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COZY NEWSLETTER #74
July, 2001

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OTHER PARTS WE RECOMMEND:

We can recommend the following items:

1. Improved **Rudder pedals** for lay-down brake cylinders, adjustable both sides. Dennis Oelmann (319) 277-5996.
2. Improved **MKNG-6 and NG-6 Pivots** with tapered roller bearings. Jack Wilhelmson (843) 884-5061.
3. **Electric speed brake actuator kit.** Wayne Lanza (561) 664-9239.
4. **Switching and breaker panel.** Wayne Lanza (561) 664-9239.
5. **Fuel sight gages.** Vance Atkinson (817) 354-8064.

6. **Electric nose-lift.** Steve Wright (615) 373-8764.
7. **Electric pitch trim.** Alex Strong (760) 254-3692.
8. **Voice annunciated warning system.** Richard Lewis (423) 376-1450.
9. **Rebuilt flight instruments.** Howard Francis (not a Cozy builder) (480) 820-0405.
10. **T-shirts**, etc. Bill Walsh, nogofsu@sprintmail.com. (407) 696-0942.
11. **Antennas.** RST Jim Weir (530) 272-2203.
12. **Teflon & Stainless Hinge Pins Replacement.** Gary Hall (954) 979-9494.
13. **Nosegear crank ratchets.** Bill Theeringer (805) 964-5453.
14. **Embroidered clothing.** With pictures of a Cozy, name, N number, etc. in any color. Trish Vermeylen (609) 693-4819.

PLANS CORRECTIONS/CLARIFICATION

(The rod end changes apply to all Cozy IIIs and Mark IVs)

1. Section I, Chap. 19: Change any reference to MM-3 rod ends in text or drawings to HM-4 rod ends.
2. Section II, Preface p. 2, Misc.: Change (10) MM-3 rod ends to (10) HM-4 rod ends.
3. Section II, Preface p. 3, Chap.16: Change (10) MM-3 rod ends to (10) HM-4 rod ends.
4. Section II, Chap. 16, p.1: Change CS-50 from AN-3 rod end insert to AN-4 rod end insert Section II, Chap. 16,p.2: Change CS-50 from drill and tap 10-32 to drill and tap 1/4-28.
5. Section II, Chap. 16, p.4: Change view G-G from MM-3 to HM-4, and all related AN-3 hardware to AN-4 hardware.
6. Section II, Chap. 16 text: Change any reference to MM-3 rod ends to HM-4 rod ends.
7. Section II, Chap. 26, p.1: Delete the reference to upholstery kits available from Alexander Aircraft.

All previous known corrections to the Mark IV 2nd edition were summarized and published at the end of newsletter #73. Please make sure your plans have been updated.

BUILDER HINTS

1. **Wing bolts.**Paul Stowitts writes: I had to change one of my top, outboard wing bolts as my inspector wanted to see more threads showing. In the past, I would hot glue a washer onto the nut before trying to get the nut started on the bolt. This usually didn't work very well so this time I took a hacksaw blade and taped a washer onto it's end with a small piece of duct tape. I then easily put the washer on the bolt and pulled down to release it from the tape. It worked great. Wish I had thought of it sooner.
2. **Cable Craft.**Rob Kittler reports that the new phone number for Cable Craft (recommended throttle cable) is 253-475-1080. Jean-Patrick reports the number in Europe: 00-44-1323-841-510.

3. **Controls jammed.** David Vollrath accidentally dropped a Hobbs meter into the gap around the right stick, didn't notice it, and went flying. It almost jammed his control stick. He cautions to install boots around both control sticks to keep foreign objects out and always preflight for any loose items in the cockpit which might jam your controls. Thanks David!
4. **Gas cap installation:** There have been several suggestions for avoiding debris from falling in the fuel tank when cutting the openings for the gas caps. One was to do it when the fuselage is upside down and pressurized the tank so that the debris blows out, but the one I like is to adjust the centering drill of a hole saw so it does not penetrate the inside skin. Then just saw thru the outer skin and foam, remove it and vacuum the depression. Then cut thru the inside skin with an x-acto knife which won't leave any debris.
5. **Usher caps.** Michael Pollock writes that he uses Usher caps and they do not leak if properly maintained. He says that some people forget that they need to have a little grease on the bottom of the pivot for smooth operation, He says if it is left dry, the pivot will eventually stick, and the 1/16" roll pin might break by pushing down too hard on the latch, trying to lock the cap. Also, after a while the pivot might wear out and the latch will not remain pushed down.
6. **Upholstery.** If you are on a limited budget, here is something you might consider. Get some 2 inch (or whatever thickness you need) urethane foam and cut your seat cushions to size. You can glue pieces together with rubber contact cement if necessary. Then go to Pep Boys (or your friendly auto store) and buy some sheepskin seat covers. Then have your wife (or girlfriend if you aren't married) alter the covers to fit your cushions. You can probably get the job done for less than $300. On the other hand, if you just made a killing in the market, you can buy a couple of hides for $250 to $500, and pay an upholsterer from $1600 to $2000 for 4 professionally tailored leather seats.
7. **Headset location.** When deciding on a location for the headset plug-ins, consider where the cords will be when you enter or exit the cockpit. After trying several different locations, we decided the best by far is in the armrests, behind the elbow. The plug-ins are not in your way, and the excess cord can be stowed either in the armrest pocket, or inside the strake with the headset. Then the cords will not be in your way in entering or exiting the cockpit.

FOR SALE

Cozy Mark IV 4-place aircraft. 220mph cruise on 10 gph. 150 hrs TT airframe, 150 hrs TT IO-360 Lycoming. First flight 9/8/98. Always hangared. Exceptionally nice Cozy with full instruments: KX155, Collins transponder, ELT, Stereo CD player, intercom, Audio flight engine monitor system, electric trim, electric speed brake, electric retract, 3-blade Performance prop. $99,900. Tel (480)671-7355 or email cozy42cz@qwest.net for more info or references.

Editor:*This Mark IV is a real gem and would be a serious contender for Grand Champion at Oshkosh. Builder turned down a $103,000 cash offer a year ago.*

WHAT WE HAVE BEEN DOING

At the end of March, my sister, Lee Parlee, came down from Rockford IL to stay in our home and man our office while Shirley and I were away at Sun n Fun. We monitored the weather and left when we believed it would be good the entire way. It was actually better than Flight Service predicted. The clouds were scattered part of the way, and we flew over the top, but most of the way it was clear. We started out with a headwind, so we refueled a little sooner than we planned at Ft. Stockton TX, and stayed overnight at Baton Rouge. We like that stop because Louisiana Aircraft always has fresh popcorn and loans us a courtesy car, and the Hampton Inn has the most sumptuous courtesy breakfast we have seen anywhere. The next day we picked up a 40 kt tailwind, and we were showing 214 kts (248 mph) ground speed on our GPS with only 2450 rpm. Shirley likes to go fast, and I told her to take a good look, because she wouldn't see that very often.

