

THE COZY NEWSLETTER #18 July, 1987

Published quarterly (Jan, April, July, Oct.) by

Co-Z Development Corp.

2046 No. 63rd Place

Mesa, AZ 85205

(602) 981-6401

Table of Contents

- [PRICES](#)
- [INSTRUCTIONS](#)
- [CO-Z EUROPE](#)
- [WHAT WE HAVE BEEN DOING](#)
- [ENGINE MOUNTS vs. O-320s](#)
- [INCIDENTS/ACCIDENTS](#)
- [TAXI TESTS](#)
- [FUEL LEAKS](#)
- [BUILDER MODIFICATIONS](#)
- [BUILDER HINTS](#)
- [DESIGN CHANGES/CORRECTIONS](#)
- [OSHKOSH 87](#)
- [COZY MODELS FOR SALE](#)
- [COZY WATCHES FOR SALE](#)
- [FOOTNOTE](#)
- [LETTERS](#)
- [PHOTO GALLERY](#)

PRICES

The following prices are in effect:

	US	OVERSEAS
Information kit.....	\$9.00	\$10.00*
Newsletter per year.....	5.00	6.00
Plans& Constr. Manuals..	230.00	260.00*
Owner's Manual.....	15.00	18.00*
Extra set A drawings. ...	15.00	18.00*

*Order from Co-Z Europe

INSTRUCTIONS

It is mandatory for all builders to subscribe to the Cozy Newsletter. Please review instructions in past newsletters for requesting information or help by telephone or mail. Review also instructions about the license agreement, checking plans, and updating any changes. The list of authorized suppliers printed in Newsletter #15 is still current. You deal with all other suppliers at your own risk.

CO-Z EUROPE

Co-Z Europe was established by Uli and Linda Wolter to help and support builders overseas:

Co-Z Europe (Uli and Linda Wolter)
Ahorn Str. 10A
D-8901 Ried, West Germany
49-8233-60594

Co-Z Europe has information kits, plans, and owner's manuals in stock so they can provide faster delivery of those items. Overseas customers should place their orders with them. They will provide builder support on request and are thinking of publishing their own newsletter.

Uli and Linda are very active in the EAA in Europe. They are attending every fly-in they can, and have booked all of their weekends. The Cozy is getting to be the most popular design in France. Linda writes: "The people over here just love the Cozy. They just drool all over it (HA!)."

On the subject of liability, she also writes: "We talked to the French builders about liability. They think the Americans are crazy! They said you don't have to worry about that over here. They know what they are doing when they buy plans for an experimental airplane, that there is always a risk, and they accept that risk." The French magazine "Experimental" likes the Wolters and their Cozy, and is giving them excellent coverage.

We knew that they were entering their Cozy in the European CAFE 540 on June 11th. We got a very excited telephone call from them saying that they had won all of the prizes. They "blew away" all of the other airplanes. They have promised us a more detailed account and think it will be reported in the U.S.

Incidentally, Uli's account of flying the Atlantic in their Cozy was published in July "Kitplanes." It was very well done. If you haven't seen a copy, you should try to get one. Keep up the good work, Uli and Linda!

We have planned a trip to Europe in September, after Oshkosh, to visit them, to meet some of our builders and inspect their projects, and to see first hand how homebuilding is done overseas. We will be in England Sept. 1-5, and traveling around Europe from then to the 30th, when we return. There will be someone here, Ms. Lee Parlee, to answer the phone and the mail while we are gone.

WHAT WE HAVE BEEN DOING

The past few months have been very busy for us, running our business and trying to build another airplane. We have had a constant stream of visitors, telephone calls, and mail. The Mark IV is now in the early stages of finishing, but the engine hasn't been installed nor have the cowlings been made. No wiring or instruments have been installed yet.

When it became apparent that there was no way we could finish for Oshkosh, I decided to drop everything, annual our Cozy, get my physical renewed, become current again (I hadn't flown for 6 mos. because of my broken wrist--its better now, thank you!) and get ready to take a biennial, which is almost due. We also planned a trip back to Minnesota, to celebrate the graduation of our youngest son (from dental school), the graduation of our son-in-law (from law school) and our 40th wedding anniversary. Not bad, huh? It was a welcome little vacation.

