

[\[Newsletters\]](#)[\[Cozy MKIV Information\]](#)[\[Prev\]](#) [\[Next\]](#)

COZY NEWSLETTER #50

July, 1995

Table Of Contents

- [PROPELLORS](#)
- [WHAT WE HAVE BEEN DOING](#)
- [REFLECTIONS OF A STUDENT PILOT](#)
- [FAA HOMEBUILT IDENTIFIERS](#)
- [SYNTHETIC OIL](#)
- [ANTENNAS](#)
- [PUBLICITY](#)
- [FLIGHTS](#)
- [ARLINGTON FLY-IN](#)
- [OSHKOSH 1995](#)
- [MARK IV CHANGES/CORRECTIONS](#)
- [BUILDER DESIGN CHANGES](#)
- [BUILDER HINTS](#)
- [FOR SALE](#)
- [LETTERS FROM BUILDERS](#)

[Newsletter Info.](#)[Subscription Info.](#)[Authorized Suppliers](#)

PROPELLORS

We asked both Warnke and Ted's to supply the prop they would recommend for a 180 hp Cozy with top speed in excess of 200 mph. Warnke supplied a prop 76 x 70 dia. and Ted's a prop 78 x 68 dia. Both of these props had in excess of 2400 rpm static and in excess of 2770 rpm full-throttle at 8000' (75% power), and would have to be considered climb props rather than cruise props. I did not wish to nm my engine at or above the resonant rpm range (2770 rpm) so I did not run long enough to see what the final rpm and mph would be. It isn't too surprising that these prop manufacturers didn't supply quite enough pitch for cruise, because the way an engine is installed affects its horsepower. We have both ram air going directly into the carburetor and also a 4-pipe exhaust system. Each of these is expected to increase engine rpm by 100 rpm. These props might be good cruise props for 180 hp engines without ram air or 4-pipe exhaust systems but they don't have enough pitch for our airplane. Make sure you tell your prop manufacturer how you have installed your engine as well as the horsepower.

WHAT WE HAVE BEEN DOING

The big event for us every year in the spring is Sun `n Fun in Lakeland FL. We don't like to fly in bad weather, so we start monitoring the TV weather a week or two ahead of time. That time of year the cold

fronts travel across the southern US along the gulf coast on a regular basis about one per week, and there is usually only about one day per week when the weather is good all the way from Mesa AZ to Lakeland. So timing is the big thing. This year on Sunday, a week before start of the fly-in, a frontal system was just passing through Arizona, and flight service told us that the weather along the gulf would probably be bad aU week long. They advised that the best plan would be to leave right away and go through ahead of the system. We had house guests, and didn't really want to leave that soon, but several different briefers all gave us the same advice, so at 2:30 PM I told Shirley that we had better leave, and she had 1 hour to pack. She just made it, and by 4:00 PM we were in the air heading for El Paso. As we overflew El Paso, the sun was just setting, and we started speculating how long daylight would last after sunset. We headed for Ft. Stockton TX, an hour away, and by the time we got there it was pitch black. Another airplane (a Long EZ) called in just ahead of us, and warned us about the stiff cross wind and turbulence on final. On the ground, we met the pilot and passenger. The pilot was a commercial airline pilot and the passenger, his son. They had just finished building the Long EZ, the father had been transferred to Florida, and they were ferrying the Long from California to Florida. We joined them for dinner. They said they were having engine cooling problems, and I offered to help them figure out what was wrong in the morning.

When I looked at their engine installation in the morning, it was pretty obvious what was wrong. The builder hadn't baffled the fins at the underneath side of the cylinders. This meant that the air was not forced to go between the fins. When I pointed this out, he said that other builders in California told him that this wasn't necessary. The second problem was that he had left gaping holes around his exhaust pipes, which meant that most of the cooling air was escaping out the cowl around the pipes without having to go through the cylinder fins. In effect, there was very little pressure difference to force the air through the fins. I explained that if the engine is correctly baffled and the high pressure side of the cowl is sealed, his engine should run cooler than any factory built, and it would not be n to cut holes in the top of the cowl over cylinders #1 & #2, as he was planning to do.

From Ft. Stockton we flew VFR over the top for about an hour, and then it was clear the rest of the way to Florida. It was now Monday, and our reservations in Lakeland didn't start until Saturday. We had heard about a nice resort in the Orlando area, so we headed for Kissimmee and pulled in there around 6 PM. We were able to get a room without advance reservations. We moved the airplane over to Lakeland under a 1000 ft. overcast on Wednesday, rented a car and went back to our resort until Saturday. We had a very good time and enjoyed our unplanned vacation.

On Saturday we joined the [Wilhelmsons](#) and the Vargases and stayed together at a condo in Imperial Lakes. The fly-in started on Sunday. We think that there were 13 Cozys altogether. It was a little hard to keep track, because some were parked in the camping area, and others kept coming and going. This was a pretty good turn out since the frontal system we beat stalled out along the east coast and kept some Cozys from making it.

