

THE COZY NEWSLETTER #20 January, 1988

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BUILDER SUPPORT

A few builders have called or written to us wanting assurance that even though we have discontinued selling plans, we will continue to provide builder support. We assure you that we will continue our support via the newsletter, and answering any questions via letter (please enclose a SASE) and telephone. Since our office is in our home, you can reach us almost anytime. Please re-read what we published in NL #19 regarding our continued support of Cozy builders.

Since Co-Z Europe is continuing to sell plans outside of the US, we arranged with them to support our international builders as well as theirs. We will be assisting them to this end, and hope that our builders overseas will view this as an improvement in support.

Co-Z Europe will start publishing an international newsletter. We will transfer our international subscriptions to them, and they will mail out both our and their newsletters together in one mailing. For international builders new subscriptions and renewals for both newsletters will be:

Within Europe - 15 DM
Outside Europe - 20 DM

Send to:

Co-Z Europe
Ahornstrasse 10 (not 10A)
D-8901 Ried W. Germany

We think an exception to this arrangement should be made for Canada, because of its proximity to the US. Because of lower postage and telephone costs, we will continue to provide support to our Canadian builders directly from the US, and these builders should renew their subscriptions with us. We hope to provide good support to everyone this way.

We will continue to sell the following to our builders, as long as supplies last:

Extra A drawings	- - - - -	\$15.00
Owner's Manuals	- - - - -	15.00
Information kits	- - - - -	9.00
Cozy decals (red, black, brown and blue - state color preference)		5.00 ea.

UPDATE

After our October 1, 1987 cut off date on the sale of plans, a few orders drifted in with prior postmarks, and we honored those orders. Then we packed up all of the remaining plans and most of our information kits, copies of back newsletters, Owners Manuals and large A drawings and shipped them off to Co-Z Europe -- a total of 21 boxes weighing 832 lbs. Even though our decision back in June was final, this made it irreversible, and marked the end of an era for us. We were saddened as we recalled all of the effort that went into preparing these materials and printing them, and all of the personal satisfaction derived from promoting our airplane these past 5 years. On the other hand, we also felt that a little pressure on us was being relieved, and we were taking a step toward a little more freedom to relax and pursue other interests in our retirement.

We took a week end off the end of October, and drove up to the Grand Canyon with a church group, to hike down to the Colorado river and back again the next day. The trail is about 10 miles long, and over 1 mile down (or up, depending on which way you are going). It may not sound like much, but unless you have done it, you really can't appreciate the amount of physical effort required. On top of that, it rained both days. It took us about 5 hours each way, and was totally exhausting. I couldn't help but muse how easy it is to climb 5,000 ft. in our Cozy, no work at all, and only takes 5 minutes! The scenery was beautiful, and made it all worthwhile.

Shirley and I are pretty active in a new church we joined after moving here, and 1988 should be quite exciting, because we will be building a new sanctuary and Sunday school. We also got involved in organizing our neighborhood to fight a large development which we thought would threaten our

peaceful residential neighborhood.

With the pressure off, I haven't accomplished as much as I would have liked on our Mark IV this last quarter, but I did get over one big hurdle. The cowlings are now completed. To get there, I had to mount the engine, cover it with foam, carve it, glass it, contour it, paint it, make molds, then make the final cowlings inside the molds, remove the "plug" from around the engine, and make the final fitting of the cowlings on the airplane. What a job! It seemed to take forever, but we are both very pleased with the result. Don't ever make your own cowlings from scratch if you can buy them premolded, regardless of price! Several weeks ago we got an excited telephone call from Ken Winter, of Aeromet. If you recall, they were building the first Mark IV Cozy from our preliminary plans, but fell 1 year behind their original schedule. Their Mark IV is finally flying! Ken has 600 hours in his Viggin, and 200 hours each in a Varieze and a Long EZ, as well as other factory types, and he said that the Mark IV is the finest airplane he has ever flown. Of course, he has never flown the Cozy, so he might say the same thing about it. Nevertheless, it was wonderful news. At the time he called, he had only logged 2 hours, so he hadn't expanded the flight envelope yet, but he wasn't anticipating any problems. If you recall, they intend to use the Mark IV as a long endurance, remotely piloted observation plane, carrying a whole bunch of secret electronic gear. We wish you continued success, Ken!

