those who are already flying if for nothing else than to help motivate me to complete my own project.....

In the meantime I wanted to let you know that I would always feel comfortable asking you for advice if ever I felt there was an issue I could not resolve myself or didn't feel sure about.

[David de Sosa](#)  
Garland TX

1/20/96  
Hi Nat,

It has been a long haul, but I can see the light at the end of the tunnel. I hope to be flying this spring.

I want to thank you for paying so much attention to details throughout your plans and specs for the Mark IV. The Mark IV is an absolute pleasure to build and every thing fits so well!

I would like to pass on to other builders something I found very helpful!. When ever I complete the work described in any paragraph, I mark that paragraph and date it. Building an airplane is a long project and sometimes there is a long lapse between building sessions. Marking each paragraph lets you pick up where you left off without wondering if you forgot something.

Nat, thanks for all of your support the last few years. Enclosed is my new address.

Larry Sligar  
Myrtle Creek OR

1/29/96

Dear Nat & Shirley,

Nat, let me first thank you for the support you have given the builders to assist and clarify questions we have in our efforts to build the COZY. I talked to you last night regarding the wing construction and instantly you put my mind at ease in that I had not "goofed up" my right wing. Serial Number 0218 has been progressing fairly well with only a few lulls in the work phase of the aircraft.

I would like to address something I think every builder goes through at some point in construction and that is the valleys I suspect each of us may have while working. Some parts just don't seem to build fast enough; questioning that, can I build this part of that part? Life events have to work their own way through, but I can't stress that the support of your spouse and other builders, even those building other types of aircraft (although I could not imagine why anyone would want to build anything other than a COZY), provide an essential part of the "sticktoitiveness", and continued drive to complete your dreamship. One source is to be very active in the local EAA. These are pilots and dreamers in some varying point of either construction or completion. We COZY builders, as evidenced by the camaraderie at Oshkosh and other flying events through the year as well as a casual phone call to one another exhibits a closeness not that common in today's fast paced world. I would like to say that I am proud to be a part of the group of builders and flyers of the most wonderfully designed and easily built aircraft in the world. Donna and I aren't finished yet, but we are getting there.

Thank you so very much and my God Bless you and Shirley and our COZY family of builders and friends.

Kip & Donna Davis  
Neosho MO 64850

3/13/96

Dear Nat,

A quick note on items we have run across in building:

1. Purchased a 'torpedo' propane space heater for the garage. Money well spent. I can now get and keep the garage very warm and toasty in short order. My collection of electric heaters are now



happily gathering dust. This has helped speed our progress.

2. Spent a bit extra time to make a sturdy rotisserie arrangement for the fuselage. I mounted this to my table which is sitting on 4 x 4s on the garage floor. The whole assembly is very stable. We find that we are rotating the fuselage back and forth.
3. I thought that looked familiar....NL #5211. The picture (Paul Stowitz) is actually my garage. (Editor: I apologize.)
4. Wire routing for the intercom and map light from the passenger side headrest to a seatback wire run is proving a bit problematic. If I had provided a small channel when connecting the seatback, it would have been a breeze, but too late now. At this point I am considering welding an extension on a 5/16" drill bit and drilling a path through the seatback to the wirerun. Opinions? (Editor: Sounds good to me!!!)

Work progresses and time flies (eventually the plane will too). Happy sanding all.

### Tom & Danida Kennedy

Aliso Viejo CA

12/15/95

Dear Nat and Shirley,

Enclosed are pictures of Cozy Mark IV #200. Both wings are complete and in finishing. Come spring, I'll attach the nose and start on the controls. I'm picking up machine shop skills by making many of the metal parts.

Also included are pictures from our Porterville Cozy Flyin hosted by Mike and Waldine Doering last October. The weather was great as 4 Cozys, 1 Mark IV, a few Longs and 1 ERacer greeted the approx. 30 people who attended. It was great to see the expression on the faces of builders when they returned from their first Cozy flight.

