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COZY NEWSLETTER #40

January, 1993

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ANNIVERSARY ISSUE

This newsletter, #40, marks the 1 - year anniversary of Co-Z Development. Little did we imagine, 10 years ago, when we completed the first 3-place Cozy and flew it to Oshkosh that we would be involved for the next 10 years selling plans and supporting builders, first for the 3-place Cozy, and then for a new 4-place design. Since then, we have sold 800 sets of plans for our 3-place and now almost 200 sets of plans for our Mark IV. We first became involved with the EAA back in 1973, when we started building a BD-5, which (fortunately) never flew. We started attending Oshkosh that year and haven't missed a year since. The bad experience with the BD-5 influenced us to switch to a Rutan Varieze, and we were hooked on composite canard designs ever since. The Varieze was completed and flown to Oshkosh in 1978, and we have since built and flown to Oshkosh three other canards of our own design. We are grateful for the reception our 3-place Cozy and how our Mark IV was received, and for the many new friendships made as a result of these designs. We are fortunate to have so many fine builders and friends, and we wish all of you a most successful and safe New Year! We hope to continue to support you, our builders, in building safe airplanes with an unsurpassed safety record!

AUTHORIZED SUPPLIERS

Exhaust Systems. We finally did it! We now have our new stainless steel 4-pipe exhaust system, with slip joints and heat muff, in production at Custom Aircraft Supply. We received, approved, installed, and flight tested the first set in our plans model Mark IV. They did a beautiful job, and we are very pleased. Most 4-pipe systems do not have slip or ball joints or a decent heat muff. The slip joints are an absolute necessity, to prevent premature failure due to concentrated stresses at the flanges. Of course, a decent heat muff is necessary for carburetor and cabin heat. It was quite a design challenge to work all of these requirements into a limited space. We used special tight radius (1-3/4) elbows to negotiate the curves smoothly and keep the pipes in close to the engine. We made the slip joints 1-1/2" long so they could be shortened by the builder, if necessary, to adjust for varying engine heights. They should fit both the 3-place and 4-place Cozys as well as other pusher designs. By arranging for them to be shipped direct from the manufacturer, we have avoided middleman costs. The first lot has been priced at \$500 ea., shipping and handling included. Experience on the first lot will determine whether any price adjustment, up or down, will be appropriate. These easily surpass anything else we have seen at the same or higher price. Eight of the first 10 are spoken for. If interested, get your order in to:

Custom Aircraft Supply
(619) 276-6954
1318 Gertrude
St., San Diego CA 92110

WHAT WE HAVE BEEN DOING

Section II. We have been working hard the past 3 months and are pleased to report that Section II of the plans has been completed, is at the printer, and should be ready to mail before year end. The manual consists of 80 pages with countless illustrations and pictures and will be accompanied by 10 more large size drawings. We have tried to catch any typos or errors, and hope we won't have to publish any corrections. Packaging and mailing almost 200 sets will take some time, but we will do it as quickly as possible by serial number. We appreciate your patience and hope that we haven't held up too many builders.

Upholstery. Alexander Aeroplane asked if they could design and supply upholstery kits for the Mark IV. A very pleasant and attractive young lady, Dianne Davidson, heads up their upholstery department, and is developing quite an excellent reputation for her work. She made seat cushions for us from our drawings, and then visited here in October to measure up the Mark IV for a complete interior kit. We plan to stop in Griffin, GA on our way to Sun n Fun to have the kit installed.

Visitors. This is the time of year when we receive the most visitors, because Arizona is a popular place to vacation or hold business meetings in the winter. We meet some interesting people.

Cozy builder Gilles Desgruelles, from Paris, France, stopped in while vacationing. We hadn't met before and enjoyed his visit.

Another visitor, interested in the Mark IV, told us that he was finishing up a Glasair III. He said he had \$80,000 and 5,000 hrs. in the project to date. That is about 3-1/2 times as much money and twice as much time as most of our builders have to spent.