Sunday night was the annual Cozy banquet at the Red Barn. This time they reserved a room for us (as promised). We had about 50 or so, and everyone had a chance to talk and appeared to have a good time. As has become our custom, we picked up a crate of strawberries (\$5) at a roadside stand to take back to the condo. It was good to again see a lot of builders we see only once a year.

Jack and I had a chance to look at and critique 3 different retractable gear: The Infinity, which folds inboard, and the Velocity and Berkut, which fold outboard. Incidentally, the Berkut had repairs in progress on the bottom of the fuselage, apparently the result of the gear being unintentionally retracted

(or collapsing). The Infinity gear appeared to be the heaviest. It had a large electric hydraulic pump in the nose to offset the weight in the rear, and required the largest cutout in the strake. We speculated that weakening the strake and putting more torsional loads on the center might cause flexing and leaks, in the fuel tank area over time. The Velocity and Berkut gear pivot inside the fuselage and require cutting into the fuselage side as well as the strake. It was unclear how much fuel capacity was sacrificed in each of these cases. Jack and I agreed that there is no way a retractable gear could be as strong in torsion or other stress modes as the single glass strut with its attach points 26" apart.

Vance Atkinson was there with his new, electric nose lift installed. He demoed it for us. Vance is young (relatively), healthy, and strong, and I really didn't understand why he would need an electric lift in the nose of his Cozy-that is until I tried to lift it myself. It must have been over 100 lbs., and I absolutely could not lift it myself. I have never put the nose of my airplane on a scale, but I would guess its only about 25 lbs., which gets lighter as you raise it. Vance explained that the reason his airplane is so heavy on the nose is that he accidentally mounted the main wheels 1" further back than the plans call for. He said this is one step in construction where it pays to be accurate!

The weather was good all week, and there was much interest in the Mark IV. Approximately 40 people climbed in and out of our airplane before the week was over. Todd Morgan was awarded the "Best Composite" at Sun `n Fun for his Cozy. Congratulations again, Todd!

We made it all the way back from Lakeland to Mesa on Friday. The last half of the trip we had 35 knot headwinds and severe turbulence, which made the trip seem longer than usual.

A week or two after Sun `n Fun we were saddened to hear that our accountant, close friend, and Cozy builder Herb Peterson died of natural causes in Albuquerque. We went to the memorial service and offered to help his widow, Jane, find a buyer for his project and all his shop tools. We brought the project back to Mesa where a new builder, Dr. [Douglas Ashby](#), agreed to take it over. We have the project in our shop temporarily helping Doug get up to speed. In between trips we keep pretty busy showing visitors our airplane and taking them on demo flights.

REFLECTIONS OF A STUDENT PILOT

Ever since we started flying our own homebuilt airplanes, back in 1978, Shirley has been my almost constant companion. She enjoys flying, as a passenger. Her only concern is that she hates bad weather, which we try to avoid, but is not always possible on long cross-country flights. On long trips, she sometimes takes over from me, holding the wings level, maintaining altitude, and making course corrections. But she has never wanted to take the controls as we let down and approach landings. After all these years, I finally persuaded her to take some instruction on pattern work, take-offs and landings. It seemed to us that the Katana, a 2-place, composite, low-wing light-plane manufactured in Austria, would be closest to the Cozy. She has now had several lessons, and I have been very interested in her impressions. She says the visibility, with a full bubble canopy, is pretty good, except for the engine up-front. She says it is noisier than our Cozy, she doesn't like the stick between her legs, and that the stick pressures are too high. She doesn't like the toe brakes, and says the rudder pressures are too high, and complains about having to use a lot of right rudder on take-offs. The Katana has a constant speed prop, which she sets at 2400 rpm for take-off and leaves at 2400 rpm for "fast" cruise. Interestingly, those are almost the same numbers we get for take-off and use for cruise with a fixed-pitch prop on our Cozy. She

also has to set flaps for takeoff and landings. Even though the Katana is a beginner's airplane, it sounds to me that it is more complicated and harder to fly than our Cozy. We will have to see how she does when she graduates to take-offs and landings in the Cozy!

FAA HOMEBUILT IDENTIFIERS

Because of the growing number of homebuilt designs, the FAA wishes to establish identifiers for the use of the aviation community and air traffic controllers. They have proposed a list of identifiers for the more common designs to the EAA's Ben Owens, and he has asked our approval for COZ4 to represent both the 3-place Cozy and the Cozy Mark IV. We have given our tentative approval. Cut-off date is August 15th. Any comments?

SYNTHETIC OIL

At one time Mobil AV-1 was considered to be a premium lubricant for aircraft engines. Most of its properties were superior to those of petroleum-based lubricants. However, it was discovered that the use of AV-1 resulted in formation of sludge, and that this sludge impaired lubrication to critical parts of the engine, creating the risk of in-flight engine failure. Mobil has pulled AV-1 from the market and a major civil suit against the Mobil Oil Company, potentially representing tens of thousands of plaintiffs, has been filed.

