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# COZY NEWSLETTER #48

## January, 1995

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We are sending this newsletter out early so we can wish you:

## MERRY CHRISTMAS

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### WE NOW HAVE A FAX ON LINE

We now have a fax on our phone line. If you wish to send us a fax, call us. When we hear the beep, we will start the fax machine. If our answering machine picks up the call, after the beep, press \*51 and it will activate the fax machine.

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### OUR WINTER SCHEDULE

We will be visiting family over the Christmas holidays and might be hard to reach, but if you leave a message on our answering machine, we will answer at our first opportunity.

In January, we will be on vacation from the 8th to the 22nd, but there will be someone here to answer the phone and the mail. Then starting the 31st, I have been summoned for jury duty. If selected, I may only be available evenings--we'll just have to wait to see what happens.

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## WHAT WE HAVE BEEN DOING

The last weekend of September Mark Cook and Mike Fizer from AOPA Pilot magazine visited us. They were doing an article for the magazine on canard type aircraft. We let Mark fly the Mark IV and then went on a photo flight so they could get some air-to-air photos. Mark seemed really impressed with our airplane.

We were invited to attend the fly-in at Brown Field in San Diego over the weekend of October 14th and participate in a Designers' Panel. It was the first time we had visited San Diego in many years. The Todd Morgans toured us all around the city, including North Island and then took us to their favorite Mexican restaurant. We met a number of our builders, and [Keith Spreuer](#) and the Strongs flew in with their Cozys.

The next weekend Cozy builders Liese Aufill and Mike Brown dropped in, and we took them flying.

Then Jim Campbell, of U.S. Aviator magazine, stopped in for a visit and also a photo flight. Jim said he plans to do a flight test report on the Mark IV in the April (Sun 'n' Fun) issue. We were asked to contribute a chapter on composite construction for his 1995 SportPlane Resource Guide, which we did. The book will be available shortly in newsstands for \$39.95.

November 6th we were invited to and attended the wedding of Cozy Mark IV builder [Sid Lloyd](#), at Sedona AZ. If you remember, Sid proposed to his future wife Mari in front of our Cozy at Sun n Fun last April, with local news photographers and TV reporters documenting the event, while an airplane towed a banner overhead saying, "Mari, will you marry me? Sid."

Copper State Fly-in this year was at Williams Gateway Airport, only a few miles away from our house. We invited as many Cozy people as we had room for to stay at our house. The Petersons, Atkinsons, and Morgans accepted our invitation. As it turned out, the weather was inclement, but not as bad as it looked on the satellite. It only rained on Saturday morning, and was sunny in the afternoon and the other 3 days. But the weather did discourage many out-of-town builders. The Strongs (from California), the Morgans (from San Diego), Brian Scott and Brian Giesler (from Scottsdale) flew their Cozys in, so we were pretty well represented. A number of builders stopped by and there was a lot of interest in the Mark IV. Williams Gateway (an ex-Air Force Base) was a great location, and we hope the permanent site for Copper State. It has 3 parallel runways, each over a mile long, and acres of concrete ramp for tie-downs. And most of the time the weather is perfect. We had a great get-together to commemorate the end of the '94 fly-in season.

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## ROUGH RIVER

We were not able to attend, but Vance Atkinson sent us this report:

Here's what happened at Rough River. We had about 30 aircraft and 120 people. The weather was good, except for rain all night Saturday. Sunday dawned with early morning fog, clearing by 9 AM. However, when we arrived on Friday, it was almost like Oshkosh. About 7 of us in the air at once, all trying to land, with a disabled Long EZ on the runway. Yes, it seems Bob Davenport forgot to put his gear down plus flying way too slow (wing rocking, confirmed by several witness), and dropped in from 10 to 20 feet high. The nose section seemed OK but the pivot point on the nose gear was damaged along with his wheel pants, heat shields, brakes, etc. on the main gear.

It worked out and all of us got in with minimum fuss, except Ken Francis. He and Herb Sanders were together in Ken's Cozy, with Herb flying. They had to go around 3 times. Ken was in the right seat and didn't want to land it from that side, so he made Herb work harder until he finally got it down. We even had a Defiant land Friday evening when it was dark. We couldn't believe somebody would come in there in the dark with lots of hills around, but he did.

There were 6 Cozys so we made a pretty good showing. I met with the fellow who is making a nose gear lift for me. It's not done yet. He is going to send it in two weeks for me to try out. Looks very substantial and should work OK.