We are bothered that the cost of materials, parts, and engines continues to increase, but it appears that building from plans will continue to offer a significant savings. One of our recent visitors, Lt. Col. Don McMonagle said he was interested in the Mark IV for a number of reasons; high on the list was safety. He had started a Long EZ, but with 2 small daughters would prefer a 4-place. We were impressed to learn that he is an astronaut and will be the pilot on the January 13th flight of the shuttle Endeavour. We sure hope he decides on the Mark IV!

About a week later Lt. Col. McMillan (from the Pentagon) stopped by to look at the Mark IV and is interested in building. He said his only previous experience was in helping a neighbor at Edwards AFB with a Long EZ. That neighbor was McMonagle, whom he hadn't seen for several years. What a small world!

Vacation. We will probably be home over the Christmas holidays, because one of our sons is planning a visit, but we will be gone in January from the 10th to the 20th or so on vacation. I promised Shirley that after the plans were done, I would take her on a real (compared to Oshkosh) vacation. We will be sailing the Carribean. We hope to take advantage of our trip to visit 3 of our builders in Puerto Rico.

Whoops! How could I have neglected to report in the last newsletter that my dear wife Shirley was crowned Ms. IVHC for 1992 at the annual IVHC banquet in Oshkosh last summer, presented by none other than Burt Rutan (see picture else where). We thank all of you who voted for her, and I ask her forgiveness!

SUN AND FUN 93

As mentioned earlier, we plan to attend Sun and Fun in the spring. Cozy builder [Bill Walsh](#) asked if he could arrange a banquet for Cozy builders, and we said we thought it was an excellent idea. It is still in the planning stages. If interested, you can reach Bill at (407) 695-3543.

OSHKOSH 93

We will be planning to have another builders forum and also a banquet for Cozy builders. The banquet has been held on the first Friday evening at Robbins, and we asked to move it to Saturday evening if space became available. We think that this will be possible in 1993, and will keep you posted.

FIRST FLIGHTS

We think that at least 4 more new Cozys are flying;

1. [Ken Brimmer](#), in Bowie, MD, but we don't have any details.
2. Ed Strickland, in St. Simons Island, GA, but no details.
3. Wm. Teeters, in Rockford, IL called to say that his 369CZ first flew on 9/27, hands off, and was

a piece of cake. He promised to send us pictures and a detailed report.

4. [Dewey Davis](#) sent us this letter:

Oct. 21,1992

Dear Nat,

I'm happy to report that Cozy N24DL successfully completed its maiden voyage on Sept. 7,1992. First flight was made on a calm afternoon with blue skies and white puffy clouds just as I had often envisioned during the eight years of construction. This airplane flies like a dream! I had prepared for first flight with lots of taxi tests and checking/rechecking functions. Fortunately, everything performed beautifully and first flight was entirely uneventful; I was able to fly hands-off without so much as a trim adjustment! (I think that part was due to luck more than preparation). After 20 minutes of flying I brought it back for an easy landing and rolled out all smiles.

N24DL is fairly well-equipped (Northstar Loran, autopilot, NavCom, transponder, and stereo intercom). I installed an O-320 160 hp. engine with starter and alternator. Empty weight is 1018 lbs., a bit more than I expected. It sure adds up quick when you put in all those nice-to haves.

Performance is everything I hoped it would be. I routinely see 1800 fpm climb solo and 1500 fpm climb heavy. True speed at 12,000 ft. is 207 mph at full throttle, although I usually cruise about 185 mph because the engine sounds so much more relaxed at that speed and runs cooler too. Cooling is one area where I'm still not satisfied. I will try the ideas we talked about on the phone to see if I can get a better balance.

Overall, I'm very pleased with the airplane. It has been a lot of fun to build and is even more fun to fly. I've got to thank an awful lot of fellow builders that have helped me along the way. I would certainly encourage other builders to stick with it and get their airplanes finished. It is very satisfying to actually fly these machines that you build with your own hands. Now I'm busy planning all those trips; Lakeland, Oshkosh, Kansas City, Rough River. . . it's going to be a busy year.