ANTENNAS

There are several companies that make antennas for composite airplanes that have written to us asking if we will recommend their products. The reason we haven't complied is that it is so easy to make VOR and COM (and even glide-slope, marker beacon and FM) antennas from copper tape and a few ferrite toroids that we don't see any reason why anyone would want to pay \$50 or so for these antennas. We couldn't think of an easier way to save \$50. We just demonstrated making a VOR antenna for one of our builders, and it probably took between 15 and 30 minutes; probably less time than it would have taken to install a purchased one. It is so easy and so inexpensive that we always install spares, i.e. two COM antennas and two VOR antennas, even though we have never had to use the spare. We started making our own antennas back in the Varieze days (the '70s), have made them for 5 airplanes we built, and have always had better transmission and reception than factory built airplanes we hear on the same frequencies, and we normally pick up VOR stations 40 or 50 miles out. The antennas we make were designed by [Jim Weir](#) of Radio Systems Technology (RST) back in the '70s. He eventually sold RST, and there was a period during which there were some problems, but we have been told that these have all been corrected, and [Jim Weir](#) is back at the helm. They make a number of kit avionics, but for antennas, you will need:

Antenna Reference Text RST-802 \$5.00

100' roll of copper tape RST-2800 \$20.00

Bag of 20 toroids RST-2801 \$7.50
Their address is: 16214 Jacks Rd., Nevada City CA 95959
Phone: (916) 272-2203 or (916) 478-0641.

If you get a recording, leave your evening phone number because they return all calls each evening. If you prefer to purchase antennas pre-made, contact: Bob Archer, Sport Craft Antennas (310) 316-8796.

PUBLICITY

Wouldn't you know, Vance Atkinson got a picture of his Cozy in Sport Aviation again, the May `95 issue. He told about how his Cozy is now 7 years old and he has almost 900 hours on it. Mike Doering made the June issue with his Cozy N154MD. He says, "Cruise speed is 185 mph at 2300 rpm while top speed is around 210 mph. I have many enjoyable hours flying time on her." Gilles DesGruelles had a 6-page article on his "Le Cozy" in the French magazine "Aviations" April `95, and was also featured on the cover. Congratulations, guys! You get a renewal to your newsletters, our compliments!

[Publicity Addresses](#)

FLIGHTS

We know that there have been some first flights since our last newsletter, but haven't received many first hand reports. We heard that Bill Denise is flying in Hawaii and we are still waiting to hear from [Chuck Wolcott](#), in Simi Valley CA.

ARLINGTON FLY-IN

We much enjoyed attending the Arlington fly-in last year, and plan to do the same thing this year. We had some spectacular scenery on the way up - overflying the Grand Canyon, and the Rockies, and then the Cascades. A trip where it is very comforting to have a dependable Lycoming engine. We enjoyed and appreciated the hospitality of the Westlands, and enjoyed meeting many of the Cozy builders in the northwest. The fly-in starts on July 5th and continues through the 9th. From there, we plan to cross the northern states to Minnesota, to visit our children and grandchildren, and then on to Oshkosh. We will be gone about a month; as in past years, my sister, Lee Parlee will be here holding down the fort. We will be checking with her by phone to see whether there are any urgent builder questions for us to answer.

OSHKOSH 1995

Oshkosh 1995 will be from Thursday, July 27th to Wednesday, August 2nd. The Cozy builders forum will be on Friday, July 28th at 1:00 PM, Tent #3. The Cozy builders dinner will be on the next day, Saturday July 29th, at Robbins Restaurant. The Pershings are making the arrangements. They advised that there will be a cash bar and 'happy hour' will start at 5:00 PM, followed by dinner at 6:00 PM. The family-style dinner last year was a huge success, so they are planning the same thing this year. It will be chicken and steak with everything that goes with it. The \$10.50/person includes gratuity. The after dinner speaker will be Mr. Wm. Groninger, a former SR 71 Blackbird pilot. Following that we hope to have door prizes. You will have to leave the airport before the airshow is over, otherwise you will be stuck in traffic. Last year I think there were about 100 in attendance, and a good time was had by all. No reservations are required, just be there! The EAA has constructed two new exhibition buildings in the camping or parking area west of the road along the airport (which will be closed during the fly-in), and the main gate will be moved west. Aircraft Spruce will be in the new north building and they have also reserved some space outside, and invited us to park our Cozy Mark IV there. We will miss parking on the flight line with all the other Cozys, but we hope you will stop by to visit us in our new location.