SUN 'N FUN

Sun n Fun didn't seem quite as well attended as in previous years, probably because there were a lot of fronts and bad weather blocking travel from the west and the north. We didn't keep count, but there may have been as many as 10 Cozys there. One of our favorite builders (one of many) is Al Aldinger. He is about 6 ft. 6 in. tall, and built his 3-place with the canopy about 3 inches higher than shown in the plans. He has logged 33,000 hours in a Cessna flying pipelines for one of the oil companies.

There was a pretty good turnout at the Red Barn. Not 100 builder/flyers, as Bill Walsh was hoping, but about 60. It was pretty hot this year, with no rain, and the strawberry season was already over, so we missed our usual flat of strawberries. Thanks to Steve Wright for providing a sun shelter for us, and thanks to him and Jack and Donna Wilhelmson for greeting prospects when we became hoarse. We picked up some new builders in South Africa and the UK.

On the way back after Sun n Fun, the tail wind was a head wind. We always hate that. And it was bumpier than heck in Texas, New Mexico, and Arizona. Even the airliners were complaining. I guess it was bad all the way from the ground up to 33,000 ft. We are always happy to get home. As always, our Mark IV with its Lycoming performed flawlessly.

Again, after getting back, we had a number of visitors this quarter, some that I took for rides. They all said that having a ride renewed their energy and determination. One of our builders, John Kowal, said he owns a 172 Cessna. I asked him how the Mark IV compared. He said it (the Mark IV) was a lot easier to fly, had a lot better visibility, and was a lot quieter. As a matter of fact, another one of our builders who stopped, Norm Muzzy, asked me to try his noise canceling headset (I don't remember the brand). It wasn't much quieter than our David Clarks, and in fact, the David Clark seemed more comfortable. Thank you Norm for letting us make the comparison.

EMERGENCIES

One of our builders returning from Sun n Fun had an emergency. He noticed a change in engine sound and saw his oil pressure drop to zero, so he declared an emergency. He was able to make it to the nearest airport, but came in a little high and fast (which I think was the right thing to do). Rather than risk burning up his brakes or running off the end of the runway, he retracted his nosewheel (or never extended it), and stopped mighty fast (on the runway). He told me an FAA agent (a woman) accused him of being a bad pilot for coming in high and fast, and sent him a letter saying that he would be required to have a flight review. I asked him to let me do a little checking, so I called Earl Lawrence, head of Government Affairs, at the EAA. Earl said he would contact the FAA, but advised that the FAA has the legal right to require a flight review of any pilot, any time, with or without reason. So I called the FAA agent, introduced myself, and said that I was very proud of this pilot and what he did. I stated that he did everything right. Many pilots have made the mistake of not coming in high enough, and crashed short of the runway with either serious or fatal injury. And others have run off the end of the runway with serious consequences (as we know from one of our own builders). She didn't budge. But I told her our airplane was designed to stop in a hurry in an emergency, that is what I repeatedly advise builders to do, and this builder was obviously very smart, used his head, and saved his aircraft without damage, and without injury to himself or his passenger. This leads up to the following quote Marc Zeitlin published from the RAF **Canard Pusher : "VARIEZE/LONG-EZ ROLLOVER/HEADREST "**

We have received a letter from Andrew Detrol of the FAA concerning the forced landing/crash of a Long-EZ that he investigated. This crash involved a Long-EZ that lost power after takeoff. The pilot made a successful 180 degree turn, landed long and left the runway. The nose gear collapsed, the nose dug in, and the aircraft flipped inverted with enough forward velocity to break the canard in half and rip one wing off at the end of the center section spar. The roll over/ headrest was broken off. The pilot and passenger received minor head cuts, scratches and bruises.

"This letter has been distributed to the various FAA offices and in some cases, redistributed with some inaccuracies. This has caused some consternation among the local FAA and among groups and individual Long-EZ builders.

"We have spoken to the FAA in Chicago and they have agreed with us that obviously the pilot's head rest is not, nor was it ever intended to be strong enough to resist the forces imposed in an inverted crash with any appreciable forward speed. It is a roll over structure, and has proven that it will remain intact in the event that one of these aircraft should roll over with little or no forward speed. This was in fact the case, when Ken Swain flipped his EZ in a corn field near Oshkosh after an engine failure. His aircraft ended up resting on the roll over structure (canopy broken), the firewall and two broken winglets. He was not injured, but had to wait for others to lift the aircraft to get out. The roll over has provided this protection in at least two other cases, one example is in CP#14."

As a result of this accident, RAF has designed a fiberglass roll over structure to be installed in Variezes and Long Ezs behind the pilot's headrest to add additional protection to the pilot and passenger in the event of a roll over with forward momentum. RAF has made this a mandatory change.

COZY ROLL OVERS

There has been only one Cozy (a 3-place) roll over that we are aware of. It occurred in Memphis when Mr. Harris had an engine failure and made an emergency landing in the mud. The Cozy flipped over, but the canopy did not break, and Mr. Harris was uninjured.

The above notwithstanding, Marc Zeitlin (Unofficial Cozy Webmaster) questioned whether an additional roll over structure is needed and would be recommended for the Cozy by Co-Z Development.

Our educated opinion is that the combination of a rigid turtleback, joined to the plastic bubble with flox and reinforcing tapes right over the pilot and passengers heads, plus a very strong bulkhead (TB-1) and the two headrests, one of which is attached to the bulkhead, in combination, are at least equal to and probably stronger than the fix proposed for the Long EZ. Critics can always ask, "How good is good enough?" to which there is no answer. But if you believe the roll over protection we have provided in our plans is not "good enough", you, as the manufacturer of your airplane, can add whatever additional structure you wish.

AILERON PUSHROD ROD ENDS

As you may or may not be aware, originally all control pushrod rod ends were AN-3 in the Varieze, Long EZ, Cozy III, and Cozy IV. Then a number of years back, when it was learned that the single, elevator pushrod rod ends in the Varieze and Long EZ were subject to bending and possible fatiguing after repeated removal and reinstalling of the canard, RAF made a mandatory change to AN-4 elevator rod ends in the Varieze and the Long EZ. Even though the Cozy III and Cozy IV have redundancy by having two sticks and two pushrods, we made the same mandatory change.