Everybody enjoyed themselves and soon it was time to leave. That brings me to the really bad news. Jack Fehling and John Hays left in their VariEze and Long respectively to fly on to Florida. John never did show up there. When I walked in to our house, the phone was ringing off the hook. It was Betty, John's wife, telling us he was about 5 hours overdue.

That was last week and still no sightings. He is down somewhere near Gadsdon, AL (about 100 mi. west of Atlanta), where it's very heavily wooded. Ken and I and Herb flew back to Gadsdon the next day to help in the search, but to no avail. The CAP, Hiway Patrol, Sheriff's Squadron and FAA have been notified. All have been searching for the last 8 days . . . nothing. John was last seen flying between layers at 3500' just north of Gadsdon. Farther south about 100 mi. the weather was good. So he has to be down in that area somewhere. John's EZ won the Wright Brothers award several years ago and he was a private pilot with no instrument ticket. I wish he had returned with us to TX like he was considering.

Are you going to have a 1000 hour club for the Cozys? I think it would be a good idea, especially since I'm approaching it fast with 920 hours.

Well, that's it for now. I'm installing my 3rd generation electric trim; you'll be able to see it at Copper State. Pretty simple system if a body decides he has to go electric.

---Vance

*Editor.- As of this writing, John and his Long EZ have not been located.*

## NEWS FROM JOHN STAMPER IN ENGLAND

Many of you will remember several years ago at Oshkosh that John Stamper, from England, spoke at our forum about his flying experiences --- and what an entertaining speaker he was! We visited him in '87 when he was building his Cozy. At that time he had only 40 hours of flying logged, all in an ultralight. Now he has logged over 800 hours in his Cozy, and has flown all over Europe. He recently modified his Cozy, installing an O-360 Lyc. He published a letter in the Cozy Europe Newsletter describing his flying trip with his girlfriend Zoe to Courchevel in the French Alps. It didn't sink in when I first read it, but the runway there is at an altitude of 6368' and rises to 6581' in its length of 1755'. That is a rise of 213' in 1755' for an average grade of over 12%! The Jeppesen chart shows it starts out at 12.5%, increases to 18.5%, and then levels out at the top. Can you believe this? Landing is uphill, and takeoff is downhill. He writes:

We flew to the French Alps on Saturday, but thunderstorms prevented us landing at Courchevel. However, it was fine on Sunday so we went again. You will see from the Courchevel page that it is an interesting airport. Landing (uphill) was no problem, but would the Cozy take off in time???

We had 86 lbs of fuel, Zoe, myself, and our baggage. The outside temperature was 58F and the apron was 6581' altitude. The initial slope is 18.5% downhill, so you are committed to roll. Whether you reach flying speed before the end of the runway is another matter!

Power checks at 2000 rpm, lean to peak power, line up, then wait two minutes watching the approach in case anyone is out of sight, below, landing. Full throttle, I guess it's similar to ski jumping, 65 kts IAS, rotate, and we're off. Fantastic!!!

After a 30 min. flight (or was it a glide) we landed at Chambery and had lunch. What a lovely airport and helpful people! The airport was deserted except for the restaurant which was busy with local people and was very reasonably priced even for us impoverished Brits.

The flight back to England was uneventful until we got to Humberside. There was a line of thunderstorms which I picked up on the Metcom. They stretched the full width of the country. We diverted East and flew at 500 ft. along the east coast. Zoe kept tightening her harness. When I glanced at her she smiled, but when she thought I wasn't looking, she wasn't smiling! At one point she asked what would happen if we were hit by the lightning. "We'll probably explode", I honestly, but not very reassuringly, replied. A few miles later we turned inland and landed at Teeside, first seeing the airport when downwind at 500 ft. It's the only time Zoe has ever wanted to be on the ground. After about an hour, it cleared and 23 minutes flight time later we were home.

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## PUBLICITY

We monitor the completions reported in Kitplanes and Sport Aviation, and noted that Vance Atkinson appeared in September Sport Aviation, and Dewey Davis followed in October. Also, David Higgins had a nice spread in the Miami and also his home town newspapers. Nice going, guys! You all get a renewal to your newsletter, our compliments!

## Publicity Addresses

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### OUR COMPETITION ?

The question we are asked most often is: "How does the Cozy Mark IV compare to the Velocity?" We explain that the Cozy Mark IV is "plans built," whereas the Velocity is "kit built," and that the EAA recognizes these as two separate categories. Competition for the Velocity would be other kit-built, 4-place airplanes, like the Express, the White Lightning, the Prescott Pusher, Lancair IV, etc. We don't know of any plans-built, high-performance, 4-place airplanes, other than the Cozy Mark IV, so we feel that we have very little competition.