Saturday concluded with dinner at the airport restaurant and Todd Morgan relating the experience of winning the Grand Champion award at Oshkosh. Everyone had such a good time that we decided to make this an annual Fall event. We are also going to arrange a Spring get together in Southern California.

I am enjoying the building process immensely, but I can't begin to tell you how much this project has meant to me just in the new friendships I have made. Thanks for making the plane available to us Nat. Happy holidays and have a great '96.

### Paul Stowitts

San Dimas CA

12/4/95

Dear Shirley and Nat,

My 3 place Cozy (#749) is progressing and I'm into building the strakes. Canopy is on with all its hardware. Registration will be ZKCOZ. Just ordering cowlings and sump blisters from Feather Lite. I'm hoping to make it to Oshkosh again next year and I hope to drive the west coast LA to Seattle before

returning home. Over the last 18 months I have helped build a 3500 sq. ft hangar with a syndicate of 3 others. The Cozy will be in company with a KR2, a Cavalier, and a Bobcat.

Fred Libeau  
10 Asbory Cres  
Campbells Bay Auckland NZ

*Editor: How about some of you West Coast builders showing Fred what Cozy hospitality is all about?*

1/2/96

Dear Nat,

This February will mark the end of my first year building #412. Like the saying, "time sure passes fast when you're having fun." This last year sure flew by. I've been making excellent progress, however, my wife has become jealous of the time I spend working on the plane, but I've learned to live with her!

I have developed a sensitivity to 2427. I break out with a rash anywhere it contacts my skin. It also irritates my sinuses and causes swelling around the eyes. I have increased the ventilation in my shop, along with wearing long sleeve shirts, and nitrite gloves. I now wear a respirator with a full face shield. I haven't had any problems on the last 3 lay-ups. Hopefully, I have this problem under control.

I have the elevators and canard and also the main spar done. I have to go back and do the landing gear chapter when money is available. I've skipped around a little, just to continue working while stretching out the cost. I may not be able to fly to Oshkosh 1997, but hope to be there by '98. Until then, I'll just continue enjoying the building process.

Gary Juergens  
Sullivan, MO

1/3/96

Dear Nat,

My Cozy is progressing well, considering my busy work and school schedules. I have completed Chap. 4 & 5 in 5 months of evenings and weekend work. Your plans are quite good, your newsletter is outstanding, and I want to thank you for your support of your design.

Being a Cozy builder has many benefits. I was recently hired as a methods engineer at Bombardier Aviation (completion center for Challenger Jets and Learjets). My interviewers split their questions between technical and general, to determine my abilities and the type of person I am. To show my interest in aviation, I brought my Cozy Mark IV information pack to the interviews. When I showed them what I was building in my garage, the interviews became very friendly and we spent the remaining time talking airplanes. The job offer soon followed, and I know that being a Cozy builder put me ahead of my competition! When you think about it, there are similarities between Cozys and corporate jets. They are high speed, long-range aircraft featuring swept wings with winglets. I think of my Cozy as the common man's Learjet!

I enjoyed meeting you at Copper State FlyIn, and thanks again for taking the time to answer my questions. My thanks to all the Cozy builders who sent in photos of their projects for publication in the newsletter. They have been a great help and inspiration to me in my project.

My schedule prevented me from attending many of the local EAA meetings. Please publish my phone number (520) 325-4384 as I would appreciate hearing from any Tucson area Cozy builders.

Don Bowen  
Tucson AZ

12/18/96

Dear Nat and Shirley,

Just a short note of appreciation for your dedication and support for Cozy builders. I just received and read the current newsletter --certainly always appreciated but even more during the holiday season when, in addition to celebrating Him, we remember friends and family who have passed on and resolve plans for the new year. One of my resolutions always involves completing a stage of my MkIV project. This coming year with a new house and nicely equipped (heat pump) workshop, I plan to make good for once on my new years resolution.