Recently, 15 years after discontinuing plans sales, RAF has published a mandatory design change to replace all AN-3 rod ends in the aileron control system with AN-4s. The January 2001 Canard Pusher states:

"A Long EZ builder/flyer has reported the failure of one of the dash 3 rod ends in the root of his wing. These rod ends have 10-32 threads and fit a dash 3 bolt. While these rod ends are more than adequate in tension and compression, they cannot tolerate ANY bending in the threaded area.

"Since this is a primary control system failure, RAF is recommending that all 8 of these rod ends be replaced with 1/4-28 threads and dash 4 bolts. HM-4s replace HM-3s.

"We have advised Ken Brock Manufacturing to drill and tap the CS-1 (CS-50) inserts to accept HM-4 rod ends". Although not stated, if the inserts are changed by RAF, it will no longer be possible to use HM-3 rod ends in new construction.

The Cozy Mark IV Owner's Manual (Appendix I) requires that all rod ends be inspected before the first flight and again at every 100hr/annual inspection, and any rod ends that have bent tangs be discarded and replaced. We believe that rod ends do not get bent during normal operation, but only during removal and reinstalling of the wings, and if they are inspected and found to be sound (not bent) in a pre-flight inspection, they will be safe. No failures have been reported to date for Cozys. However, one flying Cosy Classic (European model) and two not yet flying Cozy Mark IVs have reported bent tangs (from carelessness), so we will make the replacement of AN-3 rod ends with AN-4 rod ends MANDATORY to all COZYs.

CANARD INCIDENCE

We apologize for having to bring up this subject so frequently, but we keep learning about Cozys with canards at the wrong angle of incidence (too low). This is a dangerous condition, and if not fixed, could result in a main wing stall at aft c.g. and aft stick. It is easy to check whether your canard is installed correctly. If the trailing edge of the elevator is down 1/4 inch or more in cruise with a mid c.g., the canard incidence is wrong.

Last year at Copperstate I went for a ride with one builder. I pointed out the fact that the trailing edge of his elevators was down about 1/4 inch when it should have been in trail. I told him to change (increase) his canard incidence. He said he increased it at the lift tabs 1/8 inch, and just reported that even though he liked the way his Cozy flew before, it flies much better now. He suggested I remind builders about this again.

NON-COZY PARTS

1. I learned that one of our Cozy builders had died, and his widow wished to sell his project. She had a lot of medical bills and wanted to realize as much money as possible. The project was pretty far along and included a rebuilt IO-360 Lycoming. I offered to help and was lining up prospective buyers, when I learned, unfortunately, it had an non-Cozy (AeroCanard) top. I told her that I regretted having to advise her, but I was party to an agreement in federal court that builders should be notified that if they used non-approved parts (particularly the non-Cozy top, which neither fits nor looks like a Cozy) they shouldn't register their project as a Cozy, and it would be wrong for her or me to represent otherwise to an unknowing buyer.
2. I was recently asked to inspect a Cozy project (as a Tech Counselor). The engine mount

really looked strange, and caused the engine to be significantly lower than it should be. When the builder realized this, he elected to use it anyway, rather than return it, but it required him to make major modifications to the cowling. Actually, he had to make molds and make new top and bottom cowlings. This cost him a lot of time and expense, and it resulted in a non-standard airplane. It was obviously not a Brock mount, nor had it been fabricated according to plans. I asked why he hadn't bought a Brock mount. He said he was told by a person (who will remain unnamed) that Cozy Mark IV drawing M-29 was wrong, so all the Brock mounts were wrong, so this person took it upon himself, without checking with the designer, to change the mount design to lower the engine by 1 inch or more. Can you believe this?

The agreement we have with our "authorized" suppliers is that they will not make any changes to our design without our approval. And our drawing is correct, and the Brock mounts are correct.

This builder now knows he was had.

BEST L/D RATIO(Vance Atkinson 4/30/01)

There has been some discussion about gliding (during an emergency) to an airport, with or without the prop stopped. I used to instruct in gliders during college, and some of you may find this information useful if you follow up with some minor flight-testing.

If you have an engine problem, and you cannot get the problem resolved, you will land..... soon. In order to get to your choice landing spot, you will need to know what the best glide speed is for your craft. This would be the speed with the best lift to drag ratio (L/D). Very few builders actually chart this number and so, they may, or may not , be able to maximize the glide in an emergency.

The glide angle or (L/D) of a craft remains constant at a given speed. However, the actual distance the craft will travel over the ground varies at different airspeeds AND is affected by the strength and direction of the wind. It should be remembered that the effect of a head wind on L/D decreases your available distance, and a tailwind increases the available distance to the pilot.

To make your graph, you will need to pick a relatively moderate weight (you plus 20 gallons of gas) and an altitude such as 5000 ft. Over an airport, cut the engine with the mixture and apply back pressure to the stick. Now start off at the dirty end of the scale and hold the airspeed at stall + 5 kts or mph (what ever your airspeed is calibrated in) put a dot on the graph at the point of speed and sink rate. It will help if the air is smooth. You did pick a smooth day, didn't you? Continue to do this every 5 kts and you will generate a graph similar to the graph below. My airspeed is in knots so I converted over to mph for the chart. If the #4 reading is converted over to TAS (it was taken at 3000 ft), the glide ratio goes to 11.5 to 1.

The question comes up, "how about stopping the prop? Will I gain or lose?" A better question is, can you afford to trade your forward energy to stop the prop by pulling the nose up? The prop

will naturally windmill at your best L/D speed. If you REALLY want to stop the prop and do this chart, MAKE SURE you are over a long runwayed airport. Your engine may not restart! Rather than worry about a stopped prop and if the prop is horizontal or not, concentrate on picking your landing spot. With your best glide speed nailed, you will have the maximum distance allowed for your emergency. After determining the best L/D speed, you could probably placard it on your instrument panel. An old military axiom comes to mind, that I find quite true. "During an emergency, you will sink to your lowest level of training." Since you will be quite busy during the emergency, having that number on your panel will definitely help.

If you want to figure out your glide ratio, here is the formula for that in mph, taken from the "American Soaring Handbook", 1962, editor Alice Fuchs:

Glide Ratio = 88 x Vc /RS where Vc = air speed (mph) and RS = sink rate (fpm)

So....in my Cozy, at 1310 lbs Gross wt., it turns out to be:

Glide Ratio = 88 x 81mph / 690 fpm = 10.3

Doing this for each plotted point, I get:

- Glide Ratio #1 = 10.3
- Glide Ratio #2 = 10.6
- Glide Ratio #3 = 10.7 (98 mph)
- Glide Ratio #4 = 10.8 (104 mph)
- Glide Ratio #5 = 10.1

So....the best ratio comes out at 104 mph. This will get you the farthest. Ratio #1 will get you the longest time in the air.

Try a glider some time.....every landing is an engine out.

Vance Atkinson ATP 15215 EAA Tech Advisor, Flt. Advisor

BROKEN NOSE GEAR?

