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COZY NEWSLETTER #68

January, 2000

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WHAT WE HAVE BEEN DOING

We try to get our January newsletter to you before Christmas, so we can wish you a Merry Christmas & Happy New Year

We have much to be thankful for. This has been another year with no accidents. We have renewed many friendships and made many more new friends. We successfully defended in Federal Court a challenge to our copyrights, our trademarks, and our integrity. We had a record year for plans sales, and a record year for completions. We are proud of our children, their spouses, our and our grandchildren, and we are in good health. God has truly blessed us in many ways, and we hope He has blessed you too.

We expect to be visiting relatives in Minnesota the week before Christmas, and may also be away over New years eve and day. Also, we plan to vacation the second and third week of January. Hope this will not inconvenience anyone.

B&C

B & C Specialties supplies light weight alternators and starters, special sealed aircraft batteries and linear voltage regulators, and the 90 degree oil filter adapter. We have been using his products for 20 years (since 1979), and they are top of the line. We have just replaced his battery in N14CZ. It was 7 years old, and even though it was still cranking our O-360, it had been drained completely flat 4 times, so this was a precautionary measure. 7 years of service with this kind of abuse is really extraordinary! It is a sealed recombinant gas (RG) lead-acid battery.....they ARE the wave of the future when it comes to aircraft batteries.

BUILDER SUPPLIED OPTIONS

We can recommend the following builder supplied items:

1. Improved Rudder pedals for lay-down brake cylinders, adjustable both sides. Dennis Oelmann (319) 234-6109.
 2. Water tight fuel caps: Jack Wilhelmson (834) 884-5061
 3. Improved MKNG-6 and NG-6 Pivots with tapered roller bearings. Jack Wilhelmson (834) 884-5061.
 4. Electric speed brake actuator kit. Wayne Lanza (561) 664-9239.
 5. Switching and breaker panel. Wayne Lanza (561) 664-9239.
 6. Fuel sight gages. Vance Atkinson (817) 354-8064.
 7. Electric nose-lift. Steve Wright (615) 373-8764.
 8. Electric pitch trim. Alex Strong (760) 254-3692.
 9. Voice annunciated warning system. Richard Lewis (423) 376-1450.
 10. Rebuilt flight instruments. Howard Francis (not a Cozy builder) (602) 820-0405.
 11. T-shirts, etc. Bill Walsh, nogofsu@sprintmail.com.
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GOLDEN WEST REGIONAL FLY-IN

There used to be a fly-in at Chino, CA, which we attended a few times. It was discontinued when the Golden West Fly-in was started at Castle Airport in Merced, CA, a year ago. We decided to attend it this year, from September 10-12. Merced is just north of Fresno (Burt Rutan's home town) in the San Joaquin Valley. Castle Airport is an ex B-52 base with a very long runway and lots of paved ramp. On the way, we stopped at Dagget, to join up with Alex and Norma Strong. They live in Yermo, 7 miles away, and have their own 2000 ft. runway, but they fly over to Dagget to load up for long trips. We

arrived at Castle on Friday, which was rather slow. But Saturday was the big day. It just seemed to us that there were almost as many airplanes as Sun-n-Fun. Four Cozys attended. On Saturday night, they had a buffet dinner with a military USO band, and a good time was had by all. All-in-all, a good fly-in.

COPPERSTATE FLY-IN

Copperstate Fly-in was held at Williams Gateway Airport (formerly an F-16 Base) October 7-12. We had our usual booth. It was quite well attended, with lots of builders and prospective builders stopping in. I think there were about 6 Cozys there. We entertained about 35 - 40 builders and prospective builders at our house on Friday for a barbeque, and we sat around talking on the patio until about 11pm. The city has other plans for the airport, and have turned down the EAA for next year, so it will be at some other airport. We feel badly about this, because our party was a big hit, and we won't be able to do it again if the fly-in is somewhere else.

BALLAST

It is often asked, "What do you do for ballast if you drop a passenger off and then have to continue solo?" Well, it finally happened to me.

At Copperstate the officials kept asking me to do fly-bys in the parade of homebuilts before the airshow each day. I promised I would on the last day, before flying back to Falcon. At the briefing I reminded them I would be taking my wife, Shirley, along. They told me I couldn't, so then I told them I wouldn't do their darned fly-bys. Then I noticed a pile of rocks at the corner of the hangar near where we were parked. I picked out enough of the right size to fill my ballast compartment, and figured it was just enough weight, so I did 8 high speed passes just off the runway. Except for this one occasion, I never do any buzzing.

FIRST FLIGHTS

I'm sure there were more, but we learned of four:

Marc Parmalee writes on 9/21/99

On Saturday, 9/18/99 at about 11:10 am, Cozy Mark IV (serial #425) N20MN, took to the air for its maiden flight. The pilot was our very good friend Larry Lombard of Featherlite fame. The first flight

was only about 30 minutes, but to us it felt like a couple of hours. Construction took 4 years and 5 months from start to finish. The FAA gave us a 40 hour test flight time with a 65 mile radius from our home airport. Larry initially did three fast taxis down the runway, then told us that the next one was going up. There is no describing the feeling of seeing something that has been your main focus for so long finally become a reality. Rotation was at about 1000 ft. Larry climbed to pattern altitude and circled the airport and then went higher to feel the plane out.

Special thanks to Larry for helping us out with the first flight and his continued help with the flight testing, to his wife Janet for enduring the whole event, and to all the other Cozy pilots who sent out first flight e-mails. There were times when we thought the project would never end and support from our friends and those e-mails kept us going. We had a lot of help and support from some very good friends and advisors, Troy Zachary, Bob Lesnett, Todd Morgan, Chuck Wolcott, Vance Atkinson, Tim Merrill and Larry Lombard. Many other Cozy builders/flyers gave us ideas and helped to keep us motivated. Thanks to Nat for designing a wonderful airplane.

Some specs: 2200 rpms at runup with a Catto three-blade prop. Accelerates to 70 knots under 1000 feet. 2350 rpms at 150 kts with gear down and no wheel pants. Jeff Rose electronic ignition and Airflow Performance fuel injection system the engine idles very smooth at 450 rpm. All temps well within range. Now the new adventure begins!

October 28, 1999.....I now have over 20 hours of solo time on the Cozy and am just loving every minute of it. I have found that she is very easy to fly. Out of 20 landings, I've only had to go around once, and that was the first flight on our 3300 ft runway. I just maintain 80 kts on final and it lands in the same spot every time.

Marc Parmelee
Novato, CA

Dennis Oelmann writes on 10/28/99:

After 20 months of intense building, there was really an end. Yesterday the FAA inspector out of Des Moines, Iowa, came to my hangar to do the inspection on Cozy Mark IV N92VT. The inspection went very smoothly with nothing to do but attach the data plate in the appropriate place. He wanted it under the wing strake below the sump blister.

He said the aircraft was the best built that he ever had inspected. He was very impressed with the design and really liked the visibility from the cockpit. After I showed him all the little creature comforts that we all like, he asked me if after I had the time flown off, could he have a ride? He issued me an airworthiness certificate and a temporary repairman certificate.