We explain that building from plans saves a lot of money, it allows one to budget the cost rather than paying for everything upfront, and it provides the satisfaction of building the entire airplane oneself. It also allows more creativity (not necessarily an advantage from the designer's point of view). If people still insist on a comparison, we say that in addition to being much less expensive, the Mark IV is about 200 lbs. lighter, at least 10 mph faster, is easier to get into and out of, has much more visibility, and has full dual controls, with two side control sticks, rather than just one center stick. Also, the original designer still provides the builder support.

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### FIRST FLIGHTS

We continue to hear second or third-hand about Cozys that are flying that were never reported to us. How about more first flight reports and pictures? Here are some we know about:

1. Jean-Yves Gil, France - Spring '94.
2. Philippe Sergent, France - Spring '94
3. Bruno Perktold, Austria - May 5, 1994
4. Rick Cahill, Columbus OH - April 15, 1994

10/5/94

Dear Nat & Shirley,

I thought I'd send a note concerning N624RC. After 7-1/2 years not full time construction, Cozy N624RC took to the air on 4/15/94. What an exhilarating ride! Thank you, Nat, for a great airplane. The first flight was a real shakedown flight so to speak; after running it on the ground for over 5 hours, the 1st flight was a short 15 minutes. It was not without incident.

After making a circuit of the strip, and staying below the ceiling of the ARSA, I made my way to its new home 10 miles away. Everything was fine and then I began to get a slight roughness that began to shake the entire plane. I pulled off some power and bled some speed and things got better, so I continued on to my new home. It again got rough, so I pulled off more power, but the roughness never went away completely. I got the plane safely on the ground and began to check what was wrong. I found a stuck valve. I had purchased four 200 SMOH cylinders thinking I'd have to top overhaul my 150 hp Lyc eventually, but never dreamed it would come after the 1st flight. Ugh!

We found a crack in the top of the cylinder and decided to overhaul the engine. Time on the engine was 1780 SMOH, so after 15 minutes I'm overhauling it. In the process of overhauling, we found a gouge in the crankshaft that couldn't be removed, so I had to buy a new crankshaft. I also replaced the cam, piston pins, and other parts.

The Chevron fiasco has dried up a lot of parts for engines here in OH, especially for us little guys. I hope to get back in the air shortly. Again thanks for a great design, Nat. For those of you still up to your armpits in foam dust and epoxy resin--hang in there and keep at it!

Sincerely,  
Rick Cahill

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## ACCIDENTS/INCIDENTS

The purpose in investigating and reporting on accidents and/or incidents is to try to determine the cause and share this with our builders in the hope that it might save someone else from having a similar occurrence.

We were very saddened to learn of the fatal accident of one of our Cozy builders and friend, James Edwards, at Skull Valley AZ on September 21, 1994. We had printed a picture of his newly completed Cozy and his first flight report in our last newsletter. Jim had done his initial flight testing at Love Field in Prescott AZ, which has a nice, long, wide, hard-surfaced runway. Shortly after he wrote to us (he had logged 7.5 hours of flight time then), he decided to fly his Cozy to a strip at Skull Valley, where he had a hangar, to do some work on the aircraft. The private strip (we would not describe it as a runway) at Skull Valley is close to 5000' elevation, is dirt and gravel, is less than 3000' long, is quite narrow, and is surrounded by desert brush. It is noted for its squirrely cross winds. It might be okay for ultralights, but definitely not suitable for a high performance aircraft, even with a highly proficient pilot.

Cozy builder Ken Baer, Long EZ builder Harry Bawcom and the writer helped the FAA investigate the accident. The Cozy was not lined up with the strip prior to touchdown, and should have gone around. Instead, it touched down in the brush to the right of the strip, in a left bank, evidenced by the left lower winglet dragging on the strip. Shortly after touchdown, the nose gear collapsed (but not the main gear). Power must have been on, because the aircraft traveled 114 yards on its nose through the brush until the left wing struck a large clump of mesquite, which tore off the wing, ruptured the fuel strake, and flipped the aircraft upside down. The engine must still have been running after the airplane overturned, because both blades of the propeller were broken off near the hub. The spilled fuel ignited and the aircraft was almost totally consumed in the ensuing fire. The lessons to be learned:

1. Do not attempt to operate a Cozy off a short, unimproved strip.
2. If you are not lined up with the center of a runway, abort the landing and go around.
3. If you have to make an off-field landing, cut the master switch and ignition switch prior to touchdown.