The Cozy Mark IV was designed so that the canard would stall at a lower angle of attack than the main wing. When the canard stalls, the nose drops through the horizon and then the canard starts flying again. In the meantime, the main wing does not stall, but keeps flying. Even though the airplane might lose 50 ft or so in the process, it is still a non-event compared to a tractor type which might lose 1,000 ft or so in a stall. Since slow speeds are most likely to be used in traffic patterns at 800 ft above surface, that is why canard airplanes are basically safer than conventional tractor type airplanes. However, in a canard type airplane, if you try to make a full stall landing, especially if you are too high when you flare, the canard will stall, the nose gear

will probably hit the runway before the main wheels, and you will probably bust it. This is not considered a design flaw, but rather pilot error. There was a recent occurrence in Texas when a Cozy III got too slow 10 ft above the runway, and the canard stalled and the nose gear busted, and there was a similar occurrence in France with a Mark IV. It turns out that the reason Avemco increased the hull insurance premiums for all canard aircraft was because of the increasing number of claims for busted nosewheels. Again, this is strictly pilot error.

NOSE HIGH -- PROP STRIKES?

There has been speculation on the internet about whether it is possible to strike the propeller in a nose-high landing.

When we did our aft c.g. testing, we had an angle of attack indicator installed on our plans-built Mark IV, and we recorded on video what happens when the Ronzc canard stalls. It was very consistent that the canard stalls at an angle of attack of 14 degrees, and then the nose falls through the horizon before the canard starts flying again. With the GU canard on the 3-place, the stall was more gentle in that the canard would stall but the nose would not drop through the horizon before it would start flying again. This was known as the nose "bob". The nose bobs through a greater angle with the Ronzc canard, but the Roncz canard was universally preferred over the GU because it had very little trim change in rain.

Now if you look at the 3-view drawing of the Mark IV on the back cover of the plans, you will see a ten degree angle drawn in, representing a nose-high attitude in landing. This still provides ample clearance for a 70 inch diameter prop. As a matter of fact, a 70 inch prop wouldn't touch the runway until the angle is more than 16 degrees. An angle of 16 degrees isn't possible if the airplane is built per plans and operated in the approved c.g. range. Now it might be possible to strike a 70 inch prop if you were aft of the approved c.g. range and stalled out the main wing, or if you landed with flat tires, or if you had a really weak main gear strut which spread as it touched the runway, but you would still have to be on the verge of stalling the canard, which would cause it to smack down on the runway, and possibly break the nosewheel fork. Now if you consider that most propellors are not 70 inch in diameter (Performance props are 64 inch in diameter), it is hard to imagine how you could possibly have a prop strike with a Cozy Mark IV. You would have to be doing something terribly wrong.

It is taught and is common practice in any airplane to fly the approach and final well over stall speed, like 20 mph faster, to have good control of the airplane in banked turns, in wind gusts, and to avoid an unintentional stall. Even at that speed over minimum, you would still be in a nose-high attitude, but would have enough elevator control to let the nose down gently after the main gear touched.

The bottom line is if something is so wrong that you strike a prop, the prop will be the least of your worries. It also follows that the slower you touch down, the higher will be the nose, and the farther it will fall if the canard stalls. It is far more likely that you would break a nose gear than strike a prop. You should also realize that you need to fly your approach and touch down about

10 knots faster at gross than at light loadings.

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3 INCH SPAR CAP TAPE

There is only one manufacturer of the type of spar cap tape used in the Long EZ and Cozy models. The original manufacturer was acquired by Alexander Aircraft, in Griffin GA, and then by Aircraft Spruce when it acquired Alexander. Somewhere along the way, the quality deteriorated badly. Not only was the quality bad, but breakdowns in manufacturing caused it to be in short supply. When we examined a sample of current production, it appeared that the tensions were not being set correctly, with the result that the colored thread, which is supposed to run along one edge, was being pulled into the weave, and could not be pulled out easily to release the cross threads. Upon further investigation, it turned out that there was a new operator, and some of the "improvements" to the machine actually had an adverse affect. So Aircraft Spruce located one of the old-time operators, and had him come in to fix whatever was wrong and to retrain the new operator. Although we haven't seen a sample of the most recent production, we have been told it is greatly improved. We regret this saga has caused difficulties for some of you, but we are grateful that Aircraft Spruce has now corrected the problem. Thank you for your patience.

FIRST FLIGHTS

As far as we are able to determine, there have been 5 first flights in the last 3 months:

1. Greg Richter
2. Paul Stowitts
3. Al Wick
4. Ken Laundrie
5. Dennis Rose

I noticed an e-mail signed by Greg Richter, Cozy N722 - Mazda 13B, and I sent him this:
Dear Greg,

I didn't realize you had a Cozy III flying with a Mazda 13B engine. How about a little more information-flying hours, reliability, performance, maintenance, amount of money spent, how long to work out the bugs, etc. Regards, Nat

I got this reply:
Dear Nat,

Good to hear from you! As soon as I get to the 100 hour mark, I'll ship you everything I've got. So far, nothing unusual and everything cools and runs smoothly. J Bugs were minimal, mostly oil separator problems. Stay in touch! Greg.

April 13,2001
Paul Writes:
Builders,

Cozy Mark IV N166PT took off at 10:35 a.m. today with test pilot Bill Oertel at the controls and made a successful 1.5 hour flight! Apart from the engine running too rich, she flew well with good handling characteristics.

The first flight had taken place on March 21, but lasted only five minutes. The engine had started running rough, the oil temp got too high and a lot of aft stick was needed for level flight. It was determined that a small amount of water in the fuel had caused the rough running engine. The oil temp was corrected by increasing the oil cooler outlet size and ducting ram air up to the cooler. The nose down attitude was corrected by increasing the canard incidence. When we checked it, the incidence was on the low end of the tolerance (minus 0.3 degrees.) I changed it to plus 0.2 degrees which made a lot of difference. The elevator now flies about 0.25 inches down in level flight (just wondering how that matches with other Mark IVs with the shortened canard). *(Editor: It should be in trail to slightly reflexed with mid-c.g. in cruise.)*

All temps were on the high side but that's to be expected when breaking in a new engine. Cylinders 1 & 3 ran about the same, but #2 was hotter and #4 was cooler (opposite of what we expected). I'll be rechecking my probes to see if they are the problem before I try changing any baffling. All engine/cowling baffling is per plans.

Keep at the building guys. It's hard to put into words what it feels like to see your aircraft fly!

Paul Stowitts
San Dimas, CA

8.