We have been wanting to sit down and make some future plans, and we also took some time to do that. As you know, we are retired. Shirley likes to paint, and I like to fly, but we haven't had much time to do either lately. Of course, we both enjoy our involvement in sport aviation, and all of the nice people we get to meet. But we can foresee the day when we will be running out of our supply of Cozy plans, and need to decide whether to print more, and if so, how many. The minimum economical quantity would be enough to last for several more years, and we have an obligation to provide homebuilder support at least a few years beyond that. So we would really be committing ourselves quite a few years down the road. Most of the retired people we know play golf and travel. We have been feeling pretty tied down.

Of course the Mark IV is a big part of that decision, because it still isn't finished and tested, and then there is all of the work of preparing plans and information kits and advertising. It would also commit us to several more years of promoting not one airplane, but two, and we would have a much larger builder base to support. We really needed to give some thought to whether this would be best for us.

There has been much interest expressed in the Mark IV. We get telephone calls, letters, and quite a few people stopping in to see what we are doing. Some people want to start building one right now--if you can imagine--before ours is even finished and tested. Some of our Cozy builders say they are going to stop and wait for the Mark IV. It looks like it would be a very popular airplane. It's not too difficult to figure out why. The cost of high performance factory builds is completely out of sight.

We jumped into the Mark IV because we had pioneered in the idea of a side-by-side Long EZ, because our Cozy turned out so well, because others built on our idea and introduced 4-place canards, and because we thought that with our experience we could design one which was prettier, faster, and had better performance. It was a challenge I couldn't resist.

But perhaps I should have resisted. We have started to think more and more about where this might be leading us. For example, I called up our insurance carrier. We have the Cozy insured as a 2-place. I asked about the insurability of a 4-place homebuilt.

I was told that very few people inquire about insurance until after they buy or build an airplane. I was told that our carrier wouldn't insure more than 2 seats in a homebuilt, and because of the current trend

in liability litigation, it could be very difficult to insure a new 4-place design.

So then I was curious about 4-place factory builds. I was told by someone at Beech that 4-place airplanes result in a lot more lawsuits against the manufacturer that do 2-place, because the passengers in a 4-place outnumber the pilots by 3 to 1, passengers are rarely the cause of accidents, and almost always look for someone to sue. The pilot rarely has adequate insurance (in the eyes of lawyers), so the manufacturer is also sued. Manufacturers can try to cover this cost in the price of their product--that's the reason a Bonanza costs \$131,750 today. In the case of a homebuilt, however, the pilot and the manufacturer are usually the same person, so who is the next logical choice. The designer? How could he possibly cover this risk, when all he sells is planes?

We have another concern, which is starting to bother us more and more, and that is the number of builders who don't follow plans or recommendations, who are making changes and taking risks, perhaps without realizing what they might be getting into. We seem unable to influence them and worry increasingly about what might happen.

We live in a free country. We probably have more freedom than anywhere else in the world. We can build any kind of an airplane that we want, and if we are persistent enough, we can get permission from the FAA to fly it. We can buy a set of plans, change the design, and still get it approved. After all, that is exactly what we did. We bought a set of Long EZ plans and changed the design into the Cozy. You can, if you choose, even ignore the operating limits the designer has placed on his design. There are builders who have done both. This is a truly free country, and I, for one, wouldn't want it any other way. But freedom has its price.

There is another freedom we have, which lawyers are trying not only to protect, but to expand upon by trying to set precedents in case law. That freedom is called the right to sue anyone for anything. Personal liability litigation is probably the most profitable and fastest growing area of legal practice. There are some pretty expensive ads on TV these days in which lawyers argue very persuasively that you shouldn't accept the responsibility for what you have done, or what has happened to you, but you should come and see them, and there will be no charge. What they are really saying is, "let us try to find someone else with deep pockets whom we can blame for your accident, and, if we can pick a sympathetic jury, maybe we can collect a lot of money for you (and ourselves). Even if the accused isn't at fault, maybe we can cause him enough misery so he will offer us money to drop the case." This is actually legalized extortion!