From the Cosy Europe Newsletter.-



Cozy OE-CYZ, built by the Perktold family in Austria, was being flight tested by an experienced pilot, Valentino Fry. All systems were working well and the new Cozy was flying as advertised. It was noticed, however, that once in a while, after periods of idle throttle, the throttle would stick. The throttle cable was checked and rerouted. Also, the carburetor was removed and overhauled at a certified overhaul shop, but no problem was noted. The carburetor was reinstalled on the engine and the cable checked for freedom. Everything seemed OK. Valentino then test flew the Cozy for over 1/2 hour with multiple power changes from full to idle with no problem. He re-entered the traffic pattern at Innsbruck, and was instructed to extend his final because of other traffic. On his extended final, he tried to add power, but nothing happened. He couldn't make the runway or clear a river just before the runway threshold. His only choices were a small cornfield and a small patch of grass. He slipped the Cozy down to a hard landing in the cornfield. The nose gear collapsed, the main gear was torn off, and the Cozy slid onto the grass, coming to a stop about 15' before the trees lining the river. Luckily, the pilot walked away with shaky knees and only a few bruises. Afterwards it was found that the throttle was stuck in idle, and it took a lot of force to free it. Once freed, it could be moved back and forth, but if it was left still for a while, it was hard to move again. The reason for the throttle sticking, if determined, was not reported.

Lessons to be learned:

1. Do not fly the airplane if there is any question about whether the engine is working properly.
2. On the first flight after engine work, stay in the pattern and maintain enough altitude to make the runway if the engine quits.
3. On approach, clear the engine periodically by applying power.
4. If you have an engine failure at low altitude, land straight ahead.

From the Cosy Europe Newsletter-

Cozy builder Jean-Yves Gil, in France, was burned while refueling his new Cozy F-PGJY. He was fueling his airplane from a plastic canister. During the process, a static electricity discharge ignited the fumes, starting a fire. Yves managed to extinguish the fire in seconds without damage to his airplane. However, he was burned so badly that he had to be admitted to the hospital. He has been released from the hospital and is recuperating.

The lesson to be learned:

1. Always use approved grounding and bonding procedures when fueling an airplane (See following article).

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## AVOIDING FUELING FIRES

Fueling fires are caused by a static electricity discharge during the transfer of fuel. We all first learn about static electricity in high school physics when the Van de Graaff electrostatic generator is demonstrated. An insulated belt is used to transfer electrons from ground to an ungrounded object. A potential of millions of volts can build up, and the inevitable result is a lightning-like electrical discharge to ground.

Fuel is a non-conductor, and a stream of fuel can transfer electrons from ground to an ungrounded fuel tank and build up enough potential on the surface of the fuel to cause an electrical discharge. The way to prevent the static build up is to provide a conducting path for the electrons back to ground. This is done by attaching a braided wire or chain to the fuel cap, with a restrainer so it can't be pulled out of the tank, and long enough so it will still reach the bottom of the tank when the cap is removed. This gets the electrons off the surface of the fuel up to the cap. You will also have to connect the cap to the fuel nozzle, which is normally grounded. We do this with a short length of wire with alligator clips on both ends. The grounding wire is connected to the fuel nozzle before the nozzle is inserted into the filler neck.

It is not good practice to transfer fuel from gas cans, but if this is necessary, always use a metal can, and connect the grounding wire to both the cap and the can before transferring any fuel. Bonding is connecting all of the elements together electrically, and grounding is connecting everything to ground. If everything is bonded, and at least one is grounded, then they are all grounded. If you follow this procedure, you should never have to worry about a fueling fire. If you don't, sooner or later you will have one.

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## FUEL TANK VENT LEAKS

CP 79 (RAF Newsletter) discusses a problem experienced by Long EZ builders of fuel leaking out of the fuel tank vent when their aircraft are parked nose down in the sun with full fuel tanks. This occurs if the tip of the vent inside the tank is submerged in the fuel and the air above the fuel expands, forcing fuel out the vent. If the vent terminates on top of the fuselage, the fuel runs down the top of the fuselage and into the cockpit. The suggested cure was to run a second vent line from the aft top corner of the tank. The problem with this solution is that if you take off with full tanks, as soon as the tanks are pressurized in climb, fuel will be forced out through the submerged aft vent. We prefer to run the vent line up to the top of the firewall and then down the other side, exiting through the cowling up underneath the strake. Then, if the aircraft is parked in the sun with full tanks, at least the fuel won't run down on top of the airplane. This solution has the added advantage that if the airplane is involved in an accident and overturns, the fuel will not run out the vents onto the ground and increase the likelihood of a fire. We usually don't fill our tanks until we are ready to leave, and we only fill them all the way when we are leaving on a maximum duration flight.