We haven't done any flying the last 3 months, I regret to report. We pulled the engine out of our Cozy last fall to have it re-topped. The rings had never seated in the newly chromed cylinders, so oil consumption remained high and seemed to be getting worse, with resultant power loss. This time we asked for it to be run in on a dynamometer until the rings had seated. It came back a few weeks ago, and is sitting on my engine stand ready to install. It is tough to be working on two airplanes at the same time! This year we stayed in Arizona for Christmas (last year when we returned to Minnesota I broke my wrist). None of our family were able to join us, so we talked to them on the telephone, and celebrated with our close friends. We gave thanks for our many blessings and hope that you, our builders, have also been blessed this past year. We want to take this opportunity to wish all of you a happy new year! We hope many more Cozys will be flying in 1988, and that all of you will continue to be good builders and, above all, fly safely!

AUSTRALIAN BUILDERS

Tony and Brenda Rothwell, 30 Monkman Street, Chapman, ACT 2611, Australia are working with the Australian Department of Aviation to expedite the official approval of the Cozy design in Australia. We have supplied the necessary design information, and they have solicited pilot reports from all of the Cozy pilots flying in the US. Hopefully, this is all that will be required for expeditious approval. Thank you Tony and Brenda for taking the initiative in this matter and mastering all of the paper work required.

HIGH PERFORMANCE RUDDERS (OPTIONAL)

The Cozy, like the Long EZ, has excellent directional stability and requires very little rudder in flight, even in coordinated turns, so why should one consider installing the high performance rudders? Improved ground control is the only reason. The larger and higher aspect ratio rudders are more

effective at slow speeds on the ground for taxiing crosswind and for crosswind takeoffs, and will reduce or eliminate altogether braking for steering. For this reason, most people consider them beneficial and recommend them.

The single reservation is that these rudders are much more powerful than needed during flight, so rudder travel must be limited so that it is not possible to cause the airplane to depart from controlled flight with full rudder at aft c.g.s, for example, in a steep side slip. If you install these rudders, make sure you limit rudder travel as instructed, and test your airplane at high altitude and aft c.g. with a parachute during your flight test program to verify that you cannot make it depart from controlled flight in a steep side slip.

In anticipation of installing high performance rudders, the rudder conduit buried in the wings should be curved at the wing tip so it exits 1.5" farther aft than shown in Chap. 19, p.7, Fig. 35 and full size template on page A18. Also, the comm antenna should be located 3" forward of the rudder hinge line, rather than at the trailing edge as shown on Chap. 20, p.1. Install the comm antenna on the inboard side of the winglet, to maximize its distance from the hinges.

HIGH PERFORMANCE RUDDER CONSTRUCTION

Follow winglet construction and installation per plans through Chap. 20, p.4, Step 6. When you get to Step 7, refer to Fig. 2 below and carefully lay out the rudder dimensions shown on the inboard and outboard faces of the winglets. Start by measuring down 9" from the top of the winglet along the trailing edge. Mark this point. Then measure 4.0" forward from this point at 90° to the trailing edge and mark. Now, measure down from the top 48" along the trailing edge, mark, and measure 7.5" forward at 90° to the trailing edge and mark again. Using a straight edge and felt tipped pen, clearly mark the leading edge (hinge line) of the rudder. With a 90° square, mark the top of the rudder. Measure down 43.5" along the hinge line, and with the 90° square, mark the bottom of the rudder. Both top and bottom should be 90° to the hinge line as shown. The bottom of the rudder should be about 10.5" long, but this length need not be exact.