You can be sure, whenever an experimental aircraft crashes, it will make front-page headlines, and there will be lawyers paying their respects and offering free legal assistance.

These freedoms, the freedom to build airplanes, and the freedom to sue anyone for anything are in direct conflict, and the designer is caught right in the middle.

You can go down the list of well know designers in the homebuilt scene and discover that most have been sued at least once. To my knowledge, none of them have ever lost, but that has not discouraged lawyers. But the typical cost of defending a suit in a jury trial, I am told, runs from \$25,000 to \$50,000. That is enough to put most designers out of business. It would us.

Burt Rutan, as far as I know, has never had an in-flight structural failure on any of his designs if it was built according to plans and operated according to limitation. I have heard of accidents and fatalities for all kinds of reasons you could hardly blame Burt for, like leaving out structural reinforcements in the winglets, leaving out the bolts that attach the wing attach fittings in a Varieze, low level acrobatics, unqualified IFR, using auto fuel, and a host of other reasons, and yet I hear that Burt has been sued 6 times. Some builders think designers make a lot of money off builders. I don't know of any who do, and I don't know how you could, selling only plans. Most of us are supporters of EAA, we are proud of our airplanes, we are flattered that others would like to copy them, and we are willing to help them. We don't draw any salaries and very little profit from Co-Z Development, but it has given us a lot of satisfaction, and a feeling that we are giving more to the world than we are taking from it.

When I talked to Ben Owen, of the EAA, he said, "Younger people, if forced out of an aviation business can recoup by starting another business, or going to work for someone else. You," he said, "are retired. Do you think it wise to risk everything you have worked for all of your life, and maybe have to hit the pavement looking for a job, to support yourself and your family?" That was a sobering thought.

The environment in foreign countries is much different. There is less freedom. My understanding is that builders have to get approval for a design from their local authorities. Then they have to build in strict conformance to that design. Any changes have to be approved by the designer. In some cases, they have to perform static loading tests before they are permitted to fly. They understand and accept that they have complete responsibility for the airplane they build and fly, and their freedom to sue other people is very limited, by law.

So this is the situation we find ourselves in. We have a very good airplane, and perhaps another good one coming up. We have a good reputation, a good safety record, and a lot of good builders. We could expand our business with more work and sacrifice, without much monetary reward. But we would increase our risk dramatically. We are unable to buy insurance against this risk. The cost of defending our business would wipe it out and we would have to go into our savings. What would you do? We have decided:

1. It is impossible to design an airplane which someone can't find a way to hurt himself and others in. In this country, every designer puts himself at risk. A 4-place would involve risks far out of proportion to any possible gain. We should not sell plans to a 4-place in the U.S.
2. Even our 3-place Cozy design puts us at risk. We should wind down the sale of plane, and pick a date to stop altogether.
3. We have an obligation to our builders which we will honor. We will continue to provide builder support to those who have purchased plans from us.
4. Since the situation is more favorable outside the U.S., we will sell our remaining plans and design rights to Co-Z Europe, and let them continue to promote the Cozy outside the U.S.

We regret having to take these actions, because we are really proud of our airplane, we enjoy helping builders, and we cherish the many friends we have made. But we are not the first to conclude that, because of the legal system in this country, the risks of continuing our business are unacceptable, and

we will not be the last. The system won't change until Americans demand it. Thomas Paine said, "The only thing necessary for evil to succeed is for good people to do nothing." If you wish to preserve your freedom to build good airplanes, you will need to find a way to protect designers. Perhaps you can accomplish this through the EAA.

ENGINE MOUNTS vs. O-320s

As you know, the only approved engine for the Cozy is the O-235 Lycoming. This is consistent with the policy of our licensor, the Rutan Aircraft Factory, who has never approved O-320s in Long EZs, even though there are quite a few so equipped. When builders install O-320s in Long EZs, they use the approved O-235 mount, which already positions the engine as close to the firewall as possible.

In the Cozy, however, the engine was located 1-3/4" farther aft than in a Long EZ, so a spin-on oil filter could be used, and also because c.g. considerations allowed this. We recommend not using a starter (because of the extra weight), or if necessary, a light weight one. Nothing heavier should be put on this mount!