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## PROP 6" EXTENSIONS

The final conclusions on the 6 inch prop hub extension failure on a 0-360 Lycoming powered E-Racer, after discussions with Lycoming, examination of the failed extension, and in-flight vibration tests by Mike Melvill are these:

1. The 4-cylinder, 180 hp Lycoming has particularly harsh power impulses. On Mike's 0-360-powered Long EZ with a Great American propeller, the torsional (twisting) stress on his 6 inch prop hub extension increased dramatically above 2700 rpm and reached a peak at 2770 rpm.
2. The failed extension failed in fatigue, and the geometry of the break suggested that there may have been a bending load on the flange.



3. The failed extension had a number of strikes against it. The radius between the barrel and prop flange was only 3/32", there were tool "chatter" marks in this radius, the change in inside diameter coincided with the beginning of the prop flange, and the change in inside diameter also had a sharp radius.
4. The Woofter extensions, by contrast, have at least a 1/4" radius at the prop flange, no tool "chatter" marks, a clever "S" curve transition of I.D.s, and the workmanship is first-class. It has been judged to be much stronger and more resistant to fatigue failure.

Both Aircraft Spruce and Wicks Aircraft use Woofter as a source for prop hub extensions, and as of now, Brock Mfg. will also. Woofter extensions may be ordered from any of these suppliers, or directly from Woofter, 1951 NW 84th Terrace, Pembroke Pines, FL 33024. Phone (305) 436-9496.

We (and also Lycoming) recommend that you do not operate the O-360 Lycoming above 2700 rpm. Of course, this also applies (even more so) to the 10-360 engine, which is not recommended for the Mark IV. It follows that you should not have more than .002" runout on the extension propeller flange, the propeller should be balance statically, not be out of track more than 1/16", and both blades should be identical. Dynamic balancing the propeller assembly is desirable.

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## COMPONENT WEIGHTS

We regret that when we were building our plans model Mark IV we did not record the weight of each of the components, but just the finished empty weight without upholstery (1050 lbs.). Cosy Europe has published weights supplied by one of their builders for their 3-place Cozy. We have adjusted these slightly for our 3- place Cozy and then extrapolated them for the Mark IV. The following are our estimates in pounds:

ITEM	3-PLACE	4-PLACE
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Fuselage (end of Chap. 8)	74	80
Center section spar	30	40
Wing w/o winglets or ailerons	47	52
Aileron w/hinges, torque tube & universal	5.2	5.5
Wing w/controls (end of Chap. 19)	54	59.3
Upper winglet w/antenna & coax	5.8	5.8
Lower winglet	1.2	1.2
Wing w/winglets (end of Chap. 20)	66	71.3
w/o elevators	24.8	24.8
Elevator	4.8	4.8
Main gear w/o wheels	27	37
Turtleback w/side windows & bulkhead	16	16

If you send us your component weights, we will keep a file and publish the results in a later newsletter.

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## REVIEW OF MANDATORY MARK IV CHANGE

The only mandatory design change for the Mark IV is the one we explained in Newsletter #44 and reminded you of again in Newsletter #45, namely to shorten the canard span by 6" from the 147" shown in Fig. 1, Chap. 10, p. 1 of the plans (3" from each tip). The elevators will have to be shortened by an equal amount. If you have not built the elevators yet, the outboard counterweight, CS-10, may be relocated so that it is 3.4" from the end of the elevator after shortening (see Chap. I 1, p. 2). This would put it inboard (rather than outboard) of the outboard hinge. We found in our flight testing that with the lower winglets installed, as shown in the plans, our Mark IV would not stall within the approved cg range with a safety factor on the aft limit of 1.2". The lower winglets are necessary because they contribute toward protecting against main wing stall as well as providing lateral stability when maneuvering at high angles of attack, which is important in landing and takeoff. An added caveat is that the lower winglets protect the rudders (and prop) from damage should you ever tip your aircraft over backwards (believe it or not, this can happen!).