MARK IV CHANGES/CORRECTIONS

BUILDER DESIGN CHANGES

The Cozy Mark IV was not a new design from the ground up, but rather the latest evolution of a revolutionary design originated by Burt Rutan in 1976, which progressed from the Varieze prototype to the Varieze plans model, then the Long EZ prototype which progressed to the Long EZ plans model, then the Cozy prototype which progressed to the Cozy plans model, then the Mark IV prototype which progressed to the Mark IV plans model. In each step of this evolutionary process various ideas were evaluated and those which were found to be improvements were incorporated. The current Cozy Mark IV plans model, in the author's judgement, embodies the simplest and best ideas for improvement, regardless of source. There are no known deficiencies, and if a Mark IV is constructed according to plans, it should perform very satisfactorily and without problems. Be wary of anyone suggesting that you make a design change to connect an imagined problem. The change suggested could very well cause a problem. A case in point is the engine cooling system.

If the NACA scoop underneath the fuselage is built according to plans, baffles are added in the lower cowlings according to plans, and the engine itself is baffled according to plans, there will be no cooling problem! Our plans model is living proof of that! As a matter of fact, cylinder head temps should run low, in the 290 to 350 deg. F range. Even on the ground, convective cooling keeps cylinder head temps low, and certainly less than factory - built with down-draft cooling. Furthermore, built as designed there will be ram-air induction into the carburetor (which boosts engine power) and cooling of the accessory case (to avoid cooking the magnetos). If built according to plans, there should be no need to install exit air vents over cylinders 3 and 4. We have not investigated ram airpit cooling scoops (underneath the strakes) because there has been no need to. We do know that the engine baffling would have to be revised, that they wouldn't be as effective in cooling on the ground, and wouldn't provide ram air for the carburetor or convective cooling for the accessory case. We suspect they would increase drag, which was the reason NACA scoops were developed in the first place, to eliminate the drag caused by ram scoops. In short, revising the cooling system by eliminating the NACA scoop and installing ram

arm-pit scoops would be a step backward. Burt Rutan's advice to first time builders was to first build according to plans (which were thoroughly proven), and then make any changes they might want to try. That would be the only way they would ever know whether the change was an improvement, or whether they should go back to the way it was.

Another case in point is the fuel system. The design should not be changed! Two separate tanks are provided so you will have a redundant fuel supply. If you have a leak in one tank (it has happened), you can safely operate off the other until you have an opportunity to repair the leak. If you have contaminated fuel in one tank (it has happened) you can operate off the other tank without risk of damaging your engine. If you have water in one tank (it has happened), you can switch tanks to keep your engine running. As a matter of fact, if your engine ever coughs or hesitates, you should automatically switch tanks. You can extend your range by running one tank dry and then switching to the other tank to more accurately monitor fuel remaining. The plans show sumps located outside the fuselage, to eliminate any fuel inside the fuselage structure, where it might leak and create a fire hazard. You should not install a sump inside the fuselage and connect the tanks together!

If you connect your tanks together and ever lose a fuel cap (it has happened), you would have a vacuum in that tank and pressure in the other, and you would lose all of your fuel out the open tank. Also, you should not locate the fuel valve on the firewall, or anywhere you cannot get your hand directly on the handle. Experience with the Varieze many years ago, where the fuel valve was located on the firewall, demonstrated that a sticky fuel valve could not be operated as well on the end of a torque tube (or cable) as with a hand directly on the handle, and a number of emergency landings were attributed to this cause. That is the reason the fuel valve was located in the front cockpit on the Long EZ. Locating it in the seat-back on the Cozy was considered to be a further improvement, because it shortened and simplified the plumbing, but still allowed hand operation. The fuel system shown in the plans was designed to eliminate any conceivable problem in the fuel supply which might cause an emergency landing.

We have been as conscientious and diligent as possible in trying to provide the safest and most reliable design for our builders, and it really hurts when we hear of a first time builder making design changes which he thinks is an improvement but we know may endanger his safety or cause him problems down the line. Even though these are "experimental" airplanes, we firmly believe in the adage, 'If it ain't broke, don't fix it!'

Along a slightly different vein, we are occasionally asked about substitute materials. Some suppliers are pushing triax glass cloth and alternate epoxy resins. Our position is this: As a licensee of Rutan Aircraft Factory, and one who respects Burt Rutan's thoroughness and judgement, we are very reluctant to approve materials which he has not first approved. The triax cloth might be quite strong in the 3 different directions its fibers are oriented, but it does not exactly duplicate the fiber orientation specified in our plans and in the Long EZ plans, which has been well tested and proven over a long time. One of our boulders who tried using triax cloth found it to be stiff and hard to conform to compound curves, and when he tried to squeegee it, developed wrinkles in one or more layers. He ended up having to remove the triax from a large area on the wing and patch it. When he was finally done, he had caused himself more work, wasn't as well satisfied with the quality, and wished he had followed the plans.