Builders installing O-320s to date have either used the O-235 mount, or else had someone (who might not be qualified) build a mount which is 1-3/4" shorter. We are not pleased with this situation. We have been under increasing pressure from overseas to approve O-320 engines and provide mounts. The reason is that in some countries there aren't any O-235s and without our approval, O-320s can't be substituted.

This reminds us of the current controversy over AIDS. If you love your kids and are concerned about their welfare, what do you tell them? Do you tell them what you think is best, knowing that they might not follow your advice, or do you tell them what precautions to take? Does this mean you approve?

We have decided to design a "short" engine mount which Ken Brock will supply. It will be similar to the Long EZ mount, locating the engine 1-3/4 in. closer to the firewall. It will be recommended for builders making heavier engine installations than ours, that is, an O-235 with a starter, if the front seat loads will be light and a less than full panel is installed.

We do not approve O-320s, but if you are going to use one anyway (we can't stop you), you would be well advised to take the following precautions:

1. Use the "short" engine mount from Brock Mfg.
2. Install stronger extrusions.
3. Do NOT use a starter.
4. Install heavy duty brakes.
5. Keep the rest of the airplane as light as possible so you do not exceed gross weight.
6. Before flying, make sure you are proficient in high performance aircraft.
7. Check your engine mount frequently, especially if there is any unusual vibration.

As for overseas builders, if we sell our design and copyrights to Co-Z Europe, as planned, they are

qualified to approve and provide support.

INCIDENTS/ACCIDENTS

Education is what you get when you learn from someone else's experience. Experience is what you get when you don't.

1. Vance Atkinson was flying along with his family at 7,500' and 140 Kts when his canopy flew open. The latch handle was not locked securely, no alarm sounded, the safety catch did not engage, the canopy stop ripped out, and the canopy stabilized, fully open at 90°, held there by aerodynamic forces. Being a cool, experienced pilot, Vance flew the airplane. He reports the airplane was fully controllable with the canopy wide open.

He slowed down to minimum speed, his daughter retrieved his head set from the back seat, his wife took over the controls, and he used both hands to close and lock the canopy. Then they continued their trip. Vance sent me sketches of his installation. The microswitch was not installed according to Chap.22, p.3, Fig.B, which requires that the latch handle has to be locked before the switch is tripped. Apparently in Vance's installation, the microswitch was mounted behind the hole in the latch plate (not aft of it), so the switch could be tripped before the bolt head was through the hole and engaged.

Vance said the safety catch interfered with pushrod C6, and was bent back far enough that it didn't engage when the canopy opened suddenly.

This is the same mechanism used successfully all this time on Variezes and Long EZs.

Initially, there were a few Varieze builders who took off with canopies unlocked, resulting in at least one fatality. The safety catch and warning horn were designed to prevent that from ever happening again, and there were no reported instances until now.

Please follow plans! We are adding some notes under DESIGN CHANGES as extra precaution.

Vance, we are indebted to you for determining what happens when the canopy on a Cozy opens in flight. It's amazing it didn't rip off, and that the Cozy was fully controllable with it wide open. We (and our builders) appreciate knowing this, but PLEASE BE MORE CAREFUL!

2. Jack Grandman passed his final inspection on Cozy N41CZ. It weighed in at 925 Ibs with an O-320. It looks gorgeous, except you know how we feel about changing the nose. Jack proceeded with high-speed taxi testing, knocking off 8 runs in less than 1 hr. Upon taxiing back to the hangar, he discovered that his left wheel was bent in, and the brake disc was rubbing on the gear leg. The gear leg was bent! The failure occurred just above the axle flange. We learned the following. The gear was purchased from Task, while they were still an approved supplier. There was no apparent quality defect. All of the specified torsional layups had been made. There was no bolt failure. We conclude it was a heat-caused failure. We know of only one other such reported failure. It was with a Varieze taxiing with a locked brake, and unventilated wheel pants.