Today, wind 5 knots, clear skies, N92VT flew for the first time. Yes, it was just as much fun as my first flight in my Cozy III twelve years ago. The Mark IV weighed in at 1258 lbs. c.g. is 108.16. I think this is in the ball park, even though some would disagree! Doug Koster's now weighs right at 1300 lbs. with an IO-360. Tim Merrill's 1320 lbs with an O-320 and constant speed prop and full IFR panel.

My Mark IV is completely per plans as far as dimensions and length. N92VT is stock. Engine is O-360 180 hp A1A with Ellison throttle body, Steve Wright nose lift, Vision Micro System engine analyzer, King 76A transponder and encoder, King KX125 nav/com, Garmin GX65 GPS/Com, Garmin audio

panel with marker beacon and built in intercom.

I installed a different heat system than the standard heat muff. Heat muffs are okay for carburetors, but it's a long way to my toes and they just don't cut it in Iowa, so I installed a second oil cooler in the nose on the passenger side. I took a blower fan out of a Honda CRX and built a squirrel cage fan out of a block of foam to push the air through the cooler and just heat the cabin air. There is another oil cooler mounted on the engine mount that cools engine oil. I ran the oil lines through the center duct which the plans say to use for hot air. I ran 3/8 aluminum lines exiting the duct underneath the co-pilots thigh support and into the bulkhead fittings where they go through the instrument panel along the floor to a ball valve on the floor on the passenger side to the cooler. IT WORKS GREAT! I GOT HEAT, and lots of it. To regulate it, I just adjust the oil flow to the cooler. Leave the fan on high. So far I can feel the heat coming out from underneath the instrument panel. I'll keep you posted.

Oh, the airplane flies great. I don't have one thing I have to adjust or change. Oil temps were 198 with a 0 time engine and CHTs were right at 380. I flew the airplane for an hour first flight, varying the rpms between 2100 and full throttle. I built the baffling and lower cowl baffles exactly per plans!! Nat is right, the ailerons don't have to be changed or made bigger. The roll rate is much faster in the IV over the III. The canard has been shortened the 3 inches he recommended (1st edition plans). Ground handling is superb with the big brakes. I even got the chance to try out my own rudder pedal design. I really like them.

Nat, Thank you!!....You deserve a lot more credit and respect than you sometimes get for all you've done in designing such a wonderful airplane. I guess sometimes when I see some of the changes that some people are thinking about and the things some people worry about are really foolish. In fact, sometimes I'm laughing so hard I can't even get up off the floor to respond. These are also the builders that will probably never finish their projects because they are too busy changing things. Then I think back and remember I had some of those same fears and dumb ideas and I take a lesson in humility. I was glad I asked a lot of questions. But I have to admit most of the answers are in the plans, if you read further and study the drawings. Usually major changes cost you in 3 ways: Time, money, and weight, and sometimes safety!! When I built my Cozy III I usually waited til somebody more experienced than I did a change and tested it, before deciding whether it was worth it for me. That is still my policy. I need a beer!!

Dennis Oelmann
Waterloo, IA

3) Malcolm Hart.....On 10/6/99 Steve Willhoite writes the following to Vance Atkinson: "Just wanted to thank you for your input on Malcolm's Cozy III. While I couldn't believe that it could fly like a Long EZ, you proved that I should just shut up and listen. As soon as Malcolm lightened up the nose, it breaks ground at 80 mph just like my Long EZ and gets there a whole lot faster with 35 extra ponies. I am really glad to see this as I was starting to feel like my Mark IV would feel very "truckish" compared to the Long. The Cozy III is a pleasure to fly and more stable hands off than the Long EZ. Although the right side view is not near as good! Hope to see you at Copperstate.

Steve Willhoite
Santa Fe, NM

Jeff Mallia, Cozy N46WM received a Outstanding Workmanship Award at Oshkosh. We don't

remember reporting a first flight for him, so we will list it here. Congratulations, Jeff!

HOW I USE MY COZY

David Domeier recently posted a short item on the internet about how he uses his airplane. Maybe it would be interesting for others to provide interesting items as well.

David writes on 10/27/99:

My wife and I launched on a 3 leg mission at 9 am this morning and returned at 4 pm. The purpose was personal business and pleasure, and the Cozy made it a piece of cake.

The first leg was 49 minutes. We usually drive it in 3 hours. The second leg was 29 minutes. We usually drive it in 1-3/4 hours. The third leg was 102 minutes. We usually drive it in 4 hours. At each airport we were asked about the "cute" airplane. Some people had never seen one or heard of it. A very interesting day. Keep building, guys. It is worth the effort for sure.

Dave Domeier

Nat replies on 10/29/99:

A few weeks ago we took a 5 day vacation, joining some friends on a houseboat out of "Halls Crossing" on Lake Powell, to travel the upper part of Lake Powell. There were no direct roads. It would have taken 10 hours to make it by car, and we would have to have left a day early and stayed overnight somewhere to meet at the marina at 10 am. So we flew. It took less than 90 minutes to fly up to a really nice airport 10 miles from the marina, and they had a free shuttle service. We really impressed everyone else (we flew over the marina before landing) Same on the way back, just 90 minutes.

Nat

PROJECTS FOR SALE

10/15/99

Dear Nat and Shirley,

I need to sell my Cozy Mk IV #421 project. Due to lack of time and now a change in career, I have not been able to work on my plane for 3 years and need to give it a good home. It's complete through Chapter 6 with most parts to go through Chapter 8. I have a brand new hot wire transformer as well. I am asking \$1,500 OBO. Thanks,

Drew Upshaw
(940)692-0811.

PARTS FOR SALE

I have the following for sale: Manual pitch trim handle, CZPTH, Brock's price \$32.50, mine \$20. Primer solenoid Skinner valve B2DX62 12 volts, Wick's price \$38.95, mine \$25. Facet fuel pump FP40108, Wick's price \$30, mine \$20, or make offer! I switched to electric pitch trim and fuel injection.

Don Rothrock
(561)871-1016.

PROUD OF YOUR COZY?

Readers of Sport Aviation and Kitplanes magazines love to read about what other builders are building and flying. We have a lot of builders who are flying, but never sent in pictures to any of the magazines. Maybe they didn't think it was worth the effort. So we decided to increase the ante. We offer builders a free "Strong" electric pitch trim, or, if they have already purchased one, \$100.00, for any pictures and descriptions or articles published in Sport Aviation or Kitplanes Magazines. In addition, Kitplanes will enter your name in a drawing for a free GPS.

[Publicity Addresses](#)

LAND - A - MEMBER AWARDS

We received a nice letter and gift from the EAA the other day. The gift was a multi-element jackknife, like a Swiss Army knife, except it had "EAA" engraved on it. The letter said, "Congratulations! We received word at EAA headquarters that you sponsored a new member." Whoever it was that told EAA headquarters we were sponsoring them, Thank You!

BUILDER HINTS

Epoxy. RAE Fast is now CPD 4426/9376 and RAE Slow is now CPD 4426/9377.