Sincerely,

[Dewey Davis](#)

PUBLICITY

We registered a complaint with Dave Martin, Editor, that Kitplanes made no mention of the fact that the first plans model Mark IV Cozy flew to Oshkosh '92.

Pat Young's Cozy was judged to be the Best Composite Aircraft at the 1st annual New Mexico fly-in this fall. Congratulations, Pat!

Although not reported as of this writing by either Sport Aviation or Kitplanes (Jack Cox and Dave Martin please note) Todd Morgan's Cozy was judged to be either Grand Champion or Best Composite (I'm not sure which) at the Copper State fly-in this fall in Prescott, AZ. Congratulations, Todd!

Sport Aviation has a section entitled "What Our Members Are Building", and Kitplanes has one entitled Completions. The editor of Kitplanes magazine, Dave Martin, asked me why Cozy builders don't submit pictures of their completed Cozys along with short write ups. He said readers like to see and read about what other builders have done, and these pictures reflect the popularity of different designs. He said other designers continuously urge their builders to submit pictures to magazines and we have been remiss in not doing likewise. We will start now. As a small incentive, we will award a newsletter renewal to any builder who gets a picture in a magazine, and retroactively acknowledge Vance Atkinson for his several articles and Todd Morgan for his 1992 Reserve Champion award at Oshkosh. We will start the ball rolling by sending in pictures of the plans model Mark IV. Let's make these two magazines and their readers realize that the Cozy is a popular design!

ALLERGIES

In the last newsletter we reported that one of our builders found relief from his reaction to epoxy by using a corticosteroid topical hand cream called "Maxiflor". Cozy builder James Allen subsequently contacted us and said his doctor advised against continuous use of the medication because of possible side effects. Cozy builder Wm. Teeters wrote to us, said he was a medical technician, and wanted us to know that many in the medical field are allergic to latex rubber gloves, or the powder used in them. The Mayo Clinic since reported (via KTAR Radio) that 70% of physicians who regularly wear latex gloves develop an allergy to the gloves.

We continue to recommend the use of non-allergenic water-soluble barrier creams such as Ply 9, or Series 8, and good hygiene. If this is not sufficient (in most cases it is) consider using butyl or vinyl gloves, but avoid latex gloves!

FUEL LINES

In newsletter #34 we reported on defective Aeroquip type 601 fuel lines which leaked like a sieve after about a year of use and could have caused an engine compartment fire had we not discovered it. It took Aeroquip a long time to give us satisfaction, because no one else had reported any problem with this particular lot of hose. It turned out that we were the first ones to complain, and subsequently Aeroquip received complaints from all over the country.

Cozy builder David Domeier wrote to us saying that he had a similar problem with Aeroquip type 303 in his Long EZ. After 5 years of use it started leaking like a sieve.

Obviously Aeroquip cannot control the quality of their synthetic rubber well enough to guarantee that it won't be attacked by aviation (or automobile) fuel. We believe the solution is to use Aeroquip type 666 hose, which is solid Teflon tubing with a braided stainless steel protective covering. If you are using synthetic rubber fuel (or oil) lines, we suggest you check them with the fuel pump on before every flight, and change to type 666 at your first opportunity. Massive fuel leaks in the engine compartment are very dangerous!

ENGINE SELECTION

In our 3-place Cozy it was not a serious problem if builders installed a 150 or 160 hp. O-320, because they were not much heavier than the O-235, and by moving the engine forward they avoided an aft c.g. problem, and the cowling fit well. It is a different story on the Mark IV, however.