Let's analyze the situation. Temperature, 90° F. Runway, 4,000 ft. long. El, 5,000+ ft. Engine, O-320. We know it takes more runway to land and stop an O-320 Cozy because of the extra thrust at idle. Also, at 5,000 el. and 90°, 60 Kts indicated is actually 78.9 mph. 4,000 ft of runway is awfully short to accelerate to that speed, test controls, and slow to a stop. Jack said he really had to stand on the brakes. He didn't allow enough time in-between to let his brakes

cool off, and they must have gotten red hot! This is the way changes tend to mushroom. Jack volunteered he wished he had used an O-235.

3. We have an eyewitness report from Linda on an accident at a fly-in in France:

"We stayed in a hotel downtown. The guy who brought us out to the airfield the next day got into his Varieze around 11:30 and took off, but did not climb. He stayed about 10 ft. off the ground and then pulled straight up. It scared us because he didn't have enough speed. He pulled up until he almost stalled out, and then somehow went over the top and made a loop and came out in a split-S, but he was much too low. He hit the ground just as he leveled out. The main gear hit first, bounced, and broke the main gear off intact. Then it skidded about 70 yds. in a field. It took the bottom off from the nose to the back seat. It pulled him out (underneath) just as it stopped. He is still alive! To look at the plane from the top, it looks all intact. No one knows why he did this. It was awful to watch. You could see it coming. We helped to move the plane off him. It really bothered us both a lot. This field was also a grass strip. Our first. I felt like I was on a runaway horse. But Cozy handled it just fine."

Comment: The Cozy is licensed in the "normal" category which allows no acrobatics. Please observe! Also, we have not demonstrated nor do we recommend operation on unimproved grass strips.

TAXI TESTS

Builders who have purchased newly overhauled engines might be tempted to do less than the recommended taxi testing, because of their concern about proper engine break-in. We recommend used engines for that very reason.

We understand that the FAA requires engine rebuilders to run-in their engines before installing them in certified aircraft, to make sure nothing goes wrong with the engine during the first flight. In a new homebuilt, you not only need to know that you can depend upon the engine, but you also need to know that your airplane is properly rigged and controllable at flying speed. Taxi testing increases pilot confidence and ease, and better prepares him for the first flight. If you have a newly rebuilt engine, you should have it run-in on a test stand, so you don't jeopardize your first flight. You will have spent a lot of time and money building the airplane, and you should take every precaution to make sure that both you and the airplane are ready.

FUEL LEAKS

Most people are of the impression that fuel leaks can only result from carelessness or sloppy workmanship, and it can never happen to them. So you can imagine my surprise, as I was doing an annual on our Cozy after it had been standing for 6 months, and I pressure tested the fuel system, when I found a massive leak between the fuel pump and the carburetor, where the AN fitting attached to the premium 601 Aeroquip braided stainless fuel line. This was an all-aircraft grade installation, installed by a licensed A & P, which had been leak-free for 4 years. RAF has had a similar experience, and apparently it is not uncommon. So far, all I have done is to take it apart, could find nothing defective, reinstalled it again, and no leaks. I am investigating other alternatives. This demonstrated to me that no one is immune from fuel leaks, even when using the best approved materials installed by experts.

BUILDER MODIFICATIONS

We shall continue to monitor and recommend any modifications which increase performance or safety without significantly increasing weight. Some of these have been:

1. High performance rudders
2. Vortilons
3. Heavy duty wheels and brakes
4. Mounting master cylinders in the nose, both on the same side.
5. Use of the non-sticking Delrin plug fuel selector valve (Weatherhead 6747).

We don't like to see modifications which increase weight and complexity without improving performance. At the risk of offending some of our close friends, we will use electric nose gear as an example. First of all, the air pressure on the nose gear almost exactly balances the weight, so there is practically zero effort required to crank up the gear. If you install an electric motor, you will still need a mechanical override, in case the motor fails. In the meantime, you have added weight and complexity to your airplane. Believe me, it is more work cranking up the window on your car (which you will do much more often) than it is to crank up the gear on your Cozy, and there is no weight penalty in a car. If you insist on adding 4 pounds, put in a fire extinguisher or a second nav/comm. At least they will provide a benefit.