After both rudders are laid out accurately on both sides, cut them out with a hack saw blade. You cannot cut through both skins at the same time without drifting off one of the lines, so cut through only one skin at a time. Make the cuts straight so your rudders will look neat. After cutting through the skins, break them away from the winglets.

With a rotary file or wire wheel in your electric drill, or a sanding drum in your dremel, neatly remove 0.6" of foam top and bottom and 1.0" foam along the hinge line of both rudder and winglet. Sand the foam as smooth as possible with a narrow sanding block, and remove the foam and micro from the inside of the skins with a dremel. Also, remove a tapered depression underneath the belhorn attach area (shown by a dotted line on the detail of Fig. 2), to reinforce this area and access the nuts.

Now, lay up 3 plies of BID at 45° into the winglet and rudder as shown in the detail on Fig. 2. The depression area for the belhorn should also have 3 layers BID reinforcement all around. Lay up two (2) additional plies of BID locally to both winglet and rudder where the hinges will be attached. Allow layups to cure and knife trim.

The rudders are mounted with three (3) hinges each. The top two are 4" long and the bottom one 6" long. Mount the hinges on the rudders at the locations shown in Fig. 2 using 4 pop rivets (Avex 1604-0412 or Cherry BSC-44) per hinge. Take care to mount the hinges in absolutely a straight line, using a straight edge to check before and during riveting. Now hold the rudders in the cut-out in the winglets, and transfer the position of the hinges to the outboard skin of the winglets. Notch out for the hinges just as you did when mounting your ailerons onto the wings. Install two (2) K-10000-3 nut plates on each of the 4" long hinges and three (3) K-1000-3 nut plates on the lower 6" long hinges. Mount the rudders using AN525-10R8 screws (7 per rudder). Now drill the holes to mount the CS301 belhorns and bolt the belhorn to each rudder using AN525-10R8 screws (Note that the forward screw through the belhorn goes through the lower hinge). The aft screw should have an AN970-3 wide area washer under the nut, and both should have MS21042-3 nuts.

Check your rudder for freedom of movement and good alignment with the winglet. Shim or sand to fit. Now install the 1" O.D. x .035" wall aluminum tube and hooks for the return spring per Section 1, Chap. 20 pp 5 & 6. These should be floxed in at approx. W.L.25. The return spring is a 4" length of .35 OD x .050 steel spring. This provides the force to return the rudder to neutral on the ground.

Install small wood "stops" near the return spring as shown below and adjust by sanding so that the rudder closes to the neutral position, or, as required for ball centered flight.

Fig. 1

Drill a 1/4" dia. hole on the inboard side of the winglet for a water drain as shown. Now go to Section IA, Chap. 16, p.7 and install the rudder cables and brake actuating cables. Adjust your brake master cylinders so that when you are hard on the brakes, you have moved the rudder outboard 26° max. or 4.5" max. at the base of the rudder as shown.

Fig. 2

SUPPLIERS

For your protection, we have established suppliers for all of the materials and parts required to build a Cozy. These are honest and reputable suppliers with an established track record. We have monitored their materials and parts, and know that they are in accordance with specifications. You deal with other suppliers at your own risk.

We recommend the following:

1. Construction materials
 - Wicks Aircraft • 410 Pine St. • Highland, IL 62249 • (800) 221-9425
 - Aircraft Spruce • Box 424 • Fullerton, CA 92632 • (800) 824-1930
 - Alpha Plastics • 8734 Daffodil • Houston, TX 77063 • (713) 780-0023
2. Metal parts
 - Brock Mfg. • 11852 Western Ave. • Stanton, CA 90680 • (714) 898-4366