Elevators. In the first edition Mark IV plans Chapter 11, p.7, we instructed builders to mount their elevators at zero degrees with jig L so that there was a .2 inch gap between the canard and the elevator. When some builders did this, they were not able to get 15 degrees trailing edge up of the elevators. So we changed the L jig (see p. M-18) to mount the elevators at 15 degrees trailing edge up and zero gap. Please note this on p. 7, Chapter 11, 1st paragraph and Figs. 17 & 18.

Cowlings. Cowlings should have extra layers of BID along all the edges to make them more rigid when they are removed from the airplane, and to provide more beef for the fasteners. This is shown in Figures 12 & 15, Chapter 23, but builders were not instructed to add them because the supplier (Featherlite) added them while the cowlings were still in the mold. In February 1999, when we inspected AeroCad cowlings, we noticed that they were not doing this. We asked them to add the extra layers while the cowlings were still in the mold. They agreed, and we approved their cowlings contingent upon their doing this.

Peel ply. Early in the game we learned that various fabrics sold in fabric stores work well as peel ply, and can sometimes be purchased at quite a low price. We learned that hard-weave (not fuzzy or stretch weaves) nylon, polyester and dacron work well. Watch out for cotton and rayon. Often there are roll ends tables where things are reduced for clearance. Once I was able to purchase nylon like is used in ski jackets for \$.45/yd, and later wished I had bought the entire table. It is best to take a sample home first, use it on a wet layup, and make sure it peels off, before buying a whole bunch. Make sure you iron any wrinkles out of peel ply before using it. Otherwise they transfer to the layup.

Landing gear strut. In Chapter 9, p.2, it says that the strut should be cut at 8 degrees, but on p.3 it says 13 degrees. There has been some disagreement as to what is the correct angle, and it also depends on whether it is measured at the leading edge or trailing edge. The angle is not critical, so shoot for somewhere in between.

Strake leading edge. Keith Scull (England) didn't want to pay the cost of shipping Featherlite's leading edges all the way from California, and he didn't like the idea of carving foam blocks, so he came up with an innovative alternative. He purchased some thin card stock from a local art supply store, wrapped it around the leading edge of the strake using the ribs as guides, trimmed it so it just fit into the recess provided for the leading edge layup, and taped it in place with 20 inch long strips of masking tape. Then he cut openings in the top so he could pour pour-foam into the empty space. The openings were 3 in. x 1/2 in. every 6 to 9 inches parallel to the strake leading edge. He poured the pour foam thru the slots, let it expand and cure, and then removed the masking tape and card stock. He said the result was a perfectly formed leading edge which required very little sanding to prepare if for the glass layup (see pictures). He said it sounds like a lot of work, but only took a couple of hours, and did a better job with less mess.

Leak testing strakes. Keith said when he leak tested his strakes using an altimeter, the right strake had a very small leak (20 ft. in 3 hrs.). He couldn't find it with soapy water. So he called in a local refrigeration man who filled the strake with R22 and used an electronic sniffer to locate the escaping gas. He found the leak. It was traveling along the score lines he had cut in the foam to bend it around the ribs, and escaping where the foam joined the fuselage. Apparently he hadn't completely filled up these score lines with micro. The cure was quite simple. He drilled a very small hole thru the top skin into the

score line at the tank rib and injected epoxy using the vacuum method described in the plans. To be doubly sure, he did this with every one of the score marks, and found three to be leaking. After filling with epoxy, the altimeter indicated no more leaks.

Usher FC100-002 fuel caps. David Domeier reported a problem with one of his fuel caps, it would not lock. The over center tab device that causes the O ring to spread would not stay down. When he took the cap apart, he found that the tab rides on an insert which was made of plastic, it had broken and was crimped, and it would jam and not let the tab rotate over center and lock. In his other cap, this insert was made of metal. David said he made a new insert of .049 aluminum in about 15 minutes and the cap works fine now. Al Wick reported that he visited Usher Enterprises in Portland OR and learned that they had made a design change a few years ago, and switched this plastic insert to stainless steel. Might want to check your gas caps. If they failed to lock while you are on a trip, it could be a big inconvenience.

Cheap GPS. This was posted on the internet. "Someone was asking about simple GPSs that are available. I have the cheap Magellan which sells for \$99 at Walmart or Kmart. I have used it to fly my Cessna all around the northeast and find it to be the best of both worlds. It has no data base, but has 100 memories and is very easy to program and use. It has route capability, shows actual heading and speed. It will even display your time of arrival based on your speed. The best thing is it gives you a simple compass rose with a needle and you use it as if you were using a VOR. No buttons to play with while flying and you can be looking out the canopy like you should be. It runs for 48 hours on two AA batteries and is very reliable."

Paint. Carl Denk reports that our favorite paint, Deltron acrylic urethane, is being phased out, and is being replaced by Concept 2002, which he thinks is the same paint, but with a different name.

Finishing. Dennis Oelmann writes: "I used 6 kits of West System to fill and contour the entire Mark IV, most of which ended up on the floor. I used Rinson Mason High build primer. This stuff fills a 36 grit scratch!! Final top coat was PPG Concept 2000 urethane DAU 2. Toyota White. It looks fabulous!! I started filling on April 20 and I put the finish coat on July 16. 700 hours. HARD WORK. I'm sold on the West System and Urethane paint. The finish on my Cozy III looks as good as it did 12 years ago when I finished it, except for the normal scratches you always get when you use it."

Spinners. Dennis Oelmann writes: Last week I was working on fitting the spinner which I purchased from Brock Mfg. I felt it was of high quality. It is a "bullet spinner" and making the cutouts for the 3-blade performance prop was quite simple. It took me about 4 hours to cut out the prop holes and get the required clearances and polish the cutouts. I would recommend the Brock spinner to everyone. I liked this spinner better than the one I had on my Cozy III because the holes were pre-drilled through the spinner base into the flow guide around the prop extension. This made the spinner wobble proof because it was done while both parts were still in the mill. I recently replaced the spinner on my Cozy III because of a crack. After installing two spinners within two weeks, I feel like I'm a pro. I still had to polish them both and wasn't looking forward it. Then I found a place within 100 miles of where I live that does chrome plating of aluminum (319)582-8253. Cost was \$105 for each spinner. They do a lot of spinners and the price was reasonable.

Laydown brakes. Dennis Oelmann says that if you use the A 600 laydown brake cylinders with brake fluid reservoirs, you should either vent the fluid reservoirs, or not fill them all the way, so the fluid has expansion space and will not cause your brakes to drag.

Vacuum line. Dennis Oelmann writes: One of the things that I had a little trouble with when I built my first plane when I got all done was the vacuum pump. I had no line to hook up because there was none. I guess Nat planned to use electric gyros, but my engine came with a vacuum pump and I was too cheap to go electric. I will say that Nat's plans are second to NOBODY. Have you ever seen the plans for a KR 2 or the Velocity? It makes it so easy that even people who shouldn't build an airplane can. On the Mark IV I drilled a 3/4 in. hole through the firewall and gear bulkheads on the pilot side below the armrests. At the firewall it was at a slight angle below the push rods and above the electrical channel. I floxed in a 3/4 in OD tube and attached a long length of clear plastic tygon through the front seat bulkhead, under the map pocket to the regulator mounted by the pilots left calf. From the pump to the firewall, I had a hard time finding a 3/4 ID hose that was reinforced. I found one at a marina. It was for a bilge pump on a boat. Everything works. Hope this helps.