We have been asked whether the 200 hp. IO-360 Lycoming (or even larger) would be suitable for the Mark IV. The answer is an emphatic NO! Unlike the 3-place, we decided to demonstrate the largest and heaviest engine which would be suitable in the plans model, namely the 265 lb. 180 hp. O-360 Lycoming. Even with this engine, it is necessary to use a light-weight starter, a light-weight alternator, and the light-weight Ellison throttle body injector, to avoid an aft c.g. problem. It is already as close to the firewall as possible. The 200 hp. IO-360 is 30 lbs. heavier for only 20 more horsepower, which is a very poor trade off. It would result in a very tail-heavy airplane, which would make it a dangerous airplane. Even if this engine were ballasted by permanently adding an equivalent amount of weight in the nose, the result would be an over-weight airplane. The IO-360 is not only heavier, but also larger, so the cowling wouldn't fit, the baffles wouldn't fit, and our new exhaust system wouldn't fit. This engine also requires a type 2 dynafocal mount, which is not available. The larger cowling and heavier weight would result in more drag, off-setting the small amount of extra horsepower. It would be a shame to spoil a good design by installing the wrong engine. A "good buy on the wrong engine is a "bad buy". If you have an IO-360, sell it and use the proceeds to buy a good 180 hp. O-360.

The same remarks also apply to automobile conversions, which usually weigh much more than aircraft engines, cost just as much installed, require many additional hours of engineering, development and building time, and do not provide the reliability and safety of the O-360 Lycoming. You will find that the plans completely detail the installation of the recommended engine, with full size patterns for the baffles and induction system, and that prefab engine mounts, cowlings, and filter box are available from our suppliers. It is hard for us to understand how a builder could religiously follow our plans, instructions, and recommendations on the airframe, and then totally ignore our recommendations on the engine. This design is the result of a number of years of development and optimization and we think we know what we are talking about.

KEVLAR

Prospective builder Ray Glaser asked us to comment in the newsletter about the use of Kevlar. First and perhaps the most important, Kevlar is about 7 times more expensive than glass on a weight basis, so it would have to have some outstanding advantages to justify the cost. It is more than 2 times as strong as glass in tension, but unfortunately, not in compression. It is hard to find any major surfaces on an airplane which will always be in tension--the cowling is the only one that comes to mind. The saving of a couple of pounds in the cowling would not be worth spending an extra \$100, in our judgment. The fact that Kevlar is more abrasion resistant, is more of a curse than a blessing, because it would be difficult to finish. Kevlar gets fuzzy when sanded. In summary, we do not see much application for Kevlar in this type of construction.

BATTERIES

Having to replace a battery recently, we contacted Bill Bainbridge (B & C Specialty Products) about one of his gel-cell batteries (we don't like acid leaks or having to add water). He said he had a "new technology" lead-acid battery which was much better than a gel cell. It was completely sealed, so it was maintenance free and could not leak, and it had a very low internal resistance, so the 25 AH battery would put out more power for starting than other 35 AH batteries. Our 0-360 has really good compression, and this sold us. We installed it in the Mark IV, and couldn't believe how fast it turns over our 0-360.

You can contact Bill at (316) 283-8000.

SOLENOIDS

If your battery voltage (and charge) is low, it is very easy for the starter solenoid to stick in the closed position. If your starter solenoid is connected directly to the battery (without going through a master solenoid), the battery will continue to drain, and things could get pretty hot. If this happens, your only recourse is to disconnect the battery, and you have to do it fast!

If you connect the starter solenoid in series with a master solenoid, so that you have to have your master switch on in order to start the engine, you have an easy solution to the problem; just shut off the master switch on the panel. Our Mark IV is wired this way. We did have a starter solenoid stick (before we bought a new battery). We simply shut off the master switch, reached in through the oil door to tap the starter solenoid, got a jump start, and made our way home.