We don't see any reason to evaluate and approve other epoxy resins. It was necessary to get Hexcel to reformulate Safe-t-Poxy, to eliminate the MDA that OSHA objected to. But that has been accomplished and we have a good resin now, Epolite 2427, and see no reason at present to consider further changes. We would like to have all Cozys built from the same materials of construction, in so far as is possible. It

is just too hard to control quality when too many substitutions are made. There are some design changes, like internal rudder belhorns, retractable steps, etc., which don't affect safety or aerodynamics, and may not greatly affect weight, but which take longer to do, and for that reason we don't show them in our plans. We try to show the simplest way of doing any particular job. But if individual builders wish spend more time building and be more sophisticated, we have no objection.

BUILDER HINTS

1. Elevator jiggling block for the Roncz canard shown in the Mark IV plans Chap. 11, page 7, Fig. 18, and on drawing. M-18. Some builders have had problems achieving the required 15 degrees of up elevator travel after the elevator hinges are installed permanently in the canard using this jiggling block. Tom McNeilly suggested that this problem can be avoided by revising the jiggling block to hold the elevator in the 15 degree up position while installing the hinges. His revised jig is shown here: (Photo deleted for on-line version)
2. Taping joints. For Structural reasons, all joints should be taped with 2 plies of BID 2' wide (1" on each surface) cut on the bias (45 degrees) unless otherwise specified. After application, the tape should be peel-plied. One recommended way to accomplish this is to wet out 2 plies of BID on wax paper or Saran wrap, cut into strips, apply over joints, remove the wax paper or Saran wrap, cover with peel ply and wet out same. Wax paper should only be used with discretion. It should not be left in place while the epoxy cures, because wax will be left behind, and it should only be used on those joints which will not be later covered with additional layups.
3. Elevator torque tube offsets (CZNC-12A for the Roncz canard). The drawing we submitted to Brock Mfg. stated that these offsets should be a slip-fit in the 1" OD x .035" 2024 T3 torque tube. Brock Mfg. cannot guarantee a slip-fit because the tolerance on wall thickness for .035" 2024 T3 drawn tubing is +/-10 %. To prevent too loose a fit if the wall thickness is on the thin side, the specification for the offsets has been tightened to .930" OD. If the wall is on the thick side, you will have to sand the offsets to obtain it slip-fit.
4. Canard installation. Make sure you allow for at least 3/4" of horizontal travel for the canard so the incidence pins will not bind during installation or removal.
5. Glass layups. Remember, BID is always cut on the bias and overlapped 1' in every direction, but UND is overlapped only in the direction of the major fibers.
6. Push-pull throttle cables (required for the Ellison Throttle Body) are also available from Beechurst Industries Aviation Division, 150-35 12th Ave., Whitestone, NY 11357 Phone (718) 746-3900.
7. The fuel filter recommended by Ellison (and Co-Z) is the Flow Ezy with a 25 micron rating, carried by Aircraft Spruce and Wicks.
8. In newsletter #47 we mentioned that you can purchase Bendix-King Silver Crown avionics at discounted prices from Gulf Coast Avionics. They meet King's installation requirement by mounting them in a panel and providing a wiring harness. A 'mock' panel works just as well.

Aircraft Spruce Avionics, a division of Aircraft Spruce and Specialty Co., will provide essentially the same service, up to and including complete instrument panels.

9. Steve O'Brien suggests that the black metal "binder" clamps used in offices come. very handy when you need a second pair of hands to hold something. They make temporary/lightweight clamping quick and easy. They are small so they fit in tight places, and they are really cheap. He has found that the 1" size seems to work the best, but he also uses the 2" and 1/2" size.
10. Latex gloves. Some builders still haven't gotten the word that latex gloves cause more allergies than they cure. Barrier cream is the preferred method of protection. If that isn't sufficient, then try vinyl or butyl gloves.