HOME BUILT CERTIFICATION

Amateur-built certification procedures will be simplified. For those homebuilts being newly certified, you will NOT need to get new operating limitations after making a major change (like changing propellers). Simply record in the logbook what change was made, test for 5 hours, and record the results in your log book. If your aircraft has already been certified, you will have to get your operating limitations changed to reflect the new, simplified process. See details in Dec. '99 Sport Aviation.

ENGINES

One of our builders, Brad Crawford is using a six cylinder Continental. He says it is one of the smaller 0-470s at 225 hp. He says there are a lot more 0-470s out of V-tails and 182s than 0-360s laying around. He changed the cowling to allow more room for cooling air. He hopes to be flying by Sun-n-Fun, and says that he will share the "pain/joy" with other builders.

Rego Burger, Phillip Johnson, Al Wick, and Norm Doty, we hope you will share your "pain/joy" as well.

CYLINDER HEAD TEMPERATURE

Lycoming says that cylinder head temperatures should never exceed 500 deg.F, but for maximum service life, cylinder head temperatures should be maintained below 435 deg.F during high performance cruise, and below 400 deg.F during economy cruise. High performance cruise is 75% power and 150 deg.F on the rich side of peak EGT. Economy cruise is less than 75% power and leaned to just above

roughness. These temperature limits assume down draft cooling and temperatures measured at the bayonet location under the cylinder, which is the hottest side with downdraft cooling. For updraft cooling (like we have) you need to correct for the temperature difference across the cylinder, so add 40 deg.F to the reading in climb and up to 70 deg.F when leaned in cruise. If you are measuring CHTs with thermocouples under the bottom plugs, the temperatures are approximately correct without correction. If you are measuring CHTs with thermocouples under the top plugs, subtract 40 deg.F from your readings to make them comparable to bayonet readings on the hottest side of the cylinder. So if you are using bayonet sensors on the bottom of the cylinders, your indicated temperatures should range from 300 deg. F to 350 deg.F. Clear?

OIL TEMPERATURE

Oil provides about 1/3rd of the cooling of an air-cooled Lycoming engine, and high oil temperatures can contribute to high CHTs. Lycoming says the desired oil temperature with OAT in the 0 to 70 deg.F range is 170 deg.F, and in the 30 to 90 deg.F range is 180 deg.F. The maximum allowable oil temperature is 245 deg.F, but I would never be happy with it much over 180 deg.F. With an O-360 engine, you might get by with a 9-row cooler if you duct the cold air to it, but a 13 row cooler works like a charm. We have a 13 row cooler and our oil temperature runs 170 to 180 deg.F almost all the time.

Paul Krasa had a problem with high oil temperatures and CHTs in his Long EZ, and discovered that there was a problem with his vernitherm valve. He said it is easy to check, and should be eliminated first as the cause of a temperature problem. He says: "Pull your vernitherm and place it next to a metal ruler in a pan full of water. Place a cooking thermometer in the water. Heat the water to 200 deg.F. You should be able to see the vernitherm expand. If it expands, look carefully at the seat on the accessory case. It should be shiney around the entire edge. If it does not expand, replace the valve. For an O-320 the part number is 75944. Now that my airplane is flying, I am having the same problem. Last night I checked my vernitherm in the way I described above, and sure enough it was not expanding. My CHTs were in the red and oil temperature was 220 deg.F. The only reason I suspected the vernitherm was I had seen the problem before.

VANCE'S COLUMN

New cylinders. The biggest thing (and most expensive) we've done this year is replace our O-320 Lycoming cylinders with brand new ones from Superior. We bought these from Mattituck who gave us a very good deal. Diane Miller is the one to talk to and did some very good follow-ups after the sale. She can also tell you what you will and won't get with each cylinder kit. They don't take trade-ins so we sold our old ones to El Reno in Oklahoma for 50 bucks each, better than nothing!

The big dent in our treasury was caused by a stuck valve and bent push rod tube. Unfortunately at the time it happened, I didn't recognize what it was because it happened on start up, after the plane stayed

out all night in the rain, and I expected the engine to run rough for a few seconds and it didn't disappoint me. So, once cranked up and running smoothly (it ran rough for about 5 seconds), I flew an hour and 15 min and landed at home base only to find the whole back end of the cowl covered in oil. It had been puking oil the whole way home. Upon closer scrutiny, I discovered a torn push rod seal from the offending horseshoe shaped push rod tube, ok ok, it wasn't bent that much! But the oil sure looked like a lot (spit out a quart in an hour).

I now have about 60 hours on the cylinders and they appear to be mostly broken in. These are the standard 160 hp cyl and piston combo. CHTs are 360 F at high speed cruise, that is, around 10,000 ft. at 176 kts sucking 7.8 gph. When flying in the group, we normally do around 170 kts at 6 gph. I recently purchased (and highly recommend) a new oil cooler at the big O from Wicks. It is a 13 row job and only cost \$225; these are aircraft quality and are terrific, and are NEW! Because it is twice as big as my old one, I had to mount it on the lower aft baffle that hangs down from the starter/generator area. This mounting on the baffle must be reinforced as this is a heavy duty unit.

A recent trip to Chicago last month yielded the following: At 8500 ft, 63 F OAT and 30 gal of fuel, and engine running flat out, max power for one hour. I wanted to see what was going to overheat. As it turned out...nothing. The speed stabilized at 182 kts true (154 kts IAS) and the oil went to 192 F and the cylinders went to 357, 378, 369, & 373 (#1 to #4, probes in bottom). That was it. Fuel consumption was 8.3 gph. I have smaller injector nozzles than standard so I can get lower than standard (and leaner) fuel burn. With regular nozzles it would jump another gallon or so.

The new cylinders are much smoother and quieter than the old ones and I thought I was going to get more speed than the old ones, but since I opted for the 160 hp compression ratio (rather than 180 hp) looks like it came out even.

Brakes. I recently did some more brake work, and if you want to get the air out of your brake system you should fill it from the bottom of the brake caliper, as everyone knows. When you do this, put a chair under the prop flange, block the wheels and raise the nose about 2 feet in the air (now the prop will be resting on the chair and prevent the fuselage from tipping over). Now, those pesky bubbles will flow up to the master cylinders much easier and you finish in no time.

Engine instruments. While cruising around Oshkosh I stopped by the UMA instrument booth. I bought a nice tach there last year. This year they had a line of gauges 1-1/4 in. dia. They look very nice and should be; they run from \$100 to \$200 ea. I bought a nice amp gauge from this line. Since my plane is totally electric, I've been looking for a small amp meter to tell me how the load goes, and this was just the thing.