3. Canopy and windows

- Airplane Factory • 7111 Brandtvista Ave. • Dayton, OH 45424 • (513) 849-6533

4. Cowling, Turtleback, Main gear, Nose gear, and other prefab pts.

- FeatherLite • P.O. Box 781 • Boonville, CA 95415 • (707) 895-2718

5. Propellers

- Great American • 1180 Pike Ln.#5 • Oceano, CA 93445 • (805) 481-9054
- B & T Props • 3850 Sherrod Rd. • Mariposa, CA 95338 • (209) 742-6743

6. Exhaust systems

- Sport Flight • 22267 Powell Rd. • Brooksville, FL 33512 • (904) 796-1874

7. Antennas

- Radio Systems Technology • 13281 Grass Valley Ave. • Grass Valley, CA 5945 • (800) 824-5978

BUILDER HINTS

1. Try PR 88 barrier cream. It seems to leave less epoxy residue than Ply 9.
2. Our preference of epoxy is still RAE fast or slow (depending on shop temperature) over Safe-T-Poxy I & II. If you use a metering pump, it is not easy to switch, because the ratios are different. Safe-T-Poxy is recommended for the inside of fuel tanks, for its slightly better fuel resistance.
3. Disposable brushes have the nasty habit of shedding bristles. Bristles should not be left in a layup, because they prevent the layers of glass from bonding together. Bristles are practically impossible to pick out of epoxy with fingers, but easy to pick up with the end of the brush, and then can be removed from the brush with fingers.
4. Bulkheads F22, F28, and firewall F125 are identified by the Fuselage Station of their forward face. By sub traction, the forward face of the firewall should be 103 in. from the forward face of F22.
5. The Brock landing gear attach brackets are approx. .5 in. shorter than those shown in the plans. This shouldn't be a problem if you position the gear with 1/8 in. clearance from the lower longeron as shown on A-12, sec. AA, and adjust the length of the tabs Chap. 9, p.2, Fig.7 as required to fit.
6. To clean up the edge of the fiberglass around the windows and canopy, Tim Freeze suggests using a cylindrical routing tool in your dremel with a smooth flat end. Use this before removing the protective tape. Rest the smooth square end against the tape.
7. When installing nutplates with solid rivets, the easiest way to clinch the rivets is to squeeze them with vice-grip pliers. You should install a bolt thru the hole first, however, to keep the nutplate centered while installing the rivets.

DESIGN CHANGES/CORRECTIONS

1. Section I, Table of Contents. Delete "Section II, Engine Installation". This work was included in Section IA.
2. Section I, Table of Contents, Section III. Add note, "Available separately for \$15.00 from Co-Z Development."
3. Chap. 10, p.8, Sec. AA and BB. Add note "adjust contour to agree with contour template on A-2."

4. Chap. 11, p.6, Elevator travel template. Add note "adjust contour to agree with contour template on A-2."
5. Chap. 23, p.9, Fig.7. Steel tube spacer should be 1/2" dia. x .062 wall x 2.005" long, Also, an AN970-6 washer is required between Lyc #STD 619 and the AN363-624 nut.

FOR SALE

1. 1972 Cessna in excellent condition. 3697 hours on air frame, 1202 hours SMOH and 459 hours STOH on engine. (205) 435-5936.
2. MS-4 carburetor (for O-320) 170 SMOH. \$500. (817) 737-4659.
3. Cozy exhaust system per plans. 170 since new. \$200. (817) 737-4659.
4. Cozy exhaust system, new. (817) 236-1749.
5. MS 4-5 carburetor (for O-360) 0 SMOH. \$800. (602) 981-6401.
6. Complete set of Brock rudder pedals with the necessary weldments for the forward mounting of master cylinders (per Iwatate drawings). Cost \$180. Will sell for \$150. I am 6'4" and plan to use a different design. Ron Kidd, 2450 Red Rock Blvd. Grove City, OH 43123.