Al Wick writes:
May 15, 01
Builders,

Woke up today to full cloud cover. Low clouds. However, locally at the airport there was an area of higher ceiling. I did my preflight, pushed the plane out of the hangar. Fired it up and conducted one high speed taxi test to make sure that recent changes to my airbox didn't have negative effect. All was well. I taxied to the runway threshold, reviewed my plan of action, then announced "Scappose traffic, this is experimental 9032U departing runway 15. This is first flight of experimental aircraft". I lined it up on centerline. I've practiced this so many times that I wasn't all that nervous.....Yeah, right!

Full power rapid acceleration to 65mph, pull back on stick slightly, front end off the ground. At 100 mph, a little more back pressure and it's suddenly much more quiet. One of my biggest concerns was to make sure I responded to any roll error on takeoff. I ended up waggling the

wings at 5 ft. agl due to tendency to overcorrect this fighter. No problem. I also had a little pitch bobble due to stick sensitivity. "Rear c.g." I thought? Nah, c.g. is perfect. Pretty strange what goes thru your head. Whenever I flew one of my RC aircraft with rear c.g., they would be pitch sensitive at low speeds.

At 100 ft agl all is well, I notice how quiet the airplane is. No wind noise, no exhaust noise. Just the whine of the prop, reduction system. So quiet. So smooth. Airspeed 120 mph. Too fast, gear is down. Prop rpm 2760. Guess the prop unloads as designed. Water pressure 21psi. Too much pressure, what is the time? Water temp 205F. Perfect. I reduce throttle to 2050 rpm still on shallow climb out. I announce crosswind turn. I can hear my voice shaky. Just great! Water pressure down to 18psi, normal. I proceed to downwind. Don't forget to trim it out. As expected the elevator trim has no effect. Springs too weak! I overshoot base turn, but easily correct on final. Airspeed 95 mph. Perfect. Approach ends up being a little high. Don't risk it, go around. I apply power and zoommmm. It's climbing. Sure nuf, cooling pressure starts to climb. Throttle back and Cozy still climbs well. Pressure ok. On downwind, I hear message "oil temp high". It's creeping up a little 230F. I do another approach w/o airbrake. Don't want to affect cooling temps needlessly. Easy to control airspeed. Remember, don't flare. I place that puppy square on the numbers, dead center of the runway. Yahooooooo!

What a thrill! What a great aircraft! After getting it back to the hangar, I pulled the engine cover and once again checked things out. Going to add another cooling system vent line to extract air from the auxiliary radiator circuit. I can hear the airbubbles when I squeeze the hoses. I'll replace the trim springs with stiffer ones and then do a little more ground testing.

Al Wick,
Gladstone, OR

Ken Laundrie writes:
4/5/01
Hi Nat,

I don't know if you are keeping records or not, but plans #230 took to the sky for the first time on 11/14/00. Thanks again for the great plans and your continuing support of the Cozy.

Ken Laundrie
Romeoville, IL

AWARDS

Both Sport Aviation and Kitplanes are requesting all designers to have their builders send in pictures of their completed projects, with short write-ups, because that is one of the most interesting features for their readers. Kitplanes even offers the incentive of entering the builders in a drawing for a free hand-held GPS. We have found that these pictures and write ups are more impressive with prospective builders than an equivalent sized picture ad. That is why we reward

each builder $100 for their entry in either or both magazines, or an Alex Strong pitch trim, which would otherwise sell for $175. The only new entry we found this last quarter was: **Gary W. Juergens** in May 2001 Sport Aviation. We are sending Gary $100, which he can turn in to Alex for an electric pitch trim. In the meantime, **Send in your pictures!!!!**

ENGINES

The XP-360: This is the engine utilizing all new parts from Superior, assembled by Teledyne Mattituck Services Inc., in Mattituck NY (631-298-8330). According to the April 27th "Flyer", the carbureted model is rated at 180 hp, will operate on 91 octane fuel, has a compression ratio of 8.51:1, has a dry weight of 287 lbs (6 lbs less than the equivalent Lycoming) and sells for $21,500 (a whole lot less than a new Lycoming). The engine comes with new Slick impulse mags, Slick harness, Champion spark plugs, a lite weight starter, fuel pump, carburetor, and oil filter. Don't know if it is available with electronic ignition and an Ellison.

The Lycoming 0-320. Rick LaCourse, in Worland WY, reported that he has an 0-320H in his Mark IV. It had 1000 hrs on it and he purchased it for $3,500. He had to modify the mount to clear the accessories. His airport is at 5,000 ft elevation and he said he can rotate in 1,500 ft.

FUEL VENT LEAKS

Fuel vent leaks can occur if you fill the fuel tanks with cold fuel, and then park your airplane nose down in the sun for a period of time. It could also occur if there is a significant change in atmospheric pressure. What happens is the air in the tank expands, and then if the end of the vent line is beneath the level of fuel, the air pushes fuel out the vent line. Once this process starts, you have a siphon and the fuel keeps running out until the tip of the vent line is no longer submersed in the fuel. There are several ways to avoid this. One is in the building process, you can drill a small hole in the vent line where it leaves the tank, which should be the highest point in the tank when you park nose down. Then if the air expands, it won't set up a siphon. A second is to not fill your tanks and then leave your airplane sitting in the sun for a whole day parked nose down, in other words, don't fill your tanks until you are ready to leave. The third way is to park your airplane in a hangar where the sun doesn't shine. I do all three of these things,i.e., I have a small hole drilled in my vent line at the top of the tank, I don't fill my tanks until I am ready to leave on a long trip, and my airplane is usually parked inside a hangar. I don't like to park on all 3 wheels, even when I have ballast in the nose, so I always park nose down.

Some people are in the habit of always keeping their tanks full. Our practice when we are just making local trips, just make sure we have enough for the anticipated trip, plus a reasonable reserve. We don't see the sense in flying around with full tanks when only making short hops.

While on this subject, the purpose in bringing the vent line up to the top of the firewall and then down again under the strake, is to make sure in the rare event that you land upside down, the situation isn't complicated by the fuel running out of your tanks while you are trapped in the cockpit.

ENGINE MONITORS

Many of the digital engine monitors are designed to accept 8 CHTs and 8 EGTs, so if you have a 4 cylinder engine, you have extra measurements available. Here are some ideas to consider: You can use one for measuring outside air temp, by mounting a probe at the air filter inlet. With another, you can measure cooling air temp as it exits between #3 & #4 cylinders (and set an alarm if it gets too high, in the rare event of an engine fire). With another one, you can measure the temperature under the top plug of your hottest cylinder, assuming you also have a probe on the bottom, to make sure it doesn't exceed 400F and to observe what the temperature differential is across the cylinder.