Interior. I'm about to (sigh) repaint my interior for the 3rd time. The interior takes a pretty good beating and it shows. Maybe Nat has the right idea just to upholster it. I believe the Zolatone paint is the best for the money; it holds up better and doesn't discolor or come off as easy. The controls are getting sloppy so I have bought some bearings to replace the phenolic ones, and more teflon spaghetti for the aileron hinges. This will be the first replacement of the teflon. I'm still using a Great American prop which gets me about one hundred more rpm at cruise than Ken Francis' identical Cozy using a 3-blade Performance prop. Steve Wright's nose lift is working fine and also my electric trim (Alex Strong) is still trouble free. My Cozy has about 1350 hours on it now.

Electronic ignition. In 1991 I installed my first electronic ignition, and 7 months later the second. I have

had one failure of one of the pick-up coils in all that time. Nothing else has ever gone wrong with the ignition. I have experimented with several types of spark plugs over the last 8 years and the ones I use now work best hands down. They are AutoLite #386 plugs and cost about \$2 ea. The automotive plugs I have used have never worn out between annuals nor do they require cleaning, I just throw them away and buy new ones for \$16. I have replaced the auto ignition harness with a newer more efficient one (couldn't tell the difference) one time 2 years ago, just 'cuz it was a more advanced wire for a hot \$50. If you haven't tried electronic ignition, you are missing out. It will make your engine idle smoother, run smoother, produce more power (and more heat) and save you fuel every time you fly. I highly recommend it. I use Jeff Rose's. Klaus Saviour's are also available. Suggest you call both and decide which to buy.

Learjet crash. Off the subject of Cozys...because I have about 6000 hours in Learjet 35s, (the specific model Payne Stewart died in) I have received a LOT of phone calls as to what the problem could have been. It was a very rare event. I only know of two others with similar circumstances. Because two F-16s flew alongside for the last hour and noted nothing amiss, I assume that they had an internal rupture of a bulhead or floor, and there was no O2 in the oxygen system when they had the rupture. It is obvious they had a pressure failure due to the ice buildups on the inside of the windows. The question is, why didn't the pilots survive with their masks on? There is an oxygen valve in the nose of the plane, and if you are not experienced enough (the two pilots had 70 and 200 hrs in type), you can misread the knob and think you have oxygen in the system when in fact you only have it in the bottle. When you go to use it, you ain't got it. This could have been one scenario. As the Lear or any certified jet ascends without pressure in the cabin, several things happen in sequence. They are: Warning lights, alarms, safety outflow valve slams shut, and finally the passenger oxygen masks drop automatically. These systems can be overridden, but with great effort. They are all automatic and cannot be ignored. The ONLY way the pressurization alarm can be silenced is to reset the pressurization switches when you get the cabin pressure down low enough. These are VERY noisy warnings. The Oxygen masks are behind the pilot's left shoulder and the co-pilot's right shoulder. They are easy to don and the average pilot can do it in 5 seconds or less. I'm guessing there was no oxygen to the crew and passengers, either because the knob was in the wrong position or the bottle was empty. This doesn't explain the loss of pressure, but could explain why no one survived. It is going to be tough going for the NTSB as the plane was reported to have impacted at 600 mph, nearly vertical.

We are looking forward to another year of trouble free flying. Hope to see you on the flight line.

Canopies. I am here to tell you guys the best and lightest, easiest canopy is the one called out in the plans. In addition to building 3 stock ez type canopies, I have helped build a Cozy "slide forward" type, and a forward hinge type, and a gull wing door type. Each builder had his reasons for these canopies. As far as I could see, they all had more drawbacks than the plans unit. I helped Al Yarmy build his Cozy and he insisted on the forward sliding unit with a gull wing door in the back. Al not only lost (yes lost) the gull wing door in flight, but several years later, when a new owner wanted to fly in it and have me check him out in it, the unit would not track, wobbled incessantly, and left a one inch gap in the back, and numerous gaps here and there, and was virtually ununlockable. The only recourse was to convert it back to the plans unit.

I helped build a forward hinged unit on a European Cosy. This unit, unlike al's, was very sturdy, but it weighed 50% more than the plans unit, and was a royal pain to boot. For what we have now in the plans is the simplest, and lightest weight of all the designs. Building a hatch (gull wing) from scratch is a LOT of work, probably as much as the entire plans canopy. And, you need some pretty good latches for

hatches. Catchy, isn't it?

Retracts. Steve Drybread has designed, manufactured, and installed a very nice retractable main gear on his Long EZ. But last year, Herb Sanders' clean stock Long EZ, with a stock (but tuned) 160 hp Lyc. With FIXED GEAR beat Steve's magnificent retractible machine in a head to head race in California. Sometimes it is the simple stuff that works the best. It takes a LOT of work to complete on of these aircraft, and if you make a bunch of complex changes, it will double or triple your work. You need to make sure what you are doing is going to be worth it, because these types of changes will certainly take their toll in building time, money, and energy. Been there, done that (and survived).

Vance Atkinson,
EAA Tech and Flt. Advisor
Nostromo56@home.com

GU CANARD TRIM CHANGE

The note from Nick Parkyn that we published last newsletter about the GU canard was in our newsletter file quite a long time. It sounded so illogical, we were reluctant to publish it. Shortly thereafter we got a letter from Marc Pichot:

10/4/99

Dear Nat,

When I received newsletter #67 (about sanding the GU canard to correct the trim change in rain) I removed the vortex generators and began to sand my canard chordwise with 400 grit wet paper. On 10/2/99 my canard was totally sanded. Same day outside it was raining cats & dogs, so I pushed FMP out of the hangar. I was afraid to take off because of poor visibility, but decided to do a taxi test. At 50 kts, the canard was flying. The 5,600 ft long runway was sufficient to make 3 trials with a 20 kts wind. Back at the hangar, I asked my friends what they noted. They said the angle of attack was 10 degrees easily. So, when the visibility improved, I did another test and flew about 1 meter above the ground. No doubt, the canard was performing far better than with the vortex generators. The V.G. solution is a stopgap compared to what I noted today during 95 minutes and 3 landings. On take off, the power of the stick is double. Takeoff was at 65 kts, climb in clear sky is better than 1500 ft/min (remember, my engine is an O-235 C2A). Level at 2000ft with 2450 rpm speed is 145 kts indicated, and 5 to 7 kts more than previously. At 2600 rpm, 150/155 kts and it is impressive. Then flying through rain, trimming is so easy that I will never install vortex generators on the canard again. I have V.G.s on the main wing ahead of the ailerons. I will try on the wing what I did on the canard. Aerospatiale is working on this to reduce the drag on the Airbus A340. On landing flare was good before, but seems better now. I get excited like a flea on a fat dog during this flight, and upset against the Glasgow University guys to give us THE SOLUTION after 15 years of use on Rutan aircraft!

Marc Pichot
Pont l'Abbe France

LETTERS FROM BUILDERS

9/21/99

Cozy Builders,

We apologize to the Cozy group for not reporting our arrival (in Venezuela), especially Nat and Shirley, who were ever so helpful to us during the whole of Oshkosh. When we got ready to fly back we were so anxious that we forgot to say goodbye.

This is the story of our trip back to Venezuela: We took off on Sunday, 8/1/99 from runway 18 in Oshkosh. This was our scheduled day with the FAA (you know we needed a special flight authorization from the FAA, limited to an itinerary, which included dates and stop airports.)