A comment on [NL #52](#) "What can we learn from this?". On my Long EZ after 975 hours I made an urgent landing after a funny sound and slight vibration change and drop in EGT on my right, aft cylinder. I had been at 8500 ft. full throttle doing some GPS groundspeed calibrations on different course headings. After I landed, in addition to finding some leading edge prop damage (flange bolt passage), the exhaust pipe was found loose within the cowling. Further inspection revealed it had come loose with one bolt still remaining. The pipe had been rewelded and reattached by my mechanic who was honest enough to admit that he had tightened but not torque down on those bolts. Since then I've always double checked any mechanic work and am very compulsive about checking that the pipes are secure during the airframe preflight. My point is that in addition to a CHT rise, an EGT drop might also occur during an exhaust pipe failure and pilots should recognize this also.

Don Hansen  
Chuckey TN

1/25/96

Dear Nat and Shirley,

You probably don't remember me, but I once was the owner of Cozy plans #53. Way back in 1982, when my wife and I attended Oshkosh and had pleasant times with the Wallets and Wilhelmsons and you folks....remember the Cozy song? Does anyone still sing that? We bought plans at Oshkosh and then went home to build, but never built. We got the fuselage chapters, built a bulkhead, and then think we thought it was just too much time to get in the air (you know, when we're young--TV generation needs instant gratification). I sold the plans to a guy in Texas (I wonder if he ever flew?). We moved on to an Avid Flyer kit, but life has a way of changing. We are now married with two children. We've gone through some financial hard times, but now life is better and it's time to return to my dream airplane.

I happened to rediscover my dream thanks to Marc Zeitlin and the WWW. I was wandering (as we do on Internet from time to time) and ran into Marc's web site (and haven't put it down since). I had met Marc many years ago when I was looking at different designs. I was surprised to find him online, and even more surprised that he was building a Cozy. By the way, Marc has put together a truly impressive set of pages dedicated to the Cozy. You should be proud!

So, please find a check for plans, newsletter, info pack, and Owners Manual. I don't expect to start building for about another year, but want to start planning now. Thank you for still being there, and evolving the original design to a 4-place. This time around, with all the builders on internet, and others nearby, it will be easier in the sense that it will be a far less lonely endeavor. Looking forward to flying to Oshkosh!

**Howard Bernstein**

Lexington MA

1/8/96

Dear Nat,

My Cozy N171BH is progressing. Started on 1/1/86, it is now 10 years old, hardly seems possible! But I am quick to note to others considering building a Cozy, that the 10 years has much more to do with my having to complete college and establish a career over those years. At times my income was so low that I had to stop or build slowly for long periods of time so I could complete school and flight training. But it is all paying off . 1995 was a great year for me. I left WestAir Airlines (a commuter) to take a job at Airborne Express, flying the DC9. Along with UPS and FedEx, Airborne is one of the "big 3" of overnight freight carriers. A wellmanaged company that is growing, many refer to it as the "Southwest Airlines" of the cargo-carrying segment of the airline industry.

I have four areas of work to do before my Cozy will be flying: 1) Paint the wings when the weather warms up, 2) Purchase and install avionics, 3) Install seat belts and upholstery, and 4) Perform engine run and check all systems. Since I work out of Wilmington, OH and live and keep the Cozy in Sacramento CA, my first flight won't be until fall, but I promise you a full report. I intend to approach the flight testing scientifically, gathering data on everything from takeoff, climb, and cruise to fuel and engine cooling efficiency, so I can fly it as safely as possible.

Brian Heinitz

Citrus Heights CA

12/19/96

Dear Nat,

I'm making steady progress on the Cozy. This winter will let me tie up all the loose ends, such as wiring and fuel system. I am hoping to fly to Sun 'n Fun. This project has been so much fun I avoid using the word work. I hope to help others complete their planes when mine is complete.

Mike Davis

Elizabethtown, KY

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## GATHERING OF CANARD AIRPLANES

Terry Schubert, of Central States Association, advises that the Sixth National Gathering for Canard

Type Airplanes will be held June 21,22, & 23, 1996 at the Page Municipal Airport (F29), Oklahoma City, Oklahoma. Social events, seminars, prizes. Contact Pete Peterson 4429 NW 48th, Oklahoma City, OK 73112 (405) 946-5003.

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