ENGINE LEANING

Ken Brimmer tested various mixture settings with his newly installed IO-320-B2B in his Cozy III with Rose EI on 5/2/01. He writes: "I climbed to 9500 ft at full rich and 14.4 gph with no leaning so that I would arrive at the testing altitude as cool as possible. I use the Vision Microsystem for all CHT, EGT, and Fuel Flow observations. All testing was done at full throttle (but still below 75% power) and adjustments were only made to the mixture control." He published data for 7 different fuel flows from 9.0 gph to 6.0 gph. Summarizing his data, the CHTs and EGTs all peaked at 8 gph, but he kept on leaning and didn't notice roughness until he got down to 6.0. He says, "It would appear that I can safely fly at 7.0 gph and save myself $5 and hour with a cooler running engine." His TAS at 7.0 gph was 180 mph. What I noticed from his data was the impressive uniformity in CHTs and EGTs for all 4 cylinders.

Vance Atkinson volunteers his experience on the same subject:

"I have about 1500 hours on the airplane and all of it lean of peak. Some with the original carb, some with the Ellison, and some with fuel injection. Almost all of the trouble I've had with the engine is with valves or the associated parts. My first valve failure was at 50 hours. The exhaust valve head broke off and that was the end of that flight. The good part was I got to land at Navy Dallas and parked with the F-14 tomcats! I had just gotten the engine from a person in Florida, and it was not as represented.

"I then overhauled the engine and put overhauled cylinders on (from an engine shop). I've had

three stuck valves since then (13 years). The engine shop didn't seem to think the valves were a problem, it was the guides. I have had three more cylinders reworked due to low compression.... (cracks in aluminum) no valve problems there. In fact, just about every time I took a cylinder in to the cylinder shop, they would find cracks. AND, since valve guides are cheap, I had them install those also.

"Of a half dozen trips to the cylinder shop here in FTW, only one valve was checked out unserviceable....and it had stretching or necking of the head to the stem. Because the cylinders that I had bought in 1988 were of such high time, there tended to be cracks in the heads and since they have to strip the heads to weld, I went ahead and replaced the guides as well. Other than the one valve previously mentioned, no valves had problems.

"Two years ago, I had my last cylinder problem and I bought new cylinders and have not had any problems since. Of course I wouldn't expect any since they only have about 200 hours on them since that time. I got a really good deal at Mattituck and Diane Miller (Ken's wife) put together a fabulous package for me.

"This is not a very scientific report, just my practices. I lean the mixture on the lean side of peak, to achieve smoothness, coolness, and economy. You will have a reduction of power, of course, but if you need more power, richen the mixture.

"When high power demands are required, I never lean the mixture past peak, it is always slightly on the rich side of peak, and sometimes very rich on the rich side of peak at low altitudes and full power. All my serious leaning is done at altitude.

"I also have duel electronic ignition, with a large advance capability, which helps leaning further on the lean side of peak."

Vance Atkinson

ALTERNATE AIR - FUEL INJECTION

The question was raised about whether you need alternate air if you are using fuel injection in a Cozy with the NACA scoop for updraft cooling. Jack Wilhelmson writes on 5/7/01:

"Alternate air is used with fuel injection on tractor airplanes because the ram air intake is out front and is susceptible to blockage by ice, snow, bugs, etc. On the Cozy, the air intake for the FI is inside the lower cowling and is protected from blockage. Ice and snow tend to collect on the first part of the airframe they touch. Ice and snow will not slide along the bottom of the fuselage to enter the lower cowling and stop the airflow. This is only my opinion, but I don't think alternate heated air is required with fuel injection."
Jack Wilhelmson

David Domeier writes on 5/7/01:
"It is my opinion that if one chooses to fly one of these airplanes in freezing precipitation, fuel injection icing will be the least of his problems."
David Domeier

Tim Jones writes on 5/7/01:
"I've been flying a fuel injected 360 series in my Cozy for 700+ hours with no special ducted heated air or alternate air. I opted not to add alternate air as a precaution against icing in the IFR environment because by the time the ram air intake ices up and the engine stops, the canard will have already stalled and I'll be history. The odds of a bird or some other foreign object getting into the intake and choking off air are also quite small."
Tim Jones

CRANKCASE BREATHER

Some combustion gases, which contain water vapor, always get by the rings and end up in the crankcase. It is necessary to vent the crankcase to the outside to avoid a pressure build-up which would blow the crankshaft seal and probably blow out all the oil. The vapors coming out of the breather are composed of both water and oil. The following post by David Domeier illustrates this:

"Last week I drained the oil breather separator one more time. I have the drain blocked with a pet cock at the end of a plastic line at the engine intake. When I see a mess developing on the bottom of the cowl, I know it is time to drain the unit, as it is passing stuff out the vent hole. I know some of you drain the separator back into the crank case and thought you might be interested in what I catch each time I drain it. It is water, 98% water."
Did you get that? **98% water!!**

"This has been discussed before. The consensus generally is that what drains back to the case is oil, not water. The water is supposedly vapor and goes out the breather line. That may not be true. I think what is happening is when the vapor hits the separator, which is relatively cool, it condenses and settles to the bottom of the can. Mine gets trapped there. Those of you who drain back to the case send it back into the engine. The amount of water I measured this time was over 2 ounces. Not a lot, but it sure does not belong in the oil system.

"I also find that after an oil change when the level is at 8 quarts, there is much more oil in the trap than water. After the oil level drops to 6 quarts, most of what I drain is water."
David Domeier

We are reluctant to have anything in the breather line which impedes the release of crankcase pressure. By keeping the oil level between 5 and 6 quarts we don't get much of an oil streak on the bottom of our cowling, and appreciate the confirmation that the breather is working.

It is interesting and true that when you have a 2-phase system, like water and oil, it will boil

(vaporize) at a lower temperature than oil alone. In other words, the presence of water helps the oil to vaporize. That is another reason for not returning any water to the crankcase.

CENTERING THE BALL

Al Wick writes:
5/27/01

"When you make a turn in flight, it appears to me that the turn has very little slip in it. The ball appears to be very close to center without any rudder input. Is this impression accurate? If so, what is the design feature that causes aileron only turns to be relatively coordinated? Along the same lines, I notice rudder inputs seem to induce more banking than I expected. Banking instead of pivoting about the plane axis. Is this a false impression? Is this a result of rudders on a swept wing having a different moment than with conventional aircraft? Don't get me wrong, I love all the flight characteristics of this plane. I know my plane is trimmed correct. Just would like to understand the whys. 30 hours of testing remain."

We replied:

Dear Al,
5/27/01

What you have just discovered are some of the advantages of the Cozy design. The ailerons are Frieze ailerons. That is, when you lower one wing, like the left, the leading edge of the aileron drops down into the relative airflow below the wing. This causes more drag for the left wing, so it slows down, and drops because of less lift, and the combination of more drag and less lift puts you into a banked left turn.