In our 4.5 hour trip we had splendid weather, even when we landed in Rome, GA. We had a 2-hour rest with nap and lunch and took off for Ft. Lauderdale, where we arrived at 5 pm local time. Our friend picked us up and took us to a crab house dinner. On Monday we stayed at Miami to rest for the Tuesday flight.

On Tuesday, we took off from FXE at 6 am for Puerto Plata, but after about 45 minutes flying (approx. 100 miles out over the Gulf) the left engine started missing until it stopped completely. After the left engine quit completely, we did a turn to the nearest airport, which was the island of Bimini. From 9,500 ft. we spent a lot of time trying to start the engine, descending to 5,000 ft. in the meantime (while trying to start the engine, the propellor is engaged, causing a lot of drag). We realized then that no engine start was possible and reduced speed to 80 kts so the oil pressure would drop and disconnect the idler pulley and disengage the propellor from the left engine. We flew like this for 20 minutes or so, arriving at Bimini at 5,000 ft. We then told Miami control that we were landing safely at Bimini. We did not declare an emergency, but had told them that we had engine trouble, so they asked us to call once we landed.

After we landed we took our cowlings off and found a dead ignition coil. Our plane has a single electronic ignition system for each engine. A broken coil is a dead engine. Our friend in Miami sent us a part on a charter plane that was flying from FXE, but the coil we received did not work. In desperation we disassembled the old coil (it is the oil filled type that you can take apart) and found a broken connection inside. It had broken due to vibration from the engine. We made the mistake of installing the coil on the engine itself. It should be installed on the firewall like we have on our right engine....there is no vibration there.

After we repaired the coil, we took off and flew to the nearest civilization, which was Nassau. There we spent the night. On Wednesday morning, we went out shopping and bought a brand new coil at the local Nissan dealer. We installed it and flew to Santo Domingo (Dominican Republic). We skipped all the bad cells of thunderstorms and bad weather on the way and landed at Santo Domingo at 5 pm (after 5 hours). Our surprise was to find a bunch of EAA guys that flew Chinnuk Helicopters for the Alabama COF (military). They were based there at the airport, right next to where our Cozy was parked. They offered accommodation and gave us some survival food. We were really grateful, although we could not

accept to sleep there because our friend picked us up at the airport.

To our friend's disappointment we took off on Thursday morning for Valencia, Venezuela (We were so eager to get there after two day's delay) and arrived at Valencia at 1 pm for the usual welcoming.

Carlos & Rueben Leon
Valencia, Venezuela

4/30/99
Nat,

I agree with you completely (that MGS epoxies don't require post-curing). I have a good feeling with the MGS 285; it gets glossy hard and seems really tough (after room temperature curing). I have not the wherewithal to do any real testing, but it just seems good. It is also the easiest I have worked with, wets out good and does not have a strong odor, etc. The variable rate mixing of hardeners allows one to tailor to the conditions. I have used it in the upper 90s here in the summer and just 70+ in the winter, and draw the line at 70 deg. I do intend to close everything up in my garage and bring the temperature up to 120+ for a day in the summer. Will be done with all the structural epoxy parts soon. Thanks again .

John Epplin
Orion, IL

10/16/99
Dear Nat and Shirley,

My wife GeeNee and I are back home here in Colorado and looking out the window at snow coming down. Just a week ago yesterday we were in beautiful Arizona soaking up the sun. We had a wonderful time at the Copperstate visiting with you and other Cozy builders. And we want to thank you for a great time at your home. The barbeque was a great idea. It was nice to finally meet some of the faces that go along with the names we always hear about. We also really enjoyed getting together again with Gene and Carol Davis. They are very kind and generous people. I'm not sure you know this, but Gene graciously took my wife and me up in his Cozy back in March of 1999. What a thrill! Gene did a superb job of finishing his plane. And what a great airplane you designed. I've gotten my recharge to work on my airplane now. Thanks!

Good things are happening with me here in Colorado. I'm currently completing my flight training and am nearly a pilot (doing my solo cross-countrys now). I figure, by the time I finish my Cozy building I should have logged a bunch of hours in high and low wing aircraft. And I must say, it was you that inspired me to press on and go for my dream of becoming a pilot. When I first saw your Cozy Mark IV back in 1994 at the Copperstate Fly-in (Glendale Airport), you were completing the CG testing on you plane (still had the sliding weight in the fuselage). But what really touched me was how you and Shirley came across as a couple of folks who were very passionate about what you were doing (the plane) and how you didn't tire of answering the same questions from the spectators over and over for the gazillionth time. I decided then and there that I would become a pilot and some day build a Cozy. For that, I owe you my gratitude.

We hope all is well with you both and hope to see you again soon. Upward and Onward.

Michael & GeeNee Roe
Golden, CO

11/19/99

Dear Nat & Shirley,

Hope all is going well at Cozy headquarters. I've enclosed the latest pictures of my Cozy (N15CZ), and as you can see, it's nearing completion. It's in Poly Fiber's smooth primer, almost ready for top coat finish paint. Still need to do some work on top of nose, cowl fasteners, engine installation, and wiring. Should be finished in the spring in time to fly off hours and get to Sun & Fun. If not, I'll see you at the big O. It's about time since I started this project in the fall of 1984.

That is all the good stuff, now for the bad stuff. This past year has not been good for me. I didn't get to Oshkosh, the first time in 15 years, and lost my medical due to taking a prescribed drug that was not approved by the FAA. I'll get it back in Jan. 2000 when I've been off it for 90 days. I checked with AOPA and they told me that the FAA is checking pilots drug and medical records. So you cannot lie or omit medical information when taking an FAA physical. Big brother is watching us! Fair warning! Happy landings!

Charley Danila
Philadelphia, PA

10/5/99

Nat,

The Featherlite landing strut is a work of art and I almost hate to touch it. Unfortunately I have to if I want to fly..

. . . I had my center section spar jig built by a professional cabinet maker who loves flying. This jig is accurate to 100th of an inch, if not more. It was built to hold the foam and be able to move it off the work bench for cure without changing shape. The jig is also good for a way to store the spar when not in use. This spar jig is now available to anyone who might want to use it or buy it.

Clark Canedy
Orange, CA
Canc1@fea.net

10/2/99

Hi Nat,

I will be at Copperstate this year on Thursday or Friday. I am a Captain for Midwest Express Airlines in Milwaukee, Wisconsin and a proud Cozy Mark IV builder. I am just starting on Chapter 7. If you are ever coming to Wisconsin commercially, try flying Midwest, and if you do, let me know and I will fly your flight and show you my glass cockpit of the MD-88 that I am a Captain/Check Airman on. See you this Thursday or Friday.

Mark Wunduke

Racine, WI

(Editor: Thank you Mark, I would enjoy it very much!)

11/1/99

Dear Nat,

Hope you and your family are well, just thought I would drop you a line with some interesting things (see Hints) and keep you up to date on progress of Mark IV #639. I have made good progress in 20 months and am very near completed on my glass work. The bottom of the fuselage is completely filled and painted to primer as are the bottoms of both strakes. If all goes well, the airframe should be painted by the end of autumn and I will then start the fitting out. Practically everything has been purchased except for the prop. I want to order a Sensenich shortly.