The modifications which we fear are those which affect aerodynamics adversely. We can think of several, like lengthening the nose, increasing the canard span, or installing extended tips. These changes serve no useful purpose that we know of. Taken separately, they might be hard to measure. Additively, they will make your Cozy perform poorer at aft c.g. than it should, maybe even dangerously.

We do not recommend installing the pitot tube on the leading edge of the canard. It could disturb airflow over the canard (among other things), and impart a rolling motion. The best location is in the nose.

Fortunately, we have a pusher airplane, so we can locate it in the ideal location.

If you are considering a design change, please bounce it off us. Our advice is free. We may not agree but at least we will give you our reasons why, which may be of some value to you.

BUILDER HINTS

1. In constructing strakes, it is difficult to prevent the 3/8" PVC foam from bowing, when it is bent over the ribs. Scoring (cutting part way thru) the foam along the bend lines can help, but it must be done very carefully and precisely. One builder suggested building in stringers, from the fuselage side, across the ribs, to the end of the strake to support the foam uniformly. We have not tried this but It sounds like a good idea. Stringers would be made from 3/8" PVC, perhaps 1" deep, and glassed on both sides. Another idea we have used is to glass one side of

the foam with 1 ply BID, let it cure, and then score the foam all the way through to the glass, spacing the cuts close together along the bend line. If you do this, you will have to apply a second layer of BID just before installing the top permanently, and install it when only partially cured, as per plans.

2. There appears to be little appeal to storage pockets in the side of the fuselage in the back seat area. Some builders prefer to leave them out and use the extra space in the strakes for fuel. They notch the inboard rib, top and bottom, to insure this area drains and is ventilated, and relocate the drain valve to the new low spot when parked nose down. This change will move the fuel c.g. slightly forward, which is beneficial.
3. You can eliminate making TB2 and TB3 turtleback bulkheads by building in a combined rib and drip rail while the turtleback is still in the jig, after glassing the inside. Mark the future cut line and drill the series of holes through, per plans, then apply tape (duct) from the cut-line forward. Then glue 2" wide blocks of 1" urethane to the un-taped area aft of the cut line, but centered over the cut-line (Fig.1).
Shape the foam so it is rounded and about 3/4" thick, and glass over with 2 plies BID (Fig. 2). After cure, pull out the duct tape. Then follow instructions in the plans. When it is time to cut through the turtleback, cut through everything except the drip rail, open the canopy, remove the foam forward of the cut-line, route out the foam between the turtleback skins and fill with flox, and apply 2 plies BID in the drip rail (Fig.3). Follow plans to construct the lip over the cut-line.
4. The curvature of the turtleback flange is not supposed to match the longerons. This has bothered one or two builders.
5. Tall builders can raise the turtleback at the forward end, maybe as much as 1", to get more head room. If they wish, without hurting the side view of the airplane, but check your canopy first to see whether there is enough surplus material. The canopies are now being supplied un-trimmed, so the builder can trim to fit.
6. If you ever land nosewheel up (some builders probably will), you will destroy the puck, wear through the bottom of the nose, and slide to a stop on the NG5 plate. If it is 1/8" thick, per plans, it may wear thru and grind away part of the strut, making repairs a little more expensive. If you make NG5 1/4" thick, you will have a little extra margin.
7. We have been using the West System epoxy (105 resin and 206 hardener) extensively for filling and contouring prior to painting. It is superior to RAF and Safetyepoxy for that purpose, because it is less viscous, spreads more easily, cures faster, and sands more easily. It is available from Gougeon Bros. Inc., 706 Martin St., Bay City, MI 48706, (517) 684-7286. Purchase also their dispensing kit. Caution: This epoxy is not approved for glass layups.
8. Conductive copper spray paint. Spraylat has introduced a spray-on copper coating which they say is excellent for making ground planes on composite airplanes. Wish we had known sooner! Write to them for details. Spraylat Corp. 716 S. Columbus Ave., Mt. Vernon, NY 10550 (914) 699-3030.
9. Front seat weight limits are determined by calculation (see owner's manual) after the final weighing. By then, however, you may have used up many of your options. For your guidance, we can tell you the following. We have a light engine installation. An O-235 engine, no starter, and a lightweight spinner. We have a heavy instrument panel--it's completely full. Our limits are 185 lbs. - 340 lbs. The front seat is approximately as far forward of the c.g. as the engine is aft. Whatever you add in the back, you will have to offset in the front, to maintain balance. If you add a 20 lb. starter (if you have to have a starter, we recommend a lighter one),