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## OERTEL EZ LIFT

Not everyone appreciates an airplane that parks on its nose (a "nose dragger"), but for one of our builders, it was just the ticket. You may remember that Dr. Charles Larson, in Avon Park, FL was the 2nd to finish building a Mark IV Cozy. His wife, Sandy (a very charming lady) likes to fly and they have relatives Michigan, California, Nevada, and Utah, so they could make good use of a comfortable cross-country airplane. There was one problem, however, and that was that Sandy has multiple sclerosis, and uses a wheelchair. An airplane which parks nose-down was the perfect solution. Chuck installed an Oertel EZ Lift in the nose. He helps Sandy in, then folds and puts the wheelchair in the back seat, climbs in himself, pushes a button, and the nose lifts automatically. This is a very clever way for both of them to enjoy their love for flying even though Sandy has a serious illness.

The EZ Lift is an electrically powered ballscrew actuator which replaces the retraction mechanism shown in the plans. It will lift a fully loaded aircraft with pilot and passenger buckled in. Depending on the model, cost is either \$800 or \$1,100. For more information, contact Bill Oertel, (909) 734-7569.

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## ELECTRIC PITCH TRIM

Most of you know that Vance Atkinson, who has almost 1000 hours on his 3-place Cozy, is an experimenter. He has a very fast Cozy, and one of his projects has been to evaluate various designs for pitch trim. He wanted a design which would relieve all stick pressure over the full cg range and the full speed range of his Cozy. He has evaluated both mechanical systems and combinations of mechanical and electrical systems. He now believes he has designed the perfect system. It consists of an electric Motion System ballscrew actuator which positions a spring loaded piston attached to the elevator pushrod (see his schematic attached). He says the actuator costs \$200, and the rest of the parts can be made by the builder, or, for a price, he can supply any or all of the parts. If you need more information, give him a call at (817) 354-8064.

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## RAM AIR FILTER HOUSING (3 & 4 PLACE)

The 3-place Cozy plans show the carburetor air filter located on the firewall (as per the Long EZ) and a rather torturous path for the air to the carburetor. It was subsequently learned that if the filter were located in a housing directly below the carburetor and exposed to ram air, higher manifold pressures, more horsepower and more engine rpm's were obtained. The challenge was to make the housing compact enough to fit inside the cowl and also provide for alternate carburetor heat. The details were worked out and our design was tested on both our 3-place and Mark IV Cozy's with excellent results. The air box design is shown on drawing M-35 of the Mark IV plans, and we asked Feather Lite if they could provide it as a pre-fab kit. They made molds and sent us one of their first kits. They did a beautiful job (much better than the ones we made ourselves)! It will fit either the 3- or 4-place Cozy's. By making it as a kit for builders to assemble themselves, they were able to keep the price down to just \$150!

At that price, it is a real bargain! Ram air plus a 4-pipe exhaust system will give you more power and faster speed. Incidentally, don't consider any other exhaust system than the 4-pipe system supplied direct by Custom Aircraft (619) 276-6954.

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## ENGINE KITS BY SUPERIOR?

The latest news from Superior Air Parts on their progress in marketing an O-360 engine kit is that they are in production on cylinder assemblies and looking for sources to sub-contract crankshafts and crankcases. We will keep you informed on their progress.

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## MARK IV CHANGES/CORRECTIONS

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## BUILDER HINTS

1. When we installed our Garmin GPS unit a couple of years ago, we decided to evaluate locating the antenna in the nose. We mounted it just under the nose access panel, with the tip of the antenna about 1/4" below the top of the fiberglass panel. It has worked really well, picking up the full complement of satellites (7 or 8) with good signal strength. This is an ideal location because it is hidden and requires a minimum coax cable run.
2. We mounted our transponder antenna in the nose, as well, with the probe sticking through the bottom of the fuselage. Sometimes, when flying away from a station, Center will tell us that they lost us. We suspect the engine might be blanking out the signal, because if we make a turn, they pick us up again.
3. We are very pleased with the "New Technology" battery we purchased from B & C (Bill

Bainbridge). It is completely sealed. Bill hasn't explained how it works, but it is neither gel-cel nor lead-acid. It has much lower internal resistance than other batteries, so it really packs the power. Even when I can hardly pull through my 0-360 by hand, it really turns it and the engine starts after a couple of blades.