I wonder if other builders have experienced what I have regarding the construction of this aircraft. I find that as time goes by I know what to expect when I read the plans. I do believe I am beginning to think like you! The whole building experience has been very pleasurable if at some times tedious. I have discovered many skills and will miss the construction stage very much when it is finished (once the euphoria of actual flying the airplane has passed). As to what next, I think I would like to go on to become an inspector with our P.F.A. (like your EAA) to help others do what I have done but only time will tell. Once my #639 is flying, I am sure you will see many others of the type in the years to come flying in the UK.

Keith Scull
United Kingdom

11/8/99

Hi Nat,

I am not very talkative on the web. I decided I would rather switch on the turbo-boosted engine on my airplane to finish up. I bought my hangar lot at the airport today. Engine installation is now finished. Painting is also finished. The result with flight gloss polyfiber is not marvellous, but I decided to fly ASAP, check the behavior of the airplane and have it fine tuned and then fine painted in an airport and in a paint booth afterward. I am planning on moving the plane to the airport before the end of the year. I am left with the electrical harness to set up. All electrical items are already installed. Humm! Getting close.

I have a problem with crimping the hose terminals on the flexible hoses. I ordered per plans, 666-4, -6, and -8 hoses with the proper fittings. They are cut to the proper length and ready to crimp. Trouble is that Aeroquip in France is only working on large scale hose manufacturing, and reluctant to handle my 6 hoses. Plus they are very far away from Paris. Where in the USA could I have this done?

Benoit LECOQ
Paris, France

(Editor: Aeroquip has about 5 shops around the country that supply, crimp and pressure test hoses. We are fortunate to have one not too far from here. They crimp, pressure test, certify, and tag the hose with date and lot number. They can't certify it if they don't supply the hose, because then they can't trace it.

For an experimental airplane, certification isn't necessary. Contact: Jim Varga, 2350 So. Airport Blvd, Chandler AZ 85249 tel (480)963-6936.

11/8/99

Hello,

The big order from Wicks has arrived, and I thought I would pass some of the info to the group for the benefit of those not into construction yet. I ordered all of the construction materials minus wheels, tires, and brakes, seatbelts, electrical, and fuel system stuff. I ordered 5 gallons of resin and 2 gallons of hardener. With the 10% discount that is mentioned in every ad that Wicks places, it came to about \$4,500. The freight was \$240. If I had picked it up at Wicks, the Illinois sales tax would have been \$300. It arrived on a skid 4 ft. wide and 10 ft. long. With a little work, this skid could be used as the construction table. It is built of a pair of 4x4 stringers with 3/4 wood planking topped with 1/4 inch OSB. A little shimming, extend the ends a little, and some masonite, and it would be good to go. 850 lbs. total. 17 boxes of assorted sizes, they filled the crate footprint to about 4 ft. high. Two full rolls of UNI, one full roll of BID, two full rolls of spar tape. This way the material comes with no re-rolling or cutting damage, and there is no question of how much was actually there (I'm not going to measure it). I ordered 50 yds of the 63 inch wide peel ply. It came full width rolled up. No wrinkles, nice and flat, easy to use.

I picked up the freight on Friday afternoon and stopped by the airport to watch Dennis Oelmann fly off some of the hours on 92VT. What a beautiful plane!

Norm Muzzy
Cedar Falls, IA

9/23/99

Builders,

I am moving to Whitehall, PA (right near Mark Loy) and am glad the subject of garage door width was brought up on the net. I have been house-hunting and the garage details have become so much more of an issue than I ever thought about. I think I have settled on this big warehouse with a loading dock as my next house, OK? Maybe not really, but I got lucky enough to find a great old house that has a large garage with two old-fashioned bi-fold style garage doors that stretch to just about the whole width of the garage. The garage ended up really being the deciding factor between my final two choices.

The stories from the "veteran" builders of Cozys and other canards are a great inspiration on days when the sanding, sanding, sanding routine gets real old. I think inspirational or even just cool stories of interesting flights would be well within the charter for the chat group.

John Millington
Whitehall, PA

11/16/99

Cozy Builders,

My GPS, Navaid, and S-Tech altitude hold were all working at the same time so I decided to launch on a 100 mile sortie yesterday to check it out. The weather has been fantastic in the midwest for 2 weeks,

so this was a fun, liesurely trip.

The GPS coupled to the Navaid very nicely. Tracking was satisfactory, but it probably needs fine tuning. The system stays in the 1.25 course width but seems to ricochet from one side of the corridor to the other. It did not lock on to the course. It did get the airplane to the destination, but criss crossed the course within the 1.25 mile corridor getting there.

The S-Tech worked for 2 flights, but on the 3rd it pitched up rather abruptly when engaged, and I couldn't get it to work at all after that so I sent it to Texas for evaluation. The company put it on the bench for 3 days and couldn't duplicate the problem, but to make me happy, sent me another pressure transducer and data processor. It has worked just dandy since then.

I recommend these items for cross country flight if you can afford 'em. It is neat to sit back, fine tune the engine mixture, watch for traffic, fold and unfold charts, monitor position, and simply relax. It sure beats driving down a freeway where you can't relax for a second.

I set the power at 52.9% (using fuel flow as a guide) and here are the numbers I recorded. At 5500 ft, mifold pressure 19.4, rpm 2230, fuel flow 6.9, IAS 141 kts, GS 148 kts, OAT 11.5 D. Using the GPS E6B computer, I entered a calibrated airspeed of 134 (I think the 141 IAS was about 7 high) and it came up with a TAS of 146.6 kts.

Not too shabby for a 4 place airplane. That works out to 24.34 mpg while zipping along at 168 mph TAS. All in all, I'd say Nat has come up with a fairly decent airplane. I sure enjoy flyin' it.

David Domeier
Chesterfield, MO

(Editor: Thanks, David! I will take all the compliments I can get, especially from retired airline pilots!)

11/6/99
Builders,

I placed a big order at Wicks a few days ago. I had a big note on top of my order to remind me to mention the ad (10% discount). Of course I forgot. I called back later in the day, just before closing, and told them I forgot to mention the ad. They happily updated my order to get the 10% taken off. Good thing. It was a big order. I asked and they said they would honor it on later orders too if I mention the ad again. What a great bunch of people!

Rick Maddy
Denver, CO

11/19/99
Hi Nat,

I had been nervous about making the canard but all has gone great so far. I even got my wife to cut all the cores and they came out perfectly using a household dimmer to vary the primary voltage on an isolation transformer so that I could control the temperature of the hot wire saw. The dimmer was cheap

and the transformer was a free toss away from work.

John Fritz
Roswell, GA

10/20/99
Builders,

When researching a building for a shop, I found that insulated panel (foam sandwiched between metal skins) buildings were very economical. For example, I purchased a 12 x 20 building for \$1650 delivered and set up on blocks with a full wooden floor. If I had opted to build it myself, it would have cost about \$750 just for materials and about 20 hours to assemble. A 16 x 24 would have been around \$1100 in materials and about 60 hours to assemble. These buildings are very easy to heat and cool as they are insulated very well. The panels are 22" x 50" and could easily be trailered if they are not available in your area.