On the other hand, if you use only left rudder, it creates more drag on the left wing and slows it down and reduces the lift. The combination of more drag and less lift also puts you into a banked left turn.

In his evaluation of the Cozy Mark IV (for Sport Aviation) Ed Kolano commented that the Cozy, unlike most airplanes, doesn't have any adverse yaw when using only ailerons. What this amounts to is that you don't need as much coordination when flying a Cozy as you would when flying a Cessna, so it is an easier airplane to fly. It is high performance, however, so you do have to be alert and think ahead. The fact that it does not stall should result in a better safety record than other airplanes, as long as our builders do not take unnecessary risks.

Regards,
Nat

ARLINGTON

In years past we have attended Arlington the first part of July, and then headed for Oshkosh, which started at the end of the month. In between, we would visit family, spread all over Minnesota. It seems Oshkosh starts earlier each year, this year on the 24th, so we decided to forego Arlington, and head straight for Minnesota, as soon as the weather looks good (Shirley prefers to fly in good weather). We are sure Eric Westland will be exhibiting his Cozy Mark IV at Arlington again this year, and maybe there will be other Cozys as well.

Mike and Michelle O'Grady, Cozy Mark IV builders and friends of Eric and Vickie Westland, are entertaining Cozy people at their home for a barbecue, friendship and airplane talk on Friday, July 13th, at 6:00 or 6:30 pm. They live in Woodinville (14906 NE 204th St.), which is 40 miles/55 minutes south of Arlington, so you will need a car or a ride to get there. Eric will coordinate at his airplane on Friday, and have directions available. They say you don't need to bring a thing, other than $5 or so per adult contribution to the cost of food (salmon and burgers). Kids are welcome, because they have a large yard. They would appreciate an RSVP so they can plan the food. Contact them on (425)487-2724 or sea.mog2@verizon.net.

OSHKOSH AIRVENTURE 2001

We have an unbroken record which we don't want to break, so we are planning to be at Oshkosh again this year (It will be our 28th year in a row). We have reserved our regular exhibition space, just outside the south entrance to Exhibit Bldg. A. We have scheduled a "Cozy Builders Forum" Friday afternoon, July 27th, at 1:00 PM, AOL Pavilion 5. There will also be a Cozy dinner that evening at our old favorite, Robbins. Kim and Daryl Lueck visited with us at Sun n Fun and said they made a trip to Oshkosh a few months earlier to check on the dinner reservation, and learned that the Ramada, where we have met for the last few years, was closed. So they stopped in at Robbins, where we used to meet, but which had closed, but now reopened, and made reservations there. They said we will have a separate room, and better arrangements than at the Ramada. Plan on 6 pm, and if you need transportation, or have transportation to share, stop by our airplane to let us know. We will plan to leave before 5 pm.

Be advised that there will be a homebuilders picnic in the picnic area on Saturday, and tickets should be purchased in advance. There will also be free coffee and doughnuts on the flightline on Monday morning.

We usually have enough space at our campsite (in the woods) to set up a few tents for any builders flying in who wish to camp (bring your own tent).

GOLDEN WEST REGIONAL

We have attended Golden West fly-in several times when it was at Chino, and once at Merced, and we decided to exhibit this year when it will be at Sacramento, CA, McClellan field, September 7-9. Shirley agreed to go if she "could have some fun!" So I told her we could leave a day or two early and tour Napa Valley. She liked that idea. So we hope to see a lot of you there.

COZY COPPERSTATE

The Copperstate fly-in, scheduled for October 11-14 of this year, was cancelled because Williams Gateway Airport decided it interfered with other operations and didn't generate enough revenue to make it worth while. We were deeply disappointed, because we enjoyed meeting Cozy builders and prospective builders, and entertaining them with a barbecue at our house in past years. We floated the idea on the internet of having a Cozy fly-in at Falcon Field with a barbecue at our house on Saturday evening, October 12th, and a continental breakfast the following morning. The replies we got were encouraging, so we will plan on it. We can put up 3 couples at our house, and can arrange for rooms at a golf course/condo development a short distance down the 18th fairway from us, or a Best Western farther away, but we would need an RSVP in advance to arrange for rooms and plan for food. We can pick you up if you fly into Falcon, or send you a map if you will be driving in. We will supply more information for those responding by snail mail, email, fax or tele.

LETTERS FROM BUILDERS (some from the net)

May 13, 2001
Builders,

Yesterday was Youth Aviation Day at Spirit Airport in St. Louis. We had some 20 airplanes - everything from 2 seat tail draggers to Cessnas to Pipers to a Lancair to a Mustang II, and of course one Cozy. It was an all out Young Eagles event.

The age range of the kids was 8-17 and I told my crew chief I would prefer smaller kids if possible. It started out that way but eventually the load got heavier as older kids were cycled into our flow. I did a calculation this morining on one trip with teen agers and came up with a gross weight of about 2000 pounds with a butt in every seat. I used 80 knots as rotation speed and was very pleased at how the airplane performed. Most of my time in this machine is solo at 1400-1500 pounds and it is different when maxed out. But like the old days when we sat there and

waited for a 330,000 pound 135ft water wagon to get up a head of steam, the Cozy starts out a bit slow on acceleration but builds up its head of steam and very confidently comes airborne when told to.

I flew 7 trips with 17 kids and one adult who begged a ride. Total on the hobbs was 3.1 and since we were on an honor system with the free fuel provided, I used the Vision Micro fuel numbers. Total burn was just 12.l gallons! (and it was verified on the gauges). The refuelers couldn't believe it. There was a lot of taxi time to and from the runway, but we did come in with about the least fuel burned on the line. Most of the cruisin time was at 5 to 6 gallons an hour to keep the bumps to a minimum. No one got sick - thank goodness.

All in all, it was a fun day. Lot's of smiles and many requests "can we do it again".

David Domeier
Chesterfield, MO

April 12, 2001
Builders,

I am remiss in not sending this note of thanks sooner. I am shocked that I should let a month go by without so much as a word describing the warm welcome I received while in France with my daughter. This list is a wonderful place to meet the best people in the world. Thanks to Marc for making it possible and to Nat for designing a plane that has been the focal point of many friendships around the world.

To elaborate, Anna (aged 10 years) and I were on a Father-Daughter bonding trip through Germany and France last month. I had been in email contact with a few people in France (thanks to all who replied) before the trip asking for pointers on where to stay and what to do while in Paris. Benoit Lecoq made the sacrifice of meeting our train at Gare de l'Est at 7:00 am on a rainy Thursday. He then proceeded to spend the balance of the day playing the tour guide on his day off. Driving us all over Paris in the rush hour traffic in the rain and making arrangements for our hotel while trying his best to give suggestions to ensure a wonderful stay in Paris.