4. I read somewhere that if you have a fuel stoppage in a carburetor, you can keep the engine running with the primer.

## 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 \$38, 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. 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 Cuften, 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 \$250. 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 \$375. 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. Two Hendrickson propellers, H62 L.66 never used, one maple and one birch for 108 to 118 hp Lycomings in Cozy or Long EZ. \$500 ea. OBO Contact Gerry Greer (206) 364-4313.
10. Sterba propeller 64 x 66 for 0-290, Ellison throttle body EFS-3, RST Intercom w/headsets, Sporty flite computer. Reasonable. Lost medical & sold Cozy. (815) 399-0340.
11. Choice building lot at Voyager Village fly-in resort in Northern Wisconsin. Lot is along the 13th green of a 27 hole golf course and 1500' from a paved runway and country club. It is close to swimming, fishing, tennis, riding, etc. \$10,900 OBO. (602) 981-6401.
12. Plastic Control Stick Grip. Black matte finish, contoured to fit hand, specify I.D. \$15. (909) 795-6528.

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## Feather Lite PRODUCTS & PRICING

FeatherLite sent us a list of their current pricing for 3-place and Mark IV components:

item	Cozy	Mark IV
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Main Landing Gear	\$349	\$560
Nose Gear	63	63
Strut Cover	20	21
Nosewheel Well	20	28
NG30 Cover	21	21
Nose Cone w/Door	....	70
Engine Cowling Set	327	399
Kevlar Cowling Set	407	.....
Turtleback	259	334
Pre-cut Wing Cores	1249	1299
Pre-cut Canard Core	180	190
Strake L.E. Kit w/blkhds	524	540
Sump Blisters	20 ea.	22 ea.
Arm Rest Kit (front & back)	....	196
Keel & Ldg. Brk. Covers		44
Wheel Pant Set	180	....
Carb Filter Box	....	....

Discount available on some part combinations.

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## LETTERS

Dear Nat,

I'm 99% sold on building a Cozy. I'll probably purchase plans in December and begin construction in the spring. I work as Chief Pilot for Million Air Atlanta and do maintenance when I'm not flying. Our maintenance contractor has agreed to give me space for the project and full access to the workshops.

I gained quite a bit of confidence in composite construction in a recent incident. A friend checked me out in his Long EZ. I flew the second flight after nose and main gear service. On the first touch and go, the nosewheel fork broke off! I was able to lift off, crank up the stub and land gear-up. After sliding about 30 yds on the nose, we found a relatively small area ground off the nose with a maximum depth of one inch. Amazing! Upon later inspection of the nosewheel assembly, it swiveled freely (no shimmy dampening)!

Brian Wilson  
Chamblee GA

11/13/94  
Dear Nat,

Saw a fabulous example of your design at Sun 'n Fun in '93. Can't resist getting a little closer to messing up my shop with all that foam and epoxy and glass stuff. Please send your information kit. And thank you for keeping the homebuilt movement alive by offering the opportunity to build a modem performance aircraft from plans vs. offering another out-of-sight \$50,000 kit!

Bill Gough  
Marietta GA

10/3/94  
Nat & Shirley

Please extend our newsletter. We also want to extend our appreciation for your efforts to provide an excellent airplane design and plans. You should be very proud of the results of your work.

I'm looking forward to seeing the prototype Cozy in the EAA museum. It is a great @g you've done and we are dam lucky to be able to benefit from your efforts.

Paul Comte  
Wauwatosa WI

7/15/94  
Dear Nat,

I put a deposit down on a partially completed Mark IV. I had the plane inspected by an experienced builder and it had some serious faults, so I did not go through with the purchase. I thought you might be



interested in a couple of comments on what can happen when things go wrong in a canard (none of these were Cozy's).

A good friend took off in a Long EZ with an unlatched canopy. His canopy flew open, but was not torn off. The plane seemed to fly fine so he merely reached up and was able to close the canopy without much trouble. He landed and found that there had been some minor structural damage.

I talked to another Long EZ pilot who showed me his plane that had experienced a water landing. He was flying down the east coast, above the clouds at night, returning to his family for Christmas. His engine quit. He reported his predicament to the controller, and was given a heading to the nearest terra firma. He descended through the clouds without his vacuum operated artificial horizon working. He knew the plane was very stable at slow speeds, so he slowed down and let the plane fly itself through the clouds. He emerged from the clouds and saw city lights in the distance. His good glide ratio almost got him to the city, but he could not make the airport. He chose a dark spot between the lights to put down. It turned out to be a river.