Dewayne Morgan
London, KY

10/20/99
Dear Nat,

Keep up the great work. BTW, I read your recent e-mail about your history in aviation and how you admire those of us who are able to get started on our projects much earlier than you did. I have to tell you, we owe it ALL to people like you. We are merely walking on a trail you cut for us. Without your time, effort and devotion to the homebuilding world, Many of us would never know a thing such as building our own airplane was possible. Thanks for everything you do.

Edward Boykin
Marietta, GA

10/23/99
Hi Nat,

Just wanted to say, hi, and to let you know how N569CZ is growing. Included are a couple of pictures. I have foam on the nose with the bottom glassed and am now working on the nose doors. I am building the turtledeck in the cellar, the inside layup is done and I am working on the outside. I'm trying to get the nose done before it gets too cold up here, but it is getting cold fast. I have been just a little over 3 years and I thought I would have my Cozy IV done by now, but how time flies when you are having fun. Thanks for a great design. Its quite a feeling to be able to look at my plane and say that I have made almost every piece myself. Thanks again.

Wesley Tidd
Houlton, ME

10/21/99
Dear Nat,

We thought you might get some entertainment value from the enclosed newspaper article (about E.J. Carlton's Cozy). I have been helping him. He still has to wire, instrument, and tweak some of the finish work. Enclosed are pictures of the unique in-cowl exhaust on the IO-360C1C. The exhaust ports on this engine are on the top of the cylinders. We used 321 stainless elbows and slip joints on the pipes. We used 4130 steel tube bracing for the aft end of the exhaust pipes to support them while keeping them relatively close to the ring gear. I surgically removed the exhaust pipe fairings on the top and bottom cowlings. I used carbon fiber to stiffen the aft portion of the top cowl. We will be anxious to report any and all data that we can collect. So that you may sleep better tonight, I'll close by informing you that the only other deviations from the plans are Steve Wright's nose lift and Vance's electric pitch trim. We made every effort to keep her as true to the plans as anyone can.

Mike Davis
Leitchfield, KY

10/1/99
Hi Nat,

I went to the canard fly-in on Saturday and saw my first Cozy Mark IV. Chris Scida had his there. What an absolutely beautiful design. I was stunned---it is so much prettier in the "glass" than in the pictures. I continue to work on mine. I glassed the left side last night and the right side will probably get done next weekend. Thanks for all your help, and congratulations on a superb airplane.

Peter Militch
Laurel, MD

10/4/99
Dear Nat,

I received plans #704 in June '98 and kept reading them and finally in June '99 started building. The progress has been good and currently I am working on the NACA scoop and finishing the outside. All the parts and materials for the landing gear and the headrest and seat belts are in. So far the building process has been very straightforward and all the parts have had an excellent fit. The plans are clearly written and other than taking up a lot of time (about 200 hours) I enjoy the process and, after all, the progress is easy to see on an almost daily basis.

Axle Weireich
Franksville, WI

10/9/99
Dear Nat and Shirley,

After searching and deliberating about which experimental plane to build, I have found the Cozy Mark IV to be the best and safest plane for the money. Enclosed is a check for the plans. I eagerly await their arrival.

James H Griner Jr.
Cleveland, OH

I WANT TO BE A NAVY PILOT

I want to be a Navy pilot when I grow up because it's fun and easy to do. Pilots don't need much school, they just have to learn numbers so they can read instruments. I guess they should be able to read maps so they can find their way if they get lost. Pilots should be brave so they won't be scared if it's foggy and they can't see, or if a wing or motor falls off, they should stay calm so they'll know what to do. Pilots have to have good eyes so they can see through clouds, and they can't be afraid of lightning or thunder because they are closer to them than we are. The salary pilots make is another thing I like. They make more money than they can spend. This is because most people think airplane flying is dangerous except pilots don't because they know how easy it is. There isn't much I don't like, except girls like pilots and all the stewardesses want to marry them, so they always have to chase them away so they won't bother them. I hope I don't get airsick because if I do, I couldn't be a pilot and would have to go to work.

--Edwardo Cordona, Age 10 (A Fifth Grader)

A PILOT'S "NIGHT BEFORE CHRISTMAS"

T'was the night before Christmas and out on the ramp,
not an airplane was stirring, not even a Champ.
The aircraft were fastened to tiedowns with care,
in the hope that come morning, they all would be there.

The fuel trucks were nestled, all snug in their spots,
while peak gusts from two-zero reached 39 knots.
And I at the fuel desk, now finally caught up,
had just settled comfortably down on my butt.

When over the radio, there arose such a clatter,
I turned up the scanner to see what was the matter.
A voice clearly heard over static and snow,
Asked for clearance to land at the airport below.

He barked out his transmission so lively and quick,
I could have sworn that the call sign he used was "St. Nick".
Away to the window I flew like a flash,
Sure that it was only Horizon's late Dash.

Then he called his position, and there could be no denial,
"This is St. Nicholas One and I'm turning on final."

When what to my wondering eyes should appear,
A Rutan sleigh, and eight Rotax reindeer.

He flew the approach on glideslopes he came,
As he passed all fixes, he called them by name:
"Now Ringo! Now Tolga! Now Trini and Bacun!
On Comet! On Cupid!" What pills was he takin?

Those last couple of fixes left controllers confused,
And they called down to the office to give me the news.
The message they left was both urgent and dour:
"When Santa lands, could he please call the tower?"

He landed like silk, with the sled runners sparking,
Then I heard "Exit at Charlie," and "Taxi to parking."
So up to the offices the coursers they flew,
With loud airplane noise, and St. Nicholas, too.

He stepped out of the sleigh, but before he could talk,
I had run out to him with my best set of chocks.
He was dressed all in fur, which was covered with frost
And his beard was all blackened from reindeer exhaust.

His breath smelled like peppermint, gone slightly stale,
He smoked on a pipe, (but he didn't inhale).
He had a broad face and his armpits were smelly,
And his boots were as black as a cropdusters belly.

He was chubby and plump, a right jolly old fool,
And he kindly informed me that he needed some fuel.
A wink of his eye and a twist of his toes,
Led me to know he was desperate to powder his nose.

I spoke not a word, but went straight to my work,
And I filled up the sleigh, but I spilled like a jerk.
He came out of the restroom with a sigh of relief,
And then picked up a phone for a flight service brief.

And I thought, as he silently scribed in his log,
That with Rudolph, he could land in eighth-mile fog.
Next, he completed his preflight, from the front to the rear,
Then he put on his headset, and I heard him yell "Clear!"

And laying a finger on his push-to-talk,
He called up the tower for his clearance and squawk.
"Straight out on two-zero," the tower called forth,
"and watch for a Cessna straight in from the North."

But I heard him exclaim, 'ere he climbed in the night,
"Happy Christmas to all, I have traffic in sight"

--by Phyllis Moses (c/o Ken Brimmer)

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