ELECTRIC SPEED BRAKE ACTUATOR

We neglected mentioning this in our last newsletter, but Cozy builder [Wayne Lanza](#) has engineered the replacement of the mechanical speed brake actuator in the 3 and 4-place Cozy with a Warner Electrak Linear Actuator. It is a very compact installation which weighs only 1-1/2 lbs. It is similar to the system used in the Velocity, but Wayne has adapted it to the Cozy, using special parts which he designed and is having made. His installation instructions are very complete. The system can be installed during new construction, or retro-fit. Wayne charges \$250 for the complete kit, which is just a little more than the mechanical system parts cost. If interested, contact [Wayne Lanza](#) at (407) 664-9239. His address is:

9425 Honeysuckle Dr.
Sebastian, FL 32976

FILTER BOXES

Several builders have designed filter boxes which mount directly below the carburetor, use a round

automobile air filter, have an inlet on the front facing the scoop so they get ram air, and have a flapper valve so that heated air from the heat muff can be brought into the top. There are several advantages. The first is that by simplifying the induction system and using ram air, you pick up about 100 rpm, which means more power. Another advantage is that even the heated air is filtered. A third advantage is that by eliminating the Aeroduct ducting between the filter and the carburetor, you will have eliminated a possible cause of engine failure (see letter from James Bierly).

We designed and built a filter box for the Mark IV, and included it in Section II of the plans. We also asked Feather Lite if they would make the housing available prefab. The housing shouldn't be expensive (compared to the assembled unit being marketed by Hal Hunt). We will report on this in the next newsletter.

MARK IV CHANGES/CORRECTIONS

LETTERS

10/8/92

Dear Nat,

My hangar partner is building a Long which is about 90% complete, just like my Cozy. He needed an engine, and bought the engine that came out of Dave Ronneburg's (Berkut designer) Long that had crashed. Dave personally delivered the engine to our hangar and really was pleased with my Cozy. It was a nice complement to receive. But the circumstances of the crash of Ronneburg's Long provides a warning for canard drivers.

Dave loaned his Long to his girl friend who flew it to a fly-in and entered a race there. She took a friend of her's with her on the trip. He was a brand new private pilot with just a few hours of dual in the Long. He did not have Dave's permission to fly the Long solo. But he did, in a ribbon-cutting contest. He is small, weighing only about 125 pounds. But the airplane, already tail-heavy with an IO-320, was set up for Dave's girlfriend, who is quite a bit larger and heavier. Without ballast in the nose, the c.g. was aft of the aft limit. The new pilot pulled the nose up sharply to cut a ribbon (falling roll of toilet paper), and ended up in the kind of deep stall that the Velocity encountered, as reported in Sport Aviation. He rode it all the way to the ground. The Long was totaled and the pilot is in a wheel chair for life. I don't know if the Long had vortilons on the wings. But the lesson about keeping the c.g. within limits is one we all should keep in mind.

I took the first half of the year to complete my bachelor degree and did no work on the Cozy. But I am back into the project now working on electrical and engine installation. I've stopped making predictions on when I'll be done. Just keep going to Oshkosh, I'll see you there someday!

Sincerely,
Brian Heinitz

10/10/92

Hi Nat,

I wanted to drop you a line on the allergy problems some builders run into. I don't believe that all allergies are related to epoxy--in the case of builders that are wearing disposable gloves, usually it is either the powder or the latex gloves that may be the culprit. About the time I started building 369CZ, I also started working in the surgical dept of our hospital. I started out with a slight rash on my hands which spread up my arms all the way to the axillary area. At this point I blamed my Cozy project, but finally I traced it back to the gloves, and then finally traced it down to the powder.

There is a definite problem in the surgical area with either the powder or latex gloves--also any prescription cream may be detrimental to a person, especially topical corticosteroid creams. They affect the major glands of the body. I would caution anyone on their long-term use.

Regards,
Bill Teeters RN

9/16/92

Dear Nat,

Your July 91 newsletter had a grim story about a fuel line. I've been intending to write to you about my experience with Aeroquip 303 fuel hose.