and keep every thing else the same, your front seat limits would increase to 205 - 360. We don't recommend that you go any farther than this, so obviously if you also increase engine weight by 40 lbs., you are going to have to do something else, like putting the battery in the nose. One of the requirements is that your airplane will not fall over backwards when parked nose down. You do have to evaluate the effect of any changes that you plan to make (as compared to our design) on c.g., front seat limits, and gross weight. It is easy to fall into a trap. You think you need extra power, so you put a heavier engine (and starter) in the back, so now you need to add more weight in the nose, some of it perhaps unnecessary, like extra wiring, etc., so the empty weight grows, and you find yourself operating over-gross and not getting the extra performance (take-off and climb) that you were seeking initially. O-320 powered Cozys are averaging about 100 lbs. over the design weight.

10. The purpose of the friction damper on the nose wheel swivel is to prevent shimmy at high speed, like during landing. Side force to rotate pivot should be two to four lbs. (Page 34, owner's manual). Long EZ pilots have learned that if the damper is too loose, the wheel will shimmy, the fork will break, and there is a high probability of the wheel going through the prop. The damper is easy to check. Do it frequently.

DESIGN CHANGES/CORRECTIONS

- Chap.11,p.3,Step 5: One builder reported that when he followed the instructions in Step 5, and came to installing the CS12 bell crank assemblies (last para.) the bushings in his pre-fab CS12s were out of alignment with those in the CS2s, so he had to make new CS12s. These are all Long EZ prefabbed parts, and we don't know what caused the problem, but suggest changing the procedure. Do the first paragraph last. Before installing the CS9s on CS12s, check to see whether there will be an alignment problem if the CS9s are installed on the CS12s with edges concentric, as the text and Fig. 15 instruct. If there is a misalignment problem, you can disregard the instruction about concentricity, except if the alignment is off more than 1/16", you may have done something wrong, and should investigate. Chap.9, p.5, 3rd para: After sentence ending with "(Fig.31)" add "Lay up 3 plies of BID on outboard and inboard face of gear legs, wrapping around the trailing edge and extending 1 or 2 in, above the axle flange. Tape the jig blocks (so they won't bond), then clamp them and the axles in place, re-check alignment and toe-in, and allow to cure."
- Chap.18, p.12, 1st para: After sentence ending with "longerons." add "Bend pushrods C6 and C6A so they follow the curvature of the longerons."
- Chap.18, p.12,Step 18: After sentence ending with "Fig.45." add "Check safety catch for interference with pushrod C6. Add washers as required to locate pushrod under longeron so it doesn't interfere with proper function of safety catch."
- Owner's Manual, p.31: Add, "WARNING: The aft c.g. limit of F.S. 102 applies to a Cozy built according to plans. Modifications to the nose and/or canard can be destabilizing, and may require restricting the aft c.g. limit to less than F.S. 102."

OSHKOSH 87

We plan to be there and hope to see as many of you there also as possible. We hope a few more Cozys are flying by then as well, and will make it to Oshkosh. A forum has been scheduled for Saturday, August 1, at 1:15 PM. We would like to have input from our builders, and answer any

questions we can.

Ken Francis, (817) 737-4659, has reserved an extra pick-up camper, to be parked alongside us in Paul's Woods, at Oshkosh. If you need a place to stay, and want to camp with us, call him.

COZY MODELS FOR SALE

In our last newsletter we talked about what a beautiful job Lon Cooper has done in modeling the Cozy; it is truly a work of art. We didn't repeat his address and phone number, which was in a previous newsletter, but here it is again:

Lon Cooper
c/o Adalon Design
25506 Crenshaw Blvd.
Torrance, CA 90505
(213) 534-2110

Cost of the model is \$35 plus packing and ship ping. \$40 U.S. or \$45 overseas should cover all costs.