FOR SALE

1. Cozy builder [Dr. Curtis Smith](#) invented a little gem of a ratchet which locks the nose gear up or down. It is still available for \$40 (\$45 overseas), which includes postage and packaging. No need to call, just send check or money order. This little device should be considered a "must" by all 3 and 4- place Cozy builder/flyers. Once you have flown with it you will wonder how you ever did without it. Allow several months lead time, because they are made to order, in batches of 50. Contact: Dr. Curtis Smith, 1846 Sextant Dr., Worden, IL 62097 (618) 656-5120.
2. Fuel sight gages, \$35.00 per set including postage. Vance Atkinson, 3604 Willomet Ct., Bedford, TX 76021-2431 (817) 354-8064.
3. Rebuilt aircraft instruments, much less expensive than new, guaranteed. Contact: Howard Francis, 5631 S. Crows Nest Rd., Tempe, AZ 85283 (602) 820-0405.
4. Cozy builder, [Bill Walsh](#), has arranged a source of tee shirts (sweatshirts available on request) which come in various colors but only adult sizes. They have a detailed picture of the Cozy or Cozy Mk IV. The Cozy name is printed above. Bill is also working on other Cozy items, such as jackets, caps, pins, and cups. The shirts are available at \$9.95 plus \$1.50 shipping and handling. Orders for 2 or more are sent 2-day priority Make checks out to Linda Walsh, PO Box 160884, Altamonte Springs FL 32716. (407) 695-3543.
5. Cozy Mark IV counted cross stitch (needle point) kits to make caps (\$5.99), tee-shirts (\$7.99), or framed pictures (\$8.99). Chart also available (\$4.00). Send \$2.50 S/H with order or SASE for more info to: [Carolyn Cullen](#), 9456 Mast Drive, Las Vegas NV 89117.
6. [Wayne Lanza](#) makes a number of very nice goodies for the 3 and 4-place Cozys. He has an electric speed brake actuator kit with all the parts needed for installation, with instructions for \$275. His latest creation is a switching and breaker panel for the Mark IV. It is similar, but not identical to the one we had made for our plans model. It is located at the top of the panel, which is the best location for appearance and access to the electrical system. Wayne is using the highest quality DC switches (they are hard to locate) and circuit breakers, and pre-wires the panels, making the rest of the electrical system installation very EZ. Cost is \$425. We really appreciate

Wayne's contribution, and heartily recommend his products to you. Contact him at: 9425 Honeysuckle Dr., Sebastian, FL 32976 (407)664-9239.

7. We believe that the 4-pipe stainless steel exhaust system we designed and is being manufactured by Custom Aircraft Parts (see "Authorized Suppliers") is far superior to anything else available or advertised for the 3 and 4 place Cozy (or Long EZ, or any other pusher, for that matter). Cost is \$500, which includes shipping and handling.
8. Rebuilt 0-360 Lycoming engines at a reasonable price. Contact: Dan Brown, (918) 834-0791.
9. Custom crafted teakwood aviation control grips. Standard grips left & right) with push-to-talk switches \$55/pr. Other configurations and switch combinations available. Contact: Ray & Peggy Low, phone/fax (503) 463-4433.

LETTERS FROM BUILDERS

May 19,1995

Dear Nat Puffer,

Greetings from the middle of the Pacific Ocean. I am sending you a copy of the article I just submitted for Sport Aviation entitled "Long-EZ to Cozy". I thought you might enjoy reading it. I recently heard back that they will use it at some point, but haven't scheduled it yet. Will let you know when they have it scheduled. I continue to be very pleased with the aircraft and am so delighted I converted it over to side-by-side seating. I never thought I would say this (after having built 2 EZ's) but someday I sure would like to build a Mark IV. I am still hoping to be at Oshkosh '95 this summer! It will be my first, but I won't be flying there in my own Cozy. I only wish. In a few months we will be moving to Palau, which is about 1200 n miles west of Chuuk. I am already planning to fly my Cozy there, via Yap. The leg from Chuuk to Yap is 880 n miles and then another 250 n miles to Palau. Between Chuuk and Yap there is nowhere to land, but fortunately a fair number of very small islands (none with airstrips). But at least there is land! I really enjoy receiving the newsletter out here in the middle of nowhere. Best regards to you and your wife.

Patrick L. Colin

Chuuk, Micronesia

March 30,1995

Dear Nat & Shirley,

My Mark IV will be under construction by mid-summer, now that my A&P schooling is finished. My A&P license was obtained via the North Valley Occupational Center of the Los Angeles Unified School District (LAUSD). The school is at Van Nuys airport and the best deal ever heard of. It may be of interest to other Cozy builders to make some bucks working on other people's planes.

Most private A&P schools charge about \$15,000 a year tuition, and it takes about two years of full time schooling to get the airframe and powerplant license. That's \$30,000. But, take the same courses in the tax-supported LAUSD and the total cost to get a license is less than \$500(!), spread out at only \$55 per semester. You can go full time, part time, or all day, evenings and Saturdays. Either way, fast or slow, the cost is the same. This is one of the best kept aviation education "secrets" of all time.

Private schools advertise all the time, and are full of students. LAUSD practically never advertises, so classes are small. For more info, call (818) 785-7511.

Hope to make it to Oshkosh this year in my Cozy-3, or possibly drop in to say hello to you and Shirley sometime. Wishing you both the best of health and good fortune.

Cal VanArsdale

Woodland Hills CA

May 23, 1995

Dear Nat,

Enclosed is the newspaper article about 62 year old Bill Davenport's crash of his Long EZ just off the Santa Monica Airport. The facts are these:

1. Bill decided to convert his Long EZ to a gravity feed system so he removed his fuel pumps.
2. On his first flight, sans pumps, the engine quit on final
3. Instead of landing, he glided the entire length of the runway trying to restart his engine.
4. The engine didn't restart.
5. He hit and demolished a family garage.