On touchdown, he said, the engine has an incredible tendency to come around. His plane flipped over, and the water crushed the canopy, bursting inside. He took a deep breath, expecting to have to break out and swim to the surface, But the plane flipped over again and coasted to a stop upright. Once stopped, it made a fine boat. The plane suffered only minor damage.

Rescue helicopters came and he signaled them with a flashlight. They rescued him from the floating plane. The next day the plane was found with other debris against a bridge trestle. By that time, there had been significant damage.

After talking to him, I started looking for a Defiant. It didn't take too much time reviewing the Defiant to decide it was not for me; but I will certainly take good care in babying the one powerplant I end up with.

Todd Winigar  
Salt Lake City UT

10/28/94  
Dear Shirley & Nat,

Greetings from Florida! Things have been real busy around here lately. I'm happy to report that the sales of my power panels have been very good, and I've received a lot of compliments on the Mark IV panels. I just shipped the first batch of semi-custom panels to Aircraft Spruce. So far I've shipped 30 units. Don't know if any are flying in Mark IVs yet, but 5 are in Velocities. My Cozy hasn't gotten much attention. Wanted to finish it for Sun 'n Fun, but I'm not taking any bets. I hope to have my engine rebuilt and started finishing by the end of this year.

Safe flying to all,  
[Wayne Lanza](#)

11/25/94  
Dear Nat,

I've been receiving the newsletter for 3 years. Time to stop dreaming and start doing. Send me the plans.

I'm very aware of my error in not starting this years ago! Engines are not getting cheaper, renting is not convenient, to say nothing for the condition of rental birds; and newer-production equivalent performance stuff is too far out of my financial range.

I liked your mention of the EAA Young Eagle Program. Our Chapter One is very involved. We provide a Young Eagle flight rally the second Saturday of every month except December at Flabob Airfield, Riverside, CA. As of now, we have flown 1,141 children. Our largest group was 182 children in Nov. '93. Starting at 0800, we were all done by 1300, including a video introduction, a short ground school, preflight walk-around, and flights where most got to handle the controls. The kids were from all walks of life, organizations, neighborhoods, and groups. We even had children from a local probation department. We had a special rally in September for handicapped children. It was a great success. We have a wonderful group of pilots and ground support personnel.

No one in Chapter One has a Cozy to participate though, so I guess I'll have to do it. Maybe by 2003 some kids from the Inland Empire will fly in a Cozy Mark IV.

Joe Heagerty  
Mira Loma CA

10/25/94  
Dear Nat,

I finally got to see the Mark IV in real life at Brown Field. You have designed and built a beautiful, go-fast air machine. Congratulations! I would love to start building tomorrow but have to get my finances in order first.

My wife Judi and I would like to fly to Mesa some weekend and look at the Mark IV again. It is exactly what Judi and I need, a fast cross-country machine with plenty of range and useful load for 2. We have family all over the country and could see them more than once every few years.

I'm working at Edwards AFB on the B-1B flight test program and a member of Chapter 1000 there. With a full time job I'm estimating a 4 year build time for the Mark IV Am I close to a valid number? Thanks again, Nat, for bringing your Cozy to Brown Field.

Paul Hoynacki  
Hisperia CA

*Editor. You are welcome to come here to look at and fly in the Mark IV. If you are really serious, it shouldn't take more than 2 years to build.*

10/30/94  
Dear Nat,

It is hard to believe it has been almost a year since I ordered my plans! Your newsletter is very well written and I forward to reading it every quarter. My wife, Kris, is always commenting on how "those

Cozy people seem so nice!"

I've been overseas on business for most of last year, but have managed to make a little progress on my project. I am working out of a small utility building in my backyard and really do not have enough space. We are planning to build a two car garage next year and I should start moving much faster then.

Composite construction is a new experience for me and it is much easier than I expected! I am using the RAE epoxy system with Ply.-9 and no gloves. I have had no reaction, easy cleanups, and no odors.

Lee Dillingham  
Rock Hill, SC

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## CALENDAR

- Jan. 28 - Aircraft Builders Conference sponsored by Kitplanes & Aircraft Spruce at Chino CA Airport. (714) 855-8822.
- March 3-5 - Casa Grande, AZ - 37th Annual Cactus Fly-in. (602) 641-7467.
- April 9-15 - Lakeland, FL - Sun 'n Fun '95. (813) 644-2431.
- June 9-11 - Oklahoma City, OK - 5th Canard Airplane Gathering. (405) 946-5003.

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*Thanks to **Tom Barclay** for the transcription and editing on this electronic version of the newsletter!*

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