After operating my Long EZ for some 5 years, I decided to install a new carb heat box since I was not sure the old one was really working. I took the airplane out for a run up with the lower cowling off to check the system, and upon shutdown noticed fuel on the ramp under the engine. I looked closely and observed no leaks, but when I turned the electric fuel pump on, the 303 hose from the fuel pump to the carburetor was dripping wet. Fuel was seeping through it like a sieve. And I had been flying the airplane regularly. It leaked with pressure on the system, and air flow blew it out through the prop. I figured I'd been very lucky not to have had a fire, as were you.

My fuel line was outside of the AD dates, also. I called an old friend who knows everything about small airplanes. He blamed the fuel. He said they were changing the hoses on their airplanes annually because of it.

Did Aeroquip ever get back to you on your problem? I am back at it with Cozy Mark IV #151. Your plans are excellent and I'm enjoying each step of the process. Hope to fly this one until I'm 85 if we can find some reliable fuel lines.

Sincerely,
David Domeier
Chesterfield, MO

10/5/92

Dear Nat,

I would like to make you aware of a problem I had with my Varieze. The CAT-10 (yes, the style with

no inner liner) from the filter to the carburetor collapsed, causing the engine to fail. I'm not sure if the induction system on the Cozy is like the Varieze, but my duct was properly installed (both ends of the spiral wire secured and the thread secured under clamps). I was not hurt in the off-field landing, but the Varieze didn't fare as well.

Regards,
James Bierly

Editor: We have heard of CEET and SCEET Aeroduct ducting failures due to the collapse of the inner liner, but this is the first instance we know of where CAT ducting collapsed because the wire didn't stay put - a good reason to eliminate the ducting, by mounting a filter box directly on the carburetor.

11/17/92
Dear Nat,

Please find enclosed my check for Mark IV plans.

I choose your plans not only on the strength of the design (none the less an important factor) but also due to the excellent support you have provided to a friend of mine. His Cozy is near completion and we look forward to flight testing it!

I look forward to working with your able support.

Thanks
Mark Tuck

11/4/92
Dear Nat,

Enclosed you will find a check for renewal of my newsletter, which I inadvertently let expire. I was so busy working on my Mark IV that I didn't realize the newsletter wasn't showing up in the mail any longer.

Also enclosed are pictures showing my progress. I have completed the fuselage assembly, formed, glassed, and attached the bottom, formed the NACA scoop, and the outside of the fuselage is ready for glassing. Things are going well, but it sure would be nice to have another experienced Mark IV builder close by to check my work out from time-to-time. Lack of confidence, I guess. If you're in the area visiting family, please stop in or call--tips from a pro would be welcomed.

Cornelius Steven
Rochester, MN

9/19/92
Dear Nat,

Please find enclosed a check for Cozy MK IV plans. I just met you briefly on the flight line after the forum in Oshkosh this year. I thought your forum was excellent and the proof-of- plans model

absolutely gorgeous!

I'm really looking forward to starting this project with my 13 and 15 year old boys. Our Saginaw Valley EAA chapter 159 is going to be a real big help because of all that have gone before me. Walt and Helen Suminski have shared a lot of advice and ideas. Our chapter also has 2 other Cozys under construction as well as a flying Long EZ. If the Mark IV plans are anywhere near as concise and complete as the Cozy plans, you are to be commended. I've looked at plans for the Emeraude and the GP-4 in passing, and there is nowhere near the information exchange. I've heard nothing but good reports on your support as well.

Sincerely,
Ken Grakauskas

10/8/92
Dear Nat,

I've decided to purchase plans for the Cozy Mk IV. It's a great airplane with an excellent family tree. The Rutan EZ line has a blue blood pedigree that has always interested me but not enough to spend 2 years of my time building a 2 place airplane. There were just too many limitations for me to invest 2 to 4 years of my free time, until you came up with the Cozy MK IV.