Bill was already held in some disfavor by our EAA chapter for his un-neighborly conduct around the airport (high-speed fly- bys, steep-angle take-offs) and he was known to exhibit poor judgement in general. He ran out of fuel on the way to some fly-in and had to put down in a field.

Fortunately, he lived to tell the tale, this time. His injuries were amazingly slight. No broken bones and probably no permanent disability. The plane (a Long EZ) was totaled.

I would only stress that Bill's recklessness is just another nail in the coffin for Santa Monica Airport. There is strong opposition to keeping it open. In every accident report, the press always reprints the list of previous accidents.

It might be in order to remind your builders: (1) Don't mess with the fuel system, and (2) behave responsibly, with the understanding that flying "rights" are actually only priviledges on loan to us.

This accident was no accident!

Liese Aufill

Torrance CA

3/27/95

Dear Nat & Shirley,

My husband, Dan Dahl, and I were delighted to meet you at Oshkosh last summer when we flew there in our Long EZ for our first time at Oshkosh. As you may remember, in addition to buying our Long EZ, we had purchased Richard Bienvenu's partially built Cozy and were beginning that wonderful adventure of building our own plane.

My husband, Dan and my thirteen year old daughter, Sarah Frydman, were killed in the crash of our Long EZ on February 1, 1995. I have enclosed an explanation that I put together for family and friends which you are free to edit in any way for your newsletter. I know that EZ and Cozy pilots always want to know about the circumstances of any crash, so that we can avoid them in the future, and keep our remarkable airplanes as safe as possible.

I have two requests. First, please change your mailing address to me at our home: Jessica Dahl, 155 Preston Oaks Dr., Alpharetta, GA 30202, phone (404) 740-0606.

My second request is to all Cozy builders. It is the intention of my stepson, Eric Dahl, and myself to finish building our Cozy. I have just begun flying lessons, I'm on my second one, and loving every minute of it, and hope to be a pilot by the end of the summer. Eric will also begin training, possibly during his stay with me this summer. However, we need all the help we can get as we attempt to do this without the leadership and direction of my beloved husband. We are currently working on the first layer of micro, and I would love any advice on this process, and on how to put together the avionics for our plane. Also, I would welcome a visit from any and all Cozy owners when they are in the Atlanta area for a little moral support and encouragement. I fell in love with our Long EZ and liked nothing better than to be flying with my husband, and this accident has only reinforced my love of this remarkable act my husband, my daughter, my stepson, and I shared. So if you could get the word out that we need help, I would greatly appreciate it. My stepson and I hope to be at Oshkosh this summer again, and look forward to seeing you all there. Dan and I simply loved you both when we met you. You have a down-home warmth that simply envelops all who meet you, and you have that love of flying we share. If you are ever in the area, I would be honored to have you as guests in my home. Thank you all for your support and encouragement.

Sincerely,
Jessica Dahl

Editor.- The account of the accident Jessica sent us is too long to publish here. In summary, Dan was an ex Top Gun instructor and an excellent pilot. He was helping his stepdaughter, Sarah, with a science project involving the Long EZ. They were measuring acceleration on the runway prior to rotation at different gross weights. The study did not involve flying. For some unknown reason, the Long did not slow down after the high speed taxi run, as expected, but continued at full power the entire 5,100 ft. runway and crashed into a ravine beyond the end of the runway. It is Jessica's firm belief that Dan suffered some physical impairment like a stroke, and that Sarah was unable to close the throttle or ignition switch from the back seat.

March 6, 1995

Dear Nat and Shirley,

Mark IV #218 is coming along fine. Finally got the shop insulated and heated. Started the canard & elevators in February and am glad to say they are very close to being done. EAA chap., #463 asked to have their meeting at our house to see composite construction in progress. We had 28 people in attendance and all quite interested in how strong the fiberglass foam combination was. I was asked a couple of times if the fuselage was pre-fab. I almost took offense, but then realized that your plans are so good, the product just naturally has to look good. I received my electrical switch/breaker panel from [Wayne Lanza](#) and have to complement Wayne on a beautiful job, very professionally built and I would highly recommend builders to contact Wayne and purchase this fantastic component. I liked the panel so well, I ordered the electric speed brake actuator also and it's a great little item also. Looking forward to seeing you at Oshkosh in July. We will be at the 5th gathering of canard aircraft in Oklahoma City in

June. Thanks for great plans and a warm Cozy family of builders and friends.