LETTERS FROM BUILDERS

April, 1987

Dear Nat and Shirley,

Leigh and I are considering accommodation, free of charge, for one or two Cozy builders from the US who might be interested in a few weeks holiday in Australia. 1988 commemorates 200 years since the foundation of Australia, and is our bicentenary. There will be many events celebrating this and it would be an ideal opportunity for overseas visitors to partake.

Leigh and I thought we would benefit by and enjoy discussions about the Cozy whilst enjoying good Aussie "fare". Could you mention our offer in your quarterly newsletter, giving our address and telephone number for contact? Visitors would be required to pay their own fares to and from Australia, plus any expenses incurred in outings, etc.

We live on Sydney Harbour, diagonally opposite the Darling Harbour Development, where many of the celebrations will take place. We are 15 minutes ferry ride from the city and 5 minutes walk to busses. Accommodation would be: main bedroom with dressing room and bath, balcony and harbour views.

Sincerely,

Leigh and Liza Welch

P.O.Box 426, Rozelle,

Australia

Editor: My deepest apologies for not printing this earlier. I goofed!

July, 1987

Dear Nat and Shirley,

We are enclosing a copy of the minutes of our June EAA Chap. 159 meeting, along with pictures taken that day. This was a very memorable day for both of us, because it was the first time we had

attached both wings, plus the canard, all at the same time. Boy, it sure looked big!
Currently we are working on the canopy. As of today, we have been building for 16-1/2 months. Our projected completion date is this time next year.
We hope to see you at Oshkosh and plan on arriving July 29th, to have more time to talk to other Cozy builders. We would also like to see them flying in.
While at Oshkosh, we hope to buy a great deal of instruments, radios, head sets, seat belts, etc. We would appreciate any ideas you might have, that would be helpful to us amateurs.
Looking forward to seeing you both again!

Sincerely,
Walt & Helen Suminski

11/2/87
Dear Nat,
About my project, as you can deduce from my lack of correspondence, I'm not having any problems except for not enough time to work on it. I am now ready to start the strakes. Upon completion of these, that will leave the NACA scoop, the cowling and some interior work. Then of course the engine and instrumentation. Heck, I'll be done in no time!!

Sincerely,
Tom Gross

11/2/87
Dear Mr. & Mrs. Puffer,
It was great to see several completed and flying Cozys at Oshkosh. I'm hoping to catch everybody again at Sun N Fun if my class schedule permits. Thanks again for designing such a wonderful bird. Finally, when my project gets going, it will have an O-235 and a standard nose. I like the airplane the way it is!!

Sincerely,
Jim Hann (class of 91)

11/9/87
Dear Mr. Puffer,
My plane is coming along nicely. Fuselage is completed and ready for the main gear. Canard, elevators, and center section spar are complete. Next job is the wings. What fun; thanks for designing such a fine aircraft. The plans are also outstanding.

Thank you,
Chris Esselstyn

11/7/87
Dear Nat,
My Cozy is now complete through Chap. 10, including the center section spar. Work is going a little slower than I expected, but I am pleased with the results so far. I think the Cozy is great!

Enclosed is a check for 2 years of the newsletter.

I fully support your decision to stop selling plans in the sue-happy US. I am glad I have my plane.

Thank you,
Brian Heinitz

11/8/87

Dear Nat,

Well, there is at least one Cozy under construction in Alaska. I've been working on the project since Oct.7, and have all fuselage bulkheads done + fuselage sides.

This is my 3rd involvement in composite airplanes, having built 1-1/2 Long EZs. I ask myself from time to time, are you really doing this again? But really there is no greater satisfaction and personal achievement than building and flying fun airplanes. As you know, I have been trying to get the project going for some time, but have until now been frustrated. I started a part-time cleaning business (in addition to my full-time job) to finance the project. I call it affectionately "Cozy Cleaning" and thus far has worked out very well. By the time my Cozy is paid for, I figure I'll have swung my mop several hundred thousand times. The business has financed a 16' x 20' shop with window openings placed so I can put the wings on without going out doors, and provides enough additional income to keep me going month to month until I finish. I anticipate completion in the spring of '89.