The Varieze is a neat plane and exceptional but it's a 2-place daytime VFR aircraft with little cargo capacity. The Long EZ is IFR with more payload but it's still a tandem aircraft. The Cozy 3 is the next logical progression, but it's still not quite big enough for me. I've been waiting for a comfortable 4-place high-performance, IFR capable, cross-country airplane with room for 4 people and some baggage. In the end my procrastination worked to my advantage because you came thru with the MK IV. The 15 year incremental progression of the EZ line is good solid engineering practice. It follows the age old engineering technique of iterating on a design to improve it and to shake the bugs out.

Having Burt Rutan involved in the design is a plus for me since I have great respect for his work (as does most of the aviation community). I'd like to thank you for picking up the standard and for carrying Burt's work on the EZ through to its logical fruition in the Cozy MK IV.

Sincerely,
Tom McKeag
Stow, MA

10/5/92
Dear Nat,

I'm building a Cozy MK IV #074 and thoroughly enjoying every minute of it. I thought I would share some of my progress with you and other builders.

When I assembled the nose wheel on the fork, I noticed that the bearings were rotating around the bushings instead of rotating inside the race way of the wheel. I filed 1/16" off of the center face of one bushing at the point where the two bushings meet. I added a 1/16" washer between the bushing and the fork to make up for the reduced dimension. This allowed the bushing to apply more pressure on the bearings, and now they rotate inside the raceway of the wheel.

When I started building my fuselage, I decided to use 1" foam on the side walls instead of 3/8", to give the sides a more rounded appearance. I also extended the height of F-28 by 1-3/4". The slope of the nose, which I changed, is a gentle slope from 3.5" in front of F.S. 0, to 1-3/4" above F-28, then on to 1" above the top of the instrument panel. This rounds up the nose considerably, especially at the canard.

I plan to change the angle where the front plexiglass canopy bubble joins the turtleback. This angle will be the same as that which divides the side windows. The reason for doing this is purely aesthetic.

I bought a pair of wheel pants from Bob Greider. They are similar to the wheel pants he has on his beautiful Long EZ, except they are larger so they will fit the 500 x 5 tire. I cut the openings in the pants to accommodate the wheels and struts. I drew lines on the floor of my garage running fore and aft of each wheel to assure that the alignment of the pants allowed them to fly directly into the wind; not off to one side or the other. I applied masking tape on top of the wheel pants indicating the center line and lined these up with the lines on the floor. I also applied masking tape on the side of the pants to establish a level line.

I secured the wheel pants in place temporarily using bondo. I then covered the top of the pants with duct tape and laid up 4 layers of BID around the strut and down over the pants. After cure, I filled the angle between the pants and struts with urethane foam; shaping it to make a smooth fillet transition from strut to pants. Then, drilled holes through the new fairings and wheel pants to accommodate nut plates and screws. The wheel pants were then removed and the duct tape and bondo were cleaned off. The fairings were shaped with the use of files and dremmel.

The nut plates were installed on the inside of the wheel pants. Screws were then used to attach pants to the fairing. The large hole in the back of the pants allows heat from the brakes to escape.

Sincerely,
Larry Sligar

Pictures;

1. Shirley & Nat, proud parents of the Mark IV at Oshkosh
2. Dewey Davis family in his beautiful newly completed Cozy
3. Gilles DesGruelles working on his Cozy in Paris, France
4. The prefab nose makes shaping the nose Vari EZ
5. Burt Rutan congratulating Shirley, Ms World IVHC
6. Larry Sligar's Mark IV head on
7. Cornelius Stevens is doing very good work on his Mark IV in Rochester, MN
8. Larry's nose gear retracted in the fuselage
9. Larry's nose gear extended, showing doors
10. Wheel pant removed, showing heat shield
11. Larry Sligar's first fastened his wheel pants in place.
12. Then he built a fairing around the strut.
13. View showing the completed pant in place.
14. Wheel pant disassembled.
15. Larry Sligar's Mark IV Cozy is coming along nicely!

Judd Steward says: *The credit for getting this newsletter on-line goes to my wife Samie Stewart.
Thank you dear!*

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