Kip & Donna Davis
Neesho, MO

May 9, 1995

Dear Nat & Shirley,

It has been over a year since I talked to you. That statement alone is a compliment to your plans as I have progressed through chap. 13 and halfway into chap. 14 and have no questions about any of your very thorough plans and instructions. On a recent business trip to NC, I took the time to visit Aerocad. Jeff was very busy trying to finish his new airplane for Oshkosh, but he took almost half a day showing me various tips and time savers. This morning I sent him an order for the spars and the fuselage top as well as some other pre-fab pieces. I figure I may save almost a year in construction time. Jeff, his dad, and the other employees were super nice people and a great asset to the homebuilder movement. Nat, I am finally going to make it to Oshkosh this summer to meet you and Shirley and to see your airplane. It will be the first time to see a completed Mark IV. My dad is coming with me and is excited too. The last time I talked with you, your suggestion to me was either I lose some weight (330 lbs.) or my bird would be a single seater in front. I am happy to report I have lost over 90 lbs. (.738 lbs.) and within a few more weeks will weigh 225 lbs. which is my ideal weight for my 6'3" frame. Didn't really go on any diet. Just started exercising and took most of the fat grams out of my diet. It was EZ!

Thanks, Gary Dwinal
Lisbon, ME

March 23, 1995

Hi Nat,

Just wanted to give you an update on our progress. We've been able to complete the fuselage through chap. 8. My weight at that point was 92 lbs. That seems to be about 12 lbs. higher than your published weight. I ordered the landing gear and canard, and while waiting to receive them, we've managed to complete the landing brake installation.

[Daryl Lueck](#)

Franklin WI

May 18, 1995

Dear Nat,

I have come across some good companies that offer great products that are helping my building process, and I recommend them to other builders:

(1) Highland Hardware (800) 241-6748 offers a Dustfoe 66 industrial dust mask for \$25. This mask is light, comfortable, and effective. I use it for all my sanding operations.

(2) Klingspor's Sanding Catalog (800) 228-0000 is devoted to really good sanding stuff. Their products cut real fast and last much longer.

(3) Woodsmith Shop Catalog (800) 444-7002 has unique clamps, tools, shop accessories, etc.

(4) Featherlite (our authorized supplier) does good work, despite the appearance of their price list. Ask about lead times (i.e., main landing gear).

Regarding my query about alternate fuel valve locations, you will be pleased to learn that the fuel bracket has been fabricated (after 3 attempts) and is now installed per plans. Thank you for your input.

Thomas Kennedy

Aliso Viejo, CA

Editor.- I must put in a good word for the 3M Co, my employer of 30 years. They make a complete line of the highest quality sandpaper, including wet or dry, from 36 to 2000 grit, and buffing and glazing products to go beyond that, inexpensive dust masks, every kind of tape imaginable (including the copper tape for antennas), glass microspheres, weather-stripping, and many other products we use in building airplanes.

March 3, 1995

Dear Nat,

Here are my MKIV unfinished weights as of today:

Center section spar	48 lbs.
Fuselage on gear (no canopy or strakes)*	242 lbs.
Canard & elevators	33 lbs.
R. wing w winglet & aileron	69 lbs.
L. wing w winglet & aileron	68 lbs.
Turtle deck w glass	12 lbs.

Total to date	472 lbs.

Includes seats, arm rests installed, control system, nose complete, brakes, but no canopy or strakes. It's been much too cold to work the last 6 weeks, but will be back at it as soon as spring appears. Should be to "finish" stage later this year. Hope you are well.

David Domeier

Chesterfield, MO

June 3, 1995

Aloha, Nat,

Can a year already be PAU (Hawaiian for `finished') on my subscription? It seems like just a couple of months ago that we got the plans! Anyway, please renew my subscription so I can keep up with any changes you have to report. I haven't started working on my Cozy IV yet, due to my computer dying and trying to save up to buy a house. I hope that in the near future, my son and I will be involved in BUILDING, instead of just dreaming. I have seen Bill Denise's Cozy at the Kailua-Kona airport, and I was impressed. His workmanship really shows in his airplane. He has recently flown off his restricted hours, so he should be sending you an update or notice of completion pretty soon. Thanks for designing a great dream machine. Have a good summer. Take care, and God bless.

Gary Lyons

Kamuela, HI

March 26, 1995

Dear Nat,

Just received another excellent newsletter, and need to send in my renewal. I thought this move to SD was going to be retirement, and plenty of time to finish the COZY, but guess I'm too easily distracted. Have enjoyed working with my brother on an operating ranch, and lately am getting involved in land

surveying. A little supplemental income is helpful, but I'm still going to dedicate time toward completing the dream bird. The letters in your newsletter of the satisfaction of first flights is a real motivator. I pondered over adjustable rudder pedals, but didn't want to go to the expense or weight of the type in the Mark IV. So I made a 2" extension of both pedals from foam, with a brace extending down the shank, glassed overall, and cotterpinned to the shank to hold them in place.

After performing and paying for the maintenance on the landing gear of my son's Mooney during the last annual, I certainly agree with your perspective on retractable gear as stated in Newsletter #49. In fact, I've shared that feeling all along, that retracts are neat, but they add weight, cost, complexity, and risk of forgetting to lower them, and to me the extra speed is not that critical. Keep up the good work and hope to see you at Oshkosh

Marv Bishop,
Hermosa, SD

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[\[Newsletters\]](#)
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