COZY WATCHES FOR SALE

Steve Overly, 2481 Red Rock Blvd., Grove City OH 43123 (614) 871-0710 wants to order watches with a Cozy on the face. If interested, call him or see him at Oshkosh.

FOOTNOTE

Shirley says I should say again that we intend to support our builders (those who have purchased plans from us and obtained serial numbers from us), and help them build safe airplanes. We are planning a cut off date on plans and serial numbers of Oct. 1, 1987, so get those license agreements in!

LETTERS

April 7, 1987

Dear Nat & Shirley,

My Cozy is taking shape. I haven't been able to find an O-235, but I have an O-320 E2F. In France, it is difficult to find a good O-235. I think I will fly near the end of 1987 or beginning of 1988. I have three friends who are building Cozys, and we have cut foam for the wings and canards together. I know of 8 Cozys being built, including mine. Enclosed is money for the Owner's Manual and 2 decals.

Best regards,
Daniel Hedricourt
(France)

May 20,1987

Dear Nat,

Please find enclosed our signed copy of the license agreement. We have looked through the plans and do believe them to be of a high standard, better than the Long EZ plans. We can only imagine the amount of work it took to produce them. It is an achievement to build a plane--even more to commit it to paper for others. Once again our thanks for your work--we look forward to many happy hours building and flying a Cozy.

Yours Sincerely,

Chris Wainman (England)

June 10.1987

Dear Nat & Shirley,

Please forgive me for not returning the license agreement earlier. Quite honestly, I have been so involved with the project, it was one of those things that just got put off! I am building with Steve Overly and Rick Cahill. I bought the house across the street from Steve to be close to the project. My Cozy is at the end of Chap.5. It is really something to observe the "learning curve." It takes us forever to get the first plane through a particular stage, the second is fast, and the third is a breeze.

Regards,

Ron Kidd

Dear Nat & Shirley,

Just a note to say thank you very much for the quick assist with the replacement newsletters and license copy, it is really much appreciated. Please also find enclosed a contribution for the cost of mailing.

My progress here has been a bit slow, I've been tied up with long business trips this spring, but hopefully summer will see better results.

We now have two Cozys in process in the Binghamton area, mine and Dr. Vadivel's, plus a Defiant also under construction. There should be some ineeresting flying here in a couple of years!

Best wishes for success with the Mark IV, and thanks again for all the help.

Sincere regards,

John Ellor

May 3,1987

Dear Nat,

Enclosed is my renewal for the newsletter, I would not want to miss getting them. I have found them to be very informative and interesting for builders and dreamers alike.

Well, it's been a little over eight years that I've been collecting information packages and some complete plans for a variety of homebuilts. Until the "Cozy" came along, I wasn't fully satisfied (for one reason or another) with any of the ones I had seen. Since I received my information package, the newsletters, and read all I could find on the "Cozy", I haven't seen any others that I'm as pleased with. So, it's about time that I get going and start working toward my dream. Even though I'm currently trying to get a place set up as a workshop, I have decided to take the first small step in adding another

"Cozy" to the aviation world; ordering a set of plans.

Anyway, I'm looking forward to meeting you and Shirley. I'm a transplanted, ex-resident of Minnesota too. I'd like to thank you for your outstanding and uncommon interest and support of "Cozy" enthusiasts. It's people like you that make undertaking such a project a greater pleasure and a more rewarding experience. I am convinced you won't let us down!

Sincerely,
Mitchell J. Laabs

PHOTO GALLERY

Harold Cottingham's fuselage on A frames. Looks like good work, Harold!

Steve Russell's "per plans" Cozy. Wings, centerspar and strakes are now done and installed. Nice work, Steve!

Jack Grandman's completed Cozy. We have advised Jack that the "shovel" nose will be destabilizing, and have recommended that it be changed back to the plane configuration.

Cozy builders (left to right) Drefs, Pichot, Overton, Schoonover, and Brimmer inspecting Bill Overton's project in Washington D.C. at a "cozy" picnic--chapter meeting.