Your plans are not only an addition to the genius of Burt Rutan, but supplementally express a skill and ability beyond what most of us are capable of.

Thanks Nat!
Dave Petrosino

11/24/87

Dear Nat,

Am enclosing my check to keep the newsletters coming for another year.

Am up to building the wing strakes in construction. Maybe flying next summer, but no big bets! Still enjoying building and still haven't found another aircraft that I like as well.

Hope this finds you & Shirley well and enjoying a mild winter. We'll be at Lakeland in April, and maybe we'll see you there.

Sincerely,
Jim Spencer

12/13/87

Dear Nat,

I am sorry it has been so long since I received NL #19 to renew my subscription, but time has a way of getting away from me. I am sorry that the current liability situation has forced you to sell the rights to the Cozy to Uli, but you were most eloquent as to your reasons in newsletter #18. When I retire I hope to be able to enjoy life. It is obvious that life must not have been as enjoyable as it should be. I understand your reasons and totally support your decision.

I am finishing up a restoration project, a Piper Tri-Pacer which should be finished by February. My

shop is ready to start with my Cozy. I can hardly wait.

I must put my two cents in about the plans. Having built a Sonerai, and having reviewed many sets of plans, yours are the best I have ever seen, without a doubt. Thanks for giving us the Cozy. I hope to be true to the design when I finish mine.

Thank you,
Bob Soikkeli

12/20/87

Dear Nat,

Well, I have some good news and some good news. I have just about finished the airframe of my Cozy and have begun fill the fuselage and wings. The second bit of good news is that I am currently flying solo in a 152, expect to have my license in early 1988, and the Cozy flying around June 1st. I have temporarily stopped work on the plane because the weather has turned cold and it's too uncomfortable in my garage. I think I have a line on an engine - a Long EZ builder in Tennessee is putting in a bigger engine and will be selling his 0-235. If it is an L2C and looks good I'll make him an offer.

I wish I had some photos of my plane to send you. Last summer I put all the components together to check alignments, which were very good, I might add, and took a few Polaroid prints. Unfortunately, the plane had foliage behind it and got lost in the shadows.

Hope you and your family have a nice holiday season!

Very truly yours,
Art Simon

A COZY CHRISTMAS

""Twas the night before Christmas Pad I was but napping
When a noise in the hanger woke me to a happening.
A shimmering being of light (could it have been lost?)
Sprinkled dust on the Cozy so that it sparkled like frost!

Then the starter kicked over, the prop starts to turn,
Cylinders cough to life as my eyes widen in concern.
Out of the hanger she taxis, already to fly,
Then she roars down the runway becoming a star in the sky!

She turns and she soars flown by shimmering light,
The stacks smoke with stardust as she flies out of sight.
I run to the bedroom to see if Merle has stirred,
He's sitting bolt upright - that Cozy takeoff he heard!

Back to the window we run and to our relief,
The Cozy's in the pattern for the return of the thief.
Down rolls the nose gear as the flap follows quickly

The mains kiss the runway (do we land this sweetly?)

Up to the hangar she taxis as the engine is stilled,
Silently backwards she rolls 'till her home's again filled
But there on the wing shimmers that being of light
"Merry Christmas!" it whispers, "And to you Cozy guys, Great Flight!"

A very Merry Christmas to you, Merle, with love, Lucie.

PHOTO GALLERY

Dennis Oelmann clamps the trailing edges of his wings to get them perfectly straight. Good idea, Dennis. Your canard is perfectly straight, too, right?

Walt & Helen Suminski hosting EAA Chapter 159. See all of those envious builders?

Bud Goodman has added extra stringers in his strakes to get perfect contours. Also good idea!

Cowling "plug" for the Mark IV just before ripping it away. The engine is in there somewhere!