After a few hours of this, he then drove us out of Paris to the airport at Nangis where his plane is based and told us that he has planned for us to fly to Etampes to meet some other Cozy builders and have lunch and return. This was more than I could ever expect and when Anna realized what was planned, she was very excited. The weather although dirty in the morning, cleared off nicely after our arrival at Nangis and we porceeded to prepare M. Lecoq?s plane, the very beautiful "le Fier Petit Goeland Jonathan Livingston" for our flight. After some discussion and picture taking, we rolled the plane out of the hangar and climbed aboard. Fueled and ready, we took off for Etampes.

The ride was a bit bumpy, but the Cozy was very eager to fly and we zoomed along the French countryside at 1000 ft. and 170 kts. I looked back at Anna and her smile (as well as mine) was from ear to ear. Benoit was kind enough to let me fly as we circled Fontainebleau on our way. I cannot describe the sensation of flight that I had. I was soon relaxed and felt one with the plane even though I had not flown in over 6 years. What control and responsiveness! Never a bad habit in this plane and she completely forgave my ham-fistedness. Very soon, Etampes appeared and

Benoit landed at this tower controlled airport in heavy traffic.

On the ground we met Yves Pranal (I believe) and his wife while we examined his Cozy classic that was a few hours away from having his time flown off. Also there we met Jean-Patrick Lacote, Patrick Malle and another gentleman named Yves whose name escapes me (All these names may be wrong as I am working from memory and I had had very little sleep the night before. My apologies to them.) We had a wonderful lunch and talked of Cozys, suppliers, travel, and life in general. In the end, they wouldn't let me pay for our lunch and we were soon loading up for the trip back to Nangis.

Yves wanted to fly his plane some so we followed him out to the active and watched him take off. We met up with him shortly afterward and flew loose formation for a short while. Anna was flying and Benoit was coaching her to mind her altitude and heading, a most excellent instructor. I was in the back seat. Sure enough, what with all the bouncing around and not being at the controls, I began to turn green and thought that I was going to ralph into my hat which would have been very bad form. I was glad to see our runway and even more relieved when we opened the canopy. Anna did a fine job of piloting for her first time at the controls and I believe Benoit just may have planted the seed I need to justify getting out of the pre-build stage.

After we buttoned up the plane and hangar, we drove back to Paris. Benoit is a captain on an Air France Airbus and we talked a lot about flying and life in general. He knew some of the crew from the crashed Concorde and we spoke of lives cut short. Anna was asleep in the back seat and before long we were at the hotel where we said boodbye to Benoit as he had to be at the Air France desk at 7:00 to go to work.

I cannot say thank you enough to Benoit Lecoq for everything he did for us on his day off when he could have been doing something else. Anna and I enjoyed our stay in Paris so much the better because of his advice and willingness to help. Hopefully, Anna will always remember that there are many wonderful people everywhere, but there is a special one who lives on the outskirts of Paris. I know I will.

Randy Smith

2/28/01
Nat,

Hello from France. I am sending you a full booklet of pictures of my bird. The registration is F-PGJL. This is for Le Fier Petit Goeland Jonathan Livingston. (the proud little seagull Jonathan Livingston). You might have read the book from Richard Bach. He describes the passion of flying as lived by a seagull. It is written a lot better than I could describe my feelings. So I decided to have the decoration of my bird on this theme. My son did the design. He wanted it quite simple with feathers at the end of flying surfaces and a few seagulls painted on the plane.

We are quite active near Paris because in a year we had 3 new Cozys flying nearby. Mine was on May 5th, 2000. It has more that 50 hours now. No problems. Alain Raposo flew in September 2000. It also has more than 50 hours with no problems. The last one is Yves Pranal who flew his in January. He has no problems as well. All of us are very happy. When do you come to see us?

Benoit Lecoq
Paris, France

4/16/01
Dear Nat

I spoke with Shirley on Wednesday morning when I called to order the info pak. She said she would have it in the mail that day, and I was pleasantly surprised to find it in my mailbox on Friday. I've been impressed with the help that the builders are giving one another (there's a builder just ten minutes from me in Massillon, OH), since I've been on the mailing list for the past week. You'll be getting a plans order from me shortly. I am eager to get to work.

Bob Walker
Canton, OH

5/19/01
Nat,

As I've told you, the plans are great. I just marvel every time we start a new item, everything is laid out. We just set the toe-in on the landing gear to 1/4 degrees and it was simple. I mean it was simple, we just followed the directions and walla it is good.

My permanent hobby is building furniture and this is far simpler. I'll never forget when my partner, Thane, started in on the project. We had large blocks of foam glued together and they had to be trimmed. Well, he looked at that and thought how the hell do we trim that? Well, I grabbed a saw and whacked it off and then he understood - it's foam and it's easy to work with.

The magazines aggravate me because they all seem to give the impression that working with foam and fiberglass is hard or something! Dam, the glass is white, and when you wet it out it is clear - can you tell the difference between white and clear? On the amount of epoxy if the lay-up is clear, you have enough. Then drag the squeegee across it and if a line appears when you raise up the squeegee, you have too much - just squeegee it off and don't bother to do this on the lower layers. Wait till the top (just like the plans say).

As far as planning and studying the plans - well, we don't! We make sure we have 3 months of supplies on hand at all times - that is what you do in dealing with small suppliers and we worry about the sentence we are on, and do it. Reading ahead will scare you and there is no need. Read the sentence and do it! Look at the keyed illustration at the side and bottom of the page and look at the pictures at the back of the chapter and occasionally we look at the M drawings, and that's it. If we would have read about the gear last year, it would have seemed an overwhelming job. The steps you go through are very complex or seem to be. But if you just take it one sentence at a time, all of the small tasks become simple and add up to a good job.

Don't let the few questions from a few builders make you think it's hard, because there are hundreds of builders that you never hear from because there is very little need. Now, to the builders that ask questions - don't take offense because I am one of you; I have asked a few.

So, if you own plans and are not building - START and if you don't own plans, then send Nat a

check today and START BUILDING - it's fun and easy (well most of the time anyways). If you want me to prove this, just stop by on plane day - which is every Saturday and we will put you to work.

Mike, Thane, & Dave
Editor: The three of them are building 2 Cozy Mark IVs.

If you can't afford to do something right, then be darn sure you can afford to do it wrong.
Charlie Nelson

The Cub is the safest airplane in the world: it can just barely kill you.
Northrop test pilot, Max Stanley

Either take up parachute jumping, or stay our of single engine ariplanes at night.
Charles Lindberg

Remember, the Ark was built by an experimenter and the Titanic by experts.
Jim Weir

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